



Walker Basin Restoration Program Projections



Walker Lake in Nevada

NFWF CONTACT

Ashley Downing
 Manager, Walker Basin
 Restoration Program
ashley.downing@nfwf.org
 775-673-7933

INITIATIVE DETAILS

To learn more, please go to
www.walkerbasin.org

ABOUT NFWF

The National Fish and Wildlife Foundation (NFWF) protects and restores our nation's fish and wildlife and their habitats. Created by Congress in 1984, NFWF directs public conservation dollars to the most pressing environmental needs and matches those investments with private funds.

Learn more at www.nfwf.org

NATIONAL HEADQUARTERS

1133 15th Street, NW
 Suite 1100
 Washington, D.C., 20005
 202-857-0166

UPDATED: FEBRUARY 2015

Over the last few decades, a substantial amount of research has been completed to estimate the volume of water needed to restore and maintain Walker Lake. NFWF's Walker Basin Restoration Program has recently refined these estimates using current lake conditions and the knowledge gained from implementing the program since 2010.

Detailed simulation modeling¹ completed in 2014 incorporates the most up-to-date information to estimate the water right acquisitions and volume of water necessary to restore and maintain Walker Lake as a healthy and viable ecosystem². The program used the simulations to develop financial projections on the anticipated cost to purchase enough water from willing sellers to reach the sustained inflow levels necessary to meet program objectives.

The model examined Total Dissolved Solids (TDS) concentrations under a number of future scenarios for basin water management. The program's long-term water quality goal for Walker Lake is an average TDS of 10,000 mg/L. The scenario most likely to achieve this goal is presented in Figure 1.

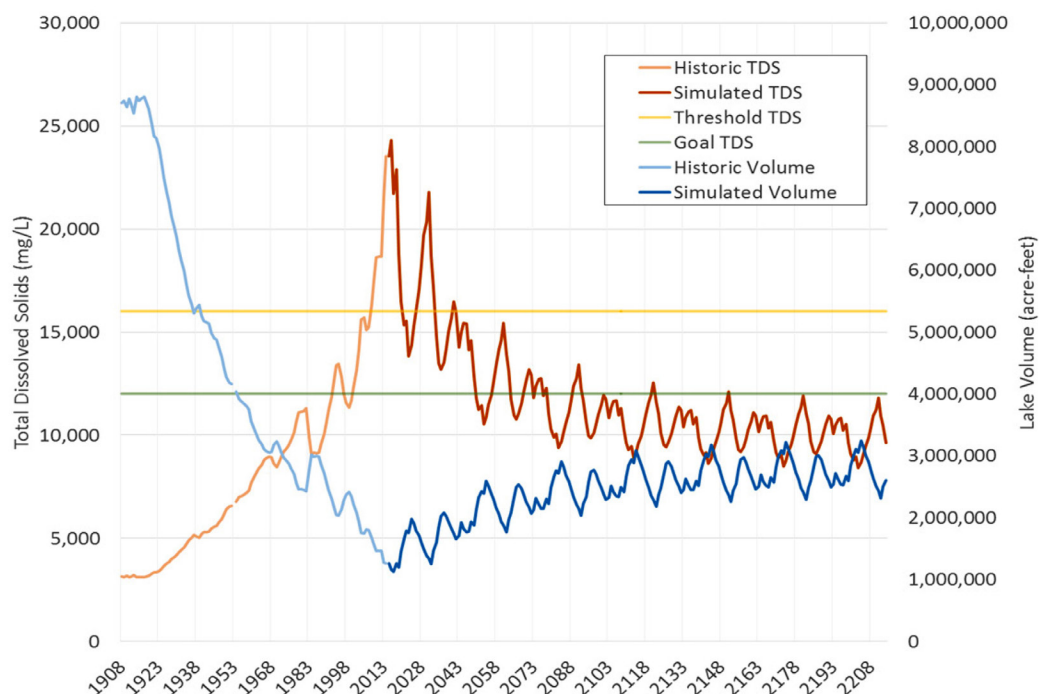


Figure 1: Walker Lake restoration with acquisitions of both NV and CA water rights from willing sellers and the target long-term TDS average of 10,000 milligrams/liter (mg/L)

¹ Borgen, E.M., Aylward, B., Pohl, G., McCoy, A. 2014. *A Simulation Model for Evaluating Water Acquisitions to Reduce Total Dissolved Solids in Walker Lake*. Technical Report for NFWF. Ecosystem Economics LLC and Desert Research Institute. ² The Nature Conservancy. May 2013. *Conservation Assessment for Walker Lake in Mineral County, Nevada*.

MODEL ASSUMPTIONS

- The model includes Walker Basin water rights in California and Nevada³.
- Modeled Walker River inflow at the lake is approximately 97,000 acre-feet (AF) per year on average under “business as usual” conditions.
- Only the consumptive use portion of acquired water rights will be transferred for instream beneficial use in the Walker River to Walker Lake.
- All modeled water rights are acquired and transferred to Walker Lake during an initial 15 year period⁴.

RESULTS

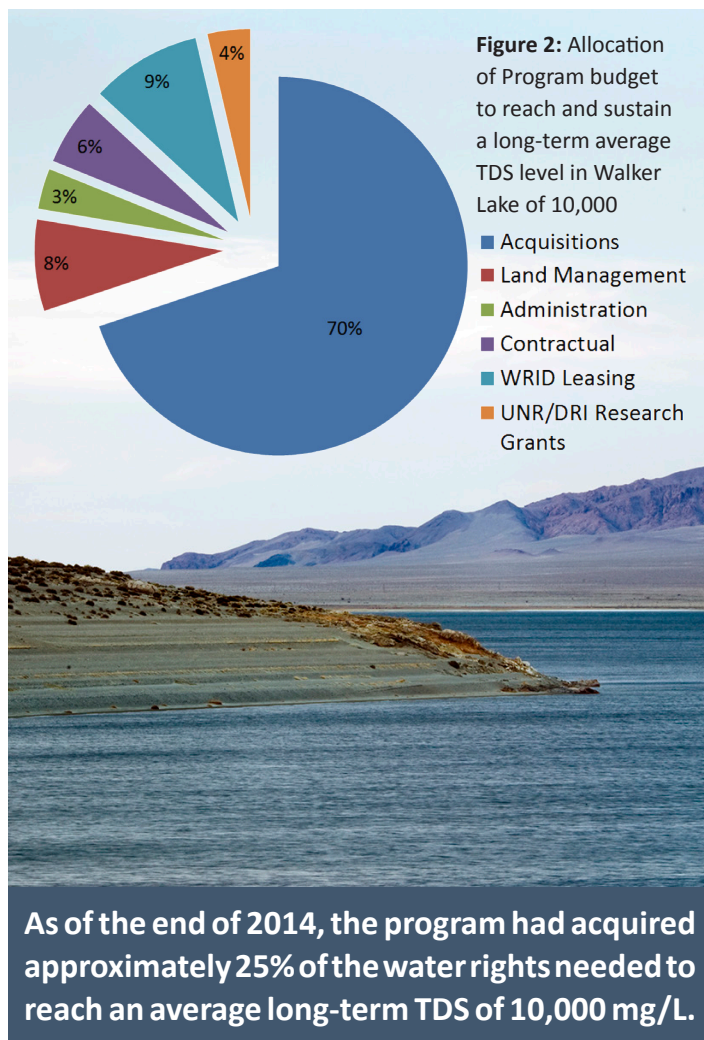
- 20 percent of California and Nevada surface water rights in the Walker River Basin will need to be acquired by the program from willing sellers⁵.
- Lake TDS declines to and fluctuates around 16,000 mg/L starting in 2025 and remains below this level after 2043⁶.
- By 2050 Lake TDS drops below 12,000 mg/L and by 2090 it stabilizes around a long-term average of 10,000 mg/L.
- Total additional flows at the USGS Wabuska gage average approximately 54,000 AF per year after program acquisitions and transfers are fully implemented.
- Total additional flows at Walker Lake under these same assumptions average approximately 41,000 AF per year including losses⁷.

KEY VARIABLES THAT WILL AFFECT RESULTS

- Length of time to complete all acquisitions and transfer approvals will influence the length of time for Walker Lake to reach target TDS levels.
- Climatic variations (e.g., dryer than historical conditions) will influence the ability to reach the desired TDS levels and/or the amount of time and water required to do so.
- Increases in long-term acquisition and stewardship costs could mean additional funds and/or acquisitions would be needed to meet the 10,000 mg/L objective⁸.

FUNDING

- The total program budget is approximately \$264 million including \$185 million for acquisitions from willing sellers (Figure 2). Based on known and projected costs and the assumptions stated above, the program has sufficient resources



to reach water acquisition objectives and to cover associated grants and stewardship responsibilities. These assumptions and financial projections will be updated as new information and data become available, potentially impacting the long-term resource and funding needs to attain program objectives.

- The program generates additional revenue through land and water leases. These funds will be an important part of long-term stewardship costs (i.e., paying annual water assessments).

³ NFWF is working with Mono County stakeholders and the Mono County Board of Supervisors to complete a California Environmental Quality Act analysis in an effort to support water leasing and acquisitions from willing sellers in California. ⁴ Demonstration Water Leasing is not included in this scenario. Results of the sensitivity analysis show only modest short-term reductions in TDS with early-onset leasing but little impact on the long-term success of the larger restoration effort. ⁵ The exact breakdown of water rights from NV and CA depends on willing sellers and interest in the two states. ⁶ USFWS states that it will “resume stocking [of Lahontan Cutthroat Trout] when [Walker Lake’s] TDS level drops below 16,000 mg/l.” *Walker Lake Ecosystem Research and Monitoring Summary Report 2006-2013*. U.S. Fish and Wildlife Service, Lahontan National Fish Hatchery Complex, November 2013. ⁷ Allander, K.K., Niswonger, R.G., and Jeton, A.E., 2014, *Simulation of the Lower Walker River Basin Hydrologic System, West-Central Nevada, Using PRMS and MODFLOW Models*: U.S. Geological Survey Scientific Investigations Report 2014-5190, 93 p. ⁸ The program feels confident that a TDS of 12,000 mg/L could be reached with existing funds, factoring in these additional costs.