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ACTION/DECISION

Water Quality Program Name: Rivers of Colorado Water Watch Network (River Watch)
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What are all these data for?

Submitted by Barb Horn, January 2013

Colorado: River Watch began in 1989 with the goals of providing statewide, quality aquatic data while providing a hands-on science experience to foster environmental stewardship. The program is housed at the Colorado Parks and Wildlife Agency. We partner with a local non-profit that provides professional staff, funding, and programming. River Watch data is the largest data source for surface water chemistry, physical habitat, and macroinvertebrate data in Colorado.

River Watch's primary targeted decision maker is the Clean Water Act, specifically standards development, water body use assessment, impaired listings work and monitoring project restoration or documentation for restoration. Our methods and study design is along baseline data collection than enforcement, but is tweaked for restoration monitoring. River Watch uses a unique partnership model for both funding and to collect and utilize data that has supported the network since 1989, generated more data than the State of Colorado and is used routinely at a local level and in Clean Water Act decisions. This funding source and our partnership with a non-profit, which has allowed us to diversity both our funding and programs broader than our agency could provide alone, is why we have the largest statewide surface water data set in Colorado that includes chemical, physical habitat and macroinvertebrate, the most volunteer monitoring data uploaded to EPA STORET and volunteer retention that ranges in decades, sometimes 20 years. Our volunteers are primarily schools (6th grade up, private, public) but include municipalities, adult groups and industry. Regardless of who the volunteer is, each volunteer uses the same protocols, equipment and sample design. This produces a reliable, comparable and reproducible database statewide for all users, often in areas no one else is monitoring. That is important for Colorado's 770,000 river miles, many of which are difficult to access.

Colorado River Watch Logo

In 1989, after participating in Clean Water Act hearings designed to protect and restore Colorado's rivers, where one data point or no data was available for serious decisions, Colorado Parks and Wildlife created the River Watch Network. The targeted decision makers were those implementing the CWA in Colorado. Our study design

included the information needs of those CWA decision makers, including how to manage the raw data and deliver raw and analyzed data at the right time, place and format. We have succeeded in helping develop and implement sections 303 of the CWA. Our data is used on an annual basis to conduct 305(b) and 303(d) use assessments. A case could be made that we are the primary data generators conduction protection monitoring as most of the CWA agency funds goes towards impaired waters. We often provide match for 319 non-point source projects because we are so cost effective. Our data has been used to establish and very Colorado's reference program and macorinvertebrate standards.

We have also helped dozens of 319 non-point source projects and similar efforts monitor to receive restoration dollars or determine success of dollars spent. Often serving as matching dollars for grants. Our data has been used for outstanding waters antidegradation designation for native species protection, drinking water protection and other outstanding resource protection. It has contributed to Federal Wild and Scenic designation processes. Data has been used to determine restoration goals for Superfund/CERLCA sites and other similar restoration efforts. Along the way we have been in the right place at the right time to monitor fish kills from various chemical spills and drought conditions. And, many youth volunteers have studied related fields in college, received credit or tuition discounts, obtained jobs or become teachers and implement River Watch in their school.

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That is not to say our data is not challenged. It is. We generate a large volume of data serving 140 groups annually, who monitor about 650 stations per year on 350 some rivers, sampling monthly for field (6 indicators) and metals (26), biannual for nutrients (6) and annually for physical habitat and macroinvertebrates. Because we generate such a volume, we generate information and many entities don't like information, it may mean a change in regulations and dollars for some. Entities that have not agreed with decisions made , or more often potential decisions, from our data (and others that agree with our data conclusions such as those from USGS, health department) have attacked the program and volunteers directly, in a manner unheard for some data generators say the USGS. Fortunately, our data has stood the test of time and is defended by the health department and its associated politically appointed commission. That said, there are times when are data does need to be evaluated again and pulled from the discussion. We are more than willing to engage in an equal review process of all data sets. No monitoring program ever has or ever will generate perfect data, the key is to be able to catch errors.

There is a stigma around volunteer data. We have dampened that significantly in Colorado based on 25 years of consistent data production. Having a rigorous training program, along with consistent methods and equipment for all volunteers has been a key component. Our data is challenged when a user does not like the outcome or perceived outcome (more regulation, 303d listing for example). That is all the more reason to support our network, our goal is for appropriate regulation, not over or under, and the way to that is as much quality data and information as possible, not the opposite. The barrier, which is decreasing, has been previous decades of decisions made with no data and that favored dischargers and potential polluters above wildlife and citizens. We have made a huge dent in that barrier, but it took a decade.

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Our strategy was to have a study design that included all the information needs of the CWA decision makers, same methods, detection limits and such but a higher sample frequency and covering areas the health department could not. Every sampler, professional or volunteer uses the same equipment and methods. We also vet our volunteers and look for a match, not saying yes to everyone, but those that want to make this difference and can do the minimum requirements. We have a consistent set of volunteers covering large area in a consistent and predictable yet quality manner. We make a presentation of our :"performance" to the water quality control commission on an annual basis (no one else provides this data transparency). Over time, year after year, it is hard to validate statements like "a 12 year old can't do this" or "no way can this data be as good as fill in blank." Persistence and consistency has paid off.

Include information needs of those that will be making the decisions you want. Those elements should drive your monitoring design and provide you the pieces for measurable results. It takes up front time that is critical to every program and often overlooked and then costs money and even program failure if data is never used. Persistence, there are nay sayers out there, but don't focus on them, find the yes people and start there. Everyone changes, dies and moves on, everyone.