

## Project Summary

### Rocky Mountains Cooperative Ecosystem Studies Unit

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| <b>Project Title:</b> Sampling for Contaminants: Whiskeytown National Recreation Area, California   |
| <b>Type of Project:</b> Research/physical sciences  |
| <b>Funding Agency:</b> National Park Service  |
| <b>Other Partners/Cooperators:</b> USGS   |
| <b>Effective Dates:</b> May 1, 2003 - December 30, 2003   |
| <b>Funding Amount:</b> \$21,851   |
| <b>Investigators and Agency Representative (include name, address, phone, email):</b><br>NPS Key Official: Jennifer Gibson, P.O. Box 188, Whiskeytown, CA 96095, 530-242-3457, <a href="mailto:Jennifer.Gibson@nps.gov">Jennifer.Gibson@nps.gov</a><br><br>UNIVERSITY CONTACT: Johnnie Moore, Department of Geology, University of Montana, Missoula, MT 59812, 406-243-6807, <a href="mailto:jl_jnm@selway.umt.edu">jl_jnm@selway.umt.edu</a>  |
| <b>Project Abstract:</b><br><p>The overall objective of this study is to provide scientific information to the National Park Service so that potential risks from heavy metals in Whiskeytown's major watersheds can be identified and managed appropriately. This will be accomplished by assessing the extent to which heavy metals associated with abandoned mine sites have contaminated the water and sediments and the degree to which these metals have bioaccumulated in macroinvertebrates, amphibians, and fish.</p> <p>Water samples will be analyzed by Ultrasonic-nebulization, inductively-coupled Argon Plasma Emission Spectrometry, Hydride-generation Atomic Adsorption Spectrometry and Cold-vapor Atomic Fluorescence Spectrometry as appropriate. The elements of concern for water samples are: As, Cd, Cr, Pb, Ni, Se, V, Hg, Al, Ba, Be, Cu, Fe, Mg, Mn, Mo, Sr and Zn.</p> <p>Sediment samples will be acid-digested and analyzed as above for water samples. The potential contaminant elements of concern for sediment samples are: As, Cd, Cr, Cu, Hg, Ni, Pb, Se and Zn. Other elements may be included to examine potential geochemical relationships (e.g., Ca, Fe, Mn, Sr) or other potential contaminants.</p> |
| <b>Outcomes with completion dates (reports, publications, workshops, videos, etc.):</b> <ol style="list-style-type: none"><li>1. Data in standard spreadsheet format (e.g., MS Excel) will be provided for all water and sediment samples collected and analyzed at the MEBL.</li><li>2. All quality assurance data will be included in the data files sent to NPS to establish the precision and accuracy of all the water and sediment data produced at MEBL. This will be presented in standard spreadsheet format (e.g., MS Excel).</li><li>3. U of M personnel will work with NPS and USGS personnel to complete an integrated analyses of the water, sediment and biologic samples collected and work towards a joint publication on all the data when all data (e.g. biologic samples) are available.</li></ol>  |
| <b>Keywords:</b> Whiskeytown NRA, heavy metals, abandoned mines, macroinvertebrates, fish, Superfund  |
| <b><u>For Administrative use only:</u></b><br><i>Date Annual Report Received:</i><br><i>Date Final Report Received:</i><br><i>Publications, etc. on file:</i>   |