

- ? Work with DEP/ Phase II coordinators, Regional planners and municipal officials to develop funding mechanisms for funding Phase II storm drainage improvements and maintenance as recommended in Phase II compliance. Project # 01-09/MWI **Priority Project**.

### **Objective 1.3 Remediate and prevent the spread of invasive species**

Proposed actions for the next five years

- ? Conduct a survey of coastal marine waters for invasive species
- ? Evaluate the effectiveness of Purple Loosestrife eradication measures
- ? Target salt marsh areas for restoration and elimination of *Phragmites australis*
- ? Prioritize findings from synoptic surveys of 1997/1998 to develop remediation plans.
- ? Review current information on 303d waterbodies list in watershed

### **Goal 2: Build a Sense of Stewardship**

Build a Sense of Stewardship within the watershed.

### **Objective 2.1 Expand the membership of the North Coastal Watersheds Team**

Proposed actions for the next five years

- ? Partner with SRWC, USGS and Gomez and Sullivan to conduct Visioning conference on the Saugus River
- ? Develop a dialogue with local Chambers of Commerce
- ? Renew contacts with major industries within watershed

### **Objective 2.2 Strengthen regional and local watershed advocacy groups and activities**

Proposed actions for the next five years

- ? Provide logistical and / or technical support for local activities.
- ? Advise team membership of grant opportunities provide letters of support for local projects which are consistent with Team goals and objectives.
- ? Support local cleanup projects.
- ? Attend MCM/NS monthly workshops for Boards of Health and Conservation Commissions.
- ? Attend monthly meetings of regional planning organizations where possible.

### **Objective 2.3 Promote environmental education and awareness**

(at the municipal level and with the public at large)

Proposed actions for the next five years

- ? Continue Partnership with Project Link
- ? Apply for Roundtable funding to conduct a series of workshops for local boards to effectively address Chapter 40B
- ? Revisit with the assistance of MAS/NS water supply report card.

- ? Support circuit rider positions for local boards of health, conservation commissions

### **Goal 3 Improve Physical Functions**

Improve the Watershed's Physical Characteristics and Functions

#### **Objective 3.1 Reduce flooding events**

Proposed actions for the next five years

- ? Implement recommendations by GeoSyntec Town Line Brook
- ? Complete hydrological study of Saugus River as part of GI RECONN proposal.
- ? Evaluate suitable methods to reduce flooding in Mill River.
- ? Upgrade drainage infrastructure of Saugus River downstream of LWSC Diversion to include removal of downed tree limbs, collapsed drainage structures at Spring and Water St Lynnfield, excess sediments in Rt128/Rt95 culvert collapsed retaining wall downstream of Rt 128/Rt95 and above Salem Street culvert.
- ? Evaluate the feasibility of reestablishing the original Linden Brook crossing under Rt 1 and the development of Overlook Ridge on the Malden/Revere boundary
- ? Complete hydrological study of Town Line Brook as part of GI RECONN proposal
- ? Complete hydrological study of North River as part of GI RECONN proposal.
- ? Assist Saugus River Watershed Commission in the implementation of an environmentally protective solution to the chronic flooding of Reedy Meadow.
- ? Reengage Smallpox Brook stream team, MHD and Fisheries and Game officials to establish remediation plans to improve flowage, reduce the proliferation of the invasive species Phragmites sp. as bordering vegetated wetlands.

#### **Objective 3.2 Improve and enhance ecosystem functions**

Proposed actions for the next five years

- ? Conduct a comprehensive natural resource assessment of the Reedy Meadow revisit feasibility of designating Reedy Meadow as an ACEC with DCR (DEM)
- ? Conduct feasibility / cost benefit analysis study to improve the functionality, responsiveness and the safety of operating the Town Line Brook self regulating tide gates.
- ? Implement a limited dredging of Town Line Brook between Trifone Brook and SRTs to increase flood storage and improve flood routing, incorporate enhancement of spawning habitat for anadromous fish into overall remedial plan.

### **Goal 4 Support Sustainable Growth**

Support Sustainable Growth in the Watershed.

#### **Objective 4.1 Continue regional land use planning**

(including implementation to ensure protection of watershed resources and environment)

Proposed actions for the next five years

- ? Support the Green Neighborhood Alliance

- ? Fund a regional circuit rider position on the to assist municipalities in promoting zoning / planning boards in acceptance of Conservation Subdivision design as an alternative to Standard Subdivision planning.
- ? Resubmit as a Priority funded project a series of regional training sessions for local ZBAs, Planning Boards and other municipal officials on Comprehensive Permitting Chapter 40b.
- ? Fund a comprehensive assessment of land use at the subwatershed scale for the North Coastal Watersheds link "Sites of Concern" database into Assessment Report.

#### **Objective 4.2 Plan for adequate water supply to meet growth in demand**

Proposed actions for the next five years

- ? Revisit with the assistance of MAS/NS water supply report card.
- ? Conduct a watershed wide assessment of DEP's Comprehensive Survey of Public Water Supply

#### **Objective 4.3 Redevelop abandoned and under utilized properties.**

This topic will be considered by the NCW Team and developed accordingly.

### ***Goal 5 Implement the Grow Smart North Shore Open Space Plan***

#### **Objective 5.1 Preserve open space and BIO Map core areas**

This topic will be considered by the NCW Team and developed accordingly.

#### **Objective 5.2 Provide for regional recreation opportunities**

This topic will be considered by the NCW Team and developed accordingly.

# Appendix E. Accomplishments of previous years

## E1. Open Space

Accomplishments:

### 1998

Applied for Roundtable funding to Implement the concept of Sustainable Development in Land Use and Growth Management Foster the growing alliance of diverse and historically antagonistic land use stakeholders to work together to design innovative development strategies that protect water resources, and biodiversity while promoting development which is sustainable, of high quality, and profitable. Through upfront collaboration, this New Alliance will create a win-win situation where open space and the most critical water and biological resources can be protected and maintained while the number of lots developed can be maximized and the development costs and regulatory process reduced. Specifically, this project will solidify the growing alliance between conservation commissions, town planners, open space committees, realtors, developers and engineers to work together to develop a shared vision for water resources and land conservation. Funding is needed to develop planning tools and models and implementation strategies for communities to include: A complete build-out analyzes; for an extensive education and outreach program targeted towards professionals, municipal officials and volunteers about alternative design opportunities and the need for planning to promote acceptance of innovative development patterns and regional efforts which protect the North Coastal Watersheds' s remaining open spaces and water resources. **Priority Project**

### 1999

Recommended additional funding to acquire land within the Saugus River Watershed and the Great Marsh ACEC

Hosted leadership of Essex County Greenbelt, Trustees of the Reservation at North Coastal Watersheds Team meeting on open space planning

### 2000

Adopted the *Grow Smart North Shore* plan presented by Harvard School of Design and the MAPC/NSTF as the NCW comprehensive Open Space plan.

Executive Office of Environmental Affairs \$1,000,000 in funds are committed annually to acquiring land respectively within the Saugus River Watershed and the Great Marsh.

Worked with DCR (MDC) and SWRC in the identification of suitable parcels of land for acquisition as part of the Saugus River Greenways Project.

Provided letters of endorsements grant submittals by the towns of Hamilton, Peabody, Saugus and Wakefield to EOEA Conservation Services for Open Space.

Wakefield was recently awarded a Self Help grant for \$250,000 for the acquisition of the Lanai Island restaurant property located along the shores of Lake Quannapowitt.

Greenways and Trails Demonstration Grant Greenways and Trails Demonstration Grant Recipient: **Essex County Trail Association – Ipswich to Crane Beach Trail**. Project Summaries: Essex County Trail Association is working to create a safe, multi-use path from the Town of Ipswich to Crane Beach, linking natural, historical and recreational amenities along Argilla Road for people of all ages and all abilities. The goal is to locate a 4.2-mile trail within the public right of way while maintaining the scenic character of the road, protecting natural resources, and connecting to other regional trail initiatives. The trail will be designed primarily for walkers, joggers, slow speed bicycles and cross-country skiing in the winter. \$5,000

Greenways and Trails Demonstration Grant Greenways and Trails Demonstration Grant Recipient: **Malden Redevelopment Authority – Bike to the Sea Survey**. Project Summaries: Bike to the Sea, Inc. (B2C) has been promoting efforts to place a multi-use trail along the inactive Saugus Branch Rail line. The trail will begin at the Mystic River near the Amelia Earhart Dam in Everett, cross through Malden, run along the Rumney Marsh ACEC in Revere and then traverse the Saugus River Reservation through Saugus and Lynn. B2C and the Saugus River Watershed Council (SRWC) funded a conceptual design of the trail. This grant will be used to develop the conceptual design into an engineering design and survey. \$5,000 *Towns Affected: Everett, Malden, Revere, Saugus and Lynn.*

Applied for Roundtable funding for Sustainable Development/Growth Management As part of the North Coastal Watersheds team's overall approach to provide watershed communities with the necessary innovative tools and training to implement Sustainable Development/Growth Management techniques a request is made for \$50,000 to implement this approach within a city and town work. In FY99, the team carried out an innovative growth management project that provided towns with a model public outreach program, innovative regulatory tools including a model bylaw, and build out assessment information. These tools are necessary for towns to adopt sustainable development practices to protect open space and natural resources. This approach promotes a development design that protects primary conservation interests within a parcel, while not sacrificing the density requirements of the developer thereby meeting both economic and environmental goals. Funding \$25,000 for each community will be used to draft public outreach documents and conduct workshops, target specific stakeholders (developers, local officials, landowners and citizens). The citizens of that community will also use the money to revise applicable regulations tool specific to each municipality and work with the respective community Planning Boards and Executive Branch for approval. Projected costs \$50,000 **Priority Project**

## 2001

The Teams efforts to deal with Open Space in coincided with the issuance of Executive Order 418 and the passage of the Community Preservation Act. The importance of Open Space was a feature issue in each of the local "Community buildout presentations ". The content of each presentation was coordinated with the local planning boards, relevant regional planning agency and EOE Boston office to include significant local and regional open space issues. The presentations were typically 30 minutes in length before the Board of Selectman or City Counsel. We discussed the implications of full buildout on the community's open space, water quantity and infrastructure. We provided each community with details of how they could access the \$30,000 worth of planning services provided under EO418. Provided an overview of the Community Preservation Act and linked the North Coastal Watersheds Initiative with the interests of Open Space, Historical Preservation and Affordable Housing.

Received funding through Roundtable to hire an "Open Space" circuit rider to work with communities  
**Regional Priority Project**

The NCW team leader as worked directly with DCR (MDC) Land Acquisition Agent Jim Comeau, SRWC and others in pursuing acquisition opportunities.

Successfully coordinated and conducted with MAPC, Merrimack Valley Planning Commission (MVPC) and EOE Boston "local build out" and Community Preservation Act presentations with 16 communities within the NCW

Lynn Boston St land acquisition creation of 2-acre urban park SRWC, city of Lynn, DCR (MDC)

MDC land acquisition Walden Pond LWSC, Friends of Lynn Woods, MHD landowner

Self Help Grant to town of Manchester by the Sea to acquire "old Surf Restaurant site" for conversion to a park.

## **E2. Habitat**

### Accomplishments:

Much of the work has been sponsored by 8T&TB, Rumney Marsh ACEC Task Force, the Great Marsh ACEC Task Force and in cooperation with local communities, EOEA Wetlands Banking and Restoration Program (WBRP), MCZM/North Shore, SSCW, MAPC and MAS/NS. Team support has involved direct participation, site assessment and the writing of endorsement letters to the various funding sources. Estimated total acreage impacted 100 acres of salt marsh and 100 acres of shellfish beds.

Assisted in the presentation of a series of workshops (3) on Stormwater Best Management case studies at the local DPW level. MCZM/NS, MHD and ATP Environmental. **Regional Priority Project.**

Funded through EOEA WBRP salt marsh coordinator position \$35,000 **Regional Priority Project**

Site restoration projects include:

Argilla Rd. Ipswich, installation of a larger culvert to increase tidal flooding and promote the regrowth of salt marsh and control the expansion of the invasive plants *Phragmites* sp.

Conomo Pt. Essex, installation of a larger culvert to increase tidal influences to promote the regrowth of salt marsh and control the expansion of *Phragmites* sp.

Installation of self regulating tide gates at 7 tidal crossings along Rt1A in Revere, improved flood control, healthier salt marsh, City of Revere, EPA, MCZM, RMTF, DEP/NERO/WW

Installation of self-regulating tide gates at Town Line Brook Revere/Saugus.

Proposed installation of a self-regulating tide gate structure at Oak Island, Revere. This project was funded by a grant from the USFWS. Progress towards the installation of a Self regulating tide gate structure at Oak Island, Revere and related work will result substantially improve tidal flowage and flood protection to the extensive Eastern County Ditch and the restoration of 30 acres of degraded salt marsh. Project has complex engineering and permitting issues, City of Revere, EOEA/WBRP, MBTA, DEP/NERO; project is partially funded by a grant from the USFWS.

Worked with multi agency task force in the development of the Ballard Street salt marsh restoration in Saugus Project has complex engineering and permitting issues EOEA/WBRP, EPA, RMTF, DEP/NERO/WW, DCR (MDC), and Town of Saugus, MHD.

Installation of Vortex Unit pollution control system to a stormwater drainage system discharging to the Forest River in Salem. The project was funded through a MCZM CPR grant to the city of Salem. Salem partnered with SSCW and engineering consultant Metcalf & Eddy to assist in wet weather monitoring

EOEA #12063 Rockport - Saratoga Creek Salt Marsh Restoration Project, between Saratoga Court and Seaview Street on Thatcher Road (Route 127). Phase II - restoration of 4,110 square feet of salt marsh and restoration of 880 square feet/1160 linear feet of mosquito ditching. An accumulation of sediments and intrusion of *Phragmites* have degraded the salt marsh area. 99-01/WBRP Sawmill Brook \$ 6,200

Salisbury Blackwater Salt Marshes: an ACOE project that widened the RT 286 Bridge has resulted in increased flooding to Salisbury homes bordering the marshes. ACOE has been charged with the task of designing a structure or method to alleviate the increased flooding in the least intrusive manner as possible. The project has involved federal, state and local authorities. Permitting and design has been complicated.

Provided support of a MCZM CPR project to conduct water quality sampling of stormwater discharging to a MAS/NS "Thicket" Sanctuary in Nahant

Final Rumney Marsh Salt marsh Restoration Plan submitted for review and comment.

Town Line Brook Project A complex project within a 3500-acre subwatershed of the Saugus River. The long terms goals include, the reopening of 75 acres of grossly contaminated shellfish beds, minimizing flooding within abutting neighborhoods, eliminating chronic bacterial contamination due to sewer surcharging, restoration of 3 acres of degraded salt marsh TLB Advisory Board, TLB Task Force.

Submitted a total of four projects for funding under the USACOE General Investigation Reconnaissance Mass Bays (GI/ RECONN/MB) program for ecological restoration projects within the Saugus River, Town Line Brook, North River and Forest River. Projects would address anadromous fish restoration, flood protection,

pollution reduction, salt marsh restoration, SRWC, SSCW, communities Revere, Peabody, Lynnfield, Salem, Saugus,

Funded a 1-year monitoring program to optimize settings of the self-regulating tide gates at Town Line Brook Revere/Saugus. TLB MET \$18,000.

City of Lynn

**City: Lynn Summary of Project:** The project at Sluice Pond is to control the spread of the non-native aquatic plant, Eurasian Milfoil, with the use of herbicides. The aquatic plant is affecting recreational pursuits and the ecosystem of the pond. Also included is an algaecide treatment to control filamentous algae in the pond. **Grant Award:** \$3,500

Working with City of Gloucester, local residents, DEP/Wetlands/NERO and DCR (DEM) Office of Dam Safety to secure protection at the West Pond dam.

### ***E3. Water Quality***

#### ***1997 Accomplishments***

The NCW team leader assisted **DEP WSM** personnel in development of an effective monitoring program, collected samples in accordance with the Quality Assurance Project Plan (QAPP) (DEP 1998a). Transported samples to the laboratory.

Engaged the services of agencies US Geological Services USGS and DCR (DEM) personnel to supplement the water sample collections with complimentary flow monitoring data for **DEP/WSM**, DMF and SRWC.

Worked with **City of Gloucester** Public Health officials and Massachusetts Audubon Society/NS on completing "Assessment of On-site Sewage disposal Related Pollution in Gloucester Waters" a 604b grant #96-02/604b \$49,536.

Provided review and comment and a letter of support that assisted DMF in receiving a 104b grant #97-08/104 to expand the number of stations and water quality parameters in the DMF "Salem Sound Marine Resource Study."

Linked the DMF study and DEP/WSM studies by the inclusion of DMF's freshwater/tidally influenced water quality stations into the DEP/WSM sampling program for the North Coastal Watersheds. The effect was to increase the data collection at these key stations for both organizations.

Completed synoptic surveys of all lakes and ponds greater than 10 acres in size.

**1998 Issues** Water quality data collections by DEP/WSM were limited to once per month at roughly 20 stations. Data was largely reflective of summer and low flow conditions. In addition significant gaps existed in watershed-wide coverage, and in the frequency of sampling. All nine major NPDES permits have expired and need to be updated one of them the **General Electric plant** in Lynn has problems of non compliance associated with the release of oil and grease from its stormwater discharge system. Data exists in many different forms, has generally not been compiled, analyzed or formatted into status and trend assessments.

*Strategies* Extend the sampling rounds within the Salem Sound and Saugus River subregions into the winter and early spring season to provide data during higher flow conditions. Team Leader will serve as the principal conduit for the exchange of information and data between the various sampling programs during data assessment. Develop a comprehensive library of relevant reports, documents and studies applicable in the North Coastal Watersheds. **DEP/NERO** has concluded that the Watershed approach can be best administered within the Northeast by maintaining the Division/Section chain of command with respect to compliance and enforcement issues. It has expanded the Watershed approach to cover multi-media issues to include programs within the Bureau of Waste Prevention and Bureau of Waste Site Cleanup. The Municipal Services Section has been reformatted to provide for improved customer service and regional coordination for programs such as State Revolving fund (SRF), Title 5 Financial Assistance, Technical Assistance activities and outreach programs. Continue to provide logistical and technical support to DEP/DWPC/NERO staff on projects in the NCW.

The lack of recent watershed wide assessments and the inability to marshal sufficient resources suggests focusing efforts at a smaller scale. The NCW opted for the subwatershed scale. Lessons learned from managing the Commonwealth's s6217 Coastal Nonpoint Pollution Control Program suggested that the size of most watersheds was most conducive to engendering local *community* participation of municipal officials and citizens with respect to abilities and the availability of resources. The size of most subwatersheds allows for a thorough assessment of the problems. Incremental improvements can often be made at funding levels available through a number of grant programs that are readily available. The subwatershed scale also facilitates the establishment of procedures to properly evaluate success or failure with minimal influences. Link the local *community* interests with Federal/state and local programs and authorities, example select waterbodies included on the Commonwealth's 303d that exhibit common sources of impairment, utilize funds through 604b assessment studies to gather sufficient information to highlight a particular cause or source of impairment. Included in each assessment a list of suggested actions. Involve the local *communities* to discuss and contribute to the knowledge base, and map out the activities to affect resolutions. Foster and promote communications between the local *communities* and regulator *communities*, partnerships and leverage funds, seek common goals between *communities*. Prioritize efforts in four subwatersheds distributed across the watershed to promote spatial integration and facilitate collaboration problem solving on similar issues, include the areas targeted by DEP/WSM.

### *Accomplishments*

Identified a potential inventory of 93 municipal and industrial NPDES wastewater discharges within the North Coastal Watersheds that need to be updated to reflect their current status.

Worked with DEP/NERO/GIS and **DFWELE Riverways** to develop a map of the North Coastal Basin and all its principal subwatersheds for use for outreach purposes, planning and in the development of subwatershed TMDL estimates.

The NCW team leader assisted **DEP WSM** personnel in development of an effective monitoring program, collected and transported samples to laboratory following an approved QAPP protocols.

Assisted DEP/DWPC/NERO and EPA Region 1 staff to update the files, reporting requirements necessary to bring the City of Lynn into compliance with the terms and conditions of their Consent Judgment #76-2184-G.

Collaborated with DCR (MDC), **Lynn Water and Sewer Commission (LWSC)** and DEP/DWPC/NERO on the monitoring of the Stacey Creek outfall and bacterial contamination at the DCR (MDC) beach.

Met with personnel from Endicott College and SSCW to improve QA/QC procedures for bacteria sampling and analysis.

Attended USGS sponsored presentation on their National Water-Quality Assessment (NAQWA) program study of urbanized watersheds. Initial planning and a "retrospective analysis" to review all existing information in the study unit will be performed during 1997 and 1998. This will be followed by three years of intensive data collection and interpretation. Primary reports will be completed in 2002, followed by two years of lower-level assessment activities. Although standard protocols for sampling are followed in all the study units nation-wide, there is some flexibility in the study design to address local issues. This is where the MADEP may wish to make recommendations for investigating areas of interest or concern identified by the watershed teams, etc. USGS will perform water quality sampling at both "integrator" (lower end of the watershed) sites and "indicator" (further up in the watershed) sites regularly for two years as well as adding some synoptic surveys to broaden the spatial coverage. Bed sediment and fish tissue analyses will also be performed. Finally, benthic invertebrate, fish, and algae population studies will be conducted. Fieldwork in this study unit is scheduled to begin in summer, 1998. Working with USGS and DEP/WSM recommended inclusion of the Saugus River in the study.

Assisted DEP/WSM staff in the preparation of the North Coastal Watersheds 1997/1998 Water Quality Assessment Report. Including data collected during the past year by MDMF, SSCW, Gloucester BOH, DCR (MDC), and SRWC.

Applied for Roundtable monies to conduct a Water Quality Assessment on 4 subwatersheds. The project description is as follows: select four subwatersheds which exhibit a common water quality or resource problem such as raw/dry weather sewage discharges, contaminated storm water, inadequate riverine buffers or invasive aquatic plant species. Compile, review and interpret pertinent data sets such as but not limited to water quality data, land use,



bioassessments, resource data, compile all references into a master compilation and 4 regional reference bases, identify data gaps to be addressed in next watershed cycle \$50,000 **Priority Project**.

Collaborated with DEP/NERO personnel to work on the following community based projects:

**Salisbury** has recently completed an extension of its sewer main up Rt. 1A to the New Hampshire State Line. Property owners are in the process of completing ties into the system at this time. Town has applied for permits to extend sewer line up to the Salisbury Industrial Park.

**Rockport** is currently under an Administrative Order # 835, which restricts the number of new connections to the system except in the case of written authorization by the Board of Health due to ground water compliance problem with outfall at Long Beach.

**Lynn** is under Joint Federal/State Consent Judgment #76-2184-G to eliminate all CSOs and to address contaminated stormwater.

**Gloucester** is under a Joint Federal/State Judgment to correct on-site system failures in the North Gloucester area. Once the North Gloucester work is done, the city will then focus of the CSOs. To the city's credit, it has aggressively tackled the on-site problems, implemented a Wastewater Management Plan and received funding through the Commonwealth's State Revolving Fund (SRF).

**Essex** has entered into a Consent Judgment #96-2209B with the Commonwealth to address the discharge of pollutants from the town's storm drainage facilities into Essex Coastal Waters. A source of the pollutants has been identified as failing septic systems that are directly or indirectly tied into the storm drainage system. The town has agreed to implement a Core Area Water Pollution Abatement Program and submit a Wastewater Management Plan in accordance with the terms of the Final Judgment.

**Manchester** is under an Administrative Consent Order #844, which restricts the number of new connections into the system except by written authorization by the Board of Health and requires the town to conduct I&I removal operations and update the existing POTW. The Manchester POTW was upgraded from primary to a full secondary facility as of August 1998 per the requirements of the Administrative Consent Order AP-BO-92-101.

### **1999 Accomplishments**

Conducted a Comprehensive Data Assessment in four (4) representative sub watersheds Saugus River, North River, Gloucester Harbor and Smallpox Brook. Contract awarded to the **North Coastal Alliance (SSCW, SRWC, MAS)** \$49,992 #99-11 **Priority Project**.

Worked with Salem Sound 2000s "Clean Beaches Clean Streams" program by collecting concurrent bacteria samples from storm drains discharging onto local beaches and having them analyzed at the Commonwealths Wall Experiment Station. This allowed DEP to utilize its data in future legal proceedings and verify results obtained by SSCW.

Assisted DEP/DWPC/NERO staff in the collection of samples at CSO locations in Lynn and in bringing Lynn into compliance with the terms and conditions of their Consent Judgment #76-2184-G.

Culled outdated list of municipal and industrial NPDES wastewater discharges within the North Coastal Watersheds working with DEP/WSM permitting group DEP/DWPC/NERO, DEP/BWP/industrial branch and **USEPA Region 1 Permitting** section.

**City of Gloucester** Public Health officials and Massachusetts Audubon Society/NS on completed "Assessment of On-site Sewage disposal Related Pollution in Gloucester Waters" a 604b grant #96-02/604b. The tributary systems to the Annisquam River including Little River, Jones River and the Rust Island system were also sampled. The report indicates improving conditions (pre 1990 vs. post 1990 data) and lower bacteria counts in Hucks Cove.

Collaborated with DCR (MDC), LWSC and DEP/DWPC/NERO on the monitoring of the Stacey Creek outfall and bacterial contamination at the DCR (MDC) beach.

Applied for Roundtable monies to fund a study directed to addressing findings of the 1999 Priority Project Targeting and Eliminating Untreated Sewage Discharges in Four Subwatersheds in the NCW \$60,000 **Priority Project**

Applied for Roundtable monies to assist local communities in their implementation of Phase II Stormwater Compliance requirements. VHB in their series of workshops on Technical Assistance for NPDES Stormwater Phase II Compliance (FY01 Priority Project MWI 01-09) **Priority Project.**

Applied for Roundtable funds directed to identifying contaminated or severely altered sites such as brownfield sites, Ch 21e sites, landfills or abandoned gravel pits which are suitable for reclamation and adjacent to open space or recreation areas. **Priority Project.**

#### **2000 Accomplishments**

Provided DWPC/NERO and DEP/WSM with finalized list of 9 major NPDES permittees and 27 minor discharge permits. (For a complete list see Appendix I).

Team Leader collected bacteria samples from street drains discharging onto local beaches within greater Salem Sound to assist DEP/NERO in the verification of chronic bacterial contamination documented by the SSCW *Clean Beaches Clean Streams* monitoring program.

Worked with DEP USEPA and General Electric Lynn to receive permitting approval to upgrade stormwater system to capture and treat dry weather flows and oil and grease currently discharging to Saugus River estuary.

As part of Phase I of the LWSC CSO facilities plan, the flow coming from the Lynn side of the system was separated from the Swampscott side of the drainage. The Sanderson Avenue overflow discharges approximately 200 MG/year of CSO (without Phase I separation) at a frequency of approximately 40x/year. Upon completion of Phase II, outfall #006 will be eliminated.

Served on the Town of Essex Facility Planning Task Force.

Worked closely with the DEP's Division of Watershed Management to produce

North Coastal 1997/1998 Water Quality Assessment Report.

Worked with the North Coastal Alliance by providing data sources, review and comment for the report entitled "*North Coastal Alliance Water Quality Assessment in four targeted subwatersheds Gloucester Harbor, North River, Saugus River and Smallpox Brook.*" #99-11 **Priority Project**

Applied for Roundtable funding to conduct an inventory and evaluation of Brownfield sites for Redevelopment or Land Reclamation Brownfield sites within the NCW **Priority Project.**

Provided review and comments to the MDMF draft study of "*Marine Resources of Salem Sound.*"

Participated in the SSCW sponsored *Symposium on the State of Salem Sound.*

Worked with DEP's Bureau of Waste Site Control, William X Wall Experiment Station and the Friends of Lake Quannapowitt in the collection of sediment samples from the lake to supplement a Phase I Initial Site Investigation, Tier Classification and Imminent Hazard Evaluation of a former coal gasification plant.

Assisted DEP/MS and the consulting firm of URS Consulting Group in crafting the scope of work, Quality Assurance Project Plan and in providing them local community contacts for a project entitled "Targeting and Eliminating Untreated Sewage Discharges in Four Subwatersheds in the North Coastal Watersheds."

Project #00-08/MWI \$60,000 **Priority Project.**

#### **2001 Accomplishments**

SSCW completed an approved EPA/ DEP Quality Assurance Program Plan to complement their successful "*Clean Beaches Clean Streams*" monitoring program. Documented results include, the elimination or reduction of bacterial contamination emanating from storm drains and the issuance of Notices of Non Compliance by DEP/NERO to the cities of Beverly and Salem, EPA, DEP/WSM,

Continued assisting the communities of Essex and Gloucester towards completion of an intermunicipal agreement to pump wastewater from the town Essex to the Gloucester's wastewater treatment system, Essex/Gloucester Task Force, DCR (DEM). The agreement benefits both communities and eliminates the potential discharge of municipal wastewater to the Essex River and the Great Marsh ACEC.

Removed an estimated 10 tons of debris from Town Line Brook during 2 days of volunteer cleanup, organized by SRWC, participants included City of Revere DPW, DCR (MDC), MA State Representative Kathi Ann Reinstein, Revere Mayor Ambrosino, GE, RESCO and 130 volunteers,

MCZM awards 3 Coastal Pollution Remediation grants, Cities of Revere, Trifone Brook (FY2000, \$30,000), Trifone Brook (FY 2001, BMP implementation \$20,000), Malden, Linden Brook (FY 01, \$30,000) tributaries to Town Line Brook. Cities of Revere, Malden, Everett, TLB Advisory Group, SRWC, engineering consultants ATP Environmental and GeoSyntec,

Assisted DEP and the consulting firm of URS Consulting Group in rescoping a project entitled "Targeting and Eliminating Untreated Sewage Discharges in Four Subwatersheds in the North Coastal Watersheds" communities of Gloucester, Salisbury, Salem, Peabody, and Saugus. Project #00-08/MWI **Priority Project**.

Collected and analyzed sediment samples from Town Line Brook in concert with engineering consultant GeoSyntec and the Massachusetts DEP's Bureau of Waste Site Control, William X. Wall Experiment Station TLB Task Force,

Conduct an inventory and evaluation of Brownfield sites for Redevelopment or Land Reclamation Brownfield sites within the NCW, Boston and NERO BWSC, EOEA Brownfield Coordinator, USEPA, \$28,445 Daylor Associates, EOEA **Priority Project**

Contracted with engineering consultant Vanasse Hangen Brustlin (VHB) to conduct a series of workshops and provide technical assistance to 15 watershed municipalities to their implementation of NPDES Stormwater Phase II Compliance (FY01 Priority Project MWI 01-09) \$54,000 **Priority Project**

Attended NAWQA/USGS Urban Rivers Workshop,

Worked with MCZM, SSCW and SESD in approval to fund the development of a Pollutant Transport Model for Salem Sound study by Engineering consultant ASA.

Continued assisting DEP/NERO/Municipal Services and Lynn Water and Sewer Commission in removing pollution sources within the municipal wastewater and storm drainage systems.

General Electric Lynn upgrades stormwater system to treat dry weather flows and reduce the discharge of oil and grease.

Continued assisting DEP/NERO/Municipal Services and City of Gloucester in removing pollution sources within the municipal wastewater and storm drainage systems.

Removed an estimated 3 tons of debris from tidal/fresh reach of North River during a volunteer cleanup organized by Massachusetts Community Water Watch Partnership, sponsored by SSCW, participants included City of Salem DPW and students from North Shore Community College. Located and reported to DEP/DWPC/NERO an illegal sewage discharge.

Worked with DEP BWSC and FOLQ in development of a Phase I Initial Site Investigation, Tier Classification and Imminent Hazard Evaluation of former coal gasification plant Lake Quannapowitt, Wakefield.

City of Gloucester and town of Rockport have entered into an intermunicipal agreement to connect the Long Beach section of Rockport into the City of Gloucester Wastewater treatment system. The agreement benefits both communities and eliminates a long outstanding pollution problem attributed to poor individual subsurface disposal facilities.

**2002** The team's strategy to addressing contaminated stormwater will continue along several fronts. Efforts are prioritized within the four targeted subwatersheds of the Saugus River, North River, Gloucester Harbor and Smallpox Brook. However we will assist efforts elsewhere within the where community interest and support is active. *Our strategy going forward is to assist* the NCW communities in the development and implementation of Phase II Stormwater Plans that meet the EPA requirements and the targeted dates for submittal of March 10, 2003.

#### *Accomplishments*

We have provided to DEP Phase II coordinators all of the materials developed and presented by consultant VHB in their series of workshops on Technical Assistance for NPDES Stormwater Phase II Compliance. These materials and follow up assistance by the NCWT should allow DEP to better serve the NCW communities with

timely and up to date assistance consistent with their needs and progress towards meeting Phase II compliance. Project # 01-09/MWI **Priority Project**.

Applied for Roundtable monies to provide technical assistance to local communities in stormwater mapping in compliance with NPDES Stormwater Phase II requirements. **Priority Project**

Work with communities who have applied for DEP/SRF grants for implementing Phase II stormwater management plans

Coordinated with USEPA region 1 NPDES permitting Program, DEP/WSM NPDES permitting program, MDFM, GE Lynn and RESCO to examine potential for synergistic effects of thermal discharges on anadromous fish migrations in the Saugus River.

Continue technical assistance and support for the Town Line Brook Project. A complex project with long terms goals of reopening of 75 acres of grossly contaminated shellfish beds, minimizing flooding within abutting neighborhoods, eliminating chronic bacterial contamination due to sewer surcharging, restoration of 3 acres of degraded salt marsh TLB Advisory Board, TLB Task Force.

DEP/NERO has recently indicated that it will be establishing a Task Force to oversee the release of RESCO Penalty funds for remediation projects within the Rumney Marsh ACEC. Funds are estimated to be in excess of \$600,000.

The FY01 Priority Project Prioritize Brownfield sites within the NCW will be completed within this calendar year the NCWT will work with the data base, DEP/BWSC and local communities to test its' applicability for tracking brownfields at the community and regional levels and the relationship to sensitive resources as identified in the "Bio Mapping Project of Core Habitats and Supporting Natural Landscapes within the NCW.

## **E4. Water Quantity**

### *1997 Accomplishments*

DEP conducts underground injection control inspections and Zone II delineation for wellhead protection.

**DEP** to review water supply permits, new technology approval permits, water treatment permits, and cross connection permits.

### *Accomplishments*

Project establishing a minimal base flow for the Saugus River. Project Description:

The Saugus River serves as a Drinking Water Supply largely under the control of the Lynn Water and Sewer Commission (LWSC). A series of legislative authorities granted in the late 1800's provide the LWSC considerable latitude in diverting river water into its reservoir system. The upper reach of the Saugus River is frequently plagued by chronic low flows during the summer months as water is diverted into the LWSC reservoir system. Elevated water temperatures, low dissolved oxygen concentrations, dry river beds and poor biological diversity are all documented evidence of excessive water withdrawals. The US Geological Survey (USGS) as reestablished a flow-monitoring gauge at the Saugus Iron Works. Previous funded studies have recommended the establishment of a minimal flow requirement (Tashiro et al 1991). There is a priority need to establish what the minimal base flow should be in order to improve the ecological health and designated uses of this valuable resource. \$60,000 **Priority Project**.

DCR (DEM)'s **Office of Water Resources** will be reviewing demand projections for the basin in conjunction with **DEP's** Water Management Act five-year review. Particular focus will be directed to Water Supply issue affecting the Saugus River withdrawals.

The entire North Shore has experienced serious drought conditions for much of the year. The NCW team followed the lead of the Ipswich Watershed team and provided bulletins and informational brochures to local water suppliers and users on water conservation practices.

Team members participated in a daylong forum sponsored by Cape Ann sustainable Growth Committee (CASC) on protecting Cape Ann's water supplies

The team leader has worked with DEP/NERO/Drinking Water Program in reviewing and assessing compliance with Water Management Act permit requirements.

#### *Accomplishments*

In July 1999 DCR (DEM) issued a contract to conduct a \$60,000 study entitled "Impacts on Stream flows in the Saugus River from Human Manipulation." Funding for the project was received through the Roundtable for FY99 and work began in July 1999. However project oversight highlighted problems with the original contractor and the contract was terminated. Working closely with DCR (DEM), the Lynn Water Sewer Commission, the Saugus River Watershed Council and the Saugus River Watershed Commission, the contract was readvertised and a new vendor selected. Substantial progress towards meeting the original goals set out in the Scope of Work have been made since the contract was reissued \$60,000 **Priority Project**.

The NCW team leader has worked closely with the DEP/NERO Drinking Water Program in the review and reissuance of Water Management Act permits within the NCW.

Worked with town of Rockport and Drinking Water Program on their Source Water Protection Program (SWAP).

Worked with MAS/NS on a "Water Supply Report Card" for Cape Ann municipalities.

#### *Accomplishments*

The NCW team leader has worked closely with the DEP/NERO Drinking Water Program in the review and reissuance of Gloucester Water Management Act permit.

#### **2001 Accomplishments**

Continued working with DCR (DEM) hydrologist Linda Marler, engineering consultant Gomez and Sullivan to complete a FY99 Roundtable entitled "Impacts on Stream flows in the Saugus River from Human Manipulation." Noteworthy assistance has been provided by Richard Dawe Supervisor LWSC Water Division, SRWC, USGS, Kellie OKeefe of the DEP/NERO Water Management Act program **Priority Project**.

In addition, the NCW team leader has worked closely with the DEP/NERO Water Management Act program in the review of WMA permits throughout the NCW.

Source water Protection grant Crystal Lake awarded to town of Wakefield 9-07/SWT \$40,000

## **E5. Recreation**

The team had not identified the element of recreation as a specific priority issue to be addressed by the team at this time. Often it is imbedded or included in open space planning and habitat issues. In the current Action Plan, recreation has been added as a goal, along with the economic aspects pertaining to increased recreation.

## **E6. Local Capacity Building**

#### **1997 Accomplishments**

Worked with **City of Gloucester** Public Health officials and Massachusetts Audubon Society/NS on completing "Assessment of On-site Sewage disposal Related Pollution in Gloucester Waters" a 604b grant #96-02/604b \$49,536.

Provided stakeholders a public forum for their integration into the Massachusetts Watershed Initiative.

### **1998 Accomplishments**

Salem Sound 2000 awarded a Capacity Building Grant \$50,000.

Formation North River Stream Team by **Riverways DFWELE**

SSCW awarded 604(b) Grant "watershed Assessment for Four North Coastal Sub-Watersheds \$49,992

#### **Priority Project.**

Funded the presentation of a series of workshops on Stormwater Best Management case studies at the local DPW level, **MCZM/NS**, MHD and ATP Environmental \$30,000 **Regional Priority Project.**

Funded a program that sought to Implement the Concept of Sustainable Development into Land Use and Growth Management. **MCZM/NS**, MAPC, 8T&B, MAS \$60,000 **Priority Project.**

### **1999 Accomplishments**

Applied for Roundtable monies to organize a series of interactive forums (5), targeted to reach local officials, environmental groups and concerned citizens to present information compiled from a previous grant on the pollution sources, environmental conditions and natural resources within 4 subwatersheds. This project is seen as a natural progression from the funding of the 604b-assessment grant funded in fy99 entitled "Comprehensive Data Assessment in four (4) representative subwatersheds in the North Coastal Watersheds." One of the keys to the success of the project is to continue the forging of working relationships between stakeholders across the spectrum of interests. This will be accomplished by the establishment of partnerships between the Watershed team leader and team members, key staff people in each community. Utilizing and building upon previous successful work efforts the team will convene an "introductory forum" bringing together targeted municipal staff from each community and the team to explain the overall goals and approach of the project and the deliverables they can expect based on their participation. \$18,010 #00-09/MWI **Priority Project.**

Assisted in the presentation of a series of workshops (3) on Stormwater Best Management case studies at the local DPW level. **MCZM/NS**, MHD and ATP Environmental. **Regional Priority Project.**

Provided to the town of Rockport grant information to assist town in development of new water supply.

Met with leadership of Friends of Lake Quannapowitt to map cooperative efforts.

Attended "kick-off" meeting of local community leaders and Representative Peterson for Salem Sound 2000 innovative Clean Beaches and Stream Program.

Volunteer Monitoring Grants (2) awarded to SSCW in support of Clean Beaches and Stream Program \$5,000 and \$1,450.00.

### **2000 Accomplishments**

DCR (DEM) Coastal Grants Access Grants Program \$5,000.

MWI Watershed Stewardship Grant awarded to SSCW Clean Beaches and Stream Program Education and Monitoring \$40,000.

Attended and assisted in the organization of the State of Salem Sound Symposium: Current Knowledge and Future Directions.

Meeting with **Gloucester City councilor** mapping out cooperative strategies on key issues

The North Coastal Alliance formed by SSCW, MAS/NS and the SRWC organized a series of interactive forums (5), targeted to reach local officials, environmental groups and concerned citizens with information compiled during previous grant about the pollution sources, environmental conditions and natural resources within 4 subwatersheds, North River, Saugus River, Gloucester Harbor, and Smallpox Brook. This will be accomplished in one general introductory forum and four individual community forums-one for each watershed. Forums provided North Coastal Watersheds Team with a set of objectives for each of the subwatersheds. \$18,010 Project #00-09/MWI **Priority Project.**

The Smallpox Brook subwatershed forum prompted the formation of new Stream team. Participation included Salisbury residents, members of the local Board of Health, Selectmen, and the Salisbury Director of Planning. They recently completed a stream walk with assistance and training of the Riverways Program, 8T&B, and the NCW team leader. **Priority Project**

Attended meetings with **DEP/NERO**, MCZM, Massachusetts State Attorney General's office and Massachusetts Environmental Trust (MET) to determine an appropriate recipient of a Supplemental Environmental Penalty (SEP) \$500,000.

Succeeded in securing the (SEP) for the **City of Revere** to address chronic flooding and pollution of in the Town Line Brook subwatershed.

Established the Town Line Brook Task Force, membership included the MCZM, DCR (MDC), DWPC/NERO, MHD, MET, **USEPA Region 1**, City of Revere, GeoSyntec Consultants.

Established Town Line Brook Advisory Group MCZM shellfish program, DCR (MDC), DWPC/NERO, MHD, MDMF, SRWC, City's of Revere, **Malden** Everett, **NRDC**. Group is dedicated to the reopening of the shellfish beds in the Rumney Marsh ACEC downstream of Town Line Brook and salt marsh mitigation.

Team leader met with the Project Coordinator for the Gloucester Harbor Plan to offer the team's assistance in the Gloucester Harbor on a number of issues including stormwater management, the elimination of Combined Sewer Overflows (CSOs) and the siting of the Yankee Whale Watch Fleet in Gloucester Harbor versus Annisquam River. The meeting was directly related and in response to the forum by North Coastal Alliance on Gloucester Harbor. **Priority Project**.

The team helped alert MAS/NS and MAPC to citizen and community requests for assistance in protecting open space land in Nahant.

### **2001 Accomplishments**

Volunteer Monitoring Grant awarded to SSCW in support of Clean Beaches and Stream Program \$5,000

Salem Sound 2000 Volunteer Monitoring QAPP receives final approval by DEP

Partnered with Saugus River Watershed Council, City of Revere and Malden, RESCO, **GE Lynn** and Honorable State Representative Kathi – Ann Reinstein on two major cleanup days on Town Line Brook.

Partnered with Massachusetts Community Water Watch Partnership and Salem Sound 2000 for cleanup of North River.

Conducted a series of workshops and training sessions for communities in the North Coastal Watersheds to implement Stormwater Compliance Phase II Plans consultant firm Vanesse Hagen and Brustlin **Priority Project** \$47,305

Met with EOE Wetlands Restoration Program leadership, MCZM personnel USACOE and other regarding the possibility of targeting GI RECONN funds to conduct large scale coastal restoration programs.

Town of Nahant received a Coastal Pollution Remediation grant from MCZM partnered with SWIM and MAS/NS to conduct a study on stormwater contamination impacts to Massachusetts Audubon Society sanctuary called the *Nahant Thicket*.

### **2002 Accomplishments**

Volunteer project with **MDMF** to improve smelt spawning habitat in North River.

Met with **Wakefield** town officials, DEP 319 grant coordinator and consultant Vanesse Hagen and Brustlin to map potential future activities directed to implementation of Phase II requirements.

## **E7. Outreach and education**

### **1997 Accomplishments**

Sent out roughly 500 questionnaires to the environmental *communities* servicing the North Coastal Watersheds.

Began to compile a reference library of reports, studies open space plans (local and regional), water quality /quantity assessments, public records, documents on pollution sources, loadings, disposal methods specific to the North Shore.

Conducted field trips out to **Saugus River Watershed Council, Salem 2000 and Eight Towns and Bay** to determine their priority needs with respect to the 7 program elements.

Organized and conducted the first EOEBA Basin Team meetings.

Presented the Watershed Approach at the annual Boards of Health Workshop in Wilmington.

Presented an overview of the North Coastal Basin water quality issues to annual meeting of Department of Environmental Forest and Park Supervisors.

Participated in WATERSHED 97 FORUM. Organized by the **Department's Municipal Assistant Program**, the forum was targeted to TOWN GOVERNMENT and the BUSINESS community to help dispel the lack of understanding as to what DEP's typical enforcement /regulatory role is vs. the new partnership with the community regarding non-point sources of pollution and watersheds.

Team leader was an attendee to meetings of the Rumney Marsh Task Force, SSCW Technical Advisory Committee, North Shore Workshops for Health Agents and Conservation Commissions, Eight Towns and the Bay, Saugus River Watershed Council, and Essex Facility Planning Task Force.

### **1998 Accomplishments**

Worked closely with **DEP/NERO/DWPC** and **City of Lynn** on improving compliance with Administrative Consent Order.

Participated in a series of workshops, forums and scoping sessions that lead to the formulation of the Great Marsh Task Force.

Worked closely with town of **Saugus officials**, DCR (DEM) Office of Waterways, US Army Corps of Engineers, RESCO and **Rumney Marsh Task Force** to receive approval for maintenance dredging of Saugus River channel to Town Landing.

Met with leadership of Center for Marine Science and Technology (CMAST) about conducting research on the North Shore as well as educational opportunities.

Presentation before the Northeast Builders Association on stormwater detention practices.

Set up meeting with City of Revere officials, and DWPC/NERO personnel to conduct site walk of chronic flooding sewer overflows along Town Line Brook.

Attended Legislator night in Danvers provided over view of Watershed Initiative

Team leader is an attendee to meetings of the MAPC North Shore Task Force (NSTF), Salem Harbor Task Force, Cape Ann Sustainable Committee (CASC), Great Marsh Summit Team, Rumney Marsh Task Force, North Suburban Planning Commission (NSPC), SSCW Technical Advisory Committee, North Shore Workshops for Health Agents and Conservation Commissions, **Friends of Lake Quannapowitt (FOLQ)**, Eight Towns and the Bay, Saugus River Watershed Council, Saugus River Watershed Commission and Essex Facility Planning Task Force, **Safer Waters in Massachusetts (SWIM)**.

### **1999 Accomplishments**

Attended Massachusetts Watershed Coalition Annual meeting Sterling, MA.

Presentation to the annual conference of Massachusetts Waste Treatment Plant Operators on the Massachusetts Watershed Initiative.



Attended meeting of UMass Urban Harbors Program to discuss the possibility of collaborative efforts in research and education.

Team leader is an attendee to meetings of the MAPC North Shore Task Force (NSTF), Salem Harbor Task Force, **Cape Ann Sustainable Committee (CASC)**, Great Marsh Summit Team, Rumney Marsh Task Force, North Suburban Planning Commission (NSPC), SSCW Technical Advisory Committee, North Shore Workshops for Health Agents and Conservation Commissions, Friends of Lake Quannapowitt (FOLQ), Eight Towns and the Bay, Saugus River Watershed Council, Saugus River Watershed Commission and Essex Facility Planning Task Force, Safer Waters in Massachusetts (SWIM).

Participated series of workshops and presentations with DCR (DEM), Salem State College on a study of Chebacco Lake.

Attended a three-day Training workshop on conflict resolution.

Received front-page coverage on the environmental issues affecting the Saugus River Watershed in the newspaper *Saugus Advertiser*.

Manned booth for MWI/NCW at the Topsfield Fair.

Participated in Fall Watershed Forum sponsored by the Cape Ann Sustainable Communities (CASC).

Stream Teams Manchester Sawmill Brook, Marblehead Babbling Brook, Riverways Program DFWELE

SSCW Program Director Jeremy Sokulsky, produced a video entitled "Salem Sound our Heritage, our Future", received this year's New England Water Environment Association's award for outstanding public education.

Town of Wakefield & Friends of Lake Quannapowitt Lakes and Ponds grant **Summary of Project:** The project at Lake Quannapowitt is to continue the watershed awareness program with an outdoor classroom for all children that graduate the public school system. Also included is the update of the existing lake and watershed management plan to include issues that have occurred in the last five years. **Grant Award:** \$4,400

### **2000 Accomplishments**

In cooperation with North Coastal Alliance conducted series of public forums on the environmental problems affecting four (4) subwatersheds, Saugus River, North River, Gloucester Harbor and Smallpox Brook. The forums provided the opportunity for the exchange of knowledge and concerns between regulators and the public.

#### **#00-09/MWI Priority Project.**

Attended Public Hearing in Gloucester on Essex / Gloucester Sewer tie-in proposal

The Saugus River subwatershed forum earned full-page coverage in the Lynn Daily Item newspaper.

Presentation on the MWI and the North Coastal Watersheds at the Friends of Lake Quannapowitt (FOLQ) annual meeting.

Meeting with DCR (DEM) Office of Dam Safety on outstanding problems in the North Coastal Watersheds, development of cooperative strategies.

Attended Massachusetts Coastal Zone and Massachusetts Watershed Initiative program update.

Attended training session on providing Buildout Presentations to Massachusetts Communities.

Attended three-day workshop on "Facilitating Collaborative Problem Solving

Team leader is an attendee to meetings of the MAPC North Shore Task Force (NSTF), Salem Harbor Task Force, Cape Ann Sustainable Committee (CASC), Great Marsh Summit Team, Rumney Marsh Task Force, North Suburban Planning Commission (NSPC), SSCW Technical Advisory Committee, North Shore Workshops for Health Agents and Conservation Commissions, Eight Towns and the Bay, Saugus River Watershed Council, Saugus River Watershed Commission and Essex Facility Planning Task Force, Safer Waters in Massachusetts (SWIM).

Team leader served as liaison between the EOEa Boston Office, DEP/NERO Wetlands Program and a disgruntled citizen.

Met with Boards of Health bordering Salem Sound and SSCW to discuss results of Clean Beaches and Stream sampling program. Lobbied for an increase in municipal efforts to curtail or eliminate pollution sources.

## 2001

The NCWT entered into 2<sup>nd</sup> round of the Massachusetts Watershed Initiative's 5-year cycle. The **targeted activity** in the first year of the each cycle is to initiate new outreach and education activities. The timing coincided with the issuance of Executive Order 418 and the passage of the Community Preservation Act in the fall of 2000. EOEA Secretary, Bob Durand used the opportunity to launch a statewide effort to protect open space, retain our historical heritage and provide long term planning for growth. He further directed all twenty-seven (27) Watershed Teams to assist in providing to all of the communities a presentation on what the community could look like under "full buildout conditions." The presentations would also be used to introduce the municipalities to the Community Preservation Act. We chose this opportunity to combine Secretary Durand's directive with an introduction to the North Coastal Watershed Initiative to all communities within the North Coastal Watersheds.

The strategy has been:

To establish contact with local government officials through the existing team contacts

To combine the EOEA local buildout / CPA presentations with NCW Work Plan Initiatives

Accordingly, each presentation included specific examples the North Coastal Watersheds Initiative activities in their community, a "full buildout analysis" and a presentation on the Community Development Planning process. The content of each presentation was coordinated with EOEA Boston office, local planning boards, NCW team members and the relevant regional planning agency. The presentations were typically scheduled before the Board of Selectman or City Counsel and ran for 30 minutes. Each presentation included the implications of full buildout on the community's open space, water quantity and infrastructure. The local officials learned how they could access \$30,000 in planning services provided under EO418, provided with an overview of the provisions of Community Preservation Act and sources of assistance. All communities received a set of buildout maps, workbook and computer disk (CD) containing all of information described above.

### *Accomplishments*

Implemented Secretary Durand's promise to hold Local buildout presentations in 16 of 17 targeted communities. Presentations conducted in cooperation with MAPC, MVPC, EOEA and community planning officials.

Yankee Council Boy Scouts Environmental Summer Camp presentations in collaboration with SSCW, Massachusetts Department of Environmental Protection Bureau of Resource Protection and Bureau of Waste Site Control,

**Project Link** a cooperative educational effort of the Essex and Manchester School Districts, Massachusetts Division of Marine Fisheries, Project Link Limited, and Center for Marine Science and Technology (CMAST).

Team leader is an attendee to meetings of the MAPC North Shore Task Force (NSTF), Great Marsh Summit Team, Rumney Marsh Task Force, North Suburban Planning Commission (NSPC), SSCW Technical Advisory Committee, North Shore Workshops for Health Agents and Conservation Commissions, Friends of Lake Quannapowitt (FOLQ), Eight Towns and the Bay, Saugus River Watershed Council, Saugus River Watershed Commission and Essex Facility Planning Task Force, Safer Waters in Massachusetts (SWIM) Water Resource Commission (WRC).

## 2002 Accomplishments.

Drew upon outreach activities from the previous 4 years particularly the "local buildout" presentations to set up an email distribution list of city/town elected officials, town managers/executive secretaries, town/city planners, and city/town engineers, Departments of Public Works within the North Coastal Watersheds. Email list allows team leader to keep them apprised on grant opportunities, environmental news, programs, and employment opportunities.

Team leader is an attendee to meetings of the MAPC North Shore Task Force (NSTF), Great Marsh Summit Team, Rumney Marsh Task Force, North Suburban Planning Commission (NSPC), SSCW Technical Advisory Committee, Friends of Lake Quannapowitt (FOLQ), Eight Towns and the Bay, Saugus River Watershed Council, Saugus River Watershed Commission, Safer Waters in Massachusetts (SWIM) and Water Resource Commission (WRC).

Assisted Project Link a cooperative an educational effort of the Essex and Manchester School Districts in securing Volunteer Monitoring Grant funds.

Partnered with Massachusetts Community Water Watch Partnership

Education- through 58 presentations in Lynn, Salem, and Beverly--we educated 1200 students grades k-5.

Forum- we held a forum on Mercury at Salem State to raise awareness about the dangers it poses to the environment and human health. 90 students, professors and community members attended it.

Stenciling- we had a 2-storm drain stenciling events in the spring. The first was in Beverly at the end of March and we stenciled about 200 drains and got media coverage in the Salem Evening News and The Beverly Citizen. The second event was in Salem this past weekend and we stenciled about 250 drains and had City Councilor Chuber and Mayor Usovicz participated in the event. We developed a door hanger to educate the community about what we were doing.

Earth Day at Lynn Woods- held on 4/20.

## Appendix F. Impaired Waters

This appendix presents the 2002 Integrated List of Waters for the North Coastal Watersheds. Waters listed in Category 5 constitute the 303(d) List and, as such, are reviewed and approved by the EPA. The remaining four categories are submitted in fulfillment of the requirements under § 305(b), essentially replacing the old 305(b) Report format.

Integrated list categories 1-3 include those waters that are either unimpaired or unassessed with respect to their support of designated uses. Often insufficient data and information exist to assess all designated uses of any particular waterbody or segment. Furthermore, no Massachusetts waters are listed in Category 1 because a statewide health advisory pertaining to the consumption of fish precludes any waters from being in full support of the fish consumption use. Waters listed in Category 2 were found to support the uses for which they were assessed, but other uses were unassessed. Finally, Category 3 contains those waters for which insufficient or no information was available to assess any uses. Waters for which assessments were determined to be insufficient for 303(d) listing were also included in Category 3. Waters exhibiting impairment for one or more uses are placed in either Category 4 (impaired but not requiring TMDLs) or Category 5 (impaired and requiring one or more TMDLs) according to the EPA guidance. Category 4 is further divided into three sub-categories – 4A, 4B and 4C – depending upon the reason that TMDLs are not needed. Category 4A includes waters for which the required TMDL(s) have already been completed and approved by the EPA. However, since segments can only appear in one category, waters that have an approved TMDL for some pollutants but not others remain in Category 5 until TMDLs are approved for all of the pollutants.<sup>12</sup>

Following is a summary list of water categories with the number of NCW waterbodies in each category, then the detailed list of each category of impaired waters in NCW.

? Category 1	“Waters attaining all designated uses”	None in MA
? Category 2	“Attaining some uses; other uses not assessed”	19 in NCW
? Category 3	“No Uses Assessed”	10 in NCW
? Category 4A	“TMDL is Completed”	None in NCW
? Category 4B	“Waters expected to attain all designated uses in the near future”	None in NCW
? Category 4C	“Impairment not caused by a pollutant”	6 in NCW
? Category 5	“Waters requiring a TMDL”	47 in NCW

### NCW Category 2 Waters - 2002

"Attaining some uses; other uses not assessed"

<http://www.state.ma.us/dep/brp/wm/files/2002-il2.pdf> - includes all categories listed below

(also available on [http://www.northcoastal.net/ncw/Docs/2002-il2-Impaired\\_Waters\\_Integrated\\_List.pdf](http://www.northcoastal.net/ncw/Docs/2002-il2-Impaired_Waters_Integrated_List.pdf))

#### NAME / SEGMENT ID / DESCRIPTION / SIZE / ASSESS DATE / USES ATTAINED

? Babson Reservoir (93001)	MA93001_2002	Gloucester	29 acres	Oct-98	-Secondary Contact Recreation -Aesthetics
? Birch Pond (93004)	MA93004_2002	Saugus/Lynn	80 acres	Oct-98	-Secondary Contact Recreation -Aesthetics
? Breeds Pond (93006)	MA93006_2002	Lynn	177 acres	Oct-98	-Secondary Contact Recreation -Aesthetics
? Crane River Pond (93017)	MA93017_2002	Danvers	18 acres	Oct-98	-Secondary Contact Recreation -Aesthetics
? Fernwood Lake (93022)	MA93022_2002	Gloucester	26 acres	Oct-98	-Secondary Contact Recreation -Aesthetics
? Goose Cove Reservoir (93093)	MA93093_2002	Gloucester	58 acres	Oct-98	-Secondary Contact Recreation -Aesthetics
? Gravelly Pond (93028)	MA93028_2002	Hamilton	46 acres	Oct-98	-Secondary Contact Recreation -Aesthetics

<sup>12</sup> Massachusetts Year 2002 Integrated List of Waters, Part 2 – Final Listing of Individual Categories of Waters -- CN: 125.2, September 2003 -- available at <http://www.state.ma.us/dep/brp/wm/files/2002-il2.pdf>

- ? Haskell Pond (93031) MA93031\_2002 Gloucester 48 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Mill Pond (93050) MA93050\_2002 Gloucester 21 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Porters Pond (93058) MA93058\_2002 Danvers 20 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Quarry Reservoir (93053) MA93053\_2002 Rockport 5 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Round Pond (93063) MA93063\_2002 Hamilton 37 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Rum Rock Lake (93064) MA93064\_2002 Rockport 9 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Seaplane Basin (93067) MA93067\_2002 Revere 53 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Spring Pond (93073) MA93073\_2002 Peabody/Lynn/Salem 59 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Upper Pond (93083) MA93083\_2002 Saugus 13 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Walden Pond (93084) MA93084\_2002 Lynn/Saugus/Lynnfield 231 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Wallace Pond (93085) MA93085\_2002 Gloucester 23 acres Oct-98 -Secondary Contact Recreation -Aesthetics
- ? Waters River Pond (93088) MA93088\_2002 Danvers 57 acres Oct-98 -Secondary Contact Recreation -Aesthetics

### **NCW Category 3 Waters - 2002**

"No Uses Assessed"

**NAME / SEGMENT ID / DESCRIPTION / SIZE / REVIEW DATE**

- ? Alewife Brook (9354875) MA93-26\_2002 Headwaters just north of B&M Railroad, Rockport to inlet Babson Reservoir, Gloucester. Miles 1.0-0.0 1 miles Jan-99
- ? Bass River (9355175) MA93-07\_2002 Headwaters west of Wenham Lake to the outlet of Shoe Pond north of Route 62, Beverly. 2.9 miles Feb-99
- ? Beck Pond (93003) MA93003\_2002 Hamilton 40 acres Oct-98
- ? Browns Pond (93008) MA93008\_2002 Peabody 25 acres Oct-98
- ? Buswell Pond (93009) MA93009\_2002 Gloucester 7 acres Oct-98
- ? Crystal Lake (93018) MA93018\_2002 Wakefield/Stoneham 80 acres Oct-98
- ? Niles Pond (93052) MA93052\_2002 Gloucester 35 acres Oct-98
- ? Sluice Pond (93071) MA93071\_2002 Lynn 39 acres Oct-98
- ? Spring Pond (93074) MA93074\_2002 Peabody 10 acres Oct-98
- ? Unnamed Tributary (9354855) MA93-27\_2002 Outlet Babson Reservoir, Gloucester to inlet Mill Pond, Gloucester. Miles 0.7-0.0 0.7 miles Jan-99

### **NCW Category 4c Waters - 2002**

"Impairment not caused by a pollutant"

**NAME / SEGMENT ID / DESCRIPTION / SIZE / ASSESS DATE / IMPAIRMENT CAUSE**

- ? Cedar Pond (93013) MA93013\_2002 Peabody 11 acres Oct-98 -(Exotic species\*)
- ? Chebacco Lake (93014) MA93014\_2002 Hamilton/Essex 204 acres Oct-98 -(Exotic species\*)
- ? Days Pond (93092) MA93092\_2002 Gloucester 1 acres Oct-98 -(Exotic species\*)

- ? Griswold Pond (93029) MA93029\_2002 Saugus 13 acres Oct-98 -(Exotic species\*)
- ? Lower Pond (93044) MA93044\_2002 Saugus 19 acres Oct-98 -(Exotic species\*)
- ? Spring Pond (93072) MA93072\_2002 Saugus 9 acres Oct-98 -(Exotic species\*)

## **NCW Category 5 Waters - 2002**

"Waters requiring a TMDL" (means the same thing as "303d listed" from previous years)

### **NAME / SEGMENT ID / DESCRIPTION / SIZE / ASSESS DATE / POLLUTANT NEEDING TMDL**

- ? Annisquam River (9354825) MA93-12\_2002 Gloucester Harbor to Ipswich Bay, Gloucester. 1.9 sq mi Jan-99 -Pathogens
- ? Bass River (9355175) MA93-08\_2002 Outlet of Shoe Pond north of Route 62 to confluence with Danvers River, Beverly. 0.1 sq mi Feb-99 -Pathogens
- ? Beaver Brook (9355300) MA93-37\_2002 Headwaters at wetland west of Dayton Street in Danvers to confluence with Crane River at Mill Pond in Danvers. 3.5 miles Apr-99 -Organic enrichment/Low DO -Pathogens
- ? Beaverdam Brook (9355700) MA93-30\_2002 Headwaters west of Main Street, Lynnfield to confluence with Saugus River, Lynnfield. 2.5 miles Feb-99 -Organic enrichment/Low DO -Pathogens
- ? Beverly Harbor (93905) MA93-20\_2002 0.78 sq mi Feb-99 -Pathogens
- ? Cape Pond (93011) MA93011\_2002 Rockport 41 acres Oct-98 -Turbidity
- ? Cat Brook (9355050) MA93-29\_2002 Headwaters north of Route 128 Manchester/Essex/Gloucester to confluence Manchester Harbor, Manchester. Miles 2.5-0.0 2.5 miles Feb-99 -pH -Siltation -Pathogens
- ? Coy Pond (93016) MA93016\_2002 Wenham 25 acres Oct-98 -Noxious aquatic plants -Turbidity
- ? Crane Brook (9355325) MA93-02\_2002 Headwaters west of Newburyport Turnpike (Route 95) to inlet Mill Pond, Danvers. 2.3 miles Apr-99 -Unionized Ammonia -Organic enrichment/Low DO -(Other habitat alterations\*) -Pathogens -Suspended solids -Turbidity
- ? Crane River (9355275) MA93-38\_2002 Outlet Mill Pond, Danvers to outlet of pump house sluiceway at Purchase Street, Danvers. 0.3 miles Apr-99 -Pathogens -Turbidity
- ? Crane River (9355275) MA93-41\_2002 Outlet pump house sluiceway at Purchase Street, Danvers to confluence Danvers River, Danvers. 0.08 sq mi Apr-99 -Pathogens
- ? Danvers River (9355200) MA93-09\_2002 Confluence with Porter, Crane and Waters rivers, Danvers to mouth at Beverly Harbor, Beverly/Salem. 0.5 sq mi Apr-99 -Pathogens
- ? Essex Bay (93901) MA93-16\_2002 1.15 sq mi Jan-99 -Pathogens
- ? Essex River (9354625) MA93-11\_2002 Source east of Southern Avenue to mouth at Essex Bay, Essex. 0.9 sq mi Jan-99 -Pathogens
- ? Flax Pond (93023) MA93023\_2002 Lynn 48.9 acres Oct-98 -Noxious aquatic plants -Turbidity -(Exotic species\*)
- ? Floating Bridge Pond (93024) MA93024\_2002 Lynn 10.1 acres Oct-98 -Nutrients -Noxious aquatic plants -Turbidity
- ? Forest River (9355500) MA93-10\_2002 Approximately 1/2 mile upstream of Loring Avenue, Salem to mouth at Salem Harbor, Salem/Marblehead. 0.05 sq mi Mar-99 -Organic enrichment/Low DO -(Flow alteration\*) -(Other habitat alterations\*) -Pathogens
- ? Frost Fish Brook (9355250) MA93-36\_2002 Headwaters, southeast of Danvers locality of Putnamville to confluence Porter River just south of Route 62, Danvers. Miles 1.3-0.0 1.3 miles Jun-97 -Pathogens
- ? Gloucester Harbor (93903) MA93-18\_2002 2.24 sq mi Feb-99 -Pathogens
- ? Goldthwaite Brook (9355450) MA93-05\_2002 Outlet Cedar Pond to confluence with Proctor Brook, Peabody. 3.3 miles Mar-99 -Cause Unknown -Unknown toxicity -Unionized Ammonia -Nutrients -Organic enrichment/Low DO -(Flow alteration\*) -(Other habitat alterations\*) -Pathogens -Noxious aquatic plants
- ? Hawkes Brook (9355650) MA93-32\_2002 Headwaters at the Lynn/Lynnfield border to the outlet of Hawkes Pond in North Saugus. 2.6 miles Mar-99 -Pathogens

- ? Hawkes Brook (9355650) MA93-33\_2002 Outlet of Hawkes Pond, North Saugus to confluence with 1.1 miles Mar-99 - Pathogens
- ? Hawkes Pond (93032) MA93032\_2002 Lynnfield 73 acres Oct-98 -Turbidity
- ? Lily Pond (93039) MA93039\_2002 Gloucester 31 acres Oct-98 -Noxious aquatic plants -Turbidity
- ? Lynn Harbor (93909) MA93-23\_2002 6.67 sq mi Feb-99 -Pathogens
- ? Manchester Harbor (93904) MA93-19\_2002 0.29 sq mi Feb-99 -Pathogens
- ? Marblehead Harbor (93908) MA93-22\_2002 0.56 sq mi Mar-99 -Pathogens
- ? Mill River (9354850) MA93-28\_2002 Outlet Mill Pond, Gloucester to confluence with Annisquam River, Gloucester. 0.09 sq mi Jan-99 -Pathogens
- ? Mill River (9355675) MA93-31\_2002 From headwaters in wetlands north of Salem Street in Wakefield to confluence with Saugus River, Wakefield. 2 miles Feb-99 -Organic enrichment/Low DO -Pathogens -Suspended solids -Turbidity
- ? Nahant Bay (93910) MA93-24\_2002 5.27 sq mi Feb-99 -Pathogens
- ? North River (9355375) MA93-42\_2002 Downstream of Route 114 bridge (Proctor Brook becomes North River at this bridge), Peabody to confluence with Danvers River, Salem. 0.2 sq mi Apr-99 -Unionized Ammonia -Organic enrichment/Low DO -Pathogens
- ? Pillings Pond (93056) MA93056\_2002 Lynnfield 96 acres Oct-98 -Noxious aquatic plants -Turbidity
- ? Pines River (9355725) MA93-15\_2002 Route 1, Revere/Saugus to mouth at Lynn Harbor, Saugus/Revere. 0.7 sq mi Mar-99 -Pathogens
- ? Porter River (9355225) MA93-04\_2002 Confluence with Frost Fish Brook to confluence with Danvers River, Danvers. 0.1 sq mi Apr-99 -Siltation -Pathogens -Noxious aquatic plants -Turbidity
- ? Proctor Brook (9355400) MA93-39\_2002 Outlet of small pond in wetland north of Downing Road, Peabody to Goodhue Street bridge, Salem. 2.9 miles Apr-99 -Cause Unknown -Nutrients -Siltation -(Other habitat alterations\*) -Pathogens
- ? Proctor Brook (9355400) MA93-40\_2002 Goodhue Street bridge, Salem to Route 114 culvert, Salem. 0.01 sq mi Apr-99 -Pathogens
- ? Lake Quannapowitt (93060) MA93060\_2002 Wakefield 250 acres Oct-98 -Noxious aquatic plants -Turbidity -(Exotic species\*)
- ? Rockport Harbor (93902) MA93-17\_2002 0.02 sq mi Feb-99 -Pathogens
- ? Salem Harbor (93906) MA93-21\_2002 1.62 sq mi Mar-99 -Pathogens
- ? Salem Sound (93907) MA93-25\_2002 10.01 sq mi Feb-99 -Pathogens
- ? Saugus River (9355550) MA93-14\_2002 Saugus Iron Works, Saugus, to the mouth at Lynn Harbor, Lynn/Salem. 0.8 sq mi Feb-99 -Thermal modifications -(Flow alteration\*) -Pathogens -Oil and grease
- ? Saugus River (9355550) MA93-34\_2002 Source, outlet of Lake Quannapowitt, Wakefield to canal which discharges to Hawkes Pond, Wakefield/Lynnfield. 3.1 miles Mar-99 -Nutrients -(Flow alteration\*) -(Other habitat alterations\*) -Pathogens -Noxious aquatic plants -Turbidity
- ? Saugus River (9355550) MA93-35\_2002 Canal which discharges into Hawkes Pond, Wakefield/Lynnfield to Saugus Iron Works, Saugus. 5.3 miles Mar-99 -Organic enrichment/Low DO -(Flow alteration\*) -(Other habitat alterations\*) -Pathogens
- ? Shoe Pond (93068) MA93068\_2002 Beverly 8 acres Oct-98 -Turbidity
- ? Strangman Pond (93076) MA93076\_2002 Gloucester 3 acres Oct-98 -Noxious aquatic plants -Turbidity
- ? Upper Banjo Pond (93080) MA93080\_2002 Gloucester 11 acres Oct-98 -Noxious aquatic plants -Turbidity
- ? Waters River (9355350) MA93-01\_2002 Headwaters north of Route 114, Peabody, to confluence with Danvers River, Danvers. 0.08 sq mi Apr-99 -(Other habitat alterations\*) -Pathogens
- ? West Pond (93089) MA93089\_2002 Gloucester 7 acres Dec-93 -Nutrients -Noxious aquatic plants

## **North Coastal 303d list - 1998**

---

**Beck Pond (93003)**

MA93003 Hamilton

2200 Noxious aquatic plants

---

**Browns Pond (93008)**

MA93008 Peabody

2200 Noxious aquatic plants

---

**Flax Pond (93023)**

MA93023 Lynn

2200 Noxious aquatic plants

---

**Floating Bridge Pond (93024)**

MA93024 Lynn

0900 Nutrients

2200 Noxious aquatic plants

---

**Lake Quannapowitt (93060)**

MA93060 Wakefield

2200 Noxious aquatic plants

---

**West Pond (93089)**

MA93089 Gloucester

0900 Nutrients

2200 Noxious aquatic plants

---

**Essex River (9354625)**

MA93-11 Source to mouth at Essex Bay.

1700 Pathogens

---

**Annisquam River (9354825)**

MA93-12 Source to mouth at Ipswich Bay.

1700 Pathogens

---

**Danvers River (9355200)**

MA93-09 Confluence with Porter, Crane and Waters rivers to mouth at Beverly Harbor.

1700 Pathogens

---

**Crane River (9355275)**

MA93-03 Outlet Mill Pond to confluence Danvers River, Danvers.

1700 Pathogens

---

**Waters River (9355350)**

MA93-01 Headwaters to confluence with Danvers River, Danvers.

1700 Pathogens

---

**North River (9355375)**

MA93-06 Confluence with Goldthwaite and Proctor brooks to confluence with Danvers River, Salem.

0600 Unionized Ammonia

1200 Organic enrichment/Low DO

1700 Pathogens

---

**Goldthwaite Brook (9355450)**

MA93-05 Outlet Cedar Pond to confluence North River, Peabody.

0600 Unionized Ammonia

0900 Nutrients

1200 Organic enrichment/Low DO

1700 Pathogens

---

**Forest River (9355500)**

MA93-10 From milepoint 0.5 to West Shore Drive, Salem. Miles 0.5-0.0

1200 Organic enrichment/Low DO

1700 Pathogens

---

**Essex Bay (93901)**

MA93-16

1700 Pathogens

---

**Rockport Harbor (93902)**

MA93-17

1700 Pathogens

---

**Gloucester Harbor (93903)**

MA93-18

1700 Pathogens

---

**Manchester Harbor (93904)**



MA93-19  
1700 Pathogens

---

**Salem Harbor (93906)**

MA93-21  
1700 Pathogens

---

**Marblehead Harbor (93908)**

MA93-22  
1700 Pathogens

---

**Nahant Bay (93910)**

MA93-24  
1700 Pathogens

## **1998 303d Segments Needing Confirmation Watershed: North Coastal (93)**

**Coy Pond (93016)**

MA93016 Wenham  
2200 Noxious aquatic plants

---

**Pillings Pond (93056)**

MA93056 Lynnfield  
2200 Noxious aquatic plants

---

**Crane Brook (9355325)**

MA93-02 Headwaters to Mill Pond, Danvers.  
0600 Unionized Ammonia  
1700 Pathogens

---

**Saugus River (9355550)**

MA93-13 Source to Saugus Iron Works.  
1700 Pathogens

### **North Coastal 303d list 1996:**

#### **Essex River (Class SA/ORW)**

Segment MA93-11: headwaters to mouth at Essex Bay. (0.90 square miles): Shellfishing Non-Support due to pathogens, low DO (4.8 mg/l) also below standards.

#### **Annisquam River (SA)**

Segment MA93-12: Source to mouth at Ipswich Bay. (1.90 square miles): Shellfishing and primary contact recreational uses impaired due to pathogens--(onsite septic systems confirmed as a source(s) in 1994.

#### **Bass River (B/WWF)**

Segment MA93-07: Headwaters to inlet Shoe Pond, Beverly. (2.4 river miles): Data dated (1987), pathogens (limited data, max 8000cfu/100ml) and low dissolved oxygen in upper end of segment (3.1 & 3.3 mg/l) impair primary contact and aquatic life use support.

#### **Bass River (SB)**

Segment MA93-08: Inlet Shoe Pond to confluence with Danvers River (0.10 square miles): 1987 data pathogens impair primary contact recreation, shellfishing area has been closed.

#### **Danvers River (SB)**

Segment MA93-09: From the confluence with Porter, Crane and Waters Rivers to mouth at Beverly Harbor (0.5 square miles): Data is old; fecal coliform levels impair primary contact recreational and shellfishing uses, CSOs are a problem. Elevated concentrations of heavy metals (Cr, Pb, Zn, Hg, As) and some PAHs in sediment also documented.

#### **Porter River (SB)**

Segment MA93-04: Confluence with Frost Fish Brook to confluence with Danvers River, Danvers. (0.10 square miles): Data is old; fecal coliform levels impair primary contact recreational and shellfishing is prohibited. Elevated metals (Cr, Pb, and As) and PAHs in sediment, no known source.

### **Crane Brook (B/WWF)**

Segment MA93-02: Headwaters to Mill Pond, Danvers (2.30 river miles). Fecal coliform levels impair primary contact recreation, ammonia 1.1 & 1.2 mg/l impairs aquatic life use.

### **Crane River (SB)**

Segment MA93-03: Outlet Mill Pond to confluence with the Danvers River, Danvers (0.08 square miles): Pathogens impair primary contact recreational use, shellfishing is prohibited. Metals and PAHs moderately high in sediment.

### **Waters River (SB)**

Segment MA93-01: Headwaters to confluence with Danvers River (0.08 square miles): fecal coliform levels impair primary contact recreation use, shellfishing is prohibited. Metals and PAHs low in sediment.

### **North River (SB)**

Segment MA93-06: Confluence with Goldthwaite and Proctor Brooks to confluence with Danvers River, Salem (0.20 square miles): pathogens impair primary and secondary contact recreation, shellfishing is prohibited, low dissolved oxygen and high concentrations of ammonia-nitrogen impair aquatic life use. Sediment has high concentrations of heavy metals (Cr, Pb, Zn, Cd, and As) and PAHs.

### **Goldthwaite Brook (B/WWF)**

Segment MA93-05: Outlet Cedar Pond to confluence with the North River, Peabody (3.30 river miles): pathogens impair primary contact recreation, low dissolved oxygen, elevated TP and high ammonia-nitrogen concentrations impair aquatic life use. Eastman Gelatin instream toxicity testing data (required by NPDES permit # MA0003956) 1995/1996 data indicates acute instream toxicity due to storm water, slight effects due to dry weather discharges, and no adverse impacts to *C. dubia* at the upstream sampling station.

### **Forest River (SB)**

Segment MA93-10: From mile point 0.5 to West Shore Drive, Salem (0.05 square miles): pathogens impair primary contact recreation, shellfishing prohibited, low dissolved oxygen (below 5.0 mg/l) impairs aquatic life use. Sediments found to contain high Pb and Cr and low/moderate concentrations of PAHs.

### **Saugus River (SB/ORW)**

Segment MA93-14: Saugus Iron Works to the mouth at Lynn Harbor (0.80 square miles): pathogens impair primary and secondary contact recreation, shellfishing prohibited. Low dissolved oxygen (<4.0 mg/l) and ammonia-nitrogen (0.25 mg/l) impair aquatic life use. High levels of Zn in sediment. CSO Facilities Plan in development.

### **Pines River (SB/ORW)**

Segment MA93-15: Route 1 Revere/Saugus to confluence with the Saugus River (0.7 square miles): Conditional restriction of shellfishing in several areas. Source differentiation study needed to identify specific sources of pathogens.

### **Essex Bay (SA)**

Segment MA93-16: 1.15 square miles. Shellfishing conditionally approved, NERO has enforcement action for town of Essex regarding sewerage issues related to bacterial loading.

### **Rockport Harbor (SB)**

Segment MA93-17: 0.02 square miles. Pathogens impair shellfishing use--based on DMF status. Possible sources listed as on-site sewage disposal and marinas.

### **Gloucester Harbor (SB)**

Segment MA93-18: 2.24 square miles. Pathogens impair primary contact recreation and shellfishing use. POTW discharge has been moved out of harbor. Gloucester consulting reports should be reviewed to determine need for additional work. CSO Facility Plan in development.

### **Manchester Harbor (SB)**

Segment MA93-19: 0.29 square miles. Pathogens impair shellfishing use. NPDES discharge Manchester POTW.

**Beverly Harbor (SB)**

Segment MA93-20: 0.78 square miles. Pathogens impair primary contact, DMF does not list harbor for shellfish management area therefore not assessed as a use.

**Salem Harbor (SB)**

Segment MA93-21: 1.62 square miles. Pathogens impair shellfishing use. SESD effluent chronically toxic (see attached TOXTD summary). Initial TRE/TIE results indicate ammonia as primary toxicant (notes from 1992)--this information needs to be updated. SESD effluent scheduled to go on-line with secondary treatment in June 1996. Needs follow-up status/information.

**Salem Sound (SB)**

Segment MA93-25: 10.01 square miles. Pathogens impair primary recreational use and shellfishing use. Violations of dissolved oxygen standards measured but infrequent, ammonia-nitrogen exceeds 0.25 mg/l at SS01 & SS02 sampling stations. Source differentiation study recommended to identify source(s) of pathogen contamination.

**Marblehead Harbor (SA)**

Segment MA93-22: 0.56 square miles. Shellfishing is prohibited due to pathogens. Marinas listed as a possible source.

**Lynn Harbor (SB)**

Segment MA93-23: 6.67 square miles. Pathogens impair primary contact recreation and shellfishing is prohibited. Suspended solids and nutrients occasionally high impairing aesthetics, low dissolved oxygen and ammonia-nitrogen >0.25 mg/l impair aquatic life use. Lynn POTW (6:1 dilution available) meeting acute and chronic toxicity limits since 1993 (see attached TOXTD summary).

**Nahant Bay (SA)**

Segment MA93-24: 5.27 square miles. Pathogens impair primary recreation and shellfishing uses.

**Beck Pond, (93003)**

Hamilton: Pollutants/Stressors Noxious aquatic plants

**Browns Pond, (93008)**

Peabody: Pollutants/Stressors 2200 Noxious aquatic plants

**Chebacco Lake, Coy Pond, (93016)**

Wenham: Pollutants/Stressors Noxious aquatic plants

**Flax Pond, (93023)**

Lynn: Pollutants/Stressors Noxious aquatic plants DF study completed mid 80's City of Lynn Water and Sewer District has expressed interest in restoring anadromous fish run

**Floating Bridge, (93024)**

Pollutants/Stressors Nutrients Noxious aquatic plants

**Griswold Pond, Lower Pond, Pillings Pond, (93056)**

Lynnfield: Pollutants/Stressors Noxious aquatic plants

**Lake Quannapowitt, (93060)**

Wakefield: High Priority Pollutants/Stressors Nutrients Noxious aquatic plants DF study completed 1985 by CDM Friends of Lake Quannapowitt have been collecting water quality data and flow information For a number of years contact Doug Heath 617 918 1585

**Sluice Pond, Spring Pond, West Pond (93089)**

Gloucester: Pollutants/Stressors Nutrients Noxious aquatic plants Dam is under private ownership and in severe state of disrepair per DCR (DEM) dam safety program During recent rains flood waters crested dam City, owner and DCR (DEM) have been in a protracted dispute to resolve issues of breaching and or maintenance contact Scott Ryan for details 508 792 7716 x 118.

## Appendix G: Funding Sources

The first list comprises grant funding sources for watershed projects. Generally, each funding source is available at only one time per annual cycle. The list below is a reference source for finding grants and then preparing to meet their annual submission deadline. Some of the listings below are the actual RFRs that were publicized at the time of this writing.

Following the list of funding sources is a list of previously funded projects within the NCW watershed. They were funded when the NCW Team had the authority to recommend Roundtable Projects to EOE, which funding mechanism is no longer directly available. The list is provided to indicate the type of project that might be successfully funded.

### ***Funding Sources for Watershed Projects***

<b>Program Name</b>	<b>Overview</b>	<b>FY 2004 Funding</b>
Assessment and Watershed Protection Program Grants (AWPPGs)	The AWPPGs provide States and local governments, Federally recognized Indian Tribes, territories and possessions of the U.S., including the District of Columbia, interstate associations or intertribal consortia, public or private nonprofit, nongovernmental institutions and individuals (hereafter referred to as eligible applicants) an opportunity to carry out projects to develop and refine comprehensive watershed programs. The projects that eligible applicants can undertake to develop and refine their comprehensive watershed programs are diverse. In the past, award recipients have pursued a wide range of activities, such as developing management tools, advancing scientific and technical tools for protecting watershed health, improving availability of data and information about watersheds, and training watershed managers and the public about watershed management. EPA-GRANTS-051304-002 Project Officer, Phone 202-566-1206	\$900,000
Bring Back the Natives Grant Program	This National Fish and Wildlife Foundation (NFWF) program provides funds to restore damaged or degraded riverine habitats and their native aquatic species through watershed restoration and improved land management. Successful projects will support the applied ecosystem strategy and address any or all of the following: (1) revised land management practices to eliminate causes of habitat degradation; (2) multiple species benefits, (3) direct benefits to native fish and aquatic community resources in watersheds with land managed by BLM, BOR, or FS; (4) multiple resource management objectives, (5) multiple project partners and innovative partnerships; (6) where appropriate, demonstration of a landscape ecosystem approach; and (7) innovative projects that develop new technology that can be shared with others.	\$ 1, 050,000
Brownfields Job Training and Development Demonstration Pilots	EPA's brownfield program helps communities clean up and redevelop properties. EPA defines a brownfield site as "real property, the expansion, redevelopment, or reuse of which may be contaminated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." The program helps mitigate potential health risks and assists in restoring economic vitality to areas where brownfields exist. The objectives of the Brownfields Job Training Grants are to prepare trainees for future employment in the environmental field and facilitate the clean up of brownfields sites. The grant recipients must prepare trainees in activities that can be usefully applied to a clean up.	\$ 2 Million

Bureau of Resource Protection (BRP)	BRP Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation: Program Guide describing the BRP Grant Programs revised for FY2003. DEP's grant and loan programs consist of federal funds from the U.S. EPA as authorized by the Clean Water Act, Section 604 b, 104b3 and 319; and the Drinking Water State Revolving Fund DWSRF Set asides. Other programs are derived through state appropriation. Updated November 2002. <a href="http://mass.gov/dep/brp/mf/files/glprgm.pdf">http://mass.gov/dep/brp/mf/files/glprgm.pdf</a>	Information Source
Catalog of Federal Funding Sources for Watershed Protection	The Catalog of Federal Funding Sources for Watershed Protection Web site is a searchable database of financial assistance sources (grants, loans, cost-sharing) available to fund a variety of watershed protection projects. To select funding programs for particular requirements, use either of two searches below. One is based on subject matter criteria, and the other is based on words in the title of the funding program. Criteria searches include the type of organization (e.g., non-profit groups, private landowner, state, business), type of assistance sought (grants or loans), and keywords (e.g., agriculture, wildlife habitat). Searches result in a listing of programs by name. Click on each program name to review detailed information on the funding source. <a href="http://cfpub1.epa.gov/fedfund/">http://cfpub1.epa.gov/fedfund/</a> and <a href="http://cfpub1.epa.gov/fedfund/othersources.cfm">http://cfpub1.epa.gov/fedfund/othersources.cfm</a>	Information Source
Clean Water State Revolving Fund (CWSRF)	This MA-DEP program assists cities, towns, and wastewater districts in the financing of water pollution abatement projects, including nonpoint source projects. The financial assistance takes the form of subsidized loans at a 2% interest rate to borrowers. Details at <a href="http://mass.gov/dep/brp/mf/cwsrf.htm">http://mass.gov/dep/brp/mf/cwsrf.htm</a>	\$200 - \$300 million per year
Coastal Program	The U.S. Fish and Wildlife Service (FWS) Coastal Program works to conserve healthy coastal habitats on public or private land for the benefit of fish, wildlife, and people in 16 specific coastal areas. The program forms cooperative partnerships designed to (1) protect coastal habitats through conservation easements and acquisitions; (2) restore coastal wetlands, uplands, and riparian areas; and (3) remove barriers to fish passage in coastal watersheds and estuaries. Program biologists provide restoration expertise and financial assistance to federal and state agencies, local and tribal governments, businesses, private landowners, and conservation organizations such as local land trusts and watershed councils.	\$10 million
Community Septic Management Program (CSMP)	Analysis of Homeowner Septic Repair Special Revenue Account: This form can be used by Commonwealth communities participating in the Community Septic Management Program (CSMP) Title 5 betterment loans, for their quarterly reporting requirements. Form DA91 <a href="http://mass.gov/dep/brp/mf/files/dmsda91.doc">http://mass.gov/dep/brp/mf/files/dmsda91.doc</a>	Part of CWSRF

Coastal Services Center Cooperative Agreements	The National Oceanic and Atmospheric Administration (NOAA) guides the conservation and management of coastal resources through a variety of mechanisms, including collaboration with the coastal resource management programs of the nation's states and territories. The mission of the NOAA Coastal Services Center (CSC) is to support the environmental, social, and economic well being of the coast by linking people, information, and technology. The vision of the NOAA Coastal Services Center is to be the most useful government organization to those who manage and care for our nation's coasts. In FY04, CSC will support activities in the following areas: Landscape Characterization and Restoration, GIS Integration and Development, Coastal Remote Sensing, Information Resources, Pacific Services Center, and Integrated Ocean Observing Systems. Eligible applicants are institutions of higher education, hospitals, other non-profits, commercial organizations, foreign governments, organizations under the jurisdiction of foreign governments, international organizations, and state, local and Indian tribal governments.	\$ 3 million
Coastal Zone Management Administration/ Implementation Awards	This program assists states in implementing and enhancing Coastal Zone Management (CZM) programs that have been approved by the Secretary of Commerce. Funds are available for projects in areas such as coastal wetlands management and protection, natural hazards management, public access improvements, reduction of marine debris, assessment of impacts of coastal growth and development, special area management planning, regional management issues, and demonstration projects with potential to improve coastal zone management.	\$79,700,000
Community Development Block Grant Program	The Department of Housing and Urban Development sponsors this program, intended to develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities primarily for persons of low and moderate income. Recipients may initiate activities directed toward neighborhood revitalization, economic development, and provision of improved community facilities and services. Specific activities may include public services, acquisition of real property, relocation and demolition, rehabilitation of structures, and provision of public facilities and improvements, such as new or improved water and sewer facilities.	\$4,330,846
Community-based Restoration Program	The NOAA Community-based Restoration Program (CRP) provides funds for small-scale, locally driven habitat restoration projects that foster natural resource stewardship within communities. The program seeks to bring together diverse partners to implement habitat restoration projects to benefit living marine resources. Projects might include restoring salt marshes, mangroves, and other coastal habitats; improving fish passage and habitat quality for anadromous species; restoring and creating oyster reefs, removing exotic vegetation and replanting with native species; removing dams; and similar projects to restore habitat or improve habitat quality for populations of marine and anadromous fish. Partnerships are sought at the national and local level to contribute funding, land, technical assistance, workforce support, or other in-kind services.	\$10,000,000

<p>Conservation Innovation Grants</p>	<p>The USDA Natural Resources Conservation Service is soliciting applications for financial assistance for fiscal year 2004 Conservation Innovation Grants (CIG). Funds for single- or multi-year projects, not to exceed three years, will be awarded through a nationwide competitive grants process. CIG competitions will emphasize projects that have a goal of providing benefits over a large geographic area. These projects may be watershed-based, regional, multi-State, or nationwide in scope. Applications should describe the use of innovative technologies or approaches, or both, to address a natural resource conservation concern or concerns. The natural resource concerns eligible for funding through CIG are identified in the Request for Proposals. CIG is not a research program. Instead, it is a vehicle to stimulate the adoption of conservation approaches or technologies that have been studied sufficiently to indicate a likelihood of success, and are likely candidates for eventual technology transfer. CIG will fund projects targeting innovative on-the-ground conservation, including pilot projects and field demonstrations. Natural Resources Specialist, Phone 301.504.2222, Email <a href="mailto:cig@usda.gov">cig@usda.gov</a></p>	<p>\$15,000,000</p>
<p>Cooperative Endangered Species Conservation Fund</p>	<p>The U.S. Fish and Wildlife Service's (USFWS) Cooperative Endangered Species Conservation Fund provides financial assistance to states and territories that have entered into cooperative agreements with the USFWS to assist in the development of programs for the conservation of endangered and threatened species. The assistance provided to the state or territorial wildlife agency can include animal, plant, and habitat surveys; research; planning; monitoring; habitat protection, restoration, management, and acquisition; and public education. The Fund is dispersed to the states and territories through four programs: Conservation Grants, Habitat Conservation Planning Assistance Grants, Habitat Conservation Plan Land Acquisition Grants, and Recovery Land Acquisition Grants. Although not directly eligible for these grants, third parties such as nonprofit organizations and local governments may work with their state or territorial wildlife agency to apply for these funds.</p>	<p>\$81,596,000</p>
<p>Coastal Nonpoint Source Pollution Grant Program</p>	<p>CZM will issue a Request for Response (RFR) for the Coastal Nonpoint Source Pollution (CNPS) grant program in September of 2004. Grants issued under the CNPS Grant Program, as well as the Coastal Pollutant Remediation Grant Program (CPR), serve to implement portions of the Massachusetts Coastal Nonpoint Source Control Plan. The Plan includes measures to address nonpoint source pollution problems from each of the following sources: urban areas, marinas and recreational boating, agriculture, forestry, hydromodification (alteration of hydrologic characteristics of coastal and noncoastal waters), wetlands, and riparian areas. The primary goal of both of these grant programs is to improve coastal water quality by reducing or eliminating nonpoint sources of pollution through measures and strategies consistent with the Coastal Nonpoint Source Control Program. <a href="http://www.mass.gov/czm/fy05cnpsearlynotice.pdf">http://www.mass.gov/czm/fy05cnpsearlynotice.pdf</a></p>	<p>Part of CWSRF</p>
<p>Community Development Planning Program (EOEA and</p>	<p>Executive Order 418 Community Development Planning Program -- Up to \$30,000 per grant, to fund growth planning services used to create a Community Development Plan that addresses housing, transportation, economic development and natural resources. Municipalities Jointly funded and administered by EOEA, the Department of Housing and Community Development (DHCD), and the Massachusetts Highway Department (MHD) <a href="http://www.mass.gov/czm/environmentalgrants.pdf">http://www.mass.gov/czm/environmentalgrants.pdf</a></p>	<p>Information Source</p>



Cooperative Forestry Assistance Programs	Through its Forest Legacy Program (FLP), the USDA Forest Service supports state efforts to protect environmentally sensitive forest lands. Designed to encourage the protection of privately owned forest lands, FLP is an entirely voluntary program. The program helps fund the acquisition of forest land or partial interests in privately owned forest lands. It encourages and supports the acquisition of conservation easements, legally binding agreements transferring a negotiated set of property rights from one party to another, without removing the property from private ownership or the local tax rolls. FLP conservation easements restrict development, require sustainable forestry practices, protect a range of public values, and sometimes require public access for recreation.	\$64,000,000
Diesel Retrofit Program (MDRP)	The Massachusetts Diesel Retrofit Program (MDRP) responds to the need to control air pollution emissions from diesel engine equipment on construction sites. Currently, most construction equipment, including backhoes, front-end loaders, cranes, and air compressors are not required to be fitted with after-engine emission controls. However, diesel engines emit high levels of nitrogen oxides, particulate matter (PM), and a complex mixture of toxic gases. Many of the gases are known or suspected cancer-causing agents. The goal of the MDRP is to help reduce adverse health impacts, such as asthma, shortness of breath and decreased lung capacity, along with citizen complaints relating to emissions from diesel engines. <a href="http://mass.gov/dep/brp/mf/files/diesel.pdf">http://mass.gov/dep/brp/mf/files/diesel.pdf</a>	Part of CWSRF
Drinking Water State Revolving Fund	EPA awards grants to states to capitalize their Drinking Water State Revolving Fund (DWSRF) programs. States use a portion of their capitalization grants to set up a revolving fund from which loans are provided to eligible public water utilities (publicly- and privately-owned) to finance the costs of infrastructure projects. States rank projects and offer loans to utilities based on a priority ranking system. Priority is given to eligible projects that: (1) address the most serious risk to human health; (2) are necessary to ensure compliance with the requirements of the Safe Drinking Water Act; and, (3) assist systems most in need, on a per household basis, according to state-determined affordability criteria. States may also use up to 31 percent of their capitalization grants to fund set-aside activities that help to prevent contamination problems of surface and ground water drinking water supplies, as well as enhance water system management through source water protection, capacity development, and operator certification programs.	\$844,985,000
Environmental Entrepreneurship Program (EEP)	The National Oceanic and Atmospheric Administration Educational Partnership Program with Minority Serving Institutions (EPP/MSI) is designed to strengthen the capacity of Minority Serving Institutions to foster student careers, entrepreneurship opportunities and advanced academic degrees in sciences directly related to NOAA's mission. The Environmental Entrepreneurship Program is designed to support education and training programs that engage students in applying the necessary skills, tools, methods and technologies in sciences directly related to NOAA's mission. This includes fostering educational opportunities in coastal, oceanic, atmospheric, environmental sciences, and remote sensing technology coupled with training in economics, marketing, product development, and services to create jobs, businesses and economic development opportunities. The Environmental Entrepreneurship Program promotes partnerships with MSIs, NOAA and the public-private sector. Policy Advisor, Phone 301-713-0942 x122, Fax 301-713-0947, Email <a href="mailto:Steve.J.Drescher@noaa.gov">Steve.J.Drescher@noaa.gov</a>	\$3,000,000

Environmental Justice Collaborative Problem-Solving Grant Program	In 2003, the Office of Environmental Justice (OEJ) initiated the first Environmental Justice Collaborative Problem-Solving (CPS) Grant Program. The purpose of the program is to provide financial assistance to affected local community-based organizations who wish to engage in constructive and collaborative problem-solving by utilizing tools developed by EPA and others to find viable solutions for their community's environmental and/or public health concerns.	\$ 3 million; (grants awards of \$100,000 each)
Environmental Justice Hazardous Substance Small Grants Program	The purpose of this grant program is to provide financial assistance to affected local community-based organizations to support projects to examine issues related to a community's exposure to multiple environmental harms and risks. Projects must be of a research nature only, i.e., survey, research, collecting and analyzing data which will be used to expand scientific knowledge or understanding of the subject studied. The EPA has interpreted 'research' to include studies that extend to socioeconomic, institutional, and public policy issues as well as the 'natural' sciences. Research projects need not be limited to academic studies. EPA intends for the results of these research projects to be disseminated to members of the affected community. Funds can be used to develop a new activity or substantially improve the quality of existing programs that have a direct impact on affected communities.	\$500,000
Environmental Quality Incentives Program	The USDA Natural Resources Conservation Service's Environmental Quality Incentives Program (EQIP) was established to provide a voluntary conservation program for farmers and ranchers to address significant natural resource needs and objectives. Nationally, it provides technical, financial, and educational assistance; sixty percent of it is targeted to livestock-related natural resource concerns and the rest to more general conservation priorities. EQIP is available primarily in nationwide where there are significant natural resource concerns and objectives.	\$832,000,000
EPA Funding and Grants website	Website lists numerous environmental funding and grant sources in the following categories: General References, Wastewater and Drinking Water, Water Quality <a href="http://www.epa.gov/water/funding.html">http://www.epa.gov/water/funding.html</a>	Information Source
Five-Star Restoration Program	The EPA supports the Five-Star Restoration Program by providing funds to the National Fish and Wildlife Foundation and its partners, the National Association of Counties, NOAA's Community-based Restoration Program and the Wildlife Habitat Council. These groups then make subgrants to support community-based wetland and riparian restoration projects. Competitive projects will have a strong on-the-ground habitat restoration component that provides long-term ecological, educational, and/or socioeconomic benefits to the people and their community. Preference will be given to projects that are part of a larger watershed or community stewardship effort and include a description of long-term management activities. Projects must involve contributions from multiple and diverse partners, including citizen volunteer organizations, corporations, private landowners, local conservation organizations, youth groups, charitable foundations, and other federal, state, and tribal agencies and local governments. Each project would ideally involve at least five partners who are expected to contribute funding, land, technical assistance, workforce support, or other in-kind services that are equivalent to the federal contribution.	\$500,000

Flood Mitigation Assistance Program	The Flood Mitigation Assistance (FMA) program helps states and communities identify and implement measures to reduce or eliminate the long-term risk of flood damage to homes and other structures insurable under the National Flood Insurance Program (NFIP). Projects may include (1) elevation, relocation, or demolition of insured structures; (2) acquisition of insured structures and property; (3) minor, localized structural projects that are not fundable by state or other federal programs (erosion-control and drainage improvements); and (4) beach nourishment activities such as planting of dune grass.	Not yet available
Freshwater Mussel Fund	The National Fish and Wildlife Foundation and the U.S. Fish and Wildlife Service are administering a fund to enhance and protect freshwater mussel resources. Funds are available for the enhancement and protection of the mussel resource and for the restoration and cultivation of mussel shell populations allegedly affected by illegal acts.	Not yet available
Hazard Mitigation Grant Program	The Federal Emergency Management Agency's Hazard Mitigation Grant Program (HMGP) aims to provide States and communities with resources to invest in long-term actions that help to reduce the toll from potential natural and manmade hazards. The program also supports the implementation of mitigation measures during the immediate recovery from a disaster. The HMGP funds projects to protect either public or private property, as long as the project fits within the State's and local government's overall mitigation strategy and complies with program guidelines. In response to flood hazards, eligible projects include the elevation, relocation or acquisition and demolition of flood-prone structures, stormwater management projects, and certain types of minor flood control projects. The State is responsible for setting priorities for funding and administering the HMGP. Eligible applicants must apply for the program through the State. Individuals, businesses, or other organizations should contact their State Hazard Mitigation Officer and local government official for specific details.	Not yet available
Integrated Research, Education, and Extension Competitive Grants Program	Conservation Effects Assessment Project: The Cooperative State Research, Education, and Extension Service and Natural Resources Conservation Service are seeking applications proposing to evaluate the effects of watershed conservation practices, with a focus on understanding how the suite of conservation practices, the timing of these activities, and the spatial distribution of these practices throughout a watershed influence their effectiveness for achieving locally defined water quality goals. Email <a href="mailto:webmaster@csrees.usda.gov">webmaster@csrees.usda.gov</a>	\$2,700,000
Landowner Incentive Program (Non-Tribal)	The U.S. Fish and Wildlife Service's Landowner Incentive Program (LIP) grant program provides competitive matching grants to states, territories, and the District of Columbia to establish or supplement landowner incentive programs. These programs provide technical and financial assistance to private landowners for projects that protect and restore habitats of listed species or species determined to be at-risk. LIP projects will likely involve activities such as the restoration of marginal farmlands to wetlands, the removal of exotic plants to restore natural prairies, a change in grazing practices and fencing to enhance important riparian habitats, instream structural improvements to benefit aquatic species, road closures to protect habitats and reduce harassment of wildlife, and acquisition of conservation easements. Although not directly eligible for these grants, third parties such as nonprofit organizations may benefit from these funds by working directly with their states to see if either grants or partnering opportunities are available.	\$25.8 million

Massachusetts Environmental Trust	The Massachusetts Environmental Trust is the state's largest philanthropy funding water quality initiatives. Our goals are to improve and safeguard the quality of the waterways throughout the Commonwealth. We fund nonprofit organizations, municipalities, scientists and educational institutions through two programs: Unrestricted General Grants and Restricted Settlement Grants <a href="http://www.agmconnect.org/massenvironmentaltrust/grant-seekers-existing-grantees.htm">http://www.agmconnect.org/massenvironmentaltrust/grant-seekers-existing-grantees.htm</a>	Information Source
Migratory Bird Conservancy	The National Fish and Wildlife Foundation's (NFWF) Migratory Bird Conservancy (MBC) program is a bird conservation grant fund supported by donations from birding businesses and their customers, and matched by NFWF. The MBC will fund projects that directly address conservation of priority bird habitats in the Western Hemisphere. Acquisition, restoration, and improved management of habitats are program priorities. Education, research, and monitoring will be considered only as components of actual habitat conservation projects.	Not available
National Fish and Wildlife Foundation General Matching Grants	The National Fish and Wildlife Foundation operates a conservation grants program that awards challenge grants, on a competitive basis, to eligible grant recipients. Grants are awarded to projects that: (1) address priority actions promoting fish and wildlife conservation and the habitats on which they depend; (2) work proactively to involve other conservation and community interests; (3) leverage available funding; and (4) evaluate project outcomes.	\$4,000,000
National Wildlife Refuge Friends Group Grant Program	The National Fish and Wildlife Foundation provides grants for projects that help organizations to be effective co-stewards of our Nation's important natural resources within the National Wildlife Refuge System. This program provides competitive seed grants to help increase the number and effectiveness of organizations interested in assisting the refuge system nationwide. The program will fund: (1) Start-up Grants to assist starting refuge support groups with formative and/or initial operational support (membership drives, training, postage, etc.); (2) Capacity Building Grants to strengthen existing refuge support groups' capacity to be more effective (outreach efforts, strategic planning, membership development); and (3) Project Specific Grants to support a specific project (conservation education programs for local schools, outreach programs for private landowners, habitat restoration projects, etc.)	\$200,000
Native Plant Conservation Initiative	The National Fish and Wildlife Foundation's Native Plant Conservation Initiative (NPCI) supports on-the-ground conservation projects that protect, enhance, and/or restore native plant communities on public and private land. Projects typically fall into one of three categories and may contain elements of each: protection and restoration, information and education, and inventory and assessment. Applicants are encouraged, when appropriate, to include a pollinator component in their project. The Bureau of Land Management, Forest Service, Fish and Wildlife Service, and National Park Service fund this program.	Not yet available
Nonpoint Source Implementation Grants (319 Program)	Through its 319 program, EPA provides formula grants to the states and tribes to implement nonpoint source projects and programs in accordance with section 319 of the Clean Water Act (CWA). Nonpoint source pollution reduction projects can be used to protect source water areas and the general quality of water resources in a watershed. Examples of previously funded projects include installation of best management practices (BMPs) for animal waste; design and implementation of BMP systems for stream, lake, and estuary watersheds; basinwide landowner education programs; and lake projects previously funded under the CWA section 314 Clean Lakes Program.	\$237,092,900

<p>Nonpoint Source Management Plan (MA-DEP - Volume I - Strategic Summary 2000)</p>	<p>Since, by definition, nonpoint source pollution is "pollution of surface water or groundwater supplies originating from land-use activities and or the atmosphere", a key element of preserving and cleaning up our impaired waters across the Commonwealth will be contingent upon our local communities ability to effectively manage future growth and development.</p> <p>Section VII of the Manual provides two funding tables of available funding resources to assist local officials and community stakeholders. The first table highlights specific programs available for addressing nonpoint sources of pollution, along with a corresponding "Reference #" which provides specific program and contact information. The second table provides a listing of community funding resources available for managing local growth and development, while preserving and protecting our natural resources. In addition, a broad range of technical assistance resources is provided to assist communities in resource protection and community planning and development. <a href="http://www.mass.gov/dep/brp/wm/files/npsmpv1.doc">http://www.mass.gov/dep/brp/wm/files/npsmpv1.doc</a></p>	<p>Information Source</p>
<p>Northeast Utilities Environmental Community Grant Program</p>	<p>Grants between \$250 and \$1,000 are awarded twice a year – in May and November – in Connecticut, Massachusetts and New Hampshire. Eligibility: Projects to protect or preserve the environment, including improving a local wildlife habitat or starting and maintaining a recycling program. Providing education on environmental issues of local interest to adults or children.</p> <p>Improving the environment through organized cleanup projects (such as cleaning up a park, part of a stream or a vacant lot) or by reclaiming and rehabilitating damaged environments.</p> <p>For more information or to apply for a grant, contact the NU Environmental Management Department at (860) 665-3901</p>	<p>Unknown</p>
<p>Not-for-Profit Acid Mine Drainage</p>	<p>The U.S. Department of Interior's Acid Mine Drainage (AMD) Reclamation Program is designed to support the efforts of local not-for-profit organizations, especially watershed groups, to complete construction projects designed to clean streams impacted by AMD.</p>	<p>\$2,700,000</p>
<p>Outdoor Classroom Program</p>	<p>To further environmental education across the Commonwealth's schools, the Massachusetts Executive Office of Environmental Affairs Outdoor Classroom Program is designed for municipalities, public schools, or public institutions of higher education in Massachusetts. The goal of the program is to assist these groups in restoring, improving, and/or researching natural areas on appropriately open and accessible private lands or public lands at a public school or municipal grounds.</p> <p><a href="http://www.mass.gov/czm/outdoorclassroom.htm">http://www.mass.gov/czm/outdoorclassroom.htm</a></p>	<p>Information Source</p>
<p>Partners for Fish and Wildlife Program</p>	<p>The Partners for Fish and Wildlife Program provides technical and financial assistance to private landowners to restore fish and wildlife habitats on their lands. Since 1987, the program has partnered with more than 33,000 landowners to restore 677,000 acres of wetlands; 1.2 million acres of grasslands and other upland habitats; and 5,600 miles of in-stream and streamside habitat. In addition, the program has reopened stream habitat for fish and other aquatic species by removing barriers to passage. The FY 2003 budget was \$28 million and the FY 2004 budget for the Program is about \$32 million.</p>	<p>\$ 32 million</p>
<p>Private Stewardship Grants Program</p>	<p>The U.S. Fish and Wildlife Service's Private Stewardship Grants Program (PSGP) provides grants and other assistance on a competitive basis to individuals and groups engaged in private conservation efforts that benefit species listed or proposed as endangered or threatened under the Endangered Species Act of 1973, as amended, candidate species, or other at-risk species on private lands within the United States. Examples of the types of projects that may be funded include managing nonnative competitors, reintroducing imperiled species, implementing measures to minimize risk from disease in imperiled species populations, restoring streams that support imperiled species, fencing to exclude animals from sensitive habitats, and planting native vegetation to restore a rare plant community.</p>	<p>\$ 7.5 million</p>

Protecting Older Adults (EPA)	The U.S. Environmental Protection Agency (EPA) is currently accepting applications for projects that help protect older adults from environmental hazards such as air and water pollution. Projects must address one or more of the following goals: 1) train older adults, retirees and semi-retirees to be environmental leaders in their communities; 2) demonstrate new or experimental technologies, methods or approaches that reduce exposure to environmental health hazards; 3) build state, local and tribal capacity to protect the health of older adults from environmental hazards; 4) develop and implement intergenerational strategies that reduce exposure to environmental health hazards, and 5) demonstrate how smart growth activities can improve the quality of life for older adults while improving environmental quality. See <a href="http://www.lgean.org/html/whatsnew.cfm?id=739">http://www.lgean.org/html/whatsnew.cfm?id=739</a> and <a href="http://www.epa.gov/aging/grants/">http://www.epa.gov/aging/grants/</a>	\$200,000
Public Works and Development Facilities Program	This program provides assistance to help distressed communities attract new industry, encourage business expansion, diversify local economies, and generate long-term, private sector jobs. Among the types of projects funded are water and sewer facilities, primarily serving industry and commerce; access roads to industrial parks or sites; port improvements; business incubator facilities; technology infrastructure; sustainable development activities; export programs; brownfields redevelopment; aquaculture facilities; and other infrastructure projects. Specific activities may include demolition, renovation, and construction of public facilities; provision of water or sewer infrastructure; or the development of stormwater control mechanisms (e.g., a retention pond) as part of an industrial park or other eligible project.	est. \$232,100,000
Pulling Together Initiative	The National Fish and Wildlife Foundation's Pulling Together Initiative (PTI) provides a means for federal agencies to partner with state and local agencies, private landowners, and other interested parties to develop long-term weed management projects within the scope of an integrated pest management strategy. The goals of PTI are: (1) to prevent, manage, or eradicate invasive and noxious plants through a coordinated program of public/private partnerships; and (2) to increase public awareness of the adverse impacts of invasive and noxious plants. PTI provides support on a competitive basis for the formation of local weed management area (WMA) partnerships, allowing them to demonstrate successful collaborative efforts and develop permanent funding sources for the maintenance of WMAs from the involved parties. Successful projects will serve to increase public awareness and interest in future partnership projects.	Not yet available
Right Whale Research Grant Program (RWRGP)	The North Atlantic right whale is among the world's most endangered cetaceans. The population is believed to number only about 300 individuals and appears to be declining. The lack of recovery is due in part to high mortality from human sources, notably fishing gear entanglements and vessel collisions. A Recovery Plan is in effect, and conservation of this species is a high priority for NOAA Fisheries. Research directed at facilitating such conservation or to provide monitoring of the population's status and health, is also a high priority for the agency. The RWRGP is conducted by NOAA to provide Federal assistance to eligible researchers for: (1) detection and tracking of right whales; (2) behavior of right whales in relation to ships; (3) relationships between vessel speed, size or design with whale collisions; (4) modeling of ship traffic along the Atlantic coast; (5) population monitoring and assessment studies; (6) reproduction, health and genetic studies; (7) development of a Geographic Information System database or other system designed to investigate predictive modeling of right whale distribution in relation to environmental variables; (8) habitat quality studies including food quality and pollutant levels; and (9) any other work relevant to the recovery of North Atlantic right whales. Policy Advisor, Phone 301-713-0942 x122, Email <a href="mailto:Steve.J.Drescher@noaa.gov">Steve.J.Drescher@noaa.gov</a>	\$2,000,000
River Network	Directory of Funding Sources: Lists over 300 private, corporate and federal funding sources for river and watershed groups. <a href="http://www.rivernetwork.org/library/index.cfm?doc_id=117">http://www.rivernetwork.org/library/index.cfm?doc_id=117</a>	Information Source

Riverways Small Grant Program	<p>Initiated in 1987, the Small Grants Program provides modest amounts of money to promote the restoration and protection of the ecological integrity of Commonwealth's rivers, streams and adjacent lands.</p> <p>The grants have proven to be a wise investment for the Commonwealth as they foster action and result in benefits to the community that continue well after the grant period ends, as well as leverage local and foundation funding. This success is due to the energy, commitment and dedication of the partnerships formed by volunteers, watershed associations, local businesses, town officials and others that undertake the projects funded by the grants.</p> <p>In addition to providing seed money, Riverways also offer technical assistance, as appropriate, to both groups receiving grant awards and those that do not. <a href="http://www.mass.gov/dfwele/river/rivsmallgrnts.htm">http://www.mass.gov/dfwele/river/rivsmallgrnts.htm</a></p>	Approx. \$50,000 per year, on a dozen projects
Safe Drinking Water Act (SDWA) Source Water and Wellhead Protection Grants	<p>SRF Set-Asides of the Safe Drinking Water Act:  <a href="http://mass.gov/dep/brp/mf/files/ips.doc">http://mass.gov/dep/brp/mf/files/ips.doc</a></p> <p>The purpose of the Source Water Protection Grant Program is to provide technical assistance to public drinking water suppliers through local and regional source protection efforts. Priority is given to projects that benefit public surface water supplies and systems that have both surface and groundwater sources; projects which address immediate threats in Zone A or Zone I; and projects which benefit public water supplies with an up-to-date, Department-approved, local Surface Water Supply Protection Plan.</p> <p>The Wellhead Protection Grant Program provides funding to public water systems for developing and implementing wellhead protection projects and plans. The direct recipients are public water suppliers; however, municipal boards, community groups, schools, and local and regional planning entities can develop and implement projects. All community public water systems (PWS) and non-transient non-community (NTNC) public water systems that serve schools are eligible to apply. The proposed work must benefit active drinking water sources.</p>	Information Source
Science to Achieve Results	<p>The Science to Achieve Results (STAR) program is designed to improve the quality of science used in EPA's decision-making process. STAR funds are provided for research in the following six areas: (1) Safe Drinking Water (includes source water protection), (2) High Priority Air Pollutants, (3) Research to Improve Human Health Risk Assessment, (4) Research to Improve Ecological Risk Assessment, (5) Emerging Issues, and (6) Pollution Prevention and New Technologies. The STAR program is intended to facilitate cooperation between EPA and the scientific community to help forge solutions to environmental problems. Research topic solicitations vary and are advertised in the Federal Register and through the Internet, university and scientific organizations, direct mail, and other avenues.</p>	Not available
State Wildlife Grant Program (Non-Tribal)	<p>The U.S. Fish and Wildlife Service's (USFWS) State Wildlife Grant (SWG) program provides grants to states, territories, and the District of Columbia for wildlife conservation. The SWG program provides funds to help develop and implement programs that benefit wildlife and their habitat, including species that are not hunted or fished. Although not directly eligible for these grants, third parties such as nonprofit organizations may benefit from these funds by working directly with their states to see if either grants or partnering opportunities are available.</p>	\$61.1 million

<p>Superfund Technical Assistance Grants for Citizen Groups at Priority Sites</p>	<p>The EPA awards funds to qualified groups of individuals to procure independent technical advisors to help in interpreting and commenting on Superfund site-related information and decisions. Examples of how a technical advisor can help a group include, but are not limited to: reviewing preliminary site assessment/site investigation data; participating in public meetings to help interpret information about site conditions, proposed remedies, and the implementation of a remedy; visiting the site vicinity periodically during cleanup, if possible, to observe progress and provide technical updates to the group; and evaluating future land use options based on land use assumptions in the "remedial investigation/feasibility study". Funds can be used at sites that are listed on the National Priorities List (NPL) or proposed for the NPL where a "response" action has begun.</p>	<p>est. \$1,200,000</p>
<p>Targeted Watershed Grants Program</p>	<p>EPA will ask Governors and tribal leaders for nominations and select up to 20 watershed organizations to receive grants to support innovative watershed based approaches to preventing, reducing, and eliminating water pollution. Nominations that are likely to result in environmental improvements in a relatively short time frame and that show broad stakeholder involvement would be strong candidates. Preference will be given to watershed plans that involve multiple states and/or tribes. The Initiative will also support local communities in their efforts to expand and improve existing protection measures with tools, training, and technical assistance.</p>	<p>\$ 15 million</p>
<p>Technical Assistance for Coastal Managers Program</p>	<p>The Technical Assistance for Coastal Managers program represents an NOAA/CSC effort to improve the use of monitoring data and geospatial information and technology in coastal management through collaborative work with members of the coastal management community that have expertise in community planning and resource management. These activities will engage coastal managers from multiple organizations and levels of government and improve the management of coastal resources by applying geospatial knowledge, practices, and principles to new approaches for managing coastal resources. The Technical Assistance for Coastal Managers program contributes to other efforts at the NOAA/CSC and is designed to complement those efforts. Policy Advisor, Phone 301-713-0942 x122, Fax 301-713-0947, Email Steve.J.Drescher@noaa.gov</p>	<p>\$1,750,000</p>
<p>Transportation Equity Act for the 21st Century Funding Programs</p>	<p>The Transportation Equity Act for the 21st Century (TEA-21) funds numerous transportation programs (Surface Transportation Program (STP), National Highway System, etc.) to improve the nation's transportation infrastructure, enhance economic growth, and protect the environment. States may spend up to 20 percent of their STP dollars for environmental restoration and pollution abatement projects, including the construction of stormwater treatment systems. Additionally, each state sets aside 10 percent of STP funds for transportation enhancement projects, which can include acquisition of conservation and scenic easements, wetland mitigation, and pollution abatement, as well as scenic beautification, pedestrian and bicycle trails, archaeological planning, and historic preservation. These varied project types can be used to protect source water areas during construction of transportation corridors.</p>	<p>Not yet available</p>



<p>Urban and Community Forestry Challenge Cost-Share Grants</p>	<p>The U.S. Forest Service's Urban and Community Forestry Challenge Cost-Share Grant Program seeks to establish sustainable urban and community forests by encouraging communities to manage and protect their natural resources. The program works to achieve a number of goals, including (1) effectively communicating information about the social, economic, and ecological values of urban and community forests; (2) involving diverse resource professionals in urban and community forestry issues; and (3) supporting a holistic view of urban and community forestry. In particular, the program supports an ecosystem approach to managing urban forests for their benefits to air quality, stormwater runoff, wildlife and fish habitat, and other related ecosystem concerns. The Forest Service awards these grants based on recommendations made by The National Urban and Community Forestry Advisory Council, a 15-member advisory council created by the 1990 Farm Bill to provide advice to the Secretary of Agriculture on urban and community forestry.</p>	<p>Not yet available</p>
<p>USDA National Research Initiative (NRI) Competitive Grants Program</p>	<p>The purpose of the NRI Program is to support research, extension, and education grants that address key problems of national, regional, and multistate importance in sustaining all components of agriculture (farming, ranching, forestry including urban and agroforestry, aquaculture, rural communities, human nutrition, processing, etc.). Providing this support requires that NRI advance fundamental sciences in support of agriculture and coordinate opportunities to build on these discoveries. Building on these discoveries will necessitate new efforts in education and extension that deliver science-based knowledge to people, allowing them to make informed practical decisions. Hence, in FY 2004 the NRI will accept applications for fundamental research, mission-linked research, and integrated research, extension, and education projects. Phone 202-720-4112, Fax 202-720-0857, Email <a href="mailto:webmaster@csrees.usda.gov">webmaster@csrees.usda.gov</a></p>	<p>No funding in 2004</p>
<p>Water Quality Cooperative Agreements</p>	<p>These EPA grants are provided to help states, Indian tribes, interstate agencies, and other public or nonprofit organizations develop, implement, and demonstrate innovative approaches relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. This includes watershed approaches for combined sewer overflow, sanitary sewer overflows, and storm water discharge problems, pretreatment and sludge (biosolids) program activities, decentralized systems, and alternative ways to measure the effectiveness of point source programs. The estimate of funds available for fiscal year 2003 includes \$20 million that has been requested for a new Watershed Initiative (WSI) program. Details for that program are currently being developed. If funds are appropriated for this program separate guidelines will be developed for the submittal, review, and approval of WSI projects.</p>	<p>\$18,887,900</p>
<p>Water and Waste Disposal Systems for Rural Communities</p>	<p>This USDA Rural Utilities Service program provides monies to provide basic human amenities, alleviate health hazards, and promote the orderly growth of the rural areas of the nation by meeting the need for new and improved rural water and waste disposal facilities. Funds may be used for the installation, repair, improvement, or expansion of a rural water facility including costs of distribution lines and well pumping facilities. Funds also support the installation, repair, improvement, or expansion of a rural waste disposal facility, including the collection and treatment of sanitary waste stream, stormwater, and solid wastes.</p>	<p>Direct loans: est. \$900,000,000; Guaranteed Loans est. \$75,000,000; Grants: est. \$600,000,000</p>

Watershed Processes and Water Resources Program	The Watershed Processes program sponsors basic and mission-linked research that address two areas: (1) Understanding fundamental processes controlling a) source areas and flow pathways of water, b) the transport and fate of water, sediment, nutrients, dissolved matter, and organisms (including water-borne pathogens), within forest, rangeland, and agricultural environments as influenced by watershed characteristics and contaminant origin, and c) water quality. (2) Developing appropriate technology and management practices for improving the effective use of water (consumptive and non-consumptive) and protecting or improving water quality for agricultural and forestry production, including the evaluation of management policies that affect the quantity and quality of water resources.	Not yet available
Watershed Projects Grants Program (MA-DEP)	The Division of Municipal Services (DEP/DMS) is the section of the Massachusetts Department of Environmental Protection (MA DEP) responsible for awarding and administering several different state and federal programs that provide grant funding on a reimbursement basis for projects under the Bureau of Resource Protection's (BRP) Watershed Projects Program. These include: <ul style="list-style-type: none"> <li>• 604b Water Quality Management Planning</li> <li>• 104(b)(3) Wetlands and Water Quality</li> <li>• 319(h) Nonpoint Source Grant Program</li> <li>• Source Water Technical Assistance/Land Management Grant Program (SWT)</li> <li>• Wellhead Protection Grant Program</li> <li>• Research and Demonstration Program</li> </ul> <a href="http://mass.gov/dep/brp/mf/files/gguide.pdf">http://mass.gov/dep/brp/mf/files/gguide.pdf</a>	Information Source
Wetland Conservation Projects – US Fish and Wildlife Service	The U.S. Fish and Wildlife Service is accepting proposals for North American Wetlands Conservation Act (NAWCA) standard grant proposals. NAWCA proposals are four-year plans of action supported by a NAWCA grant and partner funds to conserve wetlands and wetlands-dependent fish and wildlife through acquisition (including easements and land title donations), restoration and/or enhancement, with a grant request between \$51,000 and \$1,000,000. Matching funds a required; they must be non-Federal and at least equal the grant request. Match is eligible up to 2 years prior to the year the proposal is submitted and grant and match funds are eligible after the proposal is submitted and through the project period. The deadline is July 30, 2004. For more information on developing proposals, contact David Buie at <a href="mailto:david_buie@fws.gov">david_buie@fws.gov</a> . See <a href="http://www.lgean.org/html/whatsnew.cfm?id=690">http://www.lgean.org/html/whatsnew.cfm?id=690</a> and <a href="http://birdhabitat.fws.gov/NAWCA/USstandgrants.html">http://birdhabitat.fws.gov/NAWCA/USstandgrants.html</a>	\$50,000 to \$1,000,000 per grant
Wetlands Reserve Program	Through this voluntary program, the USDA Natural Resources Conservation Service (NRCS) provides landowners with financial incentives to restore and protect wetlands in exchange for retiring marginal agricultural land. To participate in the program landowners may sell a conservation easement or enter into a cost-share restoration agreement (landowners voluntarily limit future use of the land, but retain private ownership). Landowners and the NRCS jointly develop a plan for the restoration and maintenance of the wetland.	Not yet available
Wetlands Restoration Program (WRP)	GROWetlands Grant: Financial support for cities and towns to conduct wetlands restoration project design or implementation Must be for pro-active voluntary projects and not for mitigation purposes. The Massachusetts Wetlands Restoration Program has moved to the Office of Coastal Zone Management (CZM) within EOE. The Corporate Wetlands Restoration Partnership is now an independent organization. See <a href="http://www.mass.gov/czm/wrp/index.htm">http://www.mass.gov/czm/wrp/index.htm</a>	Information Source
104b3 Grant Program - Wetland and Water Quality	Brief descriptions of the sixty (60) Wetland and Water Quality projects financed under Section 104b3 Clean Water Act during federal fiscal years 1996 through 2001. September 2002. <a href="http://mass.gov/dep/brp/mf/files/idsum104.doc">http://mass.gov/dep/brp/mf/files/idsum104.doc</a> Water Quality and Wetland project priorities are established each year by the Department to support the Massachusetts Watershed Initiative and programmatic needs in the Department's Five-Year Basin Assessment and Planning cycle. These projects reflect state agency efforts in developing new approaches to protect the Commonwealth's wetland and water resources through data collection, data analysis, development of new Standard Operating Procedures, Total Maximum Daily Loading development and demonstration of Best Management Practices that address 303d listed waters.	\$3.4 million 1996-2001

604(b) Program - Water Quality Management Planning Grants	<p>Eligibility: Regional Public Comprehensive Planning Organizations or Interstate Organizations. EPA defines eligible entities as regional planning agencies, council of governments, counties, conservation districts, cities and towns, and other substate public planning agencies and interstate agencies.</p> <p>Eligible projects:</p> <ul style="list-style-type: none"> <li>- Assessment of Local Water Quality Protection Measures</li> <li>- Assessment of Land use Activities By Watershed</li> <li>- Assessment of Local and Regional Env. Awareness, Activities, and Concerns</li> <li>- Water Quality Assessment</li> <li>- Water Supply Source Protection Planning</li> <li>- Water Supply Development Planning</li> <li>- Watershed Wetlands Restoration Planning; Site-Specific Wetlands - Restoration Project Planning or Design</li> </ul> <ul style="list-style-type: none"> <li>-- Define the environmental (water quality) problem</li> <li>-- Key the project to the Watershed Action Plan</li> <li>-- Proposal should cover who, what, where, when, why, &amp; outcomes</li> </ul> <p>For MA-DEP indicative project list, see <a href="http://mass.gov/dep/brp/mf/97604b.pdf">http://mass.gov/dep/brp/mf/97604b.pdf</a></p>	\$180,000 in MA
---	--	-----------------

Sources: <http://cfpub.epa.gov/fedfund/search1.cfm>  
<http://www.nu.com/environmental/grant.asp>  
<http://fedgrants.gov/Applicants/DOI/FWS/ES/PSGP-04/Grant.html>  
<http://fedgrants.gov/Applicants/EPA/OGD/GAD/EPA-GRANTS-051304-002/listing.html>  
<http://fedgrants.gov/grants/servlet/SearchServlet/>

## **Previously Funded Roundtable Projects (FY99-02)**

Fiscal year	Project Name	Vendor	Funding Agency	\$allocated/\$spent	% complete	accomplishments
99	Determination of minimal base flow Saugus River	Gomez & Sullivan	DCR (DEM)	\$50,000	95	Completed habitat assessment, draft final report submitted
99	Water Quality assessment in 4 NCW subwatersheds	SSCW, SWRC, MAS/NS	DEP	\$36,357	100	Water Quality Assessment: Gloucester Harbor, North River, Saugus River, Smallpox Brook
99	Salem Sound 2000 Capacity Building Grant	SSCW	EOEA/MWI	\$50,000	100	Clean Beaches and Streams, Board of Directors, Citizen Wetland Health Program, North Coastal Watersheds Alliance
99	Stormwater Management Workshops for Local Officials		MCZM-NS		100	3 regional workshops were held, each workshop included examples of BMPs and projects implemented in both rural and urban settings, workbook and guidance documents were provided.
99	Growth Management	MCZM/MAPC	EOEA PFG	\$60,000	100	Conservation Subdivision Guidebook bylaw review
00	Setting action plan priorities in subwatersheds	North Shore Alliance	DEP	\$18300	100	Conducted 5 community forums 1 general, 4 specific, brochure for each subwatershed
00	Targeting and Eliminating Untreated Sewage Discharges in Four Subwatersheds in the NCW	URS Consulting Group	DEP	\$60,000	100	Completed Task 1 Identified stormwater drains. Conducted 2 rounds of sampling. Submitted draft final report.
00	Implementation of Land Protection Tech. Asst. Salt marsh Restoration	WB &RP	MCZM	\$35,000	100	Submitted Draft Final Salt Marsh Restoration Plan for Rumney Marsh ACEC, initiated restoration plan for Great Salt Marsh, identified and evaluated salt marsh restoration project at Eastern Point Gloucester.

Fiscal year	Project Name	Vendor	Funding Agency	\$allocated/ \$spent	% complete	accomplishments
01	Inventory and Evaluation of Brownfield sites in the NCW	Daylor Assoc	DFWELE	\$27,000	90%	Report completed, conducted several outreach meetings, awaiting the scheduling of training session for local communities.
01	Implementation of land protection technical assistance program in NS communities	Susan Jones Moses	MCZM/MB NS project manager	\$35,000	50%	Contractor hired has contacted all communities in the NCW.
01	Technical Assistance for NPDES Stormwater Phase II Comp.	Vanasse Hangen Brustlin	DEP	\$54,000	100%	Completed all workshops and presentations, Draft Final Report submitted
02	GIS Mapping in Selected Storm water Drainage Systems PHASE	TBD	EOEA/ MGIS	\$30,000	0%	RFR recently posted on COMM PAS
02	Implementing Clean Beach Practices on the North Shore	TBD	EOEA/ MCZM	\$10,000	0%	RFR recently posted on COMM PAS
02	Circuit Rider Provide local communities assistance in implementing CPA	TBD	EOEA/ MCZM		0%	
02	Documenting Anadromous Fish Runs/NS		MAS/NS, 8T&tB, SRWC		45%	First year of program nearly completed

## Appendix H. Subwatersheds and Municipalities

### North Coastal Subwatersheds and Municipalities

NCB 1 ANNISQUAM RIVER	GLOUCESTER
NCB 2 BASS RIVER	BEVERLY
NCB 3 BEVERLY HARBOR	BEVERLY, SALEM
NCB 4 DANVERS RIVER	DANVERS, PEABODY, BEVERLY, WENHAM
NCB 5 ESSEX BAY	ESSEX, GLOUCESTER, IPSWICH, HAMILTON, MANCHESTER, WENHAM, BEVERLY
NCB 6 GLOUCESTER HARBOR	GLOUCESTER
NCB 7 IPSWICH BAY	GLOUCESTER, IPSWICH
NCB 8 LYNN HARBOR	LYNN, NAHANT, REVERE
NCB 9 MANCHESTER HARBOR	MANCHESTER, GLOUCESTER, ESSEX
NCB 10 MARBLEHEAD HARBOR	MARBLEHEAD
NCB 11 NAHANT BAY	SWAMPSCOTT, LYNN, NAHANT, SALEM
NCB 12 NORTH RIVER	PEABODY, SALEM, LYNN, LYNNFIELD
NCB 13 PINES RIVER	REVERE, SAUGUS, MALDEN, EVERETT, MELROSE
NCB 14 SALEM HARBOR	SALEM, MARBLEHEAD, SWAMPSCOTT
NCB 15 SANDY BAY	ROCKPORT Called Rockport Harbor by DFWELE
NCB 16 SAUGUS RIVER	SAUGUS, MELROSE, LYNN, WAKEFIELD, MALDEN, REVERE, STONEHAM, READING

NCB 17 BLACKWATER RIVER SALISBURY, SEABROOK NH, AMESBURY

THE SUBWATERSHEDS LISTED BELOW CONTAIN THE DFWELE VERSION PLUS TWO ADDITIONS ADDED TO REFLECT SUBWATERSHEDS TO THE SAUGUS RIVER ( BEAVERDAM BROOK AND MILL RIVER)

NCB 18 ALEWIFE BROOK ESSEX

NCB 19 BEAVERDAM BROOK LYNNFIELD, NORTH READING  
in the DFWELE version looped in the Upper Saugus

NCB 20 BENNETS POND BROOK SAUGUS, STONEHAM

NCB 21 BEVERLY ROCKS BEVERLY

NCB 22 BROAD SOUND REVERE, NAHANT

NCB 23 CAT BROOK MANCHESTER, ESSEX

NCB 24 CHEBACCO LAKE HAMILTON, ESSEX, WENHAM

NCB 25 CHUBB CREEK BEVERLY

NCB 26 CRANE RIVER DANVERS

NCB 27 FOREST RIVER SALEM, SWAMPSCOTT

NCB 28 FROST FISH BROOK DANVERS, BEVERLY

NCB 29 GOLDTHWAITE BROOK PEABODY

NCB 30 GOOD HARBOR BEACH GLOUCESTER

NCB 31 HALIBUT POINT ROCKPORT, GLOUCESTER

NCB 32 HAWKES BROOK LYNN, SAUGUS, LYNNFIELD

NCB 33 LANESVILLE	GLOUCESTER
NCB 34 MILL RIVER	WAKEFIELD In the DFWELE version looped in the Upper Saugus
NCB 35 PHILLIPS BEACH	SWAMPSCOTT, MARBLEHEAD
NCB 36 PROCTOR BROOK	PEABODY
NCB 37 REVERE BROOK	LYNN, SAUGUS
NCB 38 SAWMILL BROOK	ROCKPORT
NCB 39 SHUTE BROOK	SAUGUS, MELROSE
NCB 40 SMALLPOX BROOK	SALISBURY
NCB 41 STONY BROOK	LYNN, PEABODY
NCB 42 WALKER CREEK	GLOUCESTER, ESSEX
NCB 43 WOLFTRAP BROOK	MANCHESTER, GLOUCESTER



# Appendix I. Surface Water Quality Standards

Table 3. Summary of Massachusetts Surface Water Quality Standards (DEP 1996). *Note: Italics are direct quotations.*

Dissolved Oxygen	<p><u>Class A, BCWF*, SA</u> : ? 6.0 mg/L and <math>\geq</math> 75% saturation unless background conditions are lower</p> <p><u>Class BWWF**, SB</u>: ? 5.0 mg/L and <math>\geq</math> 60% saturation unless background conditions are lower</p> <p><u>Class C</u>: Not <math>\leq</math> 5.0 mg/L for more than 16 of any 24 –hour period and not <math>\leq</math> 3.0 mg/L anytime unless background conditions are lower; levels cannot be lowered below 50% saturation due to a discharge</p> <p><u>Class SC</u>: Not <math>\leq</math> 5.0 mg/L for more than 16 of any 24 –hour period and not <math>\leq</math> 4.0 mg/L anytime unless background conditions are lower; and 50% saturation; levels cannot be lowered below 50% saturation due to a discharge</p>
Temperature	<p><u>Class A</u>: <math>\leq</math> 68°F (20°C) and ? 1.5°F (0.8°C) for Cold Water and <math>\leq</math> 83°F (28.3°C) and ? 1.5°F (0.8°C) for Warm Water</p> <p><u>Class BCWF</u>: <math>\leq</math> 68°F (20°C) and ? 3°F (1.7°C) due to a discharge</p> <p><u>Class BWWF</u>: <math>\leq</math> 83°F (28.3°C) and ? 3°F (1.7°C) in lakes, ? 5°F (2.8°C) in rivers</p> <p><u>Class C, SC</u>: <math>\leq</math> 85°F (29.4°C) nor ? 5°F (2.8°C) due to a discharge</p> <p><u>Class SA</u>: <math>\leq</math> 85°F (29.4°C) nor a maximum daily mean of 80°F (26.7°C) and ? 1.5°F (0.8°C)</p> <p><u>Class SB</u>: <math>\leq</math> 85°F (29.4°C) nor a maximum daily mean of 80°F (26.7°C) and ? 1.5°F (0.8°C) between July through September and ? 4.0°F (2.2°C) between October through June</p>
pH	<p><u>Class A, BCWF, BWWF</u>: 6.5 – 8.3 and ? 0.5 outside the background range.</p> <p><u>Class C</u>: 6.5 – 9.0 and ? 1.0 outside the naturally occurring range.</p> <p><u>Class SA, SB</u>: 6.5 – 8.5 and ? 0.2 outside the normally occurring range.</p> <p><u>Class SC</u>: 6.5 – 9.0 and ? 0.5 outside the naturally occurring range.</p>
Fecal Coliform Bacteria	<p><u>Class A</u>: an arithmetic mean of &lt; 20 organisms /100 ml in any representative set of samples and &lt; 10% of the samples &gt; 100 organisms/100 ml.</p> <p><u>Class B</u>: a geometric mean of &lt; 200 organisms /100 ml in any representative set of samples and &lt; 10% of the samples &gt; 400 organisms /100 ml. (This criterion can be applied on a seasonal basis at the discretion of the DEP.)</p> <p><u>Class C</u>: a geometric mean of &lt; 1000 organisms /100ml, and &lt; 10% of the samples &gt; 2000 organisms/100 ml.</p> <p><u>Class SA</u>: approved Open Shellfish Areas: a geometric mean (MPN method) of &lt; 14 organisms/100 ml and &lt; 10% of the samples &gt; 43 organisms/100 ml (MPN method).</p> <p>Waters not designated for shellfishing: &lt; a geometric mean of 200 organisms in any representative set of samples, and &lt; 10% of the samples &gt; 400 organisms /100 ml. (This criterion can be applied on a seasonal basis at the discretion of the DEP.)</p> <p><u>Class SB</u>: approved Restricted Shellfish Areas: &lt; a fecal coliform median or geometric mean (MPN method) of 88 organisms/100 ml and &lt; 10% of the samples &gt; 260 organisms /100 ml (MPN method).</p> <p>Waters not designated for shellfishing: &lt; a geometric mean of 200 organisms in any representative set of samples, and &lt; 10% of the samples &gt; 400 organisms /100 ml. (This criterion can be applied on a seasonal basis at the discretion of the DEP.)</p> <p><u>Class SC</u>: &lt; a geometric mean of 1000 organisms/100 ml and &lt; 10% of the samples &gt; 2000 organisms/100ml.</p>
Solids	<p><u>All Classes</u>: <i>These waters shall be free from floating, suspended, and settleable solids in concentrations or combinations that would impair any use assigned to each class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.</i></p>
Color and Turbidity	<p><u>All Classes</u>: <i>These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use.</i></p>
Oil & Grease	<p><u>Class A, SA</u>: <i>Waters shall be free from oil and grease, petrochemicals and other volatile or synthetic organic pollutants.</i></p> <p><u>Class SA</u>: <i>Waters shall be free from oil and grease and petrochemicals.</i></p> <p><u>Class B, C, SB, SC</u>: <i>Waters shall be free from oil and grease, petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course or are deleterious or become toxic to aquatic life.</i></p>
Taste and Odor	<p><u>Class A, SA</u>: <i>None other than of natural origin.</i></p> <p><u>Class B, C, SB, SC</u>: <i>None in such concentrations or combinations that are aesthetically objectionable, that would impair any use assigned to each class, or that would cause tainting or undesirable flavors in the edible portions of aquatic life.</i></p>

Aesthetics	<i>All Classes: All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.</i>
Toxic Pollutants ~	<i>All Classes: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife... The division shall use the recommended limit published by EPA pursuant to 33 USC 1251, 304(a) as the allowable receiving water concentrations for the affected waters unless a site-specific limit is established.</i>
Nutrients	<i>Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication.</i>

\*Class BCWF = Class B Cold Water Fishery, \*\* Class BWWF = Class B Warm Water Fishery, ? criterion (referring to a change from ambient) is applied to the effects of a permitted discharge. ~ EPA. 19 November 1999. Federal Register Document. [Online]. United States Environmental Protection Agency. <http://www.epa.gov/fedrgrstr/EPA-WATER/1998/December/Day-10/w30272.htm>.

## Appendix J. Designated Uses

The Massachusetts Surface Water Quality Standards designate the most sensitive uses for which the surface waters of the Commonwealth shall be enhanced, maintained and protected. Each of these uses is briefly described below (DEP 1996):

**AQUATIC LIFE** - suitable habitat for sustaining a native, naturally diverse, community of aquatic flora and fauna. Three subclasses of aquatic life are also designated in the standards for freshwater bodies; *Cold Water Fishery* - capable of sustaining a year-round population of cold water aquatic life such as trout, *Warm Water Fishery* - waters which are not capable of sustaining a year-round population of cold water aquatic life, and *Marine Fishery* - suitable for sustaining marine flora and fauna.

**FISH CONSUMPTION** - pollutants shall not result in unacceptable concentrations in edible portions of marketable fish or shellfish or for the recreational use of fish, shellfish, other aquatic life or wildlife for human consumption.

**PRIMARY CONTACT RECREATION** - suitable for any recreation or other water use in which there is prolonged and intimate contact with the water with a significant risk of ingestion of water. These include, but are not limited to, wading, swimming, diving, surfing and water skiing.

**SECONDARY CONTACT RECREATION** - suitable for any recreation or other water use in which contact with the water is either incidental or accidental. These include, but are not limited to, fishing, boating and limited contact incident to shoreline activities.

**DRINKING WATER** - used to denote those waters used as a source of public drinking water. They may be subject to more stringent regulation in accordance with the Massachusetts Drinking Water Regulations (310 CMR 22.00). These waters are designated for protection as Outstanding Resource Waters under 314 CMR 4.04(3).

**AGRICULTURAL AND INDUSTRIAL** - suitable for irrigation or other agricultural process water and for compatible industrial cooling and process water.

**SHELLFISH HARVESTING** (in SA and SB segments) – Class SA waters in approved areas (Open Shellfish Areas) shellfish harvested without depuration shall be suitable for consumption; Class SB waters in approved areas (Restricted Shellfish Areas) shellfish harvested with depuration shall be suitable for consumption.

**AESTHETICS** - all surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.

Other restrictions, which denote specific subcategories of use assigned to the segment that, may affect the application of criteria or specific antidegradation provision of 314 CMR 4.00 which are specified in segments of the North Coastal Watersheds include:

Combined Sewer Overflow (CSO) – These waters are identified as impacted by the discharge of combined sewer overflows in the classification tables in 314 CMR 4.06(3). The permitting authority without a variance or partial use designation may allow overflow events where the provisions 314 CMR 4.06(1)(d)10 are met. The waterbody may be subject to short-term impairment of swimming or other recreational uses, but support these uses through most of their annual period of use; and the aquatic life community may suffer some adverse impact yet is still generally viable).

The guidance used to assess each designated use follows.

## J1. AQUATIC LIFE USE

This use is suitable for sustaining a native, naturally diverse, community of aquatic flora and fauna. The results of biological (and habitat), toxicological, and chemical data are integrated to assess this use. The nature, frequency, and precision of the DEP's data collection techniques dictate that a weight of evidence be used to make the assessment, with biosurvey results used as the final arbiter of borderline cases. Excursions from criteria due to natural conditions are not considered impairment of use. The following chart provides an overview of the guidance used to assess the status (support, partial support, non support) of the *Aquatic Life Use*:

<b>Variable</b> (# indicates reference)	<b>Support</b> —Data available clearly indicates support. Minor excursions from chemical criteria (Table 3) may be tolerated if the biosurvey results demonstrate support.	<b>Partial Support</b> – Uncertainty about support in the chemical or toxicity testing data, or there is some minor modification of the biological community. Excursions not frequent or prolonged.	<b>Non Support</b> – There are frequent or severe violations of chemical criteria, presence of acute toxicity, or a moderate or severe modification of the biological community.
<b>BIOLOGY</b>			
Rapid Bioassessment Protocol (RBP) II or III (4)	Non-Impaired	Slightly Impaired	Moderately or Severely Impaired
Fish Community (4)	BPJ*	BPJ*	BPJ*
Habitat and Flow (4)	BPJ*	BPJ*	Dry Streambed due to artificial regulation or channel alteration
Macrophytes (4)	No non-native plant species present, BPJ	Non-native plant species present but not dominant, BPJ*	Non-native plant species dominant, BPJ*
Plankton/ Periphyton (4)	No algal blooms	Occasional algal blooms	Persistent algal blooms
<b>TOXICITY TESTS</b>			
Water Column (4)	>75% survival either 48 hr or 7-day exposure	>50 - ≤75% survival either 48 hr or 7-day exposure	≤50% survival either 48 hr or 7-day exposure
Effluent (4)	Meets permit limits	(NOTE: if limit is not met, the stream is listed as threatened for 1.0 river mile downstream from the discharge.)	
Sediment (4)	>75% survival	>50 - ≤75% survival	≤50% survival
<b>CHEMISTRY- WATER</b>			
DO (3, 6)	Criteria (Table 3)	Criteria exceeded in 11-25% of measurements.	Criteria exceeded >25% of measurements.
pH (3, 6)	Criteria (Table 3)	Criteria exceeded in 11-25% of measurements.	Criteria exceeded >25% of measurements.
Temperature (3, 6) ***	Criteria (Table 3), ***	Criteria exceeded in 11-25% of measurements.	Criteria exceeded >25% of measurements.
Turbidity (4)	? 5 NTU due to a discharge	BPJ*	BPJ *
Suspended Solids (4)	25 mg/L max., ? 10 mg/L due to a discharge	BPJ*	BPJ*

Nutrients (3) Phosphate-P (4)	Table 3, (Site-Specific Criteria; Maintain Balanced Biocommunity, no pH/DO violations)	BPJ*	BPJ*
Toxic Pollutants (3, 6) Ammonia-N (3, 4) Chlorine (3, 6)	Criteria (Table 3) 0.254 mg/L**** NH <sub>3</sub> -N 0.011 mg/L TRC	Criterion is exceeded in ≤ 10% of samples.	Criterion is exceed in > 10% of samples.
<b>CHEMISTRY – SEDIMENT</b>			
Toxic Pollutants (5)	≤ L-EL*****	One pollutant between L-EL and S-EL	One pollutant ? S-EL
Nutrients (5)	≤ L-EL	between L-EL and S-EL	? S-EL
Metal Normalization to Al or Fe (4)	Enrichment Ratio ≤ 1	Enrichment Ratio > 1 but ≤ 10	Enrichment Ratio ≥ 10
<b>CHEMISTRY- EFFLUENT</b>			
Compliance with permit limits (4)	In-compliance with all limits	NOTE: If the facility is not in compliance with their permit limits, the information is used to threaten one river mile downstream from the discharge.	
<b>CHEMISTRY-TISSUE</b>			
PCBs – whole fish (1)	≤ 500 ? g/Kg wet weight	BPJ*	BPJ*
DDT (2)	≤ 14.0 ? g/Kg wet weight	BPJ*	BPJ*
PCBs in aquatic tissue (2)	≤ 0.79 ng TEQ/Kg wet weight	BPJ*	BPJ*

\*BPJ = Best Professional Judgment, \*\*\*maximum daily mean temp. in a month (minimum of 6 measurements evenly distributed over 24-hours) < criterion, \*\*\*\*Ammonia levels for pH of 9.0, actual “criterion” varies with pH and is evaluated case-by-case, \*\*\*\*\*L-EL = Low Effect Level and S-EL = Severe Effect Level

## J2. FISH CONSUMPTION USE

Pollutants shall not result in unacceptable concentrations in edible portions of marketable fish or shellfish or for the recreational use of fish, shellfish, other aquatic life or wildlife for human consumption. This assessment is made using the most recent list of Fish Consumption Advisories issued by the Massachusetts Executive Office of Health and Human Services, Department of Public Health (MA DPH), Bureau of Environmental Health Assessment Fish Consumption Advisory List. Following is an overview of the guidance used to assess the status (support, partial support, non-support) of the fish consumption use.

<i>Variable</i> (# indicates reference)	<i>Support</i> —No restrictions or bans in effect	<i>Partial Support</i> – A “restricted consumption” fish advisory is in effect for the general population or a sub-population that could be at potentially greater risk (e.g., pregnant women, and children	<i>Non Support</i> – A “no consumption” advisory or ban in effect for the general population or a sub-population for one or more fish species; or there is a commercial fishing ban in effect
MA DPH Fish Consumption Advisory List (8)	Not applicable, precluded by statewide advisory (Hg)	Not applicable	Waterbody on MA DPH Fish Consumption Advisory List

\* NOTE: In 1994, MA DPH issued a statewide *Interim Freshwater Fish Consumption Advisory* for mercury. This precautionary measure was aimed at pregnant women only; the general public was not considered to be at risk from fish consumption. The advisory encompasses all freshwaters in Massachusetts therefore the *Fish Consumption Use* will no longer be assessed as support.

## J3. DRINKING WATER USE

Drinking Water Use denotes those waters used as a source of public drinking water. These waters may be subject to more stringent regulation in accordance with the Massachusetts Drinking Water Regulations (310 CMR 22.00). They are designated for protection as Outstanding Resource Waters in 314 CMR 4.04(3). DEP’s Drinking

Water Program (DWP) maintains current drinking water supply data for active public water supplies. When a source has been placed on “emergency or backup” status no testing is required. The *Drinking Water Use* is not assessed in this report however, EPA guidance is provided below.

<b>Variable</b> (# indicates reference)	<b>Support</b> -- No closures or advisories (no contaminants with confirmed exceedances of MCLs, conventional treatment is adequate to maintain the supply).	<b>Partial Support</b> – Is one or more advisories or more than conventional treatment is required	<b>Non Support</b> – One or more contamination-based closures of the water supply
Drinking Water Program (DWP) Evaluation	Reported by DWP	Reported by DWP	Reported by DWP

#### **J4. SHELLFISHING USE**

This use is assessed using information from the Department of Fisheries, Wildlife and Environmental Law Enforcement’s Division of Marine Fisheries (DMF). The information is in the form of various classifications of shellfish closures and restrictions. Shellfish areas under management orders are *not assessed*.

<b>Variable</b> (# indicates reference)	<b>Support</b> – SA Waters—open for shellfish harvesting without depuration (Open areas) SB Waters—open for shellfish harvesting with depuration (Open, conditionally approved, restricted areas)	<b>Partial Support</b> – SA Waters—Seasonally closed, seasonally open, conditionally approved, conditionally restricted SB Waters—Seasonally closed, seasonally open, conditionally restricted areas	<b>Non Support</b> – SA Waters— Prohibited, areas SB Waters— Prohibited, areas
Division of Marine Fisheries Shellfish Project Classification Area Information (11)	Reported by DMF	Reported by DMF	Reported by DMF

#### **J5. PRIMARY CONTACT RECREATIONAL USE**

This use is suitable for any recreational or other water use in which there is prolonged and intimate contact with the water with a significant risk of ingestion of water (1 April to 15 October). These include, but are not limited to, wading, swimming, diving, surfing and water skiing. The chart below provides an overview of the guidance used to assess the status (support, partial support, non-support) of the primary contact use.

<b>Variable</b> (# indicates reference)	<b>Support</b> -- Criteria are met, no aesthetic conditions that preclude the use	<b>Partial Support</b> –Criteria exceeded intermittently (neither frequent nor prolonged), marginal aesthetic violations	<b>Non Support</b> –Frequent or prolonged violations of criteria, formal bathing area closures, or severe aesthetic conditions that preclude the use
Fecal Coliform Bacteria (3, 9) *	Criteria met OR <u>Dry Weather Guidance</u> <5 samples--≤400/100 ml maximum <u>Wet Weather Guidance</u> Dry weather samples meet and wet samples <2000/100 ml	Guidance exceeded in 11-25% of the samples OR <u>Wet Weather</u> Dry weather samples meet and wet samples ≥2000/100 ml	Guidance exceeded in > 25% of the samples
pH (3, 6)	Criteria exceeded in ≤10 % of the measurements	Criteria exceeded in 11-25% of the measurements	Criteria exceeded in >25% of the measurements

Temperature (3)	Criteria met	Criteria exceeded 11-25% of the time	Criteria exceeded 25% of the time
Color and Turbidity (3, 6)	? 5 NTU (due to a discharge) exceeded in <10 % of the measurements	Guidance exceeded in 11-25% of the measurements	Guidance exceeded in >25% of the measurements
Secchi disk depth (10) **	Lakes - $\geq 1.2$ meters ( $\geq 4'$ )	Infrequent excursions from the guidance	Frequent and/or prolonged excursions from the guidance
Oil & Grease (3)	Criteria met	Criteria exceeded 11-25% of the time	Criteria exceeded >25% of the time
Aesthetics (3) Biocommunity (4)**	No nuisance organisms that render the water aesthetically objectionable or unusable;  Lakes – cover of macrophytes < 50% of lake area at maximum extent of growth.	Lakes – cover of macrophytes 50-75% of lake area at their maximum extent of growth.	Lakes – cover of macrophytes >75% of lake area at their maximum extent of growth.

**Note:** Excursions from criteria due to natural conditions are not considered impairment of use. The Primary Contact Use support status cannot be rated higher than Secondary Contact. \* Fecal Coliform Bacteria interpretations require additional information in order to apply this use assessment guidance. Bacteria data results (fecal coliform) are interpreted according to whether they represent dry weather or wet weather (stormwater runoff) conditions. Accordingly it is important to interpret the amount of precipitation received in the subject region immediately prior to sampling and streamflow conditions. \*\* Lakes exhibiting impairment of the primary contact recreation use (swimmable) because of macrophyte cover and/or transparency (Secchi disk depth) are assessed as either *partial* or *on support*. If no fecal coliform bacteria data are available and the lake (entirely or in part) met the transparency (Secchi disk depth) and aesthetics guidance this use is *not assessed*.

## J6. SECONDARY CONTACT RECREATIONAL USE

This use is suitable for any recreation or other water use in which contact with the water is either incidental or accidental. These include, but are not limited to, fishing, boating and limited contact incident to shoreline activities. Following is an overview of the guidance used to assess the status (support, partial support, non-support) of the secondary contact use.

<b>Variable</b> (# indicates reference)	<b>Support</b> -- Criteria are met, no aesthetic conditions that preclude the use	<b>Partial Support</b> –Criteria exceeded intermittently (neither frequent nor prolonged), marginal aesthetic violations	<b>Non Support</b> –Frequent or prolonged violations of criteria, or severe aesthetic conditions that preclude the use
Fecal Coliform Bacteria (4) *	<u>Dry Weather Guidance</u> <5 samples-- $\leq 2000/100$ ml maximum >5 samples-- $\leq 1000/100$ ml geometric mean  $\leq 10\%$ samples $\geq 2000/100$ ml <u>Wet Weather Guidance</u> Dry weather samples meet and wet samples $\leq 4000/100$ ml	<u>Wet Weather Guidance</u> Dry weather samples meet and wet samples $\geq 4000/100$ ml	Criteria exceeded in dry weather
Oil & Grease (3)	Criteria met	Criteria exceeded 11-25% of the time	Criteria exceeded >25% of the time
Aesthetics (3) Biocommunity (4) **	No nuisance organisms that render the water aesthetically objectionable or unusable; Lakes – cover of macrophytes < 50% of lake area at their maximum extent of growth.	Macrophyte cover is between 50 – 75%	Macrophyte cover exceeds 75% of the lake area.

Note: Excursions from criteria due to natural conditions are not considered impairment of use. The *Secondary Contact Use* support status cannot be higher than the *Aesthetics Use* status. \* Fecal Coliform Bacteria interpretations require additional information in order to apply this use assessment guidance. Bacteria data results (fecal coliform) are interpreted according to whether they represent dry weather or wet weather (stormwater runoff) conditions. Accordingly it is important to interpret the amount of precipitation received in the study region immediately prior to sampling and streamflow conditions. \*\* In lakes if no fecal coliform data are available, macrophyte cover is the only criterion used to assess the secondary contact recreational use.

For the Primary and Secondary Contact Recreational uses the following steps are taken to interpret the fecal coliform bacteria results:

Identify the range of fecal coliform bacteria results,

Calculate the geometric mean (monthly, seasonally, or on dataset), (Note: the geometric mean is only calculated on datasets with >5 samples collected in a 30-day period.)

Calculate the % of sample results exceeding 400 cfu/100 mL,

Determine if the samples were collected during wet or dry weather conditions (review precipitation and streamflow data),

Dry weather can be defined as: No/trace antecedent (to the sampling event) precipitation that causes more than a slight increase in stream flow.

Wet weather can be defined as: Precipitation antecedent to the sampling event that results in a marked increase in stream flow.

Apply the following to interpret dry weather data:

≤10% of the samples exceed criteria (step 2 and 3, above) assessed as Support,

11-25% of the samples exceed criteria (step 2 and 3, above) assessed as Partial Support,

>25% of the samples exceed criteria (step 2 and 3, above) assessed as Non Support.

## **J7. AESTHETICS USE**

All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life. The aesthetic use is closely tied to the public health aspects of the recreational uses (swimming and boating). Below is an overview of the guidance used to assess the status (support, partial support, non-support) of the aesthetics use.

<b>Variable</b> (# indicates reference)	<b>Support</b> — 1.No objectionable bottom deposits, floating debris, scum, or nuisances; 2. objectionable odor, color, taste or turbidity, or nuisance aquatic life	<b>Partial Support</b> – Objectionable conditions neither frequent nor prolonged	<b>Non Support</b> – Objectionable conditions frequent and/or prolonged
Aesthetics (3)* Visual observation (4)	Criteria met	BPJ (spatial and temporal extent of degradation)	BPJ (extent of spatial and temporal degradation)

**Note:** Excursions from criteria due to natural conditions are not considered impairment of use.

For lakes, the aesthetic use category is generally assessed at the same level of impairment as the more severely impaired recreational use category (primary or secondary contact).



# Appendix K. Permits and Registrations

## K1. North Coastal NPDES permits

National Pollutant Discharge Elimination System (NPDES) permits in the North Coastal Watersheds.

These facilities are briefly described below. Major permittees are highlighted in **bold**:

MA0025707 Twin Light Manor Motor Inn, Gloucester discharge of 0.002 MGD to the Atlantic Ocean was to have been eliminated by 1 Oct 1975. Record of Title V violations in the permit file.

MA0025500 Easterly Inn, Gloucester discharge of 0.0035 MGD to the Atlantic Ocean. Information in permit file indicates Easterly Inn was going to tie into the Gloucester WWTP. Current status is unknown.

**MA0100625** The city of Gloucester has a primary wastewater treatment facility under 301h waiver authority which discharges outside of Gloucester Harbor proper into the Atlantic Ocean. Four CSO discharge locations as well as three pump station bypass outfalls also discharge directly into Gloucester Harbor as authorized by this NPDES permit. These outfalls are summarized below:

Discharge Point	Description	Discharge Rate (MGD)	Frequency (Days/Year)
002	Mansfield Street Drain Western Ave CSO	6.0	60
004	Rogers Street CSO	1.6	48
005	Main Street CSO	1.4	48
006	East Main Street CSO	1.4	48
003	Fort Square Bypass	0.025	4
007	State Fish Pier "tide gate"	0.025	6
008	Beacon Marine Bypass	0.015	4
011	Riverside Avenue Bypass	0.015	4
012	Grant Circle Bypass	0.02	4

**MA0100145** The Rockport WWTP discharges 0.8 MGD of treated municipal wastewater to Sandy Bay. Sandy Bay is outside of Rockport Harbor proper.

MA0090654 The town of Rockport Cape Ann Lighthouse discharges 0.0012 MGD of treated sanitary wastewater to the Atlantic Ocean from the facility on Thatcher's Island, which is approximately one mile east of Rockport. (This permit was issued July 1982). Current status is unknown.

MAG640021 Town of Rockport water treatment facility discharge to Cape Pond a Class A waterbody.

MAG640003 Town of Manchester-by-the-Sea discharge from the Gravelly Pond Water Treatment Facility to Gravelly Pond, a Class A waterbody. This discharge began in June 1998. The first two DMR reports indicated a total residual chlorine (TRC) concentration of 3 mg/L between April and June 1998 and a concentration of 1mg/L between July and September 1998.

MAG250520 Varian Associates, Inc. is authorized to discharge non-contact cooling water (city water supply) into an unnamed tributary of the Bass River. According to the company, outfall #001 discharges an average monthly flow of 0.00004MGD outfall #002 discharges 0.00009 MGD. The companies records indicate that outfall #001 the maximum discharge in 1997 and 1998 was 0.01 and 0.0008 MGD, respectively, whereas at outfall #002 the maximum discharge in 1997 and 1998 was 0.009 and 0.00004, respectively (Coker 1999).

MAS000013 Varian Associates, Inc. has submitted an application for an individual stormwater permit.

MA0001830 Lynn Sand & Stone Company discharge of quarry water, cooling water, and concrete slurry to a lagoon adjacent to Foster's Dam Pond. This permit expired in December 1979 and apparently the facility is still operating under that permit.

**MA0100374** The town of Marblehead is only allowed to discharge under emergency conditions from the Sargent Road Pump Station Overflow. The overflow is screened and chlorinated prior to discharge into Massachusetts Bay.

MA0034819 – Thermadyne Wingersheek Building.

MA0003859 GTE Sylvania, Inc., Sylvan Street Plant, Danvers is authorized to discharge via outfalls #001 0.334 MGD and #002 0.06 MGD of non-contact cooling water to an “unnamed tributary of Mill Pond” (Crane Brook), Danvers.

MA0030091 – Riverside Condominiums, Danvers. 21 E hazardous waste site (#3-12423) discharge permit.

MA0036331 – Crane River West Condominiums Stormwater Discharge, Danvers.

MA0003956 Eastman Gelatine Corporation discharges non-contact cooling water (0.5 MGD average monthly flow) and storm water runoff from outfall 001 and storm water runoff from 18 other outfalls into Goldthwaite Brook. The facility is engaged in the manufacturing of photographic gelatin. The wastewater generated from the gelatin process is discharged to the Peabody sewer system that in turn is part of the South Essex Sewage District.

MAG640006 Coolidge Avenue Water Treatment Facility is authorized to discharge filter backwash water to Spring Pond and emergency overflows to Tapley Brook.

MA0028584 Stahl Finishing, Peabody 21 E hazardous waste site (3-0413) discharge permit.

MA0028215 Permuthane Inc, Peabody. The permit has expired and outfall pipes #007 and #008 are regulated under Stahl USA general permit MA0035467.

MA0023132 Peabody Municipal Light Plant is an old power generating plant (built in 1948) and used rarely according to a letter from the facility dated 1978. The company's 1980 permit authorized a discharge of overflow water from a cooling pond (estimated 0.005 MGD daily average, 0.01 MGD daily maximum), via outfall #001, into Proctor Brook near Warren Street in Peabody. The letter from the company also stated that the cooling pond water was treated with a product purchased from W.H. & L.D. Betz to prevent rust or corrosion in the pipes. The permit limited the discharge to no more than twice per year for no greater period than one day. A narrative statement in the permit limited temperature to “*No increase above that of the receiving body of water.*”

MA0025372 Salem Oil & Grease Company, a manufacturer and importer of tanner's oils, is authorized to discharge via outfall #001 0.0024 MGD of process equipment cooling water and air conditioner cooling water. Permit was issued December 1975. Chapter 21E r-3-2131 NFA (no further action)

MA0026794 Bayoil Co., Inc, a manufacturer of leather oil was authorized to discharge 0.013 MGD of non-contact cooling water drawn from an artesian well into a municipal (Peabody) storm drain. This discharge most likely goes into Proctor Brook. This permit was issued in 1978 and there was no reapplication in the permit file. Current status of facility is unknown.

MA0033723 Federal Express. Chapter 21E 3-2221

**MA0005096** USGenNE (formerly New England Power Salem Station) has several outfalls:

Outfall 001: 668.9 MGD of condenser cooling water, boiler blowdown, reboiler and evaporator blowdown, freshwater storage tank overflow, service water, boiler blowdown tanks, and stormwater runoff from the yard. The permit also stated that “at no time can the outfall exceed an absolute temperature of 93°F” and further stated that “at no time can temperature of this outfall exceed a 28°F rise over intake temperature.” The permit also required that “a temperature differential between the point of discharge and the intake structure shall not change more than 12°F during any one-hour period from 1 April to 31 October nor shall the differential change more than 9°F between 1 November and 31 March during any one-hour period.”

Outfall 006: 1.5 MGD average monthly/2.6 MGD maximum daily discharge of wastewater treatment service-ash settling point, Unit 4 seal water, floor drains, equipment drains, demineralizer/regenerator wastes, equipment wash water systems, bottom ash recycle system blowdown, stormwater from yard drains and coal pile runoff.

Outfalls 005 and 007: intake screen wash water.

Outfall 014: 19.2 MGD maximum daily discharge of condenser cooling water plus intermittent heat recycle cooling water up to a temperature of 115°F within the four-hour period used to control biological fouling of the condenser systems.

Outfall 015: emergency spillway overflow.

25. **MA0100501**--The South Essex Sewer District WWTP (SESD) discharges treated secondary wastewater to Salem Sound. The facility has recently (June 1998) been upgraded to secondary treatment and discharges through a 660-foot multiport diffuser. Dechlorination was also added to the treatment facility and became operational in the spring of 1998. The treatment plant is under start up conditions and working to establish its standard operational procedures.

**MA0100871**--The Manchester By-The-Sea WWTP discharges 0.67 MGD of treated municipal wastewater to Massachusetts Bay near to Sauli Rock outside of Manchester Harbor proper. The Manchester POTW was upgraded from primary to a full secondary facility as of August 1998 per the requirements of the Administrative Consent Order AP-BO-92-101. All new units were on-line as of an inspection conducted by DEP on 10 February 1999.

**MA0100552** The Lynn Water and Sewer Commission (LWSC) serves the city of Lynn and the towns of Nahant, Swampscott, and Saugus is a secondary WWTP that became operational in January 1991. A new permit for the facility was drafted in August 1999. The facility discharges an average monthly flow of 25.8 and up to 75 MGD of treated municipal and industrial wastewater via outfall 001 to Lynn Harbor (or Broad Sound?). Of the 25.8 MGD total wastewater flow, 2.3 MGD is industrial. Flows in excess of 75 MGD discharge via outfall 002 (the short outfall) into Lynn Harbor.

LWSC also has three wet weather CSO outfalls which discharge into Lynn Harbor (outfalls 004—Market Street Overflow, and 005 Broad Street Overflow).

Outfall #003 MA0100552 discharges to the “Little River” Street portion (also referred to as Strawberry Brook) of the Saugus River and #008 discharge to Saugus River.

Outfall #006, Sanderson Avenue is a wet weather CSO that discharges into Stacy Brook. This brook discharges to Kings Beach.

MA0101907 The Swampscott WWTP discharge to Nahant Bay was tied into the LWSC facility on 2 June 1992. The status of the three remaining discharges (002, 003, and 004) of contaminated stormwater including urban runoff and an intermittent discharge of untreated combined sewage (all possibly chlorinated) to Nahant Bay and Stacy Brook is currently unknown. These outfalls are briefly described below:

002: Sculpin Way Drain discharge of contaminated stormwater, including urban runoff and chlorine to Nahant Bay.

003: Marshall Brook Drain discharge of contaminated stormwater, including urban runoff and chlorine to Nahant Bay.

004: New Ocean Street Underdrain intermittent discharge of untreated combined sewage and chlorine to Stacy Brook.

MA0026247 Power Products, Inc., Wakefield discharges non-contact cooling water and stormwater runoff to “a surface drainage channel to the Saugus River (approx. 1 mile from discharge point).”

MAG640017 Lynnfield Center Water District was issued a general water treatment plant discharge permit in November 1995.

MAG250965 the Wakefield Corporation discharge of non-contact cooling water to a tributary of Mill River called “Wakefield Brook” in their permit.

MA0002356 Wakefield Bearing Corp.

MA0034452 Spirit Inc.

MA0103004 Crystal Lake Water Treatment Plant, applied for a permit in May 1986.

**MA0028193** The Refuse Energy Systems Company (RESCO). The facility is engaged in trash burning and power generation and became operational in September 1985. RESCO withdraws water from the Saugus River at their intake structure located just southeast of the Route 107 (Salem Turnpike) in East Saugus. The Saugus River also forms the municipal boundary between Saugus and Lynn. They discharge, via outfall 001, 60 MGD of once through non-contact cooling water. The permit limit for temperature at the outfall is 90°F max and at no time is the discharge to exceed a 20°F rise over the temperature of the intake.

**MA0003905** General Electric Company, Lynn (GE Lynn) currently maintains 15 permitted discharge outfalls along the northern bank of the Saugus River from Route 107 (Western Avenue) and Route 1A (General Edwards Bridge) in Lynn. The discharges are summarized from west to east as follows:

001: stormwater runoff from roof and yard drains

\*003: average flow of 0.55 MGD up to 95°F and daily maximum 1.4 MGD of 105°F of non-contact cooling water. (water supplied by city)

\*005: average flow of 0.55 MGD up to 95°F and daily maximum 1.4 MGD of 105°F of non-contact cooling water. (water supplied by city)

\*007: average flow of 0.024 MGD up to 90°F and emergency discharge from test cells of average flow of 0.3 MGD up to 95°F and daily maximum 1.0 MGD of 105°F of non-contact cooling water, stream condensate and storm water runoff

\*Note: outfalls (003, 005 and 007) may discharge only under emergency system shutdowns, otherwise the discharges have been eliminated by the installation of closed loop systems.

010: average flow of 5.36 MGD up to 85.2°F and daily maximum 7.18 MGD of 90°F of non-contact cooling water, stormwater runoff and floor drainage

014: average flow of 27 MGD up to 90°F and daily maximum 45 MGD of 95°F of non-contact cooling water. (salt water)—this discharge is intermittent

018: average flow of 35.6 MGD up to 90°F and daily maximum 35.6 MGD of 95°F of non-contact cooling water. (salt water)—from power generation equipment, boiler blowdown and steam condensate.

019: average flow of 0.083 MGD up to 88.4°F and daily maximum not specified of 90°F of non-contact cooling water, steam condensate, floor drains, contact cooling water, boiler filter backwash, ion exchange regeneration and backwash, flash tank blowdown, and stormwater runoff from roof and yard drains.

020: average flow of 16.9 MGD with no temperature limit of unused circulating water from power generation, non-contact cooling water from rotor test, steam condensate, stormwater runoff from roof and yard drains. (salt water)

027: average flow of 0.3 MGD up to 85°F and daily maximum 0.83 MGD of 90°F of stormwater runoff from roof and yard drains, steam condensate, oil coolers, and floor drainage.

032: stormwater runoff from aircraft engine fuel storage area

\*028: average flow of 0.0036 MGD up to 85°F and daily maximum 0.0048 MGD of 90°F of non-contact cooling water from industrial heat exchangers, stormwater runoff from roof and yard drains

\*029: average flow of 28.8 MGD up to 90°F and daily maximum 54.7 MGD of 95°F of non-contact cooling water from steam turbine test equipment and heat exchangers (salt water) most likely intermittent.

\*030: stormwater runoff from plant grounds

\*031: average flow of 0.762 MGD up to 90°F and daily maximum 2.2 MGD of 90°F of non-contact cooling water from aircraft engine test cells, cooling tower blowdown from compressor cooling system, wash waters from aircraft engine test cells and stormwater runoff from plant grounds.

\*Note: Outfalls 028, 029, 030, and 031 discharge into a small salt marsh channel that empties into the Saugus River.

MA0034045 Refuse Energy Systems Company (RESCO) Saugus Landfill discharges stormwater runoff into an unnamed tributary of the Pines River.

## **K2. Water Management Registrations and permits**

Water Management Registrations and permits in the North Coastal Watersheds:

Registration # 31810701, Permit #9P31810701 for the Gloucester Department of Public Works, Gloucester. The Gloucester Department of Public Works is registered for withdrawal of 3.38 MGD and permitted for an additional 0.37MGD for a total of 3.77 MGD from seven surface water reservoirs.

Registration # 31816602 - Essex Country Club is registered to withdraw 0.1 MGD from the Essex Country Club reservoir.

Registration # 31803001 WMA Withdrawal for Emhart Industries.

Registration # 31822902 Eastman Gelatine Corporation is to withdraw 2.74 MGD from 12 wells and one surface water – Sidney’s Pond. The facility is engaged in the manufacturing of photographic gelatin. The facility’s water is supplied primarily from a wellfield located adjacent to the receiving water although city water is also available. Eastman Gelatine Corporation submitted a letter to DEP (dated 16 March 1999) which provided information to the DEP to complete the five-year review of their WMA Permit 9P318229.02. The letter (Gordon 1999) provided DEP with information regarding water conservation measures, stating that there has been a 29% decrease in water withdrawal rates between 1993 and 1998 (3.14 MGD to 2.2 MGD, respectively). The letter also indicated that their projected usage during the next five years would propel demand to approximately 4 MGD for the following reasons:

Co-Generation Project requiring approximately 0.8 MGD,  
process for the Future Technology requiring approximately 0.5 MGD,  
increased future production requiring 0.1 MGD,  
gelatin recovery project requiring approximately 0.011 MGD, and  
providing the City of Peabody water for a new municipal golf course requiring approximately 0.2 MGD.

Given the occurrence of “dry streambeds” in Goldthwaite Brook under their current operating conditions, requests for increased water withdrawals in the Goldthwaite Brook subwatershed merits careful consideration, even though these projected water-use estimates would be within the company’s 5.0 MGD permitted water withdrawal volume.

Require a detailed accounting of Eastman Gelatine’s water use and discharge operations (including a schematic of water supply/wastewater discharge and location). Review this current and projected budget in relation to their increase withdrawal on water quantity in Goldthwaite Brook. used at the facility. The water is used in the gelatin process and for barometric condenser cooling and electric generators. They are also permitted (#9P21822902) to withdraw an additional 2.26 MGD from a combination of their registered sources and a new well, for a total withdrawal volume of 5.0 MGD

Registration # 31822903 Peabody Water Department is to withdraw 1.9 MGD of surface-water from Spring Pond (in the Tapley Brook subwatershed). Since Peabody diverts water from the Ipswich River Basin into Spring Pond, the actual volume of water withdrawn from the Tapley Brook subwatershed is undetermined. The public water supply identification numbers (3229000-01 and -02) for their wells suggest that both are located in the Ipswich River watershed. The Zone II of these wells (GIS April 1998 DEP Approved Zone II data layer), however, extends into the headwater drainage area of Proctor Brook.

Registration # 31822901 Salem Country Club is to withdraw a total of 0.1 MGD from a tubular Well Field and an irrigation pond.

Registration # 3182580 Kearnwood Country Club is to withdraw 0.1 MGD from a groundwater source.

Registration # 31816302 Lynn Water and Sewer Commission is to withdraw 8.93 MGD and permitted (9P31816302) to withdraw an additional 1.28 MGD for a total withdrawal of 10.21 MGD from six sources. One of

the six sources is the Saugus River. The LWSC maintains and controls four ponds (Hawkes, Walden, Breeds and Birch) in the Hawkes Brook subwatershed for the purpose of supplying drinking water to the city of Lynn.

Permit #9P31816402 Colonial Sheraton Country Club, Lynnfield to withdraw 0.28 MGD from a pond.

Registration # 31816401 Lynnfield Center Water District is to withdraw 0.32 MGD from three wells.

Registration # 31830501 Wakefield Water Department is to withdraw 0.48 MGD from Crystal Lake.

Registration # 31816301 Carr Leather Company, Lynn is to withdraw 0.1 MGD from groundwater.

## Appendix L: Relevant Government Agencies

It is fair to say that environmental protection became a “national priority” with the passage of the Federal Clean Waters Act (FWCA) PL 92-500 by Congress in 1972. The Federal Clean Waters Act stated objective is “to restore and maintain the chemical, physical and biological integrity of the Nation’s waters” (Environmental Law Reporter 1988). The Act further required each State to develop information on the quality of its waters and report that information to the United States Environmental Protection Agency, Congress and the public.

Some of the relevant agencies and programs follow, along with definitions of terms and regulations.

### ***Clean Water State Revolving Fund (CWSRF)***

The multitude of conflicting and competing uses that we expect our waterbodies to address were identified as *designated uses*. *Designated uses include such things as Aquatic Life, Fish Consumption, Swimming, Drinking Water and aesthetic. The regulations therefore are targeted to ensuring each waterbody will meet minimum standards that are protective of its particular set of designated uses.*

### ***Watershed Management plans***

*Watershed Management plans* serve as the chief source of information in developing a priority ranking system to address these numerous problems.. The Act and subsequent revisions lay out in numbered sections the specific authorities granted. For example, in 1987 the Federal Water Quality Act replaced the EPA Construction Grants Program with the **Clean Water State Revolving Fund (CWSRF)** programs. Under this program municipalities, based on a priority ranking system, could submit pollution abatement projects that would be eligible to receive below market rate financing.

### ***National Pollution Discharge Elimination System (NPDES)***

The **National Pollution Discharge Elimination System (NPDES)** is a permitting system dedicated to the reduction of pollution sources emanating from discrete sources such as from an industry or municipal wastewater treatment plant. Such sources are frequently referred to as “Point Source Discharges.” Under this jointly administered program, all facilities which discharge pollutants from any point source into waters of the Commonwealth are required to obtain a NPDES permit. More recently water quality regulators have placed additional focus on nonpoint pollution. Nonpoint pollution is broadly defined as the pollution caused by diffuse sources that are not presently regulated as point sources and are normally associated with precipitation and runoff from the land or percolation. Within the past year the EPA has begun the process of addressing the problem of stormwater contamination. Under the authority of Section 402(p) of the Clean Waters Act small cities and towns located in urbanized areas will be required receive a permit to discharge stormwater and to develop and implement a stormwater management program. The permits will be administered as Phase II Stormwater Compliance of the NPDES program. These drainage systems are referenced as “municipal separate storm sewer systems” or MS4’s. Communities are slated to submit their respective plans in March of 2003.

### ***Section 303d: impaired waterbodies***

**Section 305b** of the FCWA provides the legal authority by which each state must develop information on the quality of its waters and report that information to the Environmental Protection Agency and Congress. **Section 303d** addresses **impaired waterbodies**. Impaired waterbodies such as lakes, rivers, ponds, estuaries and harbors that do not meet water quality standards set for their *designated uses* in spite of the imposition of technology based pollution control practices. Waterbodies on the 303d list are to receive priority status in addressing the sources of impairment and bringing the waterbody into compliance with water quality standards.

One such methodology is to develop a pollution budget called the **Total Maximum Daily Load (TMDLs)** on the sources of pollution causing the degradation and a Remediation Plan for each pollutant of concern. **Section 319** deals with implementation practices designed to reduce nonpoint pollution sources. Some sections of the Clean Water Act such as 604b, 319, 104b in addition provide funding mechanisms to address or remediate the various

sources of pollution. The Massachusetts Department of Environmental Protection currently administers a number of these grant and loan programs provided through the auspices of the EPA. Additional program funds are derived through other state or federal appropriations such as through an Environmental Bond Fund.

## **FEMA Federal Emergency Management Agency**

The National Flood Insurance Act of 1968 and Flood Disaster Program Act of 1973 provided the source of authority to conduct Flood Insurance Studies to investigate the existence and severity of flood hazards in communities across the nation.

## **CZMA Coastal Zone Management Act.**

The Coastal Zone Management Act of 1972 and through subsequent amendments and reauthorizations established a program for the States and territories to develop comprehensive programs to protect and manage coastal resources. Resource management and protection is accomplished through State Laws regulations, permits, and local plans and zoning ordinances. In 1990 **section 6217 of the Coastal Zone Act Reauthorization Amendments** provided comprehensive guidance to the coastal States on the types of management measures needed to specifically address nonpoint pollution sources affecting coastal water quality and establishes the Coastal Nonpoint Pollution Control Program. ... *"The purpose of the program "shall be to develop and implement management measures for nonpoint pollution to restore and protect coastal waters, working in close conjunction with other State, Federal and local authorities." " There is clear link between coastal water quality and land use activities along the shore." (USEPA Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters may 1991).*

## **MEPA Massachusetts Environmental Policy Act**

*Massachusetts General Law Chapter 30 section 62 the current statute was enacted in 1977. The statute requires that all agencies of the Commonwealth determine the impact on the natural environment of all works, projects directly undertaken by state agencies and to private projects for which state permits are sought or in which state funding or land transfer is involved and use all practicable means and measures to avoid or minimize the environmental harm that has been identified. It also provides the procedure--the Environmental Impact Report--by which that obligation will be satisfied and authorizes the Secretary of Environmental Affairs to oversee the review process. MEPA does not apply to projects needing just local approvals.*

## **WMA Massachusetts Water Management Act**

Massachusetts General Laws Chapter 21G section 3 and General Law Chapter 30A sections 2 and 3. Regulation 310 CMR 36.00 is intended to establish a program whereby withdrawals of water in the Commonwealth above a threshold quantity are registered and regulated by the Department of Environmental Protection, Division of Drinking Water. These regulations are intended to enable the Department to document baseline water use in the Commonwealth and begin the process of comprehensive management of the surface and groundwater of the Commonwealth.

## **State Sanitary Code**

(105 CMR- 445.000) requires that the water at public bathing beaches be tested for bacteria to protect the public from contracting infectious diseases while swimming. Local health departments or local organizations collect the vast majority of beach water quality testing.

## **Title V, Department of Environmental Protection**

310 CMR 479 - 310 CMR 15.000: of the State Environmental Code, Title 5: are the standard requirements for the siting, construction, inspection, upgrade and expansion of on-site sewage treatment and disposal systems and for the transport and disposal of septage (DEP 2000b).



## ***Oil and Hazardous Material Release Prevention Act (MGL 21E)***

Pursuant to the Massachusetts Contingency Plan (MCP), a 21E site is “any building, structure, installation, equipment, pipe or pipeline, including any pipe discharging into a sewer or publicly-owned treatment works, well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any other place or area where oil or hazardous material has been deposited, stored, disposed of or placed, or otherwise come to be located. A complete listing of statewide 21E sites can be accessed through the DEP World Wide Web site (<http://www.state.ma.us/dep/bwsc/sitelist.htm>).

## ***Executive Office of Environmental Affairs***

The environmental agencies in the Commonwealth of Massachusetts are organized under the Executive Office of Environmental Affairs, a cabinet level secretariat reporting directly to the Governor. Secretary Bob Durand is charged with managing the Commonwealth’s environmental policy and overseeing implementation of the state’s environmental laws and regulations. He is focusing his efforts on strengthening the Watershed Initiative to empower communities to plan sustainable futures and to broaden the Initiative to protect the natural biodiversity of the state.

The Secretary oversees five major environmental agencies and six independent programs that have the responsibility for carrying out the state environmental programs and enforcing state environmental laws. For more detailed information regarding the environmental agencies and programs administered under EOEa please consult the web page <http://www.mass.gov/portal/index.jsp> and related linkages.

Descriptions of the five environmental agencies follow.

## ***Department of Environmental Protection***

Bureau of Resource Protection (BRP) is responsible for identifying critical inland and coastal water resources, devising strategies for protecting and preserving them, safeguarding public drinking water supplies and ensuring public access to the waterfront. BRP also administers grants and revolving loan programs that help the Commonwealth’s cities, towns, municipal water or sewer districts and other regional entities improve their environmental infrastructure. BRP consists of the following divisions: Watershed Management Division, Municipal Services Division, Planning and Program Support. The Watershed Management Division, charged with monitoring and regulatory activities that affect water quality and quantity within the state’s major river basins, combines the four water resource programs within the original BRP (Wetlands and Waterways, Water Pollution Control, Watershed Management, and Drinking Water) and focuses on building local and regional coalitions to bring about the next major increment of water quality improvement. The Municipal Services Division, replaces the former Bureau of Municipal Facilities, has responsibility for administering the wastewater and drinking water State Revolving Funds and delivers training and technical assistance to Massachusetts towns and cities, wastewater treatment plant operators, septic system inspectors and soil evaluators. Planning and Program Support is the administrative backbone of BRP, collecting and analyzing ecosystem, facility and public health data to measure the effectiveness of the bureau’s initiatives and programs, and striving for continuous improvement measured not only by environmental indicators but also in the variety and quality of services provided to municipal officials

Bureau of Waste Prevention (BWP) is charged with preventing pollution before it happens and promoting maximum reuse and recycling of residential, institutional and industrial waste. BWP consists of the following divisions: Business Compliance Division

Consumer and Transportation Compliance Division, Evaluation and Planning Division Program Support. Bureau of Waste Site Cleanup (BWSC) is charged and ensuring immediate and effective response to environmental emergencies, such as oil spills and chemical fires, as well as timely assessment and cleanup of hazardous waste sites by private parties responsible for them. BWSC consists of the following divisions: Policy and Program Development Division, Response and Remediation Division Technical and Financial Support Division. DEP has four Regional Offices that are the focal point for most of DEP’s permitting, compliance, enforcement, emergency response and site cleanup activity that protects citizens of Massachusetts and their environment on the local level. Staff based in these offices spends most of their time in the field and are very familiar with the businesses and communities they regulate.

## ***Department of Environmental Management***

Owns and operates the state forest and parks system, which is one the largest in the nation. In addition, the Department is responsible for water resources planning, dam safety, lake and pond restoration, hazard mitigation planning, areas of critical environmental concern planning, and forestry management. Amongst the key DCR (DEM) programs is The Areas of Critical Environmental Concern (ACEC) Program established in 1975. It authorizes the Secretary of Environmental Affairs to identify and designate “areas of critical environmental concern” to the Commonwealth. The ACEC regulations direct the EOEA agencies to take actions to preserve, restore, and enhance the natural resources using existing state environmental regulatory and review framework. DCR (DEM) offers a valuable service to municipalities, non-profit organizations and planning agencies by funding and supporting grant programs. The funding provided supports worthwhile projects that might not be able to be completed otherwise. Please consult the Department of Environmental Management’s Website <http://www.state.ma.us/dem> for complete list of program and activities.

## ***Massachusetts Department of Agricultural Resources (MDAR)***

(Formerly known as the Department of Food and Agriculture, DFA)

Supports agriculture industry through market development and regulates certain related activities, including pesticide use. The Department also manages the state agriculture land preservation program and coordinates with federal agencies on mitigating agriculture impacts to water resources.

## ***Department of Fish and Game (DFG)***

(Formerly known as the Department of Fisheries and Wildlife Environmental Law Enforcement, DFWELE)

Responsible for managing game and non-game wildlife and the regulation of hunting and fishing. The Department manages the state’s rare and endangered species program and administers the Riverways Program. The mission of the Riverways Program is to promote the restoration and protection of the ecological integrity of the Commonwealth’s watersheds: rivers, streams and adjacent lands. The Riverways Program was established within DFWELE in 1987 in recognition that river and stream corridors are a crucial component of the state’s ecological infrastructure and that protection of these watershed resources could not be accomplished through land acquisition alone. The Natural Heritage & Endangered Species Program (NHESP), part of the Massachusetts Division of Fisheries and Wildlife <http://www.mass.gov/dfwele/dfw/> is one of the Programs forming the Natural Heritage Network. NHESP is responsible for the conservation and protection of hundreds of species that are not hunted, fished, trapped, or commercially harvested in the state. The program’s highest priority is protecting the approximately 175 species of vertebrate and invertebrate animals and 250 species of native plants that are officially listed as endangered, threatened or of special concern in Massachusetts.

Other agencies within DFWELE include the Division of Marine Fisheries who’s mission is to manage, develop, and protect the renewable living marine resources to provide the greatest public benefit. The Division fosters protection of the marine environment by cooperating with other state and federal agencies on pollution abatement, coastal wetlands protection and other programs concerning coastal waters and marine life. The Division monitors coastal contaminant levels in fish and shellfish, operates a shellfish purification facility, and evaluates the impacts of coastal development on marine fish and their habitats.

## ***Department of Conservation and Recreation (DCR)***

(Formerly known as the Metropolitan District Commission, MDC)

This system was the first regional organization of public open space in the United States. It is internationally recognized as a model for multi-jurisdictional park systems and designed to encourage public appreciation of open space. It was created in 1893 to oversee 19,000 acres a network of Boston area parks, parkways, recreation facilities and flood control structures. The Commission resulted from the efforts of Charles Eliot, son of a Harvard University president, and Sylvester Baxter, a Malden resident who wrote for the Boston Daily Advertiser. Baxter and Eliot based their design on the influences and planning theories of America’s first generation of landscape architects, including Frederick Law Olmsted, H.W.S. Cleveland and Robert Morris Copeland. Within the North Coastal Watersheds are two of the largest parklands Breakheart and Rumney Marsh Reservations. As a whole, the Metropolitan Park System is currently eligible for listing on the National Register of

Historic Places. The DCR (MDC) also conducts routine testing for fecal coliform and enterococcus bacteria of their recreational beaches during the summer months

## **Independent Programs**

### ***The Massachusetts Watershed Initiative***

- Begun in 1996 by the Executive Office of Environmental Affairs. The Watershed Initiative was an innovative, result-oriented program. The Massachusetts Watershed Initiative was a broad partnership of state and federal agencies, conservation organizations, businesses, municipal officials and individuals. The goal of the Massachusetts Watershed Initiative was to integrate the activities of the state environmental programs with each other and with the activities of federal and local governments, non-governmental organizations, business and other watershed partners along seven program elements Outreach and Education, Local Capacity Building, Water Quality, Water Quantity, Habitat, Open Space, and Recreation.

### ***MEPA Unit***

- Implements the Massachusetts Environmental Policy Act (MEPA) Regulations 301 CMR 11.00 Statute M.G.L c30, ss 61-62H. The North Coastal Watersheds team has successfully utilized this program to advocate for stronger environmental protection measures consistent with the long-term goals of the North Coastal Watersheds.

### ***Coastal Zone Management***

- Implements state coastal protection policies and programs, including providing consistency review of federal actions in the coastal zone and implementation of related grant and regulatory programs. The mission of Massachusetts Office of Coastal Zone Management (MCZM) is to balance the impact of human activities with the protection of coastal and marine resources through planning, public involvement, education, research, and sound resource management. CZM helps communities with harbor planning, monitoring, some wastewater issues, and stormwater as well as wetland and tideland issues. MCZM also serves as a conduit for grants to communities and organizations to remediate nonpoint pollution sources. MCZM's programs rely on existing Massachusetts' environmental regulations and statutes for their authority.

### ***Division of Conservation Services***

- Since 1964, the Division of Conservation Services has been providing technical and financial assistance to farmers as well as public and private landowners in matters dealing with farm plans or sediment and erosion control. DCS awards grants to municipalities for conservation and parkland acquisition and construction. DCS also provides assistance with the development of open space and recreation plans, and to municipalities, land trusts, and private landowners regarding approval of conservation restrictions. The Self-Help program was established in 1961 to assist municipal conservation commissions acquiring land for natural resource and passive outdoor recreation purposes. Lands acquired may include wildlife, habitat, trails, unique natural, historic or cultural resources, water resources, forest, and farmland. Compatible passive outdoor recreational uses such as hiking, fishing, hunting, cross-country skiing, bird observation and the like are encouraged. Access by the general public is required. This state program pays for the acquisition of land, or a partial interest (such as a conservation restriction), and associated acquisition costs such as appraisal reports and closing costs.

The Urban Self-Help Program was established in 1977 to assist cities and towns in acquiring and developing land for park and outdoor recreation purposes. Any town with a population of 35,000 or more year-round residents, or any city regardless of size, that has an authorized park /recreation commission and conservation commission, is eligible to participate in the program. Communities that do not meet the population criteria listed above may still qualify under the "small town," "regional," or "statewide" project provisions of the program.

## **Office of Technical Assistance**

- Provides assistance to public and private entities on the pollution prevention and toxic use reduction.

## **Water Resources Commission**

- The Water Resources Commission (WRC) is a 13 member Commission within EOEA responsible for developing the water resources management framework under which the environmental agencies operate. The Commission is also responsible for implementing the Interbasin Transfer Act, which regulates the transfer of all surface and groundwater, including wastewater, between the 27 major watersheds in the Commonwealth. For more information about the WRC, state water policies and the Interbasin Transfer Act please visit the Department of Environmental Management's Website <http://www.state.ma.us/dem> .

## **Wetlands Restoration Program**

The Massachusetts Wetlands Restoration Program (MWRP) was established in 1994 within the Executive Office of Environmental Affairs (EOEA, website at <http://www.state.ma.us/envir/> ) to implement a voluntary (non-regulatory) program for restoring the Commonwealth's wetlands. MWRP inventories wetlands restoration sites within watersheds and coastal regions, and facilitates the implementation of priority restoration projects through its GROWetlands (Groups Restoring Our Wetlands) Initiative. Once a restoration project is accepted into the program, MWRP, in collaboration with its many federal, corporate, and non-profit partners, works with the project sponsor to provide or obtain whatever assistance – financial, technical, monitoring or other support - is required to complete the project.

The Corporate Wetlands Restoration Partnership (CWRP) was launched in May of 1999 by the Massachusetts Executive Office of Environmental Affairs (EOEA), The Gillette Company, and the federal EPA, and is managed by EOEAs Wetlands Restoration Program. This partnership was the first of its kind in the nation to encourage voluntary corporate participation in proactive wetlands restoration. CWRP attracts funding and assistance from the private sector to help complete MWRP's Wetlands restoration efforts

## Appendix M: Potential buildout statistics

Table Summary of potential buildout statistics for North Coastal Watersheds Communities

Community	Additional Developable Acres	Additional Population	Additional Residential Units	Additional Commercial Industrial Floor Space (sq. ft)	Additional Water Demand (gallons per day)
Beverly	2,112	4,805	2,054	7,219,391	842,289
Danvers	1,543	3,593	1,443	6,877,850	785,277
Essex	4,360	8,286	5,698	5,663,721	1,446,231
Gloucester	3,737	9,709	4,046	15,863,687	1,917,985
Lynn	724	10,133	4,239	8,048,209	1,363,564
Lynnfield	515	1,137	442	748,382	141,419
Malden	255	5,136	2,307	1,104,032	469,048
Manchester	1,636	3,389	1,448	1,962,538	401,392
Marblehead	110	594	261	-	44,517
Melrose	177	3,349	1,419	545,952	292,148
Nahant	20	117	45	-	8,746
Peabody	1,649	7,600	3,040	6,379,513	1,048,434
Reading	727	2,050	771	-	153,769
Revere	258	5,276	2,748	3,710,826	674,010
Rockport	1,431	7,342	3,530	-	550,668
Salem	893	2,747	1,205	4,360,986	533,112
Salisbury	2,401	3,026	1,125	5,833,555	664,480
Saugus	860	2,006	781	9,862,103	890,137
Swampscott	319	1,527	636	981,901	188,160
Wakefield	378	2,669	1,072	207,711	215,762
<b>Totals</b>	<b>24,105</b>	<b>84,491</b>	<b>38,300</b>	<b>75,659,531</b>	<b>12,632,148</b>

# Appendix N: MAPC Survey

The Boston Metropolitan Area Planning Council survey is referred to as “MAPC survey.” The MAPC area includes 101 towns with overlap to NCW. The MAPC survey was conducted on-line within NCW via the *Salem News* and the *Gloucester Times*. The partial survey results were downloaded as of May 20, 2004, prior to survey completion, to meet publication deadlines for this report. 767 people responded from NCW towns. The author compiled the results, by collating partial survey results for each NCW town.

MAPC Survey	NCW Total	Danvers		Gloucester		Marblehead		Rockport		Swamp- scott	
		Beverly	Essex	Manchester	Peabody	Salem					
1) Thinking about the city or town in which you live, has the quality of life gotten better, gotten worse or stayed the same over the past three years?											
<b>Better</b>	21%	37%	12%	11%	14%	8%	9%	9%	11%	34%	4%
<b>Worse</b>	46%	34%	46%	63%	51%	77%	45%	57%	47%	36%	78%
<b>Same</b>	33%	29%	42%	26%	35%	15%	45%	34%	42%	29%	19%
2a) What do you think are the two most important problems facing your community today? First most important:											
<b>Development/ Sprawl</b>	26%	29%	29%	42%	36%	46%	23%	29%	17%	11%	22%
<b>Traffic</b>	12%	9%	11%	0%	5%	15%	0%	17%	3%	23%	11%
<b>Crime</b>	4%	4%	6%	0%	4%	0%	0%	3%	3%	8%	0%
<b>The Economy</b>	8%	8%	0%	0%	15%	0%	9%	6%	6%	7%	4%
<b>Education/ Schools</b>	15%	18%	14%	32%	13%	23%	5%	17%	8%	16%	19%
<b>Environment</b>	5%	6%	2%	0%	3%	8%	5%	1%	0%	9%	7%
<b>Water</b>	3%	0%	11%	0%	1%	0%	5%	0%	33%	1%	0%
<b>Housing</b>	9%	10%	5%	0%	16%	0%	14%	4%	22%	6%	0%
<b>Taxes</b>	17%	15%	22%	21%	9%	8%	41%	23%	8%	20%	37%
<b>Other</b>	1%	0%	2%	5%	1%	0%	0%	0%	0%	1%	0%
2b) What do you think are the two most important problems facing your community today? 2nd most important:											
<b>Development/ Sprawl</b>	16%	12%	12%	47%	20%	23%	23%	21%	14%	9%	22%
<b>Traffic</b>	19%	18%	22%	5%	11%	15%	0%	31%	11%	25%	19%
<b>Crime</b>	5%	8%	2%	0%	6%	0%	0%	4%	6%	5%	0%
<b>The Economy</b>	8%	10%	3%	0%	11%	8%	9%	8%	3%	10%	0%
<b>Education/ Schools</b>	12%	9%	14%	21%	11%	15%	14%	9%	11%	14%	19%
<b>Environment</b>	12%	16%	8%	16%	11%	31%	14%	12%	8%	11%	26%
<b>Water</b>	5%	8%	15%	0%	3%	0%	5%	3%	22%	3%	0%
<b>Housing</b>	9%	10%	8%	5%	12%	0%	23%	4%	14%	7%	0%
<b>Taxes</b>	12%	8%	14%	5%	15%	8%	14%	9%	8%	15%	11%
<b>Other</b>	2%	2%	3%	0%	2%	0%	0%	0%	3%	2%	4%

## MAPC Survey

2c) What do you think are the two most important problems facing your community today? (1st OR 2nd most important - arithmetic sum, so total is 200%):

	NCW Total	Danvers		Gloucester		Marblehead		Rockport		Swamp- scott	
		Beverly	Essex	Manchester	Peabody	Salem					
<b>Development/ Sprawl</b>	42%	41%	42%	89%	56%	69%	45%	49%	31%	19%	44%
<b>Traffic</b>	30.1%	28%	32%	5%	16%	31%	0%	48%	14%	48%	30%
<b>Crime</b>	9%	12%	8%	0%	9%	0%	0%	6%	8%	13%	0%
<b>The Economy</b>	17%	18%	3%	0%	26%	8%	18%	14%	8%	17%	4%
<b>Education/ Schools</b>	27%	28%	28%	53%	24%	38%	18%	26%	19%	29%	37%
<b>Environment</b>	17%	22%	9%	16%	13%	38%	18%	13%	8%	19%	33%
<b>Water</b>	8%	8%	26%	0%	3%	0%	9%	3%	56%	3%	0%
<b>Housing</b>	18%	20%	12%	5%	28%	0%	36%	8%	36%	13%	0%
<b>Taxes</b>	29.6%	23%	35%	26%	24%	15%	55%	32%	17%	35%	48%
<b>Other</b>	2%	2%	5%	5%	2%	0%	0%	0%	3%	3%	4%

3a) What do you think are the two most important problems facing the Boston metropolitan area today? 1st most important:

<b>Development/ Sprawl</b>	23%	30%	22%	58%	21%	62%	14%	29%	19%	15%	19%
<b>Traffic</b>	16%	8%	29%	0%	13%	15%	14%	18%	31%	18%	4%
<b>Crime</b>	10%	11%	6%	5%	14%	0%	0%	10%	6%	11%	4%
<b>The Economy</b>	16%	14%	18%	16%	19%	15%	23%	12%	6%	12%	44%
<b>Education/ Schools</b>	9%	8%	9%	0%	11%	0%	14%	12%	8%	9%	4%
<b>Environment</b>	3%	3%	0%	0%	3%	0%	9%	0%	0%	6%	4%
<b>Water</b>	1%	1%	0%	0%	0%	0%	0%	4%	0%	2%	0%
<b>Housing</b>	13%	18%	5%	11%	11%	8%	14%	9%	22%	16%	4%
<b>Taxes</b>	9%	8%	9%	11%	8%	0%	14%	6%	8%	9%	19%
<b>Other</b>	1%	1%	2%	0%	0%	0%	0%	0%	0%	1%	0%

3b) What do you think are the two most important problems facing the Boston metropolitan area today? 2nd most important:

<b>Development/ Sprawl</b>	14%	13%	12%	32%	14%	38%	9%	13%	8%	14%	7%
<b>Traffic</b>	17%	10%	17%	16%	23%	8%	23%	13%	17%	17%	15%
<b>Crime</b>	9%	6%	6%	11%	7%	0%	9%	8%	25%	12%	7%
<b>The Economy</b>	11%	17%	12%	16%	6%	0%	9%	18%	6%	11%	7%
<b>Education/ Schools</b>	10%	6%	12%	11%	15%	8%	14%	5%	8%	11%	7%
<b>Environment</b>	11%	13%	9%	5%	9%	31%	14%	14%	14%	9%	7%
<b>Water</b>	3%	5%	3%	0%	2%	0%	5%	4%	0%	4%	4%
<b>Housing</b>	13%	15%	11%	0%	15%	8%	14%	14%	14%	11%	15%
<b>Taxes</b>	11%	13%	14%	11%	9%	8%	5%	10%	8%	10%	30%
<b>Other</b>	1%	2%	3%	0%	1%	0%	0%	0%	0%	2%	0%

## MAPC Survey

3c) What do you think are the two most important problems facing the Boston metropolitan area today? (1st OR 2nd most important - arithmetic sum, total is 200%):

	NCW Total	Danvers		Gloucester	Marblehead		Rockport		Swamp- scott		
		Beverly	Essex	Manchester	Peabody	Salem					
<b>Development/ Sprawl</b>	<b>37%</b>	43%	34%	89%	35%	100%	23%	42%	28%	29%	26%
<b>Traffic</b>	<b>32%</b>	18%	46%	16%	36%	23%	36%	31%	47%	35%	19%
<b>Crime</b>	19%	17%	12%	16%	21%	0%	9%	18%	31%	22%	11%
<b>The Economy</b>	27%	31%	31%	32%	25%	15%	32%	30%	11%	23%	52%
<b>Education/ Schools</b>	20%	14%	22%	11%	26%	8%	27%	17%	17%	21%	11%
<b>Environment</b>	14%	16%	9%	5%	12%	31%	23%	14%	14%	16%	11%
<b>Water</b>	4%	6%	3%	0%	2%	0%	5%	8%	0%	5%	4%
<b>Housing</b>	26%	33%	15%	11%	26%	15%	27%	23%	36%	27%	19%
<b>Taxes</b>	20%	21%	23%	21%	17%	8%	18%	17%	17%	19%	48%
<b>Other</b>	2%	3%	5%	0%	1%	0%	0%	0%	0%	3%	0%

4) How about traffic? In your city or town is traffic a very serious problem, a somewhat serious problem, not a very serious problem or no problem at all.

<b>Very serious</b>	32%	28%	38%	26%	13%	23%	14%	55%	22%	47%	44%
<b>Somewhat serious</b>	42%	45%	40%	16%	47%	62%	36%	42%	17%	42%	44%
<b>Not very serious</b>	21%	27%	14%	37%	32%	0%	36%	3%	47%	10%	11%
<b>No problem at all</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Not sure</b>	0%	0%	3%	0%	1%	0%	0%	0%	0%	0%	0%

5) What concerns you about development in your city or town?

<b>Not enough development</b>	9%	11%	5%	0%	10%	15%	5%	3%	11%	12%	4%
<b>Too much development</b>	44%	45%	60%	58%	52%	54%	32%	66%	39%	23%	26%
<b>Too dense</b>	9%	10%	6%	0%	6%	0%	32%	5%	8%	12%	30%
<b>Not enough density</b>	2%	7%	0%	0%	1%	0%	0%	1%	0%	4%	0%
<b>Unwanted type of development</b>	15%	9%	6%	16%	12%	0%	9%	8%	17%	27%	30%
<b>Poor location</b>	4%	3%	3%	5%	5%	0%	5%	5%	6%	4%	7%
<b>Impact</b>	16%	16%	20%	21%	14%	31%	18%	12%	19%	19%	4%

6) How important do you think it is for your city or town to have homes, stores, and services within walking distance of each other?

<b>Very important</b>	37%	43%	28%	21%	21%	38%	64%	34%	39%	56%	19%
<b>Important</b>	20%	22%	14%	11%	20%	31%	14%	13%	22%	23%	19%
<b>Somewhat important</b>	26%	25%	35%	26%	35%	8%	14%	39%	17%	15%	15%
<b>Not very important</b>	13%	8%	18%	26%	17%	0%	9%	12%	19%	5%	41%
<b>Not at all important</b>	4%	3%	5%	16%	7%	23%	0%	3%	3%	1%	7%

7) How important do you think it is for you to have access to public transportation in your city or town?

<b>Very important</b>	47%	53%	28%	16%	32%	62%	64%	52%	39%	67%	37%
<b>Important</b>	23%	25%	25%	32%	23%	8%	14%	17%	22%	20%	44%
<b>Somewhat important</b>	20%	14%	29%	32%	33%	0%	14%	18%	22%	8%	15%
<b>Not very important</b>	7%	5%	11%	11%	10%	15%	9%	10%	11%	3%	4%
<b>Not at all important</b>	3%	3%	8%	11%	2%	15%	0%	3%	6%	2%	0%



**MAPC Survey**

8) Which statement do you most agree with?

**Local government should continue to plan for and encourage growth and development in all areas.**  
**Local government should try to limit growth in less-developed areas and encourage growth only in areas that are already built up.**

NCW Total	Beverly	Danvers Essex	Gloucester Manchester	Marblehead Peabody	Rockport Salem	Swamp-scott				
26%	33%	23%	5%	24%	8%	27%	13%	22%	38%	11%
74%	68%	77%	95%	76%	92%	73%	87%	78%	62%	89%

9) Which statement do you most agree with?

**I think that increased coordination among cities and towns within the metropolitan region could help lower costs and solve problems.**

70%	74%	65%	53%	61%	77%	68%	70%	61%	81%	85%
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

**I think that regional solutions won't work and would require my city or town to give up too much local control.**

30%	26%	35%	47%	39%	23%	32%	30%	39%	19%	15%
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

10) Please read the list below of things that city and town governments do. Do you think that these issues should be decided locally, that is by each city and town exclusively, or do you think these issues should be decided regionally by a group of cities and towns? (Number indicating "Regional" over "Local")

<b>Housing</b>	28%	38%	35%	37%	18%	54%	36%	31%	19%	26%	37%
<b>Transportation</b>	81%	85%	85%	68%	73%	85%	73%	83%	72%	86%	96%
<b>Air quality</b>	88%	90%	85%	84%	88%	100%	68%	88%	92%	88%	85%
<b>Water quality and supply</b>	62%	73%	65%	53%	42%	62%	45%	60%	47%	77%	85%
<b>Public safety: fire, police, emergency medical</b>	35%	41%	40%	58%	24%	77%	41%	31%	33%	35%	56%
<b>Education</b>	36%	35%	37%	47%	40%	69%	23%	30%	36%	29%	70%
<b>Economic development/job growth</b>	67%	67%	78%	53%	60%	100%	59%	70%	61%	67%	93%
<b>Land Use/ zoning</b>	25%	26%	37%	32%	19%	54%	27%	29%	17%	20%	41%

**Number of respondents**

<b>767</b>	<b>120</b>	<b>65</b>	<b>19</b>	<b>198</b>	<b>13</b>	<b>22</b>	<b>77</b>	<b>36</b>	<b>190</b>	<b>27</b>
------------	------------	-----------	-----------	------------	-----------	-----------	-----------	-----------	------------	-----------

## Appendix O: Bibliography

The documents cited in this bibliography are all available from the North Coastal Watershed Team representative, either via Jim Comeau or Jesse Gordon. Most are also available on-line at <http://www.northcoastal.net/ncw/Docs/>, which also includes some items not listed here. Those that are listed in both have their URL (downloadable object name) listed at the end of the Source column.

Title	Date	Source / URL
1998 Recreation & Open Space Plan: City of Peabody	Aug 2, 1999	Department of Community Development & Planning
BioMap: Guiding land conservation for biodiversity in Massachusetts	Jan 1, 2001	Natural Heritage & Endangered Species Program-Massachusetts Division of Fisheries and Wildlife
Building Vibrant Communities: Linking Housing, Economic Development, Transportation, and the Environment	Mar 29, 2001	Executive Office of Environmental Affairs
Building Vibrant Communities: Linking Housing, Economic Development, Transportation, & the Environment (Lynn MA)	Mar 29, 2001	Executive Office of Environmental Affairs
Cape Ann Water Supply Protection Plan: Volume I: Appendices	May 1, 1994	Metropolitan Area Planning Council Boston, MA
Cape Ann Water Supply Protection Plan: (Gloucester and Rockport) Volume I: Text	May 1, 1994	Metropolitan Area Planning Council Boston, MA
Catalog of Federal Funding Sources for Watershed Protection	Sep 1, 1997	Assessment and Watershed Protection Division Office of Wetland, Oceans and Watersheds U.S. EPA Washington, DC
Chebacco Lake Diagnostic Report (2 Final and 1 Draft versions)	Dec 30, 1998	Salem State College & Mass Department of Environmental Management
Chubb Brook Drainage Improvements: Final Environmental Impact Report EOEA #11980 (Beverly, MA)	Nov 15, 2001	Camp Dresser & McKee Inc. Cambridge, MA
City of Gloucester Comprehensive River and Stream Habitat Restoration Report	Jan 1, 2003	Mass Audubon
City of Gloucester Industrial Pretreatment Program: Annual Report 1988		
City of Revere Flood Management Plan: December 2000	Apr 4, 2001	Flood Hazard Planning Team, Revere MA
Coastal Flood Risk Reduction Plan: Saugus River and Tributaries-Final Draft Feasibility Report	Jun 30, 1995	Department of Civil and Environmental Engineering, Rutgers University
Commonwealth of Massachusetts: Summary of Water Quality 2000	Jul 1, 2000	MA Department of Environmental Protection Division of Watershed Management Worcester, MA
Conservation Implications of Climate Change: Soil Erosion and Runoff from Cropland	Jan 30, 2003	Soil and Water Conservation Society Climate_change-final.pdf
Creating Greenways: A Citizen's Guide	Feb 4, 2000	Mass Department of Environmental Management Greenways Program
DEM Office of Dam Safety Lake Quannapowitt 1999 Report	Oct 12, 2000	Haley & Aldrich, Inc.

Draft: Combined Sewer Overflow Revised Long-Term Control Plan Gloucester, MA	Apr 30, 2001	Metcalf & Eddy Wakefield, MA
Draft-Environmental Impact Report: Reedy Meadow Flood Control Dredging Project EOE #11167 (Lynnfield & Wakefield)	Apr 30, 1999	Normandeau Associates Plymouth, MA
Dredged Material Management Plan EOE # 11534: Draft Environmental Impact Report Gloucester, MA	Oct 30, 2000	Maguire Group Inc., Foxboro, MA
East Lynn Combined Sewer Overflow Abatement System: Project Evaluation Form	Jun 30, 1999	Malcolm Pirnie, Inc.
Estuaries Volume 24, Number 6A-December 2001	Dec 1, 2001	Estuarine Research Federation Lawrence, KS
Estuaries Volume 24, Number 6B-December 2001	Dec 1, 2001	Estuarine Research Federation Lawrence, KS
Fate and Transport Modeling of Contaminants in Salem Sound: Draft Final Report	Jun 30, 2001	Applied Science Associates, Inc. Narragansett, RI
Final Environmental Impact Report EOE #12291 Griswold Pond Aquatic Plant Management Saugus, MA	Mar 27, 2001	Lycott Environmental, Inc. Southbridge, MA
Final Environmental Impact/4(f) Statement: Connector Road and Bridge (Peabody, Salem, Beverly)	Jun 8, 1981	H.W. Lochner, Inc.
Final Report: Water Quality Testing MDC Recreational Waters 2000 Beach Testing	Nov 30, 2000	G & L Laboratories Quincy, MA
Flood Hazard Mitigation Plan: City of Peabody	Apr 18, 1981	Department of Community Development & Planning, Dept. of Public Services
Gloucester 301(h) Monitoring Program: 1998 Annual Report	Apr 25, 2000	Gloucester Department of Public Works
Ground Water and Surface Water: A Single Resource	Jan 1, 1998	U.S. Geological Survey Denver, CO
How you can help your community to grow smart: A guide for New England Community Officials	Nov 30, 2000	EPA New England EPANewEnglandsprawlguide.pdf
Hydrologic and Hydraulic Analysis: Wetlands Restoration Investigation-Ballard Street Salt Marsh - Saugus, MA	Mar 1, 1999	US Department of Agriculture Natural Resources Conservation Service Amherst, MA
Impacts of Human Manipulation on Streamflows in the Saugus River	May 2, 2000	Gomez and Sullivan Engineers and Environmental Scientists Weare, NH
Ipswich River Watershed Management Plan	Jan 1, 2003	Ipswich River Watershed Association
Ipswich/North Coastal Water Supply Protection Plan (Danvers, Middleton, Peabody, and Topsfield) Vol. I: Text	Aug 1, 1994	Metropolitan Area Planning Council Boston, MA
Ipswich/North Coastal Water Supply Protection Plan (Danvers, Middleton, Peabody, and Topsfield) Vol. II: Appendices	Aug 1, 1994	Metropolitan Area Planning Council Boston, MA
Lake Quannapowitt Data Review March 2000	Mar 15, 2000	ENSR Northborough, MA
Lawrence Street Brook Drainage Improvements (Beverly, MA)	Jul 15, 1999	Camp Dresser & McKee Inc. Cambridge, MA

Looking to the Future: An Action Plan for the Protection of the Saugus River	Sep 17, 1991	Robin Snyder
Lynn Water and Sewer Commission: Summer and Cottage Street Combined Sewer Separation Project Contract SS-8	Jul 31, 1998	Camp Dresser & McKee Inc. Cambridge, MA
MA Town Census	Aug 21, 2003	Census_MA_Towns.xls
Mass Bays Program: Companion Guidelines for FecaLOAD (with disk)	post-1996	Horsley & Witten, Inc. Environmental Services
Massachusetts Department of Environmental Protection: Massachusetts Watershed Initiative Program Indicative Project Summaries 1999-2002	Nov 1, 2001	Mass. Department of Environmental Protection Worcester, MA
Massachusetts Department of Environmental Protection: Selected Federal and State Grant Funded Indicative Project Summaries FFY 1996-2000	Jan 15, 2000	Mass. Department of Environmental Protection Worcester, MA
Massachusetts Watershed Initiative: FY 2001 Team Workplans	Feb 23, 2000	Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Stormwater Compliance Phase II Contract 01-09/MWI (w/ Appdx D)	Dec 12, 2001	Vanasse Hangen Brustlin, Inc Watertown, MA
Massachusetts Year 2002 Integrated List of Waters: Part 2-Final Listing of Individual Categories of Waters	Sep 30, 2003	Executive Office of Environmental Affairs Division of Watershed Management 303_list.pdf
Master Plan: Downtown Riverwalk & Leather City Historic Trail-City of Peabody	Apr 13, 2001	Department of Community Development & Planning
North Coastal Alliance Water Quality Assessment: Final Report	Jun 30, 2000	Salem Sound 2000, Inc.
North Coastal Watershed 1997/1998 Water Quality Assessment Report	May 30, 2000	Department of Environmental Protection, Division of Watershed Management
North Coastal Watershed 5yr Plan: Draft	Sep 30, 2003	NCW_5_yr_Plan_Draft_Sept_30_2003.doc
North Shore Watershed Forum	Oct 30, 1997	DEP Office of Watershed Management
Open Space Residential Development: Four Case Studies	Jul 1, 2000	Metropolitan Area Planning Council Boston, MA
Park River/Essex Bay ACED Resource Inventory	Oct 16, 2000	MA Coastal Zone Management Gloucester, MA
Project Link: Riddle of the Sands-A volunteer water quality school project	Dec 1, 2001	Project Link Manchester, MA
Proposal for Public Education/Outreach Projects for Communities in the Town Line Brook Watershed	Apr 9, 2001	GeoSyntec Consultants, Boxborough MA
Proposal for Town Line Brook Watershed Study	Nov 17, 2000	GeoSyntec Consultants, Boxborough MA
Proposal Guidelines for Brownfields Assessment, Revolving Loan Fund, and Cleanup Grants	Oct 30, 2003	EPA fy04_proposal_guidelines_Brownfields.pdf
Protecting Building Utilities From Flood Damage	Nov 30, 1999	FEMA FEMAProtectingUtilitiesFloods.pdf

Protecting Natural Wetlands: A Guide to Stormwater Best Management Practices	Oct 30, 1996	EPA Protecting_Natural_Wetlands_Stormwater_BMP.pdf
Request for Determination of Insignificance-Response to DEM Comments Essex, MA	Sep 1, 2001	URS Corporation Boston, Massachusetts
Request for Responses 604(b) Water Quality Management Planning Program Grants (FY03)	Oct 15, 2002	Executive Office of Environmental Affairs & MA-DEP OLD_604(B)RFR.pdf
Resource Management Plan Guidebook	Feb 28, 2000	Department of Interior Bureau of Reclamation BuRecGuide.pdf
Rockport, MA Water Supply Development Project Supplemental Environmental Impact Report EOE #4293	Nov 14, 1997	Metcalf & Eddy Wakefield, MA
Salisbury, MA Industrial Park Sewer Extension: Final Environmental Impact Report	May 1, 2002	Weston & Sampson Engineers, Inc Peabody, MA
Saugus River Flood Control Improvements	Mar 30, 1992	Camp Dresser & McKee Inc. Cambridge, MA
Saugus River Thermal Impact Study	Jun 1, 2000	Capstone Environmental, Inc
Saugus River Watershed Council: 2002 Fish Spotter Program (Volunteer handouts)	Mar 9, 2002	Saugus River Watershed Council
Saugus River Watershed: Water Quality Report 1998-2000	Aug 15, 2001	Saugus River Watershed Council
Sewer System Evaluation and Wet Weather Overflow Study (Saugus, MA)	Jul 1, 1999	Camp Dresser & McKee Inc. Cambridge, MA
Sites of Concern: North Coastal Watershed, Massachusetts (Instruction Manual)	Feb 28, 2001	Daylor Consulting Group, Inc. Braintree MA
Source Pollution Investigation in the Forest River Watershed -Final (Salem, MA)	Aug 20, 2000	Metcalf & Eddy Wakefield, MA
State of the Sound: Current Knowledge and Future Directions (Symposium Report)	Jun 30, 2000	Salem Sound 2000, Inc.
Targeting and Eliminating Untreated Sewage Discharges: 00-08 Massachusetts Watershed Initiative North Coastal Watershed (2 copies)	Jun 30, 2001	URS Corporation Boston, Massachusetts
Task 2 Report-Sewage Facility Plan MEPA Special Procedures Report	Mar 30, 2000	Dames & Moore, Inc. Melrose, MA
The MA Unpaved Roads BMP Manual	Dec 30, 2001	Berkshire Regional Planning Commission Pittsfield, MA dirtroad.pdf
The State of Our Environment	Apr 1, 2000	Commonwealth of Massachusetts Executive Office of Environmental Affairs
Town Line Brook Hydrologic Study Document Bibliography	Mar 30, 2001	GeoSyntec Consultants, Boxborough MA
Transferable Development Rights: Using Market Forces and Master Planning to Manage Growth and Environmental Quality	Feb 28, 2001	EPA New England EPATransferableDevelopmentRights.pdf
Water Desalination: Findings and Recommendations	Oct 30, 2003	Department of Water Resources Sacramento, CA DESAL_IN_CA_Findings-Recommendations.pdf
Watershed Protection: A Statewide Approach	Aug 1, 1995	Assessment and Watershed Protection Division Office of Wetland, Oceans and Watersheds U.S. EPA Washington, DC

# Appendix P: Glossary

Some commonly-used terms and acronyms and their definitions:

**303d** – 303 d refers to a section in the federal Clean Water Act requiring all states to submit, biennially to the EPA, a list of waterways not meeting assigned water quality standards. The 303 d is a list of the known impaired waters in a state or on tribal lands.

**319 grant** – Section 319 of the Clean Water Act authorizes the awarding of EPA funds for Nonpoint Source Grants that promote the development and implementation of watershed-based plans and NPS pollution reduction. The grants are administered in Massachusetts by MA DEP, and are proposed in the early months of each calendar year.

**604b grant** – Section 604b of the federal Clean Water Act authorizes the awarding of EPA funds for water quality assessment and management planning grants. The grants are administered in Massachusetts by the MA DEP, and are proposed in the late months of each calendar year. A 319 grant may be used to implement the plan from a 604b grant – the distinction is that 604b grants are planning and 319 grants are implementation.

**8T&B** – Eight Towns and the Bay, a watershed group based around Cape Ann, [www.naturecompass.org/8tb/](http://www.naturecompass.org/8tb/)

**ACEC** – Areas of Critical Environmental Concern are places in Massachusetts that receive special recognition because of the quality, uniqueness and significance of their natural and cultural resources. ACECs are nominated by local environmental groups, designated by the EOECA Secretary, and administered by DCR (DEM).

**ACOE** – U.S. Army Corps of Engineers (or COE).

**Agricultural Protection Restrictions** – Similar to a conservation restriction, Chapter 132A § 31 allows the state to purchase an Agricultural Preservation Restriction on farmlands, restricting use of the land to agricultural activities.

**Anadromous:** Fish that breed in fresh water but live their adult life in the sea. They spawn by running upstream.

**APR** --- Area for Preservation or Restoration or Agriculture Preservation Restriction

**Aquifer** – An underground geologic formation capable of holding large quantities of water in the (interstitial) spaces between rocks, sand and soil. Aquifers may serve as a source of drinking water.

**ASMFC** --- Atlantic States Marine Fisheries Commission

**Bacteria** – Microscopic one-celled organisms found everywhere. Some bacteria have the potential to be a public health threat. In Massachusetts there are defined limits for a specific bacteria, (fecal coliform) in water bodies.

**Bacterial Contamination** – Water with levels of indicator bacteria exceeding state or federal standards. Indicator bacteria are used as a proxy for the presence of pathogens that may pose a public health threat because of their relative simple and cost effective testing methods.

**Basin** – A topographic designation based on drainage patterns. The water flowing within a basin (or watershed) eventually flows to one common point. The state has been divided into 27 major basins under the Watershed Initiative.

**Best Management Practices (BMPs)** – Techniques which may be nonstructural, structural or managerial capable of effectively and economically reducing nonpoint sources of pollution.

**Biomonitoring** – Examining the biological (living) communities in a given body of water (or other habitat) to determine the complexity, diversity, and species composition in the water body. This information helps assess the overall health of the habitat.

**BOD** --- Biological Oxygen Demand (a measure of waterway health).

**Board of Health (BOH)** – In Massachusetts it is the local board responsible for health issues in the community including septic systems. It is usually a volunteer board.

**Buffer** – An area of no or limited activity along a water way functioning as a filter of pollutants contained in runoff, a wildlife corridor, flood plain, and several other benefits.

**Bylaws** – Local regulations passed by a community.

**CCMP** --- Comprehensive Conservation and Management Plan

**CERCLA** --- Comprehensive Environmental Response Compensation and Liability Act (Federal)

**CFIP** --- Coastal Facilities Improvement Program

**Chapter 61** – A manner by which lands can be classified as Forest Lands in a process overseen by the MA Department of Environmental Management. Lands certified as Forest Lands are taxed, at a special rate, according to provisions established in Chapter 61. Chapter 61A is the section of Chapter 61 applicable to agricultural and horticultural lands and 61B is the section dealing with recreational lands eligible for special tax assessments.

**Class A, B, C water quality standards** – Under the Federal Clean Water Act, each state must establish specific water quality classifications with defined water quality criteria. In Massachusetts waters are assigned an A, B or C classification. A waterway's classification reflects the water quality needed for the designated uses of a given water body (the waterways potential) and not the existing water quality.

**Class B water** – A waterway classified by the state as being capable of meeting the following water quality level, “suitable habitat for fish, other aquatic life and wildlife, and primary and secondary contact recreation. Can be used, when so designated, as drinking water with proper treatment and for agriculture and industry and good and consistent aesthetic value.”

**Clean Water Act (CWA)** – A federal law establishing comprehensive national policies for water quality management. The essence of the CWA is to have all US waters “fishable and swim able”.

**Cluster zoning** – A relatively new development method that places buildings in close proximity to each other, (a cluster) while maximizing the amount of contiguous open space and preserving the most sensitive natural habitats. Cluster zoning requires a variance in most communities.

**CNPSP** --- Coastal Nonpoint Source Program (Federal)

**Community Preservation Act** – In 2000, the Community Preservation Act (CPA) was passed in Massachusetts providing the opportunity for communities to choose to establish a local fund to be used for open space protection, historic preservation and the creation of low and moderate income housing. To establish a fund, communities must pass by referendum a property tax of up to 3% dedicated to their Community Preservation Fund.

**Conservation agent** – An individual hired by a community to administer the wishes and rulings of the Conservation Commission, assist proponents with aspects of the Wetland and Rivers Protection Acts, oversee and enforce projects falling under jurisdiction of the ConComm, and serve as a liaison to other community boards.

**Conservation Commission (ConComm)** – A volunteer board within a Massachusetts community responsible for administering the Wetland Protection Act and the River Protection Act. ConComms are charged with upholding the tenets of the law, conducting public hearings, writing conditions for a proponent to follow to avoid harm to resource areas, and overseeing any local wetland bylaws. They are also responsible for community open space held as conservation title lands.

**CSO** --- Combined Sewer Overflow

**Cultural Eutrophication** – When the natural process of eutrophication, growth and decay in an aquatic ecosystem, is accelerated by an increase of nutrients derived from societal sources such as lawns, roads, wastewater, and stormwater runoff.

**CZM** – the federal Coastal Zone Management Act (or CZMA), administered by the National Oceanic and Atmospheric Administration (NOAA), awards and administers grants for coastal projects. Also, the Massachusetts CZM office (see MCZM-NS), administered by EOEa.

**DCR** – the Massachusetts Department of Conservation and Recreation, the state agency responsible for managing parks and recreational areas. (Merged MDC and DEM).

**DCS** --- the Massachusetts Division of Conservation Services

**DELE** --- the Massachusetts Division of Environmental Law Enforcement

**DEM** – the old Massachusetts Department of Environmental Management, the old name for the Massachusetts Department of Conservation and Recreation (DCR). DEM was merged in 2003 with the Metropolitan District Commission (MDC) to form the new DCR.

**DEP** – the Massachusetts Department of Environmental Protection, the state agency responsible for enforcing environmental regulations, and for administering EPA 319 and 604b grants.

**DEQE** --- the Massachusetts Dept. of Environmental Quality Engineering (Predecessor Agency to DEP)

**DFA** – the old Massachusetts Department of Food and Agriculture, now the Massachusetts Department of Agricultural Resources (MDAR).

**DFG** – the Massachusetts Department of Fish and Game (formerly DFWELE).

**DFWELE** – the old Massachusetts Department of Fisheries, Wildlife and Environmental Law Enforcement, now the Massachusetts Department of Fish and Game (DFG).

**Diagnostic / Feasibility** – A method used to assess the ecological health of lakes or ponds and specify management and corrective actions.

**Division of Conservation Services Self Help Funds** – The Division of Conservation Services is within the Executive Office of Environmental Affairs. The Self Help Funding program is charged with helping communities acquire or protect, through conservation restrictions, land for the protection of wildlife, habitat, and unique cultural, historic or natural resources and for passive recreation. Lands may include forests, water resources, and farmlands. Land purchased with the help of these funds must be open to the public.

**Ecoregion** – A geographic area with a unique assemblage of ecological characteristic, (soil, climate, geology and vegetation) making it distinct from another area.

**Ecosystem integrity** – The ability of a natural system to function suitably. An important component in its ability to function as a viable ecosystem is the presence of native species in balanced amounts and synergistic relationships between the individual components of the ecosystem (plants, animals, physical parameters) as developed over eons of co-existence.

**EEZ** --- Exclusive Economic Zone (offshore designation)

**Effluent** – Wastewater as it leaves a treatment system. Examples are discharges from sewage treatment facilities or water used in an industrial cooling system.

**EOEA** – the Massachusetts Executive Office of Environmental Affairs, the state executive agency responsible for promulgating and administering environmental regulations.

**EPA** – the federal Environmental Protection Agency, which is responsible for promulgating regulations and enforcing the CWA, awarding grants under the Section 319 and 604b, and administering the federal Watershed Initiative, among other tasks.

**Erosion** – The accelerated removal of soils and earth by storm flows, alteration of topography and/or drainage, changes in flow patterns or mechanical disruptions (such as boat wakes). Signs of erosion can include gullies, undercut banks, slumping, and higher turbidity in adjacent waterways.

**Eutrophic Pond** – A pond receiving an excess of nutrients, especially phosphorus, from the surrounding watershed will experience a greatly accelerated rate of plant growth. Plant growth and decomposition is a naturally process but when the nutrients cause excessive growth the natural system is overwhelmed. The result is often thick plant and algae growth in a pond, loss of biodiversity, stressful conditions for aquatic life and the potential for complete collapse of the natural ecosystem.

**Eutrophication** – Eutrophication is the natural process of nutrients entering a water body resulting in increased biological activity. The natural processes may be accelerated and intensified by human activities that cause excessive quantities of nutrients to flow into a water body leading to unchecked growth of aquatic plants, subsequent depleted oxygen levels and in some cases the collapse of the aquatic ecosystem and the premature succession of the area a wetland or upland.

**Executive Order 418** – Governor Swift instituted this Executive Order to promote the development of new housing in a sustainable manner. The state provided \$30,000 worth of services to communities requesting help with the



drafting of a comprehensive plan encompassing housing, environmental issues, transportation needs and economic growth.

**FOLQ** – Friends of Lake Quannapowitt, a watershed group based in Wakefield, [www.wakefield.org/folq/](http://www.wakefield.org/folq/)

**Forest and land management** – The practice of creating a plan for the long-term management of a forest or area of land that is sustainable and protective of natural ecosystems.

**Geographical Information System (GIS)** – A relatively new and useful computer-based system allowing the creation of ‘data layers’ that may be overlain to create customized maps with specific information. Examples of data layers include open spaces, watershed boundaries, topography and land use.

**Habitat** – A space providing the components a species needs to survive. For plants, habitat needs involve soil, water, sunlight, and climate while animals need a habitat that also provides shelter and food.

**HMGNE** --- Historic Maritime Group of New England

**Hydrology** – The study or science of water behavior (occurrence and movement) in the atmosphere, on the surface of the planet and below the surface.

**Impervious Surface** – A surface that does not allow water to penetrate such as pavement.

**Imperviousness** – The degree to which water can seep through a surface.

**Industrial discharge** – Discharges of wastewater (it may be treated contact water or untreated non-contact process or cooling water) from an industrial facility into the waters of the United States. Industrial discharges are regulated under a provision of the federal Clean Water Act and must obtain a permit (NPDES) to discharge.

**Interbasin Transfer** – A transfer of water from one basin/watershed into another. These transfers are regulated in Massachusetts under the Interbasin Transfer Act.

**Invasive species/plants** – These are plants or animals able to quickly and easily populate an area or habitat. They are usually very adaptable and can take advantage of and tolerate disturbed or unstable conditions. The end result is typically a loss in natural diversity in the area and diminished value as habitat for birds, animals and native species.

**ISSC** --- Interstate Shellfish Sanitation Commission

**Land use** – The activity occurring on a given parcel or land. There is an existing system for characterizing land use into categories such as open space, residential-single family ¼ acre, or urban. Associated with these land use categories are characteristic such as amount of traffic generated or pollutant loads that can assist in planning and modeling .

**Leachate** – Material, usually liquids, leaking from a disposal area, underground storage unit or poorly designed storage area. Leachate may or may not contain pollutants or hazardous substances.

**LID** -- Low Impact Development – accounting for runoff, non-point source pollution, etc. in permitting and development planning.

**LWSC** – Lynn Water and Sewer Commission.

**MACC** --- Massachusetts Association of Conservation Commissions

**MA Scenic River Protection Act** – [Chapter 21A §2(28)] Administer by the MA Department of Environmental Management, the Scenic and Recreational Rivers Act allows for the designation of rivers or river sections as scenic and recreational rivers. Designated rivers have orders put in place to preserve and promote public safety, health and welfare, protect public and private property, wildlife, freshwater fisheries and irreplaceable wild and scenic recreational river resources.

**Macroinvertebrate (sampling or inventory)** – Macroinvertebrates are small, but visible with the naked eye, animals without backbones (insects, worms, larvae, etc.). Water bodies have communities of aquatic macroinvertebrates. The species composition, species diversity and abundance of the macroinvertebrates in a given water body can provide valuable information on the relative health and water quality of a waterway.

**MAPC** – Metropolitan Area Planning Council, the regional planning council covering most of the NCW.

**MassGIS** --- Massachusetts Geographic Information System

**MBP** --- Massachusetts Bays Program

**MCZM-NS** -- Massachusetts Coastal Zone Management Program's North Shore Region – a federally-established program administered by EOEa – see CZMA.

**MDAR** – the Massachusetts Department of Agricultural Resources, formerly the Department of Food and Agriculture (DFA).

**MDC** – the old Metropolitan District Commission, the old name for DCR's Division of Urban Parks and Recreation.

**MDMF** – the Massachusetts Department of Marine Fisheries.

**MFCMA** --- Magnuson Fishery Conservation and Management Act (Federal)

**MGD** – Million Gallons per Day, a measure of water flow.

**MGL** --- Massachusetts General Laws

**Mixed use development** – A planning philosophy that does not segregate uses, (residential, retail, commercial, industrial) but opts for a complementary mix of uses. For example, this approach would allow retail on a first floor, office space above and apartments on the upper most floors.

**MWI** – The Massachusetts Watershed Initiative. An EOEa-run program which established Watershed Teams in 27 watersheds statewide, with a dedicated staff person assigned as Watershed Team Leader in each watershed. The MWI was dissolved in February 2003 but EOEa still applies the goals and methods of the program. MWI awarded annual grants for watershed projects – some grants are still available through the EPA Watershed Initiative.

**MWRA** --- Massachusetts Water Resources Authority

**National Pollution Discharge Elimination System (NPDES)** – A federal program under the Clean Water Act created to monitor, regulate and oversee discharges, such as sewage treatment plant effluent, storm water and industrial discharges, into US waterways.

**Natural resources/habitat inventory** – An assessment and concerted examination of the natural communities, natural amenities and ecosystems in a given area.

**NCW** – the North Coastal Watersheds, comprising the coastal area from Revere to Cape Ann, Essex, and Salisbury, and the rivers that drain directly to that coast.

**NGO** – Non-governmental organization (also NPO, not-for-profit organization).

**Nitrate** – A form of nitrogen readily usable by vegetation. Excessive amounts of nitrate can disrupt ecological balances in a natural system, particularly in salt water and pose some public health threats.

**NMFS** --- National Marine Fisheries Service (Northeast regulatory headquarters in Gloucester)

**NMSP** --- National Marine Sanctuary Program (local sanctuary is Stellwagen Bank)

**Non-native plants** – Plants from another region or continent introduced to an area. Non-native plants usually do not have the same checks and balances in place, as is the case with native species, and the result is often rampant invasion and excessive growth by the non-natives (hence the term “invasive species”). Areas dominated by these plants may not be useful to native species for food, shelter or habitat and usually displace the native plant community.

**Nonpoint Source Pollution (NPS)** – Pollution originating from multiple and diffuse sources with varying loads. Storm water is a significant contributor of nonpoint pollutants since it washes pollutants from impervious surfaces such as roadways.

**NPDES** – National Pollutant Discharge Elimination System, a permitting program by EPA to control water pollution by regulating point sources that discharge pollutants into waters. NPDES does not apply to non-point source pollution, except for stormwater permits (which is an NPS pollutant).

**NPS** – National Park Service (also non-point source pollution, above). The Saugus Iron Works National Historic Site is a 9-acre National Park Service site along the Saugus River in the NCW.

**Nuisance species** – A plant or animal prone to causing problems in ecosystem function or to the health, enjoyment, or aesthetic value of an ecosystem.

**Nutrients, (nitrates and phosphates)** – Nutrients are essential for growth in both plants and animals with nitrogen and phosphorus being significant for growth in plants. There are several common forms of nitrogen including nitrite, nitrate, and ammonia. Nitrate is a form of nitrogen easily absorbed and used by plants and is a byproduct of the oxidation of ammonia. Phosphate usually occurs in low concentrations in water and plant growth in fresh water is limited by the amount of phosphate present in the water.

**On-site Systems** – An individual system for treating wastewater, commonly called a septic system.

**Open Space and Recreation Plan** – A short and/or long term plan compiled by a community identifying current open space and parklands with a blue print for future acquisitions, changes and enhancements based on an assessment of community needs, habitat and sensitive resources. Up to date open space plans are often a requirement for a community to access some state and federal self-help funds.

**OWM** --- Office of Watershed Management (Mass./DEP)

**OWOW** --- Office of Wetlands, Oceans and Waterways (Federal/EPA)

**Phosphorus** – A nutrient often serving as the limit to growth in freshwater systems. Excessive amount of phosphorus in a water body can lead to a condition of unchecked plant growth known as eutrophication.

**Rails to Trails** – The conversion of inactive railroad beds and rights-of-way into trails for recreation and passage.

**RFP** --- Request for Proposals (also RFR, Request for Responses, or RFQ, Request for Quotations)

**Riparian zone or area** – This is the land adjacent to and along a river or stream. When a riparian area has a natural vegetative cover it serves a buffer between the upland and watercourse.

**River Protection Act (RPA)** – An augmentation to the Massachusetts Wetland Protection Act creating a 200-foot river resource area around most of the perennial rivers and streams in Massachusetts, (some densely developed communities have a 25-foot riverfront area) to better protect the quality of our river resources. The RPA expands the scope of jurisdiction of the Wetland Protection Act.

**Run-off** – The water flowing off pavement, roofs, lawns and other surfaces during a storm event often carrying pollutants washed from these surfaces.

**Safe Drinking Water Act (SDWA)** – A federal law passed in 1974 creating a federal program to monitor and increase the safety of drinking water. Amended in 1986 to establish new enforcement responsibilities for EPA and changes in nation-wide safeguards.

**SBNMS** --- Stellwagen Bank National Marine Sanctuary

**Scenic River Protection** – [Chapter 21A §2(28)] Administer by the MA Department of Environmental Management, the Scenic and Recreational Rivers Act allows for the designation of rivers or river sections as scenic and recreational rivers. Designated rivers have orders put in place to preserve and promote public safety, health and welfare, protect public and private property, wildlife, freshwater fisheries and irreplaceable wild and scenic recreational river resources.

**Sedimentation and siltation** – An increase, above natural levels, in the amount of sand and silt carried to a watercourse. This increase can lead to impairments including loss of habitat, loss of spawning areas, decrease in light penetration, increase in scour and an increase in bacterial and other pollutants.

**Septic systems/ on-site systems** – These are decentralized waste treatment systems usually installed for an individual or cluster of houses. A septic system replaced the historic practice of direct discharges of wastes to water bodies and provides an adequate level of treatment and contributes to groundwater recharge when designed, installed and maintained properly on suitable soils.

**SRWC** – Saugus River Watershed Council, a watershed group based in Saugus, [www.saugusriver.org](http://www.saugusriver.org)

**SSCW** – Salem Sound Coastwatch (formerly SS2000, Salem Sound 2000), a watershed group based in Salem, [www.salemsound.org](http://www.salemsound.org)

**State Revolving Fund (SRF)** – A fund from which a community can apply for zero interest loans to assess or improve wastewater or nonpoint source pollution problems in the community.

**Storm water Phase 2 Requirements** – Storm water controls are found in a section of the federal Clean Water Act regulating pollutant discharges to waterways (NPDES). Phase 2 is an effort to reduce the pollution sources entering

waters via storm water runoff from medium sized municipal areas. Areas meeting the size or density requirements will have to develop and implement a storm water management plan encompassing six minimum control measures under a general permit issued under the auspices of the Clean Water Act.

**Stream Team** – A group of volunteers focusing effort and energy on a specific stream or reach of a river. Stream teams may undertake one or more of a variety of initiatives such as shoreline visual surveys, river cleanups or educational outreach.

**Subdivision standards** – The ordinances and requirements enacted by a community to govern proposed subdivisions. Standards could involve density of development, road and sidewalk design, water use, turf management, and more.

**Surface and ground water** – Surface water is all water at or above the ground's surface. Often the most concerned lies with fresh water because of the world's heavy reliance on surface water for drinking and other uses. Ground water is the fresh water found beneath the surface of the planet in the spaces between soil particles, bedrock faults/cracks, etc. Ground water, particularly the water found in aquifers, is also an important source of drinking water.

**SWIM** -- Safer Waters in Massachusetts, a watershed group based in Nahant (also Nahant SWIM, Inc.), [www.nahant.org/community/swim.shtml](http://www.nahant.org/community/swim.shtml)

**TIE/TRE** – Toxicity Identification and Toxic Reduction Evaluation.

**Title 5** – The Massachusetts regulation overseeing on-site wastewater treatment systems. Improperly or poorly functioning on-site systems (Septic Systems) have the potential to adversely impact nearby waterways or groundwater.

**Total Maximum Daily Load (TMDL)** – A section in the Federal Clean Water Act requiring each state to identify water bodies that are not meeting their assigned water quality standard, ascertain the causes of impairment and determine the maximum amount of that pollutants a waterway can receive, yet still meet water quality standards. Using this amount, a TMDL establishes the allowable pollutant loading from all contributing sources so the total, including a margin of safety, falls at or below the maximum daily allowable pollutant load.

**Total Phosphorus** – Phosphorus is a nutrient essential for the growth of most plants. Phosphorus can be found in both the organic and inorganic forms. Total phosphorus is a measure of both these forms.

**Tributary** – A stream or river flowing into a larger, mainstream river.

**Underground Storage Tanks (USTs)** – These are storage tanks buried beneath the surface of the ground. These tanks frequently contain gasoline (such as those at service stations or airports), home heating oil or other petroleum products. USTs are relatively inaccessible and are difficult to monitor for leaks, (LUSTs or leaking underground storage tanks) posing a threat to groundwater and surface waters.

**Wastewater** – Water that is used for some purpose then discharged or “wasted”. Usually refers to the water used in households, business and industry.

**Water Management Act** – (MGL Chapter 21 G) The intent of the WMA is to manage water uses, maintain safe yields, and plan for future water needs and this is done through the issuance of permits to withdraw set volumes of water from ground and surface supplies. The MA Dept. of Environmental Management administers the WMA based on decisions made by the Water Resources Commission.

**Watershed** – An area of land contributing runoff/drainage to a common point. Large watershed may be divided into smaller sub-watersheds.

**Wetland resource area** – An area of land with saturated or nearly saturated soils most of the year serving as an interface between land-based and water-based environments. Wetlands provide many benefits including pollution attenuation, groundwater recharge, valuable plant and animal habitat. Wetlands are protected under the Massachusetts Wetland Protection Act as resource areas.

Glossary Prepared by the Riverways Programs, MA Department of Fish and Game. (First created 9/97, DFWELE – River ways Program, revised 12/01 and 11/02, formatted and revised 01/04, added relevant CZM list from <http://www.mass.gov/czm/abc.htm>)

# Acknowledgements

This Five Year Watershed Action Plan was made possible by a grant from the Massachusetts Executive Office of Environmental Affairs:

- ? John Clarkeson, Watershed Initiative coordinator, EOEA
- ? Vandana Rao, Massachusetts Water Policy coordinator, EOEA

The following people contributed to this Action Plan. Many others also contributed and we acknowledge their contribution despite omitting their names here.

- ? State Sen. Jarrett Barrios, Middlesex/Suffolk/Essex district
- ? The Beverly Conservation Commissioner's office
- ? Bill Blanchard, Economist, Mass Dept. of Agricultural Resources
- ? Todd Callaghan, CZM
- ? Revere City Council President Mark Casella
- ? Bradford C. Chase, Marine Fisheries Biologist, Massachusetts Division of Marine Fisheries
- ? James Comeau, DCR
- ? Conservation Commissioners represented on 8 Towns and the Bay
- ? Cindy Delpapa, DFG Riverways Program
- ? Lawrence Gil. Former North Coastal Watersheds Team Leader
- ? Kathryn Glenn, CZM North Shore Regional Office and SRWC
- ? Rob Gough, Salem Sound Coastwatch
- ? Representative Mary E. Grant, Sixth Essex District
- ? Doug Heath, Friends of Lake Quannapowitt
- ? Julie Keane, CZM
- ? Joan LeBlanc, Program Director, SRWC
- ? Renee Mary, Wenham Lake Watershed Association member
- ? Amy Maxner, Beverly Conservation Commissioner
- ? Mark McQueen, National Resource Conservation Service, USDA
- ? Cynthia Mom, Assistant Director of Land Stewardship, Essex County Greenbelt Association, Inc.
- ? Dominique Pahlavan, Mass GIS and EOEA
- ? Peter Phippen, 8 Towns and the Bay
- ? Tim Purinton, Massachusetts Audubon Society North Shore Chapter
- ? Christine Rasmussen, Ward 5 Councilor, City of Gloucester, and Buy Fresh coordinator
- ? Neil Rossman, candidate for Swampscott Selectman
- ? William F. Scanlon, Jr., Mayor of Beverly
- ? Max Schenk, Conservation Commissioner and Eight Towns & the Bay Gloucester representative
- ? Arthur Screpetis, MA-DEP
- ? Barbara Warren, Salem Sound Coastwatch
- ? Jan Schlichtmann, Wenham Lake Watershed Association

The following people constituted the production team for the Action Plan and the associated video:

- ? David Drain, Engineer, Perot Systems Government Services
- ? Jesse Gordon, Senior Analyst, Perot Systems Government Services Environmental Information Division  
Contact information: jesse.gordon@psgs.com, (781) 544-0241, jesse@NorthCoastal.net, (617) 320-6989
- ? Erica Rosen, PSGS web designer
- ? Allison Ruda, Yellow Kitchen Productions videography
- ? Michael Thompson, GIS Analyst, Perot Systems Government Services
- ? Mike Toomey, Mass Aquatic Resource Education Program and Strategic Cable Alliance "WaterFronts"