

Winter stream  
monitoring

in the Matanuska  
Watershed



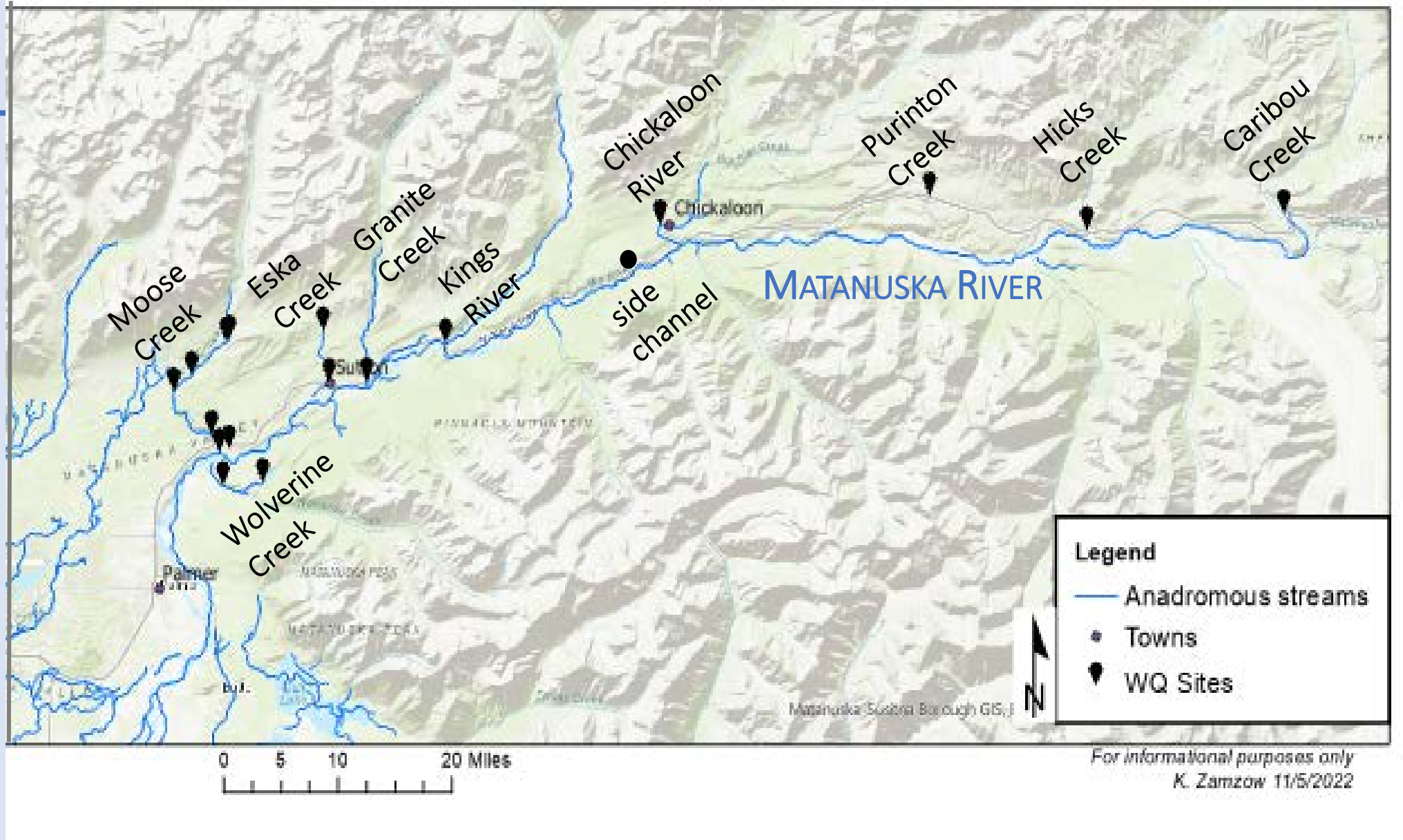
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Chickaloon Village Traditional Council  
Nov 14<sup>th</sup>, 2022

# Project

- Monitor stream water quality in the Matanuska River watershed
- Quality control
  - Data is collected under a QAPP
  - Technical Advisory Committee
- Data provided to the EPA

Kleinschmidt Spring

# Sites



# Stream types



**Kleinschmidt**

(anadromous, non-glacial)



**Moose Creek**



**Granite Creek**



**Chickaloon River**

(anadromous, glacial)

**Hicks Creek**

(non-anadromous, non-glacial)



# Equipment

- Handheld field monitoring equipment
  - YSI for pH, dissolved oxygen, temperature, specific conductance
  - Hanna for turbidity
  - GPS, camera



# Winter Equipment

Add to equipment list:

- Snowshoes
- Trekking poles – double as mini-ice augers
- Knife for scraping ice off equipment
- Long YSI cable
- Snow-measuring yardstick
- Warm clothing, handwarmers



# Challenge: Finding water

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California  
Creek



Listening....



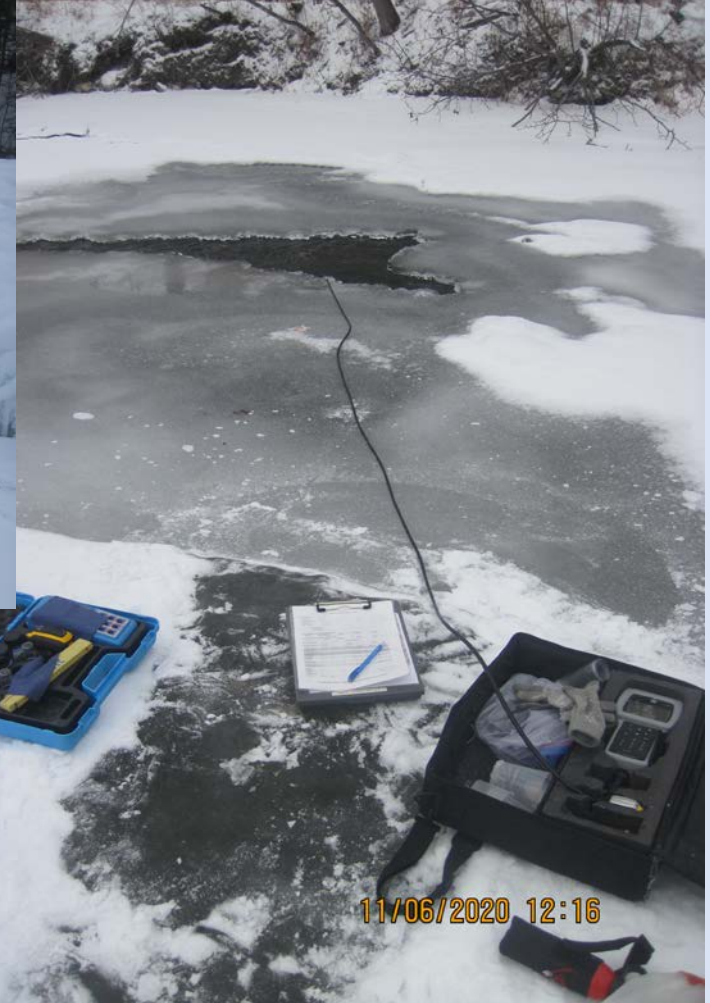
Purinton Creek



# Challenge: Accessing water



Chickaloon River



Caribou Creek

# Snow bridges and ice shelves



Moose Creek wetlands



Moose Creek

# Challenges:

## equipment

- **DO calibration**
  - Small amount of water freezes quickly
  - Cup threads ice up
- **Turbidity**
  - ice crystals in/on vials
- **Photos**
  - Camera battery goes dead in the cold
- **Cold hands, stiff fingers!**



Wolverine Creek

# Surprises: Halloween coho

BUFFALO CREEK



# Water quality results

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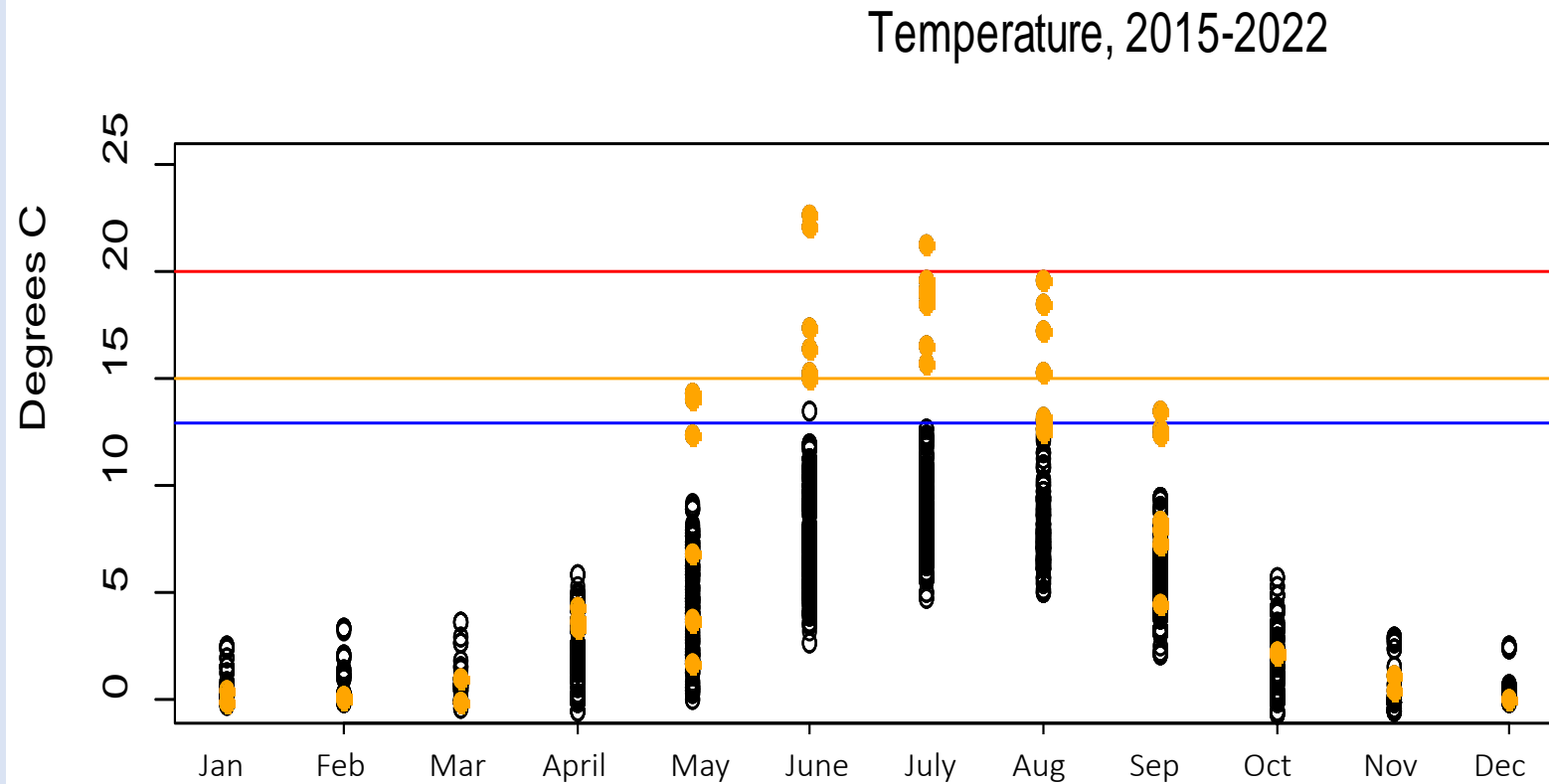
- Cold
- Highly oxygenated
- Clear
- Neutral-alkaline pH



Moose Creek

# Temperature

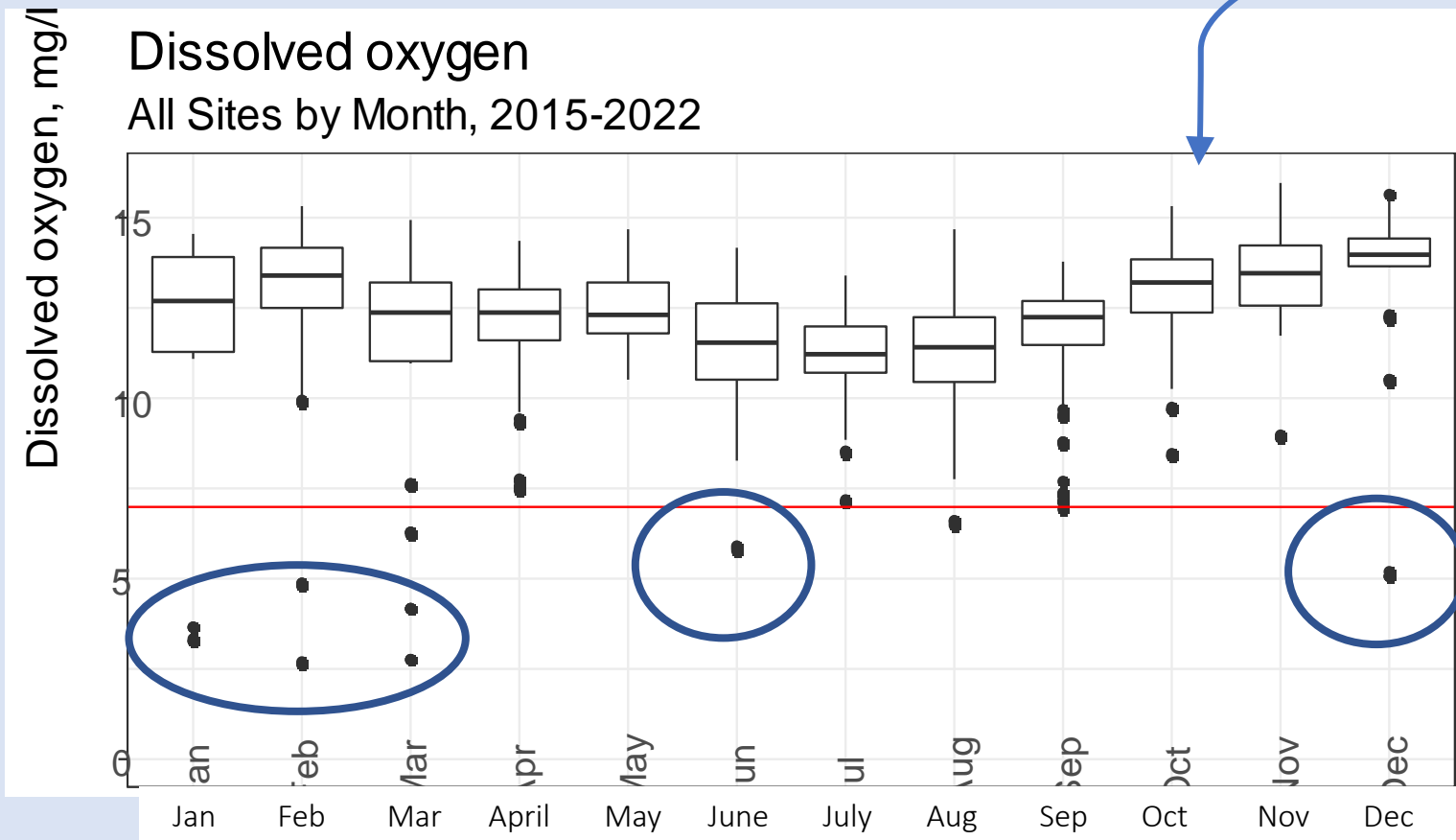
- Cold
- Except the outlet of Wolverine Lake



Wolverine Lake outlet stream

# Dissolved oxygen

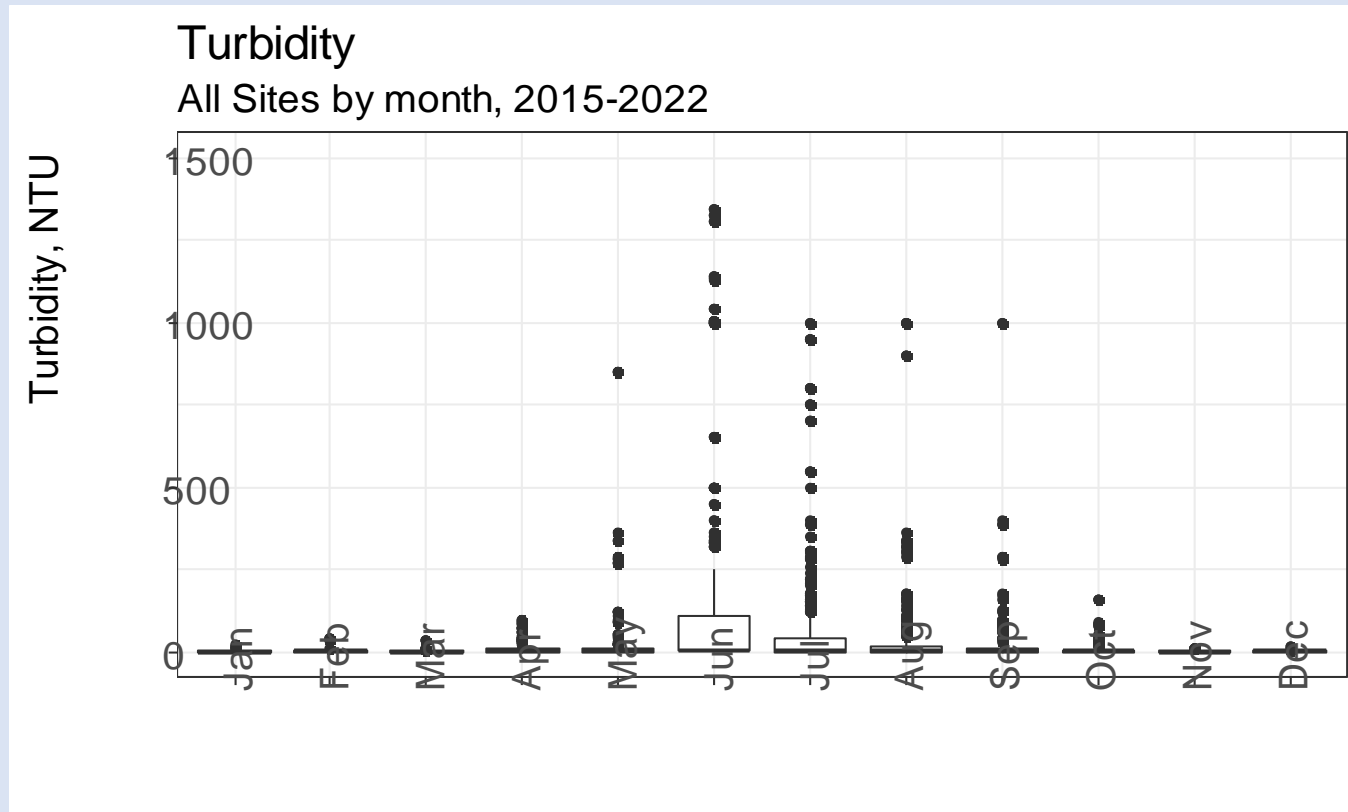
- Oxygenated
- Colder water, more oxygen
- Except the outlet of Wolverine Lake



Wolverine Lake outlet stream

# Turbidity

- Turbidity is low
- Except some sites associated with canyons and/or glacial



Caribou Creek (canyons)



# Summary

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- Winter challenges accessing water and operating equipment
- Winter water has low turbidity and high DO – data we would not have captured without winter sampling
- Waters are high quality year-round, with rare exceptions
- Chickaloon Native Village is the only entity monitoring water in the Matanuska watershed



Moose Creek

# Tsin'aen!

Kendra Zamzow

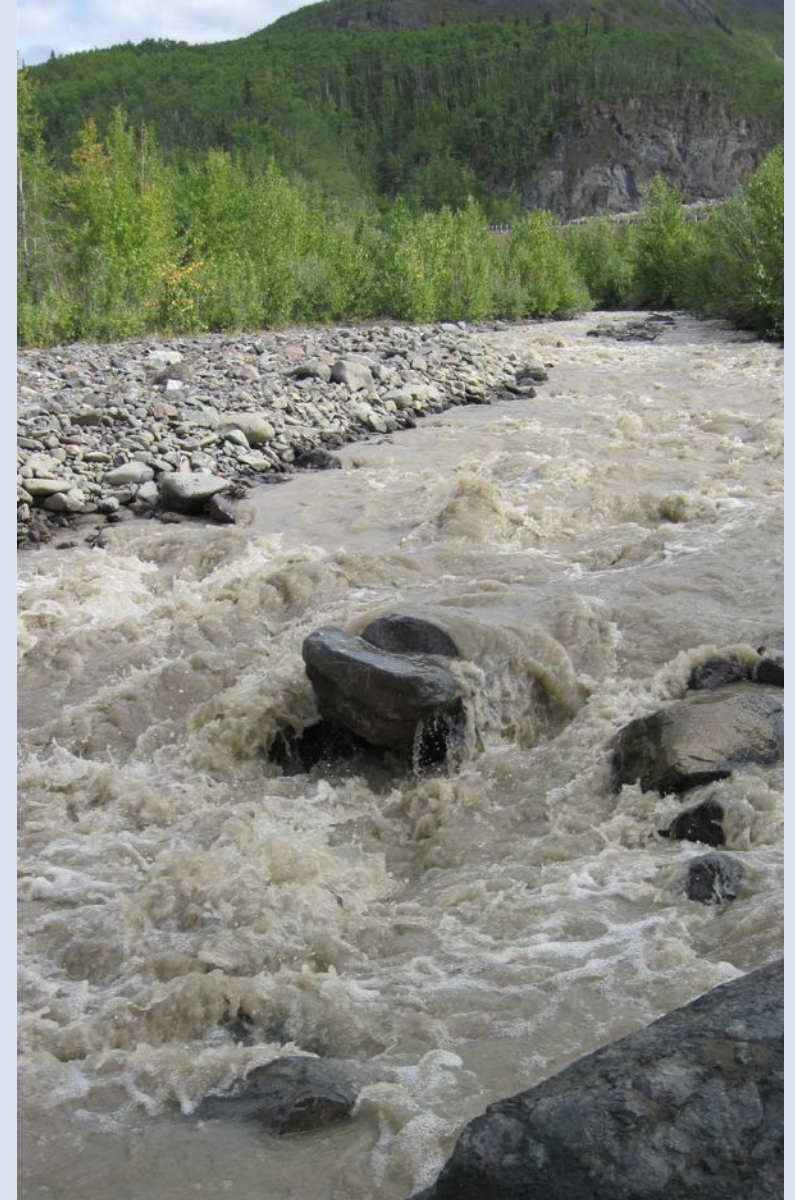
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Environmental Program Manager

Chickaloon Native Village



Kleinschmidt



Hicks Creek