

## Instructions

### QUINNIPIAC RIVER FUND GRANT AWARD - FINAL REPORT QUESTIONS

This form is to be completed by all nonprofit organizations that received a grant through the Quinnipiac River Fund.

## Grant Details

### Grant Details

Organization Name

University of New Haven

Grant Description

to support the study of metals from the Quinnipiac River in the livers and muscles of fish species targeted by fishermen.

Total Grant Amount

18,000.00

## Report Questions

1. List the specific objectives/outcomes of the project and tell how they were met during the grant period. Also, provide an update on any special conditions of the grant (if applicable).

The initial objectives of this project were to examine the accumulation of metals from the Quinnipiac River in the livers and muscles of fish species targeted by fishermen. The project was going to look to confirm the presence of metals in fish and determine if there was differential accumulation between the livers and muscles. We attempted to catch fish using bait and rods, a gill net, and a seine.

After several attempts using different fishing methods, we were unable to acquire fish species that are targeted by fishermen. The goals of the project shifted to focus on the bioaccumulation of metals in *Fundulus heteroclitus* from the Quinnipiac River compared to other local rivers. *Fundulus* were collected from the Housatonic River, Ferry Creek, and the Branford River, as well as the Quinnipiac River. The fish were successfully collected using baited minnow traps tied from the river to land. The traps were allowed to collect

fish for 24 hours at each location. Once captured, the fish were euthanized via a two-step euthanasia method, cervical transection and pithing. The fish were documented, weighed, and lyophilized using a pharmaceutical freeze dryer. Samples will be analyzed by Source Certain International (SCI) with an ICP-MS to gain an understanding if the metals are accumulating, and if the levels differ across the rivers. Through statistical analysis, we found that the results showed some metals in elevated levels in Fundulus from the Quinnipiac River compared to other rivers, including barium and silver. Other elements were found in levels lower than from other rivers, including aluminum, iron, and manganese. The Housatonic River has the highest levels of aluminum, copper, and iron. Overall, the fish from each of the rivers could be distinguished based on the chemical signatures of the metals from that river.

2. Please share your successes, challenges and any lessons learned through the implementation of your project. Were there any unintended consequences or lessons learned that may affect how you operate your program moving forward?

One challenge we encountered during the granting period was collecting higher trophic level fish species that would fulfill the original goals of this project. We attempted fishing from a boat in several locations in the New Haven Harbor, near the breakers, under the Q Bridge, and up the river near the Grand Avenue Bridge. We also attempted gill netting at these locations several times, and further up the river past the 91 Bridge. To change the direction of the project, while still continuing the work from the 2022-2023 QRF-funded project (O'Brien 2022), we chose to refocus on Fundulus from the Quinnipiac River, the Housatonic River, Ferry Creek, and the Branford River. The Housatonic River and Ferry Creek are known to be polluted waterways, and the Branford River is polluted as well, although to less of a degree than the others. Sampling from all four waterbodies was successful, and plentiful Fundulus were captured. The method of using baited minnow traps was successful. Using the data generated from instrumental analysis, we were also successful in drawing comparisons between the metal contents of the fish from each river.

3. What are the opportunities and needs of your organization as it continues to move forward with its work to positively impact the Quinnipiac River?

The Center for Wildlife Forensic Research had a positive experience working with the Quinnipiac River Fund completing several projects over the years to aid the abatement of the river. The Center has since closed and will no longer be conducting research projects.

## Attachments

**Financial information (required):** Please provide a detailed accounting of how the specific grant dollars were spent based on the budget submitted in the grant application.

Detailed Accounting

PV153\_Final Fiscal Report\_03.20.24.pdf

**Pictures (optional):** Please attach one to three pictures in JPEG format, in the highest resolution possible, of activities that have occurred throughout the grant period as a result of grant funding. By providing pictures, your organization is consenting to unlimited use of the pictures by The Community Foundation for Greater New Haven and/or the Valley Community Foundation in publications in print and online (including [www.thequinnipiacriver.com](http://www.thequinnipiacriver.com)). Please include a description of each photo and, when known, the photographer to be credited.

Picture 1

Description and Photo Credit

Picture 2

Description and Photo Credit

Picture 3

Description and Photo Credit

