River Watch Items for the November 2023 UWP Board Meeting

- River Watch items of interest:
    - November sampling includes nutrient samples at our six lower sites. Cow Creek and Below Ridgway Reservoir sites were sampled on November 5th. The Below Ridgway Reservoir event included a macroinvertebrate sample. The remaining four sites will be sampled later in the month.
    - Taylor, our newest River Watch volunteer, completed her River Watch training in Cedaredge, CO from October 18th through the 21st.
    - I attended the UWP Strategic Plan community meeting in Ouray on October 17th and participated in the round table discussion on water quality monitoring.
    - I am putting together a short report on our water sampling for *E Coli* at Blue Lake this past summer. The report will be sent to Ashley for her "official" reporting to USFS later this month.
- Snowpack, Precipitation and Streamflow:
    - As of November 6th, for the 2024 Water Year, the Gunnison Basin stood at 104% of its median snowpack and 101% of its median precipitation. In the Uncompahgre watershed the Red Mtn Pass SNOTEL reported 1.0 inch of SWE on November 6th, which was 43% of its median.
    - Streamflow in October at Uncompahgre gauge sites was generally below median flow values. On November 6th the USGS gauge near Ridgway showed a discharge less than 60 cfs, with the median for the date being about 70 cfs. Dallas and Cow Creeks also had flows generally below their medians or averages through October and early November. By November 6th flow on Cow Creek had dropped below 10 cfs. The average for that date is slightly greater than 15 cfs.
- Water quality data from the Idarado mining area:

UWP received Idarado Mining Company Remedial Action Plans for 2020 and 2021. The two reports contain weekly, monthly, and biennial water quality data, as well as streamflow data from July through October for each year. The bulk of the water quality data is from Red Mtn Creek site RMC-1 (compliance monitoring site), which is also the stream gauge location. Weekly water samples are collected between August and October when streamflow falls below 6 cfs. Two of the monthly samples account for biennial samples in June and September. In the Uncompahgre watershed, water quality samples are also collected at 15 other sites above RMC-1. Data from several of these other sites, like the two above and below Commodore Gulch, will be of interest to UWP with a River Watch site in proximity.

River Watch site 3580 (Idarado Compliance) is on Red Mtn Creek about 0.2 mile above Idarado site RMC-1. Figures 1 and 2 show the pH and dissolved zinc concentrations from these two sites using data from 2021. Not surprisingly, pH values shown in Figure 1 are mostly below four at both sites. The values at site 3580 (bars connected by blue line segments) tended to be about 0.6 lower than those at site RMC-1 for similar dates through early August 2021. From late August through December, pH values at site 3580 were more than a full unit lower than those at site RMC-1. The lower pH values at site 3580 might be related to the irregular pH data noted in the October RW update, where several sites sampled by the Ouray RW group showed a pronounced dip in pH values centered on November 2021.

Dissolved zinc data in Figure 2 show a very good correspondence between the two sites when data were collected on similar dates. Examples are 8/25 and 8/30, 9/8 and 9/13, and 10/18 and 10/23. Also the natural changes throughout the year are smooth and consistent, with no values from either site

showing dramatic departures from the seasonal curve. The pronounced minimum between May and July corresponds to the peak flow period on Red Mtn Creek in 2021. The lowest flows were observed between late August and late October, corresponding to the broad peak in Zn-D over the same period.

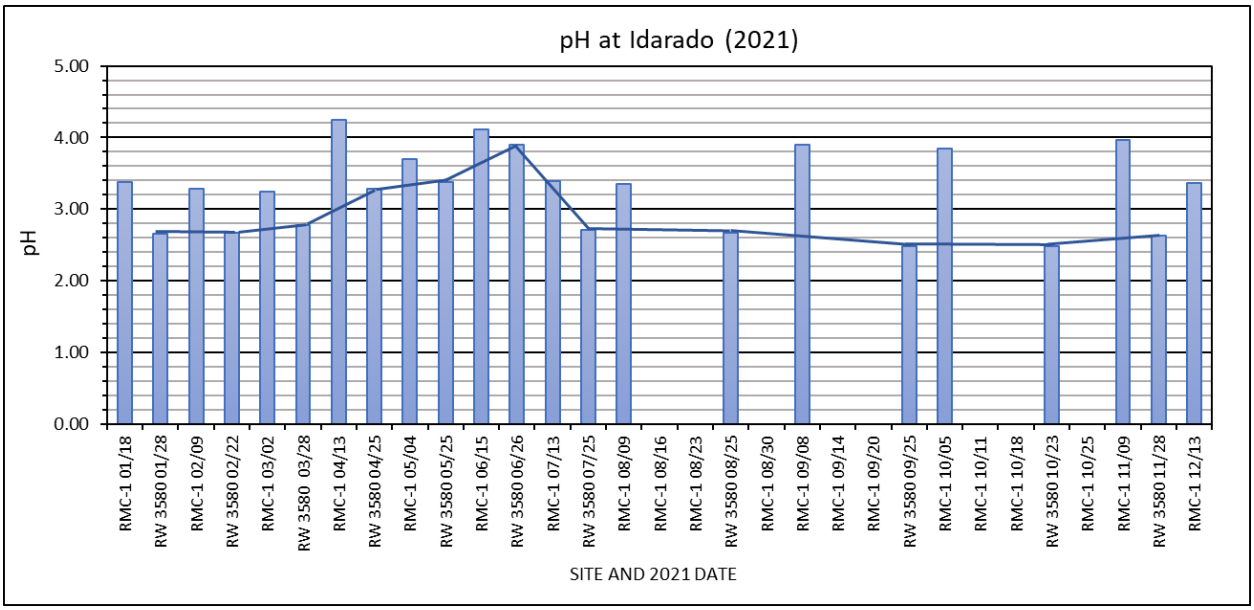

Figure 1. Bar graph of pH measurements for Idarado site RMC-1 and River Watch site 3580. Site and sample date are annotated on the x-axis. pH values from RW site 3580 are connected by blue line segments.

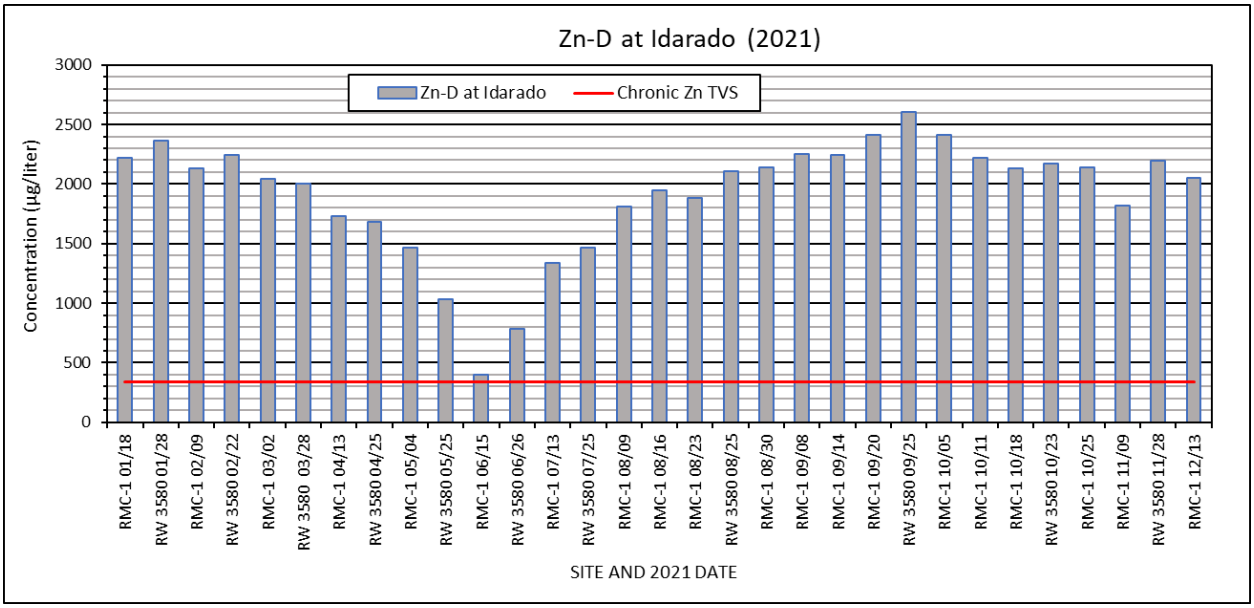

Figure 2. Bar graph of dissolved zinc (Zn-D) measurements from Idarado site RMC-1 and River Watch site 3580. Site and sample date are annotated on the x-axis. The red line represents the aquatic life Table Value Standard for Zn-D computed from the mean water hardness at site 3580.