



# THE CONFLUENCE

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

Winter 2019/2020

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Read about upcoming deadlines and what's shaping up for the 2020 WD Annual General Membership Meeting, "Crossing Boundaries and Navigating Intersections," in this meeting preview edition of *The Confluence*. **Call for Papers** deadline is **February 12, 2020** for our meeting in Vancouver, B.C. on April 13–17, 2020. Don't forget—early-bird registration ends **March 12, 2020!**



PC: Tourism Vancouver

An early morning photo over False Creek near downtown Vancouver, B.C. The weather should be near 55°F (13°C), so take advantage of the beautiful scenery and great activities in the area, like kayaking along the city shores or riding up to Grouse Mountain. (<https://wa-bc.fisheries.org/about-vancouver-b-c/>).

## **2020 WD AGM in Vancouver, British Columbia on April 13–17**

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

## President's Report

Dear WA-BC Chapter members,

Happy New Year! I know at the time of this distribution the excitement of the holidays will have died down, but I hope you all had a chance to recharge and spend time with loved ones, and may your resolutions still be on track! The Chapter ExCom members are in crunch time right now, working on the details of the Western Division 2020 Meeting in Vancouver, B.C. just 2 months away, but we haven't forgotten about our commitment to the 2019-2020 Work Plan. Over the winter break we made good progress on edits to the Chapter Procedures Manual and did some more research into why some of our Student Subunits have been struggling to maintain membership. It's not all bad news, though, as many students are still actively engaged, including helping out with planning for the upcoming meeting. We're always looking for ideas for how the Chapter can better serve our students. There's an awesome Student Mixer scheduled for Monday, April 13, during the first evening of the WD2020 meeting in Vancouver, so let's meet there and chat!

Speaking of the meeting, if you couldn't tell already, I'm really excited for this one. An excellent Steering Committee made of over 20 volunteers (including the Western Division and WA-BC ExComs) has been working hard, and I thank each and every one of you for your dedication, feedback, and keeping me on my toes! I gave a preview of what's to come in my last update, but I also hope you've been keeping up to date by checking out the meeting website. This newsletter will showcase many of the symposia and events planned so far, including 25 incredibly diverse symposia that I think truly cross boundaries with topics ranging from the influence of forestry on stream ecosystems, to bringing an Indigenous lens to fisheries science, to the ever-popular topic of Bull Trout conservation and management, and so much more. I also wish I had time to attend all five of our Continuing Education courses being offered on Thursday and Friday at the meeting. There is sure to be a chance for everyone to learn something new! I could go on and on, but one last activity I'll mention is that we're trying something a little different at this meeting; after the Plenary session on Monday, be sure to stick around (after refueling with coffee, of course) for a DEBATE about whether scientists and scientific organizations should cross the boundary from science into policy advocacy, specifically when it comes to climate change. You won't want to miss it! Finally, a huge thank you to our meeting sponsors. Without them we would not be able to host these meetings!

After the meeting in April - and a much-needed vacation - I'll be doing a deeper dive into getting my AFS Fisheries Professional Certification and working with the ExCom to coordinate a special Continuing Education opportunity in the fall that will be offered exclusively to AFS Members. Keep an eye out for that announcement in the Spring/Summer Newsletter - it'll be *shockingly* good fun.

We have a busy spring ahead, but I'm always up for a chat about our fishy friends. See you in Vancouver!

Brittany Jenewein  
WA-BC Chapter President

### **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](mailto:btjenewein@gmail.com) or [afs.wabc@gmail.com](mailto:afs.wabc@gmail.com)

## **2020 WD Annual General Meeting Preview** **Pinnacle Harbourfront Hotel, Vancouver, B.C.** **April 13–17, 2020**

### **Deadlines**

- **Early-bird registration** closes **March 12**, register at <https://wa-bc.fisheries.org/2020-meeting/registration/>.
- **Abstract submissions** are due **February 12**, submit abstracts at <https://wa-bc.fisheries.org/2020-meeting/abstract-submission/>.
- **Student scholarship** application period closes **February 15**. C. Jeff Cederholm Scholarship application information on page 7 ([wa-bc.fisheries.org/about-us/awards/](http://wa-bc.fisheries.org/about-us/awards/)).
- **Book your hotel** room before they fill-up; room block closes **March 12**. Hotel booking information at <https://wa-bc.fisheries.org/2020-meeting/travel-lodging/>.
- **Chapter award nominations** are due **March 1**. Application information at [wa-bc.fisheries.org/about-us/awards/](http://wa-bc.fisheries.org/about-us/awards/).

### **Schedule Highlights**

#### **Monday, April 13**

- **Welcome and Plenary Session**, 1:00–3:20 pm
  - **Plenary Speakers**



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



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

***Continued on Page 4***

## 2020 WD Annual General Meeting Preview

### Monday, April 13

- **Welcome and Plenary Session, 1:30–3:20 pm**
  - \* **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.

- **Debate, 3:40–5:00 pm**
  - \* **Debaters**



**Scott A. Bonar, Ph.D.** USGS Arizona Cooperative Fish and Wildlife Unit | Professor of Natural Resources at the University of Arizona, Tuscon, Arizona, United States



**Wayne Landis, Ph.D.** Professor and Director of the Institute of Environmental Toxicology at Western Washington University, Bellingham, Washington, United States

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## **2020 WD Annual General Meeting Preview**

### **Monday, April 13**

- **Student Mixer**, 5:30–7:00 pm
- **Welcome Social**, 6:30–8:30 pm

### **Tuesday April 14**

- **Concurrent Sessions**, 8:00 am–12:00 pm
- **Trade Show Social and Posters**, 8:00 am–5:20 pm
- **Aquatic Film and Photography Festival**, 10:20 am–12:00 pm
- **WA-BC Chapter Annual Business Meeting**, 12:00–1:20 pm
- **Concurrent Sessions**, 1:20–5:20 pm
- **Aquatic Film and Photography Festival**, 1:20–5:20 pm
- **Trade Show Social and Poster Session**, 6:00–8:00 pm
- **Aquatic Film and Photography Festival (public)**, 7:00–11:00 pm

### **Wednesday April 15**

- **Spawning Run/Carcass Crawl**, 6:45–8:00 am
- **Concurrent Sessions**, 8:00 am–12:00 pm
- **Trade Show Social and Posters**, 8:00 am–5:20 pm
- **Aquatic Film and Photography Festival**, 10:20 am–12:00 pm
- **Western Division Annual Business Meeting**, 12:00–1:20 pm
- **Concurrent Sessions**, 1:20–5:20 pm
- **Aquatic Film and Photography Festival**, 1:20–5:20 pm
- **Silent Auction/Raffle**, 5:30–8:00 pm
- **Dinner Banquet and Entertainment**, 6:00–11:00 pm

### **Thursday April 16**

- **Concurrent Sessions**, 8:00 am–12:00 pm
- **Sea Foraging Workshop & Cooking Demo/Tasting**, 12:00–3:00 pm
- **Concurrent Sessions**, 1:20–5:20 pm

### **Friday April 17**

- **Continuing Education Workshops**, 9:00 am–5:00 pm

## Shop Amazon Smile, Percentage Donated to WA-BC AFS

The WA-BC Chapter is now linked up with Amazon! If you love to shop on Amazon, please listen up! Through the AmazonSmile program, 0.5% of all your eligible purchases made through the AmazonSmile link will be donated directly to the WA-BC Chapter! This can add up quickly and help our Chapter tremendously! Here's how it works. Just paste this link into your browser and enter AmazonSmile before you shop! <https://smile.amazon.com/ch/61-1534241>.



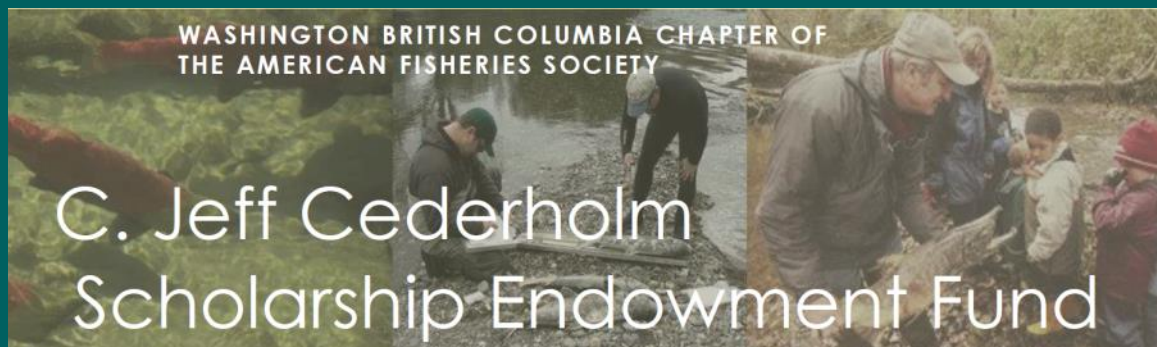
## 2020 AFS International Fisheries Section Fellow Award

**Attention Students and Young Professionals:** The International Fisheries Section (IFS) of the American Fisheries Society (AFS) is excited to announce the 2020 International Fisheries Section Fellow Award. The Fellow will represent IFS/AFS by presenting a poster or oral presentation at the 2020 Fisheries Society of the British Isles (FSBI) Annual Symposium, July 27-31, at Nottingham Trent University, United Kingdom. The theme of the 2020 FSBI Annual Symposium is "Fish in a Dynamic World," <https://www.fsbi.org.uk/symposium-2020/>. Additionally, the award recipient will receive up to \$2,100 (USD) of reimbursable travel expenses associated with attending the FSBI Annual Symposium. This award is open to all Student Members and Young Professional Members (within 3 years of graduation) of AFS. Current AFS membership is mandatory to receive this award.

To apply, please submit the following information as a single PDF document to the Committee Chair for the IFS Fellow Program, Mary Fisher (mfisher5@uw.edu), and the Deputy Committee Chair, Thiago Sanches (tmsanches@ucdavis.edu) by 11:59pm (PST) on **March 13, 2020**:

- Letter of interest (please include information about your involvement in AFS and how you will benefit from attending the FSBI Annual Symposium)
- Proposed FSBI presentation title and abstract
- Concise resume
- Proposed travel budget (i.e. airfare, ground transportation, etc.); please specify availability of supporting funds you may have from other sources if budget exceeds allowance

The awarded Fellow is expected to fulfill the following obligations: Attend the 2020 FSBI Annual Symposium and present an oral presentation, submit to the Committee Chair a travel report and photographs for print publication by August 31, 2020, submit travel receipts to the Committee Chair by August 31, 2020 for expense reimbursement, and serve as the Deputy Committee Chair of the IFS Fellow Award in 2019 and the Committee Chair in 2020. Priority will be given to applicants who are working on topics of international interest or those associated with the FSBI Symposium theme. However, all interested and eligible members are encouraged to apply. While attending the American Fisheries Society Annual Meeting is not a requirement, priority will be given to candidates who have existing funding to attend the 2020 AFS Annual Meeting in Columbus, Ohio, August 30–September 3, 2020. If the selected Fellow can attend the 2020 AFS Annual Meeting, they are expected to participate in the IFS committee meeting and act as a site host for the FSBI Fellow.



## 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.

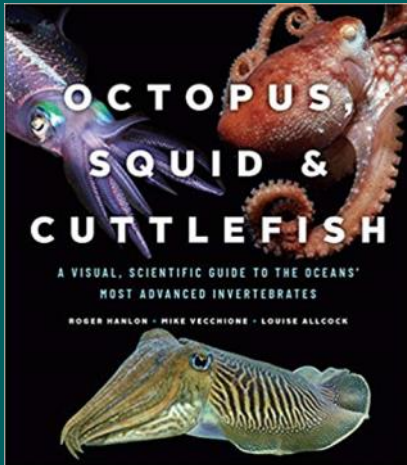
Undergraduate applicants need not be Chapter members.

## Deadline February 15!!! - 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.



**Orlay Johnson,  
Reviewer**



**Octopus, Squid & Cuttlefish  
– A Visual, Scientific Guide  
to the Oceans’ Most Ad-  
vanced Invertebrates**



**Octopus collected at the  
Alaska Fisheries Science  
Center, PC: NOAA Fisheries**

## The Book Nook

### **“Octopus, Squid & Cuttlefish – A Visual, Scientific Guide to the Oceans’ Most Advanced Invertebrates”**

Review by Orlay Johnson

Author: Rodger Hanlon, Mike Vecchione, and Loise Allcock. Pub: The University of Chicago Press. 2018.

#### **Brief review for those who don’t want to read the longer one.**

Why read this book? Several books on Cephalopods have been reviewed for our WABC chapter, and all have been well written and interesting, but none reaches the quality of writing and photography of this book. The book comprehensively covers biology, myth, human interactions, and species descriptions. Plus, it is presented with a unique evolutionary bent as a march through time, showing how unique, often bizarre life history characteristics evolved. It also has breath-taking photos of hundreds of different species. My only complaint is that species descriptions seem randomly chosen with little connection to the geographic distribution or subject of the preceding chapter. Still, I’ll give the book a 9 out of 10. The price is very reasonable for a book with so many beautiful color photos and diagrams. Worth the price, or at least a library card.

#### **Longer Review**

Cephalopods have been a strong force in human imagination from time immemorial, examples include the Akkorokamuli of the Ainu (a giant octopus-like monster in Funka Bay, Hokkaido), the Gorgon sisters of Greek Mythology, and Pontoppidan's North Sea kraken. More recently, Jules Verne’s giant squid in 20,000 Leagues Under the Sea and even Harry Potter gets into the act with a giant squid that lives in the Great Lake and guards Hogwarts. While a scary guardian, it could be friendly and future wizards even got to tickle its arms.

Equally amazing is how many modern science fiction authors recognized Cephalopods’ inherent intelligence and sophisticated behaviors and use these in various novels and films, such as the octopod-like creatures from Mars in the book and movie version of H.G. Well’s “War of the Worlds”. More recently, in the movie “Arrival” (2018) the aliens who communicate with a linguistics professor, Louise Banks (acted by Amy Adams), look like octopuses, but only seem to have seven arms. These heptapods in the movie eject ink in complex patterns to converse with Amy and save the world.

The best part of this book is that as you read it, all of the above fictional stories pale before the amazing visual explanations and scientific facts presented about the evolution, biology, intelligence, and behavior of these amazing creatures. From the lone hunting of the octopus across the ocean floor, to the size and battles of the giant squids, and the prismatic skin signaling of the cuttlefish, they are as alien and fantastic than any movie monster.

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## The Book Nook (Continued from Page 8)



**Rodger Hanlon, Senior Scientist with Woods Hole Laboratory, Author**



**Louise Allcock, Head of Zoology at National University of Ireland, Galway, Author**



**Mike Vecchione, Research Zoologist for NOAA Fisheries, Author**

The book has five chapters each with two parts. First part is on a different aspect of the evolution and biology of Cephalopods and the second at the end of each chapter is a series of photos and text describing different species. My only complaint is that the species selected in each chapter appear random and don't seem to connect to the subject of the chapter or any geographic area. If you want to read or find descriptions of octopuses or squids from Washington or British Columbia, you need to go to the index and find their names or get a copy of Elaina M. Jorgensen's "Field Guild to Squids and Octopods of the Eastern North Pacific and Bering Sea", published by Alaska Sea Grant, UAF.

### *Summary of the different chapters*

**Introduction** - This is far more than a simple introduction of the book, rather it is a stand-alone detailed look at the different aspects of Cephalopods and their life history.

**Chapter One: Cephalopod Anatomy** – Excellent descriptions of the form and function of the external and internal features with drawings and photos of sensory systems for vision, taste, touch, and smell and more interestingly, how they enable things like swimming, jet propulsion, color change, and reproduction.

**Chapter Two: Phylogeny & Evolution** – This is tricky as modern phylogenetic relationships are often obscure. Ancient Cephalopods had shells and have a rich fossil record back to the Cambrian era, yet modern Cephalopods with their soft bodies have left little fossil evidence. The authors go into details on what we know about ancient Cephalopods like Belemnites and Ammonites (which sound like lost tribes of Israel) as well as the Nautilus as a living fossil or not and their relationships with other major animal groups. Plus, a fun section how the giant squids and dwarf 'octos' evolved, ending with a look at how evolution has equipped this phylum for climate change.

**Chapter Three: Peculiar Lifestyles** - Looks at various evolutionary weirdness in the phylum related to sex, development, locomotion, and migration and how they are able to compete with fish.

**Chapter Four: Behavior, Cognition & Intelligence** – This is easily the chapter that my students who've read the book liked best. How do they make decisions (not so simple when you have 8 or 10 arms/tentacles that can act independently), how do they change color so fast, how do they escape if that fails, not to mention tool use, fighting for sex, plus sneaky males and even more sneaky females (somehow they sort through stored sperm from up to 10 male to select gametes from only certain males) and finally how do we evaluate intelligence in such alien and bizarre animals?

**Chapter Five: Cephalopods & Humans** – This includes 3.5-million-ton squid fisheries (e.g. Argentine shortfin and Humboldt squid dominate the fisheries each providing about 1 million tonnes/year) and a 34,000-ton octopus fishery. A bit more uplifting is discussion of "biomedical & biological advances" (first cephalopod genome sequenced was *Octopus bimaculoides* in 2015) as well as

*Continued on Page 10*

## The Book Nook (Continued from Page 9)

“bio-inspired materials science & engineering” including new classes of color-changing materials, soft robotics, and suckers for flexible attachment devices. Pretty amazing.

### **Species Descriptions:**

The second part of each chapter is a series of in depth species descriptions that display the rich diversity of special attributes that have evolved over hundreds of millions of years. Included are photos and biological info such as sizes, habitats, feeding habits, and key behaviors. The photos are all spectacular and especially seem to focus on different aspects of skin displays as well as their behaviors with prey and predators. Also, as the authors acknowledge, one of the reasons the book can have so many nice photos is that these animals are very popular with “amateur and professional photographers as well as biologists, so we were able to assemble a repertoire of imagery that represents features that are distinctive to this successful group of marine invertebrates”. To put it mildly, these photos are worth the whole book – I just wish they tied into the chapters better.

It should be noted the book came out before the recent publication of studies showing that some octopuses and squids primarily use RNA editing as a major evolutionary force, rather than genomic mutation of their DNA as do humans and most living things. Inclusion of these studies will hopefully be included in a second edition.

Finally, although the book is written by experts, each with many scientific accolades and publications, it does not come across as a dry, academic tome, rather as a seamless and exciting adventure. Below is some info on each author.

### **Additional information on the Authors:**

Roger Hanlon is a senior scientist with Woods Hole Laboratory and professor of ecology and evolutionary biology at Brown University. He is co-author of *Cephalopod Behavior* – one of the first books to highlight the complex behavior and intelligence of octopuses. We know him in the NW as he did a sabbatical year in 1991 at the Hopkins Marine Station and at Friday Harbor Labs. Originally from Ohio, he played baseball and football at FSU, served in the army and then got his graduate degrees in the U of Miami system. First working at the Marine Biomedical Institute, University of Texas, in 1995 he moved to the Woods Hole MBL as Director of the Marine Resources Center but resigned in 2003 to concentrate exclusively on research and book writing.

Louise Allcock is head of zoology at the National University of Ireland, Galway and focuses on the ecology and evolution of the Cephalopods of the Southern Ocean and deep sea. She is the editor of the *Zoological Journal of the Linnaean Society* and is a hands-on bio who has participated in and as a leader in cruises in and around the Antarctic and the South Atlantic Ocean. She is cephalopod coordinator for the IUCN Red Book Data lists, and former president of the Cephalopod International Advisory Council. She earned her degrees from the University of Liverpool.

Mike Vecchione is a Research Zoologist and former Director of the NOAA Fisheries National Systematics Laboratory and as an adjunct faculty member at VIMS, teach graduate courses in the School of Marine Science. He is assigned to the National Museum of Natural History, where he does research in systematics and provides curatorial support for the NMNH collections. He earned BS at University of Miami and his Ph.D. at William and Mary University and has visited the UW and NOAA labs several times.



*Comments or Questions? [Orlay@comcast.net](mailto:Orlay@comcast.net)*

Photo: Giant Pacific octopus eggs. PC: NOAA Fisheries.

## Education Corner

### ASLO-SFS 2020 JOINT SUMMER MEETING



Association for the Sciences of  
Limnology and Oceanography



Society for Freshwater Science

The Association for the Sciences of Limnology and Oceanography is joining forces with the Society for Freshwater Science on June 7–12, 2020. This meeting will focus on sustaining aquatic ecosystems under global change and will be held in Madison, Wisconsin. Interested in submitting an abstract? The deadline for abstract submission is March 9th! Details for this meeting can be found on: <https://www.aslo.org/madison-2020/>.

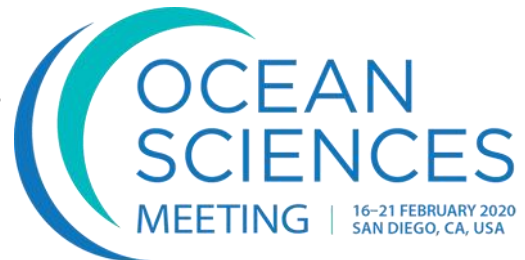


### 38TH ANNUAL SALMON RESTORATION CONFERENCE

The 38th Annual Conference will be held in Santa Cruz, California from **March 31-April 3, 2020**. The conference offers several workshops and tours that are applicable to salmon habitat restoration in Washington and British Columbia. Details on the meeting are online at: <https://www.calsalmon.org/conferences/38th-annual-salmonid-restoration-conference>.

### OCEAN SCIENCES MEETING 2020

The Ocean Sciences Meeting is the flagship conference for the ocean sciences and the larger ocean-connected community. It will be held in San Diego, California on **February 16–21, 2020**. For more information, go to: <https://www.agu.org/ocean-sciences-meeting>.



### AMERICAN FISHERIES SOCIETY

The Ohio Chapter invites you to attend the 150th Annual Meeting of the American Fisheries Society from **August 30-September 3, 2020** in Columbus, Ohio. Come celebrate 150 years of fisheries ecology, conservation, and management with fisheries students and professionals from across the world. Details on meeting can be found at <https://afsannualmeeting.fisheries.org/>.



AMERICAN FISHERIES SOCIETY

150<sup>th</sup> Annual Meeting

COLUMBUS, OHIO, AUG 30 - SEPT 3, 2020

# Trout and Char of the World



Jeffrey L. Kershner, Jack E. Williams, Robert E. Gresswell, and  
Javier Lobón-Cerviá, editors

This is the first comprehensive look at the taxonomy, life history, and conservation status of the world's trout and char. These are fascinating and beautiful fish that rate high for the angler as well as for tourist and recreational economies. Trout and char also play key roles in the ecology of many lake and river systems around the world.

Early chapters explore the unique diversity and life history aspects of trout and char and provide information on the taxonomy and systematics while also detailing some of unique life histories. New information is presented about species diversity and distributions by country. Summary chapters explore significant conservation and management challenges of broad interest to scientists, resource managers, anglers, and interested public. The book ends with a series of essays exploring the future of trout and char over the next 50 years.

This book will be a primary resource for trout and char biologists, conservationists, and anglers in the many countries where trout and char are native or have been introduced, and a resource for anyone interested in learning more about the diversity and distribution of trout and char worldwide.

*Trout and Char of the World* is available for ordering from the American Fisheries Society book store here: <https://fisheries.org/bookstore/all-titles/professional-and-trade/55081c/>

## Contents

1. Introduction: Why Trout and Char
2. Origins, Species Diversity, and Ecological Diversification in Trout and Char
3. Standing on the Shoulders of Giants: Three Trout Biologists Who Shaped Our Understanding of Trout and Trout Streams
4. The Cultural Currents and Social Values of Trout
5. Trout and Char: Taxonomy, Systematics, and Phylogeography
6. Life History Diversity
7. Distribution and Status of Trout and Char in North America
8. Native Trout of Mexico: Treasures of the Sierra Madre
9. Trout and Char of South America
10. Trout and Char of the North Atlantic Isles
11. Trout and Char of Northern Europe
12. Trout and Char of Central and Southern Europe and Northern Africa
13. Trout of Southeast Europe, Western and Central Asia
14. Trout of Africa: A Mixed Blessing for Its People and the Natural Environment
15. Trout and Char of Japan
16. Trout and Char of Russia
17. The Introduced Trout and Char of Australia and New Zealand
18. Global Perspectives on the Management of Trout and Char
19. Trout as Native and Nonnative Species: A Management Paradox
20. Climate Change and the Future of Trout and Char
21. Global Status of Trout and Char: Conservation Challenges in the Twenty-First Century
22. Perspectives on the Future of Trout and Char



### 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](mailto: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](mailto:timothytaylor.afs@gmail.com)

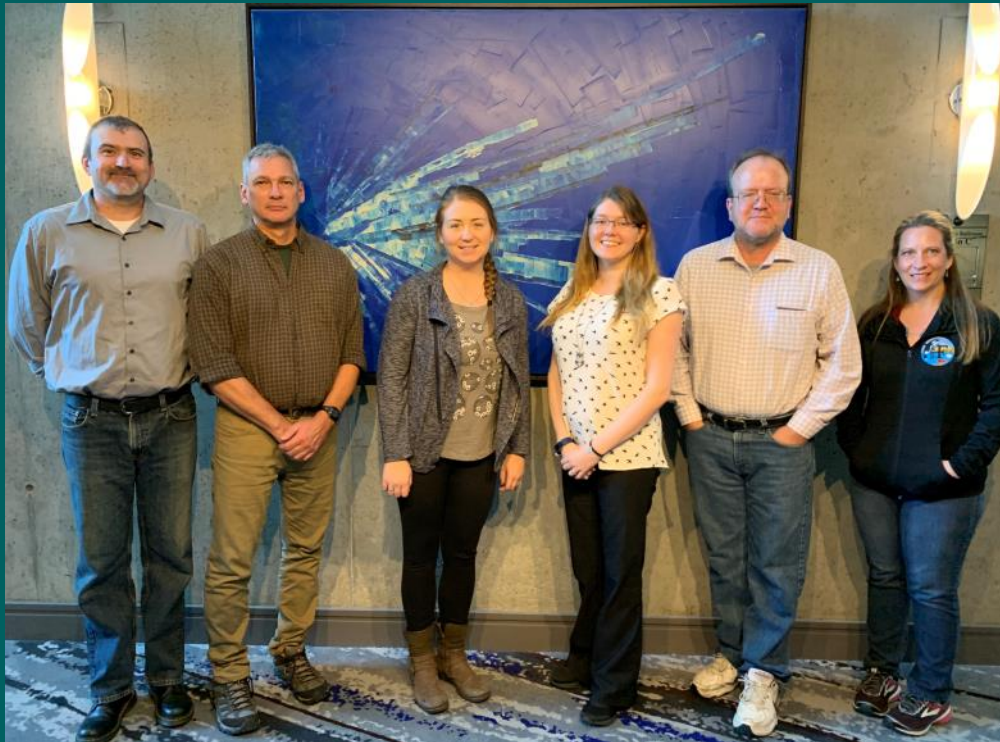
The WA-BC Chapter of the American Fisheries Society, which includes members in Washington State and British Columbia, is an organization composed of professional biologists interested in the scientific conservation and enhancement of fish populations and their environment.

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, B.C. on April 13-17, 2020. <https://wa-bc.fisheries.org/2020-meeting/>



**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.