

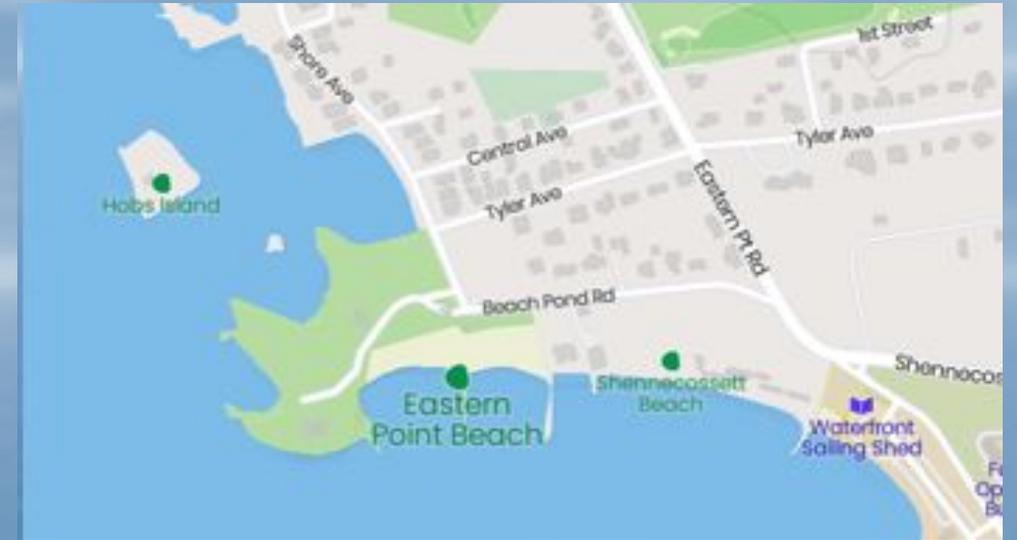
EASTERN POINT BEACH

TREDS Final Project

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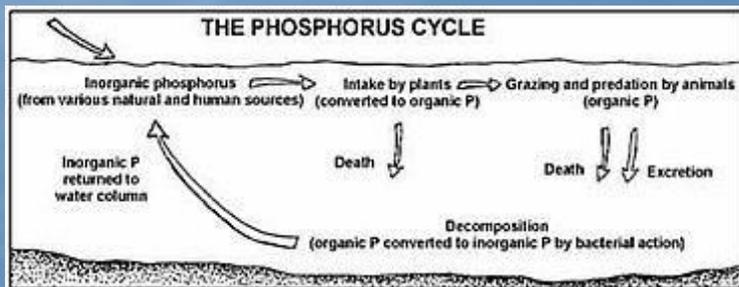
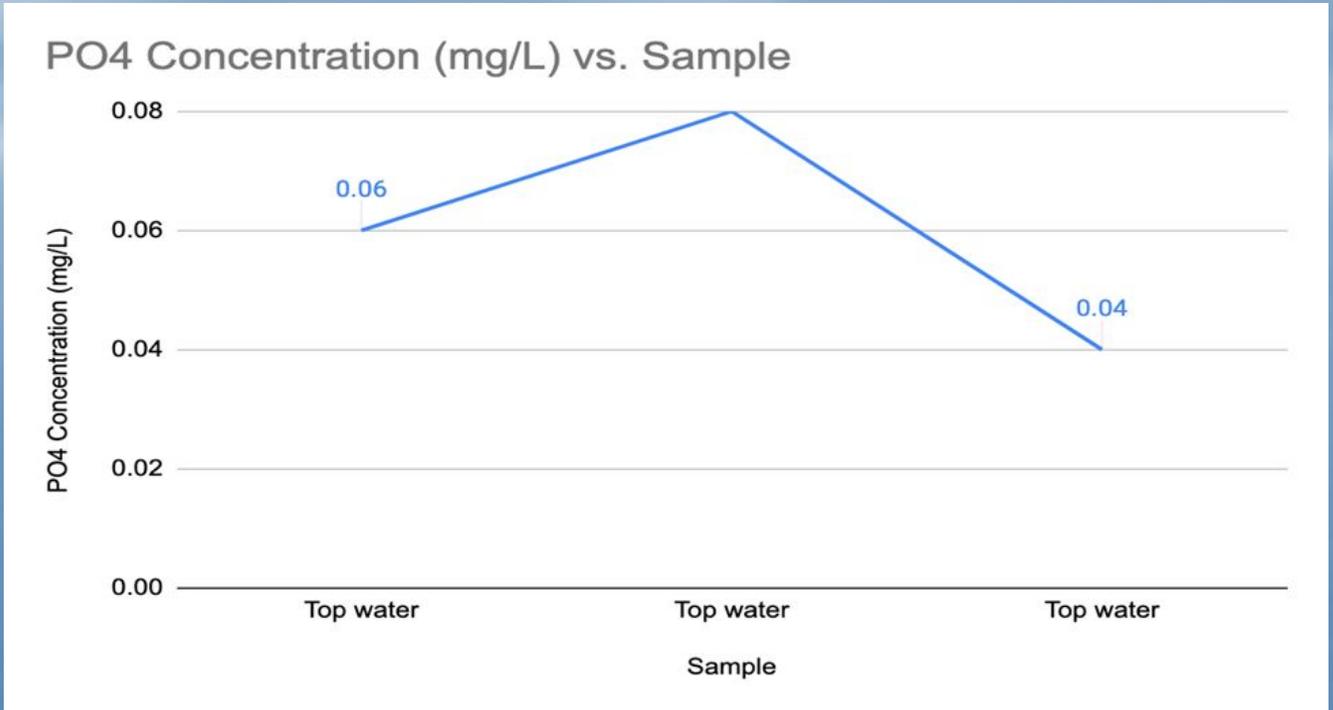
INTRODUCTION:

- Eastern Point Beach is a small, recreational beach located in Groton, CT.
- It provides a view of the Thames River and Long Island Sound.
- It is open from June through Labor Day, with multiple amenities accessible to the general public (such as a snack bar, restroom and shower facilities, basketball courts, volleyball courts, and lifeguards).



DATA COLLECTION: PHOSPHATES

- Phosphates can be either organic or inorganic. They are important nutrients for both plants and animals.
- The PO₄ concentrations surrounding Eastern Point Beach averaged out to be 0.06 mg/L. This falls under the normal range (0.1 mg/L to 5.0 mg/L at high levels)

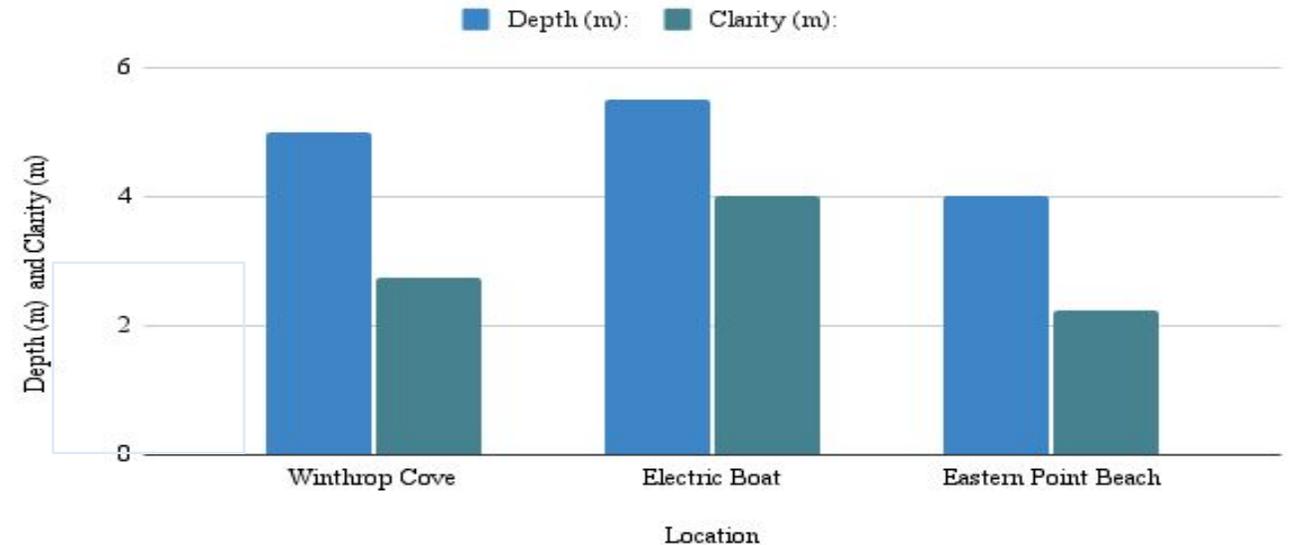


Sample	PO ₄ Concentration (mg/L)
Top water	0.06
Top water	0.08
Top water	0.04

DATA COLLECTION: WATER CLARITY & COLOR

- Water clarity and color generally signify suitability for recreational use.
- The water clarity of Eastern Point Beach is in the normal range. Its score of 2.25 earns it a B+ grade.
- The color of its water falls in the Green range (XII).

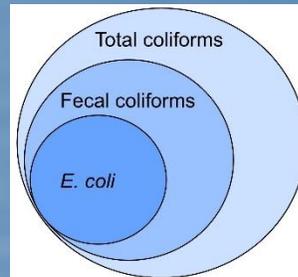
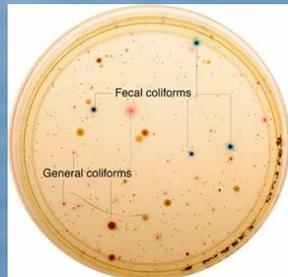
Depth and Clarity



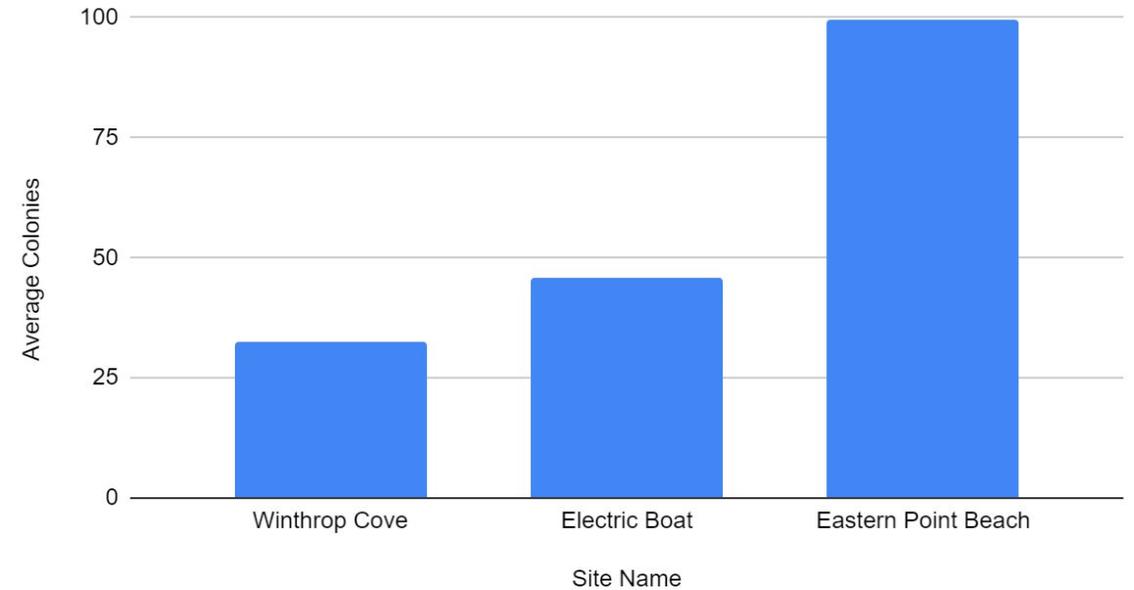
Location:	Eastern Point Beach
Depth (m)	4
Color	XII (Green)
Clarity (m)	2.25

DATA COLLECTION: FECAL COLIFORM

- We obtained three samples from Eastern Point Beach. We acquired 115 colonies in the first sample, followed by 32 then 152 colonies in the second and third samples, respectively.
- Overall, we had an average of 99.7 colonies in Eastern Point Beach.



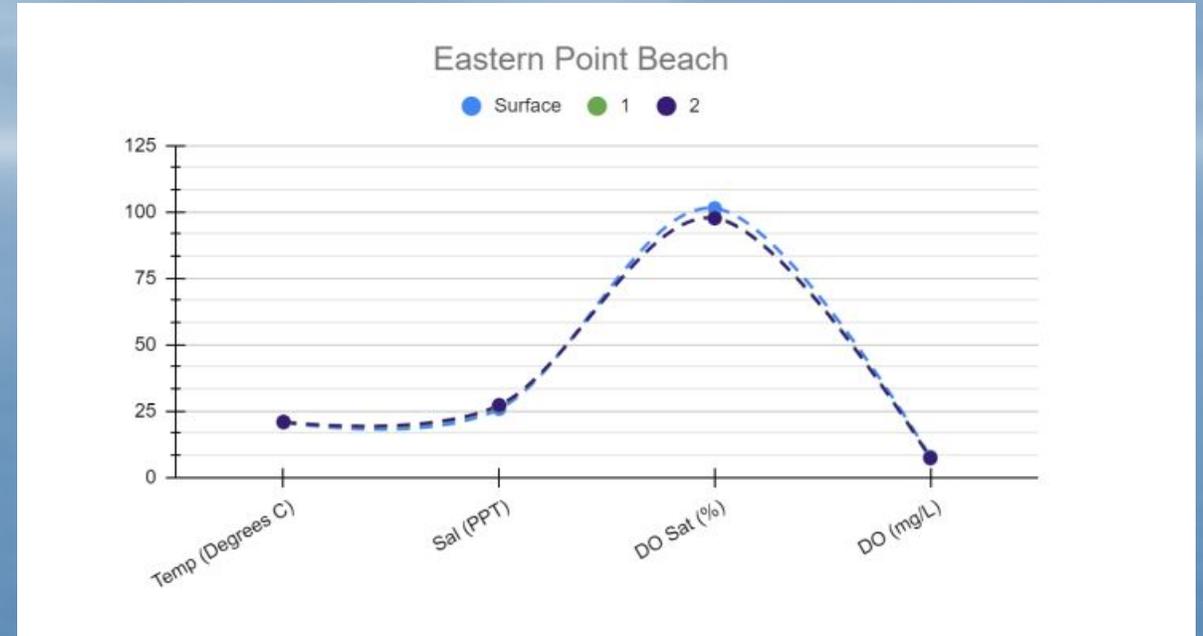
Average Number of Coliform Colonies at Different Locations



Site Name	Individual Samples Colony #	Average Colonies per Site
1. Winthrop Cove	Sample 1: 38 Sample 2: 25 Sample 3: 35	32.7
2. Electric Boat	Sample 1: 36 Sample 2: 40 Sample 3: 61	45.7
3. Eastern Point	Sample 1: 115 Sample 2: 32 Sample 3: 152	99.7

DATA COLLECTION: TEMP, SALINITY, D.O

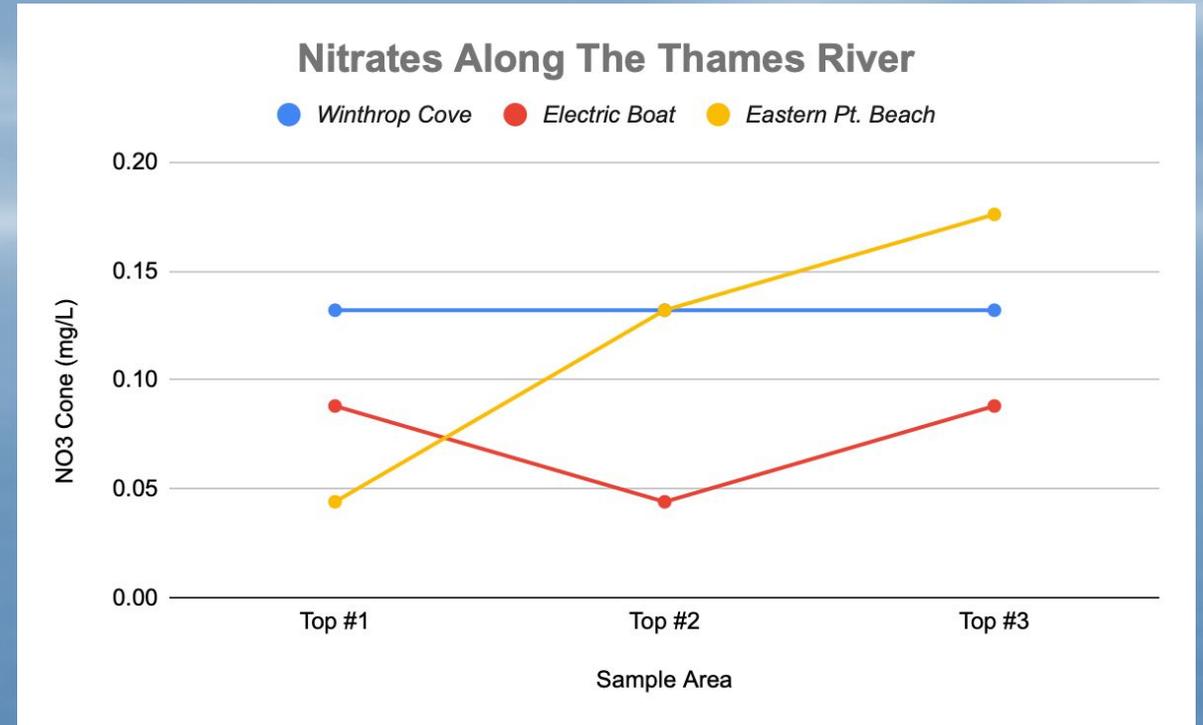
- The temperature we had taken from Eastern Point Beach was normal, averaging at around 20.81 degrees Celsius (with normal being below 24 degrees Celsius).
- Salinity was below the standard range of 28PPT; it averaged out to be around 26.63 PPT.
- D.O averaged at around 7.47, which was normal (within the standard range of 5 to 14 mg/L)



Depth	Temp (Degrees C)	Sal (PPT)	DO Sat (%)	DO (mg/L)
Surface	20.70	25.81	101.4	7.76
1	20.83	26.84	97.8	7.43
2	20.91	27.24	97.6	7.22

DATA COLLECTION: NITRATES

- Eastern Point Beach had a normal range of nitrates, averaging at around 0.117 mg/L (with the normal range being between 0 – 2.5 mg/L).
- Out of all three sites, Eastern Point Beach had one of the highest sample concentrations of nitrates (Top 3: 0.176 mg/L).



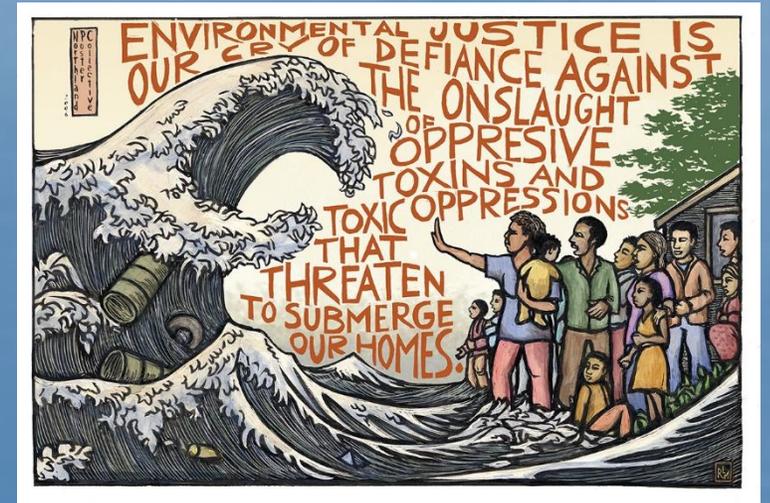
	Top 1	Top 2	Top 3
Winthrop Cove	0.132 mg/1	0.132 mg/1	0.132 mg/1
Electric Boat	0.088 mg/1	0.044 mg/1	0.088 mg/1
Eastern Pt. Beach	0.044 mg/1	0.132 mg/1	0.176 mg/1

ENVIRONMENTAL JUSTICE CONCERNS?

- Environmental justice is the inclusion and fair treatment of all people no matter their race, color, gender, or ethnicity on the matter of the development and implementation of environmental laws and regulations.
- From the data we acquired, we can see that there are a few environmental justice issues surrounding Eastern Point Beach, and the city of Groton as a whole.

Facts and Data:

- 69% of this population is exposed to hazardous waste.
- People of color represent 36% of the population in this region compared to 46% of the states.
- Only 27% of the region's population is poor and 50% of the whole state population is low income.
- About 70% of this population creates or is exposed to wastewater.



ENVIRONMENTAL AMENITIES

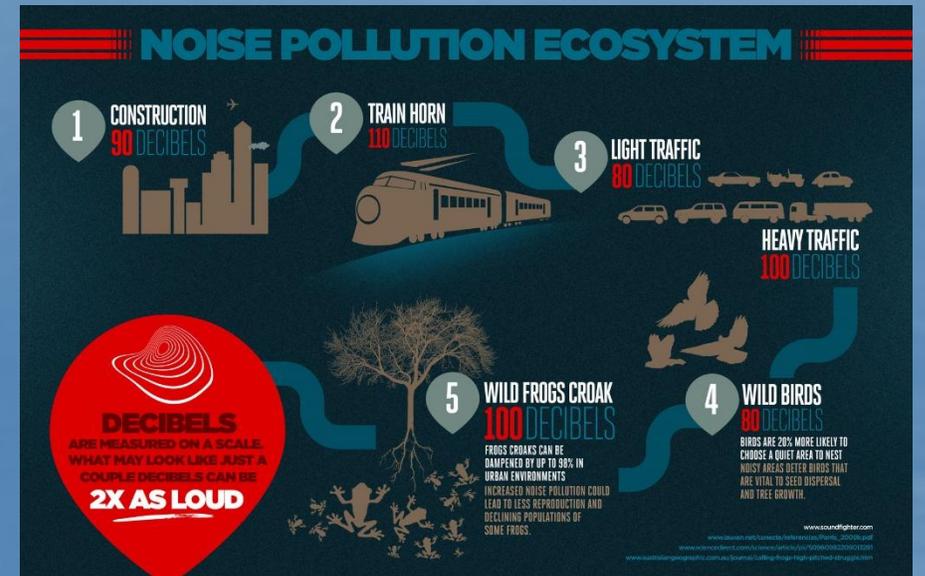
- Environmental amenities include the accessibility of, and quality of, environmental services and goods.
- Eastern Point Beach has many natural amenities, including but not limited to: clean air, clean water, natural landmarks, natural sand / substrate, native plants, etc.



NEW LONDON COUNTY						2018					2017					2016				
#	Beach Name	FD	FW	MD	MW	GRD	FD	FW	MD	MW	GRD	FD	FW	MD	MW	GRD				
1	duBois Beach					A+					A+					NA				
2	Noank Dock					B					A+					A+				
3	Esker Point Beach					A+					A+					A+				
4	Eastern Point Beach					A+					A+					A+				
5	Green Harbor Beach					A-					C					A+				
6	Ocean Beach Park					B					A+					A-				
7	Waterford Town Beach					A+					A+					A-				
8	Pleasure Beach					A+					A+					A+				
9	Hole-In-The-Wall Beach					A+					A+					A-				
10	McCook Point Beach					A+					A+					A+				
11	Rocky Neck State Park					C+					C					B-				
12	Soundview Beach					B					A-					A+				
13	White Sands Beach					A+					A+					A+				

ENVIRONMENTAL HAZARDS

- An environmental hazard is a substance, event, or state of being that threatens an environment, as well as the health of its occupants.
- There are a few environmental hazards surrounding Eastern Point Beach, such as: a drain, multiple large industries (such as Pfizer and E.B), small businesses, and houses.
- Impacts from these hazards may include: runoff pollution (both in the water and in the air), light pollution, and sound pollution.
- Increase human activity overall may also lead to increase pollution in general – either from people purposefully or inadvertently disposing of anthropogenic materials improperly.



PAST LAND USES

- Until the mid 1800s , the land surrounding Eastern Point Beach was used as farmland for the prominent Avery family of Groton.
- Runoffs from phosphate-rich manure may have contributed to excessive algae growth.
- In the early 19th and 20th century, Eastern Point became a popular vacation spot for CT's most wealthy residents.
- The land was since transformed into a “summer resort”. More houses and roads were built, eventually becoming what we see now.



PRESENT LAND USES

- Eastern Point Beach is currently surrounded by a large parking lot, as well as many private residences.
- There is regular vehicle traffic, as the beach is quite popular in the summer. High human traffic tends to lead to increased pollution.
- Though the beach is near Pfizer, E.B, and Buckeye Terminals, its water quality remains good- which is something we absolutely want to maintain.



DEMOGRAPHIC COMPOSITION

- Eastern Point Beach is home to middle to upper-middle class persons and families.
- 59% of the population is reported to earn over \$75,000 a year.
- 92% of Eastern Point's residents identify as white.
- Over half of all residents surrounding the area have earned a bachelor's degree or higher.



NEW QUESTIONS TO INVESTIGATE?

- The data we acquired from Eastern Point Beach, while falling within the normal historical ranges for the site, are somewhat surprising.
- How does the effluent drain, located just north of the beach, not contaminate the water further with runoff wastes?



ACTION PROJECT?

- Monitoring Eastern Point Beach shows continually strong numbers, however, more can be done.
- One action project could entail informing the public about where to go in order to access water quality results.
- Reminding people that water quality decreases after rainfall is also a good idea, especially given the fact that climate change has been causing more frequent and heavier rainstorms.
- Beyond that, we should strive for regular beach clean ups- this not only keeps Eastern Point and other beaches beautiful, but it also protects marine life- both in the water and by the water's edge.



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<https://worldpopulationreview.com/us-cities/groton-ct-population>

Other Resources

Google drive: https://drive.google.com/drive/u/0/folders/0AF0o0l_0zQQzUk9PVA

EPA EJScreen/US Census data: <https://ejscreen.epa.gov/mapper/>

Neighborhoods at risk: <https://headwaterseconomics.org/apps/neighborhoods-at-risk/>

EJ mapping tools:

https://www.youtube.com/playlist?list=PLTO9X5Qd_Q7UQPlek-TqJLrPHES2nZ2jK

