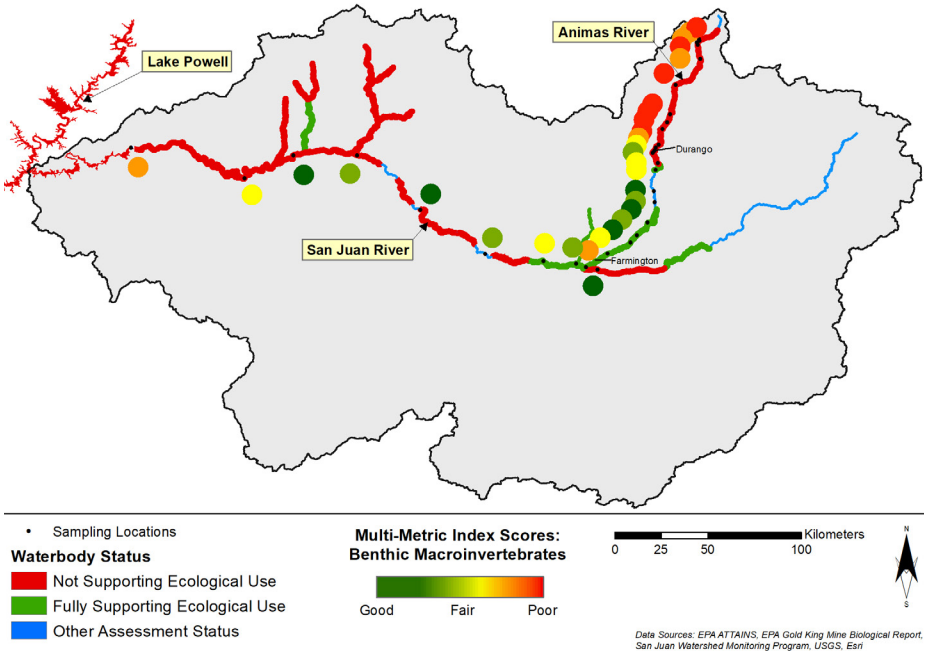
San Juan Watershed: Water Quality and Ecological Health

Under the Clean Water Act (CWA), EPA regulates the quality of and discharges of pollutants into our nation's surface waters. States and tribes regularly monitor and assess surface water quality, communicate water quality conditions to the public, and work to address natural and human-caused water quality issues. The San Juan Watershed in the southwestern United States comprises the San Juan and Animas Rivers and their tributaries. The headwaters of the Animas River lie in a naturally ore-rich mineral belt that was the site of significant historical mining activity. While some metals in the waters of the upper Animas River are naturally occurring, many come from acid mine drainage and runoff from mining disposal piles.

The lower Animas River is diluted by incoming waters with lower levels of metals as the Animas flows southward through Durango, CO to Farmington, NM where it joins the San Juan River. The Animas is the largest free-flowing perennial tributary to the San Juan and can have an important influence on San Juan water quality.

The San Juan River is a source of water and power for over 4 million people. The river crosses diverse landscapes and receives waters from multiple tributaries before it reaches Lake Powell and converges with the Colorado River.

ECOLOGICAL HEALTH ASSESSMENTS[1]



This map presents results from:

- State and tribal assessments of water quality relative to the standards they have established under the CWA to protect the ecological health of lakes and rivers. Green segments are meeting standards for ecological health. Red segments are not meeting standards for ecological health. Blue segments were not assessed or not reported or are in the process of being assessed.
- A cross-jurisdictional assessment of the condition of benthic macroinvertebrate communities, which is a commonly used measure of ecological health in lakes and rivers. The colored dots alongside the rivers show benthic macroinvertebrate condition.

[1] This map does not include information for Ute Mountain Ute or Southern Ute Indian Tribes. The Southern Ute was authorized as treatment in a similar manner as a state (TAS) for CWA Section 303(c), and as of July 2020, is in the process of preparing their water quality standards package for EPA review and approval. The Ute Mountain Ute have tribally-adopted and federally-approved water quality standards and are in the process of developing an assessment methodology. The tribes can be contacted directly with any questions related to water quality.

San Juan Watershed: Water Quality and Ecological Health

KEY POINTS

- EPA, states, tribes and other federal, non-profit, and local entities have conducted extensive monitoring to evaluate watershed condition.
- The states and tribes in the watershed have assessed surface water quality based on their respective standards under the CWA. Assessments are updated periodically in accordance with established state and tribal assessment cycles.
  - According to CWA reporting for 2020, Colorado determined that waters assessed in the upper Animas River are not meeting established state standards for ecological use. The watershed-wide analysis of benthic macroinvertebrate health also indicates poor condition in the upper Animas. Water quality and the health of aquatic life generally improve as the Animas flows southward.
  - According to CWA reporting for 2018 to 2020, New Mexico determined that surface water quality standards for aquatic life use were not met in the middle and lower San Juan River in New Mexico, due to excessive turbidity and/or sedimentation.
  - According to CWA reporting for 2011 to 2017, Navajo Nation determined that portions of the San Juan River and certain tributaries to the San Juan River were not meeting established tribal standards for ecological use due to levels of certain metals in the water.
  - According to CWA reporting for 2016, Utah determined that waters assessed in the lower San Juan River were not meeting established state standards for ecological use due to high temperatures, metals, and low dissolved oxygen in the water. Lake Powell is not meeting standards for ecological use due to high pH levels.
- Cross-jurisdictional analysis of the data on the condition of benthic macroinvertebrate communities found conditions consistent with state assessments.
- In the upper watershed, other factors such as forest fires can have profound effects on aquatic life. Ash and sediment from burned areas can be mobilized into the river during storm events causing fish kills.
- From 2018 through 2021, EPA is working in collaboration with states and tribes to collect water quality and sediment samples at 39 locations across the watershed. These samples are analyzed for metals and other parameters.
  - Concentrations of naturally occurring metals such as aluminum and iron sometimes exceed EPA recommended thresholds throughout the watershed.
  - Some metals, including zinc, manganese, copper, and cadmium are prevalent in higher concentrations in the upper Animas due to mining activities, but diminish further downstream. Some other San Juan River tributaries have higher metals concentrations than typically seen in the San Juan River itself. These metals are coming from land use and mining activities and can affect water quality in the San Juan River where the tributaries join.
  - In the San Juan basin, soil concentrations of these metals are low. However, these metals can be concentrated in river sediment eroded from the soil during high flows and may exceed healthy levels for aquatic life when carried downstream or during snowmelt or monsoonal storms.
  - All available data from these monitoring efforts can be found on EPA's San Juan Watershed website.

EPA 840-F-20-002
August 2020
https://www.epa.gov/san-juan-watershed