

# Progress Report

## Federal Actions At Lake Tahoe

FY 2006-2008





# PROGRESS REPORT

## Federal Actions at Lake Tahoe through Fiscal Year 2008

Prepared August 2009

This report summarizes the activities (from FY2006 through the end of FY2008) of the Lake Tahoe Federal Interagency Partnership (Partnership). The Partnership was formed in 1997 to coordinate actions to address economic and environmental concerns at Lake Tahoe. The Partnership includes:



### U.S. Department of Agriculture

- Forest Service (USFS)
- Natural Resources Conservation Service (NRCS)



### U.S. Department of Defense

- Army Corps of Engineers (USACE)



### U.S. Department of the Interior

- Bureau of Reclamation (USBR)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Geological Survey (USGS)



### U.S. Department of Transportation

- Federal Highway Administration (USFHA)
- Federal Transit Administration (USFTA)



### U.S. Environmental Protection Agency (EPA)

The Partnership has produced a number of progress reports since 1997 to document actions taken to improve Lake Tahoe's clarity and address other key issues such as forest health, air quality and transportation. In addition to these progress reports, the Partnership has produced a report on Presidential Commitments summarizing a decade of progress from 1997 to 2007. The Partnership also co-authored with the Tahoe Regional Planning Authority (TRPA), "A Federal Vision for the Environmental Improvement Program at Lake Tahoe".

## **Background**

President Clinton and Vice President Gore came to Lake Tahoe in July 1997 to recognize the significance of the lake and its surroundings as a national environmental resource, and commend local stakeholders for the innovative partnerships of government, business, and environmental interests working to protect the Lake Tahoe Basin. During the Presidential Forum, the President announced 39 specific actions to address declining lake clarity and improve transportation, air quality, and forest health. The President issued Executive Order #13057 on July 26, 1997, directing the federal agencies with responsibilities at Lake Tahoe to form a partnership to achieve the environmental and economic goals identified during the Forum. The Lake Tahoe Federal Interagency Partnership brings together all the federal agencies working in the Lake Tahoe Basin, who then coordinate with the Washoe Tribe, state and local governments, and the Tahoe Regional Planning Agency (TRPA) to achieve greater environmental results.

## **The Environmental Improvement Program**

The Environmental Improvement Program was developed by the Tahoe Regional Planning Agency (TRPA) in conjunction with the 1997 Lake Tahoe Presidential Forum and was adopted by the TRPA the following year.

The EIP defines restoration needs for attaining nine environmental threshold carrying capacities/standards necessary to maintain the significant recreational, educational, scientific, natural, and public health values in the Lake Tahoe Basin (as established by TRPA in 1982). Those threshold categories are:

Water Quality	Soil Conservation	Air Quality
Vegetation	Fisheries	Wildlife
Scenic Resources	Recreation	Noise

The 2001 EIP identifies actions necessary to achieve the threshold indicators and lists over 700 projects to be implemented over a twenty-year timeframe. One third of the total funding is to come from the federal government (the states of California and Nevada, local government and private sector provide the remainder).

The EIP includes restoration projects, scientific research and monitoring, and governmental and community programs. TRPA updated the EIP in 2001 and will update it again in the late summer of 2009. The Partnership has been working collaboratively with TRPA to improve program and project descriptions.

## **Federal Programs and Funding Mechanisms**

All of the Partnership agencies have expended appropriated funds to complete their annual programs of work within the Lake Tahoe Basin to further efforts of the EIP. However, several laws have increased the funding available to implement restoration programs.

- *The Lake Tahoe Restoration Act (LTRA)*, passed and signed into law November 13, 2000 (P.L. 106-506), authorized up to \$300 million in federal funds in support of the federal share of the EIP. This includes \$10 million a year that is equally matched by state and local governments through an Erosion Control Grants Program. FY2001

was the first year that funds authorized by LTRA were distributed to the Forest Service.

- The Southern Nevada Public Land Management Act (SNPLMA) became law in October 1998. It allowed the Department of Interior's Bureau of Land Management to sell surplus federal public lands around Las Vegas, Nevada. Proceeds were then made available for environmental restoration and capital improvement projects (primarily in Clark County, Nevada) and acquisition of environmentally sensitive lands in Nevada.
- In November 2003, SNPLMA was amended (P.L. 108-108) to direct \$300 million of land sale proceeds over eight years to fund the federal share of the LTRA, becoming the primary federal funding mechanism for the EIP.
- In 2006, SNPLMA was amended to require the development of a multi-jurisdictional, 10 year hazardous fuels reduction strategy. Those that completed the strategy became eligible for additional hazardous fuels funding under the White Pine Amendment.

### **Opportunities for Coordination**

Federal collaboration was one of the major commitments of the 1997 Forum, and the Partnership has made great strides in enhancing federal coordination with its partners in the Lake Tahoe Basin. The federal agencies are now routinely consulting with and coordinating plans and actions with the many stakeholders in the Basin. The Partnership agencies are participating in numerous planning processes and work groups linked to implementation of the EIP.

In addition, the Lake Tahoe Basin Federal Advisory Committee (LTFAC) provides recommendations to the Partnership on integration and coordination of federal programs to help achieve the goals of the EIP. LTFAC was initially chartered by the U.S. Department of Agriculture in 1998. At least four LTFAC meetings are held annually to serve as public forums for consultation on ideas and programs undertaken by the Partnership, and provide recommendations to the federal partnership on implementation of the EIP.

The 20 LTFAC representatives serve two-year terms and are selected from the following sectors:

Washoe Tribe	State of Nevada
State of California	Nevada Local Government
California Local Government	North Shore Economics & Recreation
Tahoe Regional Planning Agency	Education
South Shore Economics & Recreation	National Environmental
Local Environmental	Labor
Gaming	Ski Resorts
Property Rights Advocates	Science and Research
Resort Associations	Two Members-at-Large
Transportation	

Requests for SNPLMA-funded capital and science projects are annually coordinated by the Partnership through the Lake Tahoe Basin Executive Committee (LTBEC) and the Project Coordination Team (which includes LTBEC and the TRPA) in collaboration with the Tahoe Working Group (TWG) and the Tahoe Science Consortium (TSC). SNPLMA project lists are reviewed by LTFAC, forwarded to the Tahoe Regional Executives (TREX), and a final recommendation submitted each year by SNPLMA Executives to the Secretary of Interior for approval.

## **Summary**

Since 1997, the Partnership has invested approximately \$394 million in Presidential Commitments and EIP efforts and an additional \$204 million in appropriated funds in actions to restore and preserve the Lake Tahoe environment while avoiding adverse impacts to the local economy. Federal agencies have many funded roles and responsibilities and a commitment to achieving the restoration of the Lake Tahoe Basin through the following stewardship, service, and science goals:

- 1) *Stewardship* – taking actions to protect, conserve and improve the natural resources of the Lake Tahoe Region**
- 2) *Service* – assisting Tribal, state, regional, local and private stakeholders in the implementation of the EIP**
- 3) *Science* – promoting and utilizing the best available science in implementation of the EIP**

The Partnership looks forward to continuing to support the EIP goals and activities through implementation of the Lake Tahoe Restoration Act and other federal programs. Other key areas of focus include coordinating scientific research and tools to support management efforts, and integrating projects between agencies by building and fostering partnerships. The following project highlights are examples of the Partnership's ongoing commitment to addressing the three most pressing issues in the Basin: water clarity, forest health, and air quality, as well as supporting other environmental threshold goals.

## **Partnership Investments**

The table in Appendix 1 summarizes the investments by the Partnership since fiscal year 1997 (FY97). This summary shows federal agency funding for:

- Presidential Commitments and EIP projects from FY97 through FY08
- Other activities between FY97 through FY08 implemented by federal agencies to meet their respective missions and goals, which may result in environmental improvements

## FY 2006-2008 Partner Agency Accomplishments



### **USDA Forest Service Lake Tahoe Basin Management Unit (LTBMU)**

Established in 1973, the Lake Tahoe Basin Management Unit (LTBMU) manages and administers more than 153,000 acres or 75% of the land in the Lake Tahoe Basin watershed, and is thus responsible for many priority projects. Within a unique regulatory environment, the LTBMU fulfills many traditional National Forest roles, as well as many that are more specific to the Basin.

#### **Vegetation and Fuels Management**

The LTBMU continues work to reduce hazardous forest fuels and overly dense forest stands, to reduce wildfire risks to communities, watersheds, water quality, wildlife habitats and other resources.

Fuels reduction work is often a necessary first step in returning forest stands to healthier and more diverse conditions. In order to reduce the threat of catastrophic wildfire, fuels reduction work will continue to comprise a large portion of the annual LTBMU program of work.

From 2006 to 2008 the Forest Service spent \$16.7 million in SNPLMA funds and \$1.68 million in appropriated funds on vegetation and fuels management activities in the highest priority area of the Basin - the Wildland Urban Interface zone. The completion of the Forest Service Stewardship Fireshed Assessment and the Lake Tahoe Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy in December 2007 improved coordination among 16 partner agencies in planning and implementation of fuels reduction work throughout the Basin. The Forest Service passed through more than \$2.63 million in funding to the states of California and Nevada over this timeframe to assist in completing fuel reduction treatments identified in the Strategy.

National Environmental Policy Act (NEPA) planning on the LTBMU resulted in the following three decisions with a fourth decision pending for hazardous fuels reduction and thinning, all of which include treatments within Stream Environment Zones (SEZs):

- Round Hill Project analyzed 3,800 acres and identified 956 acres for treatment
- Lake Tahoe Basin Ecosystem Underburn Project conducted a NEPA analysis for the use of prescribed underburning in areas throughout the Basin where forest thinning has been conducted or is planned
- Heavenly SEZ Demo Project analyzed 53 acres and identified 23 acres to be treated
- South Shore Project (NEPA currently in progress and document being prepared jointly with Lahontan Regional Water Quality Control Board) analyzed 87,000 acres and identified approximately 10,000 acres to be treated

The Forest Service conducted a total of 7,304 acres of initial vegetation and fuel reduction treatment, of which 880 acres were on urban lots. Additionally, 2,721 acres were treated throughout the Basin using prescribed fire, primarily pile burning. The projects included the Ward, Quail, Slaughterhouse Canyon, Kingsbury, and Round Hill forest health and hazardous fuels reduction projects. Although not required by contract, each of the contractors that removed thinned or surface fuel material from these projects delivered biomass to local and regional facilities.



*Heavenly SEZ Before Treatment*



*Heavenly SEZ After Treatment*

Other significant projects included the Heavenly SEZ Demonstration Project, which used mechanical equipment to remove high amounts of surface fuels and thin white fir and lodgepole pine in order to reduce fuels, improve forest health, and enhance riparian habitat. Results of the project were favorable, and successful techniques used in the project will be applied to SEZs in the South Shore Fuels Reduction and Healthy Forest Restoration Project.

### **Recreation, Lands and Conservation Education**

Annually, between three and four million recreation visits take place on LTBMU lands, and the Basin is known world-wide as a year-round recreation destination. Numerous resorts and developed recreation facilities operate under special use permits with the Forest Service, contributing significantly to the local economy.

The LTBMU has the highest per-acre visitor use in the National Forest System. Recreation uses and pressures are both diverse and dynamic. Management challenges include intensive wilderness use, high urban density, complex community interfaces with access corridors into forest lands, and competition among uses and user groups.

In providing the public with quality recreation experiences, the LTBMU provides infrastructure, information, and access to recreation opportunities. The following program highlights during FY 2006-2008 illustrate the ongoing commitment of the LTBMU in managing recreation areas.

### **Recreation Facilities**

LTBMU recreation facilities at Lake Tahoe are in high demand, and maintaining and upgrading these facilities is important in addressing increasing and changing demands of the public.

Summer recreation facilities available to the public within LTBMU include four lakeside resorts, eight campgrounds, 11 developed beaches and picnic areas, and six trailheads serving Desolation Wilderness. The resorts, campgrounds and picnic areas are operated primarily by concessionaires under special use permit. Winter recreation opportunities on LTBMU lands include downhill skiing and snowboarding at the Heavenly, Alpine Meadows, and Diamond Peak ski resorts. Cross country skiing, sledding, tubing and snowmobiling opportunities are also provided by concessionaires through special use permit.

The Pope Beach Parking Area Site BMP Rehabilitation Project reconfigured the eastern portion of the parking area of this popular day use facility. The project involved paving the parking area and installing a storm water conveyance valley gutter, oil-water separating catch basins, and concrete curbs to delineate landscape planting areas within the parking lot. Additionally, approximately 300 linear feet of road and the existing vehicle turn-around loop were removed from Pope Marsh and a new vehicle turn-around was constructed, removing 0.6 acres of coverage from the marsh. The project also constructed pedestrian access paths to the area's public restrooms, and installed vehicle control bollards and boulder barriers.



*Storm water management BMPs at Pope Beach*

Meeks Bay Highway Corridor BMP Upgrade leveraged SNPLMA funds, Granger-Thye permit fee offset funds, and USFS Capital Improvement Project funds to reconfigure the resort campground and bring it into compliance with water quality protection BMP standards and universal accessibility objectives. Unimproved campsite parking spurs were paved to control surface storm water run off and prevent soil erosion and sediment production. Substandard utility services were brought to compliance with national and local regulations. Campsites were relocated out of sensitive stream environment zones and these areas were decompacted and seeded with native seed mixes.

Camp Richardson Resort Vision Plan was prepared by the LTBMU in collaboration with the resort permittee and provides a framework that outlines the general intent and direction for resort improvements. The Plan identifies the environmental and facility issues currently facing the resort including a lack of water quality protection BMPs, facilities that lack universal accessibility amenities and have a substantial deferred maintenance backlog, traffic congestion during peak use seasons, and historic resources that contribute to the resort's eligibility status for listing on the National Register of Historic Properties. The Plan identifies strategies for addressing these issues into the future. The "vision" for the resort is that it actively manages and conserves its historical and environmental setting to provide an economically successful family-oriented destination resort and recreation opportunities that can evolve and adapt to future needs.

*Logan Shoals Overlook*, north of Cave Rock, was retrofitted to reduce soil compaction and erosion, and to provide universally accessible opportunities to all visitors. The site was re-graded and paved to meet accessibility standards and control surface storm water run off. Existing areas of soil compaction were reduced, decompacted, and seeded with native seed mix. Barriers were placed to help define the intended use area and discourage user-created trails leading to the lake.

*Zephyr Cove Corral Initial Hydrologic Assessment* was completed in 2008 to determine whether and how the existing Zephyr Cove Corral facility and trails could be upgraded to bring the facility into water quality compliance consistent with the Lake Tahoe Basin Management Unit, Nevada Department of Environmental Protection and Tahoe Regional Planning Agency Basin plans. An environmental analysis will be initiated and completed in 2010 to determine how use should be managed to provide an appropriate level of recreation opportunity, while protecting other ecological resources.

### **Land Acquisitions**

Land acquisition continues to be important in increasing access to recreation opportunities, as well as reducing the potential development of areas in protecting natural resources in the Basin.

During FY 2006-2008 the LTBMU has acquired 56.23 acres of environmentally sensitive lands within the Lake Tahoe Basin using funds from the Santini-Burton Program. The LTBMU also acquired the 754-acre Incline Lake Parcel, using SNPLMA funds.

### **Conservation Education**

The LTBMU conservation education program is focused on increasing youth and adult environmental literacy about forests and natural resources in the Basin in support of the Forest Service mission. The LTBMU has worked with partners and volunteers to deliver programs in two focus areas:

- Support and enhance public awareness of the EIP and SNPLMA project accomplishments through a thematic educational approach that serves schools and the local community
- Address key Forest Service messages and staff initiatives such as Kids in the Woods, Climate Change, Water, etc.

### **Transportation and Trails**

The environmental impacts of transportation are a major concern in the Lake Tahoe Basin. Vehicle emissions and road dust are major factors in air and water pollution. Transportation facilities and users have impacts on other resource areas as well, including wildlife, vegetation, recreation, and noise. Another high priority for the LTBMU is creating trails systems that meet user needs while reducing water quality impacts.

During FY06 through FY08, the LTBMU made considerable advancements in mitigating transportation and developing outdoor recreation uses, including:

- Continued to sponsor the Emerald Bay Trolley to reduce the use of individual passenger vehicles to access Forest Service facilities on the West Shore
- Decommissioned 18 miles of trails to improve watershed conditions and water quality

- Constructed 12 miles of trails to improve the basin-wide trail system through consolidation of trails use, redesign of existing trails, and rerouting from sensitive areas
- Reconstructed 25 miles of existing trail to improve and enhance the regional day use, and implement best management practices (BMPs) to improve watershed conditions

The following selection of project summaries and photographs are presented to represent transportation and trails accomplishments during FY06 through FY08:

West Shore Transit provides transit to Forest Service developed recreation sites on the South and West Shores of Lake Tahoe. Sites along this route are Pope Beach, Camp Richardson Resort, Tallac Historic Site, Taylor Creek Visitor Center, Baldwin Beach, Inspiration Point, Eagle Falls Trailhead, Meeks Bay Campground, Meeks Bay Resort, Meeks Bay Trailhead, Kaspian Picnic Area, Kaspian Campground, William Kent Beach, William Kent Campground and 64 Acres Recreation Area. Funding is used for a grant to TRPA to contract with local transportation districts to provide bus and trolley services.

Ridership on the Emerald Bay Trolley between South Shore and Emerald Bay increased from 21,634 passengers in 2005 to 42,003 passengers in 2007. Ridership decreased in 2008 to 31,927, most likely due to an overall decrease in visitation to the Lake. Ridership on the Emerald Bay Shuttle between Tahoe City and Emerald Bay grew from 4,011 passengers in 2006 to 9,273 in 2008.

Hawley Grade Slide Repair reconstructed a section of the Hawley Grade National Recreation Trail damaged by a landslide in 1997 after a torrential rain on snow event. The area would have been prone to slide again so a geotechnical engineer was consulted and designs developed to stabilize the slope and reconstruct the trail.



*Hawley Grade slide*



*Hawley Grade repaired trail*

The North Shore Trail ATM project upgraded the existing trail system to protect water quality and resources, by designing a sustainable trail system that accommodates current and future use. The LTBMU conducted resource surveys and watershed modeling to develop ideal design criteria specific to the conditions at Lake Tahoe. In addition, the project analysis took into account types and patterns of use to develop a trail system that would meet user needs and reduce the occurrence of user created trails.

Lam Watah Trail Reconstruction upgraded this heavily used interpretive urban trail, originally constructed in the 1970s. A bridge crossing of a shallow creek had become ineffective due to changes in the stream dynamics to multiple braided channels through a meadow. The project replaced the bridge with a 165 foot boardwalk spanning the meadow and floodplain. Additionally, trailhead parking was paved and BMPs were installed to improve water quality.



*Lam Watah trail reconstruction*



*Lam Watah boardwalk repairs*

The Blackwood Canyon Bridge Project included the decommissioning of a failing culvert and road crossing of Blackwood Creek. The culvert was a fish passage barrier and inhibited the natural transport of coarse sediment along Blackwood Creek, resulting in the degradation of channel conditions downstream. The new bridge was designed to pass the 100-year flood, remove the fish passage barrier at the road crossing, and restore the natural function of Blackwood Creek downstream of the road crossing.



*Pre project Blackwood Creek culvert*



*Post project Blackwood Creek bridge*

The Freel & Meiss Trail BMP projects were intended to upgrade these existing trail systems to protect water quality and resources, by establishing a sustainable trail system that meets current and future use needs. The LTBMU partnered with the Great Basin Institute/Nevada Conservation Corps. In addition, the Tahoe Rim Trail Association contributed significant volunteer workforces and as a result actual accomplishments were greater than planned.

## **Ecosystem Restoration and Conservation**

A principle reason for the establishment of the LTBMU was for the restoration and protection of the sensitive watershed system within the Basin. The program of work during

FY 2006-2008 includes numerous projects and activities to restore, conserve and monitor progress in watershed, habitat, fisheries, and stream system restoration and conservation efforts. These activities have direct benefit to water quality, lake clarity and ecosystem integrity.

### **Erosion Control**

The Forest Service has awarded funds to local governments for urban stormwater treatment and erosion control projects on the EIP list for FY06, FY07, and FY08. The funding amount for administration and grant awards was \$10 million for each fiscal year and grantees included Placer, El Dorado, Washoe, and Douglas Counties, City of South Lake Tahoe, South Tahoe Public Utility District, and Nevada Tahoe Conservation District. The Forest Service grants funded portions or phases of 34 different projects designed to reduce pollutants from urban stormwater runoff. These projects include both planning and implementation for stormwater capture and treatment improvements, slope stabilization and revegetation, and stream and floodplain restoration.

### **Stream, Meadow, and Aspen Restoration**

In 2008, the Forest Service completed the planning and design process for the Blackwood Creek Phase IIIA and IIIB stream channel restoration projects, which will restore 1.5 miles of stream channel and 75 acres of floodplain. The purpose of these projects is to reconstruct channel reaches that have become incised and disconnected from their adjacent floodplains as a result of past land use (grazing, logging, and gravel mining). Reconstructing these stream channels is expected reduce channel erosion, increase floodplain deposition of fine sediments and nutrients, and improve aquatic and riparian habitat. The Blackwood watershed is currently considered to be the single highest producer of sediment to Lake Tahoe per watershed acre.

In September of 2008, the Forest Service constructed 30 percent of the restoration prescriptions planned for the Blackwood Creek Phase IIIB stream channel and floodplain restoration project. Completion of the Phase IIIB project is scheduled for 2009, and the Phase IIIA Project in 2010.



*Rock-log flow deflection structure #2, and in-channel fish habitat structures in Blackwood Creek (looking downstream)*



*Deposition of fine sediment after 2009 spring flood events within inset floodplain of rock-log flow deflection structure#2 in Blackwood Creek (looking upstream).*

Preliminary planning and design was also initiated on two other large scale stream channel/floodplain restoration projects, Cold Creek in High Meadows and the Upper Truckee River Sunset Reach. In addition, substantial planning and design was accomplished for a variety of meadow and aspen restoration projects throughout the Lake Tahoe Basin, including the Big Meadow and Meeks Meadow restoration projects. These projects will rely on a combination of hand thinning and prescribed burning, to improve the health of these unique ecosystems. Aspen restoration was implemented in the Blackwood watershed in 2008.

### **Plant and Animal Species Conservation**

Tahoe yellow cress (TYC) is a plant that is found only on the shores of Lake Tahoe and is identified as a candidate species for listing under the Endangered Species Act (ESA) of 1973. A *Tahoe Yellow Cress Conservation Strategy* was created in partnership with the U.S. Fish and Wildlife Service, the Tahoe Regional Planning Agency and state agencies to enhance and stabilize the existing occurrences of this species through habitat protection and adaptive management. This vital conservation strategy also includes partnerships with lakeshore homeowners associations.

Lahontan cutthroat trout (LCT) is the only native salmonid species in the Lake Tahoe Basin and is a threatened species under the ESA. LCT was re-introduced to the Upper Truckee River headwaters (Meiss Meadow) in the late 1980s and early 1990s. This effort is critical to preservation and potential expansion of the species.



*Crews electrofishing non-native fish in efforts to restore LCT populations*

In 2006, 2007 and 2008, non-native brook trout were removed from a total of six miles of stream in the Upper Truckee River headwaters. Young-of-the-year LCT individuals were discovered in each year. In 2007, a total of four miles of stream were treated in the Upper Truckee River headwaters (Meiss Meadow). In 2008 fish removal efforts in

the Upper Truckee River LCT expansion area was initiated. Fish removal efforts are led by the Forest Service and California Department of Fish and Game (CDFG) and supported by volunteer organizations during implementation.

Sierra Nevada (Mountain) yellow-legged frog (SNYLF) project was initiated in 2008 to



*Non-native trout removal implementation as part of SNYLF restoration*

restore the range of SNYLF in the Desolation Wilderness by reclaiming 12 acres of lake and 0.75 miles of stream habitat. During FY08, NEPA was completed on fish removal in seven Desolation Wilderness lakes (69 total acres) adjacent to a SNYLF source population on the Eldorado National Forest. To date, the LTBMU has conducted manual removal of introduced, non-native fish using monofilament gill nets in Tamarack, Ralston and Cagwin lakes.

## **Terrestrial and Aquatic Invasive Species & Noxious Weeds**

*Noxious Weeds* have been addressed through a comprehensive invasive plant program over the last seven years. The primary invasive plant species on the LTBMU are: Cheatgrass, Tall whitetop, Oxeye daisy, Dalmation toadflax, Musk thistle, Canada thistle and Bull thistle. All of these weeds with the exception of Cheatgrass are treated by hand pulling, with a target of 75 acres treated each year. A rapid response program monitors existing sites and identifies new infestations.

*Aquatic Invasive Species (AIS)* are a top priority in the Lake Tahoe watershed. The Lake Tahoe Aquatic Invasive Species Working Group (LTAISWG) is a diverse group of agencies (federal, state, county), community members and scientists dedicated to early detection and rapid response, prevention and control of AIS. The LTBMU plays a key part of the LTAISWG by initiating prevention measures at Forest Service recreation facilities and leading the Tahoe Keys Warm Water Species Eradication and Control subcommittee. The objective of the LTBMU AIS program is to prevent the unwanted introduction of quagga mussel, zebra mussel, New Zealand mudsnail, Eurasian milfoil, curlyleaf pondweed and warm water fishes (i.e. largemouth bass) into Lake Tahoe Basin waterbodies.

The first phase of the 2008 LTBMU AIS rapid response was to heighten public awareness about the consequences of AIS and prevention measures for both trailered boats and small watercraft such as kayaks. The second phase was to install a portable boat wash station at Meeks Bay Campground and Marina. The third phase was to develop a modified boat inspection form for small watercraft, gauging the risk each small watercraft had of introducing AIS.

The effort put into AIS prevention by the LTAISWG resulted in over 17,000 boat inspections. On August 22, 2008, a boat carrying a high density of attached quagga mussels from Lake Mead was detected prior to launching by boat inspectors at Tahoe Keys Marina. LTBMU concessionaires engaged an estimated 60,000 people about AIS.

## **Resource Inventories & Scientific Studies**

The LTBMU partners with federal, state, and local agencies, as well as universities and research institutes to conduct resource inventories and scientific studies. These efforts result in a diverse range of data products that feed multiple scales of reporting (i.e. national, regional, range-wide, basin-wide, forest-wide, and local needs). The following are examples of accomplishments between FY06 and FY08:

### **Biological Resources**

- Completion of a northern goshawk nesting territory habitat assessment that will help guide late seral forest habitat restoration
- Identification of occupied bat roosts in abandoned mines
- Population and habitat inventories for sensitive species (e.g. Willow flycatcher, Osprey, Bald Eagle, Northern goshawk, California spotted owl, Mountain Beaver, Townsend's Big-eared Bat, Tahoe Yellow Cress, Sierra Nevada (mountain) yellow-legged frog, Peregrine Falcon, Lahontan cutthroat trout, sensitive & rare plants, fens and rare communities/habitats)

- Development and implementation of a 10-year plan to address listed species occurrence and long-term trends at the Forest level
- Re-delineation of California spotted owl and northern goshawk Protected Activity Centers and Home Range Core Areas
- Angora Burn Area – post-wildfire resource monitoring



*Baited camera station detects an American marten*

#### Soil and Water Resources

- Stream channel restoration effectiveness monitoring
- BMP implementation and effectiveness monitoring of forest management activities
- Soil Quality Monitoring for Fuels Management Activities and Wildfire
- Air Quality Monitoring

The LTBMU has produced a number of reports documenting the efforts and results of the Forest inventory and monitoring program. A total of 20 FY06 – FY08 reports are posted on the LTBMU website and available at <http://www.fs.fed.us/r5/ltbmu/publications/>. The LTBMU also funded the research study, Evaluation of Wildfire and Prescribed Fire Effects on Water Quality, Final Project Report - UNR, 2008 (PDF 726 KB), evaluating the effects of fire on water quality.

#### Adaptive Management Framework

Phase III of the Adaptive Management Framework (AMF) development was completed in FY06 and Phase IV, the final component, was launched in FY07. The purpose of the AMF program is to design and implement a multi-agency operated system for monitoring the progress toward achieving the goals and standards defined in the LTBMU Forest Plan, TRPA Regional Plan, and the Lahontan Regional Water Quality Board and Nevada Department of Environmental Protection Basin plans. TRPA has been the lead agency in this effort, funded by a Forest Service SNPLMA grant.

This Adaptive Management Plan identifies key issue areas and monitoring needs related to lake clarity, aquatic, meadow, and riparian ecosystems, general and old forest ecosystems, fire and fuels, noxious weeds, and human resources. It also identifies current data gaps and management questions that need to be addressed by special studies and research.



## Natural Resources Conservation Service

The USDA Natural Resources Conservation Service's (NRCS) natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. The NRCS continues to assist in the implementation of Environmental Improvement Program through a number of its program areas.

### Best Management Practices

The NRCS works in partnership with the Tahoe Resource Conservation District and the Nevada Tahoe Conservation District to deliver the Backyard Conservation Program to thousands of private landowners in the Lake Tahoe Basin each year. This program provides technical assistance for BMP Retrofit and other conservation issues vital to Lake Tahoe's future.



*Gravel armor protecting the soil under the drip line of a roof*

The EIP Best Management Practices Retrofit Project focuses on residential properties. This project reduces urban storm water runoff from developed private homesites, a significant contributor of fine sediments and nutrients to Lake Tahoe. Science is now showing that fine sediment is the cause for approximately two thirds of lake clarity loss and current models are estimating close to 70% of the fine sediment is coming from the urban uplands. For these reasons, residential BMPs continue to be a crucial element in preserving lake clarity.

Between FY06 and FY08, Backyard Conservation partnership assisted nearly 8,500 property owners, which will result in an estimated reduction of 9,400 tons of sediment from soil erosion.

### Burton-Polaris Creek Watershed Assessment



*Natural Resource Manager Steve Hill discusses the Burton Creek Watershed with Arturo Cerezo as they stand atop the dam at Antone Meadows*

The NRCS, in cooperation with the Friends of Burton Creek, the California Department of Parks and Recreation, the U.S. Forest Service Lake Tahoe Basin Management Unit, and the California Tahoe Conservancy, is conducting a comprehensive ecosystem assessment on the Burton and Polaris Creek watersheds. This assessment will investigate all aspects of ecosystem function within the watersheds. The assessment will help partner agencies develop restoration plans for their lands that restore ecosystem function in a collaborative and integrated fashion.

### **Tahoe Yellow Cress**

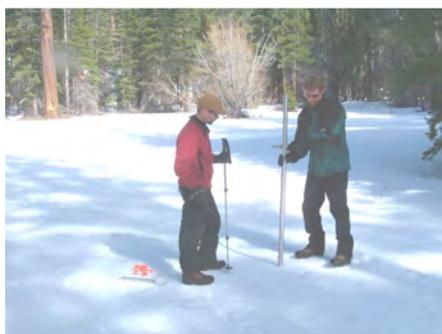
Creating voluntary opportunities for private lakefront property owners to maintain or improve Tahoe Yellow Cress populations is the primary goal of this program. NRCS works with landowners to develop stewardship plans, describing how the landowner may safeguard Tahoe Yellow Cress populations or habitat that exists on their property.

### **Soil Survey Update of the Tahoe Basin**

The update of the 1974 Soil Survey of the Tahoe Basin, California and Nevada was published in 2007. The update process resulted in the identification of close to forty new soil types in the Tahoe Basin, and the soil maps show about twice the amount of detail. Furthermore, the update process included the correlation of ecological sites with soil types, thus providing vegetation information on a basin wide scale. The soil survey is integral for various science and research models, EIP, and planning efforts including BMPs. The survey is available on the internet at the following address: [http://soildatamart.nrcs.usda.gov/Manuscripts/CA693/0/Tahoe\\_CA.pdf](http://soildatamart.nrcs.usda.gov/Manuscripts/CA693/0/Tahoe_CA.pdf).

### **Snow Survey Program**

Annually, NRCS maintains and monitors 16 data collection sites in the Lake Tahoe Basin to capture real-time data on snow accumulation and water supply, to better forecast and manage seasonal fluctuations. Eight sites report hourly data available on the internet. Researchers, program managers, and the public have access to the historical and real time data on the internet. The address is at <http://www.nv.nrcs.usda.gov/snow>.



*District  
Conservationist  
Woody Loftis  
and Engineer  
Chuck Taylor  
measure the  
snow pack at  
Freel Bench*

### **Technical Assistance to Private Landowners**

The South Lake Tahoe NCRS Field Office offers technical assistance to residents wishing to participate in national Farm Bill Programs, such as the Environmental Quality Improvement Program (EQIP) and the Wildlife Habitat Improvement Program (WHIP), which support conservation and restoration projects on private lands.

NRCS also provides engineering assistance to technical advisory committees for Nevada Tahoe Bond Act funded EIP projects for local erosion control and stream restoration.



US Army Corps  
of Engineers

## U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (Corps) Civil Works environmental program has two major focus areas: protection and restoration, and stewardship. Efforts in both areas are guided by the Corps environmental operating principles, which help us balance economic and environmental concerns. Since the last FIP progress report, the Corps has concentrated on partnering with non-federal agencies in stream environment zone (SEZ) restoration and providing technical assistance on work which other partners have insufficient authority or resources to accomplish. These technical products influence urban storm water practices, wastewater treatment and export practices, and build collaborative capacity for decision making. These products are coordinated with stakeholders to insure the work compliments overall restoration efforts.

### **Restoration Projects**

Restoration projects implemented by the Corps in FY06, FY07, and FY08 are highlighted below.

#### *Angora Fire Restoration*

In partnership with State of California, the Corps is providing \$1.5 million in assistance for the restoration of public non-federal lands devastated by the Angora Fire.

#### *Incline and Third Creek*

In a collaborative effort with State of Nevada and Incline Village General Improvement District, 3500 linear feet of the Third Creek and Incline Creek were restored, including fish habitat and passage improvements.

#### *Upper Truckee River Airport Reach and Sunset Reach*

In partnership with the State of California, the Corps conducted major reconstruction and restoration of 4000 linear feet of the Upper Truckee River at the Airport Reach and 4900 linear feet of the Upper Truckee River at the Sunset Reach.

#### *Lake Forest Meadow Restoration*

In partnership with the State of California, major reconstruction and restoration of 44 acres of wet meadow in Placer County was accomplished.

#### *North Canyon Creek Restoration*

Analysis and design for restoration of portion of North Canyon Creek in Spooner Lake State Park was conducted in partnership with the State of Nevada.

#### *Mill Creek*

A high water diversion structure was constructed to allow return to natural water flow conditions and passive restoration to 3500 linear feet of SEZ in partnership with the State of Nevada and Incline Village General Improvement District.

### Lower Blackwood Creek Restoration

The Corps worked collaboratively with the State of California to restore 4600 linear feet of the lower Blackwood Creek just above Highway 89.

### **Aquatic Invasive Species (AIS)**

In partnership with other federal agencies, the states of California and Nevada, TRPA, local agencies, and academic institutions, the Corps implemented a broad range of AIS actions, including a comprehensive AIS Management Plan, boat inspections, boat decontamination stations, baseline surveys, economic studies, bench scale laboratory testing, sampling, and outreach and education.

### **Urban Storm Water Technical Assistance**

Working in partnership with other federal agencies, the states of Nevada and California, TRPA, local agencies, and private entities, provide technical assistance that informs and facilitates the planning, design, and operations and maintenance of urban stormwater projects. This work includes fundamental components of the Total Maximum Daily Load program (TMDL). Specific project success includes development of the Pollutant Load Reduction Model (PLRM), the Load Reduction Planning Tool (LRPT), TMDL Tracking and Accounting System, stormwater project operation & maintenance Rapid Assessment Methodology (BMP RAM), load reduction master planning for the Placer County urban core, update of the best management practices handbook, development of improved hydrologic design criteria, and examination of the feasibility of advanced treatment technology in the treatment of stormwater waste streams.

### **Collaborative Capacity**

The Corps works primarily “behind the scenes” in a continuing effort to increase the collaborative decision making capacity in the Lake Tahoe Basin. Efforts have included the development of community sustainability standards, Pathway Regional Master Planning, initialization of the Tahoe Science Agency Coordination Committee (TSACC), Storm Water Quality Improvement Committee (SWQIC), and urban lot scale defensible space scoring system.

### **Wastewater Infrastructure Partnership**

The Corps has been working with the eight wastewater infrastructure districts to establish a formal partnership to better integrate infrastructure capital replacement and rehabilitation into the EIP. This work continues into 2009 with unified project identification, project prioritization, and common technical standards, and a GIS system for asset location and to speed repair and lessen the probability of overflows.

### **Regulatory Function**

The Corps executes Section 10 and Section 404 permitting actions in the Lake Tahoe Basin using a General Permit that recognizes TRPA regulatory review and approval for common projects. The General Permits allows for a streamlined regulatory approach without lessening protection of the environment or safety.



## Bureau of Reclamation

The U.S. Bureau of Reclamation (Reclamation) operates the Lake Tahoe Dam and controls the top six feet of the lake. The Reclamation mission is to assist in meeting the increasing water demands of the West while protecting the environment and the public's investment in these structures. Since 1997, the agency has been actively involved in restoration activities that enhance the environment, improve water quality, and protect the beneficial uses of Lake Tahoe Basin water.

### **Upper Truckee River**

Reclamation has continued to work with state and local agencies to restore portions of the Upper Truckee River, which is one of the highest total contributing tributary of sediment and nutrients to the Lake. Reclamation funding has also contributed to remote sensing and modeling, assessment, design, and environmental documentation of river restoration projects.



*Bank of the Upper Truckee River continues to erode in Lake Valley*

#### Reaches 3 and 4 (Airport Reach)

In cooperation with the California Tahoe Conservancy and the City of South Lake Tahoe, Reclamation is funding planning and construction of a river restoration project adjacent to the South Lake Tahoe airport which restores sinuosity and decreases channel capacity on over 4,500 linear feet of river channel, allowing the river to spread out onto its floodplain more frequently, thereby dissipating erosive energy and depositing sediment.

#### Lake Valley Reach

Reclamation continues to fund planning, environmental documentation and design of a restoration project along a reach of the river which flows through California Department of Parks and Recreation land near the community of Meyers. This area is currently developed as a golf course and the course turf extends to edge of the river. This results in increased bank erosion and a lack of riparian vegetation as indicated in the photo above. An EIS is being prepared to disclose the effects of a range of alternative actions and determine a course of action.

#### Upper Truckee River Marsh

In cooperation with the California Tahoe Conservancy, Reclamation has funded preparation of an EIS to develop and analyze a range of alternatives to restore the meadow and marsh areas at the mouths of the Upper Truckee River and Trout Creek. This project takes into consideration both restoration and recreation opportunities.

### **Aquatic Invasive Species**

Reclamation has provided funds to the local Resource Conservation Districts to conduct aquatic invasive species control efforts and prevent introduction of new invasive species such as the quagga and zebra mussels. Reclamation has also funded research into the invasion of Lake Tahoe by Asian clams, their subsequent population expansion and methods of effective removal and control.

### **Rosewood Creek**

In partnership with the Nevada Tahoe Conservation District, Reclamation has funded planning, design and construction of a restoration project on Area F of the middle reach of Rosewood Creek in Incline Village, NV. In addition, planning and design was initiated on Area A, just above Highway 28 in Incline Village. This reach of Rosewood Creek is severely eroded and is continuing to erode.

### **Other Restoration Projects and Assistance**

Reclamation has also provided funding for:

- Other stream environment zone restoration projects throughout the Basin
- Fire risk assessment and planning to lessen the risk of catastrophic wildfire and its impacts on water quality
- Water quality improvement projects including stormwater treatment and sediment source control
- Localized watershed assessments
- Fish passage improvements and other fisheries enhancement projects
- Restoration of Tahoe yellow cress populations
- Coordination of stakeholder input in drafting of the next phase of the EIP



## **U.S. Fish & Wildlife Service**

The U. S. Fish and Wildlife Service (USFWS) is the principal federal agency responsible for conserving, protecting and enhancing fish, wildlife, and plants, as well as their habitats for the continuing benefit of the American people. In the Lake Tahoe Basin, the USFWS continues to work with federal, state, local entities, and private landowners to implement conservation projects.

### **Aquatic Invasive Species**

The 2007 discovery of quagga mussels in Lake Havasu, Lake Mead, and the Colorado River Basin prompted rapid cooperation and action by regional, bi-state, and federal agencies and non-governmental organizations in the Lake Tahoe Region. These new threats, coupled with recent studies showing high incidence of boat traffic to Lake Tahoe from these areas, have prompted a tremendous ramping up of education and outreach campaigns, new local regulations to prevent accidental introduction, and increased control efforts and research on the biology and distribution of existing AIS populations.

In 2008, the USFWS established a full time AIS Coordinator position at Lake Tahoe. With the leadership of the Coordinator, the USFWS has been actively engaged with a wide-ranging, collaborative group to prevent, control and eradicate AIS in Lake Tahoe. Examples of accomplishments include:

- Formation of the Lake Tahoe AIS Coordination Committee and the Lake Tahoe AIS Working Group
- Organization of yearly workshops to prioritize AIS prevention, monitoring, control, education, and research efforts
- Development and implementation of a Vessel Inspection Program at Lake Tahoe
- Deployment of portable boat washing stations
- Control of invasive aquatic plants by use of diver-operated suction and benthic barriers
- Measurement of warm water fish behavior and diets in and around the Tahoe Keys
- AIS education and outreach activities
- Study of quagga mussel survivability
- Development of the Lake Tahoe Region AIS Management Plan

### **Lahontan cutthroat trout**

The USFWS is working with the U.S. Forest Service, the Washoe Tribe, the Tahoe Regional Planning Agency and the states of California and Nevada to implement conservation and restoration measures to further recovery of the threatened Lahontan cutthroat trout and develop a sustainable native trout recreational fishery in Fallen Leaf Lake and Lake Tahoe. A Recovery Implementation Plan is near completion and will be used to guide future conservation actions in the two lake systems in coordination and collaboration with the basin community.

A population of Lahontan cutthroat trout native to the Tahoe Basin has been reintroduced into Fallen Leaf Lake. Lahontan National Fish Hatchery Complex houses a captive broodstock of this native strain. Propagation of this strain and reintroduction of the various life stages, from fertilized egg, fry, fingerlings to catchables, have been used for recovery actions, research, and recreational fishing in Fallen Leaf Lake. The comprehensive monitoring and research programs have focused on native and non-native species habitat utilization, overlap with the native trout, predation on the Lahontan cutthroat trout, identification of measures to suppress non-native trout negative impacts on the reintroduction effort, development of streamside incubation techniques to establish a naturally reproducing population in Glen Alpine Creek, and assessment of recreational fishing conditions. The recent research has been submitted and accepted for publication in the American Fishery Society North American Journal of Fishery Management.



*Lahontan cutthroat trout eggs are being hatched in streamside incubators within Glen Alpine Creek with the hope that adults will imprint on the stream and return there to spawn when they mature.*

## **Tahoe yellow cress**

The USFWS continues to work with federal, state, local entities, and private landowners to implement a conservation strategy for the Tahoe yellow cress, a federal candidate plant endemic to the shoreline of Lake Tahoe. The goal is to reduce the threats to the species to the point that future listing will not be necessary.



## **U.S. Geological Survey**

USGS provides scientific technical assistance, expertise, service and support to many agencies and groups in the Lake Tahoe Basin through the following committees: Tahoe Science Consortium (TSC), Lake Tahoe Interagency Monitoring Program (LTIMP), Upper Truckee Watershed Advisory Group, South Lake Tahoe Monitoring Project, Tahoe Integrated Information Management System (TIIMS) Oversight Committee, and the 2008 Lake Tahoe Science Symposium Planning Committee and other various outreach activities.

### **Scientific Studies and Research Projects**

USGS Water (with both the Nevada and California Water Science Centers) and Geographic Disciplines are currently responding to environmental concerns within the Lake Tahoe Basin with several interdisciplinary scientific projects. Current and recent USGS studies in the Lake Tahoe Basin are summarized in a USGS Activities in the Lake Tahoe Basin Fact Sheet (<http://pubs.usgs.gov/fs/2005/3047/>).



USGS Water Discipline is involved with many projects, including stream, ground-water and lake monitoring. Nutrient, suspended-sediment, water-quality field parameters, and continuous and real-time stream flow data are collected currently at 19 sites. Historically a total of 32 stream monitoring sites were sampled. The stream monitoring is in cooperation with TRPA, University of California, Davis (UCD), and the LTBMU. This effort is an integral, consistent and reliable component of the LTIMP. These data are used to provide a consistent, long-term database and to identify loads and trends throughout the Basin. Data are stored, maintained and are readily available in the National Water Information System (NWIS) (<http://waterdata.usgs.gov/nv/nwis>) and are compiled annually in Water Resources Data reports <http://nevada.usgs.gov/ADR/index.htm>.

### **Runoff Sampling**



Runoff from the 2002 Gondola Fire area and 2007 Angora Fire in the South Lake Tahoe area are being monitored under LTIMP. A new gauge and sampling site were established in late 2007 near the mouth of Angora Creek in cooperation with the USFS. This was in collaboration with UCD and DRI and other monitoring sites upstream. Ash and soil samples were also collected at 20 sites soon after the Angora

Fire and results were published in *Leachate Geochemical Results for Ash Samples from the June 2007 Angora Wildfire Near Lake Tahoe in Northern California*, available at <http://pubs.usgs.gov/of/2008/1170/>.

### **Groundwater Monitoring Study**

A Groundwater Monitoring Study of the shallow groundwater in the South Lake Tahoe area was recently concluded to determine potential transport of contaminants. Results were published in a report, *Hydrologic and Water-Quality Responses in Shallow Ground Water Receiving Stormwater Runoff and Potential Transport of Contaminants to Lake Tahoe, California and Nevada, 2005-07* and is available at <http://pubs.usgs.gov/sir/2008/5162/>. A Groundwater inventory was also concluded in the Basin in cooperation with U.S. Forest Service. Results were published in *Hydrogeology of the Lake Tahoe Basin, California and Nevada*, available at <http://pubs.usgs.gov/sim/3063>.

The presence of manmade organic compounds was sampled at 10-20 Lake Tahoe monitoring sites in cooperation with TRPA in 2006 and 2007 and is planned again for 2009.

### **Published Reports**

USGS Geography recently published two new reports from work in the Lake Tahoe Basin. The 2008 report is *Historical Orthoimagery of the Lake Tahoe Basin*, available at <http://pubs.usgs.gov/ds/376/>. The 2007 report is *Land-Cover Change in the Southern Lake Tahoe Basin, California and Nevada, 1940-2002*, available at <http://pubs.usgs.gov/sim/2007/2962/>. Further work on the Tahoe Decision Support System (TDSS) tool is near completion. This will further assist the TRPA with estimating the effects of policy decisions on local economic and environmental health.

The Lake Tahoe Data Clearinghouse (<http://tahoe.usgs.gov>) provides quick and easy access to Basin geospatial data and information and other Basin information.



## **Federal Highway Administration Federal Transit Administration**

The U.S. Department of Transportation serves the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) work with State Departments of Transportation, Metropolitan Planning Organizations, other state and local government agencies, tribal governments, and the public to address surface transportation issues and help fund locally selected projects. The FHWA also works directly with other federal agencies through the Federal Lands Highway Program (FLHP). As part of the FLHP, the Lake Tahoe Basin Management Unit has created a transportation engineering position to work on the implementation of transportation improvements on U.S. Forest Service lands.

In 1999, the Tahoe Regional Planning Agency (TRPA) was designated as the Tahoe Metropolitan Planning Organization (TMPO) to address transportation and transit issues within the Lake Tahoe Region. An updated regional transportation plan, *Mobility 2030* (<http://www.tahoempo.org/rtp.aspx>), was approved in September 2008. Projects from the transportation program generally include roadway water quality improvements, safety work, transit vehicle and operations upgrades, and bicycle/pedestrian projects. TRPA/TMPO is also responsible for developing and maintaining *the Federal Transportation Improvement Program (FTIP)* (<http://www.tahoempo.org/ftip.aspx>), which includes a priority listing of funded projects within the four-year planning horizon. The FTIP assigns funding to locally selected projects and is coordinated with the Environmental Improvement Program (EIP) to maximize environmental benefit when implementing the goals of the regional transportation plan.

### **Transportation Projects**

Several highway projects are included in the *Mobility 2030* regional transportation plan and FTIP to improve mobility and balance transportation needs with other community goals such as economic vitality and environmental preservation. Each of the projects listed below includes a combination of roadway improvements, bicycle and pedestrian friendly facilities, landscaping enhancements, and water quality improvements for both conveyance and treatment of roadway runoff prior to discharging into Lake Tahoe.



- U.S. Highway 50 Pedestrian & Bicycle Improvements
- U.S. Highway 50 Stateline Corridor Project
- Fanny Bridge / SR 89 Realignment Road Improvement Project
- State Route 28 / Kings Beach Commercial Core Improvements

Two key transit projects planned in the Tahoe Region include the Tahoe City Transit Center and Lake Tahoe Waterborne Transit. The Tahoe City Transit Center will provide a safe and convenient transit passenger boarding and transfer location to help reduce dependency on automobiles and decrease traffic congestion along the highway corridors in Tahoe. The Lake Tahoe Waterborne Transit project would connect the communities and shores of Lake Tahoe with reliable, safe and fully accessible passenger ferry service.

In addition to the projects listed above, both the California and Nevada Departments of Transportation have programs to implement water quality improvement measures along the state highway systems in the Lake Tahoe Basin to comply with National Pollutant Discharge Elimination System permit requirements and to achieve objectives for water quality identified in the EIP.



## U.S. Environmental Protection Agency

The Environmental Protection Agency (EPA) leads the nation's environmental science, research, education and assessment efforts. The mission of the EPA is to protect human health and the environment, and they have played an important role in the Lake Tahoe Basin in contributing to EIP goals.

EPA continues to staff a person in the TRPA offices to help coordinate EPA's activities with the EIP, and to promote the integration of science into the EIP capital program.

### **Technical Assistance**

The EPA provided Clean Water Act Section 319 funding in 2006-2008 through the states of California and Nevada for local erosion control projects and innovative stormwater treatment technology demonstration studies. Additionally, EPA used these funds in coordination with the TRPA and Nevada Tahoe Conservation District, to provide technical assistance to residential and commercial property owners in implementing BMPs.

### **Scientific Studies & Research**

EPA provided technical assistance and funding to the Tahoe Science Consortium (TSC) to implement a science program for the Lake Tahoe Basin. The TSC has developed a long-term research plan (currently in publication), which will guide research and monitoring activities in the basin for the next ten years. EPA also provided assistance for the development and operation of the Tahoe Integrated Information Management System (TIIMS), to support EIP science and capital program data management and communications.

EPA also worked with the states of Nevada and California from 2002-2006 developing the Lake Tahoe TMDL to restore the lake's famed clarity. The TMDL (currently undergoing scientific peer review) has determined how much of the fine sediment and nutrients entering the lake will have to be reduced to achieve clarity standards, and a viable strategy for implementing these reductions. The TMDL will be used by the TRPA in setting water quality thresholds. EPA also funded numerous studies and projects to inform TMDL development and implementation.

Partnership oversight is provided by the **Tahoe Regional Executives (TREX)**, which consists of the regional administrators of the nine federal agencies. Day-to-day coordination and program-level implementation rests with the **Lake Tahoe Basin Executive Committee (LTBEC)**, which consists of the most senior local official for each agency.

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## List of Acronyms

<b>AIS</b>	Aquatic Invasive Species	<b>SEZ</b>	Stream Environment Zone
<b>AMF</b>	Adaptive Management Framework	<b>SNPLMA</b>	Southern Nevada Public Land Management Act
<b>BMPs</b>	Best Management Practices	<b>SNYLF</b>	Sierra Nevada (Mountain) Yellow-Legged Frog
<b>CDFG</b>	California Department of Fish And Game	<b>SWQIC</b>	Storm Water Quality Improvement Committee
<b>EIP</b>	Environmental Improvement Program	<b>TDSS</b>	Tahoe Decision Support System
<b>EPA</b>	U.S. Environmental Protection Agency	<b>TIIMS</b>	Tahoe Integrated Information Management System
<b>EQIP</b>	Environmental Quality Improvement Program	<b>TMDL</b>	Total Maximum Daily Load Program
<b>ESA</b>	Endangered Species Act	<b>TMPO</b>	Tahoe Metropolitan Planning Organization
<b>FTIP</b>	Federal Transportation Improvement Program	<b>TREX</b>	Tahoe Regional Executives
<b>LCT</b>	Lahontan Cutthroat Trout	<b>TRPA</b>	Tahoe Regional Planning Agency
<b>LRPT</b>	Load Reduction Planning Tool	<b>TSACC</b>	Tahoe Science Agency Coordination Committee
<b>LRWQCB</b>	Lahontan Regional Water Quality Control Board	<b>TSC</b>	Tahoe Science Consortium
<b>LTAISWG</b>	Lake Tahoe Aquatic Invasive Species Working Group	<b>TWG</b>	Tahoe Working Group
<b>LTBEC</b>	Lake Tahoe Basin Executive Committee	<b>TYC</b>	Tahoe Yellow Cress
<b>LTBMU</b>	Lake Tahoe Basin Management Unit	<b>UCD</b>	University of California Davis
<b>LTFAC</b>	Lake Tahoe Basin Federal Advisory Committee	<b>USACE</b>	U.S Army Corps Of Engineers
<b>LTIMP</b>	Lake Tahoe Interagency Monitoring Program	<b>USBR</b>	U.S. Bureau of Reclamation
<b>LTRA</b>	Lake Tahoe Restoration Act	<b>USDOT</b>	U.S. Department of Transportation
<b>NDEP</b>	Nevada Division of Environmental Protection	<b>USFHA</b>	U.S. Federal Highway Administration
<b>NEPA</b>	National Environmental Policy Act	<b>USFS</b>	U.S. Forest Service
<b>NRCS</b>	Natural Resources Conservation Service	<b>USFTA</b>	U.S. Federal Transit Administration
<b>NWIS</b>	National Water Information System	<b>USFWS</b>	U.S. Fish And Wildlife Service
<b>PLRM</b>	Pollutant Load Reduction Model	<b>USGS</b>	U.S. Geological Survey
<b>RMP</b>	Rapid Assessment Methodology	<b>WHIP</b>	Wildlife Habitat Improvement Program
<b>SAFETEA-LU</b>	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users		

**SUMMARY OF INVESTMENTS OF THE LAKE TAHOE FEDERAL PARTNERSHIP  
FISCAL YEARS 1997-2008**

**Appendix 1**

Agency	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	TOTAL
				1/	2/	3/	4/	5/	6/	7/	8/		
<b>Presidential Commitments &amp; Environmental Improvement Program</b>													
USDA Forest Service	\$0	\$6,164,000	\$6,457,000	\$5,201,500	\$13,058,000	\$9,143,000	\$40,613,000	\$24,209,000	\$21,279,200	\$37,506,950	\$34,253,000	\$34,525,000	\$232,409,650
USDA Natural Resources Conservation Service	\$0	\$216,000	\$120,000	\$120,000	\$250,000	\$354,200	\$600,000	\$680,000	\$996,000	\$1,315,050	\$1,600,000	\$1,835,000	\$8,086,250
US Army Corps of Engineers	\$127,000	\$175,000	\$551,000	\$448,000	\$712,200	\$1,090,600	\$1,024,255	\$674,754	\$1,818,979	\$4,617,000	\$3,094,000	\$5,264,000	\$19,596,788
US Geological Survey	\$0	\$454,000	\$606,000	\$387,000	\$333,120	\$351,976	\$327,700	\$698,200	\$803,000	\$280,000	\$30,000	\$0	\$4,270,996
US Department of Transportation	\$0	\$6,070,000	\$12,433,701	\$964,461	\$7,709,000	\$15,371,706	\$245,937	\$5,918,017	\$16,410,240	\$5,225,000	\$3,991,000	\$10,141,000	\$84,480,062
US Environmental Protection Agency	\$0	\$9,485,876	\$3,038,560	\$2,047,668	\$896,112	\$1,031,182	\$1,659,688	\$244,873	\$3,358,000	\$1,337,385	\$655,955	\$1,757,489	\$25,512,788
US Fish and Wildlife Service	\$0	\$0	\$0	\$0	\$187,000	\$187,000	\$187,000	\$188,000	\$255,611	\$250,000	\$260,000	\$710,000	\$2,224,611
US Bureau of Reclamation	\$9,000	\$25,000	\$510,000	\$930,000	\$270,000	\$2,511,947	\$1,447,111	\$3,925,832	\$1,789,379	\$3,226,497	\$85,000	\$2,363,144	\$17,092,910
<b>Total</b>	<b>\$136,000</b>	<b>\$22,589,876</b>	<b>\$23,716,261</b>	<b>\$10,098,629</b>	<b>\$23,415,432</b>	<b>\$30,041,611</b>	<b>\$46,104,691</b>	<b>\$36,538,676</b>	<b>\$46,710,409</b>	<b>\$53,757,882</b>	<b>\$43,968,955</b>	<b>\$56,595,633</b>	<b>\$393,674,055</b>

**Appropriated Funds for Other Agency Activities\*\***

USDA Forest Service	\$7,560,000	\$6,722,000	\$7,215,000	\$5,121,000	\$6,711,000	\$7,757,000	\$5,314,211	\$5,721,000	\$10,700,000	\$9,844,500	\$7,020,199	\$6,998,552	\$86,684,462
USDA Natural Resources Conservation Service	\$120,000	\$232,000	\$222,000	\$232,000	\$175,000	\$191,000	\$200,000	\$175,000	\$235,000	\$274,000	\$205,000	\$128,000	\$2,389,000
US Army Corps of Engineers	\$0	\$15,000	\$30,000	\$215,000	\$0	\$176,300	\$514,524	\$1,169,951	\$1,079,008	\$6,700,000	\$6,400,000	\$2,900,000	\$19,199,783
US Geological Survey	\$642,154	\$792,654	\$807,654	\$802,094	\$1,361,640	\$1,498,540	\$1,572,380	\$905,740	\$1,198,740	\$904,600	\$819,000	\$995,225	\$12,300,421
US Department of Transportation	\$2,956,659	\$26,654,788	\$9,362,038	\$3,075,312	\$0	\$7,918,758	\$126,695	\$3,048,675	\$8,453,760	\$410,000	\$1,866,000	\$9,034,000	\$72,906,685
US Environmental Protection Agency	\$217,774	\$425,187	\$622,507	\$591,731	\$467,045	\$1,372,667	\$899,891	\$677,667	\$2,433,693	\$680,634	\$486,823	\$638,024	\$9,513,643
US Fish and Wildlife Service	\$0	\$0	\$0	\$117,600	\$0	\$0	\$0	\$0	\$101,445	\$0	\$0	\$0	\$219,045
US Bureau of Reclamation	\$0	\$0	\$0	\$0	\$0	\$150,000	\$65,000	\$110,000	\$130,000	\$156,585	\$195,285	\$144,006	\$950,876
<b>Total other Activities</b>	<b>\$11,496,587</b>	<b>\$34,841,629</b>	<b>\$18,259,199</b>	<b>\$10,154,737</b>	<b>\$8,714,685</b>	<b>\$19,064,265</b>	<b>\$8,692,701</b>	<b>\$11,808,033</b>	<b>\$24,331,646</b>	<b>\$18,970,319</b>	<b>\$16,992,307</b>	<b>\$20,837,807</b>	<b>\$204,163,915</b>

**Annual Grand Totals\*\*\***

USDA Forest Service	\$7,560,000	\$12,886,000	\$13,672,000	\$10,322,500	\$19,769,000	\$16,900,000	\$45,927,211	\$29,930,000	\$31,979,200	\$47,351,450	\$41,273,199	\$41,523,552	\$319,094,112
USDA Natural Resources Conservation Service	\$120,000	\$448,000	\$342,000	\$352,000	\$425,000	\$545,200	\$800,000	\$855,000	\$1,231,000	\$1,589,050	\$1,805,000	\$1,963,000	\$10,475,250
US Army Corps of Engineers	\$127,000	\$190,000	\$581,000	\$663,000	\$712,200	\$1,266,900	\$1,538,779	\$1,844,705	\$2,897,987	\$11,317,000	\$9,494,000	\$8,164,000	\$38,796,571
US Geological Survey	\$642,154	\$1,246,654	\$1,413,654	\$1,189,094	\$1,694,760	\$1,850,516	\$1,900,080	\$1,603,940	\$2,001,740	\$1,184,600	\$849,000	\$995,225	\$16,571,417
US Department of Transportation	\$2,956,659	\$32,724,788	\$21,795,739	\$4,039,773	\$7,709,000	\$23,290,464	\$372,632	\$8,966,692	\$24,864,000	\$5,635,000	\$5,857,000	\$19,175,000	\$157,386,747
US Environmental Protection Agency	\$217,774	\$9,911,063	\$3,661,067	\$2,639,399	\$1,363,157	\$2,403,849	\$2,559,579	\$922,540	\$5,791,693	\$2,018,019	\$1,142,778	\$2,395,513	\$35,026,431
US Fish and Wildlife Service	\$0	\$0	\$0	\$117,600	\$187,000	\$187,000	\$187,000	\$188,000	\$357,056	\$250,000	\$260,000	\$710,000	\$2,443,656
US Bureau of Reclamation	\$9,000	\$25,000	\$510,000	\$930,000	\$270,000	\$2,661,947	\$1,512,111	\$4,035,832	\$1,919,379	\$3,383,082	\$280,285	\$2,507,150	\$18,043,786
<b>Grand Totals</b>	<b>\$11,632,587</b>	<b>\$57,431,505</b>	<b>\$41,975,460</b>	<b>\$20,253,366</b>	<b>\$32,130,117</b>	<b>\$49,105,876</b>	<b>\$54,797,392</b>	<b>\$48,346,709</b>	<b>\$71,042,055</b>	<b>\$72,728,201</b>	<b>\$60,961,262</b>	<b>\$77,433,440</b>	<b>\$597,837,970</b>

1/ FY 2001 was the first year of the Lake Tahoe Restoration Act (signed into law Nov, 2000). Includes \$6 million for Land Purchase.  
 2/ FY 2002 reflects balance after transfers for fire suppression of \$11 million (\$6.6 Land Purch; \$2.8 Capital Improvement/Maintenance; \$1.2 National Forest System; and \$5.5 S&PF). Funds partially reimbursed in FY 2003 (\$2.2 CI&M; \$1.2 NFS; \$0.4 S&PF).  
 3/ FY 2003 includes \$29 million for land purchase. Also reflects balance after transfers for fire suppression and to San Bernardino, totaling \$1.3 million. Funds transferred to San Bernardino partially reimbursed in FY 2004 (\$380m of \$534m).  
 4/ FY 2004 includes \$11.7 million for land purchase.  
 5/ FY 2005 includes funding through the Southern Nevada Public Lands Management Act. \$2.7 million is included for land purchase.  
 6/ FY 2006 reflects balance after rescission of \$9.8 million appropriated (\$3.5 Capital Improvement & Maintenance; \$3.0 National Forest System including \$0.3 Meyers Landfill; \$0.3 Haz. Fuels; \$0.5 State & Private), award of Round 6 SNPLMA.  
 7/ FY 2007 reflects \$7.0 million appropriated (\$1.0 Capital Improvement & Maintenance; \$3.5 National Forest System including \$0.2 million for Angora Fire Rehab; \$0.8 for Meyers Landfill; 0.2 Hazardous Fuels); award of Round 7 SNPLMA including availability of Pre-Proposal Planning dollars awarded in Round 6 Decision Notice, (but not requested until FY07) for Hazardous Fuels Program EIP projects funded in Round 8.  
 8/ FY2008 reflects \$7.0 million appropriated (\$0.8 Capital Improvement & Maintenance, \$2.8 National Forest System; \$0.4 Meyers Landfill, \$0.3 Hazardous Fuels; \$0.7 Angora Fire Rehab) award of Round 8 SNPLMA LTRP and Hazardous Fuels.  
 \*\* Appropriated Funds for Other Agency Activities: these are funds used by the federal agencies to meet their respective missions and goals - these activities may result in environmental improvements, but are not considered EIP projects as currently defined by the TRPA  
 \*\*\* The yearly figures in the 2005 report were correct for the US Department of Transportation, except for the annual grand totals. The totals have been corrected in the current report .  
 \*\*\*\* All USGS figures have been corrected from the previous 2003-2005 FIP Progress Report.