

# MEMORANDUM

## State of Alaska

Department of Fish and Game  
Division of Habitat

TO: Jackie Timothy  
Southeast Regional Supervisor

DATE: January 2, 2014

THRU: Kate Kanouse  
Habitat Biologist IV

SUBJECT: Greens Creek Mine Tailings  
Disposal Expansion Trip Report

FROM: Benjamin Brewster  
Habitat Biologist I

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On December 20, 2013, I traveled to the Greens Creek Mine on Admiralty Island west of Juneau to familiarize myself with the recently approved tailings disposal facility (TDF) expansion and to investigate opportunities for a new biomonitoring site in lower Tributary Creek. The U.S. Forest Service recently approved Hecla Greens Creek Mining Company (HGCMC) to expand about 18 acres south into the Admiralty Island National Monument and Tributary Creek headwaters. The area of expansion will affect about 14 acres of wetlands, which drain to the current headwaters of the Tributary Creek. The historical headwaters of Tributary Creek were filled during development of the TDF (FG88-I(S)-19), which has been in operation about 25 years. HGCMC personnel David Landes accompanied me during the site visit.

### Observations

During my site visit, I walked the approximate approved TDF expansion footprint to better understand the potential for impacts to wetlands at the headwaters of Tributary Creek. Based on a topographic map provided by HGCMC, I documented several small wetland drainages within the TDF expansion area (Figure 1). There are two inactive beaver dams and an old beaver pond complex south of the approved expansion area (Figure 2). We have recently observed beaver activity and dam building approximately 1500m downstream near the biomonitoring site 9, during our annual biomonitoring. I planned on setting minnow traps in the ponds to investigate juvenile fish presence, however ice and snow cover prevented my effort. In June 2010, Habitat Biologists Kate Kanouse and Katie Eaton investigated fish presence in the beaver ponds and upper Tributary Creek and did not capture fish in the ponds (Kanouse 2010); they returned to the ponds in October 2010 and captured one Dolly Varden char and one cutthroat trout near the lower extent of the beaver pond complex at 58.1119° N, 134.7455° W.<sup>1</sup> A map illustrating the Tributary Creek course I walked and extent of anadromous fish use (Kanouse 2010) is included in Appendix A1.

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<sup>1</sup> K. Kanouse, Habitat Biologist, ADF&G, Douglas, personal communication.



Figure 1. One of several wetland drainages.



Figure 2. Upper beaver pond.

I also walked Tributary Creek from the headwaters to the confluence with Zinc Creek to observe and document possible locations for a new biomonitoring site. The purpose of the new biomonitoring site would be to collect baseline biological data further downstream of development and the current biomonitoring Site 9, ahead of additional potential development<sup>2</sup> in the headwaters. In addition, changes in the community composition of benthic macroinvertebrates at Site 9 in the last five years (Kanouse and Brewster 2013) may be due to low stream flow prior to sampling; a second sample site downstream of additional water input may be necessary to detect potential change from other sources (e.g. water quality). Within 400 m upstream of the creek mouth, appropriate stream morphology and habitats exist that could support a new 50 m biomonitoring sample site. The 400 m section includes large woody debris, shallow pools, and riffle habitats (Figures 3 and 4).



Figure 3. Large woody debris cover in lower Tributary Creek.



Figure 4. Pool and large woody debris in lower Tributary Creek.

### Recommendations

According to the USDA Forest Service Record of Decision, “Tributary Creek may experience changes to the hydrologic system, as diverting non-contact runoff could increase peak flow velocities in the natural stream channel during large storm events, potentially causing erosion of channel substrates and impact channel geomorphology.”<sup>3</sup> I will begin drafting a Fish Habitat Permit for the TDF expansion, and recommend Habitat staff return in the spring to investigate fish presence in the beaver ponds and a

<sup>2</sup> According to USDA Forest Service Record of Decision, the reason the selected alternative was chosen was to allow time to gather and analyze additional information, before authorizing further impacts to Tributary Creek watershed or a second tailings disposal facility.

<sup>3</sup> USDA Forest Service. 2013.

new biomonitoring site when the creek is ice free. I will also submit a route correction and reduce the upper extent of anadromous fish for Tributary Creek in the Anadromous Waters Catalog (Appendix A2).

Email cc:

Al Ott, ADF&G Habitat, Fairbanks  
Juneau Area Habitat Biologists  
Sara Samuelson, USDA Forest Service, Juneau  
Kyle Moselle, ADNR, Juneau  
Chris Wallace, HGCMC, Juneau

#### Literature Cited

- USDA (U.S. Department of Agriculture) Forest Service. 2013. Greens Creek Tailings Disposal: Greens Creek Final Environmental Impact Statement and Record of Decision. Tongass National Forest.
- Kanouse, K. 2010. Memo: Greens Creek Mine TSF Expansion: Tributary Creek; dated 8/25/2010. Alaska Department of Fish and Game, Division of Habitat, Douglas, AK
- Kanouse, K. M., and B. P. Brewster. 2013. Aquatic biomonitoring at Greens Creek Mine, 2012. Technical Report 12-11. Alaska Department of Fish and Game, Division of Habitat, Douglas, Alaska.

Appendix A1. Tributary Creek anadromous fish use and the tailings expansion area.



Appendix A2. Tributary Creek Anadromous Waters Catalog stream correction.

**TRIBUTARY CREEK**

**CORRECTION**

**Water body name:** Unnamed

**Survey date:** 6/16/2010

**Water body number:** 112-65-10230-2007

**Species & Lifestage:** coho juveniles

**Watershed:** 1901020408

**MTR:** C046S065ES0E **Quad:** Juneau A-3

**Findings:** Upper extent of anadromy incorrect and stream route.

**Recommendations:** Reduce upper extent of anadromy and correct stream route.

Waypoint	Latitude	Longitude	Notes	Sample Effort	Sample Results
20	58.111488	134.745931	Time in:0929, Time out 1121	Minnow Trap	2 CO(50mm), 2 DV(65mm)