

**A REQUEST FOR PROPOSALS
TO CONDUCT RESEARCH IN SUPPORT OF THE
LAKE TAHOE ENVIRONMENTAL IMPROVEMENT PROGRAM
DECEMBER 5th, 2006
(Deadline for submission January 26th, 2007)**

The American public has made an important commitment — to protect, preserve and enhance the Lake Tahoe Basin through a number of initiatives with participation from federal, state, local, and non-governmental organizations. This commitment is intended to ensure the maintenance and restoration of Lake Tahoe for the enjoyment of future generations. This commitment to the Lake's conservation takes shape in the form of a multi-agency initiative known as the Environmental Improvement Program (EIP). This program entails a wide variety of management and research projects intended to guide and/or execute efforts to conserve and restore water and air quality, forest health, fish and wildlife, recreation and scenic views of the Lake Tahoe Basin.

Launched in conjunction with the 1997 Lake Tahoe Presidential Forum, the Environmental Improvement Program (EIP) provides a strategy to achieve the environmental goals for the Lake Tahoe Basin. The EIP strategy builds on the capital improvement approaches that have been underway within the region for almost 20 years. This strategy is designed to accomplish, maintain or exceed multiple environmental goals and develop a more integrated, proactive approach to environmental management.

The environmental goals of the Lake Tahoe Region are defined as environmental thresholds, which are the environmental standards necessary to protect the natural environment and to maintain public health and safety within the region. The nine threshold categories are: 1) water quality, 2) wildlife, 3) soil conservation, 4) scenic resources, 5) air quality, 6) recreation, 7) vegetation, 8) noise, and 9) fisheries. For more information about the Lake Tahoe EIP and the environmental thresholds please visit: <http://www.trpa.org/default.aspx?tabindex=10&tabid=227>

Although the majority of investments in the Lake Tahoe Basin to date address capital projects, program needs, and operations and maintenance needs, **there is a specific and important role for research to address key scientific uncertainties**. Research is considered an integral component to the overall environmental improvement framework for the Basin. Scientific research has played a key role at Lake Tahoe in the development of the environmental thresholds, in identifying trends in threshold attainment, and more recently for informing policy decisions. Collectively, the goals of the EIP research projects are to address the most pressing management questions facing land managers in the Lake Tahoe Basin and to maximize the certainty in obtaining effective capital improvement projects. Science will continue to play a critical role in the Basin and great strides have been made in recent years to improve coordination and applicability of the science to management agency goals.

Some of the most pressing science information needs are currently described in the existing EIP and the associated Key Management Questions but they will be reviewed and updated in the coming year. There is a long history of research in the Basin and strong contributions to land management and restoration efforts. For the purposes of this Request for Proposals, the evolving research priorities are now divided among six science themes that have been developed collaboratively by the Tahoe Science Consortium (TSC) and State, Federal, and Local government representatives in response to needs expressed by the management and policy officials within the Basin. These six themes capture the breadth of research information needs that exist in the Basin.

The Pacific Southwest Research Station, USDA Forest Service is requesting that interested researchers submit proposals for funding within one of the following six science theme areas. The order of topics presented does not reflect priority. A total of \$3.75 million has been identified for research in this round of funding. However, \$350,000 of this funding will be used to support the continuing activities of the TSC, and approximately \$265,000 (7%) will be used to cover PSW costs for providing program and administrative support to the entire process. Available funds will be distributed among the six theme areas commensurate with the allocations detailed below. Actual funding levels may vary to some degree from targeted levels based on the merit of the proposals received.

Proposal budgets should be capable of supporting the project for its entire duration. If a proposed project spans more than one year, funding for all years should be requested in the initial proposal. Project proponents will have to compete for additional funding in subsequent years, if the planned project exceeds the funding limit for the theme area and submittal of a follow up project proposal is planned. There is no guarantee that currently funded projects will successfully compete for subsequent year(s) of funding. All projects must be capable of producing meaningful scientific results for the total funding provided in this funding cycle.

The six science themes, including descriptions of sub-themes, are as follows:

Theme 1. Role of Air Quality Management to Control Lake Clarity Conditions (up to \$400,000)

Sub-Theme A. Dust and air-borne sediment control demonstration projects.

Establish pilot or demonstration projects to evaluate the effectiveness of various air pollution control measures, with the aim of quantifying how much benefit can be expected from various control measures. Atmospheric particulate deposition is believed to be responsible for a significant fraction of the phosphorous and sediment loading in Lake Tahoe. As a consequence, it is imperative we implement projects designed to enhance our understanding of the processes leading to atmospheric particulate loadings and deposition, along with developing and evaluating approaches to reduce the contributions from this source.

Theme 2. Water Quality (up to \$1,000,000)

Sub-theme A. Gain a more detailed understanding of the specific sources, transport, and treatability and/or management of fine sediments from watershed sources.

The goal of this sub-theme area is to understand where fine sediments originate in a watershed, how they travel to Lake Tahoe and its tributaries, and how to keep particles of this small size from entering the lake. Proposals under this sub-theme could include the development of quantitative approaches for evaluating the sediment load coming from small and large scale erosional 'hot spots' such as eroding slopes next to roads.

Sub-theme B. Improve our understanding of stream channel erosion dynamics and historical changes in stream channel morphology; customize stream channel models for use by resource managers with the aim of developing restoration approaches that achieve sediment loading reduction, in concert with habitat preservation.

The goal of this sub-theme is to gain a better understanding of the dynamics of stream channel erosion and quantify the amount of possible load reduction from this source. Initial research findings estimate that 80% of the total sediment and 50% of the fine sediment entering Lake Tahoe from the Upper Truckee River (its most significant tributary) came from stream channel erosion. The implications of these findings for identifying controllable sources of this material are significant and require the development of mitigation strategies as part of water quality planning.

Sub-theme C. Nearshore water quality

The goal for research under this sub-theme is to increase our understanding of the factors and processes adversely affecting nearshore water quality and habitat quality. Degradation of water clarity, the growth of attached algae, the continued invasion of water milfoil, and the recent observation of largemouth bass populations and other introduced species in nearshore habitats are all key issues. Information needed for the development of nearshore Water Quality Standards/Thresholds have been identified as necessary in the recent Pathway 2007 Forum process (<http://www.pathway2007.org/>). Proposals could include evaluation of existing data for establishing numeric water quality standards, and understanding processes that influence nearshore water quality and its linkage to open-lake water quality. Proposed projects could also further our understanding of the processes that influence nearshore habitat quality. For example, proposals could address dispersion pathways, distributions, and impacts of invasive aquatic species on Tahoe Basin ecological communities.

Theme 3. Forest Management Activities: Implications for Ecosystem and Public Health (up to \$500,000)

Sub-theme A. A more thorough understanding of the effects of current forest management practices on forest health, wildlife, water quality and quantity, and public health at site and basin scales is needed, with emphasis on understanding the effects of fuel treatments (e.g., control burns, mechanical thinning, biomass removal, etc.).

Research is needed to better characterize and quantify the effects of fire and biomass mitigation strategies on wildlife, species diversity, aesthetics, water quality, water flow, ecosystem nutrients, and nutrient transport from forested Sierran watersheds to adjacent tributaries and Lake Tahoe. Research is also needed to understand and quantify the impacts of smoke from prescribed burning on air quality, water quality, and human health. The research should support improvements in the formulation of forest management strategies for the Basin that can achieve the interrelated objectives and values associated with forest ecosystem and water quality improvements in the Lake Tahoe Basin as well as the protection of human health.

Theme 4. Managing the Basin’s Ecological Communities (up to \$475,000)

Sub-theme A. Improve our understanding of the status, requirements, and sensitivities of ecological communities and species of special interest to inform their management and conservation.

Research proposals should focus on improving our understanding of the status and function of Basin ecosystems, the distribution and abundance of species of special interest within ecological communities, and the factors that affect them. This includes the identification of species and communities that are particularly sensitive to current and future natural and human-caused disturbances in the Basin, improving our understanding of the distribution and ecological sensitivities of communities, and the development of measures that enhance our ability to evaluate their conditions.

Theme 5. Best Management Practices (BMP) Implementation and Effectiveness (up to \$500,000)

Sub-theme A. Quantify the impacts of road management practices and their potential contribution of fine sediment and nutrient loading to Lake Tahoe.

Roadways are a dominant feature of the urban landscape in the Lake Tahoe Basin. They range from the large highways that ring the lake, to the dense county road network located in the watershed, to the unpaved road system in forested habitats. These roadways are sources of pollutants (e.g. traction sand, unimproved shoulders, and airborne dust) and act as impervious corridors that promote the flow of pollutants from the watershed to its tributaries and the lake. Previous monitoring of highways by Caltrans and NDOT have not focused on or quantified specific sources of these pollutants, nor has the contribution of county roads to sediment loading been evaluated. These studies are needed to help develop informed management plans to control/treat roadway runoff.

Sub-theme B. Develop models and design a monitoring program to assess BMP effectiveness in meeting regulatory requirements for pollutant reduction.

A well designed monitoring plan to evaluate BMP effectiveness in meeting pollutant reduction requirements is central to a functional adaptive management system for minimizing erosion from storm water. Over the next few years both the Pathway 2007 and Total Maximum Daily Load efforts will be working on developing monitoring plans

for this and other issues. Proposals should demonstrate how they support these ongoing efforts to develop a conceptual design for BMP effectiveness monitoring.

Theme 6. Cross Cutting All Science Areas (up to \$525,000)

Sub-theme A. Analyze, evaluate, and synthesize existing data for any of the theme areas listed above.

Synthesis and integration of data that addresses issues cutting across theme areas is especially encouraged (e.g., prescribed fire and its effects on forest health, water quality, and air quality, or effects of climate change on habitat change, ecological communities, and hydrologic conditions in the Lake Tahoe Basin). Data analysis to further understand environmental processes, conditions and trends may involve innovative techniques to extract critical information from existing data sets.

Sub-theme B. Evaluation of Basin Monitoring and Networks.

We are seeking proposals that can integrate the development of current and future environmental monitoring programs to consider basin-wide needs, regulatory/programmatic requirements, data quality/accuracy, statistical reliability, and financial constraints. This need refers to all the theme areas listed above. Provide explicit consideration to both field-based and remote sensing approaches.

OUTLINE OF PROGRAM

Approximately \$3,200,000 will be available in spring 2007 to fund new projects from the submitted proposals. Multi-year, collaborative projects will be accepted but again, funding requested should address the needs of the entire project and lead to a scientifically meaningful product(s). Availability of funds in subsequent years will be subject to future competition. All proposals meeting the program guidelines will then be submitted for independent, external scientific peer review. A peer review committee comprised of the Director of the TSC and three members of the TSC Committee of Scientists will perform an initial screening of proposals for conformance with the requirements of the RFP and for relevance to the research needs listed above. All accepted proposals will be circulated for peer review by three independent scientists (i.e. not affiliated with the TSC or the project proponents). The reviews will evaluate the scientific approach and quality, and the probability of timely success for each proposal. Results of the peer review will be synthesized by the peer review committee, discussed with the Tahoe Science Agency Coordination Committee to assess relevancy of the proposal and submitted to the Southern Nevada Public Lands Management Act Federal Sponsor for funding approval. The TSC peer-review process is attached and/or can be obtained from the Pacific Southwest Research Station web site: www.fs.fed.us/psw

Principal Investigators will be notified about the decision to fund their proposal in late March or early April 2007, or soon thereafter. Anonymous peer review comments will be distributed to the Principal Investigators of all proposals.

PROPOSAL PROCESS

Proposals are limited to no more than 3,500 words (approximately 6 single-spaced pages). This page limit does not include budget pages, a list of references, figures, and brief CVs of all investigators. All proposals must follow the format outlined below:

- I. Project Team and Contact Information
 - a. Principal Investigator(s)
 - b. Institution
 - c. Address
 - d. Phone, fax number, and email address
 - e. Name, phone and fax number, and email address of grants contact person
 - f. Identify which theme and sub-theme the proposal addresses

- II. Justification Statement

- III. Background/Problem Statement

- IV. Goals, Objective(s), and statement of hypotheses to be tested

- V. Approach, Methodology, and Geographic Location of Research

- VI. Deliverables/Products

- VII. Schedule of Events/Reporting and Deliverables

- VIII. Budget
 - a. Salaries
 - Principal Investigator(s)
 - Post-doctoral Associate
 - Graduate Students
 - Technicians
 - b. Fringe Benefits
 - c. Supplies (list all items when total costs do not exceed \$5,000)
 - d. Equipment (list all items when total costs exceed \$5,000; purchase of nonexpendable equipment above \$5,000 is strongly discouraged; leasing will be considered for equipment over \$5,000)
 - e. Travel (domestic and international travel must be listed separately including estimated cost, dates, meeting or purpose, etc.)
 - f. Total Budget

- IX. Abbreviated CV(s) or resumes for investigator(s) including a list of relevant publications and reports. Note: this information will be used to evaluate the capabilities of the investigator(s) to successfully complete the proposed project.

Additional Budget Notes

For multi-year projects, include a budget with cost breakdown for each year of the project so all project costs are displayed.

We cannot pay tuition and indirect costs to Land Grant Institutions.

Cost Share. Cooperator cost share may be required depending on the type of instrument used to award successful proposals. Cost share may be met by contributions of direct cost, indirect cost, or a combination of both. Cost share amount would be a minimum of 20% Total Project Costs.

Proposal Submission. University researchers are advised to submit their proposals through their university's sponsored projects office.

Permits. Where necessary or anticipated, applicants should provide documentation to demonstrate that they have or will be obtaining state and federal regulatory permits, and private-landowner written approval to meet the needs of the proposal.

Project Execution. It is the responsibility of the project proponent to coordinate with appropriate agency representatives or partners and secure any agreements or approvals necessary prior to initiating research. If, for example, the research is proposed to be conducted on Forest Service lands or State Park lands the project proponent must secure all applicable approvals from the land manager. Or if the research requires use of data collected by an agency, then the project proponent must secure approval to use this data. This will be a prerequisite that must be satisfied in advance of receiving funding allocated for this RFP.

Project Award Requirements. Upon execution of a federal award, the recipient/cooperator will be requested to:

- furnish their tax identification number
- designate a financial institution or an authorized payment agent through which a federal payment may be made in accordance with US Treasury Regulations, Money and Finance at 31 CFR 208.
- register in the Central Contractor Registry (CCR), by going to www.ccr.gov and following the instructions provided on line, or by calling the CCR Assistance Center at 888-227-2423 or 269-961-4725.
- furnish a DUNS number obtained by contacting Dun and Bradstreet at 800-234-3867 or 866-794-1580. A DUNS number will be provided immediately by telephone at no charge. A DUNS number can also be obtained on-line at: www.dnb.com

Funding for these projects is not guaranteed and is subject to the availability of funds and the evaluation of proposals based on the criteria in this announcement. The Pacific

Southwest Research Station (PSW) reserves the right to partially fund proposals/applications by funding discrete activities, portions, or phases of proposed projects. If PSW decides to partially fund a proposal/application, it will do so in a manner that does not prejudice any applicants or affect the basis upon which the proposal/application, or portion thereof, was evaluated and selected for award, and that maintains the integrity of the competition and selection process. PSW reserves the right to make additional awards under this announcement (after the original award selections are made) if additional funding becomes available. Any additional selections for awards will be made no later than 6 months after the original selection decisions. The additional selections must be made in accordance with the terms of this announcement and PSW policy.

Until the U.S. Department of Interior, Bureau of Land Management sends PSW notification that this funding is approved and available, PSW cannot make awards.

PROPOSALS MUST ARRIVE AT THE PACIFIC SOUTHWEST RESEARCH STATION, IN ALBANY ON OR BEFORE 4:00 PM, FRIDAY, JANUARY 26TH, 2007.

PROPOSALS THAT DO NOT FOLLOW THESE GUIDELINES WILL NOT BE CONSIDERED FOR FUNDING AND WILL NOT BE SUBMITTED FOR PEER REVIEW.

All proposals must be submitted as Microsoft Word documents or as an Adobe Acrobat (.pdf) files. Submit 1 digital copy of all documents via email and 3 hard copies of all documents via overnight courier to:

Lake Tahoe Basin Research
c/o Imogene Holmes
USDA Forest Service
Pacific Southwest Research Station
800 Buchanan St.
West Annex Building
Albany, CA 94710
E-mail address: iholmes@fs.fed.us

Telephone contact for courier service (510) 559- 6377

A confirmation of submission will be sent to the primary author within one week of receipt.

Questions should be addressed to Peter Stine, USDA Forest Service, Pacific Southwest Research Station, at 530-759-1703.