

GIVING OPPORTUNITIES FOR THE UC DAVIS TAHOE ENVIRONMENTAL RESEARCH CENTER (TERC)

2007

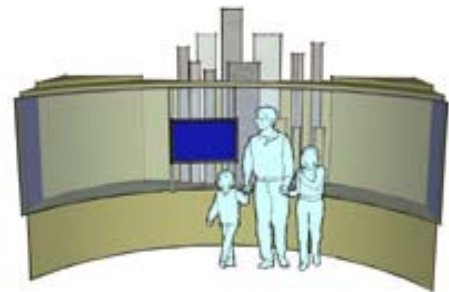
The Tahoe Environmental Research Center (TERC) is dedicated to research, education and public outreach on lakes and their surrounding watersheds and airsheds. Lake ecosystems include the physical, biogeochemical and human environments, and the interactions among them. The Center is committed to providing objective scientific information for restoration and sustainable use of the Lake Tahoe Basin.

EDUCATION CENTER INFRASTRUCTURE

Onomy Labs Digital Reading Wall (\$120,000)

Onomy Labs (<http://www.onomylabs.com>) designs and creates evocative interactive systems that enable audiences to experience the future. We are planning to include a digital cross-section of the Tahoe Basin with a graphical and multimedia program using imagery and brief text to convey various types of research in action and local accomplishments made possible through research in the following habitat zones/biomes:

- Mountain ridges
- Upland
- Forest
- Stream Environment Zone (SEZ)
- Wetland
- Shorezone
- Littoral zone of lake (shallow water)
- Pelagic zone of lake (deep water)
- Lake sediments



Plastic Models of the Tahoe Basin and Truckee River (\$15,000)

Eight table-top watershed models of the Tahoe Basin and Truckee River watersheds (approximate size 2' x 2') will provide student groups with a hands-on opportunity to interact with the region and learn about erosion, pollutant transport and watershed processes.

Outreach Development "Volunteers" (\$6,000 each – ideally two per year)

Utilizing AmeriCorps volunteers, we would develop a vastly expanded education and outreach component to complement TERC's research activities throughout the Tahoe Basin. The volunteers would produce education materials for school children, the general public, teacher training and docent training, as well as administer these programs.

Captioning for Video Exhibits (\$4,000)

Video captioning with English and Spanish subtitles will be provided for the hearing-impaired and/or Spanish-speaking visitors to the Education Center.

Activity Areas for Thomas J. Long Foundation Education Center (\$2,000)

Basic equipment is needed for the Thomas J. Long Foundation Education Center activity areas for student groups. This equipment includes water quality test kits, microscopes, goggles, student lab coats, laminated topographic maps, etc.

Secchi Depth Chart (\$1,000)

Need a transportable (rolling) magnetic wipe-board, printed with blue depth labeling and magnets (to look like Secchi Disks) for a proposed student charting/graphing exercise.

Teach Tahoe Kit Purchases (\$1,000 each)

Local teachers have requested a "Teach Tahoe Kit" that includes the materials for pre- and post-visit activities appropriate for sixth-grade science coursework. Supplies include a Rubbermaid tub, binder of curriculum, small dry erase boards, laminated activity materials, supplies for activities, etc.

Outdoor Exhibit Elements (cost to be determined)

We wish to include the following outdoor elements:

- A large table-top stream channel model outside near the demonstration garden (shows stream meandering, scouring and deposition, stream channel erosion, BMPs, etc.)
- Trail and stream sampling "deck" at the creek
- "Discovery Trail" linking Center to Demo Garden to Incline Creek to confluence of Incline Creek/Rosewood Creek to Lake Tahoe for summer programs. Would plan to collaborate with Sand Harbor or Tahoe Rim Trail for summer programs.
- Trout in the Classroom program at Tahoe City Fish Hatchery.

What Needs to Be Done Wall - Phase 2 (cost to be determined)

An exhibit designer and fabricator would be enlisted to develop an exhibit that would engage and educate on what actions are needed to protect and preserve Lake Tahoe. Upgrades to the "What Needs to Be Done" wall exhibit will provide two computer stations with touch-screen monitors and associated computer programming. A wall-mounted graphic panel includes a collage of text, images and objects with graphics to help convey:

- History of people coming together to save Lake Tahoe (President Clinton, etc.)
- Top Ten List of "Things You Can Do to Protect Lake Tahoe" with examples of people doing each thing
- Before and after images of restored wetlands
- Restoration projects underway, including projects removing roads and reclaiming habitat

Education Center Computer Stations (cost to be determined)

Two touch-screen monitors will provide access to detailed information about the Lake Tahoe ecosystem as well as an opportunity for visitors to complete a survey about their visit to the site and declare how they will help to preserve Lake Tahoe. This activity allows for reflection and reinforces the information that they learned while visiting the site in addition to allowing for immediate action.

“How Would You Save Lake Tahoe?” Computer Program for Interactive Lake Clarity Modeling (cost to be determined)

Using the existing UC Davis Lake Clarity Model as the basis, we will develop an interactive computer game which allows visitors to explore the effects of various management strategies on lake clarity, land use, population pressures and the economy. Students have an opportunity to try their hand in acting as land managers to make the difficult decisions necessary to help save Lake Tahoe. Funding is required for one graduate student in computer sciences to complete this interactive program and the associated animations and graphics to make it come alive.

RESEARCH SUPPORT

Boat Storage Facility at Hatchery (\$300,000)

As part of the renovation plan for the old Hatchery building at Tahoe City, we plan to build a boat storage facility at the rear of the Hatchery. This new boat storage facility would allow for the storage of a new high speed research boat that could be launched by trailer on Lake Tahoe, or taken to other lakes throughout California. The building would be designed to allow for the storage of a boat up to 28 ft in length, and for the storage of other field supplies. It is anticipated that it will be a single story building, but with mezzanine space to allow for maximum storage capacity. As part of the permitting process for the Hatchery renovation, permits for this new building have been obtained.

High Speed Research Vessel (\$140,000)

TERC currently operates 2 research vessels that are permanently moored on Lake Tahoe. While both vessels afford adequate work space, they are both slow which limits where on the lake we can work, and the ability to conduct small experiments. To effectively utilize our personnel and equipment, a high speed (50 knots) research vessel is needed. Munson boats is a local boat builder with a national reputation for strong and reliable work boats. The main features of the vessel are as follows: 28 ft x 8.5 ft standard hull Packman with twin 225 HP 4 stroke engines, 2500 lb bow winch, T-top cabin, VHF radio, 16 mi radar, GPS, depth sounder, 625 lb davit winch, dual axle trailer.

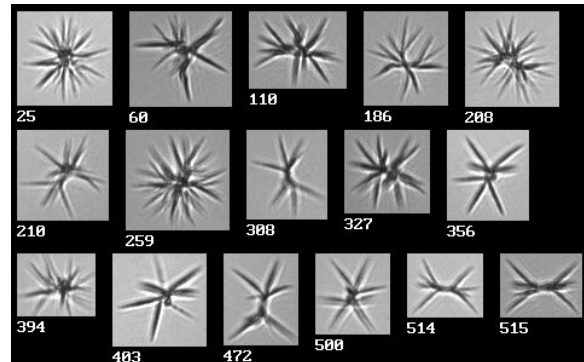


Rooms and Laboratories within the Tahoe Environmental Research Center (\$50,000-\$100,000)

Several rooms and laboratories within the Tahoe Environmental research Center are still available for naming. Details are available upon request.

Flowcam Imaging and Analysis System for Lake Research and K-12 Education (\$80,000)

New technology offers the opportunity for researchers to quantitatively characterize the fine particles that are reducing Lake Tahoe's famed clarity and for visitors and children to glimpse into this invisible, microscopic world. The FlowCAM® is a state-of-the-art instrument for rapid monitoring of particles in fluid. FlowCAM automatically counts, images, and analyzes the cells in a discrete sample or a continuous flow, providing significantly increased data collection, instantly.



We propose to purchase a portable FlowCAM. The instrument will be able to be used in the field, the laboratory and as part of a permanent display within the Education Center. Used in conjunction with a large LCD display screen, it will offer the opportunity for school children and visitors to see some of the varied microscopic flora of Lake Tahoe and its streams (such as those in the image shown above) magnified up to 2000X.

UV Radiometer System (\$40,000)

In the high altitude environments such as Lake Tahoe, ultraviolet (UV) radiation exerts a dominant impact on lake ecology. With changes likely in future climate, it is certain that the impacts of UV will alter dramatically. In the past, TERC researchers only had brief opportunities to study UV radiation effects on Lake Tahoe, when visiting scientists brought the necessary equipment. We propose to integrate UV radiation monitoring into our existing monitoring program by purchasing a profiling UV radiometer. This instrument, a Biospherical PUV-2500 Profiling Radiometer (24,000), will be operated from the research vessel John LeConte, and used to acquire profiles of UV radiation 3 times each month down to a depth of 350 feet into the lake.



STUDENT SUPPORT

Tahoe Environmental Scholars Program (\$10,000-\$40,000/year)

The training and education of students is at the core of TERC's mission. We wish to establish a scholarship program, to attract the best students from the nation and the world to study limnology and resource management at Lake Tahoe. With a range of partial and full scholarships, we hope to have in range of 15-30 graduate students a year working at the forefront of science, engineering and policy at Lake Tahoe. Graduate students are the lifeblood of our program, and upon graduating students will take what they have learned at Lake Tahoe and apply it elsewhere.