TITLE: Design and implementation of aquatics based after school program at PAST Innovation Lab
PRINCIPAL INVESTIGATOR: Andrew Bruening
AFFILIATION: PAST Foundation
EFFORT: 
ASSOCIATE INVESTIGATOR: Chris Brandon
AFFILIATION: PAST Foundation
EFFORT: 

SEA GRANT FUNDS: $
STATE MATCHING FUNDS: $
PASS-THROUGH FUNDS: $

PROJECT NUMBER: 
SEA GRANT STRATEGIC PLAN
CLASSIFICATION: 

OBJECTIVES: To design and implement a ten-week pilot after school program for grades 4-8 at PAST Innovation Lab. These activities will build off of existing outreach resources generated by OSU’s Stone Laboratory and use a hands-on learning approach to address aquatic sciences. The activities developed will eventually be incorporated into a new learning lab at the PAST Foundation.

METHODOLOGY: This is a proposal to develop an aquatics based hands-on after school program at the PAST Foundation through a joint partnership between the PAST Foundation and the Ohio Sea Grant College Program. The program will introduce students to field sampling techniques and a range of aquatics based topics. Participants will be able to take what they have learned in the lab at PAST and apply it in the field at OSU’s Stone Lab. The ultimate goal is to familiarize students with scientific fieldwork and make them better prepared to participate in a Stone Lab field trip.

This proposal requests $9,950.04 to design and implement educational activities as part of a 10 week afterschool program at PAST Foundation. The program will consist of weekly 2 hours lessons and hands-on activities. Each week students will learn new data collection and sampling techniques that can be applied to the aquatic environment around them. Students will travel to the Olentangy River to make observations, collect samples, and learn about the aquatic environment in central Ohio. Additionally, the weekly activities will use hands-on labs and touch screen tablets to enhance the learning.

In an effort to improve scientific literacy, the Ohio Sea Grant education team will assist with the design of lessons to develop observation, sample collection, mapping, and data entry skills. Additional lessons will focus on fish ecology, macroinvertebrates and water pollution. The fish ecology lesson will include dissection activities that expose students to internal and external anatomy of fish, as well as what the different parts of the fish do that make them unique. A macroinvertebrate lesson will teach students how to identify organisms found in the local waterways and what these organisms indicate about water quality.

RATIONALE: The PAST Foundation stands for Partnering Anthropology with Science and Technology and for 16 years has been at the leading edge of developing STEM programs through problem-based, hands-on learning. It also works with Columbus schools to develop innovative education and teaching programs that allow high school students to experience college courses and earn college credits before graduation. This type of experience has created a model known as the PAST Innovation Labs – where specific themes are employed as frameworks for research and learning. In addition, the PAST Foundation has expertise in immersive, hands-on learning programming through its Bridge Program division. Bridge Programs has designed and implemented informal learning opportunities ranging from day to month programs throughout the United States.

In the summer of 2016, Dr. Bruening (PAST) and Mr. Brandon began discussions with staff from the Ohio State University’s Stone Laboratory (Stone Lab). Established in 1985, Stone Lab serves more than 65 researchers from various agencies and institutions, offers more than 25 college-credit science courses each summer, and provides hands-on
programs to high school students and educators to address and solve problems facing the Great Lakes. As dialogue proceeded, it became clear that a partnership between the PAST Foundation and Stone Lab would be mutually beneficial for both parties by opening pathway of information where water issues in Columbus and on Lake Erie could be explored throughout the year. The collaboration identified the short to mid-term goal to be addressed in this proposal is to design and implement 10 weeks of lessons and activities to be delivered at PAST Foundation’s after school program.

This partnership will provide opportunities for learners in grades 4-8 about how they personally impact the waterways around them. The after school lessons will be a springboard for additional collaborative efforts to expand to learning experience for students at PAST Foundation and at Stone Lab. Together the PAST Foundation and Ohio Sea Grant will promote hands-on science with real world context and environmental stewardship.