



Summer 2023 Issue

THE CONFLUENCE

NEWSLETTER OF THE WASHINGTON-BRITISH COLUMBIA
CHAPTER OF THE AMERICAN FISHERIES SOCIETY

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Letter from the President

Greetings from the Presidents of WA-BC Chapter!

Your WA-BC AFS had a successful meeting in Bellingham in March. Planning got off to a late start due to WA-BC hosting the parent society meeting in Spokane in August as well as the fact that WA-BC has not hosted an in-person meeting since 2019 in Bremerton, WA. Thus, we were surprised when we put out a call for symposia and only had one submission by mid-December. So, it was time for ExCom members to contact fisheries professionals by phone and email. The results were gratifying-with a meeting with over 90 presentations in 11 symposia and contributed paper sessions. In addition, we had 10 participants in the trade show and numerous sponsors, more than doubling what we had budgeted for trade show and sponsor revenue.

The conference featured plenary presentations by renowned scientist Dr Richard Beamish titled "The Future of Salmon", Lummi Scientist Frank Lawrence III titled: "Lummi Way of Life" and Amy Gulick featuring stories and spectacular photos from her book "The Salmon Way: An Alaska State of Mind".

The conference also featured an open house at nearby Bellingham Technical College (BTC). BTC features a hatchery technician program based at the old Bellingham sewage treatment plant which has been transformed into a hatchery. The open house featured plenty of food, including delicious freshly grilled oysters. Students presented on salmon aquaculture, raising algae, and other topics. All told, the conference had over 40 student registrants out of the 170 at the conference.

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President's Letter, Cont'd.

We learned much from this conference:

1. Start much earlier! As I was turned down due to people already having prior commitments, I kept thinking how much bigger of a meeting we could have had if we'd started 6 months or more in advance instead of 3 months!
2. Worry more about the minutiae. Registration turned out to be a problem we were not ready for; much of it due to us still using what worked at that 2019 Bremerton meeting. To those with problems registering, we apologize.
3. Nothing beats direct personal contact by phone, email, or both in finding participants!

Regarding lesson 1, we have already signed a contract for a joint meeting with Idaho in April, 2024 in Spokane. And we are also working towards a 2025 WA-BC meeting in British Columbia!

We have plenty of work prior to our next meeting. First is elections with more information in this newsletter. We also are looking at working with the parent society to upgrade our website (we are the last chapter or entity whose website it not hosted by AFS, the next to last moved to AFS after being hacked!). With AFS adopting a new logo, we need to change our WA-BC logo as it has the old AFS logo embedded in it; expect to hear more about that in the coming months. I continue to work on better archiving and documenting our past and will be reaching out to members soon to try to fill in the gaps. And Sean Simmons has surveyed members to build WA-BC Working Groups.



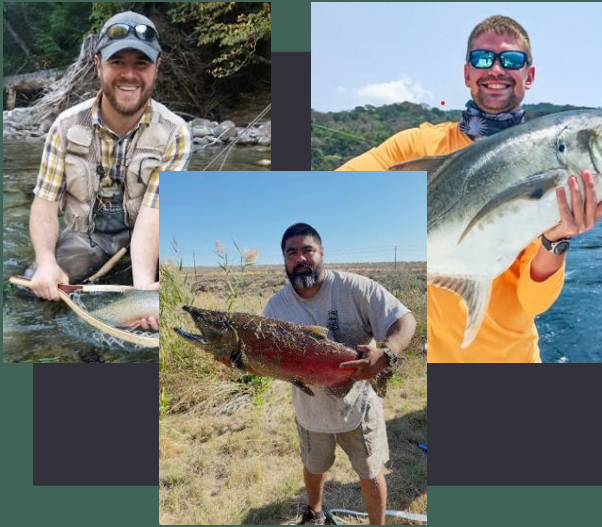
Attendees mingling at the poster social after a successful day of symposia in Bellingham!

If you would like to get more involved with WA-BC AFS, please contact me or any other member of ExCom.

Finally, my term as President will be coming to an end in August. I have enjoyed my time on ExCom (and still have one more year as Past President), especially the planning of the last two general meetings in Bellingham and Spokane. It was great to work closely with, and get to know, the Western Division and the AFS executive along with the AFS staff to put together the Spokane meeting. Then there was the short turnaround to our Bellingham meeting where it was even more gratifying to see how a small group of members (principally ExCom) working hard could put together a very good meeting in a short period of time. I highly recommend participating in AFS entities and events! As I approach retirement in the next few years, a regret is not getting involved in AFS leadership earlier in my career!

Jeff Fryer,
WA-BC AFS Chapter President
frji@critfc.org

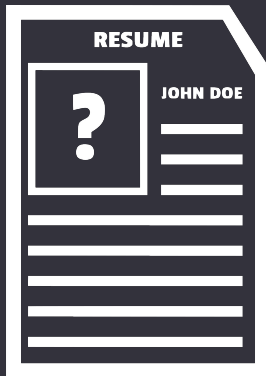
Announcements and Upcoming Events



Elections Underway!

Elections are now underway for three positions in the American Fisheries Society Washington-BC Chapter Executive Committee: Vice President, Communications, & Student Rep! [Voting ends June 30th, 2023.](#)

Visit this [link](#) to vote before then!



Looking for a job?

Did you know that WA-BC AFS maintains a job board on our website? We also have links to other state and local job boards! Visit our website to explore your next job: <https://wa-bc.fisheries.org/job-board/>

Want to post a job to our board? Email our Communication Officer at plum.fisheries@gmail.com!



Calling all artists!

With the recent redesign of the American Fisheries Society logo, it may be time to upgrade our own WA-BC AFS logo, seen here on the left! Stay tuned for news of a possible logo design contest, and start thinking about what you'd like to see in the new logo. Artists, sharpen your pencils!



2024 JOINT CONFERENCE

SAVE THE DATE

APRIL 29 to MAY 2, 2024
Spokane, Washington

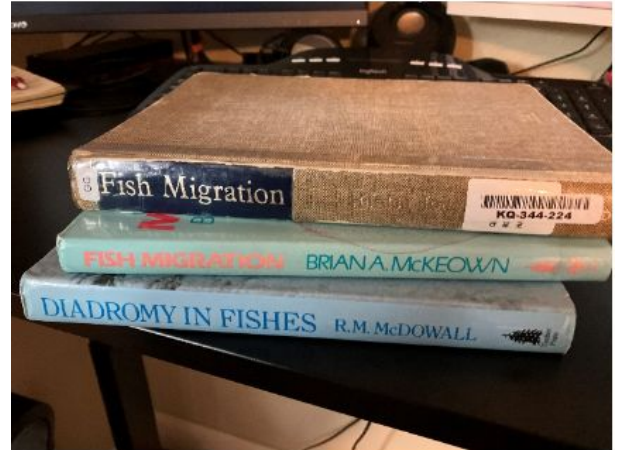


The Book Nook

Standing on the Shoulders of Giants: Classic Books on Fish Migration

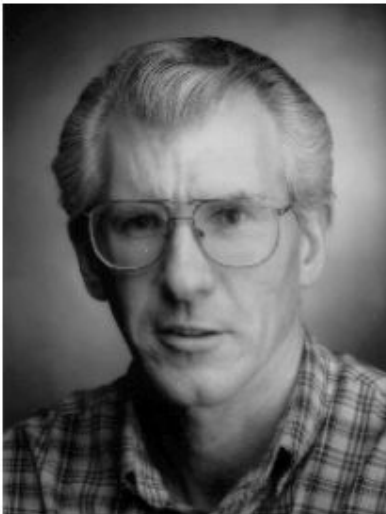
Book Review By Josh Murauskas

This book review highlights three different books – or maybe five – that helped to shape my thinking on fish migrations. After a childhood chasing after migratory fish along the Mid-Atlantic coast, I wound up pursuing a career in fish biology. Even though I was aware of the seasonal runs many fish made to freshwater spawning grounds (or saltwater in the case of American Eel), most of the biology, ecology, or management of these species was a mystery to young anglers like me.



Three classic books on fish migrations.

After starting college, I found the book *Fish Migration* (1968) by F.R. Harden Jones. The book covers biological aspects of migration, study methodology, and species from broader groups, including salmon and trout, eel, and herring. The final chapters in the book cover what most would consider to be an excellent account of how homing (or lack thereof) and the impressive navigation across lengthy distances was understood in the mid-1900s. Harden Jones was a British fisheries biologist that conducted extensive research on fish movements and their ecological significance. Harden Jones passed away in 1979 but his contributions remain impressive.



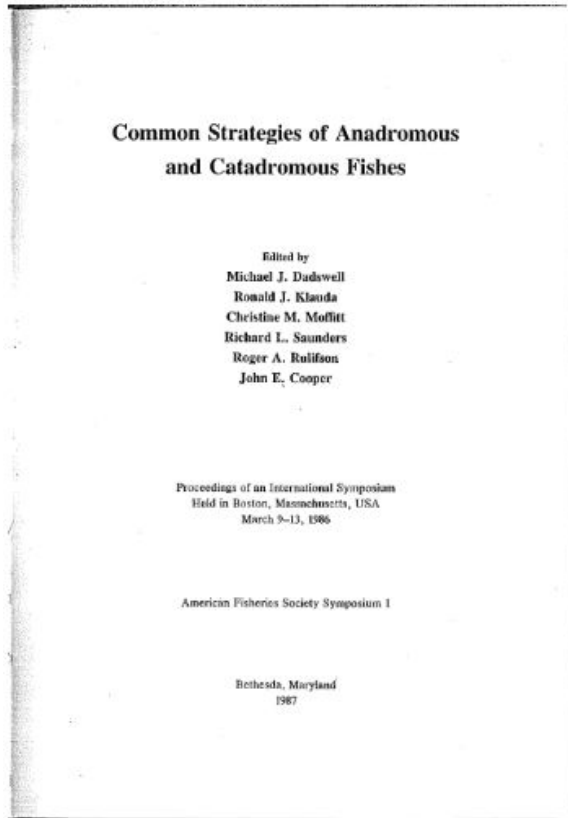
Dr. McKeown in 1998
(Simon Fraser University).

Another book that I first encountered on this subject was also called *Fish Migration* (1984) by Bryan McKeown. This book was intended to be a follow up on the above-mentioned book by Harden Jones, with additional content on the physiological aspects of migration. McKeown does a great job in addressing the progress made on orientation, bioenergetics, behavior, ecology, and evolution. This book is an excellent contribution that not only captured the significant advances made in fish biology, but also provides a great foundation for understanding topics such as the use of multiple habitats, osmoregulation, reproductive maturation, and bioenergetics. I am not aware of Dr. McKeown's whereabouts, but he is a Professor Emeritus at Simon Fraser University. His efforts to provide an update on fish migration and the science behind our understanding at the time were tremendous.

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The Book Nook

Classic Books on Fish Migration, Cont'd.



The third book that had a great impression on me as a fish biologist is *Diadromy in Fishes* (1988) by Robert McDowall. This book unpacks diadromy in detail, including what many consider to be proper definitions and explanations of anadromy, catadromy, and amphidromy. Dr. McDowall does an excellent job going into the very complicated topics of evolutionary pressures of diadromy, various life history strategies and deviations, and fisheries and conservation issues with diadromous fishes. Bob McDowall was one of New Zealand's prominent ichthyologists, authoring 14 books and several hundred publications on fish. He passed away shortly after his retirement in 2011 due to illness at the age of 72.

The second two books I mentioned in passing include the first AFS special publication, *Common Strategies of Anadromous and Catadromous Fishes* (1987), which, was followed by AFS Symposium 69 in Halifax and the compilation *Challenges for Diadromous Fishes in a Dynamic Global Environment* (2009).

My professor from East Carolina University, Roger Rulifson, was a contributing editor to both editions. I was fortunate enough to attend the latter symposium and spend time with Dr. Rulifson following his difficult but successful battle with cancer. He introduced me to many of the greats that preceded my generation, including Michael Dadswell, Ron Klauda, John Cooper, Christine Moffitt, and even Bob McDowall.

There's no question that we've had many excellent biologists that have paved the way for the three generations now in the workforce. They came from a different time when computers, the internet, and email was nonexistent or new to the world. There were no R packages, incredible GIS tools, telemetry, much less cell phones and social media. Their writings reflect a great sense of curiosity that is often lacking in modern publications. I'd encourage any fish biologist to pick up copies of these books. The quality of writing and insights are fantastic.

Tidal Channel Restoration

In 2017 Blue Coast Engineering was awarded a contract with the Estuarine and Salmon Restoration Program (ESRP) Learning Grant to update embayment restoration design guidelines for Puget Sound that were initially developed as part of the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP). In Spring of 2023 the final report for this study will be released. This work was completed in conjunction with many partners, primarily Eric Beamer from Skagit River Systems Cooperative, but also partners at state and federal agencies, universities, and private organizations.

Embayments provide many ecosystem services, including important habitat for migrating fish and birds. Juvenile salmonids, namely threatened Chinook salmon, use embayments as refuge and forage habitat during their transition from the fresh to marine environment. Embayments are often the focus of restoration projects because many have been degraded and negatively impacted by development; others have been cut off from tidal influence and therefore lost entirely.

Approximately 35% to 40% of all embayments within the Puget Sound have been lost according to PSNERP. A major feature of an embayment is the primary tidal channel, which determines the volume of water that can flow into and out of an embayment through the system outlet. This channel also provides access to the embayment for fish and additional work has been ongoing, primarily by WDFW, evaluating fish passage in tidal systems.

The focus of this study was to determine guidelines for designing and scaling the primary tidal channel for restoration. During this study, regression models were developed to be used in the primary tidal channel restoration design process. While these models are a tremendous improvement over previous guidance in determining the primary tidal channel dimensions, they should not replace numerical modeling of the system's hydraulics and hydrodynamics to verify design assumptions.

There were several lessons to be drawn from this work. The first was never to underestimate the value of in person observation of the processes acting on systems one is trying to mimic. Another was the diversity of embayment types and habitats supported by embayments in Puget Sound and the potential for these embayment habitat types to act as geomorphic controls on the embayment geometry. For example, low lying embayments at the head of bays tend to be impoundments which hold some water during all phases of the tide and tend to have silty sediments and no interior saltmarsh.

This study provides robust regression models which can be used for the design of a barrier embayment inlet tidal channel and are a significant improvement over previous guidance. Though extensive amounts of data and observations were collected over the course of this study, future work could include collecting additional data to validate the new models and developing sub-basin specific regression models, quantifying surface water inflow, and the investigation of additional geomorphic factors that contribute to barrier spit configuration.

The final report for this study can be found at https://salishsearestoration.org/wiki/Tidal_Channel_Restoration_Guidelines

Growing The Chapter From The Ground Up — Washington-BC Working Groups

By Sean Simmons

Dear Washington - BC Chapter Members,

For those of you who don't know me yet, my name is Sean Simmons and I'm the Vice-President of the chapter. I'm currently in year one of a four year President's cycle and want to share some thoughts on how we can grow the chapter over the next few years.

As I look around to other successful chapters — Idaho and Oregon come to mind — one of the big things I've noticed is that they have strong committees (you'll notice I prefer calling them working groups). These working groups support the work of the executive committee and help ensure a strong annual conference. Our chapter does not have active committees, and this is an area that I believe could help grow and strengthen the chapter. So this is where I've spent some effort coming up with a strategy to accomplish this goal.

There are many ways we can develop a working group strategy. My preference is to do it from the ground up, where passionate members drive the formation and activities of the group. A natural starting point for this process was our last conference in Bellingham, where we had a dozen symposia covering a wide range of topics. Each one of these symposia can be thought of as the "seed" of a working group. My goal is to see if we can sprout these seeds into functional working groups with a simple, single purpose — develop a strong symposium for each working group at the 2024 conference in Spokane. And if folks are really enthusiastic, then additional objectives can be added to the working group as desired.

There is no guarantee this approach will work, but my theory is that if we can get enough of these "seeds" started, the ones that truly have member support will flourish. The ones that don't, won't. And through this model, participating members will be the driving force that shapes the priorities of the chapter from the ground up.

As it stands, we have attracted members to three working groups so far:

- 1. Angler Engagement and Citizen Science**
- 2. Fish Passage and Habitat Restoration**
- 3. Hatchery Salmon Population Evaluations**

As we are still early in the process I am confident that more working groups will form over time as I continue to talk with interested members. If there is a working group you are interested in testing the waters with, whether it be Bull Trout, Invasive Species, Physiology, Pinnipeds or something not yet imagined, please reach out to me and let's chat.

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Washington-BC Working Groups, Cont'd.

As a final note, I recognize we are all busy and time is one of our most limited and precious resources. So as a start, we only ask members for one hour of their time each month. For most members who are passionate about a topic, this seems to be a sweet spot in terms of commitment. Then we set a monthly "scrum" that should only last 15-30 minutes. Most folks find this brevity appealing, as they can easily balance this commitment with the rest of their schedule.

If this is something you are interested in being a part of, either as a working group member or spearheading your own working group on a topic close to your heart, please let me know. I can be reached by email (sean@anglersatlas.com) or by phone (250-613-7727). I look forward to hearing from you!

Cheers,

Sean Simmons, Vice-President Washington BC Chapter, AFS

PS. Below are the statements of the working groups formed so far:

Angler Engagement and Citizen Science

Anglers play an important role in providing researchers and managers with valuable data about the state of our fisheries. As technology opens new channels of engagement, anglers are able to play an increasingly important role, either through voluntary channels such as citizen science or through improved communication channels for mandatory reporting. This working group is dedicated to exploring these new methods of engaging anglers in supporting management objectives and for primary fisheries research, both through mandatory reporting and voluntary citizen science initiatives.

Hatchery Salmon Population Evaluations

Large investments are made annually to assess and evaluate salmonid populations in the PNW. Many of these efforts include mark and recovery of hatchery fish, using either CWT or PIT tags. Reporting of these results often occurs at focused program, sub-basin or basin level meetings or symposia. There is not a common, recurring forum for comparison of results across regions (Salish Sea, Columbia River, Fraser River, Coast). This situation is in contrast to reporting of hatchery culture methods and results that occur annually at the regional NW Fish Culture Conference, the AFS annual meeting (Fish Culture Section) and at Aquaculture America. It appears that there is an opportunity to create a forum to discuss and compare the attributes and performances of varying salmonid populations across Washington and BC and to compare and contrast evaluation techniques.

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Washington-BC Working Groups, Cont'd.

Fish Passage and Habitat Restoration

Rivers and streams are amongst the most fragmented systems globally. From large-scale hydroelectric dams to small-scale barriers, such as culverts, floodgates, tidegates, and dykes, in-stream structures have culminated to form an intricate, and poorly quantified, matrix of barriers to movement in salmon-bearing streams. Until recently, there was very little work done to quantify the totality of these barriers and effectively remediate them.

In 2022, NOAA awarded \$39.8 million dollars to Tribes, communities, and local governments to remove fish barriers and restore salmonid habitat across Washington state. This recognition and allocation has been touted as a major success in the salmon community, and with hundreds of thousands of barriers remaining along the North American range of Pacific salmon, we now need to maximize coordination amongst fish passage agencies and researchers to streamline further restoration of habitat connectivity for Pacific salmon.

As federal, state, and provincial governments continue to prioritize fish passage and habitat, fisheries scientists, managers, and advocates play key roles in planning and implementing these projects across our region. This broad working group would focus on science, policy, projects, and progress of fish passage and ongoing restoration efforts in our regions.

Specific Goals for The Next Year (for the 2024 chapter conference)

- Each member (or team) will commit to giving one talk about fish passage, habitat restoration, or a related topic at the 2024 conference
- Partner with other AFS chapters, divisions and sections to establish fish passage and habitat restoration working groups within the organization.
- Recruit five committee members into the chapter as part of the working group.

Expectations of Working Group Members

- Dedicate at least one hour a month to the working group
- Attend monthly meetings
- Work on one of the three specific goals stated above

WASHINGTON-BRITISH COLUMBIA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

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.

Contact Information

Want to join AFS and the WA-BC Chapter?

<http://membership.fisheries.org/>.

Questions? Suggestions?

Contact President Jeff Fryer at fryj@critfc.org.

Want to write an article or submit any type of fisheries-relevant information to this newsletter? Contact the Communications Officer Tyler Plum at

plum.fisheries@gmail.com.

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



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