Nutrient Loads to Pawcatuck River Estuary and Little Narragansett Bay: Developing a New Watershed-based Approach to Analyze and Manage Impacts to Coastal Estuaries

Finding Solutions to Nutrient Pollution

Introduction

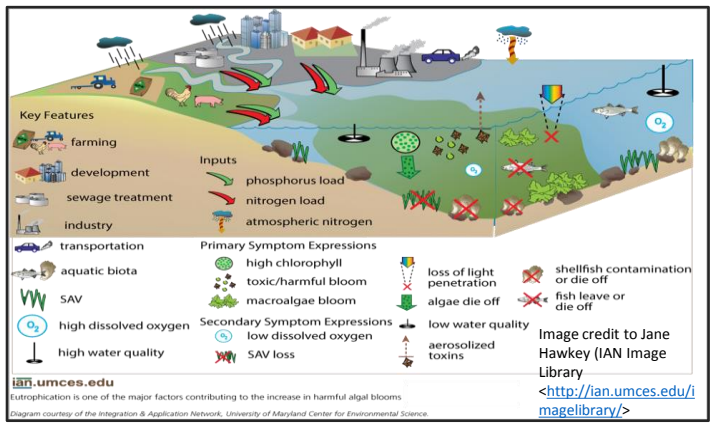
The Pawcatuck River forms the boundary between Connecticut and Rhode Island from its lower freshwater reaches continuing through the Pawcatuck estuary. Significant portions of the Pawcatuck estuary are impacted by nutrient pollution. Excessive nutrients are causing nuisance macro-algae that contributes to conditions where eelgrass cannot grow. Under these conditions, habitat for fish (at all life stages) and other aquatic organisms suffers, as do recreational uses and even waterfront property values.

Photos courtesy of Sally Cogan from CUSH: left Cladrophora near Elihu Island Causeway, (right) Cladophora growth on surface displayed on rake.

State and federal regulators are addressing nutrient-caused impairments, but more information is needed to develop a plan. This bi-state project will generate the information on sources of nutrient loading that contribute to the impairments in the Pawcatuck estuary.

Eutrophication Issues

Eutrophication occurs when excess nitrogen flows into an estuary causing algal blooms and low oxygen waters near the shore. The sources of nitrogen include: fertilizer, wastewater treatment plants, agriculture, atmospheric deposition, and other wastes and runoff.



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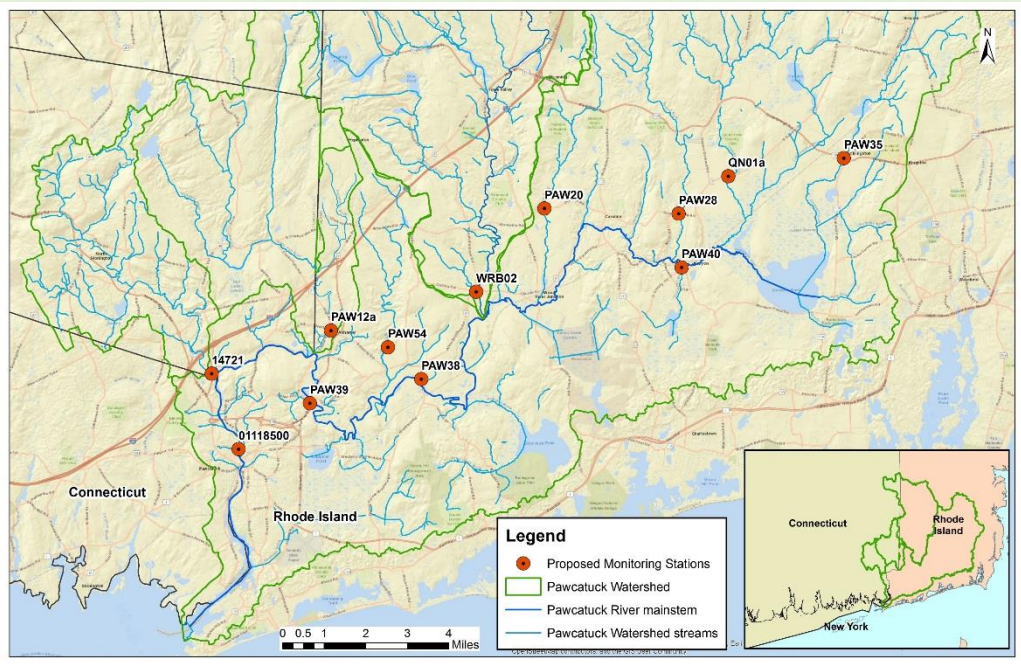
Project Objectives

- Collect water quality data on the Pawcatuck River and tributaries
- Develop and enhance watershed model based on water quality data
- Collaborate with invested groups and citizens, including municipalities
- Connect potential nutrient loading sources to Pawcatuck estuary



Project Tasks

- Data Collection - Water samples will be collected from 12-14 monitoring stations on a regular basis on the Pawcatuck River and its tributaries. The objective of the monitoring is to generate water quality data that characterizes a range of flow conditions, weather, and seasons from locations throughout the watershed.
- Watershed Model - The use of watershed models is beneficial for water quality programs for two major reasons: extension of limited data collection capabilities due to resource reductions and the possibility to predict and evaluate watershed responses to changes in future conditions. The HSPF model was selected for this Pawcatuck project as it has been widely used for analyzing water quantity and quality in support of developing action plans and implementation efforts.

Bi-State Collaborative Effort

This project features collaborative work between CT DEEP and RIDEM to generate water quality data to develop and enhance a watershed model to evaluate nutrient loads in the Pawcatuck. Save the Bay is a local non-profit dedicated to a healthy Narragansett Bay and other RI and southeastern CT coastal waters such as the Pawcatuck estuary. They have signed on as a partner with this project, providing assistance with monitoring and public outreach efforts.

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