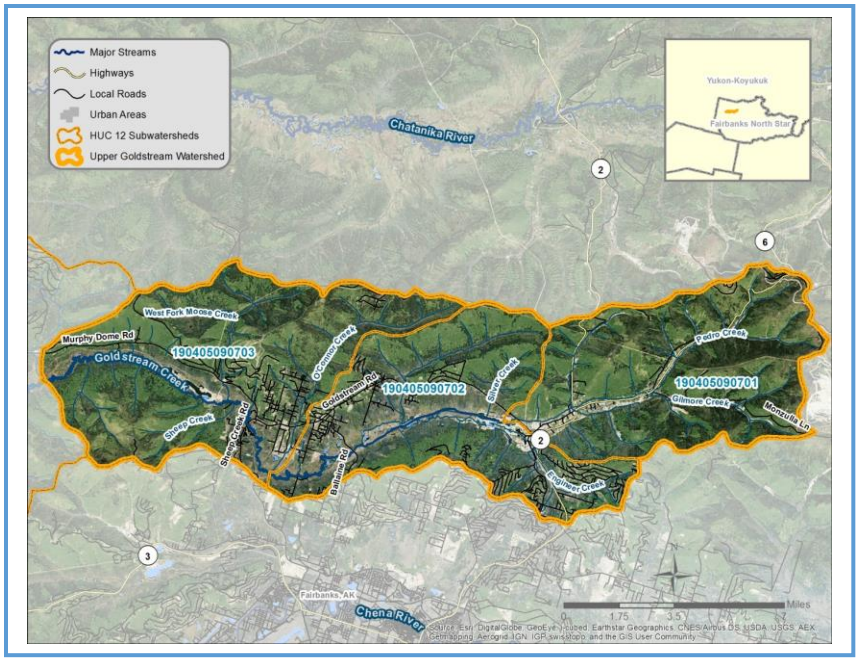
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Water

Upper Goldstream Creek Turbidity
Draft Total Maximum Daily Load (TMDL) Summary
Fairbanks, Alaska

1. What is the problem with Goldstream Creek water quality?



Goldstream Creek is polluted due to excessive turbidity. Turbidity comes from excess sediment. Sources include mining, construction and sediment erosion from historically disturbed and developed properties.

2. How do we know Goldstream Creek is polluted?

Alaska's Department of Environmental Conservation (ADEC) first included Goldstream Creek on the Clean Water Act (CWA) Section 303(d) list as polluted for turbidity in 1992. Additional studies by ADEC and the University of Alaska, Fairbanks from 2009-2013 indicate that Goldstream Creek continues to be polluted. Specifically, the creek does not meet water quality criteria for turbidity.

3. What portion of Goldstream Creek is polluted?

The portion of Goldstream Creek that is polluted is the Upper Goldstream Creek watershed (see map above). The headwaters are at the confluence of Pedro and Gilmore Creeks north of the City of Fairbanks. This portion of the watershed, approximately 130 mi^2, has been a major and continuous gold mining area for nearly 100 years and contains highly mineralized terrain.

4. What's turbidity, where does it come from and why should I care?

Turbidity is a measure of water clarity in streams, rivers, lakes, and the ocean. Turbidity describes the amount of light scattered or blocked by suspended particles in a water sample. Clear water has low turbidity and cloudy or murky water has a higher turbidity level. Turbidity is caused by particles of soil, organic matter, metals, or similar matter suspended in the water column.

Potential sources of turbidity in the Upper Goldstream Creek watershed include permitted point sources (such as wastewater discharges from active placer mines, municipal areas and construction sites) and nonpoint sources (such as runoff from historic placer mine sites, residential and commercial developments and winter road maintenance).

The presence of turbidity indicates effects from excess erosion and sediment inputs on watershed health. Land use activities can cause loss of riparian vegetation and soils, elimination of stream banks, and loss of natural

habitat. Increased levels of turbidity impact drinking water sources, diminish fish rearing success, and impair recreational uses.

5. How will the water quality be improved?

Reducing turbidity in Upper Goldstream Creek will involve controlling runoff from currently active and historic mine sites, areas of construction activity, and during road construction and maintenance. Best management practices must be implemented to prevent sediment from reaching the creek. These include methods to manage runoff and site water, such as silt fences, berms, sediment ponds, and mulching or planting vegetation to retain soil cover (see example photos below).

Examples of best management practices. Silt fence (left), elongated sediment ponds (right)

6. What is a Total Maximum Daily Load (TMDL)?

The TMDL is basically a "pollutant budget". This budget is an important component of the overall recovery plan. The budget calculates the maximum amount of sediment that can enter Upper Goldstream Creek while still meeting the state's allowed limit.

The TMDL budget was developed using standard mathematical equations, actual creek water quality data, and other landscape and weather measurements. The calculations show the pollutant reductions needed to allow the creek meet the state's allowed turbidity limit (see table below). The draft TMDL explains these calculations in detail.

A TMDL is established to meet the requirements of Section 303(d)(1)(C) of the Clean Water Act.

What are three important "fixes" for cleaning up Goldstream Creek?

- ✓ Implement best management practices on actively disturbed areas to prevent erosion and runoff.
- ✓ Follow permit guidance and monitor water quality.
- ✓ Keep the naturally vegetated corridor along the creek to filter pollutants.

7. How can I learn more about this draft TMDL recovery plan or make comments?

A public review and comment period for the draft TMDL will occur May 18 to August 17, 2015. Written public comments must be mailed, faxed, emailed or hand-delivered to Chandra McGee at the address below by 5pm on August 17, 2015.

Answers to commonly asked questions about TMDLs in general can be found on the DEC website at: http://dec.alaska.gov/water/tmdl/pdfs/Commonly_asked_questions_about_TMDLs_Final.pdf

ADEC will hold two public information meetings to discuss the draft TMDL at the Fairbanks DEC office at 610 University Ave. Meetings are scheduled June 9 and July 22 from 4 – 6pm.

Interested persons needing special assistance must contact ADEC at least two weeks in advance of the meeting they are interested in participating in to make arrangements to participate.

The draft TMDL is available at ADEC's website; http://www.dec.state.ak.us/water/wqsar/index.htm
or by request from:

Alaska Department of Environmental Conservation
Attn: Chandra McGee
610 University Ave
Email: chandra.mcgee@alaska.gov
Phone: (907) 451-2140; FAX: (907) 451-2187