The COMMUNITY Foundation for Greater New Haven
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QUINNIPIAC RIVER FUND FINAL REPORT- 2018

Please complete and submit completed form via e-mail to dcanning@cfgnh.org at The Community Foundation for Greater New Haven by March 29, 2019 (or as otherwise stated on the terms of grant).

Date: March 18, 2019

Group/Organization Name: Quinnipiac University

Address: 275 Mount Carmel Ave

City, State, & Zip: Hamden, CT 06518

Telephone #: 203-582-6420

Project Name: Identification, Characterization and Assessment of industrial pollutants in water and on indigenous fish populations in the Quinnipiac River.

Grant Number: 20180221

Name & title of person completing this form: Courtney McGinnis, Associate Professor of Biological Sciences

E-mail address: Courtney.mcginnis@qu.edu

Please respond to the following statements:

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).

A. Collect and analyze water samples at various sites long the Quinnipiac River from Wallingford to the New Haven Tidal Marsh, in order to identify the presence of chemical pollutants.
   a. Eight (8) separate samples of each previously mentioned location have been obtained.
      i. Five (5) samples below out to the Connecticut Agriculture Station for further evaluation

Date Collected	Location	Our Finding	CT Ag Station Finding
6/7/18	Hall Ave	Hydrocarbon oil	No pesticides
6/7/18	Front of Drain Pipe	Hydrocarbon oil	No pesticides

	@ Toelle's Rd		
6/26/18	Sacket Pt	Hydrocarbon oil	No pesticides
6/26/18	Target	-1 methoxy 3(2-hydroxyethyl) nonane -hydrocarbon oil	No pesticides
6/28/18*	Sacket Pt	Hydrocarbon oil	No pesticides

*Collected during a heavy rain fall

ii. We found nonspecific hydrocarbon oil, at many collection sites on various days. In attempting to locate the source of the hydrocarbon oil, we did sample during a heavy rain storm and the abundance increased significantly, most likely indicating the oil is from runoff from the roadways. Bis (2-ethylhexyl) Phthalate (DEHP) was detected on 5/24/18 at the Quinnipiac River State Park Entrance in North Haven.

B. Assess the impact of phenothiazine on local fish species.
   a. All male and female *Fundulus heteroclitus* were dosed with environmentally relevant concentrations of phenothiazine: 0.5ppm, 1.0ppm, 2.0ppm for 7 days. Brain, liver and gonad tissues were collected, pooled and cDNA has been created from RNA. Quantitative PCR (polymerase chain reaction) has been completed for all of the samples and the data analysis was completed. Based on those results, phenothiazine exhibited both sex-specific and tissue-specific responses and would be classified as a xenoestrogen.

C. Measure of water quality and climatic parameters, primarily water temperature, at sample site during collection.
   a. Water temperatures were taken at the collection sites

D. Communication to the community-at-large, our results will be disseminated by the Public Relations Department at Quinnipiac University to local newspapers like the New Haven Independent.
   - Preliminary data was presented at the Quinnipiac University Interdisciplinary Research Scholars Program (October 2018)
   - Submitted findings from the last three years to a scientific journal (March 2019)
   - Poster Presentation at the Experimental Biology Annual Meeting in Orlando, FL (April 2019)

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?

   The Quinnipiac River needs to be continued to be monitored, without continuous monitoring there will be no way verify the health of the river. Moving forward depending on what compounds are found in the river we will work to gain an understanding of the biological impact of these compounds on native species of fish and towards reducing the point and non-point pollutants into the 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?

   We have proposed to continue to monitor the health of the river through the collection and analysis of water samples via GC-MS, additionally if chemicals were detected we would verify the findings and attempt to identify the environmental impact. This summer we will also partner with some faculty within the school of engineering to work towards remediation and/or reduction of non-point pollutants.

Also, please include a photo or image that can be uploaded along with your report to The Quinnipiac River Fund website.