



UC DAVIS

TAHOE ENVIRONMENTAL RESEARCH CENTER



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.

TERC Administrative Office
Watershed Sciences Building
University of California, Davis
One Shields Avenue
Davis, CA 95616-8527
Phone: (530) 754-TERC (8372)
Fax: (530) 754-9364

TERC Incline Village Laboratory
291 Country Club Drive
Incline Village, NV 89451
Phone: (775) 881-7560
Fax: (775) 832-1673

TERC Tahoe City Field Station
2400 Lake Forest Road
Tahoe City, CA 96145
Phone: (530) 583-3279
Fax: (530) 583-2417

<http://terc.ucdavis.edu>

RESEARCH UPDATES

Lake Research

Lake research during 2011 has included regular monitoring of clarity, primary productivity, phytoplankton, zooplankton, and attached algae. This winter's large storms and freezing cold temperatures resulted in the complete mixing of the lake all the way to the bottom. Deep mixing years often produce some of the highest Secchi depth readings. On March 4, 2011 a clarity reading of 31.8 meters (104.5 feet) was recorded. Researchers Katie Webb and Brant Allen continued with regular research dives even in this very cold water. Divers were in waters as cold as 35 degrees Fahrenheit!

Stream Research Update

This was a very wet year, with significant snowfall occurring well into spring. As a result, the peak period for snowmelt took place about a month later than usual, in the second half of June 2011. Researcher Scott Hackley continued to monitor the streams frequently for nutrient and



Scott Hackley sampling Ward Creek in December 2010 as the Water Year got off to a wet start and snowpack was accumulating

sediment concentrations well into July. The results of monitoring allow us to estimate amounts of sediments and nutrients delivered to the lake each year.

Laboratory Update

This spring, TERC participated in the United States Geological Survey's Standard Reference Sample Project. Started in 1962, the purpose of this biannual project is to function as an inter-laboratory comparison study. It evaluates the performance of participating laboratories and identifies any problem areas. The results from this year's

"test" proves that the TERC labs excel in their low-level nutrient analyses, which is especially important in Lake Tahoe, a lake distinguished by its very low levels of algal nutrients. The TERC chemistry lab did an especially great job this round. TERC was off by only 1 part per BILLION in the four main analyses that are needed for Lake Tahoe. This translates to being off by less than one percent of the true value in this blind test. Great job!

Asian Clam Update

TERC's research program on Asian Clams moved

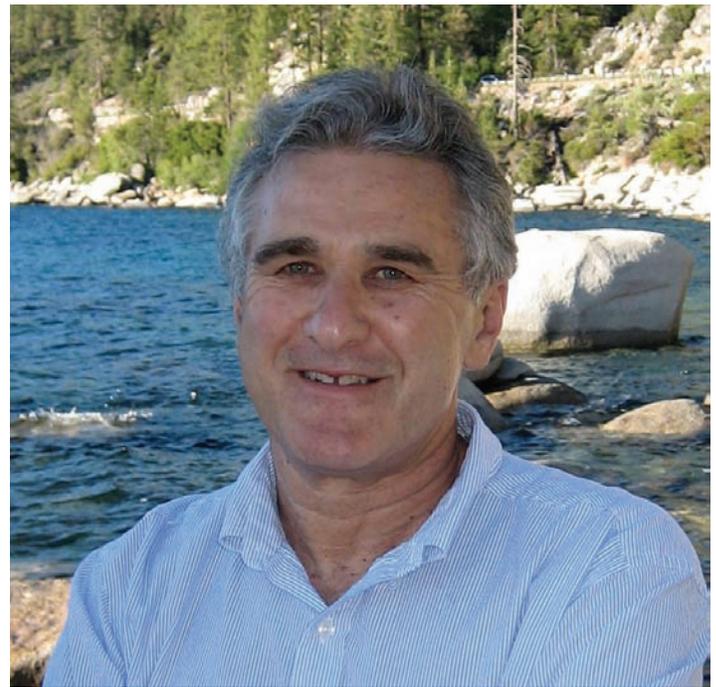
LETTER FROM THE DIRECTOR

2011 will be remembered for its unusually long and cold winter. Extreme episodes such as this present great opportunities for scientists to learn about Lake Tahoe. As the saying goes, “the exception proves the rule”. Understanding what happens in extreme years allows us to better understand what a more normal year should be. However, this may not happen this time around. With the likelihood of federal and state funding for research in the Tahoe Basin being drastically curtailed over the next one to two years due to budget impasses, we are entering new territory. The information that is

required for informed decisions and the monitoring of progress will be reduced or even totally absent. The search for new and better solutions will be stalled, and institutional knowledge built up over decades will dissipate.

A large part of the reason that Lake Tahoe can still be restored is the depth and breadth of science that takes place in the basin. Many of the best planning decisions made at Tahoe have been and continue to be based on research and monitoring.

Science, and in particular independent science, has been instrumental in pointing the way to the restoration and



Geoffrey Schladow, Ph.D., Director Tahoe Environmental Research Center

preservation of Lake Tahoe, and demonstrated how it can best be achieved. To avoid a major setback at this stage, those who share the commitment to restore and

preserve Tahoe must not allow funding for research and monitoring to dry up.

A handwritten signature in black ink that reads "Geoff".

RESEARCH UPDATES, CONTINUED FROM PAGE 1

to the other side of the lake this summer, with an experiment to determine the efficacy of treating the small clam population at the mouth of Emerald Bay. The presence of high boat traffic, combined with a rocky and uneven bottom adds great complexity to this task. Instruments installed on the lake bottom are measuring the velocities and waves induced by boat passage, and the movement of water between the Bay

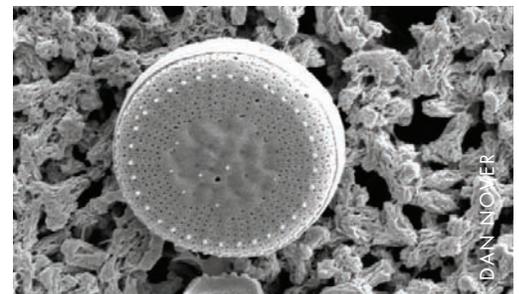
and the lake. Additionally, a high-resolution camera is providing a continuous, direct measure of boat size and speed through the entrance channel of Emerald Bay.

A separate experiment at Marla Bay showed that it is possible to treat Asian clams throughout the winter season. Despite the very cold winter, clams succumbed to the barrier treatment, although it took up to three months for mortality to occur.

New Research

An international experiment on PARTICULATES And SOLutes in Lakes (PARASOL) will take place August 8 - 12, 2011. During this week an international team of researchers will be taking measurements around the entire nearshore area of Lake Tahoe, to

better understand the processes that control nearshore health. This is the first time this type of experiment has been conducted here.



Cyclotella gordonensis, a diatom that is becoming more abundant in the lake due to the effects of a changing climate, will be a focus of the PARASOL experiment.

EDUCATION AND OUTREACH

Lake Tahoe In-Depth 3D Movie Premiere

On May 20, UC Davis Tahoe Environmental Research Center celebrated the premier of the 3D movie “Lake Tahoe In Depth.” Approximately 150 people were in attendance. This 3D movie is now showing at the Thomas J. Long Foundation Education Center during regular summer operating hours, 1 – 5 p.m., Tuesday through Saturday.

Youth Science Institute

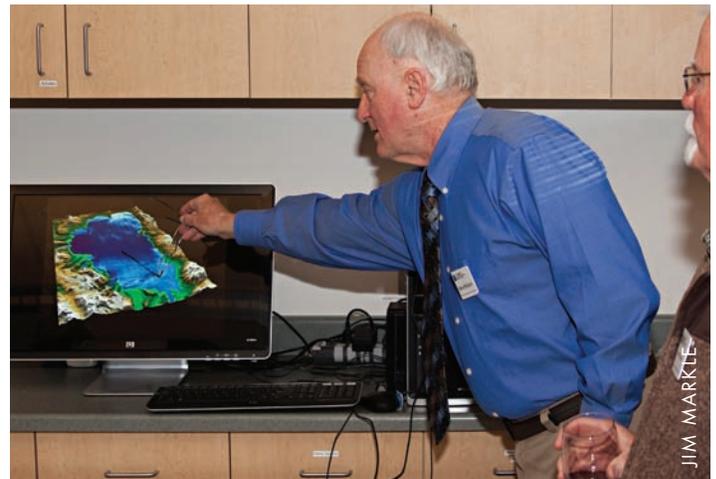
Eighteen students from seven different California and Nevada high schools participated in the 2011 Youth Science Institute (YSI). These aspiring young scientists convened with local experts weekly at the Tahoe Center for the Environmental Sciences, where they were introduced to scientific fields ranging from fisheries biology and

geology to aeronautics and biophotonics. The 2011 YSI participants also logged volunteer hours by facilitating educational activities for younger students at the 2011 Science Expo.

YSI 2012 will be open to high school freshmen, sophomores, and juniors. Applications are due December 2011. Contact Heather Segale at (775) 881-7562 or email hmsegale@ucdavis.edu for more information.

Children’s Environmental Science Day

Mark your calendar for Sat., Aug. 13, 1—4 p.m. for the twelfth annual UC Davis Children’s Environmental Science Day. This year’s event will be held at the Tahoe Center for Environmental Sciences, 291 Country Club Dr., Incline Village, NV. This free community event for children (ages



Steven McQuinn, director of the 3D movie “Lake Tahoe in Depth,” answers questions about the tsunami animation at the May 20, 2011 movie premiere

six and up) and their families includes science activities designed to teach about the various fields of environmental science. UC Davis scientists and local community organizations provide hands-on activities to teach children about the unique ecology, function, restoration and preservation of Lake Tahoe.

See our education center exhibits including the new 3D movie, get up close with fish and zooplankton from the lake, test the water quality of a stream, visit with local scientists, and eat free ice-cream provided by Susie Scoops. If you have any questions regarding this event or would like to volunteer, please contact Leanne Burns at (775) 881-7560, ext. 7474 or email lkburns@ucdavis.edu.

Docent Training

We recently added new members to our energetic

cohort of community volunteers. New docents were trained to help with the influx of summer visitors to both our education centers. We are always in need of additional docents, so if you are enthusiastic about Lake Tahoe, environmental education, or science in general, please contact Nicole Shaw at (775) 881-7566 or email nhshaw@ucdavis.edu.

Goldman Tahoe Scholarship

Ulysses Tapia from South Tahoe High School was the 2011 recipient of the Goldman Tahoe Scholarship, awarded annually to a high school student from the greater Lake Tahoe area who has displayed an active interest in environmental issues, conservation and protection of Lake Tahoe, and exceptional academic achievement.



Several of the 2011 Youth Science Institute participants attend graduation

FACILITIES UPDATE

Two Education Centers Open for Tours

Both of our small science education center facilities are now under a summer operating schedule, so please come by for a visit!

The Thomas J. Long Foundation Education Center, located in the Tahoe Center for Environmental Sciences building, is open for public tours from 1 – 5 pm, Tuesday through Saturday. Our new Incline Village exhibits feature:

- “Lake Tahoe in Depth”

3D movie

- Clarity model interactive exhibit

The Eriksson Education Center, located at the renovated Tahoe City Field Station, is open for self-guided tours from 8 am – 6 pm daily. Docent-led tours are available on summer Saturdays from 10 am – 2 pm until Labor Day. Our new Tahoe City exhibits feature:

- Two aquariums high-



New aquarium exhibits at the Eriksson Education Center in Tahoe City highlight native and non-native fish and plant species

light native and non-native species in Lake Tahoe

- Interpretive signs in our Native Plant

Demonstration Garden present the science behind keeping Lake Tahoe blue and clear

RECENT PERSONNEL CHANGES

Please welcome Nicole Shaw, new program coordinator, docent volunteer coordinator, event coordinator, and Tahoe Science Consortium program coordinator. She takes over from Jill Falman who left TERC for the damper climes of Seattle and the prospect of

graduate school.

Allison Gamble arrived at TERC from Minneapolis on July 5 to take up a position as a post-doctoral researcher, working on invasive species and the food webs of the lake. She has extensive experience working on the Great Lakes.

Graduate student Kristen Fauria commenced with TERC on July 5, working on a new project to understand how wetlands and floodplains filter particles from stormwater.

We also welcome and thank our four summer interns: Robyn Bath,

Mitchell Gehring, Thomas Mathis and Melissa Thaw.

In the coming months TERC is preparing for an influx of visitors from around the nation and around the world. Jack Kelly and Peder Yurista are visiting from the EPA's National Health and Environmental Effects Research Laboratory in Minnesota, Jon Zehr from UC Santa Cruz, Michael Anderson from UC Riverside, Yosuke Yamashiki, Masato Kato, Masaki Azuma and Pedro Chaffe from Kyoto University, Japan, Warwick Vincent from Laval University, Canada, Juan Reinoso, Carlos Leon and Andrea

Hoyer from the University of Granada, Spain, and Il Kyu Kim from Pukyong National University, Korea.

Leaving TERC at the end of the summer will be graduate students Dan Nover, Bridget Tracy and Adrienne Aiona. We wish them all the best for their future careers and thank them for their many contributions to research at Lake Tahoe.

Long-term docent Laura Helsel has also moved on, and we thank her for her outstanding service.



TERC welcomes new program coordinator Nicole Shaw

FEATURED STAFF

Veronica Edirveerasingam, Ph. D.

Everything studied by UC Davis TERC researchers, whether it is the aquatic invasive species, terrestrial ecology, or the clarity, eventually ends up in the TERC laboratories to be analyzed. Our chemists are the key to understanding what the researcher's samples mean for the health of the lake and the basin.

Veronica Edirveerasingam is a staff research associate in the field of chemical analysis and a vital part of the chemistry team. Originally from Sri Lanka, she moved to Guam where she earned her B.S. in chemistry and her Masters in environmental chemistry. She then journeyed even further for her environmental science Ph.D., coming all

the way to the University of Nevada, Reno. While earning her Ph.D. at UNR, she worked in the University lab and studied Tahoe soil and lake sediments, analyzing for petroleum hydrocarbon contaminants under the guidance of professor Glenn Miller. It was this research that helped her fall in love with the Tahoe Basin and become passionate about protecting it. Her research piqued her interest in what chemicals are entering Lake Tahoe and the effect they had on the organisms that depend on the lake.

In 2007, Veronica accepted a position with the TERC chemistry team. She is now nearing the end of her third year with TERC. Every day Veronica can be found in the third floor



Chemist Veronica Edirveerasingam, Ph.D. in the TERC Chemistry Lab

chemistry labs analyzing samples from our researchers. She analyzes mid-lake samples taken twice a month for nutrient levels of phosphorus, nitrate, and ammonium. She analyzes any samples from the ongoing Asian clam projects, the storm water program, and the

Angora fire sites. Veronica is kept very busy, as the majority of samples from the lake and basin are analyzed by her or someone on her team. As she says, "every day is a different analysis." Dr. Edirveerasingam can be contacted at vedirveerasingam@ucdavis.edu.

UPCOMING EVENTS

Tuesdays in July & August, 2011:
Green Thumb Gardening Workshops at the Tahoe City Field Station Demonstration Garden

July 21, 2011:
The Bounty, Beauty and Benefits of Beer—Food Lecture Series on the Science of Beer, with Dr. Charlie Bamforth, UC

Davis
August 8 - 12, 2011:
Particulates and Solutes in Lakes (PARASOL) International Experiment

August 11, 2011:
The Cheese Stands Alone—Food Lecture Series on the Science of Cheese, with Dr. Moshe Rosenberg, UC Davis

August 13, 2011:
12th Annual Children's Environmental Science Day in Incline Village (see page 3 for details)

October 5, 2011:
Tahoe's Faults and Landslides Lecture, with Dr. Graham Kent, University of Nevada, Reno

October 20, 2011:
"Hatchery" Harvest

Festival North Tahoe Chamber Mixer at Tahoe City Field Station

October 20, 2011:
Masters of the Night—Science of Bats Lecture, with Mary Jean "Corky" Quirk, Nor Cal Bats Rescue and Education

Visit <http://terc.ucdavis.edu/calendar/> for more information.

GIVING TO THE TAHOE ENVIRONMENTAL RESEARCH CENTER

Charitable gifts to the Tahoe Environmental Research Center provide crucial support for research, teaching and public outreach that helps promote understanding and conservation of the Lake Tahoe Basin and other lake

- YES, I wish to support the Tahoe Environmental Research Center with the gift amount shown below.
- Please contact me about how I can make a deferred or estate gift to UC Davis.
- I wish this gift to remain anonymous.

Mail to: *UC Davis Tahoe Environmental Research Center*
Watershed Sciences Building
One Shields Avenue
Davis, CA 95616-8527

UC Davis is requesting this information to maintain accurate donor files in the Office of University Relations. Furnishing the information is strictly voluntary and it will be maintained confidentially. The information may be used by other university departments in the regular course of business but will not be disseminated to others except if required by law.

You have the right to review your own data file. Inquiries should be forwarded to the Director of Advancement Services, University Relations, University of California, Davis, CA 95616.

The University is grateful for the support it receives from alumni and friends. One of the ways our thanks is expressed is through listing the names of donors in various

systems. Your gift helps ensure the Center's continued excellence in restoring Lake Tahoe and other lakes around the world - now and for generations to come. Thank you!

Enclosed is my tax-deductible contribution.

Please make checks payable to *UC Regents*.

Name: _____

Spouse/Partner: _____

Address: _____

City, State, Zip: _____

Phone: _____

Gift Amount: _____

publications. Should you wish that your name not appear as a donor, please notify us if you have not already done so.

It is the policy of the University of California, Davis and the UC Davis Foundation to utilize a portion of the gift principal and/or the short-term investment income on current gifts and grants to support the cost of raising and administering funds.

The University of California does not discriminate in any of its policies, procedures, or practices. The University is an affirmative action/equal opportunity employer.

TERCGFT/06501

Davis, CA 95616-8527
One Shields Avenue
Watershed Sciences Building

