THE ANGLER

NEWSLETTER OF THE COLORADO/WYOMING CHAPTER OF THE AMERICAN FISHERIES SOCIETY

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EDITED BY KENDALL BAKICH & BEN FELT

WHAT'S INSIDE:

2025 Joint Western Division and CO/WY AFS Annual Meeting May 11 - May 15

"Building Resilience"

Westminster, CO

Registration is open!

The Vent
Estevan Vigil - CO/WY AFS President

The Colorado-Wyoming Chapter is looking forward to hosting the Annual Western Division AFS Meeting this May in Westminster, CO. Details are on page 12 of this newsletter. The Western Division is comprised of 10 chapters and multiple subunits. This meeting provides the opportunity for aquatic professionals and students who serve as natural resource stewards to network and share research from across the country. In these current times of uncertainty within the nation, supporting one another and continuing stewardship of our public trust resources is more critical than ever.

There are many valid concerns related to the recent terminations of federal employees, not the least of which is the fact that many of these employees were in the probationary period of their positions. The termination of these employees is having drastic effects on the next generation of early career professionals and threatens the very foundation of natural resource stewardship across the country. The American Fisheries Society is deeply concerned with these drastic changes and is working to provide opportunities for displaced workers. In a recent AFS newsletter, Executive Director Jeff Kopaska and AFS President Miguel Garcia speak about how AFS is working to support members impacted by the mass layoffs. AFS is now offering a free job board, hosting webinars on job-related topics, extending membership benefits, and gathering and disseminating resources for displaced federal employees. Please see fisheries.org for more information.

WANT TO HELP OUR CHAPTER OUT?! DONATE TODAY!

ANYTHING HELPS! DONATE TO THE CO/WY AFS CHAPTER HERE:
HTTPS://CHECKOUT.SQUARE.SITE/BUY/AVP6LHVVTM5ECPAX5QHJVGHW

The Vent (continued)

If you are not an official member of the parent society of AFS, now is a good time to join. Your support as a member helps AFS provide the support mentioned above, as well as many other benefits. AFS is also currently working on policy issues addressing sportfish restoration, sustainable aquaculture, Snake River Dam removals, aquatic invasive species, and the Endangered Species Act. The resources that AFS memberships provide allow for the Society to offer these services, as well as others, to our community of fisheries and natural resource stewards.

As I close, I would like to reflect on a recent communication from AFS 2nd Vice President Dr. Marlis R. Douglas. Dr. Douglas sends weekly, short, simple pieces of advice geared to be actionable changes for a leadership mindset. In one of the latest “Mindset Monday” emails, Dr. Douglas promotes the mindset of seeing “Change as an opportunity.” Dr. Douglas says, “The future is uncertain and cannot be predicted. But 2025 will certainly bring a lot of change. Adopt a mindset that views change as an opportunity and focus on what is in your control to identify strategies and tactics that allow you to be proactive and succeed during change.” While not the easiest thing to do, I encourage you all to strive to adopt this mindset as I firmly believe that plasticity is critical for resilience, just as it often is in the aquatic ecosystems that we all love so dearly. With a positive and steadfast mindset, our passion and dedication as stewards of fisheries and natural resources can and will prevail in the end.

STUDENT SUBUNIT REPORTS

WESTERN COLORADO UNIVERSITY

We have a small cohort of members this year, roughly five due paying members. Our meetings have consisted of guest speakers and documentary viewings. The speakers included Tawni Firestone (CPW), Dan Cammack (CPW), and Giulio Del Piccolo (CPW), presenting on previous and current projects. A few of us attended the Desert Fish Council meeting last semester, held in Grand Junction. It was a great experience for those of us who attended. Also, in September we hosted our subunits first annual Icthoberfest party which consisted of a potluck dinner and friendly conversation along the Gunnison River.

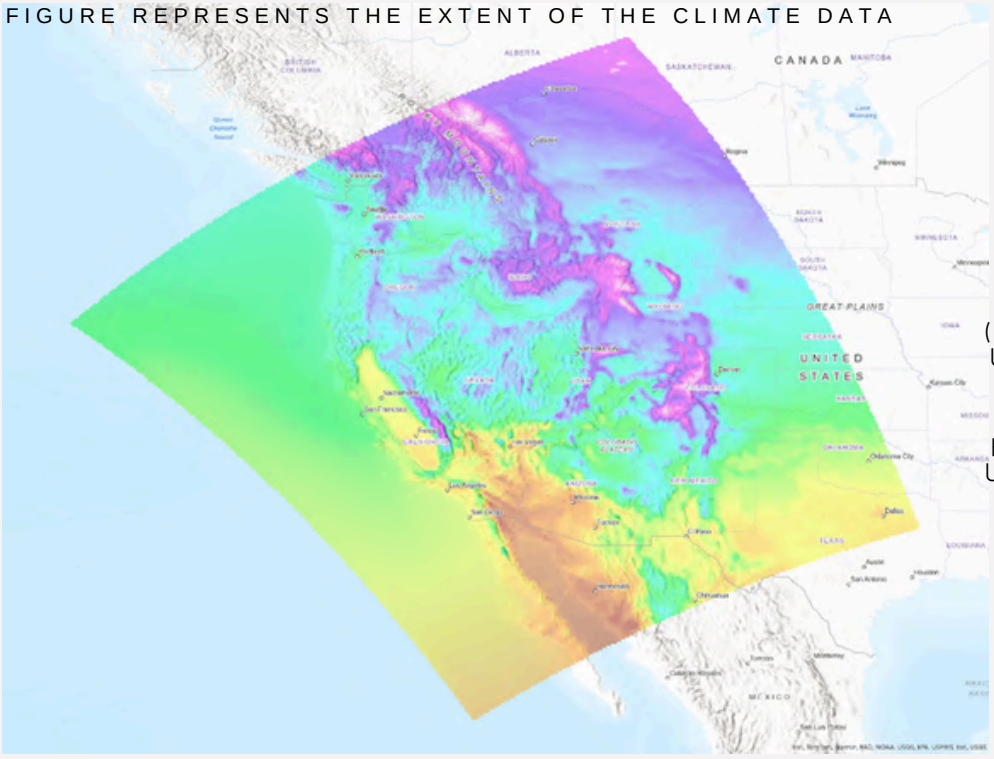
COLORADO MESA UNIVERSITY

Colorado Mesa University subunit reports positively. Last semester, we hosted multiple events including a USA Jobs and Federal Resume Workshop, participated in lymph node dissections with Northwest Region Colorado Parks and Wildlife, and participated in and volunteered at 2024 Desert Fishes Council. This semester, so far we have hosted an ice fishing event at Vega State Park and a visit from CO/WY AFS president, Stev Vigil. We are planning multiple events currently, including more guest speakers, possibly a town float on the Colorado River, and attending on-campus club fairs. In addition, we are planning to attend WDAFS in May. We are greatly appreciative of CO/WY AFS support and look forward to continuing our membership!

OFWIM DATA DASH SUBMISSIONS
CLIMATE SCENARIOS FOR THE WESTERN US NOW AVAILABLE!

The University of Wyoming (UWyo), in collaboration with UCLA, has developed a comprehensive suite of downscaled Global Circulation Models (GCMs) at a 9km resolution for the western United States. This dataset spans the years 1980-2100 and is available at daily, monthly, and annual (water year) temporal resolutions. If you were a participant of the OFWIM 2023 conference in Ft. Collins, CO, you were exposed to the public-facing dashboard (WyAdapt: https://wyadapt.org), which aims to reduce barriers to accessing and visualizing terabytes of data by providing on-demand charts and tabular data at varying spatial aggregations (i.e. county or watershed polygons). However, one of the limiting factors of data dashboards is the restricted ability to customize your own questions of the underlying data. To facilitate deeper research questions and enable more flexible use of these data, we have developed a cloud-optimized storage architecture (using Zarr and COG file formats, coupled with API endpoints) that enables on-demand spatial queries of the underlying data, thus giving registered users the ability to ask their own questions of the data!

FIGURE REPRESENTS THE EXTENT OF THE CLIMATE DATA



GET STARTED

API DOCUMENTATION
HTTPS://WYADAPT.ORG/SWAGGER/INDEX.HTML

EXAMPLES USING R
(HTTPS://PATHFINDER.ARCC.UWYO.EDU/WYADAPT/WYADAPTEXAMPLE.HTML

PYTHON
HTTPS://PATHFINDER.ARCC.UWYO.EDU/WYADAPT/ZARRWORKFLOWNB.HTML

We would love to hear some feedback if you have any, so please don't hesitate to let us know what you think! - Shannon Albeke salbeke@uwyo.edu, Senior Research Scientist, School of Computing/ WyGISC, University of Wyoming

<A New and Powerful> <Data Science IDE:> <Positron is Breaking Boundaries>

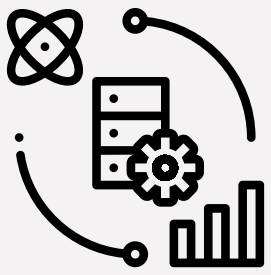
Are you the type of person who loves data science, but you often are caught in the middle of choosing the best/most appropriate tools for accomplishing your task?

If you are like me, you probably want to use Program R for some portions of your work, but then are somewhat forced into using Python to solve other aspects of your workflow. Swapping between different Integrated Development Environments (IDEs; R Studio for R; maybe Spyder, PyCharm, or VSCode for Python) and having different debugging experiences within each IDE, managing your environments, etc., can be a frustrating and inefficient experience!

Well, the creators of R Studio have set out to create a more encompassing and consistent IDE that spans multiple coding languages. 'Positron' is aimed at being a polyglot IDE based on the underlying structure of VSCode. Thus, if you use Positron as your IDE, you can simultaneously develop code in R and Python, use Git Repositories, have very similar package management between the two systems, and, what I think most importantly, have line-by-line debugging in both R and Python!

This tool is still very much in development, but if you have time, check it out!! I haven't fully committed to moving all of my coding projects over to Positron, but I will be using it in my Fall 2024 course to reduce the need to learn language-specific IDEs. If you are interested, you can find the most recent version to install here: https://github.com/posit-dev/positron/releases (look under Assets).

Shannon Albeke (salbeke@uwyo.edu)
Senior Research Scientist
School of Computing / WyGISC
University of Wyoming



The History of Joint Annual Meetings

Western Division and CO/WY AFS

In the last edition of the Angler, Lori Martin, CO/WY AFS Archivist, reported on the history of the annual meetings jointly held by the Western Division and the CO/WY Chapter of AFS. The first joint meeting was held in 1983, and we partner again in 2025 to convene the fifth WDAFS and CO/WY AFS Joint Annual Meeting.

The following pages include the official record of our joint annual meetings that was, unfortunately, missed when the last issue went to print.

Our professional society meetings are an incredible opportunity to develop and advance fisheries science and management ideas and support individuals in our pursuits to protect and enhance aquatic resources and angling opportunities. This year, we will enjoy the rare opportunity to meet closer to home with a wider breadth of fisheries professionals from across the West to network, share knowledge, learn, grow, and advocate for our resources.

Thank you, Lori, for tracking down this information. We appreciate the opportunity to reflect on all of those who have contributed to the ever-important convening of Western fisheries professionals across the division and our chapter.

Joint Meetings

Year	Dates	State	City	WD Officers	Chapter Officers
1983	July 10-14	Wyoming	Jackson	*President:* Donald Duff *President-Elect:* Stanley Moberly *Secretary-Treasurer:* Neil Armantrout *Past President:* Robert White	State of Wyoming Hosted
1985	July 15-19	Colorado	Snowmass Village	*President:* Neil Armantrout *President-Elect:* Anthony Novotny *Vice President:* Don Martin *Secretary-Treasurer:* Ellen Gleason *Past President:* Stanley Moberly	State of Colorado Hosted
1992	July 13-16	Colorado	Fort Collins	*President:* Donald Chase *President-Elect:* Glenn Phillips *Vice President:* Randy Bailey *Secretary-Treasurer:* Lynn Starnes *Past President:* David Burns	*President:* Tom Nesler *Vice President:* Frank Rahel *Secretary-Treasurer:* Ken Kehmeier *Past President:* Mike Stone
2000	July 16-20	Colorado	Telluride	*President:* Ken Hashagen *President-Elect:* Bill Bradshaw *Vice President:* Eric Knudsen *Secretary-Treasurer:* Ed Cheslak *Past President:* Robert Bilby	*President:* Sherman Hebein *Vice President:* Dan Yule *Secretary-Treasurer:* Paula Guenther-Gloss *Past President:* Ron Remmick

Joint Meetings

Year	Dates	State	City	WD Officers	Chapter Officers
2004	Feb. 29-Mar. 4	*Utah	Salt Lake	*President:* Thomas McMahon *President-Elect:* Lynn Starnes *Vice President:* F. Joseph Margraf *Secretary-Treasurer:* Monica Hiner *Past President:* Don MacDonald *Nominating Representative:* Kathryn Boyer	*President:* David Zafft *Vice President:* Anita Martinez *Secretary-Treasurer:* Hilda Sexauer *Past President:* John Alves *CSU Student Subunit President:* Boyd Wright *UW Student Subunit President:* Mike Bower
2012	Mar. 26-29	Wyoming	Jackson	*President:* Dave Ward *President-Elect:* Christina Swanson *Vice President:* Pamela Sponholtz *Secretary-Treasurer:* Mary Buckman *Past President:* Lori Martin	*President:* Diana Sweet *Vice President:* Ryan Fitzpatrick *Secretary-Treasurer:* Paul Gerrity *Past President:* Ann Widmer *CSU Student Subunit President:* Eric Gardunio *UW Student Subunit President:* Clark Johnson

*Co-hosted with the Bonneville (now Utah) AFS Chapter

Registration Now Open

Western Division American Fisheries Society

2025 Western Division and Colorado/Wyoming AFS Annual Meeting

Dates: May 11-15, 2025
Location: Westin Westminster in Westminster, Colorado
Theme: Building Resilience: Investments in Fish Passage, Habitat Restoration, and Hatchery Modernization

Substantial resources, such as the Bipartisan Infrastructure Act, Inflation Reduction Act, and other funding initiatives, are being allocated in the U.S. and Canada to enhance fish passage and habitat restoration projects in an effort to increase resilience in fish populations and their ecosystems. Concurrently, both public agencies and private aquaculture are focusing on modernizing existing hatcheries and designing new facilities to withstand future climate challenges. We invite submissions for symposia that align with this theme and invite other sessions that look to advance the fisheries profession.

BOOK now!

Why Use Our Room Block?

Room rates secured by WDAFS and CO/WY AFS are less than nearby hotel rates, but not only does using our room block save you money – it also saves the meeting and us money! Saving this money helps us to better control registration prices (more important than ever given inflationary costs) and helps us to bargain for more concessions on your behalf as an attendee. Also, the hotel room blocks are vetted for safety, authenticity (no scam hotel reservations), amenities, convenience, better networking opportunities, and ease of travel (reducing your carbon footprint by minimizing traveling distance for our attendees). The room block also allows us to provide rooms for our student subunits. So please be sure to use the room block when booking your accommodations so that you can have a safer, easier, and more affordable meeting experience!

COLORADO/WYOMING AFS MENTORING PROGRAM

The application period for the Colorado/Wyoming Chapter of AFS Mentoring Program is currently open. We will be accepting applications through May 15th for opportunities beginning in the spring. If you are interested in being a mentor or mentee, please fill out the application form that can be found here for mentees or here for mentors. You can learn more about the program and find the links to the application forms on the CO/WY AFS website under the mentoring program overview: https://units.fisheries.org/cowyafs/mentoring-program/.

Please contact the Colorado/Wyoming AFS Mentoring Committee, Dominique Lujan (dominique.lujan@tu.org) or Chance Kirkeeng (Chance.Kirkeeng1@wyo.gov)with any questions.

2025 Western Division AFS Hosted by Colorado/Wyoming Chapter Annual Meeting

SCHEDULE-AT-A-GLANCE

Sunday May 11, 2025	Monday May 12, 2025	Tuesday May 13, 2025	Wednesday May 14, 2025	Thursday May 15, 2025
Conference Registration 12:00 PM- 5:00 PM	Conference Registration 7:00 AM - 5:00 PM	Conference Registration 7:00 AM - 5:00 PM	Conference Registration 7:00 AM - 5:00 PM	Concurrent Session V 8:00 AM – 10:00 AM
	Continuing Education 8:00 AM - 5:00 PM	Trade Show 8:00 AM - 5:00 PM	Trade Show 8:00 AM – 5:00 PM	Concurrent Session VI 10:20 AM – 12:00 PM
	Community Networking Social 5:00 PM - 6:00 PM	President's Welcome 8:00 AM – 8:10 AM	Spawning Run 6:30 AM – 8:00 AM	Best Student Poster and Presentation Awards 12:00 PM – 12:30 PM
	Welcoming Social 6:00 PM - 10:00 PM	Plenary Session 8:10 AM – 10:20 AM	Poster Session and Coffee 8:20 AM – 10:20 AM	
		Concurrent Session I 10:40 AM - 12:00 PM	Concurrent Session III 10:20 AM – 12:00 PM	
		Concurrent Session II 1:20 PM - 3:00 PM	CV/Resume Workshop 12:40 PM – 2:00 PM	
		Coffee Hour with Vendors 3:00 PM - 4:00 PM	Concurrent Session IV 1:20 PM – 4:00 PM	
		Colorado/Wyoming Business Meeting 4:00 PM - 5:00 PM	Film Festival 1:20 PM – 5:00 PM	
		Student Hosted Social Bowlero 5:30 PM - 8:00 PM	Western Division Business Meeting 4:00 PM – 5:30 PM	
			Conference Banquet 6:00 PM – 10:00 PM	

Daily Events and Activities at a Glance

Monday

Community Networking Social: Find your people on the first night of the event! This social event focuses on building connections and fostering community through group networking. Come join us from 5:00 PM – 6:00 PM at TBD.

Welcoming Social: Come join us for the Welcome Social to be held Monday evening at the Westin from 6:00 PM- 10:00 PM. Hors d'Oeuvres and drinks will be provided along with fun games to play with your colleagues. Come help us kick off the Joint WDAFS/COWY Annual Meeting!

Tuesday

Trade Show: Join us for an exciting trade show open 8 AM- 5 PM Tuesday and Wednesday. Whether you are looking to enhance your collection techniques, upgrade your gear, or explore unique jewelry collections, this event offers something for everyone! Don't miss the opportunity to connect with vendors!

Early Career Professionals Lunch: We will meet at 12:05 PM in the Westin Lobby and walk to lunch together geared toward connecting early career professionals within WDAFS! Purchase lunch on your own and enjoy your meal in a supportive environment while you network with other early career professionals.

CO/WY Business Meeting: Join us for a Happy Hour from 3:00 PM – 4:00 PM. This meeting is open to all Colorado/Wyoming Chapter Members. A hosted bar will be open during the meeting. There will be updates from the Chapter ExComm and Committees, new ExComm members will be announced and award recipients will be recognized.

Student Hosted Social: Join us from 5:30PM – 8:00 PM for the student-hosted social and professional mixer at Bowlero! Enjoy a fun night of glow-in-the-dark mini golf, bowling, and don't forget extra cash for arcade games! Drinks and finger food will be provided to keep you fueled for the fun. You can stay after 8:00 PM for more fun if you choose. Don't miss out on this great opportunity to connect and unwind!

Coffee with Trade Show Vendors: If you missed your chance to visit the vendors during the trade show, don't worry! We've added a special Coffee Hour to give you a second opportunity to connect with exhibitors and explore their offerings. Grab a cup of coffee, mingle with fellow attendees, and make valuable connections!

Wednesday

Spawning Run: The spawning run will occur from 7:00 AM – 8:00 AM in Westminster, CO. If you are pre-registered, please check in at the registration desk prior to noon on Tuesday to receive your number and t-shirt. You can still register for the event prior to noon on Tuesday ($35), but you will not receive a t-shirt. Start heading over at 6:30 AM for stretching. Race start time will be at 7 AM sharp.

Trade Show: Join us for an exciting trade show open 8 AM- 5 PM Tuesday and Wednesday. Whether you are looking to enhance your collection techniques, upgrade your gear, or explore unique jewelry collections, this event offers something for everyone! Don't miss the opportunity to connect with vendors!

CV/Resume Workshop and Discussion: Join us for an interactive workshop designed to help students and early career professionals enhance their CVs, resumes, and cover letters, This workshop offers practice guidance and personalized feedback to ensure your application materials stand out in todays competitive fisheries profession.

Aquatic Film Festival: This will be occurring between 1:20 – 5:00 PM. Come check it out!

WDAFS Business Meeting: Join us for a Happy Hour from 3:30 PM – 5:00 PM. This meeting is open to all Western Division Members. A hosted bar will be open during the meeting.

Conference Banquet: Join us from 6:00 PM – 10:00 PM for our final banquet at the Westin. Come join in the fun and enjoy complimentary dinner and beverages. This event will include a silent and raffle to raise money for scholarships, travel grants, and other worthy causes.

Thursday

Best Student and Professional Poster and Presentation Awards: Awards will be announced at the conclusion of the meeting at 12:05 PM in room TBD, immediately following the final speaker.

BUILDING RESILIENCE
WESTERN DIVISION OF THE AMERICAN FISHERIES SOCIETY
MAY 11-15, 2025 WESTMINSTER, CO

Continuing Education at a Glance

Monday May 12, 2025

Oregon RFID Tech Support

Full Day 8:00 AM – 5:00 PM

On completion of the course, Participants will have a basic understanding of the fundamentals RFID technology for fish tracking using PIT telemetry and concepts in antenna design, both in theory and practice. The course can be divided in four main subjects: 1) RFID for Fish and Wildlife Tracking; 2) Building and PIT tag monitoring system; 3) PIT telemetry for Fish Passage and 4) PIT tag antennas.

From Fish Collection to Data Analysis

Full Day 8:00 AM – 5:00 PM

Understanding what questions to ask, how to collect fish, and how to analyze fisheries data when monitoring fish populations. Before evaluating fish populations to monitor recruitment, survival, growth and habitat success, biologists must first learn proper techniques for capturing, marking, recording data, and analyzing the data. This full-day course equips new biologists and students with the knowledge and tools to develop management questions, how to select equipment to collect fish from streams, rivers, lakes, and reservoirs, gather relevant data to answer their questions, and use R to download, analyze, and model population estimates.

Fighting the Cold- Adapting to the Evolving Threat of Bacterial Coldwater Disease in Fish Hatcheries

Full Day 8:00 AM – 5:00 PM

Bacterial coldwater disease (BCWD) is caused by a Gram-negative bacterium, Flavobacterium psychrophilum, and occurs in temperate regions around the world affecting almost all salmonids to some degree. In hatchery settings, due to the nature of the bacterium, this disease can cause serious fish health concerns with high levels of mortality and fish loss. The goal of this course is to create a better understanding of the disease for fish culturists and fishery managers. Breaking down the history of the disease, leading circumstances and trends to when BCWD outbreaks occur, implications of the disease, analysis and inspection, prophylactic and therapeutic treatment methods, levels of resistance and disease implications.

Community Engagement with Hands-On Fish Printing

Half Day 9:00 AM – 12:00PM or 1:00 PM – 4:00 PM

Participants will learn the Japanese art of Fish Printing (Gyotaku) through a hands-on approach. Each printer will contribute to highlighting Community Engagement strategies. All materials including fish will be provided. Choose from one of two sessions 9:00 AM – 12:00PM or 1:00 PM – 4:00 PM Pictures and class taught by Bruce Koike with Little Pond Nature Prints

Succeed in Fisheries: Navigate an Uncertain Future and Adapt to Challenges through Strategic Positioning

Half Day 8:00 AM – 12:00 PM

The future is uncertain and cannot be predicted. But future outcomes can be shaped through Strategic Positioning, a 2-step process. First, Futurecasting helps identify strategic goals that guide decisions. Second, Adaptive Planning ensures actions progress toward these goals, while adjusting to unforeseen challenges. Combined, these two processes ensure long-term success in fisheries – and life. AFS has adopted Futurecasting and Adaptive Planning to strategically position AFS for future success. By coordinating unit activities at all levels with the long-term vision, AFS improves communication and helps all members lead and succeed. This 4-hr workshop starts with a short introduction to Futurecasting. Participants will learn how to (1) develop long-term strategic thinking to set themselves up for future success, (2) adaptively plan to deal with uncertainty, (3) confidently articulate ideas, and (4) effectively communicate visionary goals and strategic actions..

BUILDING RESILIENCE
WESTERN DIVISION OF THE AMERICAN FISHERIES SOCIETY
MAY 11-15, 2025 WESTMINSTER, CO

Symposia at a Glance

Building Resilience: Investments in Fish Passage and Habitat Restoration to Improve the Status of Fish Populations

Through the Bipartisan Infrastructure Act, the Inflation Reduction Act, and various other funding initiatives, substantial resources are being directed toward improving fish passage and enhancing fish habitats across the western U.S. and Canada. These efforts are focused on increasing the resilience of fish populations while ensuring the long-term sustainability and health of aquatic ecosystems. By addressing barriers to fish migration—such as dams, culverts, and water quality—these projects aim to restore natural migration pathways and improve connectivity between critical habitats. Additionally, restoring and protecting stream habitats plays a central role in rebuilding ecological integrity and supporting the conservation of native fish populations. This symposia builds upon the meeting's plenary session, which emphasizes the importance of collaborative efforts and innovative approaches to fish habitat restoration and management. We invite abstract submissions related to fish passage, habitat restoration, and the resilience of fish populations.

Hook, Line, and Thinker: Innovative Approaches to Non-native Trout Removal for Native Species Conservation

Many natural resource managers would agree that the slate of options for eradicating non-native trout to clear the way for native trout recovery is extremely limited. Traditional approaches usually consist of either mechanical (i.e., electrofishing) or chemical (i.e., Rotenone/Antimycin) removal methods. While universally accepted as a viable method for projects with objectives related to population suppression, the efficacy of using mechanical removal methods alone for eradication is notoriously low, especially in complex habitat and higher order streams. Chemical treatments tend to be much more effective for eradication but have become increasingly difficult, and costly, to permit and implement in many western states. There is a glaring need to develop and operationalize new and/or innovative approaches to for addressing this persistent problem. This symposium is an opportunity for researchers and natural resource managers to exchange ideas, share success stories, and highlight innovation in the field with the hopes of western native trout species being the ultimate winners.

Best of the West: The Future of Research in the Western Division AFS

The Western Division of the American Fisheries Society contains ten chapters (Arizona/New Mexico, Alaska, California/Nevada, Colorado/Wyoming, Idaho, Montana, Oregon, Pacific Islands, Utah, and Washington/British Columbia), each having a diverse range of students conducting a wide variety of research topics. This symposium will highlight the work currently being conducted by the future leaders of our profession from the Chapters throughout the Western Division as we build resilience and move towards the future of the fisheries profession. The Western Division invites you to come support our students, who will present their work in oral and poster formats. Learn something new about the unique fisheries work being conducted throughout the Western Division!

Fish Passage & Screening – Challenges, Responsibilities, Opportunities, and Examples

Restoring fish passage and preventing the loss of fish to irrigation diversions is a ubiquitous challenge in fisheries management. Fisheries professionals, water users, and organizations responsible for fisheries management need to work collectively to ensure it is addressed holistically and ecologically. Socially, we also need to address the challenge to prove that the cost/benefit ratio is worth the investment for fish, people, and communities. Lastly, solutions that increase efficiencies and reduce maintenance for water users are crucial for long-term support and landscape scale conservation efforts. This symposium will share examples of projects and programs focusing on fish passage restoration or improvement and challenges facing fisheries professionals in this arena.

Symposia at a Glance

Bull Trout

Bull Trout are often thought of as the charismatic megafauna of the underwater, occupying pristine cold headwater river systems and making wide ranging migrations to many of the Pacific Northwest's large iconic rivers and the Pacific Ocean. Unfortunately, populations across their range are imperiled due to degradation of habitat, nonnative species, and barriers to migration. However, some research and conservation efforts implemented in the two and half decades since listing have resulted in quantifiable progress in ameliorating some of the significant threats to bull trout in key habitats. Yet there are still many challenges and hurdles to overcome to reach recovery. In this symposium we hope to foster a community for information exchange where researchers, managers and practitioners can share successes and struggles from their experience working with this iconic fish and its habitats.

Aquatic Connectivity: A Multidimensional Opportunity

Aquatic connectivity includes multidimensional aspects of longitudinal (linear – upstream/downstream), lateral (floodplain and riparian), and vertical (hyporheic and ground water) connectivity. The interactive and complex processes that move organisms, energy and matter through watersheds are still being understood; It is important to gain a more in-depth perception of these complex connections to make us more aware of the dynamic ways in which aquatic systems operate through space and time. Many agencies, private contractors and research entities are working towards restoring and improving processes that benefit longitudinal, lateral, and vertical connectivity. As we collectively move towards improving our ability to restore processes surrounding the multidimensional and intertwined concept of aquatic connectivity, it is beneficial to bring our ideas and results together and share outcomes. A segregation of information among the various implementing entities would exacerbate the challenging aspect of making the best decisions for managing connected aquatic resources. Advancing the best available scientific information is an important goal; it promotes the need for a community of practice that underscores the sharing of best practices, available tools, challenges, and benefits for the betterment of our collaborative efforts.

Restoring Riverscape Health and Fish Populations: Programs, Tools, and Science to Support and Prioritize Restoration

At the interface of terrestrial and aquatic habitats, riverscapes have outsized importance in provisioning ecosystem benefits to fish, wildlife, and humans. However, many riverscapes across the globe have alarmingly poor health, limiting the benefits provided and threatening the biodiversity of fishes. Restoring degraded riverscapes through process-based restoration approaches has garnered extensive interest, particularly to increase the resilience of habitats and fish populations. However, considerable uncertainty remains in the benefits of process-based restoration for restoring lost ecosystem services and fish populations. Addressing this uncertainty is a critical step in prioritizing cost-effective restoration, particularly given the extent and magnitude of degradation and the range of topographic settings needing restoration actions. Restoring riverscapes and their ecosystem services requires coordination at multiple levels, including clear articulation of restoration targets, aligned programmatic efforts by government and non-governmental organizations (NGOs), tools to help direct and quantify restoration, and support from the science community in identifying and addressing science gaps and demonstrating the benefits of healthy riverscapes. This symposium considers different approaches and tools to prioritize process-based restoration, the range of riverscape health benefits gained from restoration, how restored riverscape health benefits affect targeted fish populations, and what science-gaps remain to be filled. This symposium focuses on addressing each of these levels of restoration of riverscape health with an overarching goal of increasing collaboration and restoration effectiveness by including presentations across a diverse array of managers, agencies and NGOs, and researchers.

Symposia at a Glance

History of Aquatic Habitat Restoration in Western U.S. Streams

The number, scale, and cost of aquatic habitat restoration projects have greatly increased in streams across western landscapes since their inception with Civilian Conservation Corp projects completed between 1938 and 1943. Today's broad range of restoration activities can trace their roots in work from this time, through the ensuing decades, to present day. This symposium will explore the evolution of aquatic habitat work by government agencies and nongovernmental organization (NGO) practitioners by comparing and contrasting historic approaches and examples with present day activities. Multiple state, federal, and NGO practitioners will provide a range of historical perspectives that have evolved into current stream restoration practices. State as well as federal wildlife agencies have different histories of attributing resources and developing programs based on species-specific life histories, regulations, philosophical approaches, and other unique factors that shape how aquatic habitat restoration has become what it is today. Finally, NGO's such as Trout Unlimited formed in the latter part of the 20th century play a major role in implementing aquatic restoration projects. We envision drawing lessons from history that are applicable in today's environment and contribute to our understanding of the diversity of techniques currently being practiced to restore stream aquatic habitats across the West. Ultimately, participants will gain an appreciation for the historical sweep of aquatic restoration work and how that work has formed the basis for today's bustling and constantly evolving field of stream restoration.

Transformational Federal Fish Passage and Restoration Efforts Under the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA)

The Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) present a historic opportunity for federal agencies and partners to invest in fish passage and habitat restoration. Three years have passed since BIL was signed, and we now have the opportunity to learn more about the many agencies that have received funds and how they are using them and coordinating to advance conservation, habitat restoration, and resilience efforts that benefit threatened and endangered fish species and tribal, recreational, and commercial fisheries. This symposium will highlight programs that received BIL and/or IRA funding across federal agencies. We'll learn more about the programs holistically, and the cumulative impact they are making across the Western U.S. to improve conditions that support fish populations, and we'll hear from partners who received funding and assistance through these programs. Speakers will discuss agency programs and accomplishments under BIL/IRA, exemplary projects, lessons learned, and next steps for continued investments in restoration. Throughout the presentations, we will learn about the transformational impact of these funds, with a broad array of federal presenters from the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Transportation (DOT), the U.S. Bureau of Reclamation (BOR), the U.S. Bureau of Land Management (BLM) and the U.S. Fish and Wildlife Service (USFWS), and their non-profit, tribal, state, and local partners who are implementing projects on-the-ground.

The New Wave of Hatchery Modernization – Innovations and Challenges

Many states, tribes, private enterprises, and federal agencies in the western U.S. use hatcheries to help meet the fishery demands of our public and private fisheries. Because of facility age, continuous use, pressure to meet increasing demands, growing complications in water availability, a need for better biosecurity, and the demands of serving a wide range of aquatic species propagation, many hatcheries are looking to restructure how they operate. Investments in new infrastructure as well as innovations in operations have allowed many hatcheries to meet the increased demands and challenges. With each individual facility facing unique challenges, innovation has led to great strides in improved aquaculture system management. Today, we see our hatcheries operating more efficiently and effectively, propagating healthier and more robust wildlife, and raising more diverse species including those of greatest conservation need. Overall, modern fish hatcheries play a vital role in helping aquatic managers to create more resilient fisheries that meet today's challenging and dynamic management objectives. The goal for this symposium is to present state of the art innovations in hatchery facilities and culture operations that prepare fish hatchery managers and biologists for the future of modern fish production.

BUILDING RESILIENCE
WESTERN DIVISION OF THE AMERICAN FISHERIES SOCIETY
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Plenary Sessions – Shannon Boyle

Tuesday May 13, 2025

Shannon Boyle

About

Shannon has been working for the Fish and Aquatic Conservation program at the USFWS headquarters since 2021 supporting the National Fish Passage Program and the implementation of the program's BIL funding for fish passage. Since 2022, Shannon has been serving as the Federal Interagency Fish Passage Task Force Coordinator. Prior to her time with USFWS HQ, Shannon coordinated juvenile salmonid monitoring on the Klamath and Trinity rivers in northern California in support of the removal of the Klamath dams and worked on hydropower relicensing in the western US as a fish biologist for the Federal Energy Regulatory Commission. She holds a B.Sc. from McGill University and a Master of Environmental Science and Management from the Bren School at the University of California, Santa Barbara. When not glued to a computer screen, you can find Shannon skiing, biking, floating on a river, or otherwise soaking up all nature has to offer with her partner Jack and their mini dachshund, Cheeb!

Scaling Up Strategic Collaboration in Support of Resilient Ecosystems and Communities –

Shannon Boyle, U.S. Fish and Wildlife Service

Recent investments into collaborative conservation signify a transformative shift in environmental stewardship—one that fosters novel collaboration focused on tackling the pressing challenges facing communities nationwide. These substantial investments serve as unprecedented catalysts for large-scale restoration initiatives, bringing together a coalition of federal agencies and diverse partners to address critical ecological barriers and bolster climate adaptation. The Federal Interagency Fish Passage Task Force, a collaborative coalition of 13 federal agencies, is advancing innovative strategies to implement aquatic ecosystem restoration at unprecedented scales. Success relies on strategic collaboration, leveraging collective expertise and resources from public and private partners to maximize the impact of restoration efforts. By braiding opportunities and expertise, we can maximize the impact of restoration efforts, cultivate resilient landscapes that benefit both wildlife and communities, and ensure these benefits outlast the short timeline of BIL funding. Highlighting ongoing challenges and successes ranging from individual projects to national policy forums, this presentation will demonstrate the transformative power of collaboration in unlocking resources and expertise to address multifaceted restoration challenges.

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Plenary Sessions – Gary Whelan

Tuesday May 13, 2025

Gary Whelan

Gary has a B.S. from the University of Wyoming and a M.S. in fisheries management from the University of Missouri-Columbia. He worked for the Michigan DNR for 35.5+ years and prior to that for Michigan State University for 4.7 years. Recently, Gary retired from being the Research Program Manager for the Michigan DNR that also included fish health program oversight and involvement with the Great Lakes Fish Health Committee, habitat management consultation, and emergency response duties. He has been involved with the National Fish Habitat Partnership since 2004 as Board staff and as Co-Chair of the Board's Science and Data Committee. He is President-Elect, a life member and Fellow of the American Fisheries Society (AFS). He has involved in multiple Association of Fish and Wildlife Agencies (AFWA) committees on national fisheries issues and was the second President of the Instream Flow Council. While his educational training is as a stream ecologist, he has been blessed with a wonderfully diverse career that has ranged from studying fish pathogens to analyzing hydropower impacts statewide to examining fish habitat nationally to managing complex fisheries systems in Michigan.

Structuring Habitat – The Key Underpinnings of and Perspective from the National Fish Habitat Partnership

Gary Whelan, Michigan DNR (retired) and AFS President Elect

The National Fish Habitat Partnership (NFHP) was established in 2006 after a recognition by the Sport Fishing and Boating Partnership Council and the Association of Fish and Wildlife Agencies that many key fish populations were in decline by the early 2000s even after spending billions of U.S. dollars to stem the decline. While NFHP has been around for nearly 20 years, some of its supporting tenets are periodically overlooked or forgotten. The effort has remained true to its original mission which is "To conserve (protect, rehabilitate and enhance) the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people." The efforts have attempted to remain true to work on key system level functions and processes (i.e. hydrology, connectivity, material transport, channel and bottom form, water quality, and living habitat) and not just fix more symptoms of issues. As you may think, there have been many forces tugging away from those tenets and this presentation will highlight some of these which affect many habitat projects. For example, NFHP has struggled with protecting intact habitats as attention has always been focused on conducting projects on impaired systems that engage many people, a NFHP strong point, such as placing oyster reefs in coastal marine habitats, removing fish barriers, or adding woody debris to streams. Protecting intact systems are well known to be orders of magnitude less expensive than "fixing" damaged systems but are less attractive to the public and can be trigger terms in some political settings. While protecting intact systems are undersubscribed to by NFHP, there is also a tendency to push to spend excessive funds on badly degraded often urban or intense agricultural systems which have many function and process issues with very high and unsustainable price tags but high public profiles with less than measurable results. Even these difficult to rehabilitate systems with high profiles have struggled to mobilize all partners, particularly all federal, state and tribal entities, to fully back NFHP efforts as part of their respective programs. To really show positive change and prevent further habitat loss, NFHP and habitat programs in general really need to fully mobilize all potential public and tribal resources on protecting intact systems and rehabilitating systems with only a few impaired functions or processes to both show the benefits of aquatic habitat work along a high return on investment.

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Plenary Sessions – Jim DeRito

Tuesday May 13, 2025

Jim DeRito

Jim DeRito has done fisheries conservation work in the Intermountain West for a variety of federal, state, and non-profit organizations for about 32 years. For the past 12 years, he's worked for Trout Unlimited and has focused on Cutthroat Trout conservation in the Bear River Basin. He has a master's in Fish & Wildlife Management from Montana State University and a bachelor's in Environmental Studies from Hobart College.

Reconnecting and Restoring Habitat for Cutthroat Trout in the Bear River Basin

Jim DeRito, Mike Fiorelli, and Tyler Coleman with Trout Unlimited

The Bear River flows through Utah, Wyoming, and Idaho and is the epitome of a "working river" in the West, supplying water for agriculture, hydropower, and municipal/industrial uses. These uses and related infrastructure have fragmented and degraded fish habitat for Cutthroat Trout throughout the basin. To address these conditions, Trout Unlimited and partners have used the Protect, Reconnect, Restore, and Sustain conservation model for about 20 years. We present three examples within the basin of how this model has been applied, results achieved, and future steps to conserve Cutthroat Trout in the basin.

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Plenary Sessions – Zachary Jackson

Tuesday May 13, 2025

Zachary Jackson

Zac Jackson has been working for the Arizona Fish and Wildlife Conservation Office (AZFWCO) in Whiteriver, Arizona since 2017. Prior to his time with AZFWCO, he spent 9 years as a Habitat Restoration Coordinator with the Lodi Fish and Wildlife Office in California working on Chinook Salmon habitat restoration and reintroduction projects and White Sturgeon research, monitoring, and management. He received his B.S. degrees from North Dakota State University in Zoology—Fish and Wildlife Management and Natural Resources Management and M.S. in Fisheries Biology from Iowa State University.

Reconnecting and Restoring Habitat for Cutthroat Trout in the Bear River Basin

Zachary Jackson, U.S. Fish and Wildlife Service – Arizona Fish and Wildlife Conservation Office

The U.S. Fish and Wildlife Service (USFWS) Arizona Fish and Wildlife Conservation Office in Whiteriver, Arizona, located on the homelands of the White Mountain Apache Tribe, has worked with a resilient partnership of tribal, state, federal, and NGO partners for decades to support the conservation and recovery of Apache Trout and other native fishes. Substantial funding increases for these efforts over the last 5 years were instrumental for both delisting Apache Trout due to recovery and building resiliency across the range of Apache Trout that is expected to be needed for these fish to continue to thrive in the decades to come. In addition to prior and continued support from various National Fish and Wildlife Foundation initiatives and USFWS programs, recent funding from Bipartisan Infrastructure Act and Inflation Reduction Act is providing the necessary resources for our office and partners to employ local tribal members to complete eradication and monitoring projects, replace or remove conservation barriers with more durable structures, restore sensitive meadow habitats, decommission roads and culverts, and replace culverts to restore fish passage and habitats and secure recovery habitats for many decades to come. These efforts, and many others, are part of a coordinated effort to build resiliency in fish populations, including several expanded metapopulations, and their ecosystems in the White Mountains of Arizona as we transition from focusing on attaining recovery to maintaining it in an increasingly dynamic future. Recovery of the Apache Trout clearly demonstrates the transformation power that collaborative conservation efforts can have. Recovery partners have all committed to continue efforts to enhance existing population and habitat resiliency through implementation of the Apache Trout Cooperative Management Plan to ensure that Apache Trout enhance not only our lives, but the lives of generations yet to be born.

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Plenary Sessions – Becky Johnson

Tuesday May 13, 2025

Becky Johnson

Becky Johnson is Production Division Director for the Nez Perce Tribe Department of Fisheries Resource Management. The Tribe operates several salmon and steelhead hatcheries in the Snake River Basin producing approximately 13 million juvenile fish annually. Fish produced at these facilities support reintroduction and supplementation to restore natural spawning runs as well as providing harvest opportunities. Becky also serves on the *U.S. vs. Oregon* Production Advisory Committee where she has been involved in Columbia Basin hatchery co-management for over 30 years.

Columbia Basin Anadromous Hatchery Infrastructure: Repair and Renovate for Resilience

Becky Johnson, Nez Perce Tribe Department of Fisheries Resource Management

Nch'i-Wàna, the Columbia River, is the largest river in the Pacific Northwest and the fourth-largest in the United States. It serves as critical habitat for 13 ESA-listed species of salmon and steelhead and holds immense cultural and subsistence significance for the Tribes who have lived in the region since time immemorial. The development of the River for hydropower, irrigation, and transportation began in the early 1900s. Today, fourteen federal and ten public utility dams on the Columbia River mainstem provide over 44% of the nation's hydropower and a navigational route from the Pacific Ocean to Lewiston, Idaho, 500 miles inland. However, these dams have also eliminated 55% of the area and 31% of the stream miles that historically produced salmon and steelhead. To mitigate this loss of habitat and the impacts to fish survival, over 50 fish hatcheries, along with their satellite facilities, have been established since the 1930s, from the lower River to its upper tributaries. These hatcheries now produce and release approximately 150 million juvenile salmon and steelhead annually, which are the source of the only meaningful adult returns to support tribal and non-tribal fisheries along the River. Yet, many of these hatcheries are well over 50 years old. Aging technology, deferred maintenance, and insufficient funding have resulted in a backlog of more than $1 billion in repairs to failing and crumbling infrastructure. With the recent support from the Inflation Reduction Act and Bipartisan Infrastructure Law, there is new momentum to address these issues. Efforts to repair and renovate hatcheries in the Columbia Basin with a focus on resilience are now underway. Infrastructure projects will range from small to large but for example include adaptations to deal with climate change (i.e., solar panels over rearing ponds for shade), improvements to hatchery intakes (i.e., compliance with fish passage criteria), repairs to rearing ponds for water efficiency and rearing environment (i.e., reuse systems and circular tanks).

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Plenary Sessions – Dr. Kurt Fausch

Tuesday May 13, 2025

Dr. Kurt Fausch

Kurt Fausch is Professor Emeritus in the Department of Fish, Wildlife, and Conservation Biology at Colorado State University, where he taught for 35 years. His research collaborations in stream fish ecology and conservation have taken him throughout Colorado and the West, and worldwide, including Hokkaido in northern Japan. His experiences were chronicled in the PBS documentary *RiverWebs*, and the 2015 book *For the Love of Rivers: A Scientist's Journey* which won the Sigurd F. Olson Nature Writing Award. He received lifetime achievement awards from the American Fisheries Society and World Council of Fisheries Societies, and the Leopold Conservation Award from Fly Fishers International.

Connectivity, Ethics, and a Reverence for Rivers

Kurt Fausch, Professor Emeritus, Colorado State University

Habitat fragmentation and loss of connectivity have profound negative effects on fish populations. Recent and proposed fish passage projects and dam removals have restored connectivity for thousands of rivers and streams across the U.S. These projects provide fish populations access to critical habitats dispersed throughout riverscapes that fishes require to complete their life cycles. However, the potential for such projects to also allow invasive species access poses ethical dilemmas that challenge those who manage rivers and fish. Such ethical quandaries are common for many different threats to rivers, ranging from increasing demands for water, overfishing, and the overarching threat of climate change. Addressing these dilemmas will require that we use not only what western science can offer, but also to imagine an ethic for running waters that melds this rich body of scientific knowledge with the wisdom of our progenitors and the worldviews of indigenous cultures to arrive at a greater reverence for rivers.

Reward Great Work!

CO/WY Awards Nominations

Time is running out! Get your nominations in before the March 31st deadline. The Colorado/Wyoming Chapter has four awards for recognizing our fisheries professionals and the Awards Committee needs your help in determining qualified candidates to receive awards at the 2025 Annual Meeting. This is an opportunity for you to become involved and see that your professional peers receive their deserved recognition from the American Fisheries Society.

- **Award of Excellence:** Recognizes an individual who has made significant contributions in the fishery-aquatic resource field.
- 
  Max Award of Merit: In honor of Max Rollefson (WGFD), this atta bio recognizes a short-term professional accomplishment in management, administration, research, or culture.
- **Outstanding Mentor Award:** This award recognizes a fisheries professional who has shown substantial devotion to assisting or mentoring prospective fisheries students/professionals, current fisheries students, or fisheries professionals.
- **Leaky Boot Award:** Recognizes the most outrageous behavior of any fisheries student or professional in the year prior to the Chapter's Annual Meeting.

The deadline to nominate will be March 31, 2025. For more information on how to nominate your peers, please contact Travis Neebling at (307) 233-6410 or Travis.Neebling@wyo.gov.

Western Division AFS Award Nominations

The WDAFS awards deadline has been extended to March 17! Please consider nominating someone, an organization, or your Chapter or Subunit for one of the many WDAFS awards to be presented in Westminster during the annual meeting using this form: https://forms.gle/CAbRmVoHCE8a3F8A6. Don't let another year go by without giving your colleagues the well-earned recognition they deserve!

2025 CO/WY AFS Travel Grants

The CO/WY AFS Chapter will award three travel grants for 2025. One student, one professional, and one member of the CO/WY AFS Chapter will be selected for a travel grant of up to $2,000 to attend the Parent Society AFS in San Antonio (August 10-14) or the Western Division Annual Meeting in Denver (May 11-15). Covered costs include transportation, food, lodging, and meeting registration. Chapter members will be selected on a competitive basis.

To apply, an applicant must:

1) Be a current CO/WY AFS member in good standing (i.e., up-to-date Parent Society membership.

2) Submit a one to two page cover letter detailing: 1) why you want to attend the AFS meeting in San Antonio or Denver, 2) AFS involvement, including but not limited to committee service and presenting experience at AFS meetings, 3) fisheries background, and 4) why it would be appropriate for you to present at either San Antonio or Denver, what your subject matter would be, and how it meets the goals of the CO/WY AFS Chapter.

All applications should be sent to CO/WY AFS Past-President, Steve Gale at **cowy.afs.pastpres@gmail.com** by **March 24, 2025**. The recipients will be selected by the CO/WY AFS Chapter Executive Committee and informed of their award by **April 1, 2025**.

2025 CO/WY AFS Aquaculture Travel Grant

The Colorado/Wyoming AFS Chapter offers a $250 travel grant to **one** dedicated aquaculturist to support their attendance at the upcoming Western Division AFS Annual Meeting in Denver , May 11-15. To qualify, applicants must be employed at an aquaculture facility, a member of the CO/WY AFS chapter (i.e., up-to-date Parent Society membership), and willing to volunteer at least two hours during the conference.

To apply, please submit your resume along with a letter to CO/WY AFS Past-President, Steve Gale at **cowy.afs.pastpres@gmail.com** by **March 24, 2025**. The letter should outline your involvement with AFS, the importance of aquaculture, your contributions to the field, and why you believe you deserve the travel grant.

This travel grant is sponsored by the Colorado Aquaculture Board.

The recipients will be selected by the CO/WY AFS Chapter Executive Committee and informed of their award by **April 1, 2025**.