



Phytoplankton: Jewels of the Delaware River Final Report

Nov 5, 2021

Project Summary

SPLASH is excited to announce the successful creation of a new class entitled “Phytoplankton: Jewels of the Delaware River” The purpose of this class is to teach students of all ages about the diversity of freshwater phytoplankton in the Lower Wild and Scenic Delaware River and the ecological significance of these organisms in the aquatic food chain.

Drs. Gabriella Smalley (Rider University) and Allison Brown (SPLASH Science Director) developed collecting protocols and identified more than 30 species of microscopic algae drifting in different zones of the river and neighboring D & R canal in Lambertville, NJ. With the aid of our new microscope equipment and laptop, we now have photomicrographs of these organisms which can be viewed on our SPLASH shared drive. Our students have contributed to the photo library as well.

We developed curricula that allows students of all ages to learn how to collect, process, and examine phytoplankton samples. A taxonomic picture key was created to help students identify the algal species collected from our region of the Lower Delaware Wild and Scenic River. We also developed a hands-on food web activity that teaches students about the ecological significance of phytoplankton in our river ecosystem. A lesson plan for these curricula has been designed for the SPLASH Teacher Training Manual.

Implementation of the project began with an in-person Pilot class on August 28, 2021. Insight gained from the pilot class helped to pave the way for our first class with Mr. Scott Johnson’s 5th grade students at the Kingwood Elementary School on October 14. The kids really enjoyed the class!

Unexpected Benefits and Challenges

One exciting innovation that emerged from our efforts involves the use of cell phone adaptors that can be attached to microscopes. The cell phones allow students to zoom into the subject matter with greater ease and photograph or even videotape the phytoplankton that they discover in their samples! The quality of the images is quite impressive. We feel that this Next Gen technology will open doors for student exploration of the microscopic world.

One challenge is having enough time for our younger students to fully examine the river samples for phytoplankton. For the 5th graders, we decided to purchase several representative species of phytoplankton from Carolina Biological Supply Company. These were easy for them to see and photograph. Also, we had to return the two cordless microscopes purchased with LDWS funds and borrowed four older microscopes from Delaware Valley University. The older microscopes have superior optics, mechanical stages, and total magnifications up to 1000x. The funds from the exchange were allocated to the purchase of the cell phone adaptors and portable power supply for these microscopes. We would be grateful to have more used microscopes and old cell phones!

Matching funds, in-kind services/goods and volunteer contributions:

Matching funds (as per project proposal, also the small amount over budget (\$303)) came from SPLASH cash reserves Delaware Valley University (microscopes loaned), Cell phone donations (more needed)

Volunteer support by professional educators and photographer at pilot

Volunteer support for administrative work, web design, and media releases

Volunteer support for help with plankton collection

We would welcome an opportunity to present the results of our project to the LDWS Management Council!



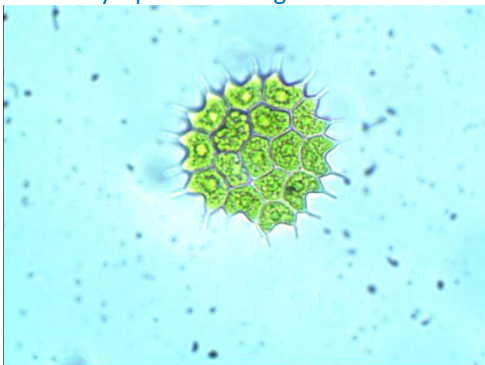
Phytoplankton Pilot Class Aug 28: L Dr. Gabriela Smalley* R science intern Paul Malatesta*



L microscope w adaptor, cell phone* R Dr. Allison Brown presenting plankton key *



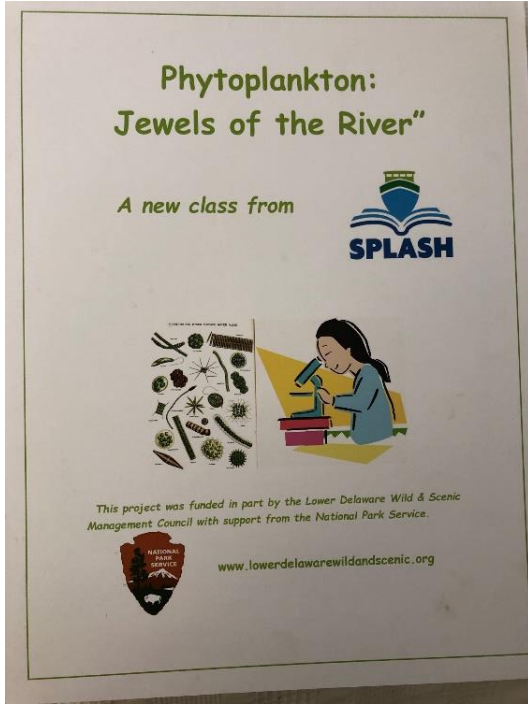
Oct 14 Phytoplankton Program shared w 5th class Kingwood School **. L Food web activity; R ID'ing phytoplankton**



*** L Pediastrum from Delaware River

*** R Phytoplankton Collection Procedure

photo credits:
 * Stephen Harris
 ** Scott Johnson
 *** Allison Brown



LDWS, NPS acknowledgement board used at in-person events R Facebook post


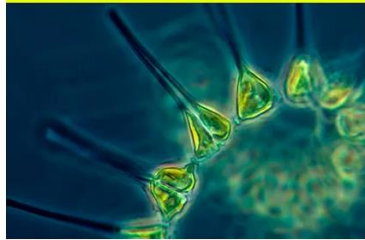


Photo credit: Stephen Harris

The Lower Delaware Wild & Scenic Management Council (www.lowerdelawarewildandscenic.org) supported SPLASH Delaware River Floating Classroom's Water Education for the Public: Phytoplankton: Jewels of the Delaware River, with funding from the National Park Service (CFDA: 15.962 - National Wild and Scenic River System).

Delaware River Basin Commission and SPLASH Teamed Up for River Days Trenton on Sept. 19

Phytoplankton: Jewels of the River



NEW CLASS ALERT!

SPLASH is excited to announce the development of a new educational class: "Phytoplankton: the Jewels of the River."

This project was funded in part by the Lower Delaware Wild & Scenic Management Council with support from the National Park Service.

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