

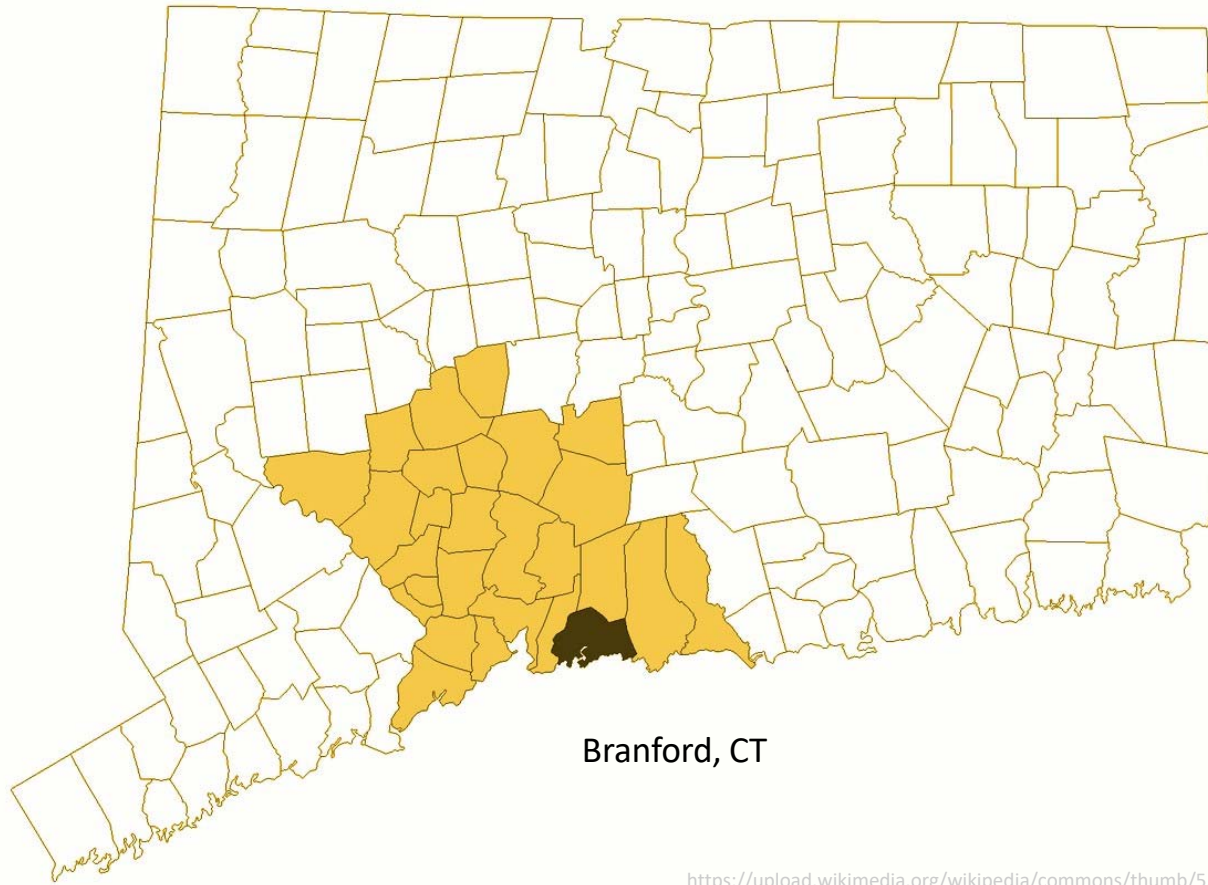
Recognition & Lessons Learned –
Improving Bathing Water Quality in a Local
Neighborhood
Branford, Connecticut
A Local Citizen Science Project



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Local Water Project

- **Compromised water quality in the Short Beach neighborhood, observed from past reports.**
- **5 project aims to investigate this issue.**
- **Involve the community with full transparency.**
- **Our first Citizen Science Project – Lessons Learned**



Branford, CT

https://upload.wikimedia.org/wikipedia/commons/thumb/5/58/Branford_CT_lg.PNG/1200px-Branford_CT_lg.PNG



Short Beach Neighborhood

5 Aims

- Water sampling and results analysis
- GIS map of sewage systems & sanitary survey
- Data analysis
- Work with local & state partners
- **Collaborate with community and engage volunteers**

AIM 1

Update the 2017 student report
by examining the relationship between weather-
related (and other) variables &
level of bacterial contamination
at Johnson's Beach
& in nearby shellfish beds.

Shellfish water Restricted

	Adjusted OR (95% CI)
Two-day Rainfall	10.75 (5.97, 19.35) ***
Temperature (10°F)	1.54 (1.33, 1.78) ***

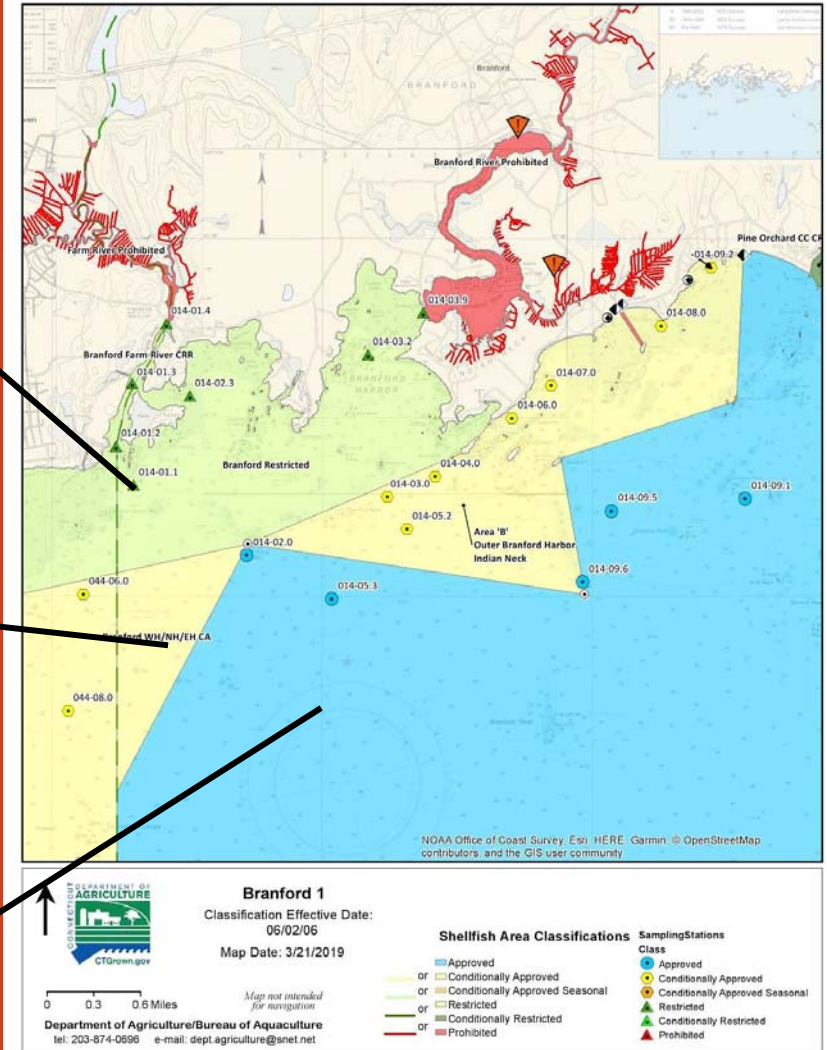
Conditionally Approved

	Adjusted OR (95% CI)
Flood tide	11.24 (3.19, 39.64) ***
Two-day Rainfall	3.10 (1.92, 5.03) ***
Temperature (10°F)	1.49 (1.10, 2.03) **

Approved

	Adjusted OR (95% CI)
Low tide	1.87 (1.05, 3.31) **
Two-day Rainfall	3.51 (2.67, 4.62) ***
Temperature (10°F)	1.22 (1.00, 1.48) *

p-value: *<0.1; **<0.05; ***<0.01

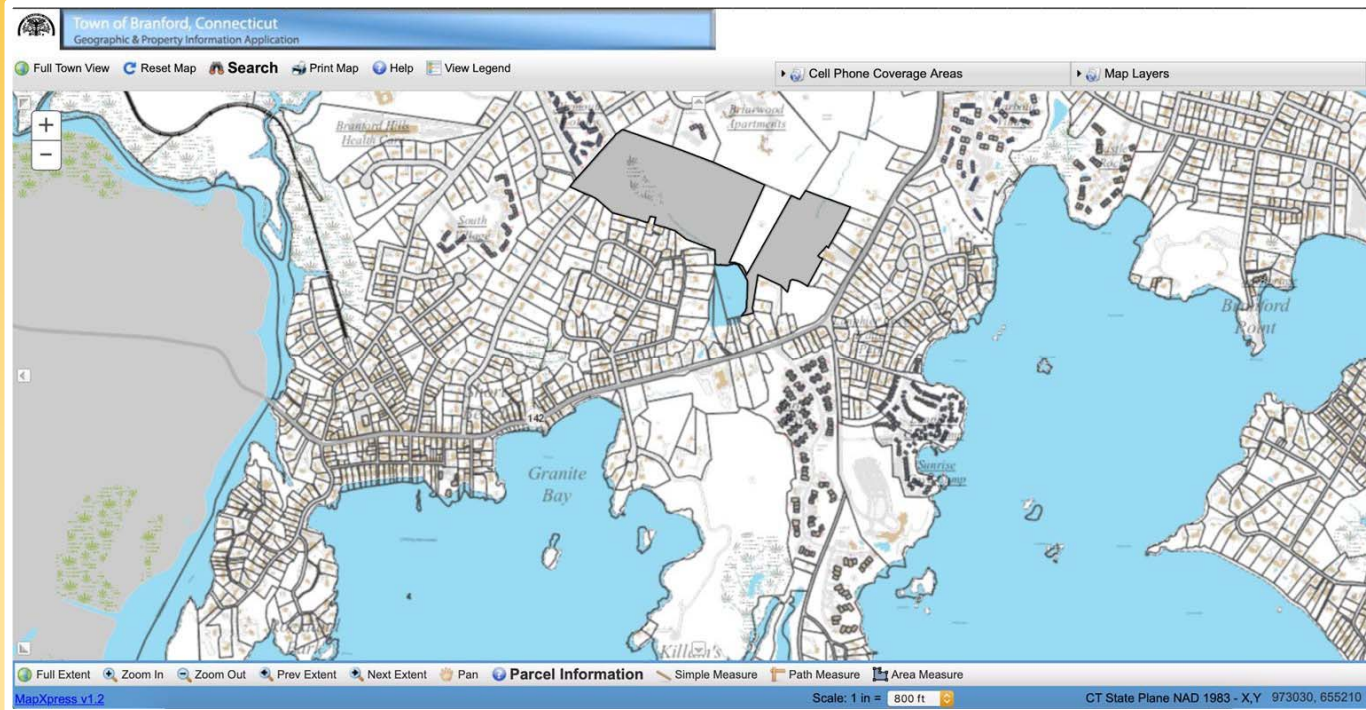


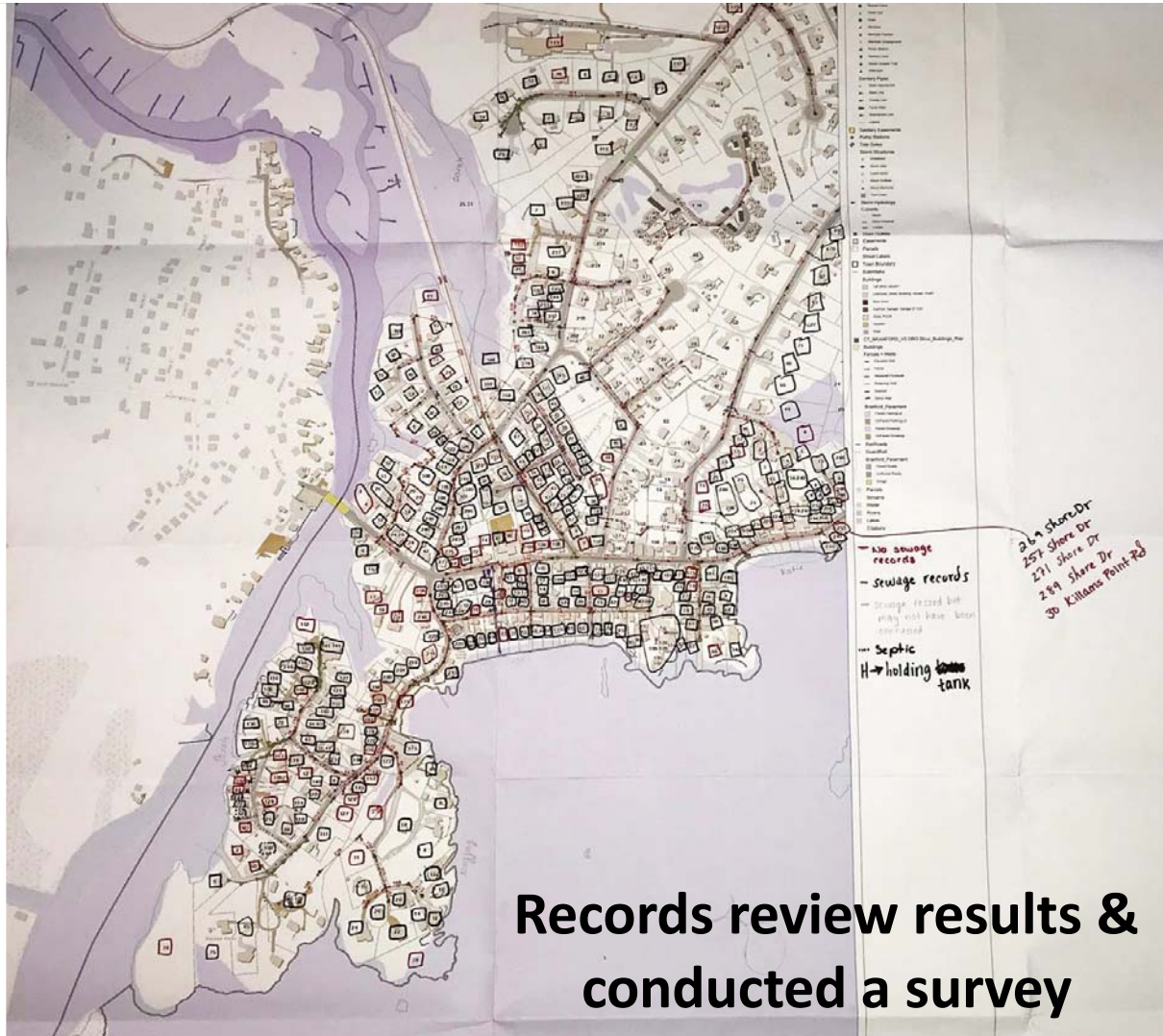
AIM 2

**Construct a GIS map of
Short Beach neighborhood's
sewage systems.**



- 1) Lack of records
- 2) Town GIS system





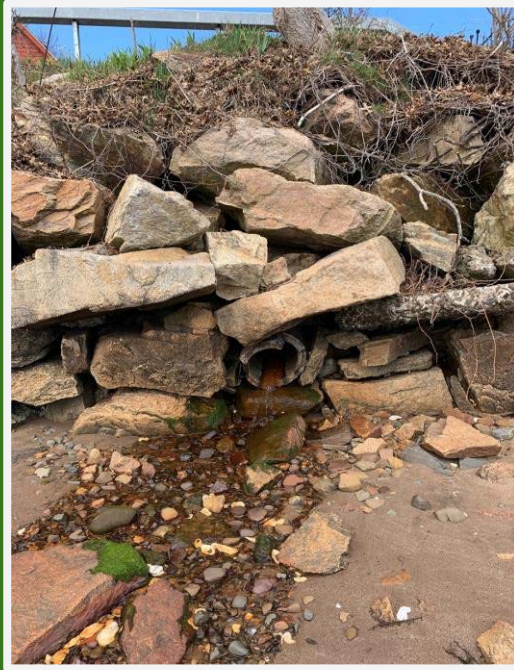
Records review results & conducted a survey

AIM 3

**Conduct a hands-on sanitary survey &
field water quality sampling in
Short Beach neighborhood
in different weather conditions.**



- 1) Sanitary survey not feasible {51}
- 2) Not enough precipitation events
- 3) Outfalls not flowing



Water Sampling Results



- Tests: *E.coli*, *caffeine*, *ammonia*, *chloride*, *conductivity*, *pH*
- Significant bacteria levels observed following rain events (>235 MPN/100ml *E.coli*)
- Samples mailed to Lauren Brooks laboratory for DNA markers testing

AIM 4

Participate in meetings with local & state agency partners about short-term & long-term solutions to improving Short Beach water quality.

Meetings

- Farm River USDA-NRCS [May 2]
- ESDHD Board of Directors [May 9]
- State-wide Bathing Water Stakeholders [May 14]

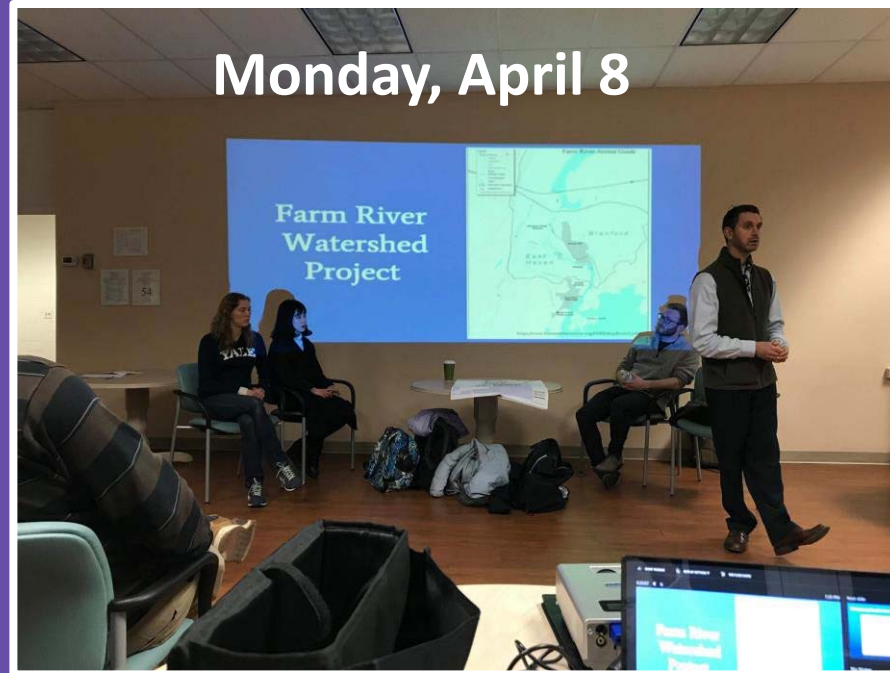


Branford Connecticut

AIM 5

Participate in community outreach meetings to inform residents about the sanitary survey & give them an opportunity to assist ESDHD in developing fair, practical solutions & behavior changes to improve water quality in their community.

Civic Association of Short Beach





East Shore District Health Department

We are your local health department

Serving Branford, East Haven and North Branford



Public Health Alerts



Home About Us Forms Your Health Clinics Environmental Preparedness Maternal Child Health Opioid Info

Resources

Community Engagement Protocol



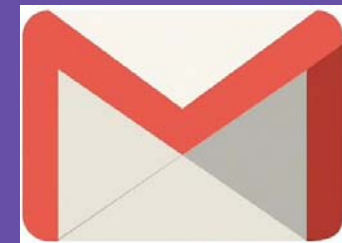
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Contacts



Why is Pet Waste A Concern?

There are a lot of pets, producing a lot of waste, and while pet waste is not the most significant pollutant, it can contribute to pollution over time.



Why pick up after my dog, won't the tide wash it away?

Dog waste may pose a health threat to swimmers, wildlife, surfers and other dogs. It can pollute the water and lead to beach closures and closure of shellfish beds.

I only have a small dog; it can't really harm the water, can it?

It can be hard to picture how a single dog depositing a small amount of waste can result in water pollution. However, studies have shown that the combined impact of all pets and wildlife within a watershed can be significant when it comes to water quality and human health.

Be Aware

- When animal waste ends up in the water it decomposes, using up oxygen. During summer months, low dissolved oxygen levels harm fish and other aquatic life.
- Beaches and shellfish beds may be closed, if evidence that disease causing bacteria and viruses might be present is found on routine water testing. Pet waste can be a cause of test results that close beaches and shellfish beds.
- The majority of water pollution comes from small sources – especially at the household level.
- Many towns have "pooper scooper" ordinances that require pet owners to pick up and remove fecal matter from public property. **This includes dumping pet waste in watercourses!** Fines can be imposed on those caught violating these laws.

Branford Town Code: 176-17 A. It shall be unlawful for any person owning, keeping, walking, or in control of any dog or other animal to allow or permit such animal to defecate upon any private property owned by another person or a public place unless such person shall remove all feces so deposited by such animal. 176-18 A. Any person who shall violate provisions of this chapter shall be deemed to have committed an infraction and be subject to a fine of \$35.00.

Pet Waste is Natural

However, efficient drainage systems and roads now make it easy for pet waste to reach beach waters.

Waste left on the ground either passes through storm sewers untreated or washes directly into oceans, lakes, and streams.



Pet waste is unpleasant and can pose health risks when left on beaches or in other recreational areas.

To make sure your pet isn't contributing to the problem, always clean up after your pet and deposit waste in an appropriate manner.

Quick Tips

Reuse old bags: grocery, sandwich, newspaper, produce and bread bags to pick up and contain pet waste.

Keep a supply of bags near your dog's leash.

Tie bags onto the leash if you don't have a pocket or pack.



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Citizen Science Sampling

Neighborhood volunteers
assembled by local Ann Davis
collect samples from outfalls near
their homes during rain events



Citizen Science Sampling



**Ann, Bill, and high school volunteer
Evan offer their time and their boat for
sampling along the Farm River**





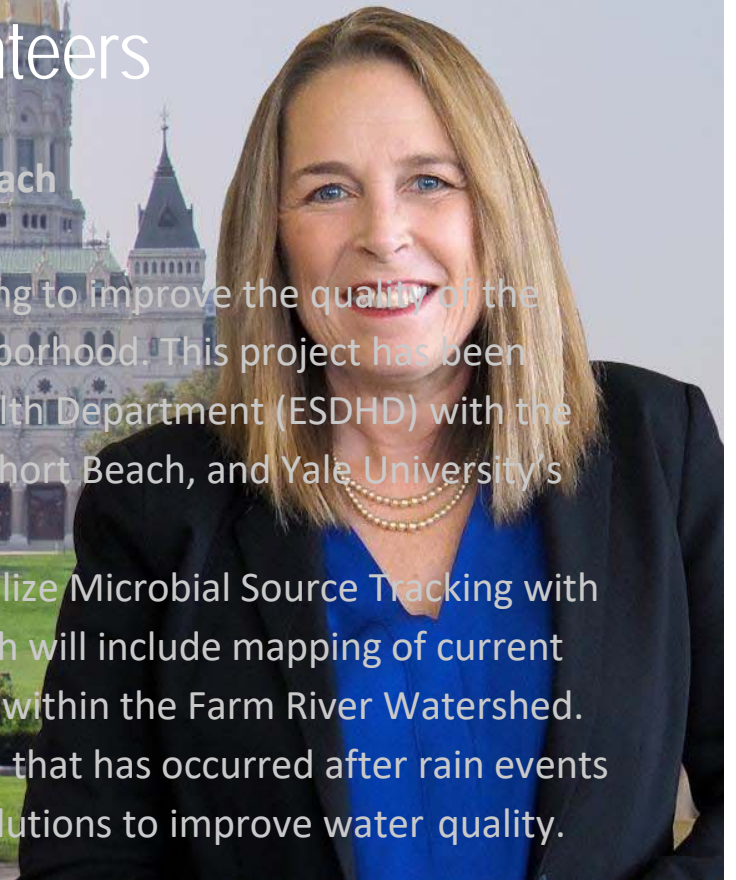


Representative Comey - Thanks Volunteers

- **Comey Backs local Citizen Science Project at Johnson's Beach**
- February 1, 2019

I am excited to announce and support a local project seeking to improve the quality of the water at Johnson's Beach located in the Short Beach neighborhood. This project has been launched under the direction of the East Shore District Health Department (ESDHD) with the support of the Town of Branford, The Civic Association of Short Beach, and Yale University's School of Public Health.

- This Citizen Science Project, the first ever in the state to utilize Microbial Source Tracking with DNA markers, is expected to assess the water quality, which will include mapping of current direct and indirect sources flowing from the neighborhood within the Farm River Watershed. The goal is to address the spikes of bacterial contamination that has occurred after rain events and returned during weekly testing and find community solutions to improve water quality.



Project Launched to Improve Water at Branford's Johnson's Beach

- BRANFORD, CT - State Representative Robin Comey (D-Branford) announced a project seeking to improve the quality of the water at Johnson's Beach located in the Short Beach neighborhood.
- This project has been launched under the direction of the East Shore District Health Department (ESDHD) with the support of the Town of Branford, The Civic Association of Short Beach, and Yale University's School of Public Health.
- **This Citizen Science Project, the first ever in the state** to utilize Microbial Source Tracking with DNA markers, is expected to assess the water quality, which will include mapping of current direct and indirect sources flowing from the neighborhood within the Farm River Watershed.
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Branford Point Beach, Connecticut – Save the Sound



This sandy Sound beach next to Parker Park offers a picnic area and a playground. There are lifeguards on duty from Memorial Day through Labor Day. Parking in the Park lot requires a resident parking pass.

In an effort to improve local water quality, the Town of Branford invested in both upgrading its sewage treatment plant and fixing leaking and overflowing sewer collection pipes over the past decade. Branford's Town Engineer and the Regional East Shore Health District, with support from the Selectman's office, have started working with Save the Sound, the Short Beach Civic Association and local citizens in designing a strategy to address the remaining pollution sources.

Branford Point Beach appears to be affected by very local, as of yet unidentified, sources of bacteria. The data suggests that excess bacteria appear during both dry (10% of the time) and wet (19% of the time) weather conditions. The regional public health department in collaboration with the Connecticut Aquaculture Division is completing a sanitary survey of the coast looking for bacterial pollution sources.

Save the Sound recommends that in addition, the Town examines the septic system associated with the Branford Point Beach.

Held a Volunteer Appreciation Dinner and Award Ceremony

- A presentation was given to town officials/local representatives.
- All our volunteers and staff involved in the project attended.
- The event was covered by local media.
- Each volunteer was acknowledged by our local State Representatives and received an official citation.

Lessons Learned - Communication

- Overall a great, local bathing water quality project.
- Communication is essential with volunteers.
- Volunteers, like employees need to feel valued.
- Recognition and oversight is essential.
- Not all volunteers are created equal. Know their skills, interests and limitations.
- Be sure to set expectations and review conflict of interest policy.

Feasibility



Project sustainability



Accountability



Community engagement

Improving Water Quality in the Short Beach Neighborhood Branford, Connecticut

Thanks to our Yale University Beach Team.

However – A Very Special Thanks to Sarah Esenther and the
local residents who volunteered their time and resources