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Maggie Harings filters water during an eDNA sampling event on the Chena River. Photo by E. Schoen, UAF.

Using eDNA to Count Salmon in the Yukon River Basin

Maggie Harings

Throughout the Yukon River Basin, salmon are counted at several long-term, remote sites that help inform management of the greater Yukon River salmon runs. At the start of each field season, fisheries biologists and seasonal field technicians spend a month or two gathering equipment, supplies, and food necessary to live at these remote camps for a few months as crews count adult salmon migrating upstream to spawn. However, salmon can be counted using a few different techniques. At some sites, resistance board weirs are used to funnel fish through a single location in the weir, beyond which the fish continue migrating upstream to spawn. As they swing through the weir, fish travel past an underwater camera that records video of each fish making its journey upstream. In turn, field technicians review the

video, recording counts of salmon by species and sex. These counts are relayed back to fisheries managers that are tasked with the challenging job of monitoring salmon runs in real-time and issuing emergency orders as warranted for more or less restrictive fishing opportunities. Other salmon counting sites use sonar paired with counting towers. At these sites, field technicians stand in elevated towers, counting salmon migrating upstream during hourly 10–20-minute periods. Sonar is used to record footage of fish passing by. Pacific salmon lengths tend to vary by species, so fisheries managers use length bins to apportion sonar counts to species. These data are also relayed back to fisheries managers each day. Using these counting techniques, fisheries managers are able to assess year-to-year variation in run timing and

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The President's Corner



AFS Alaska Chapter President Erik Schoen

Hello Alaska Chapter,

I'm happy to be writing my first column as your new Chapter President. I'll begin by introducing myself for those of you who I haven't had a chance to meet yet. I'm a lifelong Alaskan living in Fairbanks on Tanana Dena land. I grew up in Juneau, where my family commuted by outboard skiff and spent most of our free time out on the water, fishing, crabbing, and boating around Southeast. We later moved to the big city of Fairbanks and then to the mind-blowing metropolis of Anchorage, where I graduated from Service High. I went east to Dartmouth College for my bachelor's degree in biology and spent the summers back home working for ADF&G. After graduation, I returned to Alaska for a few years, where I did fieldwork for ADF&G, taught labs at UAA, skied a lot, and met my future wife, Jenny. We ventured south to the University of Washington together, where I earned my M.S. and Ph.D. I studied aquatic food webs, focusing first on Lake Trout, Kokanee, and mysid shrimp in a big lake in the North Cascades and later on Chinook Salmon and Pacific Herring in Puget Sound. We moved back to Alaska as soon as we could and settled in Jenny's hometown of Fairbanks in 2012. We now have two feisty kids in elementary school and a well-used self-bailing raft (among other boats). We spend

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Using eDNA, continued

abundances of salmon, as well as make predictions about future salmon runs.

In recent years, however, declines in Chinook (*Oncorhynchus tshawytscha*) and Chum salmon (*O. keta*) have occurred at many of these salmon counting sites in the Yukon River Basin. These declines have had widespread ecological, cultural, and economic impacts throughout the Yukon River Basin, threatening the food security and wellbeing of subsistence harvesters. Poor salmon returns have led to issues like fisheries closures and salmon allocation issues among remote villages that rely heavily on salmon, causing concern about what the future brings for the wellbeing of these communities. Simultaneously, Interior Alaska is experiencing the effects of climate change at an alarming rate. Climate change models are predicting increased variability in annual streamflow and more frequent high streamflow events in boreal rivers. But what does this have to do with salmon management? As it turns out...a lot!

High water can generate quite the headache for fisheries managers tasked with counting salmon, and it's not uncommon for rivers in Interior Alaska to experience secondary peak flows mid to late summer following summer rains. When this happens, high water may increase turbidity and debris, creating challenges for field technicians conducting visual salmon counts from towers. Increased water levels can also limit sonar coverage of passing salmon throughout the water column, and debris can damage counting equipment like weirs. These high-water events have led to intermittent gaps in salmon count data or missed salmon counts for the duration of a season in some Yukon River tributaries when fisheries biologists have to repair equipment. These data gaps can pose challenges for biologists tasked with monitoring the status of salmon runs in real-time and making predictions for upcoming salmon seasons. However, recent advancements in the world of molecular biology indicate the possibility of a new approach to determining salmon abundance using environmental DNA (eDNA) in Alaska systems ([Tillotson et al. 2018](#);

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President's Corner, continued

most of our free time in the summers out on the water, floating Interior rivers, dipnetting on the Copper River, and trolling, shrimping, and beachcombing in Prince William Sound.

I have been doing fisheries research at UAF since 2013, and I now hold a research faculty position at the International Arctic Research Center. I study climate, food webs, and fisheries, and many of my recent projects examine how Alaska's salmon are responding to a changing environment. I've benefited tremendously from involvement in AFS throughout my career, and I'm happy to be able to give back by serving the Alaska Chapter. My first AFS meeting was the parent society meeting in Anchorage in 2005, and after that I was hooked. I've attended and helped out in some way with most of the Alaska Chapter's meetings since 2010, and it was a privilege to chair this year's annual meeting in Fairbanks (see more about that in my meeting recap article). Now, I'm breathing a sigh of relief after passing the baton to new President-Elect Donnie Arthur, who will chair next year's meeting in Southcentral Alaska.

We transitioned our executive committee officers at this year's business meeting, saying goodbye and thank you to outgoing Past President Sue Mauger and Student Representative Jonah Bacon. Sue served the Chapter admirably over the last four years, guiding us through the pandemic and charting new territory as chair of our first virtual annual meeting in 2021. She will remain involved in the Chapter as co-chair of the Environmental Concerns Committee. Jonah was an essential member of the team this year, helping plan and run the annual meeting,

leading a highly successful student retreat, and representing students' interests on the Chapter Executive Committee. We are happy to welcome our new Vice President Whitney Crittenden and new Student Rep Becky Shaftel. Thank you, Whitney and Becky, for stepping up into these leadership roles.

Alaska's fisheries are deeply intertwined in our cultures, economies, and traditions. During my year as Chapter President, I plan to focus on making the Alaska Chapter more inclusive and responsive to the broad cross-section of folks in the fisheries profession and the broader fisheries community. Our Chapter has historically enjoyed strong representation and involvement from members at universities and government agencies, and we want to keep those connections robust. But we can't stop there. How can we be more engaged with folks in Tribal organizations, the private sector, non-profits, K-12 education, and fishing communities? How can we support our members in recruiting, retaining, and promoting talented individuals from all backgrounds to strengthen and grow the Alaska fisheries profession? We are working towards these goals, but we have plenty of room to learn and improve. Please reach out if you have ideas for how the AFS Alaska Chapter can be more inclusive and responsive to your needs and those of your colleagues. As an all-volunteer organization, the Chapter will take the shape of its most active members, and we invite you to get involved through committees, professional development, and annual meetings.

Enjoy the warmer days. Field season and summer adventures are just around the corner. 🐟

25- and 50-Year Members

The Alaska Chapter recognizes Randy Brown and Bert Lewis for being AFS member for 25 years, having joined in 1977. In addition, Phil Mundy reached the 50-year mark as an AFS member, having joined in 1973. That is a powerhouse of fisheries names!

Thank You, Randy, Bert, and Phil for your decades of membership and service to AFS and professionalism in the aquatic field! 🐟

Sea Otter and Oyster Farm Interactions

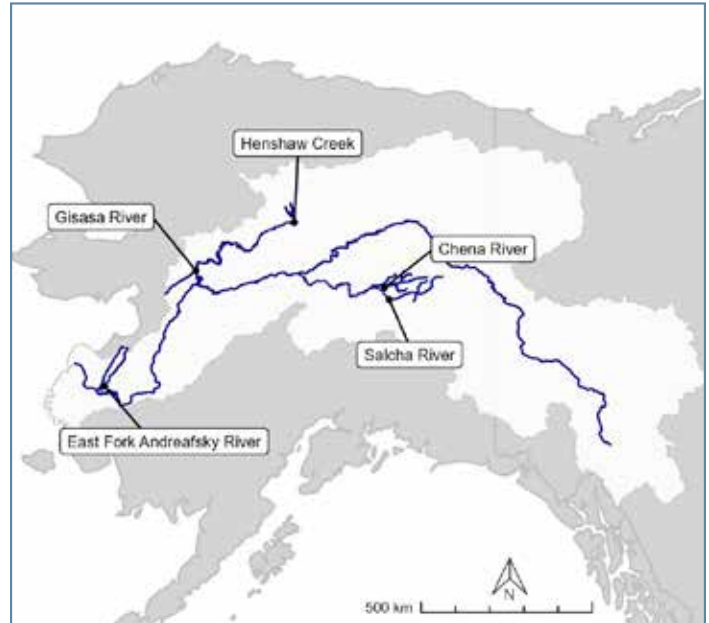
Sea otters can substantially impact local habitats and questions exist about interactions between sea otters and Alaska's growing mariculture industry. Brenda Konar, UAF professor, and graduate student Emily Reynolds, are starting their second summer studying sea otters in Kachemak Bay, Alaska, an area with a thriving sea otter population and also the highest density of oyster farms in Alaska. For more information, go to [Alaska Sea Grant](#). 🐟

Using eDNA, continued

[Levi et al. 2019](#); [Pochardt et al. 2020](#)). It is possible that eDNA could be used as a complementary tool to traditional salmon counting techniques—particularly during periods of high streamflow.

In recent years, “eDNA” has become quite the buzzword (or...buzz acronym). Simply put, eDNA is DNA that an organism has shed into its environment. Researchers have developed techniques to collect samples from the aquatic environment, often by passing water through special filters, and then analyzing material on the filters for DNA shed by organisms. Analyzing for a unique genetic signature supports detection of a species’ presence, something useful for species composition assessments, as well as surveys for invasive or rare species and various diseases. The application of this eDNA technique is relatively low-cost, does not require direct handling of the target species, and, in some cases, results in increased species detection when compared to traditional sampling methods ([Gehri et al. 2020](#); [Hervé et al. 2022](#)). But like any fisheries sampling technique, there are aspects researchers consider when determining how and where to sample.

The likelihood of eDNA detection can vary depending on both biotic and abiotic factors. The most obvious factor affecting detection is species abundance: the more abundant an animal or plant is in an area, the more eDNA will likely exist, and the more likely you are to detect that organism (and vice versa). Life history stage can also play a role, as some species shed DNA at differential rates throughout their lifespan. Increased water temperature and UV exposure can increase eDNA decay, reducing the amount of time researchers have for detection from a sample. If filtering river water to collect eDNA, increased river discharge following snowmelt or rainfall can dilute eDNA. Longitudinal proximity to the DNA source can also play a big role in river systems. For example, sampling a few hundred meters downstream of actively spawning salmon may lead to higher detection probability than sampling a few kilometers downstream. While the cumulative effect of these factors may seem to make it far too challenging to effectively use eDNA to detect species in the field, numerous studies continue to



The eDNA sampling locations along the Yukon River in 2021 and 2022. Graphic from M. Harings, UAF.

indicate otherwise. In fact, an emerging effort is gaining traction to test whether eDNA can be used to actually determine species abundance. In recent years, several studies centered around anadromous fish in Alaska showed that, with consideration of environmental factors like discharge, eDNA can be used to predict fish counts in smaller rivers with relatively high densities of fish ([Tillotson et al. 2018](#); [Levi et al. 2019](#); [Pochardt et al. 2020](#)). A few cautious skeptics remain and rightfully so; there are still many questions that must be answered before we, as researchers, can determine how broadly this technique can be used. But, you have to admit... these results are exciting! To date, most researchers were studying small systems with lots of fish (i.e., likely lots of eDNA): so does this technique work in larger systems with more water? What about systems with fewer fish, like many in the Yukon River Basin in recent years? That’s exactly what Drs. Erik Schoen, J. Andrés López, and Jeffrey Falke and I are looking into at the University of Alaska Fairbanks.

In 2021, we partnered with the Alaska Department of Fish and Game (ADF&G), Tanana Chiefs Conference (TCC), and the U.S. Fish and Wildlife Service (USFWS) to collect filtered eDNA samples at five long-term salmon counting sites to test how closely eDNA predicts known daily salmon

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Using eDNA, continued



Kristin Reece (front) and Maggie Harings (back) extract DNA from filters in the University of Alaska Museum of the North's Molecular Genetics Lab. Photo by A. Bailey, UAF.

counts. These sites are located on the Chena and Salcha rivers (sonar and counting towers), as well as the East Fork Andreafsky and Gisasa rivers and Henshaw Creek (weirs). At many of these sites, high water created challenges for counting salmon in previous years, making ideal candidates for a complementary counting method such as eDNA. In 2021 and 2022, we provided hands-on training sessions that enabled our partners to collect an impressive 750 eDNA samples at five sites across years. The sampling protocols we developed included the use of self-desiccating eDNA filters that are shelf-stable within their housing units for up to six months. Thus, field technicians were not required to handle filters in the field for preservation, thereby reducing risk of contamination. This was particularly important for weir sites because technicians handle fish (and, therefore DNA) to collect age, sex, and length data each day. Filters were stored in cool, dry locations until their transfer to the lab at the end of each field season. Field technicians also produced daily Chinook and Chum salmon counts for each site and also water temperature and staff gage measurements (remember: water temperature and river volume can affect eDNA detectability!).

We have started analyzing eDNA samples using species-specific quantitative polymerase chain reactions (qPCR) to characterize Chinook and Chum salmon for each filtered sample. Once all samples are analyzed, the real fun will begin! We'll use species-specific DNA concentrations in

conjunction with environmental covariates (e.g., streamflow and water temperature) to predict daily salmon passage. These predictions will be compared to known daily salmon counts collected at each site to characterize the accuracy and precision of the eDNA technique. To date, we've detected both Chinook and Chum salmon DNA on many of our samples, including a subset from earlier in each run when eDNA concentrations were expected to be relatively low. Plus, no contamination has been observed in any of the field or technical controls we've analyzed (a huge success for anyone conducting eDNA sampling)! Moving forward, we will also use this study to develop practical guidelines and best practices for eDNA sampling by field crews without molecular biology backgrounds.

Finally, I'd like to underscore the utility of eDNA sampling initiatives to build research capacity. Sample collection requires little time and, with careful preservation, filters can be archived to address future research questions. With sensitive qPCR assays and proper laboratory techniques, a single filter can be used to produce data for whichever species' DNA has found itself stuck to its surface! One half of the filters from this study were archived for long-term storage and we welcome collaboration with anyone that may find these useful!

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Maggie Harings holds a filtered sample from DNA extractions at the University of Alaska Museum of the North's Molecular Genetics Lab. Photo by A. Bailey, UAF.

Using eDNA, continued

The application of eDNA continues to evolve, meeting new and old management and scientific challenges in the process. This project is one of many that is testing ways to further solidify fisheries management techniques throughout Alaska. Due to the rapid rate of climate change throughout the Interior, it will be critical for biologists to adapt current fisheries management techniques to changing environmental conditions like high streamflow events. Continuity in salmon count datasets will remain critical for sound management decisions, and for forecast models whose data are used by subsistence fishing communities to prepare for upcoming fishing seasons. Our

research intends to provide further insight into the application of eDNA sampling for continuous salmon counts in salmon management in Alaska, thereby promoting adaptive management in the face of rapidly changing climatic conditions.

Maggie Harings is an M.S. student at the University of Alaska Fairbanks with a strong interest in bolstering climate change resiliency in fisheries management and for local communities that rely heavily on subsistence fishing opportunities. When away from her computer, Maggie enjoys rafting, mountain biking, and outdoor lifestyle photography. Her research is funded by the Alaska Climate Adaptation Science Center. 🐟

49th Annual Chapter Meeting Recap

Erik Schoen

The theme of the Alaska Chapter's 49th Annual Meeting was Creativity in Fisheries: New Solutions for a Resilient Future, reflecting both the big responsibilities and exciting discoveries that we share as part of the Alaska fisheries community. But was anyone going to show up? Four years after our last in-person meeting, we really didn't know what to expect as we prepared to gather in Fairbanks in March. We planned for about 100 attendees and thought maybe three-quarters would join us in person, with the rest zooming in online. When all was said and done, 218 people attended the meeting, including 205 in Fairbanks and 13 online. This smashed our expectations, and led to some scrambling behind the scenes to make sure we had enough chairs in the rooms and enough food and drinks at the breaks and socials. I sprinted down the hall more than once to ask the hotel staff to bring more coffee. This was a great problem to have: attendees really stepped up this year to contribute 105 talks and posters, as well as four workshops, eight films, five symposia, and nearly a dozen activities focused on diversity, equity, and inclusion. And let's not forget the socials, 5K spawning run along the frozen Chena River, banquet and awards ceremony, and an ice-fishing field trip to Birch Lake. We were especially impressed by the student involvement—with 57 students from high school to Ph.D. levels in attendance and 45 student presentations. It all added up to our biggest meeting

in years and, we hope you'll agree, one of the most rewarding and fun.

Meeting highlights included excellent plenary talks by Drs. Jessica Black: "Indigenizing Salmon Science and Governance: Moving from Theory to Action," Schery Umanzor and Angela Bowers: "The Alaska Mariculture Initiative and Opportunities to Leverage Salmon Hatchery Infrastructure," and Kathrine Howard and Vanessa von Biela: "Fables for Fisheries: Creative Lessons for Strategic Approaches to Crisis." A professionally facilitated workshop on "Collaborative Approaches to DEI in Fisheries" sparked important conversations among leaders from fisheries organizations around the state. Roughly 100 attendees participated in a groundbreaking racial equity dialogue led by the Tamamta team from the University of Alaska Fairbanks. And the meeting benefitted from substantial involvement by ADF&G, including Dr. Howard's joint plenary, many talks and posters, a recruiting table at the trade show, a sponsorship, and four ADF&G staff on the planning committee. We hope to build on this involvement in the coming years, as our next two annual meetings will be chaired by ADF&G employees, while continuing to encourage participation from other agencies, Tribal organizations, the private sector, non-profits, and educational institutions.

Many thanks to the volunteers who helped put this meeting together, including the hard-

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49th Annual Chapter Meeting Recap, continued

working and creative planning committee. We truly appreciate our meeting sponsors: Alaska Sea Grant, North Pacific Research Board, Alaska Department of Fish and Game, Norton Sound Economic Development Corporation, International Arctic Research Center, Sealaska, Alaska Seafood Marketing Institute, Arctic-Yukon-Kuskokwim Tribal Consortium, College of Fisheries and Ocean Sciences, Alaska Blue Economy Center, North Pacific Fishery Management Council, Southeast Alaska Fish Habitat Partnership, Alaska NSF EPSCoR Fire and Ice, and the Alaska Fisheries Development Foundation. Generous contributions from these organizations helped us shoulder the

added financial burden of a hybrid meeting and made it possible for a large contingent of students to attend from around the state. We also thank Doug Molyneaux, whose generous donation doubled the cash prizes awarded to the best student presentation winners this year.

We hope many of you made connections at the annual meeting that will lead to your next job, your next hire, or sparked a new collaboration or friendship. President-Elect Donnie Arthur is already working hard to plan next year's 50th Annual Meeting, which will be held in Southcentral during spring 2024. Stay tuned for a Save the Date announcement, and we hope to see you then. 🗨️



Courtney Carothers (center right), Jessica Black (center left), and their team lead "Tamamta (All of us): a Racial Equity Dialogue." Roughly 100 Chapter meeting attendees participated in the dialogue.



Jessica Black at the Chapter meeting delivers her plenary presentation "Indigenizing Salmon Science and Governance: Moving from Theory to Action."



Past Presidents at the AFS Alaska Chapter meeting in Fairbanks - (l-r) Audra Brase, Sue Mauger, Kate Wedemeyer, Jeff Falke, Bert Lewis, Lisa Stuby, and Margaret Merritt.

Best Student Presentations at the Alaska Chapter Meeting

Jeffrey Falke, Awards Committee Chair

I'm happy to announce our 2023 AFS Alaska Chapter Best Student Presentation winners! Many thanks to all of the students for their hard work on their presentations, and I'm super grateful for the judges who volunteered their time and without which the competition couldn't happen! Additionally, thanks to Doug Molyneaux for a monetary contribution that increased the award amounts for this year! Prizes this year were \$450 for winners and \$225 for runner-ups. All students should have received a copy of the judges' feedbacks. And the award recipients are:

Best Posters

B.S. Winner: Kristin Reece – “Using environmental DNA to assess Arctic Grayling and Chinook Salmon distribution in the Chena River”

B.S. Runner-up: Naomi Boyles-Muehleck (UAS) – “Juvenile Coho Salmon growth patterns track biennial Pink Salmon spawning abundance fluctuations in a southeast Alaska watershed”

M.S. Winner: Sydney Almgren – “Population Genomics of Pacific Herring in the Eastern Bering Sea”

M.S. Runner-up: Cara Hesselbach – “A comparison of fishery-independent and fishery-dependent data with regard to stock analysis of Rougheye and Blackspotted rockfish in the Aleutian Islands.”

Ph.D. Winner: Nicole Watson – “Arctic Grayling reintroduction in Michigan: A new hope”

Ph.D. Runner-up: Lia Domke – “Nearshore seascape complexity influence on fish assemblages in southern Southeast Alaska”

Best Oral Presentations

B.S. Winner: Suzie O'Neill – “Mapping marine invasive species in Alaska to raise awareness in the mariculture industry”

B.S. Runner-up: None

M.S. Winner: Lilian Hart – “Species distribution models estimate juvenile salmon habitat and time-varying distributions in the northern and southeastern Bering Sea”

M.S. Runner-up: Maggie Harings – “Using quantitative PCR to estimate Chum Salmon (*Oncorhynchus keta*) abundance with environmental DNA on the Chena River”

Ph.D. Winner: Matt Cheng – “Incorporating dynamic fleet structure in stock assessment models: Accounting for a rapidly developing pot fishery for Alaska Sablefish (*Anoplopoma fimbria*)”

Ph.D. Runner-up: Carter Johnson – “Assessing the effects of sea otters on depth distributions of Dungeness crab in Southeast Alaska”

Environmental Concerns Corner

Thanks to everyone who joined the conversation at the Environmental Concerns Committee meeting in Fairbanks! We had a lively discussion about ways that the Alaska Chapter could better educate members about emerging topics and comment on environmental issues that affect Alaska's fishery resources.

Some of the ideas generated included: creating factsheets for our membership around meeting symposia topics; providing bullet points for comment letters to the membership—not just deadline notices; recruiting diverse speakers for next year's mining and fisheries symposium,

and creating an environmental concerns-specific listserv.

Keep an eye out in the near future for an invitation to join our new listserv! Meanwhile, we have a new email (ecc@afs-alaska.org) which will help us keep the conversations going. If you have an issue in your region or related to your fisheries work where the Chapter could be impactful, please reach out to Sue Mauger (sue@inletkeeper.org) and Joel Markis (jamarkis@alaska.edu). As chairs of the Environmental Concerns Committee, we want to bring our Chapter into conversations where our expertise has the greatest value. 🐾

Diversity, Equity, and Inclusion Committee

Cheryl Barnes, DEIC Chair

Here's to a more inclusive AFS!

What a wonderful meeting in Fairbanks! It was such a pleasure to meet many new fisheries folks and see some familiar faces after spending so much time behind the computer. For me, it was also heartwarming to meet all of the DEIC members in person, some of whom I've worked with for nearly five years (but only in two dimensions)!

The DEIC rolled out a number of new programs for our long-awaited return to in-person meetings... and you all helped make them a success! These included efforts to increase accessibility (e.g., registration waivers for high school students and Tribal members, autogenerated subtitles, gender inclusive restrooms, and remote participation options), events designed to bolster one's sense of belonging in our Chapter (e.g., affinity stickers and group meetings, and a mentorship mixer), and more structured conversations about how we all can be more effective allies to our friends and colleagues. [Alaska Sea Grant](#) even sponsored our first professionally-facilitated workshop focused on collaborative approaches to increasing diversity, equity, and inclusion in fisheries. Thanks to Traci Gatewood of [G2 Diversified Services](#) for helping people from more than a dozen organizations work together to improve recruitment, retention, and promotion processes for fisheries professions across Alaska.

Although grassroots efforts are the most common approach to DEI work, specific actions and longer-term strategies must be supported by people in leadership positions to be most effective. Our committee couldn't have asked for a more supportive leader than Erik Schoen! As AFS Alaska Chapter-President-Elect, Erik organized the annual Chapter meeting. He also served as the Executive Committee Liaison to the DEIC and actively engaged in the shared work that is improving DEI. It was refreshing to work with such an extraordinary leader—someone who is truly invested in serving everyone (and willing to put the extra work in to really do so). Thank you for amplifying underrepresented and often marginalized voices, Erik! The DEIC appreciates you.

I'd also like to recognize Madeline (Maddy) Lee, who established the DEIC Liaison position for the



Diversity Equity and Inclusion Committee members (l-r) Keenan Sanderson, Katie Russell, Erik Schoen, Cheryl Barnes, and Sara Gilk-Baumer were recognized at the Chapter awards ceremony. Student liaison member Madeline Lee not shown.

Student Subunit. Like Erik, Maddy participated in our year-round monthly meetings and served as a line of communication between the two groups. Maddy was also instrumental in establishing the annual student retreat, which was designed to help build community among fisheries students from around the state. As she completes her final term as a Student Subunit officer, we look forward to welcoming Maddy as an official DEIC member.

Finally, a HUGE thank you goes out to my fellow committee members Sara Gilk-Baumer, Katie Russell, and Keenan Sanderson. Each of you have given so much time and energy to the Chapter! Our DEI work is challenging in so many ways and requires a great deal of perseverance. I (and so many of our members) truly appreciate your efforts! We will continue to diversify our membership, develop more equitable policies and practices, and organize more inclusive meetings because of your hard work and dedication.

As we reflect on the recent meeting and look toward the future, we are excited to welcome Donnie Arthur as the AFS Alaska Chapter President-Elect and Executive Committee Liaison to the DEIC. Donnie—we know that you will be a pleasure to work with as we get into planning for the meeting in Seward. Thank you in advance for your service! Additionally, we look forward to having at least two new committee members and a new Student Subunit Liaison join us (to be announced). To the rest of you, please reach out at any time. We'd love to hear your thoughts on where we should direct our attention! 🐻

Student Subunit Happenings

Jonah Bacon, Student Subunit Representative

Chapter Meeting

Students were highly involved at the 2023 Alaska Chapter meeting, both before and during the meeting. During the first two days of the meeting, students assisted with professional development activities. Students also staffed the registration desk and sold AFS merchandise during the Film Fest Welcome Social and throughout the week. During technical sessions, they helped load talks and troubleshoot A/V issues. Students helped plan and assist with the poster session, socials and Fish Trivia, the Spawning Run, the banquet, and general tasks throughout the week. Students also garnered silent and live auction items from local businesses to support future student travel to Alaska AFS meetings. There is a long, proud tradition of student involvement in our Chapter meetings, and I thank all the students that contributed to the continuation of that tradition.

Many students also presented their research through posters and talks. Recognitions and awards for best student posters and best student oral presentations are described elsewhere in this newsletter. Thank you to all the students who presented their fantastic research. The future fisheries professionals in Alaska are a promising bunch!

Student Retreat

Prior to the Chapter Meeting, students gathered for a weekend retreat in Fairbanks. Students came from all corners of the state, and also from outside the state! For many students from different localities, this was the first time physically meeting colleagues in-person after multiple years of distance learning and conferences. The retreat was extremely beneficial for community building within the Alaska Chapter student population. Students practiced AFS talks and posters, participated in a science communication workshop and DEI-related conversations, cooked meals together in a dry-cabin, and spent fun time together at Chena Hot Springs, cross-country skiing, ice fishing, and relaxing. The students are extremely grateful to the individuals who helped make this event possible: Erik Schoen; Alaska Chapter Executive Committee, meeting planning, and DEI committees; Trent Dodson for assistance with the student travel



AFS Alaska Chapter Student Representative, Jonah Bacon.

award fund; Nina Doerner for donating hand-knit hats and neck gaiters; Amanda Kelley for leading a DEI discussion during the retreat; Peter Westley (last year) and Jeff Falke (this year) for being faculty mentors for the student subunit and helping to plan the event; CFOS and the Fisheries Department for supporting the retreat; Twin Bears Camp for hosting us; and many other individuals who helped make this event possible!

Student Symposium

In late February, the Student Symposium occurred in-person in Fairbanks and Juneau and over Zoom for the rest of the state. Over 100 viewers attended the event and 24 students presented their research. Students received feedback from both judges and general participants. The Chapter prizes awarded for best long and short talks, as determined by the judges, went to: Best long talk—Austin Flanigan; Long talk runner-up—Will Samuel; Best short talk—Carter Johnson; Short talk runner-up—Matt Cheng; Best introduction—Kevin Fitzgerald. Thank you to everyone who attended and supported student research!

Goodbye!

It has been a pleasure to serve as the student representative over the past year. I've enjoyed building relationships with the executive committee members, students, and other Alaska fishery folks. I'm extremely optimistic that the future of our Alaska fisheries is bright! A big thank you, welcome, and good luck to Rebecca Shaftel who will be the student representative for the next year. 🐟

Molly Ahlgren Scholarship Award

The Molly Ahlgren Scholarship Award was established in honor of Professor Molly Ahlgren, an Associate Professor of Environmental Science at Sheldon Jackson College and also AFS Alaska Chapter President in 2005. After Professor Ahlgren was killed in a boating accident, the Chapter established the scholarship to honor Professor Ahlgren and her life's work. The scholarship provides at least \$2,000 annually to a worthy undergraduate student(s) in their sophomore, junior, or senior year of studies with the intent of earning a baccalaureate degree in fisheries, aquatic, or biological science at an Alaska university. In addition, all travel and meeting registration expenses are paid for the recipient(s) to attend the annual AFS Alaska Chapter annual meeting. The 2023 recipients, Molly Legg from Alaska Pacific University and Kristen Reese from University of Alaska Fairbanks, received \$3,000 each.

Molly Legg

Molly Ahlgren, a woman I never had the opportunity to meet, yet I feel such a connection to. Myself and the handful of others who have received this award have the duty and the complete honor to carry on Molly's legacy. Molly knew how to live, learn, and love her natural world.

The 2023 AFS Alaska Chapter meeting was my first-ever scientific conference, and wow did it open so many doors for me! I just graduated from Alaska Pacific University's Marine and Environmental Science Undergraduate Program in April, and my attendance at this conference could not have happened at a better time. As a recent grad, the future can be a scary and intimidating thing, however, after attending the conference, I know I will be in great hands in the Alaska science community. I met so many different people from all around Alaska who wanted nothing but to support me and help me grow as a scientist. I learned about so many new opportunities and different directions that I can take my scientific career that I never knew existed. The different talks opened my eyes to so many different possible scientific questions I can ask in the future, and the knowledge I gained helped me feel a little closer to the Alaska that I love so much. I participated in the poster session where I presented my work: "Investigating



Molly Ahlgren Scholarship Award recipients for 2023, Kristen Reese (left) and Molly Legg (right) with meeting program chair Erik Schoen. Photo by Maggie Harings, UAF.

Patterns of Aquatic Insect Emergence in a Warm and Cold Stream in Anchorage." While presenting my poster I was able to have some truly amazing conversations with my fellow scientists. Those conversations made me realize why I want to be a part of this community and how much I truly belong here. I will forever be grateful for my first ASF conference, it is where I found my community.

Kristen Reece

As a recipient of the 2023 Molly Ahlgren Scholarship Award, I am honored and grateful to have been chosen to represent the memory of such an outstanding person. Learning about the positive impacts that Molly had on her students, peers, and communities has been incredibly inspiring. Her dedication and advocacy for education in the aquatic sciences have encouraged undergraduate students to become life-long learners. I had the opportunity to travel to Sitka for the 2022 Whalefest, prioritizing a visit to the Molly O. Ahlgren Aquarium at the Sitka Sound Science Center. It was apparent the impacts that Molly had on the community that reached far beyond Sitka and aquatic sciences.

With the support of the 2023 Molly Ahlgren Scholarship, I had the opportunity to attend my very first American Fisheries Society Alaska Chapter annual meeting in Fairbanks. This was a great experience as an undergraduate emerging in the fisheries and ocean sciences field. I was fortunate to be involved in facilitating a Diversity,

Continued on next page

Scholarship Award, continued

Equity, and Inclusion Committee Affinity Group discussion for Dependent Caregivers. Attending Affinity Group discussions allowed me to connect with others in the field that were understanding and supportive. Having an opportunity to present my poster allowed me to gain the confidence to share my research with the community. Attending the "Tamamta (All of Us): A racial equity dialogue" was empowering. As an Iñupiaq student in an underrepresented field, I appreciated the engagement of those who listened and learned from the Indigenous perspective. After the dialogue, I had this overwhelming feeling that I had gained a room full of allies. During the talking circle, our allies are now aware of some of the issues that Indigenous people face with fisheries management on their ancestral lands. I

am greatly appreciative of having the support of the scholarship to attend the AFS Alaska Chapter meeting as it has been such a valuable experience.

Having an excellent mentor is a driving force for many students. I do not doubt that Molly was an exceptional mentor for students, supporting their curiosity and love for aquatic sciences. I have been fortunate to have extraordinary mentors, Dr. J. Andrés López and Maggie Harings, who encouraged my natural curiosity and determination for learning. They inspired me to continue my education and motivated me to challenge myself in learning laboratory techniques. I am grateful for the time they have given me and for introducing me to the field of research in fisheries and ocean sciences.

Receiving the Molly Ahlgren Scholarship is such an honor. I am thankful to be supported in her memory and will strive to contribute to her legacy. 🐟

Meetings and Events

American Fisheries Society Parent Society Annual Meeting

August 20–24, 2023. The 153rd annual meeting will be held in Grand Rapids, MI. For more information go to <https://afsannualmeeting.fisheries.org/>. 🐟



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AFS Code of Conduct

The Ethics and Professional Conduct Committee (EPCC) of the American Fisheries Society has developed a code of conduct for our meetings and AFS-sponsored functions, whether virtual or in person. This brief document is available at <https://fisheries.org/about/governance/afs-meetings-code-of-conduct/>. Please read through this document to ensure that we are collectively working to build awareness of this policy to ensure that all AFS-related gatherings are a respectful and inclusive experience for everyone. If you have questions, reach out directly to the EPCC Chair Brian Missildine for support at brian.missildine@dfw.wa.gov.

ONCORHYNCHUS

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