

Parsons Creek Watershed Plan Update

Technical Advisory Committee Meeting 1 – October 23, 2024

Rye Town Hall

Cayce Dalton
Magdalyn Kosalek
FB Environmental



Agenda

1. Introductions – FBE facilitates
2. Project Timeline – FBE
3. Historical Monitoring Efforts & Water Quality Data – FBE
4. 2011 Action Plan Review – Everyone (FBE facilitates)
5. Water Quality Goal Discussion – Everyone (FBE facilitates)
6. Next Steps – FBE



Introductions

Matt Scruton, Jason Rucker, Chuck Marsden, Kim Reed –
Town of Rye

Sally Soule – NHDES

Arik Jones – Rye Water District

Kalle Matso – Piscataqua Region Estuaries Partnership

Jennifer Rowden – Rockingham Planning Commission

Tracy Degnan – Rockingham County Conservation District

John Bucci, Ashley Bulseco – UNH

Steven Borne, Danna Truslow – Rye Residents

Maggie Kosalek, Cayce Dalton – FBE



Source: Harrison Flagg, One If By Land Productions

Project Timeline

Task 1 Kickoff

- Done Sept 4, 2024

Task 2 Technical Advisory Committee

- Meet in October, March, May

Task 3 Watershed Survey

- Field survey done, draft report in progress
- Water sampling done, genetic testing in progress

Task 4 Water Quality Goal Development

- January – April 2025

Task 5 Action Plan / Public Forum

- October – March, Forum in March 2025

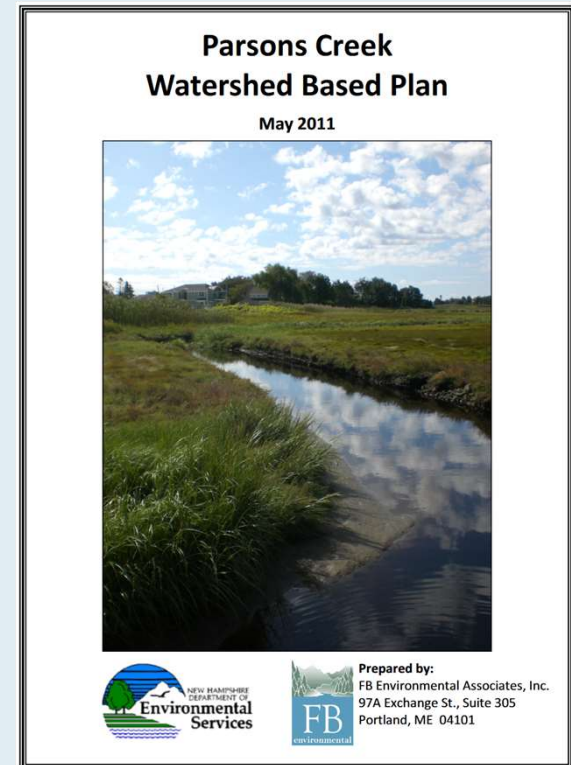
Task 6 Watershed Based Plan Update

- Draft by May 2025
- Final by June 2025



Watershed Based Plan – 9 Elements

1. Identify causes and sources of pollution
2. Estimate pollutant loading and expected load reductions
3. Describe management measures that will achieve load reductions in targeted critical areas
4. Estimate technical and financial assistance needed and responsible parties
5. Develop an informational/education component
6. Develop project schedule
7. Describe milestones
8. Identify progress indicators
9. Develop a monitoring component



Parsons Creek Water Quality Standards

According to the NHDES 303(d) list:

Designated Use	Aquatic Life Integrity					Fish Consumption (Fish Consumption Advisory)		Potential Drinking Water Supply		Primary Contact Recreation	Secondary Contact Recreation	Shellfish Consumption (Fish Consumption Advisory)			
Parameter	DO Sat	Salinity	Water Temp	pH	Dissolved Oxygen	Mercury	PCBs	E. coli	Fecal Coliform	Enterococcus	Enterococcus	Dioxin	Mercury	PCBs	Fecal Coliform
NHDES Category	<p>3-ND: There is no data, or the data is unusable, for the Parameter, Designated Use, or Assessment Unit.</p>					<p>5-M: There is an impairment per the CALM* by a parameter which is a pollutant that requires a TMDL. The impairment is marginal.</p>		<p>3-PNS: There is some but insufficient data to assess per the CALM*, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards (e.g., there is one exceedance).</p>		<p>4A-P: There is an impairment per the CALM* by a parameter which is a pollutant and an EPA-approved TMDL has been completed. However, the impairment is more severe and causes poor water quality conditions.</p>	<p>3-PNS: There is some but insufficient data to assess per the CALM*, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards (e.g., there is one exceedance).</p>	<p>5-M: There is an impairment per the CALM* by a parameter which is a pollutant that requires a TMDL. The impairment is marginal.</p>			<p>4A-P: There is an impairment per the CALM* by a parameter which is a pollutant and an EPA-approved TMDL has been completed. However, the impairment is more severe and causes poor water quality conditions.</p>

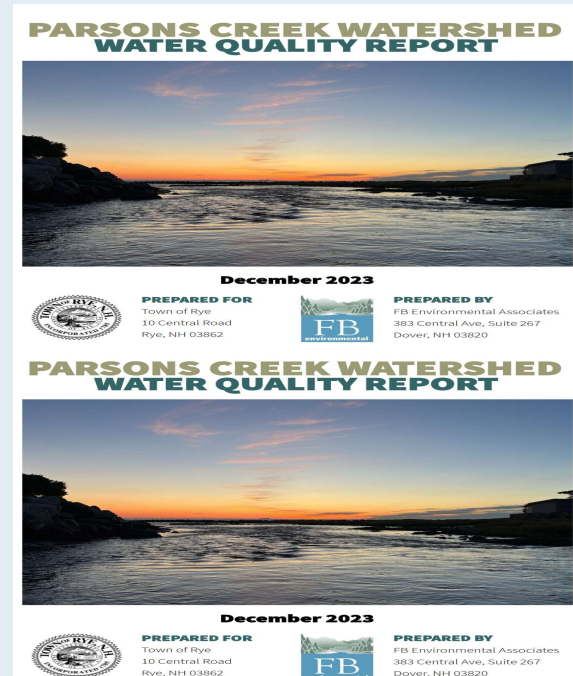
*CALM = Consolidated Assessment and Listing Methodology; used by NHDES to make assessments.

Historical Water Quality

Bacteria Sampling (Enterococci) at Parsons Creek outlet since 1990's.

Parsons Creek estuary since 2009, expanded to more sites in 2013.

Bacteria Source Tracking efforts (next slide).



Reports: <https://www.town.rye.nh.us/parsons-creek-watershed-environment>



Historical Water Quality

Source Tracking Efforts

- Canine detection 2013 and 2015
 - Human sources in many locations
- Optical Brighteners 2017 and 2023 – no detections
- Nutrients 2021 and 2022
 - Low phosphorus, moderate nitrogen
 - No “raw sewage,” possible “undertreated wastewater”
- PhyloChip (genetic) 2023 – no detections
- Single Source (genetic) – in progress



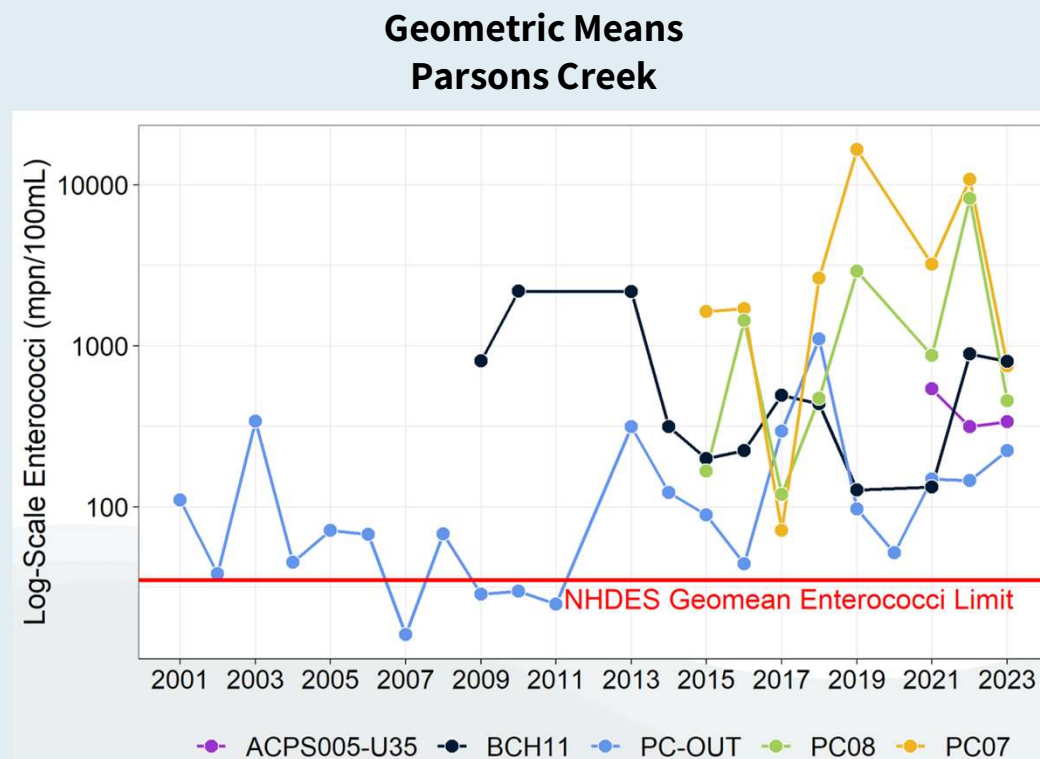
FB Environmental staff collecting a beach seep sample at night. Photo credit: FBE.

Reports: <https://www.town.rye.nh.us/parsons-creek-watershed-environment>



Enterococci Trends

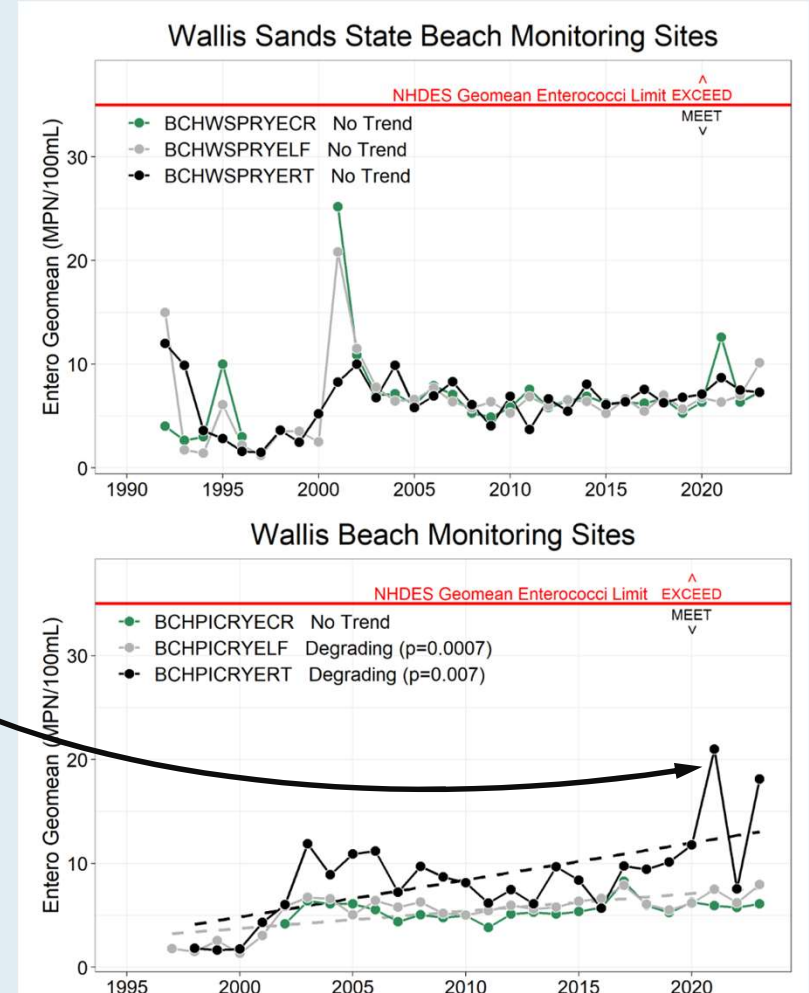
- **Geometric Mean**
Since 2013, all Parsons Creek sites exceeding.
- **Single Sample**
62% of 409 samples 2001-2023 exceeding (>104 MPN/100mL).
- Indicator bacteria levels in the estuary are very high.



Enterococci Trends

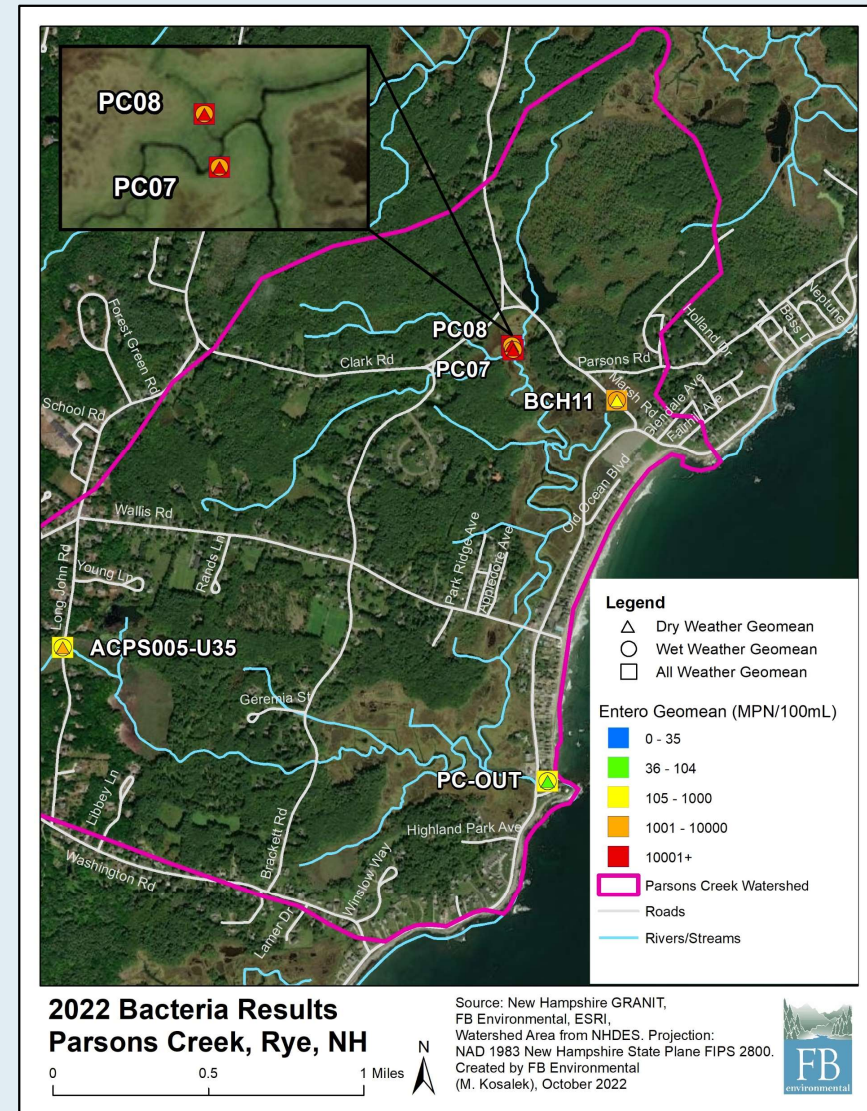
- **Wallis Sands State Beach** (northern)
 - All geomeans meet standards
 - Some advisories
 - No discernable trends.
- **Wallis Beach** (southern)
 - All geomeans meet standards
 - Some advisories
 - At Parsons Cr. outlet water quality is degrading
- Indicator bacteria at the beaches are generally low but increasing at Parsons Cr. outlet.

Geometric Means – Beach Sites

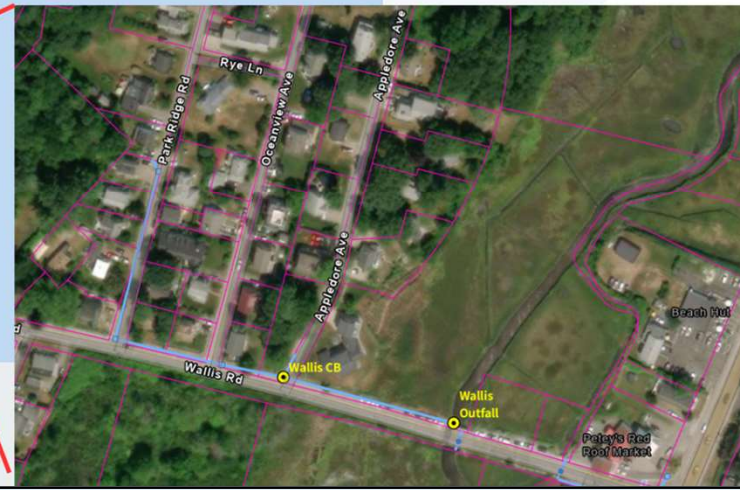
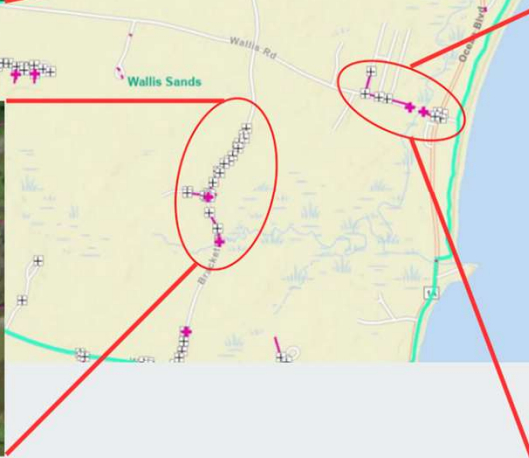
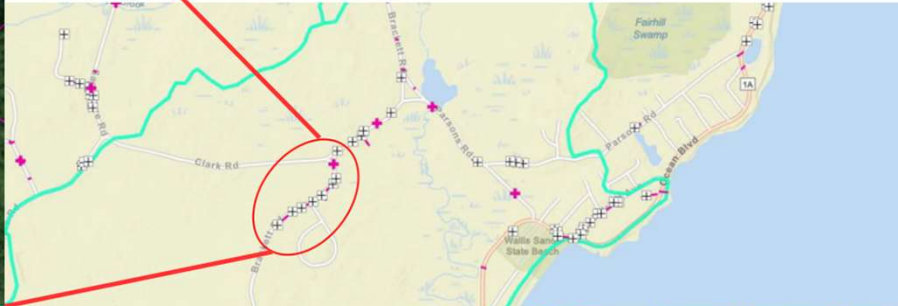


Bacteria Results Summary

- Enterococcus **estuarine geomeans** above 35 MPN/100mL at almost all Parsons Creek sites.
- Enterococcus **estuarine single samples**, some extremely high.
- At **beaches**, geomeans generally low, Some **single sample** advisories.
- Higher values during wet weather (stormwater runoff)



Water Quality Data - mtDNA (2024)



2011 Action Plan Review

See Excel...



Source: Facebook

Water Quality Goal

- The WQ **goal** is set primarily by state water quality standards.
- The 2011 plan allocated bacteria **loads** to various sources.
 - GWLF-E (now MapShed) model for livestock
 - Mapped impervious cover and used scientific literature for stormwater runoff values
 - Used wildlife population estimates
 - Used scientific literature values for septic sources
- “Milestones” are smaller steps toward the goal.
- *Recommendations for updated plan?*

	Land Area (Sq. Mi.)	Total Estimated (FC/yr)	Developed Area Runoff (FC/yr)	Failing Septic Systems (FC/yr)	Wildlife (FC/yr)	Farm Animals (FC/yr)
Parsons Creek	2.3	5.8×10^{13}	2.8×10^{13}	2.0×10^{13}	9.2×10^{12}	1.6×10^{12}

Discussion & Next Steps

- Ongoing source tracking: human vs wildlife vs pets
- Groundwater Rise expected. Septic will likely be affected.
 - Planning and management will be required
 - Data: Soils and site-specific groundwater & septic drainage field depths
- Other concerns:
 - Parsons Creek enterococci high levels & increasing trend
 - Septic system variances & approvals
- Other thoughts / comments?

