

DNA Barcoding Aquatic Macroinvertebrates in the Peconic River

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Abstract

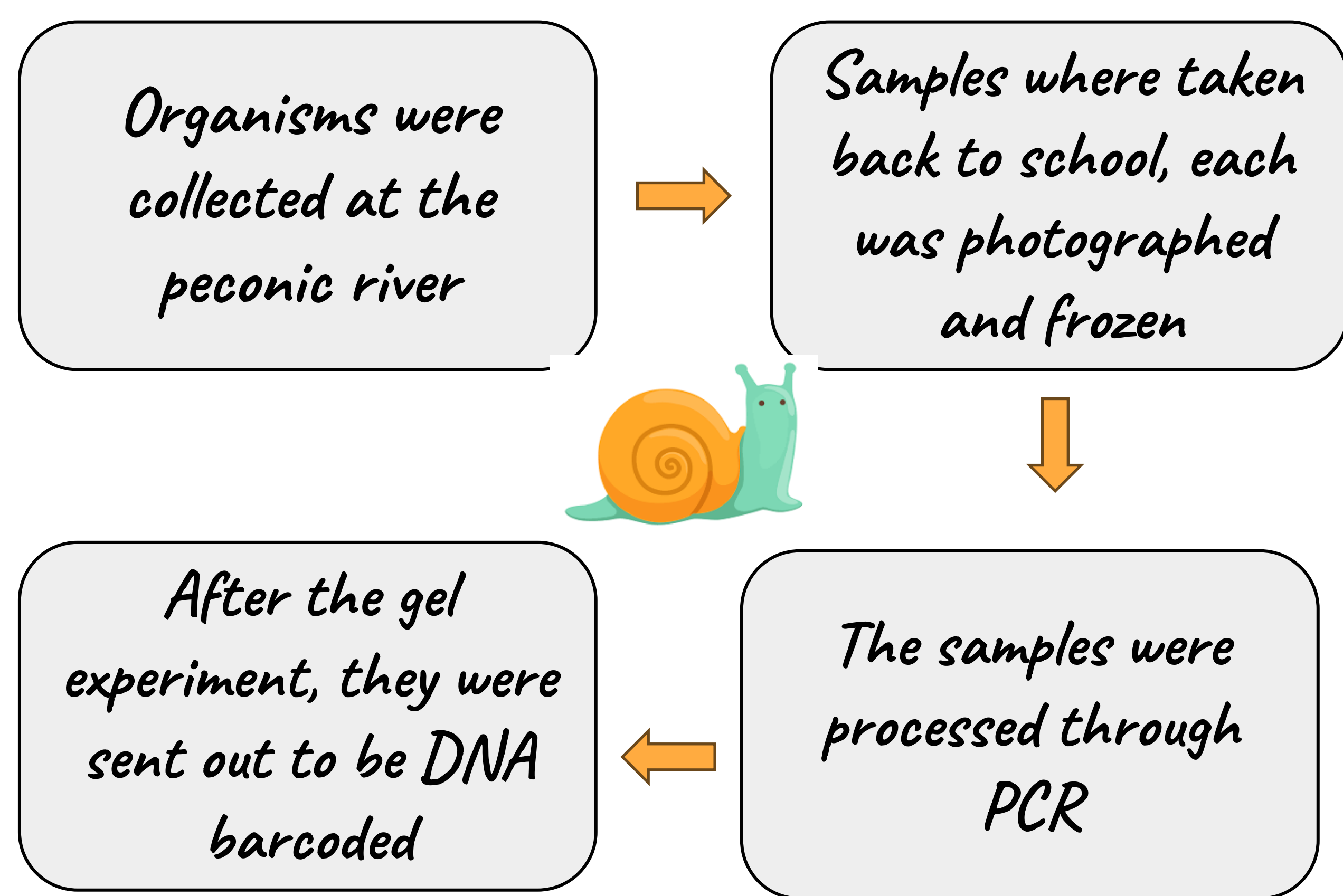
DNA barcoding was used to identify organisms and assess biodiversity in the Peconic River. This is because the Peconic is an important habitat for the many species that live there, and maintaining biodiversity is essential to the stability of the environment. 12 organisms were collected, and so far 5 species were identified including one potentially novel species.

Introduction

Organisms collected at the Peconic were barcoded to find out more about the current ecosystem and biodiversity in the estuary. DNA barcoding is a method of specimen identification that utilizes short segments of DNA, and is a quick way to identify organisms in the environment.

The Peconic River is being studied because it is an important part of the environment and serves as a feeding, breeding, and nursery ground for many different species. This project is of interest to the public because the biodiversity of the estuary can affect the stability of the environment around it.

Materials and Methods



These are two of the snails that were collected at the Peconic Estuary.

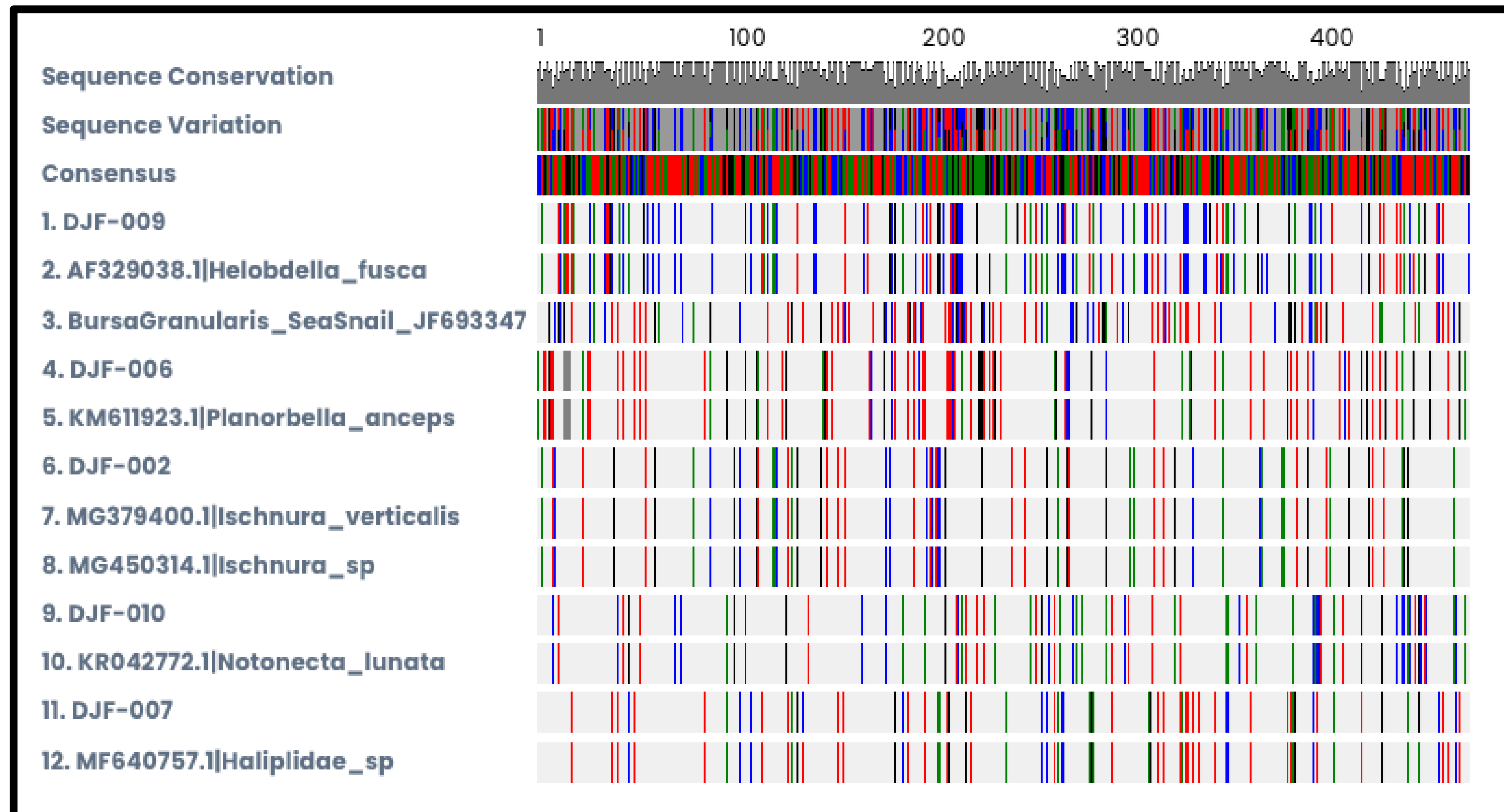
References



This beetle (sample DJF-007) was identified within the genus Haliplidae, and is most likely a novel sequence within the species because there was no match to it in the database. The closest match had over 50 mismatches

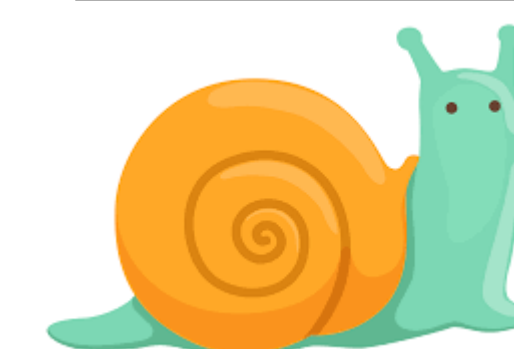


Results



This is our data table from DNA Subway where we uploaded, edited, and analyzed our sequences.

Sample ID	Scientific Name(s)	Common Name(s)
DJF-008	Erpobdellidae sp.	leech
DJF-009	Helobdella_fusca	leech
DJF-010	Notonecta lunata voucher	Backswimmer
DJF-007	Haliplidae_sp	beetle
DJF-002	Ischnura sp.	Damselfly(forktails)
DJF-006	Planorbella anceps	Snail



Discussion

Out of the 12 samples that were collected, 10 of them were originally amplified. This proves that the method of DNA extraction and PCR helps to identify unknown organisms.

Altogether, identified 5 different species were identified in the river and one potentially novel sequence may have been identified. We believe is yet to be barcoded for NYS. We didn't expect to find a possibly novel species, we had expected to find mostly common/identified organisms.

The beetle identified has the closest match to the Haliplidae family and the next closest match had over 50 mismatches.

Future Directions

We may continue this project by doing further tests and research on our novel specimen. It's important to us that we help to continue the research the biodiversity of the Peconic.

Acknowledgements

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