



ONCORHYNCHUS

Newsletter of the Alaska Chapter, American Fisheries Society

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Algarum Vegetatio drawn in 1827 by Aleksandr Filippovich Postels who explored sea life along Alaska's coast during a Russian expedition led by Feodor Litke. Postels described several species of Alaskan algae ([Postels and Ruprecht 1840](#)). This scene is possibly near Sitka given seaweed species and rocky habitat. While features of intertidal and subtidal zonation and habitat assemblage may not be entirely correct, the drawing details several recognizable seaweeds, including *Alaria marginata* in the lower center of the drawing.

Will the Real *Alaria* Please Stand Up!

W. Stewaert Grant

I grew up watching a TV show called 'To Tell the Truth' (1956–1968), in which four panelists questioned three guests to find the real person among two imposters. Alaska's most common intertidal kelp has played a similar game. *Alaria* is the most common kelp along Alaska's intertidal rocky shores, but is still looking for a name. If you have ever walked along Alaska's bedrock or boulder shores, you have probably walked, or perhaps slipped, on *Alaria*.

As with other kelps, *Alaria* has a biphasic life history, growing as large sporophytes, 30 cm to

6 m in length, and as microscopic filamentous gametophytes that produce male and female gametes. Fertilization leads to development of the large sporophytes. *Alaria* has a unique morphology among kelps. The area producing reproductive spores in most kelps is on the large blade, but *Alaria* has small blades at the base of the major blade that produce spores.

Because of its abundance and ecological role in rocky intertidal communities, *Alaria* has been the focus of several ecological and physiological

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The President's Corner



Megan McPhee
AFS Alaska Chapter President.

Greetings Alaska Chapter members!

I'd like to use this President's Corner to remind you that this is your Chapter. I encourage you to think about how you can leverage Chapter activities to help you attain your professional goals. The Chapter might be perceived as biased toward freshwater systems and Pacific salmon, but if there's a topic or discipline that you would like to elevate in the Chapter (e.g., fisheries economics, Indigenous fisheries, mariculture, marine fisheries, seafood processing and marketing, to name a few) then I invite you to do so! The Chapter will take the shape of its most active members.

An easy way to highlight your discipline or interest would be to write an article for the Chapter newsletter *Oncorhynchus* or to chair a symposium at our annual meeting. But for a more lasting impact, consider joining or creating a Chapter committee. If you are interested in conservation issues, you can join the Environmental Concerns Committee. If you want to work to diversify representation in the fisheries professional community, you can join the Diversity, Equity, and Inclusion Committee (DEIC). But did you know that you can create an ad hoc committee organized around any topic within fisheries? For example, the Chapter used to have an International Relations Committee

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Real *Alaria*, continued

studies. To understand the dynamics of populations, both the macroscopic sporophyte life history phase and the microscopic gametophyte phase must be considered. [Fredersdorf et al. \(2009\)](#) found that temperature had greater influence than salinity or light on growth and survival of macroscopic plants in Arctic waters. Arctic kelps are actually able to survive long periods of winter darkness under sea ice ([Dunton et al. 1982](#)). However, germination of zoospores into the microscopic gametophytic phase is sensitive to temperature and salinity, so seasonal summer salinity drops and temperature increases reduce the rate of germination.



Most kelps produce reproductive spores from the large blade, but Alaria differ by producing spores from small blades at the base of the major blade. Photo from centralcoastbiodiversity.org.

The macrophyte phase of *Alaria* is seasonally ephemeral in most areas and, like terrestrial annuals, depend on 'seeds' to produce plants each year. An ecological study of *Alaria* in California found most large sporophytes survive only one growing season, recruiting from fertilized eggs in late winter and early spring and growing rapidly to produce zoospores by autumn. The spores germinate to produce gametophytes, which survive over the winter to produce a

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President's Corner, continued

(and if you know more about that committee, please contact me—I want to learn more!). There are no constraints on the kinds of ad hoc committees that can be housed within the Chapter, as long as they are pertinent to fisheries issues and maintain professional and ethical standards.

Even if you don't have a specific agenda for the Chapter, we'd love to have more members involved in Chapter workings. Organizations always welcome altruistic service, of course, but you will also expand your professional network and make new friends, never a bad thing! Some of this work is accomplished through individual efforts—e.g., Bill Bechtol compiles the *Oncorhynchus* four times

a year, Hamachan keeps the listserve afloat, and Randy Brown maintains institutional continuity as Chapter historian. But a lot of the Chapter's work is accomplished through its standing committees, which can always use new members. Below I've listed the ways you can get involved and whom to contact. If you're thinking about proposing a new Chapter committee or activity, please contact me at president@afs-alaska.org or any the Chapter officers (see end of the newsletter for contacts).

As always, thanks for being an Alaska Chapter member, and I hope the rest of your summer goes swimmingly! 🐟

Ways to Get Involved

Chapter newsletter *Oncorhynchus*: Bill Bechtol, Editor (bechtolresearch@hughes.net)

Annual Meeting: Erik Schoen (presidentelect@afs-alaska.org)

Alaska AFS Student Subunit: Garrett Dunne, President (dunnegarrett@gmail.com)

Standing Committees:*

- Continuing Education Committee: Sara Miller & Katie Palof, co-Chairs
(sara.miller@alaska.gov; katie.palof@alaska.gov)
- Diversity, Equity, and Inclusion Committee: Cheryl Barnes, Chair (deic@afs-alaska.org)
- Environmental Concerns Committee: Sue Mauger & Joel Markis, co-Chairs
(sue@inletkeeper.org; jamarkis@alaska.edu)
- Financial Assets and Oversight Committee: Ray Hander, Chair (ray_hander@fws.gov)
- Fisheries and Environmental Education Committee: vacant
- Molly Ahlgren Scholarship Award Committee: Ray Hander, Chair (ray_hander@fws.gov)
- Resolutions and Bylaws Committee: Hamachan, Chair (toshihide.hamazaki@alaska.gov)
- Awards Committee: Jeff Falke, Chair (jeff.falke@alaska.edu)
- Wally Noerenberg Award Committee: we need a Chair this year!

*If I've missed any committees, please let me know! 🐟

Take 5 minutes to help us learn more about the Alaska Chapter

As the AFS Alaska Chapter continues to work toward making our professional society more inclusive, we look to its members to help direct our efforts. If you haven't done so already, please take a few moments to complete our inaugural [demographic survey](#).

Doing so will help us learn more about who our

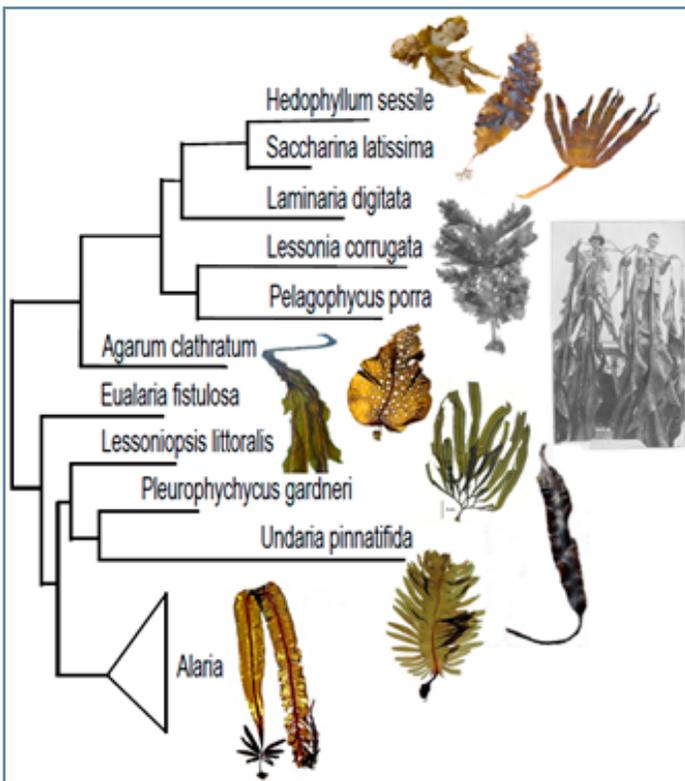
members are and identify which communities we may be able to serve better in the future.

Additionally, we plan to administer this survey each year so that we can track how changes through time. All responses are anonymous and confidential. Please direct any questions to deic@afs-alaska.org. 🐟

Real *Alaria*, continued

new generation of macroscopic sporophytes. Corresponding studies have not been made in Alaska, where plants are also considered to be an annual ([Lindeberg and Lindstrom 2010](#)).

Taxonomic experts have made educated guesses about the number of *Alaria* species, called ribbon kelp or winged kelp elsewhere. In the early 1800s, Russian biologists described a single species in Alaska *Alaria marginata* ([Postels and Ruprecht 1840](#)), but morphological variability among plants subsequently led algal taxonomists to suspect more than a single species. In the 1960s, Canadian Ph.D. student Tom Widdowson, traveled up and down the Pacific coast and beyond to gather specimens to explore the species' issue. In the early days of statistical analysis of kelp morphology, Widdowson used discriminant and distance function analyses to conclude there were 14 species world-wide, with six species in Alaska: four species in the Northeastern Pacific (*A. marginata*, *A. nana*, *A. tenuifolia*, *A. taeniata*), one in the Bering Sea (*A. crispa*), and a sixth species (*A. fistulosa*), which has subsequently been assigned to a new genus (*Eualaria*).



Kelp phylogenetic tree based on sequenced mitochondrial, chloroplast, and nuclear genes. [Lane et al. \(2017\)](#).

[Kraan \(2020\)](#) found that, over years, 40 species names have been ascribed to this northern Hemisphere genus. The number of species in Alaska remained in question. [Lindeberg and Lindstrom \(2010\)](#) chose to list a single species, *A. marginata*, grouping all the forms into a 'marginata' complex. However, the latest key to algae in the Northeast Pacific lists two species: widespread *A. marginata* and a northern species *A. taeniata* ([Gabrielson and Lindstrom 2018](#)).

The development of molecular markers changed the game. It became possible for the truth-seeking panel of taxonomists to ask deeply relevant questions about the number of species and species divergence. By making several assumptions, genetic distances could also be used to estimate divergence times between species, and phylogeographic methods could be used to map centers of origin and dispersal pathways. Molecular methods and a variety of statistical analyses have been applied to the taxonomies and evolutionary histories of marine fishes and invertebrates for the past few decades, but only recently to seaweeds.

A landmark study by [Lane et al. \(2007\)](#) sequenced mitochondrial, chloroplast, and nuclear genes, placed species of *Alaria* into the kelp phylogenetic tree, and also helped validate species based on morphology. A tree based on mitochondrial cytochrome oxidase I (COI) and internal transcribed spacer in ribosomal DNA (ITS) sequences showed that *Eualaria fistulosa* was distantly related to *Alaria*. It was uncertain whether the *Alaria* form, with spore producing areas located on sporophylls extending from the lower stipe, had originated more than once, or whether some genera in the group had lost these structures. Considering three genetic markers together, Lane and colleagues resolved three lineages in the Northeast Pacific:

- Widespread group encompassing plants that had been identified as *A. marginata*, but also including *A. tenuifolia*, *A. taeniata*, and *A. nana*.
- Southern group including *A. marginata* and *A. nana*.
- Northern group confined to Cook Inlet including only *A. taeniata*.

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Real *Alaria*, continued

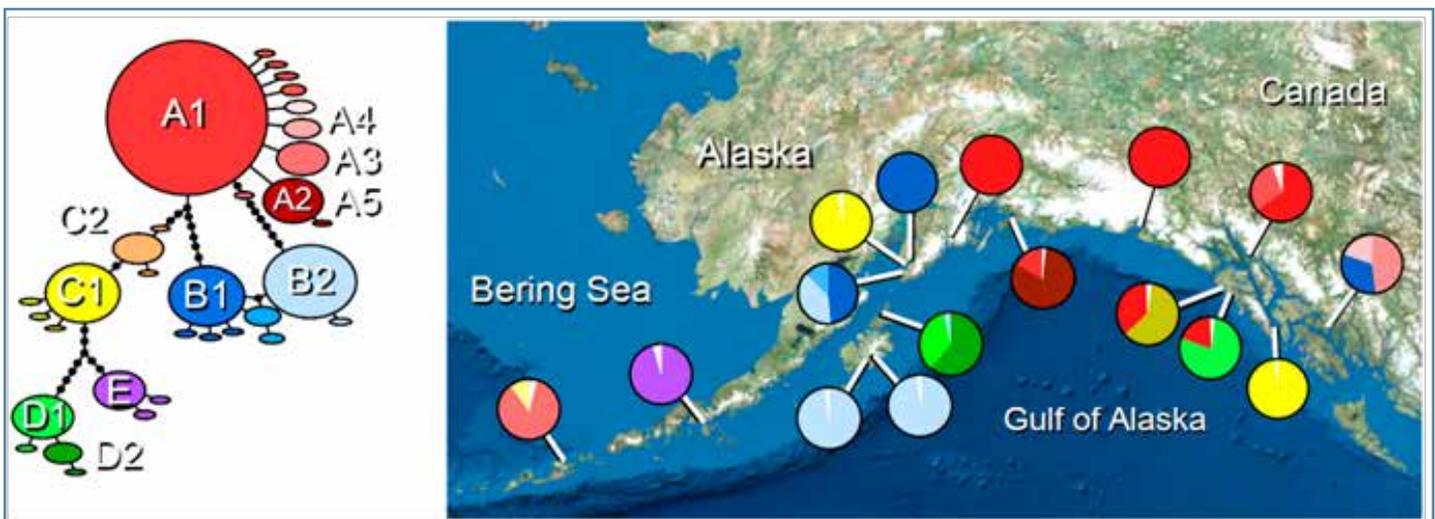
This conclusion, however, was based on DNA sequences for only 40 plants extending from the eastern Aleutian Islands to southern British Columbia, a distance of about 4,000 kilometers. Variability among Alaskan populations came into better focus with research by [Starko et al. \(2019\)](#), which included more kelp species and a larger sequence data base, placed divergence between North Atlantic *A. esculenta* and *A. marginata* at about 5.8 million years in the last part of the Miocene Period. It was about this time that the Bering Strait opened for the first time and allowed ancestral *Alaria* in the North Pacific to disperse across a warmer, likely ice-free, Arctic Ocean. The greater species diversity in the North Pacific likely indicates a Pacific origin of the genus.

Alaska has a coastline that supports large abundances of kelps and seaweeds, which have attracted the interests of the seaweed industry. Several seaweed farmers have now set up operations around the Gulf of Alaska and the number of mariculture farms is expected to grow. Alaska's natural resource managers have used genetic markers to identify the population structures of exploited wild populations. This information is used to identify the components of mixed-stock harvests and to guide the culture of populations used to supplement natural production. Hence, funds were awarded by the North Pacific Research Board to survey genetic variability among populations of *Alaria* and other kelps.

A survey of chloroplast, mitochondrial DNA (total of 1,404 nucleotides), and eight microsatellite DNA markers in 543 kelps from 16 locations, extending 2,800 km from Southeast Alaska to the eastern Aleutian Islands, revealed five genetically distinctive lineages that did not correspond to historical species' designations ([Grant and Bringloe 2020](#)). The distribution of the lineages along the coast was chaotic, and in some localities more than one lineage was present. For example, only *A. taeniata* had been thought to inhabit Cook Inlet, but molecular markers detected two of the five lineages growing only a few kilometers from each other. Multiple lineages were also found in the Sitka area.

This study was followed by a collaboration with Trevor Bringloe, working as a postdoctoral fellow at the University of Melbourne in Australia. Bringloe used whole-genomic sequencing to examine several species of *Alaria*, including plants from the five Northeast Pacific lineages. This genomic survey yielded 3,814 single nucleotide polymorphisms (SNPs) in mitochondrial DNA, 4,536 SNPs in chloroplast DNA, and 148,542 SNPs in nuclear DNA. The same five lineages, plus another lineage in British Columbia, also appeared in nuclear DNA (see nuclear DNA tree from [Bringloe et al. 2021](#)). This analysis also indicated the prevalence of hybridization among ancestral lineages. Indeed, culture experiments show that

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Chloroplast, mitochondrial DNA, and eight microsatellite DNA markers from 16 locations identified five distinct lineages. ([Grant and Bringloe 2020](#)).

Real *Alaria*, continued

some species of *Alaria* can hybridize with each other ([Kraan and Guiry 2000](#)).

All these results bear on the management of harvests and culture of *Alaria* in Alaska. Sampling efforts to describe *Alaria* stock structure have been minimal, similar to initial surveys of salmon populations in the late 1970s. Today, management of salmon populations involves analysis of hundreds of thousands of fish. An expanded sample effort for *Alaria* is likely to uncover additional lineages needing management attention. As with salmon surveys, populations have to be resampled over time to assess the stability of population structure. *Alaria* is largely an annual species and would also require continued monitoring.

Another biological mandate guiding the development of seaweed culture in Alaska is to reduce the hybridization of cultured stocks with wild stocks. A growing literature evaluating the effects of hybridizations between hatchery raised and wild salmon, for example, indicates that genetic mixing can have adverse effects on wild populations by compromising the ability to confront ecological challenges. *Alaria* lineages in Alaska have only recently diverged from one another and are likely reproductively compatible. In fact, a comparison of organellar DNA and nuclear DNA in the study of [Grant and Bringlee \(2020\)](#) identified some hybrids among the 542 plants examined. It may be argued that if hybridization occurs in nature, does it matter if it

occurs between cultured and wild populations?

Alaska Department of Fish and Game is taking steps to codify a 50-50 rule, proposed before genetic population data were available for Alaska's kelps (Gruenthal and Habicht in prep.). This guideline stipulates that broodstock for cultivation should be taken within 50 kilometers of an open grow-out site and that at least 50 unrelated plants be used to produce sporlings for grow-out. As more data for kelps become available, this geographic rule will have to be modified to fit specific situations. There is no comparable general rule for salmon, for example, for which a large amount of data provides more precise guidelines for hatchery procedures.

The use of 50 plants for broodstock comes from conservation biology, and is meant to facilitate the short-term preservation of genetic diversity, limiting diversity loss to 2% per generation. A meliorating factor is the use of wild broodstock each generation. Even so, cultured kelps will undergo some domestication and may pose a genetic threat to wild populations ([Hu et al. 2021](#)). Numerous questions need to be addressed by further research as kelp production increases in Alaska.

Stew Grant has worked for NOAA, World Fish Center, Alaska Department of Fish and Game, in academia, and is now affiliated with the College of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Juneau. He can be reached at phylogeog@gmail.com. 🐙

Environmental Concerns Corner

The U.S. Environmental Protection Agency (EPA) is soliciting public comments regarding the Section 404(c) Proposed Determination to prohibit and restrict the use of certain waters in the Bristol Bay watershed as disposal sites for the discharge of dredged or fill material associated with mining the Pebble Deposit. Written comments on the proposed determination must be submitted on or before September 6, 2022 (extended from July 5). Send an email to ow-docket@epa.gov and include the docket number EPA-R10-OW-2022-0418 in the email subject line. For more details about this process: <https://www.epa.gov/bristolbay>.

For more background on previous engagement in the Pebble Mine permitting process by the American Fisheries Society and the Alaska Chapter over the years, please check out: <https://fisheries.org/pebble-mine/>.

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 (pastpresident@afs-alaska.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



Sara Gilk-Baumer, NCLI Fellow.

Congratulations, Sara

We are excited to announce that our very own Sara Gilk-Baumer has been selected to participate in the National Conservation Leadership Institute (NCLI) program. Sara serves as a leader in Alaskan fisheries, specifically in her supervisory role as the Statewide Stock Status Geneticist for the Alaska Department of Fish and Game (ADFG). Sara is also a very active member of the AFS Alaska Chapter. Over the years, Sara has moderated several symposia, helped organize various workshops, and served as a longstanding member of the [*Diversity, Equity, and Inclusion Committee*](#) (DEIC). She has also facilitated discussions on sensitive topics and affinity group meetings to help remove barriers and bolster a sense of belonging among Alaska Chapter members with underrepresented identities. Sara is now working to broaden the reach of our committee by coordinating a workshop that brings agency and academic leaders together to discuss DEI-related challenges and share their varied successes for the betterment of Alaskan fisheries as a whole (stay tuned for more information on this!).

As an NCLI fellow, Sara will spend a year (including two residencies) strengthening her skills related to adaptive leadership, effective team building, and creating environments that support a diverse workforce. We are excited to learn from Sara as she undergoes this intensive training, which is sure to benefit anyone who works with her at ADFG, AFS, and elsewhere!

Thanks for your service, Janessa!

We would also like to recognize Janessa Ziibi Esquible for her service over the past few years. As a valued member of DEI committees for both the Alaska Chapter and the Western Division, Janessa worked to initiate partnerships with other professional societies, led the first few BIPOC (Black, Indigenous, People of Color) affinity group meetings, and contributed to the development of many other programs aimed at increasing access to fisheries work in Alaska. We thank Janessa for the impact she has made and wish her the best of luck as she finishes her PhD through the University of Alaska Fairbanks.

Interested in joining us? Check out information about DEIC membership [here](#) and contact deic@afs-alaska.org to submit a self-nomination. 🐾



Janessa Ziibi Esquible.

Next AFS Alaska Chapter Meeting

Save the Date

We are excited to host the 2023 Annual Meeting in Fairbanks during March 27-31! Late March is one of the best times of year in the Interior, when the daylight is back, temperatures are mild, ice fishing and snow sports are prime, and the aurora is shimmying. We are planning an in-person event full of the socials, networking opportunities, and field trips that we all have been missing. Save the dates, and we'll see you next year. More information will be posted on the AFS Alaska Chapter website at <https://afs-alaska.org/>.

If you have any questions or want to get involved with meeting planning, please contact Erik Schoen at presidentelect@afs-alaska.org. 🐾

Green Crab in Alaska

Green crab, an invasive species that may have major impacts on all marine fisheries, was recently found in Alaska. While searching for food, green crab uproot eelgrass beds, which serve as habitat for many species including herring and salmon. Green crab compete with, and can prey on, juvenile Dungeness crab and are shellfish predators, consuming clams and other shellfish. The International Union for Conservation of Nature lists green crabs as one of the world's most destructive invasive species, and rapid green crab population increases in Washington and Oregon have increased concerns. Washington State Governor Jay Inslee declared an emergency over

the state's green crab infestation in January 2022; the state has spent millions fighting the species spread.

Alaska has been concerned about a potential northern movement in green crab distribution for years. On July 19, 2022, biologists with the Metlakatla Indian Community confirmed finding three shed carapaces (crab shells) from green crab on the Annette Island Reserve, AK. Five more shed carapaces and two fully intact juvenile carcasses were identified on July 21, 2022. Thirteen live crab were subsequently captured. Sightings of European green crabs can be reported to the Alaska Invasive Species Hotline at 1-877-INVASIV. 🗨️

Marine Debris Cleanup Funding

With funding through the Bipartisan Infrastructure Law, the NOAA Marine Debris Program will award up to \$56 million for projects that remove marine debris to benefit marine and Great Lakes habitats and communities. This funding opportunity focuses on two priorities: removing large marine debris and using proven interception technologies to capture marine debris throughout the coastal United States, Great Lakes, territories, and Freely Associated States.

The first priority will support partnerships for the development of large scale and high-value marine debris removal programs. These programs should focus on large marine debris, including abandoned and derelict vessels, derelict fishing gear, and other debris that is generally unable to be collected by hand. The second priority focuses on implementing

proven marine debris interception technologies in coastal riverine, shoreline, estuarine, and urban environments where trash, plastics, and other persistent, reaccumulating macro-debris can be captured and removed. These two priorities will be reviewed as separate, parallel tracks under this funding opportunity, and they have different application requirements. Applicants wishing to compete under both priorities must submit separate applications for each.

The deadline for proposals for this marine debris removal notice has been extended to October 5, 2022, 11:59 p.m. Eastern Time. Note that the website will be down during September 23–29 for maintenance. For more information, visit the NOAA Marine Debris Program's website or contact Peter Murphy (peter.murphy@noaa.gov). 🗨️

Masters in Marine Policy

The University of Alaska Fairbanks and the University of Alaska Southeast are launching a Master of Marine Policy (MMP) program starting Fall 2022. Program description and requirements are published on the University 2022-23 Academic Catalog (<https://catalog.uaf.edu/graduate/graduate-degree-programs/marine-policy/>). The MMP program is designed to complement existing graduate programs in the natural sciences with a rich selection of required and elective courses drawn from departments across both campuses. This

30-credit course program is intended for working professionals and recent graduates, with most courses available in-person in Juneau and Fairbanks, and by videoconference throughout the state. 🗨️

Back issues of *Oncorhynchus*
can be found online

<http://www.afs-alaska.org/newsletter>

Eckert Chairs Inaugural Marine Debris Foundation Board

Ginny Eckert, Alaska Sea Grant Director, was elected chair of the Marine Debris Foundation Board. This nonprofit charitable foundation was authorized by the federal Save Our Seas 2.0 Act to address the global crisis of plastic waste in our oceans. After 12 individuals were appointed to the inaugural Board of Directors in April, Eckert was selected as the Board's chair in June. Board members serve terms of two to six years, and Eckert will serve as chair for the first two years of a four-year term. Part of the foundation's role is to encourage, accept, and administer private funding. The foundation aims to strengthen the U.S. response capability, spur innovation and new research, enhance global engagement, and improve domestic infrastructure to prevent and address the marine debris crisis. 🗨️



Ginny Eckert, Alaska Grant Director. Photo by JR Ancheta

Five New Alaska Sea Grant Research Projects Get Underway

Work has started on five research projects competitively selected for a total of \$500,000 in Alaska Sea Grant (ASG) funding over the next two years. The research will advance ASG's focus areas of healthy coastal ecosystems, sustainable fisheries and aquaculture, resilient communities and economies, and environmental literacy and workforce development. Each project supports a graduate student working under the guidance of the principal investigator. Project partners include commercial fishers, oyster farmers, Alaska Native Tribes and organizations, businesses, universities, and state and federal agencies. Each project will engage businesses, managers, or communities that are affected, with some projects directly involving community members as research participants. Of the 24 pre-proposals that were received, 12 projects were selected for the next stage of application as full proposals, followed by a peer-review process that selected the five projects for funding. The five projects are:

(1) Southeast Alaska trolling vessel ocean measurement program—this project will partner with vessels from the Alaska Trollers Association to collect vertical profiles of temperature, salinity, and density at multiple core stations across Southeast Alaska over the two year funding period.

(2) Pink Arctic: patterns, processes, and consequences of increasing Pacific Salmon in the high north—this project will collect western and Indigenous knowledge to better understand what an increasing occurrence of Pacific salmon in the Arctic may mean from the perspective of the salmon, the native fishes, and the people of the region;

(3) A transformative approach to rapidly assess critical life history and energetic responses of fish to environmental change—this project will develop innovative, cost-effective, and efficient approaches to measure life history attributes of important fisheries species based on the chemical structure of fish tissues and hard parts;

(4) Development of cultivation protocols for the red seaweed, dulse, to support traditional food systems in Southeast Alaska—this project seeks to merge indigenous knowledge with academia to develop, implement, and disseminate reliable cultivation methods for dulse in tumble culture; and

(5) The relationship between oyster farms and their environment, a sea otter's perspective—this project will examine sea otter behavior in areas with and without active oyster farms and explore how environmental parameters affect these interactions. 🗨️

Student Subunit Happenings



AFS Alaska Chapter Student Representative, Jonah Bacon.

New Student Representative

Hey there AFS Alaska Chapter. My name is Jonah Bacon, and I'm excited to step into the role of Student Representative. I'm very thankful to Taylor Cubbage and her excellent execution of the role of Student Rep this past year - big shoes to fill!

My interests in aquatic sciences started from a young age growing up on the banks of the Upper Mississippi River in Western Wisconsin's Coulee Region. The tromping of backwaters in my adolescence led me to obtain a B.S. in Ecology from the University of Minnesota. During my undergraduate studies, I became involved in aquatic invasive species research on a project studying how zebra mussels alter trophic dynamics for Walleye and Yellow Perch as well as on a project studying macrophyte community assemblages in lakes with invasive aquatic plants. After completing my undergrad, I moved up to Fairbanks to join the Beaufort Sea Long Term Fish Monitoring Program under the guidance of Dr. Trent Sutton. Through this Program, I'm pursuing a Master's degree studying ontogenetic trophic dynamics of amphidromous whitefish within the Central Beaufort Sea. I'm thankful for the previous graduate students on this project (Carolyn Hamman, Kyle Gatt, Duncan Green, and Justin Priest) and the guidance they have provided me.

My AFS experience began at the University of

Minnesota, where I presented my undergraduate thesis project modeling the dynamics of fish thermal habitat space in Minnesota lakes under climate warming scenarios at the MN-chapter Annual Meeting. Here at UAF, I was involved in the Student Subunit last year as the Treasurer helping to initiate the 1st-annual Student Retreat bringing together students from across the state. We're all looking forward to the Retreat this upcoming year! I also assisted in the silent auction donation collections for the Chapter Annual Meeting this past year. I'm excited to be commencing the role of the Student Representative and working with the Executive Committee in planning this upcoming year's Annual Meeting in Fairbanks.

Subunit Happenings

Jonah Bacon, Student Subunit Representative

This past spring saw many talented professionals earn degrees from the College of Fisheries and Ocean Sciences and the University of Alaska:

Aaron Cook (B.S. in Fisheries and Ocean Sciences with a concentration in Fisheries Science)

Thomas House (B.S. in Fisheries and Ocean Sciences with a concentration in Fisheries Science)

Sadie Oswald (B.S. in Fisheries and Ocean Sciences with a concentration in Fisheries Science)

Emily Williamson (B.S. in Fisheries and Ocean Sciences with a concentration in Ocean Sciences)

Brian Zhang (B.S. in Fisheries and Ocean Sciences with a concentration in Fisheries Science)

Becca Cates (M.S. in Fisheries)—“The effect of sea otter predation and habitat structure on nearshore crab assemblages in Southeast Alaska”

William Dokai (M.S. in Fisheries)—“Spatial and temporal variability of fish and mussel distributions revealed through eDNA metabarcoding”

Erika King (M.S. in Fisheries)—“Assessing the demographic and genetic contributions of precocial males in a naturally spawning population of Coho Salmon”

Veronica Padula (Ph.D. in Fisheries)—“Marine debris in the Bering Sea: Combining historical records, toxicology, and local knowledge to assess impacts and identify solutions”

Brittany Jones-Charrier (Ph.D. in Marine Biology)—“Benthic carbon demand and

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Student Subunit Happenings, continued

community structure across the Pacific Arctic continental shelves”

Delaney Coleman (M.S. in Oceanography)—“Lipid accumulation in three species of *Neocalanus* copepod in the Northern Gulf of Alaska”

Savannah Sandy (M.S. in Oceanography)—“Acoustic detection and characterization of sea ice and surface waves in the Northeast Chukchi Sea”

Join me in congratulating the recent graduates! We wish you all the best in your future endeavors.

Student Subunit Officers

The Student Subunit for the University of Alaska elected new officers this past May for the upcoming 2022-23 academic year: President—Garrett Dunne, Vice President - Lilian Hart, Treasurer—Linnaea Doerner, Communications—Sam Rosenbaum, DEI Liason—Maddy Lee. Congratulations to all! Stay tuned for updates on the Student Subunit regarding meeting times, plans for the student retreat, and a possible research project as we move into the fall.

AFS Annual Meeting

Students will be traveling and presenting at the AFS Spokane meeting at the end of August. Good luck to all attendees! If you are planning to attend, there are many early career professional events as well as continuing education opportunities and other networking events. And if you are

looking for more ways to be involved in the meeting, volunteering is a great option both to help you cover costs as well as network with fellow peers. Check out the Students Activities page on the Spokane meeting website for more information. <https://afsannualmeeting.fisheries.org/student-activities/>

Wild Trout Symposium

Additionally, another opportunity for students to engage in the scientific and professional community is upcoming this fall at the Wild Trout Symposium. The Wild Trout Symposium is a forum for a broad and diverse audience of governmental agencies, non-profit conservation groups, media representatives, educators, anglers, fishing guides, and business interests associated with trout fisheries to exchange technical information and viewpoints on wild trout management and related public policy. The Symposium has been held every three years since 1970. This year’s Symposium—Wild Trout XIII—will be held in West Yellowstone, September 27-30, 2022 (<https://www.wildtroutsymposium.com/index.php>).

Currently, many students are out doing the thing all of us fish folks love - field work! Enjoy photographs of some current students out and about doing fish work in our beautiful state. 🐟

U.S. Secretary of Commerce Approves Alaska Fisheries Disaster Funding

Earlier this year the U.S. Secretary of Commerce announced a Congressional allocation of \$144 million appropriated for fishery disasters, of which \$131.8 million is for Alaska. Allocations to specific Alaska fisheries qualifying as disasters include.

- 2019 Norton Sound Red king crab fishery: \$1,433,137
- 2020 Norton Sound, Yukon River, Kuskokwim River, Chignik, and Southeast Alaska salmon fisheries, and 2021 Yukon River salmon fishery: \$55,928,849
- 2018 Upper Cook Inlet East Side Set Net and 2020 Upper Cook Inlet salmon fisheries: \$9,404,672
- 2018 and 2020 Copper River and Prince William Sound salmon fisheries: \$34,326,265
- 2019/2020 Eastern Bering Sea Tanner crab fishery: \$12,935,199
- 2020 Gulf of Alaska Pacific cod fishery: \$17,772,540

The Alaska Department of Fish and Game accepted comments for distribution of these funds through June 15, 2022. While a formal plan has yet to be announced, previous Alaska fishery disaster spending plans provided funds for two general categories: research and direct payments to affected fishery participants such as harvesters, processors, communities, and households. 🐟

Meetings and Events

American Fisheries Society Annual Meeting

August 21–25, 2022. The next AFS annual meeting, will be in Spokane, WA. More information will be posted at <https://afsannualmeeting.fisheries.org/>.



Alaska Marine Science Symposium

January 23–27, 2023. This conference will be a virtual event. More information will be posted at <https://www.alaskamarinescience.org>.

American Fisheries Society Alaska Chapter Annual Meeting

March 27–31, 2023. The 49th annual meeting of the AFS Alaska Chapter will be in Juneau, AK. More information will be posted at <https://afs-alaska.org>.



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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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.

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