



TAHOE IN DEPTH

Protecting, Enjoying & Exploring the Lake Tahoe Basin Summer 2016 ■ Issue #9

Tahoe's historic

TURNING POINT

The lake was in trouble. Clarity was declining, urban centers were decaying, and neglected forests posed a profound fire threat. Then in July 1997 **its future brightened considerably.**

By Jeff DeLong ■ TAHOE IN DEPTH

For Lake Tahoe it was, as California's Sen. Dianne Feinstein put it, a time of "environmental emergency."

Tahoe's waters were losing their famous clarity at an average rate of nearly a foot per year. Aging urban centers with car-choked streets were pouring pollutants into the lake. Tahoe's forests were overstocked, unhealthy, and ready to burn.

Many considered Tahoe, a landmark national treasure, to be at a worrying tipping point with a future profoundly in doubt.

Nevada Sen. Harry Reid remembers being asked about the problem all too often and not having adequate answers.

"To be honest, I didn't know what to say. I was so frustrated," Reid said. "The clarity was disappearing. It was not a good thing."

Then came an idea.

Story continues on page 4



Photo: Tahoe Daily Tribune

At the first Lake Tahoe Summit in July 1997, President Bill Clinton and Vice President Al Gore pledged to boost by millions the money going to restore Tahoe's troubled environment.

INSIDE: Lake clarity, wildfire, and forest health ■ Summit Reflections ■ 20 years of environmental improvements ■ Remembering Coe Swobe



Summit comes full circle

As a young professional in the '90s, one of the highlights of the decade for me was Tahoe's first Presidential Summit where I met President Bill Clinton. I remember it vividly. The air was electric. Everyone felt the buzz, and we shared a collective optimism for Lake Tahoe's future.



Julie Regan, left, meets President Bill Clinton and Vice President Al Gore at the first Tahoe Summit.

Having lived through the 20 years that followed, joining hundreds of people in the hard work of saving the lake, I have to say it is gratifying that we've actually made a difference. Both Senators Reid and Feinstein have referred to us as the "Tahoe Team"

— a partnership that's steadfastly worked for two decades to restore the jewel of the Sierra. This partnership has resulted in one of the most robust restoration programs in the United States, and we're proud of the progress we've made. But our work is far from done. With the looming threats of climate change, invasive species, prolonged droughts, and dead trees in our forests, we need to redouble our commitment to the lake. With President Obama as the Summit's special guest, we're thrilled to tell the Tahoe story with the national press watching and to ask for additional help in this extraordinary cause.



We hope you enjoy this special summit issue of Tahoe In Depth and will join us in the fight for the next 20 years of Lake Tahoe's restoration.

— Julie Regan, executive editor



The president is expected to highlight his environmental record and climate change at the 20th annual Tahoe Summit.

President to give keynote address

The Lake Tahoe Summit has always been well-attended, with scientists, policymakers, politicians, and activists turning out by the hundreds to talk about environmental progress at the fragile Sierra lake.

But this year's event promises to be dramatically different.

A sell-out crowd is expected at the 7,200-seat Harveys Outdoor Arena when President Obama takes the stage for the Aug. 31 event.

The one-day Summit will be hosted by Nevada Sen. Harry Reid, who was instrumental in launching the summit 20 years ago. This will be the last summit as an elected official for Reid, who is in the final year of his term and has announced his retirement from elected office.

The event was already a hot ticket when it was announced that the Las Vegas rock band The Killers would perform. Once it was announced that President Obama would also be on hand to deliver a keynote address, tickets began selling even faster. The event quickly sold out.

The annual Lake Tahoe Summit has been an important annual gathering of federal, state and local leaders, scientists, and advocates interested in restoring and improving environmental conditions at Lake Tahoe. The first summit in 1997, featuring President Bill Clinton, Vice President Al Gore, and several Cabinet members, sparked a nearly \$2 billion investment over the next two decades. The resulting research and environmental restoration projects have helped stabilize clarity loss in the famously clear lake.

President Obama is expected to talk about his own environmental legacy, including his efforts to address climate change.

Tahoe In Depth

Publisher and contributors: The Tahoe Regional Planning Agency publishes Tahoe In Depth in partnership with various state and federal agencies. Contributors include the California Tahoe Conservancy, U.S. EPA, U.S. Fish & Wildlife Service, Incline Village General Improvement District, Lahontan Regional Water Quality Control Board, League to Save Lake Tahoe, Nevada Department of Wildlife, Nevada Division of Environmental Protection, Nevada Division of State Lands, Nevada Division of State Parks, Tahoe City Public Utility District, South Tahoe Refuse, Tahoe Fund, Tahoe Resource Conservation District, Tahoe Transportation District, Tahoe Water Suppliers Association, University of California, Davis, University of Nevada, Reno, and the Washoe Tribe.

Executive Editor: Julie Regan

Managing Editor: Sarah Underhill

Design/Copy Editor: Jim Sloan

Contributors: Amy Berry, Kristi Boosman, Jeff DeLong, Heidi Hill Drum, Tom Lotshaw, Devin Middlebrook, Chris Rose

Copyright 2016 © – All rights reserved.

Major funding provided by:



INSIDE THIS ISSUE:

- **WILDFIRE THREAT:** Forest thinning has reduced the danger.....7
- **SCIENCE:** How research is shaping policy and measuring results.....9
- **WATERSHED WORK:** Stream restoration isn't pretty at first.....11
- **WORLDWIDE IMPACT:** Researchers from around the world visit Tahoe.....12
- **EIP PARTNERS:** How agencies have worked together on Tahoe projects.....14
- **PROSPERITY CENTER:** Group protects 'triple bottom line'.....18
- **PLANT COMEBACK:** How the Tahoe yellow cress has rebounded..... 19
- **BLM'S ROLE:** Federal agency plays important role at Lake Tahoe.....20
- **CUTTHROAT RETURN:** Trout restoration work enjoying success.....24
- **TRIBAL STEWARDSHIP:** Washoe have always called Tahoe home.....25

Pace of clarity loss declining significantly

Researchers encouraged, but are keeping an eye on new, troubling threats

By Jeff DeLong

TAHOE IN DEPTH

When it came to the stunning clarity of Lake Tahoe's azure waters, alarm bells were ringing back in 1997.

Clarity levels of the famed Sierra lake were fast declining, at an average rate of nearly one foot per year. Since 1968, when one could see more than 100 feet into Tahoe's depths, the lake was on track to lose roughly a third of its clarity. In 1997, the worst year on record, clarity levels had declined to 64 feet.

It was this worrying trend that served as a primary impetus for political and community leaders to successfully request President Bill Clinton to convene a presidential summit at the lake. The event served to drive new research that would alter the thinking as to the cause of the lake's diminishing clarity and lead to projects costing many millions of dollars to help address the problem.

Nearly 20 years later, scientists and land managers are confident significant progress has been made, with the pace of clarity loss slowing significantly, potentially even stabilizing. Yet even as experts cite encouraging trends, new and worrying problems emerge.

"Signs are encouraging but there is still a lot we don't know," said Dr. Geoffrey Schladow, director of UC Davis' Tahoe Environmental Research Center.

Back in 1997, scientists believed algae growth to be the primary cause of Tahoe's loss in mid-lake clarity, which is measured by lowering a "Secchi disk" — a dinner-plate-like device — into the depths until it disappears from view. Free-floating algae, or phytoplankton, robs clarity by absorbing light and reducing its penetration into deeper waters.

The thinking by scientists at the time was that clarity loss could be best addressed by controlling the amount of nitrogen and phosphorus, nutrients for algae growth, that enter the lake via runoff and atmospheric deposition.

Then came the first Tahoe Summit, which among other things laid the groundwork for a comprehensive model of Lake Tahoe's waters and the factors that influence them. As

details in the multi-year project came together, experts came to believe it was fine particles of sediment, smaller in diameter than a human hair, that were robbing clarity by scattering light in Tahoe's depths.

Algae growth was still a problem, they concluded, but fine sediments flowing into the lake from roads and urban centers were by far the biggest player.

"(The model) was indicating it wasn't the algae that was causing the problem, it was these fine particles," Schladow said. "It looked like (algae) nutrients were secondary. Before, we thought the whole show was nutrients.

"It really was a paradigm shift."

"That was a bit of a sea change," agreed Robert Larsen, senior environmental scientist with California's Lahontan Regional Water Quality Control Board.

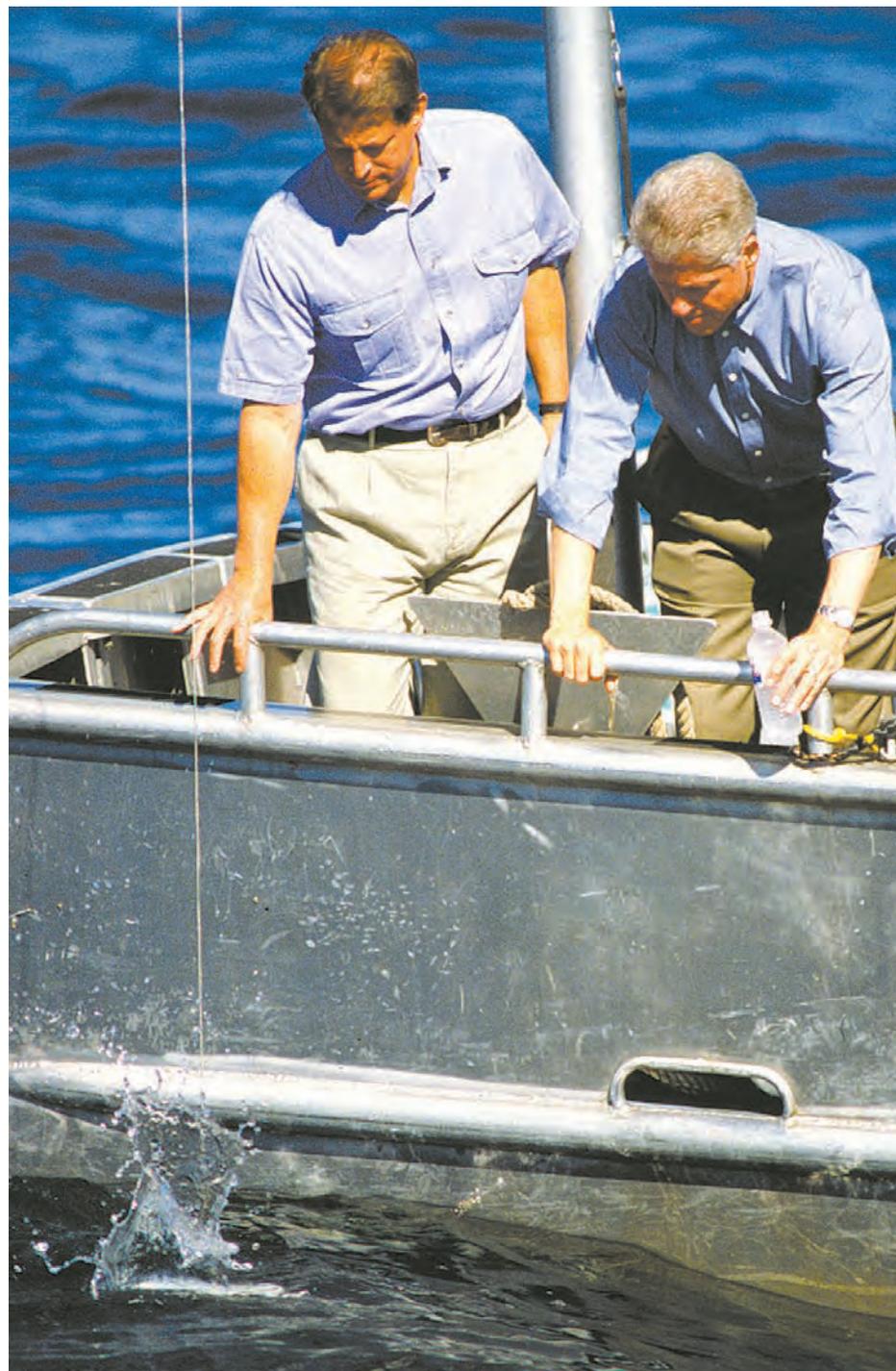
"They determined the fine sediments were a big driver," Larsen said. "That allowed us to hone in on the problem and what the solutions might be."

That discovery allowed the Tahoe Regional Planning Agency and other land managers to push big-time investments on projects to prevent fine sediments from entering the lake. Between 1997 and 2015, some 729 miles of erosion-control improvements were installed along Tahoe roadways under TRPA's Environmental Improvement Program. Wetlands, which act as a natural filter for sediments, were also restored.

Work completed appears to have made a difference. Measurements indicate the rate of clarity loss has slowed since 2000, evidence that work to prevent fine sediments from entering the lake is positively benefitting clarity.

"We have seen a statistically valid slowing in the loss of clarity. We're cautiously optimistic," Larsen said.

But more needed to be done to meet long-term goals by California and Nevada, required under the Clean Water Act, to return Tahoe's clarity to near the 100-foot mark. In 2000, the Lahontan board and Nevada Division of Environmental Protection initiated development of Tahoe's Total Maximum Daily Load program with



During the first summit, Gore and Clinton observed how clarity readings are taken.

that goal in mind. The plan, prepared at a cost upwards of \$10 million in research and development, was adopted by Lahontan in 2010 and signed by the governors of California and Nevada and the U.S. Environmental Protection Agency in 2011.

"The ultimate goal is to meet that standard — 100 feet," Larsen said.

To make that happen, experts estimate that levels of fine sediment entering the lake must be reduced by 65 percent from amounts measured in 2004, with accompanying reductions in nitrogen and phosphorus. Work involves widespread stormwater treatment and erosion control

Continued on page 6

Reid's request prompted Clinton to attend forum

July 1997 summit was preceded by community events and work by several Cabinet members

Continued from page 1

"I said we need a presidential summit," recalls Reid, now soon to retire after serving 29 years in the Senate.

And so it came to be.

As the July 1997 summit — which brought President Bill Clinton, Vice President Al Gore, and a slew of top cabinet officers to Tahoe — began to take shape, Reid remembers having some concern the event might amount to little more than a "photo op."

With the 20th anniversary of that first summit now at hand, the veteran lawmaker can say with confidence it was anything but that.

"They carried it to fruition as something meaningful and substantial," Reid said. "It was a wonderful event not for Nevada or California or the country. It was a wonderful international event."

Moving Tahoe forward

The summit's origins really dated back years before, recalls Steve Teshara, a private consultant who then served as executive director of the Lake Tahoe Gaming Alliance.

It was back in 1989 as the Tahoe region attempted to emerge from years of impassioned battles and litigation over a regional land-use plan that key players reached for common ground, Teshara said. Gaming, skiing, and tourism interests joined environmentalists and property rights advocates in what he describes as an "unholy alliance."

"We asked if there is some issue we can agree on, something we can work together on to move Tahoe forward," Teshara said. "We agreed it would be transportation."

Thus was formed the Tahoe Transportation Coalition, a group whose diverse members were soon traveling to Washington, D.C., to seek meaningful progress in expanding mass transit and other needed transportation improvements, all of them linked to key environmental concerns. The group would later become the Lake Tahoe Transportation and Water Quality Coalition.

They would gradually discover during the following years there was a general lack of understanding among federal



"We are setting a standard by which the country will judge how people work together to solve difficult problems," U.S. Secretary of Agriculture Dan Glickman (second from left, with Sen. Harry Reid, Interior Secretary Bruce Babbitt and Sen. Richard Bryan).

officials of the many complex issues and challenges affecting Lake Tahoe, including the areas of transportation, water quality and clarity, forest health, and environmental restoration.

Some were unaware of the Bi-State Compact between California and Nevada that established the Tahoe Regional Planning Agency and its long-term mission to protect Lake Tahoe.

"We realized people didn't remember the compact and pretty much didn't care," Teshara said. "We thought maybe we needed to have a renewal of the vows."

Summit takes shape

Coalition members, with the League to Save Lake Tahoe playing a prominent role, worked with Reid on what would become the 1997 summit. On June 24, 1996, Reid wrote to President Clinton "to request that you convene a federal conference to consider the serious challenges that face Lake Tahoe."

The event's purpose, Reid continued, "would be to bring the crisis confronting the lake and surrounding basin to the nation's attention."

Clinton said yes.

"We found out the president was going to come and not just him but the vice president and the cabinet," Teshara said. "It was really an exciting time. Having major business interests working with the League to Save Lake Tahoe was a game changer."

Planning for what would officially be called the Lake Tahoe Presidential Forum was a busy and complicated affair, involving many key players of the Tahoe community under the guidance of Tom Tuchmann, western director and special assistant to U.S. Secretary of Agriculture Dan Glickman.

The July 26 summit at the Hyatt Regency Lake Tahoe in Incline Village was preceded by community forums in late May on the North and South Shores of the lake and workshops hosted in June and July. The first workshop on June 18 focused on water quality and was hosted by Carol Browner, administrator of the U.S. Environmental Protection Agency and Deputy Assistant Secretary of the Army Michael Davis.

That event was followed by a June 30 workshop on forest ecosystem restoration, hosted by Glickman and Secretary of Interior Bruce Babbitt. Another focusing on transportation occurred July 19, hosted by Transportation Secretary Rodney Slater.

A few days before the summit, California Gov. Pete Wilson and Nevada Gov. Bob Miller met at Heavenly ski resort's Top of the Tram to sign a memorandum of understanding between the two states that, among other things, served to "reaffirm their commitment to the Bi-State Compact, and to the sound management and protection of the Lake Tahoe Basin's natural resources and the support of a healthy, sustainable economy."

Larry Sevison, Placer County's long-time appointee to TRPA's Governing Board, recalled the overall goals of the Tahoe Summit as being relatively simple.

"We wanted to get the federal people more involved and we needed to get funding for the things we needed to do," Sevison said. "I think it was awfully important to get the public involved, to get that national attention to the goals and objectives we were trying to attain."

Working 'for the good of the lake'

Greater federal involvement came as the general political climate of the Tahoe Basin was evolving from one of confrontation to one of increasing cooperation, Sevison said.

"We had so much adversarial stuff going on in the beginning, in the '80s, that it was difficult to achieve anything," Sevison said. "It was pretty ugly for a while."

That evolution was apparent to Andrew Strain, who in 1997 was a long-range planner for TRPA. The following year, Strain was hired by Heavenly ski resort, where he now works as vice president for planning and government affairs.

Closely involved in planning and the precursor events to the summit, Strain said he was impressed by the way once-battling interests came together for the good of Lake Tahoe.

"They laid down their swords. They said we could argue and fight or see what things we can agree upon and work together for the good of the lake," Strain said. "I always admired that. They really aimed high. It felt like it was a turning point for us."

The day of the summit, after cruising the lake to observe research activities conducted by pioneer Tahoe scientist Charles Goldman and colleagues, Clinton said the level of cooperation at Tahoe should serve as a national model.

"One of the reasons that I wanted to come here was to show the nation that there is a place where environmentalists and business people and ordinary citizens ... where everyone is working together in common cause," Clinton said before signing an executive order that would become known as the "Presidential Deliverables."

Clinton committed to boost by

Continued on page 5

Photo: Tahoe Daily Tribune

Forum launched widespread restoration for Tahoe

Continued from page 4

millions the money going to restore Tahoe's troubled environment, with that promise solidified with the 2000 passage by Congress of the Lake Tahoe Restoration Act. The legislation authorized \$300 million over a decade to provide the federal government's share of TRPA's \$900 million Environmental Improvement Program.

In 2003, Congress amended the Southern Nevada Public Land Management Act to fund the EIP with proceeds generated through the sale of public land in the Las Vegas area.

In all, more than \$1.9 billion has been raised for the EIP over the years, \$635.4 million from the federal government, \$758.6 million from California, \$123.7 million from Nevada, \$98.8 million from local government, and \$338.9 million from the private sector.

Restoration projects completed around the Tahoe Basin with that money are widespread, among them some 729 miles of erosion-control improvements on Tahoe's roadways designed to halt the flow of fine sediments into Tahoe's waters, pollution primarily responsible for loss of the lake's famed clarity.

Vital wetlands have been restored. More than 65,000 acres of hazardous forest fuels have been treated to reduce the wildfire threat. More than 16,000 acres of wildlife habitat are restored. Thousands of boats are being inspected every year to prevent the introduction of non-native invasive species.

While progress was made in a spirit of cooperation, all was not smooth sailing.

In 2011, as work to update TRPA's Regional Plan hit continued bumps in the road, Nevada lawmakers passed legislation threatening to pull Nevada from the Bi-State Compact. Leo Drozdoff, director of the Nevada Department of Conservation and Natural Resources and California Secretary for Natural Resources John Laird initiated negotiations to reach a compromise.

The initiative succeeded, with TRPA approving an updated regional plan in December 2012. In 2013, the legislatures in both states passed bills which were signed by Nevada Gov. Brian Sandoval and California Gov. Jerry Brown to renew commitments to the compact and establish improved collaboration.

The millions spent on restoration work around the lake have clearly made a

“

It's our moral obligation to be faithful stewards of our heritage and protect this area for future generations.

So that's why we're here today.

”

Vice President Al Gore
July 25, 1997

difference. While Tahoe's clarity varies year to year due to weather conditions and other factors, trends suggest the long-term drop in clarity that had people so alarmed in 1997 appears to have slowed significantly over the last 15 years, particularly during the winter months.

Encouraging changes

That change is encouraging, said Jim Lawrence, a senior planner for TRPA in 1997 who left the agency the following year to lead Nevada's Tahoe restoration program. Lawrence is currently the deputy director of the Nevada Department of Conservation and Natural Resources and vice chair of TRPA's Governing Board.

"The scientific community was telling us then that the rate of clarity loss was so continuous that if something didn't change it would reach the point where it can't be recovered," Lawrence said. "We took action back then. While there's still work to be done, we're not hearing that anymore. The idea that we've lost the ability to restore Lake Tahoe is not part of the discussion right now."

"I think the clarity is now actually beginning to come back," agreed Feinstein, who grew up visiting and "loving" Lake Tahoe as a child.

Projects funded since 1997 are successfully addressing the issue of sediments and other pollutants flowing from Tahoe's roadways and into the lake and "that's a huge help," Feinstein said.

Like others, Feinstein praised the spirit of cooperation she said now prevails at Lake Tahoe. Governments



Photo: Tahoe Daily Tribune

with ramifications in many areas. So is the need to secure continued and sustainable funding for restoration projects, he said. Heller is sponsoring a new funding authorization bill for Tahoe through Congress in partnership with senators Harry Reid of Nevada, Feinstein, and Barbara Boxer of California.

"Lake Tahoe is one of California's most magnificent treasures," Boxer said. "I have worked for two decades across the aisle with my colleagues from California and Nevada to restore Lake Tahoe by improving water clarity, reducing the threat of wildfires, and fighting harmful invasive species. Despite the challenges, we must 'Keep Tahoe Blue' for generations to come."

"The first summit brought improvements to Tahoe that must continue into the future," said TRPA Executive Director Joanne Marchetta.

"It put us on that playing field of the great resources of the nation and the Earth that need to be protected," Marchetta said. "Today, we have made substantial investments with measurable improvements."

Major issues have arisen since the first summit such as the threat posed by invasive species. Additional threats, perhaps unseen today, could be waiting to emerge.

"We know there's more to do here," Marchetta said. "My job is to keep looking on the horizon. What do we need to prepare for? What do we need to respond to? We need to keep our eyes open."

Darcie Goodman Collins, executive director of the League to Save Lake Tahoe, watched the first summit unfold as a 17-year-old high school student. An intern with the League at the time, Collins served as the Tahoe youth representative to the summit.

"I just remember being in awe," Collins said of what she described as a formative experience in her life.

"I think we've made a lot of progress" in the years since, she said. "It's also put us in a place to focus on the new issues."

It's vital that momentum not be lost, she said.

"I think that's the real key. We have to make sure we don't slip."

Jeff DeLong is a Lake Tahoe resident and freelance writer specializing in environmental and natural resource issues.

and business interests now know it's critical to work together, avoiding battles of the past.

"Those days are gone," Feinstein said. "I think what's been put together is a Tahoe team."

Looking ahead

If much progress has been made, there remains much to be done, Feinstein said. She is concerned Tahoe remains vulnerable to large wildfire that "could just wipe out the whole lake."

Another key issue of concern for the future is the potential introduction of non-native invasive species — particularly the quagga mussel — that the senator said could prove disastrous.

"I think most of us that love Lake Tahoe really think we have a responsibility to do our best and see that the right thing is done by the lake," Feinstein said. "Everybody now knows the perishable nature of that lake."

Nevada Sen. Dean Heller, who served 12 years on TRPA's Governing Board as Nevada's Secretary of State, recalls "tremendous concern" over Tahoe's future at the time of the first summit.

Things are looking up, Heller said. "I give a lot of that credit to the (presidential) visit. I don't think there's any doubt it put the struggles of Lake Tahoe and the magnitude of them on the map," Heller said. "I think the results have spoken for themselves. It had made a huge difference."

Looking ahead, Heller said he sees the continuing need to enhance transportation at the lake as a priority

Clarity loss slowing, eyes turn to nearshore

“

To examine the nearshore you have to look at a much wider area and it's naturally variable. You can't monitor it in one or two places. You have to have the big picture and that's much more difficult to do.

”



Alan Heyvaert
assistant
research
professor

**Desert
Research
Institute**

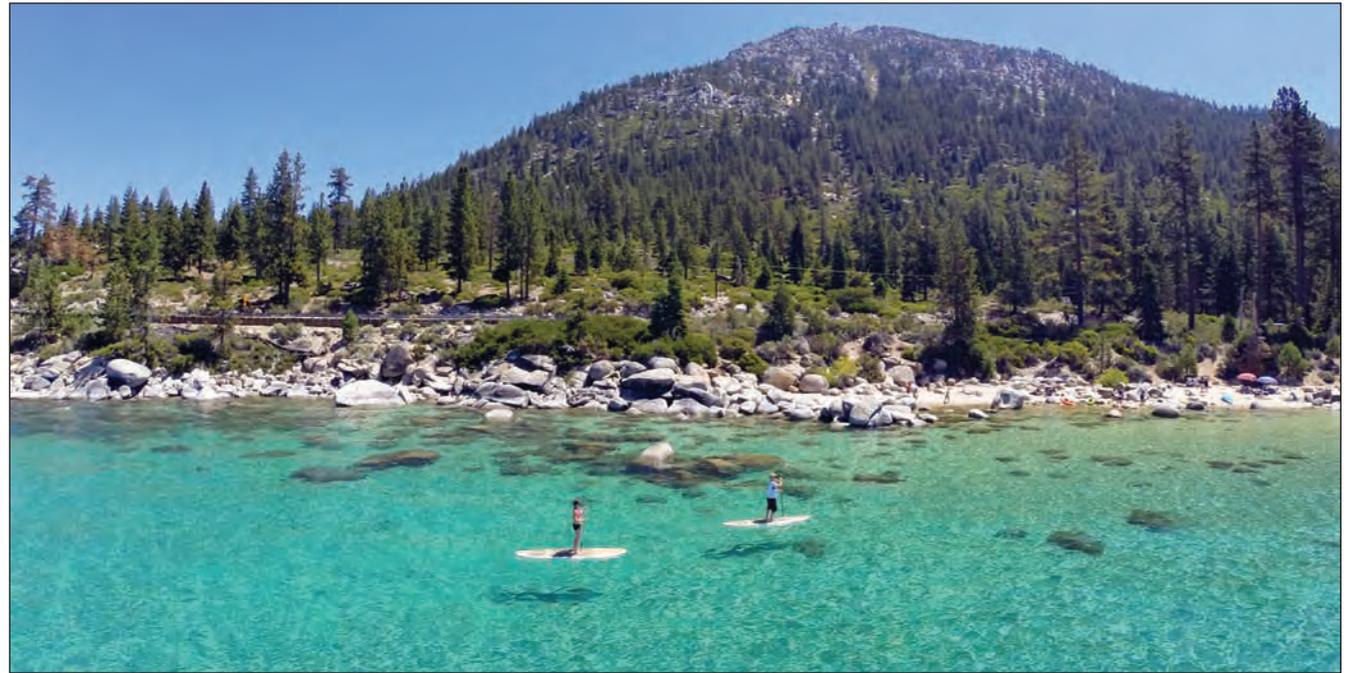


Photo: Drone Promotions

The rate of clarity loss has slowed since 2000, evidence that preventing fine sediments from entering the lake is helping.

Continued from page 3

improvements on roadways and in Tahoe's urban centers, where runoff accounts for an estimated 72 percent of fine sediments entering the lake.

A near-term clarity goal has also been identified. Known as the "clarity challenge" it would increase clarity to 78 feet by 2026 and maintain that average clarity level for five years beyond.

"That's when we can feel confident we have really arrested the decline in clarity and are moving toward improvement," said Jason Kuchnicki, Lake Tahoe watershed program manager for the Nevada Division of Environmental Protection.

The TMDL program, Kuchnicki said, will prove "very critical" when it comes to achieving long-term clarity goals for Lake Tahoe.

"It gives us quantifiable milestones. It basically sets the bar," Kuchnicki said. "It definitely is a roadmap to achieving clarity goals."

Kuchnicki said he is confident the clarity challenge can be met within the identified timeline. A bigger challenge might be financing ongoing maintenance of water quality improvements built by local governments to achieve those goals over the long term.

While scientists have scrutinized Tahoe's mid-lake clarity for nearly 50 years, attention is now focused on parts of the lake closest to the shoreline – a

place where the vast majority of visitors and residents experience the lake.

Tahoe's shoreline environment is undergoing change, some of it of a worrying nature. A 2013 report prepared by Reno's Desert Research Institute, UC Davis, the University of Nevada, Reno, and others cites the "apparent deterioration" of Tahoe's nearshore environment, with issues including murky shallow waters in the summertime, slippery green algae attached to rocks, crashing populations of native minnows, and the spread of non-native warm water fish and aquatic plants. The nearshore is the place where pollutants flowing into the lake are most concentrated.

Much remains unknown.

"It's still largely in its infancy," Dr. Alan Heyvaert, an associate research professor at the Desert Research Institute, said of ongoing research into the nearshore — an initiative he said can now be aggressively pursued in part due to successes in dealing with mid-lake clarity concerns.

The task is somewhat daunting, in part because unlike the middle of the lake, conditions along the shoreline vary to a large degree from place to place.

"It's inherently difficult," Heyvaert said. "To examine the nearshore you have to look at a much wider area and it's naturally variable. You can't monitor it in one or two places. You have to have the big picture and that's much more difficult to do."

To learn more, scientists have

installed underwater monitoring stations around Tahoe's shoreline. By the end of this summer, more than a dozen stations are expected to be operating and providing important information to researchers.

"We were late to get started in looking at the nearshore," Schladow said of an issue he called "incredibly complicated."

A warming climate could prove to be one of the most important factors when it comes to Tahoe's future, Schladow said. Since 1968, Tahoe's surface water temperature has increased an average of .03 degrees per year and the impacts of continued warming could be profound. Among them, the possible end to the regular mixing of Tahoe's waters from top to bottom, a change that could come with widespread ecological consequences.

"The warming of the lake, especially the warming of the surface, I suspect is going to profoundly change Tahoe," Schladow said.

Short-term changes could also have major impacts. During the Sierra's massive Rim and King fires in 2013 and 2014, researchers found that hazy skies reduced ultraviolet radiation entering Tahoe's waters sufficiently to allow zooplankton to rise more than 30 feet from normal levels.

"It literally happened in a matter of weeks," Schladow said. "The thing that's immeasurable is this is a pretty unique and iconic place and you could lose it pretty fast."

Today's forest thinning projects sparked by first forum

65,380 acres of treatments to clear forests of hazardous fuels since 1997

By Jeff DeLong

TAHOE IN DEPTH

In "Roughing It," Mark Twain wrote of a careless moment when he wandered away from his campfire and the flames escaped, sparking a "blinding tempest of flame" that rocketed up the forested slopes of Lake Tahoe's East Shore.

The author's 1861 account may be one of the first of a damaging wildfire in the Tahoe Basin but the issue of forest health, the role of fire, and the risk of catastrophic wildland blazes has become one of mounting importance over the years, including during the first Lake Tahoe Summit of 1997.

Back then, Tahoe's forests were "at a tipping point," in dire need of widespread thinning but there was no money secured to pay for it, said Forest Schafer, forester for the North Lake Tahoe Fire Protection District and incident commander of the Tahoe Fire and Fuels Team, established in 2008.

Schafer, an 8th-grader growing up in South Lake Tahoe the year President Clinton convened the summit, recalls the forests where he played in the so-called "wildland urban interface" — the place where forests abut developed neighborhoods — as being over thick and full of dead and downed trees.

The problem dated back more than a century, when much of the Tahoe Basin was clear-cut to provide timber needed for the Comstock gold and silver mines. The forest that grew back was largely composed of even-aged white fir, a tree particularly susceptible to drought stress and insect attack.

Fire, which plays a natural role in a healthy forest ecosystem, was excluded from Tahoe's forests for more than a century. Any fires that started were quickly put out, making for an ever-thickening and unhealthy forest increasingly susceptible to huge, explosive fires.

Add to that a massive beetle kill associated with the lengthy drought that withered Tahoe's forests from the late 1980s to the early 1990s. One out of three trees were dead in some places, while other pockets of forest had mortality rates of up to 80 or 90 percent.

It was a worrying situation, said Brian Garrett, urban forest program manager

and a firefighter with the U.S. Forest Service's Lake Tahoe Basin Management Unit.

"At that time there had been very little forest management done. The Lake Tahoe Basin was in pretty bad shape," Garrett said. "There was widespread tree mortality all over the Tahoe Basin and there was really no funding to address the situation appropriately."

At the summit, the need to adequately address the issue of forest health was one key area of emphasis. The event paved the way to tackle the problem at last, Garrett said.

"The summit really gave us that initial funding. It kicked off our current program of doing forest thinning in the urban interface," Garrett said.

Initial work was funded through the so-called "Presidential Deliverables" signed by President Clinton at the summit, with a longer-term funding stream secured with the 2000 passage of the Lake Tahoe Restoration Act and the 2003 amendment of the Southern Nevada Public Land Management Act.

Since 1997, 65,380 acres of treatments to clear forests of hazardous fuels in the Tahoe Basin have been completed, the bulk of it national forest land.

The majority of work needed in the forest within a quarter mile of Tahoe's communities is completed, with all that work expected to be wrapped up in the next seven years or so. About 60 percent of forest within 1.5 miles of Tahoe's neighborhoods has also been treated, Garrett said.

"Our urban forests are much healthier today," said Mike Vollmer, environmental improvement program manager and forester for the Tahoe Regional Planning Agency. "Our communities are far safer than they were just five years ago."

Even as progress was being made, Tahoe was in for some scary reminders of the danger at hand.

Perhaps the first came in June 2001, when an illegal campfire sparked a wildfire that raced down the Truckee River Canyon. The Martis Fire burned more than 14,000 acres — most of it in a single day — and threatened the riverside hamlet of Floriston, west of Reno.

A year later, someone tossed a cigarette



The Angora Fire blasted through 3,100 acres, destroying 242 homes over the course of a few hours.

from the Heavenly Gondola, sparking a quick-moving wildfire that forced the evacuation of hundreds before a sudden change in weather helped reverse what could have been a disaster for the South Tahoe area. The scar of the 673-acre Gondola Fire remains a prominent feature on the mountainside towering over South Lake Tahoe and Stateline.

"I look at the Martis Fire as the wakeup

call and the Gondola Fire as the return of fire to the Tahoe Basin," Vollmer said.

In 2004, the same year the explosive Waterfall Fire raced through the hills west of Carson City, destroying 18 homes, the Governing Board of the Tahoe Regional Planning Agency made fire danger and fuel reduction the agency's No. 1 priority.

Continued on page 8

Angora Fire ‘brought everyone together’



Photo: Tahoe Daily Tribune

The 2007 Angora Fire burned more than 3,000 acres and destroyed more than 240 homes.

Warming climate poses new challenges for managing Tahoe’s forests

Continued from page 7

Then came the Angora Fire. The wildland blaze long feared at Lake Tahoe exploded into life from an illegal campfire on June 24, 2007. The wind-whipped blaze blasted through 3,100 acres, destroying 242 homes over the course of a few hours.

“Angora changed everything,” Vollmer said. “Obviously it was a tragedy. There was a lot of fear, a lot of anger.”

In August 2007 and in response to the Angora Fire, California Gov. Arnold Schwarzenegger and Nevada Gov. Jim Gibbons established the California-Nevada Tahoe Basin Fire Commission to examine Tahoe’s regulatory environment and how it influenced fuel reduction and fire protection.

The panel issued a slew of findings and recommendations. Of 45 action items specific to the TRPA, 41 have been implemented. The other four were completed to the extent possible based on available funding.

Among key achievements since Angora was the passage of memorandums of understanding with Lake Tahoe’s fire

districts to allow the districts to issue permits to remove trees for improved defensible space. TRPA has also amended regulations to ensure goals in such areas as erosion control don’t conflict with improvements needed to reduce fire risk.

“We responded and we responded in a positive way,” Vollmer said. “It was a tragic event but the outcome from it turned into a positive. It was a unifying moment. The Angora Fire brought everyone together in a way that’s paying dividends for our communities and the environment.”

If much has been accomplished to improve forest health, much remains to be done. While most of the wildland-urban interface has been treated, parts of the forest farther away from communities — areas with steeper terrain where treatment becomes more difficult and costly — remain in need of work. And areas already successfully treated will need work again in the future or “we’re going to end up losing what we accomplished,” Garrett said.

“Looking forward, funding is a critical key element,” Garrett said.

“Right now, we are playing catch-up,” agreed Schafer.

A warming climate will only add to coming challenges. New threats from bark beetles ravaging drought-stricken trees and hotter-burning fires are big concerns. The massive Rim Fire of 2013, a so-called megafire that burned more than 400 square miles in and near Yosemite National Park, and the King Fire, which burned another 151 square miles west of Lake Tahoe the following year, make clear the risk at hand.

“Fires are getting bigger and fires are getting more destructive, and it doesn’t look like that’s going to change,” Schafer said.

Work completed over the last 20 years must be followed by more for the next 20 and beyond, he said.

“The thinning will need to continue,” Schafer said. “It’s an investment we can lose out on if we don’t find ways to sustain the work.

“It’s important to think about because the forests are so clearly tied to all the things that make Lake Tahoe such a special place.”



Keeping Tahoe fire safe

In a new public education and outreach campaign, the Tahoe Fire and Fuels Team is asking people to “Think First to Keep Tahoe Fire Safe.”

Tahoe is a wildfire-prone area, and people must do their part to both prevent wildfires and prepare for them. Ninety percent of the wildfires that ignite each year at Tahoe are started by people.

The millions of people who visit Tahoe must help prevent wildfires by being responsible with campfires, cook stoves, off-road vehicles, smoking, and other potential causes of wildfire ignition.

Residents have a role to play to make sure they are prepared for wildfire as well. That means creating defensible space on their properties, working with neighbors and local fire agencies to create fire-adapted communities, and having an evacuation plan.

A new website www.ThinkFirstTahoe.org is full of wildfire prevention and preparedness tips for visitors and residents.

Sign the pledge to “Think First to Keep Tahoe Fire Safe” to show you are taking the wildfire threat at Tahoe seriously and working to prevent and prepare for the next wildfire. The time for action is now, before the next wildfire is burning.

With grant funding from CAL FIRE, the Tahoe Resource Conservation District is partnering with residents and fire districts around Lake Tahoe to build a Tahoe Network of Fire Adapted Communities — creating residents and communities that are as prepared as possible for Tahoe’s next wildfire. Community volunteers and leaders are needed for this work and should contact Marybeth Donahoe at 530-543-1501 ext. 114 to learn more and get involved.

Science guides conservation, restoration policies

Researchers identify problems but also measure progress toward correcting them

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

Knowledge is power, the old saying goes. And science has always played a powerful role in Lake Tahoe's conservation and restoration.

Research by University of California, Davis, University of Nevada, Reno, Desert Research Institute, and other partners has helped identify threats to the lake's environment, find solutions, and then determine if they are working.

"Science gives us the information we need to ensure the policies we set are working," said Joanne S. Marchetta, executive director of TRPA. "Without science, we'd be missing the core of what we need to know to advance our mission of conserving and restoring this national treasure."

Science has triggered big policy actions at Tahoe.

Research by a young Charles Goldman advanced the landmark 1960s decision to export all sewage out of the Tahoe Basin. At the time, engineers wanted to build wastewater plants and discharge treated sewage into the lake, while others argued it should be pumped out of the basin at significant additional cost.

"I took the treated effluent, added it to mid-lake water, and turned it green in three days. That made quite an impression on the engineers," Goldman said.

An ultra-oligotrophic (pristine, nearly sterile) lake, Tahoe is sensitive to nitrogen, phosphorus, and other nutrients that can fuel algae growth. Concern about those pollutants remains, since they can find their way into the lake from some lawn fertilizers, vehicle emissions, and smoke from forest fires.

But Goldman's findings about the impact treated wastewater would have on the famously blue lake prompted legislation requiring all sewage to be treated and exported out of the basin, not discharged back into the lake.

"If that hadn't happened, we would be looking at a green lake today," Goldman said.

Yearly water clarity measurements for Lake Tahoe are one of the longest-running records for lake clarity in the world, dating back decades. That



Ultra-fine sediment particles that stormwater washes into the lake from roads, parking lots, and developed areas are the leading cause of clarity decline. The discovery allowed agencies to move forward with programs, projects, and regulations to reduce stormwater pollution. The stormwater pipe at El Dorado Beach (left) was removed during construction of Lakeview Commons.

information allowed people to quickly notice declines in Tahoe's famous water clarity and then helped them rally for stronger environmental protections and watershed restoration projects.

"We know what clarity was in prior years, in prior decades. Everyone agrees it has changed, so discussions are all about what the best solutions are, and that's a healthier debate to have," said Geoffrey Schladow, director of the University of California, Davis Tahoe Environmental Research Center.

Researchers identified the leading cause of Tahoe's clarity decline: Ultra-fine sediment particles that stormwater washes into the lake from roads, parking lots, and developed areas. The discovery allowed agencies to move forward with programs, projects, and regulations to reduce stormwater pollution.

Launched in 1997, the Environmental Improvement Program has united dozens of agencies working to upgrade roads and developed areas to reduce stormwater pollution and also restore the lake's natural water filters, marshes, wetlands, and meadows that were damaged by past logging, cattle grazing, and development.

Hundreds of projects completed through the Environmental Improvement Program have successfully halted the long-running decline in Tahoe's water clarity and started to restore lake clarity — though it took years to happen and remains a work in progress.

Even with the best science, "people need to recognize Tahoe is a big lake," Schladow said. "If you took all the water in the lake and spread it over California it would be 15 inches deep. So we all

have to be somewhat patient. If we come up with a solution and funding to implement it, the lake isn't going to suddenly reverse course in one year. It may take decades. It's a big system."

Launched after years of research, the Lake Tahoe Total Maximum Daily Load Program identifies what pollutants are harming the lake — fine sediment, nitrogen, and phosphorus — and from where those pollutants are washing into the lake. The program also requires cities and counties around the lake to reduce stormwater and fine sediment pollution every five years, so that by the middle of the 21st century Lake Tahoe's clarity can be restored to the 100 feet it once measured.

Science has answered some of Lake Tahoe's biggest environmental questions, identifying threats to its health and coming up with ways to address them. There remains more to do.

From maintaining forest health to stopping the spread of invasive species and algae growth and protecting nearshore water quality, climate change is posing a whole new realm of questions about threats to the lake's health and what can be done to prevent or manage them.

"I think science's biggest contribution is still to come," Schladow said about climate change and the impacts it could have at Tahoe. "We and all other lakes are starting to enter a place where we have never been before, and science is more important than ever."

Recognizing the importance of science at Lake Tahoe, California and Nevada have formed a Bi-State Science Advisory Council for the Tahoe Basin. Co-chaired by Schladow and DRI's Alan Heyvaert, the science council will identify research needs and help inform the work and projects being done by agencies in the Tahoe Basin to ensure they are as effective as possible.

"It's a place where scientists can meet and talk about science, and at the same time we can also hear from the agencies about what their concerns are. Creating this forum between scientists and agency executives will be good," Schladow said.

Tom Lotshaw is the public information officer for the Tahoe Regional Planning Agency.

The legacy of Coe Swobe

Advocate pioneered Tahoe protection with mantra: 'Polluted water does not respect state lines'

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe lost one of its longest-standing stewards and supporters this spring with the passing of Coe Swobe. The Reno native and third-generation Nevadan is called the “father of the Tahoe Compact” for his bipartisan work across state lines to create the Tahoe Regional Planning Agency. He died on May 26, 2016 at age 87.

As a Nevada state senator, Swobe played a leading role in brokering the 1969 agreement between Nevada and California to create TRPA through the nation’s first environmental bi-state compact. The agreement launched TRPA and its ongoing mission to conserve and restore Lake Tahoe’s famed water clarity and unique environment, treasured by millions of people around the world.

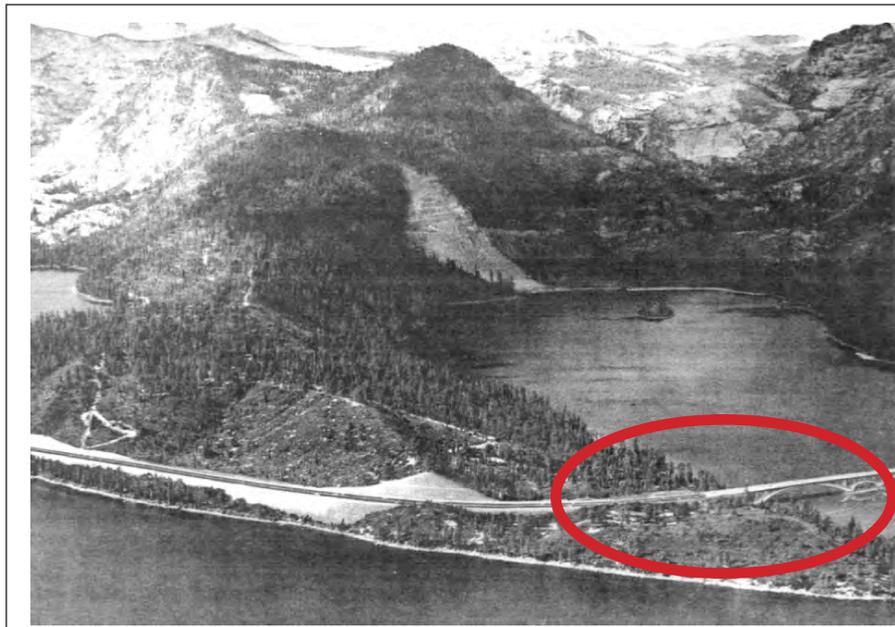
The need for a regional approach to protect Lake Tahoe grew dire in the decades after attempts to make the basin a national park failed in the early 1900s. Leading up to the 1960 Olympics at Squaw Valley and in the years after, Tahoe faced growing development and tourism pressures that threatened the lake’s health.

Out-of-control development

The number of full-time residents in the Tahoe Basin grew exponentially from a couple thousand people in the mid-1950s to about 18,000 in the mid-1960s. Summer tourism increased from 30,000 visitors to 150,000 visitors in that same time. And development was essentially out of control, with the gaming industry “chomping to expand” and residential subdivisions popping up everywhere, Swobe recalled during a visit to TRPA in December 2015.

With planning and regulatory authority in the Tahoe Basin split among two states and multiple counties, developers “could cherry pick the jurisdiction with the least amount of restrictions to develop,” Swobe said. And the results were quickly proving devastating, with substandard developments being approved in environmentally sensitive areas where they would not be allowed today.

Development in Incline Village, the Tahoe Keys, and other areas around the lake disrupted natural stream flows and displaced marshes, meadows, and wetlands, causing large, muddy plumes of sediment to flow into the lake and reduce



Coe Swobe, below, was instrumental in getting the Bi-state Compact passed by California and Nevada. He secured California Gov. Ronald Reagan's signature, right, before delivering the compact to Carson City for Nevada Gov. Paul Laxalt's signature. The compact helped forestall such major projects as a bridge and highway that was proposed for Emerald Bay (top photo).



GOV. RONALD REAGAN Monday handed Sen. Coe Swobe, R-Reno, a proclamation he just signed to formally activate the pollution-fighting California-Nevada Lake Tahoe Regional Planning Agency. The document was delivered to Nevada Gov. Paul Laxalt in Carson City, whose signature was affixed in the afternoon to complete the compact. See story, below; related photo, Page 12. (UPI Telephoto)

Tahoe Basin Pact Signed

Two governors affixed their tion at noon in his office in

its famous water clarity.

With development pressures accelerating after the 1960 Winter Olympics and plans for a 750,000-resident city at Lake Tahoe, the two states took notice. A legislative committee formed in 1965 to explore ways to rein

in development. And in 1967, the committee recommended the creation of a basin-wide agency with authority to plan and regulate future development.

Former Nevada Gov. Paul Laxalt asked Swobe to work with California legislators and former California

Gov. Ronald Reagan to seek common ground for the unprecedented alliance to protect Lake Tahoe. Creation of a bi-state compact would require identical legislation to be passed by both states and the federal government. That was no small task given Democratic control of the two state legislatures and Congress and Republican governors wary of a new layer of government at Lake Tahoe.

“But eventually after meeting with the governors and D.C. officials we got some agreement on what we were working with and some common legislation,” Swobe said. “Our battle cry during all of this was ‘polluted waters do not respect state lines,’ and that caught on.”

Tahoe Compact created

Less than two years later, both states had passed identical legislation to form the Tahoe Compact and create TRPA. Identical legislation was passed by Congress and then signed into law by former President Richard Nixon in December 1969.

Following approval of the Tahoe Compact, Swobe was again tasked by Laxalt to write the proclamation creating TRPA.

“I drew up this proclamation and brought it down to the governor’s office and said this is just like the Magna Carta, well-written and punctuated. He said, ‘If you think the thing is so damn good why don’t you have one made for yourself?’”

Swobe did just that. He took three copies of the proclamation for Reagan to sign. “The governor was sitting at his desk and he signed one, signed two, and then another one, and then said, ‘What’s this third one for?’ I (Coe) said there’s one for you, one for Gov. Laxalt, and one for me. And Gov. Reagan looked kind of puzzled. Luckily he looked up at his aide, Ike Livermore, and thank God for him, he nodded that it was OK,” Swobe said.

“Coe became not only the person who made it happen, but the voice of the people who wanted to see it happen,” TRPA Governing Board Vice Chair James Lawrence, also deputy director of

Continued on page 26

Restoring a watershed, stream by stream

Dirty, dusty work leaves behind a clean, healthy waterway — and less runoff headed to lake

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

In many ways, Lake Tahoe is only as healthy as the 63 streams that course down mountains and through forests and meadows and communities into the big blue lake. Unfortunately, Comstock era logging, cattle grazing, and development projects damaged many of Tahoe's tributaries long before modern protections were put in place.

Today, agencies are monitoring the health of Tahoe's streams and working to restore the degraded streams that need it the most — implementing projects to reduce erosion, restoring water to floodplains and wet meadows, improving fish and wildlife habitat, and removing obstacles like culverts that block fish passage.

Restoring Lake Tahoe's most damaged streams is not easy or pretty work. But it is needed.

That's especially true for the Upper Truckee River, Tahoe's largest tributary and one of its most degraded streams. The river is one of the largest contributors of the fine sediment, phosphorus, and nitrogen that wash into Tahoe, pollution that harms the lake's famous water clarity and helps fuel algae growth.

"Stream restoration work is often dirty, dusty, and ugly. It's not for the faint of heart," said Sue Norman, a hydrologist for the U.S. Forest Service Lake Tahoe Basin Management Unit.

In collaboration with California Tahoe Conservancy, the Forest Service this year is completing a major project to restore a highly-degraded stretch of the Upper Truckee River near the Lake Tahoe Airport in South Lake Tahoe.

The Upper Truckee River Reach 5 Restoration Project, in its fourth year, is one of the most ambitious and difficult stream restoration projects ever undertaken at Tahoe. In all, the project will reroute 1.2 miles of river, restore 120 acres of floodplains and wet meadows, improve fish and wildlife habitat, and reduce erosion.

The project is close to a neighborhood and the unsightly work has prompted some criticism, with the construction area closed off to keep people a safe distance from dozens of dump trucks, backhoes, and excavators working to create the new



Photos: U.S. Forest Service

The Upper Truckee River Restoration Project, near the Lake Tahoe Airport, is one of the largest stream restoration projects in the Tahoe Basin and is expected to cut down on the amount of fine sediment the river carries into Lake Tahoe. The project involved building a new, 1.2-mile channel in order to restore the stream's floodplain and stabilize the channel.

river channel and fill in the old one.

But workers ensure best management practices are in place to prevent pollution discharges before, during, and after construction. And extensive work has been done to relocate fish and rare western pearlshell mussels from the abandoned river channel and into areas where monitoring has found they will succeed.

The new river channel has been built over the last four years, with sections

built offline and allowed to "season" with vegetation growth. The final 500 feet of new channel will be completed this year, with the full flows of the Upper Truckee River diverted back into the new channel and the old channel completely filled in.

Restoration of the Upper Truckee River is the focus of several agencies. The U.S. Forest Service, California Tahoe Conservancy, California State Parks, and City of South Lake Tahoe have all been working on projects that restore

Read the reports

Monitoring reports documenting the relative success of Forest Service stream restoration projects, as well as lessons learned to inform future restoration projects, are available online at <http://www.fs.usda.gov/goto/lfbmu/RiverineRestoration>

the marshes at the river's mouth, restore the degraded river sections upstream, or reduce stormwater pollution washing into the river from roads, neighborhoods, and other urban areas.

Reach 5 was one of the Upper Truckee River's most degraded sections, and an analysis found that restoring it will reduce the amount of pollution reaching the lake more than restoring any other section of the river. And while the restoration work is messy, dusty, and unattractive when it is being done, it will result in a healthier stream.

We know this kind of work so close to neighborhoods can impact our community, said Forest Supervisor Jeff Marsolais. "With continued community patience and support, this project which wraps up this fall, will result in a much healthier meadow and river ecosystem."

Thousands of feet of stream channel have been successfully restored through the Lake Tahoe Environmental Improvement Program.

The Forest Service closely monitors all of its stream restoration projects both before and after the work is done. And similar projects completed on Blackwood Creek, Big Meadow Creek, and Cold Creek have significantly improved the health of those streams and reduced the amount of pollution they carry into Lake Tahoe.

"When we get it right, the sometimes ugly work of restoration results in an even more beautiful stream channel and meadow that provides high-quality riparian and aquatic habitat," Norman said.

And that's good not only for the health of the streams and the fish, plants, and wildlife that call them home, but the health of the big blue lake they all flow into at the end.

Tahoe an international leader in conservation

Scientists, policymakers from around the globe visit to learn about cooperation and controls

By Devin Middlebrook

TAHOE REGIONAL PLANNING AGENCY

While environmental improvement projects benefit Lake Tahoe on a local level, they also influence conservation initiatives on a global scale. Leaders from around the world often travel to Lake Tahoe to learn from the local experts and bring the conservation lessons to their home countries.

An international delegation of representatives from 21 countries recently visited Lake Tahoe as part of a multi-regional project on climate change adaptation and renewable energy. As part of its trip, the group spent a day with Tahoe Regional Planning Agency staff learning about the history of Lake Tahoe, environmental issues, and how to build consensus with a wide range of stakeholders.

“The multi-country International Visitor Leadership delegation immensely enjoyed visiting with the TRPA, the Taylor Creek Visitor Center, and learning about the issues facing Tahoe,” said Michael Graf, international visitor program specialist with the University of Nevada, Reno’s Northern Nevada International Center. “TRPA is a model example of local, state, and federal agencies working together to preserve Lake Tahoe and served the delegation with a can-do approach to resolve similar multi-jurisdictional issues in their home countries.”

Visiting delegations from around the world are just one way Tahoe influences conservation on a global level.

Guatemala

Lake Atitlán in Guatemala is the deepest lake in Central America and has an ecological history like Lake Tahoe’s. Many of the villages around the lake lack proper sewage treatment, allowing effluent to flow directly into the lake. This problem caused reduced water quality of the lake and resulted in regularly occurring toxic algae blooms. To address these issues, UNR scientist Dr. Sudeep Chandra brought experts from Lake Atitlán to Lake Tahoe. In the late 1960s, Lake Tahoe faced a similar issue with raw sewage entering the lake, and in 1969, the Porter-Cologne Act mandated that all wastewater in the Tahoe Basin be exported out of the region to protect water quality and groundwater reserves. Experts from Lake Atitlán visited



Researchers from all over the world come to Lake Tahoe to learn about the innovative environmental practices here. Experts from Lake Atitlán (top photo) visited Lake Tahoe to learn about the laws and systems in place and another delegation from Germany (above) toured the lake and learned about how it is protected. The map on the left shows the many countries that have sent experts to or collaborated with Lake Tahoe.

Lake Tahoe to learn about the laws and systems in place. While the future for Lake Atitlán is still unknown, Lake Tahoe’s past influenced the possible future of the lake.

Russia

The most notable example of a global knowledge exchange is the Tahoe-Baikal Institute. Created in 1991, the Tahoe-Baikal Institute aimed to provide a bilateral cultural exchange between Lake Tahoe and Lake Baikal in Russia. The two lakes share many characteristics, including their depth, clarity, habitat, and complex political landscape. While no longer active, the Institute hosted an annual summer environmental exchange program based on watershed protection, sustainable development, and cultural exchange. Participants in the program spent four weeks at each lake and participated in small-group investigative projects,

ecological restoration work, meetings with experts, and interactive workshops. The experience gained during this program was then applied to long-term conservation projects at both lakes.

Cuba

Lake Tahoe and Cuba share the common challenge of balancing the demands of a tourist-based economy with the protection of pristine natural resources. This year, TRPA External Affairs Chief Julie Regan, under the auspices of her doctoral program in environmental policy at UNR, toured Cuba and met with officials from the Ministry of Science, Technology, and Environment. The discussion focused on invasive species prevention, water quality, and nature tourism.

As the United States continues to ease travel restrictions to the largest island

nation in the Caribbean, Cubans have development plans to build marinas, golf courses, and to double the number of hotel rooms over the next 15 years. Cuba has been called the “accidental Eden” because of its remarkable biodiversity, pristine coral reef, and unique historical development. Protecting these resources amidst rapid economic development is of keen interest to science and policy experts world-wide.

Regan’s delegation to Cuba included UNR researcher Dr. Sudeep Chandra and other officials who shared the story of Lake Tahoe’s conservation and lessons learned over the last 50 years. Future workshops are planned to continue the information exchange between Cuban and Tahoe officials.

Devin Middlebrook is the sustainability program coordinator at TRPA.

Partnering to restore the

LAKE of the SKY

The Environmental Improvement Program has agencies, nonprofit groups, private sector coordinating projects to improve the Tahoe Basin's health

By Tom Lotshaw
Tahoe Regional Planning Agency

Restoring Lake Tahoe's environment is no small feat. Tahoe is one of the world's deepest, largest, and clearest mountain lakes, holding some 39 trillion gallons of famously-blue water any given day—water that takes hundreds of years to flow through the lake and out the Truckee River.

And long before any environmental restoration started, Tahoe's 500-square-mile watershed suffered decades of logging, cattle grazing, and urban development in marshes, wetlands, and stream zones.

As the first Lake Tahoe Summit approached in July 1997, agencies were not satisfied with the pace of the lake's restoration.

Realizing no one agency could succeed alone, agencies were working to create a coordinated program for the entire watershed, one with the size and scope needed to correct past environmental harms that continue to impact the health of the lake and its landscape.

Former President Bill Clinton and Vice President Al Gore arrived at the Tahoe summit with that same goal in mind. "We have a shared responsibility to build on our commitment at all levels to be sure the lake and its environs are protected," Clinton said.

At the summit, Clinton signed an executive order creating the Lake Tahoe Federal Interagency Partnership. The order helped unite federal, state, and local agencies and TRPA, as well as a wide range of their programs, into a new Lake Tahoe Environmental Improvement Program (EIP).

Clinton pledged tens of millions of dollars in federal funding for the new effort, money matched by the states of California and Nevada, local governments, nonprofits, and the private sector.

So was the official launch of the EIP, a collaborative, basin-wide program involving more than 50 partners working together not only to restore Lake Tahoe's famed water clarity, but also improve its air quality, forest health, fish and wildlife habitat, and public recreation.

Several years of work went into forming the EIP before Clinton's visit. Jim Baetge, then director of TRPA, and Carl Hasty, then a program manager at TRPA, laid the groundwork by spelling out preliminary cost shares and priorities for the local, state, and federal partnership, as well



Third Creek in Incline Village after its restoration.

as a \$900 million project list for the first 10 years.

"When you think about how we fix Lake Tahoe, it's really a retrofit issue," Baetge said. "We've got regulations to control new development, and that's important. But we also need to have funding to correct the mistakes of the past."

Baetge, Hasty, and others rallied support for the EIP framework and raced to prepare plans for the new program in time for Clinton's visit. "Everywhere I could at that summit I made a point of waving that document around," Baetge said about early plans for the EIP. "I wanted everyone to recognize that there is a solution. To say, here it is, here is what it will do, and here is what it costs."

The EIP has proven more successful than even Baetge or Hasty imagined. Twenty years later, federal, state, and local agencies and nonprofit and private sector partners have invested more than \$1.9 billion and completed nearly 500 projects.

"This program is a model of how you can do environmental restoration throughout the country," Baetge said.

By taking a broad, landscape-level approach to Tahoe's restoration, often with multiple partners working together on multiple benefit projects across their normal jurisdictional boundaries, more has been accomplished than via a traditional silo approach.

Thousands of feet of stream channels have been restored around the basin, such as projects in the Ward Creek, Blackwood Creek, Third Creek, Incline Creek, and Upper Truckee River watersheds. These projects have fixed past damage from logging, cattle grazing, and urban development to improve fish and wildlife habitat and reduce erosion and the amount of clarity-robbing fine sediment washing into Tahoe.

Thousands of acres of marshes and wetlands have also been restored through the EIP. Tahoe's natural water filters, these areas are critical in restoring and protecting the lake's water quality and clarity. They also improve fish and wildlife habitat and, through projects like the Lower West Side Project, which includes the well-used Cove East area near the Tahoe Keys on the South Shore, provide popular recreation areas.

In the Lower West Side Project, the California Tahoe Conservancy restored part of the Upper Truckee Marsh that was filled in decades ago for planned but never built condominiums and a hotel. The agency is now working to expand on the project, looking for funding to restore another 500 acres of the Upper Truckee Marsh, once one of the largest marshes in the entire Sierra Nevada, and tie it in with other restoration work upstream.

Working as the Tahoe Fire and Fuels Team, local fire districts and land management agencies like the U.S. Forest Service, Nevada Division of Forestry, and California State Parks have cleared hazardous fuels from tens of thousands of acres of forest, improving forest health and habitat and reducing wildfire risk for Tahoe communities. The Tahoe Fire and Fuels Team has reduced hazardous fuels on more than half of the wildland urban interface around Tahoe neighborhoods, and is working to complete

Continued on page 17

Environmental Improvement Program Projects: Two decades of restoring, improving, and protecting Lake Tahoe

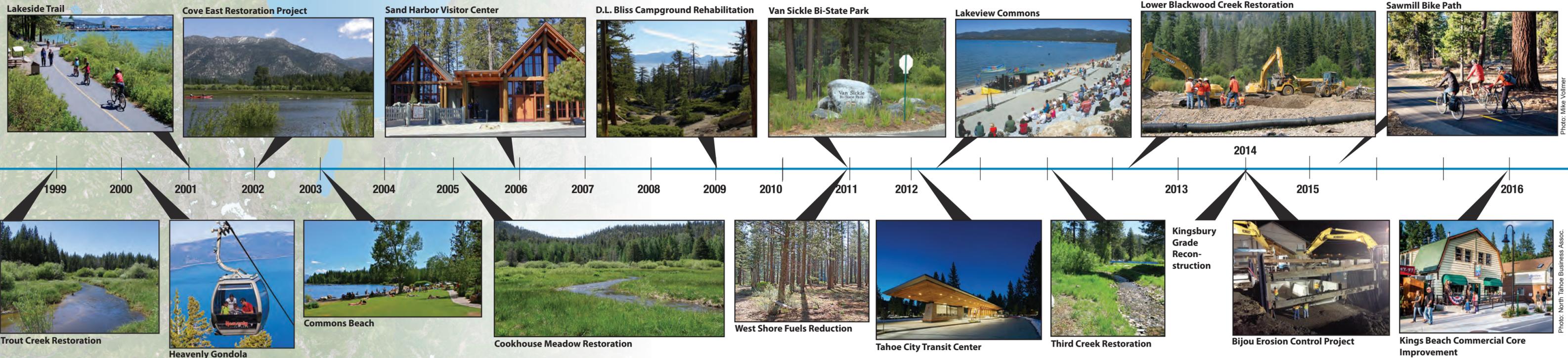


Photo: Mike Vollmer

Photo: North Tahoe Business Assoc.

Aquatic invaders posing threat to Tahoe's health

Non-native species — from plants to warm water fish — can have a dramatic effect on the lake

By Jeff DeLong

TAHOE IN DEPTH

Back in 1997, folks were increasingly concerned about a nasty water weed choking the canals of the Tahoe Keys. Anglers were hooking an occasional largemouth bass — a fish that had no business living in the cold waters of Lake Tahoe.

But as President Bill Clinton convened the first Lake Tahoe Summit that summer, the issue of aquatic invasive species was really not on anyone's radar.

Fast forward nearly two decades and that's anything but the case. Aquatic invaders — both those already in the lake and those that threaten to come — are among the top priorities when it comes to threats posed to Lake Tahoe.

"(Aquatic invasive species) are a significant part of Lake Tahoe's problems today. They pose a serious threat," said Sudeep Chandra, associate professor of limnology and conservation ecology at University of Nevada, Reno.

"It's something we wouldn't have thought about 20 years ago," Chandra said.

He, and many others, are thinking plenty about it now.

Some species not native to Lake Tahoe were brought here deliberately. More than a century ago, sport fish such as rainbow, brook, brown, and most importantly, lake trout were introduced into the lake, contributing in a big way to the decimation of the lake's native Lahontan cutthroat trout.

In a lake with an ecosystem and food web already dramatically altered by non-native species, Kokanee salmon were introduced decades later. Signal crayfish were introduced in the 1900s as a food source for trout, a move scientists say came with profound impacts to the lake's shallow water environment. Tahoe's crayfish populations are now estimated to be in the hundreds of millions.

That water weed in the Tahoe Keys, Eurasian watermilfoil, was believed to have arrived after development of the waterfront community in South Lake Tahoe in the 1960s and within 20 years was producing severely negative impacts. Milfoil has since spread to



A recent shot of Asian clams washed up at a beach near the Tahoe Keys.

more than 30 locations around the lake and has escaped into the Truckee River, where it flows from the lake at Tahoe City. Another invading water weed, curlyleaf pondweed, was first noticed in 2003 and has since spread rapidly around Tahoe's South Shore.

Fishermen first reported pulling largemouth bass and bluegill, likely introduced by anglers, out of the Tahoe Keys in the 1970s. These warm water fish prey on native minnows, whose populations have plummeted across Lake Tahoe in recent decades. Years later, smallmouth bass and goldfish made their Tahoe emergence, with warming waters associated with climate change expected to aid in successful reproduction and expansion of warm water fish populations.

Some non-native species have troubling symbiotic relationships. For example, Eurasian watermilfoil provides welcome cover for warm water fish like bass, meaning that the spread of one invader could aid that of another.

"What we're worried about at Lake Tahoe is invasion facilitation," Chandra

said of the situation.

"Invasion facilitation" could become an important factor in perhaps the biggest threat to Lake Tahoe from an aquatic invader — the potential introduction of the quagga mussel.

The quagga mussel, which has overrun the Great Lakes since first appearing there in the late 1980s, made its western debut with a 2007 discovery in southern Nevada's Lake Mead. The quagga has since spread rapidly across Lake Mead, now numbering in the trillions, and has also spread throughout the lower Colorado River system.

The 2007 discovery of quaggas in Lake Mead lit the fire when it came to recognizing the scope of threats potentially posed to Lake Tahoe by that invader and others. Quaggas could forever alter the lake's ecosystem. They clog waterline intakes, cover boats and docks, and litter pristine beaches with piles of foul-smelling shells. One study estimates that a quagga invasion could cost Tahoe's tourism-based economy at least \$22 million per year.

"You put the Lake Mead quagga mussels on the map and people really

started paying attention," Chandra said.

"That really galvanized everything."

"It certainly put us on high alert," agreed Dennis Zabaglo, principal environmental specialist and head of the Tahoe Regional Planning Agency's aquatic invasive species program.

"We realized what it could do to our environment and our economy," Zabaglo said of a potential mussel infestation at Tahoe. "It would be devastating."

What followed was an all-hands-on-deck effort to ensure quagga mussels never gain a foothold in Lake Tahoe. In 2008, a voluntary boat inspection program was launched to prevent the most likely means of introduction. The program, led by TRPA in partnership with the Tahoe Resource Conservation District, became mandatory the following year.

Since the program started, more than 46,800 boats have been inspected before entering the lake, with more than 23,500 decontaminated. Nearly 200 boats containing aquatic invaders were intercepted before entering the lake, 37 of them with hitchhiking mussels and others

Continued on page 16

Tahoe boat inspection program has become a national model for spotting invaders

Continued from page 13

with clams, snails, or plants.

The inspection program, at a cost of \$1.5 million per year, exemplifies the public-private partnership approach of the Environmental Improvement Program. Boater fees cover half the costs while the states of California and Nevada fund the balance.

"It's been highly successful," Zabaglo said of a boat inspection program now heralded as a national model. "We've had no new invasions since the program started. It's a remarkable accomplishment."

While land managers strive to prevent a quagga introduction via boat, scientists continued to explore the question of whether quaggas could thrive in Tahoe's waters if they arrived. What they've found isn't particularly encouraging.

Originally, some suspected Lake Tahoe's waters contained too little

calcium to support quagga mussels. But recent research by Chandra and scientists at the Desert Research Institute indicates quagga mussels could not only live but successfully reproduce in Tahoe.

"These things can grow quite well," Chandra said. "Not only do the small ones grow and settle but the adults are able to not only grow, but they are able to reproduce."

The threat is particularly serious in parts of the lake where calcium levels are elevated by another aquatic invader already present, the Asian clam. Clams, linked to noxious algae blooms, were first discovered by UC Davis researchers in 2002 and have since spread across much of the southern part of the lake, with satellite populations discovered in places like iconic Emerald Bay.

Calcium levels are elevated in areas where Asian clam beds exist. The concern is that should quagga mussels ever

become established in those locations, they might find an environment where they could readily flourish.

"There's clearly a risk that Asian clams could facilitate quagga survival," Chandra said.

Experts continue to work at removing or controlling those invasive species already in the lake. More than 40 acres of Tahoe's lake bottom have been treated or re-treated to battle Asian clams and Eurasian watermilfoil, with both species targeted with success in Emerald Bay.

Projects have included the use of bottom barrier mats to control the spread of invasive plants and clams. In addition, scuba divers used suction devices to vacuum the plants.

The partnership is "proud to report that Emerald Bay is now weed-free," Zabaglo said.

The battle against invasive species at Lake Tahoe reached a milestone in 2015

with the approval of an implementation plan designed to provide specific guidance for decision making. It examines feasible control strategies for specific species at specific locations, recognizing the constraints of limited funding. The science-based plan, produced by UNR, functions as a road map to tackle the invasives problem.

There's little doubt aquatic invasive species will continue to pose problems and challenges into the future, experts said. The issue will clearly remain a top priority when it comes to protecting Lake Tahoe.

"It's been over the last 10 years that we've ramped up this program. Now it's one of our top priorities," Zabaglo said. "Today, people understand the importance of preventing the introduction of species we don't have and controlling the ones we do."



Get on the water faster.

CLEAN DRAIN DRY

TahoeBoatInspections.com • 888-824-6267





Photo: Tom Lotschaw

Project Tracker

A complete summary of the Lake Tahoe Environmental Improvement Program, including funding sources and completed projects, is available online at www.eip.laketahoeinfo.org through a project tracker launched in summer 2015.

Environmental Improvement Program at a glance

- 729 miles of roads upgraded to reduce erosion and stormwater pollution
- 65,380 acres of treatments to clear forests of hazardous fuels
- 16,343 acres of wildlife habitat restored
- 2,770 feet of shoreline made public
- 152 miles of bike and pedestrian routes constructed
- 46,853 watercraft inspected for invasive species
- 23,502 watercraft decontaminated
- 41 acres of treatments for invasive plants or clams

The completed Harrison Avenue project met many goals, including improving the area's parking, traffic, scenic beauty, and stormwater management.

Environmental Improvement Program helps repair problems created in Tahoe's past

Continued from page 15

the rest over the next five to 10 years and expand projects into more remote forests around the basin.

Caltrans, Nevada Department of Transportation, and county transportation departments have upgraded hundreds of miles of roadways in the Tahoe Basin to reduce soil erosion and capture and treat polluted stormwater runoff before it washes into the lake.

Agencies have built new transit centers, visitor centers, even state parks. They have opened new stretches of lakeshore to the public, put in new beach facilities including Lakeview Commons in South Lake Tahoe and Commons Beach in Tahoe City, and built miles of new bike and pedestrian paths to link neighborhoods with shopping centers, schools, workplaces, and recreation areas. Last year, El Dorado County completed a stretch of bike path linking South Lake Tahoe and Meyers. And this summer, the Tahoe Transportation District is breaking ground on a path that will link Incline Village and Sand Harbor State Park.

The Heavenly Gondola is a significant example of the EIP's public-private partnership model. The gondola, built in 2000, provided a way to reach Heavenly Mountain Resort from the redeveloped

shops and lodging in Heavenly Village. By eliminating the need to drive from the bed base to other mountain access points, the project helped reduce crosstown traffic by about 20 percent. Redevelopment has continued in the area, reducing impervious coverage and installing better stormwater systems. And the Heavenly Epic Discovery Project approved in 2015 is now expanding the mountain's summer attractions, offering people new ways to access national forest lands and experience Lake Tahoe.

Another example of the EIP's public-private partnership approach can be found in the aquatic invasive species program. A boat inspection program launched in 2008 through the EIP has successfully protected the lake from new aquatic invasive species. And researchers and agencies have pioneered new ways to fight invasive species already in the lake. Over several years in iconic Emerald Bay, barrier mats and divers were used to eradicate acres of invasive plants that were taking over the sandy shores and clear water and keeping people from swimming, boating, and enjoying the lake there.

A healthier basin

After 20 years of projects completed by the partners working through the

EIP, the long-running decline in Lake Tahoe's water clarity has halted and started to reverse. Tributaries, marshes, and forests are healthier. Rare plants like Tahoe yellow cress are protected. Tahoe's only native trout species, the Lahontan cutthroat trout, has been reintroduced in Fallen Leaf Lake and the headwaters of the Upper Truckee River. Communities and the transportation system are improving.

"We have a great goal to rally around, taking care of this special place," Jeff Marsolais, forest supervisor for the Lake Tahoe Basin Management Unit, said about the EIP. "It's the old adage about the sum being greater than its parts. The EIP is the framework to bring intention and purpose to the work we are doing, and allow all of us to accomplish more together than we ever could alone."

"The EIP provides a common vision for all the public and private partners in the basin," said Patrick Wright, executive director of the California Tahoe Conservancy. "For each major program — from stormwater to forest health to aquatic invasive species — the partners have developed a joint guiding document, a priority list of projects, and a set of performance measures to track progress."

Lake Tahoe's environmental problems

and solutions have never been limited to any one political jurisdiction. And the EIP reflects the reality that Tahoe's environment can never be restored without multiple agencies working together, coordinating, prioritizing, and investing in the right projects.

"Lake Tahoe is collaborating on a monumental scale," said Kim Caringer, TRPA's Environmental Improvement Division manager. "This level of coordination is driving results on the ground."

Lake Tahoe and its environment are responding positively to the basin-wide restoration approach launched through the EIP. With sound science guiding project investments, the EIP now ranks among the most comprehensive environmental restoration programs in the nation. The biggest challenge now, after 20 years, is to keep progress going. That means finding funding for additional projects and adapting to new challenges such as climate change and drought and the impacts they pose for the jewel of the Sierra — as well as the local economies that depend on its health.

"If we value Lake Tahoe as a national and international icon, we have to continue and protect the investment we have made," Caringer said.

Prosperity Center looks for ways to improve economy

Group focuses on 'triple bottom line' — environment, community enhancement, and economic growth

By Heidi Hill Drum

TAHOE PROSPERITY CENTER

When Sen. Harry Reid called President Bill Clinton and Vice President Al Gore to join him in Lake Tahoe in the summer of 1997, the focus was on how to protect Tahoe's fragile environment. It was one of the first basin-wide collaborations that highlighted Tahoe as one region, rather than separate communities. The importance of this event 20 years ago — the original Lake Tahoe Presidential Forum — cannot be overlooked as it has provided the backdrop for numerous successful partnerships — some even the visionary Reid could not have foreseen.

In 1997, the original Tahoe Summit focused on protecting the lake and improving clarity. Solutions involved building trust, collaborating across government boundaries, and creating teams to work on regional problems. This focus has positively impacted how our communities work better together.

The triple bottom line

During the 10-year anniversary of the Tahoe Summit, there was much success to celebrate and many additional accomplishments. There was also a realization that focusing solely on environmental protection was not necessarily also improving our communities and economy. In 2007, there was discussion about the triple bottom line (environmental protection, community enhancement, and economic prosperity), but no data to fully understand it. While there was significant research on the environmental side — the other two pillars could not be quantified. That 10-year anniversary began a movement of continued collaboration, but this time on the economic and community side.

The results of that movement, in large part started by the chambers of commerce on each side of the lake and each Tahoe government jurisdiction, resulted in the 2010 Lake Tahoe Basin Prosperity Plan. This plan was the first and only compilation of Tahoe-specific community and economic data. The Prosperity Plan also outlined numerous



Photo: Corey Rich



The Prosperity Center focuses on Tahoe's "triple bottom line" — environmental protection, community enhancement, and economic prosperity. The Prosperity Center is raising funds to support fire-prevention cameras that help spot forest fires before they get too large.

solutions to improving our communities and economy — following the lead of the Environmental Improvement Program.

That triple bottom line approach has since been highlighted by Sens. Dianne Feinstein of California and Dean Heller of Nevada in addition to Senator Reid as they have hosted subsequent Tahoe summits. In 2011, the Tahoe Prosperity Center was formed and is now actively engaged in collaboration stemming from the original Tahoe Summit 20 years ago.

Its mission is uniting Tahoe's communities to strengthen regional prosperity. Many of the Tahoe Prosperity Center's board members and its executive director were involved in the original summit in 1997. This history gives the Tahoe Prosperity Center the perspective of cross-government collaboration on which to build current and future initiatives to have the same success for the economy and community as seen on

the environmental side.

Connected Tahoe project

One example includes the Connected Tahoe project to expand high-speed internet in the region — noted in the 2010 Prosperity Plan as a critical infrastructure need for our communities to thrive and for businesses to grow. The Tahoe Prosperity Center's Connected Tahoe project includes working with local agencies to ensure we only "Dig Once" for bike trails and public works projects and underground conduit for fiber to improve broadband speeds.

The Tahoe Prosperity Center is also working with the U.S. Forest Service, Tahoe Regional Planning Agency, and local governments to identify new cell-tower sites to expand phone service. This effort has been successful because of the trust and relationships formed 20 years ago at that first Tahoe Summit.



TAHOE PROSPERITY CENTER
tahoeprosperity.org

Another initiative is the AlertTahoe project. This public-private partnership between the Tahoe Prosperity Center and the University of Nevada, Reno, Seismological Laboratory is succeeding because of strong relationships with our academic partners.

AlertTahoe adds fire-detection cameras and scientific equipment to some of the same potential cell tower sites that may be built as part of Connected Tahoe as well as other strategic locations around the Tahoe Basin.

Most importantly, these cameras are protecting our community, economy, and environment by catching small fires before they get out of control.

There are still challenges ahead. Businesses are struggling to find employees because of the lack of reasonably priced housing.

Workers are commuting from out of the area to work in Tahoe, which is harmful to the environment due to added sediment runoff created by driving.

Our aging and outdated buildings lack water quality best management practices and are deteriorating, thereby degrading Lake Tahoe as a world-class destination. These are just a few challenges that the Tahoe Prosperity Center looks forward to resolving by working with our government, business, and nonprofit partners.

We expect to see the same levels of success on the economic and community side that our environment has already seen.

Thanks to the vision and foresight of Sen. Reid who put collaboration into motion 20 years ago, we know we will improve regional prosperity for all who live, work, and play in Lake Tahoe.

Heidi Hill Drum is the executive director of the Tahoe Prosperity Center. She has lived in Tahoe since 1995, volunteered at the 1997 Tahoe Summit and is actively engaged in all things collaborative to improve Tahoe's communities. To find out more about the Tahoe Prosperity Center visit: tahoeprosperity.org.

Future looks bright for Tahoe yellow cress

Small flowering plant, only found at Lake Tahoe, has come back from near extinction

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

In the late 1990s, Tahoe yellow cress, a small flowering plant that grows only on the sandy shores and creek mouths of Lake Tahoe, was teetering on the brink of extinction. Surveys done in 1996 found the plant gone from all of the beaches it had once occupied in Nevada and growing at fewer than 10 sites in California after a lengthy period of high lake levels.

In the years since, populations have rebounded, and today the plant has a much brighter future. That's due in part to a collaborative, basin-wide conservation strategy that was launched in 2001 with regulatory and land-management agencies, private property owners, and the public all working together to protect a species found nowhere else in the world.

The strategy is working. Last October, after a lengthy review, the U.S. Fish and Wildlife Service determined that Tahoe yellow cress does not warrant listing as a federally endangered or threatened species, saving the basin and its property owners from a new level of federal regulations to protect the unique native plant.

The Tahoe partnership's work to protect Tahoe yellow cress has "truly exemplified the most basic function of the Endangered Species Act — to protect and conserve ecosystems and the species that depend upon them," the U.S. Fish and Wildlife Service said. "They have continued to raise the standards for the next generation of conservation and convinced us that Tahoe yellow cress has a bright future on the beautiful shores of Lake Tahoe."

The plant has always had a precarious existence, growing only at the margins of a single lake where it became geographically isolated at some point during Lake Tahoe's 2-million-year history. To grow and reproduce, populations must shift up and down the beach each year with ever-changing water levels. The plant also faces continual threats from beach trampling and beach raking at Tahoe's heavily



Photo: Tom Lotshaw

A basin-wide conservation strategy has helped the Tahoe yellow cress to rebound to where it is no longer considered endangered or threatened.

visited shoreline.

Public agencies have worked to protect the sandy beaches and the creek mouths where Tahoe yellow cress grows and have also repopulated sites with plantings. But with half of Tahoe's 75 miles of shoreline privately owned, private property owners are also playing a key role in protecting the plant.

The Tahoe Lakefront Owners Association has worked with its many members for 20 years to help provide sanctuary for the plant, and to get people to recognize that it's a positive thing, not a negative thing, to have it growing on their private property, Director Jan Brisco said.

"I think we're getting closer to having that safe harbor. We've had many people step up wanting to become Tahoe yellow cress stewards and offering their property for surveys or plantings so we can keep the plant alive and thriving along the shores," Brisco said. "Every spring I go

out to my members with information to remind them when they are cleaning up to be careful about the plants. We are really excited how well we've done to be where we are today."

Tahoe yellow cress is part of Tahoe's unique natural environment, and a shining conservation success story for one of the many rare and unique plants struggling to survive in California and Nevada.

"It's such a great group of resource managers, scientists, and private property owners who have come together to protect this plant," said Alison Stanton, an independent botanist who has helped guide the Tahoe yellow cress conservation strategy and restoration work since 2002.

Despite the success of the conservation strategy and the more than a dozen partners in the Tahoe Yellow Cress Adaptive Management Working Group, the hardy little yellow plant that calls

Help protect a botanical rarity at Tahoe

- Avoid trampling vegetated areas on beaches, especially near creek mouths, and keep pets leashed
- Stay out of areas fenced to protect Tahoe yellow cress
- Minimize beach raking and don't rake vegetated areas
- Learn more at tahoeyellowcress.org

Lake Tahoe home will always require protection and awareness due to its extremely limited range and habitat.

"It's a unique plant growing at a single lake so the stakes are high for it. Our work is not done. We have to continue to implement the conservation strategy and the stewardship program or we'll find ourselves right back in the same place," Stanton said.

BLM plays important role at Lake Tahoe

Bureau has funded projects to reduce erosion and hazardous forest fuels

By Chris Rose

BUREAU OF LAND MANAGEMENT

The progress made on Lake Tahoe's restoration over the last 20 years required significant capital investment from both the public and private sectors. While the federal Bureau of Land Management does not manage any lands in the Tahoe Basin, the agency has played an instrumental role in funding and coordinating the federal share of the Lake Tahoe Environmental Improvement Program.

As the largest federal manager of public lands in the United States, BLM's role in Tahoe has not been widely known. BLM became involved in the Lake Tahoe Basin in 1997 through an executive order former President Bill Clinton signed to create the Lake Tahoe Federal Interagency Partnership. The partnership includes agencies from the U.S. Departments of Agriculture, Defense, Interior, and Transportation, as well as the Environmental Protection Agency.

\$400 million in projects

Agencies in the partnership work to implement high-priority projects in the Lake Tahoe Environmental Improvement Program, and BLM has used funding from the Southern Nevada Public Land Management Act (SNPLMA) to help to restore Lake Tahoe through stewardship, service, and science. Since 2002, BLM has provided approximately \$400 million in SNPLMA funding for more than 400 projects in the Tahoe Basin to stop water clarity-harming soil erosion and reduce hazardous fuels in the wildland urban interface where Tahoe's forests and communities meet.

An amendment to SNPLMA in 2003 facilitated a predictable funding stream to fulfill the federal share of the Environmental Improvement Program. This major investment has required close coordination to plan, execute, and account for SNPLMA funding.

BLM has also used portions of that SNPLMA funding to acquire environmentally-sensitive lands identified by the Santini-Burton Act. To date, \$115 million has been set-aside for Santini-Burton Act acquisitions at Tahoe. Of that amount, the U.S. Forest Service

has spent \$67 million to acquire 2,576 acres. Another 21 acres are in the process of being acquired for \$2.9 million, leaving more than \$44 million available for future land acquisitions. Protecting sensitive lands from development has a direct tie to improving the lake's famed water clarity.

Providing the oversight

BLM provides the framework, rules, and program oversight for federal agencies in the Tahoe Basin, and its focus on transparency, accountability, and demonstrated results is critical to ensure that Environmental Improvement Program projects comply with applicable laws and regulations.

A new project category for hazardous fuels reduction and wildfire prevention was created through the White Pine County Conservation, Recreation, and Development Act amendment to SNPLMA in 2008. This project category helps pay for the creation and implementation of multi-jurisdictional hazardous fuels reduction plans and wildfire prevention in the Tahoe Basin, as well as in the Carson Range and the Spring Mountains in Nevada.

Thousands of acres treated

BLM organizes the nomination, implementation, and compliance of hazardous fuels reduction projects for all 18 entities in the Tahoe Basin eligible for this hazardous fuels funding. Of the 76 hazardous fuels reduction projects SNPLMA has funded to date, 43 projects have been for the Tahoe Basin, removing hazardous fuels from thousands of acres of forests around Lake Tahoe communities.

"The stability and sustainability of funding from SNPLMA has allowed, and will continue to allow, federal, regional, local, and private entities to create and implement long-term hazardous fuels reduction and wildfire prevention plans within the basin," BLM Nevada State Director John Ruhs said.

BLM will continue to be a major partner in reducing wildfire risk and improving forest health at Tahoe, and will consider approving more hazardous fuels reduction projects in future rounds

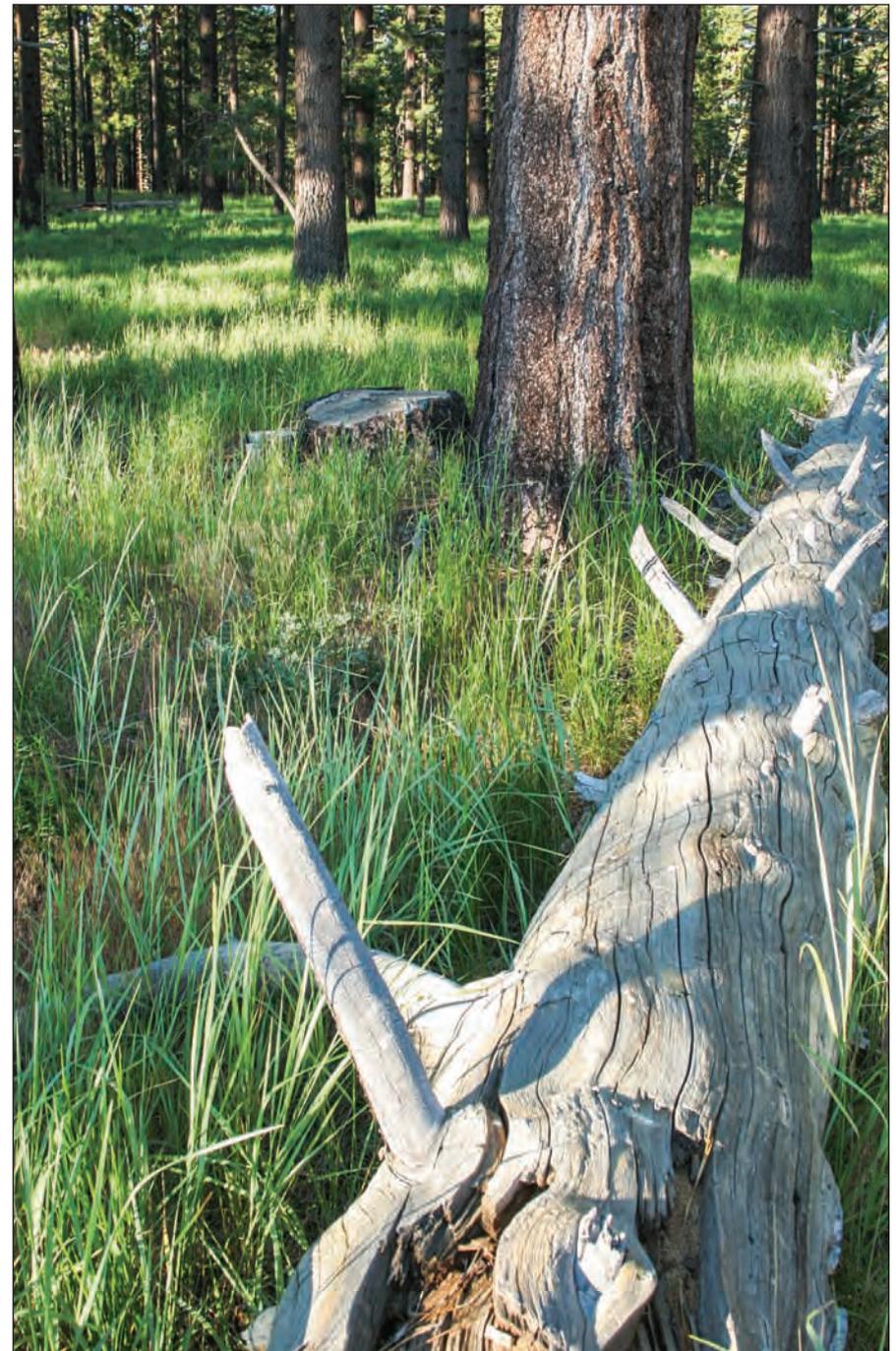


Photo: Mike Vollmer

Thinning the forests around Lake Tahoe has helped return the woodlands to natural conditions while reducing the threat of catastrophic wildfire.

of SNPLMA funding.

This summer, BLM issued a preliminary recommendation for funding another round of hazardous fuels reduction projects through SNPLMA. BLM recommends funding another 37 projects totaling almost \$105 million, with five of those projects totaling almost \$25.7 million in the Tahoe Basin.

"Federal funds through BLM are

critical to reducing the risk of catastrophic wildfire at Lake Tahoe," said Forest Schafer, North Lake Tahoe Fire Protection District and incident commander for the Tahoe Fire and Fuels Team. "We are grateful for the long-standing partnership."

Chris Rose is a public affairs specialist with the Bureau of Land Management.

Urban lot purchases help Tahoe's environment

Undeveloped sites help filter runoff while providing open space and wildlife benefits

By Jeff DeLong

TAHOE IN DEPTH

One of Lake Tahoe's most successful conservation stories takes the shape of a checkerboard.

Across Tahoe's neighborhoods and communities, mixed among the many homes and businesses, lie thousands of islands of nature — forested lots that will remain undeveloped into the future.

It's the result of a determined effort by federal, state, and local officials dating back decades. It's designed to protect some of Tahoe's most sensitive land while at the same time providing economic benefit to landowners who otherwise might be left in a lurch.

"It just works so well," said Larry Sevison, the former Placer County supervisor who has chaired the California Tahoe Conservancy for the bulk of the organization's three decades of existence. "We've taken thousands and thousands of lots out of building (potential)."

The origin of Tahoe's urban lot programs dates back to 1980. Then, in an effort to help address Tahoe's mounting land-use problems, Rep. Jim Santini of Nevada and Rep. Phil Burton of California sponsored legislation directing the U.S. Forest Service to begin acquiring sensitive land around the Lake Tahoe Basin using proceeds from the sale of federal land in the Las Vegas area. The Santini-Burton Act declared that Tahoe's ailing environment was jeopardized by continuing overdevelopment of sensitive land.

Passage of the act was one of the most important accomplishments by Santini, who died in September 2015, said his friend and colleague, Nevada's former U.S. Sen. and Gov. Richard Bryan.

"It was perhaps his crowning legislative achievement," Bryan said. "California and Nevada didn't always agree but they managed to put this together. It provided additional protection for Tahoe's sensitive lands in order to protect the watershed. That was a major accomplishment."

Since the Santini-Burton Act was passed by Congress, the Forest Service has acquired more than 3,500 parcels from willing sellers around the Tahoe



Government agencies have purchased thousands of small lots within urban areas around Lake Tahoe, taking them out of development and creating scenic buffers and helping wildlife.

Basin, about 3,300 of them small lots in urban settings. Property acquired is typically steep and fragile or located in wetlands or stream environment zones.

There's really nothing quite like it across the national forest system, said Bob Rodman, lands program manager for the Forest Service's Lake Tahoe Basin Management Unit.

"It's totally unique," Rodman said. "For buying small subdivision lots, we're it. We're the only forest with an urban lot management program."

If much of the focus of the Santini-Burton program is to protect Tahoe's water quality from runoff and other impacts from residential development, there are other pluses as well. Undeveloped lots reduce visual impacts of urbanization, provide buffers between developed urban lots, reduce noise, and benefit wildlife.

The program has also allowed federal acquisition of lakefront property, including Pope, Baldwin, and Nevada beaches, with about 18 percent of Tahoe's shoreline now in federal ownership.

By the early 2000s, the Forest Service had completed acquisition of most available small residential lots it had targeted for acquisition, Rodman said. Efforts now focus on acquiring larger lots on the outskirts of communities or private land surrounded by national forest. The largest parcel acquired under the program is the 1,100-acre High Meadows property.

Tahoe's federal land acquisition program was followed by similar programs established by the states of California and Nevada, also designed to protect and preserve sensitive land bought from willing sellers.

The California Tahoe Conservancy was created in 1984 and opened for business the following year. Since that time, the conservancy has invested some \$403 million on conservation and recreation projects along Tahoe's California side, with some 4,700 private parcels — most no larger than a third of an acre — acquired to preserve more than 6,500 acres.

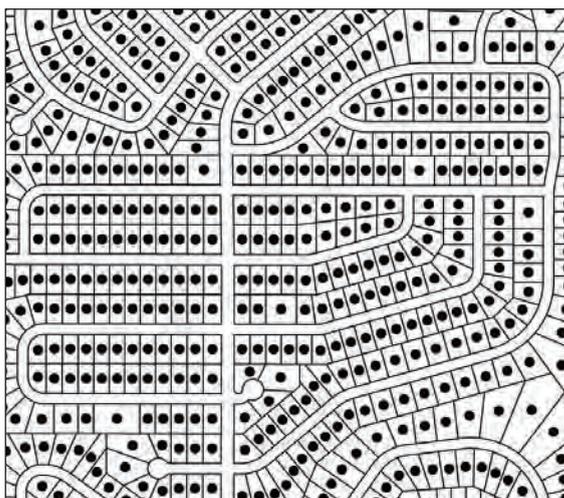
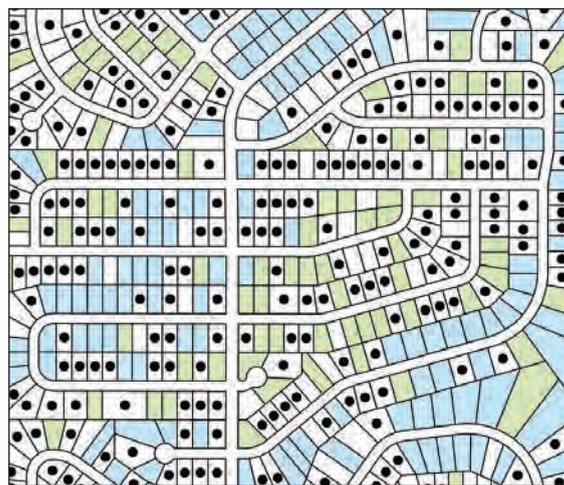
Nevada passed a \$31 million bond act in 1986, also to acquire sensitive land as well as fund erosion-control improvements, said Liz Kingsland, Tahoe coordinator for the Nevada Division of State Lands. Nevada has spent some \$24.5 million to acquire 481

Continued on page 27

The tale of two neighborhoods

The top map shows the parcel ownership pattern of approximately 30 acres in the North Upper Truckee area on the South Shore. Green-shaded parcels were acquired by the Forest Service under the Santini-Burton program. Blue-shaded parcels are also under public ownership and were primarily acquired by the California Tahoe Conservancy. The white parcels are privately owned. The black dots represent developed parcels. Almost 50 percent of the lots are undeveloped public land.

The second map (at bottom) shows what the same area would look like with all available parcels developed. This neighborhood would have significantly less forest to screen development and filter noise, along with a substantial increase in traffic.



Become a Tahoe In Depth subscriber or supporter

We hope you've enjoyed this edition of *Tahoe In Depth*. **You can help keep the paper coming!** Consider becoming a subscriber to *Tahoe In Depth* so that you and others can continue to receive ideas on "Protecting, Enjoying & Exploring the Lake Tahoe Basin" in your mailbox.

All subscribers are entered in a drawing to win a \$100 gift certificate from a local nursery for a native tree. Just cut out and mail in the subscriber form and your check made out to the Tahoe Regional Planning Agency or subscribe online at tahoeindpth.org.

And please send us your feedback or story requests — we love to hear from our readers.

YES! I want to become a subscriber to *Tahoe In Depth* and continue "Protecting, Enjoying & Exploring the Lake Tahoe Basin." Please find enclosed my check for

Subscriber Levels:

- \$1 - \$99 Friend
 \$100 - \$249 Supporter
 \$250 - \$499 Benefactor
 \$500 - \$999 Advocate
 \$1,000 - \$2,499 Champion
 \$2,500 and up Philanthropist

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone: _____

Email: _____

Mail to: Tahoe In Depth, PO Box 5310,
 Stateline, NV 89449

Enter our drawing!

For every issue of *Tahoe In Depth*, all subscribers are entered to win a \$100 gift certificate from a local nursery for a native tree.

This issue's winner

Congratulations to:

\$100 gift certificate winner: Marie Stone,
 Homewood, CA.



Let's make one thing
PERFECTLY CLEAR

Nothing helps you stay on top of Lake Tahoe
 better than *Tahoe In Depth*

Subscribe today!

If you are interested in becoming an underwriter, please contact Sarah Underhill, senior graphic designer and project manager at the Tahoe Regional Planning Agency, at 775-589-5211 or sunderhill@trpa.org.

What readers are saying:

"We are pleased to know about all the efforts around the lake! We have a place at Fallen Leaf Lake—for 20 years. Love the Sierras—keep up the good work."

— G.A., Medford, OR

Our subscribers: Readers who have subscribed to *Tahoe In Depth* since our last issue

Gordon MacAulay

Jack Wilson

Douglas Ryder

Veronica Johnson

Jim & Katie Simonitsch

Ned Engle

Doug Fischer & Vera Barile

Nina Mentges

Peter Moyer

Marie Stone

Viviano Family Trust

Rudolph D. Santini

Steve Kenilvort

Usha Jenkins

Edward Taylor

Helen Schaal

Fred Amoroso

Ralph Bohn

Matt & Kelli Schwertfeger

Raul Rodriguez

JoAnn S & Daniel M Cobb

Grace Abbott

TAHOE IN DEPTH

*Subscribe online at
tahoeindpth.org*



THINK BEFORE
S'mores

No campfires except in designated areas.

ThinkFirstTahoe.org

THINK FIRST
KEEP TAHOE FIRE SAFE



Lahontan cutthroat return to Basin



Lahontan cutthroat trout spawn in a tributary of Fallen Leaf Lake.

Reintroduction programs focusing on Fallen Leaf Lake, Upper Truckee River

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

Driven out of the Lake Tahoe Basin by the 1930s because of overfishing, habitat loss, and non-native species, the Lahontan cutthroat trout, Tahoe's only native trout species, has been reintroduced into some area waters over the past two decades.

A stream-dwelling strain of Lahontan trout is taking hold in the Upper Truckee River headwaters near Meiss Meadow. The fish were reintroduced there in 1989 and 1990 and have since expanded their range.

"Right now it's the only self-sustaining Lahontan cutthroat trout population that we have in the Tahoe Basin," said Sarah Muskopf, a fish biologist with the U.S. Forest Service Lake Tahoe Basin

Management Unit.

U.S. Forest Service and partner agencies have worked to help the Lahontan trout expand into more streams and lakes near Meiss Meadow, primarily by walking miles of steep, alder-choked, and boulder-strewn streams and electroshocking and removing non-native brook and rainbow trout.

"We initiated a project in 2009 to expand the Lahontan cutthroat trout to include some lake habitat in the headwaters of the Upper Truckee River and another 10 miles of stream," Muskopf said. "So we have been working to manually remove non-native fish. It's slow going, but we've cleared 18 acres of lake and almost four miles of additional stream."

That program runs out of funding this

year, but is well-positioned for additional funding requests in the future, Muskopf said.

"We're seeing multiple age classes, so we know they are reproducing, and we've seen drastic declines in non-native species in those four miles of stream. Last year we only caught one brook trout in two miles of stream," Muskopf said.

"We're just getting natural expansion from the population that was established in the 1990s. Once you start to remove that competition from non-native species and open that habitat for them, if you build it they will come."

U.S. Fish and Wildlife Service started reintroducing a lake-dwelling strain of Lahontan cutthroat trout in Fallen Leaf Lake in 2002. Different age classes of Lahontan trout have since been seen

swimming out of the lake and up Glen Alpine Creek to spawn.

"In 2015, we saw 111 Lahontan cutthroat trout enter the creek, which is more than we've ever documented there before this year. They're also larger than we've seen, up to 14 to 16 inches," said Jason Smith, a fisheries biologist with U.S. Fish and Wildlife Service.

"One challenge we still face is hybridization between Lahontan cutthroat trout and non-native rainbow trout in the Fallen Leaf Lake system. We manage that by actively staffing weirs at the mouth of the creek and capturing and removing the rainbows," Smith said. "Our goal is to move toward a naturally-reproducing Lahontan cutthroat trout population that will support recreational fishing in the Fallen Leaf Lake system."

Washoe Tribe: Tahoe's original stewards

The lake is the heart of ancestral home

By Kristi Boosman

Long before European settlers arrived in the Tahoe Basin, the Washoe people were hunting, fishing, and gathering in the meadows, along the streams, and in the waters of Lake Tahoe. According to legend, the Washoe did not travel to this area from another place; they were here in the beginning and have always lived here as stewards of the land.

"For thousands of years, the Washoe and the landscape were inseparable," explained Darrel Cruz, director of the Cultural Resource Department for the Washoe Tribe of Nevada and California. "We were part of the Lake Tahoe environment, not visitors in it."

The Washoe people still consider Lake Tahoe a sacred place and the heart of their ancestral home. As such, they continue to work to protect the Tahoe Basin, and their cultural heritage, to ensure that their history remains a continued part of the environment.

Today the Washoe Tribe works with federal, state, and local partners providing input, support, and consultation on restoration efforts and Environmental Improvement Program (EIP) projects throughout the Basin.

One such project is the Lower Blackwood Creek Restoration, an EIP effort led by the California Tahoe Conservancy along the West Shore of Lake Tahoe. This project, along with past projects implemented by the U.S. Forest Service Lake Tahoe Basin Management Unit, enhances aquatic and riparian habitat conditions and provides water quality benefits by reducing sediment sources in a watershed that contributes more fine sediment per acre than any other watershed in the Basin. Blackwood Creek is also an important historical fishery for the Washoe.

The Washoe Tribe provided important archaeological consultation and monitoring assistance for this project. During the planning phase, the Washoe participated in consultations to confirm there were no known, significant early Native American sites or other culturally sensitive properties in the study area. During project



Artifacts found along Blackwood Creek (above) were documented and then reburied at the site of a former tribal fishing camp. The Washoe were still fishing for Lahontan cutthroat trout in 1911 (left) and today's tribal leaders would like to see the fish re-established at Lake Tahoe. The tribe provides input on environmental restoration efforts throughout the Tahoe Basin.

construction, they provided onsite cultural monitoring assistance to ensure that excavation and ground-disturbing activities did not impact buried artifacts or previously unknown tribal sites.

Cruz and his colleagues were able to find evidence of a small Washoe fishing camp along Blackwood Creek and unearthed arrowheads, a mixing bowl, and mineral evidence of an encampment. Artifacts were documented and returned to the earth, and project activities were monitored to avoid significant impact to these cultural sites and artifacts.

Marie Barry, the Washoe Tribe's environmental director, and her team provided technical input and support for the Forest Service Blackwood Creek Restoration project, which is above the Conservancy project area on National Forest System land. The

Forest Service projects, which were implemented in 2008 and 2009, consisted of reconstructing three-quarters of a mile of channel within the most degraded reach of Blackwood Creek. Barry and her staff reviewed designs, conducted site tours, and discussed different restoration techniques for consideration. The Washoe Tribe has worked on numerous bank-stabilization projects and have considerable experience in this area.

"Restoring the functional channel and floodplain connectivity is critical to maintaining a properly functioning creek," said Barry. "It also improves riparian vegetation for bank stability, wildlife, and fisheries habitat and reduces the amount of sediment entering Lake Tahoe."

Kristi Boosman is the former public information officer for TRPA.



Lahontan cutthroat trout.

Lahontan cutthroat important to tribe

The Washoe Tribe would like to eventually see Lahontan cutthroat trout re-established within the Lake Tahoe Basin watershed — a goal shared by multiple agencies.

One of the goals of the Blackwood Creek restoration is to improve fish habitat. Lower Blackwood Creek was restored in 2012, and monitoring activities indicate that the fish habitat has already improved.

Should the Lahontan be successfully reintroduced in Lake Tahoe, the Washoe's historical fishery at Blackwood Creek could one day see this important native fish come home.

According to the Washoe Cultural Resource Advisory Council, "The Washoe tribe supports our cooperating agencies in their efforts to protect and preserve the natural and cultural environments of the Lake Tahoe Basin and beyond."

To learn more about Washoe history, traditions and culture, visit washoetribe.us.



Photo: Trevor Bexon

Coe Swobe also played an important role in acquiring land for the creation of Sand Harbor State Park at Lake Tahoe.

Coe Swobe called a member of 'Honor Guard' of Nevada leaders

Continued from page 10

Nevada Department of Conservation and Natural Resources, said about Swobe's involvement in the creation of TRPA.

Swobe later served on the TRPA Governing Board from 2001 to 2008. He prioritized and championed hazardous fuels reduction projects and prescribed fire to reduce wildfire risk, improve forest health, and protect Lake Tahoe communities.

The birth of Sand Harbor State Park

Lawrence praised Swobe's humor, passion, intelligence, and tireless work to protect Lake Tahoe, as well as his role in championing legislation to create Sand Harbor State Park. The park on Tahoe's East Shore is visited by more than a million people each year.

"We all talk about Lake Tahoe as the

jewel of the Sierra," Lawrence said. "I think Sand Harbor is the jewel of Lake Tahoe. The work Coe did to acquire that land, create Sand Harbor, and set it aside for all Nevadans to enjoy is monumental, a tremendous accomplishment."

Those sentiments are echoed by Nevada Gov. Brian Sandoval. "I am very sorry to hear of the passing of Coe Swobe, a member of what I would call the Honor Guard of Nevada leaders who made invaluable contributions to our state. Driven by a passion to preserve Lake Tahoe and its pristine waters, Coe was instrumental in the creation of the Tahoe Regional Planning Agency. He worked with then-Nevada Gov. Paul Laxalt and then-California Gov. Ronald Reagan to ensure Lake Tahoe maintained its beauty and rightful place as a national treasure. Coe's legacy will live on in our

state through his daughters Caryn and Jackie. Kathleen and I extend our deepest sympathies to the family and will keep them in our prayers during this time," Sandoval said.

Joanne S. Marchetta, executive director of TRPA, said Swobe is and will remain a role model for statesmanship, leadership, and passion, showing what can be accomplished when people unite and rally around a common cause like protecting Lake Tahoe.

"Coe is truly a monumental figure at Tahoe. His experiences, stories, and convictions will continue to inspire and motivate our staff at TRPA for years to come, and continue to bring home the importance of our work and our partnerships to conserve and restore this national treasure for future generations to enjoy," Marchetta said.

Summit Reflections

As scientists, citizens, and policymakers gather for the 20th Tahoe Summit, *Tahoe In Depth* asked several participants to reflect on all that's changed since the first summit in July 1997. Here's what they said:



“

Those of us who love this Lake, like I do, have a duty to our fellow citizens to protect it. It's important we measure how the environment is responding to our policy actions on the ground ... our collective actions are making a positive, meaningful difference.

”

Sen. Harry Reid, D-Nev.



“

I left the 2015 Summit confident we can save this magnificent lake. The source of my optimism is the exceptional team we have in place.

”

Sen. Dianne Feinstein, D-Calif.

Continued on page 28

Tahoe Fund making its mark on Tahoe restoration

Nonprofit provides support for important environmental projects and public outreach

By Amy Berry

TAHOE FUND

It is hard to find a more passionate group of people about an area than those who live and play in the Lake Tahoe Basin. The Tahoe Fund, a bi-state environmental nonprofit, is working hard to capture some of this passion from the private community to ensure more environmental improvement projects are completed around the lake.

Founded in 2010 by a group of leaders representing Tahoe's diverse interest groups, the Tahoe Fund has a growing list of donors whose generosity has helped ensure the completion of 15 environmental improvement projects to restore the lake's famed clarity, improve recreational opportunities, and inspire stewardship of the Tahoe Basin.

"We are giving those who are passionate about Tahoe an easy way to show their support," said Art Chapman, chair of the Tahoe Fund board. "Together we can play a major role in supporting and improving this amazing place."

The Tahoe Fund's largest project to date is the Incline to Sand Harbor Bike Path. Through the support of private donors, the Tahoe Fund raised more than \$1 million to secure a \$12.5 million federal grant. The project is now under construction, with an expected completion date of 2018.

The spectacular 3-mile paved path



The Tahoe Fund is currently raising funds to help California State Parks reroute a section of the Rubicon Trail, one of the most iconic in the Tahoe Basin. Granite boulders reach down to the crystal blue waters below, while hikers can take in the panoramic vistas of Lake Tahoe from the West Shore. A section of the trail is currently difficult to navigate due to extreme steepness. This steepness also causes major trail erosion that ends up harming the trail and depositing sediment into the lake. Construction is expected to begin in 2017.

will greatly improve the safety of the highway corridor and create a new recreational amenity.

The Tahoe Fund has helped fund the completion of priority watershed restoration projects, removal of aquatic invasive species, improvements to state parks in the Basin, additional sections of the Lake Tahoe Bikeway, and the

popular "Take Care" campaign with the goal of improving stewardship in the Region.

The Tahoe Fund is currently fundraising for the following environmental improvement signature projects:

■ **The Taylor Creek Lookout** will provide a new viewing area at the

Basin's most popular interpretive center to help keep a safe distance between the bears and visitors during the peak of the salmon runs. Fundraising goal: \$28,000.

■ **The Rubicon/Lighthouse Trail** restoration will reroute the Lighthouse Trail to eliminate erosion issues and restore the original Lighthouse. Fundraising goal: \$50,000.

■ **The Dollar Creek Bike Path** will add 2.2 miles to the Lake Tahoe Bikeway and extend the current trail from Dollar Hill to Cedar Flat. Fundraising goal: \$47,000. All of these projects include donor recognition opportunities.

In addition to these late stage projects, the Tahoe Fund has recently launched the Environmental Venture Trust to attract philanthropic dollars to seed early stage and innovative projects.

The first project is a pilot that will test the use of UV light in destroying aquatic invasive weeds. The Tahoe Fund's \$5,000 grant will leverage more than \$350,000 in public funding to get the project started within the year.

The Tahoe Fund is also seeking donors to join its Stewardship Circle to help grow the reach and capacity of the organization.

To learn more about the 2016 Signature Projects, joining the Stewardship Circle, and supporting the efforts of the Tahoe Fund, visit www.tahoeFund.org.

Amy Berry is the CEO of the Tahoe Fund.

Urban lot acquisition program offered financial return for landowners who were unable to build

Continued from page 21

sensitive parcels.

"There is that much less development which is important for water quality," Kingsland said, adding that state ownership of the sensitive land has proven critical to successful completion of important stormwater treatment projects at Tahoe's Nevada side.

The land programs — both federal and state — served another important purpose. Most lots acquired through them would have been unbuildable under regulations of the Tahoe Regional Planning Agency, meaning the programs likely offered the only way for a financial

return to affected landowners.

"A lot of people were holding onto properties that weren't able to be developed," Kingsland said. "They were able to realize a financial return on those parcels."

"It bailed a lot of people out of a dilemma," agreed the California Tahoe Conservancy's Sevison. "It solved a big problem."

Acquired lots require ongoing management, with challenges ranging from forest health and wildfire danger to encroachment from neighboring property owners.

"As we bought land we had to

manage that land," said Jane Freeman, deputy director of the California Tahoe Conservancy. "Certainly we have to be good land stewards. There are definitely challenges."

With the vast majority of small and sensitive urban lots now in public ownership, the focus of future goals is changing — in the case of the Tahoe Conservancy, now largely centered on securing public access, environmental restoration, and enhancing recreation.

"Our acquisition program has really slowed down and so has (the federal government's)," Freeman said. "We acquired all the low-hanging fruit."

One area of increasing emphasis for the conservancy is construction of bicycle trails. Since 1985, the conservancy has invested over \$15 million in planning and implementation of bike trail projects, with nearly 18 miles of trail constructed.

Tahoe's land programs have played a key role in the overall mission to protect a national treasure, experts agree.

"I'd say it's really been a significant factor, especially joined with the state programs," said the Forest Service's Rodman. "We're protecting these sensitive areas from development."

Summit Reflections

“The idea we’ve lost the ability to restore Lake Tahoe is not part of the discussion right now.”

Jim Lawrence, deputy director
Nevada Department of Conservation and Natural Resources

Photo: Trevor Bexon



Steve Teshara
principal
Sustainable Community Advocates

An “unholy alliance” of business interests, environmentalists and property rights advocates formed in 1989 as the Tahoe Transportation Coalition. Members soon noticed a lack of understanding among federal officials regarding the complex challenges at Tahoe. Some were unaware of the Bi-State Compact that serves as the backbone for efforts to protect Tahoe.

“We thought maybe we had to have a renewal of the vows.”



Larry Sevison
Governing Board
Tahoe Regional Planning Agency

The Lake Tahoe Summit was needed to garner attention by federal officials as to the many needs and challenges faced at Lake Tahoe and to obtain a “big chunk of money” needed to restore an ailing lake.

“It’s difficult to get the money to accomplish what we need to do. Fortunately, we have accomplished a great deal.”



Joanne Marchetta
executive director
Tahoe Regional Planning Agency

The president’s visit to Lake Tahoe in 1997 put Lake Tahoe “on the national map” in terms of environmental priorities and was critical in providing funding needed to make restoration projects a reality.

“It’s been the foundation of success here. We have made substantial investments with measurable improvements, but we know there’s more to do.”



Darcie Goodman Collins
executive director
League to Save Lake Tahoe

Goodman Collins remembers “being in awe” as the 17-year-old youth representative to the first Lake Tahoe Summit. The summit, which convinced her to pursue a career in environmental policy, identified Tahoe as a national priority and helped “rally” the community.

“We’ve made a lot of progress but there are new issues now. We have to make sure we don’t slip.”



Andrew Strain
vice president
Heavenly Mountain Resort

During planning for the summit, the commitment and cooperation among interests that had a long history of battling over land-use issues at Tahoe was impressive. Looking ahead, the business community will play a crucial role in moving forward, with funding one of the biggest challenges.

“It’s got to be a team effort. That’s one of the lessons learned. We cannot let up. We’re in for the long haul.”