



THE CONFLUENCE

Newsletter of the Washington–British Columbia Chapter of the American Fisheries Society

Spring is over / Summer is here 2018 Issue

Inside this Issue

Call for Executive Committee Nominations	2
WA–BC 2018 Annual Meeting Highlights	3
2018 Awards	5
William “Jack” Hernandez Hatchery Tour	6
The Book Nook	7
Meeting Announcements	9
Chapter Info	10

We packed this brief spring is over / summer is here issue of *The Confluence* with some interesting articles and exciting announcements. One of the BIG announcements is the [call for nominations](#) (see page 3). Please consider nominating yourself or someone you think could well-serve our chapter! We also wanted to officially announce the location of our 2019 annual meeting location. After a lot of suggestions at the last meeting and sifting through the options, we are excited to say our 2019 meeting will be held at the beautifully located Kitsap Conference Center in Bremerton, Washington on April 8–11, 2019. There are more articles to enjoy, with highlights from the 2018 meeting, awards announcements, a tour description of a an impressive new hatchery, and a book review on cephalopods.



WA-BC Chapter President, Tamara Knudson, leading the business meeting at the 2018 annual general meeting in Kelowna, BC this past March.

CALL FOR NOMINATIONS!!!

The Washington–British Columbia Chapter of the American Fisheries Society is seeking nominations for the Vice President and Student Representative positions. Please consider nominating someone you think would be a good fit or feel free to nominate yourself. Nominations period **closes July 30** with elections to follow shortly thereafter.

Vice President

The Vice-President is the first part of a four-year term, after each year progressing to President-Elect, President, and finally Past-President. The Vice-President serves as the Chairperson of the Membership Committee, assists the Program Chairperson, and performs other duties as assigned and as described in the Chapter Procedures.

Student Subunit Representative

The Student Subunit Representative serves a one-year term on the Executive Committee to represent all Washington–British Columbia AFS student members. This position can be held by any member of the Washington–British Columbia AFS Chapter.

Send nominations with a brief biography to:

Alix Silver at alix.blake@spokanetribe.com



WA-BC 2018 Annual Meeting Highlights

The 2018 Washington-British Columbia Chapter of the American Fisheries Society Annual General Meeting was held on March 19-22 in Kelowna, British Columbia at the Coast Capri Hotel. The meeting was a great success with 115 attendees, 53 oral presentations, and 7 poster presentations. As the picture to the right shows, the social events were well attended and there was a lot of great discussion about "40 years of fish and fisheries in the Pacific Northwest."



The picture to the left shows one of our plenary speakers, Paul Kariya, presenting to an attentive audience. Thanks again to our plenary speakers, including Jordan Coble, and to Bryan Symonds from "A River Film."

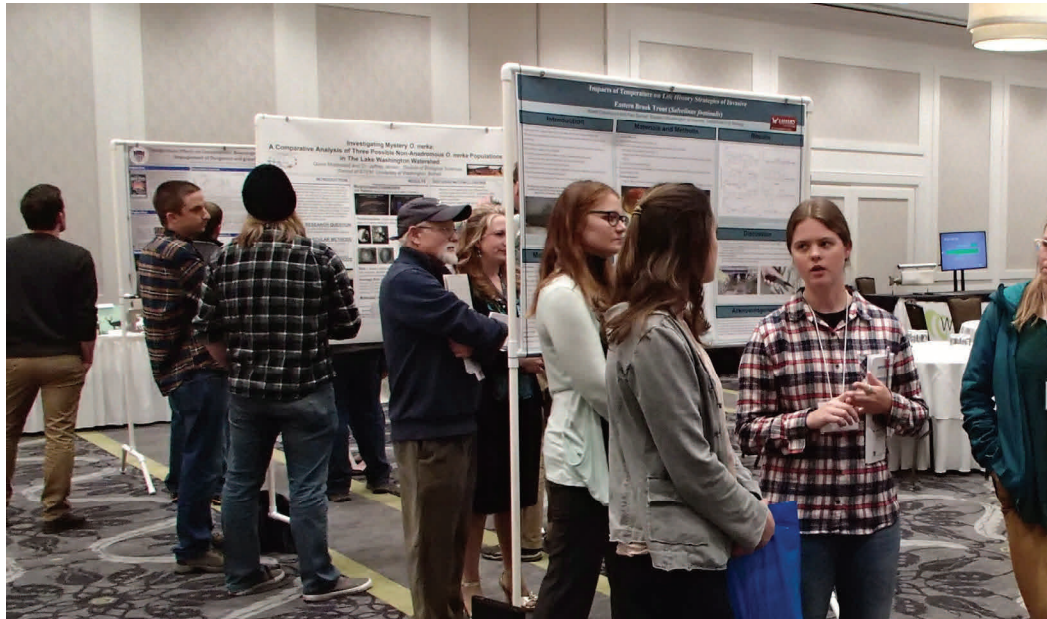
The symposia presentations on hatchery reform progress and innovation were packed, as the picture to the right shows. In general, all the symposia presentations were in front of a full house and the panel discussions were very engaging and informative. Symposia topics ranged from river connectivity to communications methods to Sockeye Salmon, and more. All the presentations from the meeting can be found at: <https://wa-bc.fisheries.org/past-meetings/past-meetings-2018/program/>



Spawning run/walk was a success! Gabe started off the race by giving everyone some general instructions and providing an overview of the course. A special thanks to Alex Lake, a volunteer student from the University of British Columbia—Okanagan, for developing the course. For those interested, everyone was a winner this year.

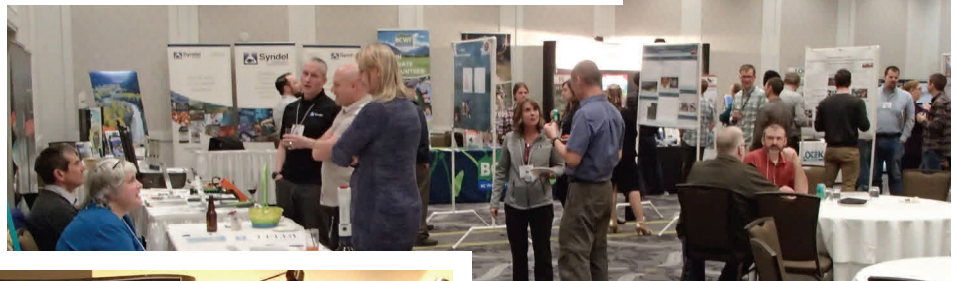
WA—BC 2018 Annual Meeting Highlights (continued)

The student/mentor panel and mixer, pictured to the right, proved to be a great opportunity for students to get their questions about future career paths and opportunities answered from a variety of professionals. Tamara Knudson, current WA-BC AFS President, moderated the panel while students lobbed some tough questions their way.



Thanks mostly to the students' hard work and research, we had one of the better poster sessions at this year's meeting. In the picture to the left, you can see some of those students interacting with meeting attendees to provide a complete picture of their research.

The layout allowed vendors and sponsors to easily interact with attendees throughout the meeting. THANKS AGAIN to all the vendors and sponsors that help make our meeting a success!!!



To the left, a picture of current and past WA-BC Executive Committee members at the 40th anniversary meeting. In the top row from left to right: Kathy Peters, Phil Peterson, Brian Missildine, Brittany Jenewein, Kirstin Gale, Gabe Temple, Tamara Knudson, and Kim Hyatt. In the bottom row from left to right: Mark LaRiviere, Benjamin Cross, Ryan Klett, and Orlay Johnson.

2018 AWARDS

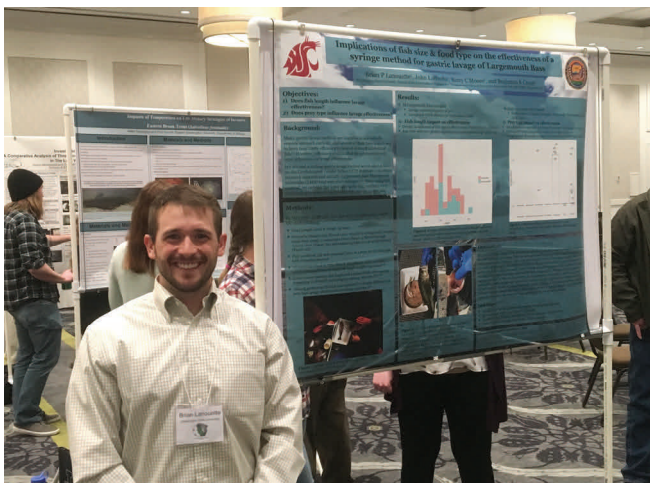
Best Student Oral Presentation

Colin Bailey (pictured to the right) from Simon Fraser University with his presentation titled "Holy smolts it's time to go! Modelling age at seaward migration in juvenile Steelhead."



Best Student Poster Presentation

Brian Lanouette (pictured below) from Washington State University presented "Implications of food type on the effectiveness of a syringe method for gastric lavage of Largemouth Bass."



C. Jeff Cederholm Scholarship Recipients

Congratulations to our three C. Jeff Cederholm Scholarship Recipients:

Christine Stevenson is pursuing on her Master of Science degree in salmon ecology and conservation from Simon Fraser University. She is conducting research that is focused on migration survival and behavior of juvenile Fraser River Sockeye Salmon.

Megan Feddern is attending the University of Washington where she is working towards a Master of Science degree in the School of Aquatic and Fisheries Sciences. Her thesis research is focused on reconstructing the trophic position of Harbor Seals and environmental productivity in Puget Sound and coastal Washington ecosystem.

Kyla Bivens is working on her Bachelor of Science degree in Aquatic and Fishery Sciences at the University of Washington.

WA-BC Chapter Student Travel Award Recipients

Colin Bailey, Kaeli Davenport, Adam Kanigan, Brian Lanouette, Jon Loffredo, Shawna Warehime, Sam Wilson, Grace Workman, and Rachel Chudnow.

William “Jack” Hernandez Hatchery Tour

By Gabriel Temple

While attending the Western Division meeting in Anchorage in May, I had the opportunity to join our chapter President, Tamara Knudsen, and soon to be Western Division Vice President, Todd Pearsons, on an unplanned private tour of the William “Jack” Hernandez Sport Fish Hatchery in Anchorage. We were promptly greeted on our arrival by the Hatchery Manager Andrea Tesch, who dedicated a significant amount of time to provide us with a first rate tour



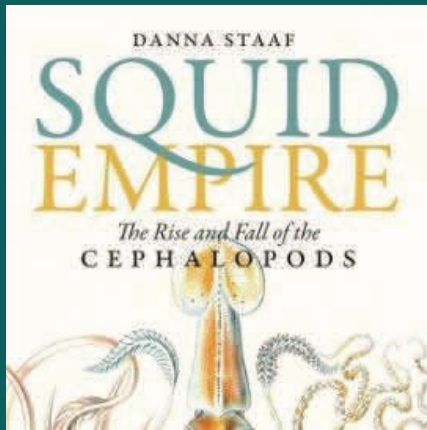
of the facility. My first impression of the facility was that it looked like any warehouse in the industrial area of any large city. There were two short raceways outside of the building which weren't very impressive as far as hatchery raceways go. However, I then realized that the entire facility is actually located indoors. Until this point, I hadn't really considered the benefits of housing a hatchery facility indoors where temperatures can be regulated, and photoperiod can be altered to maximize growth targets during long periods of winter darkness that are experienced at northerly latitudes. The 141,000 sq. ft. facility has five species on station including Arctic Char, Grayling, Chinook Salmon, Coho Salmon, and Rainbow Trout with the capacity to rear 6.5 million fish, all under the same roof. The fish are held in circular tanks within the facility, and they can be pumped between tanks when moved to minimize handling stress. Many of the tanks utilize a pneumatic feeding system where food is automatically delivered from two ton capacity hoppers in a central feed room to each circular tank. Many circulars for the smolts are outfitted with viewing windows to observe the fish and their behaviors below the waterline. The efficient use of a water recirculation system and the facility design provide a hatchery that uses only 5% of the water and 5% of the energy required of a conventional hatchery (as reported on HDR's website). HDR received several awards for the plan and design of the facility and at least one is on display in the visitor center. The visitor center spans the entire second floor of the facility and provides a bird's eye view of all aspects of the hatchery. Apparently 1% of the cost of the facility was required to be allocated to educational material and artistry, and as such, there is lots of material for visitors to see. I saw the coolest hatchery truck ever (see photo)! If you get a chance to visit Anchorage, I would highly recommend visiting the William “Jack” Hernandez Sport Fish



Hatchery. It is pretty impressive as far as hatcheries go. If you can't visit in the near future, check out the information on the Alaska Department of Fish and Game website here: <http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportStockingHatcheryInfo.williamjackhernandez>.



**Orlay Johnson,
Reviewer**



**Danna Staaf,
Author**

Image from www.humanities.org

The Book Nook

“Squid Empire – The Rise and Fall of the Cephalopods” by Danna Staaf

Review by Orlay Johnson

Short take for those who don’t want to read the full review:

Read this book and you’ll know why H.G. Wells got his alien right. I found the book to be an informative and interesting read on the evolution of squids and octopuses. Plus, there is plenty of humor to spice up the dry parts. If you are like me, you may get deeply immersed in both the subject and the author’s style of writing. Go for it – the book may well change your entire view of evolution and our place in the cosmos.

Full review

Dr. Danna Staaf’s book on the evolution of Cephalopods is one of the top books in my reading list. She writes in a short and sweet style, with fun illustrations and a narrative that is humorous and scientifically accurate. It almost seemed as if Danna got the world’s experts on squids and octopuses to gather for a beer at your local pub, and they are all discussing the latest research and advances in the field.

On the down side, I wish there were more photos, tables, and graphs and that they were in color. These species are beautiful and deserve to be seen in full color – and there are a multitude of colorful evolutionary graphs that would help us to follow what is a very complex and confusing the history.

A mixed blessing was that I also found this book a bit hard to read, or at least to keep reading. I love Cephalopods and particularly squid, and as a geneticist this should have been in my wheelhouse. Still, I would read a few pages, and stop for a while and then pick it up again –it took my brain a while to process all she was saying as a lot of it was new or different from what I had thought before.

More positively, while Dr. Staaf is an expert on Humboldt Squid biology (her Ph.D. is on their reproduction) she is not a paleontologist or evolutionary biologist. But as you read the book, you can almost see her knowledge-base expand as her research into the book progressed. And as you read, you feel her excitement as she learns something new and tries to explain it to the reader.

So, while this book could be an incredibly dry and boring tome, instead her writing style keeps the book moving, and even better, she uses humor to get difficult points across and to lighten long complex concepts. For me, this makes the book much easier to read and is much appreciated.

Continued on Page 8

The Book Nook (Continued from Page 7)

A little back story - Prior to reading the book, I was writing something on Humboldt Squid migrations into the Pacific NW and looked at a dissertation entitled "Reproduction and Early Life of the Humboldt Squid" from Bill Gilly's lab at Stanford. I was very impressed with the quality of the writing. This author's "Acknowledgments" were not just a litany of thanks to major professors, Mom and Dad, and her office mate, but the author actually discussed why these folks were so helpful and how important that was to finishing the dissertation. As I read the dissertation, I kept thinking I hope the author doesn't just dissolve into the world of scientific papers and indecipherable jargon, but keeps writing in the style I observed in the acknowledgements.

A few days after "Squid Empire" was published, I attended a talk at a local book store by the author, and only then did I realized she was the same person who wrote the Humboldt dissertation - so indeed the author did keep writing for the average person, and I am glad she did.

How to describe the book?

It's an evolutionary story that seemingly begins in a galaxy long long ago, in a world where there were no terrestrial plants or animals, nor any vertebrates at all, or really any complex animals. However, the oceans were dominated by the ancestors of modern day squids and octopus - simple creatures, but the first to float above the bottom and perhaps the first true predators.

Overall, the book is a pretty straightforward account of newer research on the history and progression of Cephalopod evolution from 500 million years ago (mya) from late Cambrian through the present day - with particular emphasis on the early years.

There are eight chapters plus an introduction (Why Squid?) and an Epilogue (Where are they going?) which in many ways are the most interesting. The chapters are in chronological order from the Cambrian to present day, documenting what paleontologists and evolutionary biologists think happened over the eons (and there is often little agreement). Still, the evolution of Cephalopods is unimaginably complex and confusing - they were the dominant animals on earth for hundreds of millions of years, then almost totally obliterated by extinction events, recouped, obliterated again, and on and on.

All Cephalopods lack bones, and squids and octopuses also lack shells - so they don't leave a fossil record as easily as dinosaurs. They once all had shells, and they have been around much longer than most everything else, so the fossil record of cephalopods is rich, with over 7,500 species recorded.

In the epilog, she relates what might be happening to the phylum now as a potentially new extinction event occurs and boneless/shell-less beasts may once again dominate the depths.

Above all else, I appreciate how Danna realizes the weakness of what we know today versus what we'll know tomorrow. She concludes: "I can't think of a better fate for this book than to amuse my grandchildren as one of the earliest dinosaur books might elicit chuckles today. After all, those were the books that inspired the next generation of scientists, the next generation of storytellers." (Staaf 2017, page 201)

Meeting Announcements



2019 WA-BC Chapter Annual Meeting

April 8 – 11, 2019

Kitsap Conference Center, Bremerton, WA



Western Division
American Fisheries Society



Save the Date!

Join us for the AFS Western Division Meeting

Hosted by the WA-BC Chapter in 2020

April 12-16, 2020

Pinnacle Harbourfront Hotel, Vancouver, BC



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Washington-British Columbia Chapter of the American Fisheries Society

Chapter Information

Website: <http://wa-bc.fisheries.org/>

Facebook: <https://www.facebook.com/wabcafs>

Twitter: <https://twitter.com/wabcafs>

Want to join AFS and the WA-BC Chapter? <http://membership.fisheries.org/>

Questions? Suggestions? Contact:

President Tamara Knudson at tamarak@spokanetribe.com

Want to write an article or submit any type of fisheries-relevant information to this newsletter? Contact:

Benjamin Cross at bekecr@gmail.com

The WA-BC Chapter of the American Fisheries Society, which includes members in Washington State and British Columbia, is an organization composed of professional biologists interested in the scientific conservation and enhancement of fish populations and their environment.

The mission of the Chapter is to:

- 1) advance the conservation and intelligent management of aquatic resources within a context of sound ecological principles,
- 2) gather and disseminate information pertaining to aquatic science and fisheries management, and
- 3) promote the educational and technical aspects of the fisheries profession.

In pursuit of our mission, we will strive to equitably represent the views of members, develop opportunities for effective leadership and conservation, and generate the resources necessary to carry out our programs.

The next WA-BC Chapter Annual General Meeting will be held on April 8–11, 2019 in Bremerton, Washington at the Kitsap Conference Center. We look forward to seeing you there!



2017-2018 Executive Committee of WA-BC Chapter

From left to right: Gabriel Temple, Sam Wilson (back), Orlay Johnson (front), Kirstin Gale, Tamara Knudson, Alix Silver, Brittany Jenewein, Benjamin Cross, and Ryan Klett