# ONCORHYNCHUS

Newsletter of the Alaska Chapter, American Fisheries Society

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*Fish counting tower on the Gulkana River.* Photo by Scott Maclean.

## Gulkana Chinook Salmon — Simple Return Timing Predictor

*Shane R. Ransbury, Scott Maclean, Corey J. Schwanke, Tracy Hansen, and James W. Savereide*

The Gulkana River is one of six major Chinook Salmon spawning tributaries to the Copper River and supports one of six Chinook Salmon stocks found in the drainage (Chitina, Tonsina, Klutina, Tazlina, Gulkana, and Upper Copper). The Gulkana River stock supports numerous freshwater subsistence, personal use, and sport fisheries.Sport fishing harvests of Gulkana River Chinook Salmon peaked in the 1990s, ranging from 4,000 to 6,000 salmon annually. Returning adult Gulkana River Chinook Salmon typically enter the freshwater in mid-May to early-June, with the Upper Copper River stock returning earlier.

Accurate forecasting and careful harvest management are critical to ensure continued productivity of Gulkana River Chinook Salmon. It has long been surmised that by studying environmental conditions and innate aspects of salmon biology, researchers and fishery managers could predict the timing of specific salmon life history events, including date of freshwater return, age at return, and aspects of inriver movements. Run timing variation represents a continuum of forms that fall along a temporal cline. Even within a stock, Chinook Salmon phenology can be remarkably plastic. Relatively low salmon returns early in the season could indicate a small run with early timing or the beginning of a late-arriving large run. Confusing the two can result in overharvest, underharvest, or biased harvest, where harvest is not distributed across the run. For example, appearance of a small early run could lead managers to restrict subsequent fishing opportunities. However, if managers could reliably determine that the run was large and simply late, more fishing opportunities could be provided, allowing more efficient resource use.

Salmon navigate their vast ranges utilizing geomagnetic cues along with various means

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## The President's Corner

*Sue Mauger,*
*AFS Alaska Chapter President.*

Cheers to a new year! May 2022 overflow with new fishy ideas, quality time with colleagues, meals of nature's bounty, and epic adventures across Alaska where your feet get wet. And, I hope the returning light is bringing a little skip to your step despite the vagaries of omicron or tsunami-generating volcanic eruptions that go boom in the night.

Since our last newsletter, both the AFS Western Division and AFS Alaska Chapter held virtual 2-day Executive Committee retreats to take up topics and tasks we don't have time for during our regular monthly meetings. The Western Division presidential baton just passed from Todd Pearson to Dan Brauch, who will oversee the 152nd meeting of the American Fisheries Society at Spokane, WA, during August 21-25, 2022, cohosted with the Washington-British Columbia Chapter. The meeting theme is "What Do Fish Mean to Us: Perspectives Above and Below the Waterline."

In preparation for our Alaska Chapter retreat last November, we invited committee chairs to report back on their progress and requests. You'll hear full reports at the business meeting during our annual meeting, but I must say I'm so impressed by all the work happening throughout the year by these committees. Please check out our *committee page on the website* to see where your energy and interest align and consider serving on one of these committees.

At our retreat, we spent a lot of time discussing the upcoming Chapter meeting. At that point in November, we still had visions of gathering in-

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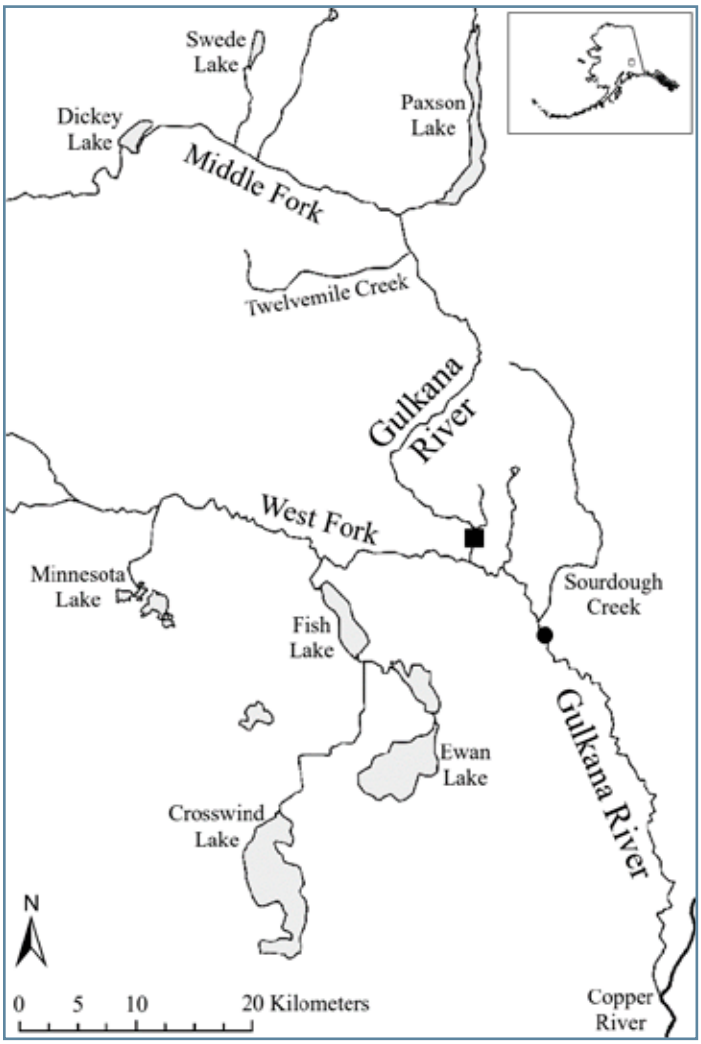
## **Gulkana Chinook Salmon**, continued




*Locations of the counting tower (black square) and the USGS gauge at Sourdough Landing (black circle) within the Gulkana River Drainage (Maclean 2013).*

of chemo- and photoreception. Sensory organs allow them to capitalize on large-scale climatic events, oceanic gyres, and periodic nutrient upwelling to locate concentrations of prey species and ultimately return home to their natal waterbodies. Environmental factors such as temperature, discharge, dissolved oxygen, ocean prey composition and abundance, and ocean upwelling have been previously linked to adult Chinook Salmon run timing. However, the influence of environmental cues on run timing is poorly understood, and correlations are rarely strong enough for inseason management. Studies of sea surface temperature, percent sea ice cover, dissolved oxygen content, Pacific Decadal Oscillation, North Pacific Index phase,

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## President's Corner, continued

person in Juneau. However, as you know, omicron popped up. Kudos to President-Elect Megan McPhee and the planning team for tracking the data, anticipating the reality of the surge we are now in, and making a science-based decision. We know the shift to virtual is disappointing, particularly for students, who look forward to the annual meeting to make new connections and get input on their research. For now, we'll have to embrace the benefit of more members being able to show up virtually than could have traveled to Juneau, and hold out hope that we will be all together again in Fairbanks in March 2023!

We also spent time reviewing and revising the Chapter Bylaws and Chapter Procedures Manual. With so many recent changes to the way we operate, and a commitment to incorporate more inclusive language that fosters a diverse and inclusive culture in the fisheries community, revisions were needed! Revisions to Chapter Bylaws must be approved by a membership vote. We are working on a timeline to get the changes approved so Chapter members can vote on the revisions during the business meeting at our upcoming meeting themed "Changing Tides: Outlook for the Future, Insights from the Past."

Back in July 2021, the Alaska Chapter sent a letter to Representative Don Young to express our support for H.R. 2773, the *Recovering America's Wildlife Act*. This bill would make funds available for management of fish and wildlife species of greatest conservation need as determined by state fish and wildlife agencies. We're pleased to report that Representative Young signed on as a co-sponsor in January! The bill will begin being marked up in the weeks ahead. Thanks to everyone who reached out to Congressman Young to gain his support of this bill!

As my year as President of the Alaska Chapter wraps up, I'd like to highlight the value of our mission to maintain high standards for the fisheries profession and ensure conservation of Alaska's fisheries. We are among the luckiest of our peers to study and manage fisheries that are still central to our communities, families, and way of life. But change is happening fast and we have many challenges ahead. I remain optimistic that, as Alaskans who are life-long learners of both fishery science and Indigenous knowledge, with diverse voices at the table, advanced research to draw from, and a deep commitment to future generations, we can successfully manage and conserve our world-class fisheries. I hope you will continue to add your energy to the Chapter and our mission in the coming year.

I'll look forward to seeing you all on my screen during the annual meeting! Until then, thank you for all you do for Alaska's fish and fisheries!

## AFS Alaska Chapter Meeting Update

The next AFS Alaska Chapter meeting is February 28 to March 3, 2022. This year's meeting theme is "Changing Tides: Outlook for the Future, Insights from the Past." It's safe to say we are all feeling pushed around in the waves by events out of our control. Last year, we were reminded that we're in this profession because we love fish! This year, we convene to gain wisdom from career-long fisheries professionals, folks who have spent their lives with fish, and the peoples who have stewarded Alaska's lands and waters from time immemorial.

But, let's also celebrate the work being done by emerging fisheries professionals while we envision a more inclusive and robust fisheries community in the years to come. We are looking forward to seeing you, in shared virtual space, at the 2022 meeting. Meeting registration will close on February 21. For more information, go to the *https://afs-alaska.org/*.

Several workshops will be provided as part of the meeting including: An Introduction to R for Fishery Researchers; Designing Flawless Research Posters in InDesign; Science Communication – Tips from a Former Journalist Turned Scientist; GitHub for Fishery Scientists; and WESPAK-SE 2.0 Orientation. If you plan to participate in a workshop, please register by the week of February 14. More information is available at *https://units.fisheries.org/ak-mtg/2022-workshops/*.

Please consider being a judge for student presentation awards! For more information, contact Jeff Falke at *jfalke@alaska.edu*.

## **Gulkana Chinook Salmon**, continued

moon illumination, weather, and land-based air temperatures have infrequently demonstrated anything beyond weak associations with phenology. The association between environmental factors and run timing varies by stock and location, and scientists have determined environmental cues explain >50% of run timing variation in some stocks, but not others. One promising univariate environmental predictor appears to be freshwater temperature, where warm water correlates well with a large portion of the run arriving at the river mouth. However, the utility of water temperature appears to vary by stock and region, with inconsistent correlations. In the best scenarios, environmental factors explain only 60% of the variance for Chinook Salmon run timing, making forecasting based on environmental indices imprecise.

Understanding the influence of environmental indices assists in predicting the timing of adult Chinook Salmon spawning migrations. These predictions allow fishery managers to adjust fishing effort more efficiently to account for the size and composition of the return, limiting the likelihood of over- or underharvest. Previous research from the Gulkana River in 2013 discovered that June maximum water temperatures had a strong relationship with salmon return timing, where run timing was defined as the percentage of the run passing the counting tower prior to July 1. Eight years later, we reassessed the relationship using additional data. We hypothesized that combining indices of water temperature, river discharge, air temperature, and ocean upwelling in run timing models would better inform predictions of run timing for Chinook Salmon in the Gulkana River.

Inherently, run timing is determined by interrelated proximal, distal, and genetic factors. Environmental indices were separated into proximal factors, which acknowledged conditions in the freshwater environment, and distal factors, which described oceanic and atmospheric contributions to run timing. Our analyses involved two major assumptions. Genetic factors affect how a given stock evolves in response to distal and proximal factors, but since only one stock was considered by the model, the effect of genetic variation was assumed to be negligible in the timeframe of our study. Secondly, the number of fish in a run was assumed to not affect run timing, an assumption bolstered by a lack of support for density-dependence in marine portions of the Chinook Salmon life cycle. Two distal factors, oceanic upwelling and air temperature, and two proximal factors, river discharge and water temperature, were retained for the model. Environmental data from the drainage and nearby ocean were abundant, so modelling was restricted to datasets that qualitatively fit reasonable hypotheses about local environment effects on Chinook Salmon behavior. The sole distal factor, oceanic upwelling,

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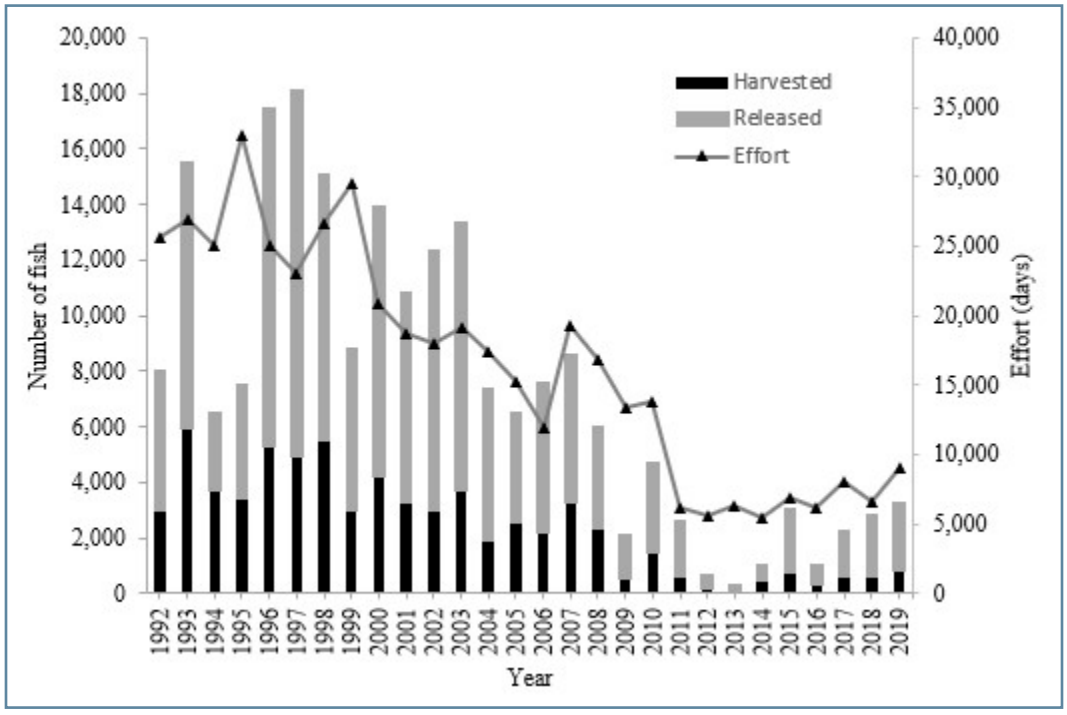


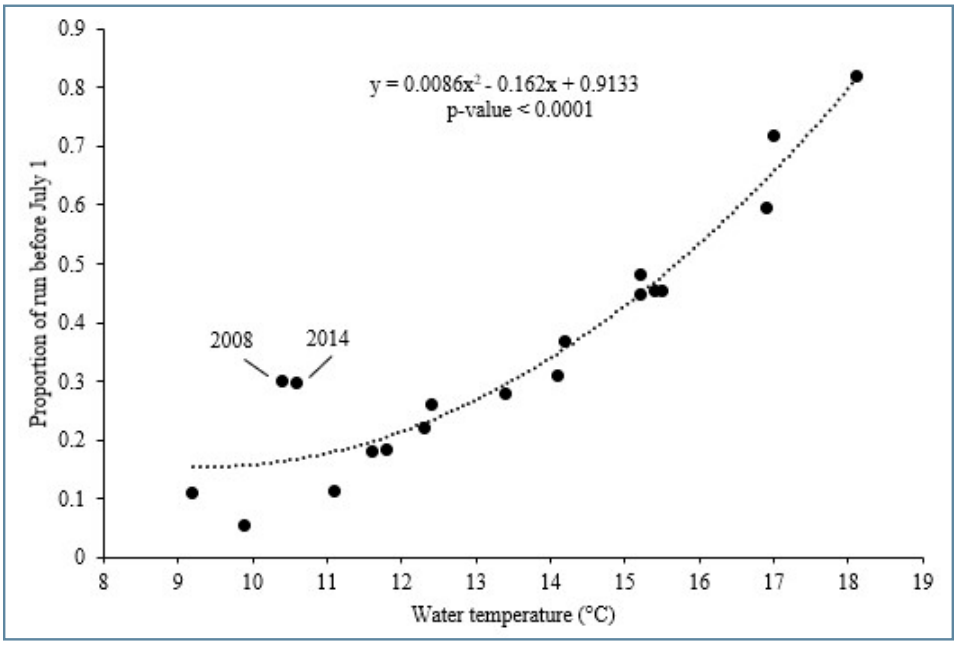

*Number of Chinook salmon harvested and released (the sum is considered total catch) and fishing effort for all fish species in the Gulkana River, 1992–2019 (Somerville and Hansen 2021).*

## **Gulkana Chinook Salmon**, continued

was derived from the Bakun Upwelling Index with measurements taken near the mouth of the Copper River at 60°N., 146°W. Air temperature collected by the National Weather Service from the nearby Gulkana Airport and maintained by the National Center for Environmental Information was the sole climatic variable studied. River discharge was measured at U.S. Geological Survey gauges located at Sourdough Landing on the Gulkana River and the Million Dollar Bridge on the Copper River.

Run timing varied widely among years on the Gulkana River from 2003 through 2020. The percentage of the Chinook Salmon run that passed the counting towers by July 1 ranged from 5.5% in 2018 to 81.9% in 2004. On average, fish first passed the counting towers on June 9. Water turbidity and other disruptions caused multiple days to be interpolated annually throughout the 19-year period. The years 2008 and 2014 had a high number of days with no or partial counts resulting in the highest percentages (28% and 31%, respectively) of the run that were interpolated. Consistent with our assumptions, the adjusted number of fish counted past the tower, which ranged from 1,122 in 2016 to 8,346 in 2019, was not found to influence run timing.

We refined the forecasting ability of Chinook Salmon run timing by comparing models based on linear, exponential, and polynomial regressions of marine and freshwater environmental indices for the Gulkana River stock. A range of temporal subsets and measurement techniques regarding coastal upwelling, air temperature, river discharge, and water temperature were analyzed in a step-wise process to update the inseason forecast model. Ultimately, Gulkana River water temperature proved to be the most important variant in predicting run timing. Cumulative inseason Gulkana River tower counts of Chinook Salmon through June 30, and the daily maximum water temperature during June 10-30 at the tower site, could accurately estimate the proportion of the total run that swam upriver before July ($r^2$ = 90.5; p-value < 0.0001). The close polynomial relationship between Chinook Salmon run timing and water temperature is likely due to the direct impact of temperature on the physiology of the species. For example, higher temperatures elevate the heart rate and increase oxygen consumption. Our findings suggest that management should begin using a second-order polynomial regression of water temperature to forecast Chinook Salmon run timing in the Gulkana River.




*June 10–30 average maximum water temperature and the proportion of the Chinook salmon run by July 1 at the Gulkana River fish counting tower, 2002–2020.* Figure from Shane Ransbury.

*Shane Ransbury is a Fisheries Biologist for the Alaska Department of Fish and Game in the Yukon Management Area, while concurrently completing a graduate degree through Oregon State University. Scott Maclean, UAF graduate and former AFS Alaska Chapter President, is a Fisheries Biologist for the Bureau of Land Management in the Jarbidge Field Office in Twin Falls, ID. Corey Schwanke and Tracy Hansen are Fisheries Biologists for the Alaska Department of Fish and Game in the Upper Copper-Upper Susitna Region. James Savereide is the Arctic-Yukon-Kuskokwim Research Coordinator for the Alaska Department of Fish and Game.*

## Southeast Alaska Working Group Seeks Concerns on Northern Abalone

The northern abalone, also called pinto abalone, Gunxaa, and Gúlaa, is Alaska's only abalone species. Being related to limpets and snails, northern abalone in Southeast Alaska occur at depths from the intertidal to about 30 feet in limited areas from Chichagof Island south to the Canadian border, although their range extends to California. Northern abalone are important to many Alaskans for food, artistic material, and as a component of cultural and spiritual well-being. The Tlingit, Haida, and Tsimshian communities have served as stewards of northern abalone for thousands of years.

To forward the stewardship of this species, a working group is forming in Southeast Alaska to prioritize the concerns and needs of communities, and this group is looking for information from people interested in northern abalone. A digital survey was designed to provide an opportunity for Alaskans to share their priorities about sustainably increasing abalone availability in their communities. Approaches could potentially include research, restoration, cultural and educational programming, aquaculture, and monitoring.

Alaska Sea Grant State Fellow Ashley Bolwerk is leading the survey, which asks Alaskans to share priorities for abalone in their communities and to provide input on community-specific conservation and recovery strategies. Listening sessions will also occur in the spring of 2022 as another opportunity for the public to provide input. For more information contact Ashley Bolwerk (*abolwerk@alaska.edu*). You can participate in the survey by going to *https://forms.gle/VBBtXBPusX1q2zQ38*.

## AYK-SSI Research Proposal Deadline Extended

The Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (AYK SSI) has extended the deadline to May 3, 2022, for the submission of Chinook and Chum salmon research proposals. Up to $1.2 million in funding is available for projects no earlier than January 1, 2023, and ending no later than December 31, 2025. For additional information, go to *https://www.aykssi.org/ayk-ssi-2022-invitation-to-submit-research-proposals/*, or contact the AYK SSI Research Coordinator, Dr. Joseph Spaeder (*joespaeder@gmail.com*; 907-279-6519 ext. 2).

## Alaska Sea Grant State Fellowship Seeks Hosts and Fellows

Alaska Sea Grant is seeking Alaska-based organizations to host 2022 Alaska Sea Grant State Fellows for one year starting next summer. Alaska Sea Grant is also inviting graduate students to apply to the fellowship program. This program helps build and strengthen Alaska's future marine and coastal resource management workforce by encouraging enthusiastic, bright new professionals to launch their careers within Alaska. Now entering its 8th year, the program matches soon-to-graduate or recently-finished graduate students with an Alaska-based organization or agency for a one-year paid fellowship.

Interested in being a host? Host expectations include: engaging the fellow in work important to marine or fisheries science or policy; and mentoring and supervising the fellow and promoting growth towards the fellow's professional goals. Organizations can apply to host more than one fellowship position. Host applications are due February 11, 2022.

Interested in being a fellow? Fellow expectations include: participating as a full-time, professional staff with the host for 12 months; and creating a professional development plan and tracking accomplishments. Completed fellow applications are due February 11, 2022.

The 2022 Alaska Sea Grant State Fellowship timeline is as follows: (1) host and fellow applications due February 11, 2022; (2) interviews in February/March; (3) placements in March/April; and (4) one-year fellowships start between June and September 2022. For more information, visit the Alaska Sea Grant State Fellowship website at *https://alaskaseagrant.org/education/awards-fellowships/state-fellowship/* or contact Anne Doyle (*anne.doyle@alaska.edu*).


## Richard Hocking

Richard C. Hocking, the Alaska SeaLife Center's (ASLC) Aquarium Curator of 24 years, passed away November 2, 2021, at his home in Seward at the age of 70. Born in Seattle, WA, April 16, 1951, Richard's curiosity about the natural world was evident from a young age as he loved camping and exploring near the Skykomish River, along with family trips throughout Washington State and to various national parks. Richard's job with the Washington Department of Fish and Wildlife paralleled his childhood dream of being a forest ranger, but his passion for the ocean truly defined his life's work and scuba diving became a prominent interest. Richard refocused his career to the aquarium industry beginning in 1976 as an Aquarium Biologist with the Seattle Aquarium where he worked until transferring in 1989 to the Point Defiance Zoo & Aquarium as an Animal Care Technician. In 1997, Richard went to work as Aquarium Supervisor for ASLC, before construction was even finished. He was promoted to Aquarium Curator in 1998, a position he held until his passing. With his primary duties to guide aquarists in the maintenance and display of species at ASLC, Richard also oversaw the permitting process to allow ASLC to collect and display fish and invertebrates, he was involved in long-term monitoring of invasive species, and he was also in charge of food procurement and inventory management for not just fish and invertebrates, but for every species at ASLC. Known as one of the most hands-on curators at ASLC, Richard was both teacher and student with a seemingly endless knowledge of marine species, a passion for marine conservation, and a goal to educate and motivate the next generation of ocean stewards. He led dissections and classes in ASLC's after-school programs, and was active as judge and mentor for the Alaska Ocean Science Bowl.

*Editor's note – Richard was my go-to person when I came across an invertebrate that I didn't know.*

# Student Subunit Happenings

*Taylor Cubbage, Student Subunit Representatives*

Happy New Year and semester, AFS Alaska Chapter members! Despite another fall of unpredictability, we had several remarkable CFOS students graduate from University of Alaska campuses and begin the next chapter of their fisheries and ocean science careers: Feyne Elmore (B.S. Fisheries and Ocean Sciences with a concentration in Ocean Sciences); Elizabeth Kiely (B.A. in Fisheries with a concentration in Fisheries Business and Social Sciences); Ronald Sheldon (B.S. in Fisheries and Ocean Sciences with a concentration in Fisheries Science); Zane Chapman (M.S. Fisheries) – "Otolith derived hatch dates, growth rates, and microchemistry of Arctic Cod (*Boreogadus saida*) support the existence of several spawning populations in Alaskan waters;" Jamie McCracken (M.S. Fisheries) – "Spawning site selection of Coho Salmon *Oncorhynchus kisutch* in Susitna River tributaries, Alaska;" Jamie Musbach (M.S. Fisheries) – " The effects of ocean acidification and warming on the metabolic physiology of juvenile Northern Spot Shrimp;" and Amy Dowling (M.S. Marine Biology) – "Environmental influence on size frequency distributions of the Pacific Blue Mussel (*Mytilus trossulus*)."

As the COVID-19 pandemic drags on throughout the world and in our communities, students are particularly disheartened as potentially in-person events are relegated to another virtual meet-up. While precautions to protect vulnerable groups and our healthcare system are the right choice, the ramifications of virtual conferences will undoubtedly have lasting impacts on the careers of our brightest fisheries students. These (hopefully) limited years of virtual events are a mere bump in the proverbial road for established professionals, as many already have made meaningful relationships with the tiny faces of Zoom participants at previous in-person meetings. However, the narrow opportunity that students have at conferences to share novel research, make lasting impressions, and network to find the career of their dreams is currently limited to a screen. The first AFS conference I attended was a memorable flurry of presentations and conversations with seasoned professionals that facilitated my first state agency internship that following summer. My second AFS meeting resulted in visiting a potential graduate school and participating in an American Paddlefish (*Polydon spathula*) spawning event at a state hatchery. Following in-person AFS conferences snowballed into oral presentations, awards, and undoubtedly the fortunate graduate position I find myself in today. I am sympathetic towards my fellow fisheries students, and can only wonder what they are missing during these crucial years of personal and professional development.

*AFS Alaska Chapter Student Representative, Taylor Cubbage.*

Despite these limitations, our Alaska AFS meeting planning committee and other event organizers are working to create better engagement opportunities for students and professionals alike in 2022. While our upcoming Annual Chapter Meeting will be virtual, several events are planned specifically to help members connect. We will have multiple rounds of professional mentor-student mentee pair-up sessions throughout the meeting and affinity groups to bring members with shared experiences together. If COVID-19 conditions allow, we will also encourage the separate organization of safe, in-person gatherings at local venues to catch up about the day's presentations. The Alaska

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## **Student Subunit Happenings**, continued

Marine Science Symposium will be held virtually from January 24 to 27, with plenty of opportunities to interact with oral and poster presenters. The AFS Western Division Student Colloquium will be held in-person and virtually from January 21 to 23 in San Jose, California, with practice presentations, fish trivia, and a professional development workshop. The upcoming annual AFS-sponsored Student Symposium, a fantastic opportunity for students to share all stages of research and get valuable feedback from fisheries and aquatic science judges, will potentially be held in person in Juneau and Fairbanks at UA campuses on March 25, 2022. For Fairbanks students, Fish Thursdays will continue at the UAF Pub following social distancing guidelines, and in-person meetings to solicit donation items for the AK AFS annual meeting auction will resume weekly on Tuesdays during 4-5 pm, starting January 18, 2022.

Speaking of the silent auction, we are gathering some great items to share at this year's Chapter Meeting thanks to the hard work of AFS students! Get ready to start a bidding war over a Black Spruce Brewing gift set, family day pass to the Alaska SeaLife Center, guided wading trip by Fish Hound Expeditions, Summit Spice and Tea package, pottery, fish-themed art, and more! If you have a favorite restaurant, company, or artist in your Alaskan community that may be interested in providing donation items, please send me an email and their contact information at *tlcubbage@alaska.edu* so I can reach out to them. As we wade through the next few months of virtual conferences, it will be hard to stay engaged and actively seek connections via little Zoom faces and name tags. I encourage burnt-out students to make use of these upcoming experiences, and remind our valued professional members that we sincerely appreciate your involvement in mentorship and networking opportunities as we begin a bright new year.

## Environmental Concerns Corner

Following a two-day Salmon Roundtable, where Alaskans shared their concerns about low salmon returns and impacts from climate change on fisheries, Senators Murkowski and Sullivan introduced S. 3429 – *Alaska Salmon Research Task Force Act*. This bill, if passed, would result in a panel of salmon stakeholders and experts assessing current salmon research and developing recommendations to guide future salmon research and management. Stay tuned for updates and consider thanking our senators for acting to ensure our salmon, Alaskan communities, and fishery managers thrive into the future.

In 2019, the AFS Alaska Chapter submitted comments on the Proposed Rule and draft Environmental Impact Statement (EIS) released by the Forest Service to exempt the Tongass National Forest from the 2001 Roadless Rule. Our concerns included that the draft EIS did not adequately assess the potential impacts roadbuilding, road maintenance, and resource extraction would have on aquatic and riparian habitats that support salmon productivity. In January 2022, the Alaska Chapter submitted comments to the U.S. Department of Agriculture and Forest Service in support of their decision to reinstate the Roadless Rule in the Tongass. Both letters can be found at: *https://afs-alaska.org/ak-afs-tongass/*

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 (*president@afs-alaska.org*) and Joel Markis (*jamarkis@alaska.edu*). As co-chairs of the Environmental Concerns Committee, we want to bring our Chapter into conversations where our expertise has the greatest value.

## AFS Alaska Chapter Awards

The Alaska Chapter is currently soliciting nominations for the Meritorious Service Award (MSA), the Chapter Service Award (CSA), the Almost Darwin Award, and the Wally Noerenberg Award for Fishery Excellence. We encourage all members to consider deserving individuals and to submit nominations for these awards. You can find the nomination forms and more details about each award on our Chapter website: *https://afs-alaska.org/awards-scholarships/*.

## Cultural Fish Camp

During July 21-30, 2021, the Orutsararmiut Native Council's (ONC) Natural Resources Department partnered with the University of Alaska Fairbank College of Rural and Community Development Kuskokwim Campus (KuC) to offer a two-week Science and Culture Class, where students from the Yukon-Kuskokwim (YK) Delta could earn two college credits. A fully vaccinated group of 15 students from across the YK Delta gathered in-person for the full learning experience. Students were exposed to a range of classes including subsistence management of salmon resources, moose biology, ethnobotany, and Yup'ik epistemology (way of knowing) and ontologies (nature of being). Daytime activities involved both classroom lectures and hands-on experiential learning. The settings ranged from science laboratories to a traditional fish camp with classes held on the tundra, and included drift net fishing, cutting and preparing fish, along with visiting a fishery sonar site. Laboratory classes focused on scientific ways of assessing the health of wildlife populations, by articulating a seal skeleton and performing a necropsy on sea otters. The classes were a success and served as a welcome re-opening of the KuC campus to students and faculty!

Partnership with KuC allowed the program to become a recognized undergraduate class. With the INBRE program's support for curriculum development, Dr. Shannon Atkinson served as the UAF instructor of record, partnering with UAF Alumna, Janessa Esquible, who initiated the science and culture camp through ONC in 2016. The class development team also included Katie Rearden, Associate Director of the KuC campus, KuC's College Readiness Coordinator Ryan Henderson, and Karaline Black, Katie Russell, and Danielle Lowrey, of ONC's Natural Resources Department. The ONC would like to extend special gratitude to the program's funders, including BIA Tribal Youth Initiative, the First Alaskans Institute, the Rural Alaska Community Action Program, Inc., U.S. Fish and Wildlife, and ONC which made this program possible. The 2022 summer camp is eagerly anticipated. We hope to continue this program's university credit capabilities, have all in-person instruction, and see a blend of familiar and new faces!

If you are interested in getting involved with ONC's 2022 program, please reach out to Danielle Lowrey at *dlowrey@nativecouncil.org* or call ONC at (907) 543-2608 and ask for the Natural Resources Department.

## Bering Strait Marine Debris Event Report

A report on a Bering Strait Debris Event was recently posted on the NOAA Marine Debris Program website. The report documents the unusual amounts and types of debris that began washing ashore in Alaska's Bering Strait region in late July 2020. The NOAA Marine Debris Program coordinated with local stakeholders and response agencies to share information, respond to the event, and identify opportunities for action. Responders from local coastal communities went to work document and remove debris from the shorelines. Unusual debris was first reported on July 27 from the north shore of St. Lawrence Island, followed with reports on July 30 from Gambell and the shoreline west of Nome. The following weeks found debris washing ashore in southern Chukchi Sea communities. Debris continued to wash ashore into November 2020, although the concentration of debris deposited onshore declined over time.

The Marine Debris Program then worked with these stakeholders to create the 2020 Bering Strait Debris Event Report, which documents the occurrence, impacts, observations, and lessons learned, in order to share experiences and improve the response to future debris events. You can access the report at *https://marinedebris.noaa.gov/reports/bering-strait-marine-debris-event-report*.

### Amazon Smile

The AFS Alaska Chapter is enrolled as a charitable organization in AmazonSmile. Anyone who shops online at Amazon can support the Chapter financially, at no additional cost! Simply shop through *AmazonSmile* and the AmazonSmile Foundation donates 0.5% of the purchase price of eligible purchases to the Alaska Chapter. This provides an ongoing contribution for supplemental income that can be used to support Chapter projects.

# Scholarships and Grants

### Hutton Junior Fisheries Biology Program

The Hutton Junior Fisheries Biology Program is a paid summer internship and mentoring program for high school juniors and seniors interested in pursuing the disciplines of fisheries science, marine biology, and STEM related fields. The principal goal of the Hutton Program is to stimulate interest in careers in fisheries science and management among groups underrepresented in the fisheries professions, including minorities and women. Selected students, known as "Hutton Scholars," are mentored by fisheries professionals to enjoy an 8-week hands-on fisheries science summer experience in a marine and/or freshwater setting. Scholars receive a $4,000 scholarship award. Mentors and their organizations not only have the opportunity to impart a positive effect on the life of a high school student, but also receive assistance with important summer projects and may even discover a potential future employee! The American Fisheries Society simplifies the mentor's involvement by Scholarship and Grant Funding Opportunities providing guidance and administrative support. For more information on how students apply for an internship, or information on serving as a mentor, please visit *http://hutton.fisheries.org*. The application deadline for this summer scholarship or to serve as a mentor is February 14, 2022.

### NPRB Research Grants

The North Pacific Research Board is offering 2022 Graduate Student Research Awards. These awards support scientific and scholarly research to inform effective management and sustainable use of North Pacific marine resource. Awards will be $26,000 each, with at least six students selected in May 2022. Funds may be used for graduate student stipend and standard benefits, tuition or required university fees, research-related travel, supplies, and laboratory analyses. Students must be enrolled in a graduate degree program at an accredited U.S. university or college at the time of submission. Deadline to apply is February 15, 2022. For more details on eligibility, proposal requirements, and important dates,visit *https://www.nprb.org/graduate-research-award-program/about-the-program/*.

### John A. Knauss Marine Policy Fellowship

This fellowship is designed for graduate students with an interest in ocean, coastal, or Great Lakes resources and in national policy decisions affecting those resources. Eligible graduate students from any discipline receive a year of paid experience in Washington, D.C., working on ocean issues with U.S. Congressional offices or with an executive branch, such as the National Oceanic and Atmospheric Administration or National Science Foundation. The application deadline is February18, 2022 for fellowships that begin in February 2023. For more information visit *https://alaskaseagrant.org/education/ awards-fellowships/knauss/*.

## Eugene Maughan Graduate Student Scholarship

The AFS Western Division is offering up to $5,000 annually in scholarships to masters or doctoral students in the general area of fisheries science with awards to one to three individual students. The application deadline is March 1, 2022. The 2022 scholarships will be awarded August 21-25, 2022.at the 2022 WDAFS Annual Meeting in Spokane, WA. More information is at *https://wdafs.org/students/scholarship-travel-award-information/*.

## 2021 Western Division AFS Travel Grants Registration Assistance

The Western Division of the American Fisheries Society and the Washington-British Columbia Chapter will be hosting the 2022 meeting with the AFS Parent Society. The meeting will be held August 21-25, 2022. The grant categories are: Student;Early Career Professionals (graduated since May 2017); Professionals; Emeritus; International Members; and Indigenous/Tribal Members.

The maximum award amount will cover the registration rate for the 2022 meeting. Maximum budgets for each category are: Student $5,000; Early Career Professional $1,000; Professional $750; Emeritus $500; International $750; and, Indigenous/Tribal Members $2,000. Applications must be received by May 1, 2022. More information will be posted at *https://wdafs.org/travel-grants/*.

# Meetings and Events

### American Fisheries Society Alaska Chapter Annual Meeting

February 28–March 3, 2022. The 48th annual meeting of the AFS Alaska Chapter will be in Juneau, AK. More information will be posted at *https://afs-alaska.org/*.

### American Fisheries Society Western Division Annual Meeting

August 21–25, 2022. The next AFS Western Division meeting, cohosted with the Society meeting, will be in Spokane, WA. More information will be posted at *https://wdafs.org/meetings/annual-meeting/*.

### AFS Student Symposium

March 25, 2022. This potentially in-person and virtual meeting will be held at UA campuses in Juneau and Fairbanks. For more information, or if you are willing to serve as a judge for presentations, please contact Taylor Cubbage at *tlcubbage@alaska.edu*.

### International Conference on Climate

April 7–8, 2022. This will be a virtual meeting with the theme "Responding to Climate Change: Governing the Climate Emergency." More information is at *https://on-climate.com/*

## 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*.

## Fish of the Week!


Join us every Monday for our Fish of the Week podcast! We get to know all the fish — how they live in Alaska, what habitats they use, what they eat, and where they go and why. Everything you need to know to appreciate and conserve these fish and be a successful angler.

*We've got lots of fish stories.*


## ONCORHYNCHUS

Oncorhynchus is the quarterly newsletter of the Alaska Chapter of the American Fisheries Society. Material in this newsletter may be reprinted from other AFS websites.

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