

Water Quality Monitoring in the Chilkat Watershed

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Takshanuk Watershed Council



Takshanuk Watershed Council



Our mission: provide stewardship of the Chilkat, Chilkoot, and Ferebee River systems.

Through restoration, education, research, and community involvement we seek to benefit the natural ecology, economy, and quality of life valued by all residents.

2.5 FTE Staff

Takshanuk Watershed Council



Haines Fun Facts:

- ~1/3 of economy tied to commercial fishing industry
- 90% of residents involved in subsistence fishing
- Priority aquatic species for TWC–
 - five species of Pacific salmon
 - eulachon (Chilkat Indian Village, Chilkoot Indian Association)

Takshanuk Watershed Council Core Programs



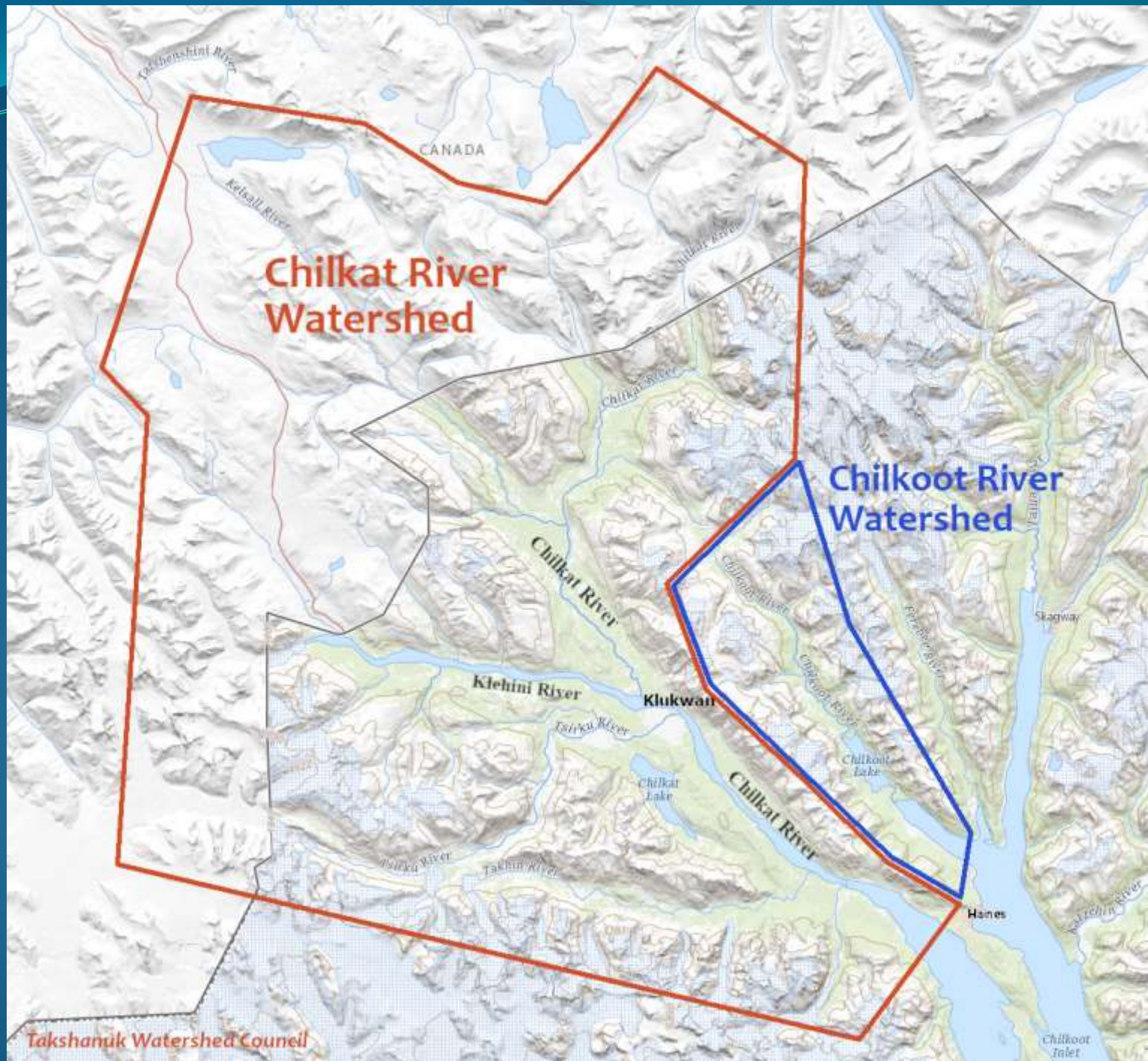
- Forest management
- Watershed Restoration – fish passage, habitat enhancement
- Education – K-12 science programs, after school forest investigators, Fish Trivia
- Starvin' Marvin School Garden & Compost Program
- Property Management – Jones Point 50 acres
- Palmer Mine Project – keeping community informed of developments
- And water quality monitoring...

Chilkat Watershed



Chilkat Watershed





SE Alaska Freshwater Temperature Monitoring Network

From Bellmore & Winfree (2019):

Water temperature is key environmental variable that is both a driver and indicator of river ecosystem function

- Affects aquatic biota
- Controlled by climate, watershed characteristics & stream morphology

SE Alaska Freshwater Temperature Monitoring Network

From Bellmore & Winfree (2019):

Network created to address data gaps, develop coherent sampling plan, data standards, allow public data sharing and data storage

60+ sites in the region to date

SE Alaska Freshwater Temperature Monitoring Network

Primary concern – will water temperatures rise enough to affect salmon productivity?

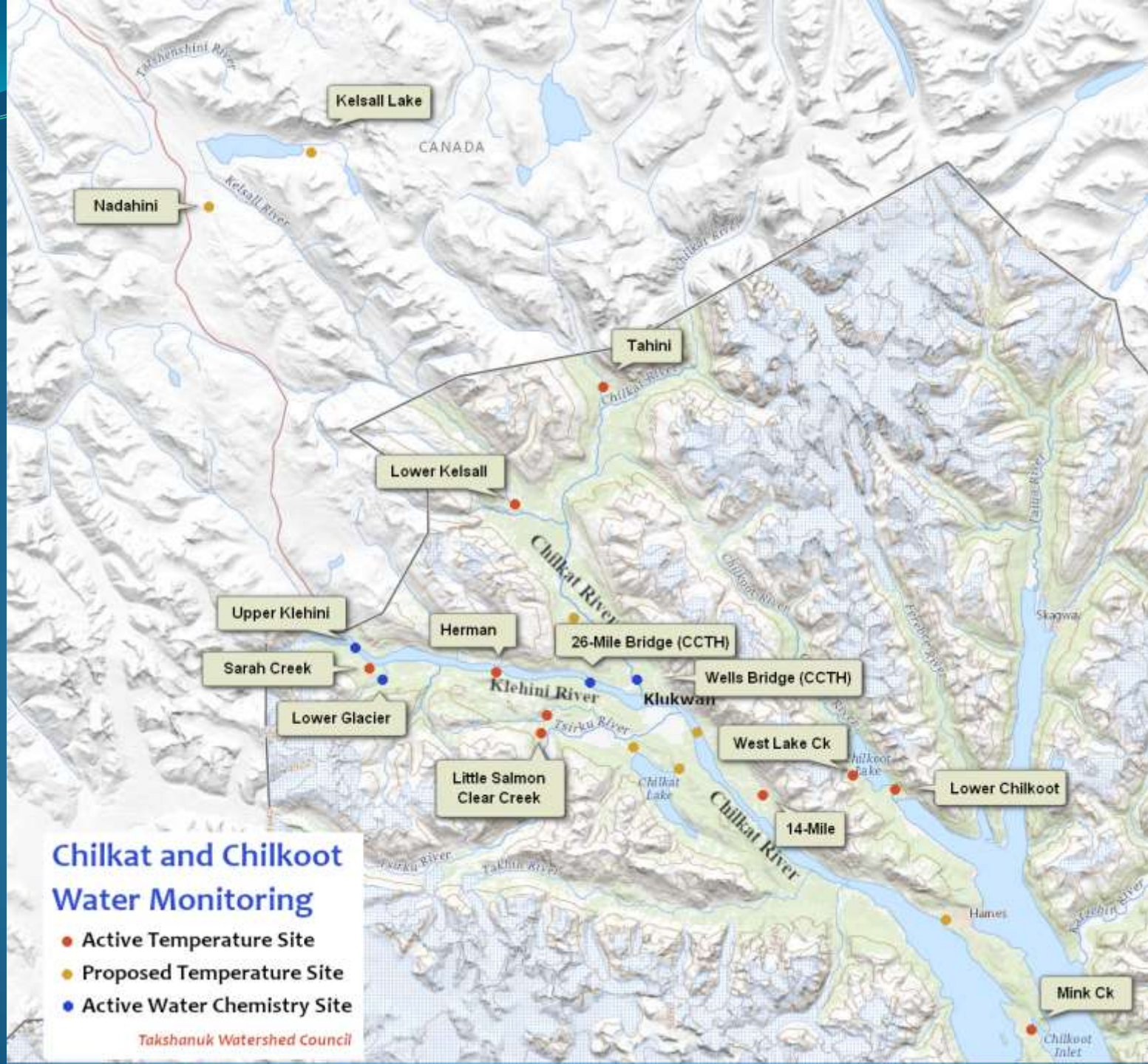
Temp regime determined in part by watershed location, source water type (glacial, snowmelt, rainfall dominated), timing of annual high and low flows, etc.

We need to monitor our own sites to get this information for our local watersheds

TWC's role in this network

Long term goal: monitor stream temperature over time to understand ecosystem dynamics, potential effects on salmon & eulachon fisheries

“Provide reliable temperature data to support development of proactive approaches to managing salmon (and eulachon) stocks in response to climate change.”



Newest Site: Tahini River

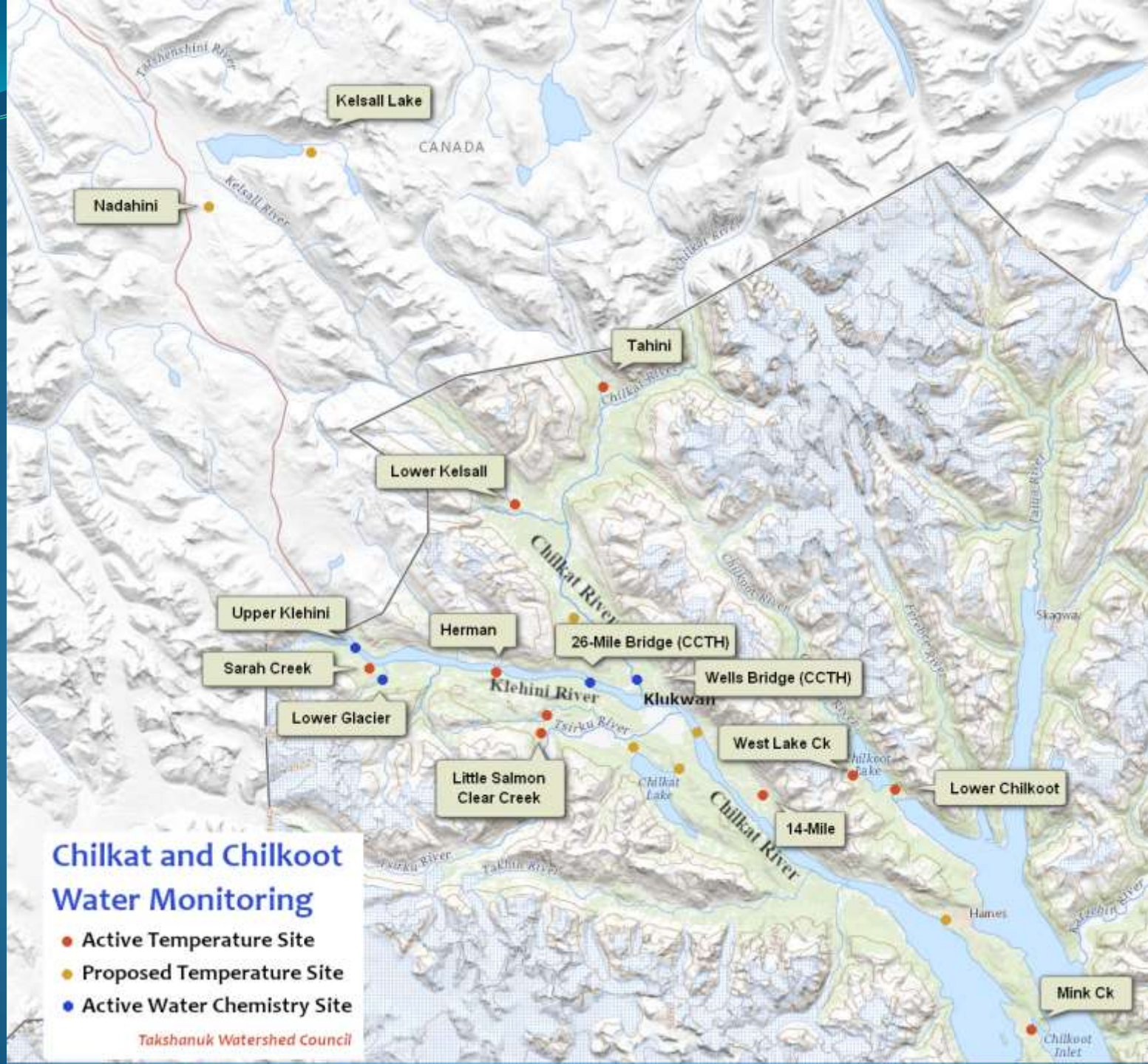


Chilkat Baseline Water Quality Monitoring

Why: Large scale mine activity in the watershed –
Constantine Mining LLC's Palmer Mine Project

Who: CCTHITA – 2 sites; CIV/TWC – 2 sites

Where: Upstream and downstream of proposed
mining activities



Chilkat Baseline Water Quality Monitoring

What:

Quarterly water samples analyzed for:

- temp, DO, conductivity, pH, turbidity, alkalinity, TOC, TSS
- total and dissolved metals including Hg
- total sulfate

Annually - PAH, VOC, methyl mercury

Results: Near pristine conditions; occasional metals (Al) exceedance in July peak glacial runoff

New sampling

Goal:

Comprehensive, expanded monitoring plan utilized by all partners sampling in the Chilkat

-CIV, CCTHITA, CIA, TWC

-More sediment sampling

-Resident fish tissue sampling

-Macroinvertebrate community population dynamics: correlation to type and extent of contamination at a site over time

Living Lakes Canada

- Canadian Aquatic Biomonitoring Network (CABIN) Sequencing the Rivers for Environmental Assessment and Monitoring (STREAM) protocol training Summer 2020 in Whitehorse – Chilkoot Indian Association and TWC planning to attend

Living Lakes Canada

- CABIN STREAM training
- Emerging new methodology for eDNA macroinvertebrate sampling at our water quality monitoring sites
- Providing free sample analysis through 2020 for Chilkat watershed sites (goal: 400 rivers)

Flathead Lake Bio Station

- Providing CABIN STREAM protocol assistance to get our first macroinvertebrate eDNA samples this October – thank you Chris Sergeant!
- Invitation to attend upcoming workshop: Advancing scientific knowledge of mining impacts on salmonid-bearing watersheds

Instream Flow Reservations

Former ADFG partnership to submit instream flow reservations to Alaska DNR for:

- Sawmill Creek, Haines
- Pullen Creek, Skagway

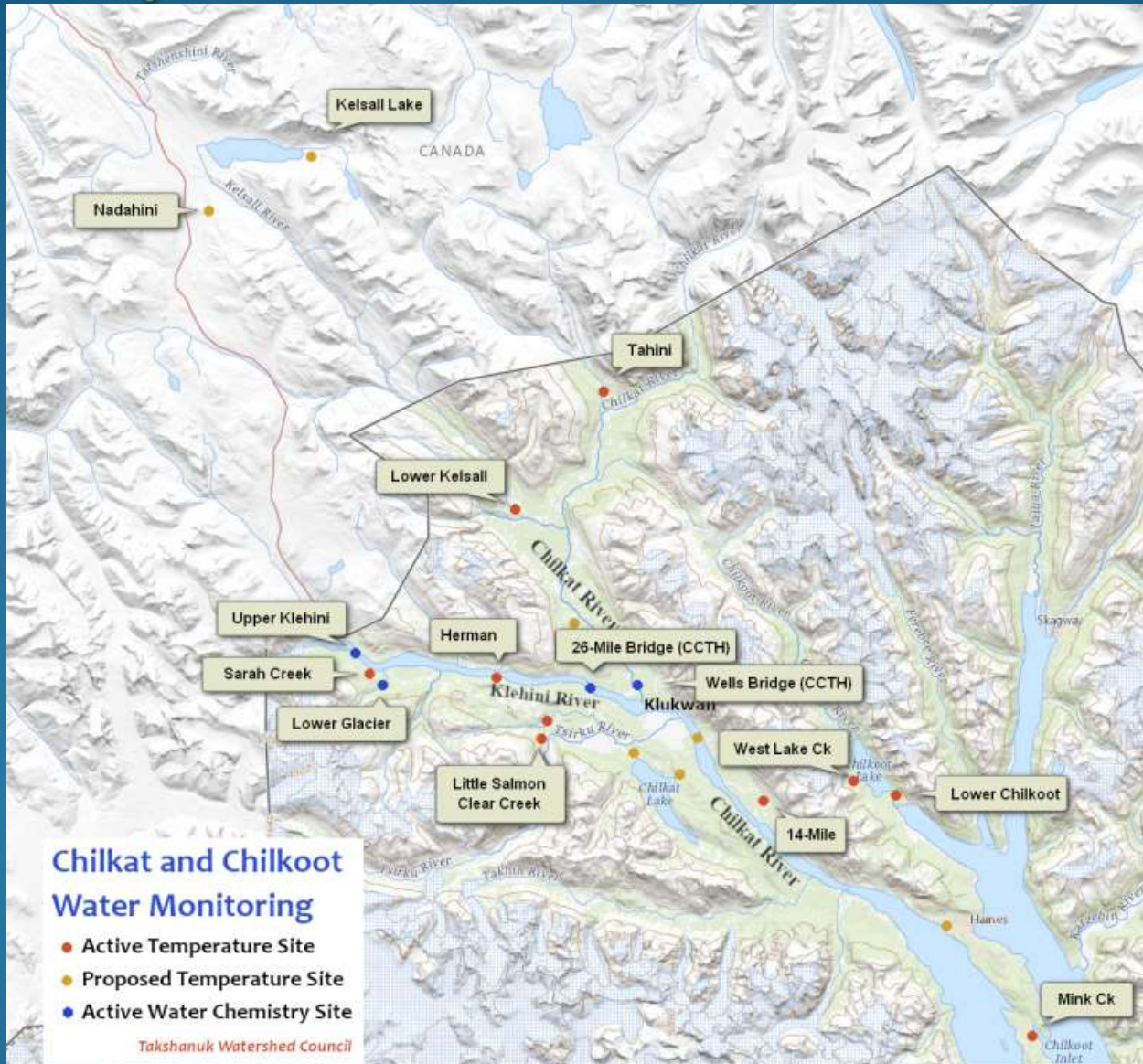
Both were filed by ADFG and have a priority date, but DNR has not accepted or rejected permit applications

No instream flow reservation permits have been finalized in two years due to extensive comments from Alaska Miners Association

Instream Flow Reservations

- ADFG can no longer work with nonprofit organizations to file instream flow reservations
- Current project – Sarah Creek with Alaska Hydroscience rating curve development
- Initiated in response to proposed mining activities utilizing this water source
- TWC will apply for this instream flow reservation permit, using median monthly flow to determine ecosystem needs

Sarah, Glacier Creeks



Sara(h), Glacier Creeks

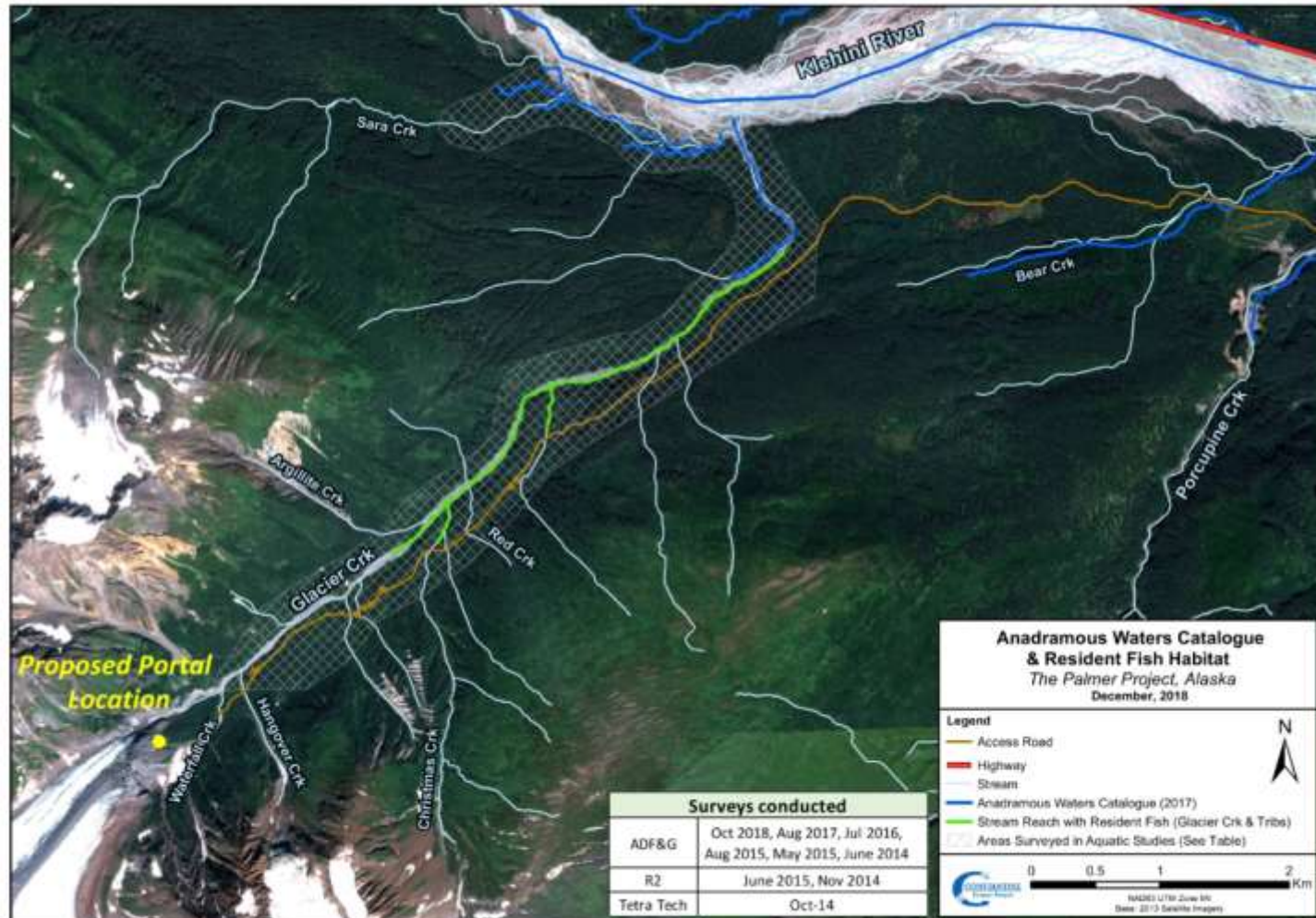


Figure 22. Reach of Anadromous and Resident Fish in Glacier Creek

Thank you, please be in touch!



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