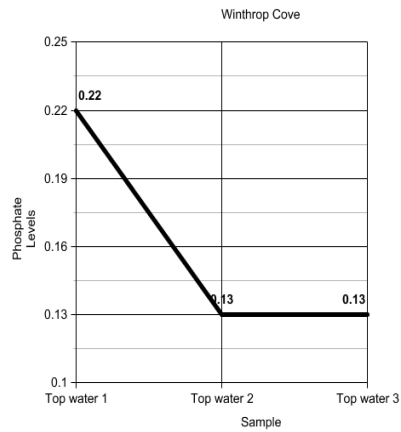
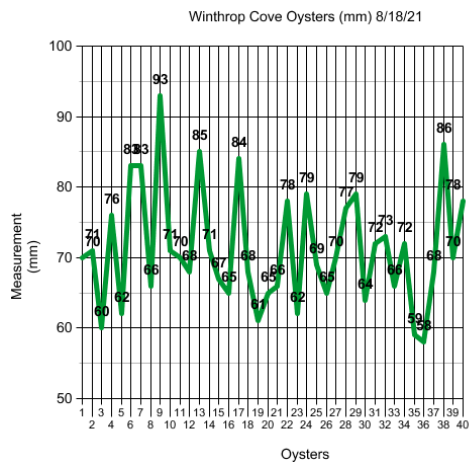
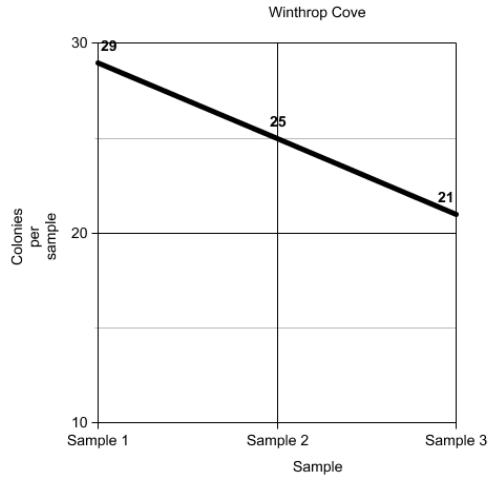


Riley Marquis
 Jack
 Will
 Jason
 Tiernan

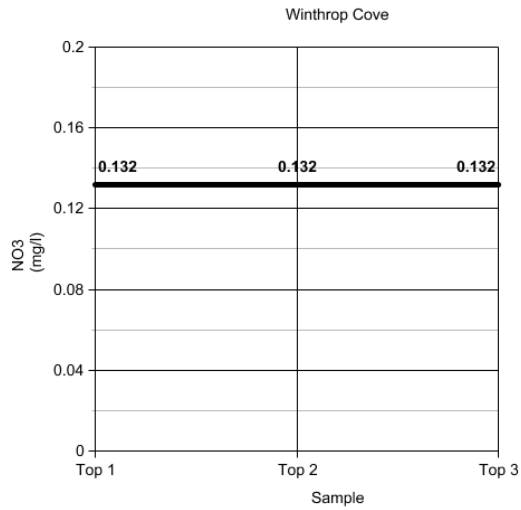
Sample	Phosphate (mg/L)
Top water 1	.22
Top water 2	.13
Top water 3	.13



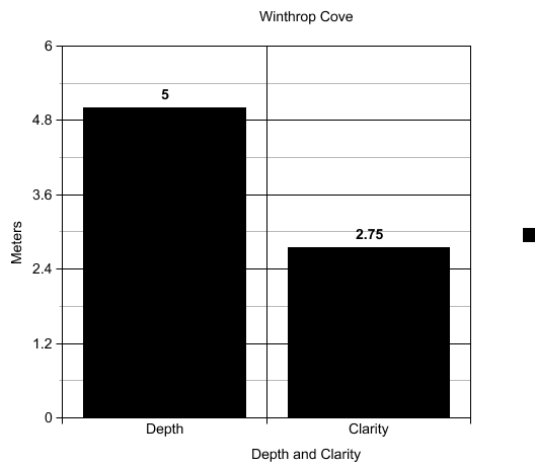
Site	Samples	Colonies average
Winthrop Cove	Sample 1: 29 Sample 2: 25 Sample 3: 21	21



Site (NO3 concentration)	Top 1	Top 2	Top 3
Winthrop Cove	.132 mg/l	.132 mg/l	.132 mg/l



Location	Winthrop Cove
Depth (meters)	5.0
Color	Green-Brown
Clarity (meters)	2.75



Environmental Hazards surrounding Winthrop Cove

Specific times when we have seen hazards around Winthrop Cove
 From 1998 to 2018, there were 3 different hazards reported. In 1998, pollution was detected in

groundwater which could affect drinking wells. In 1999, pollution was detected again possibly affecting drinking wells, In 2018, pollution was detected in drinking wells.

How did we respond to these hazards?

1998: DEEP installed a carbon filter system

1999: DEEP has continued to monitor and treat water

2018: Pollution was not detected but supplied bottled water

Jack Konopka

★ What past land uses may have influenced the results?

The Thames River watershed consists of 44% urban, 35% forest, 19% water, and 2% agriculture land uses. Even though the water quality in Connecticut has gotten better over a few decades because of the increase in laws, investments, and improved wastewater treatment facilities. It is hard to say the same for the historical data because it doesn't come close to the goals for aquatic life that are set in place. The U.S. Coast Guard Academy has a drain below Roland Hall which is currently a field house at the academy, it has raw sewage that has been flowing right into the Thames River for 20 years. There is also a large amount of nitrogen entering the Long Island Sound from coastal communities, precipitation, and streams causing algal blooms. The algae is decaying which is causing the low dissolved oxygen levels in the sound. This is then reaching the Thames River and raising levels of nitrogen and phosphorus concentration due to the wastewater discharges from sewage treatment plants. The things that have also affected the results of the quality of water are natural processes like soil infiltration because of stormwater and plant uptake of water and nutrients all occur in undeveloped portions of the watershed. As all the stormwater runoff increases from commercial and residential developments the runoff from water bodies also increases. Some more pollutants are caused by the failing and insufficient septic systems, automotes, sediment, and construction activities all runoff into the river and area of Winthrop Cove.

★ **What environmental amenities are located near the area?**

There are a number of wastewater treatment plants located right near the Winthrop Cove; this helps with the amount of waste water getting into the Cove. The Town of Groton plans to upgrade their treatment plants and will help with the amount of water that gets treated per day from 5.0 million gallons to 7.5 million gallons. This upgrade will also consist of nitrogen removal facilities to achieve compliance with the general permit for nitrogen discharges from wastewater treatment plants. They plan on making changes to the sanitary sewer service area to improve pollution. These changes should allow less runoff pollutants getting into the water. A daily load has been implemented for Long Island Sound to hopefully limit the amount of discharge of nitrogen which is causing hypoxia (very low levels of dissolved oxygen) and harming the survival of marine animals.

★ **Using the data collected on the 3 cruises along with the EPA EJScreen, Neighborhoods at Risk, and any other relevant data, identify and explain any environmental justice concerns that you find.**

Environmental justice can be defined as the fair treatment/involvement of all persons regardless of their race, color, income, or origin. Winthrop Cove of New London, CT, contains environmental justice concerns that affect the people and animals living in the community. According to EPA EJScreen, Winthrop Cove ranks in the 80th percentile

nationally in low income population, 81st in less than a high school education, and 86th in linguistically isolated. This community also has some abnormally high rankings in harmful/dangerous national percentiles. They rank in the 84th percentile nationally in hazardous waste, 89th in traffic, 88th in lead paint indicator, and 85th in Superfund proximity. These statistics all harm the people and wildlife residing in the Winthrop Cove community. Hazardous waste especially, as it can cause birth defects, cancer, and genetic mutations, among other things.

★ **Describe an Action Project that might be developed at each impacted site to improve conditions for the local community.**

An Action Project to improve conditions at Winthrop Cove would involve getting the local community on board to help. The local community must first be informed of the environmental dangers in their area. They would also have to take steps to raise awareness regarding their concerns in the community. The next step in the process would be to create fundraisers to raise money towards removing harmful things in the community, such as hazardous waste and lead paint, as these two are especially dangerous in the area.

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