Massachusetts Department of Environmental Protection

Source Water Assessment and Protection (SWAP) Report for New Bedford 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 is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures 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 Reports.

Table 1: Public Water System Information

PWS Name	New Bedford Water Department
PWS Address	1105 Shawmut Avenue
City/Town	New Bedford, MA 02746
PWS ID Number	4201000
Local Contact	Charles Kennedy, Assistant Superintendent
Phone Number	508-763-2231

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells and reservoirs may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. 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 Protection Areas;
3. Source Water Protection;
4. Source Water Protection Recommendations;
5. Additional Resources Available for Source Water Protection; and
6. Appendices.

Section 1: Description of the Water System

Glossary

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 your watershed boundary.

Surface Water Sources	*Susceptibility: High*
Source Name	***Source ID #***
Great Quitticas Pond	4201000-01S
Little Quitticas Pond	4201000-02S
Assawompset Pond	4201000-03S
Pocksha Pond	4201000-04S
Long Pond	4201000-05S

The drinking water supplied by the New Bedford Water Department is withdrawn from a complex of five reservoirs: Assawompset; Long; Pocksha; Great Quittacas; and Little Quittacas, the terminal reservoir. These water bodies and their watersheds are located in Lakeville, Middleborough, Freetown and Rochester. The water is treated at the Quittacas Water Treatment Plant. The City of Taunton also withdraws drinking water from this series of reservoirs, through their terminal reservoir, Elders Pond.

For a copy of the New Bedford 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.

Section 2: Land Uses in the Watersheds

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

New Bedford owns at least 80% of the watershed of the terminal reserovir, Little Quitticas Pond.

Key Land Uses and Protection Issues include:

1. Aquatic Wildlife
2. Agriculture
3. Transportation Corridors
4. Transmission Lines
5. Residential Land Uses
6. Recreation
7. Golf Courses
8. Oil or Hazardous Material Release Site

1. Aquatic Wildlife (Birds) - 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:

- ✓ Observe wildlife populations in and around the 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 and small farms 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. The Massachusetts Drinking Water Regulations prohibit domestic animals from within 100 feet of a public drinking water reservoir and its tributaries.

Agricultural Recommendations:

- ✓ Educate owners of small farms about watershed protection. DEP's web site has nine horsekeeping and manure management fact sheets at mass.gov/dep/consumer/animal.htm.
- ✓ 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. Routes 18, 105 and 140 are well traveled roads. Untreated stormwater and spills are the primary concerns, as is road salt used on Rt. 18. In addition, 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*.

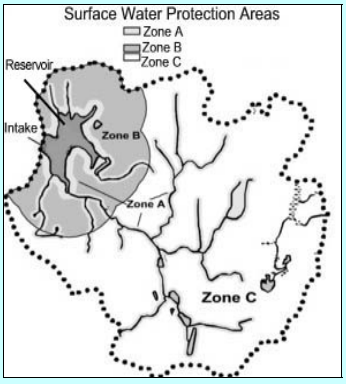
Transportation Corridor Recommendations:

- ✓ 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 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. Transmission (Utility) Lines (herbicide applications) - A transmission line runs through the watershed. These are potential sources of contamination

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.



because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides use for vegetation control along rights-of-way in Massachusetts. The regulations promote the use of an Integrated Pest Management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities into which herbicide application is proposed.

Transmission (Utility) Lines Recommendation:

✓ Monitor the YOP to ensure that pesticide applications will minimize impacts on drinking water sources.

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.

5. Residential - The watersheds consist of the following percentages of residential land uses: Great Quitticas Pond-7%; Little Quitticas Pond-4%; Assawampset Pond-12%; Pocksha Pond-13%; and Long Pond-8%.
Significant portions of the watersheds are undeveloped forest with the potential for more residential development. The Massachusetts Executive Office of Environmental Affairs (EOEA)'s web site, www.state.ma.us/envir/, provides detailed information and maps about the build-out of developable land in communities in Massachusetts.

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. Septic systems at high density residential development, especially along Long Pond, are a concern, as are fuel storage tanks and the use of lawn care products. 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.
✓ See www.state.ma.us/envir/ to obtain information on build-out analyses for watershed communities.
✓ Work with town officials to control residential growth on undeveloped land.
✓ Post water supply awareness signs on streets throughout the watersheds.

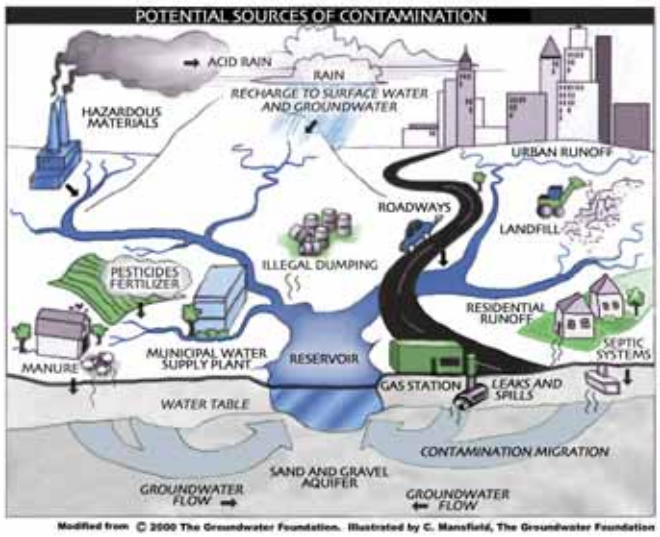


Figure 1: Sample watershed with examples of potential sources of contamination

✓ Work with town boards to review and provide recommendations on proposed watershed development.

6. 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.

There is a state boat ramp on Long Pond. Concerns associated with public access include: erosion, microbial contamination; spills; illegal dumping; and the spread of aquatic nuisance vegetation.

Recreation Recommendations:

✓ If activities are allowed, a set of rules should

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 Use in the Watershed

Refer to Appendix B for more information on regulated facilities.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	Few	M	leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	Few	H	leaks, spills, improper handling, or over-application of pesticides
Manure Spreading	Few	H	improper handling or storage of manure
Residential			
Fuel Oil Storage (at residences)	Numerous	M	spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	over-application or improper storage and disposal of pesticides
Septic Systems / Cesspools	Numerous	M	microbial contaminants, improper disposal of hazardous chemicals
Commercial			
Golf Course	2	M	over-application or improper handling of fertilizers and pesticides

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities 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.
2. For more information on regulated facilities, refer to Appendix B.
3. For information about Oil or Hazardous Materials Sites, refer to Appendix C.

*** THREAT RANKING** - Where there are two rankings, the first is for ground water, the second for surface water. 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.

Miscellaneous			
Aquatic Wildlife	Seasonal	H	microbial contaminants
Fishing/Boating/Other Recreation	Numerous	M	fuel and other chemical spills, microbial contaminants, nutrients, non-native plant and animal species
Transportation Corridors	Numerous	H	leaks or spills of fuels and other hazardous materials; over-application or improper handling of pesticides; erosion from construction
Transmission Lines	1	H	spills from over-application or improper handling of pesticides; erosion from construction
DEP Tier Classified Oil or Hazardous Materials	1	not ranked	see Appendix C for more information

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be adopted by the Water Commissioners, inspections should be conducted to ensure adherence to the rules and users should be educated about drinking water protection.

✓ The water system may establish a more stringent buffer area depending upon local conditions such as soils, topography and proximity to intakes.

7. **Golf Courses** - There are two 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.

Golf Course Recommendation:

✓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.

8. **Oil or Hazardous Material Release Site** – A DEP Tier Classified Oil Release Site is located within the watershed of Assawampset Pond. Refer to the attached GIS map and Appendix C for more information.

Oil/Hazardous Waste Recommendation:

✓ Educate businesses on best management practices for protecting water supplies. Distribute the fact sheet *Businesses Protect Drinking Water* available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm.

Top 5 Reasons to Develop a Local Wellhead and 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.

Section 3: Source Water Protection

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

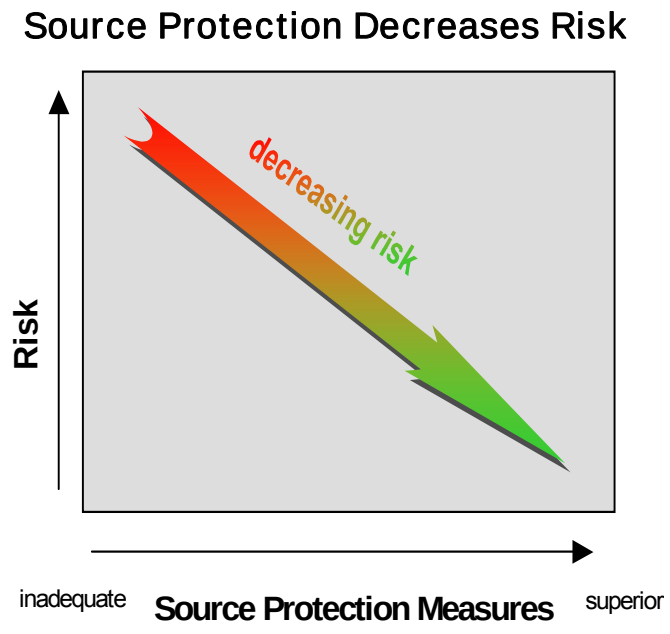

Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Surface Water Supply Protection Plan

A surface water supply protection plan is being developed for New Bedford's reservoirs and watersheds.

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 New Bedford Water Department monitors conditions in the watersheds and communicates with local officials in Lakeville, Middleborough, Freetown and Rochester as appropriate.

Section 4: Source Water Protection Recommendations

- develop a waterfowl management program
- do not allow domestic animals closer than 100 ft. from the reservoirs (or more, depending upon local conditions, such as soils, topography, location of intake)
- work with farmers to incorporate best management practices into their operations
- post signs denoting the public water supply watershed
- continue to conduct regular inspections
- work with Taunton to conduct in-lake sampling to establish a baseline and determine trends in nutrient build-up and plant growth
- determine whether watershed activities and/or in-lake uses, such as boating, contribute to nutrient build-up/plant growth
- work with Taunton to conduct watershed and in-lake sampling to assess and control impacts from increased public access
- continue to keep emergency response plan updated and conduct a drill with Taunton to test the plan
- continue to communicate with watershed communities about protection measures and emergency response
- stay aware of proposed new and expanding development within the watersheds
- provide comments to local town boards on proposals for development, where appropriate
- provide technical assistance and educational programs (start with residents within Zone A)
- work with the Town of Lakeville to determine the feasibility of installing local sewer collection and treatment for the high density residential areas
- work with the towns of Lakeville, Middleborough, Freetown and Rochester to limit the amount of deicing chemicals used on the roads within the watersheds and request that street sweeping be conducted on a regular, seasonal basis

Section 5: Additional Resources Available for Source Water Protection

DEP staff, informational documents and resources are available to help build on this SWAP report and to help improve drinking water protection.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Section 6: Appendices

A. Fact Sheets - *What You Need to Know About Microbial Contamination, Water Suppliers Protect Drinking Water, Residents Protect Drinking Water, Boards of Health Protect Drinking Water, Planners Protect Drinking Water and DPWs Protect Drinking Water.*
B. List of Regulated Facilities.
C. Table of Tier Classified Oil and/or Hazardous Material Sites.

For More Information

www.state.ma.us/dep

The following DEP staff can be contacted for more information and assistance on improving watershed protection.

Mike Quink, 508-946-2766, DEP's Southeast Regional office

Kathy Romero, 617-292-5727, DEP's Boston office

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, town boards, and the local media.

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
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Comments/Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	**NO**	Monitor Zone A activities. See 310 CMR 22.20B for Zone A restrictions.
Are the Zone A areas posted with Public Drinking Water Supply signs?	**NO**	Water supply awareness signs should be posted along roads in the watershed. Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	**YES**	Continue inspections of drinking water protection areas.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C (2)?	**watersheds are in communities other than New Bedford**	Refer to 310 CMR 22.20B & C and mass.gov/dep/brp/dws/ for model bylaws, health regulations, and current state regulations to encourage communities to adopt local controls.
Do neighboring communities protect the water supply protection areas extending into their communities?	**NO**	Stay aware of proposed development in the watershed and provide recommendations on protection measures to town boards.
Planning		
Does the PWS have a local surface water supply protection plan?	**A surface water plan is under development.**	Implement protection plan.
Does the PWS have a formal Emergency Response Plan to deal with spills or other emergencies?	**NO**	Develop a joint emergency response plan with the Fire Department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local team.
Does the municipality have a water supply protection committee?	**NO**	Committees have been formed in the past to work on various issues/studies/projects.
Do the local Boards of Health conduct inspections of commercial and industrial activities?	**NO**	For more guidance see *Hazardous Materials Management: A Community's Guide* at www.state.ma.us/dep/brp/dws/files/ hazmat.doc.
Does the PWS provide water supply protection education?	**YES**	Continue to educate residents about their role in drinking water protection. Appendix A contains the fact sheet *Residents Protect Drinking Water*.