

Colorado Watershed Assembly Colorado Healthy Rivers Fund Grant Request- River
Watch Macroinvertebrate Bio-Indicator Assessment Project
PO # 12000000067

Final Report for HRF Project: River Watch Macroinvertebrate Bio-Indicator Assessment Project
(2011 2012)

Program Summary

River Watch is a statewide, volunteer-run water quality monitoring program that operates under the non-profit, 501(c)(3), Colorado Watershed Assembly and in conjunction with Colorado Parks & Wildlife. Since 1989, the Mission of River Watch has been to work with voluntary environmental stewards to monitor water quality and other indicators of watershed health while utilizing the high quality data that is collected to educate citizens and inform decision makers about the overall health and condition of Colorado's rivers, streams, and creeks.

River Watch is comprised of volunteers from about 130 different public, private, and charter school groups, watershed organizations, and private individuals that monitor over 300 different river sites throughout Colorado each year. Each volunteer receives in-depth training, support, and all of the water quality collection equipment they need to routinely monitor their sites in a specific and precise manner. Our strong base of volunteers allows us to produce a high quality and large quantity of data that could not otherwise be generated in such a cost effective manner.

Volunteers collect monthly metal samples and biannual nutrient samples, and most groups collect an annual macro-invertebrate sample. The metals samples are analyzed using an inductively coupled plasma spectrophotometer. The nutrient samples are analyzed using a Lachat auto-analyzer. The macroinvertebrate samples are analyzed by a state approved taxonomist. Additionally, River Watch volunteers perform pH, alkalinity, hardness, dissolved oxygen, temperature, stream discharge, and physical habitat analyses for all of their respective sites. The data collected by our volunteers is stored electronically on a River Watch database server and can be accessed by any public or private entity.

Our dedicated, passionate, and skilled volunteers have been key in providing high quality data that is used in the formulation of water management plans at the local and state levels. Through their participation with River Watch, our volunteers are actively involved in the decisions that will shape the future of their watersheds.

River Watch does not provide any data interpretation. We are a data collection entity. The Colorado Department of Public Health and Environment (CDPHE), the Water Quality Control Commission (WQCC), Colorado Parks & Wildlife (CPW), and other grassroots watershed groups currently utilize River Watch data to manage and protect Colorado's waters.

Finally, quality assurance and quality control are essential in the success of the River Watch program. Each volunteer group samples and analyzes their data according to River Watch's very specific, uniform set of guidelines and protocols set forth by CPW, CDPHE and the U.S. Environmental Protection Agency. River Watch staff perform quality assurance checks regularly throughout the year, including annual site visits to each volunteer group. This ensures that volunteers and the River Watch laboratory accurately conform to the established methods and collection of blank and duplicate samples.

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River Watch applied for and received funding to improve our macroinvertebrate sampling component of the program. This funding was crucial to the efforts of monitoring and protecting Colorado's waters. Monitoring macroinvertebrates is particularly beneficial to a comprehensive watershed monitoring program because it can help characterize ecosystems and identify actual aquatic life impairments that chemistry alone cannot. Macroinvertebrates are a key indicator of watershed health. The WQCC is looking at the macroinvertebrate community structure and function indicators such as diversity of species, number of individuals and pollution tolerant species to determine if a river segment is healthy or impaired. River Watch bug data was used for this effort. River Watch remains the largest collective water quality data generating network in Colorado thanks to our volunteers and support teams.

The River Watch program supports benthic macroinvertebrate monitoring by providing volunteer groups with standard RW sampling equipment. Our goal is to expand and improve the macroinvertebrate portion of the program and through grant money from the CWPF, we were able to purchase collection kits and supplies have 56 samples analyzed.

River Watch received \$20000 in funds from the CWPF to improve our macroinvertebrate portion of the program and the money was used in the following manner:

1. *Provide macroinvertebrate collection equipment to additional River Watch volunteers (\$2000 CHRF).*

River Watch was able to provide six additional groups with macroinvertebrate collection equipment with these funds. We were able to offer equipment/supplies for a special study on Medano Creek (one set of equipment provided three new sampling sites) for which a student placed second at the International Science fair. We were able to add new sites on the Snake river and Kiowa creek and provide equipment to four new schools for collection in the 2012 season.

2. *Purchase Equipment (\$310 per set)(\$3765 CHRF)*

River Watch was able to purchase new equipment and supplies for macro collection. This money was used to purchase kick nets, sieves, forceps, alcohol and containers. This will allow us to provide ten additional groups in the future with collection materials.

3. *Analysis of Samples(\$14235 CHRF)*

River Watch was able to have 56 samples analyzed using funds from the Healthy River grant. A list of these sites and the raw data have been submitted with the invoices. **River Watch does not do any data interpretation of the samples collected. We validate the data and store it on our website.** The data is available publically for anyone to view.

Additional Information:

We used an outside lab to provide us macroinvertebrate analysis and have received the data back. Colorado Parks and Wildlife has validated and uploaded 46 of the 56 samples and is working on validating the final set of data we just received. Once this data is validated, it will be uploaded and available on our website. The data was also uploaded to the Colorado Data Sharing Network as well as USA EPA STORET. This data was also submitted to CDPHE for 303d water body assessment first time use of biological impairment criteria.