



COPPER RIVER WATERSHED PROJECT

COPPER RIVER

Runner

FALL 2018



HOW DO SALMON CROSS THE ROAD?

Replacing Culverts, Restoring Watershed Connectivity

BY KATE MORSE, PROGRAM DIRECTOR

Our work on fish passage and stream simulation culverts began 10 years ago with the idea of looking at the relationship between culvert condition (poor vs. good) and the value of the fish stream on which a culvert is located. With participation from a multi-agency partnership, we developed a scoring system, evaluated dozens of culverts throughout the drainage, and set up a database of all the culverts in our region that's used as a planning tool by us and our agency partners.

In May this year, we learned that the Exxon Valdez Oil Spill Trustee Council (EVOSTC) approved an award to our multi-agency partnership of \$8.1 million to restore connectivity at 13 problem culverts on the Copper River Highway – that's a nice return on investment for that decade of field work and analysis on fish passage barriers!

To identify high priority crossings for restoration, scores have been tabulated for the condition and the quality of habitat for each crossing. Specific culvert scores are awarded based on constriction (size of the pipe vs. the stream width), perch, and gradient (or slope) of the culvert. Specific habitat scores are awarded for quality and amount of fish habitat on the upstream side of the culvert and the diversity of fish species present in the stream.

Over the course of multiple field seasons CRWP completed a total of 214 habitat surveys and 78 culvert surveys to gather the data necessary to generate a fish passage score

and a habitat score for each culvert. By tabulating these scores we were able to identify the subset of crossings that have the highest quality and quantity of fish habitat associated with the poorest functioning culverts. As a result, our requests for funding are stronger because we can demonstrate a watershed-scale approach to restoring fish passage. Over the decade leading up to the recent award from the EVOSTC, we have secured roughly \$2 million to replace or remove culverts at five other crossings in the watershed and are working on installing a bridge at one of the highest priority sites in the Copper Basin.

Not only does replacing culverts support our mission by ensuring a salmon-rich, intact watershed but it provides an economic boost to our communities. Restoration work provides local jobs and brings project partners and engineers to the region whose travel results in income to local businesses. Properly functioning culverts also protect our valuable roadway from flood erosion.

Replacing culverts with stream-simulation culverts, or crossings designed to mimic natural stream conditions, is good for all inhabitants of our local waterways. They benefit salmon because they help provide connectivity to both spawning and rearing habitat. While it is easy to see (and catch!) adult salmon trapped on the downstream side of a culvert, what we often forget are the fry that can live for multiple years in fresh water before migrating out to the ocean.

Poorly installed culverts might be passable by spawning adults, however smaller fish have less energy reserves for overcoming swift waters and large perches. Restricting the free migration of juvenile salmon to limited stretches of nursery habitat will limit the number of smolts making it out to the ocean, which in turn limits the number of

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adults that will someday return to fill our nets, our bellies, feed our ecosystems, and support future generations of salmon. Thanks to the effort of our fish passage partners, including AK Dept. of Transportation, AK Dept. of Fish &

Game, Native Village of Eyak, NOAA, U.S. Fish & Wildlife Service, and U.S. Forest Service, and the investment from EVOSTC, Copper River Salmon are swimming into a better future.

LETTER FROM CRWP

EXECUTIVE DIRECTOR

On a beautiful, sunny September Tuesday I was fortunate to represent the Copper River Watershed Project in an outdoor education partnership program called “Changing Seasons” that WISE (Wrangell Institute for Science and Environment) put on for Kenny Lake 2nd and 3rd grade students.

“Changing Seasons” is a fall education program that focuses on, yes, change – the migrations and adaptations that fish and wildlife go through as part of our seasonal cycles. We spent some time looking at a map of the Copper River watershed, and we located where on the map we were, and where I had come from, Cordova. Kids had to think a minute about how I got there – “what’s a ferry?”, one asked – but looking at the map, they didn’t have to think hard about what connects Cordova to their home: the Copper River.

The technical definition of “watershed” is “all the land that drains rain and snow to one river.” For our region, that “one river” is the Copper River, connecting communities from the river’s headwaters near Mentasta all along the river corridor, past Chitina, on down to the Copper River delta town of Cordova.

For salmon that are migrating to complete their life cycle, the Copper River corridor allows them to connect to their “home” too – their home stream, the one to which they are returning after their time in the ocean. I talked with the kids about the different parts of the watershed – rivers, where salmon hatch and rear in fresh water; estuaries, where fresh and salt water mix, and salmon start to go through “salt shock” to adjust to the ocean’s salinity; and the ocean, where smolts forage and grow to adulthood, until they are ready to return to fresh water (again adjusting in estuaries), completing the cycle of reproduction and renewal for the next generation. Salmon need complete connectivity, at all life stages and at all water flow levels, to each of these waterbodies to ensure successful reproduction.



And we got to experience all of that with a great game of Hooks and Ladders! As newly hatched salmon, kids migrated through an obstacle course of culverts, bears and eagles, gillnet and dipnetting fishermen, and a final culvert to return home to spawn. As one student migrated through the course they managed to leap through a hole in the piece of gillnet web I brought – the “fisherman” holding it said we need to get a better net-mender!

The next day, we went to the Glennallen school and got to talk with students there too – a day outside with kids beats a day at the desk every time!

And outside the classroom, keeping this connection between up-and-down-river parts of the watershed is more than advocating for a biological concept for us. From a Board of Directors with members from both areas to our Copper River Stewardship Program that leads high school youth from both areas in outdoor exploration of the watershed from top to bottom, we strive in all of our actions to think and act on a watershed scale.

Thank you for your support of our rural education efforts to talk about the importance of an intact watershed,

Kristin

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Chantel Adelfio, *Invasive Plants Coordinator*
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If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it. – David Sobel

LEARNING OUTSIDE THE CLASSROOM

Hands-on explorations inspire love of salmon



“Look at the parr marks!” “That’s a salmon fry!” “I found more marine-derived nutrients!” These were just some of the enthusiastic comments (and scientific terms!) heard from Cordova 5th graders as they explored Hartney Bay during a fall field trip to learn more about spawning salmon habitat and watersheds. The trip outside the classroom provided an engaging experience for all students, and provided context and real-world example for the terms I had been teaching them in the classroom like watershed, bankside vegetation, riffle and pools.

This approach to education is called “place-based education” (PBE). PBE uses all aspects of the local environment, including local cultural and historical resources and the natural and built environment to engage students in learning. Not only has PBE been documented to increase student achievement, but students develop stronger ties to their community and their natural surroundings, and are more likely to become active and contributing members of their community (Sobel 2013).

There is no doubt the communities of the Copper River watershed were humming with concern over poor fish returns and limited fishing time this past season. People in the region depend on the salmon to fill their freezers, provide jobs, and draw visitors to the area to support local businesses. Poor fishing seasons and financial stress can weigh on entire families, and children can end up feeling the weight of the future on their shoulders.

But let’s return to David Sobel’s idea of giving youth time to connect with nature and love the Earth before we ask them to save it. Since 2014, we have partnered with the Wild Salmon Center and Prince William Sound Science Center to compile a standards-based salmon-themed curriculum that incorporates PBE activities into a fall and spring unit for 5th grade students. This curriculum includes multiple field trips that invite students to explore their surroundings and connect with the role salmon play in their community and local environment. The ultimate goal is for this curriculum to be shared with teachers in communities on the Pacific Coast where salmon are or have been the root of local cultures and economies.

During the field trips, students visit local streams and estuaries to study water’s movement through a watershed, salmon spawning and rearing habitat, and the nutrients delivered by decomposing salmon to freshwater ecosystems and the forest (yes, trees really do “eat” salmon!). Students also explore the boat harbor and learn about different fishing boats and invite a wide range of adults from the community to a salmon luncheon in order to learn about the many types of jobs directly and indirectly connected to fishing. In the spring they release the coho fry that they raised in their classroom tank into a local stream to live the rest of their life cycle and hopefully someday return to Cordova to spawn.

The enthusiastic participation of the 5th graders in these unique learning opportunities is evidence that these students are energized by these learning experiences. The use of scientific terms in the field that they learned in the classroom is evidence that the lessons are sticking. While only time will tell if we’ve armed these students with the powerful experiences necessary to save salmon, we will continue to work with our partners to maximize the place-based learning opportunities provided by this unique region and lifestyle. We believe helping our youth love and appreciate the Copper River watershed and its communities are key to saving them.





ALASKA'S INVASIVE PLANT MINI-GRANT PROGRAM

BY CHANTEL ADELFIGIO
INVASIVE PLANTS PROGRAM MANAGER

The Copper River Watershed Project partners with federal, state, and local organizations to help control the spread and establishment of invasive plants within the Copper River watershed. As we all know, plants do not understand land ownership or where the boundaries are for the Copper River watershed, therefore, it is important to communicate and work with people throughout the state of Alaska. In an effort to help organizations across the state control and track invasive species, the CRWP

has partnered with State and Private Forestry to implement "Alaska's Invasive Plant Mini-Grant Program".

The CRWP started managing the Mini-Grant Program in the fall of 2017. This program provides small grants, generally under \$12,000, to non-federal organizations in Alaska. Mini-grant projects may use funds to survey and treat terrestrial invasive plants, purchase field supplies, host educational events, and travel to invasive plant meetings

or conferences. In the 2018 field season the "Alaska's Invasive Plant Mini-Grant Program" funded eight projects, totaling \$60,000, targeting highly invasive terrestrial plants in southeast, southcentral, and interior Alaska. The CRWP is proud to be a part of the mini-grant program and looks forward to continuing invasive plant work through our boots on the ground projects in the watershed and providing 2019 mini-grant funding to organizations across Alaska.

SUSTAINABLE SOURCES: THANK YOU COASTAL SEAFOODS AND ERATH WINERY

"Sustainability," a term introduced as a guiding concept in economic development roughly three decades ago, is defined as maintaining balance between community growth and biological systems so that our natural resources may remain diverse and productive indefinitely. Here are two examples of businesses who support the CRWP that integrate that standard into their foundation – we hope you can support them in their commitment to sustainability!



Coastal Seafoods and its parent company, Fortune Fish Co. (FFC), supply fresh seafood to the mid-West through Chicago (FFC) and Minneapolis (Coastal Seafoods) markets. FFC belongs to the Sustainable Fisheries Partnership (working with the seafood industry supply chain to ensure sustainable practices in seafood supply), and is Marine Stewardship Council and Aquaculture Stewardship Council certified. The company recycles and composts in its offices and is working toward zero food waste in its Chicago plant. All of its seafood trim, bones, and heads are turned into organic fertilizer for organic agriculture and any product that is not perfect for its customers is donated to Care for Real Food Pantry. In light of current climate change, Fortune upholds the importance of investing in sustainability to ensure the availability of a healthy food supply for generations to come. We will be collaborating on marketing with Coastal Seafoods in spring 2019.



Raise a Glass to Salmon-Safe Wine

Erath Winery in Dundee, Oregon is certified by Salmon-Safe as a vineyard that protects and restores salmon habitat by applying natural methods to control weeds and pests, growing cover crops to control runoff, and planting trees on streams for shade. Salmon-Safe has become one of the nation's leading ecolabels with more than 95,000 acres of farm and urban lands certified in Oregon, Washington, California, and British Columbia. Erath Vineyard donated Pinot Noir and Pinot Gris wine to support the CRWP's fall Wild Harvest Feast fundraiser.

RIDGELINES: AROUND THE WATERSHED

CHUGACH NATIONAL FOREST SOLICITING COMMENTS ON DRAFT LAND MANAGEMENT PLAN (LMP)

The LMP describes the 15-year strategic vision for managing the approximately 5.4 million acres of National Forest System lands in southcentral Alaska. These draft documents are available for review through November 1, 2018 and are available at: www.fs.usda.gov/goto/chugach/planrevision.

Building on a commitment in the 2002 Chugach Forest Plan to contribute to the regional economy through recreation and tourism, salmon fisheries, and wild renewable resources, this year's draft LMP focuses on working relationships with southcentral Alaska Native Tribes and Corporations, the State of Alaska, and local stakeholders to support delivery of benefits to all who enjoy and utilize the forest.

The LMP is organized in three main parts: part one vision, part two strategy, and part three design criteria. Plan components in these main sections are arranged under three main goal statements:

- Foster collaborative relationships;
- Contribute to social and economic sustainability; and
- Provide for ecological sustainability.

Submit comments electronically at www.fs.usda.gov/goto/chugach/plancomments or in writing to Chugach National Forest's Supervisor's Office, Attn: Draft Land Management Plan, 161 East 1st Street, Door 8, Anchorage, AK 99501.

STAND FOR SALMON BALLOT INITIATIVE IN ALASKA

Alaskans will vote on November 6 on a statewide ballot initiative to update regulations on permits issued for doing work in documented salmon streams. The initiative proposes four main changes in State law: (1.) implementing enforceable standards in evaluating habitat impacts (water quality, water quantity, timing of habitat impacts, effects on diversity); (2.) requiring public notice of permits issued; (3.) presuming that all tributaries to documented anadromous habitat also contain anadromous fish; and (4.) creates two categories of permits, minor and major, for evaluating impacts on salmon habitat. Existing salmon hatcheries will not be affected as they are grandfathered under the initiative's provisions. New hatcheries are covered in a different section of Alaska regulations (see 5 AAC 40.110 – 40.990) which require a management feasibility analysis and a habitat impact assessment. If a new hatchery can meet those requirements, which are more comprehensive than Stand for Salmon habitat standards, it will also be able to be granted a Title 16 Fish Habitat Permit. [Learn more about the ballot initiative at standforsalmon.org](http://standforsalmon.org).

KENNECOTT OPERATIONS PLAN UPDATE IN WRANGELL-ST. ELIAS (WRST) NATIONAL PARK

In the largest, but among the youngest, of our national parks, the National Park Service is conducting a series of listening sessions as part of the Park's backcountry, wilderness stewardship, and frontcountry planning. In June and July 2018, WRST held nine listening sessions in five neighboring communities: Copper Center, Slana, Chitina, McCarthy, and Kennecott. The series will continue until all surrounding communities have had a chance to meet with WRST Superintendent Ben Bobowski and the planning team. Park staff are currently working on finalizing a draft summary report on the comments received during the summer 2018 listening sessions, which will be released through an email list this fall. [To join the email list or to share your comments with park management, e-mail \[wrst_planning@nps.gov\]\(mailto:wrst_planning@nps.gov\) and consider attending one of the upcoming open house listening sessions. Comments may also be submitted at <http://parkplanning.nps.gov/WRSTListens>.](#)

watershed
(wa'ter-shed)

the region or area drained
by a river or stream:
all the land that carries
rain to the same river system

SPECIES DISTRIBUTION SHIFTING WITH CLIMATE

BY CHANTEL ADELFO
INVASIVE PLANTS PROGRAM MANAGER

The temperature is dropping, daylight hours are decreasing, and camouflage is at an all-time high. It is officially fall and that means hunting season is in full swing. All across the state of Alaska you will find wild plants and animals that Alaskans rely on and appreciate for subsistence living. However, due to increasing temperatures, many Alaskans have already noticed changes in the length of growing seasons, duration of ice cover, and distribution of animals. All of these changes can affect what and how Alaskans gather and hunt.

The average temperature in Alaska has increased roughly 3° F over the past 60 years and is projected to increase an additional 2° to 4° F by the middle of the century (U.S. Global Change Research Program, 2014). Warmer annual temperatures will send ripples throughout the ecosystem. Shrubs and trees have established populations in higher latitudes, and this shift has provided an increased food source for moose. An increased food source coupled with warmer winter temperatures (decreased winterkill) has led to an increase in moose abundance. This sounds great, especially for all the moose hunters this year! However, with all things in nature, the scales have to balance. The range expansion of shrubs into northern latitudes will displace vegetation caribou rely on, therefore, moose hunters may rejoice, but subsistence hunters that rely on caribou may struggle to find herds that once roamed the area.

Shifts in the climate will open up habitat that was once unsuitable for many species, including invasive species. Alaska Department of Fish and Game warns against one invasive species that is currently found in Alberta, the moose winter tick (*Dermacentor albipictus*). Kimberlee Beckmen, a veterinarian with the Alaska Department of Fish and Game, stated that the winter moose tick can be brought up on somebody's horses, cattle, or free ranging wildlife. If the tick were to make it to the state, it could reproduce and survive, posing a very serious health issue to moose populations, especially calves. The ticks are usually lethal to the moose host, as the moose suffer from blood loss, heat loss (scratching removes hair), and weight loss (time spent scratching instead of foraging).

As our climate shifts it is important to stay flexible with subsistence time and effort, and take advantage of new subsistence opportunities. Also, by supporting research on species shifts, invasive species, and climate change we can stay current and help protect Alaska's resources.

If introduced the winter moose tick could survive in the changing Alaska climate.

Photo courtesy of University of Maine Cooperative Extension



The Alaska Sea Grant website supplies fact sheets covering the impacts of climate change on several topics important to Alaska and its residents. We encourage you to check these out at: <https://seagrants.uaf.edu/map/climate/>



A moose with an infestation of winter moose ticks suffers from blood loss, hair loss, and starvation.

Photo courtesy of Minnesota Department of Natural Resources



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Newsletter

FALL 2018



- * Learning outside the classroom
- * Invasive plant mini-grants
- * Sustainable sources
- * Species distribution shifting

TO

CRWP MISSION

The Copper River Watershed Project promotes a salmon-rich, intact watershed and culturally diverse communities by forming partnerships for watershed-scale planning and projects.



Lorna Stern, donor, on gifting 112 acres at Shelter Cove, Cordova of undeveloped forest with the Fleming Creek salmon stream running through it, to the CRWP:

Cordova always had a special place in my husband Jack's heart. Jack and I resided in Anchorage for 26 years, where he practiced law and we raised our son and daughter. He did extensive legal work for bush pilot Merle K. Smith [who led Cordova Air Service until it was bought out by Alaska Airlines in 1968].

We made multiple trips to Cordova, drove to Chitina on the Copper River. We always walked through the cut to see the Copper River flowing swiftly by! I admire how CRWP supports youth education in salmon habitat and fisheries resources throughout the region's widespread communities, and how the scope of its work includes Board member representation on a watershed scale.

Visiting Shelter Cove, Cordova in July 2017 were (from left): Courtney Kitchen (attorney), Brad Stern, Lorna Stern, Vince Bailey, Austin Quinn-Davidson (Great Land Trust), Kristin Carpenter (CRWP), Keri Stern Bailey, and Dave Mitchell (GLT).

WHY I SUPPORT CRWP

LORNA STERN

MERCER ISLAND, WA

