

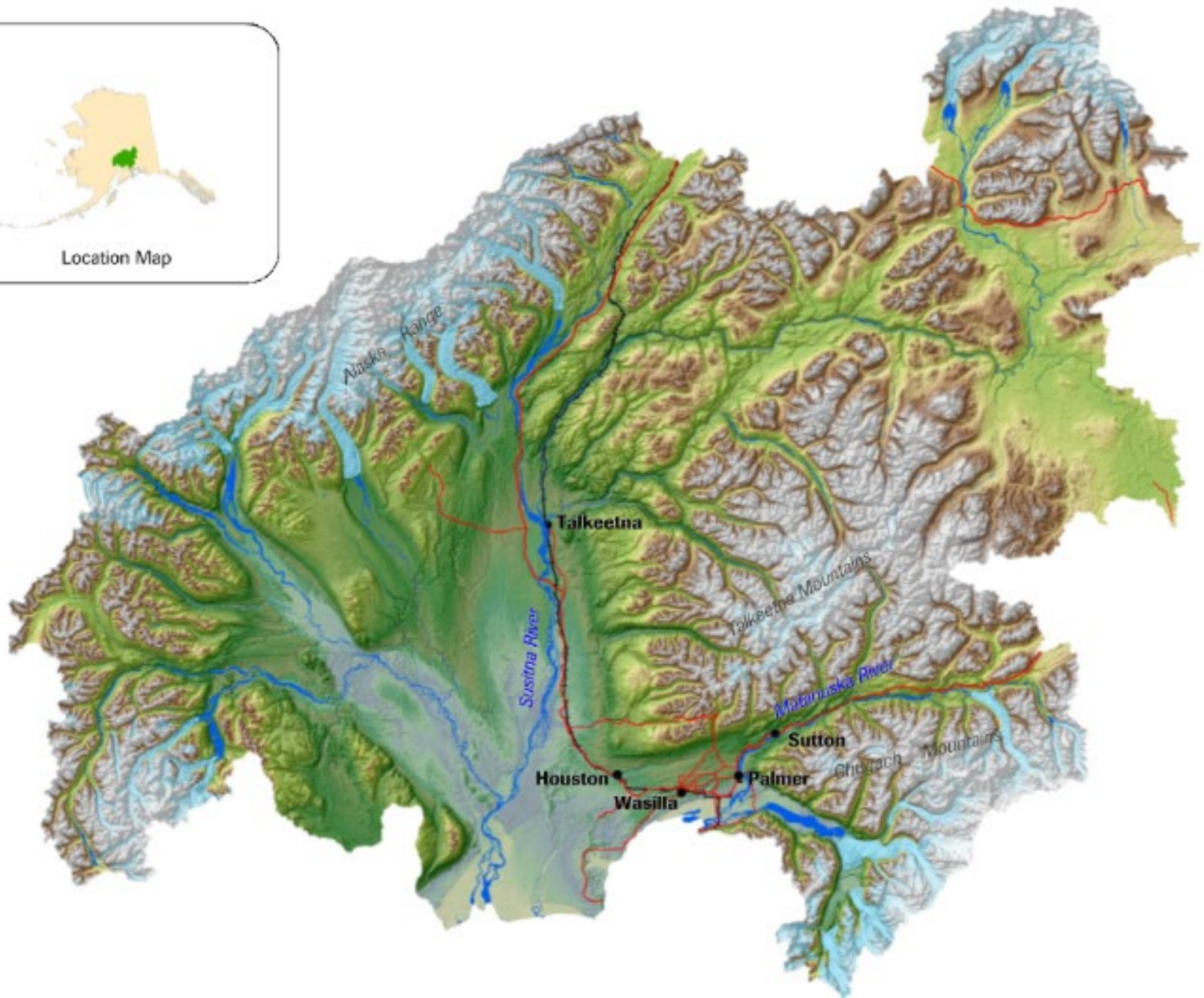
16TH ANNUAL
MAT-SU SALMON
SCIENCE &
CONSERVATION
SYMPOSIUM

NOVEMBER 13-14, 2023
PALMER, ALASKA

An underwater photograph of several salmon swimming in a river. The fish are seen from below, showing their dark, iridescent sides and bright red-orange bellies. They are swimming in a shallow, rocky stream with some dry grass and twigs visible on the riverbed. The water is clear, and the lighting is natural, highlighting the texture of the fish's scales and the surrounding environment.

HOSTED BY THE MAT-SU BASIN SALMON
HABITAT PARTNERSHIP

The Matanuska-Susitna Basin



2023 Mat-Su Salmon Science & Conservation Symposium

Welcome to the 16th annual Mat-Su Salmon Science & Conservation Symposium, hosted by the Mat-Su Basin Salmon Habitat Partnership. We're glad you're here!

This year's symposium covers a broad range of topics related to salmon habitat, highlighting the diverse areas of expertise held by members of the Partnership. We will have presentation blocks on salmon and ecosystem science, moving science to conservation outcomes, aquatic invasive species, restoring salmon habitat and passage for fish, and monitoring, maintenance of and potential threats to water quality.

Additionally, we are excited to host a poster session allowing you to browse additional research and talk one-on-one with the people behind the projects, as well as a special art display from students at Palmer High School. We will also be hosting sessions highlighting funding opportunities through the Bipartisan Infrastructure Law and Inflation Reduction Act, and exploring what are some of the best ways to get the science partners are producing into the hands of community leaders and decision makers?

Among the highlights of the 16th annual symposium is keynote speaker Dr. Peter Westley from University of Alaska Fairbanks. Dr. Westley will share key lessons of salmon conservation science that have emerged during the past few decades that every salmon manager and practitioner need to know.

As always, the two-day forum is an excellent opportunity for an exchange of ideas about salmon science and conservation. Please join us for all, or part of the two-day programming – including evening social at Feather and Flour in Palmer, where we'll be hosting an acoustic open music jam. Everyone welcome.

Special thanks to the Symposium Planning Committee and to our Symposium supporters for making this event possible. We hope you enjoy the Symposium.

Mat-Su Basin Salmon Habitat Partnership Steering Committee

Erika Ammann, National Oceanic and Atmospheric Administration

Eric Booton, Trout Unlimited

Theo Garcia, Knik Tribe

Margaret Stern, Susitna River Coalition

Trent Liebich, U.S. Fish and Wildlife Service

Michael Mazzacavallo, Alaska Department of Fish and Game

Laurie Stuart, Tyonek Tribal Conservation District

Matthew Varner, Bureau of Land Management

Peter Probasco, Mat-Su Borough Fish and Wildlife Commission



Table of Contents:

Mat-Su Basin Salmon Habitat Partners.....	2
Agenda.....	3
Keynote Speaker: Peter Westley.....	7
Presentation Abstracts.....	8
Registrants.....	20

Learn more about the Partnership and Symposium on the Mat-Su Salmon Partnership website at www.matsusalmon.org and follow us on [Facebook!](#)





Mat-Su Basin Salmon Habitat Partners

*Representative on Steering Committee

Alaska Department of Commerce, Community and Economic Development

Alaska Department of Environmental
Conservation

***Alaska Department of Fish and Game**

Alaska Department of Natural Resources

Alaska Department of Transportation and Public Facilities

Alaska Outdoor Council

Alaska Pacific University

Alaska Railroad Corporation

Alaska Salmon Alliance

Alaska Trails

AlaskaChem Engineering

Alaskans for Palmer Hay Flats

Aquatic Restoration and Research Institute

*Bureau of Land Management

Butte Area Residents Civic Organization

Chickaloon Village Traditional Council

City of Palmer

City of Wasilla

ConocoPhillips Alaska, Inc.

Cook Inlet Aquaculture Association

Cook Inletkeeper

Eklutna Tribal Conservation District

Environmental Protection Agency

Envision Mat-Su

Fishtale River Guides

Glacier Ridge Properties

Great Land Trust HDR Alaska, Inc.

Innovative Funding

Knik River Watershed Group

*Knik Tribal Conservation District

Matanuska River Watershed Coalition

*Matanuska-Susitna Borough

Mat-Su Anglers

Mat-Su Conservation Services

Mat-Su Trails and Parks Foundation

Montana Creek Campground

***National Marine Fisheries Service**

National Park Service

Native Village of Eklutna

Natural Resources Conservation Service

Palmer Soil and Water Conservation District

Pioneer Reserve

Pound Studio

SAGA

Sierra Club

*Susitna River Coalition

Sustainable Design Group

The Alaska Center

The Conservation Fund

The Nature Conservancy

The Wildlifers

Three Parameters Plus, Inc.

***Trout Unlimited**

Turkey Red

***Tyonek Tribal Conservation District**

United Cook Inlet Drift Association (UCIDA)

United Fishermen of Alaska

Upper Susitna Soil and Water Conservation

District **U.S. Army Corps of Engineers**

*U.S. Fish and Wildlife Service

U.S. Geological Survey

U.S. Forest Service, Chugach National
Forest

Valley Community for Recycling Solutions

Wasilla Soil and Water Conservation District



Monday November 13, 2023

Palmer Community Center (Depot), 610 S. Valley Way, Palmer

8:30 Registration

9:00 Symposium Welcome

Laurie Stuart (Mat-Su Basin Salmon Habitat Partnership Steering Committee member, Tyonek Tribal Conservation District)
Kevin Toothaker (Cultural Exchange Program Administrator, Knik Tribe)
Mike Wood (Member, Alaska Board of Fisheries)

9:30 Keynote Address: *Some Modest Advice for Managers and Practitioners: Key Lessons from Salmon Conservation Science* – Dr. Peter Westley

Introduction: Nate Cathcart (Alaska Department of Fish and Game)

10:30 Networking Break

11:00 Salmon and Salmon Ecosystem Science

Moderator: Erika Ammann (National Oceanic and Atmospheric Administration)
Moose Creek Juvenile Salmon Research Project – Laura Pevan (Chickaloon Village Traditional Council)
Tyonek Tribal Conservation District: Anadromous Fish and Elodea Surveys in the Remote Mat-Su – Andy Wizik (Tyonek Tribal Conservation District)
Restoring Salmon Abundance in the Eklutna for Cook Inlet Beluga Recovery – Cooper Freeman (Center for Biological Diversity)

11:45 Eklutna River Restoration: Coming Home Film and Mitigation of Eklutna Hydroelectric Project

Carrie Brophil (Native Village of Eklutna)

12:00 LUNCH

1:00 Updates from the Mat-Su Borough Fish and Wildlife Commission

Andy Couch (MSB Fish and Wildlife Commission)

1:15 Tidbits

Moderator: Jillian Jablonsky (Tyonek Tribal Conservation District)
Please sign up at the registration desk to present a 3- minute project summary or announcement. If you have a slide or two to project (maximum 2 slides), please load them by the end of lunch.

1:45 Poster Session & Art Showcase

Moderator: Luke Byker (National Oceanic and Atmospheric Administration)
Poster authors and artists from Palmer High School will be on hand to answer questions about their work.



Patterns of Aquatic Insect Emergence in Cold and Warm Urban Streams in Anchorage – Molly Legg (Alaska Pacific University)

*The Effects of Warm Water Temperature and Heat Stress on Juvenile Chinook *Oncorhynchus Tshawytscha* and Coho Salmon *Oncorhynchus Kisutch* Growth in the Deshka River Watershed* – John Hermus (University of Alaska Fairbanks)

Effects of Watercraft Wakes on Shoreline Erosion, and Potential Impacts for Salmon at Big Lake, Alaska – Elias Wilson (University of Alaska Fairbanks)

Salmon Spawning in the Eklutna River – Kyle Robillard (Native Village of Eklutna)

Tracking Water Temperature, Thermal Stress, and Chinook Salmon Spawning Success in the Deshka River – Bailey Korkoske (U.S. Fish and Wildlife Service)

Multimedia Salmon Art Showcase – students (Palmer High School)

2:15 Break

2:30 Science to Conservation Outcomes: Data Transfer

Moderator: Mike Daignault (U.S. Fish and Wildlife Service)

This session follows a discussion at last year's Symposium on a pilot effort to assist in moving science to conservation outcomes, focused on cold water refugia, by sharing updates and will include presentation and a panel discussion about data availability and transfer.

Update on Science to Conservation Outcomes: Cold Water Refugia Pilot – Sue Mauger (Cook Inletkeeper)

Open Source Spatial Data - Tips and Tricks – Colton Percy (Alaska Department of Fish and Game)

AKTEMP: Presenting a Fully Functional Stream and Lake Temperature Database for Alaska (Including the Mat-Su!) - Marcus Geist (University of Alaska Anchorage Center for Conservation Science)

Engaging Communities in Critical Habitat Data Collection: Fish Map App – Aaron Poe (Alaska Conservation Foundation)

4:00 Announcements & Adjourn

Mike Campfield (Mat-Su Borough)

4:15 Evening Social & Music Jam

Feather and Flour, 927 S Cobb St., Palmer

Come visit with colleagues and listen to or play music by joining an acoustic open music jam.

We'll have a few guitars and upright bass to share, otherwise bring your own instrument and join us. Everyone is welcome. The Mat-Su Salmon Partnership is providing appetizers, and a cash bar will be available till 7:15, when the social ends.

Tuesday November 14, 2023

Palmer Community Center (Depot), 610 S. Valley Way, Palmer

8:30 Registration



9:00 Symposium Welcome

Ted Eischeid (National Fish Habitat Partnership Board)

9:15 Updates from the Mat-Su Basin Salmon Habitat Partnership

Jessica Speed (Mat-Su Basin Salmon Habitat Partnership Coordinator, Trout Unlimited)

9:30 Potential Impacts on Salmon and their Habitat from Invasive Species

Moderator: Andy Wizik (Tyonek Tribal Conservation District)

Introduced Northern Pike Predation and Consumption of Juvenile Salmon in a Warming World–

Benjamin Rich (University of Alaska Fairbanks)

Out of sight, out of mind? The unrealized devastation from invasive northern pike – Parker

Bradley (Alaska Department of Fish and Game)

Mayday, Mayday... European bird cherry on the move – Hannah Thompson (Anchorage Soil and

Water Conservation District) and Joni Johnson (U.S. Forest Service)

10:15 Networking Break

11:00 Restoring Habitat for Fish: Stream Restoration and Fish Passage

Moderator: Jessica Straub (U.S. Fish and Wildlife Service)

Mat-Su Cost Share Program Overview and Update – Amy LaBarre (Alaska Department of Fish and Game)

Salmon Habitat Rehabilitation at Wasilla Creek Trail Crossings in the Matanuska Valley State

Moose Range – Mike Campfield (Mat-Su Borough)

Capacity Building among Alaskan Tribal Entities: A New Approach to Fish Passage Restoration–

Andrea James (Chickaloon Village Traditional Council)

Free Flowing Streams and Cook Inlet Salmon: The Past, Present, and Future of Tyonek Tribal

Conservation District's Fish Passage Program – Jillian Jablonski (Tyonek Tribal Conservation District)

12:00 LUNCH

1:00 Monitoring, Maintenance of and Potential Threats to Water Quality

Moderator: Sue Mauger (Cook Inletkeeper)

Recent Changes to Clean Water Act Jurisdiction – Matt LaCroix (Environmental Protection Agency)

Implementing the Lake Lucile Management Plan through Alaska Clean Water Actions – Ashley

Oleksiak (Alaska Department of Environmental Conservation), Robert Walden and Eric

Schaal (City of Wasilla)

Waterbody Setbacks in the Mat-Su Borough – Matt LaCroix (Environmental Protection Agency)

Cottonwood Creek Pathogen Monitoring– Ashley Oleksiak (Alaska Department of

Environmental Conservation)

History and Trajectory of the West Susitna Industrial Corridor – Margaret Stern (Susitna River

Coalition)



2:00 Tidbits

Moderator: Alexa Millward (Trout Unlimited)

Please sign up at the registration desk to present a 3- minute project summary or announcement. If you have a slide or two to project (maximum 2 slides), please load them by the end of lunch.

2:15 Networking Break

2:30 Bipartisan Infrastructure Law Funding: Opportunities and Resources

Moderator: Michael Mazzacavallo (Alaska Department of Fish and Game)

This session will include presentations and a panel discussion to assist partners in learning more about funding opportunities through the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA)

Erika Ammann and Monica Keim (NOAA).

Mike Daigneault (U.S. Fish and Wildlife Service)

Troy Hildreth (U.S. Department of Agriculture Natural Resources Conservation Service)

Trisha Sims (Alaska Municipal League)

3:45 Conclusions

Matt Varner (Mat-Su Basin Salmon Habitat Partnership Steering Committee member, Bureau of Land Management)

4:00 Adjourn

Thank you to Symposium Volunteers!

Erika Ammann
Luke Byker
Mike Campfield
Nate Cathcart
Mike Daigneault
Ted Eischeid

Molly Legg
Jillian Jablonski
Sue Mauger
Michael Mazzacavallo
Alexa Millward
Michell Paiker

Laurie Stuart
Matt Varner
Andy Wizik
Anna Folsom
Palmer High Students

Symposium Planning Committee:

Mike Campfield, Mat-Su Borough
Theo Garcia, Knik Tribe
Libby Kugel, Great Land Trust
Erin Larson, Alaska Center for Conservation Science - University of Alaska Anchorage
Ashley Oleksiak, Alaska Department of Environmental Conservation
Jessica Speed, Trout Unlimited (Partnership Coordinator)
Jeremy Thatcher, National Oceanic and Atmospheric Administration



About the Keynote Speaker:

Peter Westley

Dr. Peter Westley is an associate professor of Fisheries with the University of Alaska Fairbanks College of Fisheries and Ocean Sciences where he holds the Lowell A. Wakefield Chair in Fisheries and Ocean Sciences. His research seeks to understand how fishes respond and adapt to environmental change, including invasive predators, climate change, and hatcheries, with a particular focus on Alaskan salmon. He received his BS and MS from the School of Aquatic and Fishery Sciences at the University of Washington and a PhD in Biology from Memorial University of Newfoundland, Canada. He completed postdoctoral work at University of Washington on the ecology of homing and straying salmon in the Columbia River; work that has inspired research here in Alaska. He works closely with a diverse array of collaborators and partner organizations to co-develop research and communicate their findings with the goal of sustaining the relationships between salmon, people, and wild places. Originally from Anchorage, Alaska, he lives in Fairbanks and has enjoyed a 2022-2023 sabbatical based out of Homer.



SOME MODEST ADVICE FOR MANAGERS AND PRACTITIONERS: KEY LESSONS FROM SALMON CONSERVATION SCIENCE:

We are in an era of both accelerating change to salmon-producing ecosystems and rapidly mounting data about salmon, their habitats, and connections to society. Attempts to keep up with the monthly onslaught of journal articles and 24-hr news stories can feel like a fool's errand. The Salmon Science Network (Salmon-Net) was inspired by the need to provide context and interpretation of emerging salmon science and to catalyze the use of new science by researchers, managers, and practitioners. In this talk I briefly highlight the work by Salmon-Net and then turn to the key lessons of salmon conservation science that have emerged during the past few decades. These lessons are some that every salmon manager and practitioner needs to know.

Contact:

Wakefield Chair of Fisheries and Ocean Sciences,
Salmonid Evolutionary Ecology & Conservation Lab, Department of Fisheries
University of Alaska Fairbanks, Troth Yeddha' campus
1731 South Chandalar Dr.
Fairbanks, AK 99775
Phone: 907-474-7458
Email: pwestley@alaska.edu
Web: www.seec-lab.com



Presentation Abstracts

Presentation abstracts are arranged in order as listed in the agenda.

*Denotes Poster

Moose Creek Juvenile Salmon Research Project

Laura Pevan (Chickaloon Village Traditional Council)

Moose Creek, located in Sutton, Alaska is an important cultural stream for Chickaloon Native Village, and traditionally reared all five species of Alaskan Pacific salmon. Coal mining and associated activities severely degraded salmon habitat and blocked the five upper miles of habitat to salmon migration. Restoration efforts by Chickaloon Native Village and partners restored fish passage to the upper five miles in 2005-2007. To understand Moose Creek juvenile salmon habitat use, a PIT tag mark-recapture study was conducted from 2017 to 2020. Juvenile coho and Chinook salmon were captured using minnow traps approximately bi-weekly during the summers of 2017, 2018, and 2019. Fish were measured, tagged when >55 mm, and released from six mainstem study reaches and two tributaries. Continued trapping efforts recaptured 7% of coho and 6% of Chinook tagged. Recaptures provided information on fish distribution, growth, and movement. The study documented a predominance of 0+ coho and codominance of 0+ and 1+ Chinook salmon. Chinook dominated lower stream capture sites while coho were more evenly distributed throughout the watershed. Major flooding in 2018 is associated with dramatic changes in community structure. In addition to recaptures, an instream antenna was operated near the stream mouth as logistics and conditions allowed. These data enumerated fish migrating out of Moose Creek into the Matanuska River. Most outmigration occurred in late summer and fall for both species when temperatures dropped. While some juveniles overwinter in Moose Creek, these data suggest that others are likely overwintering in the Matanuska River downstream. Spring outmigration of 1+ Chinook suggests that some fish are outmigrating to rear in Cook Inlet. The study also documents some winter outmigration, challenging longstanding assumptions about juvenile salmon movement. This project documents recolonization of upper Moose Creek and widespread use of available habitat.

Tyonek Tribal Conservation District: Anadromous Fish and Elodea Surveys in the Remote Mat-Su

Andy Wizik (Tyonek Tribal Conservation District)

From May through October 2023, Tyonek Tribal Conservation District (TTCD) staff members surveyed three remote Mat-Su area lakes for the presence of the aquatic invasive plant *Elodea canadensis* and surveyed 28 sites in the remote Mat-Su and along the West Cook Inlet road system for anadromous fish. These efforts resulted in the documentation of all native plant species at elodea survey sites, and eleven nominations adding approximately 15.6 stream miles to the state Anadromous Waters Catalog. An additional five lakes outside the Mat-Su Borough were surveyed by TTCD and Cook Inlet Aquaculture Association, and no *Elodea* was found during any of the surveys. Anadromous fish were sampled using either minnow traps or backpack E-fishing, and target species were found in most streams sampled with the majority of those fish being coho salmon. Of streams surveyed for anadromous fishes, sites where no fish were found generally fell into two categories: sites of significant northern pike infestations, and



sites where upstream passage was impeded by an extreme outfall, or other disturbance/passage barrier such as a culvert or beaver dam. It is a reasonable assumption to expect that any streams yet to be surveyed in this area will likely contain anadromous fish if they do not have features that block access or experience significant pike impacts.

Restoring Salmon Abundance in the Eklutna for Cook Inlet Beluga Recovery

Cooper Freeman (Center for Biological Diversity)

Critically endangered Cook Inlet beluga whales (*Delphinapterus leucas*) are hovering on the brink of extinction. These beluga whales rely on a range of foods, including anadromous salmon, and recent studies have highlighted the importance of increased prey availability for their recovery. Increased prey availability not only provides direct nutritional benefits to the whales but also potentially boosts their reproductive output by mitigating nutritional stress. Norman et al. (2020) found that the reproductive success of Cook Inlet beluga whales is linked to the abundance of salmon in the Dëshka River, a tributary of the Susitna River, and that if salmon levels remained at current levels, the whales would fail to recover. The study found that a 20% increase in Chinook salmon abundance would help reverse the whales' decline, and a doubling of salmon abundance would lead to their recovery regardless of impacts from other threats. While the waters of the Susitna River Delta have become particularly important for Cook Inlet belugas, the whales are still regularly seen at the mouth of the Eklutna River in the nearby Knik Arm, indicating it too remains important (and both are located within the whale's designated critical habitat area 1). Yet, the Eklutna River ecosystem, which once supported thriving populations of all five species of Pacific salmon, is a shadow of its former self as two dams built in 1929 and 1955 completely blocked up and downstream fish migration. In 2018, the obsolete and abandoned Lower Eklutna Dam was removed. The upper dam at the naturally occurring Eklutna Lake remains, continuing to block upstream passage to the lake and miles of prime spawning habitat in the headwaters, and starving the river downstream of adequate flows. We analyzed relevant research on the importance of prey abundance for Cook Inlet beluga whales and the potential for an increase in salmon abundance from a restored Eklutna watershed. Our findings show that fully restoring the Eklutna ecosystem could be of critical importance for Cook Inlet beluga whale recovery and should be elevated as a key management priority. Our findings also reveal important considerations for the Eklutna fish and wildlife mitigation planning process currently underway. Restoring the Eklutna watershed can provide a valuable blueprint for future conservation initiatives aimed at leveraging ecosystem recovery for endangered species protection.

Eklutna River Restoration: Coming Home Film and Mitigation of Eklutna Hydroelectric Project

Carrie Brophil (Native Village of Eklutna)

Since the removal of the abandoned lower Eklutna dam in 2018, Eklutna tribal members and Alaskans have been waiting with anticipation for the mitigation of the Eklutna Hydroelectric Project and the opportunity to return water and wild salmon to the system. Carrie will share recently released *Coming Home*, a 5-minute film that captures the voices of Eklutna elders, youth and tribal members and the collective vision of a functioning Eklutna River. On October 27th, 2023, operators of the Eklutna Hydroelectric Project released the draft mitigation plan to



make up for the project's impact to fish and wildlife and their habitat. Carrie will provide an update on the draft mitigation plan that was released and what it means for Eklutna wild salmon, and the Eklutna people. Learn more at EklutnaRiver.org

Updates from the Mat-Su Borough Fish and Wildlife Commission

Andy Couch (MSB Fish and Wildlife Commission)

Matanuska-Susitna Borough (MSB) Fish & Wildlife Commission Chair, Andy Couch, will provide an overview of the Commission's work throughout 2023. Highlights will include collaborative efforts regarding proposed changes to the MSB Waterbody Setback Ordinance, the push for legislative funding for weir enumeration in numerous MSB waterbodies, the potential impacts of future Federal Salmon Management in Upper Cook Inlet, as well as ways members of the public and local agencies can get involved. Andy will also provide an update on the Commission's priorities and planning processes for the upcoming 2024 Board of Fisheries Upper Cook Inlet Finfish Meeting in Anchorage, held from February 23 - March 6, 2024.

Patterns of Aquatic Insect Emergence in Cold and Warm Urban Streams in Anchorage*

Molly Legg (Alaska Pacific University)

Aquatic insects are key food resources for juvenile salmon and have complex life cycles, including larval aquatic stages and adult terrestrial stages. Recent research suggests that land use and stream temperature may act jointly to influence the timing and duration of insect emergence during the summer months. As climate change and urbanization shift stream temperatures, insects may shift emergence timing, causing changes in food abundance and quality for juvenile salmon. Using floating emergence traps, insects were collected weekly in a cold stream (North Fork Campbell Creek) and a warm stream (South Fork Chester Creek) in Anchorage from June - October 2022, and May - October 2023. We predicted that in the warm stream, the timing of emergence would happen earlier in the season and the duration of emergence would last longer. Insects were identified to the family level and then compared between streams, and years. Timing and duration of emergence differed among insect families without a consistent pattern when comparing each stream within a single year and between years. For example, in 2022 Perlodidae, a stonefly family, reached peak emergence nearly two months earlier in the warm stream, while also having a five-week longer emergence duration in the warm stream. When comparing 2022 and 2023, Brachycentridae, a caddisfly family, had almost the same timing and duration of emergence within a weeklong range, whereas Limnephilidae, another caddisfly family had a much longer emergence duration with earlier initial timing of emergence. Future studies could expand on this work to collect emergence data across land use and temperature gradients in the greater Cook Inlet region to better understand the phenology of salmon food resources in their freshwater habitats.

The Effects of Warm Water Temperature and Heat Stress on Juvenile Chinook Oncorhynchus Tshawytscha and Coho Salmon Oncorhynchus Kisutch Growth in the Deshka River Watershed*

John Hermus (University of Alaska Fairbanks)



Warming climate and several declining salmon returns across the state of Alaska have led to an increased concern about the future of Alaskan salmon populations. This study considers sublethal effects of warm freshwater temperatures during juvenile rearing of two co-occurring Pacific Salmon species by linking water temperatures to growth rates. Juvenile growth of Pacific Salmon plays a key role in their success because individuals that enter the ocean at larger sizes and have higher survival rates. We hypothesized that Alaska's warmest freshwater temperatures already impair the growth of juvenile Pacific salmon due to direct effects of heat stress or indirectly via increased metabolic rates that exceed consumption. We sampled juvenile Chinook and Coho Salmon in the Deshka River, one of the warmest rivers in Alaska, where summer water temperatures routinely exceed 20°C. During the summers of 2019 to 2022 juvenile salmon were trapped at pre-established temperature monitoring stations throughout the Deshka River watershed. Of these fish, a subset was lethally-sampled to obtain otoliths for daily growth analysis, stomachs for fullness, and muscle tissue for heat stress determination. These data provide a natural experimental window into juvenile salmon growth in some of Alaska's warmest waters. Such information will allow us to identify key water temperature thresholds associated with low habitat suitability to help inform future management and conservation efforts in a warming world.

Effects of Watercraft Wakes on Shoreline Erosion, and Potential Impacts for Salmon at Big Lake, Alaska*

Elias Wilson (University of Alaska Fairbanks)

This poster will describe the initial stages of a study that aims to quantify boat wake-caused erosion in Big Lake, Alaska. The study arose from concerns raised by community members and resources managers about large boat wakes affecting shorelines around the lake. Starting in summer 2023 and continuing into summer 2024, we are measuring the rate of erosion, boat wake frequency and boat wake size at various sites around the lake, in addition to collecting an array of water quality data. Sediments suspended in the water column during the erosion process, by boat wakes or otherwise, can settle on top of spawning gravel and can smother incubating eggs and reduce access to that habitat in the future. Thus, this study will also look to supplement past sockeye salmon (*Oncorhynchus nerka*) spawning survey data with new surveys to provide an accurate picture of current habitat use and provide stakeholders with knowledge of areas where erosion may be impacting spawning habitat. Our goal is to provide information to better manage erosion at Big Lake and to identify key areas where human impacts may be impacting sockeye spawning and incubation.

Salmon Spawning in the Eklutna River*

Kyle Robillard (Native Village of Eklutna)

The Native Village of Eklutna (NVE) performed weekly pedestrian spawning surveys in the Eklutna River and Thunderbird Creek, its main tributary, during the salmon spawning seasons of 2021-2023. Adult salmon and salmon redds were identified, counted, and location data was collected. Chinook, chum, coho, and pink salmon were documented as spawning in the system. The data collected from these surveys provide important baseline data as NVE and its partners work with the Eklutna Hydroelectric Project operators toward an improved hydrologic regime and increased habitat connectivity to aid the Eklutna River's salmon populations.



Tracking Water Temperature, Thermal Stress, and Chinook Salmon Spawning Success in the Deshka River*

Bailey Korkoske (U.S. Fish and Wildlife Service)

Summer water temperatures in the Deshka River often reach levels regarded as harmful to migrating and spawning Chinook Salmon (*Oncorhynchus tshawytscha*), and previous research has linked warm temperatures in this and other lowland Cook Inlet streams with reduced productivity. We initiated a multi-year study in 2023 to (1) track the thermal experience of individual Chinook Salmon during migration and spawning and (2) explore relationships among water temperature, biochemical indicators of heat stress (HSP70 protein), and spawning success. To achieve these goals, we implanted 49 temperature-archival radio tags in pre-spawn females at the Deshka River weir and collected muscle biopsies from each of these fish for analysis of HSP70 protein. Following two helicopter tracking flights in early August to monitor locations and mortality status, we conducted float trips throughout the spawning period to recover the temperature-archival radio tags, determine the spawning success (i.e., egg retention) of any dead salmon still bearing tags, and opportunistically survey gamete retention in untagged carcasses. Water temperatures, which we have monitored year-round at 85 sites across the Deshka River watershed since 2017, remained relatively cool (<20°C) throughout the migration and spawning periods, making this year's data useful as a likely best-case scenario. We recovered 31 of the 49 temperature-archival radio tags, indicating the feasibility of recovering a relatively large subsample and allowing us to reconstruct the thermal experience of these individuals. Of the 31 recovered tags, 7 were obtained from carcasses which we examined for egg retention. Egg retention >25% was observed in one of 7 tagged carcasses (14%) and 3 of 40 untagged female carcasses (8%) examined opportunistically.

Update on Science to Conservation Outcomes: Cold Water Refugia Pilot

Sue Mauger (Cook Inletkeeper)

The Mat-Su Basin Salmon Habitat Partnership has prioritized and funded over 30 science-based projects that fill important data gaps towards the goal of fish habitat conservation. The Partnership has supported stream temperature monitoring to increase our knowledge about thermal regimes in Mat-Su Basin streams as a strategy to integrate climate change vulnerability into prioritization efforts. With long-term datasets and the acquisition of thermal imagery in a number of key watersheds, the Partnership has the opportunity to apply these data for conservation actions. Starting in 2021, the Partnership has sponsored a "Science to Conservation Outcomes" initiative to explore what existing mechanisms and potential pathways are available to secure long-term, conservation status that ensures persistent groundwater connectivity to warming stream channels. At the 2022 science symposium, the Partnership convened small groups to discuss land classification tools, engagement in area-wide plans, data quality standards, landowner outreach, and data availability and accessibility. We will provide a progress update on these topics with an emphasis on data transfer tools and workflow challenges.



Open Source Spatial Data - Tips and Tricks

Colton Percy (Alaska Department of Fish and Game)

Digging for data is a time-honored tradition amongst geospatial professionals. Fortunately, there are many open-source tools available, no matter your skill or interest level. The State of Alaska and the Mat-Su Borough do a great job of providing data and the online tools needed for visualization. The Alaska Mapper provided by AKDNR, the Mat-Su Borough Parcel Viewer, and the Anadromous Waters Catalog by ADF&G are just a few of the online mappers and data portals available to anyone. I will go over the basics of how to navigate each of these online mappers and how to access the data for use in ArcGIS or QGIS. I will also provide some tips and tricks on using this data to create a meaningful visualization.

AKTEMP: Presenting a Fully Functional Stream and Lake Temperature Database for Alaska (Including the Mat-Su!)

Marcus Geist (University of Alaska Anchorage Center for Conservation Science)

AKTEMP is a cloud-based database platform for storing and accessing stream and lake temperature monitoring data across Alaska. The website allows users to upload, review, explore, and download data. Data can be uploaded either as a single file or as multiple files, which can be uploaded simultaneously as a single batch. After uploading, an interactive QA/QC tool can be used to review and flag data representing erroneous or abnormal measurements (e.g., out of water). Users can explore available data at all sites statewide or within specific hydrologic basins (i.e. HUC4, 6, or 8) using spatial filters. Additionally, users can download both the raw and daily-aggregated time series at one or more sites along with the accompanying station metadata. The project team has developed instructional videos, decision tree flowcharts, and a user guide to aid data providers and public users. The system architecture for AKTEMP was based on the Spatial Hydro-Ecological Decision System (SHEDS) northeast stream temperature database, which was developed by Walker Environmental Research in collaboration with USGS.

AKTEMP was released in early 2023 and currently serves stream data at 93 sites across the Mat-Su Partnership area. Use of AKTEMP is free and open and will continue to be supported by staff at UAA's Alaska Center for Conservation Science. We invite the community to take advantage of this database by uploading your own data, and/or exploring data uploaded by others to meet your needs.

Engaging Communities in Critical Habitat Data Collection: Fish Map App

Aaron Poe (Alaska Conservation Foundation)

The Alaska Fish Habitat Mapping App (Fish Map App) was funded by the U.S. Fish and Wildlife Service and developed in collaboration with Alaska Department of Fish and Game (ADF&G). It uses simple smartphone technology that does not require a cell connection to collect data to enhance and expand the Anadromous Waters Catalog (AWC) with help from Alaskans. Working with local residents who have existing knowledge of the lands and waters helps to broaden capacity to document fish presence data for nominations to the AWC. Only a fraction of fish-bearing waters in Alaska are currently cataloged in the AWC, leaving vast areas of essential fish habitat undocumented. We are pursuing this work in collaboration with The Indigenous



Sentinels Network (ISN) which is a program operated by the Aleut Community of St. Paul Island for 20 years, helping to meet the data collection and management needs of Tribes. Powered by ISN this project helps to “crowdsource” the immense efforts needed to document the numerous rivers, lakes, and streams utilized by anadromous fish species from egg to spawning adult throughout the state. The 2022 pilot season of this project resulted in 13 unique nominations to ADF&G, and 19 nominations were submitted in 2023. More at www.AlaskaFishMapping.org

Updates from the Mat-Su Basin Salmon Habitat Partnership

Jessica Speed (Mat-Su Basin Salmon Habitat Partnership, Trout Unlimited)

As the one time per year we come together as a Partnership, the Symposium offers an opportunity to highlight work of individual partners, and to additionally share and reflect on some of the recent activity of the broader Partnership. The Mat-Su Basin Salmon Partnership formed in 2005 to address increasing impacts on salmon habitat from human use and development in the Mat-Su Basin. Modeled after the National Fish Habitat Partnership (NFHP), this coalition of more than 65 organizations plus individual citizens uses a collaborative, cooperative, and non-regulatory approach that brings together diverse stakeholders. It is part of a broader network of 20 fish habitat partnerships across the U.S. and one of four partnerships in Alaska. Mat-Su salmon partners share a common vision for thriving fish, healthy habitats and vibrant communities in the Mat-Su.

Important functions of the Partnership include providing a forum for sharing information, increasing collaboration and education, and supporting goals outlined in the Strategic Action Plan. In 2023, Bipartisan Infrastructure and Inflation Reduction Act legislation continued to present significant funding opportunities to meet conservation and community needs. The Partnership hosted regional fish passage meetings to share information, facilitate collaboration and support development of successful proposals by our partners. Conservation of riparian habitats - a top priority of the Mat-Su Salmon Partnership, was also a focus area. Activity included partnership engagement in the Mat-Su Borough’s riparian setback ordinance update process, working with Susitna River Coalition and large partner group to collaboratively host the 2nd annual Plants for Salmon riparian planting day and catalyze a concurrent restoration project on Montana Creek. In 2023 the Partnership provided \$234, 000 to four local area projects that meet goals of the Partnership’s Strategic Action Plan, through funding from the National Fish Habitat Partnership.

Introduced Northern Pike Predation and Consumption of Juvenile Salmon in a Warming World

Benjamin Rich (University of Alaska Fairbanks)

Adam Sepulveda, U.S. Geological Survey

Daniel Rinella, U.S. Fish and Wildlife Service

Jeff Falke, U.S. Geological Survey/UNR

Erik Schoen, University of Alaska Fairbanks

Peter Westley, University of Alaska Fairbanks

Global climate change may be exacerbating the impacts of invasive species, yet they are largely studied as independent effects. In this talk I describe work that seeks to understand the interaction between climate, in the form of warming water temperatures and altered streamflow,



and invasive Northern Pike in Southcentral Alaska's Deshka River. We synthesized diet data across 11 years with an emphasis on juvenile salmon and bioenergetic simulations and found that individual Northern Pike predation on juvenile Chinook Salmon and total *Oncorhynchus* species decreased across years, juvenile Coho Salmon increased, and total fish predation remained constant. These findings suggest that Northern Pike may be switching to alternative fish prey as salmon become less available. We also found a positive relationship between streamflow and the number of juvenile Chinook Salmon and total juvenile salmon in Pike diets. Pike predation on juvenile Chinook Salmon was positively correlated with water temperature across seasons, however, bioenergetic simulations revealed minimal (<10%) changes in total per capita prey consumption by pike in simulations using observed water temperatures during the record-breaking season of 2019. Consumption estimates suggest that Chinook consumption by age 3+ pike has increased in the last decade while Coho consumption has decreased by greater than 50% across all age classes. These findings collectively suggest that changing stream flow and temperature regimes directly affect predation rates on salmon but may not increase total consumption by Northern Pike enough to appreciably increase freshwater mortality.

Out of Sight, Out of Mind? The Unrealized Devastation from Invasive Northern Pike

Parker Bradley (Alaska Department of Fish and Game)

Northern pike, a species not native to southcentral Alaska, was initially introduced to this region in the 1950's. As one of the most popular sport fish in the U.S., this top-level predator is commonly and illegally moved around by people, often with dire consequences. In Southcentral, northern pike are now known to occupy over 150 waterbodies, and they are continuing to spread. Many of the waters northern pike have spread to be remote and difficult to access, making management actions difficult, expensive, or even impossible. As a result, many people don't realize the actual impacts northern pike have had on native resident and anadromous species. The degree of these impacts depends greatly on the habitat conditions of the waterbody and duration of infestation, ranging from minor to catastrophic. A catastrophically impacted waterbody means it historically supported anadromous fish, but the fish community is now northern pike dominated, and salmon production no longer exists. The amount of this destroyed habitat is beginning to be quantified, and unfortunately, this is painting a picture of a dire and continuously growing loss of anadromy from northern pike predation. In addition, the amount of moderately/severely impacted waters is significant and growing too. In some locations, these impacts have been reversed by eradication efforts, but that's not an option everywhere. While the situation is already precarious, there is still potential for it to get much worse, emphasizing the need for critical research focused on pathways and prevention.

Mayday, Mayday... European Bird Cherry on the Move

Hannah Thompson (Anchorage Soil and Water Conservation District)

Joni Johnson (U.S. Forest Service)

European bird cherry (*Prunus padus*) continues to spread and is moving into forested riparian corridors and lake shorelines well beyond the urban/wildland interface. This invasive species does not directly impact water quality and salmonids; however, this tree does successfully



outcompete native trees, shrubs, and non-woody plants. European bird cherry eliminates willow along with understory plants, and slows the growth of shade intolerant trees. The plant community change indirectly impacts salmon habitat and the salmon food sources: Where European bird cherry establishes, we see a decrease in invertebrate biomass and less leaf litter feeding aquatic invertebrates. The Palmer and Anchorage Soil and Water Conservation Districts surveyed for European bird cherry in the Mat-Su watershed. The Palmer SWCD documented 219 new locations in 2022, including infestations along the Matanuska and Knik Rivers and estuary. The Anchorage SWCD has been working with partners to continue documenting European bird cherry infestations within the municipality and in remote natural areas. In the 2023 field season, Anchorage SWCD staff documented infestations on private and public lands near the boundaries of Chugach State Park. This included forty-five new sites with European bird cherry trees found within Chugach State Park, when only 4 sites were previously recorded. Because of the rapid spread and negative impacts to plant communities, fish and wildlife, European bird cherry is a high priority species for control work. Maintaining resilient riparian habitat is important for both terrestrial and aquatic organisms, and the best way we can do that with respect to European bird cherry is to document where we are finding the tree, contacting local nurseries and our municipalities to request that the sale of two species of *Prunus* - European bird cherry and chokecherry (*P. virginianus*) be prohibited, and working with partner organizations to remove the tree in efforts to control the spread.

History and Trajectory of the West Susitna Industrial Corridor

Margaret Stern (Susitna River Coalition)

The Susitna River Coalition (SRC) is a grassroots organization based in Talkeetna, Alaska. The SRC engages residents of the Susitna Valley on issues relevant to healthy habitat and water quality in the watershed. The proposed West Susitna Industrial Corridor currently poses substantial risk to the health of the Susitna watershed's ecosystem. This proposed 100-mile mining access road through the currently road-less West Susitna Drainage would open up the culturally and biologically significant West Susitna Drainage. Initially proposed as a Road to Resources project in 2014, the mining access project has taken many different shapes in an effort to hide the true trajectory and impacts to the region. This presentation will discuss the history of the West Susitna Industrial Corridor and how we anticipate engaging with the issue over the coming years.

Mat-Su Cost Share Program Overview and Update

Amy LaBarre (Alaska Department of Fish and Game)

The Streambank and Shoreline Rehabilitation and Protection Program, unofficially called the Cost-Share Program, is a statewide program cooperatively run by the Alaska Department of Fish and Game (ADF&G) and the U.S. Fish and Wildlife Service (USFWS). Originally started on the Kenai River in 1995, the program expanded to include the Mat-Su Valley in 2007 and the Fairbanks area in 2008. Since 2007, the Mat-Su Cost-Share Program has completed 14 workshops, 61 projects, and rehabilitated approximately 15,656 feet of streambank habitat. This program provides education, technical and financial assistance for both public land managers and private landowners. The Mat-Su Cost-Share Program's specific goals are to sustain, enhance, and protect fish habitat along anadromous water bodies, and provide education to



agency staff and the public in the Mat-Su Valley. The most common techniques used in Mat-Su projects are cabled spruce trees, brush layers, re-vegetation (planting), vegetative mats, and elevated light penetrating (ELP) structures. Through this program, important public use areas have seen drastic improvements not only for juvenile salmon but also to enthusiastic anglers who use these areas and depend on them for access to fishing spots. A few examples of successful projects are Sheep Creek, Willow Creek, and Barricade Creek along the Matanuska River. A few examples of projects we hope to complete in the following years include Montana Creek at Yoder Road, Susitna Landing, and the Little Susitna Public Use Facility.

Salmon Habitat Rehabilitation at Wasilla Creek Trail Crossings in the Matanuska Valley State Moose Range

Mike Campfield (Mat-Su Borough)

Motorized recreation in the area north of Palmer concentrates in the Matanuska Valley State Moose Range where miles of muddy trails crisscross the headwater tributaries of Wasilla Creek. Damage to Wasilla Creek's tributaries, wetlands and trail infrastructure accelerated as the size of off-road vehicles increased beyond existing bridge and trail capacity and the local population increased more than 20% in ten years. By 2017, acres of damage to salmon habitat had occurred to the point that some of the salmon streams had left their natural channels, and fish passage was blocked by shallow over-widened channels or head-cut waterfalls. The Mat-Su Borough was awarded Mat-Su Basin Salmon Habitat Partnership funding to address several trail stream crossings and rehabilitate damaged habitat. Construction was completed in the summers of 2022 and 2023. Three crossings were repaired with fortified low water crossings, also known as fords, while two other crossings in a wetland unsuitable for motorized recreation were rerouted to a new trail and bridge. Coir log and willow planting bioengineering were used to repair streambanks at the low water crossings. Post-assisted woody debris structures, also called beaver dam analogs, were used to address damaged wetland streams. Wetland damage included approximately ¼ mile of destroyed streambank, a 1.1ft high headcut and several hundred feet where the stream was captured in vehicle ruts. Overall, the project has been successful for trail users and salmon, but continued damage from vehicles, the poor state of trails to reach the improved crossings are and trail user education are an ongoing concerns. The State of Alaska is currently working on closing this area to allow for natural rehabilitation as well as an update to the Moose Range Plan to address the trail system.

Capacity Building among Alaskan Tribal Entities: A New Approach to Fish Passage Restoration

Andrea James (Chickaloon Village Traditional Council)

Chickaloon Native Village is an Ahtna Dene Tribe located in Sutton, Alaska, about a 90-minute drive from Anchorage along the Glenn Highway. Surrounded by snow-capped mountains, glaciers, and lush boreal forests, this Tribe has stewarded the region for the past 10,000 years. The Chickaloon Native Village Environmental Stewardship Department aims to apply Traditional Knowledge and western science to promote the health of living things and their environments within the Tribe's Traditional Territory. Fish, and specifically salmon, are a critically important source of food and cultural wellbeing for Chickaloon Native Village. Salmon resilience is dependent upon habitat availability, habitat quality, and habitat connectivity.



In 2023, Chickaloon Native Village was awarded funding through the NOAA Habitat Restoration Center's Restoring Tribal Priority Fish Passage through Barrier Removal Program to develop a Chickaloon Native Village Tribal Fish Passage Program. This program will increase Tribal capacity in the state of Alaska by providing free training opportunities to Tribal entities in fish passage and habitat restoration topics, including river forms and processes, culvert assessments, heavy equipment operation, GIS, and OSHA safety courses. Along with trainings, Chickaloon Native Village is hosting quarterly, virtual Tribal Fish Passage Working Group meetings as a resource for Tribal entities in Alaska to learn about fish passage related trainings and fish passage funding opportunities, network with other Tribal entities, and help each other with resources and coordination. Finally, the NOAA-funded Chickaloon Native Village Fish Passage Program will replace two barrier culverts on a culturally significant tributary of the Matanuska River, within the Tribe's Traditional Territory. This presentation will give an overview of the NOAA-funded Chickaloon Native Village Fish Passage Program including recent successes and lessons learned.

Free Flowing Streams and Cook Inlet Salmon: The Past, Present, and Future of Tyonek Tribal Conservation District's Fish Passage Program

Jillian Jablonski (Tyonek Tribal Conservation District)

The overarching goal of Tyonek Tribal Conservation District (TTCD)'s fish passage program is to remove all fish passage barriers on the westside road system, restore Pacific salmon habitat, and support subsistence, community, and habitat resilience. Since 2012, TTCD has restored 45 miles of salmon spawning and rearing habitat encompassing 12 separate fish passage barrier removal projects with tribal, local, state, and federal partners, and is currently working toward the 2024 construction of the organization's largest culvert replacement project to date. As TTCD nears completion of all Tyonek-area fish passage barrier removal, the organization is focusing northward along the westside road system to address Beluga-area problem culverts on streams important for Chinook salmon, including tributaries of the Theodore River, Olson Creek, and Pretty Creek. Simultaneously, TTCD is working to prevent the installation of any new fish passage barriers by surveying to add to the state's Anadromous Waters Catalog and building partnerships with land development stakeholders. This presentation will highlight TTCD's fish passage program achievements since 2012, provide an overview of the current project, and elaborate on TTCD's goals for future fish passage work within the District.

Recent Changes to Clean Water Act Jurisdiction

Matt LaCroix (Environmental Protection Agency)

The Environmental Protection Agency and Army Corps of Engineers have codified regulations to modify the definition of what waters would be jurisdictional to the federal government and subject to the provisions of the Clean Water Act during each of the last three presidential administrations. Each of these efforts faced legal challenges and saw the subsequent administration act to revise the work of its predecessor. Litigation over the latest revised regulations remains unresolved, but Mr. LaCroix will provide an overview of what waters are currently considered jurisdictional.



Implementing the Lake Lucile Management Plan through Alaska Clean Water Actions

Ashley Oleksiak (Alaska Department of Environmental Conservation)
Robert Walden and Erich Schaal (City of Wasilla)

Every other year, the Alaska Department of Environmental Conservation (DEC) awards pass-through federal funding through a competitive grants process (Alaska Clean Water Actions) to local governments, citizen groups, tribes, and other organizations to help protect or restore water quality from nonpoint source pollution. In 2019, the City of Wasilla received ACWA funds to develop the Lake Lucile Management Plan, a watershed-based plan to improve water quality in Lake Lucile. This plan identified site-specific opportunities for green infrastructure installation that would directly minimize stormwater runoff and thereby reduce the amount of pollutants entering Lake Lucile.

In 2022, The City was awarded another ACWA grant to implement two of the actions identified within the plan: a bioswale along Hering Avenue and Knik Street and a retrofit of two manholes along the Parks Highway that convey stormwater into the Iditapark stormwater treatment system. These projects are currently underway, and DEC's next ACWA request for proposals will be in the fall 2024.

Waterbody Setbacks in the Mat-Su Borough

Matt LaCroix (Environmental Protection Agency)

Mr. LaCroix was recently appointed to the Waterbody Setback Advisory Board as a representative of the Mat-Su Salmon Habitat Partnership. The Advisory Board was created by the Borough Assembly to review and make recommendations regarding water body setbacks. Mr. LaCroix will provide Symposium attendees an introduction to the work of the Advisory Board. The presentation will provide an overview of the issues, a history of setback standards and how they have changed over the years, and how the Advisory Board intends to engage with Borough staff and the public over the next year.

Cottonwood Creek Pathogen Monitoring

Ashley Oleksiak (Alaska Department of Environmental Conservation)

In 2010, Cottonwood Creek was listed as impaired for fecal coliform in Alaska's Integrated Water Quality Monitoring and Assessment Report. In 2015, EPA approved a Total Maximum Daily Load (TMDL) for fecal coliform for 7 miles of Cottonwood Creek downstream of the Parks Highway in Wasilla. Since the impairment listing, DEC has funded several BMPs to improve water quality on Cottonwood Creek, including green infrastructure near the Fern Street creek crossing and outreach and education on septic system pumping and maintenance. The objective of this project is to see if water quality has improved on Cottonwood Creek.



Registrants

Ben Allen

Fishing Guide / Fishing Rod Builder
Miller's Riverboat Svc/ Susitna Rods/
Southcentral Alaska Sport Fishing Assoc.
fish@millersriverboat.com

Erika Ammann

Fish Biologist
National Oceanic and Atmospheric
Administration
Erika.ammann@noaa.gov

Sarah Birchard

Wildlife and Ecology Technician
Colorado State University
sarah.birchard@colostate.edu

Parker Bradley

Fishery Biologist
Alaska Department of Fish & Game
parker.bradley@alaska.gov

Lucas Byker

Marine Habitat Resource Specialist
National Oceanic and Atmospheric
Administration
lucas.byker@noaa.gov

Mike Campfield

Environmental Engineer
Mat-Su Borough
mike.campfield@matsugov.us

Nate Cathcart

Alaska Freshwater Fish Inventory Biologist
Alaska Department of Fish & Game
nate.cathcart@alaska.gov

Maija DiSalvo

Planner II
Mat-Su Borough
majja.disalvo@matsugov.us

Stephen Dotomain

Fishery Biologist
Alaska Department of Fish & Game, Sport Fish
Division
stephen.dotomain@alaska.gov

Chennery Fife

Southcentral Alaska Engagement Manager
Trout Unlimited
chennery.fife@tu.org

Stephanie Freeman

Environmental Stewardship Dept Admin
Assistant
Chickaloon Village Traditional Council
smfreeman@chickaloon-nsn.gov

Cooper Freeman

Senior Advocate/Alaska Representative
Center for Biological Diversity
cfreeman@biologicaldiversity.org

Marcus Geist

Research Geographer
Alaska Center for Conservation Science,
University of Alaska Anchorage
mageist@alaska.edu

Marian Giannulis

Alaska Communications & Engagement Director
Trout Unlimited
marian.giannulis@tu.org

Andrea Gilstad

Student

Duncan Green

Fish & Wildlife Technician 3
Alaska Department of Fish & Game
duncan.green@alaska.gov

Arlot Hall

**Deborah Hart**

Coordinator
Southeast Alaska Fish Habitat Partnership
coordinator@sealaskafishhabitat.org

Karel Hauser**Emily Heale**

Biologist
Cook Inlet Aquaculture Association
eheale@ciaanet.org

John Hermus

Fisheries Master Student
University of Alaska Fairbanks
jwhermus@alaska.edu

Erin Hoffman

Southcentral Alaska Sportfishing Association
innovativefundingak@gmail.com

Mary Inovejas

Alaska Department of Environmental
Conservation
laura.eldred@alaska.gov

Jillian Jablonski

Habitat Programs Director
Tyonek Tribal Conservation District
jjablonski@ttcd.org

Cody Jacobson

cody.jacobson@alaska.gov

Andrea James

Environmental Program Manager (Fish
Passage)
Chickaloon Village Traditional Council
aljames@chickaloon-nsn.gov

Joni Johnson

Invasive Species Program and Pesticide Use
Coordinator
US Forest Service

Raisa Kaludova

rgkaludova@alaska.edu

Monica Keim

Pacific Coastal Salmon Recovery Fund
Coordinator
NOAA Fisheries
monica.keim@noaa.gov

Nathan Kennedy

Biological Technician
Colorado State University
ndkenne@colostate.edu

Sabrina Kessakorn

Wildlife & Ecology Technician
Center for Environmental Management on
Military Lands (CEMML)
sabrina.kessakorn@colostate.edu

Bailey Korkoske

Fisheries Biologist
U.S. Fish & Wildlife Service
bailey_korkoske@fws.gov

William Krassoi

Habitat Biologist I
Alaska Dept. of Fish & Game
william.krassoi@alaska.gov

Libby Kugel

Communications and Administration Manager
Great Land Trust
lkugel@greatlandtrust.org

Amy LaBarre

Habitat Biologist
Alaska Department of Fish & Game
amy.labarre@alaska.gov

Matthew LaCroix

Biologist
Environmental Protection Agency
LaCroix.Matthew@epa.gov

Ann Marie Larquier

Habitat Biologist 3
Alaska Dept. of Fish and Game
ann.larquier@alaska.gov

**Molly Legg**

Alaska Pacific University
mlegg@alaskapacific.edu

Stuart Leidner

Superintendent
Alaska State parks
stuart.leidner@alaska.gov

Priscilla Lema

GIS Analyst
Alaska Dept. of Fish and Game
priscilla.lema@alaska.gov

Riley Marcus

Wildlife Biologist
Center for Environmental Management on
Military Lands (CEMML)
riley.marcus@colostate.edu

Sue Mauger

Co-Executive Director
Cook Inletkeeper
sue@inletkeeper.org

Alexa Millward

Kenai Peninsula Engagement Coordinator
Trout Unlimited
alexa.millward@tu.org

Crystal Moenaert

Habitat Biologist 3
Alaska Dept. of Fish and Game
crystal.moenaert@alaska.gov

Olivia Mueller

Student
Colorado State University
omueller@colostate.edu

Sarah Myers

Habitat Biologist 4
Alaska Dept. of Fish and Game, Habitat Section
sarah.myers@alaska.gov

Ashley Oleksiak

Environmental Program Specialist
Alaska Department of Environmental
Conservation
ashley.oleksiak@alaska.gov

Samantha Oslund

Assistant Area Management Biologist for
NCI/WCI
Alaska Dept. of Fish and Game
samantha.oslund@alaska.gov

Mitchell Paisker

Fish Biologist
US Fish and Wildlife Service
mitchell_paisker@fws.gov

Colton Percy

Habitat Biologist
Alaska Dept. of Fish and Game
colton.percy@alaska.gov

Laura Pevan

Fisheries Biologist II
Chickaloon Village Traditional Council
lapevan@chickaloon-nsn.gov

Aaron Poe

Alaska Conservation Foundation
apoe@alaskaconservation.org

Oliver Querin

Fishery biologist 1
Alaska Dept. of Fish and Game
oliver.querin@alaska.gov

Benjamin Rich

Graduate Student
University of Alaska Fairbanks
barich2@alaska.edu

Kyle Robillard

Environmental Technician
Native Village of Eklutna
krobillard@eklutna.org

**Kimberly Sager**

Natural Resource Specialist 3
Alaska Department of Natural Resources, Water
Resources
kimberly.sager@alaska.gov

Trista Sims

Fish and Wildlife Technician 2
Alaska Dept. of Fish and Game
trista.sims@alaska.gov

Ben Small

Fish Passage Program Assistant
Chickaloon Native Village
bhsmall@chickaloon-nsn.gov

Jessica Speed

Coordinator
Mat-Su Basin Salmon Habitat Partnership
Trout Unlimited
jessica.speed@tu.org

Margaret Stern

Program and Communications Director
Susitna River Coalition
margaret@susitnarivercoalition.org

Laurie Stuart

Executive Director
Tyonek Tribal Conservation District
lstuart@ttcd.org

Janet Sweeney**Jeremy Thatcher**

Salmon Habitat Restoration Specialist
National Oceanic and Atmospheric
Administration
jeremy.thatcher@noaa.gov

Hannah Thompson

Invasive Species Program Leader
Anchorage Soil and Water Conservation District
invasives.aswcd@gmail.com

Morgan Urquia

Outreach and Campaign Manager
Wild Salmon Center
murquia@wildsalmoncenter.org

Matthew Varner

Fisheries Program Lead
Bureau of Land Management
mvarner@blm.gov

Cecilia Vichi

Marine Mammal Technician
Colorado State University

Cheryl Westley**Eli Wilson**

Masters Student
University of Alaska Fairbanks
eewilson@alaska.edu

Andy Wizik

Conservation Biologist
Tyonek Tribal Conservation District
awizik@ttcd.org



2023 Mat-Su Salmon Science & Conservation Symposium

Thank you to our 2023 Symposium Sponsors & Supporters



And our hosts:

Palmer Community Center "Depot"