

Water Quality in the San Juan River Basin

A Synthesis of WINN monitoring, projects,
and other background information

Session 3: Overview of Nutrients and Other Properties of Water Chemistry



Purpose of San Juan Watershed Program Webinar Series

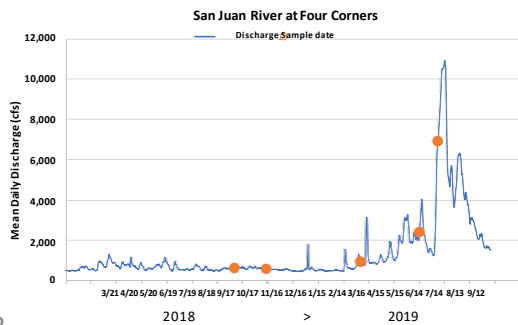
- Meet the objectives of the WIIN Act
 - Conduct collaborative water quality and sediment monitoring
 - Communicate information about the condition of the watershed to the public through a Clean Water Act lens

This Webinar Series does not address:

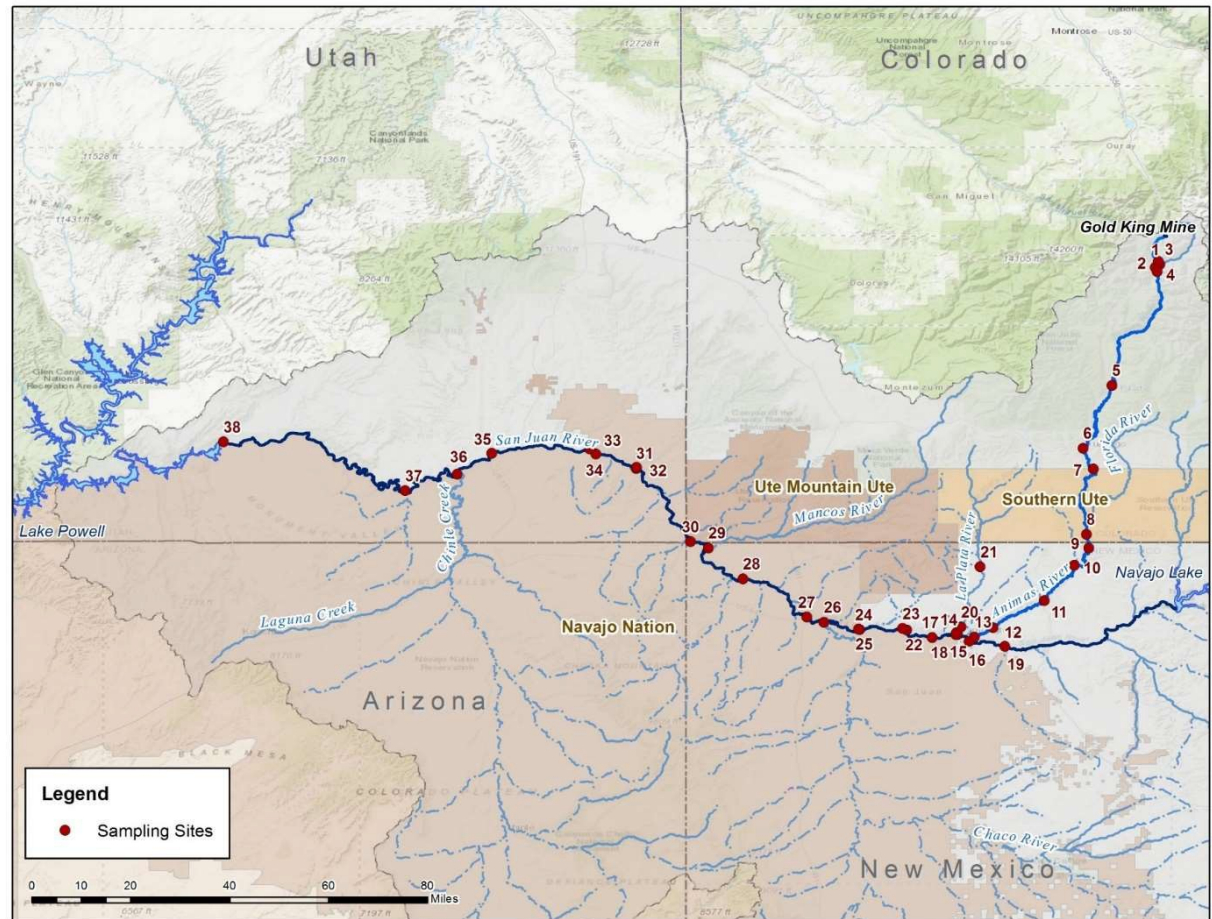
- The Superfund process for the Bonita Peak Mining District NPL Site, including but not limited to any potential response actions, additional investigations, scoping of contamination, or delineations of the Site
- Clean Water Act Sections 303(d) and 305(b) water quality assessment decisions
- Recommendations to states and tribes regarding water quality standards

Water Quality Monitoring Data

- WIIN funded San Juan Watershed Monitoring 2018-2020
- 39 sampling locations
- 7 sampling campaigns
 - Fall 2018 through February 2020
 - Sampled a variety of flow conditions
- 396 water samples
 - Metals in Water
 - Nutrients
 - Other water chemistry parameters
- ~ 380 sediment samples



9/3/2



Draft Deliberative Document for State and Tribal Review

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Water Chemistry Parameters



- **Nitrogen**
 - Nitrate + Nitrite
 - Kjeldahl N
 - Total
- **Total Phosphorus**
- **Organic Carbon**
 - Total
 - Dissolved
- **Hardness**
- **Alkalinity**
- **Sulfate**
- **Chloride**

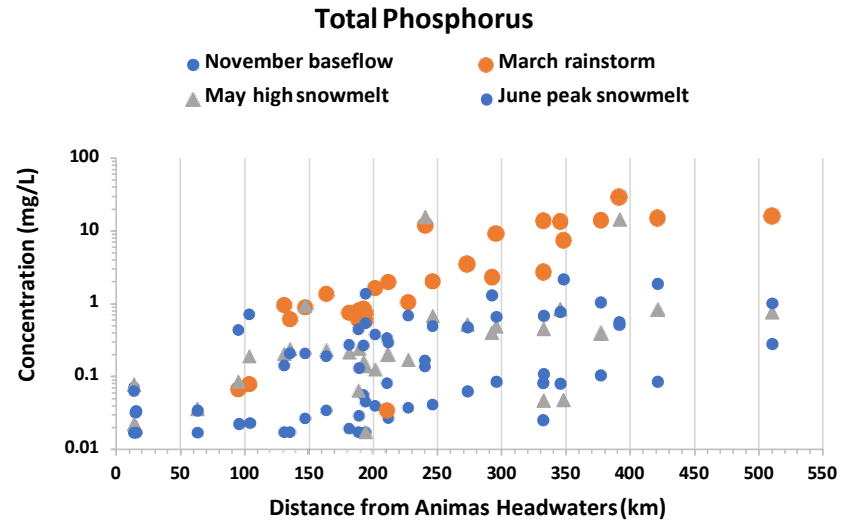
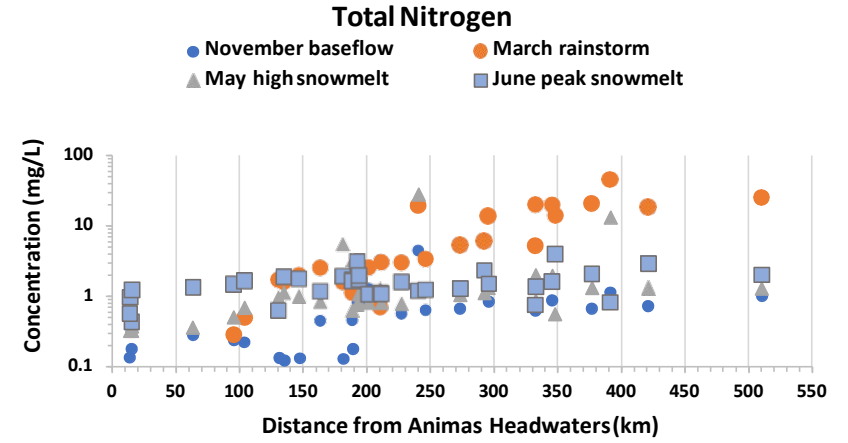
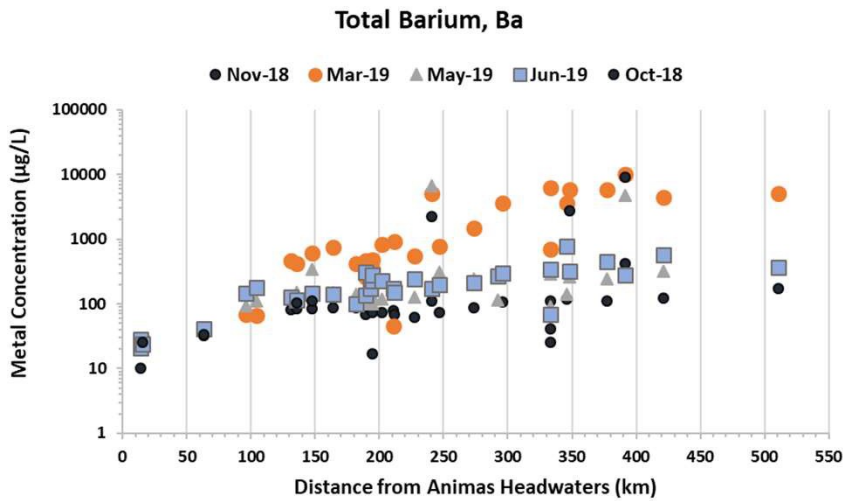


WINN Monitoring Data

- 4 sampling dates

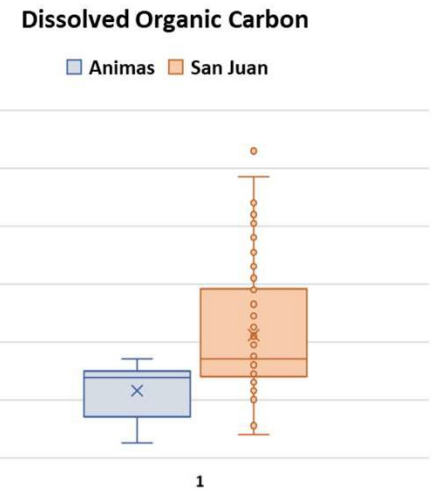
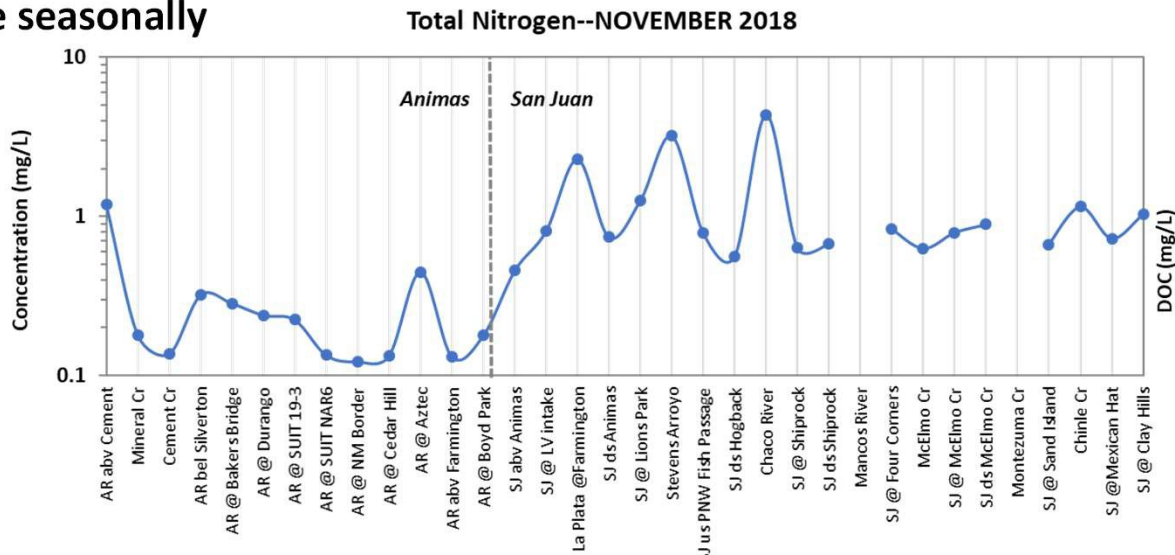
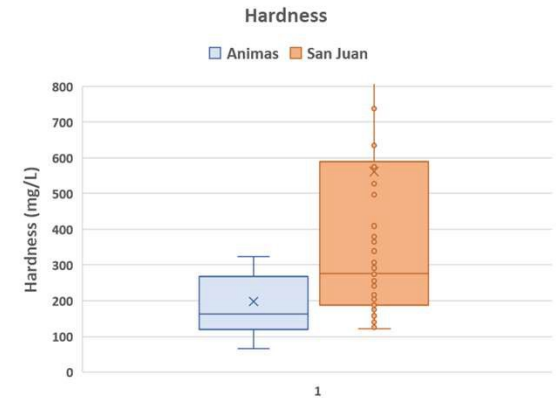
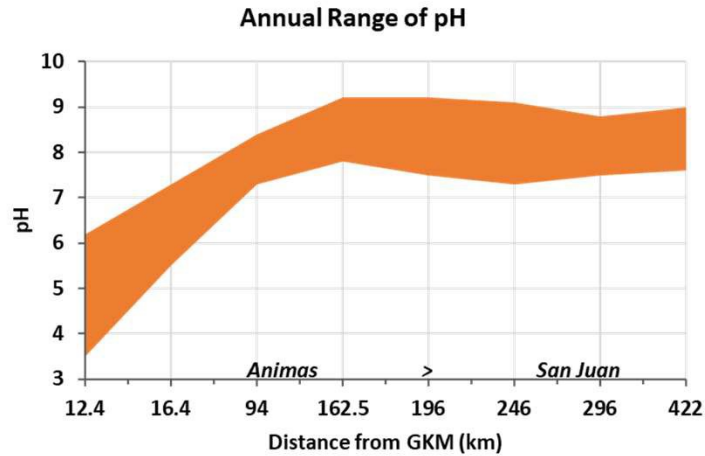
- Baseflow (Nov 2018)
- Storm event (Mar 2019)
- Mid Snowmelt (May 2019)
- Peak snowmelt (June 2019)

Other water chemistry parameters followed similar spatial and temporal patterns as metals and sediment

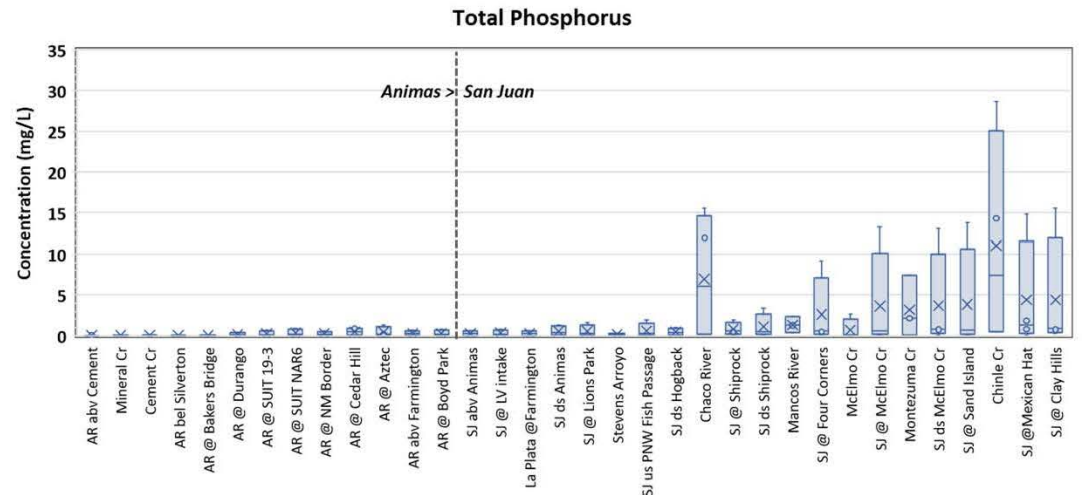


General Patterns

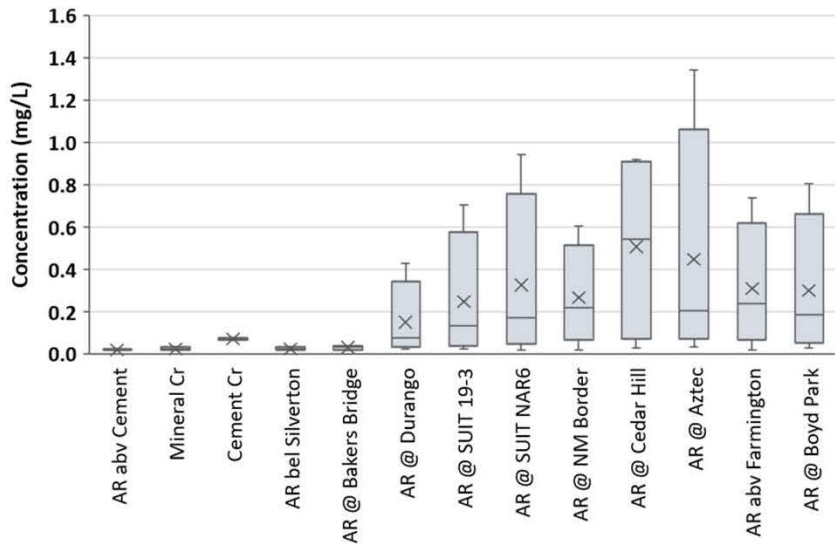
- Most parameters have lower concentrations in the Animas and increase in the downstream direction
- Tributaries are often higher than the mainstem
- Concentrations vary up to several orders of magnitude seasonally



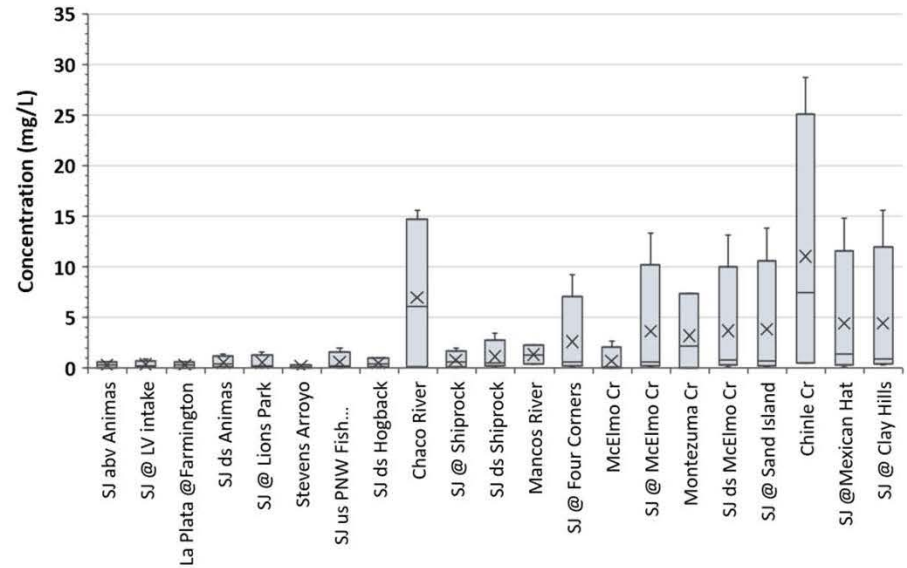
Total Phosphorus



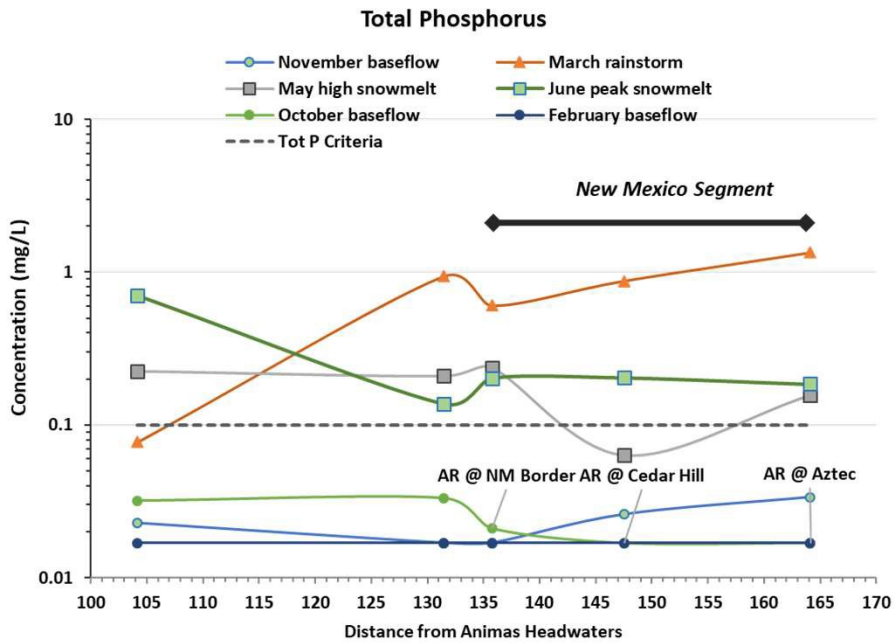
Animas River -- Total Phosphorus



San Juan River -- Total Phosphorus



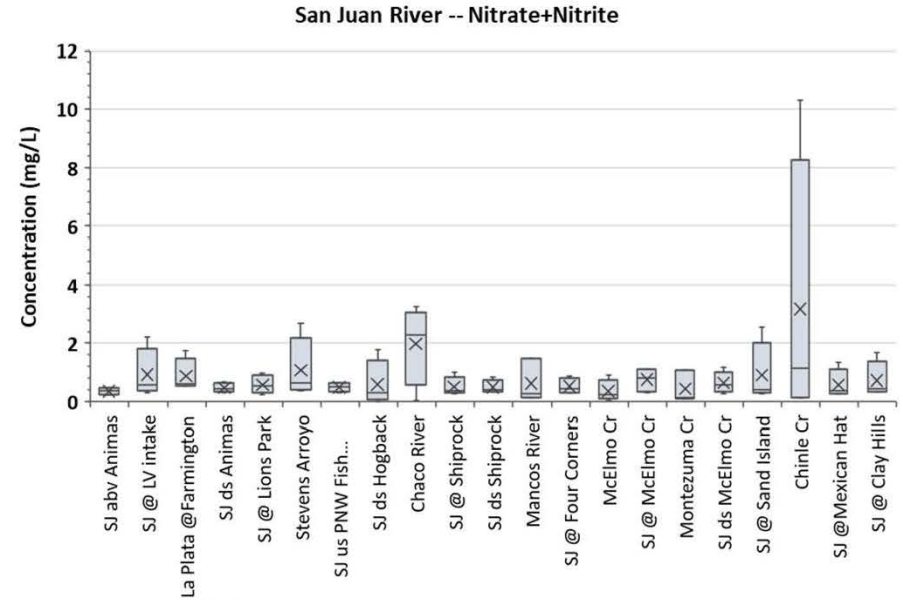
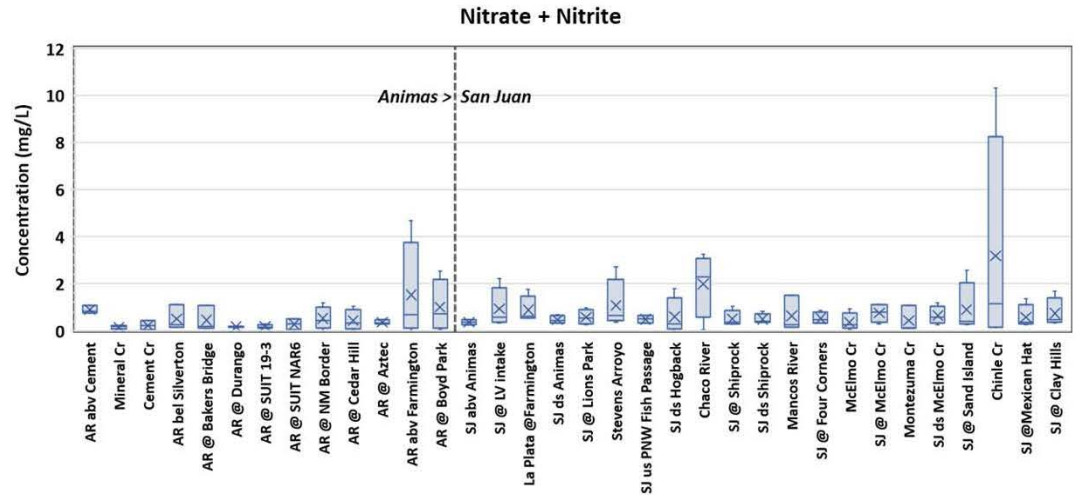
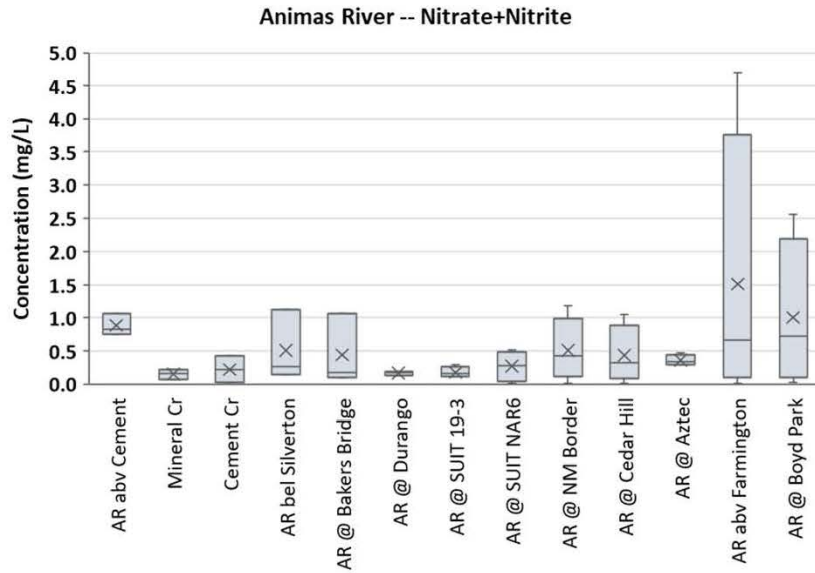
Benchmark for Total Phosphorus in lower Animas



New Mexico: Benchmark: Total Phosphorus < 0.1 mg/L

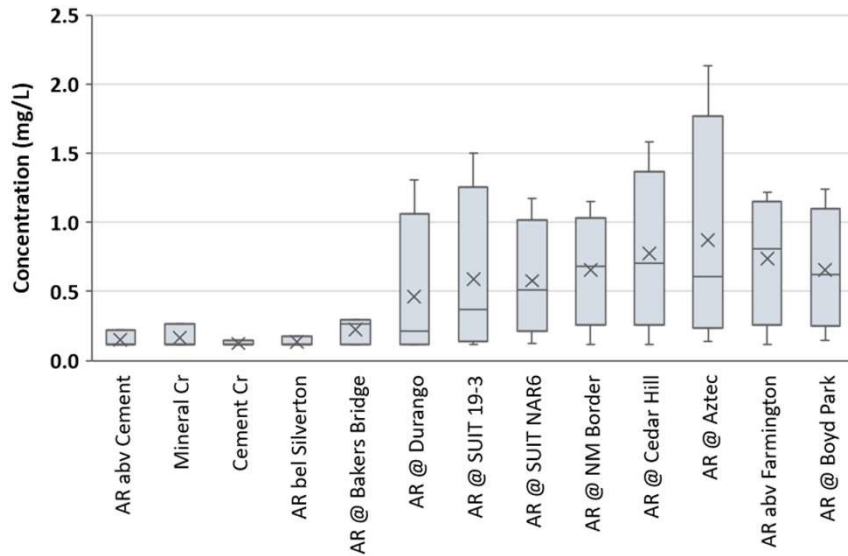
- The NM Segment meets criteria during all 3 baseflow samplings (Nov 2018, October 2019, February 2020)
- Segment exceeds criteria during higher flow/spring samplings

Nitrate + Nitrite

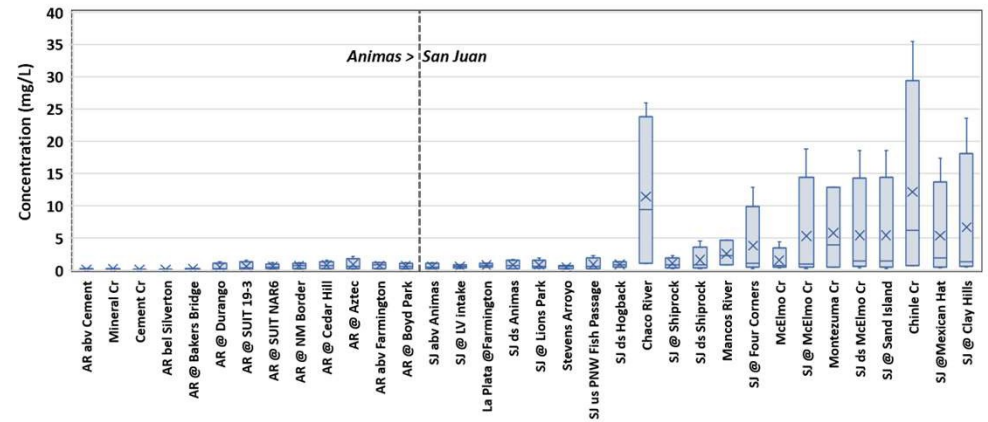


Kjeldahl Nitrogen

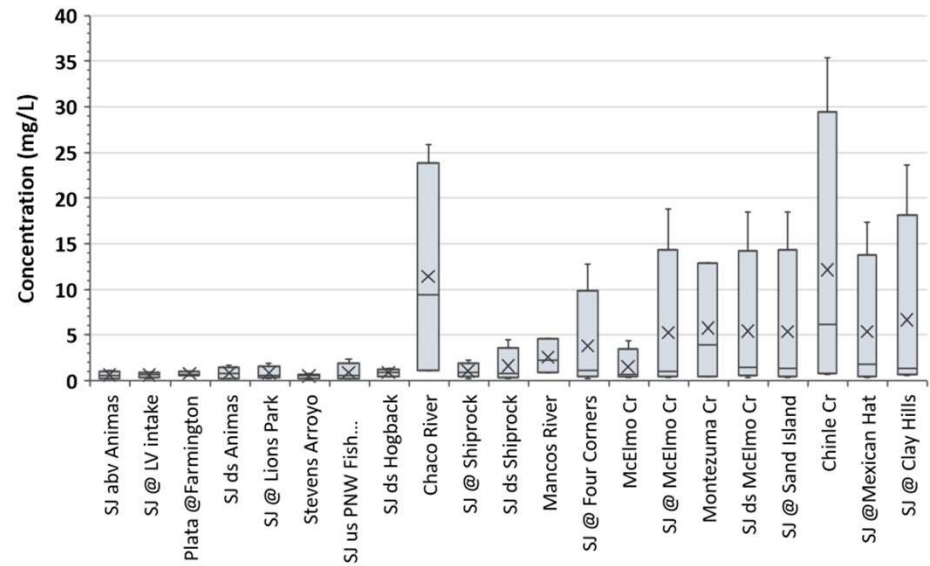
Animas River -- Kjeldahl N



Kjeldahl N

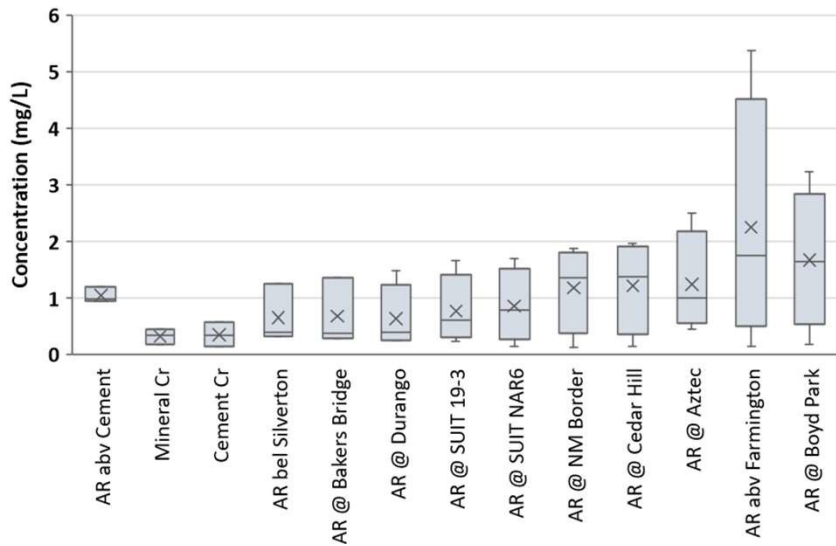


San Juan River -- Kjeldahl N

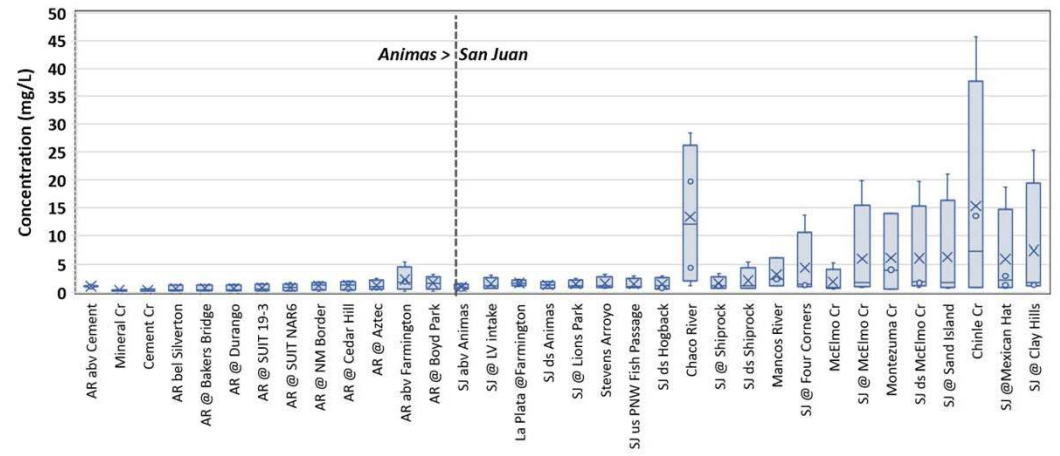


Total Nitrogen

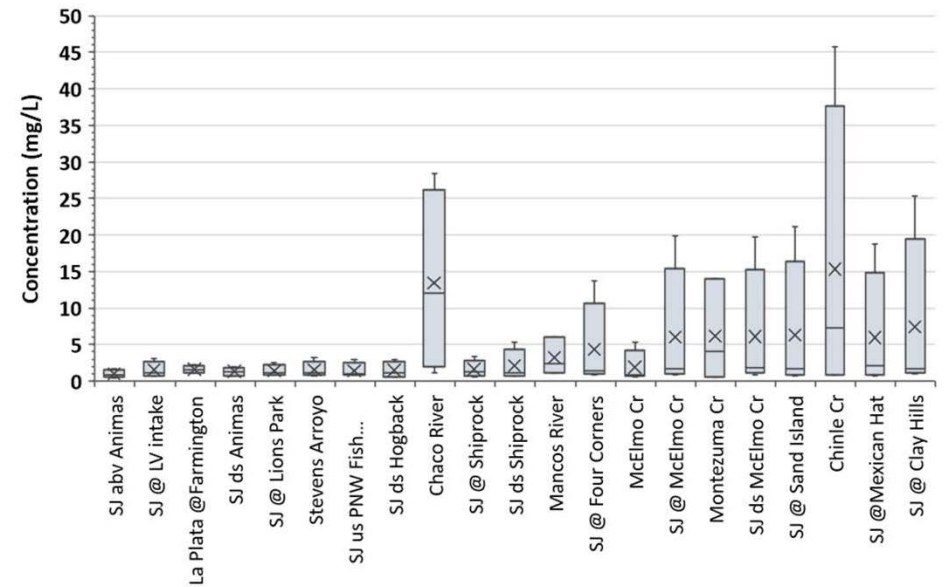
Animas River -- Total Nitrogen



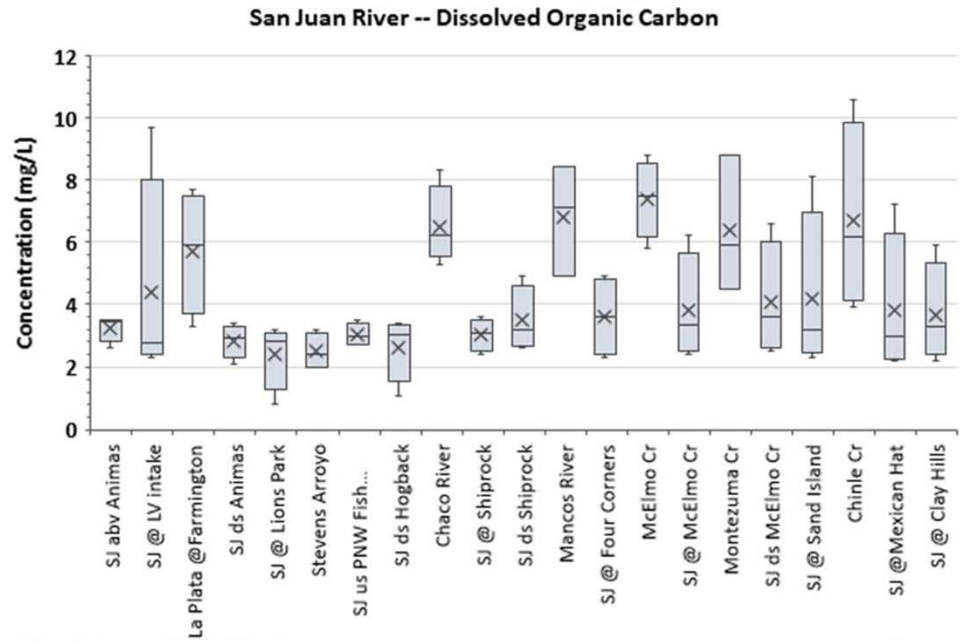
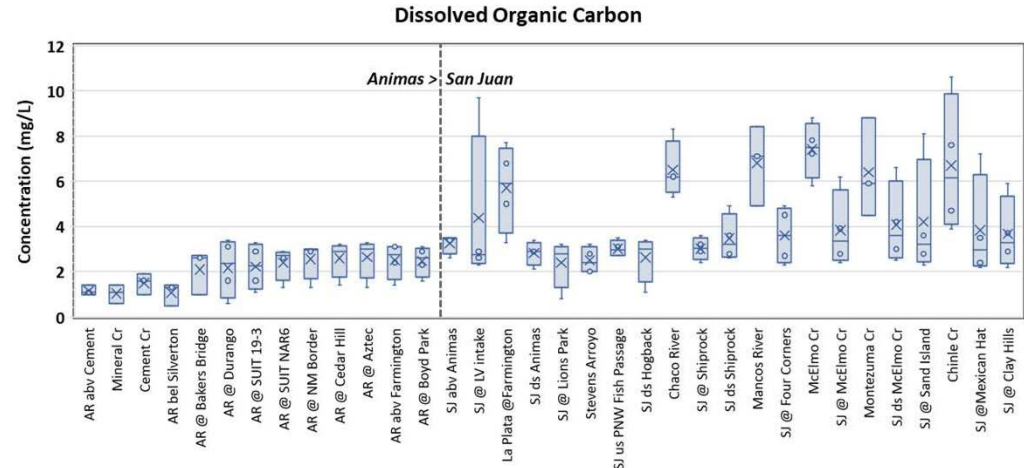
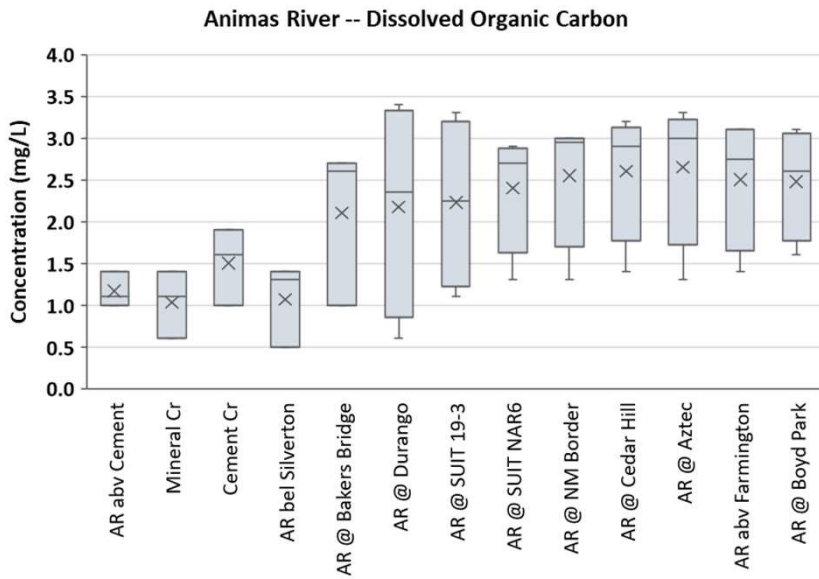
Total Nitrogen



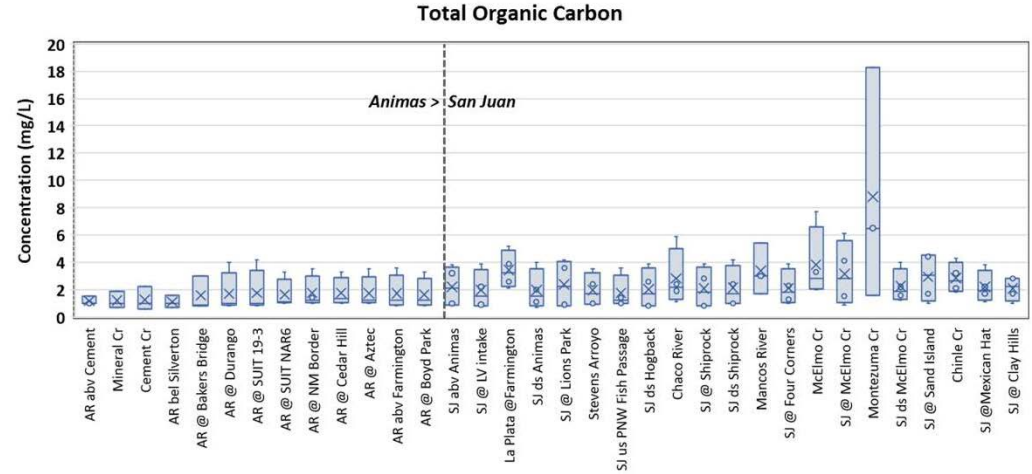
San Juan River -- Total Nitrogen



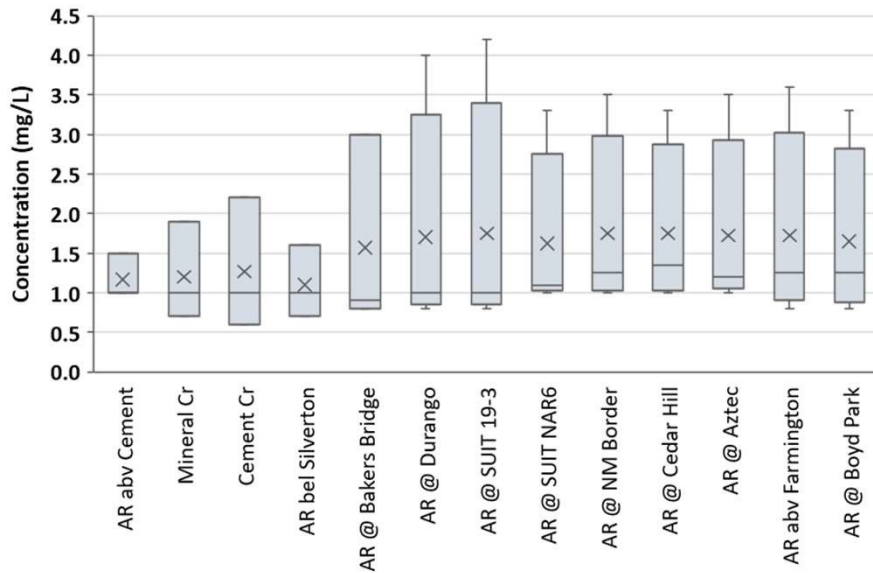
Dissolved Organic Carbon



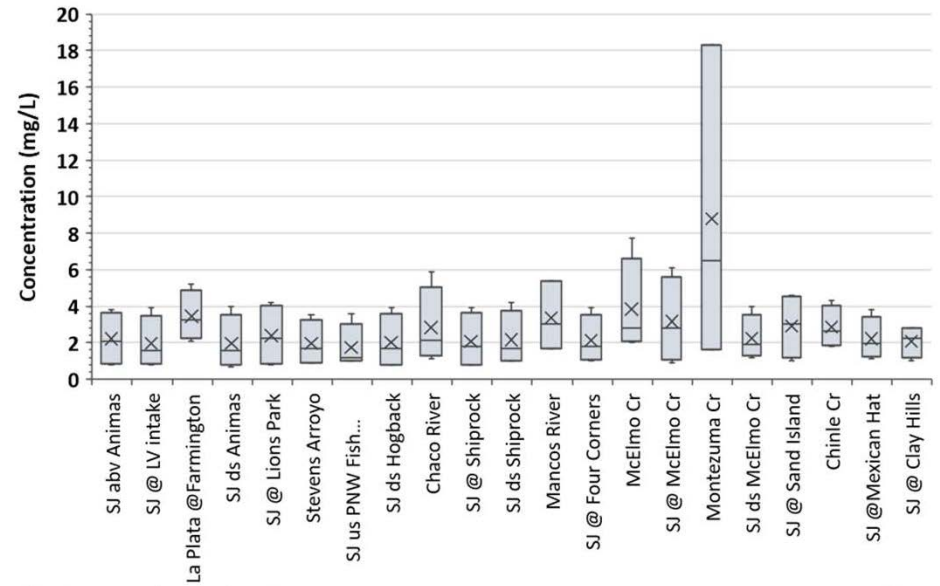
Total Organic Carbon



Animas River -- Total Organic Carbon

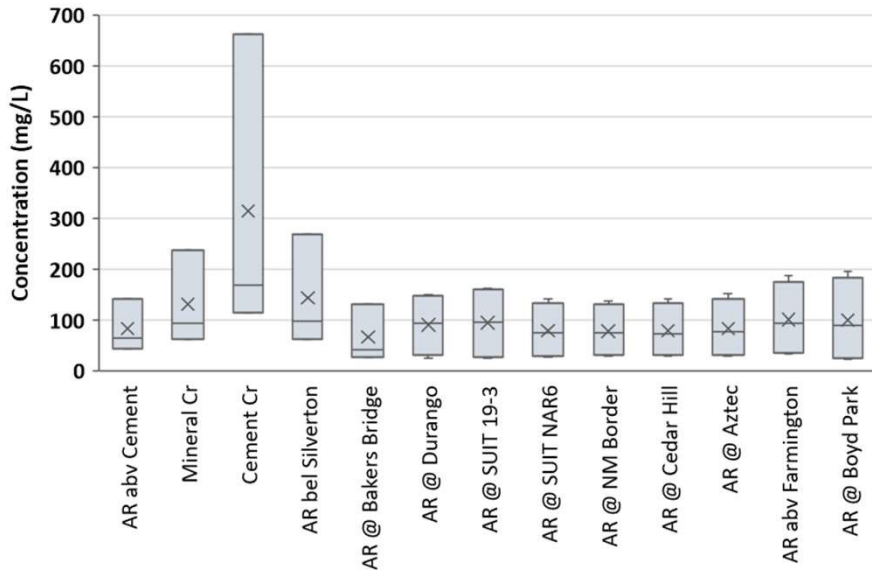


San Juan River -- Total Organic Carbon

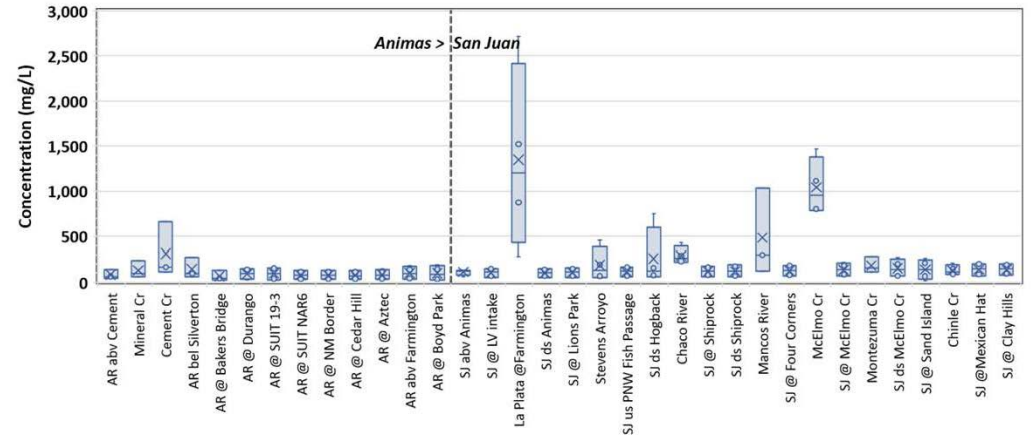


Sulfate

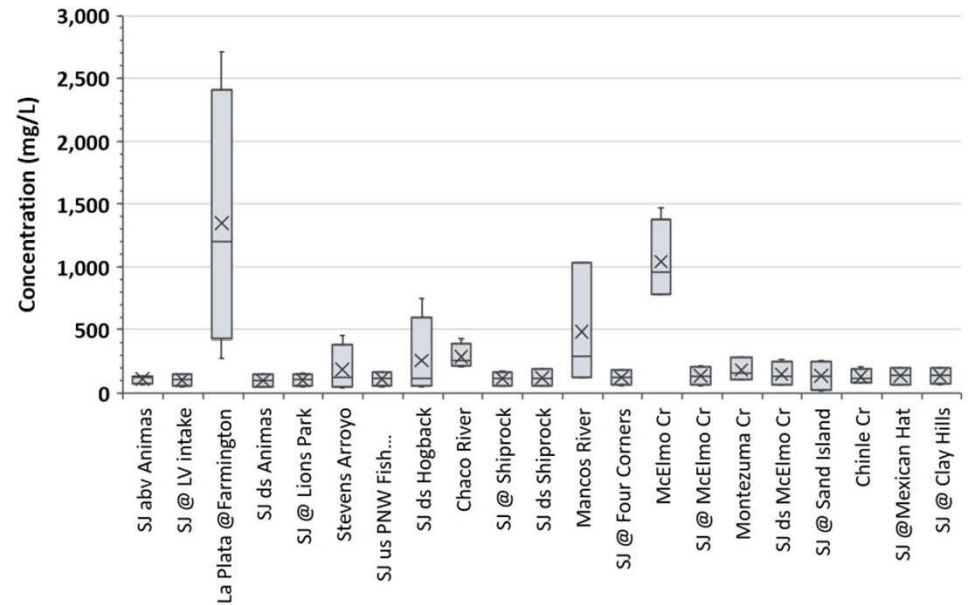
Animas River -- Sulfate



Sulfate

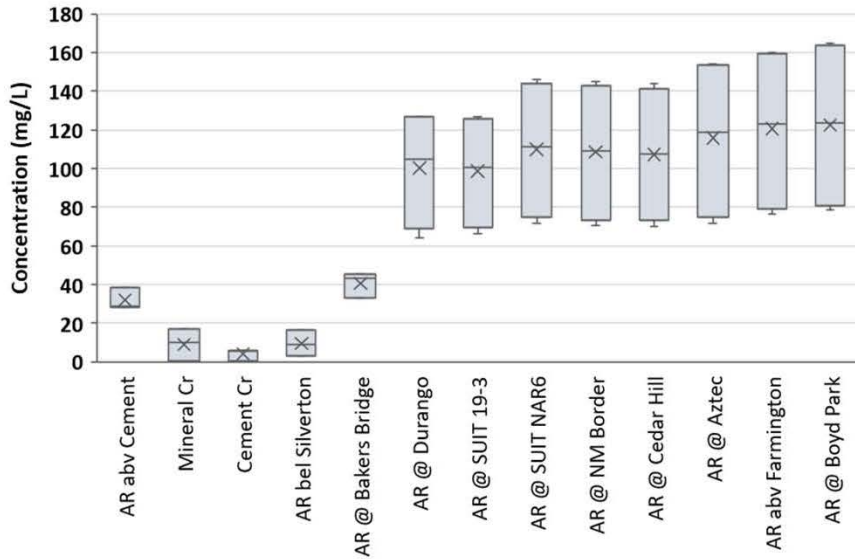


San Juan River -- Sulfate

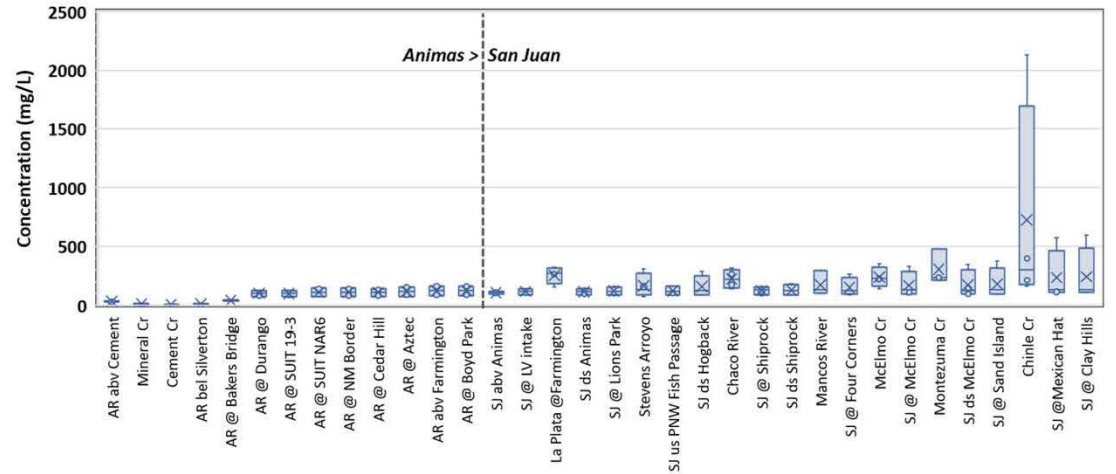


Alkalinity

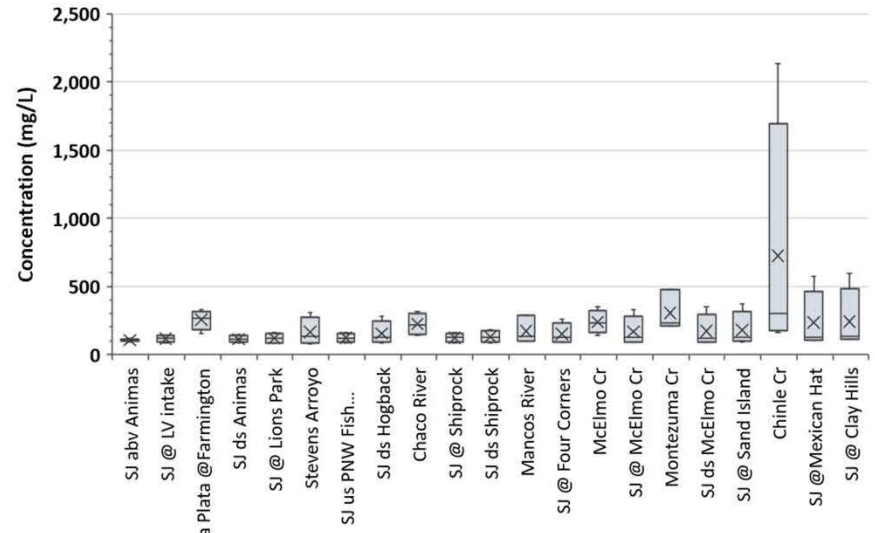
Animas River -- Alkalinity



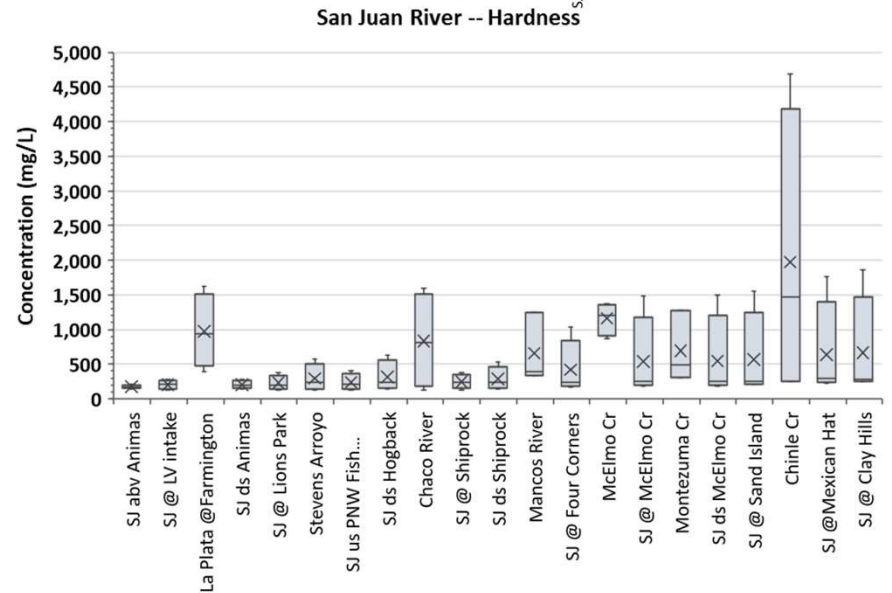
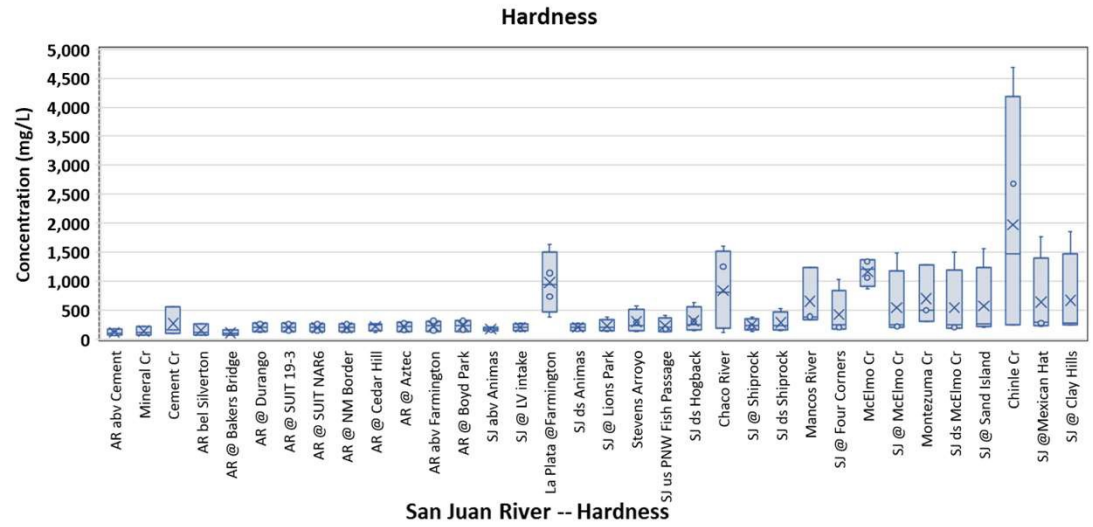
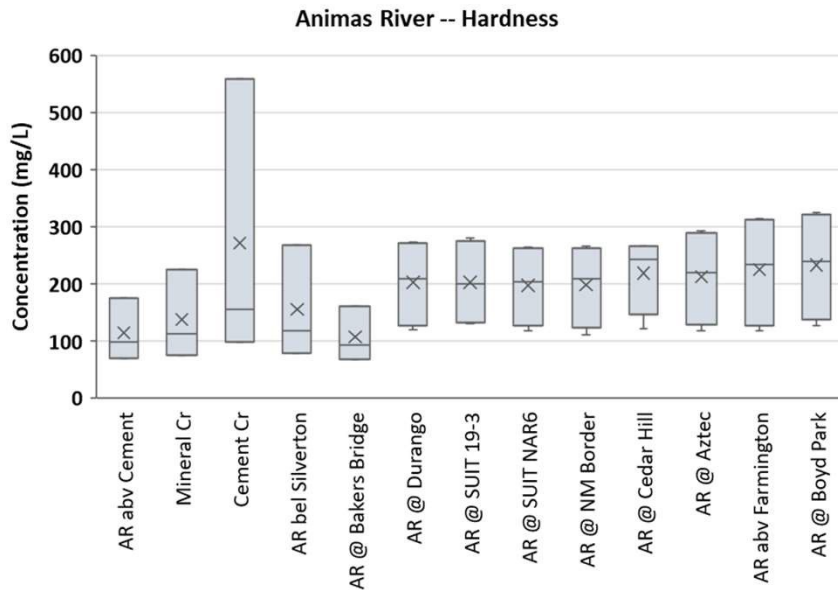
Alkalinity



San Juan River -- Alkalinity



Hardness



Chloride

