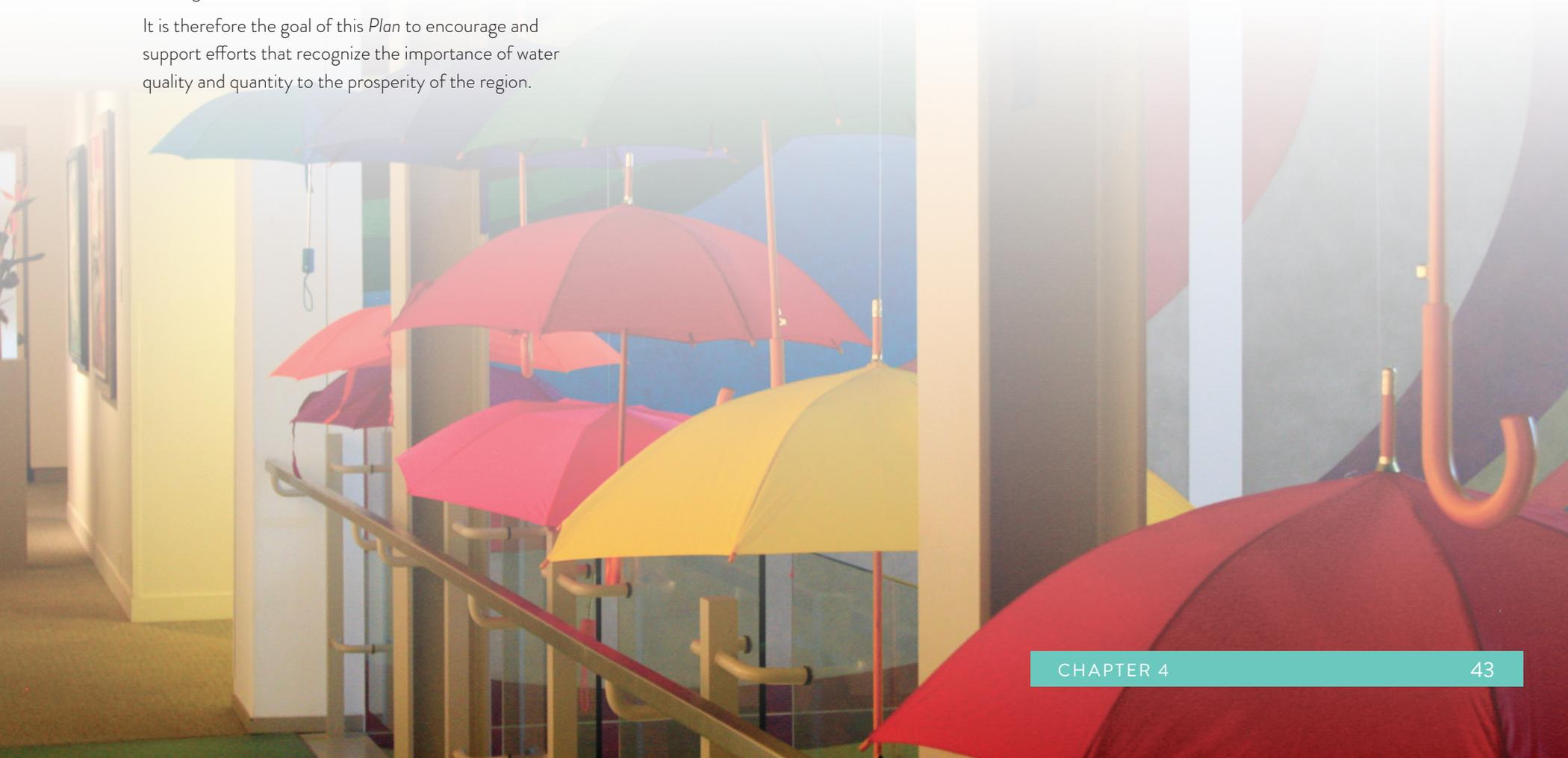


Watersheds and Water Quality

Statement of Purpose

The availability and quality of water are critically important to community growth. The twin issues of water supply and water quality can enable or cripple any proposed residential or business development. The loss of water supply or diminished water quality can also threaten existing communities.

It is therefore the goal of this *Plan* to encourage and support efforts that recognize the importance of water quality and quantity to the prosperity of the region.



Current Conditions

Introduction

Water resource planning is built upon the concept of the watershed as the primary planning unit. A watershed is simply defined as the area that drains to a common point, and can be established at numerous scales. A watershed can be as small as a parking lot, draining to a storm sewer, or the area from Montana to Louisiana, draining into the Mississippi River.

The primary scale at which watersheds are defined geographically is the “major basin,” which in turn is composed of “regional basins.” Because watershed boundaries are not consistent with political boundaries, watershed management is an intermunicipal, interregional, interstate, and occasionally an international issue. The Capitol Region is almost entirely within the Connecticut River Major Basin, which extends from the Canadian border south to Long Island Sound. The portion of the Connecticut River in Connecticut and Long Island Sound is constantly affected not only by central Connecticut’s land use decisions and pollution, but also by those of Vermont, New Hampshire, and Massachusetts.

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There are ten regional basins in the Capitol Region. Eight of these basins, including most prominently the Farmington River, drain into the Connecticut River. The Willimantic River Basin and a small area in Stafford in the Quinebaug River Basin, drain into the Thames River Major Basin.

Current Issues

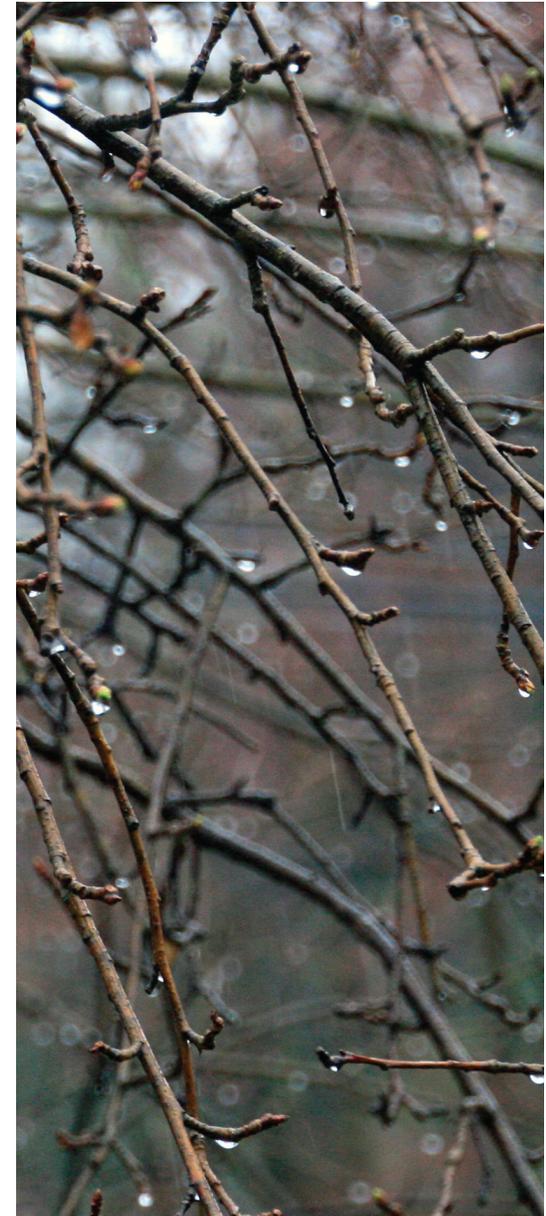
Several water quantity and water quality problems are significant in the Capitol Region’s basins. Water quality is directly related to development and land use characteristics, such as: type of land use; extent of impervious surface; stormwater and sediment controls; and condition of stormwater and sewer infrastructure. The impact of such features in one municipality affects the quality of water in other municipalities in the watershed. Intervention requires a coordinated response across towns and states, and among nonprofit organizations and agencies.

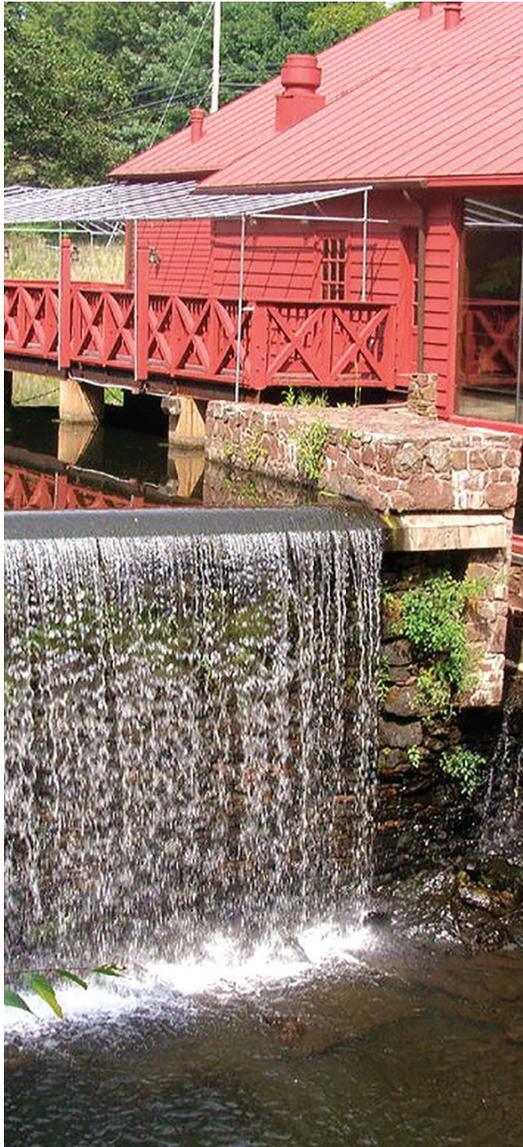
Water Quality Measures

Water quality measures are developed at the state level. In Connecticut, the State Department of Energy and Environmental Protection (DEEP) developed Water Quality Standards in conjunction with the principles of the federal Clean Water Act. The standards incorporate a range of data, and are defined for surface and ground water. The Water Quality Standards establish designated uses for surface and ground waters and identify the criteria necessary to support those uses. Each stream or water body has two classifications: one for existing use, and one for designated use. The designated use classification is also known as the water quality goal, or what the water could be used for if programs are implemented and water quality goals are achieved. The DEEP seeks to bring every water body in the state to a classification of “B” or better, which would not be suitable for human consumption without treatment, but could be suitable for recreational use, fish and wildlife habitat, agricultural and industrial supply, and other legitimate uses including navigation.

A simpler method of assessing water quality involves compiling a range of indicators to assess whether a watershed is in need of protection or restoration. For watersheds that meet established water quality goals, the current water quality needs only to be maintained; such waters are considered in need of “protection.” For watersheds where the water quality no longer

meets criteria for designated uses, more intensive efforts are required; such watersheds are considered in need of “restoration.” In the Capitol Region, the DEEP has designated the Farmington, Salmon, and Willimantic Rivers as being “in need of protection.” The other six rivers are designated “in need of restoration.” Thus, the water quality of six watersheds in the Region does not meet DEEP goals for designated uses. Currently all ten towns in the Salmon River Watershed including Bolton, Glastonbury, Hebron and Marlborough are working with The Nature Conservancy (TNC) to develop stormwater management best management guidelines, land use regulations and public works practices to maintain and improve the quality of the Salmon River Watershed which is one of the most undisturbed watersheds in the State of Connecticut.





Combined Sewer Overflows

Combined Sewer Overflow (CSO) refers to stormwater systems in which the stormwater flow and sanitary sewer flow are carried in the same conduit destined for a wastewater treatment facility. Such systems cannot handle the water volume from large storms, and the result is that a mix of stormwater and sewage overflows the system directly into rivers and streams. While it is difficult to measure the full impact of such flows, they are identified as the single largest negative factor influencing the water quality of the Connecticut River. Significant capital investment is required to separate such systems. In the Connecticut River Basin, overflows come from Enfield and Hartford, Connecticut; small towns in New Hampshire and Vermont; and Springfield, Chicopee, and Holyoke, Massachusetts. The overflows have substantial negative interstate impacts. These impacts are obvious in the Capitol Region, where Suffield and Enfield experience degraded water quality from sewer overflows originating in Springfield. In addition, overflow from all these communities to the Connecticut River has a negative impact on the water quality of Long Island Sound. These interstate problems require a coordinated, interstate response.

The greater Hartford area is making significant progress toward separating its combined sewer overflow system through the Hartford Metropolitan District (MDC) Clean Water Project, a 15-year plan designed to control and reduce the overflow

of untreated sewage into natural waterways. The MDC will expend more than \$2 billion to improve the area's water quality and help protect the health and safety of citizens during storm events. The Clean Water Project formally addresses a federal consent decree and a Connecticut DEEP consent order to achieve Federal Clean Water Act Goals. In Massachusetts, the communities of Springfield, Holyoke, and Chicopee are addressing the problem in conjunction with the Pioneer Valley Planning Commission (PVPC), but much work remains to be done. Nearly \$400 million is needed to redress the problem there, and State funding has been well below the amount the communities need to address the problem expeditiously. The U.S. Environmental Protection Agency (EPA) recently issued compliance orders to the Massachusetts communities to submit a long-term CSO plan in relation to the Clean Water Act. The Connecticut River Watershed Council and Connecticut DEEP reviewed the plan and submitted responses. They agreed with some of the mitigation strategies, but recommended a shorter time frame than the proposed twenty-year schedule.

Nonpoint Source Pollution

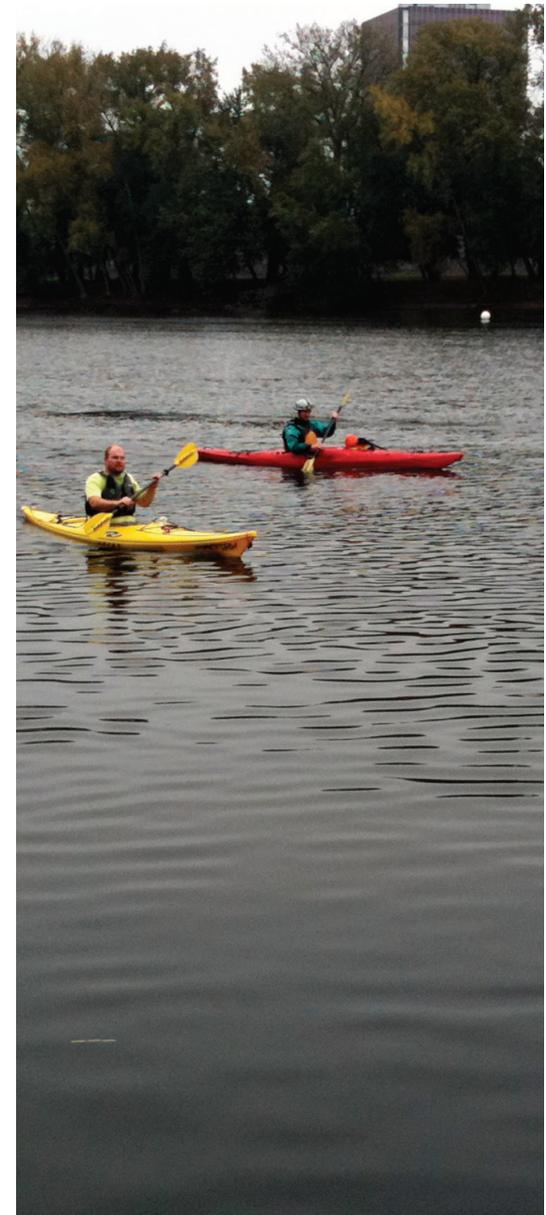
Nonpoint source pollution or “polluted runoff” is the other major contributor to declining water quality in the Connecticut Major Basin. Nonpoint source pollution comes from rainwater that accumulates contaminants and sediment from driveways, roads, agricultural tracts, and lawns (especially heavily fertilized lawns); failing septic systems and infrastructure; and poorly contained waste disposal sites.

Nonpoint source pollution is more prevalent in urban and more developed communities, although there can also be significant impacts from agricultural operations in rural communities that have not implemented best management practices. Less developed communities have an opportunity to implement best management practices to reduce the impact of future development on water quality. Best management practices can also be implemented in urban communities to help reduce pollution from nonpoint sources in those communities.

Total Maximum Daily Load (TMDL) refers to measurement of the maximum amount of sediment or other contaminant that a river can absorb from point or nonpoint source pollution and still be considered clean. The Clean Water Act included a TMDL provision for states to implement; however, most states, including Connecticut, have been reluctant to do so.

Development and Water Supply

As land in the region is converted from rural to urban uses, water consumption increases. Whether the water is used for drinking, cooking, bathing, or washing a car, more people mean higher total water consumption. In urban, suburban, or other areas with public water and sewer lines, regulated aquifer protection areas and protected water utility-owned lands help to maintain the necessary water supply for the region. In smaller towns or developing areas, however, centralized water supply wells or reservoirs may not be in place, and water is supplied by individual on-site wells. The construction of streets, driveways, parking lots, and other impervious surfaces, as well as the associated storm sewer systems, typically impair an area’s water supply. By preventing rainwater from entering the soil and instead routing it directly to a stream, groundwater recharge is reduced, thus reducing the available water for residential wells. Best management practices can be implemented in developing areas to help mitigate the effects of impervious surfaces and provide for renewable water supplies for residential wells or other water sources.



Agencies and Organizations

Before the early 1970s, almost no one paid attention to the health of the nation’s watersheds and waterways. Since Congress passed the Clean Water Act in 1972, there has been a proliferation of groups, both governmental and private, that have taken it upon themselves to improve and maintain the quality of our waters. These groups are involved in numerous initiatives affecting each of the regional basins, as well as the Connecticut River Major Basin as a whole. CRCOG is involved with many of these efforts and maintains a comprehensive database to aid coordination with other interested parties.

Watershed-Based Organizations

These organizations are citizen-based, nonprofit associations that address watershed conservation and restoration issues. Most of the regional basins in the Capitol Region have these associations, including the Connecticut River Watershed Council (CRWC), the Farmington River Watershed Association (FRWA), the Salmon Brook Watershed Association, the Hockanum River Watershed Association, and the Willimantic River Alliance. These organizations often have a strong knowledge of and commitment to their local watershed, and can work closely with and influence governmental decision makers when it comes to issues affecting the lands and waters in their basins.

State of Connecticut

The Connecticut Department of Energy and Environmental Protection is heavily involved in watershed planning and water quality. During the last several years, the DEEP reorganized bureaus, divisions, and programs in order to facilitate planning on a watershed scale. As part of this reorganization, the Watershed Management Program (formerly “Rivers Program”) created several “Watershed Coordinator” positions. The Coordinators deal with all watershed issues that affect rivers. They seek to facilitate DEEP watershed management efforts to improve or maintain water quality within their assigned river basin. The coordinators also work directly with municipalities. In the Capitol Region, the DEEP has coordinators for the Connecticut Major Basin and the Thames Basin, which includes the Willimantic River.

One of the most important goals of the DEEP Watershed Management Program is to assist in the development of comprehensive watershed management plans, to protect and restore water quality and conserve and manage water resources, by guiding local land use decision making, and enhancing pollution prevention programs. The following watershed based plans have recently been adopted in the Capitol Region, and can be accessed through the DEEP website:

- Broad Brook (2010)—East Windsor, Ellington, Somers Tolland
- North Branch Park River (2010)—Avon Bloomfield, Hartford, Simsbury, West Hartford, Windsor
- Tankerhoosen River (2009)—Bolton, Manchester, Tolland, Vernon
- Hockanum River Manchester (2009)
- Hockanum River Vernon (2010)
- Hockanum River Sub-basin 4500-14-1 in Manchester (2007)
- Hockanum State of the Watershed Report (2005)

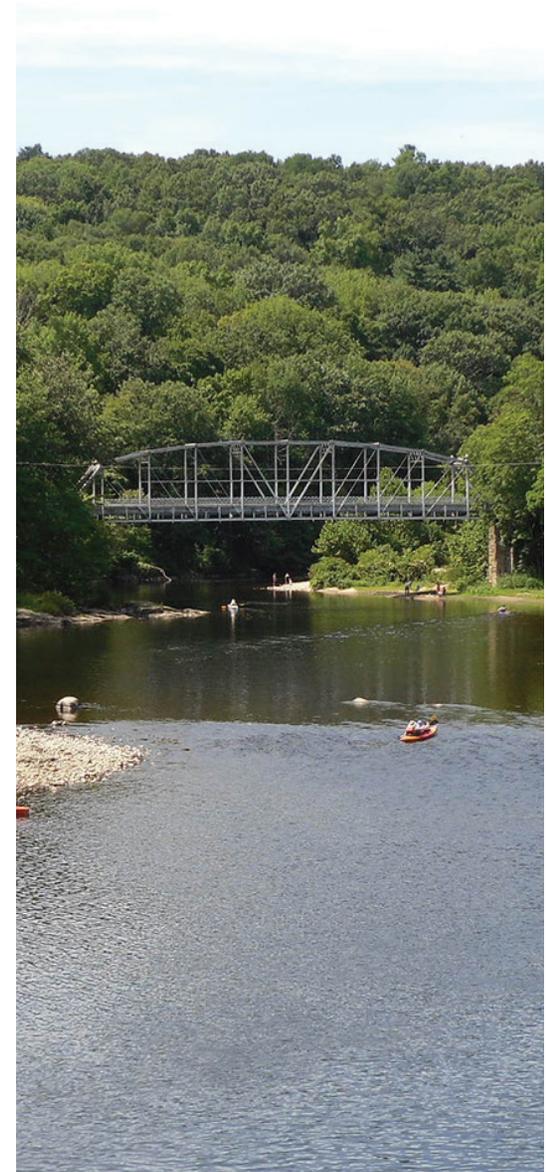
Federal Government

Working mostly through the EPA, the Department of the Interior, and the Natural Resources Conservation Service (NRCS), the federal government established numerous programs that make funding and support available to the rivers and watersheds in the Capitol Region.

The Connecticut River was named in 1998 as one of seventeen “American Heritage Rivers.” This federal initiative to protect outstanding and historic rivers across the country helps to advance several important projects such as CSO separation, migratory fish restoration, and Livable Community initiatives. In 1994, Congress recognized fourteen miles of the Farmington River as part of the “Wild and Scenic River System.” This river is only one of five in New England to receive this designation, which provides the Farmington River with strong protection against federal and other projects with harmful environmental impacts. It also enhances the Farmington River basin’s opportunities for funding from other federal programs. The Lower Farmington River and Salmon Brook have been under study for a Wild and Scenic designation since 2007. Designation would add approximately 62 more miles of watercourses to Connecticut’s Wild and Scenic Rivers. While the Lower Farmington and Salmon Brook are under study, and until they are designated by Congress, they enjoy the same protections as designated rivers.

The Silvio Conte National Wildlife Refuge was created in 1991 by federal legislation, and is supported by annual federal appropriations. This Refuge protects the Connecticut River corridor from Northern Vermont through Connecticut for its wildlife habitat and natural diversity. Three education centers that promote the work of the Refuge are being developed in Massachusetts, Vermont, and New Hampshire.

In addition to the Silvio Conte designation, the Connecticut River was recently designated as America’s first national Blueway. According to the U.S. Department of the Interior, a National Blueway includes the entire river from “source to sea” as well as the river’s watershed. The designation is intended to recognize and support existing local and regional conservation, recreation, and restoration efforts, and does not establish any new protective status or regulations.



GOALS & POLICY RECOMMENDATIONS



A. Improve and Maintain Water Quality

Improving and maintaining drinking water quality, both on the surface and below the ground, is central to sustaining residents and businesses. Clean water is also vital to the protection of wildlife, and recreational resources throughout the region.

Policy Recommendations

1. Evaluate and manage natural resources on a watershed basis.
2. Coordinate State and local agencies' efforts to improve water quality in the region.
3. Work with upstream groups such as the Pioneer Valley Planning Commission (PVPC) to reduce pollution loading from the upper reaches of the Connecticut River.
4. Consider downstream impacts and implications of pollution to Long Island Sound.
5. Support other agencies and organizations' efforts to develop or implement watershed-based plans for all the region's watersheds.

B. Protect Water Supply and Increase Water Conservation Efforts

Future growth in the Capitol Region, as anywhere, will require maintenance of an adequate water supply for current and future populations. In addition, developing areas away from public water lines may reduce groundwater resources through the effect of paved surfaces and development on recharge. The State of Connecticut is working toward a coordinated plan for the state's water supply.

Policy Recommendations

1. Continue efforts to provide adequate, high quality water supply to the region.
2. Strongly support the preservation of existing reservoirs and other water supply sources.
3. Encourage ample water supplies in developing areas through minimizing development impacts on recharge, as well as through interconnections of existing water supply systems and intermunicipal cooperation.
4. Promote, in conjunction with local groups and water providers, educational efforts that encourage water conservation techniques.
5. Advocate for stronger regulatory protection of aquifer areas.
6. Consider promoting the limitation of potable water for nonpotable uses.
7. Support State efforts to develop a coordinated water supply plan for the State.

C. Reduce Nonpoint Source Pollution

Urban, suburban, rural residential and agricultural land uses all contribute uniquely to the problem of nonpoint source pollution (polluted runoff). This is a difficult type of pollution to address because, by its nature, it originates from widely dispersed sources. The Clean Water Act and other legislation, however, identify this type of pollution as one of the most dangerous to water quality.

Policy Recommendations

1. Educate homeowners about the importance of reducing their individual impact on water quality by using less toxic fertilizers, proactively maintaining septic systems, and properly disposing of cleaning products and automotive oil and grease.
2. Work with federal and state groups to promote best management practices on the region's farms to reduce nutrient and sediment loading to streams.
3. Strongly encourage developers to use best management practices in both the design and construction of new subdivisions.
4. Promote innovative approaches to protect streams and rivers from runoff from urban areas.
5. Assist in the implementation of Clean Water Act Phase II regulations for nonpoint source pollution control.
6. Work with municipalities, the Metropolitan District Commission and the Connecticut Department of Transportation to encourage green infrastructure techniques in roadway and infrastructure design to control runoff.

D. Continue Combined Sewer Overflow (CSO) and Point Source Pollution Discharge Reductions

Polluted discharges can occur when antiquated sewer systems are unable to treat the combined volume of stormwater and wastewater entering their system. Such combined sewer overflows generally occur during heavy rainstorms and can have lasting impacts on receiving waters. The Connecticut River still receives CSO discharges from wastewater treatment systems in the Hartford Metropolitan District (MDC) and Enfield, as well as from systems serving Massachusetts communities. Additionally, aging systems that inadequately treat wastewater can lead to an increase in toxic nutrient or bacteria levels in the region's major waterways. The Hartford region has made significant progress toward separating its combined sewer overflow systems through the MDC Clean Water Project.

Policy Recommendations

1. Support continuing efforts to reconstruct the CSO systems in the Hartford Metropolitan District and Enfield so that storm and sanitary sewers are separated.
2. Work with upstream municipalities and regional planning agencies to coordinate efforts on CSO improvement.
3. Encourage efforts to upgrade and improve treatment prior to discharge.
4. Work with major industries in the region to be proactive in managing and reducing their polluted discharge.

5. Encourage the use of "green" cleaning products in homes, institutions and commercial and industrial enterprises.

E. Use Innovative Wastewater Treatment Techniques for New Developments

The population of the Capitol Region continues to spread out into previously undeveloped areas. The proliferation of subdivision and other development provides both challenge and opportunity to protect water resources.

Policy Recommendations

1. Work with developers and municipal officials to advance improved designs for on-site wastewater management.
2. Encourage state environmental officials to consider alternatives to standard individual residential septic systems in new developments.

Map 4.1. Watersheds

