Report Number 70

SCITUATE RESERVOIR WATERSHED MANAGEMENT PLAN

DECEMBER 1990

STATE GUIDE PLAN ELEMENT 125

DIVISION OF PLANNING
RHODE ISLAND DEPARTMENT OF ADMINISTRATION
ONE CAPITOL HILL
PROVIDENCE, RHODE ISLAND 02908-5872

ABSTRACT

TITLE: *Scituate Reservoir Watershed Management Plan*

SUBJECT: State-level policies for the protection and management of the Scituate Reservoir Watershed.

DATE: December 1990

AGENCY: Division of Planning, Rhode Island Department of Administration

SOURCE OF COPIES: Division of Planning, One Capitol Hill, Providence, R.I. 02908-5870 (401) 277-2656

SERIES NO.: Report Number 70, State Guide Plan Element 125

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ABSTRACT: This plan establishes state policy to insure the long-term water quality protection of the Scituate Reservoir and its tributaries, in addition to groundwater that provides the watershed communities with on-site drinking supplies.

The Issues

The primary issues affecting the Scituate Reservoir, the source of drinking water for approximately half of the state's population, are the rapid growth rate and changing land use patterns that have been occurring within the watershed. These rural communities are on the fringe of the urban development that has been emanating from the Providence Metropolitan Area. Population increased by an estimated 25 percent in Foster during the 1980s; 38 percent in Glocester; 13 percent in Scituate.

The surface drainage basin or watershed for the Scituate Reservoir covers 92.8 square miles, of which the Providence Water Supply Board owns and protects approximately 25 percent. That leaves 75 percent of the watershed or 69 square miles in private ownership and subject to development pressures.

Although the Scituate Reservoir system is currently a high-quality drinking water supply, some contamination linked to existing development has already been documented in reservoir tributaries. This is a serious concern, particularly since the watershed is still rural, with only 9 percent of the area developed.

The watershed towns of Foster, Glocester, and Scituate have clearly recognized the sensitive nature of this resource and have all adopted rural residential zoning densities in most of the watershed. Despite the earnest efforts of local governments, of the Providence Water Supply Board and of state agencies, the existing level of protection provided to the Scituate Reservoir appears to be inadequate to insure the long-term maintenance of a high-quality drinking water supply.

The Intent

The purpose of the plan is to develop recommendations to insure the long-term water quality protection of the Scituate Reservoir and its tributaries, in addition to groundwater that provides the watershed communities with on-site drinking supplies.

PART 4: APPROACHES TO WATERSHED PROTECTION

Water quality is strongly correlated with land use. As land use types and densities become more intensive within any watershed, the surface and ground water quality will become more degraded. The Pawtuxet River is a perfect example of this concept. The headwaters of this river, which include the Scituate Reservoir Watershed, have the highest water quality in the state. The tributaries that flow into the Scituate Reservoir drain through some of the most rural areas of Rhode Island. As water spills over the Gainer Dam, it flows downstream through a progressively more urban environment where it is subjected to a number of contamination sources directly related to the adjacent land use. The quality of the water deteriorates to one of the worst in the state, as the river flows toward its mouth at Pawtuxet Cove.

The primary function of a water supply watershed is to collect and convey water that falls or flows within its topographical boundary, to surface impoundments for storage that can be tapped for a drinking supply. The goal of watershed management is to minimize or prevent land uses that can contaminate drinking water. No one would willingly drink water that runs off an oil-stained parking lot or a lawn with a failed septic system. However, since a reservoir collects and stores water that runs off the land, we could ultimately be drinking water that came in contact with a contamination source.

The optimum land use within a reservoir watershed is forest land. Any conversion of this natural cover type to a more intensive use can disrupt the natural hydrological cycle, increase stormwater runoff, and promote the scouring of stream channels. This in turn leads to erosion and sedimentation problems, the destruction of wildlife habitat, and the degradation of water quality.

The conversion of forest land to residential development also introduces contamination sources that previously did not exist. Septic systems, fertilizers, pesticides, and commonly used hazardous materials such as gasoline, motor oil, and strong cleaning solvents are all threats to contaminate a drinking supply. As the population in a given area increases, so does the demand for commercial services. Some common commercial land uses such as gas stations, dry cleaners, and large impervious parking lots have a high potential for creating water quality problems.

The water quality impacts on the reservoir as a whole from a single home, commercial use, or even a 100-unit subdivision may not, by themselves, be of serious concern. However, the cumulative impacts from all development (past, present and future) throughout the watershed pose a very serious threat to the integrity of tributary

streams and ultimately the reservoir itself. Although a single land use type may not, by itself pose a significant threat to the Scituate Reservoir, it may have a strong potential to contaminate adjacent groundwater and directly impact private on-site wells. Some private wells, within the watershed, have already been contaminated by non-compatible land use types. Since it is virtually impossible to prevent new growth from converting forest land to more intensive uses, it becomes crucial to manage future development in a manner that will minimize impacts on water quality.

The primary concern with the Scituate Reservoir is the rapid growth rate and changing land use patterns that have been occurring within the watershed. This development constitutes a serious threat to water quality. The Scituate Reservoir system is currently a high-quality source of drinking water that serves over 50 percent of the state's population. However, water quality sampling has identified several areas within the watershed where development is degrading the quality of this supply (refer to Part 2.1 for more information).

Measures used to protect water quality in the Scituate Watershed are the same as those used to guide land use, control the construction of buildings, and protect environmentally sensitive areas throughout the state. The capability of these measures, such as local zoning ordinances and the regulation of septic systems, to deal with land use and development matters under "routine" conditions is dubious at best. Unquestionably, they fall short of what is necessary to maintain high quality surface and groundwater drinking supplies.

To address the need for more specific watershed growth management controls that would minimize impacts on water quality, approaches to accommodate new development are listed below:

1. Land uses categorized by effects on water quality,
2. Water quality protection zones,
3. Cluster development,
4. Residential density,
5. Sensitive areas to be acquired,
6. Roadside development controls, and
7. Infrastructure policy

These approaches classify land uses in accordance with their potential to contaminate water quality, identify areas where certain development should not be permitted, develop performance standards that should be met for all new growth, and determine key sensitive areas that should be purchased to be permanently preserved.

drinking water and there currently is no available back up supply, it would be prudent to encourage the watershed towns of Foster, Glocester, and Scituate to maintain their existing minimum lot size requirements that require more than two acres for a house lot and to urge the city of Cranston and the town of Johnston to increase their minimum lot size requirements within the watershed to match Scituate's 2.75 acre minimum lot. Refer to Part 3 for a more detailed discussion of zoning recommendations for the watershed communities.

Recommendations

1. A *minimum* residential lot size of two acres should be maintained within the watershed to protect reservoir water quality from the impacts of development. However, this recommendation is based on the assumption that other land use and pollution control recommendations described in Parts 2.2 and Part 4 are implemented.

2. Since there is no guarantee that other land use and pollution control recommendations cited in this plan will be adopted, the towns of Foster, Glocester, and Scituate should maintain their existing minimum lot size requirements within the watershed.

3. The communities of Johnston and Cranston should increase their minimum lot size within the watershed to 2.75 acres to be consistent with the lot size in Scituate.

4.5 CRITICAL AREAS TO BE ACQUIRED

4.5.1 *Critical Areas Defined*

In a water supply watershed, a critical area is that part of a watershed most important to the protection of water quality. Critical areas are the most sensitive to development and also have the greatest environmental constraints for development. Therefore, these lands have the highest priority to be acquired. In the Scituate Reservoir watershed, critical areas are defined by the criteria in Table 4.4. In compliance with the Public Drinking Water Protection Act of 1987, the Providence Water Supply Board has developed a watershed protection plan. Included in that plan is their Strategic Lands

Inventory Program which includes the critical areas criteria as defined in Table 4.4 and includes more specific criteria for watershed and property management.

TABLE 4.4
WATERSHED CRITICAL AREA CRITERIA

Primary Criteria:

- Land[1] within 300 feet of a reservoir and 200 feet of a reservoir tributary
- A water table within 0-3 feet from the surface of the ground.
- Land with slopes of 15 percent or greater.
- Land zoned for class C-E land uses as described in Part 4.1.
- High potential for development.
- Land supports a use documented to contaminate water quality

Secondary Criteria:

- Watershed location - areas closest to main surface reservoirs shall be given highest priority.
- Privately owned land
- Area adjacent to other publicly owned land
- Lack of ability to prevent or control development by existing state or municipal regulations.

1. All lands must be capable of being developed.
2. All primary criteria should be given equal weight and as many criteria, as possible, should be met.

Critical areas within the watershed can be identified and mapped through the use of the Geographic Information System (GIS) data base. The PWSB should use the criteria in Table 4.4, in addition to their Stategic Lands Inventory, as a guide for selecting land to be purchased with funds from the water supply surcharge. It should be noted that it is not the intent of this plan to encourage the fee simple purchase of private property in the watershed to preclude its use by landowners. The PWSB should purchase conservation easements, where possible, to prohibit new land uses that could impact water quality.

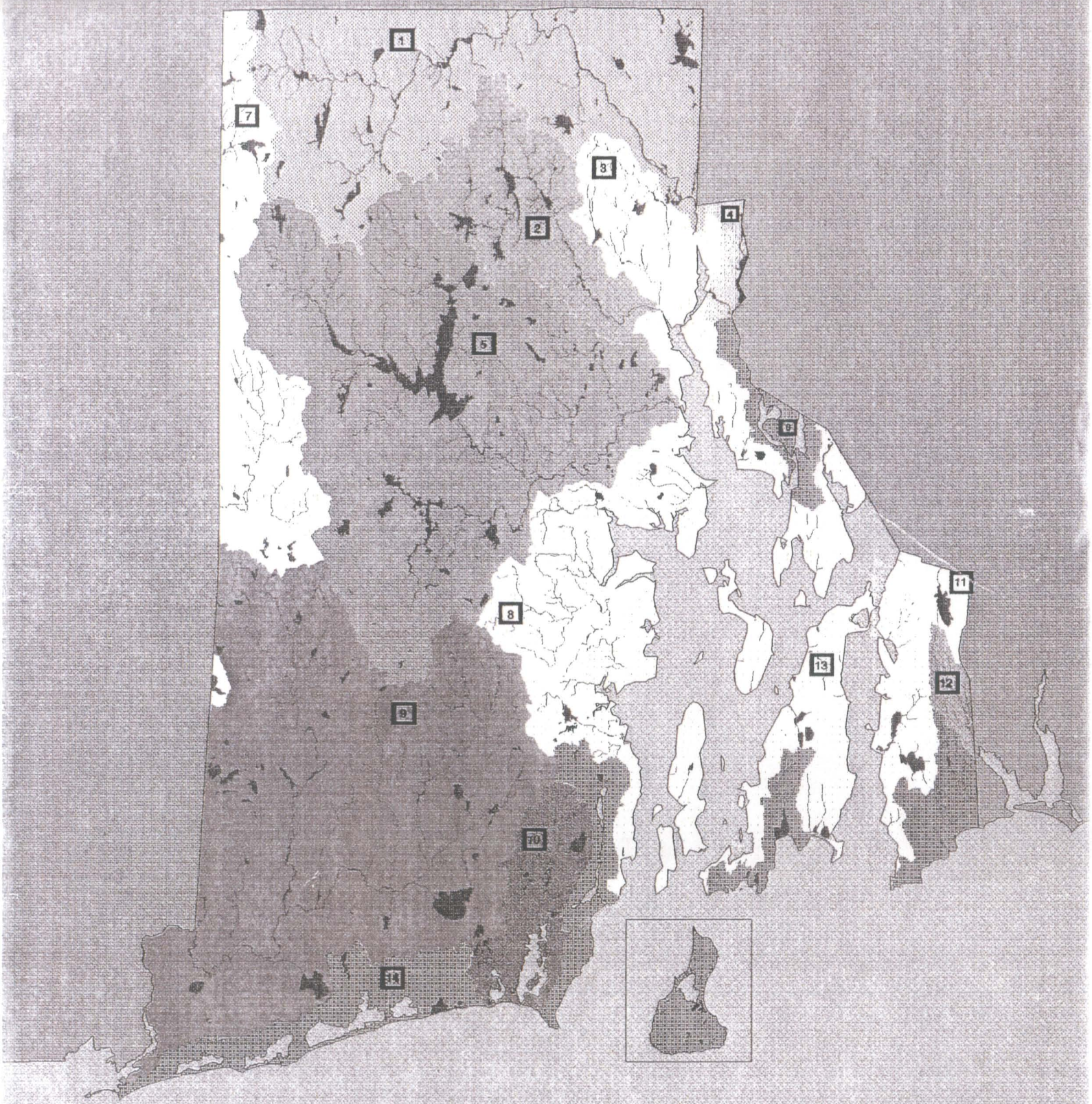
4.5.2 *Options to Acquire Land*

Since critical areas are the most sensitive lands in the watershed, every effort should be made to preserve these lands permanently. There are a number of options to preserve open space; however, other than the innovative zoning techniques described in sections 4.1 and 4.2, the best means to preserve open space in the watershed are land acquisition, dedication, and donation.

Rhode Island
Nonpoint Source Pollution Management Plan

State Guide Plan Element 731

Report Number 87



October 1995

RI Department of Environmental Management
Office of Environmental Coordination

RI Department of Administration
Division of Planning

ABSTRACT

TITLE: Rhode Island Nonpoint Source Pollution Management Plan

SUBJECT: Water quality management

DATE: October 1995

AGENCY/ SOURCE OF COPIES: Division of Planning, Rhode Island Department of Administration
One Capitol Hill
Providence, Rhode Island 02908-5870
(401) 277-2656

PROJECT: State management plan, developed in accordance with the requirements of Section 319 of the federal Clean Water Act

SERIES NO.: Report Number 87; State Guide Plan Element 731

NUMBER OF PAGES: 151, plus Appendices

ABSTRACT:

This plan updates and replaces Rhode Island's original Nonpoint Source Management Plan, which was developed in 1989. This plan has two primary purposes: to maintain the State's eligibility for federal funding under Section 319 of the Clean Water Act over the next four years; and to provide a vehicle for coordinating and integrating nonpoint source pollution control activities, both statewide and in high-priority watersheds.

This plan addresses the protection and restoration of all waters of the state -- surface and ground waters -- that are threatened or impaired by nonpoint sources of pollution. A primary goal of the plan is to maintain a balanced approach between preventing and mitigating nonpoint source pollution. The plan recognizes the need to maintain and enhance the various regulatory and enforcement programs governing nonpoint source pollution management in the state, but the plan places primary emphasis on non-regulatory initiatives.

The plan is divided into two principal parts: statewide management strategies and watershed management strategies.

PART 731.01: INTRODUCTION

01-01 OVERVIEW OF NONPOINT SOURCE POLLUTION

Rhode Island is at a critical juncture; decisions made today will determine where and at what cost Rhode Islanders will draw their drinking water, harvest fish and shellfish, and swim or enjoy other water-related recreational opportunities. Rhode Island has the distinction of being one of the nation's most densely populated states, and over the past decade it has witnessed an unprecedented increase in the rate of land development. Residents continue to boast of the high quality of the state's largest water supply source, the Scituate Reservoir, and the state's rural ponds, streams, and coastal shoreline. However, Rhode Island's appealing quality of life -- marked by the juxtaposition of outstanding natural resources in close proximity to the conveniences of urban centers -- is threatened. Nonpoint sources of pollution associated with a variety of land use activities are increasingly affecting the quality of the state's waters.

01-01-01 Definition of Nonpoint Source Pollution

In the 1970s, following adoption of the federal Clean Water Act, the term "nonpoint source pollution" was coined to describe water quality degradation in situations where no outfall pipe or "point source" was visibly discharging pollutants. The term conjured up the vision of mysterious pollution sources having no identity. The issue initially received scant attention, due mainly to the large amount of attention paid to point source discharges, which were then widely regarded as the primary contributors to water quality problems.

Today, nonpoint source pollution has an identity; it describes a varied group of activities and processes that contribute pollutants to surface and ground waters. Examples include failing or poorly functioning septic systems, erosion from construction sites, and stormwater runoff from streets, lawns, and agricultural fields.

Nonpoint source pollution primarily involves water quality degradation resulting from the interaction between the natural hydrologic cycle and various land use activities. As rainfall and snowmelt runs off or seeps into the land, it carries with it dissolved pollutants from many diffuse sources on the land surface and subsurface. Eventually, these pollutants are transported and deposited into streams, rivers, ponds, lakes, drinking water supply reservoirs, groundwater aquifers, wetlands, and coastal waters. The general category of nonpoint source pollution has also been broadened to include various diffuse activities that are not necessarily linked to the natural hydrologic cycle, such as underground discharges and sewage discharges from boats.

nutrients, and high turbidity -- conditions requiring moderate to expensive treatment levels. Many other lakes are also experiencing threats from dense bottom vegetation growth, and many exhibit significant algae blooms.

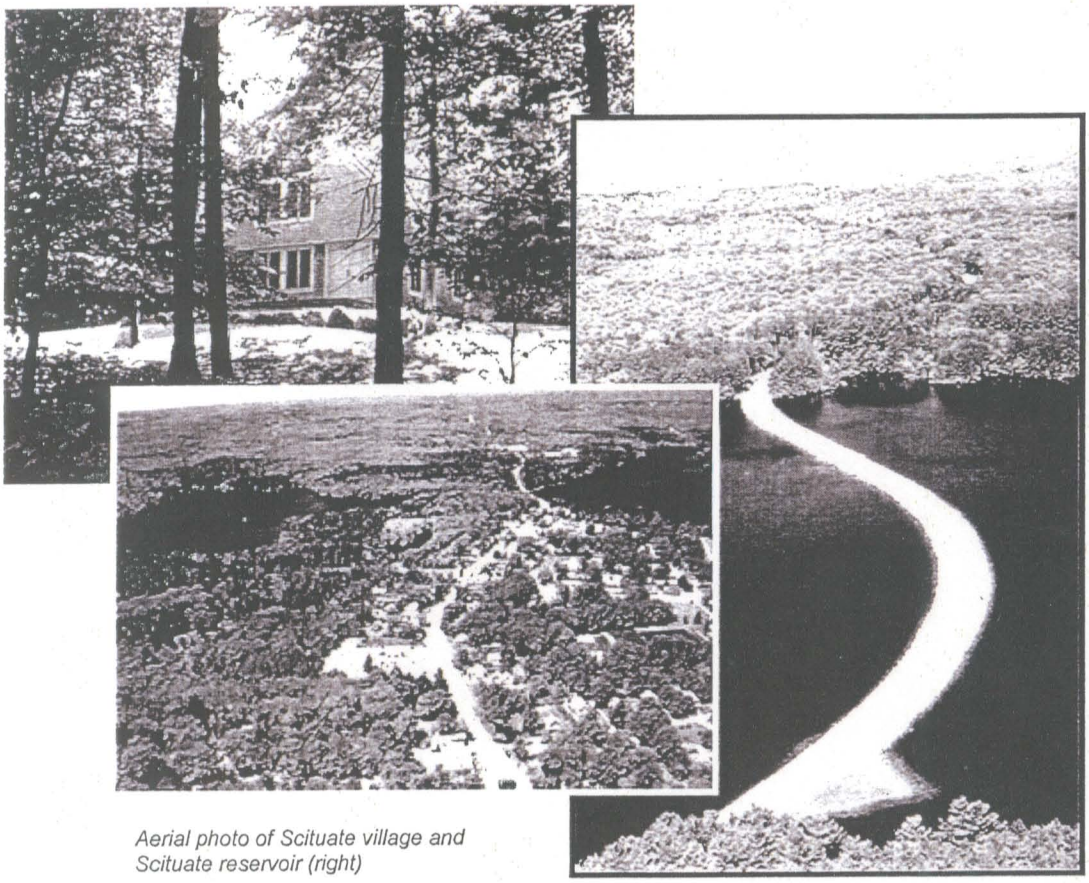
Many of Rhode Island's lakes and ponds are man-made impoundments of rivers and streams. As such, they often act as shallow settling basins for materials flowing downstream. These ponds therefore inevitably develop sedimentation/shallowing problems, high nutrient levels from the organic matter that settles out of streams in these areas, and increased bottom vegetation growth. This "aging" process is a natural development in the life of all ponds, but it may be accelerated by human-related development in a lake watershed. Increased drainage flowing from roadways and the installation of septic systems in poor soils close to ponds will cause increased loadings of nutrients (phosphorus is the nutrient of greatest concern for fresh waters) and total suspended solids. In many cases, such impacts follow the conversion of summer cottages to year-round residences, along with development in the lake watershed. These impacts will drive most lakes towards rapid nutrient enrichment (eutrophication), with its heavy algae blooms or bottom weed growth eventually limiting uses such as boating and swimming.

Unless steps are taken to limit storm water runoff, control the use of fertilizers on lawns and farms, and manage septic system inputs, lake water quality is likely to deteriorate. Most "restoration" techniques to deal with eutrophic lakes are short-term, expensive "band aids," which fail to produce pristine lake conditions and merely push the aging process back a season or two. Nutrients locked up in the sediments at the bottom of a lake are capable of recycling for decades, causing algae blooms or vegetation overgrowth to continue even if inputs of nutrients are stopped. Techniques such as alum treatment or dredging can reduce algae blooms, but such treatments are expensive. Moreover, in most lakes where such techniques are employed, the eutrophication process will return rapidly if nutrient inputs from septic systems, runoff, and other nonpoint sources continue unabated. Herbicides can control weed growth, but ecological risks make this a "last resort" technique. The most effective protection of water quality for lakes involves the use of nonpoint source controls before a lake becomes eutrophic.

Rivers/Streams

Some 26 percent (176 miles) of all river/stream miles assessed in Rhode Island fully support their water quality classifications and are not threatened by pollution. Just about one-half (337 miles) of river/stream miles in the state fully support their classifications, but are threatened by nonpoint sources of pollution -- namely, heavy metals (especially lead), nutrients, and bacteria emanating from urban runoff, highway runoff, failed or poorly functioning septic systems, and contaminated in-place sediments. About 7 percent (46 miles) of Rhode Island's assessed river/stream miles partially support their water quality classifications, while 16 percent (109 miles) do not support their classifications. In addition to nonpoint sources of pollution, a significant percentage of rivers and streams are impacted

The Scituate Reservoir Source Water Assessment



Aerial photo of Scituate village and Scituate reservoir (right)

Rhode Island Department of HEALTH

UNIVERSITY OF Rhode Island

University of Rhode Island NEMO

University of Rhode Island Cooperative Extension in cooperation with RI Health Source Water Assessment Program

Acknowledgements

This assessment was conducted in partnership with the Providence Water Supply Board, municipal officials representing watershed communities, staff of RI HEALTH and the RI Department of Environmental Management, nonprofit organizations promoting conservation and environmental stewardship of watershed resources, and many other citizen volunteers. These volunteers made significant contributions to the mapping and assessment work. They reviewed draft maps, commented on preliminary assessment results, offered valuable insights on local water quality concerns, and offered practical suggestions to better protect source waters. Special thanks goes to Rich Blodgett of the Providence Water Supply Board and Cynthia Gianfrancesco of the RI Department of Environmental Management Office of Waste Management, both of whom shared background reports and current data, helped update maps, and actively participated in the assessment. While we have tried to incorporate local comments to the extent possible, any errors or omissions are the sole responsibility of the authors. The findings and recommendations were developed based on discussions with the assessment volunteers but represent the best professional judgment of the authors based on available data, modeled assessment results and supporting scientific literature, and do not necessarily reflect municipal, URI or RI HEALTH policies.

As the State SWAP Program Coordinator and project manager, Clay Commons provided essential support throughout this project, which included assistance in developing risk analysis procedures, making RI HEALTH technical reports available, organizing public outreach, and participating in the assessment process. Debra LaFleur made public well monitoring data readily available and helped us interpret this rich database. EPA Region 1 project officer, Buddy Souza, provided support and direction throughout the project.

Dr. Arthur Gold, Professor in the Natural Resources Science Department and Extension Water Quality Program served as scientific advisor on this project. Dr. Gold oversaw development of the assessment approach and provided guidance in evaluating pollution risks and interpreting modeled results. Other key URI staff who contributed to the assessments include James Lucht who assisted with initial GIS database development and assessment. Dorothy Q. Kellogg provided support in modifying the MANAGE nutrient loading spreadsheet for SWAP assessments. Holly Burdett and Alyson McCann assisted in public outreach and trained volunteers to update land use maps used in the assessment. Kaytee Manchester, URI Coastal Fellowship Program intern, assisted in GIS mapping and well data analysis. Emmanuel Falck also assisted in final well data analysis and report editing. The URI Environmental Data Center provided direct access to the RIGIS database and the Center's knowledgeable staff generously provided technical support in GIS database development and mapping.

The Scituate Reservoir Source Water Assessment

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This report and a fact sheet summarizing results is available to view or download through the URI Cooperative Extension website and RI HEALTH websites. Large format maps of the water supply areas developed to inventory natural features and map potential pollution sources are available for review at municipal offices.

For more information about the RI Source Water Assessment Program or this report contact:

RI HEALTH
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www.HEALTH.ri.gov/environment/dwq/Home.htm

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This summary is drawn from information sources such as water supply system management plans, municipal plans and ordinances, and water quality monitoring data. Input from state and municipal officials, water suppliers, and others participating in this assessment process are also included. This overview is not intended to be a comprehensive synthesis, and it may not include all available data.

Water Quality Goals and Water Resource Protection Strategies

Because it provides water to 60 percent of the state of Rhode Island, the Scituate Reservoir has one of the best protected watersheds in the state. The towns of Scituate, Foster, and Glocester have been very proactive in their water quality protection efforts over the years. Nevertheless, as suburban development pressure expands westward from the Providence metropolitan area, threats to water quality continue to increase.

In 1990 the Rhode Island State Planning Council adopted the *Scituate Reservoir Watershed Management Plan.* This plan concluded that the primary challenges facing the Scituate Reservoir watershed are rapid growth and changing land use patterns. With this in mind, the plan makes recommendations to control existing pollution sources within the watershed-, to strengthen the state's water quality protection programs; to continue local programs to prevent new sources of contamination through innovative land use planning; and to provide the necessary funding and strategies to implement the plan.. As part of this plan, the Scituate Reservoir Watershed Zoning Project was developed to assist the towns of Foster, Glocester and Scituate with the development and implementation of "flexible zoning" to achieve two mutually compatible goals: the preservation of rural character and the prevention of new pollution sources affecting water quality. To date, the Town of Scituate has adopted flexible zoning and Foster and Glocester are considering similar zoning for future adoption.

In the past few years watershed communities again worked with the RI Department of Envionmental Management in development of a Conservation Development manual that provides step-by-step guidance in designing more flexible, compact developments to reduce site disturbance and preserve open space.

The towns of Foster, Glocester, and Scituate, have all adopted rural residential (3-4 acre min. lot size) zoning densities in most of the watershed. Foster and Scituate are also working together on a joint Wastewater Management Plan. Upon completion and state approval, the plan will allow citizens of the towns to qualify for low interest loans for septic repairs.

The Providence Water Supply Board (PWSB), or Providence Water, maintains an active watershed management program focusing on forest management, security and watershed management.

The PWSB currently owns and protects perimeter buffers around the Scituate Reservoir and most of the reservoirs feeding it. With 25 percent of the watershed protected, continued acquistion of land for conservation and protection purposes remains a top priority for the PWSB. Over the past ten years Providence Water has purchased 200,000 acres.

The PWSB also conducts an extensive water quality monitoring program. Fifty locations in the watershed are sampled either monthly or quarterly for a full suite of biological and chemical parameters. Watershed managers maintain an inventory of potential pollution sources and additional sampling is done at 12 Superfund sites in the watershed. Sampling at each site is specific to the pollutant in question. Further sampling is done for *Crypto/Gerardia*, zebra mussels, road salt, and any site-specific needs such as automobile accidents.

PWSB staff review and comment on local development plans to minimize impacts of new development. Providence Water also works with the Northern Rhode Island Conservation District to conduct watershed education programs in schools.

Pollution sources, concerns and issues

During the assessment process a number of local water quality concerns and issues were identified. These were raised by municipal officials, representatives of watershed councils and other nonprofit groups, and interested citizens. Most of these issues would need to be addressed as a follow-up to the assessment.

Interstate issues

Atmospheric deposition of pollutants from solid waste recycling plant emissions in Connecticut (possibly municipal waste plant in Wyndham).

Sterling, Connecticut tire burning is greatest concern to Providence Water.

As a follow-up to the source water assessment, state agencies should work together to address these interstate issues

Regional issues for watershed communities

The road over the dam has been closed to public access due to security concerns. The Pawtuxet Water Authority would like to see the area re-opened for public access.

Hazardous material transport over watershed roads is a concern. A legislative commission investigated this several years ago, found they

Compliance and enforcement

In many cases plans and regulations are comprehensive but staff is lacking to monitor and enforce current activities. Municipalities and water suppliers should discuss opportunities to coordinate in improving enforcement of local regulations, including hiring an environmental enforcement officer to work with town staff such as the building inspector, wastewater management coordinator and others conduct field inspections, educate landowners and developers, and pursue enforcement actions where needed.

Community pollution prevention education

As a joint effort between water suppliers and local officials, expand public education to promote awareness of local water resources and the need for protection. Use educational campaigns to encourage individual adoption of good management practices and also to build public support for local source water protection ordinances.

- Start by mailing the assessment summary fact sheet to watershed residents and water users.
- Join forces with existing organizations promoting conservation and education. Work with nonprofit organizations to implement watershed education programs in schools.
- Support private well water protection education and facilitate private well water sampling; actions taken to protect private wells will also protect public supplies.
- Aim to establish a continuous educational program targeting different audiences through a variety of methods. Occasional educational efforts are less effective. The most successful communities have appointed a committee with citizen volunteers to spearhead efforts, such as the North Kingstown Groundwater Committee, which works closely with the town water supply department, the planning department, and other town officials.
- Target residents and businesses in critical areas for education on issues of concern in their neighborhood such as shoreline development in waterfront areas, lawn care in areas with large lots and high-maintenance lawns, and areas in need of septic system repair and upgrading.
- Work with business groups to promote good "housekeeping" practices among commercial and industrial property owners.

Consumer Confidence Reports

The 1996 Amendments to the Safe Drinking Water Act (SDWA) require public water supply systems that serve residential customers to prepare and distribute annual consumer confidence reports. These reports are intend to help educate public water supply consumers and to promote a dialogue between water suppliers and their customers on the importance of source water protection.

4.3 Management Actions for Water Suppliers

Implementing municipal management actions listed above would require coordination with water suppliers and their active support. In many cases water suppliers already are leading non-regulatory efforts, such as educational outreach and monitoring. Additional actions water suppliers can take to protect drinking water supplies follow. In

many cases, water suppliers already have active watershed management programs that incorporate many of these elements.

- Implement all recommendations of the latest water supply systems management plan.
- Continue to prioritize and acquire land for protection.
- Identify priorities for restoration, including potential sites for stormwater drainage system improvements and shoreline revegetation. In cooperation with government agencies and nonprofit organizations pursue funding to implement projects through capital budgets and competitive grants.
- Post signs alerting the public to location of Wellhead or Watershed Protection Area.
- Cooperate with local officials to update local plans and ordinances to implement land use protection measures.
- Inspect water supply and protection area regularly for potential pollution sources.
- Provide assistance to communities in review of development proposals to evaluate potential impacts and identify alternative designs and management practices to minimize impact.
- Expand monitoring where needed to evaluate stream water quality through simultaneous monitoring of stream quality and flow. In surface reservoirs track nutrient enrichment status through standard benchmarks such as Carlson's Trophic State Index.
- In groundwater aquifers promote private well water protection education and encourage private well water sampling. Actions taken to protect private wells will also protect public supplies.
- Cooperate with local officials and nonprofit organizations to develop and carry out watershed/groundwater education programs for those who live and work in source water areas.

4.4 What Residents, Landowners and Businesses Can Do

Drinking water protection eventually comes down to the individual actions of those who live and work in water supply areas. The following are basic actions each person can take to protect public supplies and the health of their own home and yard.

Residents

Vehicle and Engine Maintenance

- Recycle used motor oil. Never pour waste oil on the ground or down storm drains.
- Local sanitation departments or service stations can often accept used motor oil.
- Keep up with car maintenance and the maintenance of other motorized equipment such as lawn mowers and snowmobiles, to reduce leaking of oil, antifreeze, and other hazardous fluids.