



ENVIRONMENTAL
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State Wetland Protection

Status, Trends, & Model Approaches

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Environmental Law Institute*

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Appendix: State Profiles

Massachusetts

I. Overview

Massachusetts has lost 20 percent of the wetlands that were in existence at the time of European settlement.¹ Of the approximately 48,000 acres of coastal saltmarsh remaining, about 8,000 acres are considered degraded by human activity.² Many riparian buffer zones along streams, wetlands and rivers have been removed for farming activities, and hedgerow habitat has been lost because of consolidation of small fields into larger ones.³ There are over 48,000 acres of wetlands in Massachusetts, but between 1991 and 2001, over 800 acres of wetlands were lost or altered in the state.⁴

II. Regulatory Programs

Wetland definitions and delineation

Waters of the Commonwealth is defined as “all waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, groundwaters, and vernal pools.”⁵

The Wetlands Protection Act defines coastal and freshwater wetlands separately. Coastal wetlands are “any bank, marsh, swamp, meadow, flat or other lowland subject to tidal action or coastal storm flowage.”⁶ Freshwater wetlands are “wet meadows, marshes, swamps, bogs, areas where the groundwater, flowing or standing surface water or ice provide a significant part of the supporting substrate for a plant community for at least five months of the year; emergent and submergent plant communities in inland waters; that portion of any bank which touches any inland waters.”⁷

The state has developed its own wetland delineation methodology, which is more exacting and stringent than the Corps standard.⁸ The Wetlands Protection Act states within the definition of bogs, marshes, swamps, and wet meadows that “...a significant part of the vegetational community is made up of, but not limited to, nor necessarily including all of the following plants or groups of plants...”⁹ The definition for Bordering Vegetative Wetlands (BVW) in the wetland regulations states that these areas “...support a predominance of wetland indicator plants...”¹⁰

¹ U.S. FISH AND WILDLIFE SERV., PARTNERS FOR FISH AND WILDLIFE, MASSACHUSETTS (July 2001), available at <http://www.fws.gov/northeast/partners/Documents/State%20Summaries/MA-needs.pdf>.

² *Id.*

³ *Id.*

⁴ Massachusetts Department of Environmental Protection, *Wetlands Loss Map Q & A*, at <http://www.mass.gov/dep/water/resources/wlossmap.htm> (last viewed on July 3, 2007).

⁵ 314 MASS. CODE REGS. 4.02.

⁶ MASS. GEN. LAWS ch. 131, § 40.

⁷ *Id.*

⁸ Personal Communication with Michael Stroman, Wetlands Program Chief, Mass. Dep’t of Env’tl. Mgmt. (Mar. 14, 2007).

⁹ MASS. GEN. LAWS ch. 131 § 40.

¹⁰ 310 MASS. CODE REGS. 10.55(2)(a).

The regulations go on to describe a BVW boundary as “...the line within which 50 percent or more of the vegetational community consists of wetland indicator plants...”¹¹

In order to provide consistency in determining BVW boundaries, the state Department of Environmental Protection (MassDEP) has produced a handbook describing a methodology.¹² MassDEP has also developed a field data form, contained in the handbook, that should be used to report information used in determining the boundary.¹³ The handbook includes the details of how to conduct, prepare for, and review boundary delineations for Bordering Vegetated Wetlands.¹⁴ It describes how to conduct the dominance test, how to determine the presence of wetland hydrology at a site, and how to establish the BVW boundary from this information.¹⁵

Wetland-related law and regulations

Wetlands Protection Act. The Massachusetts Wetlands Protection Act, the main regulatory authority for protecting wetlands in the state, regulates activities in all wetlands in the state.¹⁶ The Wetlands Protection Act protects wetlands and the public interests they serve, including flood control, prevention of pollution and storm damage, and protection of public and private water supplies, groundwater supply, fisheries, land containing shellfish, and wildlife habitat.¹⁷ These public interests are protected by requiring a careful review of proposed work that may alter wetlands or work in 100-foot buffer zones to certain types of wetlands.¹⁸

The Wetland Protection Act is administered in a decentralized way. While the policies and regulations are promulgated by MassDEP, permits are actually issued by the 351 local conservation commissions.¹⁹ The commissions’ volunteer boards comprise three to seven members appointed by the selectmen or city council. In addition to developing regulations and policies, MassDEP provides technical training to commissions. MassDEP also hears appeals of decisions made by commissions.

The conservation commissions ensure that proposed activities will not alter resource areas and the public interests they provide by reviewing projects on a case-by-case basis.²⁰ The regulations describe how each type of resource area provides one or more of the public interests. The regulations also spell out the type and extent of work allowed in resource areas. Proposed

¹¹ 310 MASS. CODE REGS. 10.55(2)(c).

¹² Massachusetts Department of Environmental Protection, *Wetlands Program Policy, Bordering Wetland Vegetation Delineation Criteria and Methodology* (March 1, 1995), at <http://www.mass.gov/dep/water/laws/bvw.htm>.

¹³ *Id.*

¹⁴ SCOTT JACKSON, *DELINEATING BORDERING WETLAND VEGETATION UNDER THE MASSACHUSETTS WETLAND PROTECTION ACT, A HANDBOOK*, (Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways ed., 1995) available at <http://www.mass.gov/dep/water/laws/bvwmanua.pdf>.

¹⁵ *Id.*

¹⁶ MASS. GEN. LAWS ch. 131 § 40.

¹⁷ Massachusetts Department of Environmental Protection, *Protecting Wetlands in Massachusetts*, at <http://www.mass.gov/dep/water/resources/protwet.htm> (last visited July 3, 2007).

¹⁸ *Id.*

¹⁹ MASS. GEN. LAWS ch. 131, § 40; 310 MASS. CODE REGS. 10.00.

²⁰ 310 MASS. CODE REGS. 10.00.

work must meet these standards. This information helps landowners and developers plan their work and helps commissions apply the law to specific projects.²¹

The law regulates many types of work in resource areas, including vegetation removal, regrading, and construction of houses, additions, decks, driveways, and commercial or industrial buildings. A person proposing to conduct work in a wetland resource area or within 100 feet of a wetland (an area called the buffer zone) is required to contact the local conservation commission before starting work. To determine if a proposed work site is in a resource area or whether the work will alter a resource area, those conducting such projects can apply for a Request for Determination of Applicability. If the conservation commission determines that the work will alter a resource area, the person must file an application, called a Notice of Intent (NOI), and pay an application fee. The NOI requires a plan describing the details of the proposed project, location of wetland resource areas and buffer zones, and measures to be taken to protect them. This information can be found in the regulations and application instructions. The conservation commissions provide guidance on the content and detail needed in plans.²²

Commissions visit sites to verify the resource area boundaries on the property. At a public hearing on the project, the applicant may present information, and abutters and other members of the public may ask questions. Following the hearing, commissions may issue a permit, called an Order of Conditions, which either approves the project—with special conditions that will protect the public interests—or deny the project if impacts to resource areas cannot be avoided or mitigated. The applicant, landowner, any aggrieved person, abutter, group of ten citizens, or MassDEP may appeal the local commission's decision.²³

The Act also authorized wildlife habitat protection, including wetlands restoration, which is guided by the Wildlife Habitat Guidance.²⁴

Inland and Coastal Wetland Restriction Acts. Permanent restriction orders have been placed on selected wetlands in over 50 communities under the Inland²⁵ and Coastal²⁶ Wetlands Restriction Acts.²⁷ The restriction orders provide added protection for selected wetlands by prohibiting certain activities in advance of any work being proposed.²⁸

Restriction orders are recorded at the Registries of Deeds in the counties where the properties are located to inform future landowners of the restriction. Affected municipalities have copies of the community's restricted wetlands plans and restriction orders. Restriction orders are implemented through the Wetlands Protection Act permitting process. A landowner proposing work in a restricted wetland must file a Notice of Intent (NOI) and check the appropriate box on the form.

²¹ *Id.*

²² Massachusetts Department of Environmental Protection, *supra* note 17.

²³ *Id.*

²⁴ MASS. DEP'T OF ENVTL. PROT., BUREAU OF RES. PROT., WETLANDS AND WATERWAYS PROGRAM, WILDLIFE HABITAT PROTECTION GUIDANCE FOR INLAND WETLANDS (Mar. 2005), *available at* <http://www.mass.gov/dep/water/laws/wldhab.pdf>.

²⁵ MASS. GEN. LAWS ch. 131 § 40A; 310 MASS. CODE REGS. 13.00.

²⁶ MASS. GEN. LAWS ch. 130 § 105; 310 MASS. CODE REGS. 12.00.

²⁷ Massachusetts Department of Environmental Protection, *supra* note 17.

²⁸ *Id.*

Upon receipt of the NOI, the conservation commission and MassDEP regional office should check their copies of the restricted wetlands plans and restriction orders to determine if work is proposed in a restricted wetland and if the work is allowed under the restriction order. Orders of Conditions must not allow work that is prohibited by a restriction order.²⁹

Local Wetlands Bylaws. Over 170 Massachusetts communities have local wetlands protection bylaws in addition to the state and federal laws.³⁰

Organization of state agencies

Several state and local agencies participate in both regulatory and non-regulatory wetlands activities throughout the state.

Conservation Commissions. Every city and town in the state has a conservation commission, enabled by the Conservation Commission Act.³¹ Conservation commissions have between three and seven volunteer members.³² The town meeting or city council sets the number. Terms are three years in length. Approximately 100 of the commissions also have full time employees. The commissions have the primary responsibility for wetland protection and permitting under the Wetlands Protection Act.³³ Under this law, commissions across the state process over eight to ten thousand applications every year for permits to do work in and near wetlands, flood plains, banks, riverfront areas, beaches and surface waters.³⁴ They also play a role in wetlands conservation.

Massachusetts Association of Conservation Commissions. The commissions are supported by the Massachusetts Association of Conservation Commissions (MACC). The MACC was formed in 1961 to provide and disseminate educational materials describing their duties and outlining methods of attaining their goals and to discuss ways of improving the citizen's role in environmental protection.³⁵

The MACC conducts a major annual meeting for conservation commission members. The MACC *Annual Environmental Conference* is the largest annual gathering of local environmental officials in New England and includes about 40 workshops and nearly 50 exhibits. The MACC's annual *Fall Conference* covers a relevant topic in depth. In between annual meetings, the MACC offers a variety of specialized education programs. The MACC publishes the Environmental Handbook for Massachusetts Conservation Commissioners and a regular Newsletter, and writes or distributes over 100 other government, legal and environmental publications.³⁶

²⁹ *Id.*

³⁰ *Id.*

³¹ Massachusetts Association of Conservation Commissions, *About Conservation Commissions*, at http://www.maccweb.org/about_commissions.html (last visited July 3, 2007).

³² *Id.*

³³ MASS. GEN. LAWS ch. 131 § 40.

³⁴ *Id.*

³⁵ Massachusetts Association of Conservation Commissions, *About Us*, at http://www.maccweb.org/about_us.html (last visited July 3, 2007).

³⁶ *Id.*

The MACC's original mission of encouraging and assisting the establishment of conservation commissions in every municipality was achieved in the 1980s.³⁷ The MACC continues to provide education and support for the commissions and to work for strong, workable, science-based laws and regulations regarding wetlands, other water resources, open space, and biological resources.³⁸

Massachusetts Department of Environmental Protection. The Massachusetts Department of Environmental Protection (MassDEP) is the central authority for wetlands protection under the Wetlands Protection Act. The MassDEP issues regulations, hears appeals, and enforces regulations when there are violations.³⁹

Four regional offices are the hubs of MassDEP permitting, compliance, enforcement, and cleanup activity.⁴⁰ Staff based in these offices work primarily in the field and are familiar with the communities they serve.⁴¹ The regulatory program has approximately 40 full time employees who participate in permitting, enforcement, compliance, monitoring, §401 certification, outreach and technical support, and some restoration.⁴² The program has an annual budget of approximately \$1.2 – 1.3 million, funded through fees.⁴³ The MassDEP Circuit Rider program provides direct technical assistance and training to the conservation commissions on the administration of the Wetlands Protection Act.⁴⁴ There are seven regional circuit riders and a coordinator based in Boston.⁴⁵ The agency also is tracking wetland change through GIS imagery that will be used for analysis and improved enforcement.⁴⁶

Massachusetts Estuary Project. The Massachusetts Estuary Project (MEP) began in order to address the problems caused by excess nitrogen loading in 89 estuaries in southeastern Massachusetts. The MEP is a collaborative effort among coastal communities, MassDEP, the School of Marine Science and Technology (SMAST) at the University of Massachusetts, Dartmouth, the US Environmental Protection Agency (EPA) Executive Office of Environmental Affairs, and the Cape Code Commissions.⁴⁷

The MEP provides water quality, nutrient loading, and hydrodynamic information for use in a watershed model that will predict the water quality changes that will result from land use management decisions. Reports for each of the estuaries will evaluate several water quality

³⁷ Massachusetts Association of Conservation Commissions, *Mission*, at http://www.maccweb.org/about_mission.html (last visited July 3, 2007).

³⁸ *Id.*

³⁹ MASS. GEN. LAWS ch. 131 § 40.

⁴⁰ MassDEP, *Regional Offices*, at <http://www.mass.gov/dep/about/regional.htm> (last visited July 3, 2007).

⁴¹ *Id.*

⁴² Stroman, *supra* note 8.

⁴³ *Id.*

⁴⁴ Massachusetts Department of Environmental Conservation, *MASSDep's Wetlands Circuit Rider Program*, at <http://www.mass.gov/dep/water/compliance/cridr.htm> (last visited July 3, 2007).

⁴⁵ *Id.*

⁴⁶ Personal Communication with Susan Figelman, Mass. Dep't of Env'tl. Prot. Compliance and Enforcement Chief for the Bureau of Res. Prot. (March 27, 2007).

⁴⁷ MASS. DEP'T OF ENVTL. PROT., MASSACHUSETTS ESTUARIES PROJECT, EMBAYMENT RESTORATION AND GUIDANCE FOR IMPLEMENTATION STRATEGIES (2003), available at www.mass.gov/dep/water/resources/mamep.doc.

conditions and how that relates to the health of the estuary, and the land use changes necessary to bring about that improvement.⁴⁸

Wetlands Restoration Program, Massachusetts Office of Coastal Zone Management. Massachusetts was the first state to formally institute a Wetlands Restoration Program (WRP).⁴⁹ Founded in 1994, WRP is charged with restoring tidal and fresh water wetlands in the coastal zone.⁵⁰ The program conducts extensive regional planning to identify restoration opportunities, and prioritizes potential restoration projects according to a detailed set of criteria.⁵¹ Through partnerships, WRP supports restoration projects by providing guidance, coordination, and in-house technical assistance from experienced project managers for project development and implementation.⁵² Designated priority projects may also receive grants and private sector technical services funded with WRP resources.⁵³

§401 certification

Section 401 water quality certification is coordinated with the order of conditions process under the WPA.⁵⁴ Most projects approved by a conservation commission under the WPA do not require further review under §401. These projects are automatically certified when they obtain an order of conditions. Projects impacting less than 5,000 square feet, that are in compliance with the WPA, do not require a §401 certification.⁵⁵ Projects impacting less than 5,000 square feet of isolated wetlands are exempt from certification requirements, as are beach nourishment projects, agriculture and aquaculture projects, and planning and design activities.⁵⁶ Projects with potentially large impacts and those that are not subject to the WPA also require §401 review, as well as those in outstanding resource waters, affecting rare and endangered species habitats, and subdivision projects.⁵⁷

The number of certifications issued each year varies from 60 to 80, and the majority of applications are approved.⁵⁸ Certification applications are evaluated by an alternatives analysis, an avoidance and minimization requirement, an impact assessment, and a public interest evaluation.⁵⁹

Statewide programmatic general permit

⁴⁸ Massachusetts Department of Environmental Protection, *What Are Estuaries?*, available at <http://www.mass.gov/dep/water/resources/brochure.htm> (last visited July 5, 2007).

⁴⁹ U.S. FISH AND WILDLIFE SERV., PARTNERS FOR FISH AND WILDLIFE, MASSACHUSETTS (July 2001), available at <http://www.fws.gov/northeast/partners/Documents/State%20Summaries/MA-needs.pdf>.

⁵⁰ Personal Communication with Tim Smith, Mass. Office of Coastal Zone Mgmt. Wetlands Restoration Program Project Manager/Wetlands Scientist (March 27, 2007).

⁵¹ Personal Communication with Hunt Dury, Mass. Office of Coastal Zone Mgmt. Wetlands Restoration Program Manager (May 3, 2007).

⁵² Massachusetts Office of Coastal Zone Management Wetlands Restoration Program, *WRP Mission*, at http://www.mass.gov/czm/wrp/about_us_pages/wrp_mission.htm (last visited July 5, 2007).

⁵³ *Id.*

⁵⁴ Stroman, *supra* note 8.

⁵⁵ 314 MASS. CODE REGS. 9.03(1).

⁵⁶ 314 MASS. CODE REGS. 9.03.

⁵⁷ 314 MASS. CODE REGS. 9.04.

⁵⁸ Stroman, *supra* note 8.

⁵⁹ 314 MASS. CODE REGS. 9.06 – 9.08.

Massachusetts is currently operating under a statewide programmatic general permit (SPGP) that was issued on January 20, 2005 and is in effect until January 20, 2010.⁶⁰ Activities with minimal impacts and that meet certain conditions qualify for authorization under the SPGP in either Category 1 or Category 2.⁶¹ Category 1 activities are known as non-reporting projects and may be authorized under the SPGP without notifying the Corps. Category 2 projects are known as reporting projects and an application to and written authorization from the Corps is required for these projects.⁶²

Projects meeting the conditions for Category 1 activities require only an order of conditions from MassDEP but no authorization from the Corps, though they must comply with other applicable federal law, and general conditions.⁶³ Projects meeting the conditions for Category 2 activities require written authorization from the Corps and an order of conditions under the WPA, as well as certifications or waivers concerning Water Quality Certification and Coastal Zone Management. Applicants must consult with the Corps and outside experts to ensure compliance with all SPGP conditions, such as consultation with the Massachusetts Historical Commission and the appropriate Native American Indian tribes to ensure compliance with General Conditions. Any other projects that do not meet the conditions for Categories 1 or 2 require an individual permit.⁶⁴ If there are sufficient concerns for the aquatic environment or other threats to the public interest, the Corps can still require an Individual Permit for activities meeting the conditions in Category 1 or Category 2.

Category I activities include projects that impact less than 5,000 square feet and Category 2 is for activities that affect between 5,000 square feet and one acre, that also meet the detailed PGP conditions.⁶⁵

Mitigation

Massachusetts wetland regulations set forth state mitigation requirements.⁶⁶ For projects that are less than 5,000 square feet, compensation must be at the ratio of 1:1.⁶⁷ In 2004, the governor authorized the creation of a pilot wetlands mitigation bank in the Taunton River Watershed as part of the Transportation Bond Bill (Section 89 of Massachusetts Acts Chapter 291).⁶⁸ The project is being carried out by a consulting firm, Blue Wave Strategies.⁶⁹ The purpose of the bank, in addition to offering mitigation opportunities for projects causing

⁶⁰ U.S. ARMY CORPS, DEP'T OF THE ARMY PROGRAMMATIC GENERAL PERMIT COMMONWEALTH OF MASS. (Dec. 18, 2006), available at <http://www.nae.usace.army.mil/reg/mapgp.pdf>.

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.* at 22.

⁶⁵ *Id.*

⁶⁶ 310 MASS. CODE REGS. 10.55(4)(b); MASS. DEP'T OF ENVTL. PROT., MASSACHUSETTS INLAND WETLAND REPLICATION GUIDELINES (Mar. 1, 2002) available at <http://www.mass.gov/dep/water/laws/replicat.pdf>; Stroman, *supra* note 8.

⁶⁷ Stroman, *supra* note 8.

⁶⁸ Eric Las, et al., *A Pilot Wetlands Mitigation Bank in the Taunton Rivershed*, Association of Massachusetts Wetlands Scientists Newsletter, Oct. 2006, at 9, available at <http://www.bluewavestrategies.com/pdfs/AMWSarticle.pdf>.

⁶⁹ Blue Wave Strategies, *Wetland Mitigation Banking*, at http://www.bluewavestrategies.com/wetlands_banking.html (last visited July 9, 2007).

impacts to wetlands, is to determine if mitigation efforts can be improved by establishing large area mitigation banks with significant oversight during the planning, construction and post-construction monitoring phases.⁷⁰ The 2004 legislation also required the creation of a wetlands Mitigation Banking Review Team (MBRT). Facilitated by Blue Wave Strategies, the team meets monthly and includes representatives from consultancies, state agencies, federal agencies, industry, an advocacy organization, and the local community.⁷¹

Compliance and enforcement

Massachusetts has a two-tiered structure for enforcement of wetlands protections. Local conservation commissions in each city and town are the first line of defense, both for wetlands permitting and for enforcement. MassDEP gets involved in appeals, superseding orders of conditions, complex enforcement cases, and guidance when a local conservation commission seeks enforcement assistance.⁷²

MassDEP typically handles enforcement cases through the administrative enforcement process, with the exception of cases valued over \$40,000.⁷³ MassDEP refers these larger cases to the state Attorney General for consideration. The Attorney General selects a few cases each year for civil or criminal prosecution in court and may seek civil penalties as well as criminal fines. The vast majority of MassDEP wetlands cases, however, are executed via MassDEP's administrative enforcement.

MassDEP classifies regulations into three categories according to the nature of the violation.⁷⁴ Reporting and other types of paperwork violations are considered Class III. Operation and maintenance violations, such as failing to install a silt fence, would be considered Class II.⁷⁵ The initial enforcement response for a Class III or Class II violation is a Notice of Noncompliance to prevent wetlands degradation. Once wetlands have been filled or damaged, the violation is considered Class I. Class I violations are the most serious and involve damage as a result of an unpermitted action, such as filling a wetland. Class I violations can also result from failure to comply with the terms of a permit or order of conditions, such as wetland siltation resulting from failure to prevent upland erosion.⁷⁶

Administrative enforcement may follow different routes, depending on the case. The case may start with issue of a unilateral administrative order (UAO) which requires the violator to cease and desist activities, such as wetlands filling, immediately.⁷⁷ Next, the agency can issue a penalty assessment notice (PAN) or negotiate an administrative consent order with penalty (ACOP).⁷⁸ The PAN is an appealable document. The incentive for the violator to negotiate is

⁷⁰ Massachusetts Department of Environmental Protection, *supra* note 17.

⁷¹ Blue Wave Strategies, *Wetland Banking Review Team*, at http://www.bluewavestrategies.com/wetlands_team.html (last visited July 9, 2007).

⁷² MassDEP, *Enforcement Response Guidance* (Apr. 26, 1997) available at <http://www.mass.gov/dep/service/enf97001.pdf>.

⁷³ Figelman, *supra* note 9.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ MassDEP, *supra* note 72.

⁷⁸ *Id.*

that the penalty in the ACOP can be reduced or even suspended, resulting in an ACOP with no cash penalty, depending on the circumstances.⁷⁹ In return for the opportunity to negotiate, the violator agrees to waive the right to appeal. Most enforcement actions are resolved using this mutually beneficial ACOP process.⁸⁰

The administrative penalties statute and regulations authorize the Department to issue civil administrative penalties of up to \$25,000 per day for specific types of violations of the major environmental statutes the agency is charged with implementing.⁸¹ Enforcement orders also include stipulated penalties that set out further penalties for violating the terms of the order, such as failing to mitigate wetlands damage.⁸²

The penalty calculation for PANs and ACOPs begins with the base penalty for that violation, adjusted for the gravity of the damage assessment, good faith, public interest, and other variables.⁸³ Penalties can also be adjusted above the \$25,000 limit per violation if the violator benefited economically from the violation. Many cases involve multiple violations, with penalties assessed for each violation added together.

In Fiscal Year 2006 MassDEP executed 131 wetlands enforcement cases valued at \$537,000 in cash and suspended penalties.⁸⁴ Annually there are approximately 25 enforcement cases that address erosion controls.⁸⁵ An additional 80 cases require restoration, and a few cases require wetlands replication.⁸⁶ Over the past five years MassDEP has executed 370 wetlands enforcement cases valued at over \$3.8 million in cash and suspended penalties.⁸⁷

Massachusetts has had a more than five-fold increase in the number of wetlands enforcement cases during this time period, reflecting the impact of two new enforcement strategies, the Construction Initiative and the Wetlands Loss Project.

The Construction Initiative prevents and mitigates sedimentation of down-gradient resource areas by enforcing compliance with the erosion controls mandated by a project's order of conditions. MassDEP now takes enforcement measures at 20 to 30 building sites per year to ensure that permitted construction projects do not inadvertently result in illegal wetlands damage. Where the required erosion control methods have not been properly installed, MassDEP pursues enforcement to get proper controls in place. Where lack of controls is accompanied by evidence of sedimentation, MassDEP issues immediate orders to halt the damage, followed by penalties and orders to restore the resource areas impacted.⁸⁸

Tracking systems

⁷⁹ Figelman, *supra* note 9.

⁸⁰ *Id.*

⁸¹ MASS. GEN LAWS ch. 21A § 16; 310 MASS. CODE REGS. 5.

⁸² Figelman, *supra* note 9.

⁸³ *Id.*

⁸⁴ SFY 2006 Wetlands Protection Update, (on file with author).

⁸⁵ Figelman, *supra* note 9.

⁸⁶ *Id.*

⁸⁷ SFY 2006 Wetlands Protection Update, (on file with author).

⁸⁸ *Id.*

The Wetland Program currently has multiple data systems in place to track permitting, compliance, enforcement, and mitigation efforts. MassDEP is currently undertaking a long-term assessment of data needs and redesign as part of a three-year EPA Demonstration Pilot Grant. The goal of integrating data will involve: the review and consolidation of traditional paper file databases used to track filing and permitting information obtained through the Wetland Protection Act; use of eDEP for electronic filing of permit applications under the Wetlands Protection Act; development of a compliance and enforcement tracking system; data (digital photography) from wetland change maps; and a public access portal designed to offer environmental information to the regulated community using a GIS interface.⁸⁹

Massachusetts is pioneering a new method for tracking wetland changes, called the Wetlands Loss Initiative.⁹⁰ The agency is compiling aerial maps by conducting flyovers every other year, comparing wetland cover from 10 years ago and to the present, and cross-referencing with information about permits.⁹¹ Information is used for assessment, enforcement and deterrent purposes.

In the autumn of 2003, MassDEP began using these aerial photographs and sophisticated analyses to launch a crackdown on unpermitted filling of wetlands. MassDEP has now executed thirty “wetlands loss” cases, requiring restoration of nearly 50 acres of wetlands in total and \$1,857,350 in penalties. Most of the largest cases were executed in SFY 2004 and SFY 2005, accounting for the peak in penalty dollars those years. With the initial set of cases winding down in 2006, analysis of data from the second set of flyovers is underway, revealing few new large-scale violations.⁹² This preliminary analysis would appear to indicate that the project is indeed deterring illegal wetlands destruction, the project’s most important measure of success.⁹³

III. Water Quality Standards

Massachusetts applies surface water quality standards to wetlands and designated uses and anti-degradation standards also default to open water designated uses.⁹⁴ The water quality standards and associated designated uses relate to wetland functions including fish and wildlife habitat⁹⁵ and water quality⁹⁶.

IV. Monitoring and Assessment

Elements of a State Wetland Monitoring Program

⁸⁹ Stroman, *supra* note 8.

⁹⁰ Figelman, *supra* note 9.

⁹¹ *Id.*

⁹² SFY 2006 Wetlands Protection Update, (on file with author).

⁹³ Personal Communication with Susan Figelman, Mass. Dep’t of Env’tl. Prot. Compliance and Enforcement Chief for the Bureau of Res. Prot. (May 3, 2007).

⁹⁴ 314 MASS. CODE REGS. 4.05.

⁹⁵ 314 MASS. CODE REGS. 4.05(3)(b), 4.05(3)(c), 4(b).

⁹⁶ 314 MASS. CODE REGS. 4.05(3)(a).

Massachusetts is currently developing a wetland assessment methodology based on EPA's guidance for the monitoring and assessment of wetlands.⁹⁷ It is aiming to participate in EPA's national goal of developing a condition assessment for wetlands by 2011.⁹⁸ Massachusetts plans to follow EPA's suggested three-tiered monitoring program that incorporates landscape assessments through GIS images and photography for Level 1, a Rapid Assessment Methodology (RAM) with limited fieldwork for Level 2, and Intensive Site Assessments for Level 3.⁹⁹

Conservation Assessment and Prioritization System

In March 2006, MassDEP issued the Massachusetts Wildlife Habitat Protection Guidelines for Inland Resource Areas.¹⁰⁰ During the development of the guidance, MassDEP adopted the Conservation Assessment and Prioritization System (CAPS) developed by the University of Massachusetts in Amherst (UMass) as the approach to mapping wildlife habitat of potential regional or statewide importance.¹⁰¹ The CAPS is an objective, dynamic, and flexible computer model designed to evaluate the baseline ecological integrity of lands and waters and to identify and prioritize land for habitat conservation.¹⁰² Through funding from the EPA, the MassDEP Wetlands Program has supported UMass in creating CAPS maps that identify potentially important wetland habitat to determine which areas need more detailed evaluation.¹⁰³ Currently, 90 towns have been or are in the process of being mapped using the CAPS system.¹⁰⁴ MassDEP's goal is to conduct mapping for all municipalities in the state.

CAPS will be used for MassDEP's Level 1 wetland assessment. The assessment will be based on landscape-level indicators that incorporate anthropogenic impacts on ecological integrity. The results of CAPS are essentially predictions about the ecological condition of an area over time. CAPS does not assess ecological condition on the ground, nor does it typically use field-based information in the CAPS models. MassDEP and UMass are developing a RAM that will provide information about ecological condition for a large number and wide range of wetlands that are essential for testing and validating CAPS predictions and modifying the CAPS models. Another purpose for the RAM is to identify wetlands that do not meet quality standards and that therefore should be the focus of additional protection, remediation or restoration efforts through policy, regulation or outreach. It is generally expected that wetlands in more developed landscapes will have lower condition scores than wetlands in more natural landscapes. Therefore, to identify particular wetlands for additional protection or restoration, the relationship between wetland condition and land use in the surrounding landscape will be determined. Wetlands that deviate from such a relationship could be the focus of additional protection or restoration measures. Using CAPS and an appropriately designed RAM, the relationship

⁹⁷ WETLANDS DIVISIONS, OFFICE OF WETLANDS, OCEANS AND WATERSHEDS, EPA, APPLICATION OF ELEMENTS OF A STATE MONITORING AND ASSESSMENT PROGRAM FOR WETLANDS (April 2006), *available at* http://www.epa.gov/owow/wetlands/pdf/Wetland_Elements_Final.pdf.

⁹⁸ Personal Communication with Lisa Rhodes, MassDEP Monitoring and Assessment (Apr. 24, 2007).

⁹⁹ *Id.*

¹⁰⁰ MASS. DEP'T OF ENVTL. PROT., BUREAU OF RES. PROT., WETLANDS AND WATERWAYS PROGRAM, *supra* note 24.

¹⁰¹ Massachusetts Department of Environmental Protection, *supra* note 17.

¹⁰² Rhodes, *supra* note 98.

¹⁰³ University of Massachusetts, Amherst, *Habitat of Potential Regional and Statewide Importance*, at <http://www.umass.edu/landeco/research/caps/data/dep/dep.html> (last visited July 5, 2007).

¹⁰⁴ Rhodes, *supra* note 98.

between landscape context (CAPS scores) and wetland condition (RAM scores) will be plotted for each wetland type to identify wetlands that should be the focus of additional protection, remediation or restoration. Other goals of the monitoring and assessment program include: assessment of buffer zone disturbance; wetland condition changes over time; and wetland mitigation.¹⁰⁵

The CAPS system uses many different data sources including MassDEP Wetlands and Land Use/Land Cover maps. To the extent that these maps change as a result of MassDEP's wetland loss mapping, future CAPS analyses would reflect those losses. The DEP is also working with the Massachusetts Office of Coastal Zone Management (MCZM). The MCZM has developed a draft RAM for salt marshes that will be used as a model to develop MassDEP's RAM and which may ultimately be tested against CAPS predictions. MassDEP also participates in the New England Biological Assessment of Wetlands Working Group (NEBAWWG) to share information with other states on the development of the wetland monitoring and assessment program. Results of the MassDEP and UMass wetland monitoring and assessment program will ultimately be incorporated into the regular updates of the *Water Quality Monitoring Strategy for the Commonwealth of Massachusetts*, most recently updated in September 2005.¹⁰⁶

V. Restoration and Partnerships

Wildlife Habitat Protection

The Wetlands Protection Act authorized wildlife habitat protection which, in practice, includes wetlands restoration. These activities are conducted under the Wildlife Habitat Protection Guidance.¹⁰⁷

Coastal Zone Management – Wetlands Restoration Program

The Massachusetts Office of Coastal Zone Management, Wetlands Restoration Program (WRP) targets degraded tidal and fresh water coastal wetlands for restoration.¹⁰⁸ The program develops regional wetlands restoration plans that identify and prioritize areas for restoration using many sources of information. Some are technical and computer-based, such as the use of geographic information systems (GIS), while others are basic, common sense approaches that tap the knowledge of local area officials, organizations, and residents. Combined with on-the-ground field assessments, these sources can generate a comprehensive picture of potential restoration sites within a study area.¹⁰⁹

The WRP provides extensive technical assistance, resources, and overall coordination to help project partners achieve their wetland restoration goals.¹¹⁰ Many projects are located on public property and involve, for example, replacing a stream crossing culvert to restore tidal influence

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ MASS. DEP'T OF ENVTL. PROT., BUREAU OF RES. PROT., WETLANDS AND WATERWAYS PROGRAM, *supra* note 24.

¹⁰⁸ Massachusetts Office of Coastal Zone Management, *Wetland Restoration Program*, at <http://www.mass.gov/czm/wrp/index.htm> (last visited July 5, 2007).

¹⁰⁹ *Id.*; Massachusetts Office of Coastal Zone Management, *Great Marsh Coastal Wetlands Restoration Plan*, at www.mass.gov/czm/wrp/planning_pages/gmplan/home.htm (last visited July 5, 2007).

¹¹⁰ Dury, *supra* note 51.

to a coastal wetland.¹¹¹ The mission of the WRP is to help people voluntarily restore the state's degraded and former coastal wetlands and the services they provide.¹¹²

The WRP works with the Massachusetts Corporate Wetland Restoration Partnership to match cash and in-kind contributions with wetland restoration projects.¹¹³ They also receive support for project planning and implementation from federal partners including the U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Army Corps of Engineers, NOAA National Marine Fisheries Service and Restoration Center, EPA, Natural Resources Conservation Service, and National Park Service.¹¹⁴

VI. Education and Outreach

The Circuit Rider Program

The MassDEP Circuit Rider program provides direct technical assistance and training to the conservation commissions on the administration of the Wetlands Protection Act.¹¹⁵ There are seven regional circuit riders and a coordinator based in Boston.¹¹⁶

Massachusetts Estuaries Project

Volunteers collect water quality information as part of the Massachusetts Estuaries Project and learn about problems facing water quality through the project.¹¹⁷

Partnership to Restore Massachusetts Aquatic Habitats

In the mid-1990's partner organizations came together to form the Partnership to Restore Massachusetts Aquatic Habitats in order to enhance coordination and collaboration of organizations involved in aquatic habitat restoration.¹¹⁸ Partners meet biannually and communicate regularly to discuss science, policy, planning, funding, and project implementation. The Partnership is coordinated by the Wetlands Restoration Program and includes representatives from state¹¹⁹ and federal¹²⁰ restoration and regulatory programs, the Corporate Wetlands Restoration Partnership, and non-profit conservation groups.¹²¹

¹¹¹ Smith, *supra* note 50.

¹¹² *Id.*

¹¹³ Corporate Wetland Restoration Partnership, at <http://www.coastalamerica.gov/text/cwrp.html> (last visited July 5, 2007).

¹¹⁴ Massachusetts Office of Coastal Zone Management, *Restoration Partnerships*, at http://www.mass.gov/czm/wrp/partnerships_pages/partnerships.htm (last visited July 5, 2007).

¹¹⁵ Massachusetts Department of Environmental Conservation, *supra* note 44.

¹¹⁶ *Id.*

¹¹⁷ Massachusetts Department of Environmental Protection, *supra* note 48.

¹¹⁸ *Partnership to Restore Massachusetts Aquatic Habitat* (on file with author).

¹¹⁹ Wetlands Restoration Program, Riverways Program, Aquatic Invasive Species Working Group, Massachusetts Bays National Estuary Program, Division of Marine Fisheries, Lakes and Ponds Program, Natural Heritage and Endangered Species Program, Department of Environmental Protection, Office of Water Policy, Natural Resources Damages Assessment & Restoration Program, Reclamation and Mosquito Control Board, and Areas of Critical Environmental Concern Program.

¹²⁰ NOAA, National Marine Fisheries Service, U.S. Army Corps, EPA, NRCS, FWS, USGS, and the NPS.

¹²¹ Massachusetts Audubon Society, Advocates for Wetlands & Watersheds, The Trustee of Reservations, The Nature Conservancy, Ducks Unlimited, Trout Unlimited, American Rivers, Massachusetts Watershed Associations, and the Gulf of Maine Council on the Marine Environment.

VII. Coordination with State and Federal Agencies

In addition to coordination on permitting, mitigation banking (i.e., MBRT), and restoration, the state also participates and administers many other formal agreements and collaborative efforts. State and federal agencies are working on reaching an agreement regarding mosquito control work as a part of forestry and dam removal efforts.¹²² MassDEP is also developing guidance and other publications regarding wildlife that cross different jurisdictions, as well as pro-active river and wetland restoration projects.¹²³ There are monthly meetings with the U.S. Army Corps New England District Office on dredging issues and quarterly meetings with the Corps, EPA, and the New England State Wetlands Managers to give program updates for the states.¹²⁴ Period meetings are also conducted with the Association of State Wetland Managers. In addition, regulatory coordination meetings for aquatic habitat restoration projects are currently being held in the MassDEP Southeast Region, and include participants from state and federal restoration and regulatory programs.¹²⁵

VIII. Acronyms and Abbreviations

BVW – Bordering Vegetative Wetlands

FWS – U.S. Fish and Wildlife Service

MACC – Massachusetts Association of Conservation Commissions

MassDEP – Massachusetts Department of Environmental Protection

MBRT – Mitigation Banking Review Team

MEP – Massachusetts Estuary Project

NOAA – National Oceanic and Atmospheric Administration

OCZM – Office of Coastal Zone Management

RAM – Rapid Assessment Methodology

SMASST – School of Marine Science and Technology at the Univ. of Massachusetts, Dartmouth

SPGP – Statewide Programmatic General Permit

USGS – U.S. Geological Survey

WPA – Wetlands Protection Act

WRP – Massachusetts Office of Coastal Zone Management Wetlands Restoration Program

¹²² Stroman, *supra* note 8.

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ Dury, *supra* note 51.