Science Projects to Guide Restoration of the Tahoe Basin

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Tahoe Science Consortium
Addressing Science Needs in the Lake Tahoe Basin

Structure

Mission

To coordinate scientific resources and data, for the purpose of obtaining the best available science as a basis for decision making on an ongoing basis.

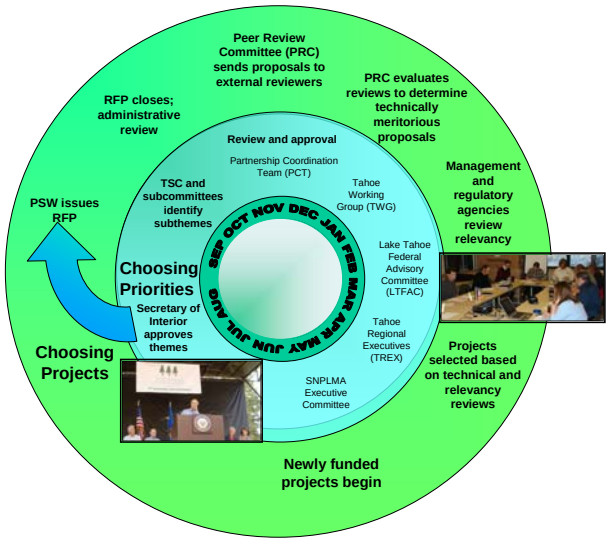
To provide for continuous scientific research on and monitoring of the implementation of the Environmental Improvement Plan, including the status of the achievement and maintenance of environmental threshold carrying capacities.

"An Act to promote environmental restoration around the Lake Tahoe basin"

Federal funding to support the Lake Tahoe Restoration Act is provided through the Southern Nevada Public Land Management Act (SNPLMA). The Pacific Southwest Research Station has administered the Tahoe Science Program starting with Round 7 of SNPLMA.

Process

Allocation of Tahoe SNPLMA science funding follows a cyclical process with two loops:
- Choosing science **priorities** (themes and subthemes)
- Choosing science **projects**



Current Research


Wildfires reducing air quality


High fuel loads at Tahoe


Diseased white pine

Air Quality

- Cost effectiveness of different road dust control strategies
- Sources of particulate matter

Round 9 air quality projects will focus on particulate matter from vehicles and sources of ozone pollution .

Forest Health

Fires and Fuels

- Restoration and fuel treatment of riparian forests
- Effects of prescribed burning on vegetation and fuel loading
- Effects of prescribed fire on nutrient emissions in air and water
- Effectiveness of Upland Fuel Reduction Treatments
- Tools to evaluate fuel loading in the Angora Fire Region
- Balancing fuel reduction, soil exposure, and potential for erosion
- Identifying reference forest conditions in the General Creek watershed

Special Communities

- Restoring sugar pines
- Identifying disease resistant White Pines
- Evaluating effects of ski resorts on American marten


American marten

Round 9 forest health projects will evaluate alternatives for reducing forest fuels, effects of restoring riparian areas, and effects of wildfire


Sampling stream runoff


Invasions by non-native fishes and plants around Tahoe


Sampling roadway pollution

Water Quality

- Streams
  - Applying modeling tools for stream restoration
  - Predicting sediment load reductions from channel restoration
  - Tools to evaluate and track benefits of stream restoration
- Lake Quality
  - Predicting and managing changes in near-shore water quality
  - Using remote sensing to monitor water quality
  - Identifying indicators to sustain near-shore clarity and fisheries
- Modeling
  - Assessing sources of fine sediment using WEPP
  - Predicting nutrient and sediment loading from prescribed fire using WEPP
  - Developing a toolbox to reduce water quality pollution
- Pollutant Reduction
  - Minimizing road erosion
  - Assessing performance of BMPs
  - Analyzing and standardizing data on sediment particle size
  - Using fingerprinting to determining sources of sediment from highways
  - Evaluating the potential of floodplains to reduce fine sediments

Round 9 water quality projects will focus on reducing fine particles from urban areas


Lake Tahoe Basin

Climate Change

- Implications of climate change for design of Best Management Practices
- Modeling influence of management on wildfire under future climatic conditions
- Modeling the invasion risk of cheatgrass

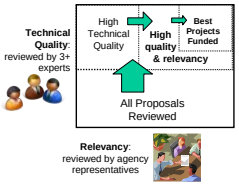
Round 9 climate change projects will focus on adapting management practices to projected climates

Results

Program Accountability

Competitive Process

- Individual research projects are selected through a competitive peer review process that assesses both technical merit and relevancy to management needs for restoring Lake Tahoe



Criteria to select the best projects

Public Availability

- TSC products are available at: www.tahoescience.org
- Publications are available through TIIMS: www.tiims.org
- Information about all science projects is available through the USFS Pacific Southwest Research Station website (right)

http://www.fs.fed.us/psw/partnerships/tahoescience/

Products to Help Restore Lake Tahoe

- Workshop on vegetation management in sensitive areas
- Monitoring protocols for forest management in sensitive areas
- Literature review of effects of fuel reduction treatments
- Modeling tools to evaluate effects of forest management and stream restoration on erosion rates
- Basin-wide program to monitor stormwater quality in urban areas (RSWMP)


Examining fuel treatments in streamside zones

Predicting erosion rates


Monitoring stormwater