

2006 Lake Superior Exploration Workshop: July 29 – August 4, 2006

The Center for Ocean Sciences Education Excellence (COSEE) Great Lakes, in partnership with the Great Lakes Sea Grant Network, invites 4th-10th grade teachers and non-formal educators from the Great Lakes region to participate in the Lake Superior Exploration Workshop, July 29 – August 4, 2006. This workshop is designed to promote Great Lakes and ocean sciences in formal and informal education and forge lasting relationships between science researchers and educators. Participants will be involved in classroom and field programs, work with scientists, examine curricula and resources, and explore classroom activities relating to the Great Lakes and ocean resources. **Fifteen teachers will be selected from throughout the Great Lakes basin.**

This six-day summer workshop will offer teachers an excursion into Great Lakes and marine science education. Using the learning cycle of Excite, Explore, Explain, Elaborate and Evaluate, the workshop will immerse participants in inquiry, questioning, and experimentation, engage teachers in concrete tasks, build on their experiences with students and deepen their content skills. Just as importantly, the workshop will demonstrate for teachers how to connect their work to specific standards for student performance.

Topics for the workshop include: Coastal Processes; Climate and Weather; Life in the Water; Hydrology and Remote Sensing; Special Habitats (e.g. Wetlands); and Special Issues (e.g. Aquatic Invasive Species). The topics include a blend of Great Lakes and ocean science designed to provide teachers the background needed to infuse marine science elements into Great Lakes curricula. The workshop will also be structured in content to move from the tributary watershed topics to the shore, the interface between land and water, and then to the topics associated with the Lake Superior environment itself.

During each day of the workshop, teachers will interact with scientists involved in cutting-edge Lake Superior research. Scientists will provide background articles and papers which will be discussed in an open forum, followed by a presentation on the topic. Curriculum applications will be examined and the scientists will be on hand to interact during classroom activities and field experiences. Each day will also end with a wrap-up session where teachers and scientists and again share ideas on developing innovative ways of bringing the science to the classroom. The workshop will foster close interactions among teachers and scientists, building a relationship that will carry into future endeavors.

Following the workshop, each participating scientist will be available to respond to on-line questions from teacher participants and their students for one month during the school year. Depending on schedule they may also be available to participate in calls to classes via speakerphone, to visit classes or to provide opportunities for laboratory visits by teachers and students.

Workshop Objectives

Our plan is for teachers to be able to:

- Interact with scientists conducting research on pertinent Great Lakes and ocean topics
- Synthesize and provide examples of how water characteristics interact with land, life, weather, and human activities
- Demonstrate how to implement Great Lakes and ocean information into their existing curriculum or informal education media using traditional and/or electronic means
- Compare Great Lakes systems with ocean counterparts, with regard to issues of human impacts and natural changes over time

We are prepared to:

- Introduce teachers to regional Great Lakes and ocean science research topics and high quality curricular and educational resources;
- Provide an effective interface between teachers, Great Lakes and ocean science researchers;
- Promote inquiry learning through existing curricular and educational resources, aligning with National Science Education Standards;
- Facilitate the development, exchange and implementation of curricula and lessons for the participant's classroom;
- Provide for long term support, evaluation and communication between COSEE Great Lakes and the workshop participants.

As outcomes of the program, participants will be expected to

1. Develop a reflective journal based on class activities
2. Develop an electronic learning project or a curriculum development project
3. Complete a curriculum integration plan for continuation of course ideas and scientist interaction
4. Participate in all aspects of program evaluation.

Workshop Team

Cindy Hagley, Minnesota Sea Grant

Bruce Munson, Ph.D., Associate Professor, University of Minnesota Duluth

Sue O'Halloran, University of Wisconsin – Superior

Steve Stewart, University of Michigan Sea Grant

James F. Lubner, Ph.D., Education Coordinator, Wisconsin Sea Grant

...plus four additional scientists for portions of the workshop

Workshop Location

The Lake Superior Exploration Workshop will be held at one (or perhaps two) formal or informal educational institutions located in or near the Duluth, MN area. Facility arrangements are being completed and will be announced when finalized. Workshop facilities will provide for suitable classroom space, meal and lodging accommodations and recreational time. The workshop will also include a number of field experiences arranged to address specific topics and located in proximity to the workshop location(s).

Participant Selection Criteria

Applications are invited from:

1. Teachers of grades 4-10 from the Great Lakes basin who teach or are willing to teach Great Lakes and marine science in their classrooms.
2. Educators from non-formal educational institutions that have Great Lakes or marine science exhibits or plan to add such topics to their programs.

All applicants must include 1) an abridged resume, 2) a personal statement as described on the application, and 3) a letter of reference from their principal or supervisor documenting the applicant's professional qualifications for the workshop and indicating that the administrator will support efforts to integrate Great Lakes/ocean science topics into the curriculum as these topics apply to state science standards.

Teachers who are Native American or members of groups underrepresented in science and/or who teach significant numbers of students who are members of such groups are encouraged to apply. Selection criteria include: geographic distribution of teachers, ethnic diversity, level of professional involvement; potential to use the workshop materials and concepts in the classroom; potential to share the workshop material with other educational professionals; and date of application receipt.

Application Procedures

All communications concerning the Institute and applications should be addressed to:

Jim Lubner, Education Coordinator
University of Wisconsin Sea Grant Institute
600 East Greenfield Avenue
Milwaukee, WI 53204-2944

Phone: (414) 227-3291
Fax: (414) 382-1705
E-mail: lubner@uwn.edu

Completed application with required principal or supervisor signature must be received by May 19, 2006. Initial notification of participants and alternates will be made within two weeks of application submission. In selecting individuals for participation and otherwise in the administration of this workshop, COSEE Great Lakes will not discriminate on the basis of race, gender, religion, national origin, age, disability, sexual orientation, or marital status.

University Credit

Participants can earn graduate credits from the University of Minnesota-Duluth for workshop participation.

COSEE Great Lakes does not pay tuition, but stipends may be used for that purpose. Information on enrolling for credit is available by contacting Dr. Bruce Munson, Chair, Department of Education, University of Minnesota-Duluth, 218-762-6324, bmunson@d.umn.edu

Participant Support

Workshop Participants will receive

1. Stipend of \$500
2. Lodging (double occupancy) and meals at the workshop location for six nights at no cost to the participant.
3. Travel support based on distance to workshop, not to exceed \$100 (some individual exceptions may apply).
4. Exemplary Great Lakes and marine curricula and resources
5. Opportunities to participate in additional COSEE Great Lakes-sponsored educational programs
6. Long term support and communication between COSEE Great Lakes and the workshop participants.