

ONCORHYNCHUS

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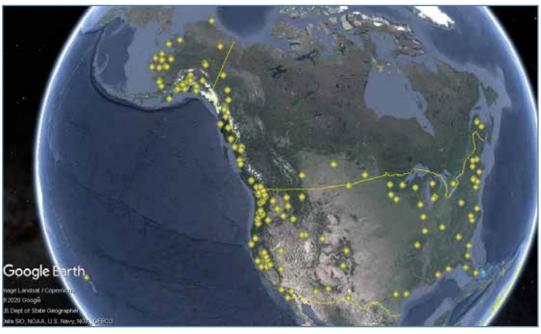
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Dots show the North American locations of our Facebook page followers. Graphic from Kathrine Howard.

What a Worldwide Pandemic Taught Us about Communicating Fisheries Science

Kathrine Howard and Sabrina Garcia

Communicating fisheries science to the public in Alaska is a challenge for management agencies. As a state agency, the Alaska Department of Fish and Game (ADF&G) strives to keep the public informed, but the approach used for fisheries management communications is not always ideal for sharing scientific research. We publish scientific reports and provide publicly-accessible data portals, but these are accessed by few members of the public. Our most common format for sharing salmon science with the public has been through in-person participation in stakeholder meetings. We might meet with a stakeholder group once or twice a year, often giving a 15- to 20-minute presentation focused on near-term management needs, such as next season's salmon forecast. Seldom do these short presentations provide the opportunity to share findings and advances in salmon science, nor do they provide adequate context about the biology and ecology of salmon. All that we do, understand, and wonder about fish and fisheries becomes reduced to a few bullet points that a stakeholder might see infrequently, with little opportunity to actively engage.

Like many of our colleagues, we've had far more training and education in doing science rather than communicating science. We've struggled to find the time and capacity to move beyond the status quo. Then the COVID-19 pandemic happened and forced us to adapt. No longer could we travel to remote villages; no longer were in-person meetings being held. We had no choice but to explore other options. For us, that meant using social media to communicate salmon and shark science. In late summer, we started a Facebook page: <u>ADF&G - The Undersea World of Salmon and Sharks</u>. Our mission is to share scientific research and discoveries about the marine life stage of Alaskan salmon, sharks, and their ecosystems and ecologies.

The learning curve for using social media as a science communication tool was considerable. We are far from experts in social media and weren't

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The President's Corner



Stephanie Quinn-Davidson, AFS Alaska Chapter President.

By the time this newsletter hits your email inboxes, it will be a new year, so Happy New Year, Alaska Chapter! We were presented with some pretty unique challenges in 2020 and I truly hope you all are faring well. I know that jobs, teaching, research, parenting, partnering, etc., have all not gone quite as we had wanted or expected. But I hope you're giving yourself some space and being kind to yourself with the adversity faced. Your teaching, research, career, and whatever else are not falling behind...they are surviving a pandemic. Hope is on the horizon and we have much to look forward to in 2021.

The Program Committee for the annual Chapter meeting is busy pulling together an engaging and fulfilling virtual meeting in March. We are assembling continuing education workshops, plenary speakers, a silent auction, trivia night, socials, and more! Yes, despite being virtual, the meeting will still have many of our favorite activities! Many thanks to President-Elect Sue Mauger and her team for all the work they're doing to navigate all the new complexities of hosting a virtual meeting. We have selected a vendor (Cvent) that will serve as our "virtual host" for the meeting and were able to capitalize on a discount negotiated by the parent society for all the chapter meetings. This will help keep costs down, so that means you can expect a much lower registration fee than in years past. We will be migrating the meeting website over to Cvent's platform early in 2021; once the conversion is

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Communicating Fisheries Science, continued

avid users before this endeavor. Making matters worse, the Facebook business account (used for government-affiliated groups) is unintuitive and glitchy. Because of our social media naivety, we did what any scientist would do-research! We looked at science-oriented social media accounts that we thought were interesting and engaging. We got tips from people with far more experience with social media and communications training than ourselves, including people who manage other ADF&G Facebook pages with different fisheries emphases. We thought about the science education experiences we've had that stuck with us over the years. We used that knowledge to develop a Facebook page we hope is informative, easy to understand, and engaging. We now have over 600 followers, mostly from 43 Alaskan communities, but also in 30 U.S. states, 8 Canadian provinces, and 6 nations across the globe. For anyone interested in using social media to communicate fisheries science, we provide these insights from our relatively brief experience.

Building a community takes time and effort

We've spent far more time developing the Facebook page than it would have taken to publish a report or put together a 15-minute PowerPoint presentation. However, as we've settled into how

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Graphic from Katherine Howard.

President's Corner, continued

complete, abstract submissions will open. So be thinking about what talk you might want to give under one of the symposia or general sessions.

A virtual meeting creates new challenges for us regarding accessibility, equity, and inclusivity. I am grateful for the engagement of the Diversity, Equity, and Inclusion Committee with the Program Committee to ensure we're thinking about all potential aspects regarding accessibility. One particular area of concern is broadband access for streaming the presentations. If you are a student or rural resident who has concerns about being able to effectively participate due to your internet limitations (e.g., slow download speeds or low data limit), please reach out to me (president@afs-alask. <u>org</u>) or our Student Representative, Elizabeth Hinkle (<u>student@afs-alaska.org</u>). We are exploring ways the Chapter can assist and support you with adequate internet access.

Both the AFS Western Division and the AFS Alaska Chapter executive committees held virtual retreats recently, the Western Division in October and the Alaska Chapter in December. A lot of the discussions focused on hosting virtual chapter meetings and brainstorming ways to increase engagement while everyone is experiencing "Zoom fatigue." The Alaska Chapter also spent a good chunk of time discussing standing chapter committees and the possible need for new committees. We intend to start a Social Media and Fisheries Outreach Committee in the coming months to have our Chapter be more active on social media platforms like Facebook,

Twitter, and Instagram. If interested in participating on this committee, please email me at president@ afs-alaska.org. We also have new leadership on the Environmental Concerns Committee, with Joel Markis graciously stepping in. Joel has spearheaded several efforts and letters in recent years from the Chapter regarding Pebble and the Tongass. Joel will also serve as our Chapter's representative on the Western Division's committee. Thank you, Joel! The Chapter also discussed streamlining our email communications; right now, there are two platforms being used by the Chapter and we've discovered discrepancies between the email lists for each. We hope to migrate over to one platform – MailChimp - in the coming months, so keep an eye on your emails from the Chapter as this transition happens.

Lastly, it's time to start thinking about new Executive Committee members! Prior to each annual meeting, we elect a new Vice-President and a new Student Representative whose terms begin at the conclusion of the annual meeting. If you are interested in either of these positions, or would like to nominate someone, please reach out to me or others on the Executive Committee. Typically, the next Vice President is from the region where the annual chapter meeting will take place when they are the President-elect. So that means we're looking for someone from the Interior Region, as our 2023 annual meeting will take place in Fairbanks or some other interior community.

Hang in there, Alaska Chapter. I'm hopeful for beautiful, calm seas ahead of us.

AFS Alaska Chapter Annual Meeting Update



Our Annual Meeting Planning team is working to create an engaging virtual meeting experience with inclusive networking opportunities and active participation from around the state. No travel restrictions or budget shortfalls to get in

the way! The meeting, with the theme "Coming Together for the Love of Fish!" is scheduled for March 22–25, 2021.

With support from the parent Society and

Western Division of AFS, our Chapter now has access to an affordable and customized conference management system to run all aspects of our virtual meeting. We anticipate rolling out the new meeting website in mid-January. So, start thinking about what you want to share with your fellow Chapter members. The deadline for abstract submissions will be the end of January.

We already have great symposia and plenary talks lined up! We'll watch films together. We'll outbid each other on auction items. We'll celebrate the students and the stars among us. It's gonna be great!

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Communicating Fisheries Science, continued

the page functions, and the tone and scope of our messaging, the time commitment has decreased.

One of the things we've learned in our research is that Facebook has a "use it or lose it" algorithm where people's newsfeed (i.e., the curated content delivered by Facebook to each user) is driven not only by whether they like or follow your page, but also by whether they are engaged with your page (they "like" posts, comment, click on pictures, share posts, etc.). If users can't easily connect with your content, it has compounding effects: if the cool science you want to share stops being in people's newsfeeds, then it's less likely to be seen by or shared with new people and your community doesn't grow. To counteract this, we made a commitment to post 2–3 times per week so we could ensure our community had frequent content delivered to their newsfeeds. This is a significant commitment to make for two research scientists whose jobs are not in public relations.

Social media promotes more active engagement than we expected

We never wanted this page to be another portal for passively disseminating information to the public. Those portals already exist and tend to be

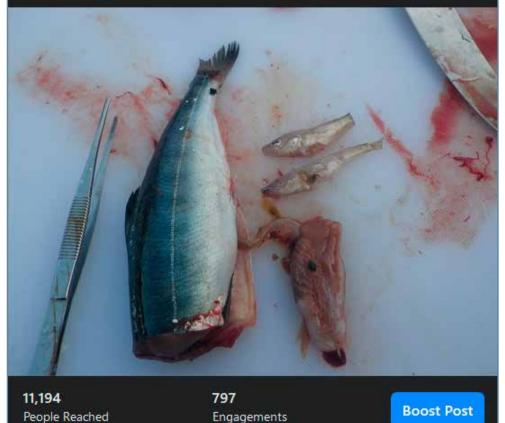
underutilized. Instead, we wanted to use this page to build a community of people interested in engaging and learning about salmon and shark science. We've seen far more people willing to let out their inner science nerd on Facebook than ever in a public meeting. People ask questions, explore concepts, and contribute their own ideas and information more often than at meetings.



ADF&G - The Undersea World of Salmon and Sharks
Published by Sabrina Garcia 3 · November 27 at 12:06 PM · 6

Salmon diets, Part 2

Identifying prey items in a salmon's stomach can make you feel like a detective. Sometimes there is no mystery to solve because the salmon ate recently and the prey items are easily identified. Other times we need to use clues to figure out what the prey items are . For example, sometimes we only find fish otoliths in the stomach but no fish body. We can use the otolith size and shape to determine which species of fish was eaten. Mystery solved! We do our best to identify prey items to the species level but we may have to lump them into general categories when the prey is heavily digested.



One of the posts from our series on salmon diets. Check out the number of people reached! Graphic by Sabrina Garcia.

AFS memberships may be renewed online https://fisheries.org

Back issues of *Oncorhynchus* can be found online https://www.afs-alaska.org/newsletter

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Communicating Fisheries Science, continued

We suspect it's easier and less daunting to ask a question or share your experiences when you can quickly type a sentence instead of vying for your chance to speak in a room full of people.

Concepts and knowledge can be discussed in more depth

With our Facebook page we have a prolonged relationship with our followers, so we can gauge interests and knowledge gaps and direct future posts accordingly. This allows us to build our science presentation over time. We recently published a series of posts on salmon diets, where appropriate inference from the scientific literature required thoughtful consideration of caveats and limitations. This complexity is easier for the average person to digest when content is packaged in bitesized pieces (150 words or less), paired with engaging time. In contrast, a short oral Howard. presentation given once a year

can't achieve this: context is limited and often the state of knowledge must be oversimplified.

The social media community is not a targeted audience

Most of our followers are Alaskans, but some are from outside Alaska and not familiar with our species, fisheries, or geography. Alaska is a large state with different habitats and fisheries; for example, someone in southeast Alaska may not be familiar with the fisheries in Arctic Alaska. By taking a broader perspective to engage non-Alaskans, we can ensure that our diverse Alaskan stakeholders also understand the concepts and geography. Additionally, while not all our followers are actively engaged in Alaskan fisheries issues, we still appreciate the ability to reach people anywhere there's internet access. Hopefully, it inspires people



visuals, and built upon over "Like" the name of their choice. Ultimately, Lawrence was the victor. Graphic from Katherine time. In contrast, a short oral Howard.

to care about science and spark their interest in Pacific salmon and sharks.

A few quick tips from us to you (learn from our mistakes):

- 1. Post regularly so people can continue to have easy access your content.
- 2. Keep it short and simple (150 words or less). Limit jargon and/or explain terminology. Complex topics can be built upon over a series of short posts.
- 3. Share the load. Having more than one person develop content, troubleshoot glitches, and check each other's work is vital to success.
- 4. Check the page periodically to answer questions, engage in dialogue with followers, and keep an eye out for inappropriate comments.

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Communicating Fisheries Science, continued

- 5. Have fun. Use emojis and exclamation points! It can be hard to take off the serious scientist hat, but science is awesome, fish are cool, and we shouldn't hide it! We're excited about the science we share, and we want that passion to come through.
- 6. Be creative with visuals. Photos and infographics are fantastic. Think of ways to convey the take-away message that is more accessible than a complex graph or numbers. This is a challenge, but also an opportunity to stretch our brains in different, creative ways.
- 7. Break up heavy science concepts with some color and specialized interests. We have recurring themes: "Get to Know a Program," #WeirdScienceWednesday (where we feature cool critters we encounter on our marine surveys), "Life as a Scientist at Sea," and "Friday Shark Bytes." Our community also voted on a name for our tagged Salmon Shark (he's Lawrence, by the way).
- 8. Give credit where it's due. Use @ to mention a collaborating entity when appropriate. This should pop up on their Facebook notification that you mentioned them in a post and brings them in as part of your community.
- 9. Self-promotion is necessary. You're not really communicating science if nobody knows your content is out there. We've made stickers of our page logo and URL as our "business cards" so that people simultaneously have an easy way to contact us and they're made aware of the page. We're self-promoting right now: everyone reading this is now aware that there is a Facebook page out there about the undersea world of salmon and sharks....sounds interesting, right? Check us out at http://www.facebook.com/ADFGUnderseaWorldofSalmonandSharks.
- 10. Want to get some fisheries science info out on social media but don't want to do the work of building a community? Contact us: if it fits within the scope of our page, we'd love to have some guest posts or share what's cool about your research with our community, and we'd love to have you join our community!

Our takeaway

When this pandemic has become a thing of the past and in-person meetings are reinstated, we will

continue using this Facebook page. We've found real benefits to communicating science through social media that we were unable to achieve in our normal course of business. In-person meetings and building personal connections with people is incredibly valuable and social media can't replace that, but it can help us reach people in different and meaningful ways. We've reached people we likely wouldn't have met otherwise, such as those in villages too remote to typically host or attend a meeting. We've been able to share and explain data and discoveries that would otherwise be in a format too technical for much of the public. We've been able to make the information-sharing more interactive. The information posted to social media also feels less terse, and it excites and engages people differently. Especially in Alaska, social media can't reach everyone. Good, reliable internet access just isn't equitable across the state and we can't forget that. We don't intend for our Facebook page to be a substitution for what had been our status quo, but it is a useful addition to our science communication strategy.

We want to thank some of the people who helped us get started, particularly Riley Woodford, Sabrina Larsen, Art Nelson, Bill Templin, Patrick Cwiak (who made our logo), Jim Murphy, Andy Gray, Andy Piston, Doug Molyneaux, and Jill Prewitt.

Dr. Katie Howard is a statewide Fisheries Scientist at the Alaska Department of Fish and Game and Sabrina Garcia is a Fishery Biologist for the Alaska Department of Fish and Game in the Arctic-Yukon-Kuskokwim Region.

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/. Nominations must be received no later than FEBRUARY 15.

Linda Behnken Receives Heinz Award for Creating Change for Good

In October 2020, the Heinz Family Foundation announced Sitka resident and AFS Alaska Chapter member Linda Behnken as among seven U.S. recipients of the Heinz Awards. The honor includes an unrestricted cash award of \$250,000. Behnken has commercially fished since 1982 and has been the Executive Director of the Alaska Longline Fishermen's Association since earning a Master's Degree from Yale. Behnken served on the North Pacific Fishery Management Council from 1992 to 2001, has advocated to preserve the Alaskan ecosystem for future generations, and helped shape policy and led the establishment of sustainable fishing practices at local, regional, and national has engaged small fleet and rural fishing communities in policy decisions, and her work supporting coastal fishing communities and the

Alaska Chapter Mentorship Program

next generation of young small-boat harvesters

has helped protect a way of life in Alaska. The

This past fall, the Diversity, Equity, and Inclusion Committee (DEIC) launched the first-ever AFS Alaska Chapter mentorship program. We are excited to have paired over 20 mentors and mentees following the initial call for interest! The Alaska AFS mentors from a variety of backgrounds and career stages are now providing academic guidance, career advice, network connections, and identity-specific support when it's needed most!

Not yet paired up? Don't worry! We are still soliciting interest in the program, so fill out our participant form today: https://www.surveymonkey.com/r/G7MWDFD. And...we'd love your help in recruiting additional program participants at any career stage. If you know of someone who may benefit from participating in the Alaska AFS mentorship program, especially from historically underrepresented or marginalized identities (e.g., in terms of race, ethnicity, gender, sexual orientation, socioeconomic status, ability, religion), please spread the word! Questions, comments, and suggestions can be sent to Jesse Gordon (deic@afs-alaska.org).



levels. With a gift for collaboration, she *Linda Behnken, recipient of the 2020 Heinz Award. Photo from The Heinz Awards.*

Heinz Awards, created in memory of the late U.S. Senator John Heinz, honor outstanding work in five areas: Arts and Humanities; Environment; Human Condition; Public Policy; and Technology, the Economy and Employment.

NPRB Graduate Student Funding

The North Pacific Research Board announced graduate student awards to support 2019 scientific and scholarly research that informs effective management and sustainable use of marine resources in North Pacific waters. Awards will be \$26,000 each, with at least six students selected in May 2021 and funds distributed in August 2021. Funds may be used for graduate student stipends and standard benefits, tuitions or required university fees, research-related travel, supplies, and laboratory analyses.

Students must be enrolled in a graduate degree program at an accredited university or college at the time of submission in order to be eligible. Applications must be submitted by February 12, 2021. For more details visit https://www.nprb.org/graduate-research-award-program/apply.

Save the Date!

The Alaska Chapter of the American Fisheries Society Annual Meeting is March 22–25, 2021. See https://units.fisheries.org/ak-mtg/.

UAS to Provide Scholarships to Alaska Native and Rural Students

The University of Alaska Southeast (UAS) has received a \$650,000 competitive grant from the National Science Foundation to provide 2- and 4-year scholarships for Alaska Native and rural students to pursue science and math bachelor's degrees. available degree programs include Marine Biology and Fisheries, as well as others. This 5-year grant award will provide 22 scholarships with an average of \$6,100 (up to \$10,000) per student per year, depending upon financial need. Scholarship recipients will work 1-on-1 with faculty mentors to develop coursework and future career plans as soon as students arrive on the Juneau campus. A new college readiness course will provide incoming students with academic skill building tools, handson exposure to local faculty research projects, as well as internship and career opportunities. Prospective thirdyear transfer and first-year students can apply for these scholarships as a part of the UAS general application (https:// www.uas.alaska.edu/apply/steps/). The application deadline is February 15. For more information contact the UAS Financial Aid office (https://www.uas. alaska.edu/financial_aid/scholarships. alaska.edu).



<u>html</u>) or David Tallmon (<u>datallmon@</u>Professor of Marine Biology Carolyn Bergstrom records biometric data on Starry alaska.edu).Flounder with UAS marine biology students. Photo from David Tallmon.

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, 2021. More information is at https://wdafs.org/students/scholarship-travel-award-information/.

Diversity, Equity, and Inclusion Committee Seeks New Members

The AFS Alaska Chapter Diversity, Equity, and Inclusion Committee (DEIC) will be soliciting new members soon! All identities, backgrounds, and career stages will be encouraged to apply. Stay tuned for more information. Please contact Cheryl Barnes (deic@afs-alaska.org) if you have questions in the meantime.

AFS Student Symposium — February 26–March 1, 2021

This virtual meeting has an abstract deadline of February 12. More information is available at https://www.facebook.com/AFSAlaskaStudentSubunit/.

Student Subunit Happenings

Elizabeth Hinkle, Student Subunit Representatives

I first want to congratulate the recent graduates from the College of Fisheries and Ocean Science: Valentina Melica (Ph.D. Fisheries), Robert Spangler (Ph.D. Fisheries), Donald Arthur (M.S. Fisheries), Emily Fergusson (M.S. Fisheries), Nicole Laroche (M.S. Fisheries), Malia Smith (M.S. Marine Biology), Anais Gentilhomme (M.S. Oceanography), Annie Kandel (M.S. Oceanography), and Tim Adickes (B.S. Fisheries and Ocean Sciences). Outstanding work, everyone—I wish you good luck with your career endeavors and life goals!

I doubt any of us ever expected to be living in such an interesting time, nor to be experiencing the challenges it presents. Around the state, students have struggled to stay motivated (more than usual), and are becoming exhausted with the duration of the pandemic and the isolation it has demanded. I have also felt the stressors of our current times, have challenged myself to reflect on how fisheries have developed over the years, and reminded myself that science is an ongoing process. I recently began wondering about the last global pandemic (Spanish Flu, 1918-1920) and was delighted to find out that Transactions of the American Fisheries Society (TAFS) had archived publications from that time. I began delving in the records to reflect on how far we have come over the past century.

One archived paper that caught my attention focused on a lab study that documented the effects of tar, oil, and creosote on Brook Trout (Thomas <u>1919</u>). General findings were that when chemicals were added to aquaria, which housed otherwise healthy fish, the Brook Trout began swimming erratically, attempted to escape the container, had difficulty respiring and eating, and eventually died. Shocker. In their defense, however, researchers 100 years ago simply did not know what would happen! Juxtapose this with a December 2020 publication (*Tian et al. 2020*) which showed that a ubiquitous rubber antioxidant used in car tires was washing into creeks around Puget Sound and had toxic effects on spawning Coho Salmon. More specifically, researchers found that exposure to the rubber antioxidant induced rapid mortality (<5 hours). While the results from the 1919 publication now seem obvious to most of us, the 2020 findings were unanticipated and surprising.

Another set of historical TAFS papers that perked my ears were about: (1) the importance of freshwater mussel conservation and protection (Shira 1919), and (2) the usefulness of freshwater mussels as a food source for hatchery fish (Lydell <u>1919</u>). Shira encouraged state protections such as harvest limits and closing off waters to the clamming industry (yes, freshwater clam harvests used to exist) to allow for replenishment, and warned of the potential depletion of the resources if regulations were not implemented. Meanwhile, Lydell reported that dried mussels were an excellent source of fishmeal for both adult fish and fry and reduced the mortality rates of both age groups, plus, mussels reportedly were a nutritious food source for laboratory rats. Both Lydell and Shira were under the guise that the U.S. Bureau of Fisheries at the Biological Station at Fairport, Iowa, had successfully propagated several species of mussels and had some success on reintegrating these propagates back into natural systems. We now know that this was not entirely true. In fact, the early attempts at mussel propagation were total failures and, subsequent efforts ceased in 1942, but started up again in the 1970s with more success (Haag 2012). We also now know that freshwater mussels are one of the most imperiled groups of organisms worldwide (considered second to only freshwater snails; Strayer et al. 2004).

One last fascinating article I came across was a new invention for a fish elevator as a means of transporting fish over dams (*Prince 1919*). The invention is a box-shaped fish trap, into which fish swim and are enclosed. It is attached to a pulley system with a container at the other side to serve as a counterweight when it fills with water. Therefore, it can be automated in moving fish up and over dams. I thought this sounded crazy until I looked it up—whereupon I learned that they still exist and are quite effective.

Trying to understand just a facet of the natural world is not easy, and can take decades. I bring these historical publications to your attention to (1) illustrate how far the field of fisheries has Continued on next page

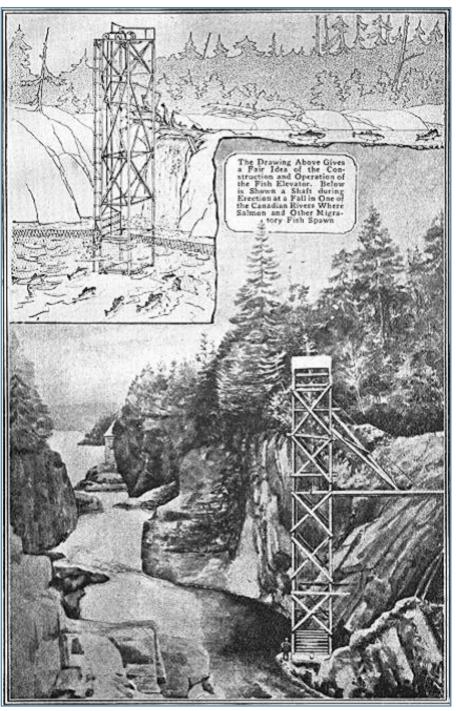
Student Subunit Happenings, continued

advanced, (2) consider how much we still don't know, and (3) encourage you to stay productive. Rome was not built in a day, and neither are fish elevators.

On that note, I would like to remind students that the AFS Student Symposium will be on February 26–March 1 and the abstract submission deadline is February 12. All of you are conducting meaningful research that is contributing to a larger whole, and I look forward to hearing about how you are making your mark in the field.

Alaska Sea Grant Fellowship Program

Alaska Sea Grant is soliciting applications for the 2021 Alaska Sea Grant State Fellowship Program. This program offers a unique professional opportunity for graduate students interested in applied marine science and policy. Highly motivated graduate students are matched with host agencies for a 12-month paid fellowship. Fellows will acquire onthe-job experience in the planning and implementation of marine resource policies and programs in Alaska. Fellows may be located in Fairbanks, Anchorage or Juneau with a typical start date of July 1. Graduate students close to completing a degree, or with a recently earned degree, are eligible. The deadline to apply to Alaska Sea Grant for this fellowship is February 12, 2021. For more information go to https://seagrant.uaf.edu/research/ (tara.borland@alaska.edu).



12, 2021. For more information go to https://seagrant.uaf.edu/research/fellowships.html, or contact Tara Borland rivers where salmon and other migratory fish spawn." Photo from Prince (1919).

Sea Grant Knauss Marine Policy Fellowship

The Sea Grant John A. Knauss Marine Policy Fellowship Program annually provides 30–50 students with a year of experience in Washington, D.C., working on marine issues in a Congressional staff office or in a federal agency. Students will see firsthand how science is used to inform policy, and will participate in the policymaking process. The deadline for the 2022 Knauss Fellowship is February 19, 2021. For more information visit https://seagrant.uaf.edu/research/knauss.html.

Saildrones Conduct Acoustic Survey in the Bering Sea

The Bering Sea covers 2.0 million square kilometers (770,000 square miles), and interactions among currents, sea ice, and weather result in a highly productive ecosystem. However, dramatic changes in the Bering Sea, such as loss of sea ice and record high ocean and air temperatures, affect ecosystem productivity, impacting wildlife and all aspects of life in coastal communities. The delay or cancellation of many surveys and projects in 2020 due to covid-19 considerations complicated summer research in Alaska, including monitoring in the Bering Sea.

However, one innovative approach by the NOAA Alaska Fisheries Science Center used three saildrones to conduct acoustic surveys of Walleye Pollock with each drone covering a third of the 600-nautical-mile width of the survey area. Due to travel restrictions, the drones also sailed

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 matched and mentored by a fisheries professional for an 8-week hands-on fisheries science summer experience in a marine and/or freshwater setting. Scholars receive a \$3,000 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 providing guidance and administrative support. For more information on how students apply for an internship, or information on serving as a mentor, visit http:// hutton.fisheries.org. The application deadline for this summer scholarship is February 15, 2021, for students and March 1, 2021, for mentors.



One of three saildrones used to acoustically survey Walleye Pollock in the Bering Sea in 2020. Photo by Saildrone, Inc.

from California to Alaska and back, a 45-day trip each way. Although recording oceanographic and atmospheric conditions, the drones are not a replacement for ship surveys where biologists sample for fish species composition, size, age, maturity, growth, and diet. More information on this and other summer 2020 projects is summarized in a recently released publication "Bering Science Fall 2020 Bering Region Ocean Update."

Alaska Sea Grant Seeks Proposals for 2022-2024

Part of the Alaska Sea Grant mission is to enhance the sustainable use and conservation of Alaska's marine, coastal, and watershed resources through research, education, and extension. To this end, Alaska Sea Grant supports several formal, peer-reviewed research projects on a two-year cycle. The request for preliminary proposals is currently open for research projects to be conducted between February 2022 and January 2024. Creative and innovative research proposals in the natural, social, and educational sciences are being sought to address one or more of the following focus areas: Healthy Coastal Ecosystems; Sustainable Fisheries and Aquaculture; Resilient Communities and Economies; and Environmental Literacy and Workforce Development. For details and instructions, see https://alaskaseagrant.org/ research/funding/. Preliminary proposals must be submitted by March 1, 2021.

Meetings and Events



Alaska Marine Science Symposium

January 26–28, 2021: This is a virtual meeting with abstracts due October 16. For more information, visit https://alaskamarinescience.org/.

AFS Student Symposium

February 26–March 1, 2021 This virtual meeting has an abstract deadline of February 12, 2021. More information is available at https://www.facebook.com/AFSAlaskaStudentSubunit/.



American Fisheries Society Western Division Annual Meeting



March 10–14, 2021. Virtual meeting originally scheduled for Ogden, Utah. More information will be posted at https://wdafs.org/.

American Fisheries Society Alaska Chapter Annual Meeting



March 22–25, 2021. The 47th annual meeting of the AFS Alaska Chapter will be a virtual meeting. More information is posted at https://afs-alaska.org/.

13th International Conference on Climate Change

April 8–9, 2021. This meeting is scheduled for Vancouver, Canada. More information is at https://onclimate.com/.



American Fisheries Society



August 8–12, 2021. The 151st meeting of the American Fisheries Society will be based in Baltimore, MD, but scheduled as a hybrid meeting with flexible in-person and virtual attendance. More

information is available at https://www.cvent.com/c/abstracts/47f72f67-1442-46e3-bea6-486d50749c61.

Amazon Smile

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ONCORHYNCHUS

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