Mat-Su salmon PARTNERSHIP

Mat-Su Salmon Science & Conservation Symposium

Reflecting on the past,
Looking to the future

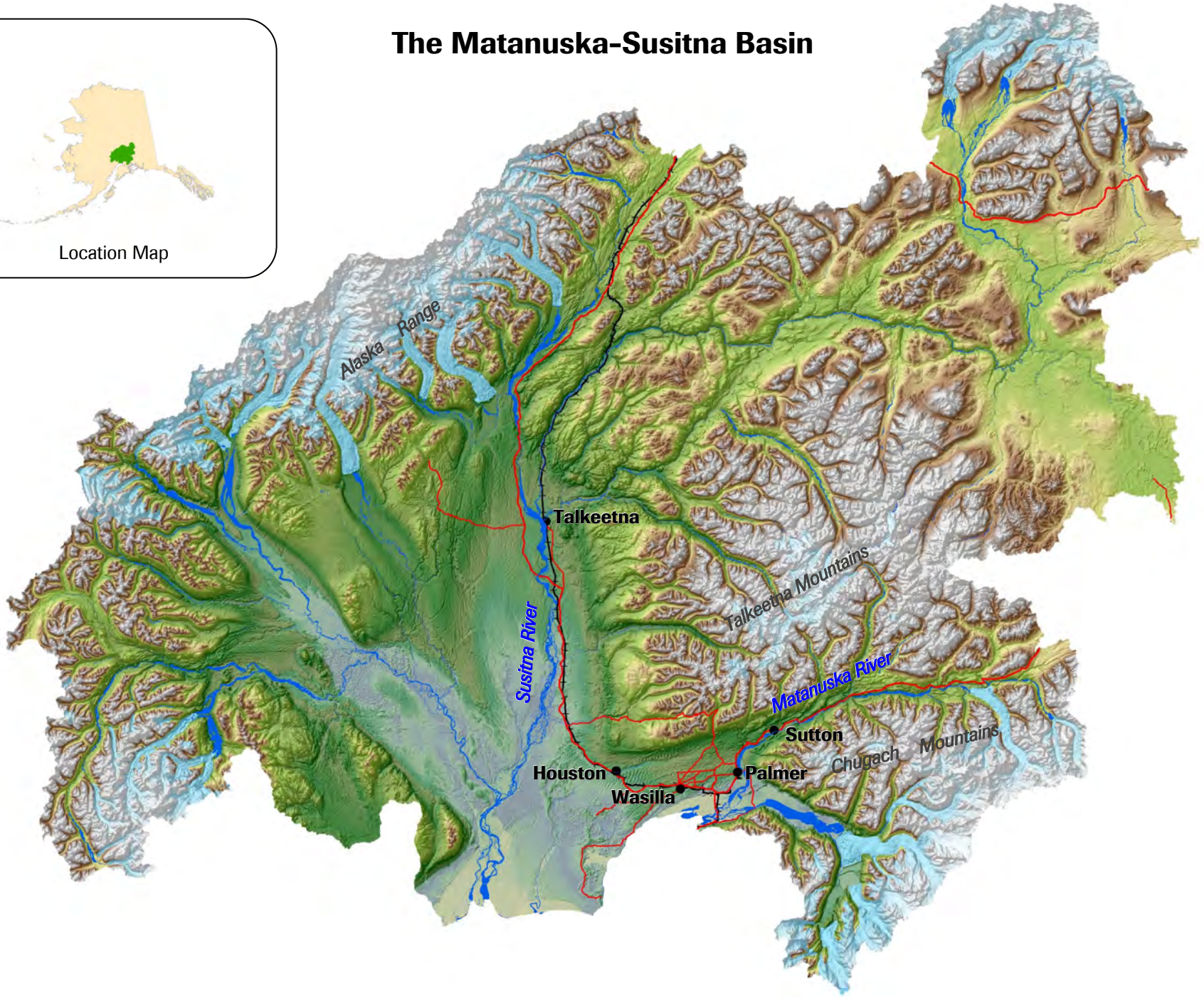
18th Annual

November 20 & 21, 2025
Palmer, Alaska

Hosted by:

Mat-Su Basin Salmon Habitat Partnership

The Matanuska-Susitna Basin



Welcome, and thanks for caring about salmon!

Welcome to the 18th annual Mat-Su Salmon Science & Conservation Symposium, hosted by the Mat-Su Basin Salmon Habitat Partnership.

This year's theme—Reflecting on the Past, Looking to the Future—invites us to take stock of what we've accomplished, honor longstanding stewardship, and come together collaboratively and strategically to sustain Mat-Su salmon—and the communities that depend on them—long into the future.

Our keynote speaker, weather and climate expert Rick Thoman, will open Thursday morning with a look at Southcentral Alaska's climate since the mid-20th century and what the coming decades may hold. Understanding these changes is directly relevant to salmon and to broader short- and long-term community planning and decision-making.

The Symposium program spans a wide range of topics tied to salmon habitat and conservation: thermal stress impacts, traditional knowledge and stewardship, strategic conservation tools, water quality, wildlife interactions, urban and industrial development, watershed planning, fish health, aquatic invasive species, Mat-Su Borough conservation efforts, and more. Day two includes an interactive session launching the next update of the Partnership's strategic action plan, as well as a data transfer session (featuring Leslie Jones) that continues our effort to bridge science and community decision-making. We will also host a poster session highlighting salmon science, thermal regimes, contaminants and beluga whales, fish passage, data stewardship, cost share program, and integrated perspectives to track Lamprey — and the people behind those projects.

We are pleased to again present a special art display from Palmer High School students. Now in its fourth year, this collaboration—now involving biology and chemistry classes—provides a creative complement to the science presented here.

This year, the Partnership is celebrating 20 years of collaborative conservation—working toward shared goals outlined in the Partnership's strategic plan. We are deeply appreciative of you—our capable, committed, and diverse partners—including all four of the Mat-Su's federally recognized Tribes, who continue to play vital roles in salmon stewardship and Partnership leadership. We are saddened that the current government shutdown may prevent our federal colleagues from joining us in person; they do essential work and are missed.

For nearly two decades, this two-day forum has allowed our community to share the latest information concerning salmon and their habitat. The need remains great: history has shown us that keeping salmon in our future requires working together, which members of this Partnership exemplify. Updating our strategic plan will help ensure our efforts are strategic and focused on the highest impact needs as we collectively work toward a future with Mat-Su salmon. Thank you for your part.

Whether you join us for the full program or select sessions (and the evening social at Matanuska Brewing Company, open to all), we're glad you're here. Special thanks to the Symposium Planning Committee and to our supporters for making this event possible.

On behalf of the Steering Committee, thank you,

Jessica Speed
Coordinator, Mat-Su Basin Salmon Habitat Partnership

Mat-Su Basin Salmon Habitat Partnership Steering Committee

Erika Ammann (National Oceanic and Atmospheric Administration)
Mike Campfield (Matanuska-Susitna Borough)
Melis Coady/Margaret Stern (Susitna River Coalition)
Theo Garcia/Cody Beus (Knik Tribe)
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Vanessa von Biela (U.S. Geological Survey)
Andy Wizik (Tyonek Tribal Conservation District)
Jessica Speed (Partnership Coordinator, Trout Unlimited)

Thank you to Symposium Volunteers!

Jessica Winnestaffer
Gracey Fahrney
Sue Mauger
Tim Troll
Mike Campfield
Cody Jacobson
Laurie Stuart
Cody Beus
Angie Wade
Nicole Swenson
Ben Americus
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Kamryn You Mak
Libby Kugel
Nate Cathcart

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Learn more about the Partnership and Symposium on the Mat-Su Salmon Partnership website at matsusalmon.org and follow us on Facebook!

Mat-Su salmon PARTNERSHIP

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Mat-Su Basin Salmon Habitat Partners

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Alaska Department of Environmental Conservation
*Alaska Department of Fish and Game
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Alaska Department of Transportation and Public Facilities
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Mat-Su Anglers
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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
*University of Alaska Anchorage
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

Agenda

Thursday November 20, 2025

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

8:30 Registration

9:00 Welcome

Jessica Winnestaffer (Director, Lands and Environment Department, Chickaloon Village Traditional Council)

9:30 Keynote Address: *Mat-Su's Changing Environment: Connecting the Past, Present and Future* • Rick Thoman, Alaska Center for Climate Assessment and Preparedness

Introduction: Grace Fahrney (Alaska Department of Fish and Game)

10:30 Networking Break

11:00 Impacts of Thermal Stress on Salmon

Moderator: Sue Mauger (Cook Inletkeeper)

How Warm is Too Warm? Growth Impacts of Thermal Stress on Juvenile Chinook and Coho Salmon in the Deshka River • John Hermus (University of Alaska Fairbanks)

11:15 Traditional Knowledge and Salmon Stewardship

Restoring Moose Creek: A Tribal Effort to Bring Salmon Home • Andrea James and Jessica Winnestaffer (Chickaloon Village Traditional Council)

Bridging Knowledge Systems: Traditional Ecological Knowledge and Salmon Research in Chickaloon • Ben Americus and Cody Henrikson (Chickaloon Village Traditional Council)

Stream Temperature Monitoring in the Matanuska River Watershed • Kendra Zamzow (Chickaloon Village Traditional Council)

Plants for Salmon: Knik Tribe's Native Plant Nursery and Restoration Efforts • Cody Beus (Knik Tribe)

12:15 LUNCH

1:00 Partnership Updates

Updates from the Mat-Su Salmon Partnership • Jessica Speed (Trout Unlimited)

1:15 Strategic Conservation and tools

Moderator: Tim Troll (Southwest Alaska Salmon Habitat Partnership)

Anadromous Waters Prioritization for the Matanuska-Susitna Basin • Erin Larson (Alaska Center for Conservation Science, University of Alaska Anchorage)

Tyonek Tribal Conservation District's 2025 Anadromous Fish Surveys • Andrew Wizik (Tyonek Tribal Conservation District)

1:45 Poster Session & Art Showcase

Moderator: Mike Campfield (Mat-Su Borough)

Poster authors and artists from Palmer Highschool will be on hand to answer questions about their work.

Chickaloon Native Village Salmon Research in the Matanuska Watershed • Ben Americus (Chickaloon Village Traditional Council)

Monitoring Salmon Spawning Dynamics and Thermal Regimes in the Eklutna River: Baseline Data Collection for Restoration • Alice Bandeian (Native Village of Eklutna)

Canaries in the Coalmine: Permitted Discharge and Known Contaminants Affecting Cook Inlet Belugas • Ragen Davey (Defenders of Wildlife)

Tribally Led Salmon Stewardship: Restoring Fish Passage on Premier Creek • Madelynne Dey (Chickaloon Village Traditional Council)

AKTEMP – Alaska's Stream and Lake Temperature Database • Marcus Geist and Erin Larson (Alaska Center for Conservation Science)

Overview and Future of Cost Share Work in the Mat-Su Basin • Grace Fahrney (Alaska Department of Fish and Game)

Integrating Traditional, Local, and Scientific Perspectives to Track Pacific Lamprey in Alaska• Meghan Montagne (Knik Tribe)

Interconnection • IB Biology, IB Chemistry & IB Visual Arts Students (Palmer High School, Mat-Su Borough School District)

Multimedia Salmon Art Showcase • Visual Arts Students (Palmer High School)

2:15 Networking Break

2:30 Tidbits

Moderator: Cody Jacobson (Alaska Department of Natural Resources)

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), please load them by the end of lunch.

3:00 Water Quality, Wildlife and Urban and Industrial Development

Moderator: Laurie Stuart (Tyonek Tribal Conservation District)

Lethal Levels of 6PPD-Quinone in Anchorage Waterways • Brian DiMento (University of Alaska Anchorage)

Beluga, Eulachon, and Salmon • Bill Bechtol (Bechtol Research)

Undermining the Inlet: How the Johnson Tract Mine Threatens Cook Inlet's Connected Ecosystems • Cooper Freeman (Center for Biological Diversity)

3:45 Watershed Planning

Watershed Planning Kick-Off • Margaret Stern (Susitna River Coalition)

4:00 Announcements and Adjourn

Jeff Fisher (Alaska Department of Environmental Conservation)

4:15 Evening social

Matanuska Brewing Company, 513 S. Valley Way, Palmer

Come visit with colleagues and new and old friends. The Mat-Su Salmon Partnership is providing appetizers, and a cash bar will be available till 7pm, when the social ends.

Friday November 21, 2025

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

8:30 Registration

9:00 Symposium Welcome

Cody Beus (Member, Mat-Su Basin Salmon Habitat Partnership Steering Committee, Knik Tribe)
Angie Wade (Director, Culture and Historic Preservation Department, Chickaloon Village Traditional Council)

9:15 Fish Health: State Regulatory Program & Regional Cases

Moderator: Nicole Swenson (Tyonek Tribal Conservation District)
Overview of ADF&G's Statewide Fish Health Regulatory Program with Select Diagnostic Cases from the Mat-Su Region • Jayde Ferguson (Alaska Department of Fish and Game)

9:30 Aquatic Invasive Species

ADNR Elodea Control Project Updates for Alaska 2025– The State of Elodea, at a Decision Point: Challenges, Choices, and the Road Forward • Cody Jacobson (Alaska Department of Natural Resources)
Out of Sight, Out of Mind? The Unrealized Devastation from Invasive Northern Pike • Parker Bradley (Alaska Department of Fish and Game)
Pike in Cook Inlet? Preliminary Results from Salinity Trials, Cook Inlet Salinity Monitoring • Brennan Watson (Alaska Department of Fish and Game)
Prioritizing Invasive Dreissenid Mussel Monitoring with Web Mapping Tools • Marcus Geist (University of Alaska Anchorage)

10:30 Networking Break

10:45 Fish and Fish Habitat Conservation Efforts of the Mat-Su Borough

Moderator: Ben Americus (Chickaloon Village Traditional Council)
Ensuring Passage for Fish in the Mat-Su Borough • Mike Campfield (Mat-Su Borough)
Mat-Su Borough Fish & Wildlife Commission • Andy Couch (Mat-Su Borough Fish and Wildlife Commission)

11:15 Science to Conservation Outcomes: Data Transfer

Moderator: Erin Larson (Alaska Center for Conservation Science, University of Alaska Anchorage)
Since its inception, the Partnership has focused on filling foundational salmon habitat data gaps in the Mat-Su. But what happens once those gaps are filled? This session explores the challenges and opportunities of transferring scientific data into actionable information for local decision-makers.

Leslie Jones will provide updates from the Alaska Geospatial Office, highlighting statewide mapping initiatives and coordinated efforts to fill data gaps and update existing data we depend on daily. She will also share best practices for data accessibility, stewardship, and interoperability to strengthen science-to-policy translation. Sue Mauger will follow with updates on the Partnership's Science to Conservation Outcomes initiative and how we've fared in our efforts to incorporate cold water refugia into local decision making. The session will conclude with a discussion on bridging science and community decision-making.

Connecting the Landscape: Advancing Mapping, Data Access and Stewardship Across Alaska • Leslie Jones, PhD (Geospatial Information Officer, State of Alaska, Alaska Geospatial Office)

Identifying Strategies for Moving Local Science into Community and Agency Decision Making: How are We Doing? • Sue Mauger (Cook Inletkeeper, Partnership Science and Data Committee)

12:15 Lunch

1:00 Tidbits

Moderator: Margaret Stern (Susitna River Coalition)

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.

1:30 Where the Partnership has Been and Where It's headed: Updating the Strategic Action Plan

Moderator: Meg Friedenauer (Agnew::Beck Consulting)

This session will kick off the next update of the Partnership's Strategic Action Plan — reflecting on progress, current challenges, and priorities for conserving Mat-Su salmon, and exploring how the Partnership can best support achieving these shared goals.

2:15 Networking Break

2:30 Where the Partnership has Been and Where It's Headed: Updating the Strategic Action Plan – Continued

Moderator: Meg Friedenauer (Agnew::Beck Consulting)

3:45 Conclusions

Laurie Stuart (Tyonek Tribal Conservation District)

4:00 Adjourn

About the Keynote Speaker

Rick Thoman

Rick Thoman has worked as a weather and climate professional in the private, public, and academic sectors for more than 40 years, including 30 years with the National Weather Service Alaska Region. As climate specialist at the International Arctic Research Center at the University of Alaska Fairbanks, he works to provide people and organizations around the state with accurate and timely information on Alaska's changing climate and environment that can help inform short-term decisions and long-term planning.

Mat-Su's Changing Environment: Connecting the Past, Present and Future

Weather and the environment are different now than in the past, and it's going to continue to change in the coming decades. This presentation will focus on how things have changed in Southcentral since the mid-20th century and what the future may bring, with an eye toward changes that could impact salmon.

Contact

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International Arctic Research Center
Alaska Center for Climate Assessment and Preparedness
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Presentation Abstracts

Presentation abstracts are ordered as listed in the agenda.
**Denotes poster*

How Warm is Too Warm? Growth Impacts of Thermal Stress on Juvenile Chinook and Coho Salmon in the Deshka River

John Hermus (University of Alaska Fairbanks)

Warming climate and 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 have higher survival rates. 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 2019–2022, 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. The results of this study suggest that when energetic needs are met, juvenile Chinook and Coho salmon are capable of high growth rates up to about 23 °C. Beyond this threshold, water temperatures approach their upper incipient critical thermal temperature, a point at which fish often stop feeding and mortality increases. This study highlights the importance of thermal heterogeneity within watersheds, emphasizing the need to preserve river connectivity and natural flow regimes that provide access to thermal refugia.

Restoring Moose Creek: A Tribal Effort to Bring Salmon Home

Andrea James/Jessica Winnestaffer (Chickaloon Village Traditional Council)

Chickaloon Village Traditional Council (CVTC) is an Ahtna Dene Tribe that has stewarded the Matanuska Watershed of Southcentral Alaska since time immemorial. Fish, and specifically salmon, are critically important sources of food and cultural well-being for Chickaloon Native Village Tribal citizens. Salmon resilience is dependent upon habitat availability, quality, and connectivity. Through both Western science and Traditional Ecological Knowledge, Chickaloon Native Village works to research and restore fish habitats and promote the conservation of salmon. For more than 20 years, CVTC has conducted fish passage restoration and research in Tsidek'etna (Moose Creek). Moose Creek was drastically changed by coal mining and railroad construction in the early 1900s, which straightened the creek and disconnected it from the floodplain with large berms. CVTC conducted notable fish passage restoration in 2005-2007, and in 2024, CVTC was awarded Bipartisan Infrastructure Law (BIL) funding through the NOAA Restoration Center and the USFWS National Fish Passage Program to greatly expand Moose Creek habitat restoration and reconnection of the watershed. Over the next four years, CVTC and its contractors will assess existing conditions of Moose Creek, design restoration options, and finally implement up to one mile of fish habitat restoration and restore fish passage to three

tributaries. CVTC will host trainings in fish passage restoration including a series of beginning to end workshops specific to the restoration of Moose Creek.

Bridging Knowledge Systems: Traditional Ecological Knowledge and Salmon Research in Chickaloon

Cody Henrikson/ Ben Americus (Chickaloon Village Traditional Council)

The Chickaloon Village Traditional Council's Environmental Stewardship Department is conducting a Traditional Ecological Knowledge (TEK) study to document and honor the knowledge of Ahtna Tribal Citizens about fish, animals, and the lands and waters of our traditional territory. This project aims to bring together Indigenous knowledge and Western science to strengthen stewardship and restoration efforts that reflect Ahtna values and lifeways. Through interviews and storytelling, community members are invited to share their experiences, teachings, and observations about ecological changes over time. Participants will have full control over how their information is recorded, reviewed, and shared. By contributing to this effort, participants help ensure that our environmental research and management continue to be guided by the deep, place-based knowledge of our people. We warmly invite Elders, harvesters, and community members to take part and help protect the ecosystems that sustain our culture and identity.

Stream Temperature Monitoring in the Matanuska River Watershed

Kendra Zamzow (Chickaloon Village Traditional Council)

Chickaloon Village Traditional Council's Environmental Stewardship Department (ESD) began conducting limited stream temperature monitoring in 2018. In 2025, they expanded their network to include eight sites on streams, two sites at lake outlets, and two sites on lakes. Sites range from Wolverine Lake on Lazy Mountain at Palmer to Old Man Lake over 100 miles east of Palmer. To our knowledge, this is the only stream temperature data in the Matanuska River watershed that is currently being collected outside of the single USGS gage at Moose Creek. This presentation will provide some of the data as well as "in-the-field" stories around deployment and retrieval.

Plants for Salmon: Knik Tribe's Native Plant Nursery and Restoration Efforts

Cody Beus (Knik Tribe)

The Knik Tribe is committed to riparian salmon habitat enhancement and restoration. For many years, the tribe has worked with various partners to return vegetation vital to salmon and the health of the water system. As a part of this commitment, the Knik Tribe has established a shrub and tree nursery for native plants that has been used in projects on and off the road system in Southcentral Alaska. Methods, lessons learned, and individual projects will be presented.

Updates from the Mat-Su Salmon Partnership

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

The Mat-Su Basin Salmon Habitat 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 nearly 70 organizations and individuals uses a collaborative, cooperative, and non-regulatory approach that brings together diverse stakeholders. It's part of a broader network of 20 fish habitat partnerships across the U.S. and one of four partnerships in Alaska (Kenai, Southwest Alaska, and Southeast Alaska) as well as two species focused partnerships with geographic extent in Mat-Su (Western Native Trout Initiative, Pacific Lamprey Conservation Initiative). Mat-Su salmon partners share a common vision for thriving salmon, healthy habitats, and vibrant communities co-existing in the Mat-Su Basin.

Through NFHP, the Partnership has funded over 100 salmon habitat related projects in the Mat-Su that meet goals of the Partnership's Strategic Plan. With a recent reauthorization of the America's Conservation Enhancement Act in late 2024–which codifies the NFHP program, there are some changes to the Partnerships annual funding process. This presentation will update partners on those changes.

Anadromous Waters Prioritization for the Matanuska-Susitna Basin

Erin Larson (Alaska Center for Conservation Science, University of Alaska Anchorage)

The Matanuska-Susitna (Mat-Su) Fish Habitat Partnership has identified the prioritization of streams for nomination to the Anadromous Waters Catalog (AWC) as an important data gap for the protection and conservation of fish habitat. We built an ensemble model of juvenile salmon habitat for the Mat-Su basin that can be used to prioritize stream surveys for making nominations to the AWC. Data inputs to the model included the newly developed NHDPlus for the Mat-Su and juvenile salmon occurrence locations from the Alaska Department of Fish and Game's Alaska Freshwater Fish Inventory. Topographic and climatic variables were used as variables to model suitable habitats for juvenile salmon. We developed a suite of species distribution models and combined model predictions in an ensemble to increase prediction accuracy. After model development, stream surveys were used to assess model performance and adapt the model. Final model predictions will be provided as searchable map products accessible on ArcGIS online to increase their availability and use for stream surveys. Our final report will include a prioritization of watersheds for stream surveys (using 8-digit USGS Hydrologic Unit Codes).

Tyonek Tribal Conservation District's 2025 Anadromous Fish Surveys

Andrew Wizik (Tyonek Tribal Conservation District)

During 2025, TTCD staff conducted anadromous fish surveys at Portage and Canyon Lake creeks using a combination of minnow traps, backpack electro-fishing, aerial, and foot surveys. We found salmonids in reaches of both streams where they were not previously recorded, adding 1.19 miles of Canyon Lake Creek and 4.38 miles of Portage Creek into the Alaska Anadromous Waters Catalog. The remote nature of these streams makes sampling difficult, and

both have little fish population data to describe the actual fish present at each. Previous efforts to sample fish at Portage Creek were primarily via minnow trapping. The majority of fish sampled at Portage in 2025 were sockeye which do not recruit well to traps. This means that previous sampling has likely underrepresented the true footprint of sockeye habitat usage in the creek. Additionally, wetland habitats adjacent to Portage Creek created by beavers appear to be important to the spawning of sockeye in this system since they are the only pond habitats in the watershed. Over the past three seasons, TTCD has been working to sample Canyon Lake Creek adding a small portion of the lower creek in 2023, Canyon Lake and middle creek in 2024, and another mile of stream in 2025. Beavers and coho are plentiful at the site and coho likely use the majority of the creek on certain years when access through the beaver habitats is possible. Both streams will require more sampling over multiple seasons to accurately describe the true extent of anadromous habitat.

*Chickaloon Native Village Salmon Research in the Matanuska Watershed**

Ben Americus (Chickaloon Village Traditional Council)

In the Matanuska Watershed, traditionally utilized salmon runs have been affected by habitat changes, overfishing, and factors beyond Cook Inlet. Chickaloon Village Traditional Council (CVTC) employs fisheries staff to protect, enhance, and restore these culturally important populations. To understand the past, we are using sedimentary DNA (sedDNA) to detect historical salmon presence in soil cores collected from biologically and culturally significant sites. To document present salmon distributions, CVTC is collaborating with the Alaska Department of Fish and Game to expand the Anadromous Waters Catalog (AWC) and Baseline Genetics Collections. In 2025, we expanded AWC listings for six tributaries of the Matanuska River and collected baseline genetic samples from two populations. Using inflatable packrafts, we can access and study rarely visited tributaries on the roadless south side of the river. Looking to the future, we are assessing fish health and habitat resilience. A 2025 salmon disease survey identified Ichthyophonus in sockeye and Myxidium in chum salmon—the first records of these pathogens in the watershed. At Tsidek'etna (Moose Creek), we are measuring habitat conditions before and after restoration using the Stream Quantification Tool. Together, these studies describe the history, current status, and future recovery opportunities for salmon in the Matanuska Watershed.

*Monitoring Salmon Spawning Dynamics and Thermal Regimes in the Eklutna River: Baseline Data Collection for Restoration**

Alice Bandeian (Native Village of Eklutna)

The Eklutna River in Southcentral Alaska has undergone severe hydrologic and geomorphic alterations due to the construction of two hydroelectric dams, gravel mining activity, and the development of highway and railroad crossings. These alterations have resulted in ongoing impacts to aquatic habitat connectivity, sediment transport, and flow regimes. Although the lower dam was removed in 2018, the absence of water released from the upper dam continues to impact salmon habitat and water quality conditions downstream.

Dating back to 2002, the Native Village of Eklutna has conducted weekly Salmonid Spawning surveys during the spawning season to document the presence, timing, and relative abundance

of the five Pacific salmon species in the Eklutna River. These spawning surveys also include Redd counts, providing valuable information on spawning habitat for future restoration projects. These results show that although all five species of salmon still utilize the Eklutna River, population sizes are minimal, with Chinook and Sockeye being almost non-existent. Traditional ecological knowledge from the region suggests that all five species populations thrived in the watershed before the implementation of the dams.

In 2025, with grant funding from NFHP, NVE initiated a long-term stream temperature monitoring program to characterize thermal regimes throughout the lower watershed. Eight sites, each with two HOBO Tidbit v2 temperature loggers, were installed from the Thunderbird Creek/Eklutna River confluence down to the mouth to capture continuous (1 hour-interval) temperature data. Selected sites were in both instream and ponded rearing habitats. These sites were selected to provide spatial coverage of the system and help establish annual baseline stream temperature data. Preliminary data from September-October 2025 will be presented, with future data to be uploaded to the AKTemp online database.

Together, these projects aim to inform salmon habitat restoration in the Eklutna River and provide critical long-term data to support adaptive watershed management under stressors from hydrologic modification and a changing climate.

*Canaries in the Coalmine: Permitted Discharge and Known Contamination Affecting Cook Inlet Belugas**

Ragen Davey (Defenders of Wildlife)

Cook Inlet belugas are an endangered species whose numbers have significantly declined from about 1300 in the late 1970s to around 300 today. Often overlooked in discussions of their lack of recovery is the evidence available suggesting their health is compromised. This is indicated by the prevalence of birth defects, aborted fetuses, depressed reproductive rates, and shorter life spans when compared to other beluga populations in Alaska. Contaminants in the environment, which belugas may ingest directly via their food or through direct contact with the water, are known to cause impaired health. Since belugas reside in Cook Inlet year-round, we know any contaminants they are encountering are associated with the water quality of Cook Inlet.

Contaminants can be discharged into Cook Inlet by either permitted or unpermitted sources, with some permitted discharges authorizing mixing zones where water quality standards may be legally exceeded. These sources of pollution are cumulatively contributing to an unhealthy environment for Cook Inlet belugas. Permits don’t require testing for the bulk of contaminants known to be of concern (e.g., pharmaceuticals, pesticides). There is no Cook Inlet wide monitoring for known contaminants of concern to the biota. The problem is, there is no clear overlap of what permits require to be tested for and what is known to be present in belugas, their prey, or their environment. Without expanded testing and regular monitoring throughout the inlet, how do we eliminate these contaminants from the environment and thus help improve the health of these belugas and the Cook Inlet ecosystem? Testing and regular monitoring to understand the sources of these known contaminants will help provide a way to regulate and potentially eliminate them from the Environment.

Here we show a preliminary comparison of what testing requirements are for permitted discharges with what is known to be present in the Cook Inlet ecosystem, highlighting the need for a long-term, Inlet-wide monitoring program focused on testing for known contaminants of concern.

*Tribally-led Salmon Stewardship: Restoring Fish Passage on Premier Creek**

Madelynne Dey (Chickaloon Village Traditional Council)

Chickaloon Village Traditional Council (CVTC) is an Ahtna Dene Tribe that has stewarded the Matanuska-Susitna Valley of Southcentral Alaska since time immemorial. In the past 20 years, CVTC has focused salmon habitat restoration efforts in the Matanuska watershed, including on restoring a culturally important stream, Tsidek'etna (Moose Creek), and its tributaries from historic coal mining and railroad construction. CVTC was awarded 2023 Bipartisan Infrastructure Law (BIL) funding through the NOAA Restoration Center's Restoring Tribal Priority Fish Passage through Barrier Removal Program to develop a Tribal Fish Passage Program. CVTC removed two barrier culverts on Premier Creek, an anadromous tributary of Moose Creek. This poster highlights the work done by CVTC to implement fish passage barrier removals in the Matanuska Watershed.

*AKTEMP – Alaska's Stream and Lake Temperature Database **

Marcus Geist/ Erin Larson/ Dustin Merrigan (Alaska Center for Conservation Science, University of Alaska Anchorage)

Alaska continues to witness the greatest warming of any state in the United States, and Alaska's wild salmon and other native fish are experiencing change across the full range of their habitats. Because temperature plays such a critical role, we need to assess water temperatures in Alaska's freshwater habitats. In 2022, ACCS released a freshwater temperature database for Alaska. AKTEMP is a cloud-based database platform for storing and accessing stream and lake temperature monitoring data. AKTEMP currently (2025) stores and serves stream and lake temperature data from over 830 sites. It provides a repository for over 30 federal, state, regional non-profit, and tribal organizations which collect data but lacked data infrastructure prior to AKTEMP. The system is configured to continue growing with new sites and new data contributors. In addition to its previous capabilities to view individual station timeseries data and view multiple depths at a single station such as in a lake or measuring streambed gravels, AKTEMP now includes a AKTEMPViz application allowing users to compare up to four stations on single graph and to see water temperature in relation to air temperatures.

*Overview and Future of Cost Share Work in the Mat-Su Basin**

Grace Fahrney (Alaska Department of Fish and Game)

The Mat-Su Cost Share program, also known as the Streambank and Shoreline Rehabilitation and Protection Program, is a partnership between Alaska Department of Fish and Game, United States Fish and Wildlife Service, nonprofit organizations, private landowners, and local governments. The program provides financial incentives and educational outreach to private

landowners to sustain and improve salmon habitat. To date, the program and its partners have constructed/completed over 900 streambank and shoreline rehabilitation projects, primarily using rootwads, brush layers, cabled spruce trees, elevated light penetrating walkways, and native riparian vegetation planting. Since its 2007 inception, the Cost Share program has completed many of the highest priority and easy-to-do streambank and shoreline restoration projects in the Mat-Su. We propose to have a QR code on our poster linked to a poll to solicit audience input about the future of cost share work in the Mat-Su, how to improve it, and how to reach a wider audience.

*Integrating Traditional, Local, and Scientific Perspectives to Track Pacific Lamprey in Alaska**

Meghan Montagne (Knik Tribe)

Pacific lamprey are an ecologically and culturally significant species in Alaska, but little is known about their distribution and abundance. This project integrates traditional and local knowledge with scientific surveys to document Pacific lamprey distribution in Cook Inlet. Using interviews, electrofishing, and environmental DNA (eDNA) collections in waterways throughout southcentral Alaska, this study documents habitat, co-occurring species, distribution, and range extent. This approach combines knowledge systems with biological data to influence Pacific lamprey management and conservation in Alaska.

*Interconnection **

IB Biology, IB Chemistry & IB Visual Arts Students (Palmer High School, Mat-Su Borough School District)

This project explores the process of creating paints from natural, chemical and locally sourced materials while connecting art-making to environmental research and conservation themes. The primary focus was to investigate effective methods for producing pigments and binders suitable for paint applications. Natural materials—including minerals, soils, and plant-based substances—were collected and tested for color quality, texture, and lightfastness to determine their potential as viable pigment sources. Alongside the experimentation, artist research was informed by studies on salmon conservation efforts in Alaska, using this context as both inspiration and subject matter for their projects. The resulting body of work consists of salmon-themed watercolor paintings that reflect the interconnectedness of local environments, traditional materials, and contemporary conservation concerns. Through the integration of scientific inquiry and creative expression, the project demonstrates how art can engage with environmental awareness and sustainability.

Lethal Levels of 6PPD-Quinone in Anchorage Waterways

Brian DiMento (University of Alaska Anchorage)

Tire wear particles (TWPs) and their leachates are contaminants of growing concern to Alaskan salmon populations. One compound in particular, 6PPD-quinone (6PPDQ), has recently been shown to be extremely toxic to coho salmon. 6PPDQ is a transformation product of 6PPD, a

ubiquitous additive used in tires to increase their longevity by preventing degradation of the rubber through reactions with ozone. TWPs can wash into stormwater drains and ultimately streams and rivers with rain and snowmelt, potentially resulting in 6PPDQ concentrations lethal to coho. This compound has been attributed to urban runoff mortality syndrome in coho in the Pacific Northwest, but very little work had been done in Alaska to investigate its prevalence and potential role in declining salmon populations. In the summer of 2025, stream and storm drain samples were collected around Anchorage to build upon previous 6PPDQ monitoring efforts. Samples were analyzed following established techniques using liquid chromatography tandem mass spectrometry (LC-MS/MS), leveraging the instrumentation available in the UAA Chemistry Department and Applied Science, Engineering and Technology (ASET) Lab. Ancillary data (temperature, pH, conductivity, dissolved oxygen) were also collected to characterize water samples and correlate with 6PPDQ levels. While most concentrations measured were low, one rain event raised concentrations in Chester Creek up to three times higher than the LC50 for coho salmon (the concentration capable of killing 50% of individuals after 24 hours of exposure). Far higher levels were observed in storm drains pouring into the streams, suggesting the potential for population-level consequences. Future work will aim to expand the spatial and temporal coverage of 6PPDQ data, with results ultimately being used to inform targeted mitigation strategies until effective (and non-toxic) alternatives to current tire additives are discovered.

Beluga, Eulachon, and Salmon

Bill Bechtol (Bechtol Research)

Cook Inlet beluga whales (CIBW) are a distinct population segment and an apex predator important to subsistence, culture, and the Cook Inlet ecosystem. The population declined ~50% during 1993–1998 and was then listed as depleted in 2000 and endangered in 2008. The population continued to decline 2.3%/yr during 2008–2018, then increased 0.9%/yr to 2022. The lack of recovery remains a concern, and the CIBW Recovery Plan identified reduction in prey as a threat. This presentation updates information on presumed CIBW prey.

Spring is a critical period as CIBW emerge from winter needing to accumulate sufficient reserves to survive the next winter; adult females are also lactating or pregnant. Eulachon, a high-energy fish, undergo spring spawning migrations important to CIBW. Surveys in nearby waters suggest eulachon populations were generally high in the mid-2000s to early 2010s, but lower in recent years.

Salmon are likely the major CIBW prey during June–August, but species availability differs spatially and temporally. In the northern inlet, commercial salmon harvests were historically driven by sockeye and coho, but commercial harvests have declined over recent decades.

Understanding linkages between CIBW and their prey is critical to strategies that promote CIBW recovery while maintaining fisheries and ecosystem function. A lack of data on endangered CIBW and their prey abundance and selectivity inhibits our understanding. Several potential research options are discussed.

Undermining the Inlet: How the Johnson Tract Mine Threatens Cook Inlet's Connected Ecosystems

Cooper Freeman (Center for Biological Diversity)

The proposed Johnson Tract mine and its planned ore shipping port at Tuxedni Bay threaten one of Cook Inlet's last undeveloped ecosystems. Tuxedni Bay is the only known winter foraging grounds for Cook Inlet beluga whales and is rich with razor clams, forage fish, salmon, and other aquatic life that depend on clean, quiet, and healthy waters. Mining and ore transport activities could degrade water quality, disrupt food webs, and harm the habitats that sustain these species. This presentation highlights how development in the Johnson Tract and at Tuxedni Bay could ripple through the entire Cook Inlet ecosystem—undermining not only belugas and their prey, but the ecological integrity of the Inlet itself.

Watershed Planning Kick-Off

Margaret Stern (Susitna River Coalition)

The Susitna River sustains Alaska's communities, providing food, livelihoods, and cultural identity. However, climate change, land use shifts, and industrial development increasingly threaten water quality and habitat integrity—impacts felt most by rural communities who rely on the watershed for subsistence, recreation, economy, and cultural connection. The Susitna River Coalition (SRC) is launching a new initiative centered on community-led watershed planning. This effort will integrate science, Traditional Ecological Knowledges (TEK), and local monitoring to identify key water quality concerns, habitat stressors, and restoration priorities across the watershed. Building on SRC's long history of community-based advocacy, the project aims to develop a collaborative, data-informed roadmap for watershed resilience and long-term stewardship. As this work moves forward, SRC welcomes partnership and technical guidance from experts in fish ecology, hydrology, restoration, and community science to strengthen regional collaboration and ensure the Susitna remains a thriving, connected system for generations to come.

Overview of ADF&G's Statewide Fish Health Regulatory Program with Select Diagnostic Cases from the Mat-Su Region

Jayde A. Ferguson[1], Davis J. Stewart[1], Franklin R. Woitel[1] and Theodore R. Meyers (Alaska Department of Fish and Game)

ADF&G's Statewide Fish Pathology Regulatory Program is tasked with protecting Alaska's finfish and shellfish from diseases. Their Mission Statement is *"The Fish Pathology Section monitors and controls finfish and shellfish diseases statewide (according to Title 16 of the Alaska Statutes) by conducting diagnostic services, developing finfish and shellfish disease policies and by advising the Commissioner of the Alaska Department of Fish and Game and other state and federal authorities on fish health issues".* The program website can be found at https://www.adfg.alaska.gov/index.cfm?adfg=fishingpathologylab.main. It is staffed by a Pathologist and two Microbiologist in the Anchorage Lab and the Chief Pathologist and another Microbiologist in the Juneau Lab. Both Fish Pathologists are certified by the American Fisheries Society's Fish Health Section. The most valuable and effective service that we provide for

protecting Alaska's fisheries is our no-cost diagnostic and consultation service that any fisher can use. This service involves initially contacting program staff with information and photographs about the problem. This initial consultation often leads to a diagnosis for the common fish diseases that occur in Alaska as provided in more detail from our online fish disease field guide entitled "Common Diseases of Wild and Cultured Fishes in Alaska" found at https://www.adfg.alaska.gov/static/species/disease/pdfs/fish_disease_book.pdf. Initial consultation will dictate if sample submission is warranted, which if so, then instructions can be provided. Other services include: 1) hatchery support and oversight by inspections and permitting; 2) regulatory authority on permitting and oversight of reporting and controlling fish diseases; 3) development of statewide fish and shellfish disease policies to reduce disease agent introduction and amplification; 4) applied research published in peer-reviewed journals; 5) public outreach and education; and 6) pathogen surveillance from broodstocks, diagnostic cases, and fish kills. Examples of recent diagnostic cases involving pre-spawning mortality of adult coho salmon from the Mat-Su region that have been implicated in warm water events are also provided for sharing this information with community members and other interested parties.

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The State of Elodea, at a Decision Point: Challenges, Choices, and the Road Forward

Cody Jacobson (Alaska Department of Natural Resources)

Elodea (Elodea spp., Common waterweed) is Alaska's first invasive submersed freshwater aquatic plant that has been identified in several regions of the state including: Copper River Delta, Interior, Kenai Peninsula, and the Matanuska-Susitna (Mat-Su) Valley. In the Mat-Su, Elodea has been found within the Alexander Creek drainage that encompasses Alexander Lake, Alexander Creek, and the Sucker Lakes complex. Elodea has also been found established and spreading in the Big Lake system including Big Lake, Mirror Lake, and Flat Lake. Elodea was discovered in 2023 in Lower Six Mile Lake on Joint Base Elmendorf-Richardson, Anchorage, and in Cresent Lake on the Kenai Peninsula. Elodea is also present in the Interior in Harding Lake and Chena and Piledriver sloughs, as well as a series of small lakes on Eielson Airforce base. These watersheds are currently in some state of herbicide control based on funding availability. ADNR is partnering with numerous collaborators on these control efforts.

This presentation will provide an overview of the 2025 field season of herbicide control and containment efforts conducted by the Alaska Department of Natural Resources throughout these watersheds along with challenges faced in the fight against this pervasive aquatic plant that threatens critical salmon rearing habitat throughout Alaska. Different application strategies and techniques will be discussed as well as several different aquatic herbicide formulations currently being used by ADNR.

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 are 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.

Pike in Cook Inlet? Preliminary Results from Salinity Trials, Cook Inlet Salinity Monitoring

Brennan Watson (Alaska Department of Fish and Game)

The Alaska Department of Fish and Game (ADF&G) is conducting a research project examining the ability of northern pike to move through Cook Inlet. Previous research has confirmed pike moving through Cook Inlet and examined pike salinity tolerance. The first part of this project is to gather data on the salinities in Upper Cook Inlet. We are doing this through a series of temperature and conductivity monitors placed throughout the area. This data should allow us to produce maps showing which areas are vulnerable at different times throughout the year. The second part of the research is to expose pike to water of known salinities for a known duration and examine the strontium signature in their otolith, helping us ground-truth results we've seen in wild pike. Pike are captured from Nancy Lake and then placed in Cook Inlet water for a known duration before being placed in an enclosure in Nancy Lake. Preliminary results are that salinity data have been collected from several sites, and the salinity exposure has confirmed the ability of pike to transition from freshwater to saltwater and back to freshwater and produced otoliths for analyses. By combining all this data, we will better inform future prevention and containment strategies to prevent northern pike from spreading into highly vulnerable drainages via Cook Inlet.

Prioritizing Invasive Dreissenid Mussel Monitoring with Web Mapping Tools

Marcus Geist (University of Alaska Anchorage)

Invasive dreissenid mussels both quagga (Dreissena bugensis) and zebra (Dreissena polymorpha) have drastically impacted freshwater ecosystems and economies across many US states and Canadian provinces. Fortunately, dreissenids have not yet been discovered in Alaska and a partnership has assembled to fend off these invaders.

The University of Alaska Anchorage, with support from the Alaska Department of Fish and Game and the US Fish and Wildlife Service, has created a multi-function web map to display lake vulnerability. The map prioritizes invasive mussel monitoring efforts and identifies water quality sampling targets (Calcium and pH). Each lake is attributed with a suite of factors that map users can filter such as road access, boat launches, floatplane use, hydrologic connectivity, elodea and non-native pike presence, ADF&G stocking, and known fish species. This web mapping site provides the user with the ability to view Alaskan lakes' and ponds' vulnerabilities to multiple aquatic invasive species. The tool focuses on dreissenid mussels (quagga and zebra) although it also includes information about the aquatic invasive plant elodea and northern pike outside their native range. With all this information consolidated by waterbody, users can sort according to monitoring and sampling prioritizations to plan summer field seasons. Partners can identify lakes for sampling and managers can designate critical lakes for continued long-term surveillance

The project team adapted an ArcGIS Survey 123 mobile application for standardized monitoring data collection that automatically populates a layer on the web map. This approach allows other partners such as Soil and Water Conservation Districts, local watershed groups, and Alaska Native Tribes to join ADF&G and USFWS in a coordinated and accessible monitoring effort.

Ensuring Passage for Fish in the Mat-Su Borough

Mike Campfield (Mat-Su Borough)

This presentation will share highlights from the Mat-Su Borough Fish Habitat Restoration and Fish Passage programs. A recently completed project on Hidden Hills Road and current project on Mastadon Road will be featured, with several upcoming projects planned for next summer previewed.

Mat-Su Borough Fish & Wildlife Commission

Andy Couch (Mat-Su Borough Fish & Wildlife Commission)

In 2007, the Matanuska-Susitna Borough Fish & Wildlife Commission (FWC) was formed to represent the interests of the Borough in the conservation and allocation of fish, wildlife, and habitat. Since then, the FWC and Borough has directed over $20 million in Borough, State, and Federal funding towards improving fisheries research, management, and fish passage. The FWC advocated for the formation of the MSB Waterbody Setback Advisory Board to ensure water quality and crucial fish habitat concerns in regards to potential adjustments of the Borough's waterbody setback ordinance. The Commission advocates for consistent funding for salmon weirs and scientific research / studies and proposed the creation, regulation, and

maintenance of a Conservation Corridor through the middle of Upper Cook Inlet, allowing more salmon to return to Northern Cook Inlet natal streams to spawn. Commission member Couch will provide an update on the FWC's recent efforts and likely upcoming agenda items.

Connecting the Landscape: Advancing Mapping, Data Access, and Stewardship Across Alaska

Leslie Jones, PhD (Alaska Geospatial Office)

Alaska's rapidly changing landscape underscores the critical importance of maintaining up-to-date, accessible geospatial data. This presentation provides an update on Alaska's ongoing statewide mapping initiatives and partnerships with federal agencies to identify and coordinate strategic investment opportunities. It will discuss the need for regular data refreshes in the face of dynamic environmental change, current challenges with data access and interoperability across agency silos, and emerging best practices for improving coordination, stewardship, and reuse of geospatial information. Emphasis will be placed on building a modern, interoperable data infrastructure that supports both routine decision-making and rapid disaster response through transparent, collaborative governance.

Identifying Strategies for Moving Local Science into Community and Agency Decision Making: How are We Doing?

Sue Mauger (Cook Inletkeeper)

Starting at the Symposium in 2021, the Partnership has hosted a series of "Science to Conservation Outcomes" discussions to dive deeper into existing tools for salmon habitat conservation. Using cold water refugia identified in the Deshka and Big Lake basins as a pilot topic, partners identified numerous opportunities to move this local science into local decision making. Examples of existing tools included engaging in the Recreation Rivers Management Plan review process, maintaining and/or improving water quality standard language for water temperature, classifying Mat-Su Borough parcels as "watershed" lands, and communicating with private landowners about stewardship opportunities. One significant gap was identified in ensuring relevant science is available, discoverable, and interpretable for agencies for permit reviews and land sales. We'll provide an update on how successful we've been in achieving our objective of moving cold water refugia information into decision making.

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