

A Northern goshawk photographed in Washoe Valley. See story on page 13.



TAHOE IN DEPTH

Protecting, Enjoying & Exploring the Lake Tahoe Basin Winter 2018 ■ Issue #14

Crews close to finishing bike trail from Incline Village to Sand Harbor

By Jeff DeLong
SPECIAL TO TAHOE IN DEPTH

Along a stunning stretch of shoreline at North Lake Tahoe, a vision for the future is quickly taking shape.

Crews are nearing completion of a 3-mile-long bicycle and pedestrian trail linking Incline Village to Sand Harbor State Park.

This project isn't just a bike trail, it includes significant water-quality improvements and off-highway parking and is part of a broader "Stateline to Stateline" strategy to establish shared-use trails all along Lake Tahoe's Nevada side from the Stateline casino area on the South Shore to Crystal Bay on the North Shore. Ultimately, officials hope to build bicycle-pedestrian trails ringing all of Lake Tahoe, with much of the work on the California side already complete.

Reducing reliance on motor vehicles

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Brown, Sandoval will be missed

Photo: Courtesy of Nevada Department of Transportation
Gov. Brian Sandoval of Nevada heads out on a test ride on a new bike path at Lake Tahoe.

Governors played pivotal roles in Tahoe restoration over last 8 years

By Tom Lotshaw
TAHOE REGIONAL PLANNING AGENCY

This January marks the end of an era for Lake Tahoe, with the departure of California Gov. Jerry Brown and Nevada Gov. Brian Sandoval because of term limits. Governors of the states since 2011, Brown and Sandoval and their administrations have been instrumental in the bi-state collaboration and progress at Lake Tahoe over the past decade.

"The Tahoe Basin and everyone who cherishes Lake Tahoe should applaud

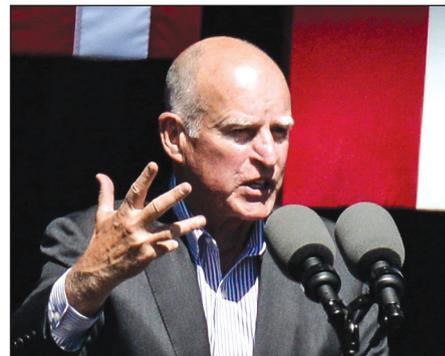


Photo: Tom Lotshaw
Gov. Jerry Brown delivers a speech at Tahoe.

Governors Brown and Sandoval for eight years of dedication and support for this important natural resource," said Joanne S. Marchetta, executive director of TRPA. "Thanks to their leadership, and their administrations, partners at Tahoe are collaborating and working together better than ever, and Lake Tahoe's environment and communities stand to benefit the most."

California and Nevada were major

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New heritage display for Incline

Washoe shelter, short hikes bring Tahoe history to life

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

Next summer, a small wooden shelter built at the Incline Village Visitor Center, known as a galis dungal, will be the starting point for short but immersive forest walks that reintroduce people to nature and help them learn more about Tahoe's indigenous tribes.

Ben Rupert, whose family descends from the Washoe Tribe and Duck Valley Shoshone-Paiute, built the structure with his son in June. Made of cedar bark on a frame of lashed cedar, the galis dungal, or "winter hut," is a traditional shelter of the Washoe.

The galis dungal is what the Washoe built to house themselves as they traveled between Washoe and Carson valleys and *da ow a ga*, the sparkling shore of Lake Tahoe, each year to fish, hunt, and harvest pine nuts and other edible plants.

Rupert has built several galis dungals at Tahoe, harvesting bark from fallen cedar trees after allowing it to cure for up to a year.

Inside the Incline Village Visitor Center is a new display of traditional Washoe items Rupert and his son have made: A cradle board, moccasins, baskets, a bow and a quiver of arrows. "We're just trying to raise awareness of Lake Tahoe and its significance to the Washoe people in a different way," Rupert said.

Jacque Chandler, director of the nonprofit group Sustain Tahoe, is working to make the new galis dungal and Washoe heritage display a starting point for visitors to the region. From the visitor center, people will be able to take walks to learn about Tahoe's environment, sustainability and stewardship, and the Washoe's heritage at the lake.

Penelope Curtis, a co-creator of this project who has a background in California cultural heritage tourism and arts and heritage preservation, said the project "opens the door for locals and visitors alike to learn how art, culture, and heritage in a recreation activity are all interconnected."

The project will help people learn about the Washoe, their connection to Tahoe, and how they lived sustainably for thousands of years here through a close relationship to the land, water, and wildlife.



Photo: Penelope Curtis



Photo: Tom Lotshaw

Ben Rupert (top photo) peels off bark for the galis dungal (left). The bark is lashed to cedar poles (below) to create the hut, a traditional Washoe shelter used by tribe members when they traveled between Washoe and Carson valleys to Lake Tahoe each year to fish, hunt, and harvest pine nuts. The Ruperts have also made moccasins, baskets, a bow, and a quiver of arrows for a display inside the Incline Village Visitors Center.



Photo: Penelope Curtis

*"Ha-lung-gnah wah
leh-iw lay-ee Wa-
shih-sh-iw"*

"We are still here."

Melba Radow

*Washoe Cultural Resources
Advisory Council*

Walks from the winter hut will also help reintroduce visitors to nature and build a stronger appreciation and respect for Tahoe's environment through "shinrin yoku," a Japanese form of nature therapy known as forest bathing, or forest immersion.

Felix Brosch, a certified nature guide and outdoor leadership teacher at Lake Tahoe Community College, will lead slow walks from the galis dungal into the forest along Third Creek.

"For me, it's an initiation for people to experience not just the five senses, but the sense of imagination," Brosch said. "I call it rest and digest, a vision quest where we unplug and slow down. My intent is to connect people to nature and create stewardship and reciprocity so people have a sense of hope and a feeling that we can be part of the solution."

As part of the project, partners are also working on guidebooks and other materials to help people learn about the environment, the Washoe people, and how to enjoy Tahoe and improve the region's sustainability.

"We're looking forward to this," said Greg Long, director of operations and finance for the Incline Village/Crystal Bay Visitors Bureau. "We have a lot of people coming in looking for short walks and things to do, so we're looking forward to being able to direct people to this heritage display and this trail. It's something fulfilling that we can send people to right out front of our visitor center."

For more information, visit www.sustaintahoe.org.

50 years of measuring Tahoe clarity

Research data provide historic record of changes in the quality of lake's transparency

By Jeff DeLong

SPECIAL TO TAHOE IN-DEPTH

Once every week or two, scientists take to the waters of Lake Tahoe, motoring far from shore in a mission to gauge the status of the lake's famed clarity.

Bobbing atop those azure waters, the UC Davis research vessel John Le Conte comes to a stop and equipment is carefully readied. A white, dinnerplate-like device called a Secchi disk is slowly lowered below the surface, sinking into Tahoe's depths until it fades from view. Measurements are recorded to provide a snapshot of lake clarity, with those findings driving many important restoration efforts designed to protect a national treasure.

These regular clarity measurements, which first documented an alarming problem but later offered hope that things are improving, continue today 50 years after they first began. The method is largely unchanged, but is no less important decades later as altering conditions point to new challenges.

"It's been of tremendous importance. If we didn't have that record now, we'd still be arguing over whether the clarity has ever changed," says Geoffrey Schladow, director of UC Davis' Lake Tahoe Environmental Research Center.

"Now we have a record," Schladow says. "We're not arguing if it's changed. We're arguing about what we can do to bring it back."

Charles Goldman had the problem on his radar screen even longer than 50 years ago. In a rowboat, beginning in 1959, the young scientist started measuring what he considered a threat to Lake Tahoe that had already irreversibly altered conditions at lakes in the East and Midwest.

The danger, Goldman feared, was posed by free-floating algae, which turns lakes from blue to green.

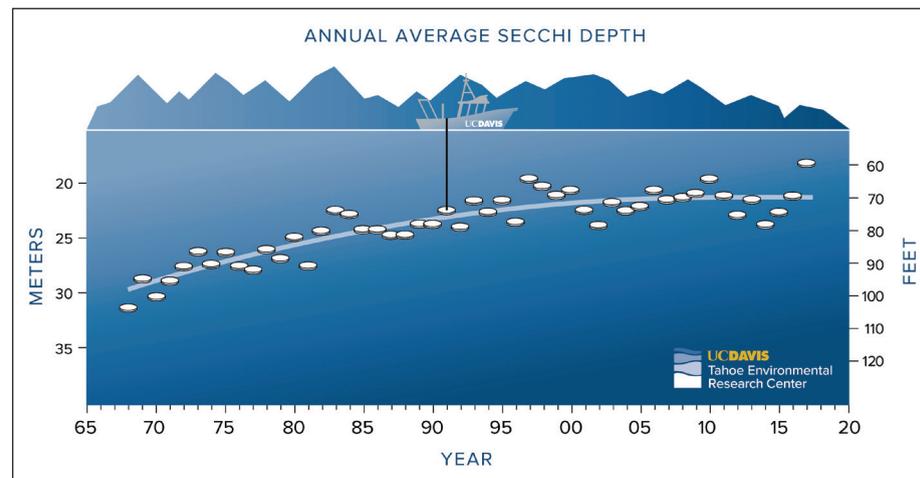
"Nobody seemed to realize how much danger Tahoe was in," Goldman recalls. "Tahoe was in real danger of becoming green."

Lake Tahoe is considered one of the most important water bodies in the country. The U.S. Environmental Protection Agency has identified it as a priority watershed, not only because of its iconic beauty and crystal-clear waters but because of the human-related impacts



Photo: UC Davis

A researcher from UC Davis prepares to lower a Secchi disk and measure the clarity of Lake Tahoe.



that threaten those very qualities.

Back when Goldman first raised the alarm, Tahoe was ringed by residential communities using septic tanks, which could leak nutrients into the lake to fuel algae growth. There was also a push to employ tertiary wastewater treatment plants to treat sewage, with many experts arguing that treated effluent could then be discharged safely into Tahoe's waters.

Goldman believed such a move would add massive amounts of nitrogen into the lake and trigger disastrous results. In an experiment, he added mid-lake water to tertiary-treated effluent and watched as the mixture turned green in a few days.

Goldman's work led to the removal of septic tanks and new laws requiring treated effluent be piped outside the

Tahoe Basin.

"It would have been a disaster to put that wastewater effluent into the lake," Goldman said. "Overall, that's the most important thing I ever did for Lake Tahoe."

Goldman's early measurements at Tahoe were funded by a grant primarily directed toward similar work at Castle Lake near Mount Shasta. In 1968, UC Davis received federal funding that allowed it to commence regular clarity measurements of Lake Tahoe using the Secchi disk, which continue today 50 years later.

"This is one thing that hasn't changed," Schladow said. "It sounds very simplistic but we have a very rigid protocol that we follow."

"Because of Dr. Goldman, Lake Tahoe boasts one of the world's longest-running data sets," said University of Nevada, Reno's Sudeep Chandra, who studied with Goldman decades ago.

Researchers determine clarity by watching the white disc descend into Tahoe's depths until it disappears.

"It's telling us how much light is getting down from the sun, how far it's penetrating into the lake," Schladow said. Those taking the measurements are required to have perfect vision. If necessary, corrective glasses or contact lenses can be used, but they can't be polarized as that would throw off the readings.

The Secchi measurements, taken every week or two for an average of 25 per year, demonstrated a worrying trend—Tahoe's average mid-lake clarity was steadily diminishing over the years.

"Clarity was going down. There was a long-term decline and basically each year was getting worse and worse," said Dan Segan, principal natural resource analyst for the Tahoe Regional Planning Agency.

Free-floating algae was part of the problem but scientists would determine another factor was even more important. Fine particles of sediment were washing into the lake from Tahoe's roads and urban centers, scattering light and impacting clarity.

More than \$2 billion have been spent since 1997 to achieve key environmental improvements around the lake, with controlling the flushing of fine sediments and introduction of algal nutrients into Tahoe's waters always a central goal.

At Kings Beach on the North Shore, a major project to alter the heart of town into a more environmentally friendly and walkable community was recently completed. Traffic roundabouts, sidewalks and scenic improvements may be the most visible change there, but installation of stormwater treatments to result in a "substantial alteration in quality of surface runoff" was also a high priority. Such is the case with any major road project or development that now occurs within the Tahoe Basin.

Across the lake, big plans are in place to restore the South Shore's Upper Truckee River marsh—one of the most

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Best in the Basin

TRPA honors nine projects for environmental, community benefits

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

In October, TRPA recognized nine projects completed in 2017 with Best in Basin awards. The projects built new mountain bike trails, reduced stormwater pollution, overhauled roads to improve bicycle and pedestrian safety, reduced water and energy usage, improved forest health and wildfire preparedness, and opened new businesses to help communities thrive.

Now in its 28th year, TRPA's annual Best in Basin awards showcase projects that demonstrate exceptional planning, implementation, and compatibility with Lake Tahoe's environment and communities. Here's a rundown of this year's award-winning projects:

1. Angora Ridge and Mule Deer Trails Project: Tahoe Area Mountain Biking Association and U.S. Forest Service Lake Tahoe Basin Management Unit partnered to build 5 miles of trails in an area devastated by the 2007 Angora Fire. The project was a strong partnership that shows how the community continues to come together and rebuild after the fire. These trails connect to existing trails in the area and lay the groundwork for future improvements. Volunteers contributed more than 2,000 hours to help build the trails.

2. The Lodge at Edgewood Tahoe: Following an impressive overhaul of its golf course to restore wetlands, stream environments, and fish and wildlife habitat, Edgewood Properties built this world-class lodge in the pines with amazing views and access to Lake Tahoe. The lodge was recently certified as a LEED Silver building for its sustainable design and construction and energy efficiency.

3. Kings Beach Commercial Core Improvement Project: Placer County and partners overhauled 1 mile of state Route 28 in Kings Beach and improved roads in neighborhoods adjacent to the commercial core. The project installed sidewalks and bike lanes to make the area more pedestrian friendly; reduced coverage and installed stormwater infrastructure to fix drainage issues and treat stormwater runoff that harms Lake Tahoe's clarity; and helped rejuvenate Kings Beach.

4. Meyers Stream Environment Zone/Erosion Control Project: El Dorado County installed numerous stormwater improvements along the roadways of Arapahoe, Bakersfield, Choctaw, Country Club, East San Bernardino, Pioneer, San Diego, Santa Fe, Sioux, and Ute, diverting stormwater to public lots where it can infiltrate into the ground and restore a 3.5-acre wetland. The project is estimated to reduce fine sediment stormwater pollution from the area by 72 percent, an estimated 51,000 pounds of fine sediment—or 25 tons—per year, making it the largest water quality project El Dorado County has ever done in the Tahoe Basin.

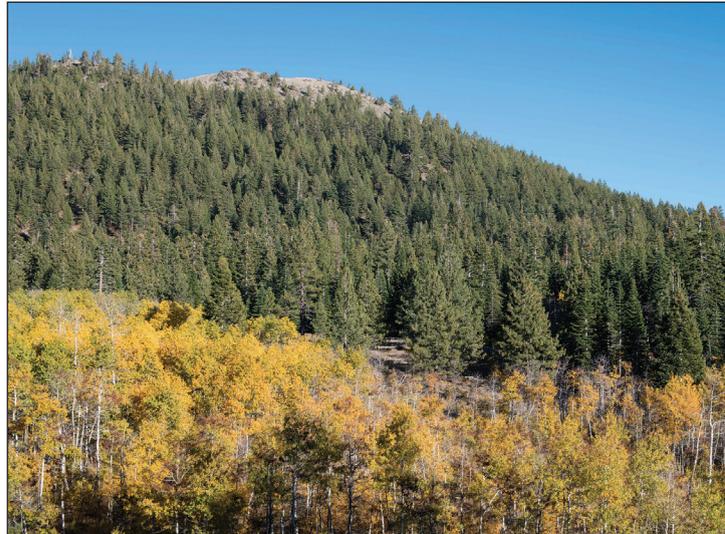


Photo: Tom Lotshaw

The U.S. Forest Service is restoring valuable aspen stands.



Photo: Ben Fish

A mountain biker cruises along Angora Ridge.



Photo: Tom Lotshaw

Part of El Dorado County's stormwater system that is helping restore a 3.5-acre wetland in Meyers.



Photo: Placer County

An aerial view of Kings Beach after its commercial core improvement project.



Photo: Tom Lotshaw

South Lake Brewing Company create a lively gathering place.



ore

3



Photo: Tom Lotshaw
The Lodge at Edgewood Tahoe is named a LEED Silver certified building for its sustainable design and construction and energy efficiency.



Photo: Tom Lotshaw
Terry and Phyllis Powers removed more than 2,000 square feet of turf through the utility district's turf buy-back program.

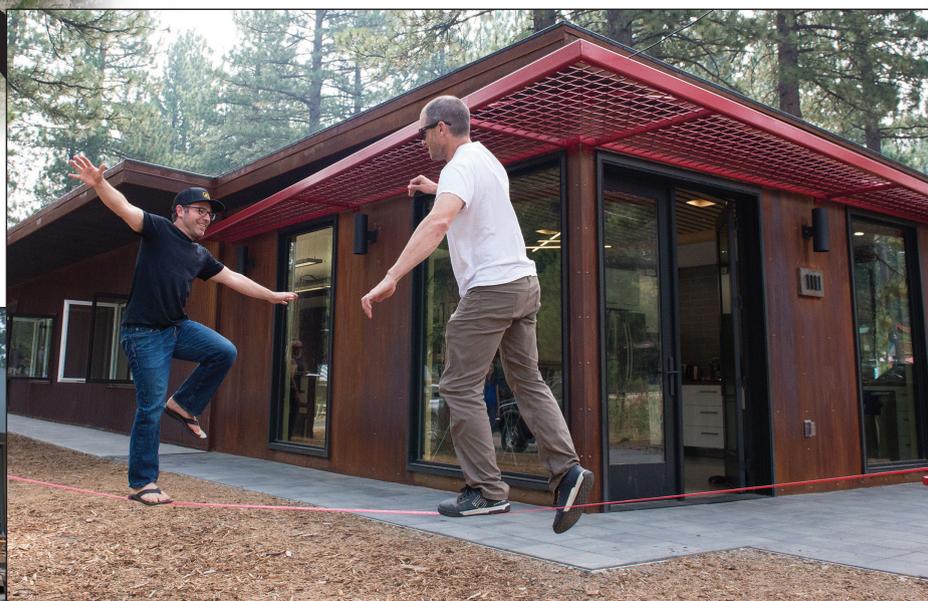


Photo: Tom Lotshaw
Novus Select converted an old building on Ski Run Boulevard to make the headquarters for its world-renowned video and photography agency.

y overhauled a vacant hardware store to
 e at the 'Y' in South Lake Tahoe.

5. South Lake Brewing Company: Bill Olin and South Lake Brewing Company overhauled a former hardware store sitting empty for more than five years near the “Y” into a thriving new brewery. The project redid everything from the outside facade and landscaping to the interior, turning the empty building into a community gathering place and part of Lake Tahoe’s growing brewery industry. The brewery has also helped fundraise for other projects, using proceeds from beer sales to help pay for mountain bike trail improvements and the Lake Tahoe Fire Academy scholarship fund.

6. 1127 Lone Indian Trail/South Tahoe Public Utility District Turf Buy-Back Program: Terry and Phyllis Powers partnered with the South Tahoe Public Utility District, Natural Expressions Landscaping, and Earth and Stone Landscapes to remove more than 2,000 square feet of turf in their yard and replace it with a mosaic of flowers, native plants, and hardscape that will save thousands of gallons of water annually. In the 10 years of the utility district’s popular turf buy-back program, 339 projects have been completed, removing 409,876 square feet of turf to reduce energy usage and save millions of gallons of water each year.

7. Aspen Community Restoration Project: Aspen stands are ecologically significant because of the wildlife, plants, fungi, and soil processes they support, yet they represent only 2 percent of National Forest land at Tahoe. Some aspens also bear arborglyphs, carvings by Basque sheep herders in the late 19th and early 20th centuries. One threat aspen stands face is encroachment by conifers. Without natural disturbances like wildfire, conifers can rapidly out-compete and displace aspen stands. Since 2009, the U.S. Forest Service Lake Tahoe Basin Management Unit has reduced conifer densities in approximately 450 acres of aspen stands at Tahoe to protect the stands. The Forest Service has partnered with university researchers to evaluate the success of this work and with a local nonprofit to monitor bird community responses. It has also incorporated education about aspen stands and guided walks from the Taylor Creek Visitor Center to help teach people about aspen and their cultural and environmental values in Tahoe’s forests.

8. Defensible Space Collector App: Clearing brush and ladder fuels to create defensible space around homes and businesses is a critical part of wildfire safety and preparedness at Lake Tahoe. Cal Fire, the Tahoe Resource Conservation District, and the Tahoe Fire and Fuels Team partnered to develop a new application that allows all fire agencies at Tahoe to report and share information about defensible space inspections and compliance in one shareable tool. This will provide a holistic approach to identify fire prevention and outreach needs at the homeowner and neighborhood level to help agencies and residents continue to make strides in wildfire preparedness at Tahoe.

9. Novus Select: Corey Rich, Chris McNamara, Sierra Sustainable Builders, and David Goldman partnered to turn an old building on Ski Run Boulevard in South Lake Tahoe into the headquarters office for Novus Select, a world-renowned video and photography agency. With their new business location near Heavenly Mountain Resort and the lake, Rich and McNamara are encouraging others to see the area’s older buildings and vacant lots as a great place to live, work, and invest to help make South Lake Tahoe the outdoor recreation capital of the world.