



COPPER RIVER WATERSHED PROJECT

≈ Upriver and down, salmon are common ground ≈

November 5, 2021

WNTI Final Report: Copper River Watershed Project's "Going to Extremes"

The objectives of Going to Extreme were to:

- Engage up to 75 students (6-12 grade) in the Copper River watershed (total population in the region approximately 5,000 people) in up to five, trout-themed aquatic ecology field trips by November 15, 2020 (extended to 2021 with amendment).
- Engage up to seven public and nonprofit partners to implement field trips, helping participants learn more about native trout species and natural resource jobs in the Copper River watershed.

After participating in our trout-themed aquatic ecology field trips, participants will be able to:

- Identify native species of trout (coastal cutthroat for Cordova-based programs, and rainbow trout in the Copper Basin), in addition to other resident fish species like Dolly Varden, Arctic grayling, and salmon sp.
- Explain habitat needs and use by native trout species, including resident, anadromous, and potamodromous life cycles, all found in coastal cutthroat populations on the Copper River Delta.
- Identify potential threats to the health of native trout species in the Copper River watershed.

While the COVID-19 pandemic made achieving project objectives more challenging, we were ultimately successful in implementing a total of two summer field-based programs for high school students (one in 2020 and 2021, total 14 participants, four students participated both years), and five aquatic-based field trips for upper elementary through high school classes in May and Sept. 2021 (49 participants total), achieving our goal of at least five programs (total 7 programs, 72 participants, just shy of 75 goal). However, due to access and the challenges of planning remote field-based programs during a global pandemic with conditions constantly changing, we were not able to host all of the programs we had hoped, or host programs at specific sites that would require camping and transport in boats and vans, things that we put on hold during the pandemic. Therefore, not all of the programs were able to be hosted at sites known to have trout (4 of 7 programs were not at sites with trout). However, the chance to get into chest waders and learn more about aquatic habitat and specific fish habitat needs still provided memorable learning experiences for participants, and in talking about Pacific salmon and Arctic Grayling, we could share important characteristics of cold-water habitats for cold-water fish like trout.

We were able to achieve our goal of engaging with seven partners, including the following:

- Prince William Sound Science Center

- WISE (Wrangell Institute for Science and Environment)
- Copper River School District (Kenny Lake, Slana & Glennallen Schools)
- Mentasta Lake Katie John School
- National Park Service, Wrangell St. Elias National Park & Preserve
- BLM Glennallen Field Office
- U. S. Forest Service, Chugach National Forest

2020 & 2021 Copper River Stewardship Program

The Copper River Stewardship Program is a field-based program for up to 10 high school students living in or connected to the Copper River watershed. This program is hosted in partnership with the Prince William Sound Science Center, BLM, National Park Service and WISE (Wrangell Institute for Science and Environment). Partners coordinate on a 10-day adventure for students, developing opportunities for students to explore and learn about the region they call home, engage in hands-on learning, stewardship, and research opportunities, and learn about future natural resource careers. The trip also includes adventures like hiking, rafting, and canoeing, providing important confidence and skill-building experiences that are also fun for participants.

Due to the pandemic, the program was significantly modified in 2020, however we were pleased to have any sort of education program given how isolated we all were in 2020. Instead of convening the group on one joint adventure, two students from Cordova (at the mouth of the river) explored Coastal Cutthroat trout habitat on the Copper River delta, while a cohort of five Copper Basin student (closer to the headwaters of the river) explored Rainbow Trout habitat in the Copper Basin. Students participated in a virtual introductory day where they learned about each other, the watershed, and their assignment to explore local trout habitat and share their findings with their peers. They were also both going to be assessing sites with road crossings, and they received a short introduction to culverts and how they can impact fish habitat.

Students then spent two days deploying and checking minnow traps and collecting stream, water quality, and culvert data to learn about local habitat conditions and how streams are impacted by culverts. At each minnow trap, students would identify and count the fish species caught, releasing them all alive at the site they were caught. The Cordova students were excited to find Cutthroat Trout in their upper most trap and the Copper Basin students were excited to catch a lot of juvenile Rainbow Trout. In order to understand the impact of culverts, students collected stream width and depths immediately up and downstream of the culvert, as well as in an un-impacted section of the stream. They also did a site sketch, and were able to describe how the culvert made the stream over-widened and deep in scour pools caused by undersized culverts increasing the flow of water.

On the last day students developed a short presentation to share their findings and photos with the group at the other end of the watershed. While it was different than a full 10-day

field-based program, both students and adult leaders were all excited to be out in the field on an educational adventure in a safe manner in the midst of the COVID pandemic.

In 2021, things were “more normal” for the Stewardship Program, in that we embarked on a field-based adventure. In order to make it COVID-safe, we were able to create a program “bubble” and charter a boat between the Copper Basin (via Valdez) to Cordova and avoid public transportation. Participants spent three days and two nights exploring the upper most extent of Rainbow Trout habitat on the Gulkana River, at the outlet of Paxson Lake. Unfortunately they were unable to catch Rainbows due to the timing of our trip, but participants had fun exploring unique, pristine aquatic habitat in the Copper Basin. While in Cordova, participants explored two branches of the Goose Meadows system on the Copper River delta, finding numerous Cutthroat Trout in both branches, including a trout alevin accidentally scooped from the gravel when searching for macro-invertebrates.

Students stopped at multiple culverts along the trip, learning about how undersized culverts can impact hydrology and fish passage. Water levels were too high at the main culvert they visited (Little Tonsina River) and students were unable to do measurements at the site to document the impact. However, they were able to visit both fish-friendly and existing undersized culvert on the Copper River delta and discuss their visual observations, describing things like erosion and scour pools that were a result of the culverts being too small, and see how recently installed fish-friendly crossings were more appropriately sized and aligned with the natural stream channel. They also visited a gravel pit where a contractor’s crew was assembling new fish-friendly culverts, and they were able to see how large the culverts are before they are placed in the ground and filled with substrate, and learn about how they are built.

Because it was back to the full 10-day length, we were able to offer credit to students for their participation in the 2021 expedition, contingent on their completion of a final project. Multiple students chose trout as a theme to their final project, and one group of students is working on a movie about culverts and their impact to fish habitat. Photos of completed projects have been submitted with this final report, and the movie will be shared upon completion.

School-based Aquatic-themed Field Trips

While we weren’t able to host all the field-based trout programming we had originally intended, we were able to coordinate aquatic-based field outings for students in May 2021. We took 25 students from Mentasta Lake Katie John School on a field trip to Fish Creek and Mentasta Lake. Students enthusiastically collected macro-invertebrates living in these cold-water systems, and were able to catch a sculpin and burbot in minnow traps, and scoop juvenile Sockeye Salmon fry with a dipnet. Trout are not found in these systems, but their school is located too far away to realistically transport students to systems known to have trout. However, students had a blast getting to wear chest waders and learn about cold-water fish habitat.

We also hosted a field trip for 12 Kenny Lake students at Strelna Lake and two Slana students at Junction lake. We chose these destinations because they are Alaska Department of Fish & Game-approved lakes for releasing classroom-raised salmon eggs, and the teachers wanted to combine their field trip with releasing their salmon fry. Students again donned chest waders and learned about important habitat conditions, including water temperature, pH, dissolved oxygen, and macroinvertebrates, for cold-water species like salmon and trout.

Our last field trip was with students from Glennallen High School. Unfortunately, the high school teacher made a scheduling error and while we planned to take out two of her classes, in the end only one class could make it, and there were only three students in that class. However, representatives from Alaska Department of Fish & Game still assisted and help set hoop traps in addition to minnow traps. While in previous years this yielded Rainbow Trout, this time we only caught adult and juvenile Arctic Grayling and Longnose Suckers.

In September 2021 we were able to take a group of 7 Glennallen students to the highest priority fish passage restoration site in our watershed on the Little Tonsina River. Students were able to help with pre-restoration assessment by checking minnow traps and identifying/counting the fish species in the stream. While this wasn't known Trout habitat, it is the prime site for educating students about fish passage as it is the set of poorest functioning culverts impacting access to over 70 miles of upstream Chinook and Coho Salmon habitat. Winter arrived early to the region and waters started to freeze up, making it a little more dangerous to have students immersed in chest waders the entire time. Therefore, instead of measuring the culvert impacts in the stream, we were able to experiment with a "road side" stream table and build a sample watershed and then observe what happened to stream flows when the channel was constricted. This was a good alternative to test and add to the activity write-up so that high-water events making it dangerous for kids to be in the water did not impact the chance to provide tangible lessons for students regarding the impacts of undersized culverts on stream habitat and aquatic organism passage.

It was clear from observing students on field trips that fun was had by all. It has also been made clear through successful completion of student projects, in particular on the Copper River Stewardship Program, that students learned a lot about trout and fish habitat in the Copper River watershed. They increased their skills at identifying local fish species, identifying and measuring important habitat components for fish (Thalweg is always a favorite new term 😊 to learn, as well as potamodromous when it's time to learn about trout!), and walked away with an appreciation for a healthy in-tact watershed and the role they play in sustaining the health of the region into the future. WNTI support also covered some time to help develop an activity guide so that trout and fish passage education will continue to be integrated into future watershed programming in the region.

Budget Narrative: A report from our Quickbooks financial system has been submitted with this report. Additional details are available upon request.

While the budget categories remained the same, the amount spent within each category varied based on the following:

Personnel: Actual \$1,274.20 (budgeted: \$700)

Personnel was covered primarily for developing the lesson and programming materials specific to trout and fish passage education. These costs ran slightly higher because of the extra logistics resulting from COVID required to coordinate the outings to test and fine-tune activities.

Travel: Actual \$1721.33 (budgeted \$2,523)

Travel covered the cost of getting to/from the Copper Basin from Cordova (via ferry) and mileage for getting to remote communities to host field trips. During the pandemic we received some extra funding from one of our Stewardship Program sponsors to cover more transportation costs, reducing the expenses to be covered with WNTI support.

Supplies: \$827.72 (budgeted \$600)

Supplies purchased include large wader boots, materials to build new wader belts, waterproof cameras for our field trips, battery operated aerator for supporting fish being temporarily held in buckets, and food for our field-based Copper River Stewardship Program.

IDC: \$926.75 (budgeted \$927)

We applied our federally negotiated IDC to direct expenses, and while the expense categories differed the entire amount remained the same, resulting in our IDC being consistent with what we budgeted.