

BRISTOL: DNA TESTING AND POLLUTION TRACKING



Town
Bristol



Watershed
Pemaquid River



Project Type
Water Quality



Background

The Town of Bristol, in partnership with the Bristol Shellfish Committee, the consulting agency FB Environmental Associates, and the Pemaquid Watershed Association, has been working to track pollution sources in the Pemaquid River and surrounding waterways.

DNA Testing

The Bristol Shellfish Committee contracted with FB Environmental Associates, a Portland based consulting firm, for water quality testing in the Pemaquid River in 2019, and in the Eastern Branch of the Johns River in 2021.

The samples were sent to UNH for DNA analysis, and indicated the presence of beaver, goose, chicken, and human contamination at various locations in the Pemaquid River and Eastern Branch of the Johns River. The testing alerted the Shellfish Committee to the impact of small farms near the river, and the committee invited farm owners to hear FB Environmental's final report. The firm also performed a watershed reconnaissance survey to document land use observations and potential non-point source pollution sources.



Oysters on the Damariscotta River
(Photo by David Cheney)

Oyster Experiment

Bristol's 2019 conservation project for harvesters focused on water quality in the Pemaquid River. Shellfish Committee member David Cheney proposed collecting oysters from the Damariscotta River and broadcasting them into the Pemaquid River to see if the oysters would have a cleansing effect on water quality. The Damariscotta River has cleaner water and abundant oysters, both wild and farmed, and oyster shell middens over 1,000 years old.

A group of volunteers collected over 6,000 oysters along the banks of the Damariscotta River and transported them to a channel in the Pemaquid River where three streams converge. By the end of the season, the oysters had grown nearly two inches, and after three years of

relaying oysters, a broodstock is growing and harvesters are starting to see wild oysters in some places. As coastal waters warm, David Cheney notes that oysters reproduce at higher temperatures than clams, and as for water filtration, "they work for free."

Takeaways

The Shellfish Committee recognizes a need for more hands-on projects for conservation hours. Bristol will continue working with FB Environmental on further water sampling, looking into possible septic system malfunctions, and improving the shoreline buffer in certain places to capture pollutants and discourage geese from landing on the water.



Conservation day gathering oysters on the Damariscotta River (Photo by David Cheney)

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