



THE CONFLUENCE

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

Fall 2019

Inside this Issue

President's Report	2
A Message from Our Student Sub-Units Representative	4
Past-President's Update from the AFS/TWS 2019 Joint Conference	5
Jeff Cederholm Scholarship	7
The Book Nook	8
2020 WD AGM Plenary Speakers	11
Education Corner	13
Chapter Info	14

We hope you're getting excited for the Western Division Chapter of AFS 2020 Annual General Meeting (AGM) in Vancouver, BC, Canada on April 12–16 because it should be a great meeting in an awesome location! The theme of the upcoming meeting is:

“Crossing Boundaries and Navigating Intersections”

In order to advance our understanding and management of fisheries and aquatic ecosystems we will need to boldly cross boundaries and navigate intersections – we will need to go where we have not gone before. Boundaries are divides that may include technology, methodology, mindsets, disciplines, environments, borders, politics, communications, values and the like. Intersections represent pathways where these often-separate factors converge. This meeting will highlight the myriad and successful ways boundaries have been crossed and intersections navigated in fisheries and aquatic sciences to achieve desired outcomes. Steven Cooke, Helen Neville, and Daniel Pauly will be our plenary speakers. Please consider submitting a symposium proposal as early as possible (final call deadline is December 6, 2019). More information about the meeting, including the call for symposia, can be found at <https://wa-bc.fisheries.org/2020-meeting/>.



2020 WD AGM in Vancouver, British Columbia, Canada on April 12–16

More details about the meeting can be found at: <https://wa-bc.fisheries.org/2020-meeting/>

President's Report

Happy Fall, WA-BC Chapter Members!

I am honoured to be representing the Chapter as your President for 2019-2020 (and yes, as my spelling may reveal... I'm Canadian!). I'd like to first take the opportunity to thank our current Past President, Gabriel Temple, for all the hard work he put in to keeping the Chapter on track over the past year. Gabe was fortunate to attend the huge AFS-TWG joint meeting in Reno earlier this fall and provides a thorough summary of his experience on page 5. In addition to our "Presidential Track" shuffle, we welcomed our new Executive Committee concurrent with this meeting. We have some new faces on the ExCom, including Vice President, Alf Haukenes, Student Subunit Coordinator, Caroline Walls, and Communications Director, Tim Taylor, all of whom have been fully engaged from the get-go and have been working hard to get up to speed. We managed to convince our wonderful Secretary, Kirstin Gale, to stick around for another term and she is also getting ready to take on our Archiving project. Finally, Past President Tamara Knudson is still keen to be part of the team and has taken on the role of Treasurer. Many thanks to those who have moved off the ExCom this year (Ben Cross, Ryan Klett, Orlay Johnson), your services are so appreciated and we hope to see you around!

The new ExCom met for our annual retreat near the end of October in Richmond, B.C. This in-person meeting is a great opportunity for some team building and for the committee to settle on a work plan for the coming year. I have set some big goals this year, but I am confident that this team can accomplish a lot since we're building on some groundwork put in place by previous committee members. These goals were developed using the updated AFS Strategic Plan 2020-2024 as a guideline. Here's what I'm aiming for:

1. Work toward re-building/enhancing participation in the WA-BC Student Subunits
2. Continue our Past President's lead in promoting AFS Fisheries Certification by getting certified myself, as well as encouraging all ExCom officers and my colleagues to do the same.
3. Increase diversity among fisheries professionals and promote an inclusive environment in AFS
4. Finish updating the Chapter Procedures Manual (last update was 1990!)
5. Communicate the importance of both the science and the value of the fisheries discipline by publishing symposium proceedings and/or hosting a WA-BC sponsored event (e.g. river clean-up, supporting outreach programs).

I hope this plan gets you excited about the year ahead. Another big thing we've got going on is hosting the Western Division meeting in conjunction with our regular Chapter AGM in Vancouver, B.C., Canada from April 12-16, 2020! Planning is already well underway and we visited the site of the meeting while

WA-BC Chapter Executive Committee



President

Brittany Jenewein

President Elect

Paul Spruell

Vice President

Alf Haukenes

Past President

Gabriel Temple

Treasurer

Tamara Knudson

Secretary

Kirsten Gale

Communications Director

Timothy Taylor

Student Representative

Caroline Walls

AFS-BC President

Yangfan Zhang

AFS-EWU President

Hannah Coles

Contact for President Brittany Jenewein

Email: btjenewein@gmail.com or afs.wabc@gmail.com

President's Report

we were in town for the ExCom retreat. Scheduling for the meeting is interesting this year given it falls just after Easter weekend, but don't let that deter you! The meeting officially kicks off at 1pm on Monday, April 13 to accommodate those who wish to spend the Sunday holiday with friends and family. We are excited to bring in three exemplary Plenary speakers so far: Dr. Daniel Pauly (UBC), Dr. Helen Neville (Trout Unlimited), and Dr. Steven Cooke (Carleton University). Check out their biographies on page 11 to see the incredible expertise they're bringing to the meeting. Our Final Call for Symposia is out, so please be sure to submit your symposia before December 6. We'll be opening abstract submissions shortly thereafter. Are you looking for opportunities to improve your skillset? We've got you covered – we're working on providing several options for Continuing Education on topics such as Innovative Developments in the Use of PIT-Tag Technology, Reproducible Research in R, Underwater photography, and we're aiming to bring back the Sea Foraging workshop, Vancouver style! This is one meeting you won't want to miss.

My virtual door is always open, and I'm keen to hear your thoughts about how we can make the Chapter work best for you!

Looking forward to a year full of fishy adventures with you all!

Brittany Jenewein



Touring the Pinnacle with the Western Division reps. Looks like a nice spot for a trade show!
PC: B. Jenewein



View from one of the meeting rooms. Can't ask for better! PC: B. Jenewein.

Contact for President Brittany Jenewein

Email: btjenewein@gmail.com or afs.wabc@gmail.com

A Message from Our Student Sub-Unit Representative

Greetings and happy holidays to the WA-BC Chapter of the American Fisheries Society. I took over as the student sub-unit representative for the WA-BC chapter of AFS this fall. I would like to introduce myself and to thank my predecessor, Orlay Johnson, who held the position for many years and continues to provide helpful insight and support. I am a graduate student in freshwater ecology at Western Washington University in Bellingham, WA. As the student sub-unit representative, I hope to increase student involvement in our chapter of AFS. We have many great educational institutions with strong fisheries programs in our region. It would be beneficial to both our organization and to future fisheries professionals to increase the involvement of students and their sub-units within the WA-BC Chapter of AFS. Our executive committee is already working on putting together a student email list to improve communication with all of the students in our chapter, regardless of whether they belong to a sub-unit. We are also working to understand and rectify the decline in student sub-unit activity in recent years. We are in the planning stages of scheduling a student mixer at the upcoming Western Division AFS meeting in Vancouver this April 12-16. The goal of this mixer is to get students from sub-units throughout the Western Division to share their experience and ideas. We want to hear what works and what doesn't when it comes to retaining and expanding student involvement in AFS. Please keep a lookout for further details. We hope to have as many students as possible.

We have some updates to share from our three student sub-units. I will start with some sad news from the University of Washington sub-unit, which decided to become inactive this year due to the graduation of their entire executive committee and due to overlapping interests of other campus groups. We hope that a new crop of motivated fisheries students will be inspired to reactivate this sub-unit in western Washington, and I encourage any interested parties to contact me. The British Columbia sub-unit is gearing up for the graduation of some of their own long-time members, including Sam Wilson. But in the meantime, current-President Yangfan Zhang is busy organizing a symposium for the upcoming Western Division AFS meeting in Vancouver. Finally, the Eastern Washington University sub-unit had some recent graduations, including Coty Jasper and Sasha Goheen. But the EWU sub-unit President, Hannah Coles, has plans to expand membership despite these graduations. She is working to open the sub-unit to students from other eastern Washington universities, including Gonzaga University, Spokane Falls Community College, Spokane Community College, and Whitworth University.

I would like to end by wishing all of our students good luck on their exams, and by welcoming all student members of WA-BC to reach out with any questions, concerns, or ideas for the future of our AFS chapter.

Caroline Walls, wallsc@wwu.edu





AMERICAN FISHERIES SOCIETY & THE WILDLIFE SOCIETY 2019 JOINT ANNUAL CONFERENCE

If you were lucky enough to attend the annual meeting in Reno, NV just about a month ago, you were part of History. The 2019 annual meeting was the first time The Wildlife Society and the American Fisheries Society held a joint meeting under 1 roof. The result was massive. The last count I heard was that just over 4,300 fish and wildlife professionals were in attendance, although that number may have increased slightly. The plenary sessions were held in a very large lecture hall, and several of the plenary speakers' first comments upon climbing the stage were something like "Whoa!!! There are a lot people out there....". I'm guessing the room had a couple thousand chairs. It was like a sports arena for professional fish and wildlife stars.



Our new AFS President, Scott Bonar, introduced his work plan for his Presidency during one of the plenary sessions, and two primary tasks are 1) to address climate change issues and the affect on fish and wildlife resources (see the October 25, 2019 news release "Turn this Ship Around" on the AFS Website for an example), and 2) to work towards standardizing methods in fisheries data collection. Mr. Bonar is a powerful and inspiring speaker and I for one am confident the AFS will remain a global leader in fisheries science and management under his leadership. I should mention that the AFS offers a free webinar to our members developed by Scott called "Verbal Judo, a method to improve your ability to talk to those hostile to conservation" which may come in useful in our conversations with those that are combative and un-convinced that climate change is real. Check it out here: <https://fisheries.org/2017/12/verbal-judo-a-method-to-improve-your-ability-to-talk-to-those-hostile-to-conservation/>. There were several additional plenary talks that were both moving and inspiring and you can view their summaries on the AFS meeting website <https://afstws2019.org/>. Finally, there was a marriage proposal on stage during the AFS Business Meeting so be sure to congratulate our immediate Past-President Jesse Trushenski on her engagement!



In between sessions, I spent a lot of time at our 2020 booth in the tradeshow advertising our 2020 meeting in Vancouver BC. We handed out 'Save the Date' swag items to over 500 attendees, and solicited participation from several of the vendors that were on site. We really hoped to get the word out about 2020, but it doesn't stop there...be sure to advertise through your own network.

For having 4300+ participants, it was my observation that the talks were not particularly well attended, or at least not for a fair number of the talks I sat in on. I'm not sure exactly where everyone went. Sure, some rooms attracted much larger crowds. For example, some of the salmon sessions at the Atlantis Hotel were very well attended, and the session with the bear talks were standing room only. Sadly, I couldn't get a seat in the carnivore room and did my best to pay attention from the hallway, but that was fairly undesirable. I have never tried to sneak into a bear talk before and next time I will be better prepared.

I did make frequent trips to the film festival throughout the meeting whenever I had a free moment. It seems as though films are growing in popularity. My first real exposure to a fisheries film festival was at the national meeting in Portland a few years ago and I have been hooked ever since. They provide a unique platform to display a lot of information in a short amount of time. The film festival in Reno played a series of short films throughout the entire conference and it was a really nice way to round out the day. Don't forget we are also hosting our own film festival at our 2020 meeting in Vancouver so be sure to put that on your calendar.

I didn't participate in any of the field exercises, although several of my colleagues did. One of the trips was an electrofishing survey of the Truckee River in downtown Reno. It must have been quite a sight when approximately 60 scientists descended the banks of the Truckee equipped with a variety of electrofishing gear and proceeded to electrofish the river. I have heard that this survey produced a lot of data in a short amount of time. The AFS Facebook page has a short write up and photos of the event so be sure to check it out. There were several additional trips and events hosted but I am afraid I don't have any updates or information on them.

Finally, I'll just wrap up by saying that if you get a chance, check out the meeting website for additional details that I didn't describe here. The meeting abstracts are also posted there for you to browse. If you haven't had a chance to attend a National Meeting, I would encourage you to do so. They are a great way to showcase your work and to network with others in your profession. The next national meeting will be held in Columbus OH, August 30-Sept 03, 2020 and it will mark the 150th anniversary of the AFS. In preparation, the AFS established the website <https://150years.fisheries.org/> so you can browse the history of fisheries through the timeline and historic photo submission pages, Join/contribute to the 1870 Society, or nominate your favorite fish to the 150 fishes to celebrate 150 years of fisheries.

Gabriel Temple
WA-BC Chapter Past President



Endowment–Brief History

Jeff Cederholm dedicated his career to conservation of salmon and aquatic species and their habitats. Jeff passed away in 2006 leaving a legacy of education, pioneering contributions to scientific literature and periodicals and instilling of passion for wild salmon conservation in many people for decades. After a successful American Fisheries Society Meeting hosted by the WA-BC Chapter in Seattle 2011, the Chapter resolved in 2013 to apply raised funds and subsequent contributions to the endowment to create a permanent source of financial support for educational expenses. The Scholarship is administered by the WA-BC Chapter Endowment Committee.



The Scholarship

The scholarship endowment fund will provide **three \$1000 scholarships in 2020**, one each to an **undergraduate** student (pursuing a bachelor's or associate's degree), a student pursuing a **master's degree**, and a student pursuing a **doctorate**.

The following scholarship criteria apply:

Scholarships are intended for defrayment of educational expenses such as tuition, student fees, lab fees, books, supplies, room and board.

Scholarships will be awarded to students pursuing degrees in fisheries, aquatic sciences, or related fields at an accredited college or university.

Master's and PhD applicants must be Washington-British Columbia Chapter members at the time that their application is submitted.

Undergraduate applicants need not be Chapter members.

How to Apply

Provide a brief cover letter addressed to the C. Jeff Cederholm Scholarship Committee, fill out the application form on our website, acquire two letters of recommendation and e-mail a merged pdf electronic version containing all elements to WA-BC AFS Past President, Gabriel Temple, Gabriel.temple.wabc.afs@gmail.com or mail to WA-BC chapter American Fisheries Society, P.O. Box 9322, Spokane, WA 99209. E-mail submissions are preferred.

Applications will be accepted through February 15th, 2020.

The Book Nook

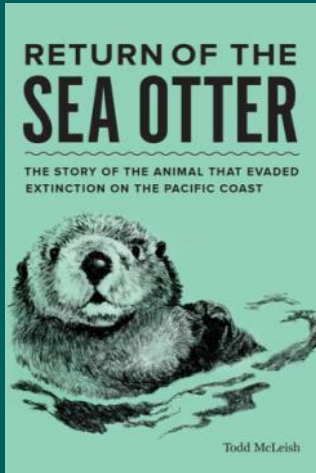
“Return of the Sea Otter—The Story of the Animal that Evaded Extinction on the Pacific Coast

Review by Orlay Johnson

Author: Todd McLeish. Pub: Sasquatch Books. 2018.



Orlay Johnson,
Reviewer



Return of the Sea Otter—The
Story of the Animal that
Evaded Extinction on the
Pacific Coast



Todd McLeish,
Author

Todd's book is a needed update and review of both the positive and negative aspects of the ongoing recovery of sea otters. It is a worthwhile and fun read whether you see otters as “impossibly adorable furballs, whose pup-parenting, shell-cracking antics make them ecotourism and aquarium superstars” or “demons from the depths devastating marine ecosystems and commercial fisheries.” Plus, the book is a paperback, with excellent color photos and exquisite line drawing that only cost \$20 USD plus tax. Initially, I did wonder why a book on a creature so iconic and endemic to the North Pacific should have been written by someone from New England. Not to knock Todd, as he appears to be both an excellent writer and a dedicated lover of *Enhydra lutris*, but considering all the amazing folks who have done so much research on the species, it seems odd none have written this type of book. Then I read his book – it took many years of research migrating from northern Alaska to California and involved SCUBA diving, kayaking, hunting with native Alaskans (legal in Alaska), necropsies, and many hours of study – he deserves accolades for a job well done.

On the other hand, we should never forget - the Pacific Northwest has produced many amazing otter researchers, including the father of the restoration program Karl Kenyon, a giant in the world of sea otter conservation who wrote “The Sea Otter in the Eastern Pacific Ocean”, published in 1969 and cited over 700 times since then.

Others include Seattle Aquarium researchers like Dr. Shawn Larson, UW professor Glenn VanBlaricom, and WDFW biologist Jim Bodkin who edited “Sea Otter Conservation”, published 2014. It is a story of the otters over 275 years chronicling their decline and near extinction and the road to recovery that crosses various conflicts. Plus, many other researchers such as Jessie Hale, Steve Jefferies, Kristen Laidre (and on and on) have written technical books and scientific papers on otters and/or are still actively diving or staring through scopes studying their behavior.

But Todd's book is unique. He begins by reviewing in detail how the otter hunters in the 18th and 19th centuries decimated otter populations from the Russian and the Aleutian Islands down to California. Russia sold 73,000 sea otter furs in China between 1797-1821. Americans over a similar period made 127 voyages and during the peak four years sold nearly 60,000 pelts in China. Sea otter hunting wasn't banned until 1911, and by then over 123 ships had reported killing 198,284 sea otters, completely wiping out most populations (page 17). The result was an ecosystem denuded of keystone predators from California to Russia, and Todd documents this altered “the normal paradigm” so that sea urchins ballooned in population and devastated the kelp forest and other marine algae of the region. The result allowed other commercially valuable species (abalone, crabs and other inverts) to explode -

Continued on Page 9

The Book Nook (Continued from Page 7)

a boom for which commercial fishermen all but destroyed the kelp forests that are nurseries to most species of salmon, rockfish, and other marine fishes – even more commercially valuable species.

After this first chapter on the history of otter hunting and its result, McLeish turns personal and uses each chapter to explore interviewers and investigations with people involved with otters. Each chapter is a different aspect of sea otter ecology and life including habitats, otter life history, impacts of otter populations on native villages, modern hunting of otters (legal in Alaska), studies of dead otters, diseases, tourist impacts, politics, legal issues, climate change impacts and the many people involved in the day to day work with the species. He goes into detail on recent diseases that have devastated Alaskan populations but not impacted those in other portions of the range (but other diseases have), and he looks at Alaskan laws that allow restricted hunting of otters (including how difficult that is, as these little guys quickly figured out how to avoid hunters) and how otters have wiped out subsistence living among B.C. First Nations.

Of particular interest to me was how McLeish in Chapter 7 explores factors negatively impacting otter recovery through descriptions of necropsies of two, each from opposite ends of the species range: one in Alaska and the other in California. He vividly shows how otter health is damaged by parasites, pollution, and shellfish and algal biotoxins, and he clearly shows that these animals are still in danger of extinction. The necropsy in Alaska is at the Anchorage Marine Mammal Lab of US Fish and Wildlife and conducted by Kristin Worman who does such necropsies each week. She was assisted by University of Alaska students – Amy Kirkham and Quinsey Jorengesen. The animal was designated FW14026 and was the 26th otter to be necropsied in 2014. FW14026 was four years old and died from lesions in the aortic valve where blood exits the heart – vegetative valvular endocarditis caused by a streptococcus bacteria, called Strep Syndrome.

Over 10 years, biologists at US Fish and Wildlife Service have found 144 dead sea otters and 60 died from strep. First discovered in Kachemak Bay in Homer in 1998, by 2006 so many dead otters washed ashore the MMPA declared an “unusual mortality event” and they hired Kristin Worman to walk beaches and collect carcasses, and she now does necropsies.

The situation was different in California – there Strep Syndrome is virtually unknown, and while primary cause of death is shark bites, there are also a plethora of other diseases that kill otters. The necropsy in California was conducted by Melissa Miller, a veterinary pathologist at California Marine Wildlife Veterinary Care and Research Center in Santa Cruz; most dead otters in California turn up in her lab (p. 104)

Continued on Page 10



Sea otter photo by Todd McLeish



Sea otters wrapped in kelp (PC:BBC)

The Book Nook (Continued from Page 8)

However, while shark predation cannot be controlled, most of the diseases in the state are the result of human behavior – specifically from cat feces that often has a protozoan parasite called *Toxoplasma gondii* – which arrives in otterland from cat litter flushed down the toilet. The California Sea Otter Fund passed by California Legislature includes a requirement for instructions on cat litter about how to dispose of the used product.

Many other viral and bacterial diseases impact otters, such as a brain disease called *Sarcocystis neuroma*, primarily spread by “Opossum s***” and initially an equine infection. Now it is common in California otters and in April 2004, following a larger rainstorm this disease killed 40 otters in Morro Bay.

As mentioned, the book looks in detail at both the positive and negative sides of sea otter recovery. No question otters are cute and draw tourists across their range, but an increasing number of otters in Alaska and B.C. are devouring everything from crabs and urchins to tiny limpets and clams. In B.C., villages that rely on subsistence harvesting have been devastated and commercial fisheries have collapsed -- with loss of jobs in already economically-stressed communities. McLeish tries to be impartial in this debate as in most endangered species recovery efforts both sides have legitimate concerns – although he does point out that blaming otters for the collapse of abalone and other populations is unwarranted. All along the Pacific coast increasing ocean temperatures, acidification, overharvesting, and coastal development (including pollution from pet feces) are huge factors impacting the survival of otters and other marine organisms – and overshadow recent otter population increases.

In conclusion – McLeish has done his homework and the book is accurately describing the pros and cons of ongoing recovery of a charismatic species. I would say it a must read for everyone who cares about our Pacific coast ecosystems and otters. There are excellent color photos (as expected, very cute) as well as black and white illustrations – including one of otters holding hands.

Email Todd McLeish at tbmcleish@cox.net.

Todd is available to speak to community groups about *Return of the Sea Otter*, *Narwhals*, *Basking with Humpbacks*, *Golden Wings and Hairy Toes*, or other topics. See his current schedule of upcoming public appearances at toddmcleish.com/appearances/.



Dr. Melissa Miller and Jack Ames collecting morphometrics on a southern sea otter; PC: CDFG.



Sea otters help control sea urchin populations that threaten kelp forests; PC: Vancouver Aquarium.

2020 WD AGM Plenary Speakers



Steven J. Cooke, Ph.D.—Professor of Biology | Director of the Institute of Environmental and Interdisciplinary Sciences at Carleton University, Ottawa, Canada.

Cooke is a Professor of Biology and Director of the Institute of Environmental and Interdisciplinary Sciences at Carleton University in Ottawa, Canada. His work spans the natural and social sciences with a particular focus on developing solutions to problems facing fish and other aquatic organisms. He has much experience working with practitioners, policy makers and stakeholders to co-create useable knowledge. Cooke founded the Canadian Centre for Evidence-Based Conservation and is working with diverse partners to build capacity for evidence synthesis. He has published on topics such as fisheries management, conservation science, physiological ecology, animal behaviour, and human dimensions of natural resource management. He has recently led a Royal Society of Canada working group in Interdisciplinarity that culminated in a white paper. Cooke is a Fellow of the Royal Canadian Geographical Society and Secretary of the College of the Royal Society of Canada, and has previously served as President of the International Section and the Canadian Aquatic Resources Section of the American Fisheries Society. He is Editor in Chief of the journal "Conservation Physiology". Check out his website at www.FECPL.ca or follow him on twitter at @SJC_Fishy.

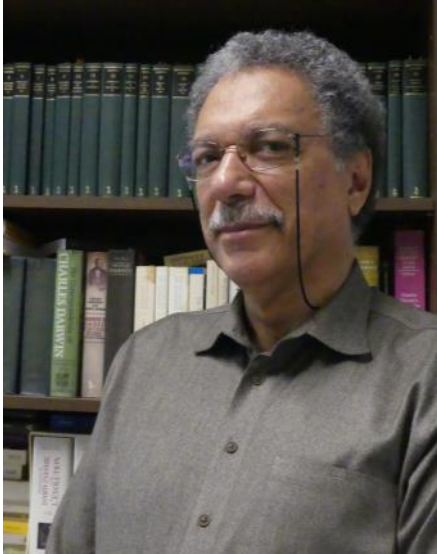


Helen Neville, Ph.D.—Trout Unlimited, Boise, Idaho, United States.

Helen Neville is Trout Unlimited's Senior Scientist where she leads org-wide science guidance and is working with her peers to network TU science staff more effectively and increase integration of science with TU's programmatic and grassroots conservation efforts. Trained as a geneticist, Helen's research has focused primarily on applying genetic tools to improve our understanding of the ecology and conservation needs of salmon and trout. She has used genetic and genomic approaches to characterize the spatial resolution of natal homing, measure effects of isolation and population responses to habitat reconnection, explore the genetic footprint of historical stocking practices, and search for adaptive variability and patterns of selection. Additionally, building on 20 years of engagement, she oversees a multi-faceted program developing partnerships, conservation actions, and science to assist recovery of the federally-listed Lahontan cutthroat trout. This has included collaborative research predicting climate change impacts and developing new Multiple Population Viability Analysis applications for this threatened fish. As TU's Senior Scientist, Helen gets to intertwine her affinity for people and collaboration, passion for nature and conservation – and occasionally still pursue her wonky love of genetics – in a perfect mix of connecting people around research questions that advance the science and effectiveness of aquatic conservation.

Continued on Page 12

2020 WD AGM Plenary Speakers



Daniel Pauly, Ph.D. Sea Around Us | Oceans and Fisheries & Department of Zoology at the University of British Columbia, Vancouver, British Columbia, Canada.

Born in France and raised in Switzerland, Daniel Pauly studied in Germany, where he acquired a doctorate in fisheries biology in 1979, from the University of Kiel. He did his first intercontinental travel in 1971 (from Germany to Ghana for field work related to his Masters) and has since experienced a multitude of countries, cultures, and modes of exploiting aquatic ecosystems in Africa, Asia, Oceania and the Americas. This perspective allowed him to develop tools for managing data-sparse fisheries, as prevailed for example in the Philippines, where Dr. Pauly worked through the 1980s and early 1990s.

In 1994, Dr. Pauly became a Professor at the University of British Columbia Fisheries Centre, and was its Director from 2003 to 2008. In 1999, Daniel Pauly founded, and since leads, a large research project devoted to identifying and quantifying global fisheries trends, funded until mid-2014 mainly by the Pew Charitable Trusts and since by a number of charitable organizations, and called the *Sea Around Us* after Rachel Carson's 1951 bestselling book. Daniel Pauly is also co-founder of FishBase.org, the online encyclopedia of more than 30,000 fish species, and he has helped develop the widely-used Ecopath modeling software. He is the author or co-author of over 1000 scientific and other articles, books and book chapters on fish, fisheries and related topics. Two books, reflecting his current interests were published in 2010: "Five Easy Pieces: Reporting on the Global Impact of Fisheries" and "Gasping Fish and Panting Squids: Oxygen, Temperature and the Growth of Water-Breathing Animals". In 2016, with Dirk Zeller, he published an article titled "Catch reconstruction reveal that global marine fisheries catches are higher than reported and declining" (DOI: 10.1038/ncomms10244) and the *Global Atlas of Marine Fisheries*, concluding a decade-long activity of the *Sea Around Us*.

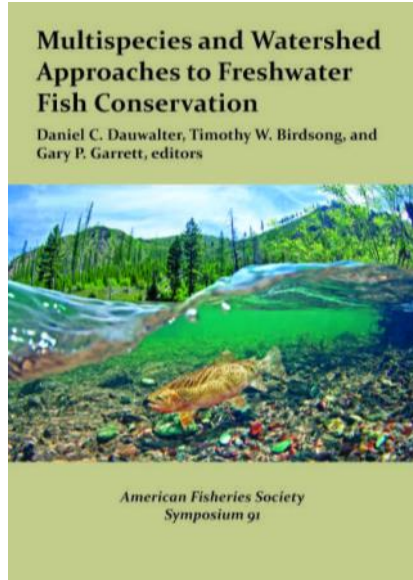
Dr. Pauly is the recipient of multiple international prizes and awards, including seven honorary doctorates from universities in Europe and Canada. Since 2003, he is a Fellow of the Royal Society of Canada and since 2016, he is University Killam Professor.

He also received the Award of Excellence of the American Fisheries Society ('04); the International Cosmos Prize, Japan ('05), the Volvo Environmental Prize, Sweden ('06), the Excellence in Ecology Prize, Germany ('07), the Ramon Margalef Prize in Ecology, Spain ('08), the Albert Ier Grand Medal in the Science category ('16) among others. Daniel was also knighted as Chevalier de la Légion D'Honneur ('17) by the French government on Bastille Day.



Education Corner

MULTISPECIES AND WATERSHED APPROACHES TO FRESHWATER FISH CONSERVATION



Checkout the new publications at the [AFS bookstore](#), including *Multispecies and Watershed Approaches to Freshwater Fish Conservation* which features one editor that is the Western Division Chapter president: **Daniel Dauwalter**.

THE CANADIAN CONFERENCE FOR FISHERIES RESEARCH—THE SOCIETY OF CANADIAN LIMNOLOGISTS

The 2020 Canadian Conference for Fisheries Research has joined with the Society of Canadian Limnologists to host their annual meeting. It will be held at the Four Points Sheraton in Halifax, Nova Scotia on **January 2–5, 2020**. The theme for this year's conference is 'Aquatic Science is Changing Habitats.' For more information, visit <http://ccffr2020.acadiau.ca/home.html>.

MIDWEST FISH AND WILDLIFE CONFERENCE

The 80th Midwest Fish & Wildlife Conference will be held **January 26–29, 2020** at the BOS Center in Springfield, Illinois. The theme of the meeting is "Bringing Science Back to the Forefront of Resource Management." To get all the details, check out the website at <http://www.midwestfw.org/>.

ANNUAL STREAM RESTORATION SYMPOSIUM

The 19th Annual Stream Restoration Symposium is made possible through the work of the nonprofit, River Restoration Northwest, a scientific and educational organization formed in 2002. The symposium will be at the Skamania Lodge in Stevenson, Washington on **February 4–6, 2020!** Details can be found at www.rrnw.org.

AMERICAN FISHERIES SOCIETY & THE WILDLIFE SOCIETY

From **August 30th to September 3rd, 2020 in Columbus, Ohio**, The Ohio Chapter will host the 150th annual meeting of the American Fisheries Society. This conference will celebrate 150 years of fisheries ecology, conservation, and management with fisheries students and professionals from across the world. There will be special exhibits and activities that highlight the achievements from all those who have contributed to the AFS mission over the past century and a half (including the WA-BC Chapter).





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 Brittany Jenewein at btjenewein@gmail.com

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

Timothy Taylor at timothytaylor.afs@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.

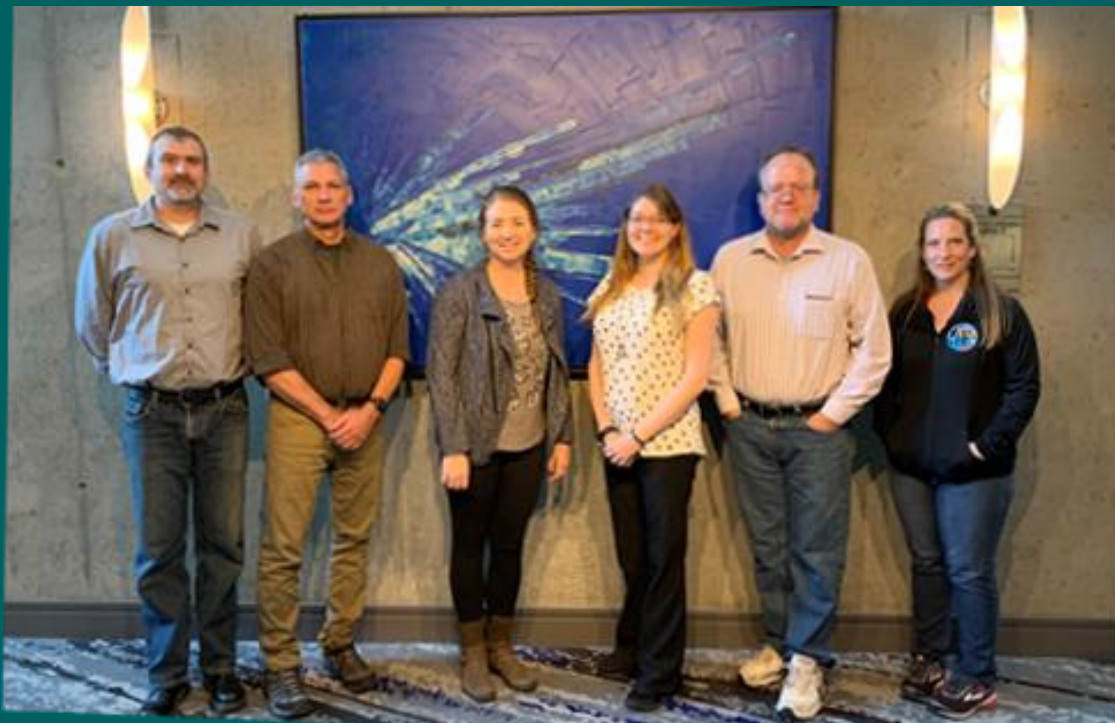
The mission of the Chapter is to:

- 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 in Vancouver, British Columbia, Canada on April 12–16, 2020.

Watch for the latest updates!



2019-2020 Executive Committee of WA-BC Chapter

From left to right: Gabriel Temple, Paul Spruell, Caroline Walls, Brittany Jenewein, Alf Haukenes, and Tamara Knudson. Not present: Kirstin Gale and Timothy Taylor.