

The Piscataqua Region Estuaries Partnership (PREP) and the City of Dover: Working Together for Clean Water

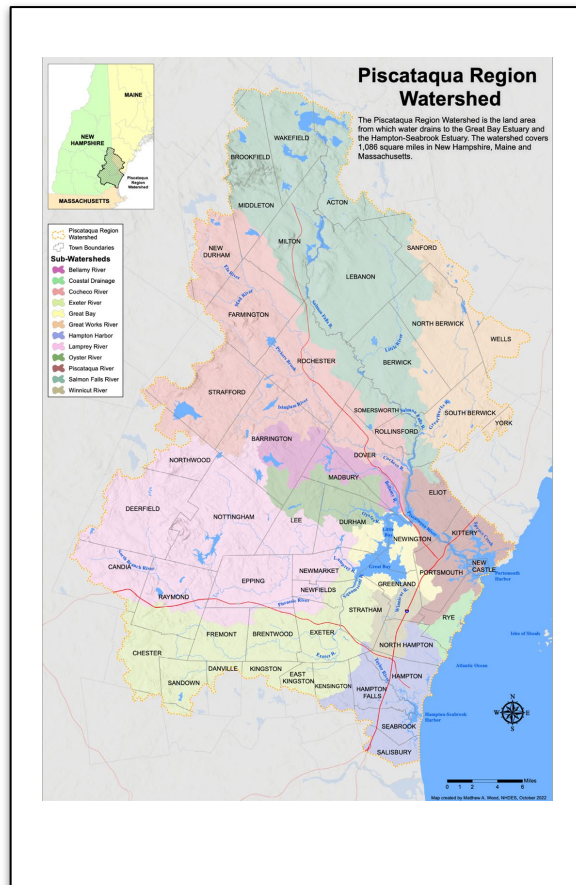
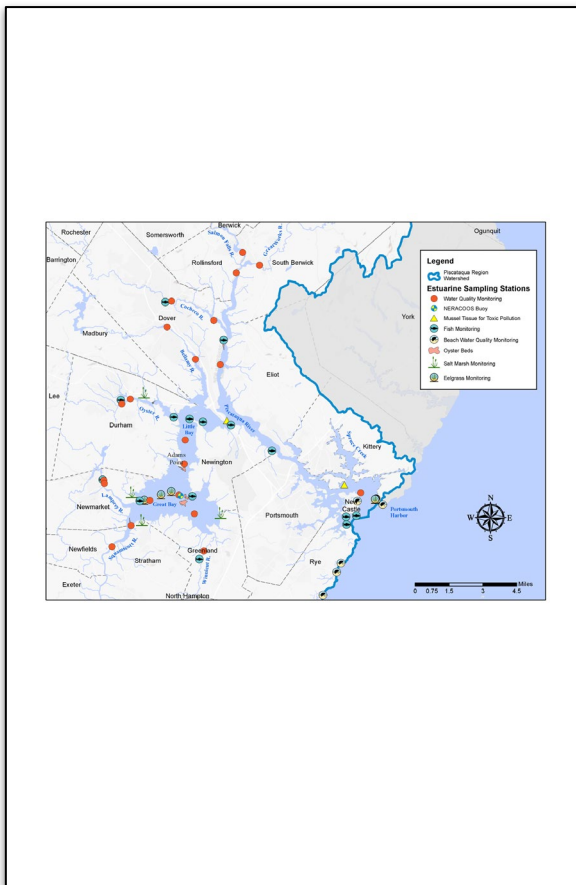
June 3, 2026



If You Remember Only This...

- PREP is funded by you, other municipalities and the EPA.
- We are non-regulatory.
- We seek to be open-minded with uncommon vigilance.
- We're curious about your perspective; we respect that you have many demands on your time and money.
- We're interested in addressing problems...not just describing them.

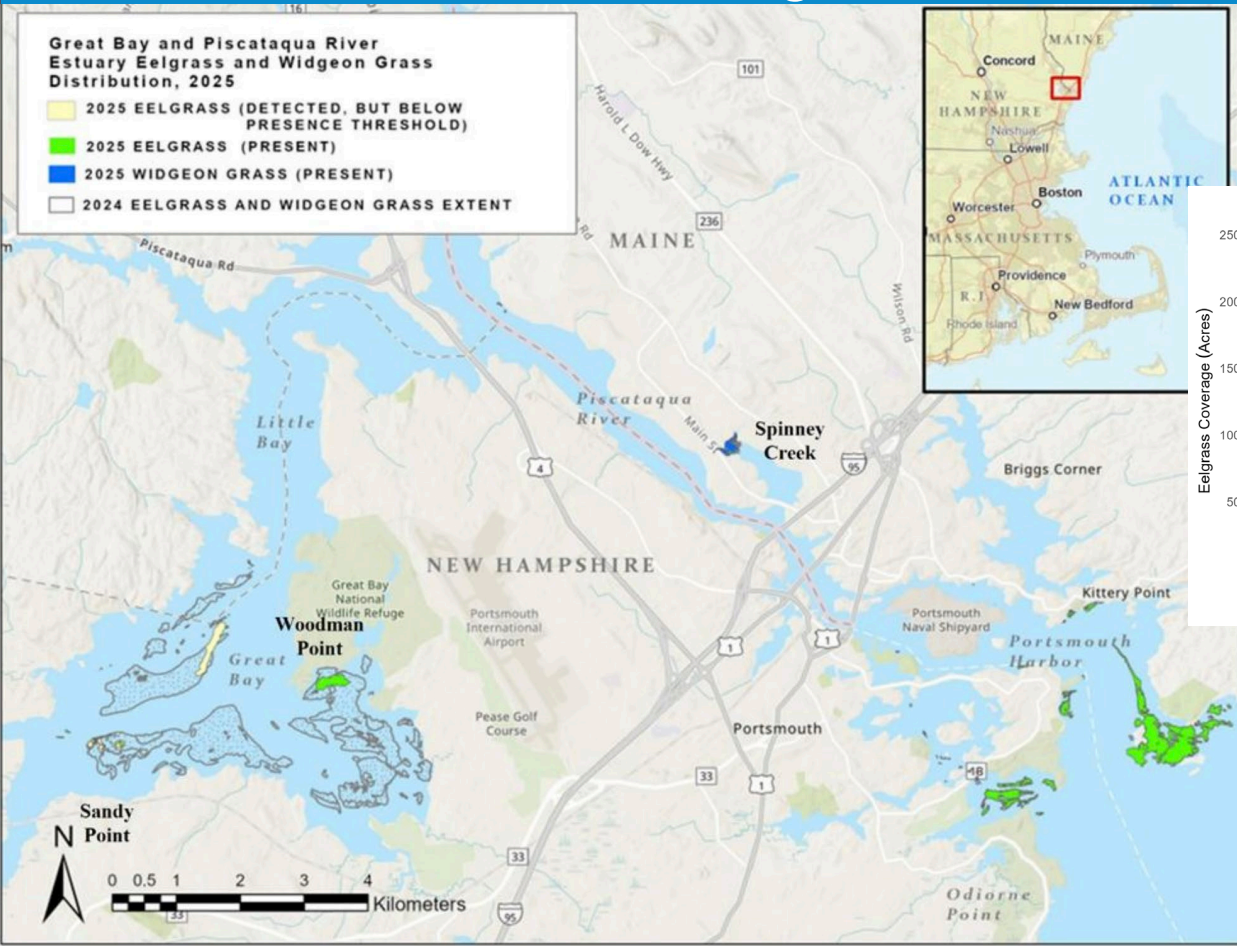
Estuarine Health Involves the Whole Watershed



So What Do We Do?

- Protect and Restore the Watershed
- We bring people together to...
 - Understand how the waters are doing and why.
 - We offer technical assistance and grants to address issues.

How We Understand: Eelgrass Loss and Cloudy Water



Great Bay Eelgrass Coverage 1980 - 2025



Portsmouth Harbor



Pisc River
(near Gen. Sullivan Bridge)



Western Great Bay
(off Newmarket)



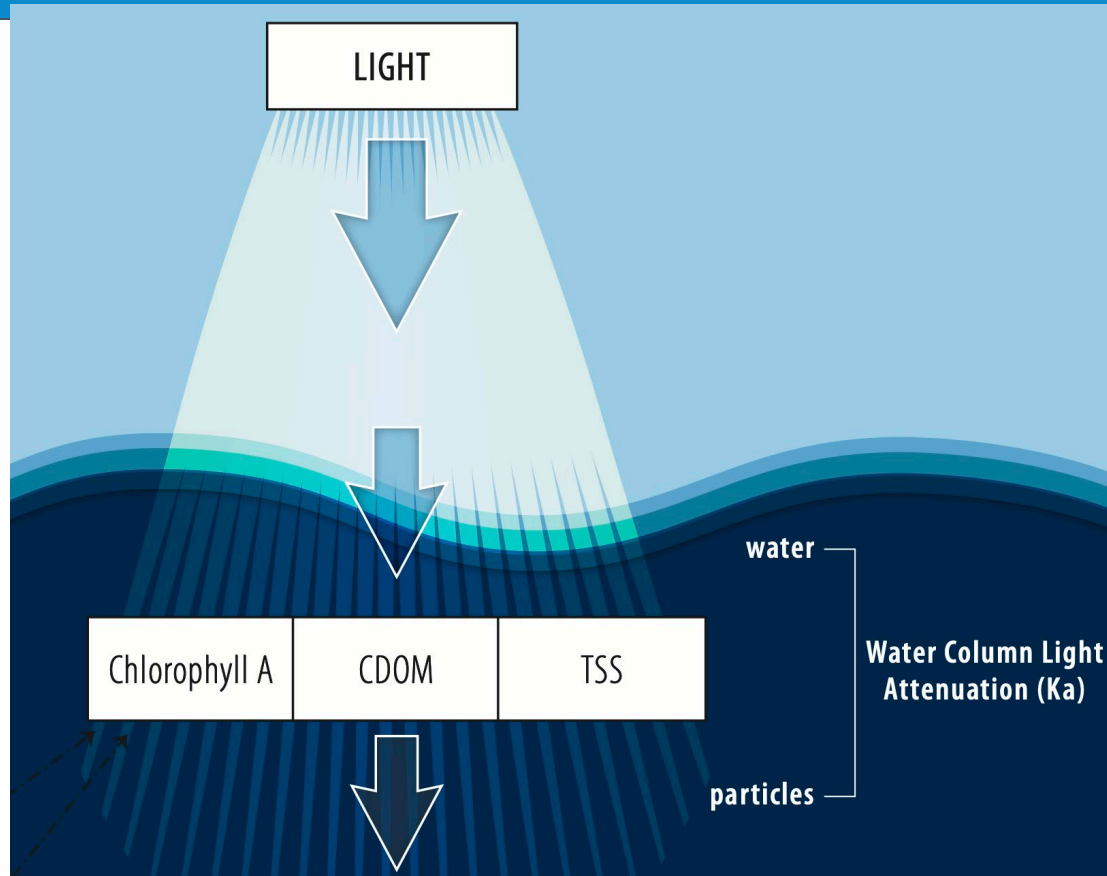
Video, Portsmouth Harbor, May 2026



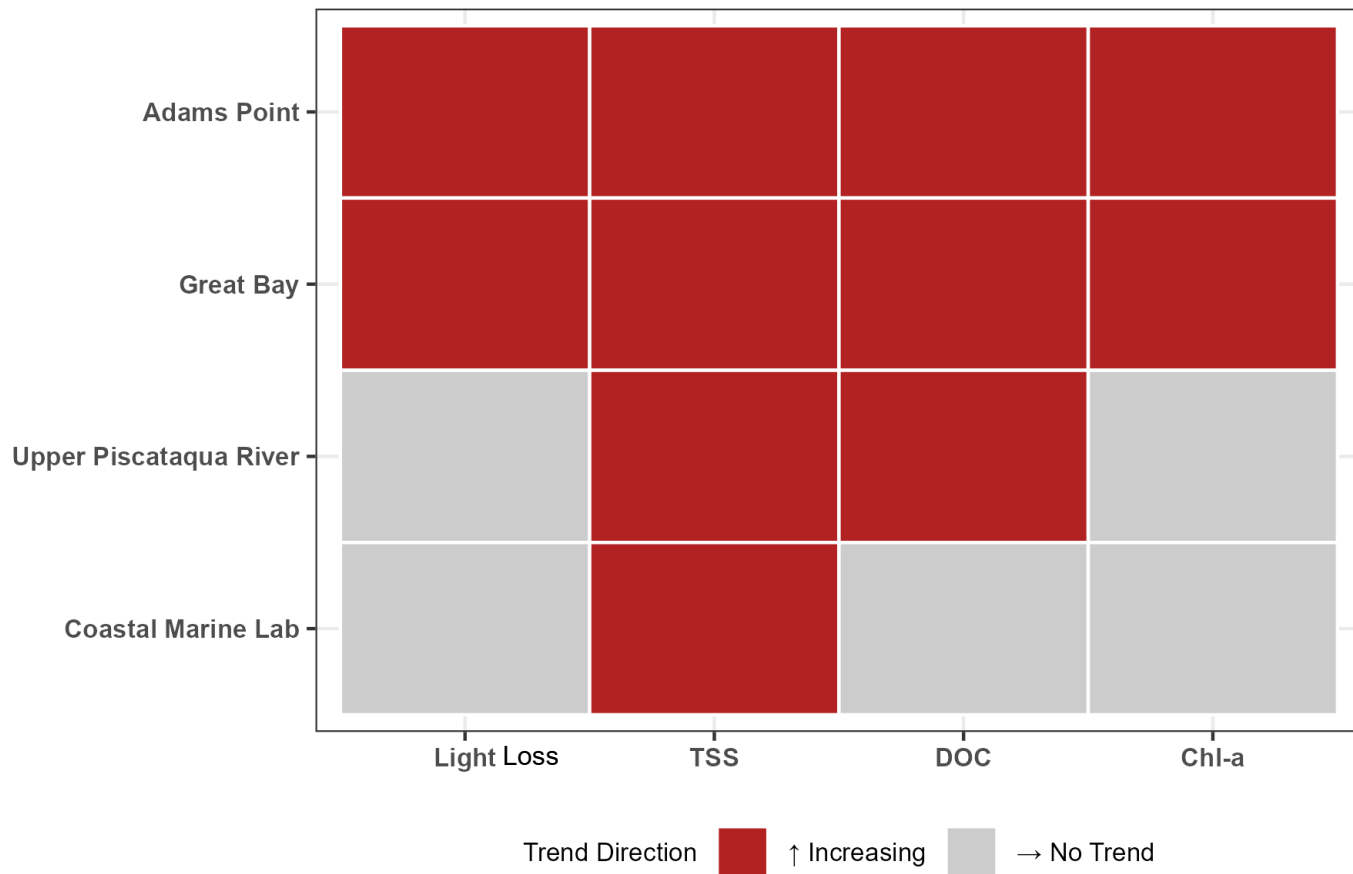
Video, Great Bay, May 2026



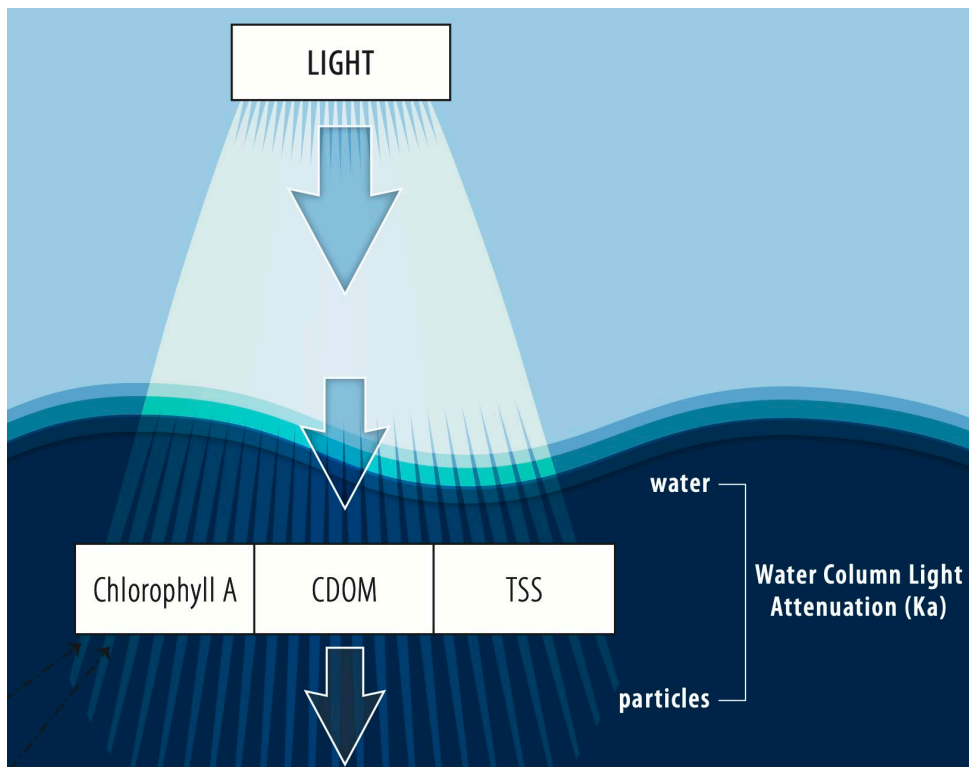
What Increases Light Attenuation (K_d)?



As We Move Upriver from P Harbor, All 3 Components are Increasing



What Do We Do About it?



Management Implications

- Chlorophyll A
 - Decrease nitrogen, phosphorus, organic matter
 - CDOM (?)
 - TSS
 - Same as
- Plus, decrease sediments

Let The Water Infiltrate!

- We can make the waters clearer by continuing to reduce nutrients, conserve land, strengthen buffers, control stormwater and develop in ways that allow water infiltration.

Technical Assistance and Grants

Piscataqua Region Environmental Planning Assessment (PREPA)

Get Ideas For Your Grant: Explore The Data By Municipality In The PREPA Assessment

Recommended Actions

The actions below are not meant to be exhaustive but reflect a menu of prioritized recommendations for communities. Actions are directly related to the questions found on the PREPA assessment forms and reflects both regulatory and non-regulatory actions. PREP is committed to assisting communities and is requesting proposals for the [2026 PREPA Grant Program](#) from municipalities and partnering organizations for projects resulting in achievement or significant progress toward achievement of one or more of the following recommended actions.

Select a Municipality

Acton

Download Data for Acton

1

Work with landowner to conserve land

2

Adopt an Open Space Plan

3

Develop a septic system inventory & conduct septic maintenance outreach

4

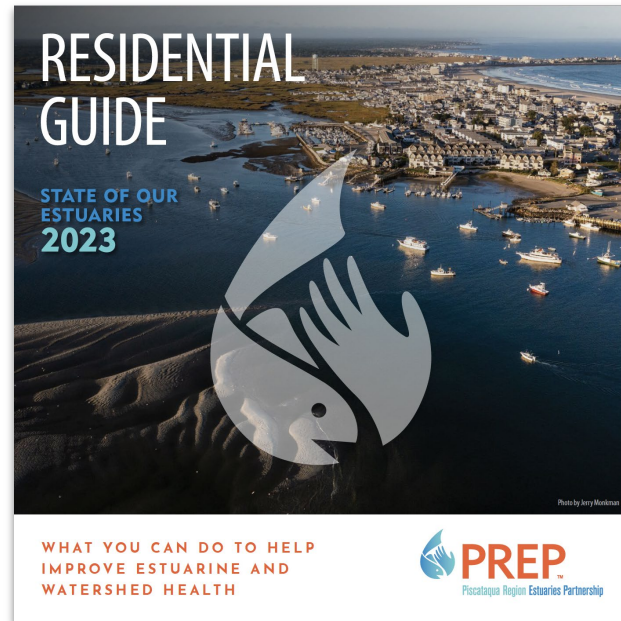
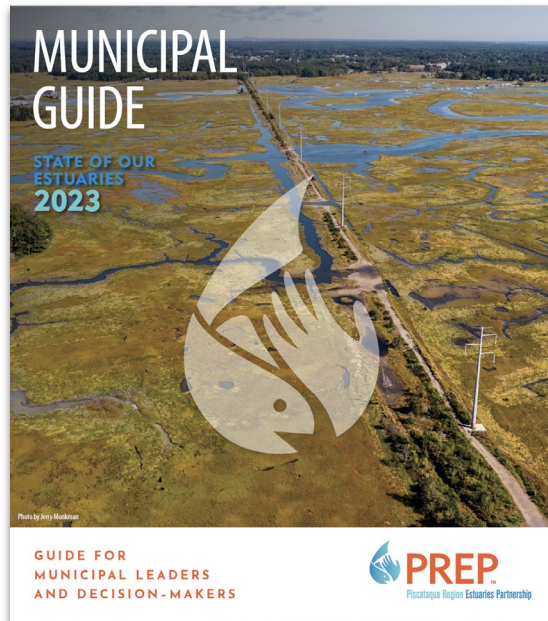
Increase shoreland and wetland setbacks to 100 feet

Funding & Technical Assistance Opportunities

- PREPA Grant Program (due June 16)
- PREPA Data & Recommendations
- Stormwater Toolkit
- Project Builder - technical assistance (due July 1)
- Climate Impact Grants (opening in Aug)

State of Our Estuaries

& How We Can Improve Them





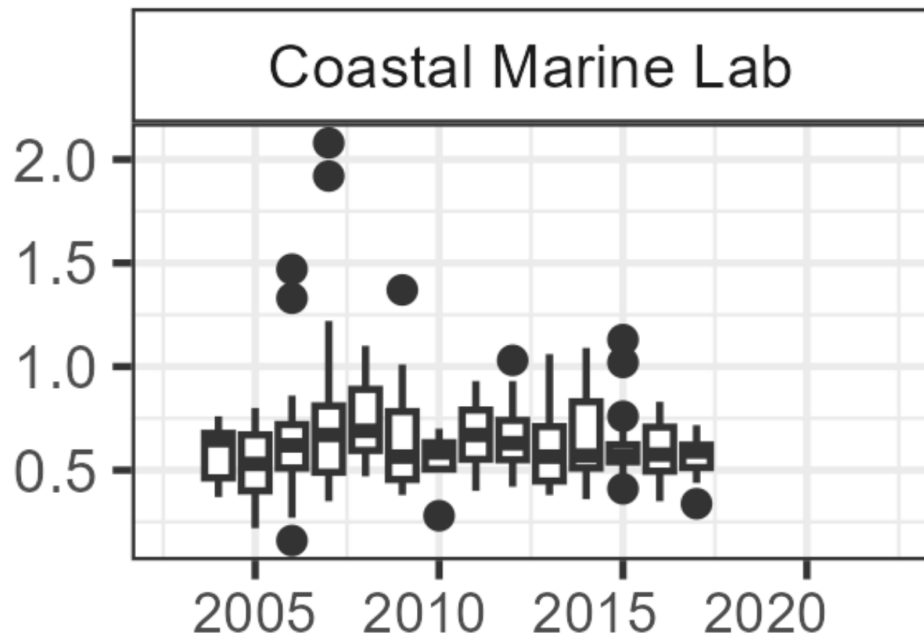
This has been a lot. What are your
thoughts?



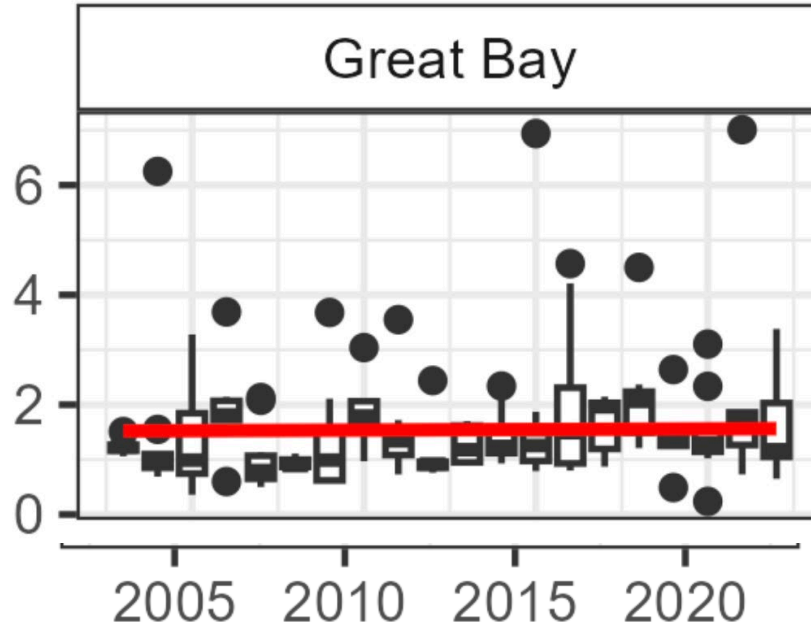
PREPTM

Piscataqua Region Estuaries Partnership

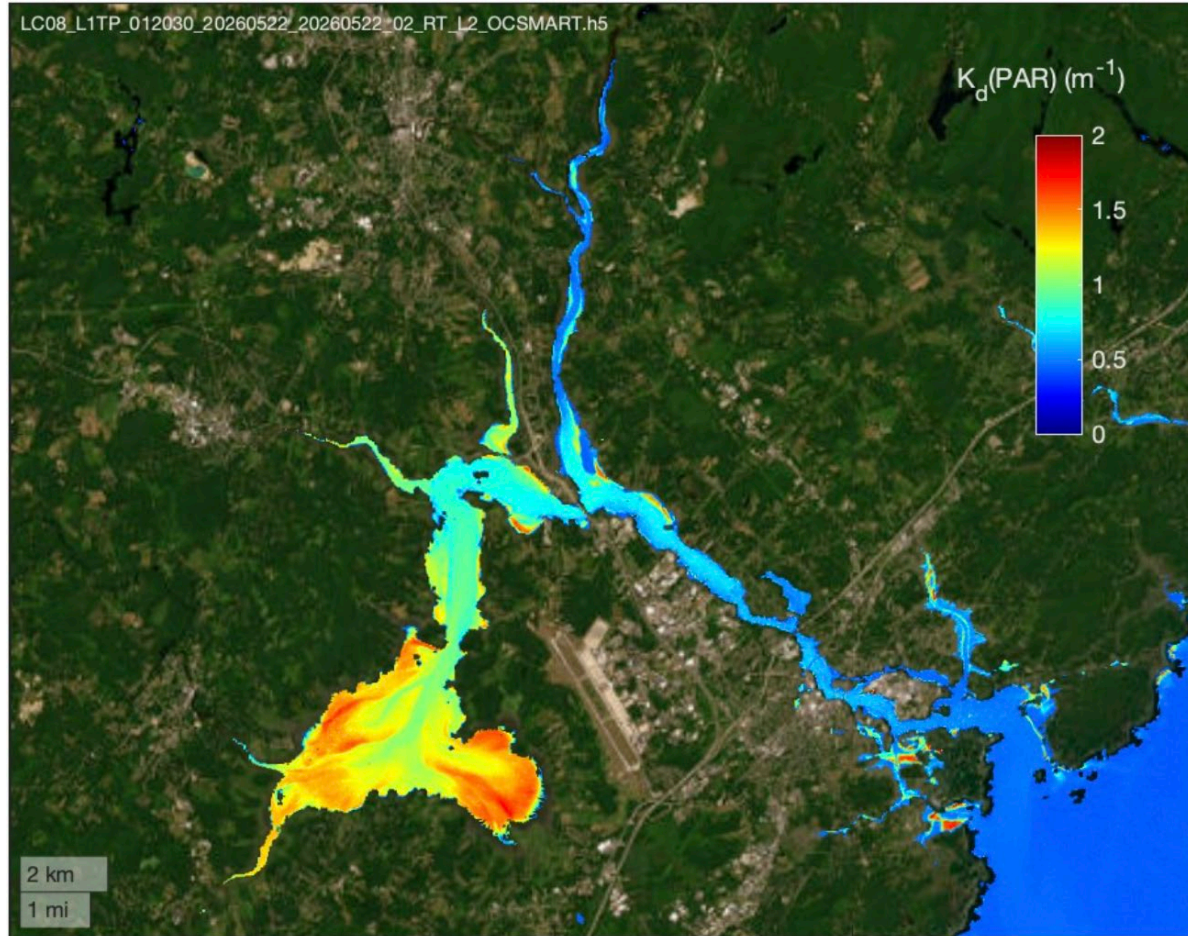
Light Attenuation or K_d , Portsmouth Harbor, 2004 - 2017



Light Attenuation or K_d , Great Bay, 2003 - 2022



Kd Derived from Satellite May 22, 2026



Assuming Equal Proportions...How to Manage?

Management Implications

- Chlorophyll A
 - *Nutrient reduction*
- TSS, Total Suspended Solids
 - Decrease sediments from land and rivers and internal sediments (resuspension)
 - Decrease particulates: organic and inorganic debris, live and dead algae, eelgrass and other plants.

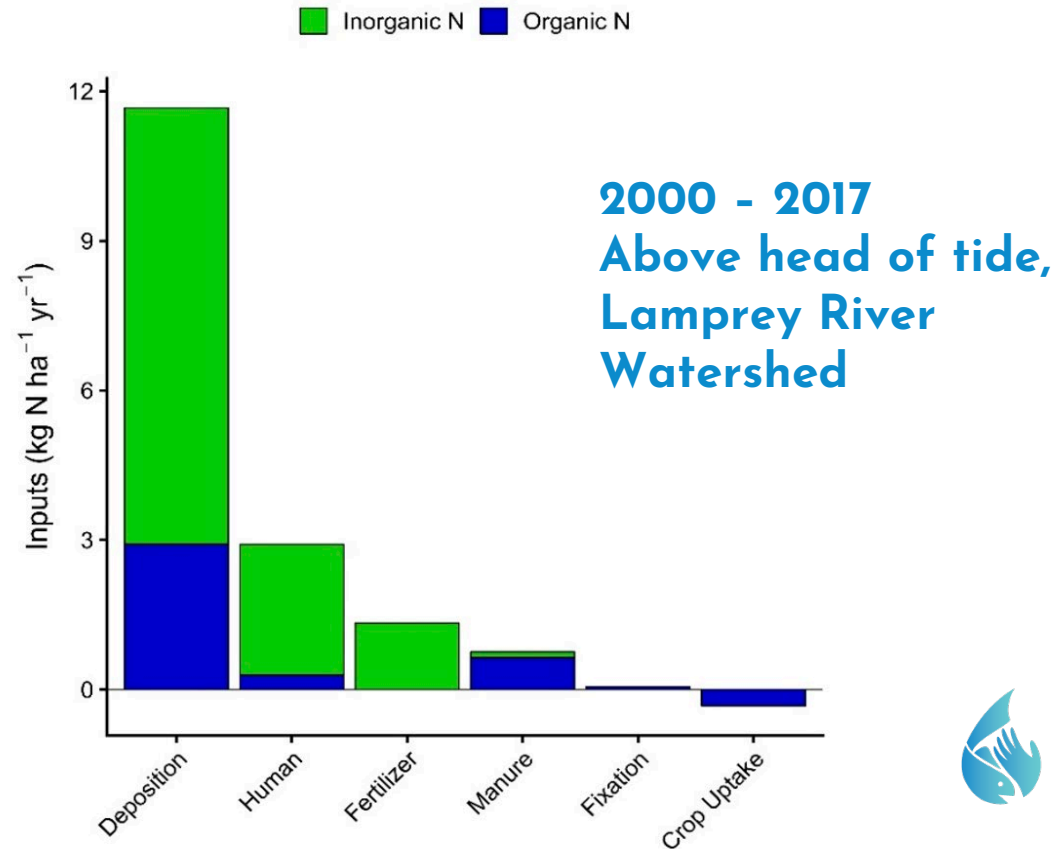
If You Remember Only 1 Thing

- reduce nutrients, conserve land, strengthen buffers, control stormwater and develop in ways that allow water infiltration.
- ...And Restoration!

And Are the Proportions Equal?

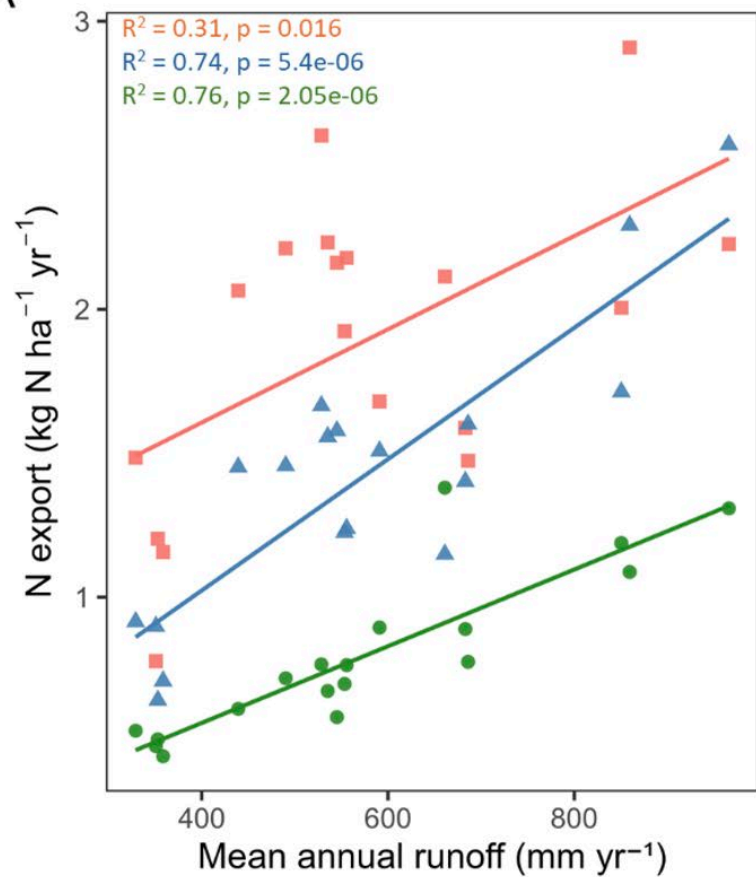
GBAY Chl 25%
GBAY TSS 40%
Pisc. Chl 15%
Pisc. TSS 40%

Lamprey River, Nitrogen Loading/Retention



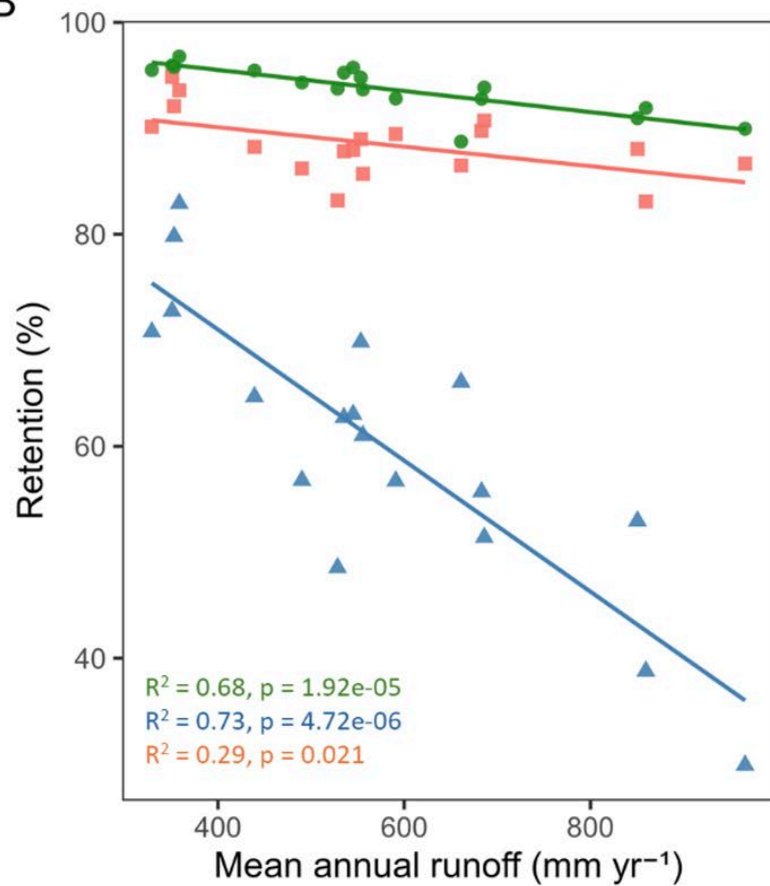
Clarisse Ishimwe, UNH
Lamprey River
Hydrological
Observatory, In Prep

A

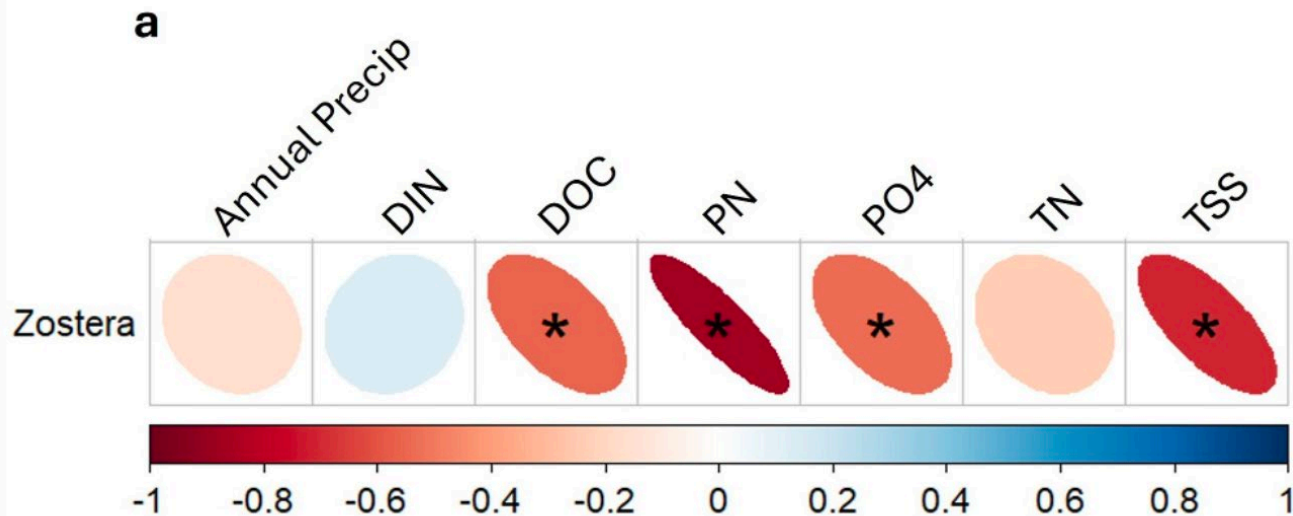


● Inorganic N
▲ Organic N
■ Total N

B



Great Bay (Proper) Input/Output Study



2008 - 2023
Inputs from
Winnicut,
Squamscott and
Lamprey versus what
leaves past Adams
Point

Mikulis et al., 2026
Journal of Geophysical
Research: Biogeosciences

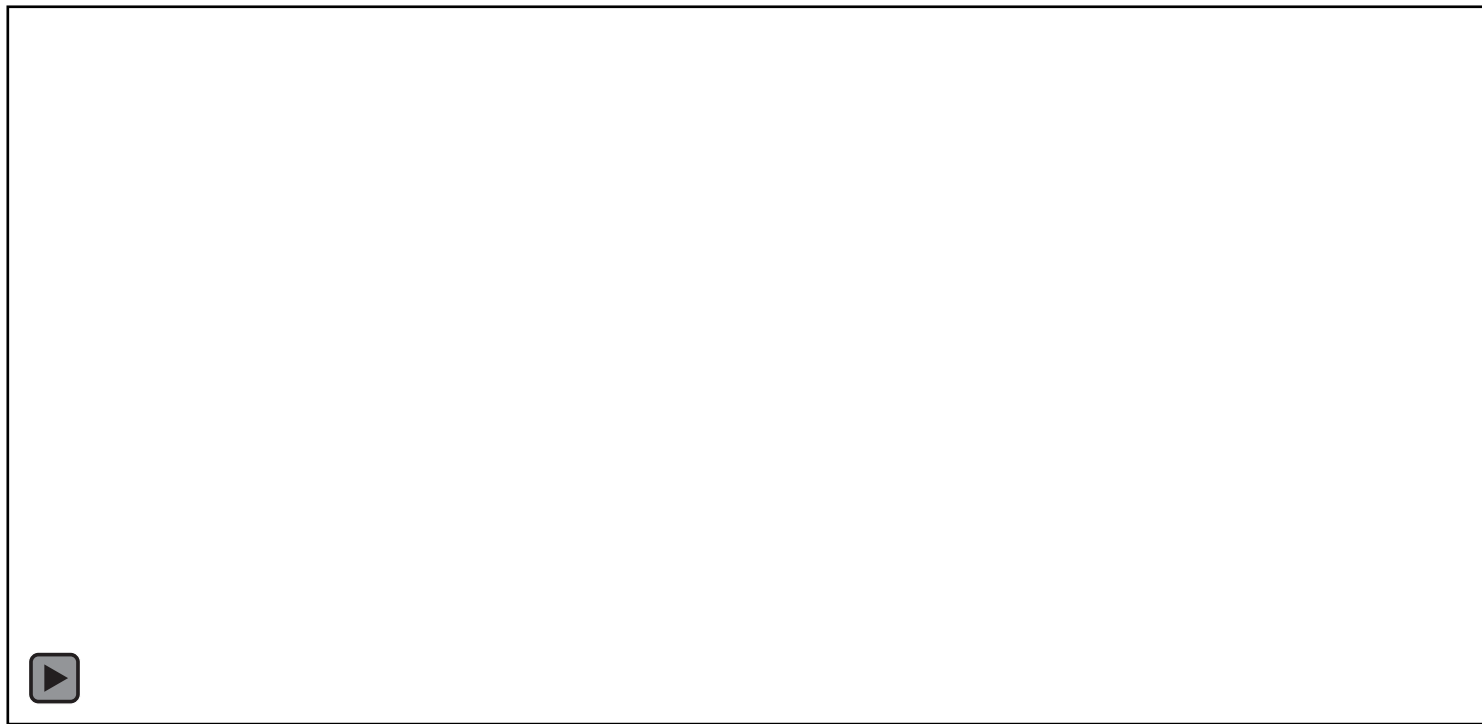
Seagrass coverage negatively correlated with inputs of DOC, PN, PO₄ and TSS, with PN and TSS explaining a significant amount of variability (69%). TSS inputs explained 37% of the variability in eelgrass decline.

If You Remember Only This...

- We can make the waters clearer by continuing to reduce nutrients, conserve land, strengthen buffers, control stormwater and develop in ways that allow water infiltration.
- Plus...
 - Scale UP Restoration!
 - Persistence and Patience

"Particulate N exported during high-runoff periods can settle and mineralize in estuarine sediments creating a delayed nutrient source."

Great Bay Hydrodynamics



<https://data.prepestuaries.org/shiny/particles/>

Nitrogen loading to the Great Bay Estuary

Source: PREP 2023 State of our Estuaries Report

