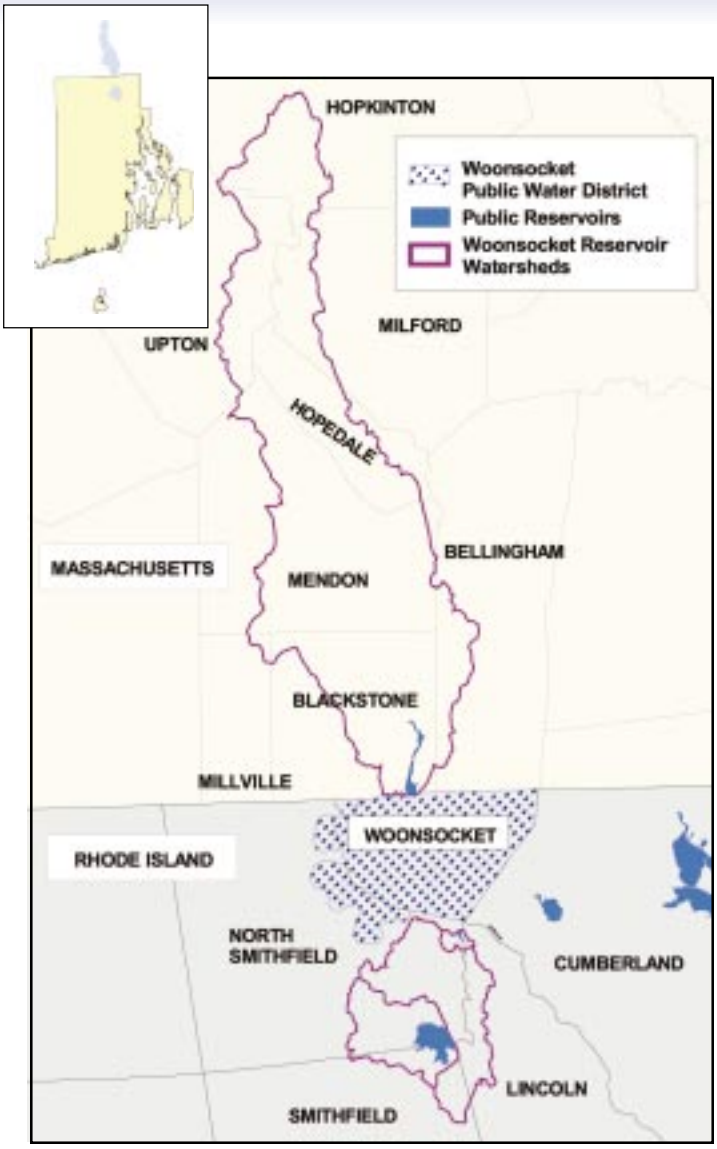
Rhode Island
Department of HEALTH

# PROTECT YOUR DRINKING WATER

*Safe and healthy lives in safe and healthy communities*

## Woonsocket Drinking Water Assessment Results

The city of Woonsocket obtains drinking water from two surface water supplies, both located entirely outside city boundaries. The Crookfall Brook watershed includes two reservoirs connected by Crookfall Brook. Its watershed, the area of land that drains to the reservoirs, covers 5,000 acres in Smithfield, North Smithfield, and Lincoln. Harris Pond, located in Blackstone MA, is maintained as an auxiliary supply. Its watershed extends over 21,000 acres through portions of eight Massachusetts towns. Woonsocket Water manages these reservoirs and supplies municipal water to the city of Woonsocket, a portion of neighboring North Smithfield, and a small number of homes in Blackstone and Bellingham, Massachusetts. The total population served is about 47,000 people, 95 percent of these in Woonsocket.




## Key Findings

Woonsocket Water maintains an active watershed management program, helping to prevent pollution through monitoring and land acquisition. However, most of the watershed is in private hands and subject to intense development pressure.

- Forested headwaters currently help maintain water quality and protect downstream reservoirs.
- Commercial, industrial, highway, and dense residential activities scattered throughout the watersheds but concentrated in the Crookfall Brook Reservoir 1, present the most serious threats to water quality.
- Future industrial development and widespread conversion of forest to low-density residential land is expected to increase pollution risks. Actual impacts are highly uncertain and depend on local development standards and how landowners manage their property.
- With all of the water supplies located outside the Woonsocket service area, a regional approach is needed to ensure future protection of the water supplies.

*Woonsocket Reservoir 3*

### Source Water

The focus of this assessment is on public drinking water supply "source" areas – the wellhead protection area that recharges a well or the watershed that drains to a surface water reservoir. Source water is untreated water from streams, lakes, reservoirs, or underground aquifers that is used to supply drinking water.

This fact sheet summarizes results of a source water assessment conducted for the city of Woonsocket Water Division. It identifies known and potential sources of pollution in drinking water supplies and ranks their susceptibility to future contamination. The goal of this study is to help water suppliers, local officials, and residents living in drinking water supply areas to take steps to keep water supplies safe.

# Land Use and Threats to Water Quality

To locate high-risk threats most likely to affect water quality, this study examined the watersheds of Reservoir 1 and 3 within the Crookfall Brook drainage area, and the Harris Pond watershed. Each area was evaluated and ranked based on landscape features including: high intensity land uses, protected shoreline buffers, and estimated nutrient sources such as septic systems and fertilizers. A rating from low to high was assigned to each factor and summed to create an average pollution risk score for each assessment area, and an average susceptibility rank for the whole supply.

## Susceptibility to Contamination*

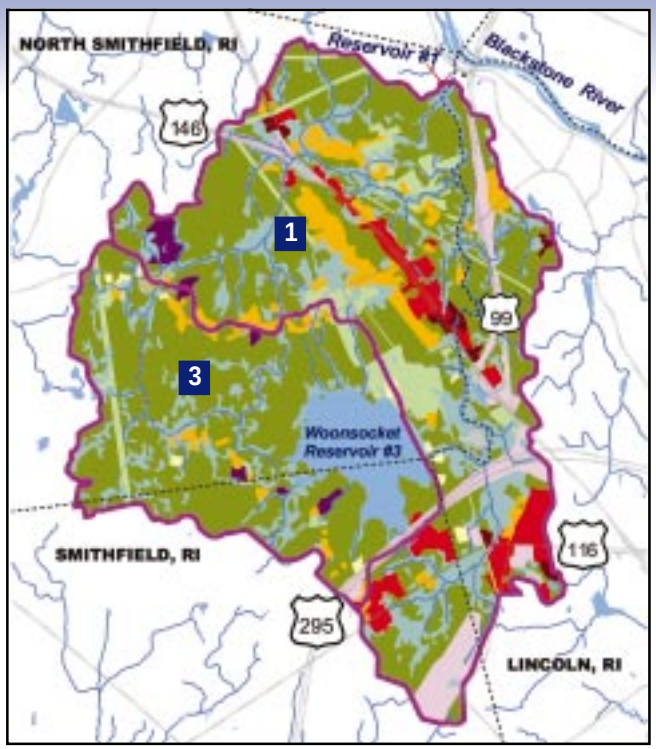
MOD

The results show that the Woonsocket water supplies are moderately susceptible to contamination. This is an average ranking for the entire system based on land use and existing water quality. Individual sub-watersheds may be more or less susceptible to contamination.

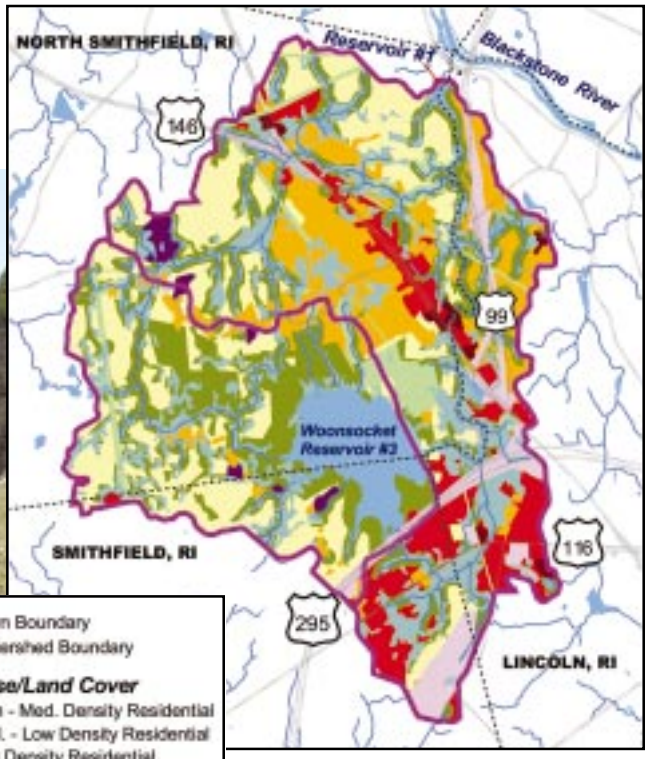
*Note: A moderate ranking means that the water could become contaminated one day. Some contaminants can affect taste, odor, and cost of water treatment at levels below safe drinking water standards. Protection efforts are important to assure continued water quality.

*Reservoir 1*

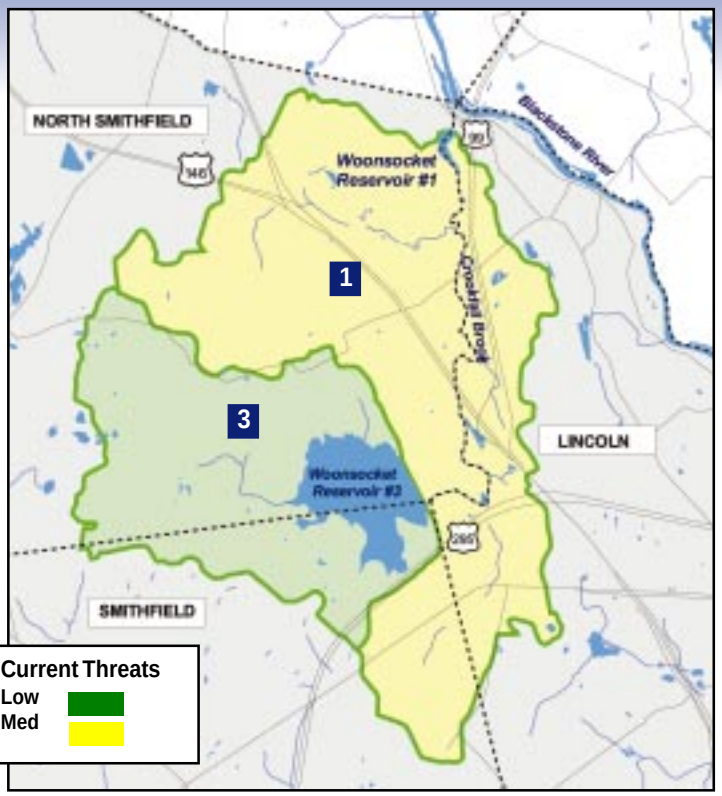
**NOTE:** The future land use map assumes the following lands will not be developed: protected open space, wetlands, high water table within 1.5 feet, 200 ft. shoreline buffers to surface waters, and slopes greater than 15 percent. No timetable is given for this change.




Current Land Use-*Forested watershed areas are a vital factor in maintaining water quality. Industrial, strip commercial, highways and dense residential are currently the most serious threats to water quality.*




Future Land Use -*The future land use map shows how the watershed will change with full future development, or "build-out" based on current zoning. Forest will shift to residential; commercial and industrial uses will expand.*




*Crookfall Brook flows north from the outlet of Woonsocket Reservoir 3 and into Reservoir 1. The brook forms the boundary between North Smithfield and Lincoln.*

## Crookfall Brook Watershed

### Current Conditions

- The upper Reservoir 3 watershed has a low susceptibility to pollution overall. Over 80 percent of the watershed is either forest or wetlands and stream buffers are largely undisturbed. As a result of Woonsocket's efforts, 30 percent of the watershed is permanently protected.
- Reservoir 1 is at moderate risk of contamination from commercial, industrial and dense residential uses concentrated in its watershed. More than 15 percent of protective shoreline buffers are developed and the amount of pavement and other impervious cover is above the 10 percent level considered safe for stream quality.
- Several well-traveled highways cross both watersheds, increasing risk of impact from spills and polluted runoff. Increasing sodium levels due to road salt is a concern in Reservoir 1.
- Woonsocket Water is working with the RI Water Resources Board to address low flow in Crookfall Brook affecting aquatic habitat. Continued watershed development is likely to increase low flow stress unless the amount of runoff from new development is strictly controlled.

*Photos courtesy Woonsocket Water*

### Future threats

- Low-density residential zoning in Smithfield and North Smithfield limits future growth in the Reservoir 3 watershed, but about half of the protective forests could be lost to house lots. Water quality impacts are likely to remain low provided runoff and fertilizer use is controlled, septic systems are properly sited and maintained, and buffers to wetlands and streams are well protected.
- The Reservoir 1 watershed is expected to move from moderate to high susceptibility of contamination, partly due to future development of commercial and industrial zones. Associated increases in phosphorus - a nutrient found in stormwater runoff – can trigger excessive aquatic plant growth affecting the taste and odor of drinking water.
- Much of the remaining vacant land in this watershed is wet, making stormwater management more difficult.

## The Harris Pond Watershed

- Homes clustered around the Harris Pond Reservoir increase the risk that fertilizers, polluted runoff, and improperly treated effluent from un-maintained septic systems will enter the pond.
- The town of Blackstone has proposed extending sewers into the densely developed neighborhoods surrounding the reservoir. This could have unintended consequences of opening marginal land for more intense development, resulting in greater impacts overall.
- The state of Massachusetts classifies RI drinking water supplies located in Massachusetts as "Class B – Fishable and Swimmable", rather than "Class A - Drinking Water". As a result, Harris Pond has a lower level of protection than other water supplies.

*Harris Pond*

## What You Can Do to Protect Water Quality

### Municipal Boards and Government

- Designate a committee to review assessment results, select priorities, and incorporate key recommendations into town plans and ordinances.
- Work with watershed communities and Massachusetts state agencies to implement a regional water supply protection strategy. Coordinate drinking water protection with Phase 2 Stormwater Plans.
- Expand community pollution prevention education. Start by mailing this fact sheet to watershed residents and water users. Adopt model practices at municipal garages, school and parks.

#### *Open space for recreation and water protection*

- Coordinate with neighboring towns, water supplier, and nonprofit organizations to develop a regional open space plan with linkages to existing open space.

#### *Land development in low-density headwaters*

- Use zoning setbacks for maximum protection of small headwater streams and wetlands.
- Set standards to limit site disturbance and keep runoff volume at pre-development levels.
- Use creative development techniques to preserve forest land.
- Set targets for maximum impervious cover at current levels or no more than 10 percent.
- Establish septic system management programs requiring regular inspection and maintenance. Restrict new alternative systems on highly marginal land.
- Apply strict erosion controls. Assign field inspectors in erosive sites.

#### *Developed urbanized watershed areas*

- Restrict use of hazardous materials, update site design and storm-water runoff controls using state-of-the-art practices.
- Develop standards for redevelopment and infill to limit impervious cover, retrofit storm water systems and restore wetland buffers.
- Inspect and maintain sewers to prevent leakage and infiltration.

### Water supplier

- Implement recommendations of the latest water supply system management plan.
- Continue to acquire land for protection, focusing on intake areas and tributary buffers.
- Work with local officials to implement land use protection measures and education programs.
- Inspect water supply and protection area regularly for potential pollution sources.
- Expand reservoir sampling to monitor nutrient enrichment levels, track frequency and duration of algal blooms.

### Homeowners

- Maintain wooded buffers or restore natural vegetation along wetlands or watercourses that run through your property. Reduce fertilizer and pesticide use. Limit watering.
- All septic systems need regular care to function properly, keep your well safe, and avoid costly repairs. Inspect annually and pump tank when needed, usually every 3-7 years.
- For information about protecting your well contact URI Home*S*Syst (401) 874-5398, www.uri.edu/ce/wq

### Farmers and landowners

Work with the USDA Natural Resource Conservation Service to develop a conservation plan that addresses proper nutrient, manure, pest, and irrigation water management. Contact them at (401) 828-1300, www.ri.nrcs.usda.gov

### Commercial and industrial businesses

Adhere to all laws, regulations, and recommended practices for hazardous waste management, above and underground storage tanks, wastewater discharges. Check local regulations with city/town hall and state regulations with the RI DEM Office of Water Resources (401) 222-4700, www.state.ri.us/DEM/program/benviron/water/index.htm

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### For More Information

- **R.I. Department of Health, Office of Drinking Water Quality,** (401) 222-6867, www.HEALTH.ri.gov/environment/dwq/Home.htm
- **URI Cooperative Extension Nonpoint Education for Municipal Officials** (401) 874-2138, www.uri.edu/ce/wq
- **Woonsocket Water,** (401) 767-9482, www.ci.woonsocket.ri.us/water.htm

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