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1. OUTREACH SCHOLAR PROJECT TITLE:

“Ocean Science as a Context for Addressing Science Standards”

2. PROJECT DESCRIPTION

Recently marine educators from around New England joined forces to form the New England Ocean Science Education Collaborative (NEOSEC) whose goal is to increase the ocean literacy of the general public. One proposed method of achieving this goal is to provide professional development for K-12 teachers that promotes an “ocean oriented approach to teaching science standards” as first outlined by the consortia of organizations that created the “Ocean Literacy Essential Principles and Fundamental Concepts.” Research from the field of environmental education indicates that ocean science could provide an engaging context for teaching the science standards with improved student performance, and achieve increased ocean literacy as well. I propose to support this effort by surveying and interviewing K – 12 teachers in New Hampshire to determine the following:

- how much they currently use ocean science as a context for teaching the science standards;
- reasons teachers might not use ocean science as a context for teaching science such as a lack of sufficient background; and,
- teacher interest in professional development that provides training in ocean sciences and how to use ocean science to teach the science standards.

Results of this effort would be used to support the funding and development of a professional development program supporting the use of ocean sciences as a context for teaching science standards.

3. BACKGROUND INFORMATION/STATEMENT OF THE ISSUES/PROBLEM

In addition to the ocean literacy objectives of the organizations mentioned above, the current standards and assessment environment in public schools in the United States is causing science teachers to focus teaching and learning on state approved standards and student performance relative to those standards. For many teachers, particularly veteran teachers, this requirement to align curriculum and instruction to statewide standards, and assessing students relative to those standards and identified performance descriptions, is new, and is an approach to education for which many are not trained.

It seems reasonable, given the current situation in science education and the goals of the ocean literacy organizations, that an examination of the current use of ocean science as a context for the addressing the standards and the status of teacher training relative to that, would provide a useful foundation for pursuing the ocean literacy objectives. It is not clear, based on information currently available, how much ocean science is being taught or is being used as a context for teaching science, particularly in New Hampshire. Thus the

purpose of this project is to address that lack of information to inform decisions regarding the development of programs to support the NEOSEC goals.

4. PROJECT DETAILS

Goals and Objectives:

The goals of the projects are to survey a representative sample of New Hampshire science teachers to:

- determine the extent to which ocean science is taught or used as a context for teaching science in middle and high schools in New Hampshire;
- uncover reasons why teachers might not be teaching ocean science or using ocean science as a context for teaching science; and,
- determine the extent of teacher interest in professional development to support the teaching of ocean science and/or the use of ocean science as a context for teaching science.

This is the first, needs assessment, step in a research and outreach effort to have a number of teachers utilize ocean science as a context for addressing the New Hampshire science standards.

Target Population/Audience:

New Hampshire science teachers at the middle school and high school levels

Methods:

I hope to be able to collaborate with the Leitzel Center, the UNH Education Department, the UNH Survey Center, the New Hampshire Science Teachers Association (NHSTA), UNH Cooperative Extension, and members of my advisory committee to help develop and field test the survey prior to its use in the field. Once developed and field-tested I hope to partner with the NHSTA to distribute the survey. I will again work with the previously identified collaborators to analyze the survey data and document our conclusions.

Evidence of External Collaboration and Partnership:

Collaboration external to the University would include the NHSTA and the surveyed teachers.

Expected Impact:

The “impact” of the survey is not expected to be great, but subsequent professional development programs, and implementation of the training is expected to be measurable. Hopefully, if enough teachers are trained and implement the training, a subsequent objective would be to determine the impact of training on student performance.

Scholarly Connection:

The broader question being addressed by the project of a possible positive connection between ocean science and improved student performance could potentially be examined. There are connections to student engagement, motivation, and curriculum and instruction methods that measurable increase student performance as well.

5. EVALUATION PLAN

Collaborators to the project will be asked to provide evaluation of the project goals and implementation throughout. Evaluation of the effectiveness and statistical quality of the survey will be done as part of the data analysis undertaken by the PI and collaborators.