



Progress Report

Federal Actions At Lake Tahoe

FY 2003-2005



US Army Corps
of Engineers



PROGRESS REPORT

Federal Actions at Lake Tahoe through FY2005

May 2006

This report summarizes the activities (from FY2003 through the end of FY2005) of the Lake Tahoe Federal Interagency Partnership (Partnership). The Partnership currently 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



U.S. Department of Transportation

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



U.S. Environmental Protection Agency (EPA)

Oversight of the Partnership is provided by the **Tahoe Regional Executives (TREX)**, which consists of the regional administrators of the nine active partner 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 agency official for each of the nine agencies.

The Partnership has produced four progress reports and one mid-year report since 1997 to document actions taken to improve Lake Tahoe's clarity, as well as to address other key issues such as forest health, air quality and transportation. These previous reports provided background on the Partnership and highlighted federal project accomplishments in the Basin between 1997 and 2002.

This report showcases progress made in FY2003 to the end of FY2005.

Background

President Clinton and Vice President Gore came to Lake Tahoe in July 1997 to recognize the significance of Lake Tahoe and its surroundings as a national environmental resource, and to commend local stakeholders for the innovative partnerships of government, business, and environmental interests working together to protect the Lake Tahoe Basin. During the Presidential Forum, the President committed additional federal resources to address concerns related to the declining lake clarity, and to make improvements in transportation, air quality, and forest health.

The President announced 39 specific actions to protect Lake Tahoe, known as the Presidential Commitments, at a cost of \$27.7 million from the federal government's Fiscal Year 1997 and 1998 budgets.

In addition to these financial commitments, 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 was created with the agencies tasked with coordinating all federal activities in the Basin with the Washoe Tribe, state and local governments, and the Tahoe Regional Planning Agency (TRPA), to achieve greater environmental results.

The Lake Tahoe Basin Federal Advisory Committee (LTFAC) provides the Partnership with valuable input and feedback on critical issues. LTFAC was initially chartered by the U.S. Department of Agriculture in the summer of 1998, and has been renewed every two years since then. At least four LTFAC meetings are held annually to serve as public forums for consultation on various ideas and programs undertaken by the Partnership.

Twenty representatives on the LTFAC serve two year terms and are selected from the following sectors: Washoe Tribe, State of California, State of Nevada, California local government, Nevada local government, Tahoe Regional Planning Agency, North Shore economic/recreation, South Shore economic/recreation, education, local environmental, national environmental, gaming, labor, property rights advocates, ski resorts, resort associations, science and research, transportation, and two members-at-large.

The Environmental Improvement Program: Government at all levels, businesses, and environmental entities are working together in a variety of programs to address further deterioration of environmental thresholds at Lake Tahoe. The primary blueprint for achieving adopted environmental quality standards while fostering vitality in the region's economy is the Environmental Improvement Program (EIP). The first draft of the EIP was prepared in conjunction with the 1997 Lake Tahoe Presidential Forum and was adopted by the Tahoe Regional Planning Agency (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 (as established by TRPA in 1982). Those threshold categories are water quality, soil conservation, air quality,

vegetation, fisheries, wildlife, scenic resources, recreation and noise. These thresholds were developed using the best available research and monitoring information, and with input from the public and resource agencies. EIP components of capital projects, research/science, program support/technical assistance, and operations and maintenance make up the comprehensive strategy for restoration and improvements within the nine threshold categories.

The EIP action plan is described in a document entitled “*Environmental Improvement Program for the Lake Tahoe Region*,” which lists specific regulatory programs, scientific research and monitoring, community programs, and over 700 projects to be implemented in an integrated and proactive approach over a twenty-year timeframe to reverse environmental declines and bring the environmental threshold indicators into attainment. TRPA updated the EIP in 2001 and is scheduled to complete another update in 2007. One third of total EIP funding is to come from the Federal government, with the remaining two thirds share coming from the States of California and Nevada, local government and the private sector.

All of the Partnership agencies have expended appropriated funds in completing their annual programs of work within the Lake Tahoe Basin. Several public laws passed since the Presidential Commitments of 1997 have, however, increased the funding available to meet restoration programs in a more timely fashion.

The Lake Tahoe Restoration Act (LTRA), passed and signed into law November 13, 2000 (P.L. 106-506), is the framework for the authorization of federal funds in support of the EIP. LTRA mandated that the USDA Forest Service prioritize a list of potential environmental restoration projects consistent with the EIP list developed by TRPA, and it authorized up to \$300 million for funding the federal share of the EIP. 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 allows the USDI Bureau of Land Management to sell surplus federal public lands within a specific boundary around Las Vegas, Nevada. Proceeds from those sales are then made available for a variety of 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 Lake Tahoe EIP projects. SNPLMA has thus become the primary federal funding mechanism in support of the EIP goals detailed in the Lake Tahoe Restoration Act. Requests for SNPLMA-funded capital and science projects are annually coordinated by the Partnership through LTBEAC and the Project Coordination Team (which includes LTBEAC and the Tahoe Regional Planning Agency) in collaboration with the Tahoe Working Group (TWG) and the Tahoe Science Consortium (TSC). Final project lists are submitted each year to the Secretary of Interior for approval.

Since 1997, the Partnership has invested approximately \$238 million in Presidential Commitments and EIP efforts and an additional \$144 million in appropriated funds in actions to restore and preserve the Lake Tahoe environment while avoiding adverse impacts to the local economy. Federal agencies within the Lake Tahoe Basin have many funded roles and responsibilities but one primary commitment: achieving the restoration of the Lake Tahoe Basin through the following stewardship, service and science goals:

1) *Stewardship Goal* – taking actions to protect, conserve and improve the natural resources of the Lake Tahoe Region

- Implement the EIP to attain environmental thresholds.
- Consider the socio-economic impacts of proposed actions on public lands.
- Implement stewardship and environmental education programs to support the EIP.

2) *Service Goal*– assisting Tribal, state, regional, local and private stakeholders in the implementation of the EIP

- Seek a unified and coordinated approach for implementing federal projects in consultation with Tribal, state, regional and local partners.
- Render assistance at the program & project levels, including cost-sharing, grant funding, technical expertise and consultation.
- Emphasize a watershed approach.

3) *Science Goal*– promoting and utilizing the best available science in implementation of the EIP

- Working collaboratively with the Tahoe Science Consortium (TSC) to coordinate scientific research and tools to support management and implementation.
- Promote technology transfer from sources within and outside the Basin.
- Seek opportunities to translate scientific information for agency and public use.
- Use an adaptive management approach to inform management activities and encourage Basin-wide monitoring.
- Utilize existing data management tools including the Tahoe Integrated Information Management System (TIIMS), <http://tiims.org> and USGS LT Clearinghouse, (<http://tahoe.usgs.gov>).

Improving water quality, restoring stream environment zones and meadows, removing dead and dying trees in the wildland/urban interface, enhancing wildlife habitat, coordinating scientific research, providing technical assistance to other agencies, and addressing traffic congestion and air quality problems are just a few of the stewardship, service and science projects highlighted in the following individual agency progress reports.

FY 2003-2005 Partner Agency Accomplishments

The Partnership continues to address the three most pressing issues in the Basin: water clarity, forest health, and air quality/transportation, as well as supporting other environmental threshold goals. Many of these activities not only support implementation

of the EIP, but they set the stage for updating the TRPA Regional Plan, USFS Land & Resource Management Plan for the Lake Tahoe Basin Management Unit (LTBMU), and establishing the Lake Tahoe sediment and nutrient Total Maximum Daily Loads, all of which are being developed through a five-year collaborative planning venture known as Pathway 2007.



USDA Forest Service Lake Tahoe Basin Management Unit (LTBMU)

The LTBMU administers 77% of the land in the Lake Tahoe Basin, making the federal government responsible for many priority projects on Forest Service land.

During FY 2003-2005 the LTBMU had a number of diverse EIP projects in progress. The implementation stages of these projects ranged from planning and design to monitoring and completion. The LTBMU funds a SNPLMA/EIP Program Manager and several program analysts, which will help their organization focus resources and activities to support EIP goals.

Environmental Improvement Projects:

Vegetation and Fuels Management Program: during FY2003-2005 a variety of activities were completed, including mechanical and hand thinning treatments, prescribed burning and environmental planning at a cost of \$11.38 million.

During this period, the LTBMU completed:

- 5,997 acres of mechanical and hand thinning
- 3,276 acres of prescribed fire and chipping



Before



After treatment

Treatments occurred in all areas around the Lake with the majority of work occurring in the North Shore, Pioneer, Slaughterhouse, Ward and Urban Lot Project Areas. Environmental documents completed or in progress include the Slaughterhouse Canyon and Quail Hazard Reduction environmental assessments, and categorical exemptions for the Pioneer Burn, Cathedral Fuels Reduction, Heavenly SEZ Fuels Reduction, and Kingsbury Hazardous Fuels Reduction Projects.

Land Acquisition: The LTBMU acquired 2,077 acres of environmentally sensitive lands within the Lake Tahoe Basin during FY03-05, using funds from the Santini-Burton Program.

Stream and Meadow Restoration Projects: The Blackwood Canyon stream restoration project is one of the largest comprehensive stream restoration projects undertaken in the Lake Tahoe Basin, with nearly nine miles of creek restoration, fisheries enhancements and wildlife habitat restorations and enhancements. This project will substantially reduce the amounts of soil particles and streambed sediments that are carried by Blackwood Creek into Lake Tahoe each year. Soil particles and sediment from tributary streams are significant contributors to reduced clarity of Lake Tahoe.



A new stream channel for Big Meadow Creek was constructed in 2005, with meanders that provide a mildly sloped streambed, as part of the Cookhouse Meadow Restoration Project. Big Meadow Creek was partially straightened decades ago to facilitate grazing, which created a shorter channel with a steeply sloped streambed. The slope of the existing streambed is so steep where it currently flows through Cookhouse Meadow that it has down cut considerably below the historic level,

causing a large amount of soil and streambed sediment to be carried downstream to the Upper Truckee River and causing Cookhouse Meadow to become significantly drier. The Upper Truckee River currently contributes more soils and sediments to Lake Tahoe every year than any other stream in Lake Tahoe Basin. The Cookhouse Meadow Restoration Project will also return the meadow to wetter conditions, with plant communities typical of wet meadows.



Plant and Animal Species Conservation Efforts:

Tahoe yellow cress (TYC) is a plant that is found only on the shores of Lake Tahoe. In 1999, the U.S. Fish and Wildlife Service identified TYC as a candidate species for listing under the Endangered Species Act of 1973. Shortly thereafter, a *Tahoe Yellow Cress Conservation Strategy* was created in partnership with the US Fish and Wildlife Service, Tahoe Regional Planning Agency and state agencies, to enhance and stabilize the existing occurrences of this species, through habitat protection and adaptive management efforts

(including genetic analyses, experimental plantings of greenhouse-grown TYC plants, and protective enclosures to help prevent losses through trampling by shoreline visitors). This vital conservation strategy also includes partnerships with lakeshore homeowners associations, bringing Tahoe residents into participation with the program.

Lahontan cutthroat trout (LCT) is the only native salmonid species in Lake Tahoe Basin and is a threatened species under the Endangered Species Act (ESA). LCT were re-introduced to the Upper Truckee River headwaters (Meiss Meadow) in the late 1980's and early 1990's. This effort is critical to preservation and potential expansion of the species; the Meiss Meadow population are one of the only high-elevation meadow populations of LCT in the Sierra-Nevada Mountain Range. Non-native brook trout were removed from the Upper Truckee River prior to the LCT introduction, because of their negative impacts to LCT. However, some brook trout were able to escape from the initial removal effort because of the extensive wet meadow conditions throughout the Meiss area. In 2005, the California Department of Fish and Game, LTBMU, and Trout Unlimited partnered together for the 16th year to conduct brook trout removal; these efforts cover four miles of the Upper Truckee and approximately eight acres of Meiss Lake and Four Lakes, and will continue over the next decade. In addition, stream and lake inventories and assessments will continue throughout the Upper Truckee River watershed, to determine other appropriate areas for the reintroduction of LCT.

Noxious Weeds: In 2005, 57 new noxious weed sites were identified, for a total of 320 sites on lands administered by the LTBMU. Thirty-seven of these sites were on urban lots; the remaining 20 were on general Forest Service System lands. As more and more people become aware of noxious weeds, more infestations are found and reported. A decrease in infested acres is an indication that treatments over the past three years have been thinning the known weed patches.

Continuing changes in infestation areas over time will be monitored to determine the effectiveness of the noxious weed program on the LTBMU.

Transportation & Recreation Management: Significant LTBMU accomplishments in mitigating transportation (trails and roads) and developed outdoor recreation use were completed and/or begun during FY03 through the end of FY05 include:

- Decommissioning of 17 miles of trails in order to improve watershed conditions and improve water quality.
- Implementation of BMP's on approximately 70 miles of existing trails in order to develop to current standards, improve water shed conditions and improve water quality.
- Construction of trail bridge crossings on Beaver Creek and Armstrong Creek in order to protect water quality and reduce impacts to the natural hydrologic regime.
- Decommissioning of 3.5 miles of existing roads in order to improve water shed conditions and improve water quality.

- Reconstruction of deficient road crossings with road bridges at Saxon Creek, and Columbine Creek, and two bottomless culverts to allow increased flows, reduce localized flow velocities, and improve stream habitat for aquatic organisms.
- Completion of access travel management plans for Forest Service trails and roads which analyze and prioritize transportation management and implementation strategies.
- Reconstruction of Eagle Falls Parking and Trailhead Area to provide improvements to mass transit operations, recreation, water quality and scenic resource thresholds.
- Reconstruction of Pope Beach Parking (Phase 1) area to allow for improved mass transit operations, reduce run-off of grease and oils from vehicles, and installation of BMP's.
- Completion of the analysis, design and permitting of several projects to be constructed in FY 2006 including the Blackwood Canyon Low Water Crossing and Channel Restoration, the Lam-Watah Trail Project complete with pedestrian boardwalk and parking facilities, and the completion of the Pope Beach Parking Area Improvements (Phase 2) complete with improved drainage and storm water management.



Before: Beaver Creek Trail Bridge with inadequate soil erosion measures and failing structure.



After: Beaver Creek Trail Bridge with larger flow area, improved soil erosion measures, and safe structure.

Resource Inventories & Scientific Studies:

Basin-wide inventories of plant and animal species are undertaken routinely to provide the background information needed to assess the impacts that forest activities may have on wildlife and the habitats that support wildlife. LTBMU partners with other Federal, state, and local agencies, and with universities and research institutes, to monitor a variety of wildlife species (including Bald Eagle, California Spotted Owl, Northern Goshawk, Willow Flycatcher, Osprey and American Marten) and to conduct special studies to answer cause-and-effect questions regarding potential impacts. Recently, wildlife habitat restoration has been focused on the restoration of aspen stands on the LTBMU. Aspen ecosystems are recognized as one of the Ecologically Significant Areas in the Lake Tahoe Basin (Watershed Assessment 2000) for their biological diversity and rarity. Aspen stands also



provide important breeding and foraging habitat for many wildlife species on the forest.

In concert with work undertaken to inventory the natural resources in the Basin and provide appropriate stewardship, localized surveys are undertaken to support National Environmental Policy Act (NEPA) analyses of proposed forest activities. An important component of this support work is the delineation of Protected Activity Centers (PACs) for California Spotted Owl and Northern Goshawk. The delineation of these PACs and subsequent guidelines as outlined in the Sierra Nevada Forest Plan Amendment (2004), allow managers to conduct forest health improvement projects with minimal impact on these important and sensitive species. Currently there are 32 Northern Goshawk and 20 California Spotted Owl PAC's on the LTBMU, including the 1 Spotted Owl PAC added in 2005.

Lake Tahoe Biodiversity Study - The LTBMU is funding a research project that will the Forest Service better understand the role of small urban lot acquisitions in supporting and sustaining biological diversity. The project will study shifts in plant and animal species composition, behavior, and reproductive success along a fragmentation and disturbance gradient and then use these data to build a landscape-scale model of population persistence and overall biological diversity. The data-collection activities of the project were completed in 2005 and the analysis of the data will be completed by late 2006.

Biomass Treatment Effects Study - The LTBMU is providing funding to the University of Nevada, Reno for a research project to determine the effects of various Biomass Treatment Practices on forest health and productivity, nutrient cycling and soil fertility, sedimentation and nutrient transport. Because of an unplanned wildfire in one of the study plots, this project provided valuable data regarding wildfire impacts. This project was initiated in 2001 and completed in January 2006. Final study results including key findings and adaptive management recommendations will be summarized and disseminated to basin partners in spring of 2006.

Fire Effects Study - The LTBMU is providing funding to the University of Nevada, Reno for a research project to evaluate the impacts of both fire and long term fire suppression on discharge water quality, soil fertility, and forest health. A model is being developed and utilized will rely on data collected through previous research, including the Biomass Treatment Effects study described above. This project was initiated in 2005 and is expected to be completed in 2007.

Upland and Riparian Fuels Reduction Monitoring - The LTBMU is providing funding to the University of Nevada, Reno to develop a study plan to determine the short term impacts of upland fuels reduction treatments on vegetation composition and structure, fuel loading, potential fire behavior, select wildlife species, and wildlife habitat. This project will provide the first year of pre-project data collection along with a study plan. The project was initiated in 2005 and this phase of the project is expected to be completed in early 2007.

This project will also demonstrate utilization of innovative harvest equipment within designated stream environment zones to determine the impacts of this activity on soil quality and riparian vegetation.

Adaptive Management - A draft Adaptive Management Five Year Plan has been developed which 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. The plan also identifies current data gaps and management questions that need to be addressed by special studies / research.



Natural Resources Conservation Service

The Natural Resources Conservation Service continues to assist in the implementation of Environmental Improvement Program, Project #16 the Best Management Practices – Retrofit, with a focus on residential properties. This project targets reducing urban stormwater runoff volume and controlling sediment and nutrients before they enter Lake Tahoe. Scientists estimate that about one-third of the sediment and attached nutrients contributing to the loss of clarity of Lake Tahoe originate from urban runoff. The BMP Retrofit is the largest EIP project, both in scope and in total cost of installation, is an important private match source for the EIP from local homeowners.

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 each year, providing them with technical assistance for BMP Retrofit and on other conservation issues vital to Lake Tahoe's future. In FY 2003 and FY 2004, NRCS support for the *Backyard Conservation Program* dramatically increased, more than doubling from previous years. With new opportunities from SNPLMA, in FY 2005 funding to the program was almost doubled again. Education and outreach is an important component of the *Backyard Conservation Program*, to motivate private landowners to take action and do their part to improve water quality in Lake Tahoe.



Slotted drain and drywell to infiltrate driveway runoff on a residential property.



Unpaved driveways may contribute significant sources of sediment, oil and grease to stormwater runoff that eventually reaches Lake Tahoe.

Between FY2003 and FY2005, Backyard Conservation Program partnership accomplishments include:

- 5,092 Site Evaluations for BMP Retrofit Plans

- 2,277 technical assistance (nutrient and water management, defensible space, wildlife habitat)
- 24,350 homeowners received outreach materials on BMP's
- 56 public workshops with hundreds of attendees
- BMP demonstration projects, including the Lake Tahoe Community College and the Sierra Nevada Community Colleges
- Purchase and distribute the UNR Cooperative Extension's *Home Landscaping Guide* to landowners

Other EIP Support: NRCS provides ongoing engineering assistance to the Technical Advisory Committee for a variety of Nevada Tahoe Bond Act EIP projects for local erosion control and stream restoration.

Technical Assistance to Private Landowners: NRCS offers national Farm Bill programs to provide technical and financial assistance for conservation and restoration projects on private lands. The Environmental Quality Incentives Program (EQIP) is currently being utilized to address some livestock grazing improvements on private lands in the Lake Tahoe Basin.

Scientific Studies and Research:



Soil Survey Project Leader, Woody Loftis examines soils in a Lake Tahoe Basin aspen grove.

Soil Survey Update for the Tahoe Basin

Field work for the update of the *Lake Tahoe Basin Soil Survey* is complete; this data is integral to the Pathway 2007 planning effort, to various Science & Research models, and to Environmental Improvement Projects.

Digital release of the Soil Survey update is expected in April, 2006.

SNOTEL and Water Forecasting

NRCS maintains and monitors 16 SNOTEL sites in the Lake Tahoe Basin to capture real-time data on snow accumulation. Part of a larger network of 700 SNOTEL stations, they provide data vital for water-forecasting in the West. The local data provides the basis for water supply forecasting for Truckee River reservoirs and stream flow and predicting Lake Tahoe water levels due to snow-melt and runoff. The data from these sites is available in real time for researchers, program managers, and the general public on the internet.



NRCS Chief Bruce Knight (center) collects a SNOTEL sample with Bill Wilson (l) of NACD and Dan Greenlee near Mt. Rose.



**US Army Corps
of Engineers**

U.S. Army Corps of Engineers

Since the last Progress Report in 2002, the Corps has concentrated on providing technical assistance on work for which other partners have insufficient authority or resources to accomplish. These technical products are coordinated with basin stakeholders to insure the work compliments overall basin restoration efforts. Completed work includes:

Assessment of Formal Collaboration

This assessment evaluated whether stakeholders in the Lake Tahoe Basin could make beneficial use of a formal collaborative process in setting public policy. The final assessment report concluded that formal collaboration is possible, but that fiscal and temporal resource uncertainty remain significant risks. The major agency executives involved believe that their future lies within a collaborative process that involves agencies and the public, and have committed to the fundamental cultural and process changes required to support initiation of a collaborative process. This assessment led directly to the collaborative approach adopted by the Pathway 2007 effort.

Risk Evaluation of Shore Zone Wastewater Lines

This risk evaluation determined the potential effect that the wastewater facilities within the Lake Tahoe Basin have on the nutrient load of Lake Tahoe. The risk assessment concluded that while minor spills occur, the record of no catastrophic spills is probably due to a heightened level of preventative maintenance. However, aging wastewater systems will require increasingly costly preventative maintenance or initiation of a comprehensive capital replacement/rehabilitation plan. The study recommends that a major capital replacement/rehabilitation plan be initiated.

Groundwater Evaluation

This groundwater evaluation enhanced the understanding that groundwater plays in the eutrophication processes from phosphorus and nitrogen nutrient loading that reduce the clarity of Lake Tahoe. The groundwater evaluation concluded that groundwater is an important contributor of nutrients to Lake Tahoe and that more information on the subsurface geology and the natural levels of groundwater nitrogen and phosphorus in the basin is needed. The evaluation also concluded that phosphorus plumes generated from many sources in the basin might be a continuing problem for years despite immediate efforts to limit introduction of any new phosphorus.

Channel Erosion Evaluation

This evaluation of sediment loadings and channel erosion combined detailed modeling of several representative watersheds to determine which basins were contributing sediment to Lake Tahoe. Work included numerical modeling of upland and channel erosion processes for the next 50 years for three representative watersheds. The evaluation concluded that stream erosion contributes significant levels of fine sediment and nutrients

to the lake and that a very significant increase in erosion and sediment yield is evident from the disturbed watersheds.

Evaluation of Urban Storm Water Master Planning

This evaluation of storm water management assessed the current status of urban storm water master planning in the Lake Tahoe Basin, comparing it to state-of-the-art planning within the industry. The evaluation concluded that while numerous activities relating to urban storm water management are underway in the basin, a comprehensive master planning strategy does not presently exist. Master planning might prevent redundancies in the basin and identify consistent strategies to implement regional best management practices.

Round Hill General Improvement District SEZ Restoration

Working in partnership with Round Hill General Improvement District and the Nevada Division of State Lands, the USACE removed aged infrastructure from sensitive stream environment zones and restored stream channel.

The Corps, along with the Environmental Protection Agency (EPA), was a convening party in establishment of a collaborative effort to establish the purpose, function and structure of a new science consortium to better focus science and research efforts. The Corps provided development strategy, professional mediation, organizational development, project management and process content leading to the establishment of the Tahoe Science Consortium (TSC) in 2005.

The Corps has also been working with the eight waste water infrastructure districts in the establishment of a formal partnership in 2005 to better integrate infrastructure capital replacement and rehabilitation into the EIP. This work continues into 2006 with a robust program of unified project identification, project prioritization, and common technical standards.

Other continuing projects include storm water design standards, stream restoration planning and design, support to long-range master planning including professional mediation, public visioning, and environmental documentation.

The Regulatory Program administers and enforces Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Under Section 10, a Corps permit is required for work or structures in, over or under navigable waters of the United States. Under Section 404, a Corps permit is required for the discharge of dredged or fill material into waters of the United States. The Corps executes these permitting actions in thru 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) is continuing to work with State and local agencies to restore portions of the Upper Truckee River, which is the highest contributing tributary of sediment and nutrients to the Lake. Funding has contributed to assessment, design, environmental documentation, remote sensing and modeling.

Reclamation has provided funds to the local Conservation Districts for erosion control projects and stream environment zone restoration as well as watershed planning. Funding was also provided to state and local partners to improve fish passage on tributary streams, restore Tahoe yellow cress populations, restore aspen and other riparian hardwood stands, and conduct ecologically sustainable forest fuel reduction planning.

In addition, Reclamation has provided funds to the TRPA to update and increase program management efficiency 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 and their habitats for the continuing benefit of the American people. The USFWS enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign and Native America tribal governments with their conservation efforts. The USFWS also oversees the Federal Assistance program which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

The U.S. Fish and Wildlife Service (USFWS) is working with Federal, state, and 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. If the conservation strategy is successfully implemented, threats to the species will be reduced to the point that listing this species will not be necessary.



The USFWS assists in the conservation of Tahoe yellow cress through funding research on the plants' life history, monitoring, and propagation and restoration techniques. The agency also participates as members of the Adaptive Management Working Group, the Tahoe Regional Executives (TRES), and the Lake Tahoe Basin Executive Committee (LTBEC).



The USFWS is working with the States of California and Nevada to implement conservation and restoration measures to further recovery of the threatened Lahontan cutthroat trout and at the same time, improve recreation fishing opportunities for this native trout.

A new population of Lahontan cutthroat trout has been introduced into Fallen Leaf Lake in the Lake Tahoe area. Public stakeholders were involved in the planning process and remain active in the implementation phase. Lahontan cutthroat trout raised at Lahontan National Fish Hatchery have been tagged and stocked annually from the summer of 2002 through October 2004.

The University of California, Davis was contracted for a three year period to evaluate the reintroduction, including resource availability, habitat utilization by native and non-native fish, Lake Trout abundance and population structure, and predation rates of Lake Trout on stocked Lahontan cutthroat trout. The first three years of research, particularly the efforts of Tahoe Research Group, emphasized primarily the abundance, population structure, and forage base of Lake Trout and the food web of Fallen Leaf Lake, a report will be prepared in 2006. This information was an important first step to better understand the ecosystem dynamics that successful recovery of Lahontan cutthroat trout depends. However, little is known about the life history characteristics of the original lake forms of Lahontan cutthroat trout and just how some of the unique strains native to basins or watersheds may perform in a modified lake environment. The next phase of stocking, research, and recreational fishing will emphasize the potential of this native species and utilize expertise in the field of native fish biology.



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), Pathway 2007 Technical Advisory Groups, Lake Tahoe Environmental and Education Committee (LTEEC) and the Lake Tahoe Research Symposium Planning Committee and other various outreach activities.

Scientific Studies and Research Projects:

USGS Water (with both the Nevada and California Water Science Centers), Geology and Geographic Disciplines are currently responding to environmental concerns with in 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 Geography is involved with three projects with partners; USGS Water, Tahoe Regional Planning Agency (TRPA), Desert Research Institute (DRI), U.S. Environmental Protection Agency, and local county governments and is summarized in a recent Fact Sheet on Geographic Research at Lake Tahoe (<http://geography.wr.usgs.gov/news/docs->

[04/tahoe_fact_101-03.pdf](#)). The Tahoe Decision Support System (TDSS) tool is being developed to assist the Tahoe Regional Planning Agency (TRPA) with estimating the effects of policy decisions on local economic and environmental health. Second, a land-cover characterization study is being completed as part of a nationwide study. The land-cover dataset includes information from Land Sat satellites as well as many other sources such as census statistics. Third, the National Map Lake Tahoe Pilot project was developed by the USGS in collaboration with selected partners in other Federal agencies including USDA Forest Service, Bureau of the Census, and National Oceanic and Atmospheric Administration, various state and local agencies such as the TRPA. Data was collected and shared from the best available sources to complete a national map. These sources include the USGS's national datasets, such as elevation and hydrography data and geographic names. USGS created a Web capability so that users can browse the available data, view and make maps from these data and link to more detailed and more complete data sources. As part of the National Map Pilot Study, Lake Tahoe was selected as a site for developing this capability. More information on National Map can be obtained at <http://nationalmap.usgs.gov>. The Lake Tahoe Data Clearinghouse (<http://tahoe.usgs.gov>) also provides quick and easy access to Basin geospatial data and information.

USGS Water Discipline is involved with many projects, including stream, ground-water and lake monitoring. Nutrient, suspended-sediment, water-quality, and stream flow data are collected currently at 19 and historically at 32 stream monitoring sites, in cooperation with TRPA and the University of California, Davis, and as part of the Lake Tahoe Interagency Monitoring Program (LTIMP). Runoff from the 2002 Gondola Fire area also is being monitored. 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> . LTIMP Data Analysis study provided nutrient and suspended sediment loads, yields and trends from 1988-98 for 20 LTIMP basin-wide monitoring sites and a report was published (<http://pubs.water.usgs.gov/wri02-4030>). A recent study updated Estimated Flood Flows in the Lake Tahoe Basin in a Fact Sheet (<http://pubs.usgs.gov/fs/fs03502/>).

Ground-Water Monitoring is being and has been done at various studies. Shallow ground-water in the South Lake Tahoe area is currently being studied to determine potential transport of contaminants. Recently completed projects included a ground-water study in the Bijou area of South Lake Tahoe (report: <http://pubs.usgs.gov/of/2005/1329/>) and a ground-water/ surface-water interaction study in the Trout Creek area. Stormwater detention basin effectiveness has also been studied at the Cattlemans site along Pioneer Trail in the South Lake Tahoe area. The effects on ground-water and stream quality and levels from the construction and operation of the stormwater detention basin along Cold Creek were examined in partnership with El Dorado County, Calif. This project included examining geochemical and microbiological processes affecting water quality and used a numerical ground-water flow model to analyze ground-water/surface-water interactions. Three publications have been recently released (<http://pubs.water.usgs.gov/sir2005/5260/>, <http://pubs.water.usgs.gov/sir2004/5254/>, and <http://pubs.usgs.gov/of/2004/1201/>) and another is nearing completion.

Nutrients and water quality of five small lakes and their outlets in the Basin were monitored from 2002-04 in cooperation with TRPA. A final report was completed in 2004 (<http://pubs.water.usgs.gov/of2004/1333/>). The presence of manmade organic compounds at selected stream outlets and at several Lake monitoring sites will again be studied in 2006 and had been monitored in 2005, 2002-04 and in 1998 in cooperation with TRPA.



Federal Highway Administration Federal Transit Administration

Environmental Improvement Projects & Funding:

The US Department of Transportation (USDOT) has been working since 1998 with the Tahoe Metropolitan Planning Organization (MPO) to address local transportation issues, and to fund locally selected projects.

Tahoe was designated a Metropolitan Planning Organization in 1998 to address the transportation and transit issues within the Lake Tahoe Basin. A revised transportation plan and program was fully approved in September 2005. Projects from this program generally include roadway and bridge rehabilitation, safety work, transit vehicle and system upgrades, bicycle/pedestrian projects, and erosion control projects. In addition, the USDA Forest Service has created an engineering position to work on MPO implementation.

The latest transportation act, a SAFETEA-LU, was signed in August 2005. It not only continued Lake Tahoe's special status as a Metropolitan Planning Organization, it provided a dedicated funding source for transportation planning. It also included transit Federal funding earmarks for bus replacement and passenger ferry service.



U.S. Environmental Protection Agency

Environmental Improvement Projects:

The Environmental Protection Agency (EPA) provided Clean Water Act Section 319 funding in 2003-2005 through the States of California and Nevada for local erosion control projects and to the Tahoe Regional Planning Agency and Nevada Tahoe Conservation District to provide technical assistance to residential and commercial property owners in implementing BMPs as part of the EIP project #16.

EPA continues to staff a person in the TRPA offices to help coordinate EPA's activities with the EIP.

The EPA co-sponsored the Lake Tahoe Drinking Water Forum in May 2005, which brought together agencies and basin stakeholders to identify opportunities for protecting Lake Tahoe as a drinking water source and for integrating Clean Water Act and Safe

Drinking Water Act protection activities, including EIP projects designed to reduce erosion and other pollutants from entering Lake Tahoe.

Scientific Studies & Research:

The EPA has provided technical assistance and funding to the Tahoe Science Consortium (TSC) to implement a science program for the Lake Tahoe Basin. The TSC will be developing a long-term research plan over the next year, which will guide research and monitoring activities in the basin for next five years. EPA developed and negotiated the TSC Memorandum of Understanding (August 20, 2005), which committed six research institutions and six state and federal agencies to form and support the TSC.

An EPA staff person has been working with the states on since 2002 developing the Lake Tahoe Total Maximum Daily Loads (TMDLs). The TMDLs will determine how much nutrients and sediment into entering Lake Tahoe needs to be reduced to achieve the lake clarity water quality standards and will be used by the TRPA in setting water quality thresholds.

Funding Sources for Completed EIP Projects

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 between FY97 through FY05 = \$238,170,709.
- Other activities between FY97 through FY05 implemented by federal agencies to meet their respective missions and goals, which may result in environmental improvements, but are not considered EIP projects as currently defined by the TRPA, also = \$143,751,272.

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**SUMMARY OF INVESTMENTS OF THE LAKE TAHOE FEDERAL PARTNERSHIP
FISCAL YEARS 1997-2005**

Appendix 1

Agency	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	TOTAL
					1/	2/	3/	4/	5/	
Presidential Commitments & Environmental Improvement Program										
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	\$126,124,700
USDA Natural Resources Conservation Service	\$0	\$216,000	\$120,000	\$120,000	\$250,000	\$354,200	\$600,000	\$680,000	\$996,000	\$3,336,200
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	\$6,621,788
US Geological Survey	\$0	\$454,000	\$606,000	\$337,000	\$281,120	\$0	\$1,102,000	\$0	\$0	\$2,780,120
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	\$65,123,062
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	\$21,761,959
US Fish and Wildlife Service	\$0	\$0	\$0	\$0	\$187,000	\$187,000	\$187,000	\$188,000	\$255,611	\$1,004,611
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	\$11,418,269
Total	\$136,000	\$22,589,876	\$23,716,261	\$10,048,629	\$23,363,432	\$29,689,635	\$46,878,991	\$35,840,476	\$45,907,409	\$238,170,709

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	\$62,821,211
USDA Natural Resources Conservation Service	\$120,000	\$232,000	\$222,000	\$232,000	\$175,000	\$191,000	\$200,000	\$175,000	\$235,000	\$1,782,000
US Army Corps of Engineers	\$0	\$15,000	\$30,000	\$215,000	\$0	\$176,300	\$514,524	\$1,169,951	\$1,079,008	\$3,199,783
US Geological Survey	\$627,154	\$777,654	\$792,654	\$821,124	\$1,232,700	\$1,149,100	\$569,000	\$0	\$0	\$5,969,386
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	\$61,596,685
US Environmental Protection Agency	\$217,774	\$425,187	\$622,507	\$591,731	\$467,045	\$1,372,667	\$899,891	\$677,667	\$2,433,693	\$7,708,162
US Fish and Wildlife Service	\$0	\$0	\$0	\$117,600	\$0	\$0	\$0	\$0	\$101,445	\$219,045
US Bureau of Reclamation	\$0	\$0	\$0	\$0	\$0	\$150,000	\$65,000	\$110,000	\$130,000	\$455,000
Total other Activities	\$11,481,587	\$34,826,629	\$18,244,199	\$10,173,767	\$8,585,745	\$18,714,825	\$7,689,321	\$10,902,293	\$23,132,906	\$143,751,272

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	\$188,945,911
USDA Natural Resources Conservation Service	\$120,000	\$448,000	\$342,000	\$352,000	\$425,000	\$545,200	\$800,000	\$855,000	\$1,231,000	\$5,118,200
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	\$9,821,571
US Geological Survey	\$627,154	\$1,231,654	\$1,398,654	\$1,158,124	\$1,513,820	\$1,149,100	\$1,671,000	\$0	\$0	\$8,749,506
US Department of Transportation	\$2,956,659	\$32,724,788	\$21,795,739	\$4,039,773	\$7,709,000	\$23,290,464	\$372,632	\$0	\$0	\$92,889,055
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	\$29,470,121
US Fish and Wildlife Service	\$0	\$0	\$0	\$117,600	\$187,000	\$187,000	\$187,000	\$188,000	\$357,056	\$1,223,656
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	\$11,873,269
Grand Totals	\$11,617,587	\$57,416,505	\$41,960,460	\$20,222,396	\$31,949,177	\$48,404,460	\$54,568,312	\$37,776,077	\$44,176,315	\$348,091,289

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 S&PF). Funds partially reimbursed in FY 2003 (\$2.2 Cl&M; \$1.2 NFS; \$.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.
** 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 Tahoe Regional Planning Agency.