



11th Annual

# **MAT-SU SALMON SCIENCE & CONSERVATION SYMPOSIUM**

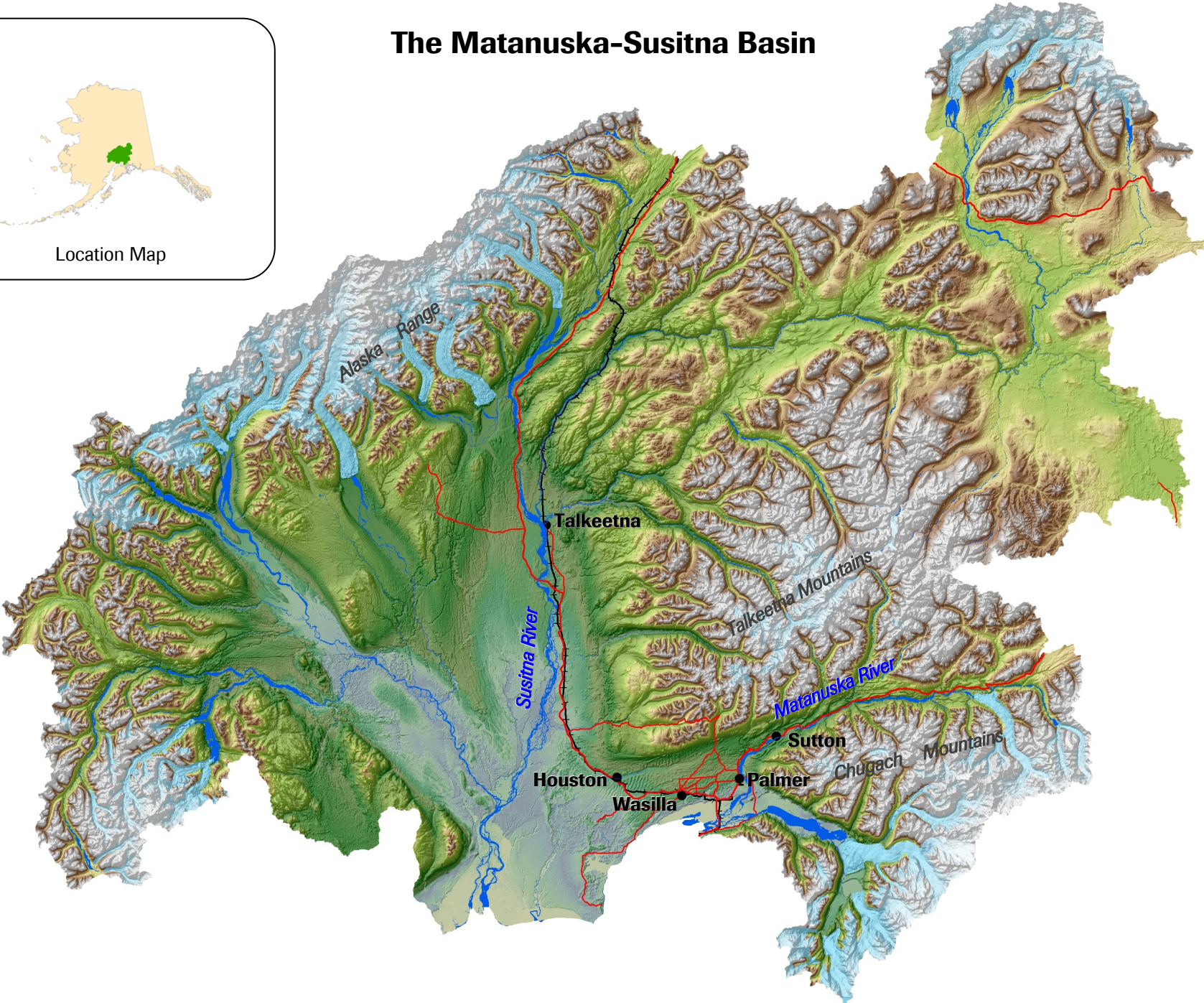


November 14 & 15, 2018 | Palmer, Alaska

# The Matanuska-Susitna Basin



Location Map







**Welcome to the 11<sup>th</sup> annual  
Mat-Su Salmon Science and Conservation Symposium  
Hosted by the Mat-Su Basin Salmon Habitat Partnership**

Thank you for attending the 11th annual Mat-Su Salmon Symposium. We're glad you're here to share information and exchange ideas about salmon science and conservation in the Mat-Su Basin. The Symposium is an opportunity to learn, connect, and brainstorm. We encourage you to think about how we can all work together to ensure thriving salmon and healthy communities are in the Mat-Su Basin for years to come.

We have a wonderful line-up of presentations this year and a session dedicated to hearing your feedback on the Partnership's Strategic Focus document that will help prioritize and guide our efforts over the next five years.

We are also excited to have Langdon Cook — writer, instructor, and lecturer on wild foods and the outdoors — as our keynote speaker. He will be sharing scenes from his latest book, *Upstream: Searching for Wild Salmon, from River to Table*, a finalist for the Washington State Book Award. In an effort to better understand how society values salmon, Cook visits with people of diverse geographic areas and backgrounds to explore ways this age-old connection is valued and safeguarded. On Wednesday evening, there will also be a public Wild and Local Foods Dinner with book reading and signing by Langdon Cook at Turkey Red.

**The Partnership believes that thriving fish, healthy habitats and vibrant communities can co-exist in the Mat-Su Basin.** Thank you for your part in keeping wild salmon abundant in the Mat-Su today and into the future.

Special thanks to the Symposium Planning Committee, this year's presenters, moderators and collaborators, and to our Symposium supporters. We hope you enjoy this year's event!

**Mat-Su Salmon Partnership Steering Committee:**

Erika Ammann, NOAA Fisheries  
Adrian Baer, The Alaska Center  
Brianna Blackburn, Mat-Su Borough  
Thomas Cappiello  
Christy Cincotta, Tyonek Tribal Conservation District  
Jim DePasquale, The Nature Conservancy  
Jessica Johnson, Alaska Department of Fish and Game  
Marc Lamoreaux, Native Village of Eklutna  
Trent Liebich, U.S. Fish and Wildlife Service  
Jessica Speed, The Nature Conservancy (Partnership Coordinator)

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



## Table of Contents

**Mat-Su Basin Salmon Habitat Partners..... 4**

**Agenda..... 6**

**Presentation Abstracts.....10**

**Keynote Speaker: Langdon Cook.....23**

**Partnership Strategic Focus..... 24**

**Attendee List..... 26**

### **Symposium Planning Committee:**

Thomas Cappiello  
 George Hoden, Matanuska-Susitna Borough  
 Catherine Inman, Mat-Su Conservation Services  
 Katrina Liebich, U.S. Fish and Wildlife Service  
 Terry Nininger, Mat-Su Borough Fish and Wildlife Commission  
 Adam St. Saviour, Alaska Department of Fish and Game  
 Jessica Speed, The Nature Conservancy (Partnership Coordinator)  
 Ryan Viola

**Cover artwork by: Annie Brace at Corso Graphics**



## Mat-Su Basin Salmon Habitat Partners

\* Steering Committee Members

*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*

*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  
Sustainable Design Group  
\*The Alaska Center  
The Conservation Fund  
\*The Nature Conservancy  
The Wildlifers  
Three Parameters Plus, Inc.  
Trout Unlimited  
\*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  
Wasilla Soil and Water Conservation District*

*The partnership includes 61 organizations and three private individuals.*



The Matanuska-Susitna Basin Salmon Habitat Partnership believes that thriving fish, healthy habitats, and vital communities can co-exist in the Mat-Su Basin. Because wild salmon are central to life in Alaska, the partnership works to ensure quality salmon habitat is safeguarded and restored. This approach relies on collaboration and cooperation of diverse stakeholders to get results.

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



## Wednesday November 14, 2018

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

### 8:30 Registration and Coffee/Snacks

### 9:00 Symposium Welcome

Brianne Blackburn (Mat-Su Basin Salmon Habitat Partnership Steering Committee Member; Environmental Planner, Mat-Su Borough)  
Theo Garcia (Council Member, Knik Tribe)  
Dan Mayfield (Assembly Member, Mat-Su Borough)

### 9:30 Keynote Address, Langdon Cook

*Living on the Wild Side: Sustaining Our Age-Old Bond with Pacific Salmon*  
Introduction: Ted Eischeid (Mat-Su Borough)

### 10:30 Networking Break

### 11:00 Managing our Watersheds for Thriving Salmon

Moderator: Matthew LaCroix (U.S. Environmental Protection Agency)  
*State of the Kings: Update on the Statewide Chinook Salmon Research Initiative*  
Bill Templin and Jim Hasbrouck (Alaska Department of Fish and Game)  
*Assessing Watershed Integrity in the Matanuska-Susitna Basin*  
Kelsey Aho (U.S. Environmental Protection Agency)  
*Wetland Loss Assessment by Type and Watershed in an Expanded Core Area of the Matanuska Susitna Borough*  
Michael Gracz (Kenai Watershed Forum)  
*Remediating Stormwater Runoff: A Local Solution*  
Catherine Inman (Mat-Su Conservation Services)

### 12:00 LUNCH

### 1:00 Implementing Habitat Conservation

Moderator: Sue Mauger (Cook Inletkeeper)  
*Great Land Trust Overview of Projects in the Matanuska-Susitna Borough*  
Libby Kugel (Great Land Trust)  
*Fish Passage in the Mat-Su Borough: Progress and Goals*  
Gillian O'Doherty (Alaska Department of Fish and Game)  
*Mat-Su Trails and Parks Foundation and Salmon Habitat*  
Kim Sollien (Mat-Su Trails and Parks Foundation)  
*Brief Update on Fish Habitat Partnership Activities Across the State*

### 2:00 Break

### 2:15 Tidbits

Moderator: Daniel Rinella (U.S. Fish and Wildlife Service)  
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.



## 2:30 **Poster Session**

Moderator: Carrie Brophil (Native Village of Eklutna)

Poster authors will be on hand to answer questions about their projects.

*Quantification of ORV Impacts in Riparian Areas within the Mat-Su*

Libby Benolkin and Franklin Dekker (U.S. Fish and Wildlife Service)

*The Mat-Su Fish and Wildlife Commission: Past, Present, and Future*

Brianne Blackburn and Larry Engel (Mat-Su Borough Fish and Wildlife Commission)

*Modern and Traditional Tools Used in Salmon Processing and Harvesting*

Kayla Horning (University of Alaska Anchorage Student)

*Collaborative Invasive Species Management in the Tyonek Tribal Conservation District*

Jillian Jablonski (Tyonek Tribal Conservation District)

*Mat-Su Habitat Restoration and Protection Cost Share Program*

Jessica Johnson (Alaska Department of Fish and Game)

*Mat-Su Salmon Partnership Strategic Focus: Update and Feedback*

Jessica Speed (The Nature Conservancy) and Partnership Steering Committee Members

*Updated Streamlines in the Tyonek Area*

MaryKate Swenarton and Franklin Dekker (U.S. Fish and Wildlife Service)

*What Does it Mean to be Ethical?*

Ryan Viola

## 3:15 **Invasive Northern Pike: Updates and Impacts**

Moderator: Samantha Oslund (Alaska Department of Fish and Game)

*Impacts of Invasive Northern Pike in the Susitna Drainage*

Tim McKinley, Parker Bradley and Kristine Dunker (Alaska Department of Fish and Game)

*Shell Lake Project Update on Invasive Northern Pike*

Andrew Wizik (Cook Inlet Aquaculture Association)

*Invasion of Northern Pike in the Threemile Creek Drainage: Background and Updates from Tyonek Tribal Conservation District*

Jillian Jablonski (Tyonek Tribal Conservation District)

## 4:00 **Announcements and Adjourn**

Moderator: Catherine Inman (Mat-Su Conservation Services)

## 5:30 - **Wild and Local Foods Dinner with Keynote Speaker Langdon Cook**

**7:00** Join us for dinner, book reading and signing with Langdon Cook, author of *Upstream: Searching for Wild Salmon, from River to Table*.

Turkey Red, 550 S. Alaska St, Palmer

Everyone Welcome. Pre-registration required. Doors open at 5 pm, \$30/person.





## Thursday November 15, 2018

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

### 8:30 Registration and Coffee/Snacks

### 9:00 Symposium Welcome

Jessica Speed (Mat-Su Basin Salmon Habitat Partnership Coordinator, The Nature Conservancy)

### 9:15 Data and Updates: Genetics, Fish Passage, Elodea and Statewide Synthesis

Moderator: Adam St. Saviour (Alaska Department of Fish and Game)

*A New Chinook Salmon Genetic Baseline for Cook Inlet: Opening Doors to New Analyses*

Andrew Barclay (Alaska Department of Fish and Game)

*The Mat-Su Fish and Wildlife Commission: Past, Present, and Future*

Larry Engel, Howard Delo and Andy Couch (Mat-Su Fish and Wildlife Commission)

*State of Alaska's Salmon and People: SASAP*

Meagan Krupa (National Center for Ecological Analysis and Synthesis)

*Aquatic Infestation in the Mat-Su: An Elodea Update*

Dan Coleman (Alaska Department of Natural Resources)

### 10:15 Networking Break

### 10:45 Tidbits

Moderator: Ann Marie Larquier (Alaska Department of Fish and Game)

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 during the networking break.

### 11:00 Mat-Su Salmon Partnership Strategic Focus: Update and Feedback

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

Christy Cincotta (Tyonek Tribal Conservation District)

*Based on previous input, the Partnership Steering Committee created a document identifying where our focused efforts will be over the next five years. This session will highlight identified priorities, solicit feedback from partners, and explain the relationship to our current Strategic Plan.*

### 12:00 LUNCH



- 1:00 Using Temperature and Flow Information to Understand Freshwater Productivity: Part 1**  
Introduction and Moderator: Jon Gerken (U.S. Fish and Wildlife Service)  
*How Can Stream Temperature and Flow Affect the Productivity of Alaskan Salmon Populations?*  
Daniel Rinella (U.S. Fish and Wildlife Service)  
*On the Hunt for Thermal Diversity in the Deshka River Watershed*  
Sue Mauger (Cook Inletkeeper)  
*Discovering Downriver Discharge in the Deshka Watershed for Habitat Modeling and Protection*  
Franklin Dekker (U.S. Fish and Wildlife Service)  
*Summary of Deshka River Salmon Assessment Projects Conducted by the Alaska Department of Fish and Game, 1974 – Present*  
Johnathon Campbell (Alaska Department of Fish and Game)  
*Group Question and Answer Session (15 minutes)*
- 2:15 Networking Break**
- 2:30 Applying Freshwater Productivity Information into Management Decision-Making: Part 2**  
*Bridging the Gap: Creating Proactive Conservation and Management Tools*  
Leslie Jones (University of Alaska)  
*Using BLM's National Aquatic Monitoring Framework to Better Understand the Current and Future Physical, Chemical, and Biological Characteristics of Streams in the Mat-Su*  
Matt Varner (Bureau of Land Management)  
*Management of Salmon Sport Fisheries in the Mat-Su Area*  
Sam Ivey (Alaska Department of Fish and Game)  
*Susitna River Chinook Salmon Run Reconstruction*  
Nicholas DeCovich (Alaska Department of Fish and Game)  
*Group Question and Answer Session (15 minutes)*
- 3:55 Conclusions**  
Moderator: Mike Daigneault (U.S. Fish and Wildlife Service)
- 4:00 Adjourn**



## Presentation Abstracts

Arranged in alphabetical order by presenter last name

\*Indicates Poster Abstract

**Kelsey Aho, U.S. Environmental Protection Agency Research Affiliate**

### ***Assessing Watershed Integrity in the Matanuska-Susitna Basin***

The Index of Watershed Integrity (IWI) was applied to the contiguous U.S. in 2017 and to the Matanuska Susitna Basin in Alaska in 2018. We will present the results from the Matanuska-Susitna Basin application and the status of the project's objectives: 1) Pilot the use of the National Hydrography Plus High Resolution, 2) Explore the data availability of cold-climate hydrology stressors in the Matanuska Susitna Basin, 3) Partner with stakeholders from the Matanuska Susitna Basin to identify local data sources, and 4) Co-develop ICI and IWI tools with and for agencies and local governments in the Matanuska Susitna Basin.

Thank you to Scott Leibowitz, Joesph Flotemersch, and Matthew LaCroix for supporting this project. The information in this presentation has been funded entirely by the U.S. Environmental Protection Agency, in part by an appointment to the Internship/Research Participation Program at the Office of Research and Development, USEPA, administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and USEPA.

**Andrew Barclay, Alaska Department of Fish and Game**

### ***A New Chinook Salmon Genetic Baseline for Cook Inlet: Opening Doors to New Analyses***

Chinook salmon (*Oncorhynchus tshawytscha*) are important to commercial, sport, and subsistence fisheries in Cook Inlet. Establishing and monitoring escapement goals and identifying fisheries that capture specific stocks is problematic because harvest occurs in mixed-stock fisheries both in salt and freshwater, and because the river systems draining into Cook Inlet are large, complex, and often difficult to access. Past work using genetic methods to determine stock composition in mixed-stock commercial and subsistence fisheries in Cook Inlet has provided information on the numbers of fish harvested by stock groups for the first time. However, the resolution of the current genetic baseline has been limited; stock groups of interest have often been combined into larger groups, thereby limiting management applications of the baseline. A new baseline has recently been completed that contains ten times more markers than the original baseline, with markers specifically selected to distinguish among reporting groups of interest to managers in Cook Inlet. This new baseline provides more distinction among finer-level reporting groups than was possible with the previous baseline, and provides the ability to distinguish Yentna River, Susitna River, and Western Cook Inlet population groups in northern Cook Inlet fishery harvests—a major goal of this project. Applications using this new baseline may be more cost effective than traditional methods and may provide opportunities to measure stock-specific fishery harvests for reporting groups that were not previously possible to inform stock-recruit relationships. We also anticipate that this baseline will allow for the implementation of genetic mark-recapture applications within the Susitna River. In addition, these markers provide an opportunity to complete parentage analyses where individual offspring can be assigned to their parents, opening the door for assessing variables affecting reproductive success and assigning fish to individual hatchery releases.



**Libby Benolkin and Franklin Dekker, U.S. Fish and Wildlife Service**

***\*Quantification of ORV Impacts in Riparian Areas within the Mat-Su***

The U.S. Fish and Wildlife Service Anchorage Fish and Wildlife Conservation Office (AFWCO), the Palmer Soil and Water Conservation District, Alaska Pacific University, and the Alaska Department of Fish and Game have implemented multiple studies with the intent to quantify Off Road Vehicle (ORV) impacts in riparian areas within the Mat-Su. In 2012, the AFWCO assessed fifteen ORV stream point crossings in the Knik area using seven basic attributes of the crossing (track type, stream bank impact width, trail impact width, trail surface/substrate, rutting, mud/muck, and trail grade), and assigned a ranking weight. In parallel to this effort, Alaska Pacific University documented the turbidity effects of ORV crossings at several anadromous streams. Recently, Palmer Soil and Water Conservation District has mapped 190 ORV stream crossings in the Wasilla/Palmer area. This poster summarizes the results of those projects and suggests future ideas for quantification of ORV impacts in riparian areas within the Mat-Su.

**Brianne Blackburn and Larry Engel, Mat-Su Borough Fish and Wildlife Commission**

***\*The Mat-Su Fish and Wildlife Commission: Past, Present, and Future***

The Mat-Su Borough Fish and Wildlife Commission (FWC) is an all-volunteer Commission tasked with advising and making recommendations to the assembly, borough manager, and any state or federal agencies, departments, commissions, or boards possessing jurisdiction in the area of fish, wildlife, and habitat on the interests of the borough in the conservation and allocation of fish, wildlife, and habitat. The FWC utilizes science-based standards and forward-looking policies to balance the critical fishing and wildlife resources of the region with other needs of the population, including responsible resource development. Since 2007, the Commission has successfully advocated for programs that have provided critical data for escapement goals and in-season management in Mat-Su streams and updates to the Drift Fleet Management Plan that have had a major impact on the numbers of fish that make it through to Upper Cook Inlet Waters. In addition to regulation and policy advocacy, the FWC has funded over \$2.5 million in salmon research, monitoring, planning, and restoration work in Upper Cook Inlet. A summary of these efforts will be available along with a look forward to upcoming issues facing Northern Cook Inlet Fisheries as the next Board of Fish regulatory cycle approaches.

**Johnathon Campbell, Alaska Department of Fish and Game**

***Summary of Deshka River Salmon Assessment Projects Conducted by the Alaska Department of Fish and Game, 1974 – Present***

The Alaska Department of Fish and Game has been monitoring, and collecting data on, salmon in the Deshka River system since the 1970s. Spawning salmon escapement was first estimated with aerial index counts, and a floating weir has been used to monitor escapements since 1995. In addition to fish counts, biological data such as lengths, sex, age, and physical data such as temperature and stream height has also been collected. The weir was a very important component of an extensive mark-recapture study performed by the department to evaluate basin wide escapements. The project consisted of a radio-telemetry component which has provided three years of Coho salmon and six years of Chinook salmon spawning locations within the Deshka River system. This presentation will give an overview of these projects and the information that the Department has collected in relation to Deshka River salmon.





**Christy Cincotta, Tyonek Tribal Conservation District**  
**Mat-Su Salmon Partnership Strategic Focus: Update and Feedback**

The Partnership Steering Committee has created a draft document identifying where we will focus our efforts over the next five years. This draft was developed based on input from the 2017 Mat-Su Salmon Symposium, Partnership survey, Partnership committee and subject matter expert input, and progress working toward goals identified in our Strategic Action Plan. This session will provide a brief overview of the process and document, highlight identified priorities, and solicit feedback from partners.

**Dan Coleman, Alaska Department of Natural Resources**  
**Aquatic Infestation in the Mat-Su: An Elodea Update**

Elodea is Alaska's first known submerged freshwater invasive plant and is considered a threat to Alaska's salmon and freshwater resources with wide ranging ecological and economic consequences. Elodea can change salmon habitat, alter nutrient availability, and displace native plants. In the Matanuska-Susitna Basin, Alexander and Sucker Lakes are fully infested with elodea. A newly formed collaborative Task Force is formulating a plan to eradicate elodea from the Matanuska Susitna Basin.

**Nicholas DeCovich, Alaska Department of Fish and Game**  
**Susitna River Chinook Salmon Run Reconstruction**

Recent advances in data modeling have enabled estimating historic abundance of Susitna River Chinook salmon in 5 geographically distinct stock groups that coincide with sport fishing management areas. Annual abundance (1979-2017) in each stock group is reconstructed from a combination of recent mark-recapture abundance estimates for each stock group, aerial survey data for individual tributaries within each stock group, harvest estimates, and weir data for individual tributaries within each stock group where available. Other stock parameters are estimated, including age at maturity and relative tributary abundance through time. The stock-recruit relationship was also modeled for each group. An example of the outputs from this analysis is provided by this presentation, including estimates of productivity and biological reference points. This new and innovative approach to the utilization of various datasets provides insight into the status of this valuable resource and has the potential to inform improved fishery management strategies.



**Franklin Dekker, U.S. Fish and Wildlife Service**

***Discovering Downriver Discharge in the Deshka Watershed for Habitat Modeling and Protection***

The Deshka River watershed encompasses only 3% of the Susitna River watershed by area, but it has an outsized importance for salmon. Hydrologically, the Deshka is unique in the Susitna drainage with a mean elevation of 470ft, it is low lying and lacks the snowy mountain headwaters common to most basin rivers. In the past, a USGS stream gage operated near the mouth of the Deshka, and several discharge measurements were collected on Moose Creek, however little else is known about stream flow within the drainage. Beginning in May 2017, with funding from the Mat-Su Salmon Habitat Partnership, the USGS established a stream gage on Kroto Creek at Oilwell Road. That same year the Deshka temperature study began collecting discharge measurements at 11 remote tributary and mainstem sites downstream of Oilwell Road, with a goal of collecting 10 measurements at each site. Initial data analysis suggests 8 of 11 sites will have some correlation to the USGS Kroto Creek gage, while 1 site may require its own temporary gage and 2 others require a new measurement site. The discharge measurements will ultimately serve two purposes, (1) they will provide a valuable flow data input for stream temperature modeling, and (2) they will be used to apply for instream flow water reservations.

**Larry Engel, Howard Delo and Andy Couch, Mat-Su Borough Fish and Wildlife Commission**

***The Mat-Su Fish and Wildlife Commission: Past, Present, and Future***

The Mat-Su Borough Fish and Wildlife Commission (FWC) is an all-volunteer Commission tasked with advising and making recommendations to the assembly, borough manager, and any state or federal agencies, departments, commissions, or boards possessing jurisdiction in the area of fish, wildlife, and habitat on the interests of the borough in the conservation and allocation of fish, wildlife, and habitat. The FWC utilizes science-based standards and forward-looking policies to balance the critical fishing and wildlife resources of the region with other needs of the population, including responsible resource development. Since 2007, the Commission has successfully advocated for programs that have provided critical data for escapement goals and in-season management in Mat-Su streams and updates to the Drift Fleet Management Plan that have had a major impact on the numbers of fish that make it through to Upper Cook Inlet Waters.

In addition to regulation and policy advocacy, the FWC has funded over \$2.5 million in salmon research, monitoring, planning, and restoration work in Upper Cook Inlet. A summary of these efforts will be available along with a look forward to upcoming issues facing Northern Cook Inlet Fisheries as the next Board of Fish regulatory cycle approaches.



**Michael Gracz, Kenai Watershed Forum**

***Wetland Loss Assessment by Type and Watershed in an Expanded Core Area of the Matanuska Susitna Borough***

Comparison of historic aerial imagery to 2017 high-resolution imagery, identified 642 separate wetland fills covering 1305 acres of the Expanded Core Area of the Matanuska-Susitna Borough since the era of modern settlement began. Although this acreage represents less than 2% of the overall area of wetlands within the Expanded Core Area, in some watersheds many wetland types have been filled at a disproportionately higher rate. More than 10% of the area of seven geomorphic types of wetlands within three watersheds have been filled. Moreover, more than 10% of the area of all wetlands in the Lucile Creek watershed have been filled. In the most extreme example, fifty-five percent of Discharge Slope wetlands within the Lucile Creek watershed have been filled (139 of the 253 acres of this type of wetland).

Substantial declines in water quality may be expected after more than five percent of wetlands in a boreal watershed have been filled. Ten percent of all of the wetlands in the Lucile Creek Watershed have been filled; and in three other watersheds more than ten percent of seven different types of wetlands have been filled. Five percent of the wetlands of a total of 13 types have been filled in four watersheds. These different types of wetlands perform different functions that are valued by society. Therefore, some values have likely been lost in at least four watersheds: Meadow Creek, Lucile Creek, Wasilla Creek, and Cottonwood Creek.

**Kayla Horning, University of Alaska Anchorage Student**

***\*Modern and Traditional Tools Used in Salmon Processing and Harvesting***

Many methods of harvesting and processing salmon have been used throughout the years. This presentation will provide information about some of these methods including the Dena'ina fish cash, and the dip net and salmon traps used by the Athabaskan. When possible, the presentation will discuss both how these tools were made as well as how they were used. It will compare them to similar tools used today such as the modern dip net and fish trap.

**Catherine Inman, Mat-Su Conservation Services and Luanne Urfer, Sustainable Design Group**

***Remediating Stormwater Runoff: A Local Solution***

Road upgrades on Knik Goose-Bay Road (KGB) will significantly increase impermeable surfaces, resulting in increased stormwater runoff and siltation directly entering Cottonwood Creek. Currently, the collected stormwater running into the creek comes from a vast watershed. This AKDEC funded project, located on Fern St., extends from the creek to KGB Road. The project was identified in a recent DOWL report done for the Mat-Su Borough, assessing compromised locations affecting water quality and fish habitat. The solution will include implementing Green Infrastructure to minimize cost of construction and maintenance. Sustainable Design Group provides innovative local solutions to environmental challenges, and as the Valley's only registered Landscape Architecture Firm, brings its specialty to the table.



**Sam Ivey, Alaska Department of Fish and Game**

***Management of Salmon Sport Fisheries in the Mat-Su Area***

The Alaska Department of Fish and Game uses stock assessment projects to set escapement goals and to inform management decisions affecting sport fisheries on the Susitna River drainage and in the Knik Arm area. Sixteen goals are based on aerial survey data, one goal is based on a foot survey, and five goals are based on weir count data. Managers are charged with managing for sustained yields using established escapement goals, while maximizing sport fishing opportunity. Spawning surveys and weirs counts are used to assess achievement of escapement goals. Weirs are also a tool for in-season management. Weir crews provide fish counts to managers each day of the season, allowing for daily assessment of run strength. In times of strong or weak abundance, managers can increase or decrease sport harvest during the season by issuance of an emergency order that modifies a regulation. Other indices of run strength are used to qualify in-season management decisions. This presentation provides insight into the dynamic world of fisheries management.

**Jillian Jablonski, Tyonek Tribal Conservation District**

***Invasion of Northern Pike in the Threemile Creek Drainage: Background and Updates from Tyonek Tribal Conservation District***

Since 2014, the Tyonek Tribal Conservation District (TTCD) has been tackling invasive species in their District on the west side of Cook Inlet. From invasive weeds to northern pike (*Esox lucius*), TTCD's effectiveness has increased exponentially through partnerships. In 2018, TTCD initiated a collaborative effort with the Alaska Department of Fish and Game, Cook Inlet Aquaculture Association, and the Native Village of Tyonek to address the northern pike infestation in the Threemile Creek drainage in Beluga, Alaska. In less than one year, this partnership has completed a mark-recapture population estimate, removed more than 1,300 pike, surveyed miles of lakes and streams, created the largest pike dataset in the state, and formed a project that will be ongoing and significantly help surviving salmon populations. This presentation will focus on the history of northern pike in the Threemile system, previous work TTCD has accomplished regarding pike infestations on the west side of Cook Inlet, and future management goals in Threemile and nearby systems.





**Jillian Jablonski, Tyonek Tribal Conservation District**

***\*Collaborative Invasive Species Management in the Tyonek Tribal Conservation District***

The Tyonek Tribal Conservation District (TTCD)'s Habitat Monitoring and Restoration program addresses fish and wildlife habitat concerns across its district boundaries. In 2018, TTCD worked on a variety of projects to improve habitat conditions primarily along the road system that connects the communities on the west side of Cook Inlet. This poster will highlight several invasive species projects that were conducted during the 2018 season.

This year marked the first year of a collaborative northern pike suppression project in Threemile Lake, located near Beluga, Alaska. Working together with the Alaska Department of Fish and Game, Cook Inlet Aquaculture Association, and the Native Village of Tyonek, over 1,300 invasive northern pike were removed from the system, while also establishing a baseline population estimate. In addition to pike work, TTCD surveyed two lakes frequented by boats and floatplanes for the aquatic invasive plant *Elodea* spp.; *Elodea* was not detected in either system surveyed. As for terrestrial invasive plants, in 2018, TTCD surveyed over 65 miles on the westside road system. Known and newly discovered infestations of oxeye daisy and orange hawkweed were treated with herbicide to control and limit its spread. While overall the known invasive weed populations were found to be greatly reduced in 2018, several new infestations were found and treated.

**Jessica Johnson, Alaska Department of Fish and Game**

***\*Mat-Su Habitat Restoration and Protection Cost-Share Program***

The Matanuska-Susitna Valley Habitat Restoration and Protection Cost-Share Program sustains and enhances valuable salmon habitat in the Mat-Su Basin through a financial incentive program directed at landowners and managers. Since 2008 the Alaska Department of Fish and Game and the United States Fish and Wildlife Service have provided funding, technical assistance, or construction oversight to 63 projects throughout the Mat-Su Borough, conserving .52 miles and restoring 1.2 miles of habitat on salmon bearing waters.



**Leslie Jones, University of Alaska**

***Bridging the Gap: Creating Proactive Conservation and Management Tools***

Changes in water temperature and hydrology are shifting the distribution, abundance, and phenology of many aquatic species worldwide. In the Deshka watershed little is known about thermal suitability of habitats which support spawning and juvenile rearing of Chinook and Coho. This includes baseline knowledge such as the quantity and quality of habitat available to support critical life-histories. This knowledge gap significantly impacts our ability to understand how changes in temperature and hydrology may impact the productivity and persistence of populations in the future. Recent advances, however, in stream temperature and discharge monitoring within the Deshka watershed now allow for the development of management tools which will support proactive conservation and management strategies. This project will link stream temperature and discharge monitoring efforts previously funded by the partnership to create thermal maps of stream temperatures and give us a more robust understanding of discharge effects on temperature. We link this management tool with our current knowledge of fish distributions to better understand the quality of current habitats and how the quantity of suitable habitats may change in the future. This work will inform targeted biological data collections, help us to better understand the potential spread of non-native pike and competition with salmon, identify thermal niche requirements, and the location of important cold-water refugia during the summer months. We illustrate collaborative approaches to data synthesis and the development of management strategies by working across agencies and organizations.

**Meagan Krupa, National Center for Ecological Analysis and Synthesis**

***State of Alaska's Salmon and People: SASAP***

State of Alaska's Salmon and People (SASAP) is a group of experts working in 8 sub-groups to provide up-to-date interdisciplinary perspectives on Alaska's salmon systems and the people who rely upon them. The SASAP mission is to create an accessible decision-making platform for all stakeholders by addressing the information gaps in Alaska's salmon system through information synthesis, collaboration, and stakeholder engagement. We seek to answer three core questions: What do we know about Alaska's salmon system? What do we not know? How can we better integrate and share what we know for better decision making?

Three SASAP working groups are conducting broadscale, cross-cutting analyses of biological, cultural, and governance knowledge to provide a contemporary understanding of the state of knowledge of Alaska's salmon and the people who rely on salmon. Five more are providing insight into pressures on salmon and salmon communities, and options for response to those pressures. In addition to the 8 working groups, the Data Task Force is creating online datasets, which will allow the public to easily access comprehensive information about salmon. One of these datasets includes Board of Fish proposal data from 1959 to the present. We will present this brand new dataset, give an overview of its contents, and discuss its potential uses within salmon management.



**Libby Kugel, Great Land Trust**

***Great Land Trust Overview of Projects in the Matanuska-Susitna Borough***

Since 1995, Great Land Trust has completed 23 conservation projects in the Mat-Su Borough. Our strategic approach of using science-based GIS prioritizations to inform our project choices has led to the protection of lands important for salmon and open space in the region. This presentation will highlight a number of these projects and paint a picture of the larger impact that a combination of small- and large-scale projects can bring to the Mat-Su.

**Gillian O'Doherty, Alaska Department of Fish and Game**

***Fish Passage in the Mat-Su Borough: Progress and Goals***

Most barriers to fish passage in Alaska are culverted road crossings. When many Alaskan roads were built fish passage was not a consideration and therefore most crossings were not designed with the movement of fish and other aquatic organisms in mind. Over time more and more habitat was lost either completely or seasonally, particularly to smaller or weaker swimming fish. Over the past 15 years the Alaska Department of Fish and Game and partners have worked in the Mat Su Borough to identify, prioritize and replace barriers to fish movement. This talk will focus on that work, summing up the efforts to date and outlining data gaps and planned future efforts.

**Sue Mauger, Cook Inletkeeper**

***On the Hunt for Thermal Diversity in the Deshka River Watershed***

The Deshka River watershed is among the warmest salmon systems in the Mat-Su basin with summer water temperatures regularly exceeding thresholds considered deleterious for rearing juvenile and migrating adult salmon, yet it produces the largest Chinook salmon returns in northern Cook Inlet. Recent modeling efforts suggest average summer temperatures in the Deshka River have increased by 0.39 degrees C per decade since 1980. Future maximum weekly water temperatures are anticipated to be above 26 degrees C by 2060. Based on findings from a study of thermal regimes in 68 Mat-Su streams, thermal heterogeneity across sites where data are available are likely to offer less thermal diversity for salmon in the future. In 2017, Cook Inletkeeper and U.S. Fish and Wildlife Service began a 5-year effort to map the spatial heterogeneity of water temperature within the Deshka River watershed. We are intensively monitoring year-round water temperature at 62 sites with clusters of data loggers at 20 major tributary junctions. To document finer-scale summer temperature patterns, we are collecting longitudinal temperature profiles each July by floating the river while towing GPS-linked temperature loggers programmed to record every minute. We will present preliminary findings from the 2017 and 2018 field seasons. This work will ultimately characterize summer and winter thermal heterogeneity, identify potential cold-water refugia for conservation actions, lay the groundwork for future studies relating water temperature to adult and juvenile salmon habitat use, and contribute to the existing temperature baseline for the Deshka River watershed.



**Tim McKinley, Parker Bradley and Kristine Dunker, Alaska Department of Fish and Game**

***Impacts of Invasive Northern Pike in the Susitna Drainage***

Northern pike are not native to the Susitna Basin. Illegal introductions of pike into the region began decades ago. Today, they have spread to over 100 water bodies within the Matanuska-Susitna Valley, making them one of the most prolific invasive species in Southcentral Alaska. Chinook salmon runs have been low in recent years throughout much of the State, including the Susitna River Drainage. Of the many factors affecting runs, one factor thought to contribute to these declines (in some Susitna drainage waters) is the presence of invasive northern pike. Pike are opportunistic ambush predators that require abundant aquatic vegetation and low-flow waters to establish populations. In drainages that provide these conditions, northern pike have been implicated in the decline of Chinook and other salmon species. Perhaps the best example of this is the Alexander system which is characterized by numerous slide-channels sloughs and interconnected wetlands drainage-wide, and where once-abundant salmon fisheries were close to extirpation following the establishment of northern pike. However, where habitat conditions are dominated by glacial streams with higher gradients, such as east-side Susitna tributaries, pike do not establish as well and have a more negligible effect on salmon populations. The role invasive northern pike play in Susitna drainage salmon dynamics is complex and is hypothesized to be closely tied to habitat complexity. The Department of Fish and Game has been suppressing invasive northern pike populations for about a decade in Alexander Creek to bolster salmon productivity. Also, within the last decade, the Department has been able to successfully remove invasive northern pike from their known distribution on the Kenai Peninsula. While the scale and complexity of the Susitna River drainage limits the feasibility of similar outcomes in the near future, the Department is in the process of prioritizing drainages in the Mat-Su for pike suppression and eradication based on the potential to prevent pike from spreading to presently uninvaded vulnerable waters as well as the potential to recover salmon populations that have been impacted by pike.

**Daniel Rinella, U.S. Fish and Wildlife Service**

***How can Stream Temperature and Flow Affect the Productivity of Alaskan Salmon Populations?***

Understanding how salmon populations will respond to environmental change is essential for fisheries management and conservation planning. Toward this end, several Mat-Su partners are building a program to monitor temperature and flow regimes in the Deshka and Little Susitna rivers, as these key aspects of salmon habitat are under direct influence of Alaska's rapidly changing climate. This presentation is intended to give some context to this monitoring effort by (1) discussing the relative importance of marine vs. freshwater drivers of mortality, (2) hypothesizing the significance of flow and temperature to the freshwater life stages of Chinook and Coho salmon and (3) reviewing recent research examining the role of flow and temperature on the productivity of Alaskan salmon populations.





**Kim Sollien, Mat-Su Trails and Parks Foundation**

***Mat-Su Trails and Parks Foundation and Salmon Habitat***

Most recreational trails lead to, follow, or cross salmon streams. In this presentation Mat-Su Trails and Parks Foundation will discuss the funding they have available to restore and conserve salmon habitat and build sustainable trails in the Mat-Su Borough. We will also provide an overview of our grant application process. The Mat-Su Trails and Parks Foundation is a non-profit organization, formed in 2011 to be the resource, inspiration and catalyst for sustainable trail and park development in the Mat-Su Borough. Since 2013, we have granted over \$500,000 in direct funding resulting in over 300 miles of new trails and 12 new parks.

**Jessica Speed, The Nature Conservancy; Mat-Su Basin Salmon Habitat Partnership Steering Committee Members**

***\*Mat-Su Salmon Partnership Strategic Focus: Update and Feedback***

The Partnership Steering Committee has created a draft document identifying where we will focus our efforts over the next five years. This focus document was developed based on input from the 2017 Mat-Su Salmon Symposium, Partnership survey, Partnership committee and subject matter expert input, and progress working toward goals identified in our Strategic Action Plan. This is an opportunity to see, ask questions, and provide initial feedback on the draft focus document. There will be another opportunity in a dedicated session on Thursday, November 15th to hear more about the update, discuss, and share feedback in smaller breakout groups.

**MaryKate Swenarton and Franklin Dekker, U.S. Fish and Wildlife Service**

***\*Updated Streamlines in the Tyonek Area***

Collection of statewide elevation data through the use of radar (IFSAR) and recent updates to the National Hydrography Dataset (NHD) in Alaska have vastly improved hydrography resolution. From 2017 to February 2018, the U.S. Fish and Wildlife Service (USFWS) partnered with the University of Alaska Anchorage to complete streamline updates for the Redoubt-Traders Bay Unit (HUC8). Streamlines were modeled using a Digital Elevation Model (DEM), which was calculated from IFSAR data collected as part of the IFSAR Alaska project. Streamline updates will improve USFWS fisheries investigations and fish passage prioritization work in Tyonek.



**Bill Templin, Jim Hasbrouck and Ed Jones, Alaska Department of Fish and Game**  
***State of the Kings: Update on the Statewide Chinook Salmon***  
***Research Initiative***

Chinook salmon abundance and productivity have declined in many areas of the state resulting in desire to better characterize patterns of abundance and production, increase understanding of reasons behind the declines, and perhaps identify areas where remedial action could be taken. The department developed a research plan that summarized the current state of knowledge of Chinook abundance and productivity, identified key knowledge gaps, and created an outline of suggested research to address those gaps. The plan embraced a statewide context, recognizing key systems or indicator stocks that would represent Alaskan Chinook populations across broad geography and life history diversity. The suite of 12 Chinook indicator stocks included Yukon, Kuskokwim, Nushagak, Karluk, Chignik, Susitna, Kenai, Copper, Chilkat, Stikine, Unuk, and Taku rivers. The plan incorporated outreach and collaboration with colleagues within and outside of Fish and Game to evaluate existing stock assessment data for each indicator stock against specific knowledge areas that are important for understanding Chinook abundance, run timing, and productivity trends. The existing data and research projects funded to address data gaps fit within broad categories including escapement, fry and smolt monitoring, marine juvenile studies, harvest, total run, production capacity, forecasting, fishery development, genetic information, local and traditional knowledge, and subsistence information. This presentation summarizes some results and what was learned about Chinook salmon production from this research initiative.

**Matt Varner, Bureau of Land Management**

***Using BLM's National Aquatic Monitoring Framework to Better Understand the Current and Future Physical, Chemical, and Biological Characteristics of Streams in the Mat-Su***

The Bureau of Land Management (BLM) manages over 118,000 miles of perennial stream and lotic riparian habitat, as well as almost 3 million acres of lakes throughout the State of Alaska. The BLM manages just over 3,000 miles or 14% of the stream habitats within the Mat-Su. In an effort to assess all aquatic habitats in Alaska, including the Mat-Su, the BLM and Alaska Department of Environmental Conservation have adopted a standardized approach founded on the EPA's National Aquatic Resource Surveys (NARS) program. This probability-based survey method (BLM NAMF and DEC AKMAP) ensures an unbiased sampling of streams across a region while yielding scalable results that integrate with other local and regional datasets. This integration is accomplished through the establishment of core indicators, standardized field methodologies, use of statistically valid sample designs, and electronic data capture and storage technologies.

Outside of the developed areas of the Mat-Su the large majority of aquatic resources are believed to exist in a relatively unaltered state; however, little monitoring data is available to objectively characterize current conditions or to detect change in response to development or shifting climactic and meteorological conditions. The need for knowing the condition and trend of aquatic habitats is underscored by increased resource uses (e.g., infrastructure, mining, energy development, and recreation), landscape level change, and the interpretation of complementary datasets (e.g., stream temperature networks).



**Ryan Viola**

***\*What Does it Mean to be Ethical?***

Some people who enjoy the great outdoors and the pristine environment today are, collectively, not doing a very good job in the realm of ethics. As an H.I.T. instructor, I see that there are people and families that still stress strong ethical values to their children, such as *"Leaving the place better than how you found it."* This poster will focus on elements of ethical fishing and how people take care of the outdoor spaces where they enjoy recreating.

**Andrew Wizik, Cook Inlet Aquaculture Association**

***Shell Lake Project Update on Invasive Northern Pike***

Since 2012, Cook Inlet Aquaculture Association (CIAA) has worked to suppress the invasive northern pike population in Shell Lake in an effort to rehabilitate the sockeye population in this once productive system. During that time, CIAA staff have removed 6,134 northern pike and performed three egg takes from Shell Lake sockeye salmon. The first egg take in 2012 resulted in the release of 80,000 smolt back into Shell Lake in 2014. According to smolt enumeration data recorded in Shell Creek in 2014, approximately 75% of the smolt from this release did not make it out of Shell Lake. Stomach contents of captured pike collected during and shortly after the smolt count showed that many of these smolt were eaten by pike. Returns from the 2014 smolt release occurred during 2016 and 2017 when 134 and 575 adult sockeye salmon made it back to Shell Lake respectively. An estimated 88,000, and 30,000 eggs were collected in 2016 and 2017 respectively resulting in the release of an estimated 46,000 smolt in 2018, and the planned release of an additional 18,000 smolt in 2019. During the 2018 smolt release CIAA aimed to improve the percentage of released smolt that made it out of the lake. This was accomplished primarily because of two factors: 1) reduced consumption of salmonids by the reduced pike population in Shell Lake, and 2) an improved smolt release strategy. University of Alaska Fairbanks (UAF) researchers Erik Schoen, Michael Courtney, and Peter Westley built a model evaluating the effects that the intensive harvest of Shell Lake pike are having on the pike population at Shell Lake and the subsequent effects on salmon consumption. Using CIAA Shell Lake northern pike data the UAF researchers estimated that CIAA has reduced northern pike consumption on juvenile salmonids by approximately 81%. For the 2018 release, smolt were imprinted in net pens on the historical spawning grounds in Shell Lake. Following imprinting the net pens were towed as far into Shell Creek as possible before the smolt were released. Of the estimated 46,000 smolt released in 2018, nearly 71% (32,606) were counted leaving the creek. Cook Inlet Aquaculture Association plans on using the same release strategy in 2019 in addition to continuing salmon monitoring and intensive pike harvest on Shell Lake. Due to State of Alaska genetics policy no eggs may be collected from hatchery reared Shell Lake sockeye salmon going forward. Returns from the 2018-2019 sockeye smolt releases are expected to be realized in 2020-2023 and those returns will need to be able to spawn naturally. The success of this project hinges on the ability of the progeny from those returns to survive and emigrate. Although the increased survival of the released smolt in 2018 is encouraging, survival of naturally-produced smolt will indicate if the level of pike suppression conducted at Shell Lake can return a system with invasive pike back to positive sockeye production.



## Keynote Speaker: Langdon Cook



Langdon Cook is a writer, instructor, and lecturer on wild foods and the outdoors. He is the author of *Upstream: Searching for Wild Salmon, from River to Table*, nominated for a Washington State Book Award, selected by Amazon.com as one of the “Best Books of 2017” and called “invigorating” and “a celebration” by *The Wall Street Journal*. His previous book, *The Mushroom Hunters: On the Trail of an Underground America*, won a 2014 Pacific Northwest Book Award. Cook’s writing appears in numerous publications and has been nominated for a James Beard Award (2016) and a Pushcart Prize. His on-screen credits include the Travel Channel and PBS. A graduate of Middlebury

College in Vermont (BA) and the University of Washington (MFA), Cook lives in Seattle with his wife and two children.

### Abstract

#### *Living on the Wild Side: Sustaining Our Age-Old Bond with Pacific Salmon*

Pacific salmon got plenty of newspaper ink this past year, most of it not good. We learned of starving orcas, jailbreak Atlantics, overfed sea lions, the Blob... And the splashy coverage went on. Lost in the headlines is our enduring connection to these fish. Salmon remain the most iconic of the region’s natural resources. Whether as keystone species, food, or totem, they are a reminder of our most basic roots in the wild. Author and journalist Langdon Cook explores this kinship in *Upstream: Searching for Wild Salmon, from River to Table*. It is a book about people as much as it is about fish. Traveling throughout salmon country, he meets the many user groups who depend on and work with salmon every day, from commercial and tribal fishermen to scientists, environmental advocates, and even chefs and fishmongers. In telling their very human stories, he reveals a relationship that’s been millennia in the making even as more recent struggles threaten those ties in the Anthropocene Era. Indeed, as the ultimate wild food in North America, with entire communities that have formed around its lifecycle, the salmon offers Cook a chance to investigate how society values and safeguards such an important linkage to the natural world—and how it responds when those bonds begin to fray. In his keynote presentation, Cook will visit some of the scenes in his book and examine a few of the characters he writes about in an effort to go beyond the daily headlines, to better understand this age-old connection.



*As part of a process to re-evaluate our strategic plan every five years, the Mat-Su Salmon Partnership Steering Committee created a strategic focus document identifying where the Partnership will target its efforts over the next five years.*

*Partners provided input to help shape Partnership direction during the 2017 Mat-Su Salmon Symposium. This year is another opportunity. The poster session, a dedicated Strategic focus session on November 15th, and a comment form circulated at the Symposium are all opportunities to share your thoughts on our strategic priorities over the next five years.*

## **Mat-Su Salmon Partnership Strategic Focus (2019-2023)**

**CORE PURPOSE** Thriving Salmon, Healthy Communities

**CORE VALUES** Collaboration ♦ Information Sharing ♦ Diverse Expertise ♦ Science-Based

### **ENVISIONED FUTURE (2023):**

- *Functioning riparian habitat is valued and prioritized as critical to healthy salmon populations in the Mat-Su Basin.*
- *The Partnership is widely recognized as a trusted source of science-based information. The Partnership uses science to guide partnership decision-making and to inform relevant public policy.*
- *Through a highly effective education and outreach program, community members understand the value of healthy salmon habitat, what salmon habitat needs are, and what salmon-friendly land ownership, recreation and development looks like.*
- *Elodea is eradicated in the Mat-Su, and a coordinated and effective method to address aquatic invasive species eradication, detection and prevention has been developed.*
- *The Partnership is adequately staffed and sustainably funded.*

### **STRATEGIC PRIORITIES (2019-2020)**

#### **1) Encourage the development and dissemination of relevant science-based information.**

- The Science and Data Committee will focus on providing technical expertise within and outside the partnership, including identifying and filling data gaps, inform and establish best practices, and interpreting research on Basin habitat impacts.
- Identify and implement strategy to improve dissemination of relevant science-based information.

#### **2) Develop an elodea management framework that includes rapid response, monitoring and prevention.**

- Under the umbrella of existing agency plans, coordinate resources to specifically address elodea in the Mat-Su Basin.
- Use the elodea management framework as a template to respond to other emerging and emergent invasive species issues.





- 3) Continue strategic grant allocation in support of prioritized salmon habitat projects.**
  - Identify annual priorities.
  - Ensure that projects funded through the National Fish Habitat Partnership process align with local Partnership priorities.
  
- 4) Provide effective and inclusive outreach and education focused on healthy salmon habitats.**
  - Improve community knowledge, awareness, and understanding that leads to informed decision making that positively impacts salmon.
  - Target outreach to improve community inclusivity and engagement and demonstrate Partnership successes and accomplishments.
  
- 5) Grow the ability of the Partnership to be an effective convener on salmon habitat issues.**
  - Facilitate communication among landowners, realty, construction and other groups, to work towards salmon-friendly land use and development.
  - The Partnership will work collaboratively with northern Cook Inlet local governments and partners to address larger scale issues with regional impact.
  
- 6) Continue to strengthen the Salmon Partnership's internal organizational capacity.**
  - Develop and implement a sustainable staffing plan – explore strategies for increasing staff capacity, including additional paid staff, consultant capacity and/or contractors.
  - Engage all Partner organizations to obtain meaningful contributions to Partnership business.
  - Continue to diversify the partnership's revenue stream – decrease reliance on federal dollars.





## Attendee List

### **Kelsey Aho**

Research Affiliate  
U.S. Environmental Protection Agency  
200 SW 35th Street, Corvallis, OR 97333  
541-754-4431  
ahokelsey@gmail.com

### **Veronica Avila**

Environmental Studies Student  
University of Alaska Anchorage  
PO Box 87-9172, Wasilla, AK 99687  
907-570-4270  
vavila@alaska.edu

### **Adrian Baer**

Mat-Su Organizer  
The Alaska Center  
564 Denali St, Palmer, AK 99645  
adrian@akcenter.org

### **Andrew Barclay**

Fishery Biologist  
Alaska Department of Fish and Game  
Gene Conservation Lab  
333 Raspberry Road, Anchorage, AK 99518  
907-267-2290  
andy.barclay@alaska.gov

### **Brianne Blackburn**

Environmental Planner  
Mat-Su Borough  
350 E Dahlia Ave, Palmer, AK 99645  
907-861-8439  
brianne.blackburn@matsugov.us

### **Carrie Brophil**

Environmental Coordinator  
Native Village of Eklutna  
26339 Eklutna Village Rd, Chugiak, AK 99567  
907-688-8522  
nve.ledirector@eklutna-nsn.gov

### **Charlene Buncic**

Biologist  
U.S. Fish and Wildlife Service  
101 12<sup>th</sup> Ave, Rm 110, Fairbanks, AK 99701  
907-456-0276  
charleen\_buncic@fws.gov

### **Johnathon Campbell**

Fishery Biologist  
Alaska Department of Fish and Game  
1800 Glenn Hwy Suite 2, Palmer, AK 99645  
Johnathon.campbell@alaska.gov

### **Michael Campfield**

Environmental Engineer  
Matanuska-Susitna Borough  
350 E Dahlia, Palmer, AK 99645  
sluckett@matsugov.us

### **Christy Cincotta**

Executive Director  
Tyonek Tribal Conservation District  
1689 C Street, Suite 219, Anchorage, AK 99501  
907-646-3109  
ccincotta@tyonek.com

### **Langdon Cook**

Keynote Speaker  
Seattle, Washington  
Website: <http://langdoncook.com>  
langdoncook@yahoo.com

### **Nicholas DeCovich**

Fishery Biologist  
Alaska Department of Fish and Game  
1800 Glenn Hwy Suite 2, Palmer, AK 99645  
907-746-6324  
nick.decovich@alaska.gov

### **Franklin Dekker**

Hydrologist  
U.S. Fish and Wildlife Service  
4700 BLM Road, Anchorage, AK 99507  
franklin\_dekker@fws.gov



**Jim DePasquale**

Spatial Analyst  
The Nature Conservancy  
715 L Street, Ste 100, Anchorage, AK 99501  
907-865-5702  
jdepasquale@tnc.org

**Stephen Dotomain**

Fishery Biologist I  
Alaska Department of Fish and Game  
1800 Glenn Highway, Ste 2, Palmer, AK 99645  
907-746-6386  
stephen.dotomain@alaska.gov

**Kristine Dunker**

Fishery Biologist  
Alaska Department of Fish and Game  
333 Raspberry Road, Anchorage, AK 99518  
907-267-2889  
kristine.dunker@alaska.gov

**Ted Eischeid**

Water Quality Technician  
Matanuska-Susitna Borough  
350 E Dahlia Ave, Palmer, AK 99645  
907-861-8606  
Ted.Eischeid@matsugov.us

**Laura Eldred**

Environmental Program Specialist  
Alaska Department of Environmental  
Conservation  
1700 E Bogard Road, Wasilla, AK 99564  
907-376-1855  
laura.eldred@alaska.gov

**Leah Ellis**

Habitat Biologist  
Alaska Department of Fish and Game  
333 Raspberry Road, Anchorage, AK 99518  
907-267-2404  
leah.ellis@alaska.gov

**Larry Engel**

Mat-Su Borough Fish and Wildlife Commission  
350 E Dahlia Ave, Palmer, AK 99645

**Marcus Geist**

Geographer  
UAA, Alaska Center for Conservation Science  
3211 Providence Drive, Anchorage, AK 99518  
907-786-6325  
mageist@alaska.edu

**Jonathon Gerken**

Fish Biologist, Branch Chief  
U.S. Fish and Wildlife Service  
4700 BLM Road, Anchorage, AK 99507  
jonathon\_gerken@fws.gov

**Michael Gracz**

Wetland Program Manager  
Kenai Watershed Forum  
44129 Sterling Highway, Soldotna, AK 99669  
360-820-2058  
mike@kenaiwatershed.org

**Heather Hanson**

Fish Passage Engineer  
U.S. Fish and Wildlife Service  
4700 BLM Road, Anchorage, AK 99507  
907-271-1630  
heather\_hanson@fws.gov

**James Hasbrouck**

Chief Fishery Scientist  
Alaska Department of Fish and Game  
333 Raspberry Road, Anchorage, AK 99518  
907-267-2124  
James.hasbrouck@alaska.gov

**Suzanne Hayes**

Fisheries Biologist (retired)  
Alaska Department of Fish and Game  
PO Box 3747, Palmer, AK 99645  
907-746-2039  
shayes@mtaonline.net

**Melissa Heuer**

Executive Director  
Susitna River Coalition  
PO Box 320, Talkeetna, AK 99676  
melissa@susitnarivercoalition.org



### **Douglas Hill**

Refuge Manager  
Alaska Department of Fish and Game  
1800 Glenn Hwy, Palmer, AK 99645  
907-861-2112  
doug.hill@alaska.gov

### **Rodney Hobby**

Biologist  
PO Box 1527, Kenai, AK 99611  
907-690-2906  
rodney.hobby@gmail.com

### **Erin Hoffman**

Tyonek Tribal Conservation District  
1680 C Street, Ste 219, Anchorage, AK 99501

### **Kayla Horning**

Student  
University of Alaska Anchorage  
Wasilla, AK  
kayla488.h@gmail.com

### **Kelly Ingram Pierson**

Conservation Coordinator  
The Nature Conservancy  
715 L Street, Ste 100, Anchorage, AK 99501  
907-865-5703  
kelly.ingram@tnc.org

### **Catherine Inman**

Owner  
Mat-Su Conservation Services  
780 Cascade Ct, Palmer, AK 99645  
907-841-2226  
matsuconservation@gmail.com

### **Sam Ivey**

Area Management Biologist  
Alaska Department of Fish and Game  
1800 Glenn Hwy Suite 2, Palmer, AK 99645  
907-746-6334  
samuel.ivey@alaska.gov

### **Jillian Jablonski**

Conservation Technician  
Tyonek Tribal Conservation District  
1680 C Street, Ste 219, Anchorage, AK 99501  
907-646-3109  
jjablonski@tyonek.com

### **Jesse Johnsen**

Biology Student  
University of Alaska Anchorage  
3211 Providence Dr, Anchorage, AK 99508  
jesse.sue.johnsen@gmail.com

### **Jessica Johnson**

Habitat Biologist III  
Alaska Department of Fish and Game  
333 Raspberry Road, Anchorage, AK 99518  
jessica.johnson@alaska.gov

### **Leslie Jones**

Program Aquatic Ecologist  
UAA, Alaska Center for Conservation Science  
3211 Providence Drive, Anchorage, AK 99508  
907-786-6384  
lajones12@alaska.edu

### **Jonathan Kirsch**

Habitat Biologist III  
Alaska Department of Fish and Game  
1800 Glenn Highway, Ste 6, Palmer, AK 99645  
907-861-3202  
jonathan.kirsch@alaska.gov

### **Meagan Krupa**

Research Scientist  
National Center for Ecological Analyses and  
Synthesis, UC Santa Barbara  
735 State Street #300, Santa Barbara, CA 93101  
megkrupa@gmail.com

### **Libby Kugel**

Great Land Trust  
PO Box 101272, Anchorage, AK 99510  
907-278-4998  
lkugel@greatlandtrust.org

### **Matthew LaCroix**

Biologist  
U.S. Environmental Protection Agency  
222 W 7<sup>th</sup> Ave #19, Anchorage, AK 9513  
907-271-1480  
lacroix.matthew@epa.gov



**Marc Lamoreaux**

Environmental Director  
Native Village of Eklutna  
26339 Eklutna Village Rd, Chugiak, AK 99567  
907-688-8522  
nve.ledirector@eklutna-nsn.gov

**Ann Marie Larquier**

Habitat Biologist III  
Alaska Department of Fish and Game  
333 Raspberry Road, Anchorage, AK 99518  
907-267-2311  
ann.larquier@alaska.gov

**Pete Lyford**

Wasilla, AK  
nomepete@gmail.com

**Sue Mauger**

Science Director  
Cook Inletkeeper  
3734 Ben Walters Lane, Homer, AK 99603  
907-235-4068 x24  
sue@inletkeeper.org

**Matt McMillan**

Stewardship Coordinator and GIS Analyst  
Great Land Trust  
715 L Street, Suite 200, Anchorage, AK 99501  
907-278-4998  
matt@greatlandtrust.org

**Kathryn Elizabeth Nilsson**

Doctoral Graduate Student  
Meridian University  
47 6<sup>th</sup> St, Petaluma, CA 94952  
loveandlaughter100@gmail.com

**Samantha Oslund**

Assistant Area Management Biologist  
Alaska Department of Fish and Game  
1800 Glenn Highway, Ste 2, Palmer, AK 99645  
907-746-632  
samantha.oslund@alaska.gov

**Mario Pagni**

Park Ranger I  
Department of Natural Resources/ DPOR  
7278 E Board Rd, Wasilla, AK 99654  
907-745-836  
mario.pagni@alaska.gov

**Oliver Querin**

Fish and Wildlife Technician II  
Alaska Department of Fish and Game  
1800 Glenn Highway, Ste 2, Palmer, AK 99645  
907-315-9769  
oliver.querin@alaska.gov

**Daniel Rinella**

Fisheries Biologist  
U.S. Fish and Wildlife Service  
4700 BLM Road, Anchorage, AK 99507  
907-271-2871  
daniel\_rinella@fws.gov

**Rebecca Shaftel**

Aquatic Ecologist  
UAA, Alaska Center for Conservation Science  
3211 Providence Drive, Anchorage, AK 99508  
rsshafte@alaska.edu

**Kim Sollien**

Donor Relations Officer  
Mat-Su Parks and Trails Foundation  
907-746-8757  
ksollien@matsutrails.org

**Jessica Speed**

Mat-Su Salmon Partnership Coordinator  
The Nature Conservancy  
715 L Street, Ste 100, Anchorage, AK 99501  
907-865-5713  
jspeed@tnc.org

**Adam St. Saviour**

Fishery Biologist  
Alaska Department of Fish and Game  
1800 Glenn Highway, Ste 2, Palmer, AK 99645  
adam.stsaviour@alaska.gov





**Anjanette Steer**

Ecologist  
University of Alaska Anchorage  
3211 Providence Drive, Anchorage, AK 99508  
907-786-6351  
masteer@alaska.edu

**MaryKate Swenarton**

Contract Fish Biologist  
U.S. Fish and Wildlife Service  
4700 BLM Road, Anchorage, AK 99507  
907-271-2772  
mary\_swenarton@fws.gov

**Luanne Urfer**

Principal  
Sustainable Design Group  
247 S. Alaska St, Palmer, AK 99645  
907-745-3500  
luanneu@sdg-ak.com

**Matt Varner**

Fisheries and Riparian Program Leader  
Bureau of Land Management  
Alaska State Office  
907-271-3348  
mvarner@blm.gov

**Ryan Viola**

Teacher  
Wasilla Lake Christian School  
2001 E Palmer-Wasilla Hwy,  
Wasilla, AK 99654sciencezooguy0@gmail.com

**Edward Watrus**

Palmer, AK  
ejwatus@gmail.com

**Sarah Wilber**

Habitat Biologist II  
Alaska Department of Fish and Game  
1800 Glenn Highway, Ste 6, Palmer, AK 99645  
907-861-3206  
sarah.wilber@alaska.gov

**Andrew Wizik**

Biologist  
Cook Inlet Aquaculture Association  
40610 Kalifornsky Beach Rd, Kenai AK 99611  
218-428-2339  
awizik@ciaanet.org

**Mike Wood**

Susitna River Coalition  
PO Box 320, Talkeetna, AK 99676  
907-202-1594  
mollyhops@mac.com

**John Wros**

The Conservation Fund  
700 W. 2<sup>nd</sup> Ave, Anchorage, AK 99587  
907-202-1594  
jwros@conservationfund.org



## ***Thank You!***

***In Addition to our Planning Committee, Sponsors, Guest  
Speakers, Presenters,  
Thank You to Symposium \*Volunteers!***

**Veronica Avila  
Adrian Baer  
Brienne Blackburn  
Carrie Brophil  
Christy Cincotta  
Mike Daigneault  
Jim DePasquale  
Ted Eischeid  
Laura Eldred  
Jon Gerken  
Suzanne Hayes  
Rodney Hobby  
Kelly Ingram Pierson  
Catherine Inman  
Jesse Johnsen  
Jessica Johnson  
Libby Kugel  
Matthew LaCroix  
Marc Lamoreaux  
Ann Marie Larquier  
Sue Mauger  
Kathryn Elizabeth Nilsson  
Samantha Oslund  
Dan Rinella  
Kim Sollien  
Jessica Speed  
Adam St. Saviour  
MaryKate Swenarton  
Andrew Wizik**

***Thank you as well, to everyone who has offered to pitch-in and  
contributed to making the Symposium a success!***

\*Volunteers listed as of booklet printing



## Notes

# THANK YOU TO OUR SPONSORS



**BULLITT**  
FOUNDATION

**ConocoPhillips**  
Alaska's Oil & Gas Company



The **Alaska**  
Center  
OUR HOME, OUR FUTURE



The **Nature**  
Conservancy 



GREAT LAND TRUST  
SOUTHCENTRAL ALASKA

## AND OUR HOSTS:

Palmer Community Center (Depot), Turkey Red, and  
Rick Miller Productions