

Sustainable Watershed Management: Priorities for Action Spring 2008

Introduction

The rivers, streams and wetlands of Massachusetts provide ecological services that maintain the health, safety, economy and welfare of our society. These services include storing and purifying drinking water, providing recreational opportunities that attract tourists, maintaining biological diversity, providing spawning opportunities for commercially valuable fish such as herring, raising property values, supporting agriculture and commerce, and protecting people and property from flooding. These services have been valued at over \$2.5 billion per year¹. Assuming an interest rate of 5%, these water resources have a capital value of over \$50 billion, and must be protected to avoid the staggering cost of expensive manmade mitigation.

Over the years, human activities have greatly impaired these water resources. The consequences include water shortages, pollution, flooding, impaired fisheries, and reduced recreational opportunities. Climate change threatens to further degrade their ecological integrity, underscoring the need for protection and restoration.

In Massachusetts, the seminal issue in aquatic ecosystem health is the availability of freshwater itself. Despite plentiful annual rainfall (averaging over 45 inches per year), many of our rivers and streams are running dry. Clearly, we are exceeding the natural carrying capacity of our water resources. Causes for this include traditional approaches to stormwater and regional wastewater infrastructure design that prevent water from infiltrating into underlying aquifers, and a pattern of summer water usage that demands most when streamflows are at their lowest.

While new state initiatives are making great strides in energy, the energy/water relationship is just beginning to be explored. With energy comprising as much as 40% of a water treatment plant's operating costs, the opportunity is ripe for conserving energy through water conservation. Fixing leaks in the water distribution system, replacing older plumbing fixtures with water-efficient devices, and curtailing nonessential outdoor water use can save substantial quantities of water, and thereby reduce energy requirements and carbon emissions. The state's Sustainable Development Principles² should guide our approach to sustainable economic growth while maintaining ecosystem integrity.

There are many cost-effective measures that the state, in collaboration with municipalities and environmental organizations, can implement to protect our water resources.

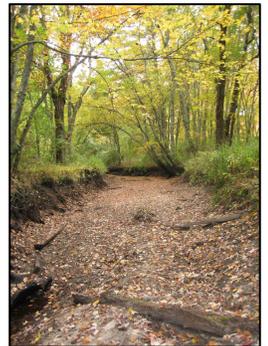
Problem: Dry rivers, streams and wetlands

Causes: *Unsustainable water management practices including excessive water withdrawals, especially in summer; inter-basin transfers; infiltration and inflow of groundwater into sewer systems.*

Solution: Base water management decisions on the sustainable yield of the watershed and sub-basins; eliminate wasteful water use; increase recharge.

Opportunities:

1. Develop adequate streamflow standards for ecological integrity, and effective streamflow triggers for drought management plans.
2. Develop a scientifically-supportable methodology for determining sustainable yields of



Mattaponisett River (10/07)

¹ "Losing Ground: At What Cost?" Mass Audubon Society, 2003.

² The Sustainable Development Principles include "Advance Equity: ensure that the interests of future generations are not compromised by today's decisions" (#SP2); "Make Efficient Decisions: Make regulatory and permitting processes for development...in accordance with smart growth and environmental stewardship" (#SP3); "Protect Land and Ecosystems" (#SP4); "Use Natural Resources Wisely" (#SP5); "Increase Job and Business Opportunities: Support the growth of local businesses, including sustainable natural resources-based businesses, such as agriculture, forestry, clean energy technology and fisheries" (#SP8); "Promote Clean Energy: Maximize energy efficiency...support energy conservation...reduce greenhouse gas emissions and consumption of fossil fuels" (#SP9); and "Plan Regionally" (#SP10).²

- river basins that ensure adequate streamflow and wetland hydrology for ecological integrity and perform water budgets for subwatersheds to guide decision-making and restoration efforts.
3. Limit Water Management Act withdrawal permits and registrations to amounts that do not violate environmentally-sustainable yields. Require water offsets, water banking and enterprise accounts.
 4. Update the state's *Water Supply Policy*, which is long overdue and required every five years pursuant to G.L. c. 21A, § 8C, by the Water Resources Commission.
 5. Publish annual and seasonal water use statistics for each watershed and the state via an electronic database system. Require metering and reporting of withdrawals from all wells and reservoirs.
 6. Reduce water/energy demands by means of a statewide sustainability outreach campaign in accordance with the Massachusetts Water Policy³ endorsed by the Water Resources Commission.
 7. Support water suppliers in making necessary changes in metering and billing, leak detection, rate structuring and public outreach.
 8. Change the state plumbing code to require High Efficiency Toilets that use less than 1.28 gallons per flush.
 9. Pilot local wastewater treatment and infiltration. (Encourage new technologies such as “solar aquatic” or greenhouse-based wastewater treatment that harnesses nutrients for useful purposes; encourage waterless composting rather than septic wastewater treatment, which also facilitates management of pharmaceuticals and personal care products.)
 10. Repair leaking sewer pipes and separate storm drains from sewers.
 11. Lead by example: require all state-funded entities (i.e., MassHighway, state colleges and universities, authorities and state agencies) to audit their facilities and install water-efficient plumbing fixtures.

Problem: Increased stormwater runoff and reduced groundwater recharge

Causes: *Proliferation of impervious surfaces and centralized stormwater infrastructure.*

Solution: Implement Low Impact Development (LID) and increase stormwater recharge.

Opportunities:

1. Implement the Massachusetts Water Policy's key principle of “keeping water local” by requiring on-site stormwater infiltration and reuse of rainwater.
2. Promote and fund state agency cooperation with watershed organizations for development and implementation of Nutrient and Bacteria Total Maximum Daily Loads (TMDLs).
3. Pilot stormwater retrofits for large impervious areas.
4. Educate and promote widespread use of LID techniques for stormwater management and long-term combined sewer overflow controls by strengthening permit requirements, extending MassDEP's Stormwater Standards to uplands, and provide incentives, outreach, training and funding to municipalities and watershed associations.
5. Lead by example: require all state-funded projects (i.e., those undertaken by MassHighway, state colleges and universities, authorities and state agencies) to employ state-of-the-art LID techniques to encourage stormwater infiltration and reduce surface runoff.



Problem: Aquatic Habitat Fragmentation & Degradation

Causes: *Fragmentation caused by over 3,000 dams and several thousand road crossings; filling of wetlands; erratic releases of water from reservoirs.*

Solution: Remove obsolete dams; upgrade culverts when replaced; provide guidance for water releases from dams; enforce Massachusetts' strong environmental laws.

Opportunities:

1. Prioritize and fund removal of obsolete dams through Feasibility Analysis processes.
2. Extend the Army Corps of Engineers Programmatic General Permit for Stream Crossings for *all* projects.



Thousand Acre Brook Dam, Athol

³ http://www.mass.gov/envir/wptf/publications/mass_water_policy_2004.pdf

3. Provide funding for local DPWs to upgrade culverts during replacement to pass larger storm events in accordance with climate change expectations.
4. Assist and support conservation commissions in issuing “Orders of Conditions” for schedules of water releases from reservoirs and hydropower projects to mimic natural flow regimes.
5. Enforce the Wetland Protections Act and the “No Net Loss” policy, and limit further wetland encroachments.
6. Enforce Massachusetts General Law Chapter 130, § 19 requiring marine fish passage.
7. Lead by Example: begin dialogue with MassHighway to meet highest standards for culvert replacements.

The signatories to this document look forward to working collaboratively with state and municipal authorities to develop cost-effective policies and programs to ensure the long-term sustainability of our invaluable water resources.

Advocates for Wetlands and Watersheds
Belmont Citizens Forum
Berkshire Environmental Action Team
Blackstone River Coalition
Charles River Watershed Association
Clean Water Action
Coalition for Buzzards Bay
Connecticut River Watershed Council
Eel River Watershed Association
Farmington River Watershed Association
Housatonic Valley Association
Ipswich River Watershed Association
Jones River Watershed Association
Massachusetts Association of Conservation Commissions
Mass Audubon
Massachusetts Instream Flow Taskforce
Massachusetts Watershed Coalition
Merrimack River Watershed Council
Mystic River Watershed Association
Nashua River Watershed Association
Neponset River Watershed Association
North and South Rivers Watershed Association
Parker River Clean Water Association
Rushing River Institute
Sierra Club Massachusetts Chapter
Sudbury River Watershed Organization
Taunton River Watershed Alliance
Watershed Action Alliance of Southeastern Massachusetts