Western Upper Peninsula Center
for Science, Mathematics and Environmental Education

A partnership of

Copper Country & Gogebic-Ontonagon Intermediate School Districts and Michigan Technological University
Serving schools and communities in Houghton, Baraga, Gogebic, Ontonagon and Keweenaw Counties

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For More Information:
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Excursions on Torch Lake & Portage Lake aboard MTU's R/V Agassiz -----75% off for schools!

The Western U.P. Center for Science, Mathematics and Environmental Education is partnering with Michigan Tech University and the Michigan Space Grant Consortium to provide scientific excursions aboard MTU's research vessel (R/V) Agassiz for area schools. The excursions, with a MTU faculty scientist or graduate student will facilitate engaging students in how the Great Lakes are studied and which characteristics contribute to healthy lakes. Samples of organisms living in the lake, as well as sediment from the lake bottom, will be available for public viewing onshore. Seventeen persons may participate on each excursion

Half-day (4 hours) costs $440 and full-day (8 hours) costs $850. MTU faculty are available for $60/hour and graduate students are $15/hour to: lead the cruise and conduct sampling; provide a one-hour, pre-cruise introduction; conduct a two-hour post-cruise laboratory experience analyzing samples.

Grant funds will provide 75% of the cost of boat time and scientists to lead cruises for school and community education cruises. These funds are provided by the Michigan Space Grant Consortium, the Wege Foundation, and the Michigan Tech Departments of Chemistry, Biological Sciences, Civil & Environmental Engineering, and the Remote Sensing Institute.

A total of 335 students and community members participated in scientific excursions aboard Michigan Tech's Agassiz Research Vessel from May-Sept. 2006.

The Agassiz is a 36-foot, aluminum-hulled vessel that was custom-built to support Michigan Tech's mission in water quality research and education. The Agassiz has undertaken scientific research on Lake Superior with funding from the Michigan Great Lakes Protection Fund, U.S. Environmental Protection Agency, National Science Foundation, and others. The Agassiz sails from ice-out (mid-April) through October. The Agassiz carries the following scientific equipment: Secchi disk, Temperature probe, Van Dorn water sampler, Portable spectrophotometer, phytoplankton & zooplankton nets, and a PONAR sediment dredge.

For More Information or to make reservations, contact: Joan Chadde, at (906) 487-3341 or email: jchadde@mtu.edu . Registration forms are also online at http://wupcenter.mtu.edu/ (Search Middle/High School – Lake Investigations).

The **Agassiz** conducts scientific excursions for middle/high school students and teachers between May and October each year. A number of classes from area high schools have had the opportunity to expand their classrooms to include the waters of Lake Superior and the Portage Waterway this year. Students have enthusiastically participated this unique hands-on learning experience. Michigan Tech scientists and or graduate students lead the excursions which are 2-4 hours in length and take place on either Portage Lake, Torch Lake, Keweenaw Waterway, and/or Lake Superior. Water quality conditions in these systems vary both seasonally and by location, providing a dynamic learning experience. Teachers have the flexibility to tailor the topical content of each cruise to best fit their curricula, with options to address biological, chemical and physical features, or focus on one particular discipline, e.g. the physics of lakes. Trips aboard the **Agassiz** may also include demonstrations of vessel operation, safety and electronic navigation aboard ship, include a laboratory experience after the excursion, or be combined with visits to related sites of interest, e.g. a wetland or wastewater treatment plant, upon request.

Below are topics that can be addressed in educational cruises, tailored to each age group:

Biological Limnology
A PONAR dredge is used to collect samples of the invertebrate animals which inhabit the bottom sediments. Samples are processed to separate the animals from the sediment and the collection is inspected. Plankton nets sample the phytoplankton and zooplankton that inhabit the open waters. Stops can be made to conduct shoreline seining of the fish community. On board discussion focuses on differences in the diversity of aquatic life in different habitats and the role of invertebrate animals as indicators of ecosystem health.

Physical Limnology
The physical composition of sediment samples collected with the PONAR sediment dredge is evaluated. The sand-silt-clay content of the sediment is compared for sites at various depths. On board discussion focuses on the role of particle size, density, and their interaction with wave energy in determining sediment character and the types of organisms which inhabit various environments.

Chemical Limnology
Depth profiles of dissolved oxygen and water temperature are developed at several sites using a HydroLab. Vertical structure in oxygen and temperature is explored as a basis for understanding the significance of thermal stratification. On board discussion focuses on the interplay of physics (temperature), chemistry (oxygen), and biology (oxygen consumption) in determining the oxygen resources of lakes.

For More Information or to Make Reservations:
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