

NIANTIC RIVER WATERSHED PLAN

1.0 FRONT MATTER

1.1 Acknowledgements

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1.2 Executive Summary

The Niantic River does not currently meet state water quality standards because of high levels of indicator bacteria and observed degradation of aquatic life. According to the State of Connecticut's §303(d) *List of Impaired Waters*, the Niantic River is not supporting activities such as shellfishing and swimming; the Niantic River's shellfish beds are closed after rain events of one inch or more. The §303(d) *List of Impaired Waters* states that the water quality of the Niantic River is not supporting the aquatic life known to inhabit the estuary. Symptoms of this condition include, algal blooms, seasonal variations in eelgrass populations, loss of scallop populations and changes to the fish communities. These ecological changes are thought to be linked to excessive nutrients, especially nitrogen, entering the river.

Bacteria and nitrogen enter the Niantic River from several sources. Historically, marine vessels, inadequately functioning septic systems and stormwater runoff have been cited as the primary sources of these and other pollutants to the Niantic River. As East Lyme and Waterford continue to extend domestic wastewater sewers to homes along the river, Salem and Montville enforce their surface water protection areas and marine vessels are prohibited to dump sanitary wastewater into the river, stormwater runoff has become the primary target for protecting the Niantic River. Stormwater runoff transports pollutants of the land into the many drainages and tributaries feeding the Niantic River.

This widespread, *nonpoint source pollution* is the greatest threat to the water quality and ecological health of the Niantic River.

The Niantic River Watershed Protection Plan was put together for the communities and advised by a Steering Committee with the vision to improve water quality throughout the watershed, eliminate shellfish bed closures, support fish and wildlife habitat and provide safe and healthy recreational areas. It is the commitment of the advisory committee that will make this plan a success. This plan takes a *watershed approach* to addressing the problems of nonpoint source pollution associated with the Niantic River, rather than a site specific approach. It considers the hydrologic, or watershed, boundaries of the Niantic River to characterize pollution sources and to develop strategies to address them. Through this scope, we examined the characteristics and land uses of the watershed to better understand the current and potential risk of nonpoint source pollution. Based on these risk assessments, it can then be determined what measures should be taken to decrease nonpoint source pollution to protect the Niantic River and its tributaries.

Examination of the watershed was facilitated by the use of aerial photography, Geographic Information Systems (GIS) and stormwater models. Existing land use and water quality reports for the watershed were also consulted. From these sources, several key findings about the Niantic River Watershed and nonpoint source pollution were identified.

Several recommendations are made throughout this report, in addition to many findings and results from various analyses that have been completed. The following is a summary of key findings, in addition to an outline of key recommendations for implementing various improvement plans within the watershed.

Key Project Findings

Data Assembly & Results	<ul style="list-style-type: none"> • Fifteen or more storm sewer outfalls discharge untreated runoff directly into the Niantic River. These outfalls collect runoff from several drainage areas of various sizes along the Niantic River shoreline.
	<ul style="list-style-type: none"> • As a watershed’s imperviousness increases, the quality of its streams decreases – a relationship well-established in scientific literature. Five drainages of the Niantic River are currently covered by over 10% impervious surfaces such as roads, parking lots, sidewalks and roofs. At fully developed conditions (maximum development allowed by current planning and zoning regulations), ten drainages in the watershed will be covered by 10% or more imperviousness and one drainage will be over 30% impervious surface cover.
	<ul style="list-style-type: none"> • Stormwater modeling showed increased loading to the Niantic River from existing development, but drainages adjacent to the lower river are fairly developed with respect to the remainder of the watershed. Any areas that may be considered developable pose a risk for direct discharge to the lower river by increasing the pollutant loading through its tributaries.
	<ul style="list-style-type: none"> • Undeveloped areas further upstream in the watershed pose a great risk to increasing loads to town water supply reservoirs. Preservation of lands abutting receiving waterbodies is as much a key component to water quality protection as is stabilizing and treating existing development.
	<ul style="list-style-type: none"> • Tracked development of the watershed has steadily increased since monitoring using aerial images was implemented in 1985. Since that time, over a thousand acres of forest has been converted into either developed, barren or grassed lands.
Zoning	<ul style="list-style-type: none"> • Each of the towns are making great efforts to do their part in protecting the waters of their communities. A more effective approach may be to match wetland protection requirements for a consistent watershed wide approach to protecting water quality. For example, the towns of East Lyme and Waterford each have a 100-foot upland review for wetlands and watercourses, where the towns of Montville and Salem have different buffer areas.
Environmental	<ul style="list-style-type: none"> • Eelgrass populations plummeted in 1999, but experienced a rebound in 2003 and 2004. The future of the grass is still questionable and requires regular protection and monitoring. It is believed that continued growth of the eelgrass populations will also aid in restoring shellfish populations, although the increased predation by an overall increase in fish species may limit growth opportunities.
Monitoring	<ul style="list-style-type: none"> • Measurement of water quality throughout the watershed is not currently a standard practice. Improvements may be made through BMP and planning changes, but without practical measurement techniques, it becomes difficult to measure, monitor and adjust.
	<ul style="list-style-type: none"> • Monitoring and inspection programs, which are making great progress are underway in the Towns of Waterford and East Lyme, but the potential for future development is the greatest in the upper reaches of the watershed.

Key Recommendations

<p>Zoning</p>	<ul style="list-style-type: none"> • Town zoning should allow the use of non-traditional Best Management Practices by granting variances to standard subdivision or building requirements. Examples of waivers may include: <ul style="list-style-type: none"> ○ Curb requirements ○ Mandatory sidewalks ○ Pavement specifications ○ Density allowances ○ Building Low Impact Design (LID) techniques
	<ul style="list-style-type: none"> • Continue the establishment of open space preservation. Techniques for managing open space include: <ul style="list-style-type: none"> ○ Preservation of contiguous wildlife corridors ○ Maintain no-disturb buffers around wetlands and waterbodies
<p>Management & Monitoring</p>	<ul style="list-style-type: none"> • The Project Steering Committee should consider the formation of a watershed partnership or coalition. This body could be an ad hoc entity to regularly meet and collaborate on the implementation of specific aspects of the watershed plan, as mentioned. Or, the entity could be formed as a subcommittee of the Southeastern Connecticut Council of Governments, which may also assist in coordinating the body and implementing the plan.
	<ul style="list-style-type: none"> • Establish a full time watershed coordinator who would coordinate activities between all the towns. Such a position would supplement individual town stormwater utility districts.
	<ul style="list-style-type: none"> • Public monies should be used to purchase lands for preservation. This becomes even more prevalent in the case of protecting lands abutting the major reservoirs that are water supplies.
	<ul style="list-style-type: none"> • Development of a specific stormwater management utility. Such an entity would be responsible for implementing watershed water quality monitoring, post-construction inspections, street sweeping activities and stormwater retrofitting upgrades. Costs of equipment, monitoring and maintenance could be shared between the towns.
	<ul style="list-style-type: none"> • Avoid ‘short-circuiting’ of stormdrain discharges. Buffers may be placed along a stream, but a pipe discharging directly to the stream passes by the buffer without allowing for any attenuation or treatment of flows.
<p>Educational</p>	<ul style="list-style-type: none"> • Marinas in the Niantic River should be encouraged to become Certified Connecticut Clean Marinas to develop clean maintenance and operation activities. This also aids educating the boaters who use these marinas and the Niantic River.
	<ul style="list-style-type: none"> • Education is a key component to maintaining water quality. Certain educational programs are currently being implemented and should continue to be regularly provided for general residents, business owners, contractors, schoolchildren and town officials. Increased knowledge of good ‘house-keeping’ practices will only help to preserve water quality. Official education plans should be outlined and presented on an annual or bi-annual basis. Results from regular monitoring plans, development changes in the watershed and constantly changing technologies truly mandate a continual education program. Further discussions about implementing education plans may be found in Section 7.

A suite of watershed management options to address the study's key findings were developed. Land use and regulatory options were considered and discussed with the planners from the four watershed towns. Administrative and programmatic recommendations were included in the suite of options. These recommendations consist of educational activities, financial strategies and specific stormwater management measures. Where possible, management recommendations are assigned to specific areas of the watershed and associated with specific water quality targets. Together these items make up the Niantic River Watershed Protection Plan, which with the continued support of the stakeholders engaging the public, the communities and local organizations can work to protect and enhance the countless uses enjoyed by all in the watershed.