River Watch Items for the October 2024 WRWG Meeting

- River Watch items of interest:
  - October and November are low flow nutrient sample months. We typically do the higher sites in October and the lower sites in November. As of 8 October four sites along Camp Bird Rd have been sampled, along with three lower sites. Sampling will be completed by the 15th of October and shipping to CPW is expected to occur the week of the 21st.
- Snowpack, Precipitation and Streamflow:
  - The Gunnison Basin ended the 2024 Water Year with 110% of its median precipitation; a 14-site average of 33.8 inches compared to the median of 30.6 inches. The Idarado SNOTEL site recorded a water year precipitation total of 33.5 inches; 106% of the 31.6 inch median, and the Red Mtn SNOTEL had 42.3 inches of precipitation; 102% of its 41.4 inch median.
  - At midday on October 6th the USGS stream gauge near Ridgway had a flow of 42.5 cfs, well below the median of 69.3 cfs for the date. Flows at the Ridgway site have been below median flows since about the 3rd of September. Dallas Creek flow on the 6th was 14.8 cfs, also well below the median flow of about 29 cfs. In contrast, Cow Creek was flowing at 16.4 cfs, which was nearly the same as its average for October 6th.
  - Ridgway Reservoir storage departed from its median storage curve starting on August 11th after the monsoon rains. Storage peaked at about 72,000 acre-ft on September 1st when the median storage had dropped to about 62,000 acre-ft. Since then, storage has slowly decreased to 69,250 acre-ft on October 8th with the median storage at about 60,000 acre-ft.
- River Watch Reporting:

  I have started an update report using River Watch data archived as of December 31st, 2023. Summary statistics will be presented for all sites, but more detailed analysis will focus on data from five TMDL sites: Upper Red Mtn Creek, Commodore Gulch, Gray Copper Gulch, Imogene Creek, and Sneffels Creek at Camp Bird. Examples for Commodore Gulch are shown in Figures 1 and 2. The pH values in Figure 1 indicate pH is generally basic and above the minimum standard for aquatic life, but during low flow conditions, as in November 2021 and October 2022, pH dropped as low as four. Figure 2 shows dissolved cadmium

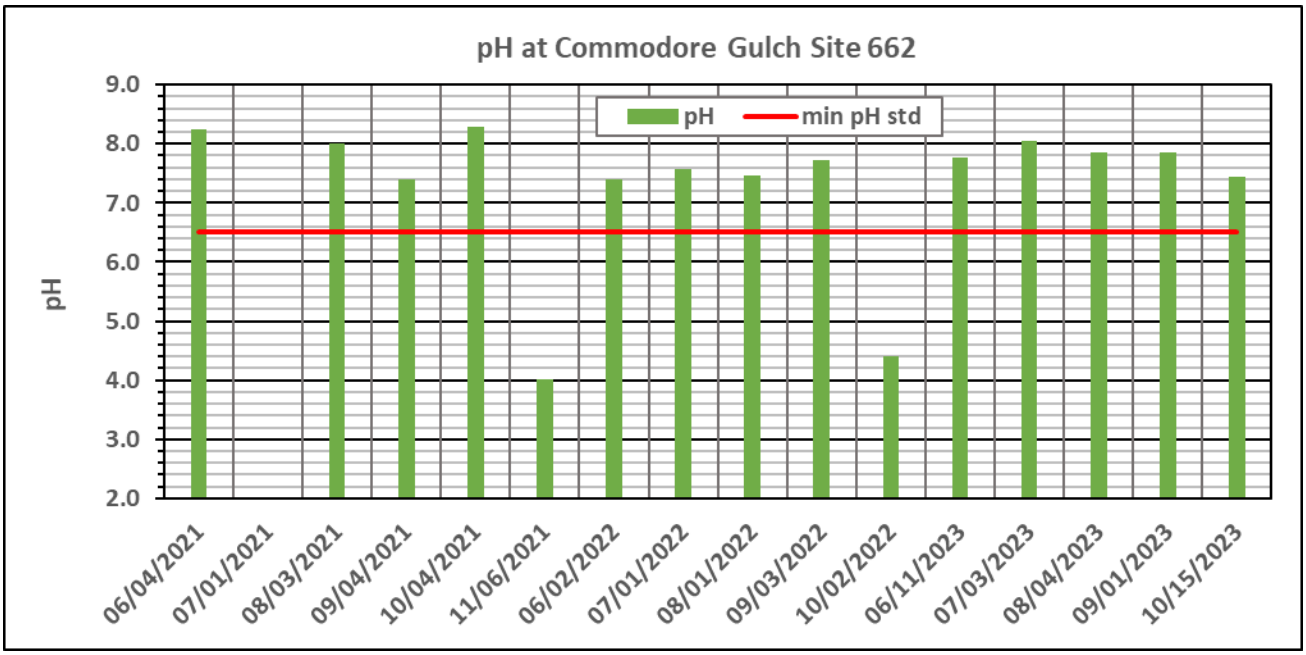

Figure 1. pH measured at Commodore Gulch between June 2021 and October 2023. The red line is the minimum pH standard for aquatic life.

concentrations for the same dates as in Figure 1. All values exceeded the aquatic life chronic TVS for cadmium, and all but four values exceeded the acute TVS. Note that the two highest cadmium concentrations coincide with the two lowest pH values in Figure 1.

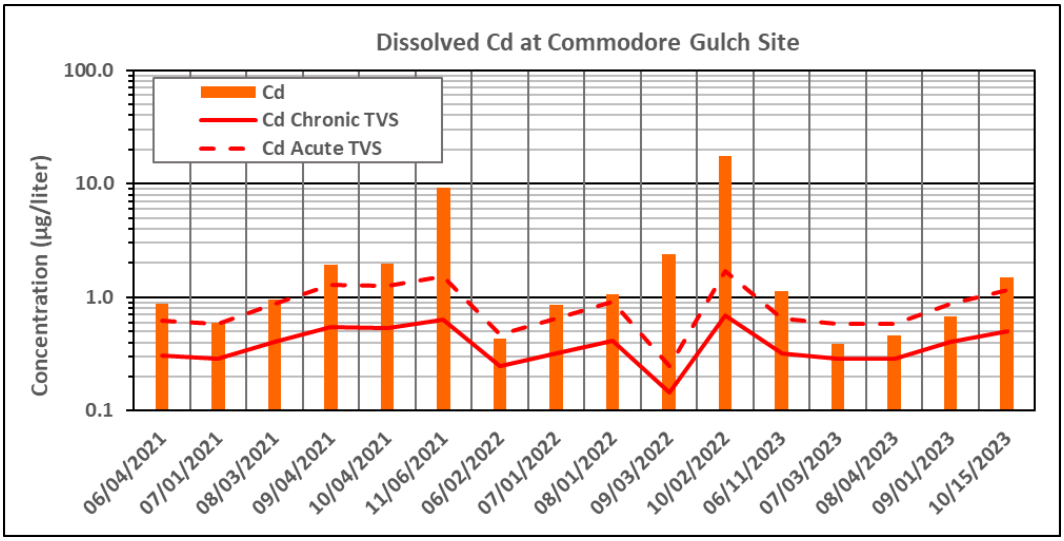

Figure 2. Dissolved cadmium (Cd) concentrations at Commodore Gulch for the same period as in Figure 1. Red dashed and solid lines show the acute and chronic Table Value Standards (TVS) for aquatic life.

Figure 3 is an example of nitrate-nitrite nutrient data collected in 2022. From left to right the first six sites are the lower elevation River Watch sites, and the last five sites are the higher elevation River Watch sites. I expected the lower sites to have the highest nitrate-nitrite concentrations, being downstream of Ouray and Ridgway waste treatment plants, and also within the agriculture areas of the county. This was generally true for the first four sites compared to the higher sites at Red Mtn Creek, Commodore and Gray Copper Gulch. However, the highest nitrate-nitrite concentrations were found at the highest sites at Imogene Creek and East Dallas Creek just below Lower Blue Lake. The source of these higher concentrations is not known.

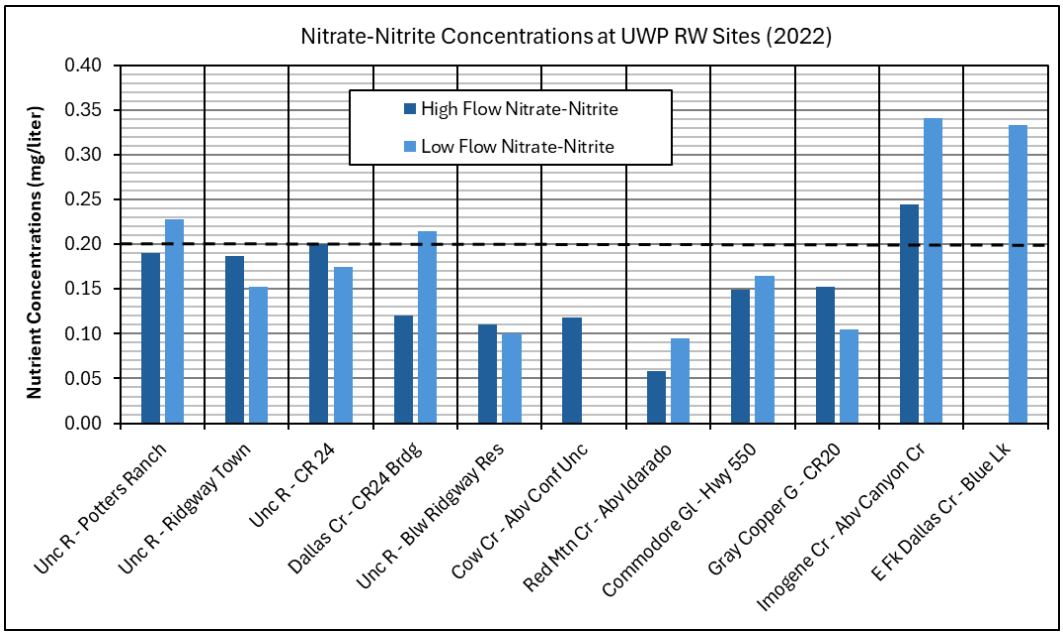

Figure 3. Nitrate-nitrite concentrations at River Watch sites in 2022. Dark blue bars represent high flow samples and light blue bars represent low flow samples.