Massachusetts Department of Environmental Protection

Source Water Assessment and Protection (SWAP) Report
for

Taunton Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility of a drinking water source does not imply poor water quality. Susceptibility is a measure of a water supply's *potential* to become contaminated due to land uses and activities within its recharge area.

Risk refers to the potential for a consumer to drink water of compromised quality.

Water suppliers protect drinking water by monitoring for more than 100 potential contaminants. Water suppliers also implement watershed land management and protection practices, as well as disinfect, filter and otherwise treat reservoir water to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual **Consumer Confidence Report.**

Table 1: Public Water System Information
September 2002

PWS Name	Taunton Water Department
PWS Address	City Hall, 15 Summer Street
City/Town	Taunton, MA 02780
PWS ID Number	4293000
Contact	Robert Bernardo, Assistant Superintendent Water Division
Phone Number	508-821-1049

Introduction

We are all concerned about the quality of the water we drink. Reservoir watersheds may be threatened by potential sources of contamination, including stormwater runoff, improper disposal of hazardous materials and spills. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

This report includes the following sections:

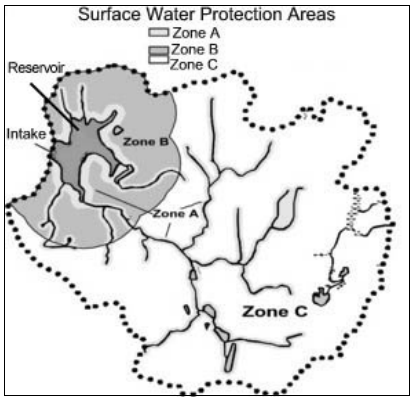
1. Description of the Water System;
2. Land Uses in the Watersheds;
3. Source Water Protection;
4. Source Water Protection Recommendations;
5. Additional Resources Available for Source Water Protection; and
6. Appendices.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.

Section 1: Description of the Water System

Source Name	*Source ID*	*Susceptibility*
Assawompset Pond	4293000-01S	High
Elders Pond	4293000-02S	High
Long Pond	4293000-03S	High
Pocksha Pond	4293000-04S	High
Great Quittacas	4293000-05S	High
Little Quittacas	4293000-06S	High



The drinking water supplied by the Taunton Water Department is withdrawn from a complex of six reservoirs: Assawompsett; Elders; Long; Poksha; Great Quittacas; and Little Quittacas. These water bodies are located in Lakeville, Middleborough, Freetown and/or Rochester. The water is treated at the Taunton Water Treatment Plant located on Elders Pond. Color and turbidity are removed through filtration. Bacteria are removed through disinfection. The acidity of the water is reduced for corrosion control and the water is fluoridated before being delivered to the customer. The City of New Bedford also withdraws drinking water from this reservoir system.

For a copy of the Taunton Water Department's Consumer Confidence Report or for current information on monitoring results and treatment, please call the system's contact person listed in Table 1. Drinking water monitoring reporting data is also available on the web at http://www.epa.gov/safewater/ccr1.html.

Glossary

Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and the watershed boundary.

Section 2: Land Uses in the Watersheds

The land uses within the watersheds consist of a mix of undeveloped land, high and medium density residential development, businesses, agriculture, recreation, roads, and wildlife. A Geographic Information Systems (GIS) map showing the watershed boundary, Zone A and the percentages of land uses in the watershed is provided as part of this report. Section 3 discusses protection measures implemented by the Taunton Water Department.

Key Land Uses and Protection Issues include:

1. Aquatic Wildlife
2. Agriculture
3. Transportation Corridors
4. Residential Land Uses
5. Recreation
6. Golf Courses

1. <u>Aquatic Wildlife (Birds)</u> - Gulls are seasonally present on the reservoirs. Waterfowl may increase coliform levels through the release of fecal matter into the water and may also carry other bacteria and viruses. Waterfowl management techniques may include noise and visual harassment, habitat modification and control of food sources. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination.*

Aquatic Wildlife Recommendations:

- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See http://mass.gov/dep/brp/dws/protect.htm for guidance and permits.

2. **Agriculture** - Cranberry bogs, horse farms, a pig farm and other agricultural operations are located within the watershed. Runoff from these sites can cause fertilizers, bacteria, pesticides and other contaminants to enter the reservoirs. Runoff can be controlled through the use of appropriate Best Management Practices (BMPs) and other source protection measures.

Agricultural Recommendation:

- ✓ The Massachusetts Department of Food & Agriculture's booklet titled "On-Farm Strategies to Protect Water Quality—An Assessment & Planning Tool for Best Management Practices" (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.

3. **Transportation Corridors (Local Roads and Highways)** are located adjacent to the reservoirs and throughout the watersheds. Untreated stormwater and spills are the primary concerns. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

   Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Potential contaminants may come from automotive leaks, maintenance, washing, or accidents.

   This is a difficult issue to address since the roads are not located within the community served by this system. Establishing vegetated buffers, scheduling regular street sweeping and conducting emergency drills can help to address impacts from roads. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water.*

Transportation Corridor Recommendations:

- ✓ Regularly inspect watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency

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Benefits of Source Protection

- protects drinking water quality at the source
- reduces monitoring costs through the DEP Waiver Program
- treatment can be reduced or avoided entirely, saving treatment costs
- prevents costly contamination clean-up
- preventing contamination saves costs on water purchases and expensive new source development

Contact the DEP staff identified on page seven for more information on Source Protection and the Waiver Program.

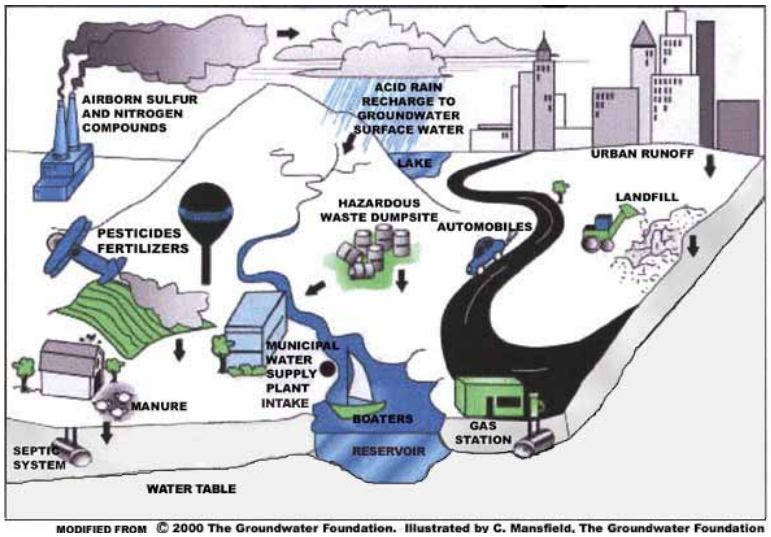

Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Uses in the Watersheds

Activities	Quantity	Threat	Potential Source of Contamination
Agricultural			
Fertilizer Storage or Use	Few	M	leaks, spills, improper handling, over-application
Manure Storage or Spreading	Few	H	improper handling, runoff
Pesticide Storage or Use	Few	H	leaks, spills, improper handling, over-application
Livestock Operations	Few	H	improper handling, runoff
Commercial			
Golf Courses	2-3	M	fertilizers, pesticides, petroleum products and other chemicals: over-application, improper handling, spills, leaks
Residential			
Fuel Oil Storage (at residences)	Many	M	spills, leaks, improper handling
Lawn Care/Gardening	Many	M	pesticides: over-application, improper storage or disposal
Septic Systems/Cesspools	Many	M	hazardous chemicals, microbial contaminants
Miscellaneous			
Aquatic Wildlife – waterfowl	Many (Seasonal)	H	microbial contaminants
Fishing/Boating	Many	M	fuel and other chemical spills, microbial contaminants
Transportation Corridors	Many	H	fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling

Note:
1.When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.

THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

response teams. If maps are not available yet, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

4. **Residential** - Approximately 11% of the watersheds consist of residential areas. If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to surface water contamination. Household hazardous wastes include automotive wastes, paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet *Residents Protect Drinking Water* available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm.
- ✓ Work with town boards to review and provide recommendations on proposed watershed development.

5. **Recreation** - The Massachusetts Drinking Water Regulations, 310 CMR 22.00, prohibit swimming and other bodily contact with a reservoir and its tributaries. Other activities, such as fishing and boating, are left up to the discretion of the local Board of Water Commissioners or like body having jurisdiction over the drinking water sources. In Taunton, the City Council serves in this capacity. If activities are allowed, a set of rules should be adopted by the City Council, inspections should be conducted to ensure adherence to the rules and users should be educated about drinking water protection.

Evidence of horseback riding occurring near Elders Pond, the terminal reservoir, was observed. The Massachusetts Drinking Water Regulations, 310 CMR 22.00, prohibit animals from within 100 feet of a public drinking water reservoir and its tributaries.

Recreation Recommendations:

- ✓ The water system may establish a more stringent buffer area depending upon local conditions such as soils, topography and proximity to intakes.
- ✓ Educate local horse owners about watershed protection. DEP's web site has nine horsekeeping and manure management fact sheets at mass.gov/dep/consumer/animal.htm.

6. **Golf Courses** - There are 2-3 golf courses within the watersheds. If improperly handled or applied, the pesticides, fertilizers, and other chemicals used at the golf courses can be a potential source of contamination to the water supply.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

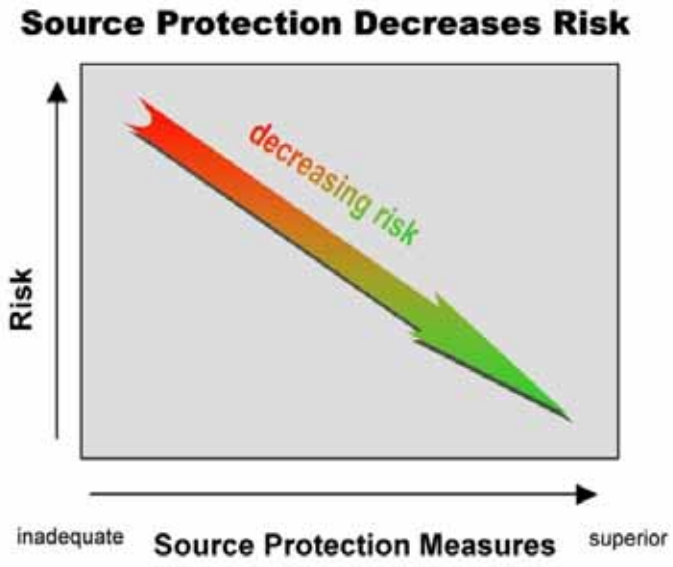

Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Golf Course Recommendations:

✓Work with owners/operators of golf courses to encourage the implementation of source protection measures, such as: establishing vegetated buffers to control runoff; minimizing pesticide and fertilizer use; adhering to DEP policy on vehicle washing; and properly storing chemicals.

Section 3: Source Water Protection

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. **The Taunton Water Department is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas.**

Surface Water Supply Protection Plan

The Taunton Water Department has a DEP-approved surface water supply protection plan for Elder's Pond, the terminal reservoir.

Emergency Planning and Response

The Taunton Water Department has an up-to-date emergency response plan and regularly conducts outreach to local firefighters about the water system.

Outreach to Watershed Communities

Public water systems having reservoirs and watersheds located outside the community served by the system are not unusual in Massachusetts. This situation does, however, present a challenge to the water supplier regarding the implementation of source protection measures. The Taunton Water Department monitors conditions in the watersheds and communicates with local officials in Lakeville, Middleborough, Freetown and Rochester as appropriate.

In December 2001, the Water Department sent local officials in the watershed communities a letter requesting to be notified about proposals for new and expanding development. The mailing included educational materials about watershed protection.

Water Department staff work with the City of New Bedford, which also withdraws drinking water from this reservoir system.

For More Information

Contact Mike Quink in DEP's Lakeville Office at (508) 946-2766 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

❶ Reduces Risk to Human Health

❷ Cost Effective! Reduces or Eliminates Costs Associated With:

- Increased monitoring and treatment
- Water supply clean up and remediation
- Replacing a water supply
- Purchasing water

❸ Supports municipal bylaws, making them less likely to be challenged

❹ Ensures clean drinking water supplies for future generations

❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information;
2. MA DEP SWAP Strategy;
3. Land Use Pollution Potential Matrix; and
4. Draft Land/Associated Contaminants Matrix.

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Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	**NO**	Encourage Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone A posted with "Public Drinking Water Supply" Signs?	**YES**	Missing signs should be replaced. Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	**NO**	Conduct regular inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone A?	**NO**	Continue monitoring non-water supply activities in Zone As.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Do the watershed communities have Surface Water Protection Controls that meet 310 CMR 22.20C?	**NO**	Stay aware of proposed watershed development and provide comments to town boards as appropriate.
Planning		
Does the PWS have a local surface water supply protection plan?	**YES**	There is an approved plan for Elders Pond. Systems with a DEP-approved plan receive extra credit in DEP's Source Water Protection Grant Program.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**YES**	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	**NO**	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Do the Boards of Health in the watershed communities conduct inspections of commercial and industrial	**NO**	For guidance see *Hazardous Materials Management: A Community's Guide* at www.state.ma.us/dep/brp/dws/files/hazmat.doc.
Does the PWS provide watershed protection education?	**NO**	Develop an educational program starting with residents in Zone A and owners of horses.