

**Dr. Allison Brown**

**Science Manager**

**Dr. Allison Brown**

**Science Manager**

Delaware River steamboat Floating Classroom, Inc.

Lower Delaware Wild & Scenic Council (LDWS) December 26, 2018

SPLASH Mini-Grant Report

Project Background and Objectives

The [SPLASH Steamboat Floating Classroom](http://www.steamboatclassroom.org/) is a 501(c)3 organization that provides unique educational adventures while inspiring children and adults to learn about aquatic science, local history and engineering.  Our STEM classes (Science, Technology, Engineering, and Mathematics) introduce students to water chemistry, aquatic macroinvertebrates, birding, shad biology, steamboat engineering, and watershed stewardship. SPLASH students and volunteers alike enjoy hands-on learning experiences while exploring the Wild and Scenic Delaware River and its shorelines. The goal of our mini-grant application was to enhance our water chemistry curriculum and make water quality data available to our students, volunteers, and the general public.

We received very positive feedback from attendees of the 5th Annual Delaware River Watershed Forum regarding the importance of our floating classroom for Delaware River main-stem education and assessment. We were commended for our water chemistry data collection strategies, but advised to include additional equipment, and parameters currently not in our curriculum. It was recommended that we apply for the LDWS mini-grant so that we could upgrade our equipment and supplies. This would help to enhance our water chemistry curriculum, and build confidence in the water quality data that we share.

Thanks to the LDWS Council we were able realize our goals with the $1900 mini-grant award. These funds went towards the purchase of water chemistry equipment and supplies as specified in the grant proposal, with some modifications (see below for explanation). Our SPLASH students and volunteers now have high caliber tools and better techniques for collecting river water quality data. Furthermore, the SPLASH advanced water chemistry curriculum is being revised to reflect the insights gained from pilot studies using these new tools. The data we have collected and will continue to collect are invaluable to our educational mission.

Water Quality Equipment and Supplies

Equipment purchased with the LDWS funds included a YSI ODO meter with a 1M cable/ probe for measuring dissolved oxygen, and an Oakton PCST Tester for measuring temperature, pH, conductivity, total dissolved solids, and salinity. For supplies, we purchased pH and conductivity standards needed for calibration of the Oakton probe. We also purchased test strips for measuring ammonia, phosphate, and nitrate in water samples.

We underestimated the cost of the YSI ODO unit (the meter and probe are sold separately) which precluded the purchase of the Kemmerer bottle sampler. The combined cost for this piece of equipment exceeded the proposed budget for the YSI ODO unit charted in our grant application. The remaining grant money was used to purchase nitrate and phosphate water quality test strips which are safe and easy to use, and represent an important component of river water quality assessment.

Water Quality Data

The LDWS mini-grant served as a springboard for a grant from the National Park Foundation. Funds from this NPF grant are being used to pilot a student/volunteer water quality monitoring project. Water quality data thus far collected with the LDWS-funded equipment and supplies included in the project are available for your review at [SPLASH Provisional Water Quality Data](https://docs.google.com/spreadsheets/d/1jWpYIp0VQ8foPxoE54Ch5OpgGLAtQdVM9vmWXzcCl6E/edit?usp=drive_web&ouid=117954293826293996913). We are in the process of revising the organizational structure of the spreadsheet for utility and ease of access from our website.

Conclusions

Our trials with the new LDWS equipment and supplies, and the implementation of the SPLASH water quality monitoring project are serving to inform the water chemistry curriculum detailed in the SPLASH Teacher Training Manual. In addition, data will be available to SPLASH students and citizen scientists, researchers, and anyone interested in water quality of the Delaware River near Lambertville, NJ.

This report was prepared on behalf of SPLASH by:

Allison M. Brown, Ph.D. Email: abrown@jembe.com