
AMERICAN FISHERIES SOCIETY
ALASKA CHAPTER
OUR COLLECTIVE LAND AND SEA: WEAVING FISH, HABITAT AND PEOPLE
KETCHIKAN, ALASKA 2025

Gunalchéesh, Háw'aa, T'oyaxsut Nüüsm
Thank You to Our Sponsors!

Halibut Level Sponsors ($5,000+):

A huge thanks goes out to Doug Molyneaux, who in addition to sponsoring this meeting has started the Student Presentation Award Fund to support student awards.

If you are interested in donating to this fund or to the Charles H. Meacham Student Travel Fund, please contact Trent Dodson at treasurer@afs-alaska.org


UNIVERSITY OF ALASKA FAIRBANKS
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This work is supported by the National Science Foundation under award #OIA-2344553 and by the State of Alaska.

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alaska.edu/epscor

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See list of ADF&G jobs on p. 121!

Coho Level Sponsors ($500):

The goal of the Chugach Regional Resources Commission (CRRC) Tribal Fisheries Program is to collect high-quality fisheries data in partnership with our Tribes while simultaneously providing training and economic opportunities for Tribal members to gain direct expertise in their local subsistence fisheries. The program serves as a bridge between existing Tribal programs and resources, fostering collaborative efforts to protect Chugach Region Native fishing rights, which are central to traditional ways of life and community well-being. Additionally, the Tribal Fisheries Program plays a key role in rebuilding relationships between Chugach Region Tribes, and agencies, institutions, and organizations by facilitating opportunities for discussion and collaboration, ensuring Tribal perspectives are represented in fisheries management and policy decisions.

SalmonState

We work to keep Alaska a place wild salmon and the people who depend on them thrive.

LEARN MORE

salmonstate.org

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Sockeye Level Sponsor ($250):

And thank you to our coffee providers!

This Year's Artist: Audrey Lonheim

Audrey Lonheim is an Alaska-based artist and Fisheries Science student at the University of Alaska Southeast. Born and raised in Kodiak, she has spent the last three years in Juneau, where she draws inspiration from Alaska's rich landscapes, fisheries, and coastal life.

Her artwork reflects her deep connection to the ocean, her studies, and the experiences she's gained through fishing, fieldwork, and exploring the state's natural beauty. When she's not creating art, Audrey loves fishing, spending time at the beach, and taking her cat on walks.

In addition to her artwork for the 2025 Alaska AFS meeting, Audrey creates paintings, jewelry, and stickers. You can find more of her work on Instagram (@lostandfoundak) and Facebook (@audreylonheim), or you can reach her by email at aklonheim@gmail.com

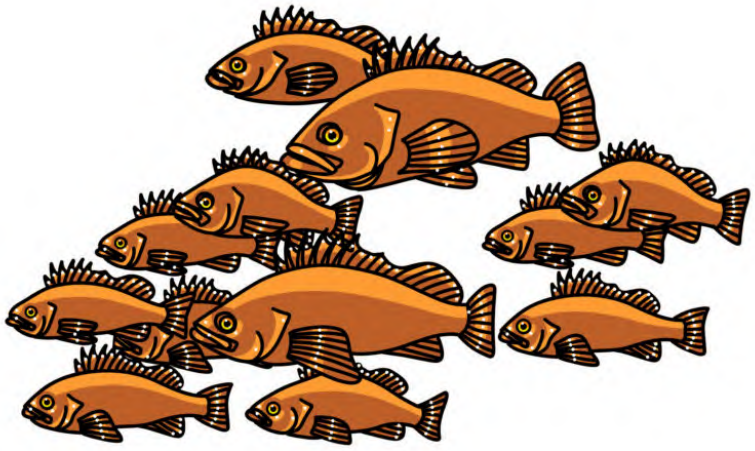

Table of Contents

Letter of Welcome

Greetings!

Welcome to the **51st Annual Meeting of the Alaska Chapter of the American Fisheries Society**! Each year, our meeting serves as a forum to discuss the unique and evolving challenges facing Alaska's fisheries. In past years, we have navigated the COVID-19 pandemic, climate change, social injustices, and other complex factors that intersect fisheries. This year, we gather amid growing uncertainty surrounding the role of science and the potential impacts of new federal policies on funding and agency operations.

Despite these uncertainties, one thing remains constant—the Alaska Chapter's commitment to supporting the vital work of federal agency employees, researchers,Tribal partners, and resource managers. Their dedication to research, habitat protection, and fisheries management is invaluable, and we remain steadfast in our mission to provide an inclusive space for sharing knowledge, fostering collaboration, and advancing our collective understanding of fisheries.

This year's theme, **"Our Collective Land and Sea: Weaving Fish, Habitat, and People,"** underscores the deep connections between these elements. Throughout the meeting, you'll see this theme woven into our discussions, presentations, and events. Randy Brown, our Chapter Historian, will open Tuesday morning's plenary with his talk, *"A Historical Perspective of Some of the Pivotal Actions of the Alaska Chapter of the American Fisheries Society."* The program also features eight technical sessions, showcasing 55 oral presentations and 25 poster presentations covering a wide range of topics that bridge fish, habitat, and people. Tuesday's lunch break brings a special event, "Our Land and Sea Traditional Food Potluck" hosted by the Recruitment and Engagement Committee with a special performance from the X̲aadaas Tak'anlang (Haida Descendants) dance group . Attendees are encouraged to bring culturally, regionally, or locally harvested foods to share, celebrating the deep-rooted connections between communities and their natural resources.

It has been 18 years since our Annual Meeting was last held in Ketchikan. While much has changed, some things remain the same including the familiar sight of the "Ketchikan: Salmon Capital of the World" sign welcoming you to town. Local highlights include Monday's Welcome Social, catered by Cape Fox Lodge and featuring Ketchikan's own Man of Shanties Greg Thomas leading the group in sea shanties. Several post-meeting events will be hosted at local businesses, and attendees will have the chance to participate in a community event on Invasive European Green Crab Early Detection Monitoring. Whether you're a first-time visitor or returning to Ketchikan, don't miss the Spawning Run 5K on Wednesday evening, a great way to explore downtown and get some fresh air.

A heartfelt thank you goes out to the dedicated volunteers and the hardworking planning committee who made this meeting possible. We also extend our deep appreciation to our

meeting sponsors, including Doug Molyneaux, UAF College of Fisheries and Ocean Sciences, Alaska NSF EPSCoR, Alaska Sea Grant, North Pacific Research Board, the Alaska Department of Fish and Game, Chugach Regional Resources Commission, Salmon State, and the Northern Southeast Regional Aquaculture Association. Their support has helped us navigate the additional costs of hosting a meeting off the road system in Southeast Alaska, support student participation, and ensure an outstanding conference experience.

Thank you for being part of our Chapter. We look forward to an engaging and meaningful meeting in Ketchikan!

Whitney Crittenden
President Elect
Alaska Chapter AFS

Erik Schoen
President
Alaska Chapter AFS

AFS Meeting Code of Conduct

All participants, including but not limited to attendees, speakers, volunteers and others, must abide by the American Fisheries Society Meeting Code of Conduct). **The Code of Conduct was written for in-person meetings; however, the sentiment captured here carries into the virtual space. We request that you read the guidelines before joining the meeting.**

Purpose:

American Fisheries Society (AFS) meetings are among the most respected scientific meetings of fisheries professionals in the natural resource scientific community. AFS values the diversity of views, expertise, opinions, backgrounds, and experiences reflected among all attendees, and is committed to providing a safe, productive, and welcoming environment for all meeting participants and AFS staff. All participants, including, but not limited to, attendees, speakers, volunteers, exhibitors, staff, service providers, and others, are expected to abide by this Meetings Code of Conduct. This Code of Conduct applies to all AFS meeting-related events, including those sponsored by organizations other than AFS but held in conjunction with AFS events, in public or private facilities.

Expected Behaviors:

- Treat all participants, attendees, AFS staff, and vendors with respect and consideration, valuing a diversity of views and opinions, and critiquing ideas rather than individuals.
- Refrain from demeaning, discriminatory, or harassing behavior and speech directed toward other attendees, participants, AFS staff, and suppliers/vendors.
- Be mindful of your surroundings and of your fellow participants. Alert AFS staff or venue event staff if you notice a dangerous situation or someone in distress.
- Respect the rules and policies of the meeting venue, hotels, AFS-contracted facility, or any other venue.
- To foster a welcoming environment, assist AFS members with impaired physical or cognitive abilities, if necessary.

Unacceptable Behaviors:

- Harassment, intimidation, or discrimination in any form is unacceptable. Harassment includes speech or behavior that is not welcome or is personally offensive. Behavior that is acceptable to one person may not be acceptable to another, so use discretion to be sure respect is communicated. Harassment intended in a joking manner still constitutes unacceptable behavior. Regardless of your intent, if you are advised directly or by another party that some aspect of your speech or behavior at an AFS meeting is harassment, you are expected to stop engaging in such speech or behavior.
- Do not physically or verbally abuse any attendee, speaker, volunteer, exhibitor, AFS staff member, service provider, or other meeting guest.
- Examples of unacceptable behavior include, but are not limited to, unwelcome or offensive

verbal comments related to age, appearance, or body size, employment or military status, ethnicity, gender identity and expression, individual lifestyle, marital status, national origin, physical or cognitive ability, political affiliation, sexual orientation, race, or religion. Harassment can also include the use of sexual and/or discriminatory images in public spaces or in presentations; deliberate intimidation; stalking; following; harassing photography or recording; sustained disruption of talks or other events; bullying behavior; inappropriate physical contact; and unwanted sexual attention.

- Appropriate and responsible personal use of photographs or posts to social media of another individual's oral presentation, poster, or likeness is acceptable **unless permission is specifically denied by the individual**.
- Do not disrupt talks at oral or poster sessions or activities in the exhibit hall or at other events organized by AFS at the meeting venue, hotels, or other AFS-contracted facilities.
- Any retaliation against participants for reporting unacceptable behavior is unacceptable. Like harassment or discrimination, retaliation against reporting poor behavior will be subject to consequences.

Reporting Unacceptable Behavior:

- Anyone experiencing or witnessing behavior that constitutes an immediate or serious threat to public safety at any time should contact local law enforcement (by calling 911) and immediately notifying facility security without delay.
- If you are not in immediate danger but feel that you are the subject of unacceptable behavior, you are encouraged to file a formal complaint to the AFS Ethics and Professional Conduct Committee and/or an AFS officer or the AFS Executive Director which will then be forwarded to the Ethics and Professional Conduct Committee for assessment.

Consequences:

- Anyone requested to stop unacceptable behavior is expected to comply immediately.
- Consequences to unacceptable behavior will be determined by the AFS Ethics and Professional Conduct Committee in conjunction with AFS officers and the AFS Executive Director.
- Consequences may include one or more of the following actions:
    - Dismissal from the meeting without refund
    - Reporting to your agency
    - Exclusion from any future AFS (sub unit/chapter/division) meetings for five years
    - Revocation of AFS membership without the opportunity for renewal for five years
    - If the offense is criminal, local law enforcement will be contacted.

Please use this form (or scan the QR code) to report any violations to the National AFS Code of Conduct Reporting Form. You may also contact the Executive Committee (president@afs-alaska.org) or the RAE (rae@afs-alaska.org) directly with concerns.

2024-25 Alaska Chapter AFS Executive Committee

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Whitney Crittenden
President-Elect

Audra Brase
Past President

Andy Seitz
Vice President

Scott Ayers
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Amber Perk
Student Representative

Trent Dodson
Treasurer

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Morag Clinton

Laura Coleman

Jess Davila

Johnna Elkins

Teresa Fish

Megan McPhee

Sara Miller

Kristen Reece

Jan Rumble

Keenan Sanderson

Erik Schoen

David Starzynksi

Jill Walker

Alaska Chapter AFS Committees

Awards Committee:

- Peter Westley, Chair

Recruitment and Engagement Committee (RAE):

- Madeline Lee, Co-Chair
- Katie Russell, Co-Chair
- Mary Commins, Student Liaison
- Teresa Fish
- Lilian Hart
- Sara Gilk-Baumer
- Anna Medina
- Kristen Reece
- Keenan Sanderson
- Harmony Wayner

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- Joel Markis, website
- Toshihide “Hamachan” Hamazaki, listserv manager

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- Milo Adkison
- Trent Dodson
- Lee Ann Gardner
- Tim Joyce
- Trey Simmons

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- Sara Miller & Maggie Chan, Co-Chairs

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- Hal Geiger
- Tim Joyce
- Carol Kerkvliet
- Brenda Norcross
- Keenan Sanderson
- Amber Perk (Student Rep)

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- Toshihide “Hamachan” Hamazaki, Chair

Wally Noerenberg Award Committee:

- Milo Adkison, Chair

Student Sub-Unit Committee:

- Linnaea Doerner, President
- Sam Comeau, Vice President
- Erica Ebert, Secretary
- Lauren Yancey, Treasurer
- Erica Eberhardt, Juneau Liaison

51st Annual Alaska Chapter AFS Business Meeting

March 20, 2025, 12:00-1:30 pm

Ted Ferry Civic Center, Ketchikan

Join Zoom Meeting:
https://alaska.zoom.us/j/9074747735?omn=87889123011

Agenda

1. Call to Order
2. Determination of a quorum (20 chapter members)
3. Approval of agenda
4. Approval of 2024 annual business meeting minutes
5. Western Division AFS report – Julie Carter, WDAFS President
6. April 2024 - March 2025 Chapter review:
    - Treasurer's Report – Trenten Dodson
    - Secretary's Report – Scott Ayers
    - Student Representative's Report – Amber Perk
    - Vice President's Report – Andy Seitz
        - Membership update
        - Recognition of new 25-year members: Neil Stichert and Franz Mueter, and new 50-year member: Bill Wilson
        - 2026 Alaska AFS Annual Meeting plans
    - President-Elect – Whitney Crittenden
        - 2025 Annual Meeting program review
    - Standing Committees
        - Awards - Peter Westley
        - Communications - Hamachan Hamazaki/Joel Markis
        - Environmental Concerns - Sue Mauger/Joel Markis
        - Financial Assets Oversight - Ray Hander
        - Molly Ahlgren Scholarship - Ray Hander
        - Professional Development - Sara Miller/Maggie Chan
        - Recruitment and Engagement - Madeline Lee/Katie Russell
        - Resolutions & Bylaws - Hamachan Hamazaki
    - President's Report – Erik Schoen
        - Outstanding Large Chapter Awards (WDAFS and AFS)
        - Procedures Manual updates
7. Farewell remarks from outgoing President – Erik Schoen
8. Remarks from the new President – Whitney Crittenden
9. New Business:
    - Appointment of new Executive Committee officers
10. Open forum
11. Adjourn

Venue & Accessibility

Most events are happening at the **Ted Ferry Civic Center** (888 Venetia Ave). The **Cape Fox Lodge** (800 Venetia Ave.) is right next to the Civic Center.

Transportation

Ketchikan's airport is located on an island across the channel from town. You'll be taking an airport ferry across the channel over to the Ketchikan side—there is a small fee ($6 per adult) and takes about 5 minutes. The ferry runs every half hour and leaves the airport side on the hour (:00) and half hour (:30). Please note there is a long ramp to the bottom of the ferry landing as well as one on the other side—there are complimentary carts available to help carry your luggage should you need them.

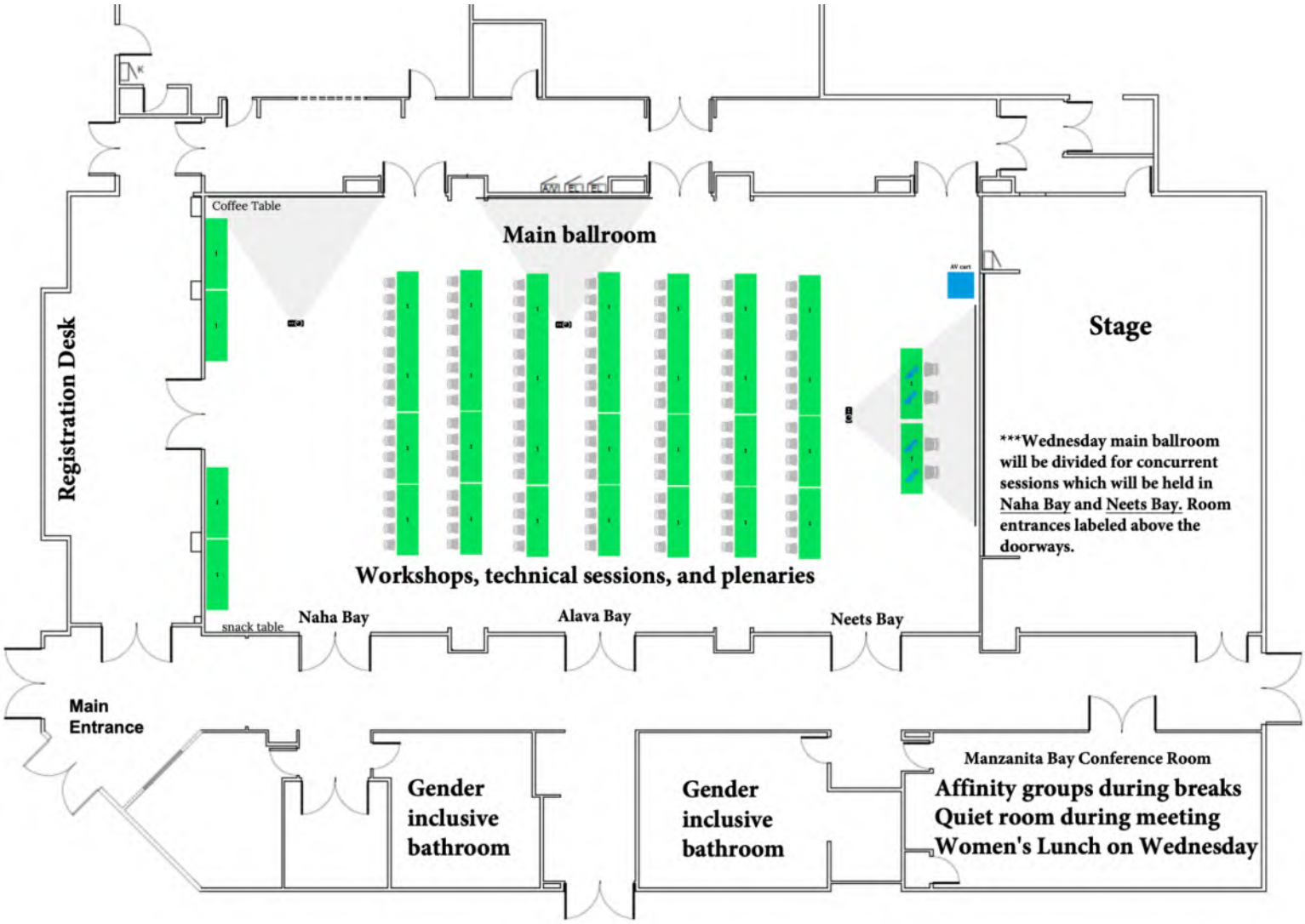
The **Cape Fox** provides a shuttle bus to/from the airport. Their first shuttle starts at 6:50 A.M. for the 7:15 A.M. ferry going across to Ketchikan International Airport. It departs the lodge every half hour until the last departure at 9:20 P.M. Just let them know what Ketchikan International Airport Ferry you want, so they can send our Courtesy Shuttle to meet you on the Ketchikan side.

CAPE FOX SHUTTLE BUS: https://facesofketchikan.com/transportation/
Phone 907-228-6220

The **Inn at Creek Street** also provides a shuttle: Once you arrive on the "town side" via the ferry, their hotel van will come and pick you up—free of charge. If you would like to utilize this shuttle service, they recommend calling from the airport before you get on the ferry (this will give them time to drive to the ferry landing and you won't be out in the elements waiting for them to arrive). There is a direct dial phone in the baggage claim area that you may use to reach them free of charge.

INN AT CREEK STREET SHUTTLE BUS:
https://www.creekstreet.com/location
907-225-0246

Ted Ferry Civic Center



Gender-specific bathrooms are available in the Cape Fox Inn lobby

For Wednesday's concurrent sessions, the main ballroom will be divided into two rooms, "Neha Bay" and "Neets Bay". Room entrances will be labeled above the doorway.

Accessibility

Presentations: Subtitles will be auto-generated for all presentations and shown live on the big screen. The front row of seating is reserved for those who will benefit most from real-time captioning (e.g., attendees who are deaf or hard of hearing, people with learning disabilities, or those for whom English is a second language). If you have feedback on improving captioning for future meetings, please bring your thoughts to the Business Meeting, or contact a member of the Chapter Executive or Recruitment and Engagement (RAE) committees.

Restrooms: The restrooms in the Ted Ferry Civic Center (see above floor-plan map) are designated as gender-inclusive for all conference attendees. Gender-specific restrooms (Men's or Women's) are available across the parking lot in the lobby of the Cape Fox Lodge. Please check posted signage during the meeting or ask an RAE Committee member if you have questions about restrooms.

Lactation Room: The Ted Ferry Civic Center is lacking in dedicated spaces for a lactation room. If you need a private and comfortable space, please reach out to Whitney Crittenden or an RAE Committee member, and we will be happy to assist you and find a proper place.

Food: Vegetarian, vegan, and gluten-free options will be available whenever food is provided at the conference venue. We will make every effort to mark these options. If you have dietary restrictions that are not met, please let us know so we can do better at future meetings.

Affinity Group Mixers: Affinity group mixers are designed to help members from underrepresented groups gather, build community, and bolster a sense of belonging within the Alaska Chapter AFS. BIPOC, LGBTQIA2S+, First Generation College Students (past and present), Mental Health, Chronic Illness, and People with Disabilities, and Dependent Caregivers groups can be found on the schedule. We ask that you identify as a member of the group that you intend to join. If you have ideas for affinity groups at future meetings, please contact a member of the RAE Committee at rae@afs-alaska.org. Affinity group meetings will be held in the **Manzanita Bay Conference Room** in the Ted Ferry Civic Center (see map on previous page).

Schedule at a Glance

TFCC = Ted Ferry Civic Center

Date/Time	Activity/Event	Location
Sunday, March 16		
9:00 AM – 5:00 PM	Alaska Native Lamprey Workshop	TFCC Ballroom
Monday, March 17		
8:00 AM – 12:00 PM	Introduction to *ggplot*	TFCC Ballroom
1:00 AM – 5:00 PM	Ecotoxicology 101 for Fish Biologists	TFCC Ballroom
6:00 – 9:00 PM	Welcome Social and Sea Shanties	Cape Fox Lodge
Tuesday, March 18		
8:00 AM – 8:30 AM	Meeting Welcome and Land Acknowledgement	TFCC Ballroom
8:30 AM – 9:15 AM	Plenary Session: “A Historical Perspective of Some of the Pivotal Actions of the Alaska Chapter American Fisheries Society” by Randy Brown	TFCC Ballroom
9:15 AM – 10:00 AM	Mentorship Mixer	TFCC Manzanita Bay Conference Room
	Coffee Break	
10:00 AM – 11:00 AM	Symposium: Pervasive Evasive Invasives & Interdisciplinarity	TFCC Ballroom
12:00 PM – 1:00 PM	Our Land and Sea Traditional Foods Potluck & Xaadaas Tak’anlang Dancers	TFCC Ballroom
1:30 PM – 2:30 PM	Symposium: Bright Scales, Bright Future	TFCC Ballroom
2:30 PM – 3:00 PM	Affinity group: 1st Generation College Students	TFCC Manzanita Bay Conference Room
	Coffee Break	
3:00 PM – 4:30 PM	Symposium: Bright Scales, Bright Future (continued)	TFCC Ballroom
5:00 PM – 7:00 PM	Film Festival	Discovery Center
6:30 PM – 9:00 PM	Fish Trivia	Annabelle’s Famous Keg & Chowder House

Wednesday, March 19		
7:00 AM – 7:45 AM	Past President's Breakfast	Local Grounds Coffee
8:00 AM – 8:30 AM	Wednesday Welcome & Announcements	TFCC
8:30 AM – 10:30 AM	Symposium: Collaboration and Innovation in Shellfish/Groundfish Research and Management	TFCC Neets Bay
	Contributed Session: Sensational Salmonids	TFCC Naha Bay
10:30 AM – 11:00 AM	Affinity Group: Mental Health, Chronic Illness, and People with Disabilities	TFCC Manzanita Bay Conference Room
	Coffee Break	
11:00 PM – 12:00 PM	Symposium: Collaboration and Innovation in Shellfish/Groundfish Research and Management (continued)	TFCC Neets Bay
	Contributed Session: Sensational Salmonids (continued)	TFCC Naha Bay
12:00 PM – 1:00 PM	Women in Fisheries Luncheon	TFCC Manzanita Bay Conference Room
	Lunch break	
1:00 PM – 3:00 PM	Workshop: Invasive European Green Crab Early Detection Monitoring	TFCC Neets Bay
2:30 PM – 3:00 PM	Affinity Group: Dependent Caregivers	TFCC Manzanita Bay Conference Room
	Coffee Break	
3:00 PM – 4:30 PM	Symposium: Bridging Gaps to Restore and Sustain Fish Habitats in Alaska	TFCC Neets Bay
	Contributed Session: Freshwater Habitats: Maybe Not So Fresh and So Clean	TFCC Naha Bay

Wednesday, March 19	(continued)	
5:00 PM – 6:00 PM	Spawning 5K Fun Run/Walk	Start/Finish Ketchikan Fire Department
5:30 PM – 7:30 PM	Workshop: Invasive European Green Crab Early Detection Monitoring	Southeast Alaska Discovery Center
Thursday, March 20		
8:00 AM – 8:30 AM	Thursday Welcome & Announcements	TFCC Ballroom
8:30 AM – 10:30 AM	Poster Session	TFCC Ballroom
10:30 AM – 11:00 AM	Affinity Group: LGBTQIA2S+	TFCC Manzanita Bay Conference Room
	Coffee Break	
11:00 AM – 12:00 PM	Symposium: Look What You Made Me Do: Reimagining Data Collection & Data Visualization	TFCC Ballroom
12:00 PM – 1:30 PM	AK AFS Chapter Business Luncheon	TFCC Ballroom
1:30 PM – 2:00 PM	Symposium: Look What You Made Me Do: Reimagining Data Collection & Data Visualization (cont.)	TFCC Ballroom
2:30 PM – 3:00 PM	Affinity Group: BIPOC	TFCC Manzanita Bay Conference Room
	Coffee Break	TFCC Ballroom
2:30 PM – 5:00 PM	Contributed Session: Freshwater Resident Species Research in Alaska	TFCC Ballroom
6:00 PM – 8:30 PM	Banquet and Awards	TFCC Ballroom
Friday, March 21		
10:00 AM – 12:00 PM	Whitman Lake Hatchery Tour	Shuttle from Cape Fox Lodge @ 9:30 AM
1:30 PM – 3:30 PM	OceansAlaska Marine Science Center and Shellfish Hatchery Tour	Shuttle from Cape Fox Lodge @ 1:00 PM

Professional Development Workshops

Alaska Native Lamprey Workshop

Course Date: Sunday, March 16, 9:00 AM to 5:00 PM (with 1-hour lunch break)

Course Location: Ted Ferry Civic Center, 888 Venetia Ave. and Virtual

Instructors: Monica Blanchard, USFWS and Washington Department of Fish and Wildlife, Pacific Lamprey Conservation Initiative; Christina Wang, USFWS, Pacific Lamprey Conservation Initiative; Nate Cathcart, Alaska Department of Fish and Game, Pacific Lamprey Conservation Initiative

Cost: FREE! Public welcome to join!

Capacity: Minimum attendance is 10 participants; maximum 30 participants

Description: The Pacific Lamprey Conservation Initiative invites ecologists, resource managers, agency personnel, or anyone interested in lamprey to attend our interactive workshops focusing on the native lamprey species of Alaska, including Arctic Lamprey, Pacific Lamprey, Western Brook Lamprey, Western River Lamprey and Alaska Brook Lamprey. Participants will learn from national and local lamprey researchers about the ecology, habitat needs, cultural significance, conservation, and known species distribution, as well as the continuing data needs and gaps in our understanding of native lamprey in Alaska. Additionally, participants will learn about how to incorporate lamprey conservation into their restoration projects, including permitting, passage design, in-water work activities, and other restoration activities.

Contact: hsteindorf@nrccorp.com

Introduction to Plotting Data in *ggplot*

Course Date: Monday, March 17, 8:00 AM to 12:00 PM

Course Location: Ted Ferry Civic Center, 888 Venetia Ave.

Instructor: Megan McPhee, Professor of Fisheries, University of Alaska Fairbanks

Cost: FREE!

Capacity: Minimum attendance is 5 participants; maximum 25 participants

Description: This course will introduce you to ggplot2, a software library in the R statistical computing language aimed at giving you complete control and flexibility to make reproducible figures ideally suited to your data. If you have been wanting to move over to R to make figures but haven't been able to get over the initial learning hump, or if you would like to improve your data graphing skills in R, this workshop is for you!

Topics include:

- The "grammar of graphics" logic of ggplot
- How to plot various kinds of data in ggplot
- How to fine-tune the appearance of your plot
- How to make your figures publication-ready in ggplot

We will work with real or simulated datasets, and you will have the option to make plots with your own data if time allows.

Requirements: laptop with R and RStudio installed (ideally the most recent versions). Experience with R or another command-line program helps but is not required.

Contact: Megan McPhee, mvmcphee@alaska.edu

Ecotoxicology 101 for Fish Biologists

Course Date: Monday, March 17, 1:00 PM to 5:00 PM

Course Location: Ted Ferry Civic Center, 888 Venetia Ave. and Virtual

Instructors: Dr. Morgan Bender, Principal Aquatic Toxicologist at Fjord & Fish Sciences (in person) and Dr. Andrew Cyr, State of Alaska Environmental Toxicologist at the Department of Public Health (virtual)

Cost: FREE! Public welcome to join!

Capacity: Minimum attendance is 10 participants; maximum 30 participants

Description: A high-speed, trans-disciplinary workshop that will equip you with practical knowledge to better inform environmental, fish, and human health sciences. The timeline will be 4 x 45- 50 minute lectures with discussion time, held in hybrid, with short breaks between.

Join us for an opportunity to learn about Alaskan aquatic ecotoxicology from two experts in the field via a condensed, hybrid workshop format. Previous experience or coursework is optional. Are you a fisheries professional looking for a refresher on fish contaminant issues? Or an undergraduate or graduate student interested in this applied field of fish biology for a career or future academic work?

Lecture Topics include:

- What is Ecotoxicology? (Dr. Bender): An overview of aquatic ecotoxicology, including its origins, an explanation of its multidisciplinary nature, key concepts across those disciplines, and methodology. Using fish-specific examples, we will discuss aspects of environmental and analytical chemistry, chemical fate and transport, aquatic exposures, dose-response relationships, bioavailability, bioaccumulation, and biomagnification.

- Alaskan Aquatic Ecotoxicology (Dr. Bender): This lecture will present the past and present focus areas for aquatic ecotoxicology in Alaska. Dr. Bender will share specific resources for ecotoxicological interpretation (e.g., relevant links, recent papers, and available data). Case studies will focus on the state of the science for adverse effects on fish from oil spills, microplastics, and 6PPDQ (e.g., a tire wear particle found in stormwater).

- Developing Fish Consumption Guidance (Dr. Andrew Cyr): Moving into human toxicology and risk assessment, Dr. Cyr will discuss the information used to develop human consumption guidance for fish in Alaska. Dr. Cyr will guide participants through what and how data are collected for these assessments, how findings are disseminated, and what other considerations are made. He will present a case study on mercury.

- Be an Ecotoxicologist! : A discussion focused on investigating, interpreting, contextualizing, and disseminating "levels of X, Y, Z in environment/ fish/ food." Prompts will be provided, and the group will be divided into smaller groups if necessary. Dr. Bender will guide the discussion, fostering community and shared learning. Discussion of environmental justice and ethics will be encouraged.

Intended Learning Outcomes:
After completing this workshop, participants will be able to:

- Apply key concepts of aquatic ecotoxicology
- Explain the general status of current aquatic ecotoxicological issues in Alaska and identify data gaps
- Understand the basic building blocks used to generate fish consumption guidance.

Requirements: Please bring a computer with internet access.

Contact: Morgan Bender mbender@fjordfishalaska.com
Andrew Cyr andrew.cyr@alaska.gov

Invasive European Green Crab Early Detection Workshop

Course Date: Wednesday, March 19

Session 1: 1:00 PM to 2:00 PM (for meeting attendees only; *registration required*)
Session 2: 5:30 PM to 7:30 PM (for anyone; *no registration required*)

Course Location:

Session 1: Ted Ferry Civic Center, Neets Bay Room, 888 Venetia Ave.
Session 2: Southeast Alaska Discovery Center, 50 Main Street (entrance by lumberjack show)

Instructors: Tammy Davis, Invasive Species Program Coordinator, ADF&G and Jasmine Maurer, Kachemak Bay National Estuarine Research Reserve

Cost: FREE! Public welcome to join Session 2 at the Discovery Center!

Capacity: Session 1: Minimum attendance is 3, maximum 20 participants; Session 2: No limit.

Description: Join Kachemak Bay National Estuarine Research Reserve and Alaska Department of Fish and Game to learn about the invasive European green crab, gain skills and techniques to survey beaches for carapaces and molts, as well as employ trapping protocols for early detection. If you want to join the early detection monitoring network, we'll provide the information and gear for you to survey for European green crab on your local beaches.

Contact: Tammy Davis tammy.davis@alaska.gov
Jasmine Maurer rmaurer@alaska.edu

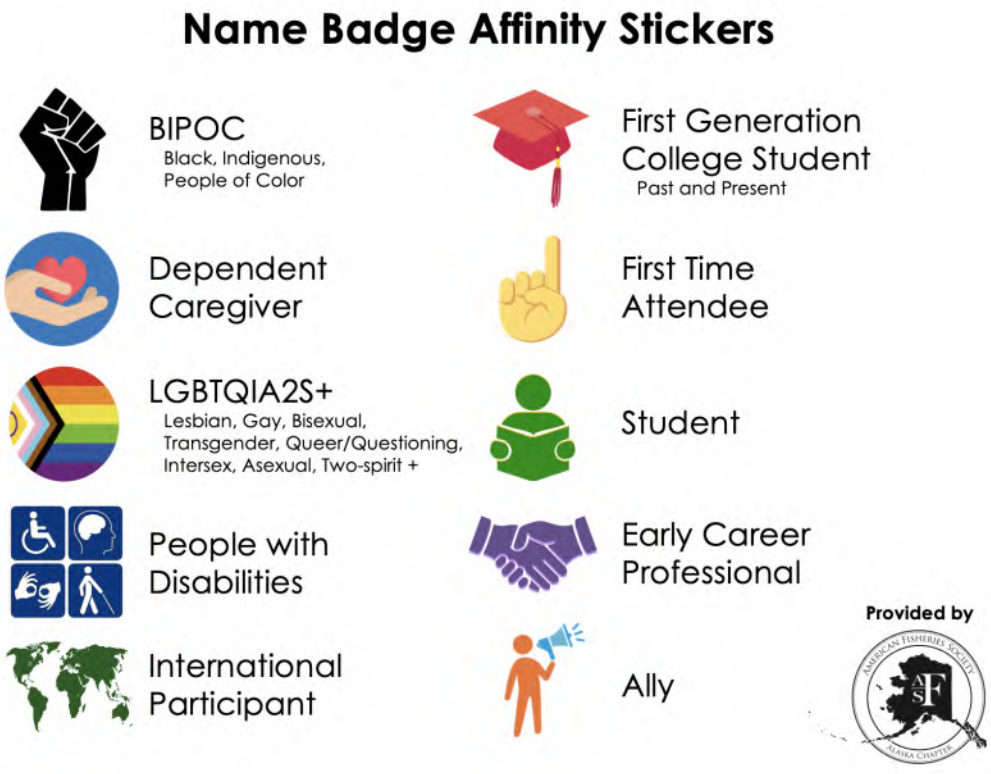
Affinity Groups

Affinity groups provide safe spaces for people who identify with underrepresented and/or historically marginalized groups to gather, build community, and bolster a sense of belonging. *Note: You must identify as a member to any affinity group that you intend to join.*

- Tue PM Coffee Break | First Generation College Students (Past & Present)
- Wed AM Coffee Break | Mental Health, Chronic Illness, and People with Disabilities
- Wed PM Coffee Break | Dependent Caregivers
- Thu AM Coffee Break | LGBTQIA2S+
  (Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, Asexual, Two-spirit+)
- Thu PM Coffee Break | BIPOC (Black, Indigenous, People of Color)

Affinity Stickers

Available at the RAE table. Many of these stickers are used to help those with underrepresented identities build community within the AK Chapter of AFS. Others identify first-time attendees, students, and early career professionals so that long-time AFS members can help them network!



Sunday, March 16

Alaska Native Lamprey Workshop

9:00 AM-5:00 PM

Ted Ferry Civic Center Ballroom

Pre-registration required. For more details see p. 16.

Monday, March 17

Workshop: Introduction to plotting data in *ggplot*

8:00 AM-12:00 PM

Ted Ferry Civic Center Ballroom

Pre-registration required. For more details see p. 17.

Workshop: Ecotoxicology 101 for the Fish Biologist

1:00-5:00 PM

Ted Ferry Civic Center Ballroom

Pre-registration required. For more details see p. 18.

Welcome Social & Sea Shanties

6:00-9:00 PM

Cape Fox Lodge

Join us as we kick off the 51st Annual Alaska Chapter AFS Meeting with drinks and delicious light appetizers at Cape Fox!

Tuesday, March 18

Meeting Welcome and Land Acknowledgement

8:00-8:30 AM, Ted Ferry Civic Center Ballroom

- Whitney Crittenden, Alaska Chapter President Elect and Madison Lee, co-Chair of the Recruitment & Engagement (RAE) Committee

Plenary Speaker

8:30-9:15 AM, Ted Ferry Civic Center Ballroom

Dr. Randy Brown, US Fish & Wildlife Service: “A Historical Perspective of Some of the Pivotal Actions of the Alaska Chapter American Fisheries Society”

Randy Brown grew up in Santa Fe during his early years. After high school he moved to Alaska and at age 18 he moved out into the woods along the Yukon River near the U.S. Canada border. Randy built a number of cabins, maintained a dog team, and fished for salmon along the Yukon River. Eventually he persuaded the love of his life, Karen, to join him. They lived along the Yukon on and off for about 15 years. Karen was a teacher and when they weren’t living in the woods, they were living in remote Alaska communities where Karen taught school and Randy fished, hunted, and ran dogs. Eventually, they moved to Fairbanks where Randy took classes at the University of Alaska. He earned degrees in Biology (BS, 1996) and Fisheries (MS, 2000; Honorary Doctorate, 2020) and has worked for the U.S. Fish and Wildlife Service in interior and northern Alaska for almost 30 years now. Randy has worked extensively with radio telemetry and otolith chemistry technologies to identify migrations and determine anadromous tendencies in species that are not obligated to migrate to sea. Much of his work has been associated with National Wildlife Refuges along the Yukon River drainage and in Arctic regions of Alaska. Randy has been a member of the Alaska Chapter AFS since the mid-1990s and the Chapter Historian since about 2002.

Mentorship Mixer

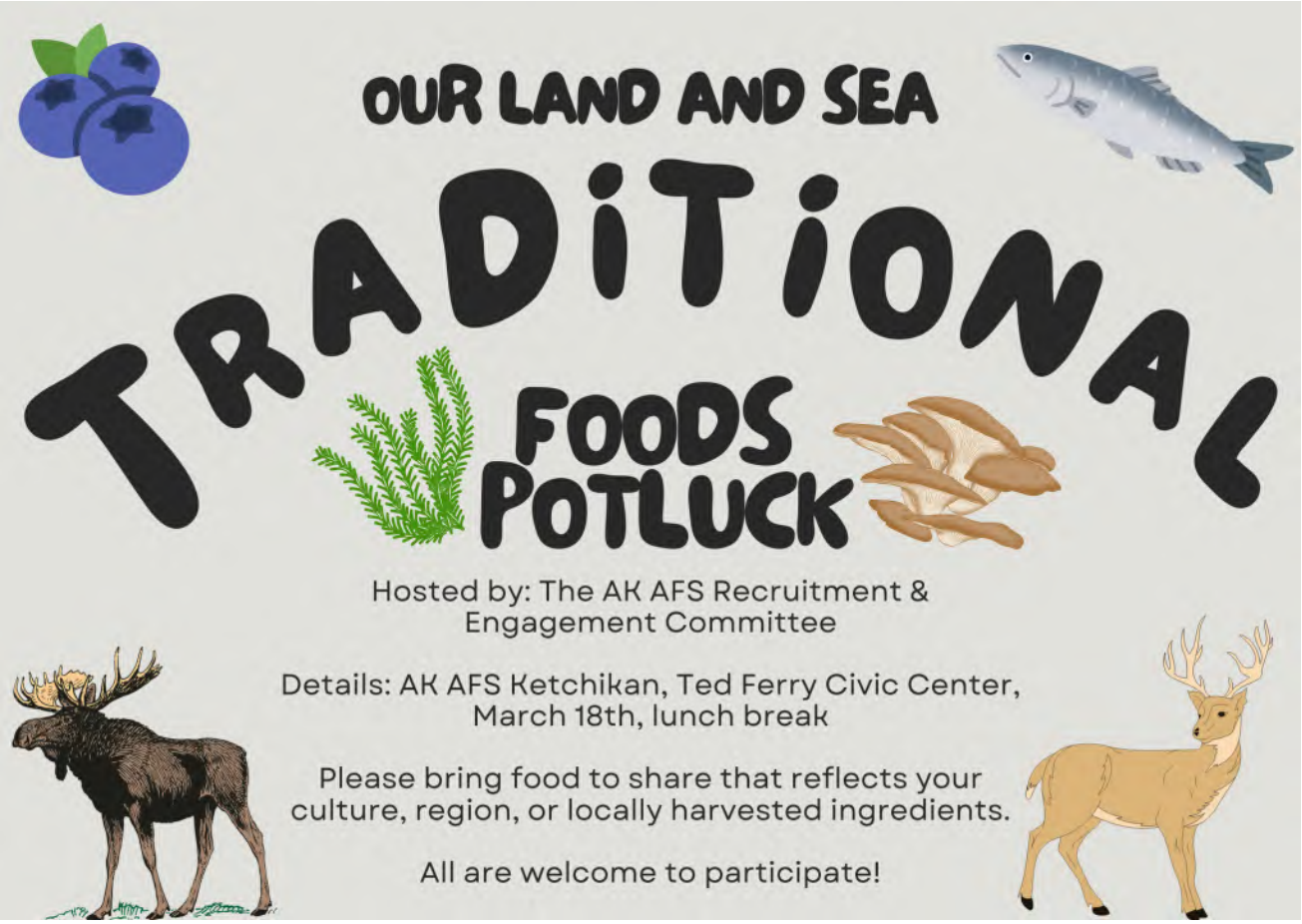
9:15-10:00 AM, Ted Ferry Civic Center Ballroom

(Registration required) This coffee break event is co-hosted with the CFOS student group. Informal conversations may center around professional development, issues related to career advancement, and personal identity and belonging in STEM. If you would like to become an official mentor for the Fisheries and Marine Sciences Mentorship Program, complete the following form here.

Our Land and Sea Traditional Foods Potluck Featuring Xaadaas Tak'anlang (Haida Descendants) Dancers

12:00-1:00 PM, Ted Ferry Civic Center Ballroom

Hosted by RAE (AK AFS Recruitment and Engagement Committee)



Affinity Group: First Generation College Students (past and present)

2:30-3:00 PM, Ted Ferry Civic Center Manzanita Bay Conference Room

Affinity groups provide safe spaces for people who identify with underrepresented and/or historically marginalized groups to gather, build community, and bolster a sense of belonging. *Note: You must identify as a member to any affinity group that you intend to join.*

Fish Trivia

6:30-9:00 PM, Annabelle's Chowder House (326 Front St.)

Are you ready to impress your friends and colleagues with your (trivial) knowledge of fishes and fisheries? Join us at Annabelle's Chowder House for a fun-filled evening of friendly fisheries inspired trivia! Don't miss this opportunity to meet and network with other fishery fanatics while vying for prizes and enjoying a drink!

Film Festival

5:00-7:00 PM, Southeast Alaska Discovery Center

Sharing what we are learning through the use of film continues to be an exceptional way to communicate advances in science and fisheries management, showcase ways communities are engaging in local fisheries and stewardship efforts, and capture the beauty and diversity of fish across Alaska.

Rewilding Cube Cove (7:26 length)

The Cube Cove Restoration project is led by the Southeast Alaska Watershed Coalition, Kootznoowoo, Inc., and the USDA Forest Service – Tongass National Forest. The work is taking place on Admiralty Island to restore fish habitat in watersheds that have been degraded due to historic logging practices. The Kootznoowoo Stewardship Crew is a local employment opportunity for Angoon community members to rehabilitate their traditional homelands. Over the next few years, the 'Kootz Crew' will remove 80 legacy culverts and 3 bridges, breach logging roads at 87 sites, restore fish habitat in 11 streams, and enhance 950 acres of riparian forest.

Film by Lee House. This video was made possible by the USDA Southeast Alaska Sustainability Strategy, Southeast Alaska Watershed Coalition, Sitka Conservation Society, and The Sustainable Southeast Partnership. Project funders: USFWS Alaska Fisheries and Habitat, U.S. Forest Service – Tongass National Forest, SEAK Fish

Habitat Partnership, National Forest Foundation, and National Fish and Wildlife Foundation

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The Story of a Slough (13:33 length)

When the Tanana River Crossing was installed in Salcha, Alaska, the community worried about the levee's effects on fish wildlife. Salcha Elementary School, along with the help of Tanana Valley Watershed Association and GLOBE Alaska, conducted a ten-year scientific study with students to study the effects the levee had on Piledriver Slough. Tori Brannan – the filmmaker's mother – then a teacher and principal at Salcha Elementary, was a centerpiece in the project. She shares her experiences with the project, the community, and how her daughter's involvement strengthened their relationship.

Restoring Healthy Streams and Forests in Hoonah, Alaska (6:55 length)

In the remote village of Hoonah, located near the capital of Juneau in Southeast Alaska, the Huna Tlingit people and local residents have cultural roots that are deeply entwined in the land and waters surrounding their community. Recognizing the importance of protecting, conserving and maintaining the stream and forest habitats that are so integral to the Hoonah way of life, the Hoonah Native Forest Partnership (HNFP) was formed in 2015. This partnership has accomplished critical habitat restoration to improve salmon habitat and forest health, while also supporting economic development in the community. Video produced by AK Nomad Cinematics. Footage contributed by Ian Johnson, Hoonah Indian Association Environmental Director, Sustainable Southeast Partnership Community Catalyst.

Providing Passage – How to Build an AOP Stream Simulator Culvert (17:46 length)

The Tongass National Forest is packed with salmon-producing streams and rivers that connect the ocean to critical freshwater habitat. On the Tongass, hundreds of identified sites of culverts and bridges from past logging roads that may be blocking hundreds of miles of salmon spawning streams. When this road infrastructure deteriorates, fish traveling upstream can be blocked from reaching their habitat, nutrient and sediment cycles of the stream are cut off, and the road can become

damaged by erosive waters. To solve this, one pulls out the culvert or preserves the road access by inserting an aquatic organism passage culvert. Video by Pioneer Studios commissioned in partnership between the Sitka Conservation Society and National Forest Foundation.

Into the Outdoors, 2023 Classroom Videos: Decoding the Tongass National Forest Food Web (5:30 length)

In this Into the Outdoors episode, discover the food web of the Tongass National Forest.

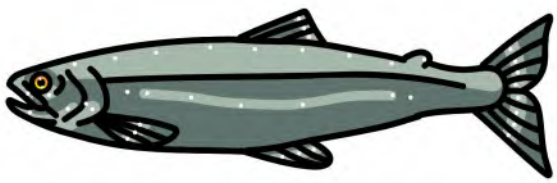
The Salmon Forest | Tongass National Forest – Alaska Nature Documentary, 2020 (30:21)

The Salmon Forest is a 30-minute documentary film that explores the connection between wild salmon and life in Alaska's Tongass National Forest, the largest national forest in the United States. The film follows Alaskan salmon on their epic migration from the streams of the forest to the ocean and back, revealing the various lives they impact along the way. Filmed in stunning high definition, The Salmon Forest highlights one of the last healthy homes for salmon on Earth, and provokes a deeper understanding of this complex and beautiful ecosystem. Ultimately, this film celebrates the unique role public lands play in salmon production and reminds us that proper management is vital to sustain the future of commercial fisheries, subsistence, recreation, and our forests.

Warning: This film includes a brief reference to suicide (at 21:08), which may be triggering for some. Please take care of yourself and those around you.

Protect the Unuk it's OUR River (19:37 length)

Ketchikan Indian Community produced this film to capture the importance of the Unuk River, 2025.



Technical Sessions - Tuesday March 18

Tuesday Mid-Morning Talks: TFCC Ballroom

*Student presenter

Symposium: Pervasive Evasive Invasives & Interdisciplinarity Moderator: Evelyn Weaver	
10:00 AM	Outmuscling Invasive Dreissenids with a Prevention Partnership **Marcus Geist**
10:20 AM	Invasive European Green Crab (*Carcinus maenas*) Mitigation in Southeast Alaska **Bella Brown*, Carina Chernick-Adaire*, Gavin Harold***
10:40 AM	Eco-tourism in Himalayas and Karakoram high mountain ranges of Pakistan through sustainable recreational fisheries in Gilgit-Baltistan: Pervasive, Evasive & Invasive European Trout **Muhammad Naeem Khan**

Tuesday Afternoon Talks: TFCC Ballroom

*Student presenter

Symposium: Bright Scales, Bright Future Moderator: Teresa Fish	
1:00 PM	Session Introduction **Teresa Fish**
1:05 PM	Body size patterns in two distinct sockeye salmon stocks outmigrating from a shared freshwater ecosystem **Scott Chandler***
1:20 PM	The effects of heat stress on juvenile Chinook and Coho Salmon growth in the Deshka River **John Hermus***
1:35 PM	Leveraging Fishery-dependent Data to Quantify the Potential Efficacy of Spatial Conservation Measures for Eastern Bering Sea Pacific Herring **Curry Cunningham**
1:50 PM	Genetic population structure of Pacific herring in the eastern Bering Sea **Sydney Almgren***

2:05 PM	Whole genome resequencing localizes a biogeographic break in Pacific herring **Laura Timm**
2:13 PM	Our Seafood, Our Reference - Developing a baseline for hydrocarbon concentrations in Alaskan coastal subsistence foods **Morgan Bender**
BREAK	
3:00 PM	Session Re-introduction **Teresa Fish**
3:05 PM	Boats and beach spawners: impacts of boat wakes on shoreline erosion and an assessment of shoreline habitat use by Sockeye Salmon at Big Lake, AK **Eli Wilson***
3:20 PM	Bridging Generations: Documenting Traditional Ecological Knowledge for Sustaining Traditional Salmon Fisheries in Nanwalek, Alaska **Madeline Lee**
3:35 PM	Origins and attributes of Chum salmon observed spawning in tributaries of the Colville River in Alaska's Arctic **Peter Westley**
3:50 PM	Evaluating the second-generation effects of hatchery supplementation in Auke Lake sockeye salmon **Mary Commins***
4:05 PM	Trophic ecology of salmonids in the pelagic ecosystem of the Gulf of Alaska: resolving the paradox of competition **Szymon Surma**

Wednesday, March 19

Past Presidents' Breakfast

7:00-7:45 AM, Local Grounds Coffee

(meet in Cape Fox lobby; for Past Presidents only)

Wednesday Welcome & Announcement

8:00-8:30 AM, Ted Ferry Civic Center (TFCC) Ballroom

Affinity Group: Mental Health, Chronic Illness, and People with Disabilities

10:30-11:00 AM, TFCC Manzanita Bay Conference Room

Affinity groups provide safe spaces for people who identify with underrepresented and/or historically marginalized groups to gather, build community, and bolster a sense of belonging. *Note: You must identify as a member to any affinity group that you intend to join.*

Women in Fisheries Lunch

12:00-1:00 PM, TFCC Manzanita Bay Conference Room

Attention women in fisheries! Back by popular demand, we are offering a Women in Fisheries Lunch during the Ketchikan meeting to discuss challenges, solutions, and accomplishments unique to this community. Can't make it, but still want to show you backing for this group? Please consider donating to support another woman in fisheries. Please **register here**. We hope to see you there!

Workshop Invasive European Green Crab Early Detection Monitoring Workshop, Session 1

1:00-3:00 PM, TFCC Ballroom

Pre-registration required (see p. 20).

Affinity Group: Dependent Caregivers

2:30-3:00 PM, TFCC Manzanita Bay Conference Room

Affinity groups provide safe spaces for people who identify with underrepresented and/or historically marginalized groups to gather, build community, and bolster a sense of belonging. *Note: You must identify as a member to any affinity group that you intend to join.*

5K Spawning Run/Walk

5:00-6:00 PM, Ketchikan Fire Department (start/finish)

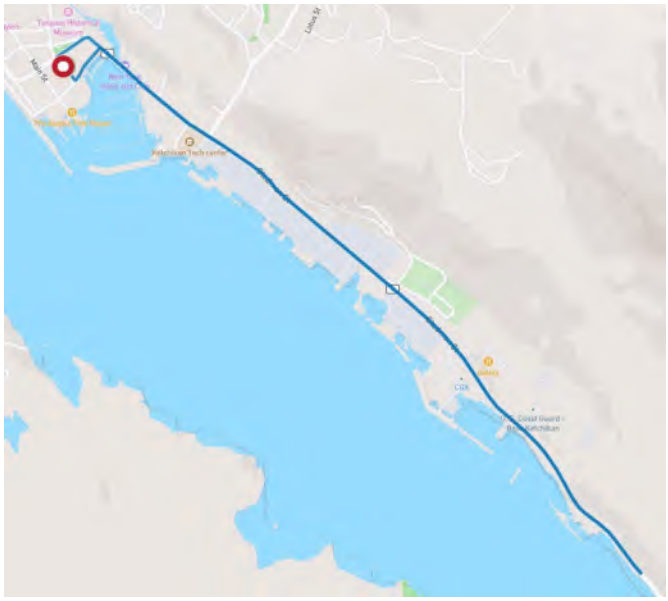
The Alaska chapter of the American Fisheries Society is hosting a 5K Fun Run/Walk on Wednesday, March 19, 2025 beginning at 5:00pm. Join us as we take advantage of the start of spring and extra daylight as we tour through Ketchikan on foot.

The race will begin and end at the Ketchikan Fire Department (70 Bawden Street), with a turnaround point ~2.3km down S. Tongass Avenue. 5K Race Route Map

Price: $20. Each participant will receive a finisher's medal!

Spawning 5k Registration

5k Route: Start at the Ketchikan Fire Department, turn left and through the Federal Building parking lot to Stedman Street. Turn right onto Stedman Street, continuing past Doyon's Landing to the marked turn around (cone and/or volunteer.) Continue back on the path and Stedman Street for the return, retracing the route until reaching the Federal Building. Continuing on Stedman St AROUND the Federal Building to Mill Street, turning left on Bawden Street to the finish line in front of the Fire Department.



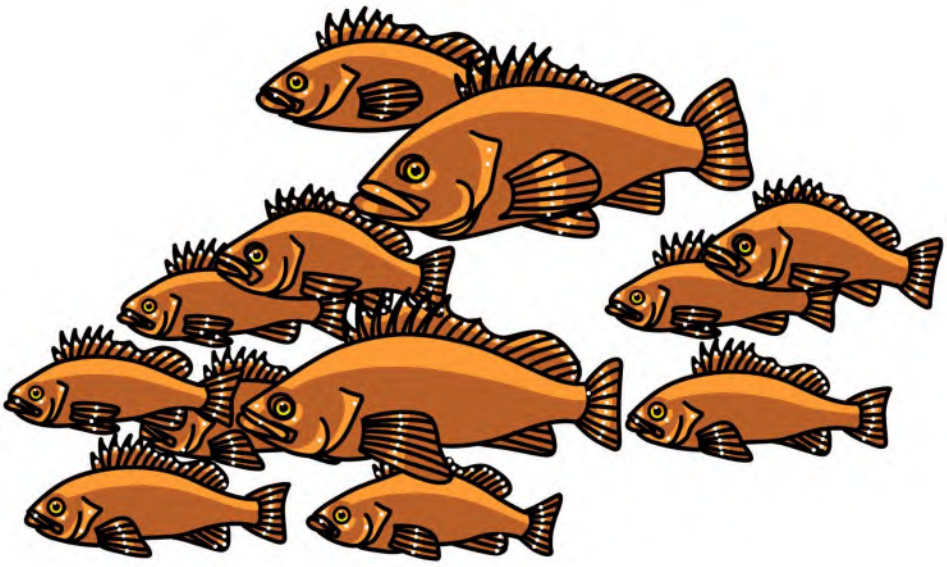
For the safety of all participants, we ask for racers to use sidewalks and use general caution around traffic. Pets and strollers are strongly discouraged as they also pose a

safety risk for participants on the race course. If you are interested in participating and unable to race this time, please consider being a VOLUNTEER!

If you have any questions about this race, please contact the race director, Laura Coleman, at lscoleman0@gmail.com

Workshop Invasive European Green Crab Early Detection Monitoring Workshop, Session 2

5:30-7:30 PM, Southeast Alaska Discovery Center
Free and open to the public! No registration required.



Technical Sessions - Wednesday March 19

Wednesday Morning Talks: TFCC

*Student presenter

	Symposium: Collaboration & Innovation in Shellfish/Groundfish Research & Management Moderator: Janet Rumble Neets Bay	**Contributed Session: Sensational Salmonids** Moderator: Megan McPhee Naha Bay
8:30 AM	A History of Pacific Cod Fisheries in Alaska **Janet Rumble**	Can Eastern Bering Sea Surface Trawl Survey Data Improve Preseason Forecasts for Bristol Bay Sockeye Salmon Abundance? **Curry Cunningham**
8:45 AM	Advancing Yelloweye Rockfish Management in Southeast Alaska: Innovations in Habitat Delineation Through Collaboration and Technology **Laura Coleman**	Climate change impacts on juvenile sockeye salmon and stickleback in Iliamna Lake, AK **Elena Eberhardt***
9:00 AM	The Slimiest Catch: the biology and management of black hagfish in southeastern Alaska **Aaron Baldwin**	Evaluating environmental DNA as a complementary technique for assessing Yukon River salmon **Maggie Harings***
9:15 AM	Estimation of Length-At-First Maturity for Female Pacific Sleeper Shark in the North Pacific Ocean **Garrett Dunne***	Understanding marine processes affecting the productivity of Yukon River chum salmon using an integrated population model **Genoa Sullaway***
9:30 AM	Evaluating Thermal Suitability of the Southern Arctic Ocean for Pacific Halibut **Austin Flanigan***	How might previous decisions about salmon enhancement inform future seaweed mariculture cultivation: considerations across historic, biophysical, sociocultural, and management contexts **Karen Grosskreutz***
9:45 AM	From Boom to Bust: Examining the collapse of Eastern Bering Sea Snow crab during a marine heatwave **Samuel Comeau**	Juvenile Salmonid Movement and Growth in a Proglacial Habitat Mosaic **Lindsey McCulloch***

Wednesday Mid-Morning Talks: TFCC

*Student presenter

	Symposium: Collaboration & Innovation in Shellfish/Groundfish Research & Management (cont.) Moderator: Janet Rumble Neets Bay	**Contributed Session: Sensational Salmonids (continued)** Moderator: Megan McPhee Naha Bay
11:00 AM	Commercial Dungeness Fishing on the West Coast of the USA **Janet Rumble**	A Statistical Catch-At-Age (SCA) Model for Estimating Management Reference Points for Chinook Salmon under the Pacific Salmon Treaty (PST) **Milo Adkison**
11:15 AM	Investigating groundfish community and food web structure in the Gulf of Alaska **Szymon Surma**	Agents of predation on late-marine Chinook salmon depend on region and fish size **Andy Seitz**
11:20 AM	Programmatic Perspectives: Enhancing Fisheries Sustainability in Alaska **Devanie White**	

Wednesday Late Afternoon Talks: TFCC

*Student presenters

	Contributed Session: Freshwater Habitats: Maybe Not So Fresh and So Clean Moderator: Jill Walker Neets Bay	**Symposium: Bridging Gaps to Restore and Sustain Fish Habitat in Alaska** Moderator: Stephanie Lawlor Naha Bay
3:05 PM	Session Introduction	Session Introduction
3:10 PM	Historical temperature exposures of migrating Canadian Arctic Char **Will Samuel**	Assessing Stream Habitat Conditions in the AYK to Inform Future Restoration Efforts **Paul Gabriel**
3:25 PM	Restoring Fish Passage: A Geospatial Approach for Southeast Alaska's Private Lands **Timothy Ericson**	Integrating Traditional Ecological Knowledge with Modern Science for Salmon Restoration **Cody Hendrikson**
3:40 PM	Impacts of Rusting Rivers on Stream Biota in the Wulik River Drainage, Northwest Alaska **Lauren Yancey***	Salmon from Soil: Chickaloon Native Village Salmon Research **Benjamin Americus**
3:55 PM	Outmuscling Invasive Dreissenids with a Prevention Partnership **Marcus Geist**	From Barriers to Solutions: Capacity Building for Fish Passage Restoration **Andrea James**
4:10 PM		Impacts from Hydrologic Variability on Juvenile Salmonid Movement and Growth Potential in a Southeast Alaskan Watershed **Blake Toney***

Thursday, March 20

Thursday Welcome & Announcement
8:00-8:30 AM, Ted Ferry Civic Center (TFCC) Ballroom

Poster Session
8:30-10:30 AM, TFCC Ballroom

Affinity Group: LGBTQIA2S+
10:30-11:00 AM, TFCC Manzanita Bay Conference Room
Affinity groups provide safe spaces for people who identify with underrepresented and/or historically marginalized groups to gather, build community, and bolster a sense of belonging. *Note: You must identify as a member to any affinity group that you intend to join.*

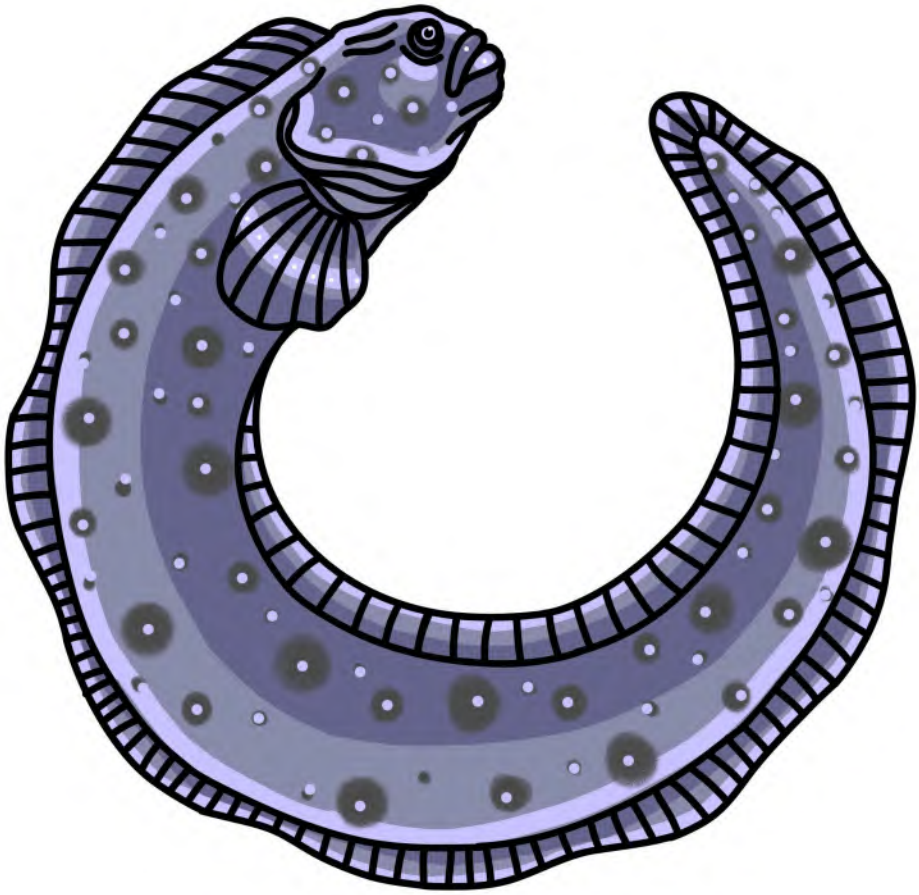
Alaska Chapter Business Meeting (lunch provided)
12:00-1:30 PM, TFCC Ballroom
Come help pilot the Chapter's future, meet our new officers, and hear from the Western Division!

Affinity Group: BIPOC
2:30-3:00 PM, TFCC Manzanita Bay Conference Room
Affinity groups provide safe spaces for people who identify with underrepresented and/or historically marginalized groups to gather, build community, and bolster a sense of belonging. *Note: You must identify as a member to any affinity group that you intend to join.*

Banquet and Awards Ceremony

6:00-8:00 PM, TFCC Ballroom

Join us for dinner and drinks as we celebrate the closing of another successful meeting! We will also recognize excellent research being conducted by the next generation of fisheries scientists as we present winners of the student award competition! There will also be a live auction featuring a variety of exciting local and technical products. Be sure to bid in support of future meetings and student travel. You won't want to miss this event!



Technical Sessions - Thursday March 20

Thursday Morning Poster Session: TFCC Ballroom

Poster Title	Presenter (*Student)
Genomic sex determination of Pacific herring	Sydney Almgren*
Chickaloon Native Village Salmon Restoration: The Past, Present, and Future	Benjamin Americus
Seasonal changes in the heart temperature sensitivity of juvenile Arctic char in a warming North	Shira Berkelhammer*
Stream mapping on the Tongass National Forest	Jess Davila
Female body size matters far beyond this year's harvest	Leif Dawson
Fish surveys and salmon population genetics in Bering Land Bridge National Preserve	Duncan Green
Engaging with Tribes and Communities to Monitor for European Green Crab on Prince of Wales Island	Hannah Harris
Kuskokwim River Inter-Tribal Fish Commission (KRITFC) Projects	Avery Hoffman
Before we restore: examining energetic budgets of juvenile salmonids in a mining-impacted stream	Thomas House*
Cold tolerance in the intertidal zone: development of a framework to determine evolutionary and ecological mechanisms of ice-binding proteins in Arctic and subarctic intertidal invertebrates	Yin-Chen Hsieh

Poster Title	Presenter (*Student)
Ontogenetic growth rates of harvester Magister squid, *Berrytheuthis magister*, in Southeast Alaska	Hunter Kaufman*
Changes in macroinvertebrate communities following different stream restoration approaches	Dakota Keller*
Factors leading to residency in *Oncorhynchus nerka*	Carolyn Knapper*
Fishes of the Andreafsky River: a perspective from metabarcoding through a spawning run	Maggie Harings*
Monitoring Paralytic Shellfish Poisoning (PSP) in Alaska: A Statewide Initiative Led by the Knik Tribe	Jackie McConnell
Field-based approaches to assessment of the fish pathogen *Ichthyophonus* in Pacific salmon cardiac tissue	Elias Reynolds*
Documenting Year-Round Subsistence Fishing Activities in the Colville River Delta Region	John Seigle
Habitats occupied by Chinook salmon in the Gulf of Alaska and in the U.S. Navy's Temporary Maritime Activities Area, and Western Maneuver Area	Andrew Seitz
Four Decades of Water Quality Monitoring and Fertilization at Redoubt Lake, AK	Joe Serio
Evaluating fish interactions with hydrokinetic energy devices in large glacial rivers	Deanna Strohm
Deep Water Truss Trawl for Sampling Large Glacial Rivers	Cameron Walker*
Pervasive Evasive Invasives: How NOAA Fisheries Handles the European Green Crab and Other Unwelcome Aquatic Species	Evelyn Weaver*

Poster Title	Presenter (*Student)
Invasive Species Awareness and Education Sculpture Project	Evelyn Weaver*
NOAA Fisheries - Sustainable Fisheries Division Perspectives: Evaluating Successful Fisheries Management of Alaska	Devanie White

Thursday Mid-Morning Talks: TFCC Ballroom

*student presenter

Symposium: Look What You Made Me Do: Data & Technology, Reimagining Data Collection and Data Visualization Moderator: Jess Davila	
11:00 AM	Sampling approach in design of microbiome research **Morag Clinton**
11:15 AM	Using pop-up satellite archival tags to understand the oceanic ecology of steelhead kelts from Alaska **Andy Seitz**
11:30 AM	What's 250 microns between friends? **Jeffery Muehlbauer**
11:40 AM	Using life cycle models to understand effects of streamflow and water temperature events on Yukon River **Rebecca Shaftel***

Thursday Afternoon Talks: TFCC Ballroom

*student presenter

Symposium: Look What You Made Me Do: Data & Technology, Reimagining Data Collection and Data Visualization (continued) Moderator: Jess Davila	
1:30 PM	Aging at the speed of light: Estimating daily age in juvenile Pacific Cod **Zachary Stamplis***
1:45 PM	Is smolt quality limiting sustainability of a small genetically unique sockeye salmon population in the Skeena river watershed BC **Carolyn Knapper***
2:00 PM	From Plankton to Salmon: Connecting Primary Production to Fisheries **Sarah Miyabi Hendricks***
BREAK	
Contributed Session: Resident Species Research in Alaska Moderator: Lisa Stuby	
3:10 PM	Session Introduction **Lisa Stuby**
3:15 PM	Genomic insights on the species boundary between Arctic and Bering cisco **Andrés López**
3:30 PM	Reproductive Biology and Proximate Composition of *Lethenteron* spp. in Alaskan River Drainages **Amber Perk***
3:45 PM	Otolith Strontium Concentrations as Indicators of Life-History Strategies in Rainbow Smelt (*Osmerus mordax*) of the Beaufort Sea **Anna Medina***
4:00 PM	Fourhorn Sculpin Diet Composition and Mercury Bioaccumulation from Prudhoe Bay, Alaska **Erica Ebert***
4:15 PM	Movement strategies of Arctic Grayling within a fire-impacted riverscape **Elizabeth Hinkle***
4:30 PM	Life History Strategies of Arctic Grayling in Beaver Creek **Lisa Stuby**

Friday, March 21

Whitman Lake Hatchery Tour

10:00 AM -12:00 PM
Shuttle leaves from Cape Fox at **9:30 AM**

Location: Whitman Lake Hatchery – 188 Power House Road

Cost: $5

Capacity: 12 participants for the shuttle.

Description: Members can tour Southern Southeast Regional Aquaculture Association's (SSRAA) first hatchery that currently produces Chinook, coho, and chum.

Booking: Whitman Lake Hatchery Tour

More Information: Southern Southeast Regional Aquaculture Association

OceansAlaska Tour

1:30 PM -3:30 PM
Shuttle leaves from Cape Fox at **1:00 PM**

Location: Oceans Alaska Marine Science Center & Shellfish Hatchery – 2868 S Tongass Hwy #109

Cost: $5

Capacity: No Limit

Description: Members can visit this aquaculture endeavor located on George Inlet.

Booking: OceansAlaska Tour

More Information: OceansAlaska

155th Annual Meeting in San Antonio, August 10-14, 2025

https://afsannualmeeting.fisheries.org/

Symposium Descriptions

Evasive Pervasive Invasives and Interdisciplinarity

Throughout natural history, native species have evolved to operate amongst each other within their particular environments. This evolutionary process has been occurring among species for billions of years; humans have been relocating them for thousands. When we introduce invasive species to new ecosystems, they interfere with and change pre-existing relationships that have taken vast amounts of time to form. Invasives can outcompete natives, hybridize with them, and prey upon them at unsustainable rates. They can alter the physical structure of habitats; they can introduce pathogens and parasites. Invasives are pervasive. To oppose them, we need to fight them on a variety of fronts, and in a variety of ways. I am hopeful that this discussion will bring together people with an interest in invasive species and allow them to share their ideas and approaches, potentially giving rise to new, innovative, interdisciplinary ones.

Organizer: Evelyn Weaver
Location: Ted Ferry Civic Center Ballroom
Time: Tuesday, March 18, 10:00 AM - 11:00 AM

Bright Scales, Bright Futures

Similar to their iridescent scales, both Pacific herring and Pacific salmon reflect the dynamic environments they inhabit. This symposium highlights ongoing research exploring the genetic, ecological, and socioeconomic factors shaping these fish populations and fisheries across Alaska.

Organizer: Teresa Fish
Location: Ted Ferry Civic Center Ballroom
Time: Tuesday, March 18, 1:00 - 2:30 PM | 3:00 - 4:30 PM

Collaboration & Innovation in Shellfish/Groundfish Research & Management

Management and research in shellfish and groundfish fisheries or populations that involve collaboration with stakeholders and/or innovative methods.

Organizer: Jan Rumble
Location: Ted Ferry Civic Center, Neets Bay Room
Time: Wednesday, March 19, 8:30 - 10:30 AM | 11:00 AM - 11:40 AM

Bridging Gaps to Restore and Sustain Fish Habitat in Alaska

Many hands make light work. In Southeast Alaska, partnerships between tribal natural resource crews, tribal governments, NGOs, and federal agencies are working together to improve fish habitat to support cultural and subsistence uses for generations to come. Salmon are the lifeblood of Southeast Alaska, and every community has a deep, unique connection to this resource - and every community is working on strategies to protect it.

Historic logging has degraded fish habitat in many streams in nearly every community across Southeast Alaska. Associated roads and other logging infrastructure are now failing and blocking fish passage in many areas. SEAK's unique topography makes every foot of fish habitat precious - steep, coastal mountains tend to shorten anadromous stream reaches, but rich estuaries with easy ocean access make these reaches extremely important for salmonid spawning. Maintaining open access to functional upstream fish habitat is at the forefront of the minds of Southeast Alaskans.

This session will feature successful fish passage and stream restoration projects, tips and tricks from the field to pull off fish passage/restoration projects, holistic considerations to restoration, an overview of upcoming fish passage projects and needs across the region. The session will end with a discussion around capacity needs - how can we build strategic partnerships and utilize established partners to get the most work done? The goal of this session is to identify capacity gaps in fish passage and stream restoration work for partnerships in Southeast Alaska**.**

Organizer: Debby Hart
Location: Ted Ferry Civic Center, Neets Bay Room Room TK
Time: Wednesday, March 19, 3:10 - 4:30 PM

Look what you made me do, data and technology, reimagining data collection, and data visualization

Emerging technology allows for innovations in the collection, analysis, and visualization of data. From freshwater stream mapping to spatially-explicit ocean catch data, there are exciting new possibilities for data management, analysis, and communication. We will hear about successes and failures, innovations in data acquisition, and new methods for data analysis.The objective of the symposium is to explore new approaches to problem solving, data visualization, and the communication of complex, engaging, and accessible science.

Organizer: Jess Davila
Location: Ted Ferry Civic Center Ballroom
Time: Thursday, March 20, 11:00 AM - 12:00 PM | 1:30 - 2:30 PM

Poster Abstracts

Genomic sex determination of Pacific herring

Almgren, Sydney A.[1], Laura E. Timm[1], J. Andrés López[1], Jessica R. Glass[1]

Pacific herring (*Clupea pallasii*) is a vital species for the environment, economy, and culture of Alaska and the Pacific Northwest. Despite its importance, critical genomic features of this species remain poorly examined. While the genomic architecture underlying sex determination has been identified in Atlantic herring, a closely related species, it remains undescribed in Pacific herring. We generated low coverage, whole genome sequences from 40 Pacific herring of known sex (twenty female and twenty male) from both the Bering Sea and the Gulf of Alaska. Our concurrent genomics research has identified notable genetic differences between Pacific herring in these two areas, indicating that these populations may even be subspecies. Using whole genome sequences and related bioinformatic approaches, we will investigate the similarity of sex determining regions between the Bering Sea and Gulf of Alaska herring. Our results will better describe the evolutionary relationship between these populations, as well as compare the genomic mechanisms of sex determination between Pacific and Atlantic herring. Additionally, we are creating a simple genomic assay for identifying sex in Pacific herring. The addition of a genomic method will provide a non-invasive alternative to sexing non-spawning adults and juveniles, which is labor intensive. Understanding the genetic basis of sex in Pacific herring will fill a fundamental gap in the genetic knowledge of this species and also potentially highlight sex-specific differences in movement and distribution.

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Chickaloon Native Village Salmon Restoration: The Past, Present, and Future

Americus, Benjamin E.[1], Andrea L. James[1], Cody A. Henrikson[1], Madelynne R. Dey[1], Stephanie M. Houser[1], Anthony E. Lieble[1], Jessica E.D. Winnestaffer[1]

Chickaloon Native Village is an Ahtna Dene Tribe that has stewarded the Matanuska-Susitna Valley of Southcentral Alaska for the past 10,000 years. Fish, and specifically salmon, are critically important sources of food and cultural well-being for Chickaloon Native Village and many people in Alaska. Salmon resilience is dependent upon habitat availability, quality, and connectivity. Loss of habitat connectivity from development has contributed to declining salmon populations in the Matanuska-Susitna Valley. Chickaloon Village Traditional Council has Fish Research and Fish Passage programs to help protect, enhance, and restore culturally important salmon populations. To identify past salmon habitat, Fish Research staff collects soil cores from biologically and culturally relevant sites and uses metabarcode sequencing to detect salmon eDNA. To understand the present state of salmon, staff performs regular food surveys of index streams and collaborates with ADF&G to update the Anadromous Waters Catalog and Genetic Baseline Collections. To improve salmon habitat for the future, the Fish Passage Program is implementing several culvert replacements and stream restorations in the Tribe's traditional territory. In 2025, Chickaloon will replace two culverts on a tributary of Tsidek'etna (Moose Creek near Palmer). The Fish Passage Program also provides free Tribal training opportunities in fish passage and habitat restoration, and organizes a quarterly, virtual Alaska Tribal Fish Passage Working Group. Through these works, Chickaloon Native Village conserves and restores salmon populations locally and increases Alaska's Tribal capacity for fish habitat restoration

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Seasonal changes in the heart temperature sensitivity of juvenile Arctic char in a warming North

Berkelhammer, Shira A.[1], Les N. Harris[2], Emily P. Williams[3], Kevin Kanayok[4], Jean-Sébastien Moore[5], Matthew J. H. Gilbert[1]

The Arctic is warming at more than four times the global average rate, leading to rapid shifts in temperature patterns for native, cold-adapted fish species. Northerly distributed migratory Arctic char experience a wide range of temperatures throughout the year and across different environments, from below 0ºC to above 21ºC, with peak temperatures expected to increase in both frequency and amplitude. Furthermore, Arctic char are an essential subsistence and commercial resource for many Indigenous and rural Arctic people. These factors make them an important species in which to study relationships between thermal physiology, life history strategies, and species distributions. Temperature significantly impacts critical physiological processes including at the level of the heart, which affects the performance of the whole animal. Generally, heart rate increases with warming up to a peak at a critical temperature, above which it begins to decline, and ultimately the heartbeat becomes irregular (arrhythmia) as the heart fails. In contrast, at cold winter temperatures the heart rate is slowed. Laboratory experiments on Arctic char have shown capacity to adjust these responses with prolonged temperature changes, to improve performance (i.e., temperature acclimation). However, thermal and metabolic physiology vary seasonally and across life stages, which has yet to be examined. Understanding these relationships in wild Arctic char, which are long lived and experience extreme seasonal shifts in temperature and food availability, remains limited. We assessed heart temperature sensitivity in winter and summer using an electrocardiogram-based method, with juvenile Arctic char injected with two drugs to induce maximum heart rate. Compared to winter, summer-caught fish increased their maximum heart rate to a greater extent with warming and reached higher temperatures before heart function became constrained. Our results indicate that juvenile Arctic char undergo marked seasonal plasticity, altering heart temperature sensitivity to help compensate for seasonal thermal variation.

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Stream mapping on the Tongass National Forest

Davila, Jess[1]

Mapping streams on the Tongass National Forest, new tools ifSAR, LiDAR and End of Fish Modeling tools.

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Female body size matters far beyond this year's harvest

Dawson, Leif R.[1], Scott Chandler[1], Peter A. H. Westley[1]

In salmonids, female body size is linked to reproductive capacity through effects on both fecundity (i.e., the number of eggs) and spawning behavior. Recent declines in the average body size of mature Pacific salmon thus have the potential to influence the dynamics of populations in complex ways. To investigate this potential, we performed a meta-analysis across a broad spatial and temporal scale on what is currently known about fecundity relationships in sockeye salmon, a species that has exhibited changes in average body size that may alter their ecological, cultural, and commercial value. Our meta-analysis confirms strong relationships between body length, total egg number, and average egg mass, while also demonstrating variation among populations. This data will help guide future investigations into sockeye fecundity in Chignik, AK, where declines in the average length of female sockeye coincide with a dramatic decline in population abundance.

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Fish surveys and salmon population genetics in Bering Land Bridge National Preserve

Green, Duncan[1], Elizabeth Lee[1], Priscilla Lema[1], Tyler Dann[1], Joe Giefer[1], Charles Cathcart[1], Letty Hughes[2], Jenefer Bell[1]

From 2021-2024, the National Park Service and the Alaska Department of Fish and Game (ADF&G) staff from the Alaska Freshwater Fish Inventory (AFFI), Anadromous Waters Catalog (AWC), Division of Commercial Fisheries and Gene Conservation Lab (GCL) programs completed a multi-year fish habitat and population genetics project in water bodies of Bering Land Bridge National Preserve (BELA). This project documented habitats supporting anadromous and resident freshwater fish species in the waters draining into or out of BELA. Another primary goal was to establish genetic baselines for salmon populations in four target streams: the Nuluk River, Arctic River, Serpentine River, and Nugnugaluktuk River. Through this project, streams were identified that support anadromous species such as salmon and some whitefish species and then nominated to the AWC, which provides habitat protections to these streams pursuant to the Anadromous Fish Act (AS 16.05.871). We observed and caught fish for surveys and genetic samples by backpack electrofishing, raft electrofishing, gillnetting, seining, minnow trapping, aerial surveys and angling. We sampled 96 sites and caught 20 species, 10 of which were anadromous species. We submitted 57 nominations to the AWC for all five species of Pacific salmon, juvenile rearing of coho salmon and Dolly Varden, presence of pond smelt, rainbow smelt, Bering cisco, and humpback whitefish. AWC nominations included adding or extending 300 kilometers (186 miles) of habitat across 38 water bodies. We sampled 2,094 salmon for genetics, 96% of those samples were for chum and pink salmon. Chum, pink, and coho salmon samples were assigned to genetic reporting groups and contributed to filling in large spatial gaps in genetic baseline data coverage by the Division of Commercial Fisheries GCL. Integrating fish surveys with genetic sampling provided a more comprehensive understanding of how the northern part of the Seward Peninsula's fish community distributes across the landscape and in fisheries.

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Engaging with Tribes and Communities to Monitor for European Green Crab on Prince of Wales Island

Lanphier, Kari[1], **Hannah E. Harris[2]**, Jessica M. Davila[2]

European green crabs (*Carcinus maenas*, EGC) are among the top 100 most impactful invasive species. In 2022, they were discovered in Alaskan waters on Annette Island by the Metlakatla Indian Community. Many coastal Alaskan stakeholders, including Tribes and communities, are concerned about the impacts EGC will have on nearshore environments. One common survey method for early detection of EGC is molt surveys. Molt surveys involve collecting all crab molts at a specific location for 20-person-minutes and then identifying the molts to species. Five Tribes (Klawock Cooperative Association, Craig Tribal Association, Organized Village of Kasaan, Hydaburg Cooperative Association and Ketchikan Indian Community), three Tribal Organizations (Southeast Alaska Tribal Ocean Research, Alaska Youth Stewards, and SeaAlaska), and the United States Forest Service determined preferential sites for conducting molt surveys on Prince of Wales Island (POW) between June 10 and 12, 2024. These sites were chosen based on their proximity to communities, importance to communities, and at-risk nearshore environments, such as eelgrass and beach asparagus. Forty-four molt walks were conducted on eight beaches throughout POW near the communities of Craig, Kasaan, Klawock, and Hydaburg. Partners identified eight different crab species across sites: decorator, Dungeness, graceful, helmet, kelp, Pacific rock, pygmy, red rock, and shore. Shore and red rock crabs were the most abundant species, while decorator and kelp crabs were the least. This field work did not locate EGC on POW. However, two instances within the same week in Southeast Alaska found EGC carapaces in proximal locations. One of these sites was very close to the community of Ketchikan, Alaska in Bostwick Inlet on Gravina Island. The other site was on Kasaan Island, near the community of Kasaan, Alaska. These carapaces were approximately 3-4 inches in length, suggesting that the molts came from an EGC that was at least three years old.

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KRITFC Projects

Hoffman, Avery E.[1]

The Kuskokwim River Inter-Tribal Fish Commission (KRITFC) was established in 2015 to engage Kuskokwim River tribes and rural residents as co-managers of fisheries resources. This followed record low Chinook salmon returns. A 2016 Memorandum of Understanding (MOU) between KRITFC and the U.S. Fish and Wildlife Service (USFWS) helped integrate Kuskokwim River tribes and rural residents into federal fisheries management. Currently including 33 federally recognized tribal governments, KRITFC has a seven-member Executive Council representing different geographic units in the 724-mile Kuskokwim River watershed. While focusing on co-management aspects, KRITFC has also expanded efforts to either lead or collaborate on various fisheries projects described here. Inseason harvest monitoring was established in 2017 in collaboration with USFWS and the Orutsararmiut Native Council, and in 2024, KRITFC hired 17 monitors in 8 villages and combined interview data from the villages and the Bethel area with aerial survey net counts to estimate inseason harvests. Since 2022 KRITFC has collaborated with USFWS and the Organized Village of Kwethluk on smolt trap and adult weir projects on the Kwethluk River with a focus on Chinook salmon to examine survival from spawning adults to smolt emigration and to subsequent adult returns. The KRITFC also collaborates on a weir estimating adult salmon returns to the Takotna River, one of the few weirs on the upper Kuskokwim River. Beginning in 2023, KRITFC has worked with Washington State University to use drones to monitor salmon returns to the Kwethluk River. In 2025 we also plan to add a tower-based camera, along with AI counting software, at the Kwethluk weir site. Finally, the KRITFC has also started to explore the use of environmental DNA for salmon monitoring on the Kwethluk and Takotna rivers. This array of projects show how traditional and local knowledge and western science can be integrated into resource management and research.

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Before we restore: examining energetic budgets of juvenile salmonids in a mining-impacted stream

House, Thomas F.[1], Jeffrey D. Muehlbauer[1,2]

This presentation details proposed research examining the energetic budgets of juvenile salmonids in a mining-impacted stream. Our study is centered on Coal Creek, a tributary of the Yukon River located within Yukon-Charley Rivers National Preserve, between Eagle and Circle, Alaska. This stream is scheduled for restoration in 2026, with the primary objective of enhancing habitat availability for juvenile Chinook salmon (*Oncorhynchus tshawytscha*). Given the ongoing decline of Yukon River Chinook salmon populations, this research is particularly urgent. The collapse of these populations has not only disrupted the regional ecosystem but has also profoundly affected local Indigenous communities that depend on salmon as a subsistence resource. Juvenile life stages are crucial in salmon development, as this period is marked by intense intraspecific competition and predation. Growth during this stage is particularly important, as access to prey is constrained by gape size: faster growth enables individuals to consume larger, more nutrient-dense prey. Our study seeks to understand how mining-altered habitat conditions influence growth potential in juvenile salmonids. Specifically, we hypothesize that habitat degradation at Coal Creek - primarily its rerouting into a channel dominated by mine tailings - correlates with reduced growth rates in juvenile salmonids. Furthermore, we predict that macroinvertebrate production, a key determinant of food availability, will be lower in Coal Creek compared to unmined reference streams, thereby reducing fish growth rates. To test these hypotheses, we will assess and quantify macroinvertebrate communities in both mined and unmined streams. Using macroinvertebrate production data alongside temperature measurements, we will construct and parameterize a bioenergetics model to generate growth curves for juvenile salmonids. This work will allow us to compare fish growth rates with maximum macroinvertebrate densities and determine if changes in ontogeny are limiting growth potential.

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Cold tolerance in the intertidal zone: development of a framework to determine evolutionary and ecological mechanisms of ice-binding proteins in Arctic and subarctic intertidal invertebrates

Hsieh, Yin-Chen[1], Jessica R. Glass[1], and Konrad Meister[2]

Intertidal organisms in the Arctic and subarctic regions are subject to extreme temperature fluctuations, particularly in the winter seasons. These fluctuations present a risk of severe, often fatal, cellular damage in these organisms due to the formation of ice crystals. To ensure survival, a variety of ectothermic organisms utilize ice-binding proteins (IBPs) to prevent ice (re)crystallization and to control ice nucleation, often sequestering ice formation into less vulnerable body parts. There is currently a wide gap in scientific understanding of IBP form and function in intertidal invertebrates, as IBP research to date has focused on marine or terrestrial organisms. Which classes of IBPs are found in intertidal invertebrates and from which lineages do they arise? What structures do the IBPs adopt and how do they impact function? Given the known diversity and abundance of intertidal invertebrates in polar regions and their critical roles balancing food webs and nutrient cycling between the lower marine and upper terrestrial zones, IBP research into this group of organisms is essential. This study aims to address this by exploring the diversity, evolutionary origins, and ecological functions of IBPs on selected echinoderm species in the North Pacific. This project utilizes a combination of freezing assays and -omic approaches to characterize the ice-binding activity, identify functional gene regions, and quantify gene expression of echinoderm IBPs across different environmental conditions. The methodologies developed will be integrated as -omics and bioinformatics workflows into an IBP screening platform. Numerous echinoderm species play a crucial role in the mariculture industry, and this research will enhance predictions regarding their survival and fitness in a shifting climate. IBP and genomics datasets generated will be made accessible to the wider scientific community, via publicly available databases. In addition, the discovery of new IBPs could impact both the biomedical field and commercial food production sectors.

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Ontogenetic growth rates of harvester Magister squid, *Berrytheuthis magister*, in Southeast Alaska

Kaufman, Hunter[1], Levi S. Lewis[2], Richard N. Yamada[3], Charlotte Springer[4], Michael Navarro[1]

Magister squid (*Berryteuthis magister*) play a critical role in the trophic system of Alaska's marine habitats. As paralarvae, they serve as prey for smaller fishes and birds, while larger juveniles and adults are common prey of salmonids, birds, and marine mammals. Across all life stages, *B. magister* function as key predators in benthopelagic food-webs, consuming plankton, fish that can be important to commercial fisheries, and other squids. Although abundant and the focus of a recently proposed directed fishery, little is known about its patterns of growth which drive patterns in stage-specific survival and fisheries harvest. Here we present inference methods for the application of statoliths to reconstruct the daily ages and growth profiles of *B. magister*. Statoliths are metabolically inert structures that accrete daily rings ("circuli") that can be used to infer age and growth. Statoliths from 20 *B. magister* were dissected, mounted, polished, and digitally imaged under transmitted light using compound microscopy. Images were used to identify circuli, each corresponding to a day of the squid's life. The daily circuli were then digitally annotated from the core to edge, and increment width profiles measured. The total number of circuli were used to infer ages and hatch dates of each individual, while increment width profiles were used to infer patterns in daily growth. The preliminary evidence for intra-annual variability will be presented including a comparison of relative growth rates among life stages (i.e., paralarva, juvenile, adult) and among seasons. Future application of this method will investigate inter-annual variability to begin a study on low-frequency effects on growth. Understanding squid growth rates can inform fishing period decisions as part of the development for a sustainable fishery management plan.

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Changes in macroinvertebrate communities following different stream restoration approaches

Keller, Dakota[1], Jeffrey D. Muehlbauer[1,2]

Stream restoration is often looked to as a hopeful and actionable option for improving freshwater habitat for salmonids in Alaska. In the Interior, stream restoration practice often involves repairing stream channels by increasing sinuosity of the channel and the depth and frequency of pools for fish habitat. Due to historic and ongoing placer mining in the Interior, these stream restoration projects typically are intensive and require total channel reconstruction to redistribute tailings piles and settling ponds into a recognizable river valley and flowing channel. The techniques currently available to stream restoration practitioners are largely developed for the contiguous United States over the last forty years. Thus, in addition to the logistical complexity of designing these large restorations in remote areas of the state, it is unknown how stream restoration techniques developed for southern latitudes will function in an Arctic landscape with vastly different hydrology, geography, climate, and sensitive flora and fauna. There is a need in Interior Alaska for site specific assessment of restoration practices to improve key fish habitat attributes such as prey resources and water quality. Nome Creek and Cripple Creek are two stream restorations in Interior Alaska that offer the opportunity to study the impacts to biologic function and identify critical phases in the initial recovery period following restoration activities. Specifically, we will assess macroinvertebrate community response between restored and unrestored reaches within these two creeks over the first two years following restoration to identify potential food web impacts for fish that utilize these streams, including Arctic Grayling and Chinook Salmon. This research may have implications for management agencies as they factor in ecological recovery times post-restoration and the impact of specific restoration practices on fisheries-related habitat improvement goals.

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Factors leading to residency in *Oncorhynchus nerka*

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Gitanyow Lake hosts a small, genetically unique population of Sockeye Salmon in the Skeena River watershed, British Columbia. In recent years, during fall spawning surveys and broodstock collection, an increased number of smaller green spawners have been observed. It is unknown whether the putative residual phenotypes belong to the same population as sympatric anadromous adults or if they are related to other Sockeye Salmon or Kokanee elsewhere in the watershed. To understand potential genetic or ecological factors leading to Sockeye Salmon remaining resident in a lake and not adapting a migratory life history, the source of, and mechanisms leading to, the putative resident fish needs to be determined. To understand potential genetic or ecological factors leading to residualism, we determined the source of putative resident fish using two approaches: genetic analysis and otolith microchemistry. In collaboration with the Molecular Genetics Laboratory (MGL) at the Pacific Biological Station, Fisheries & Oceans Canada (DFO), our first approach using a panel of single nucleotide polymorphism (SNP) markers, found no difference in genotypes between the putative residual and anadromous spawners from Gitanyow Lake. These fish were quite distinct from other populations of Sockeye Salmon spawning in the Skeena River watershed. We used elemental signatures from otoliths of spawners in Gitanyow Lake to determine if putative residuals are progeny of anadromous fish and first-generation residuals, or if they are progeny of resident fish. Comparison of Sr and Ba signatures at the core showed overlap in values for putative residual spawners and anadromous Sockeye Salmon from Gitanyow Lake. Comparison of the Gitanyow Lake fish to known anadromous, landlocked or resident populations of salmonids for Sr and Ba at the core showed separation between anadromous and freshwater populations, further supporting our conclusion that all *O. nerka* sampled from Gitanyow Lake were progeny of anadromous female Sockeye Salmon.

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Fishes of the Andreafsky River: a perspective from metabarcoding through a spawning run

Harings, Maggie[1], Erik Schoen[1], Julian Pender[2], Andrés López[1]

We leverage an extensive set of environmental DNA (eDNA) samples from the East Fork Andreafsky River weir site to examine local changes in the fish fauna associated with the arrival of spawning salmon. The samples were collected as part of an ongoing evaluation of the utility of species-specific quantitative eDNA analyses for monitoring the timing and abundance of arriving Chinook salmon spawners. Here we show results of a complementary analysis of those samples using metabarcoding sequencing to provide a broader perspective on local changes linked to the arrival of spawners in the vertebrate species community composition. Metabarcoding results are concordant with the expected fish assemblage with Arctic grayling, slimy sculpin and Arctic lamprey sequence detections, and provide additional insights with detections of birds and mammals species.

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Monitoring Paralytic Shellfish Poisoning (PSP) in Alaska: A Statewide Initiative Led by the Knik Tribe

Bruce Wright[1], **McConnell[1], Jackie A.**

The Knik Tribe is leading a statewide effort to monitor Paralytic Shellfish Poisoning (PSP) across Alaska. PSP is caused by Paralytic Shellfish Toxins (PSTs), which are produced by the marine dinoflagellate Alexandrium and bioaccumulate in shellfish and other marine organisms. These toxins can move up the food chain, posing risks to humans, salmon, and other wildlife. This project aims to improve the understanding of PSP prevalence in Alaska's shellfish and marine species, including salmon, a key species for local ecosystems and economies. Samples are collected from various locations across the state, including the Mat-Su, Lake Iliamna, Southeast Alaska, and the Yukon river. Results have shown detectable levels of PST in some salmon samples, with a few exceeding the U.S. Food and Drug Administration (FDA) safety limits. These findings underscore the need to expand PSP monitoring beyond shellfish to other widely consumed marine species. The project's findings are crucial for developing early warning systems and public health measures to protect communities from PSP risks. By partnering with local communities and implementing community-based monitoring, the Knik Tribe is working to establish a sustainable PSP surveillance framework. This initiative supports food safety, raises awareness, and provides essential data for tribes, regulatory agencies, and public health officials to make informed decisions.

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Field-based approaches to assessment of the fish pathogen *Ichthyophonus* in Pacific salmon cardiac tissue

Reynolds, Elias[1]**,** Keith Herron, Scott Walter, Angela Bowers, Morag Clinton

This project aimed to explore the utility of alternative approaches to preliminary diagnosis of the parasite *Ichthyophonus* in fish hearts. Our goal is to explore approaches to monitoring that might be more accessible to community-based disease surveillance and fisheries management efforts. Data collection included visual assessment of hearts for white spots as well as use of a simplified approach to microscopic observation of the schizont life-stage of the parasite *Ichthyophonus*. This simplified approach was achieved using Squash Preparations (also commonly referred to as “squash prep”), in which fish tissues are crushed between glass slides and observed down the microscope. We examined fish hearts for suspected presence of *Ichthyophonus* to determine sensitivity and specificity of this approach relative to histopathology findings. As part of this work, we also created a detailed step-by-step protocol and guide to aid future users of this fish health surveillance approach. We present here an explanation of the methodology and preliminary data from examination of archived tissue samples.

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Documenting Year-Round Subsistence Fishing Activities in the Colville River Delta Region

Seigle, John C.[1], Caitlin Forster[1], Thomas Nukapigak[2]

The Inupiat village of Nuiqsut is located at the head of the Colville River Delta on Alaska's North Slope. Home to approximately 400 residents, Nuiqsut lies less than 20 miles from the Beaufort Sea and is surrounded by the Arctic Coastal Plain, which is rich in natural resources. The village is also adjacent to significant modern oil and gas infrastructure. While many residents benefit from the conveniences of some aspects of nearby development (e.g., road connectivity to interior Alaska), they also maintain a traditional subsistence lifestyle. Subsistence fishing, both for resident and anadromous species, is central to the community's culture and diet and is practiced year-round on rivers, streams, and lakes. Summer fishing may be a targeted effort or opportunistic where fishing is combined with other subsistence activities like hunting or berry picking. During summer, fishers typically deploy large-mesh gill-nets or hook-and-line techniques to catch salmonids (e.g., Pacific salmon or whitefish). During fall freeze-up in October and November, they set gill nets under the ice in the Niġliq Channel to harvest overwintering Arctic Cisco. During winter, fishers target Burbot and Arctic Grayling under the ice using jigging methods. ABR, Inc.'s Environmental Research and Services has been studying fish in Nuiqsut for nearly two decades. This poster summarizes subsistence harvest observations made in collaboration with local fishing experts.

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Habitats occupied by Chinook salmon in the Gulf of Alaska and in the U.S. Navy's Temporary Maritime Activities Area, and Western Maneuver Area

Michael B. Courtney[1], **Seitz, Andrew C.[1]**

The U.S. Navy conducts training exercises in the Gulf of Alaska (GOA) Temporary Maritime Activities Area (TMAA), and Western Maneuver Area (WMA). The Navy is interested in understanding the overlap of occurrence between populations of Chinook salmon and these training activities. To provide insights into Chinook salmon ocean ecology while occupying waters of the North Pacific Ocean, including overlap with the TMAA and WMA, over the last decade we have deployed pop-up satellite archival tags (PSATs) on Chinook salmon (n = 183). In continuation of our research objectives, in August of 2024, 16 additional Chinook salmon were tagged near Sand Point, AK and 24 more PSATs are planned to be deployed near Craig, AK in March of 2025. On this poster, we provide preliminary results on horizontal distribution, diving behaviors, and habitat occupancy of tagged Chinook salmon from all tag deployments. This information is valuable for a variety of management/research applications and may be used to provide insights into important management issues in the North Pacific Ocean, including overlap between Chinook salmon and Navy training exercises in the GOA.

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Four Decades of Water Quality Monitoring and Fertilization at Redoubt Lake, AK

Serio, Joe M.[1]

Redoubt Lake, near Sitka, Alaska, is one of North America's largest meromictic lakes and a vital nursery for Sockeye Salmon (*Oncorhynchus nerka*). Historically significant to the Tlingit people, Redoubt Lake's salmon populations faced severe declines due to decades of overharvesting, beginning in the mid-1800s by Russian colonists and later by unregulated commercial fishing during the mid-20th century, leading to significant reductions by the early 1980s. Initiated in 1980, the Redoubt Lake Sockeye Monitoring and Enhancement Project, in collaboration with NSRAA, ADF&G (FRED), and the USFS, has been pivotal in reversing these declines through sustainable harvest regulations and lake fertilization. The application of artificial fertilizers from 1984 to 2023, along with comprehensive water quality monitoring, revealed relationships between nutrient dynamics, zooplankton densities, and Sockeye escapement intensity. In 2013, a landslide altered nutrient transport from the lake's primary inlet stream and spawning grounds. This created a new inlet lake, which is not meromictic, upstream of the landslide. Which also may have led to the rare cyanobacteria bloom observed for a few years starting in 2014. Project findings show relationships between unfiltered total nitrogen (UTN), phosphorus (UTP), zooplankton densities, fertilization, and escapement intensity, alongside shifts in sockeye age structure, indicating improved lake productivity. In 2024, approximately 220,000 Sockeye Salmon returned to Redoubt Lake, underscoring the success of enhancement efforts. Despite the cessation of fertilization in 2024, continued monitoring provided one of the few unfertilized datasets in over 40 years. This long-term data offers valuable insights into nutrient dynamics and Sockeye populations, highlighting the importance of ongoing monitoring and adaptive management for sustainable fisheries. With average annual returns of around 75,000 Sockeye in the last decade, Redoubt Lake has become the most reliable source of subsistence-caught Sockeye for surrounding communities.

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Evaluating fish interactions with hydrokinetic energy devices in large glacial rivers

Strohm, Deanna D.[1], Andy C Seitz[1], Stephanie Fisher[2], Leo Azizi[2], Cameron Walker[1], Brock Peterson[1]

Remote Alaskan villages rely heavily on expensive diesel fuel generators for energy, which present financial challenges for local residents. As a potential solution, the Alaska Center for Energy and Power in conjunction with the Pacific Marine Energy Center and the College of Fisheries and Ocean Sciences is conducting research focused on generating hydrokinetic energy from large glacial rivers to reduce diesel-generated energy costs. However, this technology is still in development, and field studies evaluating the impacts of these devices on local fish populations remain limited. Understanding the local fish community structure, phenology, and habitat use is important for evaluating potential fish interactions with hydrokinetic devices and associated ecological risks. Our research focuses on developing and implementing methodologies to quantify the distribution, migration timing, avoidance behavior, and habitat use of Pacific salmon and other native species within the Tanana River, near Nenana, AK. Our specific objectives include: 1) characterize the fish community and quantify depth, lateral distribution, and out-migration timing; 2) evaluate fish avoidance behavior in response to deterrent devices; and 3) document which fish species pass through the turbine and infer interactions. During the 2025 field season we will deploy fyke nets along river margins and use a newly developed deep-water truss trawl to determine the distribution of out-migrating fishes throughout the mid-channel habitat. To assess avoidance behavior, we will test deterrent techniques, including acoustic stimuli, during smolt out-migration. During turbine testing, we will use the incline plane trap or deep-water truss trawl to capture fish downstream of the turbine to infer outcomes of interactions with the device. The findings from this study will inform predictive models assessing collision risks and ecological impacts on the local fish community. Additionally, these results will provide guidance on the ecologically responsible development and deployment of renewable energy technologies in Alaska's river systems.

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Deep Water Truss Trawl for Sampling Large Glacial Rivers

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The expansion of hydrokinetic energy in Alaska's large glacial rivers requires a comprehensive understanding of fish distribution and behavior to understand fish interactions with energy devices, particularly for salmonids whose fisheries have been restricted in many interior Alaska rivers in recent years due to low abundance. Hydrokinetic turbines work by allowing water to flow over or through blades or runners, causing them to spin, which alters water flow and creates strong currents. Fishes may interact with the turbines by encountering, avoiding, passing through, and/or colliding with the blades, potentially resulting in injury or death. Monitoring fish interactions with hydrokinetic devices will help agencies and local communities assess the trade-offs of clean energy while developing mitigation strategies to reduce energy production's potential impact on fishes. Traditional monitoring methods are often challenging in these swift, deep, and turbid waters. This research introduces the "Deep-Water Truss Trawl", a novel sampling tool designed for use at variable depths in the middle of large glacial rivers like the Tanana River. Our research focuses particularly on Pacific salmon smolts, examining their ability to navigate disturbances caused by hydrokinetic turbines. By comparing CPUE (Catch Per Unit Effort) of the trawl during three sampling scenarios, including when a turbine is absent, when it is in the water and spinning, and when experimental deterrent devices are in use, we seek to infer the outcomes of fish interactions with hydrokinetic turbines and deterrents such as bubble curtains and acoustic stimuli. The Deep-Water Truss Trawl represents a significant advancement in fishery research, enhancing our ability to study aquatic ecosystems in high-flow environments and ensuring that renewable energy development aligns with conservation priorities. Findings from this study will inform predictive models for fish-turbine encounters and support mitigation strategies to protect fish populations.

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Pervasive Evasive Invasives: How NOAA Fisheries Handles the European Green Crab and Other Unwelcome Aquatic Species

Weaver, Evelyn R.[1]

During my summer internship, I aimed to understand how the Endangered Species Act (ESA) addresses the negative impacts of aquatic invasive species on ESA-listed species and their critical habitat. Using the spread of the European green crab (*Carcinus maenas*) in Washington state as a case study, I researched the regulatory mechanism under the ESA that addresses invasive species removal. European green crab (EGC) are detrimental to eelgrass habitat, a critical habitat for juvenile Pacific salmon (*Oncorhynchus* spp). EGC also prey on juvenile salmon and a variety of other prey, altering the food web. In 2022, the Governor of Washington State issued an emergency proclamation addressing the exponential increase in EGC populations and directed WDFW to implement emergency measures to prevent EGC establishment and expansion. However, these emergency measures can cause “take” of ESA-listed species, triggering a need for ESA consultation. Through my research, I learned that limiting the spread of EGC, though very important, requires NOAA Fisheries to issue a Section 10(a)(1)(A) enhancement permit to WDFW for their EGC trapping efforts. I also learned that issuing a Section 10(a)(1)A) permit triggers Section 7 of the ESA because NOAA Fisheries is required to analyze the effects of the actionâ€“the action being issuing a permit authorizing take. When aquatic invasive species removal programs cause take, NOAA Fisheries reviews the programs’ effects to ensure that they are conducive to enhancing listed species survival and conserving critical habitat.

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Invasive Species Awareness and Education Sculpture Project

Weaver, Evelyn R.[1]

Despite invasive species being ecologically detrimental, people generally only notice them after they have taken over an area. At that point, invasive species are nearly impossible to get rid of; efforts against them are far more expensive and less effective. The best approach to invasives, then, is a preemptive one. I will work against present invasive species-related biodiversity loss and prevent more by increasing awareness with ceramic sculptures. My pieces will be displayed with critical information, including the negative impacts and identifying characteristics of invasive species, protocol for combating them, and present distribution. This interdisciplinary project exists at the intersection of environmental studies and art.

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NOAA Fisheries - Sustainable Fisheries Division Perspectives: Evaluating Successful Fisheries Management of Alaska

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Federal fisheries management has many complex, layered components to advance ecosystem sustainability, socioeconomic health, and equitable resource distribution while upholding the standards and guidance set forth in federal policy, including the Magnuson-Stevens Fishery Management Act. The Alaskan federal fisheries are often regarded as a model for effective, large-scale fisheries management nationally and globally. NOAA Fisheries' Alaska Regional Office (AKRO) manages fisheries covering over 1.5 million square miles and generating over $5 billion and 100,000 jobs each year. While this knowledge is widely known in the fishing industry, the public often find it difficult to understand the mechanisms and programs that support this industrial and commercial achievement. This review serves as a systematic assessment of AKRO's engagement in fisheries management, highlighting a range of successful programs. It aims to articulate the essential factors for developing and managing a well constructed fishery program. Additionally, this review seeks to provide an account of the aspirations and objectives of NOAA AKRO regarding sustainable fisheries, thereby offering a reference framework for other fisheries managers.

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A Statistical Catch-At-Age (SCA) Model for Estimating Management Reference Points for Chinook Salmon under the Pacific Salmon Treaty (PST)

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In the Northeastern Pacific, Chinook Salmon are a highly migratory species harvested in an array of mixed-stock fisheries, often in states or countries far from their river of origin. From Oregon to Southeast Alaska, harvests are managed under the auspices of the PST between Canada and the U.S. Groups of fisheries may have a mixed-stock quota (AABM fisheries), or stock-specific maximum exploitation rates (ISBM fisheries). The current assessment of fishery's performances is based on a deterministic modeling approach developed in the 1980s. It is a multi-step labor-intensive process that lacks estimates of uncertainty. Using techniques from the current century, we've reformulated the assessment process into a single-step SCA model that produces uncertainty estimates and is flexible enough to incorporate new data types (i.e., genetic samples). To compare the performance of these two assessment approaches, we've developed a simulation model that will approximate the stocks and fisheries of the PST, so that we can compare the estimates of reference points output by each model to the "truth".

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Session: Bright Scales, Bright Futures | Format: Long

Genetic Population Structure of Pacific Herring in the Eastern Bering Sea

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Pacific Herring (*Clupea pallasii*) is a vital forage fish species that is critical to the ecology, economy, and culture of Alaska. Despite its importance, aspects of its genetic population structure remain poorly known. Prior genomic analyses in the Pacific northwest revealed that population structure was driven by spawn timing and location; yet, no comparable characterization is available for Bering Sea aggregations. To answer questions about the population structure of this species across the eastern Bering Sea, we sequenced 180 individuals from seven spawning aggregations and two additional locations using low coverage whole genome sequencing (lcWGS) targeting 4X coverage. Using genotype likelihoods, we identified ~3 million single nucleotide polymorphisms and will characterize genomic differentiation within and among populations to highlight patterns of population structure. An initial principal component analysis indicates that northernmost samples from Kotzebue may be distinct from other Bering Sea populations. Within populations south, differentiation may not be driven by geographic location, but instead may be caused by neutral structural variants in the Pacific herring genome. This study is the first genomic-scale assessment of variation among Pacific herring spawning aggregations in the eastern Bering Sea, and the genomic baseline we establish will provide a genetic tool for monitoring herring populations in Alaska. Future work will build from this baseline to evaluate mixed stocks of Pacific herring in the Bering Sea, particularly those caught from Herring Savings Areas.

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Session: Bright Scales, Bright Futures | Format: Long

Salmon from Soil: Chickaloon Native Village Salmon Research

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Chickaloon Village Traditional Council employs fisheries staff to help protect, enhance, and restore culturally important salmon populations. In this presentation, we describe two ongoing research projects on salmon and habitat. Much of our work is focused at Tsidek'etna "Grandmothers' Stream", known presently as Moose Creek (near Palmer). The habitat quality of Tsidek'etna was severely degraded by coal mining and railway development in the early 1900s. We collected soil cores from biologically and culturally relevant sites along Tsidek'etna to better understand past salmon populations. To understand past diversity, we are analyzing soil for sedDNA (sedimentary DNA) using primer for *Oncorhynchus* species. To understand past abundance, we are quantifying marine derived nitrogen (δ15N) at different depths. In a separate soil-related work, we are using the Stream Quantification Tool to assess the physical, chemical, and biological quality of Tsidek'etna. This tool is a spreadsheet that calculates changes in streams from impacts or restoration. To assess Tsidek'etna, we selected three ~¼ mile sub-reaches that collectively represent the entire creek. We measured parameters including (but not limited to) percent streambank erosion, large woody debris frequency, and percent riparian vegetation cover. The results of the SQT provide a snapshot of the current state of the stream and guide future restoration activity.

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Session: Bridging Gaps to Restore and Sustain Fish Habitat in Alaska | Format: Long

The Slimiest Catch: the Biology and Management of Black Hagfish in Southeastern Alaska

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The deep channels in and around Clarence Strait in southern southeastern Alaska are home to Pacific and black hagfishes (*Eptatretus stoutii* & *E. deani*). While Pacific hagfishes are uncommon in the region, the black hagfish population is sizable enough to be both a nuisance to finfish fisheries and to support a small commercial fishery. Hagfish caught in Alaska are exported to Asia and used for food as well as for their skins which can be processed into a valuable leather. In 2016 and 2017 the Alaska Department of Fish and Game conducted surveys in the regions where hagfish were either known to occur or areas containing suitable habitat. A subsample of the captured black hagfish were retained and later measured, weighed, and then dissected to determine sex and maturity. Using prior studies on other hagfish species as a starting point we developed a maturity scale for male and female hagfishes. Relevant aspects of these data such as mean lengths, size-at-maturity, and sex ratios were then compared to black hagfish from other studies in California, Oregon, and British Columbia.

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Session: Collaboration and Innovation in Shellfish/Groundfish R&M | Format: Long

Invasive European Green Crab (*Carcinus maenas*) Mitigation in Southeast Alaska

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One highly disruptive invasive species, European Green Crab (EGC), has recently been found in coastal ecosystems in Southeast Alaska. This invasive organism has a high possibility of causing extensive ecological damage, impacting both Alaskan cultures and the economy. EGC life stages and history play an important role in colonizing new habits. EGCs have a wide range of tolerance to temperature and salinity. However, their habitable range is shifting north due to climate change. Combining this with EGC eating habits, this leads to the invasions of new habitats worldwide. EGC's native range spans from Norway to northern Africa. Now, EGC has spread to every continent except Antarctica. The rapid spread of EGC stresses the importance of early detection and mitigation. Human introduction is a huge risk, as EGC can travel on or in various things, such as ballast water. EGC can be detected using eDNA samples and periodic trapping. Adjusting and removing significant exemptions from existing management programs in Alaska could aid in slowing the spread of EGC. Places with established populations are looking to start EGC fisheries. Long-term mitigation and potential eradication can be achieved through modification of gene drives and suppression of gene drives, which use CRISPR to change the most aggressive factors of EGC or cause sterility. With the presence of EGC in Southeast Alaskan coastal waters, both short-term and long-term mitigation strategies are vital to protect these ecosystems.

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Session: Pervasive Evasive Invasives and Interdisciplinarity | Format: Long

Our Seafood, Our Reference - Developing a Baseline for Hydrocarbon Concentrations in Alaskan Coastal Subsistence Foods

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Spanning 6,640 miles along the coast of Alaska, 159 communities harvest hundreds of pounds of fish, shellfish, birds, marine mammals, and marine plants for consumption each year. Meanwhile, the threat of oil spills from shipping, tanker traffic, fishing, tourism, and industrial activities looms over these same subsistence harvest areas. Community members and harvesters express concern over potential hydrocarbon contamination from marine oil spills, both historical and anticipated. In response to these community concerns, this study aims to gather existing baseline data on hydrocarbon concentrations in marine subsistence food sources and create a comprehensive analytical toolkit for addressing data gaps. A systematic review will compile available hydrocarbon data using published and grey literature and interviews with local experts from all coastal regions of Alaska. Preliminary data indicates a lack of studies addressing hydrocarbons in marine subsistence foods, with disparate chemical data points for fish, birds, and marine mammals. Most existing data was collected in the wake of the 1989 Exxon Valdez oil spill and, to a lesser extent, the 2004 Selendang AYU freighter spill. Intertidal blue mussels yield some of the substantial datasets from Southcentral and Southeast Alaska. Numerous pre-development baseline studies around the state, industry-funded research in the Chukchi Sea, and local government-funded studies on the North Slope are noted. Establishing a baseline understanding of hydrocarbon contamination is complicated by different quantification methodologies, poor data quality, and varying study designs. Understanding and communicating the contamination risks posed by marine oil spills is vital for food safety, security, and healthy Coastal Alaskan communities.

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Session: Bright Scales, Bright Futures | Format: Short

Body Size Patterns in Two Distinct Sockeye Salmon Stocks Outmigrating from a Shared Freshwater Ecosystem

Chandler[1], Scott D., Curry J. Cunningham[1], Heather Finkle[2], Peter A. H. Westley[1]

Many processes that drive survival of fishes (i.e., predation, competition, environmental) in early life stages are body size dependent, making growth vitally important for young individuals. Contemporary changes of ecosystems have the potential to fundamentally alter population dynamics by altering the growth of individuals through changes in body size at critical life stages. In the Chignik watershed of Alaska, it is hypothesized that two sockeye salmon stocks that historically reared in separate lakes have increasingly utilized one lake within the system, altering growing dynamics in a manner to contribute to low returns of adults in 2018 and a federal fishery disaster. To investigate this hypothesis, we present a retrospective analysis of body size-at-age data (length and mass-at-length) collected during annual smolt outmigrations from 1994-2016. Linear mixed-effect suggest that length-at-age for two age classes, and body condition for all age classes, declined after the mid-2000s and support the hypothesis that growing conditions changed in this system from 1994-2016. Additionally, length-at-age and body condition patterns differed among the system's two stocks, suggesting these two stocks differentially experienced changes in rearing conditions prior to the disaster producing outmigrations of 2015 and 2016. We discuss potential drivers of these body size changes and future plans to test how body size may affect survival in this population.

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Session: Bright Scales, Bright Futures | Format: Long

Sampling approach in design of microbiome research

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Studying the microbial community of the environment and different tissues is an important and emerging field in fish health research. Not only can this community contain harmful microbiota (pathogens), microbial communities of organs such as gills and the digestive tract have been linked to a number of important host functions. These include nitrogen cycling, digestion, and immunological defense. Many researchers are also interested in consequences to the microbiome following exposure to environmental stressors, and how these changes impact fish health. It is critical therefore that research in this field be as rigorous as possible, informed by study of the factors that can negatively influence project success or bias results. To aid in this advancement of the field we present the results of comparison between different approaches to microbiome research. These include data that illustrate how sampling technique and sampling regimes influence findings. Results include findings of significantly different community structure from gill tissue when sampling approach is altered, as well as how unmeasured host variables can bias study outputs. We will discuss the relevance of these findings in the context of microbiome research, including the importance to careful study design particularly when working with wild fish stocks.

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Session: Look What You Made Me Do | Format: Long

Advancing Yelloweye Rockfish Management in Southeast Alaska: Innovations in Habitat Delineation Through Collaboration and Technology

Coleman[1], Laura S.

Yelloweye rockfish are a highly valued species in Southeast Alaska, supporting commercial, recreational, and subsistence fisheries. In the Southeast Outside Subdistrict, management authority is delegated to the State of Alaska under the Federal Fishery Management Plan for Gulf of Alaska groundfish. Effective management of yelloweye rockfish is particularly challenging due to their unique life history traits - slow-growing, long-living, late-maturing, and high site fidelity - which make them vulnerable to overexploitation. Additionally, they are highly susceptible to barotrauma, necessitating the use of nonlethal survey methods. To address these challenges, the Alaska Department of Fish and Game (ADF&G) has developed and refined a visual survey approach using a manned submersible and a remotely operated vehicle to conduct line-transect surveys in rocky habitats. A critical component of this methodology is the delineated yelloweye rockfish habitat (DYRH), which serves as the foundation for biomass estimation and management target setting. Historically, the DYRH was identified using hand-drawn polygons on NOAA nautical charts, relying on National Ocean Service (NOS) habitat data and commercial fishery logbooks. However, technological advancements and interdisciplinary collaboration with geologists and GIS specialists have led to a more precise, GIS-based approach that integrates high-resolution sonar data, improved commercial logbook records, and NOS habitat data. These innovations have enhanced the accuracy of yelloweye rockfish habitat delineation, improving stock assessment reliability and management decision-making. However, continued refinement is necessary to further optimize DYRH mapping and ensure the long-term sustainability of this valuable fishery. This work highlights the power of collaboration and technological innovation in advancing groundfish research and management in Alaska's dynamic marine ecosystems.

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Session: Collaboration and Innovation in Shellfish/Groundfish R&M | Format: Long

From Boom to Bust: Examining the Collapse of Eastern Bering Sea Snow crab During a Marine Heatwave

Comeau[1], Sam, Franz Mueter[1]

Eastern Bering Sea (EBS) Snow crab (*Chionoecetes opilio*) support one of the most valuable fisheries in Alaska and the United States, worth ~220 million in 2021. Despite record abundance of snow crab occurring in 2018, the stock rapidly and unexpectedly declined to historical lows in 2021, resulting in the first ever closure of the fishery. Currently, our understanding of factors that triggered this collapse is underdeveloped. Recent studies have suggested that abnormally warm ocean conditions in the EBS (which experienced a marine heatwave during and immediately preceding the collapse) coupled with increased density drove a mass mortality event. This contrasts with past studies, which linked increased bottom temperatures, climate mediated predation (primarily by Pacific Cod, *Gadus macrocephalus*), and changes in mature female biomass as the drivers of snow crab abundance and distribution in the EBS. Ultimately, the goal of this study was to reconcile the relationship between climate change, predation, mature female biomass, and snow crab populations in the EBS historically and within the context of the recent collapse. To accomplish this, we utilized the NOAA EBS bottom trawl survey data to build spatiotemporal species distribution models (SDMs). SDMs were implemented using sdmTMB, which provided a flexible framework to assess how these factors have influenced snow crab in the EBS across various sex and size classes. Results suggest that colder temperatures resulted in greater immature female biomass, particularly at southern ends of the EBS shelf. Additionally, findings indicated that Pacific cod biomass negatively impacted juvenile snow crab biomass at the southern end of the shelf. Ultimately, developing a better mechanistic understanding of this collapse will be critical in the management of this important fishery, and may inform our understanding of how other fisheries may be impacted by a rapidly shifting climate.

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Session: Collaboration and Innovation in Shellfish/Groundfish R&M | Format: Long

Evaluating the Second-Generation Effects of Hatchery Supplementation in Auke Lake Sockeye Salmon

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Salmon hatcheries are widespread across the Pacific Rim, providing benefits such as economic gains and increased subsistence and recreational fishing opportunities. However, they are controversial due to risks posed towards wild fish populations, including genetic and phenotypic differences that can cause both inbreeding and outbreeding depression in wild populations. In order to better understand and mitigate the potential risks to wild populations, researchers conducted experimental hatchery supplementation of sockeye salmon in the Auke Lake Watershed in Juneau, Alaska, from 2011 to 2013, through a collaboration between NOAA Fisheries, UAF, and ADFG. Hatchery productivity was high in the first generation, but concerns remain for relative reproductive success in the second generation, where hatchery-origin fish spawn naturally. Additionally, differences in age were observed between offspring of hatchery and wild fish in the first generation, which may influence overall population dynamics. We analyzed the second-generation impacts of this supplementation on the natural population by utilizing a genetic pedigree to explore two objectives. Our first objective was to assess the relative reproductive success of hatchery-origin, wild-origin, and mixed-origin (hatchery-wild) fish in the second generation and the second objective compares the ages of offspring across these groups. Preliminary results show minimal variation in reproductive success and age among the groups, which is encouraging, but concerns about potential impacts on effective population size and genetic diversity in the wild population persist. Results from this study may help inform supplementation programs, including the Transboundary Sockeye Salmon program, and especially short-term efforts designed to provide demographic boosts.

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Session: Bright Scales, Bright Futures | Format: Long

Leveraging Fishery-dependent Data to Quantify the Potential Efficacy of Spatial Conservation Measures for Eastern Bering Sea Pacific Herring

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Recent concern about the incidental catch of Pacific herring (*Clupea pallasii*) in Eastern Bering Sea (EBS) trawl fisheries has fostered expanded interest in quantifying the spatial distribution of herring and how it varies at seasonal and interannual time scales. Improved understanding of the spatiotemporal distribution of EBS herring and the environmental processes associated with herring occurrence have the potential to inform interannual variation in the degree of bycatch risk. At the same time there exists a need to evaluate the potential efficacy of current spatial management measures based on more recent and comprehensive descriptions of herring distribution, including the Summer and Winter Herring Savings Areas, which may be closed to specific gear types based on realized herring bycatch within a given season. However, fishery-independent surveys indexing the distribution of herring are limited within the EBS region. Fishery-dependent data on herring occurrence as bycatch in EBS trawl fisheries provides insights into the distribution of herring in space and time. Here I describe application of spatiotemporal statistical methods to advance our understanding of Pacific herring spatial ecology in the EBS region, and the potential overlap with, and utility of, existing conservation areas.

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Session: Bright Scales, Bright Future | Format: Long

Can Eastern Bering Sea Surface Trawl Survey Data Improve Preseason Forecasts for Bristol Bay Sockeye Salmon Abundance?

Cunningham[1], Curry J., Andrew Dimond[2]

Preseason forecasts for the abundance of sockeye salmon returning to the Bristol Bay region of southwest Alaska inform preseason planning by harvesters, fishery managers, and the processing industry. Current preseason forecast methods for Bristol Bay sockeye salmon primarily rely on the abundance of adult sockeye that experienced similar survival conditions at marine entry but returned in prior years, and regional oceanographic covariates. However, surface trawl surveys are conducted in the eastern and northern Bering Sea by the NOAA Alaska Fisheries Science Center and Alaska Department of Fish and Game, which index juvenile sockeye salmon during the year of ocean entry. Here I describe the development of a Bering Sea juvenile sockeye salmon index of juvenile abundance, including application of spatiotemporal models to address spatial heterogeneity in sampling among years, and its reliability as a preseason predictor of return abundance to the river systems of Bristol Bay.

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Session: Sensational Salmonids | Format: Long

Estimation of Length-At-First Maturity for Female Pacific Sleeper Shark in the North Pacific Ocean

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Sustainable fisheries management is best achieved when supported by reliable scientific information, yet in Alaska many stocks lack basic biological data. Life history information is particularly important yet missing for some species that may be of low commercial value or are difficult to sample, yet these species still require management attention. In Alaska, elasmobranchs often fall into this situation, which creates challenges for improving stock assessment methods informing management. Pacific sleeper shark (*Somniosus pacificus*) is a prime example of an understudied species with poorly defined maturity. Here we provide a preliminary estimate for length-at-first maturity for female Pacific sleeper shark by conducting a meta-analysis of the length-at-first maturity in relation to the maximum total length and sex for the 55 known shark species in the North Pacific Ocean. Frequentist analysis demonstrated that the maturity ratio of length-at-first maturity over maximum total length is highly conserved within this group, being 0.67 for females (± .029, 95% confidence interval). Our Bayesian multiple linear regression model revealed that female Pacific sleeper sharks reach first-maturity at 422 cm (± 95 cm, 95% credible interval; CI) when assuming a maximum length of 700 cm for Pacific sleeper shark based on estimates from video footage. The 95% CI encompasses an observation of a potentially mature individual in Alaska and the one published estimated length-at-first maturity for the species. This study provides the first modern estimate of length-at-first maturity for this species and provides a key life history parameter that will support stock assessment methods and inform future management.

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Session: Collaboration and Innovation in Shellfish/Groundfish R&M | Format: Long

Climate change impacts on juvenile sockeye salmon and stickleback in Iliamna Lake, AK

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Iliamna Lake, the largest lake in the Bristol Bay watershed and in Alaska, has experienced increases in surface temperature over time, influencing winter lake ice coverage. These environmental changes may affect the growth, survival, and life history of juvenile sockeye salmon (*Oncorhynchus nerka*). As temperatures increase, winter lake ice coverage has been impacted, with lakes thawing earlier and in some years not achieving a full freeze. These changes have impacted the length of the summer growing season for juvenile sockeye salmon and other species inhabiting lake habitats. At the same time, threespine stickleback (*Gasterosteus aculeatus*), a potential competitor with juvenile sockeye salmon for zooplankton prey within freshwater lake systems, are abundant and can adapt their life history to warmer climate regimes. Considering these traits, the potential for interspecific competition between these two species may increase under a warming climate. We propose to explore responses by juvenile sockeye salmon and threespine stickleback to a warming climate by first examining whether growth in these species exhibit coherence among years, utilizing long-term surface trawl data collected in Iliamna Lake, Bristol Bay, Alaska. We will then utilize spring lake ice breakup timing, temperature, and wind speed data to quantify the influence of freshwater climate change on the condition and relative abundance of juvenile sockeye salmon. Examination of stickleback and juvenile sockeye changes in response to warming conditions is a crucial first step in understanding how these two species may respond to future changing climate.

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Session: Sensational Salmonids | Format: Long

Fourhorn Sculpin Diet Composition and Mercury Bioaccumulation from Prudhoe Bay, Alaska

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The Arctic is warming at an accelerated rate, altering food web dynamics and potentially exposure to contaminants such as mercury (Hg). Fourhorn Sculpin *Myoxocephalus quadricornis*, a dominant nearshore fish species in Prudhoe Bay, Alaska, may serve as an indicator of these environmental changes. This circumpolar species plays an important role in nearshore aquatic food webs as both predator and prey, with increased consumption by higher trophic species occurring when preferred prey is low. As a predator, sculpins offer valuable insights into Arctic food webs due to their ability to exploit both benthic and pelagic resources, with their diet found to be driven by prey availability instead of individual feeding strategy. The diet compositions and trophic positions of Fourhorn Sculpin were analyzed using stable isotope analysis ($\delta^{13}C$ and $\delta^{15}N$ values) and Bayesian mixing models. The relationship between total Hg concentrations ([THg]; ng/g or ppb wet weight) and fish length, sex, site, $\delta^{13}C$ and $\delta^{15}N$ values were also investigated. Among 218 Fourhorn Sculpin, $\delta^{13}C$ values ranged from -22.1‰ to -20.3‰, and $\delta^{15}N$ values from 9.7‰ to 17.1‰, reflecting trophic variability. The [THg] spanned 2-276 ppb with a mean of 56 ppb (SD ± 52 ppb) and increased with fish length, age, $\delta^{13}C$ and $\delta^{15}N$ values. Males exhibited higher [THg] than females at similar lengths, suggesting differences in diet or growth rates. When controlling for age, sex was not a significant predictor of [THg], supporting differing growth rates between the sexes. Bayesian mixing models further indicated diet variation by sex and size class. Fourhorn Sculpin exhibited higher [THg] than other fish species in Prudhoe Bay, with Hg accumulation increasing with fish length, age, and trophic position, indicating that their feeding ecology plays a key role in contaminant exposure within the Arctic aquatic food web.

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Session: Freshwater Resident Species Research in Alaska | Format: Long

Restoring Fish Passage: A Geospatial Approach for Southeast Alaska's Private Lands

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The Southeast Alaska landscape is a productive blend of coastal wetlands, old growth forest, and glacial fjords with an abundance wildlife diversity and thousands of miles of anadromous streams. However, a legacy of logging has fragmented this landscape with hundreds of miles of roads and culverts, many of which intersect anadromous streams. While road/stream crossing structures are well documented on Federal lands and State highways, an estimated 37,000 undocumented structures exist across private and Tribally owned lands. A massive need exists for geospatial tools that can facilitate an approach to assess these road/stream crossings and prioritize restoration work. This talk will outline the U.S. Fish and Wildlife Servicesâ€™ Habitat Restoration Programâ€™s approach to address fish passage and habitat restoration needs across this data poor, dispersed island region by developing geospatial tools and supporting a local tribal workforce to benefit anadromous fishes and local communities.The Southeast Alaska landscape is a productive blend of coastal wetlands, old growth forest, and glacial fjords with an abundance wildlife diversity and thousands of miles of anadromous streams. However, a legacy of logging has fragmented this landscape with hundreds of miles of roads and culverts, many of which intersect anadromous streams. While road/stream crossing structures are well documented on Federal lands and State highways, an estimated 37,000 undocumented structures exist across private and Tribally owned lands. A massive need exists for geospatial tools that can facilitate an approach to assess these road/stream crossings and prioritize restoration work. This talk will outline the U.S. Fish and Wildlife Servicesâ€™ Habitat Restoration Programâ€™s approach to address fish passage and habitat restoration needs across this data poor, dispersed island region by developing geospatial tools and supporting a local tribal workforce to benefit anadromous fishes and local communities.

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Session: Freshwater Resident Species Research in Alaska | Format: Long

Evaluating Thermal Suitability of the Southern Arctic Ocean for Pacific Halibut

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Warming ocean conditions have resulted in rapid borealization of Arctic seas, with fish assemblages reorganizing as sub-Arctic fish species expand into new territories, such as in the Chukchi Sea in the Pacific Arctic. During the summer months, this region has seen increases in the presence and abundance of groundfishes, including Pacific cod (*Gadus macrocephalus*) and walleye pollock (*Gadus chalcogrammus*), with the possibility of Pacific halibut (*Hippoglossus stenolepis*) arriving in coming years. To assess this potential, thermal conditions occupied by Pacific halibut in the adjacent northern Bering Sea were compared to modeled bottom-water temperatures in the Chukchi Sea to determine if suitable thermal habitat is available in the region. Pacific halibut in the Bering Sea primarily occupied waters from 6.0 to 8.2°C, but were regularly found in conditions from 3.8 to 9.8°C during the summer and temperatures around 0.9°C during the winter. The availability of these conditions in the Chukchi Sea was relatively limited during a recent cold year, constrained to eastern coastal waters near Alaska with maximal availability during August and September. In contrast, suitable thermal conditions were 2.5 to 7.8 times more prevalent during a warm year, comprising a large portion of the Chukchi Sea from July to October. Findings suggest that suitable thermal conditions are currently available for Pacific halibut in the Chukchi Sea, indicating the potential for range expansion into the region. However, the current absence of the species suggests that alternative factors are currently discouraging this movement, such as prey availability or substrate type.

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Session: Collaboration & Innovation in Groundfish/Shellfish R&M | Format: Long

Assessing Stream Habitat Conditions in the AYK to Inform Future Restoration Efforts

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Pacific salmon returns, including Chinook, chum, and coho, are of enormous cultural, economic, and recreational value for Alaskan communities. In recent years, however, the number of returning salmon in the Arctic-Yukon-Kuskokwim (AYK) region have declined dramatically. Warming water temperatures, mining, and other climactic and human impacts have altered freshwater habitats throughout Alaska, with past land uses, including placer mining, disproportionately impacting headwater streams - critical habitat for juvenile salmon spawning and rearing. Understanding, conserving, and restoring these and other freshwater habitats will support efforts to increase the numbers of salmon returning to the region, but comprehensive habitat data throughout the region is currently lacking. This data gap impairs our understanding of current conditions, which limits our ability to identify restoration needs and have informed restoration targets. By expanding the Bureau of Land Managementâ€™s Assessment, Inventory, and Monitoring (AIM) program across the AYK, we will provide quantitative data on stream chemical, biological, and physical parameters to inform future restoration efforts, support adaptive management decisions, and improve the resiliency of Pacific salmon populations. Data will be used to prioritize restoration opportunities throughout the AYK and to provide key baseline data on unimpaired streams. Additionally, data from this effort will be available to stakeholders across the region through BLMâ€™s public data portal and data analysis tools.

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Session: Bridging Gaps to Restore and Sustain Fish Habitat in Alaska | Format: Long

Outmuscling Invasive Dreissenids with a Prevention Partnership

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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 been discovered in Alaska to date and a partnership has assembled to fend off these invaders. The Alaska Department of Fish and Game (ADF&G) and the US Fish and Wildlife Service (USFWS) aquatic invasive species programs and their partners are implementing an array of projects that will be highlighted in the presentation. A watercraft inspection station at the ALCAN border crossing is the first line of defense. The University of Alaska Anchorage has created a multi-function web map to display lake vulnerability and then prioritize monitoring efforts collecting water quality (Calcium concentration and pH) and/or plankton tows looking for mussel veligers as well as benthic sampling. Each lake is attributed with a suite of factors that map users can use as filters such as road access, boat launches, floatplane use, hydrologic connectivity, elodea and non-native pike presence, ADF&G stocking, and known fish species. A research team at the University of Alaska Fairbanks has developed a model to inform the web mapper with potential habitat suitability and further refine monitoring prioritization. The project team adapted an ArcGIS Survey 123 mobile application to collect standardized monitoring data that automatically populates a layer on the web map when returning from the field. 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.

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Session: Pervasive Evasive Invasives and Interdisciplinarity | Format: Long

How might previous decisions about salmon enhancement inform future seaweed mariculture cultivation: considerations across historic, biophysical, sociocultural, and management contexts

Grosskreutz[1], Karen L.

What can we learn by observing salmon enhancement and seaweed harvest within their historic contexts in the United States? Could this inform the aquatic vegetation farming sector as the mariculture industry grows in coastal Alaska? Pro-development policy has at times preceded science in the widespread use of salmon hatcheries in the United States. Concerns about preserving genetics of wild species, optimal stocking densities, allocation and regulation decisions, and evaluation of salmon enhancement each have corollaries in the developing mariculture industry. We will look at some past concerns and current conditions related to salmon enhancement from biophysical, sociocultural and management perspectives. We will attempt to apply hindsight related to salmon enhancement in search of foresight that could be applied to Alaska's mariculture industry.

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Session: Sensational Salmonids | Format: Long

Evaluating environmental DNA as a complementary technique for assessing Yukon River salmon

Harings[1], Maggie A.B., Erik Schoen[1], Brandi Kamermans[1], Kristen Reece[1], Jeffrey Falke[2], Allison Matter[3], Brian McKenna[4], Nicole Farnham[5], Scott T. Walter[6], J. Andrés López[1]

Monitoring the abundance of spawning salmon is critical for managing fisheries in the Yukon River Basin. Chum (*Oncorhynchus keta*) and Chinook Salmon (*O. tshawytscha*) populations in this watershed have declined dramatically, with annual counts reaching 92% and 81% below 30-year means in 2021 and 2022, respectively. Further complicating Yukon River salmon management is the increased frequency of high streamflow events which can render salmon counting equipment inoperable, leading to missed salmon counts throughout the run. In response, we are testing a new method to estimate salmon abundance by measuring DNA concentrations for each species in river water. During 2021 and 2022, we collaborated with agency and Tribal personnel to collect daily environmental DNA (eDNA) samples from five salmon assessment sites on key Yukon River tributaries. We are quantifying Chinook and Chum Salmon DNA concentrations using species-specific quantitative PCR assays and using these concentrations and environmental factors such as stream temperature and discharge to model daily fish passage, as measured using weirs, counting towers, and sonar installations. Using data from a gaged river, we are also testing models with stage height measurement as a proxy for river discharge because most salmon assessment projects are not co-located with gages. The long-term vision of this project is to determine how closely salmon counts modeled from eDNA concentrations match those produced using conventional salmon counting techniques. In turn, eDNA sampling initiatives could potentially bolster freshwater fisheries monitoring programs throughout Alaska amid changing environmental conditions.

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Session: Sensational Salmonids | Format: Long

From Plankton to Salmon: Connecting Primary Production to Fisheries

Hendricks[1], Sarah M., Curry J. Cunningham[1], B. Thomas Kelly[1], Hisamoto Waga[1]

The Gulf of Alaska (GOA) is shaped by the sweeping arc of Alaska's southern coastline, extending from Kodiak Island and the Alaska Peninsula in the west to the Alexander Archipelago and Glacier Bay in the east. The GOA is known to support highly productive fisheries and large populations of seabirds and marine mammals. While marine phytoplankton form a resilient foundation for the GOA food webs, recent marine heatwave events in the GOA and longer-term increases in sea surface temperature have greatly perturbed this system. It is therefore essential to understand the role that phytoplankton dynamics play in regulating the population dynamics of higher trophic order species within the GOA. Salmon are an important group of species whose population dynamics are indirectly linked to phytoplankton in the GOA, feeding on prey such as squid, crustaceans, and zooplankton, indirectly receiving the energy transferred from phytoplankton to higher trophic levels. Alaska's commercial salmon fisheries have harvested an average of 172 million salmon annually since 1990, ranging from 123 million to 221 million fish per year, providing job opportunities and a stable source of food, while also holding tremendous cultural importance to Alaska's Indigenous peoples. This research describes patterns of spatial and interannual variation in the timing, magnitude, and duration of spring phytoplankton blooms, and assesses to what extent these sources of variation in primary production can explain fluctuations in the survival of salmon populations across the GOA.

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Session: Look What You Made Me Do | Format: Short

Integrating Traditional Ecological Knowledge with Modern Science for Salmon Restoration

Henrikson[1], Cody

The Chickaloon Village Traditional Council (CVTC) integrates Traditional Ecological Knowledge (TEK) with modern scientific methodologies to restore salmon populations in the Nay'dini'aa Na'Kayax (Chickaloon region). As part of the Ahtna Athabascan Tribe, CVTC applies centuries of ecological knowledge to inform sustainable fisheries management, emphasizing salmon run timing, behavior, and habitat needs. Salmon restoration efforts in the region focus on removing fish passage barriers, restoring stream function, and rehabilitating degraded habitats in Tsidek'etna (Moose Creek) and other tributaries. CVTC's Fish Passage Program, supported by NOAA and federal agencies, replaces impassable culverts and enhances spawning and rearing habitats, improving salmon migration corridors. Long-term salmon population surveys, spanning over eight river miles, provide critical data on habitat conditions and fish health, guiding targeted restoration interventions. These efforts integrate TEK with modern scientific tools, such as sediment DNA (sedDNA) analysis, to assess historical salmon distributions and inform conservation planning. Historically, anthropogenic disturbances, including mining, logging, and infrastructure development—have severely impacted salmon habitats. CVTC's restoration initiatives address these challenges through habitat rehabilitation, environmental monitoring, and climate resilience strategies. Knowledge transmission through oral traditions, participatory learning, and the Ahtna language ensures that cultural values remain central to conservation efforts, reinforcing Indigenous stewardship of salmon populations. By combining TEK with contemporary ecological restoration strategies, CVTC provides a holistic, sustainable approach to salmon conservation, bridging Indigenous knowledge with scientific research to promote long-term ecosystem resilience.

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Session: Bridging Gaps to Restore and Sustain Fish Habitat in Alaska | Format: Short

The Effects of Heat Stress on Juvenile Chinook and Coho Salmon Growth in the Deshka River

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

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Session: Bright Scales, Bright Futures | Format: Long

Movement strategies of Arctic Grayling within a fire-impacted riverscape

Hinkle[1], Elizabeth G., Matthew J. Wooller[2], Peter A. H. Westley[1], Karen J. Spaleta[2], Jeffery A. Falke[3]

Wildfire is the dominant natural disturbance in boreal ecosystems, yet its frequency, severity, and extent are increasing with climate change. Fire in boreal ecosystems has intense, long-lasting effects on streams including shifts in thermal regimes, primary productivity, and food resources. Altered prey availability and lipid stores may drive fish to move, seek new habitat, or adopt different movement strategies. However, the effects of wildfire on fish movement remain poorly understood. Here, we examine how wildfire influences life history via movement ecology of Arctic Grayling (*Thymallus arcticus*) in the Chena River basin, interior Alaska. To reconstruct lifetime movement histories, we developed a fine-scale strontium (Sr) isoscape using otoliths from Slimy Sculpin (*Cottus cognatus*), a resident benthic fish. We then analyzed Sr isotope ratios in Arctic Grayling fin rays (n=190) and used hierarchical clustering to characterize movement patterns. We identified three movement types, with most (82%) Arctic grayling exhibiting a "stayer" strategy, indicating these individuals tended to remain in localized habitats. However, individuals from fire-impacted habitats displayed greater mobility, with 62% of "strayers" caught in burned streams, suggesting that fire-induced changes in habitat quality and prey availability may promote movement. Ongoing research aims to map individual fish movement as a function of physiology and use of habitats exposed to wildfire. Our findings highlight the ecological outcomes of changing wildfire regimes for freshwater fish, emphasizing how environmental disturbances shape movement patterns, habitat use, and life-history strategies. By linking fire-driven habitat changes to fish physiology and movement, this study provides insight into how landscape disturbances influence population dynamics and resilience. Given the increasing frequency and intensity of wildfires across boreal regions, understanding how fire-driven habitat changes create challenges and opportunities for fishes under a changing climate is critical for fisheries management and conservation planning in Alaska's aquatic ecosystems.

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Session: Resident Species Research in Alaska | Format: Long

From Barriers to Solutions: Capacity Building for Fish Passage Restoration

James[1], Andrea L.

Chickaloon Native Village is an Ahtna Dene Tribe that has stewarded the Matanuska-Susitna Valley of Southcentral Alaska for the past 10,000 years. Fish, and specifically salmon, are critically important sources of food and cultural well-being for Chickaloon Native Village and many people in Alaska. Salmon resilience is dependent upon habitat availability, quality, and connectivity. Loss of habitat connectivity, due to impassable culverts, destruction of wetland areas, and increased infrastructure have contributed to declining salmon populations in the Matanuska-Susitna Valley. Chickaloon Native Village was awarded Bipartisan Infrastructure Law (BIL) funding through the NOAA Restoration Centerâ€™s Restoring Tribal Priority Fish Passage through Barrier Removal Program to develop a Tribal Fish Passage Program. This program is working to increase Tribal capacity to implement fish passage restoration actions in the state of Alaska by providing free Tribal training opportunities in fish passage and habitat restoration. In addition to trainings, Chickaloon Native Village is hosting quarterly, virtual Alaska Tribal Fish Passage Working Group meetings that are a resource for Tribal entities in Alaska to learn about upcoming fish passage related trainings, current and future funding opportunities, and to voice questions and concerns regarding project planning or implementation. Finally, Chickaloon Native Village is implementing several culvert replacements and stream restorations in the Tribeâ€™s traditional territory. This presentation will highlight some courses provided and encourage Tribal engagement in fish habitat restoration, as well as encourage Agency and NGO collaboration with Tribal entities in Alaska.

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Session: Bridging Gaps to Restore and Sustain Fish Habitat in Alaska | Format: Short

Eco-tourism in Himalayas and Karakoram High Mountain Ranges of Pakistan Through Sustainable Recreational Fisheries in Gilgit-Baltistan: Pervasive, Evasive & Invasive European Trout

Khan[1], Muhammad Naeem

The Karakoram & Himalayan region of Gilgit-Baltistan, Pakistan, the land of highest mountain ranges in the world, natural beauty, natural resources, unique landscape, literacy, culture, heritage, peace and hospitality of the people, hosts thousands of national and international tourists and researchers every year. Gilgit-Baltistan offers diverse tourism opportunities, including eco-tourism, trout fishing, rock climbing, trekking and mountaineering, mountain climbing and adventure tourism. The glaciers in Himalayas and Karakorum Mountain ranges (Third Pole) are the third largest solid ice mass of freshwater outside the Poles and serve as the "Water Towers" for Pakistan, India and South Asia watersheds. Third Pole glaciers are one of the most important global environmental hot spots in Asia, facing climate change, global warming and melting, endangering agriculture livelihood of half of the global human population. In 1906, the European British-India colonial commonwealth administration, introduced two exotic fish species, namely, Brown trout (*Salmo trutta*) and Rainbow trout (*Oncorhynchus mykiss*) in the northern tributaries of mighty Indus River system for trout nostalgia, angling, recreational sports and aquaculture purposes. The eyed ova of the two trout species were shipped from Scottish and North American (Idaho) hatcheries without any environmental studies, and these species now dominate the freshwater streams and glacial water ecosystems of Himalayas & Karakoram. These trout have negatively impacted the native, endemic, fish species, such as the Indus River Mahseer (*Tor putitora*) and snow trout (*Schizothorax plagiostomus*). Recently, the Federal Government of Pakistan has (complicated) allocated funds to boost local tourism economy to further develop the trout fisheries to boost eco-tourism in the northern region of Pakistan. This presentation will discuss the impact of pervasive, evasive & invasive European trout and suggest innovative approaches required for the conservation of native species and controlled development of trout recreational fisheries in geostrategic Pakistani Himalayas & Karakorum, bordering with China.

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Session: Pervasive Evasive Invasives and Interdisciplinarity | Format: Long

Is smolt quality limiting sustainability of a small, genetically unique Sockeye Salmon population in the Skeena River watershed, British Columbia?

Knapper[1], Carolyn T., Mark Cleveland[2], Daniel D. Heath[3], Mark J. Shrimpton[1]

Sockeye Salmon from Gitanyow Lake in the Skeena River watershed of British Columbia are recognized as a significant conservation unit under Canada's Wild Salmon Policy. The population, an important cultural resource for the Gitanyow First Nation (GFN), has experienced drastic declines in the last two decades despite the GFN having ceased fishing decades earlier over conservation concerns. The GFN has also implemented initiatives to better understand and protect the population. As part of this work, we examined metrics of smolt quality for Gitanyow Sockeye Salmon compared to smolts migrating from Babine Lake, the largest Sockeye Salmon population in the Skeena watershed. Although, smolts from both populations migrate predominantly as 1 year olds, Gitanyow smolts were significantly larger and had higher condition factor. The smolt marker, gill Na+,K+-ATPase activity, however did not differ between the populations. We also used OpenArray (OA) transcriptional profiling chips developed as part of the Genome-Canada funded project Genomic Network for Fish Identification, Stress and Health (GEN-FISH). An osmoregulation (oSTP) chip, with 28 genes, was used for gill tissue and a Stress Transcriptional Profile (STP) OA chip, with 112 genes, was used for liver tissue. The chips targeted genes involved in osmoregulation, stress response, detoxification, endocrine disruption, apoptosis, hypoxia, circadian rhythm, growth, metabolism, and immune function. We found no difference in osmoregulatory genes between the populations for gill tissue. Significant differences in growth and metabolism-related genes, however, were observed for both gill and liver tissues. Our results indicate that smolting is not a bottleneck for Gitanyow Sockeye Salmon viability. Further analysis will examine juvenile Sockeye Salmon caught in Gitanyow Lake during the summer in response to high temperature and low dissolved oxygen. Our research will inform ongoing conservation efforts and may offer insights applicable to other small, genetically distinct Sockeye Salmon populations.

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Session: Look What You Made Me Do | Format: Long

Bridging Generations: Documenting Traditional Ecological Knowledge for Sustaining Traditional Salmon Fisheries in Nanwalek, Alaska

Lee[1], Madeline, Shania Tanape[1]

The Nanwalek Salmon Enhancement Traditional Ecological Knowledge (TEK) Project is a collaborative effort to document and preserve Indigenous knowledge surrounding salmon fisheries in the English Bay Lakes system. Led by the Chugach Regional Resources Commission (CRRC) in partnership with the Nanwalek IRA Council, Alaska Pacific University (APU), and the Center for Braiding Indigenous Knowledge and Science (CBIKS), this initiative integrates community-driven storytelling with fisheries research to strengthen youth education and cultural resilience. Over the summer, local TEK interns conducted 17 filmed interviews with Tribal members and fisheries experts, capturing intergenerational perspectives on the weir program, salmon management, and ecological change. A training session with APU and the Alaska Department of Fish and Game (ADF&G) ensured culturally appropriate methodologies and ethical research practices. Interviews were transcribed for use in educational materials, including a documentary film and curriculum for the Nanwalek school. By incorporating Traditional Ecological Knowledge into fisheries education, this project fosters deeper community engagement in conservation efforts and empowers youth to take an active role in sustaining their traditional way of life. This presentation will explore key themes from the interviews, the role of TEK in fisheries management, and strategies for integrating Indigenous knowledge into educational tools. The project underscores the critical role of community-led documentation in shaping effective fisheries policy while ensuring that cultural heritage is passed on to future generations.

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Session: Bright Scales, Bright Future | Format: Long

Genomic insights on the species boundary between Arctic and Bering cisco

Brown[1], Randy, Matthew Cambell[2], Kevin Fraley[3], Martin Robards[3], **J. Andrés López[1]**

Arctic and Bering cisco are closely related coregonines with partially overlapping geographic ranges along the Arctic coast of Alaska. No shared spawning sites are known for these two taxa. Few anatomical traits reliably distinguish the two species with the exception of the number of gill rakers on the lower limb of the first gill arch. Early genetic studies of the Arctic / Bering cisco species boundary showed a low, but seemingly diagnostic, level of differentiation in segments of the mitochondrial genome. We turned to low coverage Whole Genome Sequencing to add precision to our knowledge of the relationship and degree of separation between these species. We uncover evidence of hybridization between the focal species as well as between Bering cisco and other coregonine lineages. This first analysis of genome-wide diversity among Alaskan whitefishes and ciscos suggests species boundaries are porous, which may prove an important factor shaping past and future dynamics of adaptation and speciation in the group.

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Session: Resident Species Research in Alaska | Format: Long

Juvenile Salmonid Movement and Growth in a Proglacial Habitat Mosaic

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River networks provide diverse growth and foraging opportunities to mobile consumers. Neighboring glacier-, snow-, and rain-fed streams in proglacial watersheds provide starkly contrasting habitats due to physicochemical differences, giving rise to distinct food webs and resource phenologies. The interplay between seasonal differences in temperature and food availability across stream types yields a shifting landscape of growth opportunities that fish can track by moving between interconnected streams. Fish movement can take place over large spatiotemporal scales during migratory periods and between seasonal refugia, or over small scales when performing daily feeding forays between adjacent habitats. While movement patterns related to behavioral thermoregulation and seasonal migration are well-established in juvenile salmonids, their direct impact on growth requires further research. Our study investigates how movement between a glacial river and two rain-dominated tributaries influences juvenile salmonid growth in a Southeast Alaskan watershed. We collected individual growth histories of PIT-tagged juvenile salmonids using mark-recapture at adjacent glacial mainstem, beaver pond, and rain-driven tributary sites, and we continuously tracked the movement of tagged individuals between the mainstem and tributaries using PIT arrays. Specific growth curves were calculated for each site, and the timing and frequency of fish movement between mainstem and tributary habitats was used to determine whether fish were tracking growth conditions across space. Fish movement patterns varied between individuals and across seasonal and daily temporal scales. We found distinct differences in seasonal growth rates between glacial rivers and rain-dominated tributaries, and mobile fish that cycled between adjacent habitats displayed distinct growth trajectories compared to stationary individuals. These results support the hypothesis that fish can benefit from tracking asynchronies in growth conditions across space and time. Describing fish growth and movement is especially important within proglacial watersheds due to the homogenizing impact of glacial melt across habitat mosaics and associated loss of habitat diversity.

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Session: Sensational Salmonids | Format: Long

Otolith Strontium Concentrations as Indicators of Life-History

Strategies in Rainbow Smelt (*Osmerus mordax*) of the Beaufort Sea

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The Arctic is undergoing rapid climate-driven environmental changes that are expected to impact the life-history strategies of anadromous fish species. Rainbow Smelt *Osmerus mordax*, a key forage fish in Arctic coastal ecosystems, exhibits diverse migratory behaviors. However, little is known about the habitat use and movement patterns of this species in the nearshore waters of the Beaufort Sea. This study aims to utilize otolith microchemistry to reconstruct Rainbow Smelt life histories by analyzing strontium (Sr) concentrations, which reflect environmental water chemistry and allow for differentiation between freshwater, brackish, and marine habitat usage. Analysis of otolith Sr concentrations revealed significant variation in migratory strategies for Rainbow Smelt, indicating high plasticity in habitat use. Three distinct migratory patterns were identified: (1) freshwater residents; (2) brackish-water residents; and (3) amphidromous individuals that migrate between freshwater and marine environments. Notably, a higher prevalence of amphidromy was observed for older individuals, suggesting ontogenetic shifts in habitat preference. Additionally, Sr concentrations varied significantly between individuals, reflecting differences in usage to marine versus freshwater environments, which may be influenced by environmental conditions, seasonal changes, or individual life-history traits. These findings confirm that Rainbow Smelt in the Beaufort Sea exhibit distinct and plastic migratory strategies, with ontogenetic shifts in habitat use that are strongly correlated with age.

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Session: Resident Species Research in Alaska | Format: Long

What's 250 microns between friends? How choice of sampling gear affects food web data

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It is a cornerstone of all scientific studies that sampling methodologies should be clearly defined, ideally in advance of the study, and should be relevant to collecting the most relevant data to test the hypothesis or research question at hand. Thus, sampling gears, such as the collection device used in obtaining the sample, are prescribed into study design, and go on to impact the quality and quantity of the sample. As conditions change however, scientists are routinely faced with a conundrum: whether continuing to collect with the same sampling gear is still warranted, or whether transitioning to a different gear is necessary. Particularly in long-term monitoring studies, advances in technology or understanding may leave a scientist with a choice to either use obsolete gear to maintain data consistency, or to update gear and face concomitant changes in data quality. In this latter case, how is a scientist to compare new data to those older data collected with a previous gear type? In this talk I will present my experience wrestling with such a dilemma, using macroinvertebrate drift samples collected as part of a long-term study in the Colorado River as a case study. I will explore how a shift in gear from a net with 250-µm mesh pore sizes to one with 500-µm mesh influences the community composition, abundance, and size distribution of aquatic macroinvertebrates collected as part of a multi-decade effort to understand the prey base available to drift feeding fishes in this river. I will also present my approach to resolving this "old vs. new" gear dilemma, to allow comparison of data throughout a continuous dataset.

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Session: Look What You Made Me Do | Format: Long

Reproductive Biology and Proximate Composition of *Lethenteron* spp. in Alaskan River Drainages

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Anadromous Arctic Lamprey *Lethenteron camtschaticum* and freshwater-resident Alaskan Brook Lamprey *L. alaskense* are paired species with differing life history strategies. Alaskan populations of lampreys remain generally understudied. To increase our understanding of Alaskan lampreys, we characterized the reproductive condition and bioenergetic cost of the life-history strategies of Arctic and Alaskan Brook Lampreys in the Yukon and Susitna River drainages by examining size at maturity, fecundity, gonadosomatic index (GSI), hepatosomatic index (HSI), and proximate composition of lampreys at various stages during their spawning migration. A sample of 180 (74 female) lamprey from Emmonak (lower Yukon River) in September 2022, 103 (43 female) lamprey from Grayling (500 km upriver in Yukon River) in December 2022, and 52 (27 female) lamprey from Susitna River tributaries from June-August 2023 were collected for laboratory analyses. For Arctic Lamprey, moisture content declined in female gonads (62.0 to 57.7%) and increased in female muscle tissue (52.0 to 56.7%) and liver tissue (60.2 to 66.9%). For somatic indices of Arctic Lamprey, HSI declined in males (1.7 to 1.6%) and females (2.5 to 2.2%), while GSI increased in males (4.1 to 5.3%) and females (6.7 to 7.9%). For somatic indices of Alaskan Brook Lamprey, HSI declined in females (1.9 to 1.7%) and increased in males (1.6 to 1.7%), while GSI increased in males (2.8 to 3.4%). With these data, we examined the seasonal shifts in proximate composition following a juvenile stage of feeding versus non-feeding in migratory and resident lamprey, respectively. The current paucity of information on Alaskan lampreys obstructs our understanding of the species but the results of this study provide critical insights into the distinction between variants at the adult stage and reference values for parameters that could be useful for more effective fishery management and population monitoring.

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Session: Resident Species Research in Alaska | Format: Long

A History of Pacific Cod Fisheries in Alaska

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Commercial Pacific cod fishing has a long history in the federal and state waters adjacent to Alaska, with specific boundaries delineating respective management authority between governments. In Alaska state waters, there are two types of fisheries that occur: parallel fisheries which are managed by the federal government (National Marine Fisheries Service (NMFS)); State of Alaska guideline harvest level (GHL) fisheries are managed by the Alaska Department of Fish and Game (ADF&G). In addition, depending on the management area, different gear types are allowed to harvest Pacific cod and there are sector splits, which divide the guideline harvest levels according to gear type; these initial gear sector splits were based on historical harvest. In the state waters of Alaska, management areas have different gear type GHL allocations and, in some areas, certain gear types are not allowed. Parallel and state fisheries have complicated regulations which are linked together, they require special attention and communication between federal and state managers to ensure smooth transitions between fisheries. Recently, a new gear type commonly called slinky pots have become popular in fisheries statewide. These slinky pots are technically groundfish coil pots, which have the advantage of being light and easy to manage as well as safer for stacking and fishing. In addition, these pots have low rates of bycatch, minimizing impacts on non-target fish and invertebrates. New regulations have been developed for the use of slinky pots, which are used most effectively for commercial purposes when longlined. Both NMFS and ADF&G have proposed regulations tailored to this emergent gear type, including requirements for tunnel size and escape mechanisms.

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Session: Collaboration & Innovation in Groundfish/Shellfish R&M | Format: Long

Commercial Dungeness Fishing on the West Coast of the USA

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The commercial Dungeness crab fishery has a long history on the West Coast of the United States, including Alaska. Many similarities exist between the fisheries in California (CA), Oregon (OR), Washington (WA), and Alaska but there are also differences. Under the Pacific States Marine Fisheries Commission Dungeness Crab Tri-state process, CA, OR, and WA (tri-states) Fish and Wildlife agencies consult on issues affecting the commercial Dungeness crab fishery along the West Coast. The common management approach on the West Coast relies on "3S management"; the S's are size, sex, and season. Size refers to having a size limit below which males cannot be harvested, this size limit allows male Dungeness crab to mate at least once before being available for harvest in the commercial fisheries. Only males are allowed to be harvested, no females, (the second "S"). And the "season" for commercial harvest of Dungeness crab avoids sensitive life history periods throughout the year, including when molting and mating is occurring. This system protects the reproductive capacity of these populations.There are differences in management tools used between the tri-states and Alaska. The tri-states have a preseason sampling program to determine the exact date in which the fisheries open. This involves testing shell hardness and meat fullness, with the goal of optimizing the value of the fisheries by harvesting hard crab full of meat. Southeast Alaska managers do not have the funding for preseason sampling. Dungeness crab harvest for the tri-states has been trending upwards but for Alaska, it has been varied. Sea otter populations, area closures to support community personal use fishing, and nearshore development projects have decreased the size of available commercial harvest areas through the years, which in turn has decreased opportunity and harvest.

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Session: Collaboration & Innovation in Groundfish/Shellfish R&M | Format: Long

Historical temperature exposures of migrating Canadian Arctic Char

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The central Canadian Arctic is characterized by extreme seasonality in temperature and food availability. Winter commonly lasts for ~10 months with fish experiencing frigid temperatures (marine: -1.8°C, freshwater: 0-2°C) and reduced food availability resulting in distinct physiological challenges. While summer is brief, water temperatures are warmer (maximum marine: ~13°C and freshwater: ~21°C), and productivity is higher. Given these temperature extremes and extended winters, fish like Arctic Char are required to persist in sub-optimal conditions to complete their life history events. The Canadian Arctic is warming at a rapid rate, and little is known about the historical water temperature regimes that Arctic Char were exposed to, or their impacts on life history. Here we use stream and air temperature data collected near Ikaluktutiak (Cambridge Bay, Nunavut) to create a statistical model to hindcast historical water temperatures back to 1950. With this information we are able to explore how common and extreme water temperatures have changed over time and how these changes may be impacting key life history events like migrations between winter freshwater habitats and summer marine feeding habitats. Next steps include building a suite of models to estimate historical lake and near-shore ocean temperatures, to explore their potential effects on juvenile growth in freshwater and adult growth in the marine environment. This work will contribute to a comprehensive understanding of historical temperature exposures, effects on Arctic Char populations, and whether behavioral mechanisms provide potential for future climate adaptations.

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Session: Freshwater Habitats: Not So Fresh and So Cleanl | Format: Long

Agents of predation on late-marine Chinook salmon depend on region and fish size

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Most Chinook salmon populations in the North Pacific have declined in abundance, and mean size- and age-at-maturity over the past two decadesâ€”including in Alaskan waters. Currently, a petition is being reviewed to list Gulf of Alaska Chinook salmon as threatened or endangered under the U.S. Endangered Species Act. Multiple factors likely drive these declines, and recent research has highlighted the potential importance of late-marine stage mortality. In this study, we leveraged a 10-year dataset from pop-up satellite archival tags attached to 183 large Chinook salmon tagged across the North Pacific to investigate causes of late-marine mortality by inferring probable predators based on temperature readings and depth profiles of ingested tags. Forty-four percent of tagged fish showed clear evidence of predation within nine months of tagging. Salmon sharks were the most common predator, followed by other sharks and large fishes, killer whales, and pinnipeds. Bayesian multinomial regression models showed significant effects of longitude and fish length on predator type, with salmon shark predation being common in the western Gulf of Alaska and Bering Sea and on smaller fish. This study demonstrates that the many agents of mortality on late-marine Chinook salmon are related to region and fish size. This information is useful for informing population dynamics models and understanding changes in Chinook salmon demographics, including size and age structure.

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Session: Sensational Salmonids | Format: Long

Using pop-up satellite archival tags to understand the oceanic ecology of steelhead kelts from Alaska

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Although steelhead (*Oncorhynchus mykiss*) is a culturally and recreational important species throughout North America, little is known about its ocean ecology. To provide insights into migratory routes and habitats occupied by steelhead in the North Pacific Ocean, we attached pop-up satellite archival tags (PSATs) to steelhead kelts from four watersheds in Southeast Alaska, including the Situk River (n = 63), Harris River (n = 5), Thorne River (n = 5), and Eagle Creek (n = 5). PSATs recorded extensive westward post-spawning migrations across the Gulf of Alaska to areas near the Alaska Peninsula and Aleutian Islands. While at sea, tagged steelhead spent the majority of their time in surface waters (<5 m) and occasionally dived to 15-20 m. During this time period, kelts experienced a thermal environment of 4-16°C from June to January. Taken together, these results suggest 1) common migratory pathways and distribution of steelhead originating throughout southeast Alaska, and 2) waters adjacent to the Aleutian Islands are an important foraging/reconditioning area for repeat spawning steelhead. While we only studied the ocean ecology of a limited number of steelhead kelts from Southeast Alaska, our results are pertinent for other populations throughout the northern west coast of North America, and provide a better understanding of this species' ocean ecology.

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Session: Look What You Made Me Do | Format: Long

Using life cycle models to understand effects of extreme streamflow and water temperature events on Yukon River basin salmon populations

Shaftel, Rebecca[1,2], Ryan Bellmore[3], Curry Cunningham[4], Erik Schoen[5], Jeff Falke[6]

Declines in salmon populations in the Yukon River basin overlap with rapid climatic changes that are altering freshwater and marine habitats critical to their survival. Extreme events, which include absolute extremes and threshold exceedances, are increasing in frequency and duration and can have acute impacts on animal populations. Extreme weather events have the potential to increase stream temperatures to the point they exceed thermal tolerances for stream fishes, cause low flows that impede migrations, and create flood flows that scour salmon redds. Life cycle modeling is a process-based approach used to identify factors that affect salmon survival. Cohort abundances are tracked through different life stages in response to environmental and biological conditions. The benefits of life cycle modeling include identifying impacts at different life stages and among populations, inclusion of carryover effects between life stages, and an increased understanding of mechanisms driving survival. Model outputs distinguish specific life stages or populations that are most sensitive to process-based drivers and can be used to improve resource management. We propose to utilize a recently developed life cycle modeling framework to examine the effects of short-duration stream temperature and streamflow events, along with other well-established drivers such as density-dependence, on salmon population survival through time. The goal of this project will be to develop model parameters that are specific to summer and fall Chum Salmon and Chinook Salmon populations in the Yukon River basin and examine scenarios of warming stream temperatures and high streamflow events on population abundances over a multi-decadal simulation. This talk will introduce several hypotheses relating extreme environmental events in freshwater to life stage-specific Yukon salmon survival. Other ideas about freshwater impacts on Yukon salmon populations are welcomed during the Q&A.

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Session: Look What You Made Me Do | Format: Short

Aging at the speed of light: Estimating daily age in juvenile Pacific cod (*Gadus macrocephalus*) using Fourier transform near-infrared spectroscopy (FT-NIRS)

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Daily age estimates from juvenile fish otoliths provide critical information about early life history dynamics. However, obtaining these data through microstructure analysis is extremely time-consuming, requiring destructive thin sectioning and subjective interpretation of microscopic growth increments. Fourier transform near-infrared spectroscopy (FT-NIRS) has emerged as a rapid, non-destructive alternative to traditional age estimation by analyzing the chemical composition of otoliths. While this technique has been validated for annual aging in several species, its application to daily aging remains limited. To expand the application of FT-NIRS daily aging, we evaluated this method in a novel species, Pacific cod (Gadus macrocephalus). This commercially important species has recently experienced significant population declines in the Gulf of Alaska. FT-NIRS could enhance management efforts by expediting collection of early life history data. We developed FT-NIRS daily age estimation models from traditional thin section ages (n = 46) with three methods: multiple linear regression (MLR) with principal components, generalized additive models (GAM) with principal components, and partial least squares regression (PLS). Using a 10-fold cross-validation, GAMs showed the highest prediction precision (R^2 = 0.72, RMSE = 10.3 days), outperforming both MLR (R^2 = 0.66, RMSE = 10.9 days) and PLS (R^2 = 0.53, RMSE = 12.6 days) approaches. These results suggest FT-NIRS could offer a rapid, non-destructive alternative to estimate daily age in Pacific cod, though further validation with larger sample sizes is required to demonstrate the reliability of this method.

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Session: Look What You Made Me Do | Format: Long

Life History Strategies of Arctic Grayling in Beaver Creek

Stuby[1], Lisa

Beaver Creek is a Wild and Scenic River that is located in the White Mountains National Recreation Area and provides excellent fishing opportunities for Arctic grayling (*Thymallus arcticus*). During 2021-2023, a radiotelemetry study on Arctic grayling was conducted with the primary objectives of describing seasonal movements and timing, and identifying spring spawning, summer feeding, and overwintering areas. A project task was to collect seasonal habitat and water quality data including temperature, dissolved oxygen, conductivity, pH, alkalinity, and flow. Overall, Arctic grayling showed a high behavioral plasticity. Overwintering fish primarily congregated in deep back eddies throughout the mainstem Beaver Creek and in the lower Nome Creek tributary. Shortly after ice out, Arctic grayling migrated to spring spawning locations, which were primarily located in back channels of the mainstem Beaver Creek and to a lesser extent in the major tributaries of Nome, Wickersham, and O'Brien Creeks. Unlike winter, during the summer months, Arctic grayling are territorial as they compete for optimal feeding areas in order to put on enough fat to survive the 7 to 8 months of winter. Approximately 50% of oversummering Arctic grayling returned to the exact locations as previous years and the remainder occupied different locations. Overwintering and oversummering fidelities were usually not as exact. Many locations within Beaver Creek were suitable for overwintering, spring spawning, and oversummering in relatively close proximity and some Arctic grayling in these locations showed little seasonal migration movements. Others exhibited seasonal migrations throughout the study area, especially those oversummering in the headwater tributaries off of the Quartz Creek trail.

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Session: Resident Species Research in Alaska | Format: Long

Understanding marine processes affecting the productivity of Yukon River chum salmon using an integrated population model.

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Climate change is rapidly transforming high-latitude marine and freshwater ecosystems, with Pacific salmon populations in the Yukon River experiencing unprecedented declines in abundance. At the northern end of the species' range, Yukon River chum salmon runs (*Oncorhynchus keta*, uqurliit, fall chum in Yupik) recently collapsed to 10% of their long-term average return abundance. This collapse resulted in closure of subsistence and commercial fisheries, with deleterious impacts on food security and cultural tradition for Alaska Native peoples who are facing a multi-species salmon collapse. Historically, chum salmon have supplemented other salmon species, such as Chinook salmon, during past periods of decline but this is no longer the case. While the impacts of climate change across the anadromous life stages of chum salmon have been linked to this decline, there remains a need to explore these hypotheses within an integrated quantitative context.

We developed an integrated population model to examine the role of environmental covariates in regulating the productivity of Yukon River Fall Chum salmon across multiple life stages, informed by abundance indices for juveniles at the end of their first marine summer, total return abundances, and age composition data from 2002 – 2022. We found that recent declines in Yukon River chum salmon abundance are associated with reduced productivity across multiple life stages. While most freshwater covariates showed limited association with survival, we found that decreasing spawner body size likely impacts the number of eggs deposited, which is correlated with reduced productivity to the juvenile stage. Within the marine environment we found negative effects of increased competition from hatchery-origin salmon on survival and a strong positive relationship between juvenile stomach fullness and marine survival, suggesting that fish condition during the early marine phase may regulate overwinter during the first year at sea.

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Session: Sensational Salmonids | Format: Long

Trophic ecology of salmonids in the pelagic ecosystem of the Gulf of Alaska: resolving the paradox of competition

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The pelagic phase of salmonid life cycles is crucial to the growth and survival of these species, which are of vital ecological, economic, and cultural importance to Alaska, and foraging within this phase accounts for most of the biomass accumulated by individuals during their lives. It has frequently been suggested that similarity in diets among salmonids during the pelagic phase may lead to interspecific competition for shared prey. However, for most of these prey, predation by salmonids only accounts for small proportions of the total mortality, and much of the latter is unrelated to predation. This study employed network analysis in a mass-balance ecosystem model of the open eastern subarctic Pacific to investigate this apparent paradox. Omnivory (evenness of prey distribution across trophic levels), prey niche overlap (similarity in diet) and mixed trophic impacts (net instantaneous effects, considering all trophic pathways, of a unit biomass change at one food web node on another) were computed for salmonids, their prey, predators, and potential competitors. While prey niche overlap among some salmonids was indeed substantial, it failed to fully explain their strong, mutually negative mixed trophic impacts. Further analysis of food web structure demonstrated that the omnivory of many salmon, which consume diverse zooplankton and micronekton, could explain these impacts. By consuming zooplankton, salmon reduce prey availability not only for each other but for the micronekton they likewise feed on. This second, indirect trophic pathway amplifies the negative impacts of their consumption of zooplankton on other salmonids. This mechanism provides a plausible resolution to the apparent paradox of competition among salmon. These findings advance our understanding of salmon ecology in the Alaska Gyre, and are especially timely given recent record high sockeye salmon returns to Bristol Bay contrasted with disastrously low chum and Chinook salmon returns to the Yukon and Kuskokwim Rivers.

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Session: Bright Scales, Bright Future | Format: Long

Investigating groundfish community and food web structure in the

Gulf of Alaska

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The highly productive Gulf of Alaska ecosystem hosts a diverse guild of abundant groundfish, supporting numerous fisheries. These provide crucial income and employment to coastal Alaskan communities, revenue to the state and nation, and seafood to national and international markets. However, the eastern and western Gulf of Alaska (henceforth EGOA and WGOA) differ in many important aspects of their oceanography, ecology, and fisheries, with the EGOA hitherto receiving markedly less research attention. In this paper, we present results of a novel quantitative analysis of GOA groundfish community and food web structure. This analysis employed new and updated models of the EGOA and WGOA ecosystems, respectively, built in Ecopath with Ecosim (EwE) with input from the NOAA bottom trawl survey and a nutrient-phytoplankton-zooplankton model. Several ecological metrics were computed in Ecopath to investigate food web structure and trophic interactions. Trophic level, omnivory index, ascendency, keystoneness, and primary production required were calculated for food web nodes, while consumption and niche overlap were evaluated for node pairs. These metrics investigate patterns of biomass flux, trophic control, predation, and competition in the GOA groundfish communities and food webs. The focal species were walleye pollock, Pacific cod, arrowtooth flounder, Pacific halibut, flathead sole, rex sole, sablefish, and Pacific ocean perch. Results highlighted the importance of intraguild predation and competition among these and other species. This novel research highlights the roles of commercial groundfish as predators, prey, and competitors in the GOA, which will be further investigated using an ensemble of ecosystem models constructed in multiple frameworks (e.g. EwE, Atlantis, and mizer). It also underscores the need for ecosystem-based fisheries management strategies accounting for the ecological roles of groundfish and laying the foundations for resilient, responsible fisheries that will continue to benefit coastal communities, Alaska, and the USA in an uncertain future.

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Whole genome resequencing localizes a biogeographic break in Pacific herring

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Pacific herring (*Clupea pallasii*) is a biological driver throughout the North Pacific Ocean, from the Arctic to nearly-subtropical latitudes, with ecological, economic, and cultural importance. As a forage fish, Pacific herring population health and stability have critical implications for other marine species, including several targeted by large, productive fisheries. Management of herring in the Pacific can be greatly aided by an improved understanding of the genetic population structure in the region. Previous research has indicated marked divergence between Pacific herring in the Bering Sea and the Gulf of Alaska, but different genetic markers indicate different breakpoints. Seeking to localize this biogeographic break, we generated low coverage whole genome resequencing (WGS) data for 120 herring from seven sites across the Gulf of Alaska (GOA) and the eastern Bering Sea and Aleutian Islands (eBSAI). Single nucleotide polymorphisms (SNPs) across the mitogenome (~270) and the nuclear genome (~5.6 million SNPs) place the break along the Alaska Peninsula. Moreover, two mitochondrial haplogroups co-occurring at collection sites across the GOA suggest secondary contact between two glacial refugia populations. Our results begin to address a large and persistent data gap, representing the first WGS study of a Pacific forage fish, with direct utility informing management.

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Session: Bright Scales, Bright Future | Format: Short

Impacts from hydrologic variability on juvenile salmonid movement and growth potential in a Southeast Alaskan watershed

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Gulf of Alaska watersheds are experiencing increased frequency and duration of summer low-flows, punctuated by more extreme high-flow events. Changes in timing and intensity of precipitation are shifting the watershed flow network for juvenile salmonids, with large impacts on foraging and growth. Upper Montana Creek, Juneau, is a rain and snowmelt dominated subbasin with a diverse range of aquatic habitats that support juvenile coho salmon (*Oncorhynchus kisutch*) and Dolly Varden (*Salvelinus malma*). We propose to explore the impact of high and low flows on juvenile salmonids' ability to exploit terrestrially derived food subsidies through changes in access to intermittent tributary habitat. We will install paired PIT tag antennas in two tributaries of Montana Creek to capture the movement of individual fish among mainstem and tributary habitats, while simultaneously tracking the diet and growth of individuals displaying alternative habitat use strategies. We hypothesize that 1) juvenile fishes move into tributaries from mainstem habitat during high flow events and 2) movement into tributaries results in improved foraging opportunities (due to abundant terrestrial invertebrate prey) that benefit fish growth compared to mainstem residency. While past research has documented pulse subsidies associated with high-flow events, we intend to incorporate a spatial component to our research that will quantify how fish capitalize on spatiotemporal variability in resource availability. By identifying where and when fish move to maximize foraging potential in response to high and low-flow events, we can better understand the implications of land management decisions that promote or restrict access to the entire stream networks heterogenous habitats.

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Session: Bridging Gaps to Restore and Sustain Fish Habitat in Alaska | Format: Short

Origins and attributes of Chum salmon observed spawning in tributaries of the Colville River in Alaska's Arctic

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The Arctic is transforming rapidly. Among the most pronounced changes is the northward expansion of more southerly distributed species, however, observing this process of 'borealization' is challenging in such remote ecosystems. Observations from Indigenous and local harvesters tell us that encounters with Pacific salmon are increasing, but who these fish are with regards to ancestral origins and biological attributes, such as body size and age, are unknown. From spawning fish sampled in the Anaktuvuk and Itkillik rivers in 2023, we report on their putative ancestry by assigning individuals to a recently compiled coastwide genetic baseline for chum salmon and quantify life history characteristics in context to established populations throughout the native range. Of 30 individuals that were able to be assigned, 18 were most likely of 'western Alaska' origin, a large reporting group that includes populations form the northern Alaska Peninsula to Kotzebue Sound, and the remaining 12 were assigned to 'Russia/Korea' origins. On average, fish with western Alaska origins were 3.5% smaller than fish from Russia/Korea. Most individuals were total age 4 or 5 based on estimates from vertebrae. Although this work sheds new light on the early process of salmon expansion in the Alaska Arctic, many questions remain. Primary among them, is whether these fish were first generation strays or represent the early colonists of burgeoning established populations. The talk concludes with musings on the probability of these potential alternatives.

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Session: Bright Scales, Bright Future | Format: Long

Programmatic Perspectives: Enhancing Fisheries Sustainability in Alaska

White[1], Devanie C.

Federal fisheries management has many complex, layered components to advance ecosystem sustainability, socioeconomic health, and equitable resource distribution while upholding the standards and guidance set forth in federal policy, including the Magnuson-Stevens Fishery Management Act. The Alaskan federal fisheries are often regarded as a model for effective, large-scale fisheries management nationally and globally. NOAA Fisheries' Alaska Regional Office (AKRO) manages fisheries covering over 1.5 million square miles and generating over $5 billion and 100,000 jobs each year. While this knowledge is widely known in the fishing industry, the public often find it difficult to understand the mechanisms and programs that support this industrial and commercial achievement. This review serves as a systematic assessment of AKRO's engagement in fisheries management, highlighting a range of successful programs. It aims to articulate the essential factors for developing and managing a well-constructed fishery program. Additionally, this review seeks to provide an account of the aspirations and objectives of NOAA AKRO regarding sustainable fisheries, thereby offering a reference framework for other fisheries managers.

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Session: Collaboration & Innovation in Groundfish/Shellfish R&M | Format: Long

Boats and beach spawners: impacts of boat wakes on shoreline erosion and an assessment of shoreline habitat use by Sockeye Salmon at Big Lake, AK.

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Shoreline erosion along lakeshores is a naturally occurring part of the sediment transport cycle and can be a source of key spawning substrate for beach spawning Sockeye Salmon *Oncorhynchus nerka*. Human activity has a well-documented capacity to disrupt this cycle in lakes by accelerating erosion rates via various mechanisms, most notably shoreline development and recreational boating activity. The Matanuska-Susitna Valley is home to many lakes that support Sockeye Salmon, but which also have extensively developed shorelines and high levels of recreational boating activity. Big Lake in particular has a long history as a popular site for recreational boating and shoreline development, while also supporting a regionally important population of Sockeye Salmon. In response to concerns from local residents over the impact wakes are having on shoreline erosion rates at Big Lake, we deployed wake gauging arrays and erosion monitoring pins to record wake events and monitor shoreline erosion at sites across the lake between June and September 2024. These data are being used to assess the correlation between various metrics of wake activity and shoreline erosion rates. The presence of beach spawning Sockeye Salmon in Big Lake is well documented; however, the distribution of spawning activity is poorly understood, and a comprehensive spawning survey of shoreline areas had not been conducted previously. We utilized visual survey methods in conjunction with an unmanned aerial system (UAS) to assess the distribution of beach spawning Sockeye Salmon around Big Lake and enumerate the number of spawners associated with each area. This talk will present the current status of this work and results of preliminary data analysis.

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Session: Bright Scales, Bright Future | Format: Long

Impacts of Rusting Rivers on Stream Biota in the Wulik River Drainage, Northwest Alaska

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The Arctic is experiencing rapid warming that is contributing to permafrost thaw. The changing hydrologic connections are mobilizing previously sequestered metals into Earth's active layer and into streams located in remote, undeveloped ecosystems. The resulting chemical processes produce a visually striking rusting phenomenon in the Arctic's previously pristine waterways. A similar point-source pollution concern is acid mine drainage (AMD), which has been studied in historically mined areas and has shown negative impacts to aquatic life where AMD resulted in acidic water often coupled with iron precipitate that smothers out the stream benthos. Although the Arctic and its biological inhabitants are normalized to extreme conditions, rusting rivers pose a mostly new extreme condition that aquatic life is likely not adapted to handle. To better understand how naturally rusting rivers influence stream biota, baseline data is needed for comparative analyses, but is lacking in remote places such as the Brooks Range where rusting rivers are increasing in reported observations over the last decade. My thesis project leverages existing Alaska Department of Fish and Game Habitat aquatic biomonitoring data (spanning from the late 1990s to present day) from the Red Dog Mine area in Northwest Alaska to analyze the impacts of rusting rivers on stream biota. This presentation will cover my chapter 1 data analyses, where I present preliminary results of how rusting influences have shaped biological metrics across space and time. Using generalized linear models, ordination analyses, and analysis of variance, I demonstrate how chlorophyll-a concentration, macroinvertebrate abundance, and fish CPUE differ within the Wulik River drainage with regard to the local degree of rustedness. This work is important for understanding past and future changes that have the potential to affect Arctic subsistence fisheries.

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Session: Freshwater Habitat: No So Fresh and Not So Clean | Format: Long

Alaska Fish & Game Job Opportunities

Current Openings by Closing Date

Closing March 18, 2025

Boat Officer 2 (PCN 111112) Type: Full Time - **Salary:** $2,303.25 Biweekly - **Department:** Fish & Game - **Division:**Commercial Fisheries - **Location:** Kodiak, AK - **Category:** Food Services / Maintenance / Communications / Sciences / Wildlife

Fishery Biologist 1/2 (Ketchikan Port Sampling Supervisor-PCN 111348) - Type: Seasonal - **Salary:** $2,097.60 - $2,416.80 Biweekly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Ketchikan, AK - **Category:** Management / Natural Resources / Research / Sciences / Wildlife

Fish and Wildlife Technician 3 (Marine Harvest Program-PCN 115288) - Type: Seasonal - **Salary:** $21.50 Hourly - **Department:** Fish & Game - **Division:** Sport Fish - **Location:** Ketchikan, AK - **Category:** Natural Resources / Customer Service / Research / Sciences / Wildlife

Closing March 20, 2025

Fishery Biologist 3 (Upper Cook Inlet Research Biologist - PCN 111255) - Type: Full Time - **Salary:** $2,804.80 Biweekly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Soldotna, AK - **Category:**Planning and Development / Natural Resources / Project Management / Research / Communications / Sciences / Wildlife

Fish and Wildlife Technician 3 (PCN 11N25053) - Type: Short Term Nonperm - **Salary:** $21.50 Hourly - **Department:**Fish & Game - **Division:** Sport Fish - **Location:** Homer, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Fish and Wildlife Technician 3 (PCN 111416) - Type: Seasonal - **Salary:** $32.25 Hourly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Sand Point, AK - **Category:** Natural Resources / Construction Maintenance / Research / Sciences / Wildlife

Fish and Wildlife Technician 3 (Sand Point salmon genetics sampling-PCN 111906) - Type: Seasonal - **Salary:**$32.25 Hourly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Sand Point, AK - **Category:**Natural Resources / Research / Sciences / Wildlife

Fish and Wildlife Technician 3/4 (PCN 111822) - Type: Seasonal - **Salary:** $22.58 - $25.47 Hourly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Douglas, AK - **Category:** Management / Natural Resources / Maintenance / Construction Maintenance / Research / Sciences / Wildlife

Closing March 21, 2025

Fish and Wildlife Technician 3 (PCN 114130, 114249) *New* - **Type:** Seasonal - **Salary:** $21.50 Hourly - **Department:**Fish & Game - **Division:** Sport Fish - **Location:** Soldotna, AK - **Category:** Sciences / Wildlife

Fishery Biologist 3 (PCN 11N25068) *New* - **Type:** Long Term Nonperm - **Salary:** $2,804.80 Biweekly - **Department:**Fish & Game - **Division:** Sport Fish - **Location:** Soldotna, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Closing March 24, 2025

Fish and Wildlife Technician 3 (PCN 111936) - **Type:** Seasonal - **Salary:** $21.50 Hourly - **Department:** Fish & Game - **Division:** Sport Fish - **Location:** Craig, AK - **Category:** Natural Resources / Customer Service / Research / Wildlife

Biometrician 1/2/3 (PCN 111357) - **Type:** Full Time - **Salary:** $2,387.25 - $3,263.25 Biweekly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** See Recruitment Details, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Fish and Wildlife Technician 3 (PCN 114297) *New* - **Type:** Seasonal - **Salary:** $21.50 Hourly - **Department:** Fish & Game - **Division:** Sport Fish - **Location:** Homer, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Closing March 26, 2025

Fishery Biologist 3 (Bristol Bay Inlet Research Biologist - PCN 111075) *New* - **Type:** Full Time - **Salary:** $2,804.80 Biweekly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Anchorage, AK - **Category:**Natural Resources / Project Management / Research / Sciences / Wildlife

Closing May 16, 2025

Fish and Wildlife Technician 2 (PCN 111452, 111624, 111734, 111872) - **Type:** Seasonal - **Salary:** $20.00 Hourly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Sitka, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Closing June 2, 2025

Fish and Wildlife Technician 2 (PCN 11N25046, 11N25047) - **Type:** Short Term Nonperm - **Salary:** $20.00 Hourly - **Department:** Fish & Game - **Division:** Sport Fish - **Location:** Ketchikan, AK - **Category:** Customer Service / Sciences / Wildlife

Closing June 3, 2025

Fish and Wildlife Technician 3 (Port Sampler-PCN 111733, 111345) - **Type:** Seasonal - **Salary:** $21.50 Hourly - **Department:** Fish & Game - **Division:** Commercial Fisheries - **Location:** Ketchikan, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Closing June 9, 2025

Fish and Wildlife Technician 2 (Port Sampler-PCN 111870) - **Type:** Seasonal - **Salary:** $19.05 Hourly - **Department:**Fish & Game - **Division:** Commercial Fisheries - **Location:** Craig, AK - **Category:** Natural Resources / Customer Service / Research / Sciences / Wildlife

Fish and Wildlife Technician 2 (Creel Technician-PCN 11N25039, 11N25040, 11N25041, 11N25042) - **Type:** Short Term Nonperm - **Salary:** $20.00 Hourly - **Department:** Fish & Game - **Division:** Sport Fish - **Location:** Sitka, AK - **Category:** Natural Resources / Research / Sciences / Wildlife

Minutes of the 50th Annual Alaska Chapter AFS Business Meeting

March 28, 2024, 12:00-1:30 pm

Gateway Hotel Event Center, Seward

Agenda

1. Call to Order
    a. 12:05 pm
2. Determination of a quorum (20 chapter members)
    a. Quorum has been established
3. Approval of agenda
    a. Motion to approve by Sara Gilk-Baumer, seconded by Katie Russell.
4. Approval of 2023 annual business meeting minutes
    a. Motion to approve by Donnie Arthur, seconded by Erin Larson.
5. Western Division AFS report – Eric Fetherman, WDAFS President
    a. Provided an overview of the Western Division (WD), their Executive Committee, and their other committees, and how they serve AFS members and others. He also spoke about the WD's student colloquium, scholarships, small project grants, travel grants, and awards. The next WD/Parent Society meeting will be in Honolulu, HI. The 2025 WD meeting will be held in Colorado and hosted by the Colorado Chapter. Lastly, a pitch was given about why it is beneficial to join AFS and to keep your membership up to date.
6. April 2023 - March 2024 Chapter review:
    - Treasurer's Report – Trenten Dodson (provided by Erik Schoen)
        - Erik provided an overview of the status of the Chapter's finances for the past year, including an update to the Chapter's accounting software and completed IRS reports. Trent also served on the Chapter's Financial Assets Oversights Committee and the Chapter's Executive Committee. Erik also spoke to the endowments that the Chapter has set up and how they function. He gave an update on total meeting revenues and profit/loss for those meetings for Chapter annual meetings from 2006 through 2023. He directed all questions on the report back to Trent Dodson.
    - Secretary's Report – Scott Ayers
        - Brief overview of participation for the past year.
    - Student Representative's Report – Rebecca Shaftel
        - Becky spoke to the amazing work that the students have done all year, and especially helping out in preparation for and supporting the Chapter's annual meeting.

- Past President's Report – Megan McPhee
    - Megan spoke to the great experience it has been being involved with the Executive Committee and encouraged others to consider doing so in the future.
    - She also talked about the Chapter's Bylaws & Procedures Manual and the Chapter's thoughts about adding the Chair of the DEI Committee to the Executive Committee and other possible changes to the Chapter that the Chapter will be able to weigh in on in the coming year.
- Vice President's Report – Whitney Crittenden (provided by Erik Schoen)
    - Membership update - Chapter membership has continued to decline since the 1990s, when it peaked at nearly 600. This trend matches trends by the National Society as a whole.
    - Recognition of new 25-year members: Michael Carey, Jeffrey Olson, and Chris Zimmerman
    - 2025 Alaska AFS Annual Meeting plans: Ketchikan, tentatively March 17-21, 2025 at the Ted Ferry Civic Center. Erik encouraged folks to be a part of the meeting by getting involved in the various Chapter committees.
- President-Elect – Donald Arthur
    - Provided a review of the 2024 Annual Meeting. He's heard a lot of collaboration discussions and positive feedback for the meeting overall. He thanked everyone on the planning committee and the student helpers for making the meeting a success. He thanked Sara Miller's efforts to bring great training sessions to the meeting. The banquet is tonight and the spawning run is coming soon.
- Standing Committees
    - Diversity, Equity & Inclusion - Sara Gilk-Baumer/Madeline Lee
        - The full committee membership was highlighted. They spoke to the 2 eyed seeing workshop, the work the committee did to help set up and make the meeting more inclusive, the help they provide to get students to the meeting, and more. This committee has been very active over the past year.
    - Financial Assets Oversight - Ray Hander (provided by Erik Schoen)
        - Erik gave an overview of the committee's work and summarized Ray's report. Guidance for the committee is in the Chapter's Procedures Manual. The Committee oversees and makes recommendations for the Chapter's financial assets, which are in a moderately conservative strategy — that has provided us with benefit over the past year. Erik also highlighted the Meacham Family AFS Student Travel Fund, a new endowment to support student travel. Chuck H. Meacham and Chuck P. Meacham provided the seed money to get this endowment started. The ultimate goal is to reach $125K and use interest from the fund to support student travel. The Chapter's portfolio as a whole had an 11% gain on the year.
    - Molly Ahlgren Scholarship - Ray Hander (provided by Erik Schoen)
        - This committee sends out annually in support of an undergraduate scholarship. This year's scholarship recipients will be announced at the banquet.

- Environmental Concerns - Sue Mauger
    - The Committee's goal is to bring issues to the Chapter's membership and do so through an article in the Chapter's newsletter. Current topics include transboundary mines, the Ambler mine road, and other issues. An email address was provided for folks that are interested in getting regular updates and possibly getting involved. Sue also spoke to the steps to get an issue brought forward for consideration of the Chapter.
- Professional Development - Sara Miller
    - Sara talked about the classes offered this year and what type of participation there was. Please send workshop ideas her way! There was also notice that there will be an electrofishing course taught by Jim Reynolds this year, and information will be sent out on the Chapter's listserv
- Resolutions & Bylaws - Hamachan Hamazaki (provided by Erik Schoen)
    - Erik provided an overview of resolutions, bylaws and how they work.
- Electronic Communications - Hamachan Hamazaki/Joel Markis (provided by Erik Schoen)
    - Erik spoke to the changes the chapter has made to the listserv over the past year. The Chapter switched to the SimpleLists platform this year, which has more features and saves us money. 81 posts have been sent out over the past 12 months. There are over 500 individuals who get the messages.
- Awards - Peter Westley
    - Peter is newly the chair of this committee and appreciates the help from Teresa Fish for this meeting. He provided an overview of the student participation in the Annual Meeting. He also spoke to a very generous donation from Doug Molyneaux of $5000 to add to the awards that the Chapter was already planning to give out.
    - Donnie Arthur provided information on a large pledge from Doug Molyneaux to establish a new endowment to fund increased student awards in perpetuity.

- President's Report – Erik Schoen
    - Erik is happy to have been part of a transition of the Chapter's operations to the "modern era". He spoke to the transition to GiveLively as a platform for fundraising and event registration how easy and useful it has been.

7. Farewell remarks from outgoing President – Erik Schoen
    a. Erik deeply appreciates the trust of the Chapter to have him as the President and is excited to hand off the gavel to Donnie Arthur.
8. Remarks from the new President – Donald Arthur
    a. Donnie looks forward to working with all of the standing committees. He hopes to offer more workshops throughout the year. He's looking forward to working with Doug Molyneaux and the Chapter's Awards chair to get the new endowment set up.
9. New Business:
    a. Appointment of new Executive Committee officers.
        i. New Vice President: Andy Seitz
        ii. New Student Representative: Amber Perk

b. The outgoing 2023-2024 officers are as follows: Megan McPhee (immediate past president), Erik Schoen (president), Donnie Arthur (president-elect), Whitney Crittenden (vice president), Trent Dodson (treasurer), and Scott Ayers (secretary).
c. The incoming 2024-2025 officers are as follows: Erik Schoen (immediate past president), Donnie Arthur (president), Whitney Crittenden (president-elect), Andy Seitz (vice president), Trent Dodson (treasurer), and Scott Ayers (secretary).
d. The outgoing Student Representative to the Executive Committee is Becky Shaftel, and the incoming (2024-2025) representative is Amber Perk.

10. Open forum
11. Adjourn
    a. 1:22 pm