TRIP REPORT

State of Alaska
Department of Fish and Game

Field Date(s): August 5 - 12, 2021

Location(s): **Red Dog Mine**

Objective(s): Juvenile fish sampling and collection of juvenile Dolly Varden for element analysis

Participant(s): Chelsea Clawson and Justin Burrows

Weather: Partly cloudy to clear, high temperatures around 55°F

Access: Pick-up truck and helicopter

On August 5, 2021 we flew to Red Dog Mine to perform a portion of the annual biomonitoring projects in the area. Specific tasks we planned to perform were: 1) capture juvenile fish at 23 sites in the Wulik and Noatak drainages (Figure 2), 2) retain 15 juvenile Dolly Varden between 90 and 140 mm fork length from Buddy Creek, Anxiety Ridge Creek, and Red Dog Creek for whole body element analysis, 3) look for spawning chum salmon on Ikalukrok Creek, and 4) drive the Port Road to check on the condition of various bridges and culverts.

Water levels were extremely high in late July and early August (Figure 1). This sampling trip was pushed back from the dates originally planned to allow waters to recede for better minnow trapping conditions.

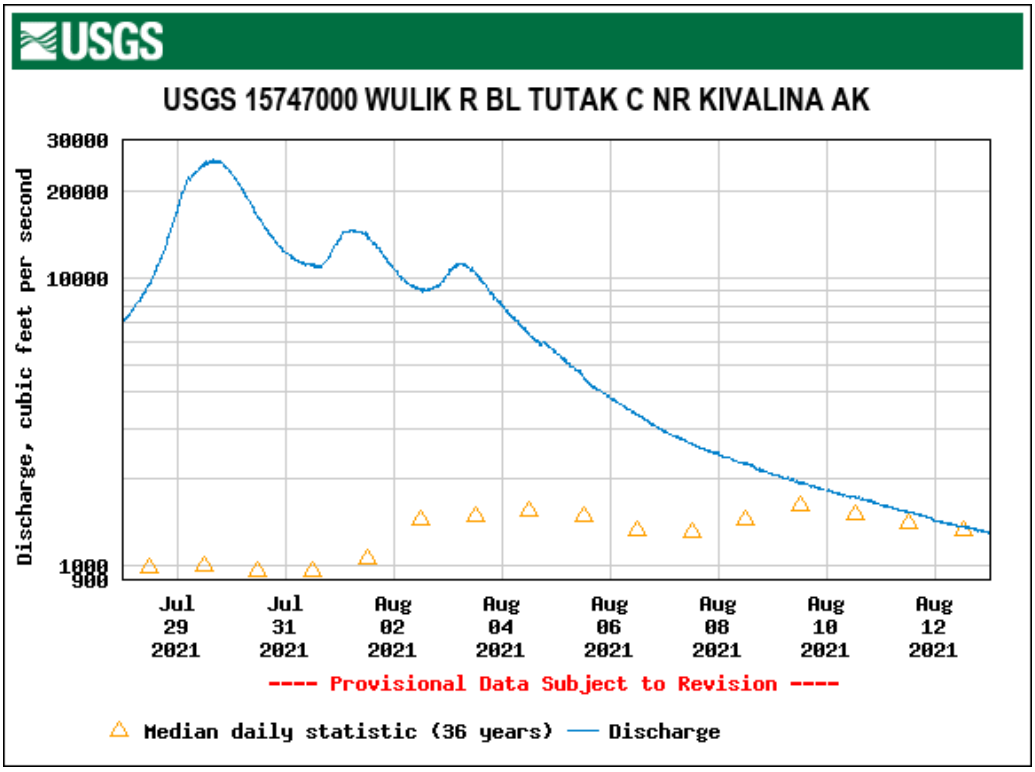

Figure 1. Discharge on the Wulik River from July 28 – August 12, 2021.

Ten minnow traps baited with cured salmon roe were set at each of the 23 sample sites and allowed to soak overnight. Five of the locations were new sites that were added at the request of the Anarraaq/ Aktigiruq exploration project. A total of 177 Dolly Varden and six slimy sculpin were captured (Table 1). Anxiety Ridge made up 51% of the total catch of Dolly Varden. Fifteen Dolly Varden were retained for element analysis from Anxiety Ridge Creek, eight were retained from Buddy Creek, and seven were retained from mainstem Red Dog Creek. Fish were captured at both new sites in the upper portion of Grayling Jr Creek, and at two of the three new sites in North Fork Red Dog Creek (Table 1).

Figure 2. Map of minnow trap sample locations around Red Dog Mine.

Table 1. List of minnow trap sample locations and catches, August 2021, with number retained for element analysis in parentheses.

Sample Site/Name	Station #	Dolly Varden	slimy sculpin
Ikalukrok Creek u/s of Red Dog	9	1	-
Ikalukrok Creek, d/s of Dudd	160	12	2
Mainstem Red Dog Creek (lower)	10	1(1)	-
Mainstem Red Dog Creek (upper)	151	6(6)	-
Buddy Creek, below falls	N/A	25(8)	-
North Fork Red Dog Creek	12	2	1
Upper North Fork Red Dog Creek	N/A	3	-
Upper NF Red Dog Tributary - NEW	N/A	1	-
Upper North Fork Red Dog 1 - NEW	N/A	2	-
Upper North Fork Red Dog 2 - NEW	N/A	-	-
Anxiety Ridge Creek	N/A	90(15)	1
Evaingiknuk Creek	N/A	14	2
Dudd Creek	N/A	11	-
Ikalukrok Creek u/s of West Fork	206	-	-
West Fork Ikalukrok Creek	205	-	-
East Fork Ikalukrok Creek	208	-	-
Upper Competition Creek	203	-	-
Lower Competition Creek	202	-	-
Sourdock Creek	204	-	-
Grayling Junior Creek	209	1	-
Upper Grayling Jr 1 - NEW	N/A	1	-
Upper Grayling Jr 2 - NEW	N/A	7	-
Volcano Creek	N/A	-	-

Water levels continued to drop during our visit, resulting in good conditions for minnow trapping. The turbid water conditions first observed in fall 2019 were still present in West Fork Ikalukrok Creek, Ikalukrok Creek, Grayling Jr. Creek, Competition Creek, and Sourdock Creek (Figure 3). Red Dog Creek was less turbid than in 2020. East Fork Ikalukrok Creek, Buddy Creek, Anxiety Ridge Creek, and Dudd Creek were all clear. Evaingiknuk Creek was tannic and reddish-brown in color, but was not turbid.

On August 11th, we flew Ikalukrok Creek from Station 160 down to the mouth on the Wulik River. Although Ikalukrok Creek was very turbid, we did observe some spawning chum salmon. We landed and did some angling to confirm species identification in one location, and caught nearly ripe chum salmon, Dolly Varden in spawning colors, non-spawning Dolly Varden, and several large Arctic grayling (Figure 4). There were also groups of spawning chum on the Wulik River, upstream of the mouth of Ikalukrok Creek.

Figure 3. The mouth of Red Dog Creek on Ikalukrok Creek (left). Red Dog Creek is the clearer creek entering from the right. Turbid water on lower Competition Creek (right).

Figure 4. Chum salmon (left) and Dolly Varden (right) caught on Ikalukrok Creek.

On August 12th we drove the road from Red Dog Mine to the port, and inspected bridges and culverts along the way. The systems in place to prevent dust and silt from washing into creeks and bridges were all in good condition and functioning well, even after the extremely heavy rains in late July. The combination of silt fencing directing runoff away from the creeks on either side of each bridge and the corrugated sheet metal that forms a barrier on the bridge railings appeared to be effective in keeping road runoff out of the water bodies (Figure 5).

Figure 5. The bridge over Little Creek with metal sheeting in place to prevent road runoff on the bridge (left), and silt fencing directing runoff away from Anxiety Ridge Creek (right).