

A photograph of a salt marsh landscape. In the foreground, a narrow, shallow water channel flows through dense green marsh vegetation. The water is a muddy brown color. The marsh extends to the horizon under a clear sky. The text is overlaid on the right side of the image.

Marsh Resiliency and Restoration at Chase Garden Creek Salt Marsh

**Cape Cod Natural History
Conference 2025**

Molly Autery, Salt Marsh Specialist
The Association to Preserve Cape Cod



APCC
Association to
Preserve Cape Cod

Ecosystem Restoration Program

Assist Cape Cod communities with planning, monitoring, and implementing ecosystem restoration projects.

Chase Garden Creek Restoration Monitoring

Funding for this project is provided by the Lavori Sterling Foundation, Massachusetts Bays National Estuary Partnership, and private foundation support

Our Focus



NATIVE PLANT INITIATIVE



WATER QUALITY



CYANOBACTERIA
MONITORING



ENVIRONMENTAL
SUSTAINABILITY



HABITAT PROTECTION

Google Earth 2021

Cape Cod Bay

Chase Garden Creek

Main Street (6A)

Yarmouth Port



Salt marshes are **coastal wetlands** that provide many important services...

Habitat for Fish and Birds

Filter Nutrients and Pollutants

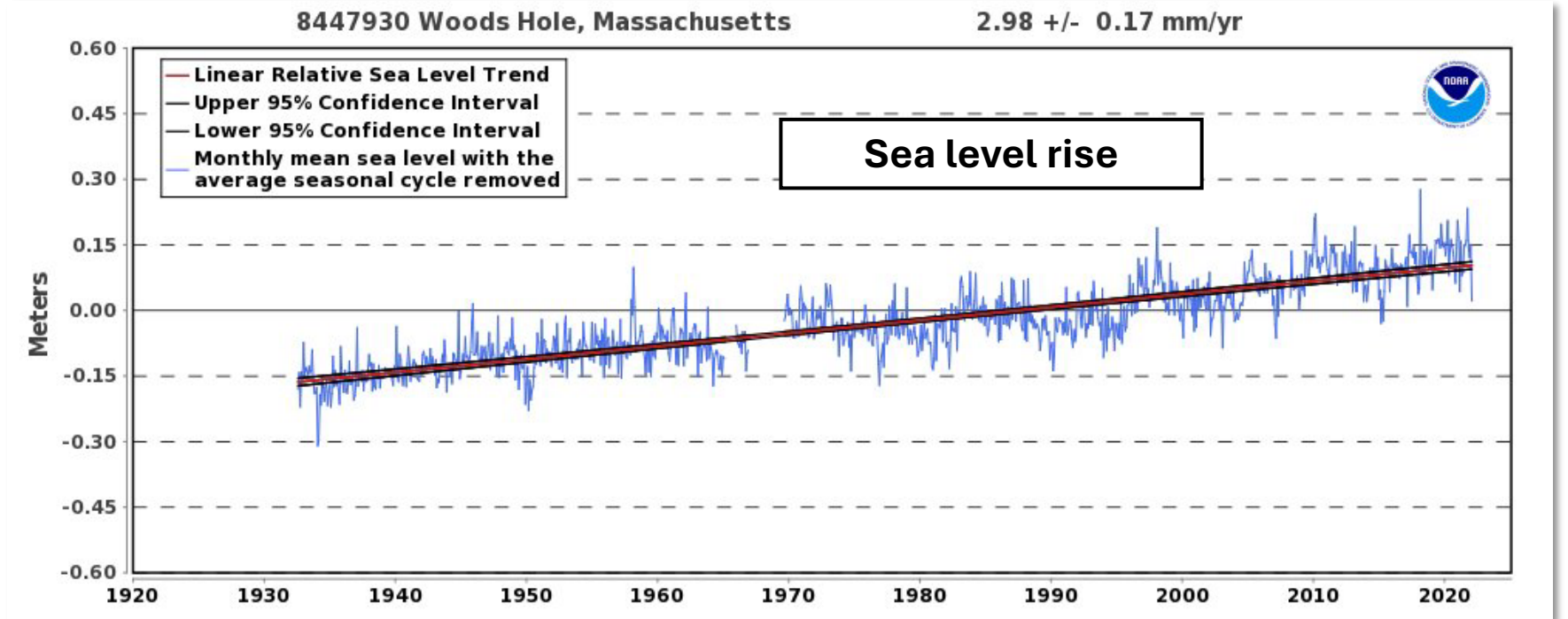
Buffer Storms

Recreation Space

Salt marsh grasses slow and dissipate wave energy

Without salt marsh, high wave energy causes coastal erosion and loss of property

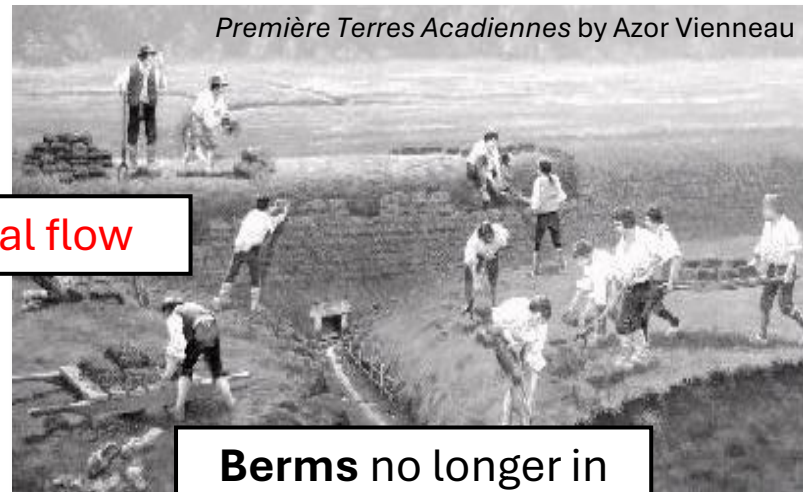
Salt marshes are **threatened** by climate change and certain activities...



Undersized dams and culverts



Restrict tidal flow



Berms no longer in use or maintained

Erosion and subsidence



Background and Project Goals

This multi-year project (2023 – 2027) aims to...

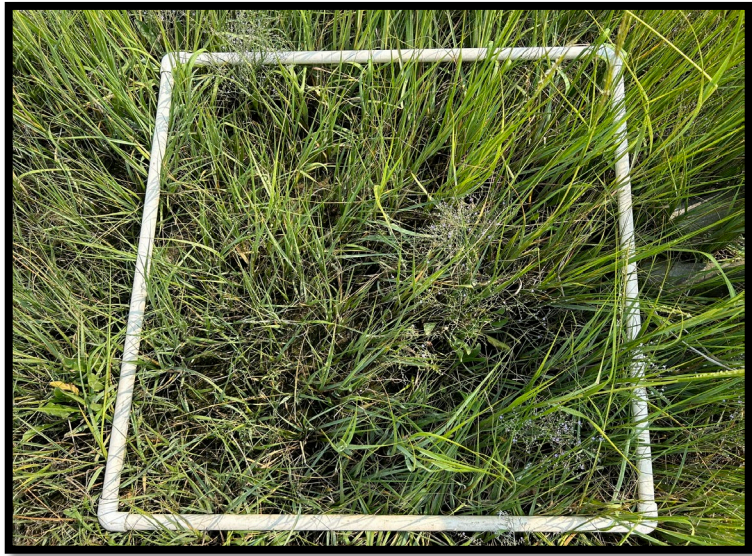
- Study **Chase Garden Creek** (what is causing erosion and subsidence?)
- Provide recommendations for **protection and restoration**
- Work towards **restoring** the marsh

APCC partnered with the **Center for Coastal Studies** (Provincetown, MA) to understand erosion and subsidence in the most vulnerable parts of the marsh



Methods: Salt Marsh Monitoring

Vegetation Quadrats

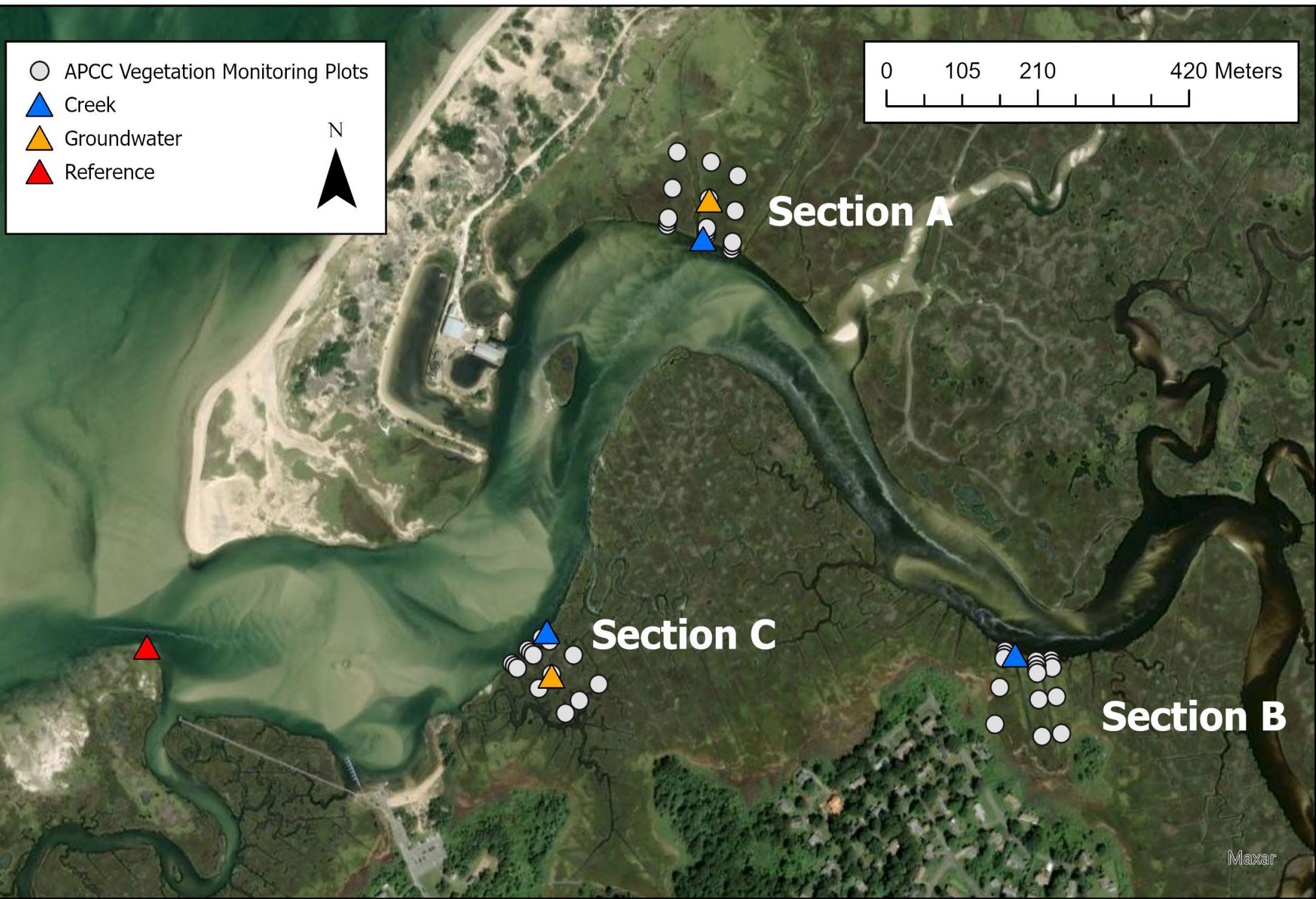


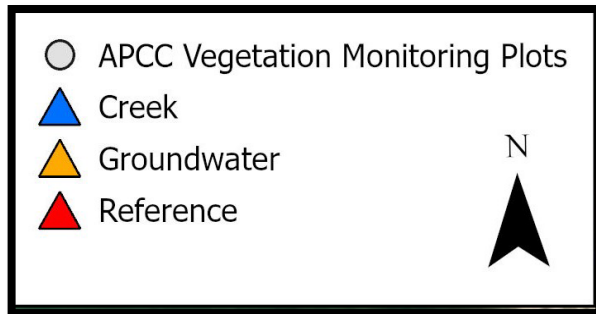
Sediment Traps



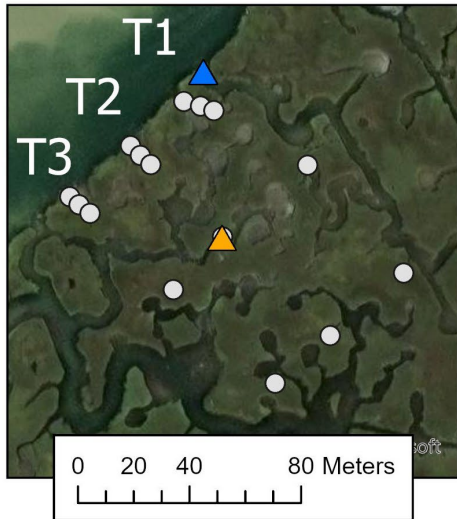
Loggers



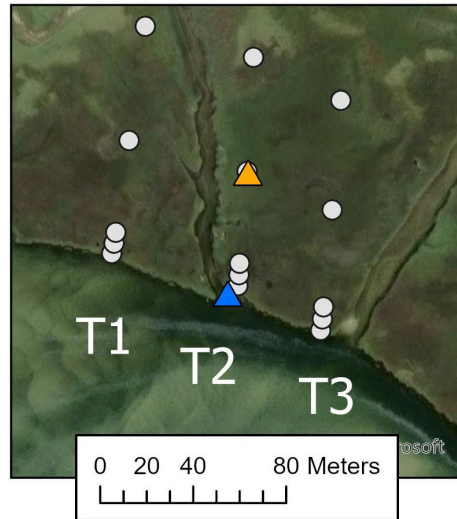




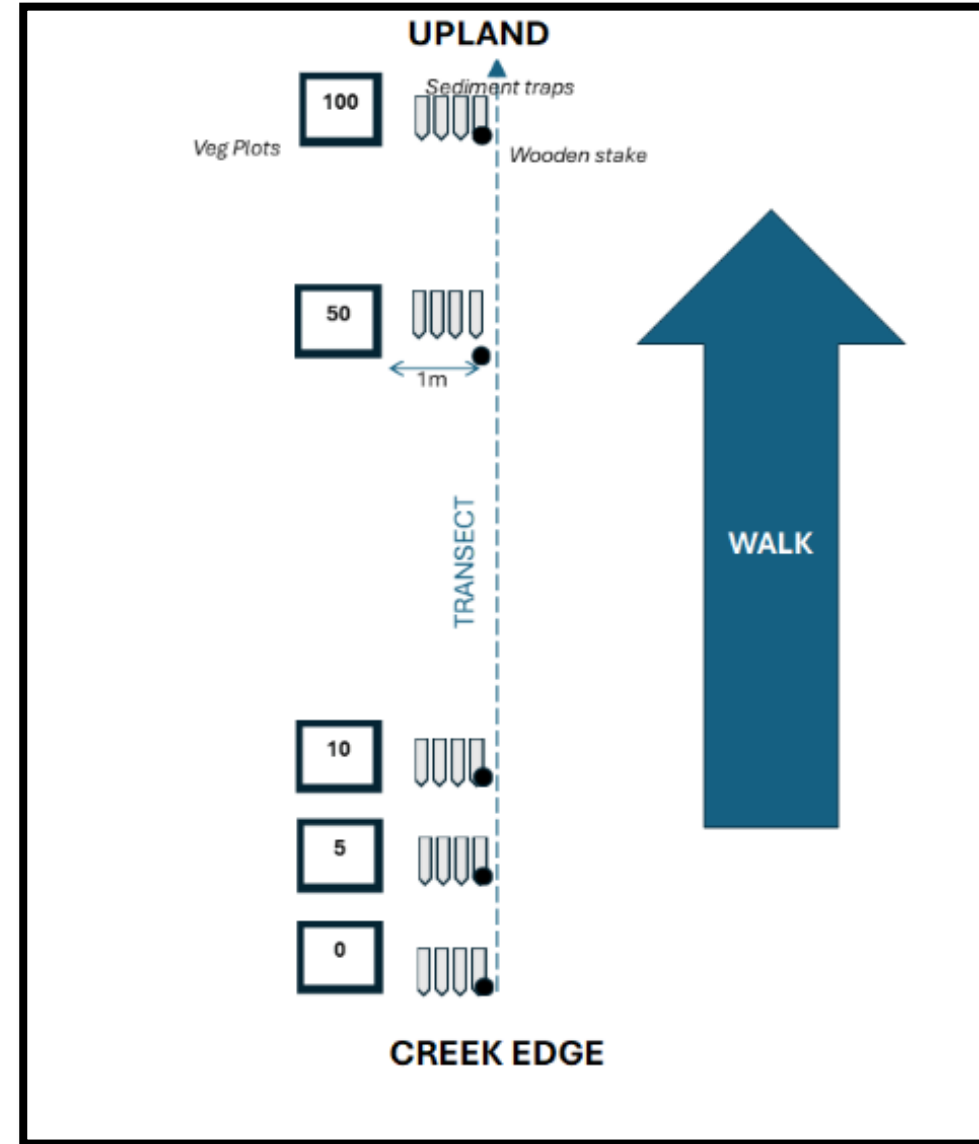
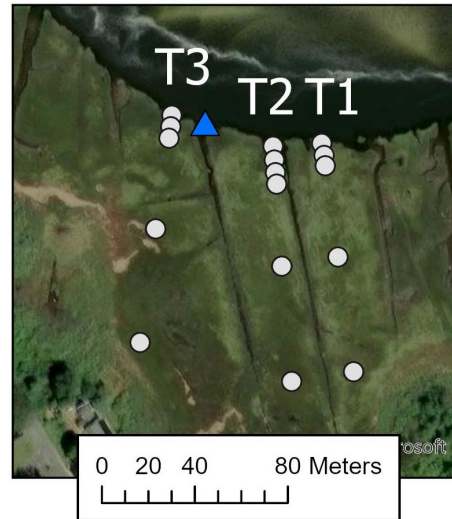
Section C



Section A

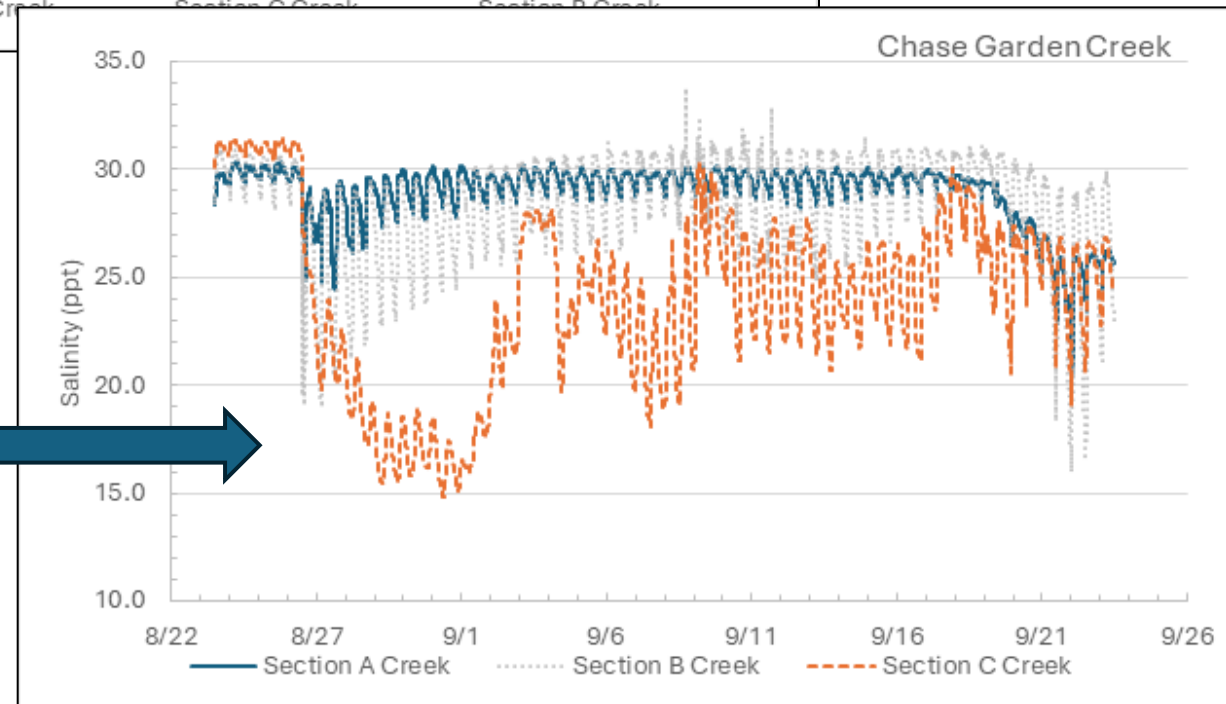
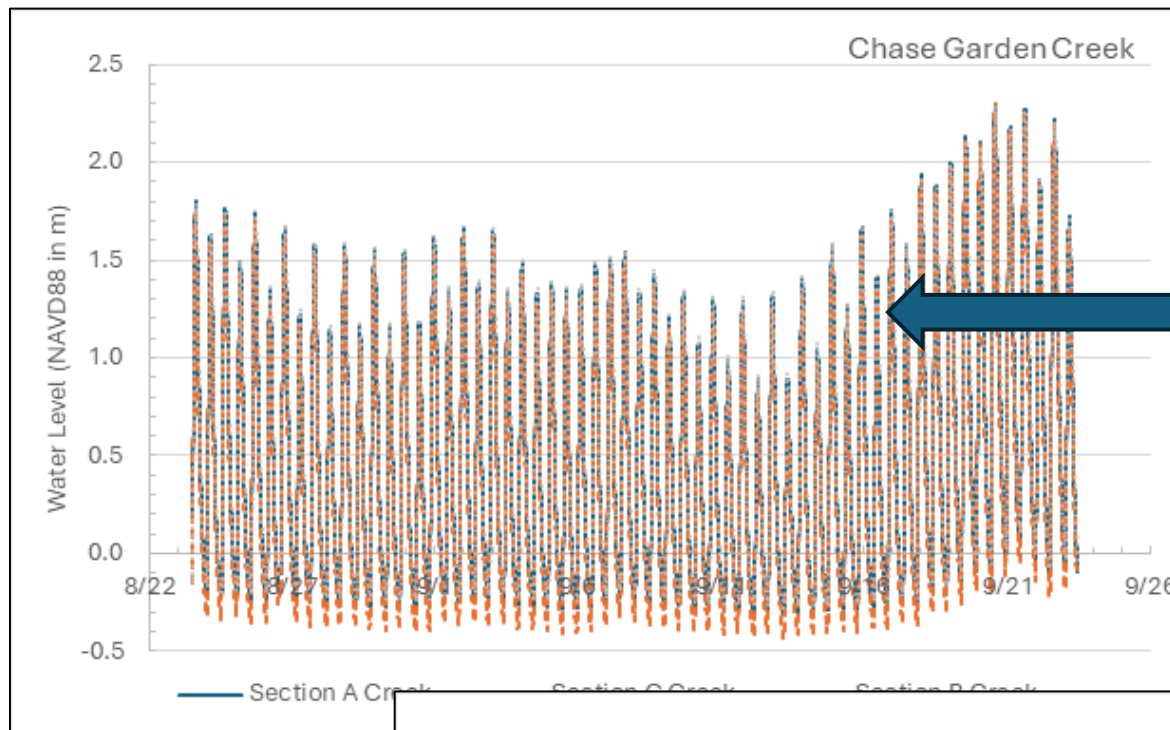


Section B



Surface Water Levels and Salinity

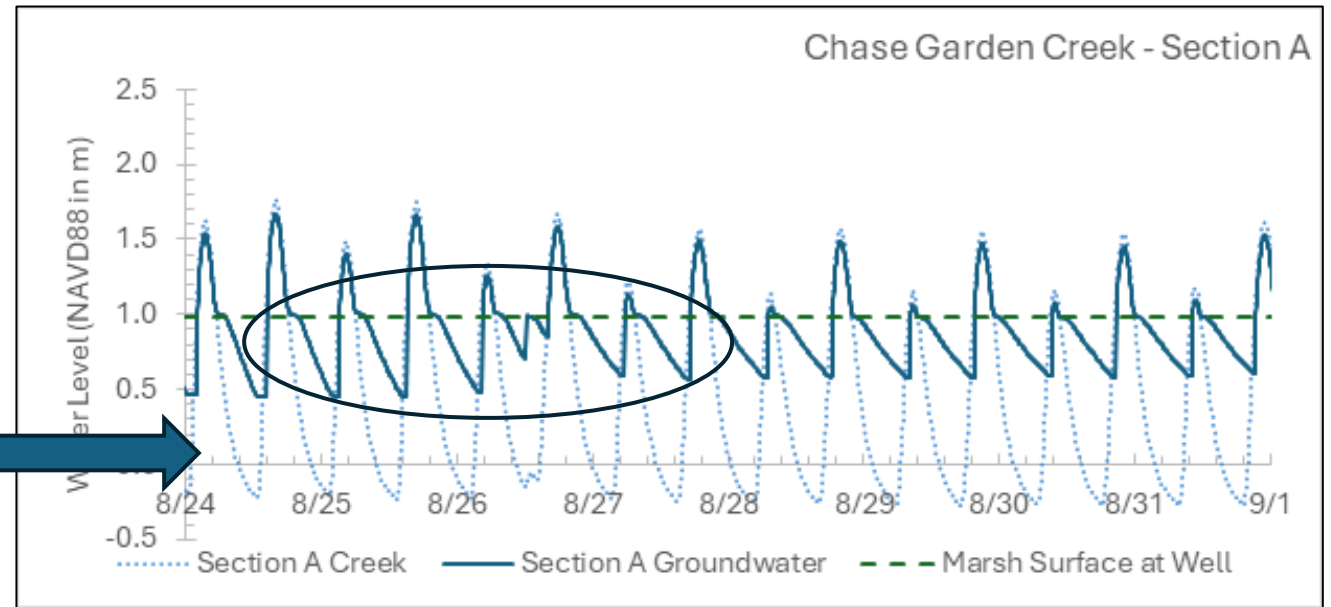
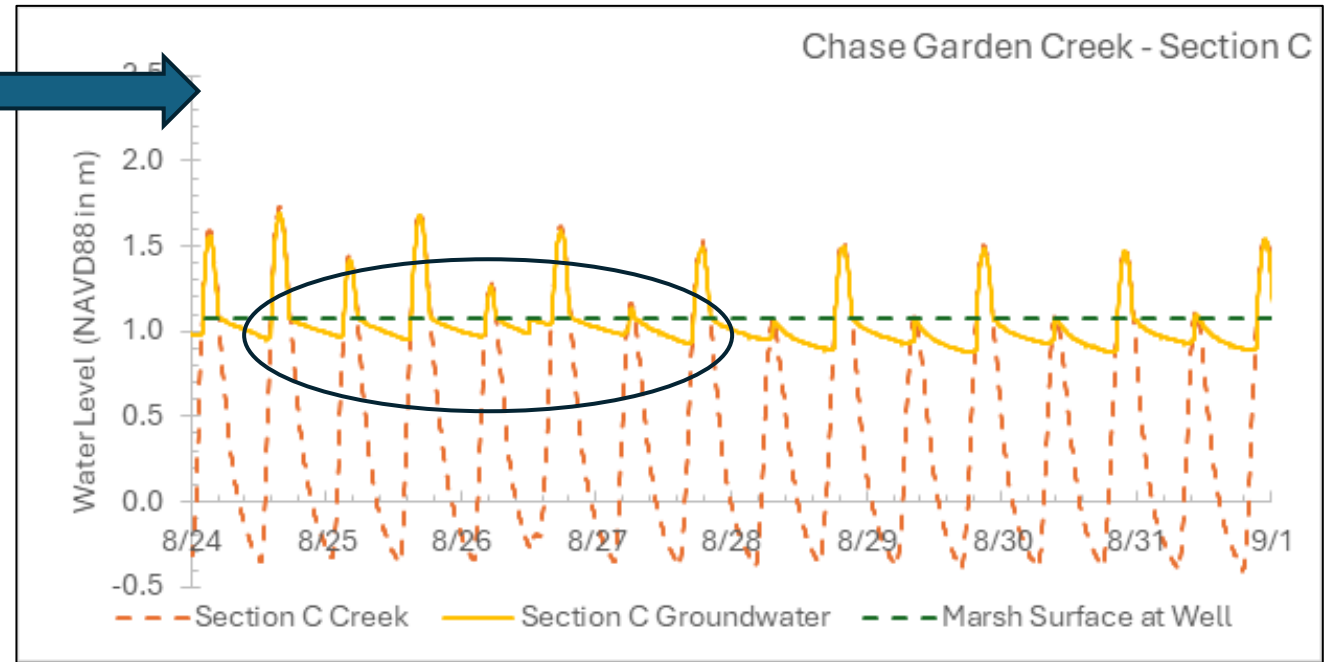
Variable salinity
(in response to a
rain event on 8/26)



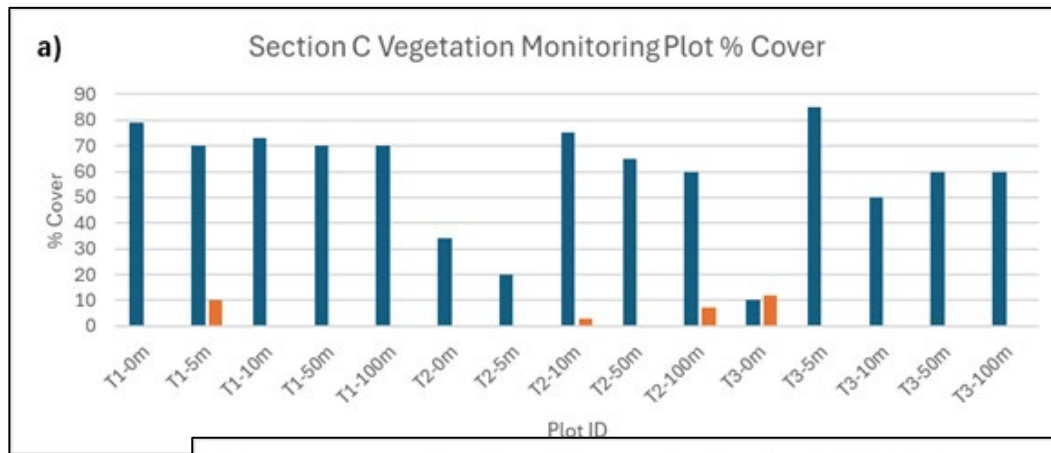
Drains slower
during low tides

Groundwater Levels

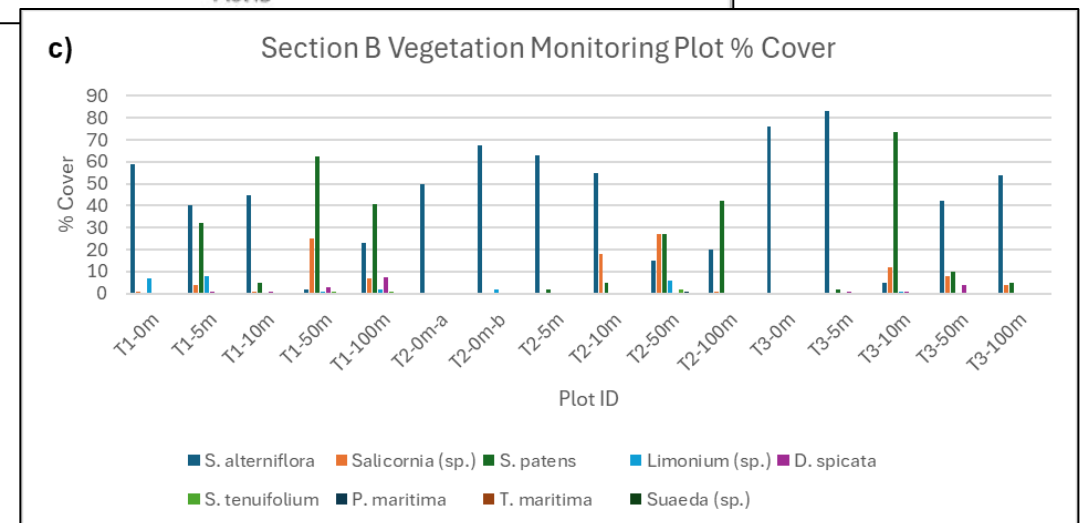
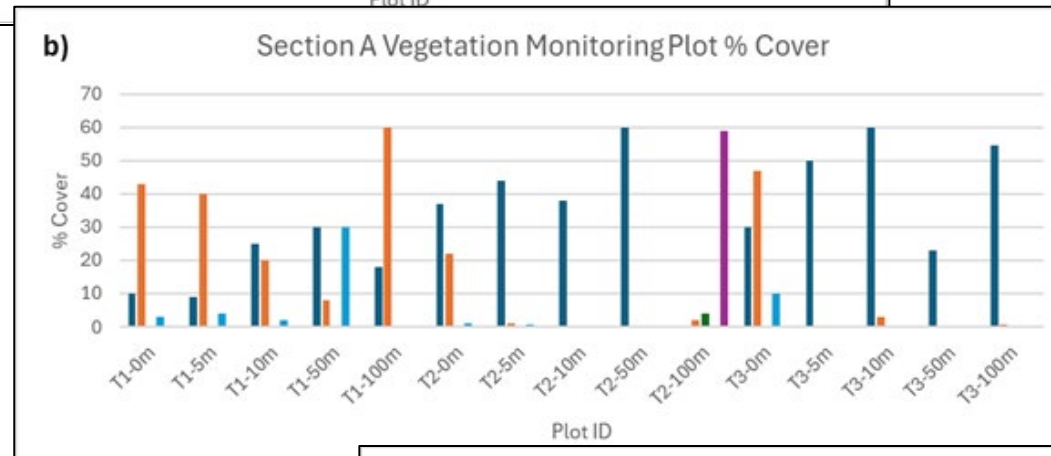
Drains faster during
low tides



Vegetation

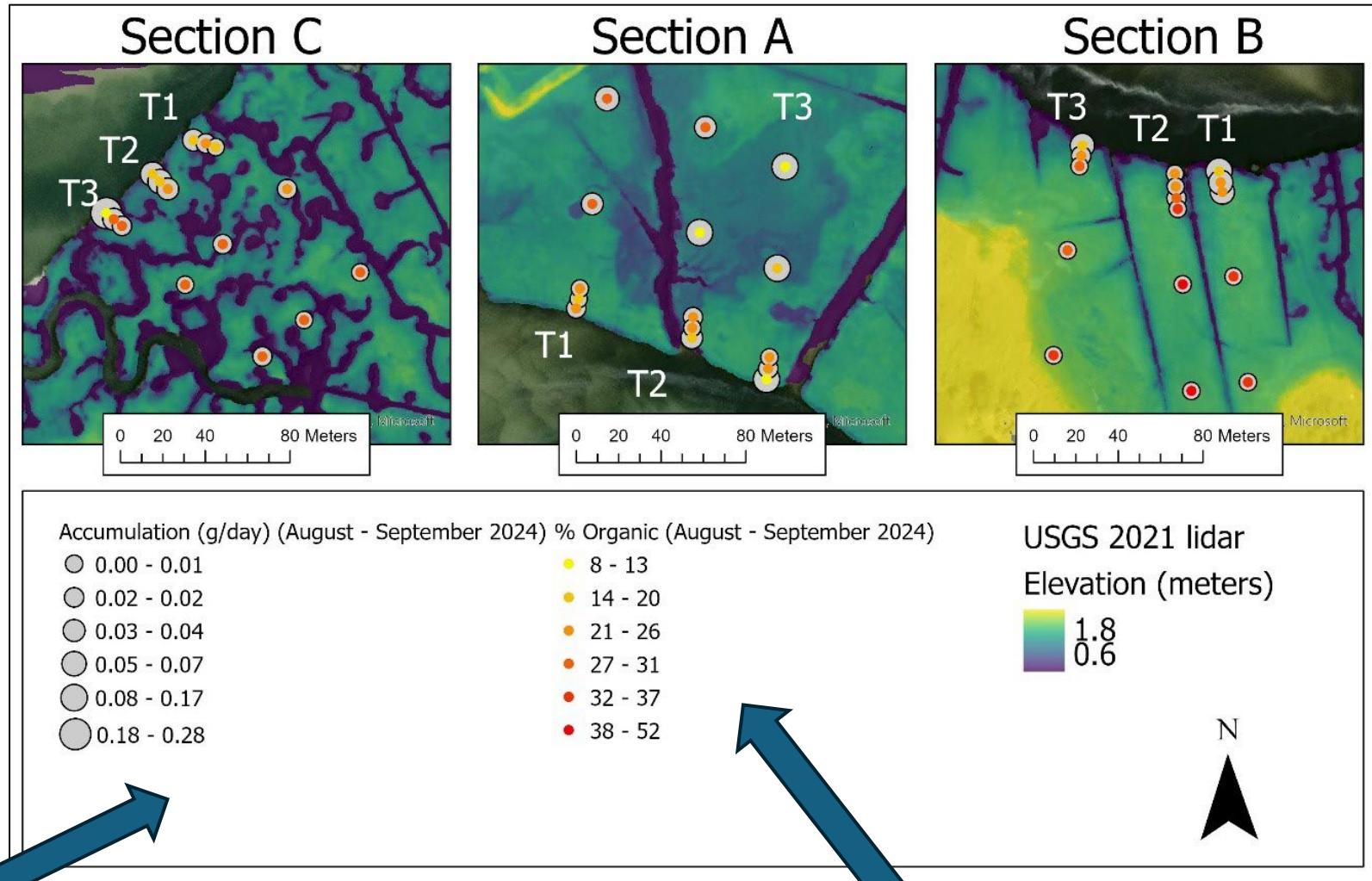


Less species richness



Greater species richness

Sediment Traps



More sediment is accumulating **near the channel**

More **inorganic** sediment (silt, sand, and clay) **near the channel**

Discussion and Conclusion

Based on the 2024 monitoring data, APCC concludes that...

- It is **unlikely** that **tidal range, salinity, and sediment supply** are contributing to vulnerability (erosion and subsidence)
- **Groundwater depth, elevation, and ditches** more likely explain variations in **habitat quality**
- Planning for **effective restoration** at Chase Garden Creek means understanding **how and why habitat quality changes** throughout the marsh

What does this mean for APCC's work at Chase Garden Creek?

Ongoing and Future Work

For Year 3, APCC plans to...

- Collect more data
- Continue essential partnerships
- Maintain community engagement

Year 4 and Year 5...

- Restoration design and permitting
- Completing pre-restoration monitoring

**APCC is excited to keep
working at Chase Garden
Creek!**

Partnering with Katie
Castagno, Center
for Coastal Studies.


Hailey Philbrick, CCS
assistant, also pictured here.



Other Partners and Stakeholders...

- Funding
 - Lavori Sterling Foundation
 - MassBays
 - Private Foundation
- Partners & Landowners:
 - Town of Dennis
 - Town of Yarmouth
 - Dennis Conservation Land Trust
 - DFG Division of Fisheries & Wildlife (MassWildlife)
- Interested Stakeholders:
 - Aquaculture Research Corporation
 - Mass Audubon
 - Cape Cod Conservation District
 - USDA Natural Resources Conservation Service
 - DFG Division of Ecological Restoration
 - Office of Coastal Zone Management
 - Cape Cod Commission
 - DFG Division of Marine Fisheries
 - And the list continues to grow...





Thank you! Questions?