Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For Rhode Island Drinking Water Reservoirs and Watersheds That Extend into Massachusetts

Introduction

Purpose of this report - As required by the Safe Drinking Water Act amendments of 1996, Massachusetts developed a Source Water Assessment and Protection (SWAP) Program and assessed the susceptibility to contamination of 3,607 sources of drinking water within 1684 public water systems in the state.

Recognizing that there are active drinking water reservoirs and watersheds for Rhode Island located in Massachusetts, the Massachusetts Department of Environmental Protection (MADEP)'s Drinking Water Program has conducted a brief assessment of those areas. This report and accompanying Geographic Information Systems (GIS) maps describe the locations of Rhode Island reservoirs and watersheds in Massachusetts, existing source water protection, land use issues and recommendations to address them.

The assessment information can be used as a planning tool by Rhode Island and Massachusetts state source protection staff, local municipal officials in both states and the public water systems involved to improve water supply protection. The information about potential contaminant and existing protection measures supplements the assessment information that was compiled through Rhode Island's SWAP Program for watersheds in their State.

The descriptions of public water systems contained within this report were taken from Rhode Island Department of Health fact sheets.

Findings of this report - In Massachusetts, many reservoirs and their watersheds are located in a community, or in several communities, outside the city or town served by the public water system. This presents a challenge to water supply protection. An even greater challenge exists when water sources and/or their watersheds are located in another state.

Rhode Island's reservoirs and watersheds in Massachusetts are protected through a variety of mechanisms. These include local land use control bylaws, the existence of protected open space, special protection provided for Rhode Island's supplies within the Blackstone River Basin through the Massachusetts Surface Water Quality Standards, and other state regulations that provide setbacks for various land use activities.

A copy of this report and a set of GIS maps have been provided to Rhode Island's Departments of Health and Environmental Management.

Description of Rhode Island Reservoirs and Their Watersheds in Massachusetts; Existing Protection At These Sources; Land Use Issues

Bristol County Water Authority
Shad Factory Pond
Anawan Reservoir
Kickemuit Reservoir (back-up)
Swansea Reservoir (back-up)

Cumberland and Pawtucket Municipal Water Supply Systems
Sneech Pond
Diamond Hill Reservoir
Arnold Mills Reservoir
Abbott Run Reservoir
Happy Hollow Reservoir

City of Woonsocket
Harris Pond (auxiliary)

Other
Wallum Lake

Bristol County Water Authority

Description of the Water System in Massachusetts

The Bristol County Water Authority (BCWA) supplies drinking water to residents and businesses in Barrington, Bristol and portions of Warren, Rhode Island, a total of about 55,000 people. Shad Factory Pond and Anawan Reservoir are the primary supplies. The two reservoirs, and their watersheds, are located entirely in Massachusetts, primarily in the town of Rehoboth. The watershed of two back-up supplies, Kickemuit and Swansea Reservoirs, is located mostly in Swansea, MA.

Existing Source Water Protection in Massachusetts

Shad Factory Pond is protected by an overlay district and a water supply protection bylaw in the Town of Rehoboth. Although Rehoboth has no municipal water system, the local officials and residents recognize the importance of protecting existing and future drinking water supplies. The bylaw strictly controls land use, allows very few activities by right and four uses by special permit (the application of certain agricultural chemicals, businesses, water control devices and the creation of certain pools of water and ponds) if evidence is presented that there will be no adverse impacts on ground water.

In addition, 39% of the Shad Factory Pond watershed in Massachusetts is protected open space. Protected open space may include federal, state, county, municipal, non-profit and private conservation lands. The Massachusetts GIS datalayer is constantly being updated.

Anawan Reservoir is surrounded by protected open space.

Land Use Issues

The predominant land use concerns in the Shad Factory Pond and Anawan Reservoir watersheds are the future use of undeveloped forest (31% and 73% respectively) and the existing residential development (24% and 14% respectively).

Cumberland and Pawtucket Municipal Water Supply Systems

Description of the Water System in Massachusetts

The Cumberland and Pawtucket municipal water systems have one surface water supply watershed with five interconnected reservoirs, Sneech Pond, Diamond Hill, Arnold Mills, Abbott Run and Happy Hollow. Although the reservoirs are located in Rhode Island, more than half (3856 acres) of the watershed for Diamond Hill and a smaller portion (873 acres) of the Arnold Mills Reservoir watershed extend into Massachusetts, predominantly into the Town of Wrentham.

Portions of the watersheds for Abbott Run Brook (2609 acres) and Happy Hollow Reservoir (526 acres) extend into North Attleborough and Attleborough, Massachusetts.

Existing Source Water Protection in Massachusetts

Approximately 23% of the Diamond Hill watershed is protected as open space in Massachusetts. Seventeen percent (17%) of the Arnold Mills watershed in Massachusetts is protected open space.

The Massachusetts Surface Water Quality Standards (SWQS), 314 CMR 4.00, designate Rhode Island public water supply waterways and water bodies in the Blackstone River Basin within 1000 feet of the state line as Class A waters. This is the same designation that is given to drinking water reservoirs and their tributaries in Massachusetts. These Outstanding Resource Waters (ORW) are afforded the highest level of protection by the SWQS, as well as by many other state regulations that reference the Class A list.

Waterways and water bodies that are part of Rhode Island public water systems and are afforded this special protection within 1000 feet of the line are: Abbott Run, Burnt Swamp Brook, Indian Brook, Wallum Lake, Miscoe Lake and Robin Hollow Pond. The Massachusetts Surface Water Quality Standards are located on DEP's web site at: www.mass.gov/dep/bwp/iww/files/314cmr4.htm.

Land Use Issues

The predominant land use concern in the Diamond Hill, Arnold Mills, Abbott Run and Happy Hollow watersheds is the existing residential development (16%, 39%, 30%, 64% respectively). The future use of undeveloped forest in the watersheds (55%, 46%, 40%, 12% respectively) is also a concern.

City of Woonsocket

Description of the Water System in Massachusetts

Woonsocket has reservoirs #1 and #3 which, with their watersheds, are wholly located in Rhode Island. Harris Pond, located in Blackstone, MA, is an auxiliary source for the system. The watershed for Harris Pond, approximately 21,000 acres, extends into portions of eight Massachusetts towns: Blackstone, Millville, Mendon, Bellingham, Hopedale, Upton, Milford and Hopkinton. The system serves about 47,000 people, including a small number of residents of Blackstone, MA.

Existing Source Water Protection in Massachusetts

Several public wells for Blackstone and Hopedale, MA are located within the Harris Pond watershed. These communities have water supply protection districts that include strict land use controls that meet MADEP's regulations. In addition, 21% of the watershed in Massachusetts is protected open space.

Land Use Issues

The watershed consists of 55% undeveloped forest and 25% residential land use.

Other - Wallum Lake

Description of the Water System in Massachusetts

Wallum Lake is the drinking water source for a residential hospital located at the southern portion of the lake. The northern half of the lake and accompanying watershed (612 acres) are located in Massachusetts.

Existing Source Water Protection in Massachusetts

With the exception of a residential community on the eastern shore, the lake is surrounded by protected open space, Douglas State Forest, in Massachusetts.

As noted above, Wallum Lake is listed as a Class A water within 1000 ft. of the state line.

Land Use Issues

Massachusetts Fish and Game records indicate that Rhode Island stocks the lake with trout twice a year. There is a boat ramp on the southern shore in Rhode Island. People licensed to fish in either Massachusetts or Rhode Island may fish Wallum Lake but Rhode Island fishing regulations apply throughout the lake. There is a swimming beach in Massachusetts at the northern end of the lake but it is located almost two miles away from the intake. The residential community noted above represents approximately 11% of the watershed.

Recommendations for Source Water Protection

1. Identify Where Local Protection Overlaps Rhode Island Sources

Several Massachusetts communities have local land use bylaws and/or floor drain controls that protect Rhode Island's sources. DEP has a database of communities that have local controls that meet the protection requirements of the Massachusetts Drinking Water Regulations, 310 CMR 22.00. Rhode Island source water protection staff should identify where those local controls overlap Rhode Island's sources in Massachusetts. If the information is given to Rhode Island public water systems, then they could communicate with the Massachusetts communities and provide comments into the public hearing processes for large projects proposed within the watersheds. (Massachusetts public reservoir systems were required by 2001 to establish a protocol for staying aware of all proposed projects within their watersheds - even where those watersheds extended into several communities). A build-out analysis for each Massachusetts community is available at http://commpres.env.state.ma.us/content/buildout.asp.

In areas of the watersheds where existing protection may not be deemed sufficient, Rhode Island public water systems should consider prioritizing land for protection through purchase or through deed restrictions.

2. Conduct Public Outreach to Residents

Leaks from aboveground and underground fuel storage tanks; improper storage, use and disposal of lawn care fertilizers and pesticides; and failing septic systems are potential sources of contamination at residences. In addition, household hazardous wastes, such as used motor oil, antifreeze, oil-based paints, and medications must be disposed of properly at a Household Hazardous Waste Collection Day or Center. Rhode Island public water systems should work with Massachusetts communities to supplement on-going water supply protection outreach to residents by including information about the presence of Rhode Island's sources and watersheds.

3. Communicate for Emergency Response

Every Massachusetts community is required to have a Local Emergency Planning Committee (LEPC). The purpose of the committee is to develop and maintain a community emergency response plan. Emergency responders should be made aware of the locations of Rhode Island's reservoirs and/or watersheds in their communities and have contact numbers for the Rhode Island public water systems.

4. Encourage Interstate Protection in Massachusetts and Rhode Island

In addition to Rhode Island's sources and watersheds being located in Massachusetts, there are Massachusetts aquifers (such as for the North Attleborough Water Department and the Seekonk Water District), and possibly public water sources, that are located in Rhode Island. The environmental agencies in both states should continue to encourage communities to protect all public water supplies within their boundaries. Since most of the watersheds have large amounts of undeveloped forest, proactive planning is needed. Massachusetts would be glad to work with Rhode Island on this effort.

Contact Information

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