

TAHOE:  
**STATE  
OF THE  
LAKE**  
REPORT  
**2019**

**EDUCATION AND OUTREACH**

## TERC education and outreach

In 2018

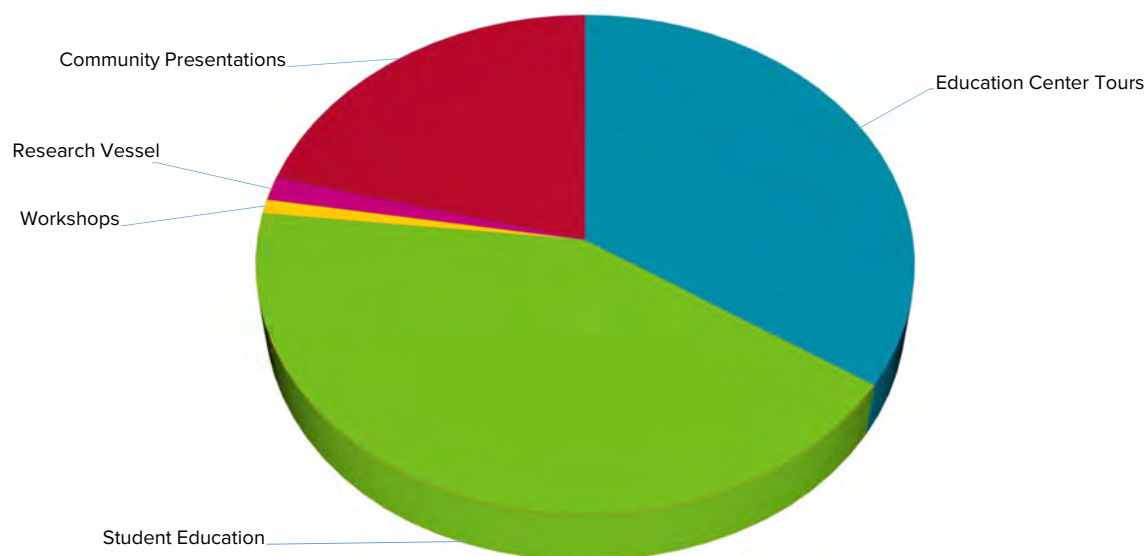
Part of TERC's mission is education and outreach. Our public, K-12, teacher professional development, and volunteer programs are designed to provide science-based information about the Lake Tahoe region in order to foster responsible action and stewardship.

During 2018, TERC recorded 14,477 individual visitor contacts. Student field trips and visitors to the Tahoe Science Center at Incline Village accounted for a little over 75% of these contacts. Additionally, TERC hosts monthly

public lectures and workshops, makes presentations to local community organizations, and takes a limited number of visitors out on our research vessels. TERC organizes and hosts annual events and programs including the North Lake Tahoe Science Expo, South Lake Tahoe Science Expo, Youth Science Institute, Trout in the Classroom teacher training program, Project WET workshops, High Elevation Garden workshops, Weird Wednesdays at the Incline Village Library, and a volunteer

docent training program.

TERC also partners with numerous groups to deliver environmental science education in the Tahoe basin. In 2018, these included AmeriCorps, Lake Tahoe Outreach Committee, North Tahoe Environmental Education Coalition, Sierra Nevada College, Sierra Watershed Education Partnerships (SWEP), South Tahoe Environmental Education Coalition, Tahoe Institute for Natural Science (TINS), and many others.



**Total Visitor Contacts = 14,477**

## TERC educational exhibits

In 2018

Every year, TERC works to increase UC Davis impact in the Tahoe Basin and heighten enrichment of visitor experience through educational offerings available in the UC Davis Tahoe Science Center. 85% of surveyed visitors expressed the increased connection between themselves and the environment after a visit to the Tahoe Science Center. We recently added UC Davis signage on the external area of the building and in the Tahoe Science Center lobby and created a Junior Limnologist booklet

and program. We also increased our hands-on, self-guided exhibit offerings with three new additions covering *Albedo*, *Trees of Tahoe*, and *Properties of Light*. These accomplishments and additions will continue to aid in our mission to increase knowledge and understanding of Tahoe basin ecosystems through engaging hands-on educational activities.



New signage was added to the outside of the Tahoe Science Center to increase visibility and direction for visitors.

Photo: A. Toy



A dark t-shirt absorbs more heat than a white t-shirt, but why is that and what does that have to do with Tahoe? Learn about albedo, measure reflected light and heat, and discover how a decreased snow pack in a changing climate affects albedo in the Tahoe basin.

Photo: A. Toy



Visitors at the Tahoe Science Center now have a new *Properties of Light* hands-on exhibit to display the full spectrum of visible light and to help explain why Lake Tahoe is blue.

Photo: H. Segale

## TERC outreach

In 2018

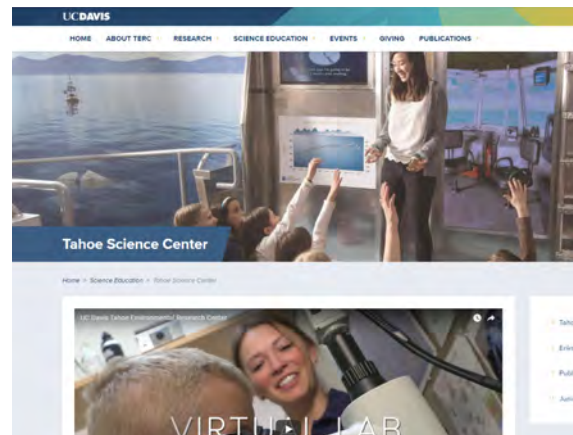
Version 3.0 of the “Citizen Science Tahoe” smartphone app was launched in Spring of 2019. This updated app encourages beachgoers of all ages to submit algae observations, water conditions, and litter/trash reports observed at Lake Tahoe. This app not only increases the amount of data available to scientists for analysis but also provides an immersive science experience that allows participants to make a direct contribution to science and research at Lake Tahoe.

Citizen scientists help lake researchers collect observations by simply taking a few minutes to enter what they see at the beach. Get outside and be a part of Tahoe’s largest community-powered science project and undertake meaningful action to monitor and maintain our environment.

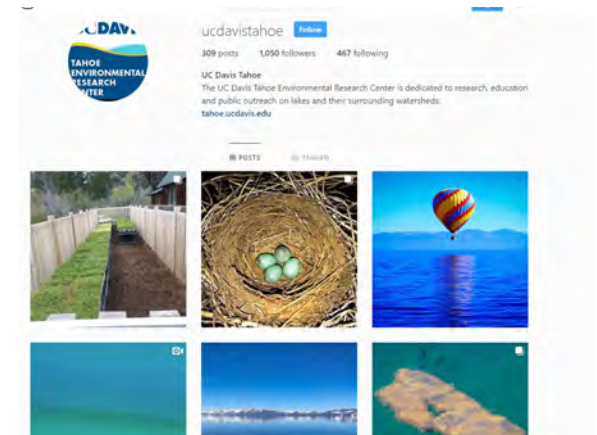
We continue to promote the work of the UC Davis Tahoe Environmental Research Center through various methods including our website (<http://tahoe.ucdavis.edu>), Instagram (<https://www.instagram.com/ucdavistahoe>), Facebook (<https://www.facebook.com/terc.ucdavis>), and more. Our website received a complete overhaul in Summer 2018 using the new UC Davis *SiteFarm* suite. Our Instagram account @UCDavisTERC (formerly @UCD\_terc) now has over 1,000 followers, combined with our Facebook and Twitter numbers (<https://twitter.com/UCDavisTahoe>) for a total of over 3,000 followers.



After a total overhaul of the Citizen Science Tahoe mobile app, version 3.0.2 became available in Spring 2019. This completely new version of the app for citizen scientists in our region helps us gather information and images about algae, water quality, litter, aquatic invasive species, stormwater pollution, and meteorology.



Visit the new TERC website at <https://tahoe.ucdavis.edu>. This newest version utilizing the UC Davis *SiteFarm* suite based on *Drupal 8* was launched in Summer 2018.



UC Davis TERC field research team and staff work hard at Lake Tahoe but still always manage to capture colorful and stunning images to share with everyone @UCDavisTahoe on Instagram.

## TERC educational programs

In 2018

TERC provides various educational programs for the public, K-12 students, teachers, and volunteers. Public programs include science center tours, monthly lecture series, citizen science programs, and garden workshops.

K-12 education efforts include school field trips, Trout in the Classroom, Youth Science Institute, Science Expo, and outdoor education programs. The TERC Education Team provided informal science education to more than 6,065 third- through eleventh-grade students, an increase of over 10% from the previous year.

Each year we train new volunteer docents at our annual Docent Training. Volunteer docents become local experts and lead public tours at our two science centers. Volunteers also participate in garden work each year to make the Tahoe City Field Station's native plant demonstration garden a beautiful community and ecological resource.

In 2018, we hosted the Solving Problems and Revitalizing Curriculum in Science (SPARCS) teacher training program. In this 3-day workshop, science teachers examine their teaching practices and improve their methods for teaching science.



Our field trip activities are continually improved with the goal of increasing student engagement and linking learning goals to the NGSS science standards. AmeriCorps member Bre Harris, gets the students warmed up with a thought swap that promotes conscientious discourse.

Photo: A. Toy



As part of the TERC docent training program, new docents become experts on the history and research at Lake Tahoe by getting first-hand experiences. TERC boat captain Brant Allen leads a safety discussion before taking 39 new docents out on the water to collect field data including lake clarity and zooplankton sampling.

Photo: A. Toy



The TERC Education team actively participated in the SPARC teacher's workshop. In the activity pictured above, educators examine different models to teach lunar phases. By exploring the different methods of teaching, we create a learning community for teachers and increase active instruction.

Photo: H. Segale

## **TERC educational programs, continued**

In 2018

During the summer months, we offer programs at the Tahoe City Field Station. UC Davis TERC and Lake Tahoe Master Gardeners hosted the High Elevation Gardening workshop series and provided guidance on how to grow fruits and vegetables in the challenging Tahoe climate. This year's featured crops included potatoes, raspberries, kale, lettuce, and tomatoes. Due to the popularity of this event and limited parking at this location, the participation numbers have been capped and we are exploring ways to expand our reach.

Another popular program from TERC's education and outreach was the outdoor education presented at the Junior Waterman's camp in Carnelian Bay. Hosted by Waterman's

founders Jay and Anik Wild, TERC's education team members had the opportunity to incorporate science and stewardship into a primarily skills development program.

We continued to update and modify available science activities and thematic field trips. Of the students surveyed using our pre-then-post survey instrument, 94 percent of the students had a 25 percent or more increase in knowledge. One-hundred percent of responding teachers indicated that they were satisfied with their overall field trip experience and that the activities presented were appropriate for the grade level being taught.



The High Elevation Gardening workshops at the Tahoe City Field Station and native plant demonstration garden were highly attended. Following a discussion of growing techniques and cultural anthropology, participants take home a selection of seedlings. Photo: A. Toy



Thanks to a generous donation, the Tahoe City Field Station now has two additional raised beds to display a variety of vegetable seedlings under observation. Vail's EpicPromise brought tools and over forty volunteers to participate in a garden work day that included the building and installation of these raised beds. Photo: A. Toy



The TERC education team teaches fun and engaging outdoor activities to the Junior Waterman's camp over the course of three weeks. Topics included Citizen Science, watersheds, stream monitoring, and benthic macroinvertebrates. Photo: B. Harris

## TERC special events

In 2018

TERC hosts monthly lectures throughout the year on various environmental issues, new scientific research, and related regional topics of interest. Some of the topics during 2018 included “The Psychology of Humor”, “How to Disagree with People About Climate Change”, “Memory: How the Brain remembers and how to make Memories Stick”, “Dark Side of the Universe”, “Evolution and Conservation of Salmon”, and “Is your shampoo bad for outdoor air quality?”

This year featured a special Signature lecture with former EPA Region 9 Administrator Jared Blumenfeld entitled “Hiker’s Guide to the Galaxy” and a Science Speaks Luncheon featuring

Simon Hook, Manager of the Science Division at NASA’s Jet Propulsion Laboratory.

Other special events hosted annually include the Science of Cocktails (February), North Tahoe Science Expo (March), South Tahoe Science Expo (April), Garden workshops (June - August), and Summer Teacher Institute (July).

2018 also had a few additional special events new this year including a visit from UC Davis Chancellor Gary May, an Art & Science reception, and an education collaboration with Innerspace Science submarines.



At the third annual Science of Cocktails event, visitors discovered connections between libations and science. A vapor-tini (shown here) taught the concept of cloud formation, a whiskey cocktail discussed fermentation, and an Irish coffee was layered to visualize density. Photo: A. Toy



At the 14th annual North Tahoe Science Expo (Physical Science) students learned about forces and motion, properties of matter, and energy. Fifth grade students from Glenshire Elementary (pictured above) use diffraction grating slides to learn about the visible light spectrum. Photo: A. Toy



Members of TERC’s education and outreach team, experienced a two-person submarine dive in Lake Tahoe. During these submarine missions we searched for Mysis shrimp at the bottom of the lake, submerged vegetated mounds off the south shore, and recorded visual demonstrations of deep water pressure. Photo: A. Toy

Full report available at <http://tahoe.ucdavis.edu/stateofthelake>

