

BEETLES: Broad Implementation of a Professional Learning Model for Outdoor Science Programs

1) Overview

The goal of the proposed BEETLES project is to improve the quality of science teaching and learning in Outdoor School Programs (OSP) nationwide with two foci:

Focus 1: To broadly implement the BEETLES professional learning model in 100 OSP nationwide that annually serve nearly one million youth from diverse backgrounds.

Focus 2: To contribute knowledge to the field of informal science education about the features of informal science learning experiences that support meaningful outcomes for youth.

The Center for Research on Lifelong STEM Learning at Oregon State University (OSU) will lead the evaluation efforts with a focus on supporting project improvement. More specifically, the OSU evaluation team will complement the project team's research efforts by assessing the quality of the project as a whole, and evaluating the degree to which the project met the goals articulated above. In addition, the OSU team will provide external perspectives and expertise related to 1) informal science education, 2) the landscape of outdoor science education, 3) best practices in research and evaluation, and 4) science content.

2) Scope of Work

As the Lead Evaluators for this project, the OSU team will lead, support, and document the evaluative work of the Advisory Board, and serve in the Advisory Board's Chair function. The scope of work which the OSU team will engage in includes: 1) setting up the processes and protocols for the evaluative role of the Board, 2) reviewing and summarizing the data garnered by the project's research team that is relevant to answering the key questions detailed below, 3) conducting limited independent data collection and/or analysis if required for evaluation purposes and 4) documenting the results of the evaluative review.

We will use mostly existing research data to make evaluative statements on the progress and success of the project. We will do so by reinterpreting the data with a focus on evaluation questions. We will also serve as a quality control system for the research conducted as part of the grant itself, verifying the appropriateness of the research approach and all of its aspects (e.g., serving as first line of critical review).

3) Broader Impacts

This five-year project will result in the dissemination of BEETLES materials and practices to about 100 programs, around 200 program leaders, 1500 outdoor science instructors and potentially 800,000 elementary students. In doing so, the project will help us understand how places like residential outdoor science schools can play a supporting, if not central role in helping to implement the *Next Generation Science Standards*, and the vision for improved science learning from *A Framework for K-12 Science Education*, the consensus study by the National Research Council of the National Academy of Sciences that provided the blueprint for the

NGSS. Projects like this are essential in the current complex process of moving from adoption to successful implementation of these standards, but more so, in helping with the underlying effort to change how we teach science in the United States.