

## North Temperate Lakes Schoolyard LTER Project

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In the fall of 1998, we began a pilot partnership with two schools, Arbor Vitae-Woodruff School in Vilas County near our Trout Lake Station, and Country View School in Dane County, which is where our southern Wisconsin sampling sites are located. By the end of the 1998-99 school year, we had accomplished the following goals.

- We sent a team composed of a scientist, a science educator, and a teacher to participate in the LTER Education Workshop at Biosphere II in October 1998.
- We developed an action plan detailing evaluation, dissemination, and replication plans for the pilot project. An important aspect of our outreach effort will be working with participating teachers to fulfill national and state science and math standards.
- We participated in discussions about grade level standards for pilot schools with university education research faculty, LTER scientists, school administrators, and teachers.
- We provided professional development workshops on long-term ecological research (using primary and secondary data, sampling protocols, and biological diversity) for teachers at Country View School.
- We coordinated winter limnology activities (sampling biological, ecological, chemical, and physical attributes of lakes) with participating classrooms. Activities in the classrooms integrated knowledge and skills into the classroom curriculum. An example of this was comparing historical ice duration records for the Lake Mendota (southern Wisconsin) and Trout Lake (northern Wisconsin) to predict when the lakes would be ice-free. Forty students from Country View School carried out their investigations on frozen Lake Mendota, followed by an afternoon of laboratory activities and discussions with LTER scientists at the Limnology Laboratory in Madison. Fifty six students from Arbor Vitae-Woodruff School carried out similar winter limnology activities on Trout Lake, assisted by LTER scientists from Trout Lake Station, followed by additional indoor activities at the school in the afternoon.

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### Plans for 1999-2000

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Coordinated planning of scientists, science educators, teachers, and administrators suggest that aquatic science activities can be useful in teaching concepts (e.g. dynamics of ecosystems, biological diversity, role of humans in the environment, manipulation of data) required by state and local standards. During the coming year, we will continue these activities while increasing the number of participating

teachers.

We have developed goals for the coming year.

- We plan to include additional teachers and classrooms in our program. This will incorporate additional educational perspectives and teaching styles and lead to new ideas and approaches. We will work with teachers and their students from several middle schools, broadening the age range involved (our pilot students were from grades 3-5).
- We plan to reach other schools by distributing curricular and instructional materials developed in collaboration with teachers. Materials will be distributed on biology education websites across the state (such as BioNet, WSST, and the Yahara Watershed Education Network), as well as in paper form. We will develop curriculum and instructional appropriate for teachers who integrate inquiry, aquatic science, and watershed issues in their classrooms.
- We will further develop a program of professional development for teachers at all participating schools. We believe that this is essential as a foundation and to strengthen the Schoolyard program. In particular, we will incorporate GIS applications for K-12 teachers and students. This will be done in cooperation with Professors Jim Lorman and John Lyon at Edgewood College and their GIS Education Training Center. Incorporating GIS research into the classroom will enable schools to collaborate with not only our NTL-LTER, but other LTER sites as well.

In the coming year we will continue our partnership with the Center for Biology Education at UW-Madison. Dr. Robert Bohanan from CBE has helped coordinate professional development and outreach this year, and will continue this initiative. The Wisconsin Center for Education Research at UW-Madison will also continue their efforts in this partnership by providing their expertise in evaluation and assessment.