

TRIP REPORT

State of Alaska
Department of Fish and Game

Field Date(s): August 1- 6, 2020

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: Variable clouds and fog, high temperatures around 55°F, low water conditions

Access: Pick-up truck and helicopter

On August 1, 2020 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 15 sites in the Wulik and Noatak drainages (Figure 1) and 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.

Ten minnow traps baited with cured salmon roe were set at each sample site and allowed to soak overnight. Twenty minnow traps each were set at the upper and lower mainstem Red Dog Creek sample sites (Sta 151 and Sta 12), since catches have been low the past several years. A total of 118 Dolly Varden, eight slimy sculpin, four juvenile coho salmon, and one Arctic grayling were captured (Table 1). Anxiety Ridge, Dudd, and Buddy creeks made up 77% of the total catch of Dolly Varden. Fifteen Dolly Varden were retained for element analysis from Anxiety Ridge Creek, and 11 were retained from Buddy Creek. No fish were caught at any of the sample sites in the Red Dog Creek drainage.

The minnow traps at upper mainstem Red Dog Creek (Sta 151) soaked for two nights, since a brown bear sow and three cubs refused to leave the area when we first attempted to check the traps. When we checked the following day, two traps were missing but the rest were intact.

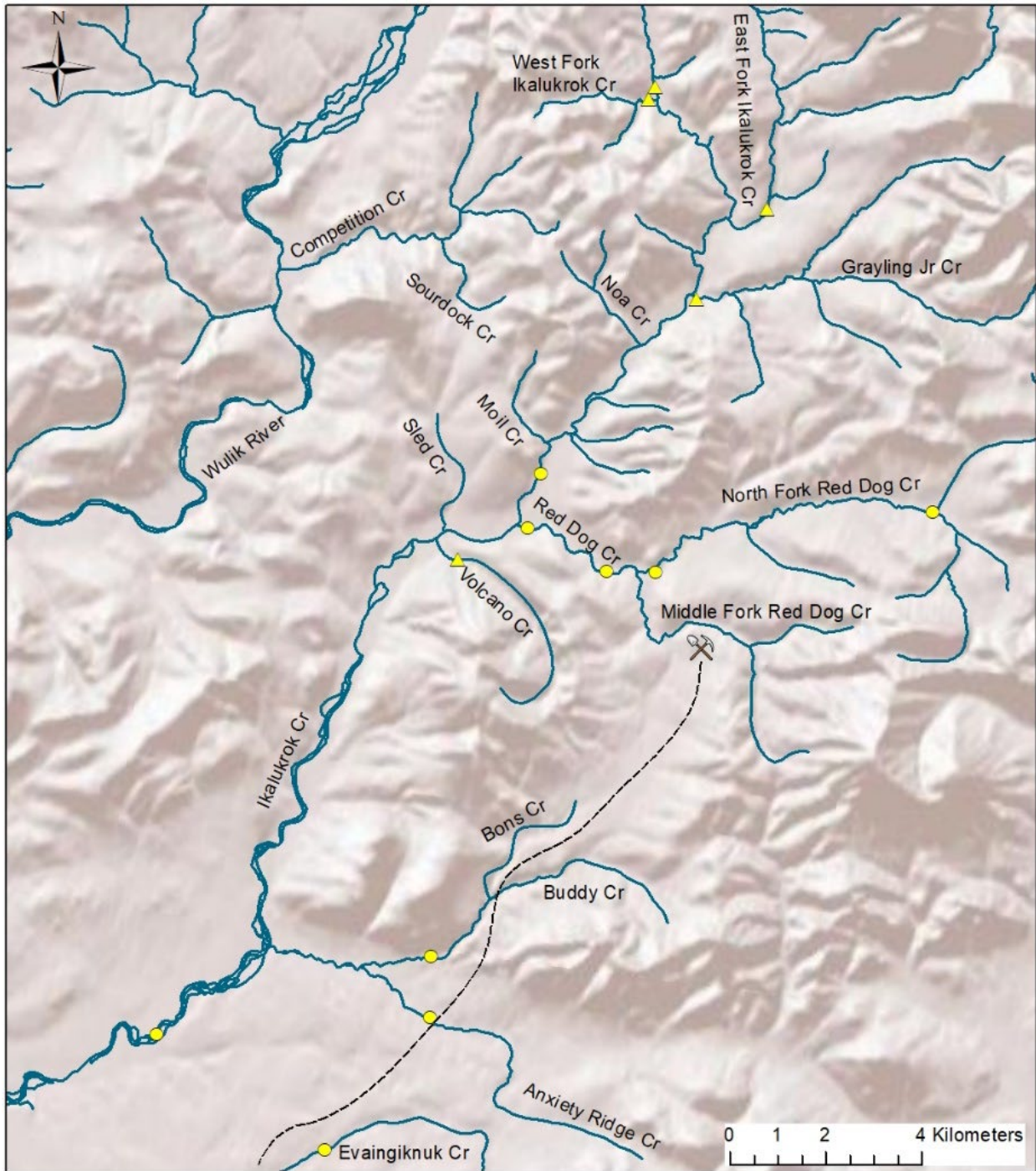


Figure 1. Map of minnow trap sample locations around Red Dog Mine. Circles indicate monitoring locations for Red Dog Mine and the road, and triangles indicate monitoring locations for the Anarraaq and Aktigiruk deposits.

Table 1. List of minnow trap sample locations and catches, August 2020

Sample Site/Name	Station #	hours fished	Dolly Varden	slimy sculpin	coho salmon	Arctic grayling
Ikalukrok Creek u/s of Red Dog	9	22.00	4	-	-	-
Ikalukrok Creek, d/s of Dudd	160	23.08	9	1	-	-
Mainstem Red Dog Creek (lower)	10	22.08	-	-	-	-
Mainstem Red Dog Creek (upper)	151	44.58	-	-	-	-
Buddy Creek, below falls	N/A	21.00	15	-	2	-
North Fork Red Dog Creek	12	28.33	-	-	-	-
Upper North Fork Red Dog Creek	N/A	25.33	-	-	-	-
Anxiety Ridge Creek	N/A	27.83	50	-	2	-
Evaingiknuk Creek	N/A	26.00	7	3	-	1
Dudd Creek	N/A	23.25	26	4	-	-
Ikalukrok Creek u/s of West Fork	206	20.50	-	-	-	-
West Fork Ikalukrok Creek	205	20.50	-	-	-	-
East Fork Ikalukrok Creek	208	22.42	-	-	-	-
Grayling Junior Creek	209	23.00	6	-	-	-
Volcano Creek	N/A	23.33	1	-	-	-

Water levels were very low during our visit, which made setting and retrieving minnow traps easy (Figure 2). However, the unusual water quality conditions first observed in fall 2019 were exacerbated by the low flows and lack of precipitation. Red Dog Creek, West Fork Ikalukrok Creek, Ikalukrok Creek, and Grayling Jr. Creek were all very turbid, especially Red Dog Creek. 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. Numerous seeps were observed throughout the sampling area, and are documented in more detail in the trip report from July 2020.

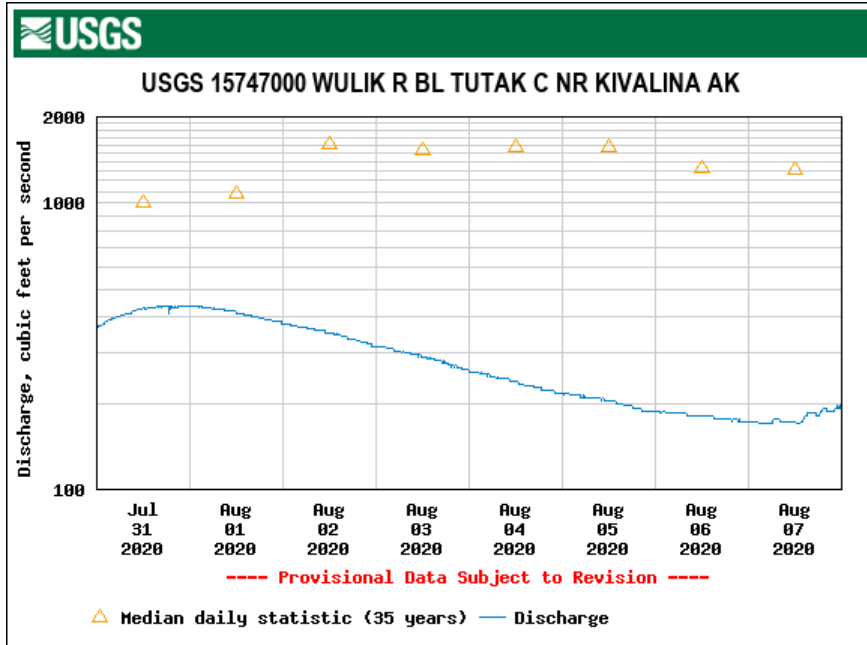


Figure 2. Discharge on the Wulik River during our sampling visit.

Because of the low water, the pool at the base of Bons Falls did not have a surface connection to Bons Creek (Figure 3). We used hook and line to remove approximately 80 Arctic grayling that were trapped in this pool and relocate them to the large pool by the intake pump with a surface connection to Bons Creek. Three of the Arctic grayling were recaptures initially tagged during the June 2020 sampling in Bons Creek above Bons Pond.



Figure 3. Below Bons Falls in May 2016 (left) with surface connection to Bons Creek, and in August 2016 (right) with no surface connection to Bons Creek. Conditions in August 2020 were nearly identical to those shown here in August 2016.