Increase of Nitrate in the Pawcatuck River

UCONN MARINE SCIENCES

Sarah Burnham, Kaitlyn Tripp, Lucas Williams

University of Connecticut Avery Point

WOOD-PAWCATUCK WATERSHED ASSOCIATION

Introduction

- Nitrate is an essential plant nutrient.
- Nitrate pollution in waterways results from fertilizer use, industrial discharge, and septic seepage.
- Waterways in forested areas are characterized by low nitrate.

Objectives

Investigate nitrate in the **Pawcatuck River** from data collected between 1988 to 2020 by the **Wood-Pawcatuck Watershed Association.**

- Where does nitrate originate?
- Is the Pawcatuck River becoming increasingly impacted?

Findings

- The Pawcatuck River is relatively **pristine at its origin** in Worden Pond and downstream at Biscuit City.
- **Nitrate increases** substantially at **Kenyon Industries** and downstream at Route 91 – due to **industrial discharge** and **fertilizer use** by turf farms.
- Nitrate decreases downriver at Burdickville & Bradford, reflecting dilution by the **Wood River**, which is comparatively **pristine**.
- **Nitrate** concentrations have **increased** steadily since 1988, especially at Route 91, directly downstream of Kenyon Industries and turf farms.

Acknowledgements

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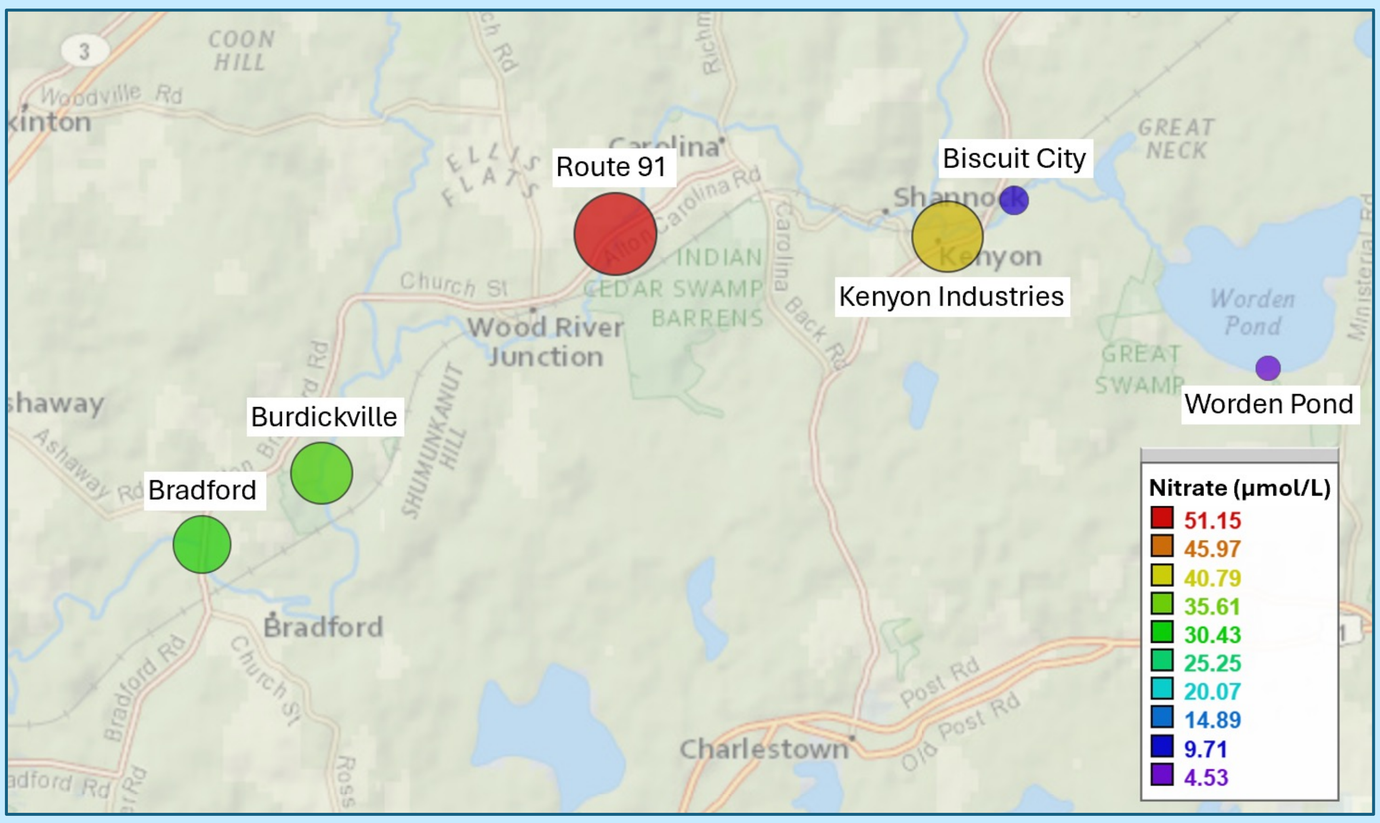

Figure 1. Average nitrate concentrations measured in spring to fall at stations along the Pawcatuck River from 2005-2020.

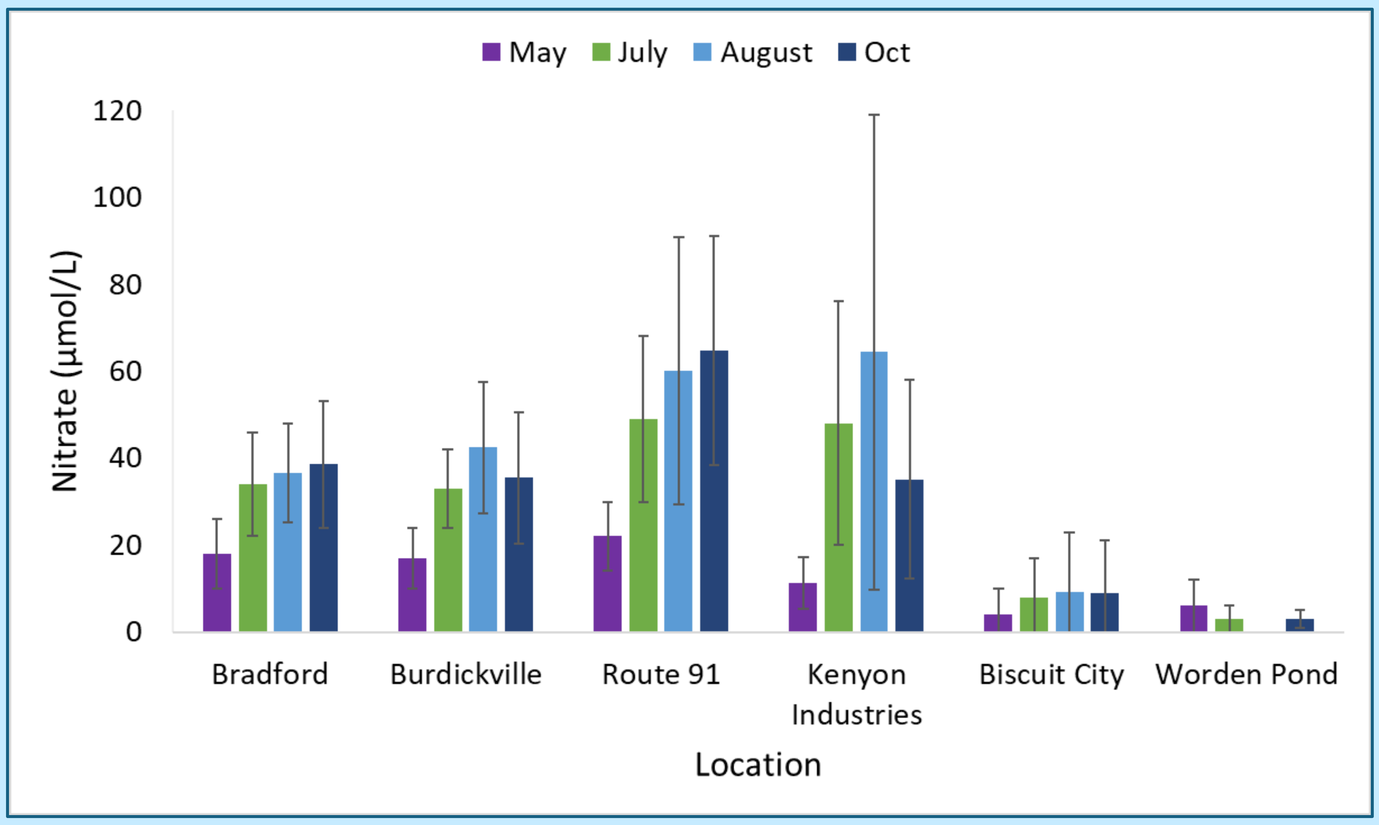

Figure 2. Average nitrate concentrations (± σ) at stations along the Pawcatuck River during the months of May, July, August, and October from 2003 to 2017.

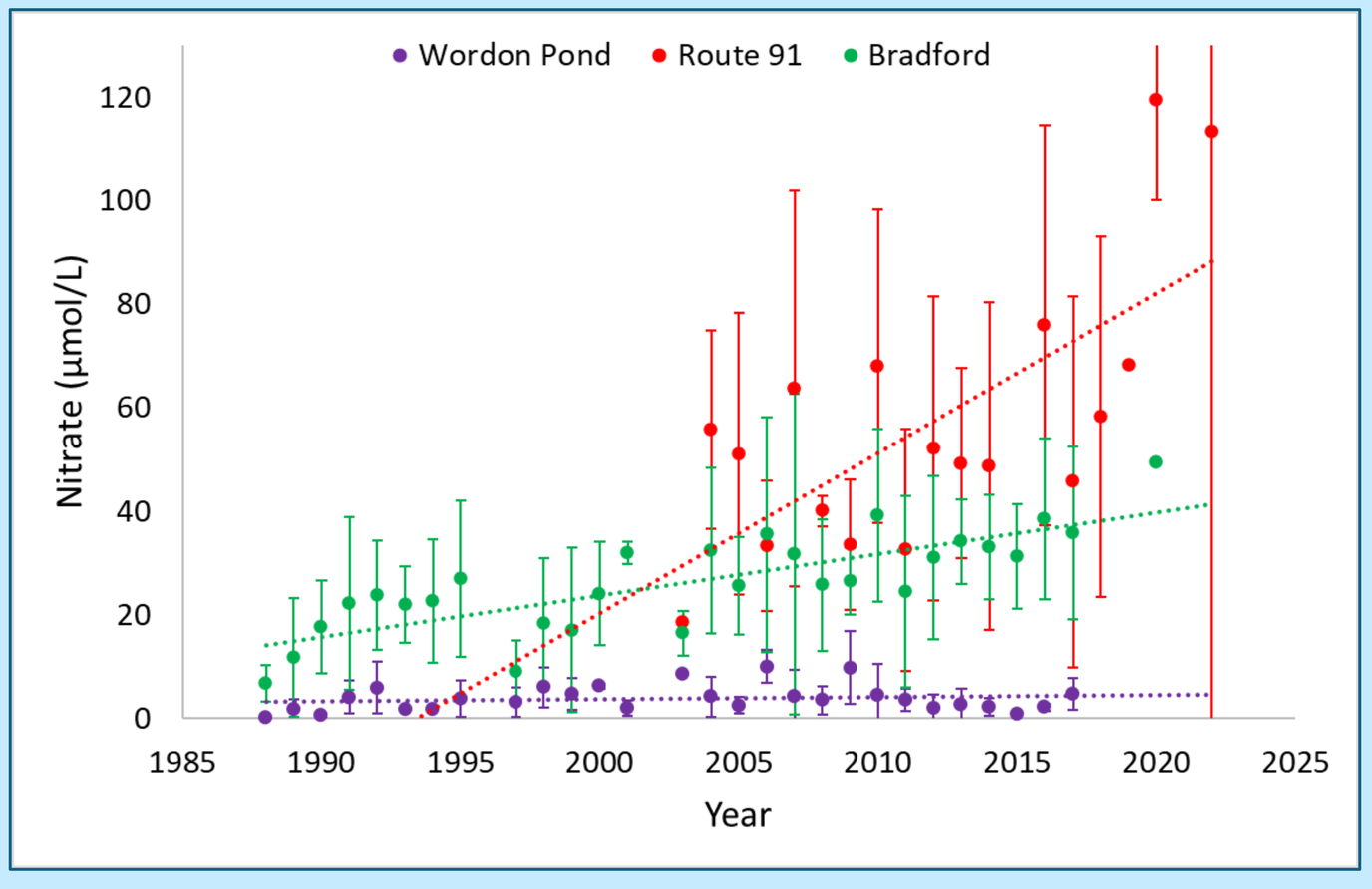

Figure 3. Average nitrate concentrations (± σ) from spring to fall between 1988 and 2020 at three stations along the Pawcatuck River.