



Sheep Creek Action and Protection Efforts (SCAPE)



Jenna Hess, Kyla Froshour, Jelaiyah Thompkins, and Estelle Smith

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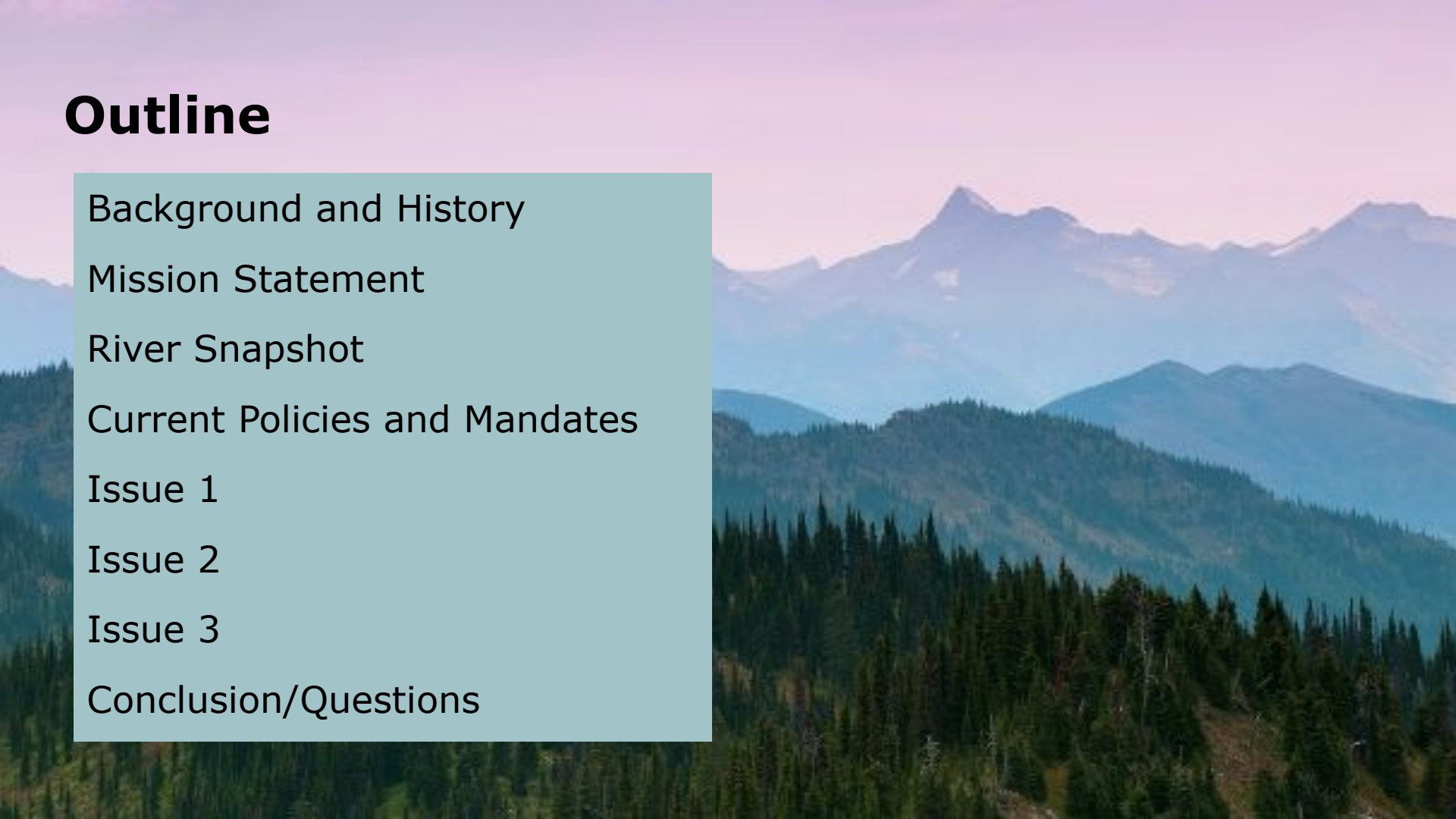
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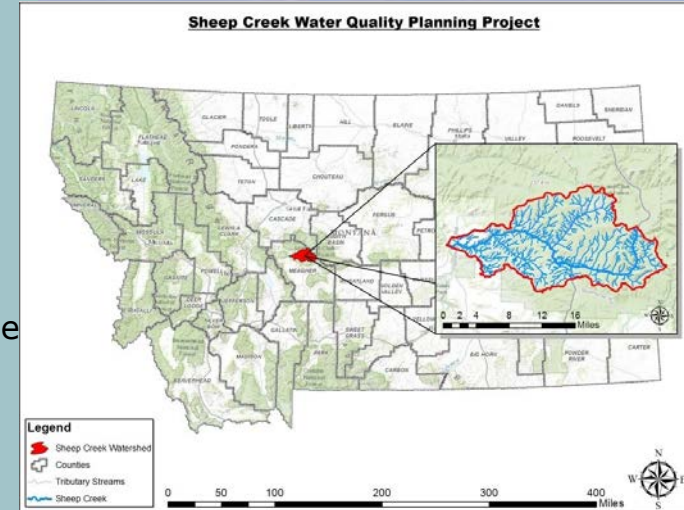
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Background and History

- Sheep Creek is a vital tributary of the Montana Smith River
 - It provides critical cold-water flows and spawning habitat, making it essential to the health of the blue-ribbon trout fishery
 - The Sheep Creek drainage is responsible for 55% of the tributary spawning
 - Rainbow Trout, Brown Trout, Brook Trout, Mountain Whitefish, and Cutthroat Trout
- Historically, the Salish, Blackfeet, and Shoshone tribes settled in the area
 - The area served as a hunting ground for these groups
 - The nearby Smith River canyon also holds cultural value
 - Over 70 Native American pictograph sites hidden amongst its limestone walls and caves



<https://www.whitesulphurspringsguide.com/p/history-of-white-sulphur-spring>

Mission Statement

To monitor Sheep Creek's current water quality pre-mining at the Black Butte Copper Mine to compare with future measurements and to identify causes of current water quality issues in the watershed. We will create effective strategies to reduce existing problems and to prevent potential future threats to the watershed once mining commences, setting a goal to bring the stream health to an A grade by the year 2035.

Sheep Creek Snapshot

- Meagher County, Montana
- River Length: 36.6 miles
- Drainage Area: 195 mi²
- Major tributary of Smith River
- Recreational fishing on the Smith River generates more than \$10M/yr for outfitters and surrounding communities like White Sulphur Springs
- 65% forest covered
- Suitable for fishing and swimming, and agricultural uses – requires treating for drinking water
- Overall high quality B-1 rated, but can be improved and has potential to worsen with a proposed mine

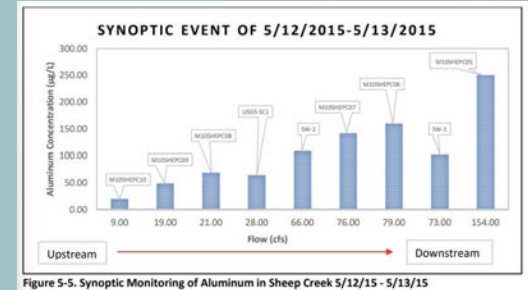


Current Policies and Mandates

- **Montana Metal Mine Reclamation Act:** recognizes mining and mineral production as beneficial to the economy of Montana, when conducted in a way that protects the environment from degradation and ensures proper reclamation of mined land
- **The Mining Bureau:** reviews permit and license applications for mining operations ranging from decorative landscaping rock to copper ore to sapphires.
- **Recent Water Quality Amendments**
 - **HB 587** removed “**violation of water quality standards**” from the definition of “**material damage**” – weakened power to protect waterways mine pollution
 - **HB 664** repealed **numeric nutrient standards** for wastewater, giving industries more latitude to comply with Montana DEQ regulations
- **DEQ Metals Study:**
 - With the proposal of a new mine, the DEQ took the opportunity to complete an extensive metals study to collect baseline data on the Smith River, but nothing currently on Sheep Creek

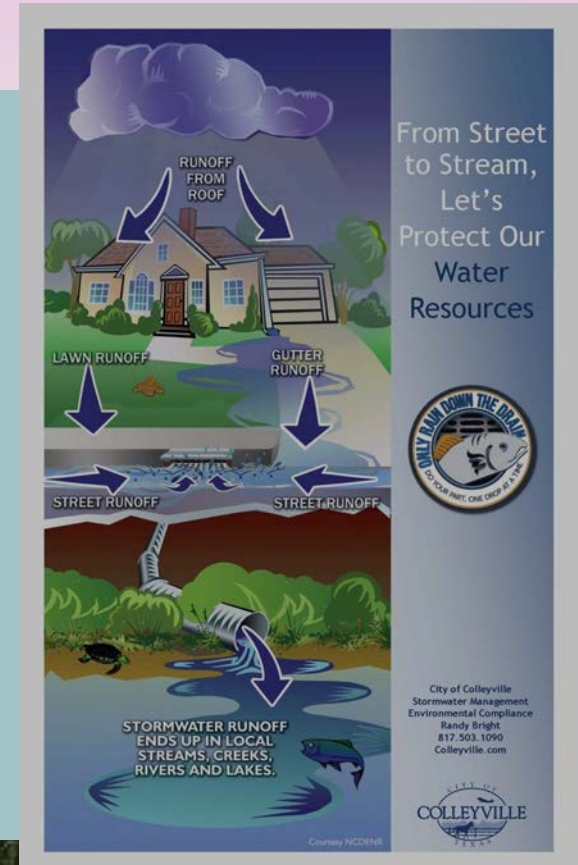
Issue 1: High Amounts of Aluminum

- Over 250 ppb Aluminum downstream in the spring
- Ideal Aluminum values under 87 ppb for chronic exposure
 - Can impair developmental effects in species
 - Decreased reproductive success and reduced growth
- Nonpoint sources:
 - Local geology
 - Human caused sources outside of permit requirements
- Point sources:
 - Treated mine wastewater (future)
 - Permitted stormwater runoff



Solution to Aluminum Issue

- Educating the population about best management practices (BMPs)
 - Flyers, emails, or educating the youth
 - Working with the Black Butte Mine
- Reduce nutrient and sediment loading
 - Address grazing practices, unpaved roads, and ski area management
- Implementing BMPs for stormwater runoff
 - Smart growth, making smart development choices
 - Maintaining native plants to improve soil health and retain aluminum contents



Issue 2: E. Coli Contamination

Sheep Creek has elevated E.Coli concentrations which indicates that humans are at risk of contracting waterborne illnesses. E. coli is released into the environment through the deposition of fecal matter, so the bacterium is used as an indicator of fecal contamination of waterways.

Inputs of E.Coli into Sheep Creek come from nonpoint sources such as:

- Agriculture - livestock grazing near waterways, improper application of manure and pasture/rangeland runoff
- Failing Septic Systems - aging, faulty or unmaintained residential wastewater systems
- Natural Background - wildlife waste from species using the riparian and stream corridors

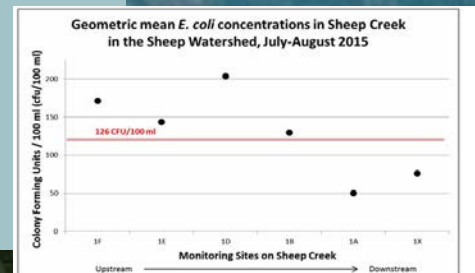
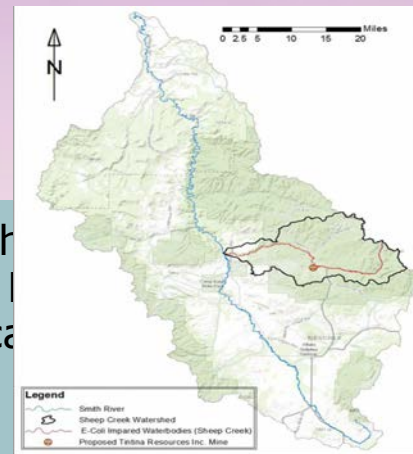


Figure 5-4. 30-Day geometric means of *E. coli* data collected on Sheep Creek by the Montana DEQ

Solution to E. Coli Contamination

The TMDL establishes load allocations for both natural and human-caused nonpoint sources.

Recommended BMP include:

- Riparian fencing and controlled livestock access to reduce direct stream contamination
- Off stream water systems and rotational grazing
- Proper manure management
- Septic system inspections and educating the public on the proper way to maintain their septic systems
- Continued seasonal E.Coli monitoring, tracking BMP implementation and applying adaptive management as new data emerges

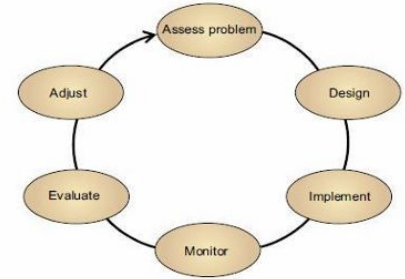


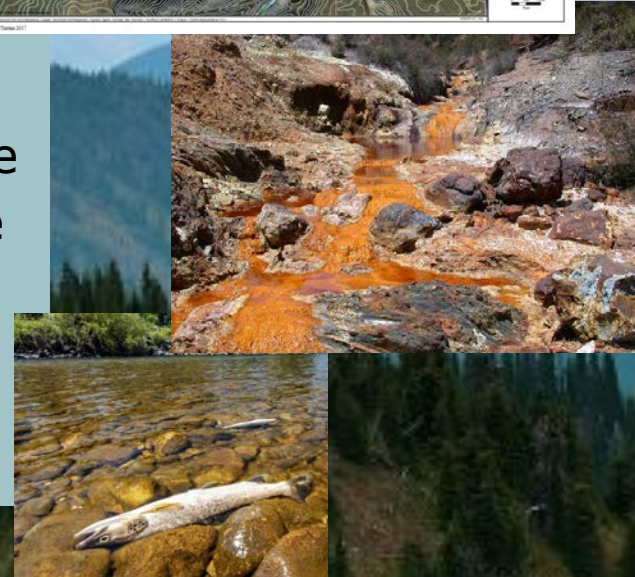
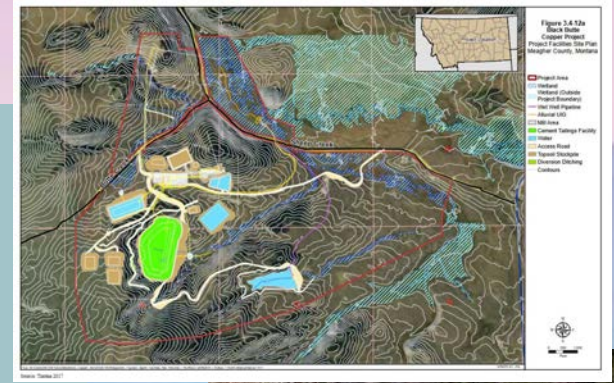
Figure 6-1. Diagram of the Adaptive Management Process

Table 5-7. Sheep Creek *E. coli* TMDL and Load Allocation at a Typical Flow of 32 cfs

Typical Flow (cfs)	TMDL (cfu/day)	Load Allocation to Natural Background (LA _{NB}) (cfu/day)	Composite Load Allocation to Human Caused (COMP LA _H) (cfu/day)
32.0	9.84×10^{10}	3.77×10^{10}	6.07×10^{10}

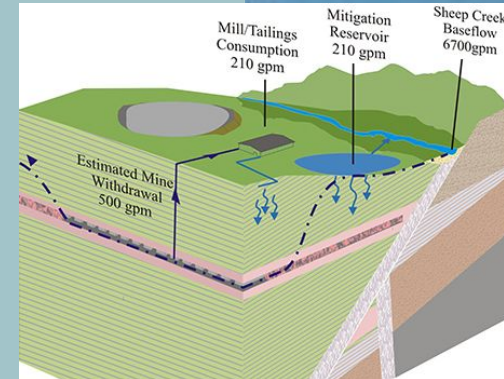
Issue 3: Copper Mine Threat

- Copper mine proposed by Sandfire Resources America (formerly Tintina Resources Inc.)
 - 14 million-ton copper deposit
 - Misplaces 250 million gallons of water
 - Spans 1,888 acres
- Plans to treat the “remainder water” on-site
- Predicted to produce acid-generating waste
 - Threatens wildlife and trout habitat
- Will expand from private to public lands
- Court recently upheld a permit for mine



Solution to Copper Mine Threat

1. Conserve pre-existing land and rivers
 - Wild and Scenic Rivers act (1968) - a landmark law protecting free flowing rivers
 - Would force stricter policy on mine
 - Safeguards clean water
 - Requires management plan with input from stakeholders (educate)
2. Reduce acid mining drainage (AMD)
 - Add alkaline materials for neutralization
 - Water diversion
 - Relocation



Conclusion

Sheep creek has a lot of economic value through trout fisheries.

However, it is threatened by a new copper mine being built.

We plan to use best management practices to ensure Black Butte Mine follows proper environmental safety and proper water quality is maintained.

The A quality of the watershed will be restored and maintained.

Thank you!

Any Questions?

Citations

- <https://sandfireamerica.com/wp-content/uploads/2025/03/Black-Butte-Cultural-Resources-Mitigation-Report.pdf>
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