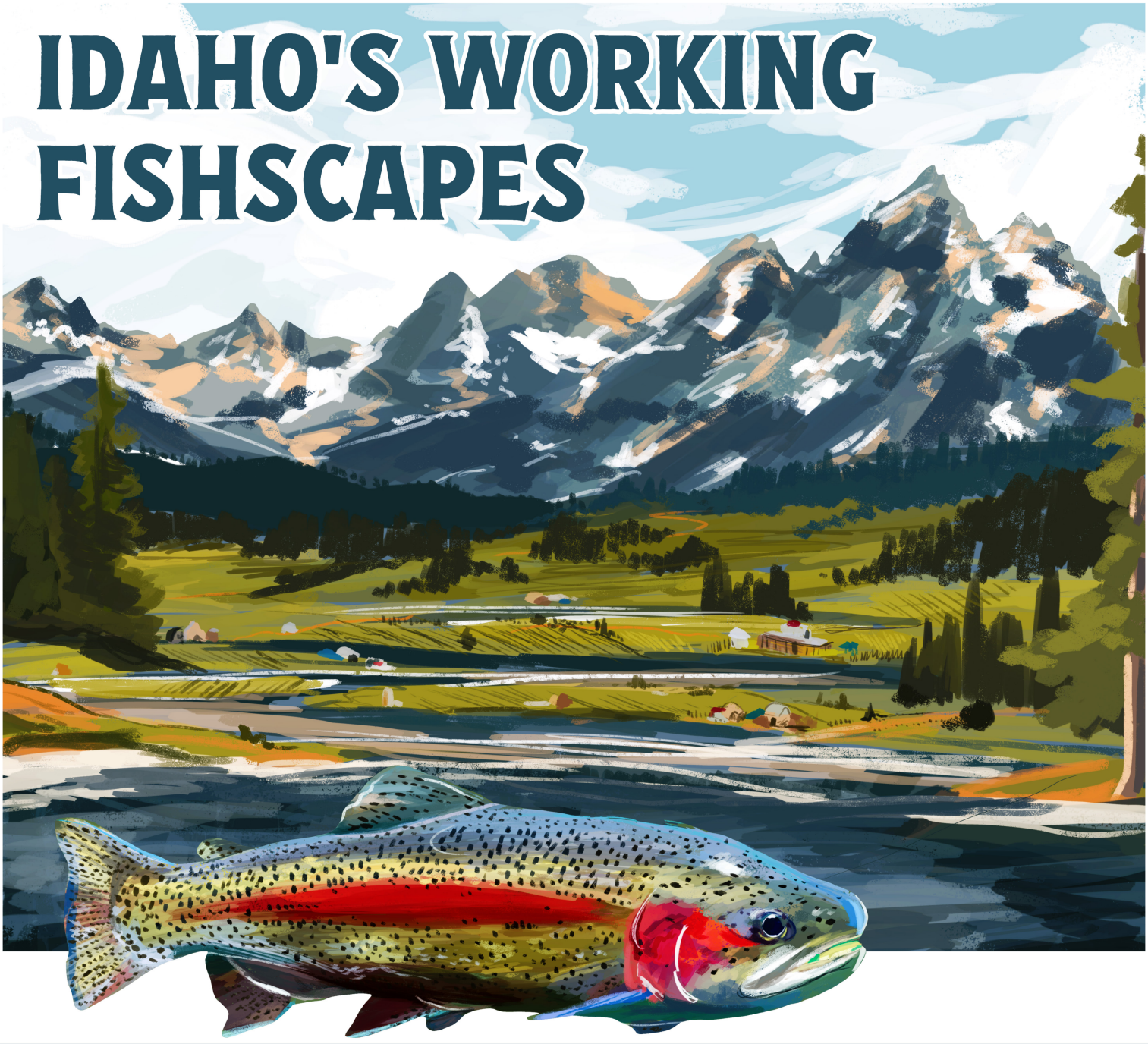
IDAHO'S WORKING FISHSCAPES



THE INTERSECTION OF FISH, WATER, AND SOCIETAL NEEDS

IDAHO CHAPTER AMERICAN FISHERIES SOCIETY 2026 MEETING

March 3rd - 6th, 2026

Shilo Inn & Suites | 780 Lindsay Blvd, Idaho Falls, ID

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PRESIDENT'S MESSAGE

Welcome to Idaho Falls!

It's hard to believe that a year has gone by and we're already back together - this time for the 63rd meeting of the Idaho Chapter of the American Fisheries Society. A lot has changed since the Chapter's founding in 1963 - more of some fish species, less of others, more people and dams, and certainly less water, which is not coincidentally the focus of the plenary session. While change may be inevitable, the chapter has done a remarkable job of resisting change in at least one important facet – sticking to our mission and objectives. Today, just like six decades ago, we remain steadfast in our focus on improving the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and promoting the development of fisheries professionals. As you attend sessions, complete your 2026 work tasks, and for that matter advance throughout your career, keep this critical mission in mind, and be creative in finding ways to contribute more.

I'd like to offer my sincerest appreciation to all that volunteered to make this meeting happen, especially the chapter's Executive Committee and Core Planning Team. Each member volunteered valuable time out of their professional and personal lives to help out, and this meeting wouldn't have been possible without them. We hope that you take full advantage of the training, networking, and learning opportunities provided. Furthermore, the meeting sponsors are also invaluable to our chapter and this meeting. With their support, our chapter funds student activities and scholarships, thereby furthering fisheries education in Idaho. Please return the favor by attending sponsor Tech Talks within our sessions and interact with sponsors at the Trade Show on Wednesday.

Once again, travel restrictions are likely to decrease attendance and the number of entities represented. Our federal colleagues and others will be underrepresented and will be sorely missed. We look forward to the time when the entire chapter membership is back together. Despite these hurdles, registration exceeded 200 people and at least 32 different entities will be represented at our meeting including 5 universities, 2 NGOs, as well as 9 private, 6 state, 4 tribal, and 6 federal agencies, which is truly remarkable. What a great opportunity to strengthen relationships and foster partnerships!!

We have maintained our long-standing focus on offering quality mentorship opportunities for students. As usual, student registration was "free" for those willing to assist with meeting logistics. On Wednesday night, we will be repeating the highly popular format (used first in 2025) for the Student-Professional Mixer. Please take every opportunity to welcome students to our chapter.

To promote a safe and productive professional meeting, all meeting participants are required to review the AFS Meetings Code of Conduct offered during registration and linked in the program. Rob Van Kirk and Rebekah Horn have been designated as Safety Officers for the meeting. Please don't hesitate to contact them or any member of EXCOM at any point to report a breach of the Code of Conduct.

Hope you have a great week, and each member of EXCOM and the Core Planning Team look forward to enjoying the meeting with each of you! Thank You.

Sincerely,
Joe Kozfkay, President

Idaho Chapter of the American Fisheries Society

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Northwest **Power** and **Conservation** Council

VOTING INFORMATION

Submit your vote for EXCOM Elections and bylaws!

Reminder: Members must have renewed their 2026 AFS parent society dues to be eligible to vote in chapter elections.

SPONSORS

Open Tour! Fish Genetics Lab Trailer

What: Visit the mobile DNA sequencing lab trailer capable of returning genotyping results in <24 hours

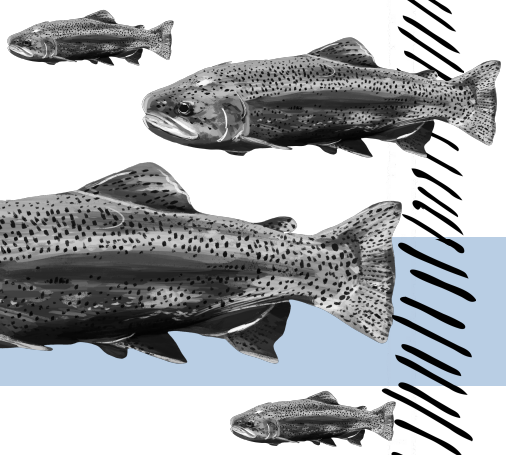
When: Wednesday, 3/4, from 4:15-6:00pm
Thursday, 3/5, from 4:15-6:00pm

Where: Snake River Event Center, parking lot

Who: Lanie Galland (lgalland@critfc.org)
Columbia River Inter-Tribal Fish Commission

Additional info:

- Email (or find!) Lanie to set up a time outside of the open tours
- Presentation of inaugural year's results during conference talk on Friday, 2/6, at 10:40am, titled, "Implementation of a mobile DNA sequencing laboratory for real-time assessment of Columbia River basin fisheries"



TRADE SHOW

Come join our sponsors at the

Trade Show - Wednesday from 5-6:30pm in the SREC Pocatello Room!

Our vendors have a wide variety of unique products and services that can help with your monitoring and research needs. At the end of the Trade Show,a fantastic art piece will be raffled off to the attendees who have interacted with our vendors. The only way to receive a raffle ticket is to talk to our vendors! Snacks will be provided. Hope to see you there!

SPAWNING RUN & CARCASS CRAWL

DATE: THURSDAY, MARCH 5TH
TIME: 4:30 PM

LOCATION:
Meet in the Shilo Inn Lobby, run will be on the Greenbelt
43.502 -112.046

SCHOLARSHIP TRIBUTES

The Douglas J. Megargle Memorial Scholarship was endowed in 2024:

Douglas J. Megargle Memorial Scholarship (1966-2019)

This scholarship is established to celebrate the memory of Douglas (Doug) J. Megargle who was a successful fisheries professional for 22 years with Idaho Department of Fish and Game in both research and management. Doug was an enthusiastic member of the American Fisheries Society, attending nearly every Idaho Chapter meeting during his professional career. Doug's enthusiasm for the profession was infectious, and one of his greatest passions was mentoring young professionals as they began their fisheries careers, steering them as often as possible toward advancing their education and AFS membership and involvement. Doug died in an automobile accident on May 14, 2019, while on duty. This memorial scholarship is intended to honor Doug's legacy of promoting the development of young fishery professionals and will be awarded annually to a graduate student attending or affiliated with a student subunit at any school in Idaho. This scholarship was created by generous donations from the Megargle family and the Idaho Chapter.

The Susan B. Martin Mentoring Scholarship was endowed in 2009:

Susan B. Martin Mentoring Scholarship (1951-2008)

This scholarship is in memory of Susan B. Martin who served as the first female president of the Idaho Chapter (1986-1987) and who was also a successful scientist and natural resource manager. Her career as a scientist involved time with the U.S. Forest Service Intermountain Research Station - Boise laboratory, Idaho Department of Environmental Quality, and 20 years with the U.S. Fish and Wildlife Service. Susan was dedicated to the conservation and protection of fish, wildlife and plants, and consistently emphasized the need for more discussion by all interested parties to reach resolution on highlighted issues. Over the course of her life, she had a tremendous impact on the management of natural resources and an important influence on the development of many natural resource professionals. Susan passed away at the age of 57 on September 15, 2008, in Coeur d'Alene, Idaho, after a two-year battle with cancer. This scholarship, which was first awarded in 2009, is intended to continue Susan's legacy of fostering the development of fish and aquatic professionals and is awarded annually to a graduate student attending any school in Idaho. This scholarship is funded by an endowment which was created with contributions from the Martin family and the Idaho Chapter.

MEETING INFORMATION

REGISTRATION will be open each morning by 7:00 AM in the SREC Lobby.

ORAL PRESENTERS were asked to submit their presentation prior to meeting arrival. However, if this has not already been done, speakers are required to have their presentation uploaded the day before their scheduled talk. Computers will be set up in the SREC Lobby for uploading and review. Please visit the registration desk area for further information.

POSTER PRESENTERS can attach their poster to their respective poster location (coded by poster number) anytime on Tuesday or Wednesday in the SREC Lobby. The designated Poster Session is Thursday morning (see schedule). Posters must be removed by noon on Friday.

CODE OF CONDUCT: This meeting, like all American Fisheries Society events,is governed by the AFS Code of Conduct. Its purpose is to ensure a safe, productive, and welcoming environment for all meeting participants, including vendors and non-AFS guests. We are providing onsite contacts for Code violations. Rebekah Horn (ICAFS Vice President, 208-886-0139) and Rob VanKirk (Recruitment and Retention Committee Co-Chair, 208-881-3407) will accept complaints at any time from meeting attendees. Please take time to familiarize yourself with the Code of Conduct and its importance.

AFS Code of Conduct

ABSTRACTS will be available for every talk and poster on the Idaho AFS website, after the meeting has concluded. Please access these abstracts as needed once they have been posted.

FUNDRAISING auction and raffle will be done in person at the fundraising banquet on Thursday evening (see schedule). Winners can collect their prizes the night of the fundraising banquet.

STUDENT AND YOUNG PROFESSIONALS mentoring is available in several forms at this meeting. Opportunities to network, learn, and receive mentorship include: a fisheries-professional panel discussion, a student-professional mixer, and mock interviews with feedback. Please see the schedules for times and locations of these valuable events.

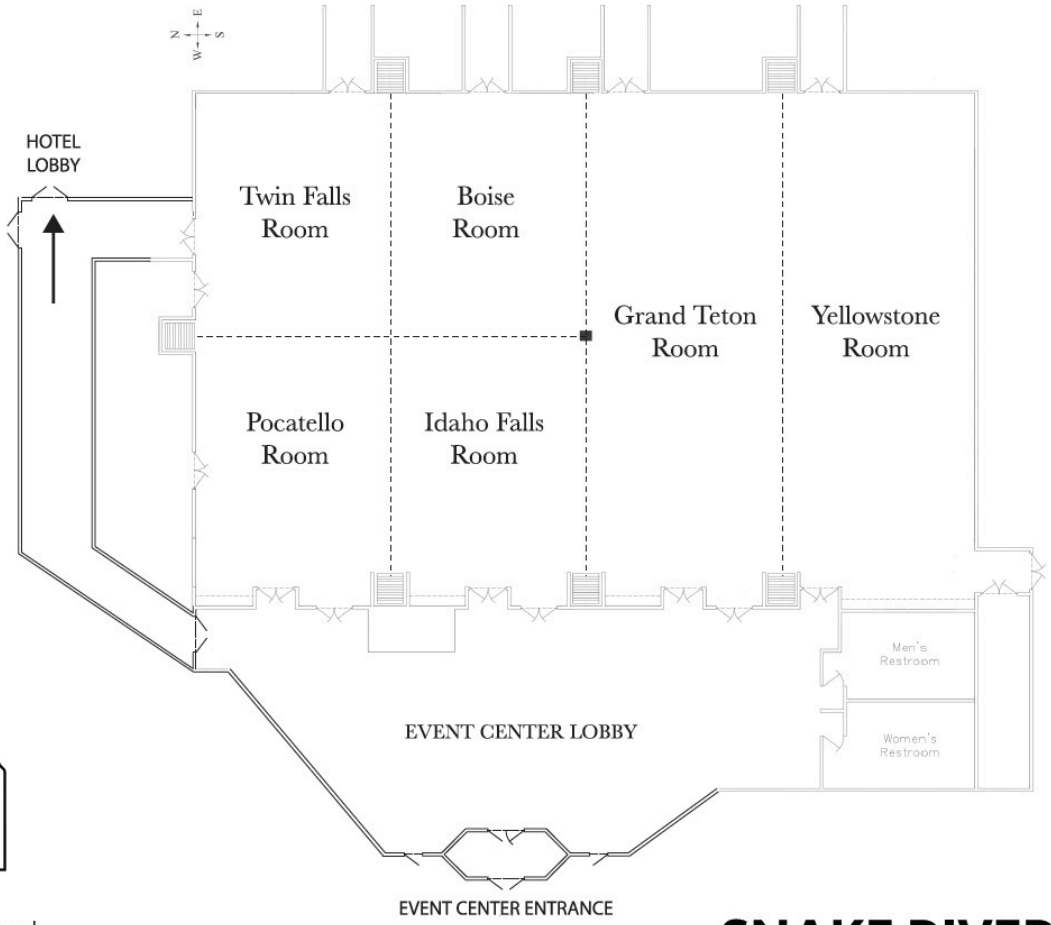
NURSING POD is available for nursing caregivers. Please visit the registration desk for further information about location and refrigeration.

ID BADGE will be required for access to the meeting. Please visit the registration desk for further information.

VENUE MAPS

Shilo Inn & Suites

780 Lindsay Blvd, Idaho Falls, ID



March 2 - 6, 2026
Idaho Falls Shilo Inn and
Snake River Event Center

SNAKE RIVER EVENT CENTER AT SHILO INN
780 Lindsay Blvd • Idaho Falls, ID 83402 • (208) 497-0611

MEETING SCHEDULE - TUESDAY

Time	Tuesday, March 3rd	
7:00 to 4:00	**REGISTRATION OPENS @ 7:00 AM (SREC Lobby)**	
8:00 to 9:50	**WORKSHOPS** • **Remote sensing techniques** - SREC Twin Falls Room • **Boat motor maintenance** - IDFG Upper Snake Regional Office (4279 Commerce Circle)	
9:50 to 10:10	BREAK with beverages and snacks	
10:10 to 11:40	**WORKSHOPS** • **Remote sensing techniques** - SREC Twin Falls Room • **Boat motor maintenance** - IDFG Upper Snake Regional Office (4279 Commerce Circle)	
12:00 to 1:00	**LUNCH BREAK** *food provided ONLY to remote sensing workshop*	
1:00 to 2:50	**WORKSHOPS** • **Remote sensing techniques** - SREC Twin Falls Room • **Aquaculture for biologists** - SREC Idaho Falls Room • **Tools for career success** - Shilo Inn River and Temple View Rooms	**TRADESHOW & POSTER SETUP** SREC Lobby, Pocatello Room
2:50 to 3:10	BREAK with beverages and snacks	
3:20 to 5:00	**WORKSHOPS** • **Remote sensing techniques** - SREC Twin Falls Room • **Aquaculture for biologists** - SREC Idaho Falls Room • **Tools for career success** - Shilo Inn River and Temple View Rooms	
5:15 to 6:15	**Volunteer Meeting** - SREC Grand Teton Room	
6:30 to 9:30	**Welcome Social** Snow Eagle Brewing & Grill, 455 River Pkwy	

MEETING SCHEDULE - WEDNESDAY AM

Wednesday Morning, March 4th	
7:00 to 12:00	**REGISTRATION AND PRESENTATION UPLOAD** - SREC Lobby **Poster Session Set Up and Viewing** - SREC Lobby
8:00 to 8:15	**Meeting Opening and Plenary Introduction** SREC, Grand Teton and Yellowstone Rooms
8:15 to 8:40	**Mathew Weaver - Director of Idaho Department of Water Resources** Water Management in Idaho
8:40 to 9:00	**Paul Arrington- Executive Director of the Idaho Water Users Association** Idaho Water User Perspective
9:00 to 9:20	**Kendra Kaiser-Director of the Idaho Water Resources Research Institute** Idaho Water Use Research, Collaboration and Priorities
9:20 to 9:50	**Q & A**
9:50 to 10:10	BREAK with beverages and snacks
10:10 to 10:35	**Jesse Trushenski, Chief Science Officer and Karen Henderson, Chief Legal Officer for Riverence** An aquaculture perspective
10:35 to 11:00	**Allison Lebeda, Water Rights Program Coordinator and Bobby Hills, Water Exchange Project Leader, Nez Perce Tribe** A tribal perspective and observations
11:00 to 11:30	**Christopher Estes, Aquatic Resources and Habitat Scientist, Chalk Board Enterprises, LLC and retired Alaska Fish and Game** Water and Fisheries Professionals and The Future of Instream Flow and Water Level Conservation
11:30 to 12:00	**Q & A**
12:00 to 1:30	**ICAFS Committee Meetings and Box Lunch** **Native Fish** in Grand Teton and Yellowstone **Anadromous** in Twin Falls Room **Aquatic Habitat** in Idaho Falls Room **Mentoring** in Shilo Inn River View Room **Public Education** in Shilo Inn Temple View Room **Aquaculture** in Shilo Inn Board Room **Recruitment & Retention** in Shilo Inn Room 229

MEETING SCHEDULE - WEDNESDAY PM

Wednesday Afternoon, March 4th		
2:00 to 5:00	**REGISTRATION AND PRESENTATION UPLOAD** - SREC Lobby **Mock Interviews** - Shilo Inn River room, Temple View and Board Rooms	
	Session 1: Idaho's working fishscapes Idaho Falls Room	**Session 2: Improving methods and manangement tools** Twin Falls/Boise Rooms
1:40 to 2:00	A Win–Win for Farms and Fish: Flow Restoration and Irrigation Modernization on Canyon Creek, **Will Stubblefield**	Assessment of sampling techniques for Bear Lake Sculpin in Bear Lake Idaho-Utah, **Ethan Orach***
2:00 to 2:20	Fish Need Water, Water Needs Measured, **Kasey Barney**	Trophic relationships among invasive Silver Carp (Hypophthalmichthys molitrix) and native fishes in the lower Mississippi Alluvial Valley, **Bailey G. Pentz**
2:20 to 2:40	Headwater Reservoir Flow Augmentation: Improving Juvenile Steelhead Habitat Availability in the Potlatch River Basin, **Grace Peven***	The Effects of Introduced Species on the Snake River Aquatic Community and Food Web, **Marika Dobos**
2:40 to 3:00	Administering minimum streamflows in Idaho with voluntary, market-based water transactions, **John Loffredo**	Revised length standards for inland salmonids: tools for establishing meaningful index values, **Michael Quist**
3:00 to 3:20	BREAK with beverages and snacks	
3:20 to 3:40	Evaluating approaches to flow ramp-down in a complex floodplain system, **Alex Stacy***	Oxbow Fish Hatchery Renovation: Idaho Power Company's Dedication to Providing Fish for the Future, **Riley Brown**
3:40 to 4:00	Paris Hydroelectric Project Decommissioning and Stream Flow Restoration, **Mark Stendberg**	Spinal injuries and capture efficiency for riverine Rainbow Trout captured with backpack- and barge-mounted electrofishers, **Kevin Meyer**
4:00 to 4:10	**TECH TALK: Jetco** - Configurations & Options: Fish Transport Tanks	**TECH TALK: HMH Engineering**- Big Creek Dam Removal
4:10 to 4:30	Physical and Administrative Water Availability for Storage on the Teton River, **Rob Van Kirk**	Rapid Assessment Methodology for Zooplankton in Idaho: A Comparison of Lakes and Methods, **Brianna Decora***
4:30 to 4:50	Distribution, abundance, and movement of Yellowstone Cutthroat Trout in the upper Blackfoot River, Idaho, **Noah Frost***	Bull trout population dynamics simulation tool: a shiny app to explore management of a threatened char, **Joe Benjamin**
Open Tour! Fish Genetics Lab Trailer 4:15 to 6:00 SREC, parking lot		
5:00 to 6:30	**Professional – Student Panel** - River and Temple View Rooms **Vendor Trade Show** - SREC Pocatello Room	
6:30 to 10:00	**Student Professional Mixer** - SREC Grand Teton and Yellowstone Rooms	

*STUDENT

Voting for EXCOM and bylaws ends TODAY, March 4th!

MEETING SCHEDULE - THURSDAY AM

Thursday Morning, March 5th		
7:00 to 12:00	**REGISTRATION AND PRESENTATION UPLOAD** - SREC Lobby	
8:00 to 2:00	**Vendor Booths** - SREC Pocatello Room **Mock Interviews** - Shilo Inn River room, Temple View and Board Rooms	
	Session 3: Adding anglers to the equation Idaho Falls Room	**Session 4: Managing Incompatible Species** Twin Falls/Boise Rooms
8:20 to 8:40	Monitoring the Kootenai River Burbot Fishery, **Aaron Black**	A successful alternative to traditional vertical-style fish passage barriers, **Robert Gregory***
8:40 to 9:00	Where's Waldo..with a rod? Tracking angler distribution in a reservoir, **Lauren Allex***	Electrofishing Suppression of a Non-native Walleye Population , **Eric Geisthardt Valdez**
9:00 to 9:20	Incorporating angler perspectives and ecological evidence to inform management of non-native fish interactions with native Yellowstone Cutthroat Trout in the Teton River Basin, **Lucas Ellingson-Cosenza***	Chemical Removal of Rainbow Trout in Lower Badger Creek (Teton River Drainage) to Support Yellowstone Cutthroat Trout Recovery, **Nathan Tillotson**
9:20 to 9:40	BREAK with beverages and snacks	
9:40 to 11:00	**Poster Session**	
11:00 to 11:20	They eat trout, don't they? Long-term changes in angler behavior in the Big Wood River trout fishery, **Tucker Brauer**	Integrating Electrofishing Suppression and YY Male BK Stocking on Two Isolated Idaho Brook Trout Populations: It Worked! **Dan Schill**
11:20 to 11:30	**TECH TALK: Kootenai Tribe of Idaho** - Integrated Fish and Wildlife Department	**TECH TALK: Voda IQ** - HQ12 PIT Tag In-River Performance Evaluation
11:30 to 11:50	A state-space model for estimating fishing and natural mortality using live mark-recapture and dead mark-recovery data, **Joshua McCormick**	Food Habits of Non-native Northern Pike in Lake Pend Oreille, Idaho, **Luke Anderson***
12:00 to 2:00	**Business Luncheon**	

***STUDENT**

MEETING SCHEDULE - THURSDAY PM

Thursday Afternoon, March 5th		
2:00 to 4:00	**REGISTRATION AND PRESENTATION UPLOAD** - SREC Lobby **Vendor Booths** - SREC Pocatello Room **Mock Interviews** - Shilo Inn River room, Temple View and Board Rooms	
	Session 5: Habitat Restoration Idaho Falls Room	**Session 6: Fishery Management** Twin Falls/Boise Rooms
2:20 to 2:40	Beaver dam analogues and fish movement: a case study from Tex Creek, **Emma Lundberg and Ben Martin**	Timing the sample and tracking recruitment: seasonal variability in Smallmouth Bass sampling and Walleye recruitment in Lake McConaughy, NE, **Robert Allison***
2:40 to 3:00	Wood, Water, and Wildlife: Avalanche-Delivered Wood Accumulations Support Elevated Fish Abundance and Riparian Bird Species Richness, **Anna Reside***	Growth, mortality, and exploitation of black bass populations in Idaho lakes and reservoirs, **Susie Frawley**
3:00 to 3:10	**TECH TALK: RIVHAB Engineering and Earthworks** - Fisheries and Technology: RIVHAB	**TECH TALK: Biomark** - New Biomark reader in 2026
3:10 to 3:30	An evaluation of localized habitat manipulation effects on native and nonnative trout in springbrooks of the Snake River-floodplain, **Kaitlyn Warner***	Growth, Condition, and Food Habits of Rainbow and Cutbow Trout Following a Chemical Renovation, **Ian Lillquist* and Oliver Dunbar***
3:30 to 3:50	Identifying Walleye and Lake Whitefish Spawning Habitat to Inform Habitat Improvements for Lake Sturgeon in the Lower Fox River, Green Bay, WI, **Braden Lensing**	Fish Passage in a Working Watershed: Long-Term Assisted Migration of Fluvial Cutthroat Trout in the Cub River, Idaho, **Tyler Coleman**
3:50 to 4:10	Stream geomorphology mediates climate-driven invasions by nonnative Brook Trout in shrinking Bull Trout habitat, **Nicholas Voss**	Movement Patterns of Largemouth Bass Among Interconnected Lakes in Northern Idaho, **Mike Thomas**
Open Tour! Fish Genetics Lab Trailer 4:15 to 6:00 SREC, parking lot		
4:30 to 5:30	**Spawning Run** - Idaho Falls Snake River Greenbelt	
6:00 to 10:00	**Banquet and Fundraiser** - SREC Grand Teton and Yellowstone Rooms	

***STUDENT**

MEETING SCHEDULE - FRIDAY

Friday March 6th		
7:00 to 10:00	**REGISTRATION AND PRESENTATION UPLOAD** - SREC Lobby	
8:00 to 10:30	**Vendor Booths** - SREC Pocatello Room	
8:00 to 12:00	**Poster Take Down**	
10:30 to 1:00	**Vendor Take Down**	
	Session 7: Anadromous Idaho Falls Room	**Session 8: Native Fisheries** Twin Falls/Boise Rooms
8:20 to 8:40	Life history strategy, arrival timing, and body size shape reproductive success in steelhead, **Audrey Harris**	Evaluating differences in Kootenai river Mountain Whitefish diets, **Nate Nadal***
8:40 to 9:00	Fish Passage in a Working Watershed: Long-Term Assisted Migration of Fluvial Cutthroat Trout in the Cub River, Idaho, **Tyler Coleman**	Cryptic Genetic Structure and Evolutionary Divergence in Idaho's Prosopium species, **Katharine Coykendall**
9:00 to 9:20	Introgression among major phylogeographic lineages alters phenology and fitness of Klickitat River spring-run Chinook Salmon, **Zachary Robinson**	Population ecology of Mountain Whitefish in Idaho, **Darby McMartin***
9:20 to 9:40	Refining indices of risk from salmonid hatcheries, **Matt Falcy**	Using Conservation Aquaculture to Preserve Bonneville Cutthroat Trout, **Ryan Hillyard**
9:40 to 10:00	BREAK with beverages and snacks	
10:00 to 10:20	Pink Salmon competition effects on Snake River Steelhead: Marine-phase dynamics across odd–even cohorts, **David Smith**	Selenium Dynamics and Ecological Impacts in the Kootenai River, **Manuel Carballo***
10:20 to 10:40	Evaluation of Adult Sockeye Salmon Trap and Transport Operations at Lower Granite Dam, **David Venditti**	Using Geospatial Data Tools to Track, Display and Promote Native Trout Conservation at Landscape Scales, **Selena Barrett**
10:40 to 10:50		**TECH TALK: Vence** - A virtual tool to exclude cattle from critical riparian areas
10:50 to 11:10	Implementation of a mobile DNA sequencing laboratory for real-time assessment of Columbia River basin fisheries, **Lanie Galland**	The Bear River Project Hydroelectric Project: offsite mitigation actions to benefit cutthroat trout and water quality, **Jim DiRito**
11:10 to 11:30		Patterns of recent Brook Trout invasion in Bull Trout streams in relation to habitat, source connectivity, biotic resistance, and disturbance, **Nicholas Voss**
11:30 to 11:45		**Meeting Close and Best Paper Awards**
12:30 to 3:00	**ICAFS EXCOM Post-Meeting Debrief** - SREC Restaurant VIP Room	

POSTER SESSION: Thursday March 5th 9:40-11:00 am, SREC Lobby

#	Presentation Title	Author
1	Precision of Northern Pike age estimates using four calcified structures	Luke Anderson*
2	Utilizing Long-Term Gage Data to Elucidate Past, Present, and Future Streamflows	Anthony Zimmerman, Kasey Barney, Jerri Cowapoo, and Allison Lebeda
3	Life History of the Pilose Crayfish in a Geothermally Influenced Stream	Aubree Baker*
4	Prevalence and Intensity of Infection of Adult Intestinal Flukes in Trout in Birch Creek, Idaho	Elliot Brady*
5	Diet patterns of trout species in Birch Creek after illegal introduction of Brown Trout	Emma Brown*
6	Using Water Velocity to Create a Wild Fish Surrogate in Hatcheries	Jazmine Cook*
7	Evaluating Thermal Marks as a Fisheries Management Tool	Anders Covey
8	Facebook Relationship Status: It's Complicated – Salmonid Temperature Thresholds in the Clearwater River Basin	Jerri Cowapoo
9	Long-term patterns and factors influencing growth of Smallmouth Bass in Coeur d'Alene Lake	Chloe Crookshanks*
10	Microplastics Found in Fish from Remote Locations in Upper Snake River Watershed	Mitch Davis*
11	Title: Spatially Balanced Sampling Design Reveals Habitat Preference For Kootenai River White Sturgeon (Acipenser transmontanus)	Avery DeWit
12	Identifying Influential Periods and Factors in Snake River Steelhead Marine Survival	Tamsen Farris*
13	Characterizing Dorsal Fin Gap in Pacific Lamprey, Entosphenus tridentatus, of the Warm Springs Reservation, Oregon, to Support Translocation Protocols	Harold Garcia*
14	Mind the Gap: Jacks, Gene Flow, and Temporal Genetic Structure in Reintroduced Coho	Rebekah Horn
15	Comparing Habitat Preferences of Juvenile Chinook Salmon and Steelhead in the Upper Salmon River Basin, Idaho	Julianne Kirby
16	Inferring Steelhead Abundance in the Hood River Using Genetic Monitoring Over Multiple Generations	Ilana Koch
17	Distribution of Pacific Lamprey in the Upper Salmon River, Idaho	Ethan Marklund
18	Application of Fishery-Dependent Data to Estimate Population Rate Functions for Mountain Whitefish	Darby McMartin*
19	Surviving the First Year: Environmental Drivers of Riparian Plant Establishment	Ian Mott
20	Isotopic analysis of Bear Lake, Idaho-Utah: a contemporary view of food web structure	Ethan Orach*
21	Shifts in Redband Trout habitat use as summer streamflows decrease in an intermittent stream	Emma Redman*
22	Frequent Flyers: Higher Recapture Rates of Wild-Origin Kootenai River White Sturgeon (Acipenser transmontanus) Using Baited Capture Methods.	Sammie Huffman
23	Developing New Genetic Barcodes for Endemic Idaho Snowflies to Improve Biodiversity Conservation and Stream Monitoring	Jack Stafford*
24	Investigating Fish Assemblage Response to Wildfire and Changing Fire Regime in a Wilderness River Network	Heather Swartz*
25	Likelihood-Based Inference for Fish Population Models	Jesse Wheeler

*STUDENT

WORKSHOPS: TUESDAY, MARCH 3rd

Remote sensing techniques and applications for restoration planning and monitoring

Full Day; 8am - 5pm
Lunch Provided
Location: **Snake River Event Center, Twin Falls Room**

Instructors: Eric Berntsen – Kalispel Tribe, Reid Camp – Snake River Salmon Recovery Board, Stephanie Hallock – Coeur d'Alene Tribe, Thom Hardy – Watershed Systems Group, Jeanne McFall and Cody Marschner – RIVHAB Engineering and Earthworks, and Francine Mejia and Christian Torgersen – US Geological Survey

Remote sensing techniques can reduce assessment costs and increase the spatial coverage within watersheds of interest. With increased availability of remotely sensed imagery and high-resolution digital elevation models based on remote sensing techniques (e.g., LiDAR), field-based assessments can be combined with remote sensing analyses using Geographic Information System (GIS) software. This full day workshop will include an overview of remote sensing (why, what, when, where, and how) as well as real life applications related to water temperature, riparian areas, aquatic habitat, geomorphology, and stream and wetland design and monitoring. This workshop assumes that participants have a basic knowledge of GIS concepts.

Boat motor maintenance 101 - jet and prop

Half Day; 8am-12pm
No Lunch Provided
Location: **Idaho Department of Fish and Game Idaho Falls regional office 4279 Commerce Circle, Idaho Falls**

Instructors: Patrick Kennedy and Brett High – Idaho Department of Fish and Game

Are you new to boat operation? Have you only worked on prop or jet boats? This workshop is geared towards anyone new to working on or operating boats. Part 1 will include an in-classroom presentation outlining the differences between jet and prop motorboats, general motor maintenance timelines and checklists, general gear checklists, and tips and tricks on when things go awry followed by Part 2, a hands-on learning experience looking at both prop and jet motors (lubing, removing props, trimming motors, replacing spark plugs, etc.).

WORKSHOPS: TUESDAY, MARCH 3rd

Aquaculture for biologists

Half day; 1pm - 5pm
No Lunch Provided
Location: **Snake River Event Center, Idaho Falls Room**

Instructors: Various hatchery personnel from around the state

This workshop will focus on how hatchery staff navigate from a stocking request to final fish release. Hatchery management personnel from around the state of Idaho will discuss the planning, implementation, and limitations of fish production. Topics covered will include growth and feeding projections, egg and fish enumeration, carrying capacities, costs, important aspects of different strains and species, and production timelines.

Tools for career success in a changing hiring landscape

Half Day; 1pm-5pm
No Lunch Provided
Location: **Shilo Inn, River and Temple View Rooms**

Instructors: A variety of professionals representing state, federal, non-profit, tribal, and consulting entities

This workshop will focus on changes in government work opportunities and how some of those changes are being compensated for by new opportunities in the nonprofit and private consulting sectors. Speakers will talk about changes in career opportunities in their sectors and how to have success with the changing environment of jobs. Following these presentations, speakers will form a panel allowing attendees to ask questions.

PLENARY SPEAKERS

Idaho's Working Fishscapes:

Idaho is blessed with some of the most incredible fishscapses across the world. These fishscapes not only provide 1000's of hours of recreational fishing but sustain a thriving agriculture, aquaculture and hydropower industry. However, our fishscapes need to work in balance with societal needs. The mission of the American Fisheries Society and the Idaho Chapter is to improve the conservation and sustainability of fishery resources and aquatic ecosystems by 1) advancing fisheries and aquatic science and 2) promoting the development of fisheries professionals. This plenary session is designed to understand the challenges and opportunities surrounding fisheries and water use in Idaho and help inspire fisheries professionals to work collaboratively for positive fisheries outcomes.

Water Management in Idaho

Mat Weaver

Idaho's system of water allocation and administration is rooted in the Idaho Constitution, which guarantees the right to appropriate the unappropriated waters of the state for beneficial use while authorizing the state to regulate and limit that use. Conflicts over water use in the late 19th century underscored the need for an orderly framework to record and administer water rights, leading the 1895 Idaho Legislature to establish the Office of the State Engineer, which, since 1974, has operated as the Idaho Department of Water Resources. This action marked the beginning of more than 130 years of legal water allocation and administration in Idaho. This presentation will provide an overview of the historical development of water allocation and water administration in the state, followed by a discussion of modern legal and administrative tools, including instream flow water rights and the conjunctive management of surface and groundwater resources. The presentation will conclude with examples from the Lemhi Basin, highlighting local efforts to balance agricultural water use with ecological function, particularly for fisheries and stream health.

Mat Weaver is a fourth-generation engineer with roots near the headwaters of the Missouri River and a lifelong connection to the landscapes and waters of the American West. Growing up in both rural and urban communities across the Pacific Northwest gave him a deep appreciation for the balance between people and natural resources. He holds degrees in engineering and hydrologic science—the latter from Boise State University—and is a licensed Professional Engineer. Mat serves as Director of the Idaho Department of Water Resources and Acting Administrator of the Idaho Soil and Water Conservation Commission, applying a practical approach to managing Idaho's natural resources. When not immersed in water policy, Mat enjoys the "Idaho lifestyle" with his wife and twin boys—camping, hiking, skiing, and flyfishing across the state's wild places.

PLENARY SPEAKERS

Idaho Water User Perspective
Paul Arrington

In its 90-year history, the Idaho Water Users Association (IWUA) has become a leading voice for water policy in Idaho. IWUA's rural and urban irrigation members represent over 94% of the water use in the state. In this presentation, we will discuss the secret to IWUA's success (hint: it's Collaboration) as well as the processes implemented to shape meaningful, pragmatic water policy in Idaho. S1083a (2025) regarding exempt domestic use well will be used as an example. In addition, we will talk about challenges facing Idaho's water community and how the state and water users are preparing to face the challenges of the future. In order to ensure the security and sustainability of Idaho's water resources, long into the future, it is critical that stakeholders get engaged and stay engaged.

Paul Arrington is Executive Director and General Counsel for the Idaho Water Users Association. Arrington graduated from Boise State University in 2002 with a Bachelor's of Science, Human Resource Management Emphasis. He then graduated in 2005 from the Gonzaga University School of Law and joined Barker Rosholt & Simpson LLP later that year, where his law practice focused largely on water and natural resource issues in Idaho and throughout the United States. In May, 2017, Arrington took over as the IWUA director. When not working, Mr. Arrington enjoys spending time with his wife, Michelle, and their four children. He enjoys running and cycling to clear his mind. Perhaps most remarkable, however, is that Arrington cuts his own hair!

Idaho Water Use Research, Collaboration and Priorities
Kendra Kaiser

Idaho Water Resources Research Institute (IWRRI) is Idaho's congressionally designated water research institute and part of a national network of 54 sister organizations in every state and territory. We lead applied water research, education, and outreach to meet state and regional water needs. We will share how IWRRI's partner-driven portfolio addresses pressing challenges such as water scarcity, water quality, data gaps, and basin-scale water planning, highlighting current projects on water budgets, water-quality concerns associated with managed aquifer recharge, and new data and tools for planning across Idaho's river systems. We will describe why fisheries professionals are essential partners for IWRRI and outline ways to engage—co-developing research questions, contributing data and field expertise, and helping translate science into policy — so that flow, temperature, and habitat needs for fisheries can be incorporated into Idaho's water management and policy decisions.

Kendra Kaiser is a watershed hydrologist and the Director of the Idaho Water Resources Research Institute. She has a BS in Soil and Water Science and Environmental Biology from Montana State University, and a PhD in Watershed Hydrology and Biogeochemistry from Duke University. She started her research career focused on spatial and temporal variability of hydrologic flowpaths and implications for vegetation and biogeochemistry in headwater catchments, and transitioned to focusing on human interactions in the hydrologic cycle during her PostDoc at Boise State with Lejo Flores. Since then she has sought to co-produce research with a range of stakeholders and partners to conduct data analysis and develop tools to support water managers and users across Idaho.

PLENARY SPEAKERS

An Aquaculture Perspective
Jesse Trushenski and Karen Henderson

Idaho is one of the country's leading producers of farmed fish in large part due to the water that discharges from the Eastern Snake Plain Aquifer in the form of springs on the north side of the Snake River between Milner and King Hill, commonly referred to as the Thousand Springs reach. Rainbow Trout have been raised commercially and for conservation and fisheries management purposes in Idaho since the early 1900s. The first fish hatcheries and farms used raceways for fish rearing. More than a century later, flow-through aquaculture remains a mainstay of Idaho fish culture operations. However, Idaho's landscape has changed over the last 100 years and demand for freshwater resources has grown considerably. The quantity and quality of water available for fish culture has declined. At the same time, fish hatcheries and farms are compelled to do more with less, striving to maintain or increase production to satisfy stocking requests and domestic seafood demand. In this presentation, Jesse Trushenski and Karen Henderson (both of the Riverence Group) will share the history of water access and use in Idaho aquaculture, the challenges of continuing to raise fish in a changing environment, the importance of proactive, long-term aquifer management, and how fish culture operations can prepare for the future.

Dr. Jesse Trushenski is the Chief Science Officer for Riverence, the largest producer of farmed Rainbow Trout and Steelhead in the Americas with operations based in Washington and Idaho. Jesse oversees a diverse range of research initiatives as the R&D Director for the Nordly group, a collection of Norwegian companies providing fish health products, feed, veterinary and environmental services to the salmon aquaculture industry worldwide. For both the Riverence and Nordly groups, she is responsible for helping find better ways to put fish on the table—to produce a better fish, to raise it sustainably and ethically, and to put wholesome seafood within everyone's reach She is a Past-President and Fellow of the American Fisheries Society and a Past-President of the US Trout Farmers Association. She currently serves as a board member for the National Fish Habitat Partnership and is President of the AFS Fish Health Section.

Karen Henderson is the Chief Legal Officer for the Riverence Group. She provides legal advice and strategic guidance, and manages the water rights, long-term water supply, real property transactions, due diligence, governmental affairs, corporate compliance, and other legal or regulatory matters. Prior to moving to Idaho, Karen was a partner at a law firm in Colorado and has been practicing law for over 18 years. While she prefers finding creative solutions to problems, her experience includes complex water rights negotiations and litigation, large ranch and agricultural land transactions, historical research on water rights and interstate river compacts, water quality matters, and developing long-term strategies to ensure a reliable water supply. Karen has spoken at conferences on water-related topics, including the "Interplay between Water & Environmental Law: and "[Western] Water Rights and Wetland Mitigation."

PLENARY SPEAKERS

A Tribal Perspective and Observations
Bobby Hills and Allison Lebeda

The Nez Perce Agreement (Agreement) finalized in the Snake River Basin Adjudication focused on balancing tribal treaty rights and resource stability for Idaho water users. The Tribe's Water Rights Administration Program was created to enact portions of the Agreement while the Water Exchange Program was developed to address litigation between various water users that the 2004 Agreement could not tackle at the time. As we know, water is the decisive key to life and the currency of the realm in the arid West. As scarce water supplies continue to dwindle, fisheries stocks will disappear if the fisheries community does not engage in water management and policy. Reduced snowpack, climate variability, increasing human development, prolonged hydrological drought, and intensifying reliance on groundwater supplies are just a handful of the challenges facing Idaho fisheries. Millions of dollars are spent annually on restoring fisheries habitat and augmenting flows only for said water to be legally or illegally appropriated. The Lewiston Orchards Project is a powerful example of how fish and people can both win when all stakeholders gather to generate solutions. Anyone can and should be involved in water management and policy, however, it is crucial that Fisheries Professionals are actively engaged. A future that finds a balance between societal needs and promoting fisheries is completely attainable if we work together.

Bobby Hills is the Water Exchange Project Leader for the Nez Perce Tribe Department of Fisheries Resource Management Watershed Division. He received his B.S in Fisheries Resource Management from Humboldt State University. He has worked for the Nez Perce Tribe for 25 years. He started at the Nez Perce Tribe as their Non-Point Source Coordinator in the Water Resources Division, then moved to a Watershed Restoration Specialist in the Watershed Division. Currently he is a project leader in the Watershed Division. The main projects he is focused on are the Lewiston Orchards Project in Idaho, the Wallowa Lake Dam rehabilitation in Oregon, and Hanford NRDA. He currently lives in Clarkston, WA with his wife Crescentia and 4 sons. When he is not pursuing water exchange projects, he can be found watching his sons play soccer and fishing.

Allison Lebeda is a Water Rights Program Coordinator for the Nez Perce Tribe's Water Resources Division with more than ten years of experience working in natural resources. She earned a B.S. in Natural Resource Management from Northland College in Wisconsin and a M.S. in Biology from Murray State University in Kentucky. In her current role, Allison works with a talented team to administer the Tribe's water rights, provide technical expertise in water disputes, and monitor instream flows throughout the Clearwater River Basin. She cares deeply about finding a balance between the needs of ecosystems and people to provide a better environment for her kids to enjoy and grow up in.

PLENARY SPEAKERS

Water and Fisheries Professionals and The Future of Instream Flow and Water Level Conservation

Christopher Estes

Access to water is essential to all life but is equally essential for utilitarian purposes such as power generation, agriculture, manufacturing, and construction. Although its global supply was once considered limitless, today's demands for water have far exceeded its availability in many settings. Fortunately, the public and not just the scientific community, now have a better understanding of the inherent ecological needs and associated benefits for retaining portions of water within rivers, lakes, estuaries, wetlands, and groundwater systems and the importance of balancing these needs with human-related uses. Fisheries professionals need to understand the interdisciplinary approach for water management and heathy fisheries and should strive to incorporate the eight main elements defined by the Instream Flow Council. These eight elements include five science elements (hydrology, geomorphology, biology, connectivity, and water quality components) in combination with the legal, institutional, and public involvement (including socioeconomical) considerations. Christopher will reflect on the insights provided by the plenary speakers and provide his own wisdom and experience from a career of working in the arena of instream flow and water level conservation to the formation of the 2006 National Fish Habitat Action Plan and will discuss efforts for the creation of a national center for ecologically sustainable water conservation and management.

Christopher Estes is a retired fisheries scientist and the former chief of the Statewide Aquatic Resources Coordination Unit for the Alaska Department of Fish and Game (ADF&G). He established ADF&G's Instream Flow Water Level Conservation (IFWLC) program. Christopher is currently principal of Chalk Board Enterprises, LLC which offers IFWLC scientific and technical support services. He is a co-founder of the Instream Flow Council and has served as its director at large since its formation in 1998. Estes received his M.S. from Washington State University, Pullman, WA in Environmental Science and B.A. from Prescott College, Prescott, AZ in Biology/Environmental Science. He has authored and co-authored numerous instream flow and water level conservation-related publications. Estes has been an AFS member since 1976 and spearheaded the development of the Western Division of the American Fisheries Society's first instream flow and water level-related conservation policy that was later modified and adopted as a national AFS policy.

ABSTRACTS

Idaho's working fishscapes

Wednesday March 4th

Session 1 – Talk 1 (1:40 PM)

A Win–Win for Farms and Fish: Flow Restoration and Irrigation Modernization on Canyon Creek

Will Stubblefield, will@tetonwater.org

Irrigation infrastructure modernization can be an effective tool for restoring streamflow, improving longitudinal connectivity, and increasing resilience of native salmonid populations while maintaining agricultural water supply. On Canyon Creek, a key tributary in the Teton River Canyon, targeted irrigation improvements restored seasonal flows, enhanced fish passage, and improved habitat connectivity for native Yellowstone cutthroat trout (YCT).

Friends of the Teton River (FTR), a nationally recognized leader in science-based watershed restoration, identified Canyon Creek as a high-priority tributary through long-term monitoring of discharge, temperature, and trout populations dynamics. These data demonstrated the creek's importance to population persistence and life-history connectivity within the Teton River watershed. Early habitat and passage projects built trust with local irrigators and established the foundation for a large-scale flow restoration effort initiated in 2020.

In partnership with the Canyon Creek Canal Company, FTR implemented a pilot project that culminated in the decommissioning of an aging irrigation canal and the seasonal return of up to 70 cubic feet per second of flow to Canyon Creek through a $4.8 million irrigation modernization project. Canal deliveries were replaced with new pumping infrastructure on the mainstem Teton River, improving water delivery efficiency and buffering producers against altered hydrographs. Restored flows reconnected Canyon Creek to the mainstem Teton River, substantially improving upstream and downstream passage and access to spawning and rearing habitats.

This project demonstrates how irrigation modernization, when guided by fisheries science and collaborative partnerships, can produce durable flow restoration outcomes and measurable benefits for native trout populations in working landscapes. "

Session 1 – Talk 2 (2:00 PM)

Fish Need Water, Water Needs Measured

Kasey Barney, KaseyB@nezperce.org

Streamflow monitoring is an important tool for management, research, and policy regardless of whether the focus is water quality, appropriation, flood mitigation, or habitat. Stemming from the Snake River Basin Adjudication, the Nez Perce Tribe's Water Resources Division is tasked with carrying out portions of the Snake River Water Rights Act of 2004, specifically ensuring compliance with over 200 instream flow water rights in the Salmon and Clearwater River Basins. Streamflow monitoring can be costly, labor-intensive, and not applicable to every site or question asked. Out of necessity to balance the program's goals with budget and staffing limitations, WRD has designed a four-tier gaging system to monitor the largest number of streams possible. These four tiers include the use of emerging technology, publicly available platforms, differing sampling intensities based on site characteristics, staff time, and desired knowledge, as well as various instruments suitable for any budget that can be applied to streams of all sizes. This approach is not novel but has allowed us to monitor 98 instream flow reaches and build inter- and external agency partnerships in less than three years. By sharing our approach, we hope to convey the feasibility for any program, any discipline, and any budget to collect streamflow and temperature data that can empower fisheries and other disciplines. Water drives everything in the West; the better we understand its limitations, the more prepared we will be for the future.

Session 1 – Talk 3 (2:20 PM)

Headwater Reservoir Flow Augmentation: Improving Juvenile Steelhead Habitat Availability in the Potlatch River Basin

Grace Peven, gpeven@uidaho.edu

"Diminishing summer streamflow is a primary limiting factor for ESA-listed juvenile steelhead (Oncorhynchus mykiss) across the Pacific Northwest. Reduced summer baseflows degrade rearing habitat through elevated temperatures, hypoxic conditions, and loss of connectivity. While process-based restoration (PBR) is increasingly used to address these issues, PBR alone may be insufficient where climate and land use change have substantially reduced watershed-scale water quantity.

This study evaluated the effectiveness of flow augmentation from a headwater reservoir in restoring perennial flow and improving summer rearing habitat for wild steelhead in the Potlatch River, Idaho. Beginning in 2015, IDFG initiated a pilot project using water releases from Spring Valley Reservoir to maintain baseflow across an 18-km downstream reach. Over two seasons (2015–2016), we monitored the effects of these augmented flows on habitat conditions and juvenile survival rates. In 2015, a before–after control–impact (BACI) analysis confirmed that flow augmentation yielded a 94.5% net increase in discharge compared to control sites, subsequently raising dissolved oxygen by 6.2 mg/L. In 2016, control site flows dropped by 56% over the summer, while augmented reaches remained relatively stable with only an 11% loss. Most critically, juvenile steelhead survival rates were 90% higher in the second year of augmentation (2016) relative to the 10-year average. Our findings suggest that baseflow augmentation from headwater reservoirs can effectively restore perennial flow and suitable rearing habitat over large stream distances for ESA-listed steelhead. In addition to presenting our findings, we will discuss opportunities and implementation challenges when considering headwater reservoir augmentation.

Idaho's working fishscapes
Wednesday March 4th

Session 1 – Talk 4 (2:40 PM)
Administering Minimum Streamflows in Idaho with Voluntary, Market-Based Water Transactions
John Loffredo, john.loffredo@idwr.idaho.gov

Since its adoption across the western United States in the late nineteenth century, the prior appropriations doctrine has shaped water allocation. Until the late twentieth century, instream flow was not considered a beneficial use. In Idaho, concerns over interstate water projects in the 1970s and federal Endangered Species Act actions in the early 2000s prompted policymakers to develop a framework for protecting non-consumptive instream flows.

For nearly 30 years, the Idaho Water Resource Board and partners—including irrigators, federal, state, tribal, and nonprofit entities—have worked through the Upper Salmon Basin Watershed Program (USBWP) to design and fund voluntary, market-based water transactions. These tools incentivize legally administrable minimum streamflows within Idaho water law. To date, Idaho's water transaction mechanisms have restored more than 700 cfs of instream flow and maintained connectivity on 26 salmon-bearing streams through 45 active transactions. With flows secured, USBWP partners also implement habitat restoration and barrier-removal projects, often supported by permanent easements or long-term agreements.

The Upper Salmon River Basin, a 6,000-square-mile region of rugged mountains and broad valleys in east-central Idaho, once supported 45% of Snake River spring Chinook salmon production. However, flood-irrigated agriculture, floodplain development, habitat simplification, and diversion infrastructure have disrupted hydrologic and geomorphic processes. Private landownership in key recovery areas and water law incentives to use available flows further complicate restoration.

To reduce conflict between irrigation demands and instream needs, the Idaho Water Resource Board established the Idaho Water Transactions Program to legally protect streamflow. Success in the Upper Salmon Basin stems from adjudicated water rights, active administration, state-run water banking, supportive funders, willing water users, and a collaborative watershed effort that integrates flow protection with habitat restoration.

Session 1 – Talk 5 (3:20 PM)
Evaluating approaches to flow ramp-down in a complex floodplain system
Alex Stacy, alexstacy@isu.edu

Abrupt changes in flow regimes, particularly those driven by dam operations, can have significant ecological consequences. These impacts are especially pronounced in systems with complex floodplain habitats, where abrupt flow reductions can disrupt connectivity and ecological function. The Upper Snake River, below Jackson Lake Dam, is reduced annually from high summer flows to winter base flows over 4-5 days, restricting available aquatic habitat and stranding fish and macroinvertebrates in side channels. Water and resource managers seek recommendations for fall ramp-down protocols that result in less stranding and loss of native fish (e.g., cutthroat trout) and macroinvertebrates. We address this complex problem by using a cross-disciplinary approach that utilizes both hydrological modeling and ecological investigations to assess the impacts associated with two different years of scheduled ramp-down events. Our study aims to identify how mortality and habitat loss vary in relation to the magnitude and rate of flow changes. During the first and second year of the study, we observed substantial stranding of non-salmonid larval fishes and macroinvertebrates, on the order of thousands and hundreds of thousands of individuals, respectively. While no major direct effects on cutthroat trout were observed during either ramp-down, we are assessing indirect impacts due to the loss of larval fishes and macroinvertebrates as critical food sources. Preliminary analyses suggest a disproportionate concentration of stranded fishes and macroinvertebrates in side channel habitats. Our analyses of potential differences in responses between the two years are ongoing. By improving flow management practices, we aim to enhance the resilience and sustainability of the Upper Snake River's aquatic ecosystems.

Session 1 – Talk 6 (3:40 PM)
Paris Hydroelectric Project Decommissioning and Stream Flow Restoration
Mark Stendberg, Mark.Stenberg@pacificorp.com

PacifiCorp in 2025, decommissioned the 715-kilowatt (KW) Paris Hydroelectric Project (Project) in Bear Lake County, Idaho. Diversion of water from Paris Creek through 4 miles of earthen canal was ceased on September 16, 2025. In preparation for decommissioning, several agreements were put in place that described decommissioning activities and commitments among the parties. Paramount among these agreements was the Paris Creek Restoration Agreement (the Agreement) between PacifiCorp and the Bear River Hydroelectric Project Environmental Coordination Committee (ECC) that recorded commitments to support the Paris Creek restoration vision. The Agreement described decommissioning the Project, an action that restored stream flows to 3.5 miles of Paris Creek to benefit native fish and other aquatic resources. To support decommissioning, Trout Unlimited coordinated multiple funding sources and the construction of a new point of diversion for senior irrigation water rights. In addition, multiple funding sources supported replacement of two stock water systems for ranchers that formerly watered stock from the canal. The hydropower decommissioning activities included removal of the headwater diversion structure and grading the canal on Forest Service property, removal of the forebay at the end of the canal, and removal of the penstock and tailrace structures along with the generation equipment. Another important associated project was the replacement of two road crossings over Paris Creek by the U.S. Forest Service and Bear Lake County to improve aquatic organism passage. The effects of decommissioning activities on aquatic resources are being monitored.

Session 1 – Talk 7 (4:10 PM)
Physical and Administrative Water Availability for Storage on the Teton River
Rob Van Kirk, rob@henrysfork.org

June 5, 2026 marks the 50th anniversary of the failure of Teton Dam, designed to store 285,250 ac-ft for agricultural irrigation in the upper Snake River basin. Rebuilding Teton Dam is a current discussion topic, as policymakers seek to store water that currently spills at Milner Dam and expand water available for irrigation. This study assesses the availability of physical and administrative water for storage at Teton Dam, assuming current water supply, demand, policy and administration. Using a river-reservoir model with water supply and demand inputs from irrigation years 2000–2024, I simulated 25 years of Teton Dam operation for reservoir capacities ranging from 20,000 to 300,000 ac-ft. The model assumed water rights in Teton Reservoir were junior to existing rights, the only beneficial use allowed was managed aquifer recharge (MAR), and the reservoir was managed to capture spring runoff and release available water for MAR during the winter. Results indicate that the maximum reservoir size that can be reliably filled is around 200,000 ac-ft and that the reservoir will store water available for new uses in only around 50% of all years. On average, this new water is 12% of the State's annual MAR goal, and the cost of storing it is 30¬–100 times the current value of MAR water. In addition to the high economic cost of building a dam that achieves its purpose only half the time, operations will result in reservoir and river hydrographs that will favor nonnative fish over native Cutthroat Trout.

Session 1 – Talk 8 (4:30 PM)
Distribution, abundance, and movement of Yellowstone Cutthroat Trout in the upper Blackfoot River, Idaho
Noah Frost, nfrost@uidaho.edu

Yellowstone Cutthroat Trout Oncorhynchus virginalis bouvieri (YCT) is an ecologically and culturally important subspecies of Cutthroat Trout that has declined in distribution and abundance throughout its native distribution. The upper Blackfoot River, Idaho, historically supported a robust population of YCT but current knowledge on abundance and population dynamics are limited throughout most of the system. We used drift boat electrofishing to sample 4,686 YCT at 59 sampling reaches in the mainstem Blackfoot River upstream of Blackfoot Reservoir. Captured YCT were enumerated, measured (total length), and implanted with a passive integrated transponder (PIT) tag before being released. We installed five PIT arrays throughout the study area to document movement of tagged individuals. Yellowstone Cutthroat Trout were present at all sampled reaches. Density estimates were highest in the upper river (e.g., 393 YCT/km) and lowest in downstream reaches (e.g., 161 YCT/km). The proportion of small YCT (i.e., < 300 mm TL) captured was highest in the upper and lowermost reaches, whereas the proportion of large fish (i.e., > 300 mm TL) was highest in a deep (mean ± SD, 0.75 ± 0.34 m) middle section of river. Of the 3,356 PIT-tagged YCT, 46% were detected at stationary PIT antennae. Sixty-eight percent of detected individuals migrated downstream. Thirty-two percent of fish made distinct upstream or multidirectional migrations during summer. Our results suggest that YCT are ubiquitous in the system and most abundant in reaches with suitable habitat. In addition, our data suggest that both migratory and non-migratory life history forms are present.

Refining methods
Wednesday March 4th

Session 2 – Talk 1 (1:40 PM)
Assessment of sampling techniques for Bear Lake Sculpin in Bear Lake Idaho-Utah
Ethan Orach, eorach@uidaho.edu

Bear Lake, Idaho-Utah is a unique system that supports four endemic fishes, along with a suite of native and nonnative species. Although research on the food-web dynamics of Bear Lake was conducted in the 1990s, little is known about the current structure of the food web. The purpose of this study was to describe food-web structure and characterize the trophic position of aquatic taxa in the Bear Lake system. Tissue samples were collected during 2025 from 12 fish species, zooplankton, crayfish, and macroinvertebrates. Stable isotopes of 13C and 15N were analyzed to provide insight on energy resources (pelagic versus littoral; 13C) and trophic position (15N). In total, 814 tissue samples were analyzed. Nonnative Lake Trout Salvelinus namaycush across all length classes exhibited the highest δ ^15 N (i.e., top predator) of all taxa examined. The four endemic fishes occupied intermediate trophic positions. A narrow δ^13 C space was observed, suggesting low diversity in energy pathways and small individual niche areas. We did not observe clear patterns in δ^13 C or δ^15 N with total length. The only exception was Bonneville Whitefish Prosopium abyssicola which showed a positive relationship with 13C ($r^2 = 0.59$, $p < 0.001$) and 15N ($r^2 = 0.66$, $p < 0.001$). Results of this research suggest that Bear Lake has a simple food web with high potential for competition among fish species. The isotopic analysis provides a baseline for Bear Lake's food web that can guide management decisions in the future.

Session 2 – Talk 2 (2:00 PM)
Trophic relationships among invasive Silver Carp (Hypophthalmichthys molitrix) and native fishes in the lower Mississippi Alluvial Valley
Bailey G. Pentz, bailey.pentz@idfg.idaho.gov

Since their introduction in the 1970s, invasive Silver Carp (Hypophthalmichthys molitrix) have significantly impacted aquatic ecosystems throughout the Mississippi River watershed. Anthropogenic factors such as modifications to stream connectivity and climate change-driven shifts in hydrology and temperature have facilitated the expansion of these highly invasive fish. Despite their spread in Louisiana waterbodies, the effects of Silver Carp on the trophic ecology of native species and food web dynamics in the lower Mississippi River (LMR) remain poorly understood. As efficient planktivores, Silver Carp directly compete with native planktivorous species, potentially altering the abundance and composition of forage available to both native planktivores and piscivores. Additionally, their grazing activities can disrupt nutrient cycling, water clarity, and primary production, leading to ecosystem imbalances in sensitive habitats. Therefore, we used stable isotopes from fish collected in fall of 2022 through fall 2024 to investigate trophic relationships among Silver Carp and several native fishes commonly found throughout southeastern watersheds. Preliminary results indicated a significant trophic niche overlap between Silver Carp with Bigmouth Buffalo (Ictiobus cyprinellus), Gizzard Shad (Dorosoma cepedianum), and Striped Mullet (Mugil cephalus). This underscores the urgent need for research to evaluate their trophic interactions, food web impacts, and broader ecological impacts. Developing effective management strategies is crucial to mitigating the ecological disruptions caused by Silver Carp and preserving biodiversity and ecosystem health in southern river drainages.

Session 2 – Talk 3 (2:20 PM)
The Effects of Introduced Species on the Snake River Aquatic Community and Food Web
Marika Dobos, marika.dobos@idfg.idaho.gov

Most large river environments in the west have been drastically altered since the turn of the century. The most notable changes to these environments resulted from construction of dams for water storage, power generation, and navigation. Impoundment of large rivers results in drastic changes in physical properties from a free-flowing system such as slower flow, thermal gradients, chemical shifts, sediment accumulation, and nutrient enrichment. Changes in physical characteristics can result in changes in aquatic community dynamics, especially when nonnative species are introduced into these altered environments. Reservoirs facilitate invasions and establishment of nonnative species that can result in competition for resources important to native species. Nonnative species that can thrive in reservoir environments can also pose high predatory risk to native species that are vulnerable in these highly altered environments. Large, impounded rivers in the west have experienced drastic changes in their aquatic communities across all trophic levels. Notable nonnative species that have established and are expanding their distribution in western rivers include American Shad (Alosa sapidissima), Smallmouth Bass (Micropterus dolomieui), Walleye (Sander vitreus), Opossum Shrimp (Neomysis mercedis), and more recently, Siberian Prawns (Palaemon modestus). This presentation aims to shed light on the shifting food web dynamics of the Snake River and the potential resource competition and predation risks to native species.

Refining methods
Wednesday March 4th

Session 1 – Talk 4 (2:40 PM)
Revised length standards for inland salmonids: tools for establishing meaningful index values
Michael Quist, mcquist@uidaho.edu

Proportional Size Distribution (PSD) is a simple index used to summarize length data that is easily communicated, provides insight on fish population dynamics (e.g., growth, recruitment), and is often used to establish management objectives. However, the current length categories for Cutthroat Trout Oncorhynchus clarkii and Rainbow Trout O. mykiss are so large for these two species that they are of limited use for most populations throughout western North America. In addition, length categories have not been proposed for Mountain Whitefish Prosopium williamsoni. We sought to provide new length standards for Cutthroat Trout, Rainbow Trout, and Mountain Whitefish. We compiled data from nearly 3 million fish across the western United States. We first placed each fish into its respective ten-digit Hydrological Unit Code (HUC10). We obtained the maximum length (all lengths are total length) for each HUC10 by species and then identified the 99th percentile of the maximum lengths. The species-specific 99th percentile value was then used to estimate potential length standards for each length category. For Mountain Whitefish, we used the current world-record length as the basis for estimates. We compared PSDs calculated using existing and revised length standard to provide insight on potential issues with the proposed values. Revised values provided more meaningful estimates of PSD for Cutthroat Trout and Rainbow Trout than existing values. No concerns were evident with PSD values estimated for Mountain Whitefish using the proposed length categories. The length standards presented here will provide fisheries scientists with tools to aid in the study and management of inland salmonids.

Session 2– Talk 5 (3:20 PM)
Oxbow Fish Hatchery Renovation: Idaho Power Company's Dedication to Providing Fish for the Future
Riley Brown, rbrown@idahopower.com

Idaho Power Company constructed Oxbow Fish Hatchery in 1961 in response to the Federal Energy Regulatory Commission's mitigation requirements following the construction of the Hells Canyon Complex. The construction of this complex, consisting of Brownlee, Oxbow, and Hells Canyon Dams, began in the 1950's. Oxbow Fish Hatchery originally served as an adult holding, spawning, incubation, and early rearing facility for Snake River Fall Chinook salmon returning to Hells Canyon. Eventually, Idaho Power's fall Chinook mitigation program was moved offsite, and the primary role of Oxbow Hatchery changed to a sorting, spawning, and incubation facility for steelhead. The facility has operated as such for decades, but ageing infrastructure and the need for future expansion to satisfy new operating license requirements in Hells Canyon led Idaho Power to pursue a full renovation of the site. The new facility features state of the art fish mobilization and handling techniques using electric crowders, a two-story fish lift, and an electro-anesthesia unit. This new automated system will allow the small Oxbow Fish Hatchery staff to handle large quantities of fish quickly and efficiently while sorting broodstock or distributing fish to local tribes or fisheries.

Session 2 – Talk 6 (3:40 PM)
Spinal injuries and capture efficiency for riverine Rainbow Trout captured with backpack- and barge-mounted electrofishers
Kevin Meyer, kevin.meyer@idfg.idaho.gov

We evaluated frequency and severity of spinal injuries for Rainbow Trout (≥ 200 mm total length) captured in an intermediate-sized wadeable river using three backpack electrofishing units or a barge-mounted unit set at 20 or 30 Hz. Catch-per-unit-effort (CPUE; fish/min) was also assessed at 20, 30, and 60 Hz. A portable x-ray unit was used to assess spinal injuries. At 30 Hz, spinal injury rates were equivalent for backpack (23.6%) and barge (23.8%) electrofishing units, whereas at 20 Hz, injury rate was lower for the barge unit (8.3%) than the backpack units (20.0%). Spinal injury rates were highest for intermediate-sized fish and declined for smaller and larger fish. Nearly half of the fish exhibiting spinal misalignments or fractures had no associated vertebrae compressions, and the average number of compressed vertebrae was twice as high for fish exhibiting only spinal compression injuries compared to fish that also exhibited misalignments or fractures. For the barge, CPUE was equivalent (1.77 – 1.81 fish/min) across all pulse frequencies, whereas for the backpack units, CPUE at 60 Hz was equivalent to the barge unit, at 1.81 fish/min, but CPUE declined to 1.45 fish/min for 30 Hz and 0.66 fish/min for 20 Hz. Our results provide further evidence that lowering pulse frequency below 60 Hz diminishes spinal injuries but also capture efficiency, creating a data collection tradeoff for biologists. This tradeoff is not evident when using the barge unit because, although spinal injuries are reduced at pulse frequency < 60 Hz, capture efficiency is apparently not.

Refining methods
Wednesday March 4th

Session 2 – Talk 7 (4:10 PM)
Rapid Assessment Methodology for Zooplankton in Idaho: A Comparison of Lakes and Methods
Brianna Decora, bfrazee@uidaho.edu

Zooplankton are critical intermediary trophic resources in lentic food webs linking primary production to higher trophic levels and influencing fish recruitment, growth, and overall system productivity. Despite the importance of zooplankton, routine monitoring remains challenging for fisheries managers. Traditional sampling and enumeration methods are labor-intensive, time-consuming, and require substantial taxonomic expertise, thereby limiting their feasibility for routine monitoring programs. Volumetric approaches offer a rapid, low-cost alternative for estimating zooplankton biomass, with size-fractionated settling volumes providing insight into community structure and prey availability for planktivorous fishes. To evaluate the efficiency and accuracy of a rapid assessment technique, 295 zooplankton samples were collected from 21 lakes and reservoirs across Idaho during summer 2024. Samples were analyzed using both the traditional taxonomic counting method and a rapid volumetric technique to compare time investment and analytical performance. Mean sample processing time was reduced by more than 60% using the rapid method (mean ± SD; 26.1 ± 11.5 min) compared to the traditional approach (70.4 ± 30.1 min). The rapid method effectively sorted zooplankton by body width and produced biovolume estimates and size-class patterns comparable to those derived from traditional counts across lakes. While results were generally consistent across systems, method performance exhibited some taxon-specific limitations, particularly in oligotrophic systems. Overall, the volumetric approach offers a more efficient alternative to traditional methods, producing equivalent results while requiring fewer assumptions, lower cost and labor, and no taxonomic expertise.

Session 2 – Talk 8 (4:30 PM)
Using Morphometric Analysis to Identify Differences Among Bull Trout Populations
Patrick Catalano, patrick.catalano@usda.gov

Bull Trout Salvelinus confluentus are an Endangered Species Act-Listed species. They have declined in recent years due to habitat fragmentation and degradation. Loss of stream connectivity can lead to fish populations becoming separated from historical ranges and over time, developing unique physical traits. Morphometrics is the study of the shape and size of living organisms, which can identify differences among populations. This exploratory study looked at morphometric differences among populations of Bull Trout on the Salmon-Challis National Forest. We electrofished Bull Trout from different tributaries of Panther Creek, the Salmon River, and the Lemhi River. Fish were photographed using a photarium and released. Measurements of physical landmarks of the fish, such as length of caudal peduncle, and head height were measured using ImageJ software. Ratios were calculated to determine relative differences between populations despite having different sizes of fish. This included relative position of the eye, relative height of the body, and relative length of caudal peduncle. Significant differences were found between six populations of Bull Trout. Further research is needed to tease out specific stream differences and potential effects of other abiotic factors such as water temperature, stream gradient, and flow. The results from this study can help with prioritizing streams for habitat restoration.

Adding anglers to the equation
Thursday March 5th

Session 3 – Talk 1 (8:20 AM)
Monitoring the Kootenai River Burbot Fishery
Aaron Black, aaron.black@idfg.idaho.gov

Burbot were historically abundant in the Kootenai River basin, are culturally significant to the Kootenai Tribe of Idaho, and once supported recreational and commercial fisheries. The Burbot fishery in the Idaho portion of the Kootenai River was closed in 1992 due to a dramatic collapse of the population. Starting in 2009, a conservation aquaculture program was initiated by the Kootenai Tribe of Idaho. Due to the hatchery stocking success, the Burbot fishery in the Idaho portion of the Kootenai River was reopened in 2019 after a 27-year closure. It was essential that the fishery be closely monitored after reopening to avoid adverse effects to the population. Idaho Department of Fish and Game's (IDFG) Tag-You're-it! program was used to monitor exploitation in addition to a traditional creel survey. The creel survey was discontinued after two years because of logistical challenges required to monitor this unique fishery that occurs mostly during nighttime hours. Use of the Tag-You're-It! program continued and the Kootenai River Angler Science Program (KRASP) was implemented in 2022. Together, these monitoring methods allow IDFG to passively gather biological data in addition to generating harvest estimates and identify hatchery contributions to the fishery. In 2024, a traditional creel survey was conducted in conjunction with the KRASP and harvest estimates between these two methods were in close agreement. Using the Tag-You're-It! Program and the KRASP, harvest was estimated at 178 (95% bootstrap CI [101, 823]) compared to an estimate of 219 (95% CI [168, 270]) produced from the traditional creel survey.

Session 3 – Talk 2 (8:40 AM)
Where's Waldo..with a rod? Tracking angler distribution in a reservoir
Lauren Allex, allexl@lopers.unk.edu

Lake Ogallala is a hydrologically dynamic tailwater reservoir located downstream of the Kinsley Dam that supplies water to a supply canal and the North Platte River for irrigation and hydropower. The Nebraska Game and Parks Commission (NGPC) manages Lake Ogallala as a put-grow-take trout fishery, stocking approximately 20,000 trout biannually into the reservoir, while accounting for entrainment into both the canal and river, thus providing three distinct fishing opportunities within this system. However, little is known about the relative effort and harvest rates in each of these three locations. The objective of this study is to compare angler effort and catch and harvest rates of Rainbow and Cutbow trouts between Lake Ogallala, the canal, and the North Platte River. A roving creel consisting of counts and interviews was conducted 10 days per month (6 weekdays and 4 weekends) for 13 months beginning in October 2024. Preliminary results indicate that angler effort and catch rates increased during the summer months across all three locations. Most anglers were counted fishing at Lake Ogallala; however, more trout were caught in the canal. Information on the spatial distribution of anglers and catch can be used to inform agency stocking strategies and to market the fishery in ways that maintain or improve angler satisfaction.

Session 3 – Talk 3 (9:00 AM)
Incorporating angler perspectives and ecological evidence to inform management of non-native fish interactions with native Yellowstone Cutthroat Trout in the Teton River Basin
Lucas Ellingson-Cosenza, lucasellingsoncos@isu.edu

Management actions, such as removals of nonnative species can create tension between fisheries managers and anglers. One such context occurs in the Teton River drainage, where Yellowstone Cutthroat Trout (YCT) (Oncorhynchus clarkii bouvieri) are a native species imperiled due to habitat degradation and negative interactions with nonnative trout. In particular, Rainbow Trout (RBT) (Oncorhynchus mykiss) are considered a major threat due to their hybridization with YCT which decreases genetic integrity of pure YCT populations, while competition with nonnative Brook Trout (Salvelinus fontinalis) is also of concern. In this context, we are integrating social research with ecological field studies and long-term data. I conducted semi-structured interviews with Teton River anglers and fisheries managers to explore their perceptions of YCT conservation and management approaches to mitigate invasive species impacts, as well as the "tension" that I have observed in initial interviews. My interviews will be coded into network mental models of both groups' perspectives. I have conducted ecological research focused on Badger Creek, a Teton River tributary that received rotenone treatment in fall 2025 to remove its high RBT numbers. I am evaluating ecological assumptions underpinning this removal that may help in predicting its ecological outcomes. I also will draw on long-term, drainage-wide species distribution modeling based on electrofishing and eDNA to determine if there is evidence for additional locations that might be priorities for future removal efforts. Considering angler opinion along with ecological research may contribute to creating a comprehensive management approach to preserving YCT populations within the Teton River drainage.

Adding anglers to the equation

Thursday March 5th

Session 3 – Talk 4 (11:00 AM)

They eat trout, don't they? Long-term changes in angler behavior in the Big Wood River trout fishery

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The Big Wood River is one of Idaho's premier wild-trout fisheries and has long been renowned for producing quality wild trout fishing opportunity. In 1990, regulations governing harvest in this fishery changed substantially, shifting from harvest-friendly to harvest-restrictive structure. Since this change was implemented, biologists have observed marked increases in trout density, declines in growth rates, and diminished size structure in this population. Quality-sized trout have become extremely rare, and anglers have voiced frustration with the lack of trophy quality in the fishery. As a result, managers have recognized a need to investigate the feasibility of restructuring fishing rules to help restore fishery quality. As part of a larger research project, a large-scale angler creel survey was conducted over the 2024-2025 fishing season to evaluate current performance of the Big Wood River trout fishery, evaluate angler satisfaction and preferences, and inform management decisions. This survey uncovered substantial changes in angler behavior compared to the era before restrictive regulations were implemented. Namely, a shift from harvest-oriented angling to primarily catch-and-release practices has effectively eliminated trout harvest in the system. We examine these changes, their consequences in terms of fish population health, and what it all means for management of the fishery going forward.

Session 3 – Talk 5 (11:30AM)

A state-space model for estimating fishing and natural mortality using live mark-recapture and dead mark-recovery data

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The objectives of this study were to develop joint tag-recovery models that make use of both live and dead tag-recovery data to estimate fishing and natural mortality and allow for evaluation of hypotheses at the individual fish scale. Such models are useful for fisheries that have relatively high rates of catch-and-release fishing in addition to harvest. The accuracy of the models was assessed using simulation techniques. Additionally, models were fit to data from four fisheries in Idaho Idaho including, Smallmouth Bass Micropterus dolomieu in Dworshak Reservoir and Lake Pend Orielle, Yellow Perch Perca flavescens in Cascade Reservoir, and Lake Trout Salvelinus namaycush in Priest Lake. The simulation results suggested that the state-space models were relatively unbiased and the models that used both live and dead tag recoveries were more accurate than models that only used harvest data. Estimated natural mortality was greater than fishing mortality at all four fisheries in the study. The state-space models described in this study provide a framework to estimate demographic parameters that is more flexible than previously published instantaneous rate models. The models are easily extensible to evaluate numerous hypotheses or accommodate additional data that can greatly benefit management or conservation of fisheries with concurrent harvest and catch-and-release components.

Managing incompatible species
Thursday March 5th

Session 4 – Talk 1 (8:20 AM)
A successful alternative to traditional vertical-style fish passage barriers
Robert Gregory, robegreg16@gmail.com

Interactions between native and introduced species can be deleterious for native species. There is often a need to isolate the two species to prevent the replacement of the native populations. In the Little Lost River Basin, there are ten local Bull Trout Salvelinus confluentus populations, many of which are at risk of being replaced by introduced Brook Trout S. fontinalis. This is the case with the Warm Creek Bull Trout population. Warm Creek presented an opportunity to evaluate a new type of horizontal barrier in a location where topography precluded the use of a traditional vertical barrier. In the fall of 2023, the horizontal barrier was placed in the lower end of Warm Creek to prevent upstream passage of Brook Trout. We evaluated the effectiveness of the barrier in 2024 and 2025 by releasing marked Rainbow Trout Oncorhynchus mykiss, Brook Trout, and Brook Trout x Bull Trout hybrids below the barrier and then looking for marked fish upstream of the barrier. No marked fish were detected upstream of the barrier, indicating that the barrier effectively prevented upstream fish passage. Given the results of this study, managers in the Little Lost River basin working to control Brook Trout will continue to use this type of barrier in locations where the use of a vertical barrier is not possible. This new type of horizontal barrier appears to be another tool that can be used effectively for native trout conservation, in addition to traditional, vertical-style fish barriers.

Session 4 – Talk 2 (8:40 AM)
Electrofishing Suppression of a Non-native Walleye Population
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The Idaho Department of Fish and Game (IDFG) has taken an aggressive management stance to suppress a non-native Walleye population in the Pend Oreille basin of northern Idaho. After an exponential growth trend was observed during 2017 Fall Walleye Index Netting (FWIN), a suppression program was initiated. Commercially contracted spring gill netting began in 2018 with the goal of reducing adult walleye densities to 2014 levels. Despite suppression netting and incentivized angling, Walleye CPUE in the 2023 FWIN again reached an all time high. IDFG has utilized acoustic telemetry data to identify spawning aggregations during the early April, thus informing netting locations. Routinely low netting CPUE at the mouth of the Clark Fork River, one of the spawning aggregations, led IDFG to further investigation of the movement data. A mismatch between upstream movement by acoustic tagged Walleye and the timing of suppression netting at the Clark Fork delta was documented in 2023 and 2024, prompting IDFG to explore the feasibility of targeted boat electrofishing in the Clark Fork River during April of 2025 as a suppression method. During two nights of boat electrofishing a total of 53 adult Walleye were captured and removed from the Clark Fork River including more fish >700 mm than were captured during 2025 commercial gill netting efforts. Evaluation of electrofishing efforts in 2026 aims to analyze environmental variables influencing CPUE to further enhance the efficacy of Walleye suppression in the Pend Oreille system.

Session 4 – Talk 3 (9:00 AM)
Chemical Removal of Rainbow Trout in Lower Badger Creek (Teton River Drainage) to Support Yellowstone Cutthroat Trout Recovery
Nathan Tillotson, Nathan.Tillotson@idfg.idaho.gov

Non-native trout such as Rainbow Trout (RBT) Oncorhynchus mykiss are the greatest threat to healthy Yellowstone Cutthroat Trout (YCT) Oncorhynchus virginalis bouvieri populations in the Teton River drainage. In the Teton River, the fish community upstream of Felt Dam is comprised mainly of non-native trout. However, the trout community between Felt Dam and the Teton Dam site (Teton Canyon) remains dominated by native YCT. Badger Creek joins the Teton River approximately 1.3 km downstream of Felt Dam in Teton Canyon. The Lower 6.8 km of Badger Creek flows year-round, but the reach upstream of this section is ephemeral. The lower 6.8 km of Badger Creek has been home to the only major source population of RBT in the Teton Canyon (2,834 RBT/km), while the upper reaches of Badger Creek above the ephemeral section remain resistant to RBT establishment. The confluence of Badger Creek and the Teton River is only 1.6 km upstream of the confluence of Bitch Creek, which is a known stronghold and important habitat for YCT production in the Teton River. The established source population of RBT in Badger Creek poses a major threat to the spawning population in Bitch Creek and the genetic integrity of YCT in the Teton Canyon. The objective of this project was to reduce threats to YCT by substantially reducing RBT abundance, thereby providing YCT the opportunity to re-establish in lower Badger Creek. To accomplish this, we conducted a piscicide (rotenone) application in lower Badger Creek in October 2025.

Managing incompatible species
Thursday March 5th

Session 4 – Talk 4 (11:00 AM)
Integrating Electrofishing Suppression and YY Male BK Stocking on Two Isolated Idaho Brook Trout Populations: It Worked!
Dan Schill, dschill@fishmgmtsolns.com

Eradication of invasive Brook Trout from stream ecosystems is often constrained by the inefficiency of electrofishing alone and limitations of piscicide use. The YY male (Trojan Y chromosome) approach has been proposed as a tool to accelerate eradication by shifting population sex ratios toward males, but field-scale validation and evaluation of biological risks remain limited. We evaluated the effectiveness of integrating sustained electrofishing suppression with annual stocking of hatchery-produced YY male Brook Trout in two headwater streams in central Idaho. We also tested whether density-dependent sex change (DDSC) could compromise eradication as female abundance declined.
Wild Brook Trout populations were intensively suppressed for 3–4 years prior to YY male stocking and annually thereafter. All fish sampled for genetic analyses were evaluated for phenotypic sex under laboratory conditions and genotyped using validated sex-specific SNP markers incorporated into a GTseq panel. Greater than 98% of individuals with definitive phenotypic sex assignments exhibited concordance with genetic sex, and no persistent mismatches were observed following re-examination, providing no evidence of DDSC.
Following initiation of YY male stocking, genetic data generated by GSI demonstrated that YY males were successfully reproducing and sex ratios subsequently skewed rapidly toward males, reaching 100% male within six years of stocking initiation in both streams and coincident with complete elimination of wild females. Growth, survival, and reproductive contribution of YY males were comparable to wild males. Our results demonstrate that electrofishing suppression and YY male stocking can eradicate Brook Trout within a management-relevant timeframe and that sex phenotype instability is unlikely to limit this approach.

Session 4 – Talk 5 (11:30 AM)
Food Habits of Non-native Northern Pike in Lake Pend Oreille, Idaho
Luke Anderson, lmanderson@uidaho.edu

Northern Pike Esox lucius were introduced to the Lake Pend Oreille, Idaho, system in the 1970s but existed at low densities until 2017. Concerns arose regarding the potential influence of an increasing Northern Pike population in Lake Pend Oreille due to the lake's high ecological and recreational value. Northern Pike were sampled monthly using experimental gill nets from March to November, 2025, to assess diet composition. Stomach contents from captured Northern Pike were removed in the field using pulsed gastric lavage and later identified. In total, 436 Northern Pike were sampled. Fish varied in length from 299 mm to 1,173 mm and from age 1 to age 7. Around half of the sampled Northern Pike had at least one prey item in their stomachs. Eighteen prey taxa were present in the stomach samples and Yellow Perch Perca flavescens, Black Crappie Poxomis nigromaculatus, whitefishes (Lake Whitefish Coregonus clupeaformis, Mountain Whitefish Prosopium williamsoni), and kokanee Oncorhynchus nerka were the most common taxa in Northern Pike stomachs. Yellow Perch dominated the diets of small Northern Pike (<530 mm), whereas whitefishes, kokanee, and catostomids were important to the diets of medium (530 mm < 710 mm) and large (>710 mm) Northern Pike. Two Westslope Cutthroat Trout O. lewisi and one Bull Trout Salvelinus confluentus were observed in the stomach samples. Results from this study provide insight on the ecology of non-native Northern Pike in the west and will help guide management of Northern Pike in Lake Pend Oreille.

Habitat restoration

Thursday March 5th

Session 5 – Talk 1 (2:20 PM)

Beaver dam analogues and fish movement: a case study from Tex Creek

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Beaver dam analogues (BDAs) are arguably the most popular low-tech process-based restoration technique used to restore streams in the Unites States. Yet, the rapid increase in BDA implementation has surpassed currently available science, leaving questions about the short- and long-term effects of BDAs. Tex Creek in the Willow Creek drainage of Idaho is a prime example of rapid increase in BDA implementation, as over 300 BDAs have been implemented in the Tex Creek drainage since 2022. Among the uncertainties for managers and practitioners is the potential impact BDAs may have on the movement of native fish. Therefore, in 2025 we began to evaluate the short-term impacts BDAs have on fish movement and dispersal following displacement before and after BDA implementation. In late summer 2025 during seasonally low flows, we displaced Yellowstone Cutthroat Trout and Mountain Sucker into two beaver ponds separated by a stream length of 250m prior to BDA implementation in Tex Creek. Fish were tagged with visible implant elastomer tags to track where individual fish were displaced from and displaced to. After one week, we assessed how fish dispersed throughout the study area without BDAs present. In total, we displaced 191 Yellowstone Cutthroat Trout from 70-450mm in length into the two beaver ponds. After one week, readily dispersed throughout the study reach, with fish moving up to 450m upstream over a large beaver dam. In 2026, we will implement BDA structures throughout the study reach and repeat the displacement approach to evaluate fish movement and dispersal post-BDA implementation.

Session 5 – Talk 2 (2:40 PM)

Wood, Water, and Wildlife: Avalanche-Delivered Wood Accumulations Support Elevated Fish Abundance and Riparian Bird Species Richness

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Large wood plays a critical role in creating and maintaining habitat complexity in river corridors. However, the relationship between wood, habitat complexity, and biodiversity is poorly resolved. Here, we assess how logjams influence aquatic and riparian vertebrate diversity in Big Creek, a wilderness river in central Idaho. Following a 2014 avalanche, thousands of trees were deposited into the upper reaches of Big Creek. That wood has been subsequently mobilized downstream, accumulating in large logjams that induce the formation of localized side channel and backwater habitats. We mapped patterns of wood recruitment, mobility, and retention throughout the river network using aerial imagery (2013–2023) and paired these data with an intensive biodiversity assessment conducted at twelve logjam habitat complex- and three reference- sites during summer 2025. Using a combination of snorkel surveys and point counts, we quantified diversity and abundance of birds and fishes at each site. Our preliminary results indicate that logjam habitat complexes support 2.9x higher overall fish density and 16x higher juvenile fish density than reference reaches. Although mean fish species richness did not differ between site types, logjam complexes supported a greater number of unique species–age class combinations than reference sites (20.7 vs. 14.3), reflecting the increased juvenile density. Riparian bird abundance did not differ between site types; however, bird species richness was nearly 2x higher at logjam sites (11.6 species vs. 6.3 species at reference sites). These data indicate that logjams and their associated habitats are important determinants of aquatic and riparian vertebrate community structure.

Session 5 – Talk 3 (3:10 PM)

An evaluation of localized habitat manipulation effects on native and nonnative trout in springbrooks of the Snake River-floodplain

Kaitlyn Warner*, kaitlynwarner@isu.edu

Human-driven alterations to Snake River flows and stocking of rainbow trout (Oncohynchus mykiss) have disrupted ecosystem processes and native species metapopulations. The Fort Hall Bottoms within the Fort Hall Indian Reservation of the Shoshone-Bannock Tribes, is a culturally significant, physically intact river-floodplain that exemplifies these challenges. Over the past decade, reductions in natural flood regime caused by manipulations of rivers outside reservation boundaries have decreased suitable spawning habitat for species such as Yellowstone cutthroat trout (Oncorhynchus clarkii bouvieri). In response, the Shoshone-Bannock Tribes Fish and Wildlife Department implemented localized habitat manipulations to enhance stream habitats and increase fish abundance. Combination of our data and previous research evaluated trout abundance before and after these treatments at two manipulated and one control site with boat electrofishing and snorkel surveys. Preliminary results suggest no detectable effects of habitat manipulation on localized trout abundance, but analyses are ongoing. Fish assemblages were dominated by rainbow trout and rainbow trout x Yellowstone cutthroat trout hybrids. We will assess the proportion of the rainbow trout present that were stocked in nearby waters but have crossed reservation boundaries, and how this may be influencing native Yellowstone cutthroat trout with population modeling. Our preliminary analyses suggest that localized habitat manipulations alone may be insufficient to meet Tribal management goals. Broader actions addressing issues beyond reservation boundaries, such as negotiating changes to Snake River flows or altering downstream stocking practices, may be necessary. Our investigation's outcomes are intended to help the Tribal community identify future management priorities.

Habitat restoration

Thursday March 5th

Session 5 – Talk 4 (3:30 PM)

Identifying Walleye and Lake Whitefish Spawning Habitat to Inform Habitat Improvements for Lake Sturgeon in the Lower Fox River, Green Bay, WI,

Braden Lensing, braden.lensing@idfg.idaho.gov

Previous research indicates that lake sturgeon Acipenser fluvescens recruitment is limited in the Lower Fox River (LFR) below De Pere Dam, Green Bay, WI. Habitat enhancements in the form of an offshore reef have been proposed to potentially improve lake sturgeon recruitment. However, identifying spawning habitats for other species could help ensure that restoration efforts for lake sturgeon do not result in loss of spawning habitat. The LFR supports populations of walleye Sander vitreus and lake whitefish Coregonus clupeaformis, both of which support important fisheries in southern Green Bay. Our objectives were to 1) describe spatial variation in walleye and lake whitefish egg densities in the LFR below De Pere Dam to inform placement of the lake sturgeon spawning reef; 2) determine if spatial variation in egg densities are related to a suite of environmental variables (e.g., flow, depth, and substrate), and 3) describe the timing (e.g., start, peak, end, and duration) of walleye and lake whitefish spawning. Heat maps generated from relative egg densities illustrated the spatial distribution of walleye and lake whitefish egg densities and reveal significant overlap in egg deposition between the two species, as well as little overlap with the proposed reef location. For both species, egg densities decreased with increasing depth and increased with greater availability of coarse substrates (cobble, boulder, and pebble). Lake whitefish spawning lasted 14–16 days starting early–mid November. Walleye spawning lasted 29–30 days starting in late March.

Session 5 – Talk 5 (3:50 PM)

Stream geomorphology mediates climate-driven invasions by nonnative Brook Trout in shrinking Bull Trout habitat

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Knowledge of which habitats are at risk of invasion by nonnative species is essential to conservation, but climate change often complicates assessments of where future invasions may occur. Nonnative Brook Trout Salvelinus fontinalis are often excluded from native and threatened Bull Trout S. confluentus habitat by cold temperatures, but the extent of future invasions is recognized as an area of uncertainty with important consequences. We addressed this uncertainty by using stream network analysis to develop a species distribution model for Brook Trout in Idaho, creating high-resolution prediction maps of suitable habitat under baseline (1990–2015) and future (2080s) climate scenarios, and querying predictions within Bull Trout habitat patches (stream to subwatershed scale) for each scenario. Results indicated that Brook Trout will experience a net loss of suitable habitat in Idaho, but a large increase in cold streams. Between scenarios, the largest increases in suitable habitat occurred in small, low-gradient, unconfined, alluvial streams with mean August water temperatures of 7–9 °C during the baseline period. The total proportion of Bull Trout habitat invadable by Brook Trout increased from 0.31 during the baseline scenario to 0.38 during the future scenario due to upstream expansions by Brook Trout that were partially offset by upstream contractions in Bull Trout habitat. Changes in the proportion of invadable habitat varied widely among Bull Trout patches. A relatively small proportion of patches contained the majority of invadable habitat in both scenarios, particularly patches located in glacial valleys. Our results suggest that climate change will broadly increase the threat that Brook Trout pose to Bull Trout, but the degree of change experienced by individual populations will vary with geomorphic context. The predictions provided here will help conservation planners identify and prioritize control efforts on the small proportion of Brook Trout populations that threaten Bull Trout the most.

Management and monitoring
Thursday March 5th

Session 6 – Talk 1 (2:20 PM)
Timing the sample and tracking recruitment: seasonal variability in Smallmouth Bass sampling and Walleye recruitment in Lake McConaughy, NE
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Lake McConaughy, Nebraska's largest reservoir, is managed by the Nebraska Game and Parks Commission (NGPC) primarily as a Walleye fishery. The popularity of Smallmouth Bass among anglers has increased in recent years, yet no standardized survey exists for this species. Additionally, the Walleye fishery is sustained through annual stockings, and the relative contribution of different hatchery products to Walleye recruitment at later life stages remains unclear. The objectives of this study were to: (1) examine seasonal variability in Smallmouth Bass catch to identify optimal sampling periods, and (2) evaluate yearly contributions to age-0, age-1, and age-2 Walleye using chemical marks. Smallmouth Bass were sampled using nighttime boat electrofishing from May–October in 2024 and 2025. All fish were enumerated, measured for total length (TL), and weighed and five fish per 25-mm length bin (75–500 mm) were sacrificed for otolith extraction and sex determination. Walleye were marked in the hatchery via immersion in oxytetracycline (OTC) and sampled in early to mid-fall of 2024 and 2025 using multiple gears. Walleye were enumerated, measured for TL, and sacrificed for otolith extraction, with one otolith examined under ultraviolet light for OTC marks. A total of 1,436 Smallmouth Bass were collected across both years, with similar catch rates and size structure observed among months. OTC marks were examined for 814 Walleye, and Stage-1 fingerlings appeared to contribute most to Walleye recruitment across years. These results provide information to guide NGPC management of both Walleye and Smallmouth Bass populations.

Session 6 – Talk 2 (2:40 PM)
Growth, mortality, and exploitation of black bass populations in Idaho lakes and reservoirs
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Black bass, Largemouth Bass (LMB) Micropterus nigricans and Smallmouth Bass (SMB) M. dolomieu were initially introduced to Idaho in the early 1900s. Both species are now widely distributed across the state and among the most popular sport fishes in Idaho. Despite their popularity, biologists have a limited understanding of statewide population demographic rates. As such, the goal of this study was to evaluate population vital rates and angler use for various LMB and SMB fisheries across Idaho. We assessed growth, mortality, and angler use for LMB and (or) SMB at multiple waterbodies across the state. Growth, PSD, mortality, and angler use varied among populations. Estimates of the theoretical maximum length varied from 320 to 654 mm with an average of 467 mm for SMB and 357 to 660 mm with an average of 474 mm for LMB. On average, the growth coefficient from a von Bertalanffy model averaged 0.22 (0.07-0.35) for SMB and 0.23 (0.08-0.26) for LMB. Mortality was moderate for all populations. On average, estimates of mortality were 0.46 for SMB and 0.45 for LMB. Angler use varied among waterbodies but catch-and-release rates were higher than exploitation (i.e., harvest) for almost all study locations. Estimates from this study will be leveraged in modeling to attempt to predict responses in bass populations to changes in exploitation, size regulations, and environmental conditions.

Session 6 – Talk 3 (3:10 PM)
Growth, Condition, and Food Habits of Rainbow and Cutbow Trout Following a Chemical Renovation
Oliver Dunbar*, dunbaro@lopers.unk.edu

Lake Ogallala is managed as a trout fishery. Historically, the trout species of focus was rainbow trout Oncorhynchus mykiss, but recently the fishery expanded to include cutbow trout (O. clarkii x mykiss). The goal of our presentation is to provide an assessment of the rainbow and cutbow trout populations in Lake Ogallala two years following renovation. Specifically, we examined numbers caught per month of sampling, mean length, mean weight, relative weight, and food habits from the 2025 growing season. Such information was used to also estimate relative mortality and growth rates in terms of both length and weight. A combination of gill nets, fyke nets, and nighttime electrofishing were used each month at nine fixed locations from April through September. All captured trout were identified, measured for total length (mm), and weighed. The numbers of rainbow or cutbow trout were totaled between all three gears for each month. A modified catch-curve analysis was used to estimate relative mortality of the stocked trout since the time of stocking. We also calculated mean length and weight and relative condition by month to examine growth parameters over the growing season. In addition, stomach contents were collected from those individuals sampled in summer and fall 2025 using either gastric lavage or stomach excision. Food habits were summarized using percent composition by number and percent composition by weight and related to observed somatic growth. This study provides preliminary information on the status of this fishery and a baseline of comparison over time.

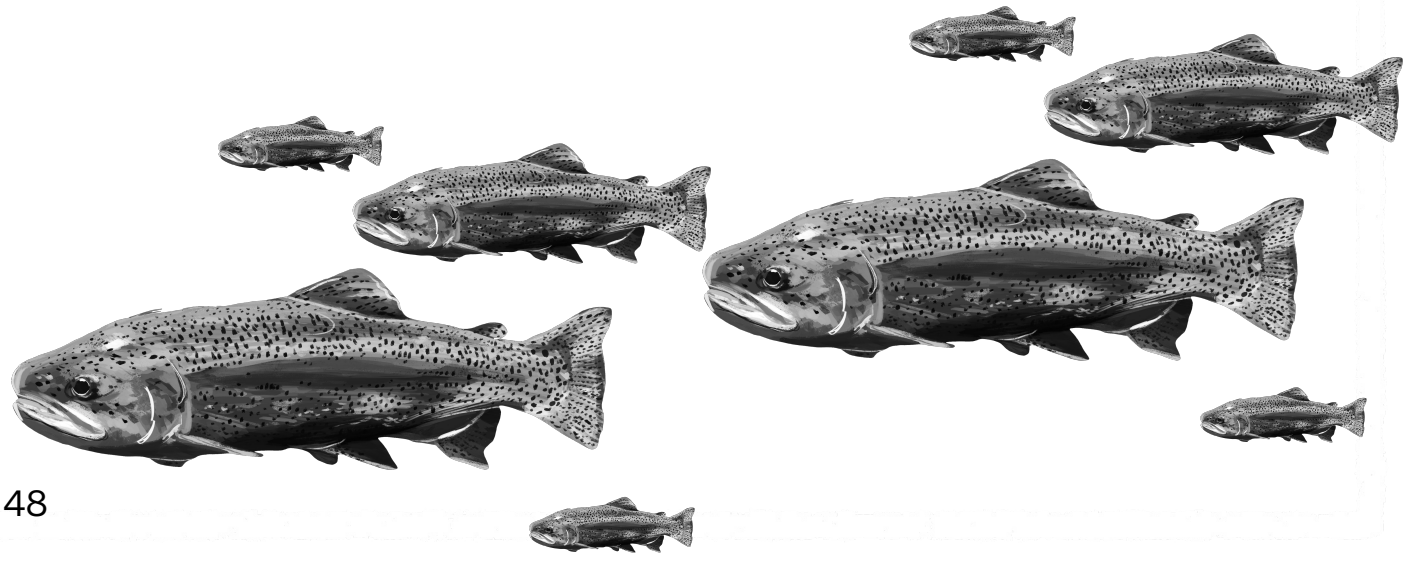
Management and monitoring
Thursday March 5th

Session 6 – Talk 4 (3:30 PM)
Fish Passage in a Working Watershed: Long-Term Assisted Migration of Fluvial Cutthroat Trout in the Cub River, Idaho
Tyler Coleman, tyler.coleman@tu.org

Habitat fragmentation has contributed to widespread declines in native salmonid populations throughout the western United States. In Idaho, irrigation diversions and water management infrastructure have altered river connectivity in many coldwater systems. Since 1925, the Cub River in southeastern Idaho has been disrupted by a diversion dam, which functions as a complete migration barrier for fluvial Cutthroat Trout. In 2006, a fish ladder was constructed with a manual trap that has since been operated to support upstream migration of Cutthroat Trout while preventing nonnative fishes. We summarized fish ladder trap data collected since ladder construction to evaluate long-term patterns in migratory passage, species composition, and size structure of Cutthroat Trout captured at the ladder. Across the monitoring period, assisted passage has supported continued expression of the fluvial life history strategy passing over 1200 Cutthroat Trout. However, annual Cutthroat Trout captures have declined relative to early years of ladder operation. High-flow events in 2010–2011 resulted in geomorphic changes downstream of the ladder entrance, followed by installation of rock stabilization structures in fall 2011, coinciding with reduced observed passage in subsequent years. To inform future conservation actions, we compiled information on fish distribution and tributary connectivity across the Cub River watershed, including electrofishing surveys, eDNA sampling, and stream crossing assessments. Together, these results underscore the importance of long-term fish ladder operation while highlighting the need for further investigation into ladder access conditions, habitat suitability, and targeted watershed-scale restoration actions to support fluvial Cutthroat Trout persistence in the Cub River system.

Session 6 – Talk 5 (3:50 PM)
Movement Patterns of Largemouth Bass Among Interconnected Lakes in Northern Idaho
Mike Thomas, mike.thomas@idfg.idaho.gov

The Coeur d'Alene "Chain Lakes" are seven shallow lakes connected by canals to the lower Coeur d'Alene River in northern Idaho. These lakes provide regionally important Largemouth Bass (M. nigricans) fisheries and are managed as independent fisheries. However, tag return studies have shown that movements (i.e., natural or angler-driven) may be occurring among lakes. Therefore, we sought to compare natural versus displaced movement patterns using tag returns and acoustic telemetry in three lakes (Anderson Lake, Cave Lake, Killarney Lake). We implanted Vemco V13 acoustic tags ($100 reward) and t-bar anchor tags ($100 reward and non-reward) in 10 Largemouth Bass (>406 mm TL) collected from each lake. To compare movement patterns, we released five fish in the lake of capture (LOC) and transported five fish to a popular tournament weigh-in location (~5 to 26 Rkm). Vemco VR2Tx acoustic receivers were placed in each lake (n = 7), in the lower Coeur d'Alene River (n = 2), and in Coeur d'Alene Lake (n = 3). In our study, 93% of in-lake fish remained at LOC and 87% of transported fish did not return to LOC. While we did not observe movements between study lakes, we observed both "stockpiling" (consecutive days at release location) and a greater range of movement (range = 9.5 to 133.5 km) for transported fish. We observed an average stockpiling duration of 3.8 days post-release. Overall, movements appear to be angler-driven, and our results support the current approach for managing each lake as an independent fishery.



Anadromous
Friday March 6th

Session 7 – Talk 1 (8:20 AM)
Life history strategy, arrival timing, and body size shape reproductive success in steelhead
Audrey Harris, audrey.harris@idfg.idaho.gov

Steelhead Oncorhynchus mykiss exhibit a wide array of life history strategies, including freshwater residency versus anadromy, reproductive strategy, age at maturity, and migration timing. However, the influence of life history on steelhead reproductive success remains poorly understood. Since 1994, the IDFG has used a weir to capture wild steelhead in Fish Creek, a tributary to the Lochsa River. Annual adult abundance has been estimated since 1996, and genetic samples have been collected from all captured adults since 1997. We describe the genetic mating system of steelhead in Fish Creek across multiple generations (1997-2022, N = 3,094). Mating and reproductive success were quantified for individuals using dual- and single-parentage, which allowed us to explore the influence of arrival timing, body length, and sex on reproductive success across multiple generations using hurdle models. For fish of average size and arrival timing, reproductive success was similar between males and females. However, the influence of arrival timing and body size on reproductive success varied by sex. Earlier-arriving males produced more offspring, whereas later-arriving females exhibited higher reproductive success. Among successful females, larger body size was associated with greater reproductive success; in contrast, body size had little effect on offspring numbers in successful males. We also inferred significant reproductive contribution from resident males based on ratios of spawning anadromous adults and single-parent assignments. Our study integrates demographic and genetic data over multiple generations to quantify life history diversity, highlighting how diverse life history portfolios may confer resilience and buffer populations against environmental stochasticity.

Session 7 – Talk 3 (9:00 AM)
Introgression among major phylogeographic lineages alters phenology and fitness of Klickitat River spring-run Chinook Salmon
Zachary Robinson, zrobinson@critfc.org

Klickitat River Spring Chinook Salmon (KRSC) are predominantly interior stream-type lineage, though earlier work identified evidence of introgression with other Columbia River Chinook Salmon lineages. The Klickitat River is situated within a biogeographic transition zone among lineages and has experienced multiple out-of-basin stocking events over the past century, providing opportunity for introgression among divergent stocks. We analyzed 9,854 adult KRSC sampled at the Lyle Falls Adult Trap and Klickitat Hatchery from 2011–2024 using genetic stock identification (GSI), parentage-based tagging, and individual estimates of lineage-level ancestry to characterize contemporary stock composition and evaluate the effects of introgression on key life-history traits and fitness. The collections were diverse with individuals assigning to 15 out of 19 GSI reporting units, and 21 different hatchery programs from throughout the Columbia River Basin. After controlling for major-effect loci associated with migration timing (GREB1L–ROCK1), increased inter-lineage introgression was associated with significant shifts in migration phenology. Introgression also significantly reduced lifetime reproductive success (LRS) in hatchery-spawned individuals, with mean introgression predicted to reduce LRS by 21.8% (95% CI: 13.2%–31.1%), equivalent to 0.279 fewer returning progeny per individual, while results for natural spawners were limited by sample size. Notably, natural-origin KRSC exhibited higher levels of introgression than hatchery-origin fish, indicating continued gene flow among lineages in the naturally spawning population. Collectively, these results suggest that introgression among divergent Chinook Salmon lineages has altered migration timing in KRSC and may weaken spatial and temporal reproductive isolation historically maintained among stocks, with potential consequences for individual fitness.

Session 7 – Talk 4 (9:20 AM)
Fish Passage in a Working Watershed: Long-Term Assisted Migration of Fluvial Cutthroat Trout in the Cub River, Idaho
Tyler Coleman, tyler.coleman@tu.org

Habitat fragmentation has contributed to widespread declines in native salmonid populations throughout the western United States. In Idaho, irrigation diversions and water management infrastructure have altered river connectivity in many coldwater systems. Since 1925, the Cub River in southeastern Idaho has been disrupted by a diversion dam, which functions as a complete migration barrier for fluvial Cutthroat Trout. In 2006, a fish ladder was constructed with a manual trap that has since been operated to support upstream migration of Cutthroat Trout while preventing nonnative fishes. We summarized fish ladder trap data collected since ladder construction to evaluate long-term patterns in migratory passage, species composition, and size structure of Cutthroat Trout captured at the ladder. Across the monitoring period, assisted passage has supported continued expression of the fluvial life history strategy passing over 1200 Cutthroat Trout. However, annual Cutthroat Trout captures have declined relative to early years of ladder operation. High-flow events in 2010–2011 resulted in geomorphic changes downstream of the ladder entrance, followed by installation of rock stabilization structures in fall 2011, coinciding with reduced observed passage in subsequent years. To inform future conservation actions, we compiled information on fish distribution and tributary connectivity across the Cub River watershed, including electrofishing surveys, eDNA sampling, and stream crossing assessments. Together, these results underscore the importance of long-term fish ladder operation while highlighting the need for further investigation into ladder access conditions, habitat suitability, and targeted watershed-scale restoration actions to support fluvial Cutthroat Trout persistence in the Cub River system.

Anadromous
Friday March 6th

Session 7 – Talk 4 (9:20 AM)
Refining indices of risk from salmonid hatcheries
Matt Falcy, mfalcy@uidaho.edu

The risk to wild populations from domestication selection in hatcheries is commonly indexed with estimates of the proportion of hatchery-origin spawners (pHOS) on natural spawning grounds. Widely used calculations of pHOS are not commensurate with the genetic theory that motivates the use of pHOS as an index of risk from domestication selection. I derive an alternative metric of pHOS that is commensurate with the spatiotemporal variability of natural- and hatchery-origin fish and the genetic theory used to index risk. I describe nuance associated with indices of hatchery risk, including how to calculate variances. The widely used calculation of pHOS will overestimate the risk when the densities of breeding natural- and hatchery-origin fish differ in space or time. The analytics provided here will improve empirical estimation of an index of risk from hatchery-origin fish and the associated uncertainty.

Session 7 – Talk 5 (10:00 AM)
Pink Salmon competition effects on Snake River Steelhead: Marine-phase dynamics across odd–even cohorts
David Smith, david.smith@idfg.idaho.gov

Odd-even oscillations in North Pacific Pink Salmon (Oncorhynchus gorbuscha) abundance have been implicated as a driver of interspecific competition affecting salmonid growth and survival, yet the timing and demographic pathways of these effects remain unresolved for Snake River Steelhead (O. mykiss). We analyzed adult Steelhead trapping data from Lower Granite Dam (2009–2025), comprising approximately 36,000 wild fish from 10 genetic stocks, to test whether pink salmon competition influences steelhead abundance and whether effects are associated with ocean entry or the final year of ocean residence. We fit age- and stock-structured Bayesian state-space models to annual trap counts that explicitly account for sampling effort and trap efficiency. Models structured by ocean entry year revealed coherent odd-even patterns in total and age-specific abundance, with reductions in odd-year cohorts consistent with competition during early marine residence. In contrast, models structured by the final ocean year showed opposing age-specific responses, with positive effects for age-1 fish and negative effects for age-2 fish that largely cancel when aggregated, eliminating a consistent odd-even signal. This pattern reflects cohort mixing, as age-1 fish in odd last-ocean years derive from even ocean-entry cohorts while age-2 fish derive from odd ocean-entry cohorts, producing opposing age-specific responses rather than a shared final-year competition effect. These results identify ocean entry as the primary window of Pink Salmon-mediated competition and underscore the importance of parity-aware forecasting and age-structured inference in steelhead population assessments.

Session 7 – Talk 6 (10:20 AM)
Evaluation of Adult Sockeye Salmon Trap and Transport Operations at Lower Granite Dam
David Venditti, david.venditti@idfg.idaho.gov

Snake River Sockeye Salmon are listed as Endangered under the ESA, and hatchery programs are an important component of recovery efforts. Captive broodstocks and anadromous adults provide 600-1,300 adults annually for spawning in Redfish and Pettit lakes and eggs to produce 1M smolts at Springfield Hatchery. Adults ascend the Columbia, Snake, and Salmon rivers during June through September, which can expose them to lethal temperatures, reducing the number of adults reaching traps in the Sawtooth Valley. Collecting adults at Lower Granite Dam and trucking them to Idaho has been used as an emergency action in years of extremely poor in-river conditions. However, these conditions appear to be increasing in frequency, which may justify adopting trap and transport as a routine management activity, except in years with better than average environmental conditions. We examined the benefits and risks of trap and transport, to inform managers about potential implications of more frequent implementation. Trap and transport increases the number of adults incorporated into the program, and these fish have higher fecundity, lower pre-spawn mortality, lower incidence and severity of BKD, higher embryo survival to the eyed-egg stage, and subsequently higher hatch rates than adults that complete their migration in-river. Conversely, trap and transport imposes high equipment and personnel demands, is logistically complex, relaxes migration fitness requirements, and delays sexual maturation extending spawning and hatching windows. We conclude that more frequent implementation of trap and transport would likely provide an overall benefit to the program and aid recovery efforts.

Anadromous
Friday March 6th

Session 7 – Talk 7 (10:50 AM)
Implementation of a mobile DNA sequencing laboratory for real-time assessment of Columbia River basin fisheries
Lanie Galland, lgalland@critfc.org

Estimating the migration timing, stock-specific abundance, and ancestry proportions of native salmonids is essential for effective conservation and management in the Columbia River basin. Here, we present results from the inaugural year of an innovative monitoring program intended to provide real-time genetic stock assessment of salmonids from priority fisheries during critical migration, spawning, and harvest periods. We developed the mobile genetics laboratory as a custom 44' trailer where receipt of tissues, completed genotypes, and final PBT and GSI analyses could be completed within a 24-hour period, providing the most up-to-date genetic assignments for monitoring trends across stocks in the Columbia River and its tributaries. We extensively designed, tested, and demonstrated protocols that support our selected DNA sequencing platform, achieving >99% concordance between the permanent laboratory in Hagerman, ID, and the mobile laboratory. After further equipping the trailer with necessary DNA extraction and sequencing library preparation equipment, we successfully deployed the mobile laboratory on four occasions to address priority needs including in-season stock identification, broodstock screening, and verification of source stocks for reintroduction programs. Across all deployments, genotyping results were generated within 16-24 hours of sample receipt, achieving >97% genotyping success, including genotyping of degraded samples. Overall, we highly successfully demonstrated the utility of the mobile genetics laboratory, providing critical information to managers in real time. With the unprecedented success of the laboratory in its inaugural year, we aim to increase deployments to additional sites of spawning, migration, and harvest significance while increasing our capacity for processing greater numbers of samples.

Native fisheries
Friday March 6th

Session 8– Talk 1 (8:20 AM)
Evaluating differences in Kootenai river Mountain Whitefish diets
Nate Nadal*, nnadal@uidaho.edu

Nutrient addition is increasingly used as a management tool to enhance productivity in nutrient-limited rivers, yet its effects on fish diets are often evaluated indirectly. In the Kootenai River, nutrient additions began in 2006 to support food-web productivity and fish populations. We analyzed long-term stomach content data from Mountain Whitefish (Prosopium williamsoni) collected annually from 2002–2024 to evaluate spatial and temporal shifts in diet composition associated with nutrient enrichment. Results indicate significant, sustained changes in overall diet composition following nutrient addition, with effect sizes varying among river zones and through time. These shifts were accompanied by changes in dietary diversity, suggesting long-term restructuring of prey use. Our findings demonstrate that nutrient enrichment can alter consumer diets at the population level and highlight the value of long-term diet monitoring for evaluating the ecological effectiveness of river nutrient-addition programs.

Session 8– Talk 2 (8:40 AM)
Cryptic Genetic Structure and Evolutionary Divergence in Idaho's Prosopium species
Katharine Coykendall, katharine.coykendall@idfg.idaho.gov

Biodiversity is underestimated when cryptic diversity (i.e. genetically distinct lineages lacking obvious phenotypic differences) is overlooked. Mountain whitefish (Prosopium williamsoni), one of 38 native fish species in Idaho, is widely distributed across the western U.S. and considered a single, phenotypically homogeneous species. In contrast, cutthroat trout exhibit extensive genetic structuring and are divided into multiple species and subspecies. We aimed to determine whether mountain whitefish contain cryptic genetic lineages or represent a single evolutionary unit. We also compared genetic diversity and divergence within mountain whitefish to three closely related Prosopium species endemic to Bear Lake: Bear Lake whitefish (P. abyssicola), Bonneville cisco (P. gemmifer), and Bonneville whitefish (P. spilonotus).
We analyzed genome-wide nuclear single nucleotide polymorphisms using Restriction-Site-Associated DNA sequencing and sequenced the mitochondrial cytochrome oxidase b gene from fish collected at 46 sites across the western U.S. Our results revealed three divergent Prosopium lineages: western mountain whitefish populations downstream of Shoshone Falls in the Snake River, mountain whitefish from Missouri River tributaries, and eastern mountain whitefish populations upstream of Shoshone Falls with the three Bear Lake endemic species. Genetic diversity and divergence were highest in the western lineage. Despite close geographic proximity, populations from the Big Lost and Big Wood rivers belonged to different lineages and exhibited the lowest genetic diversity. The Bear Lake species were distinct in the nuclear dataset but not in mitochondrial DNA, suggesting recent speciation. These findings reveal unrecognized genetic structure in mountain whitefish and provide insights for conservation and management of Idaho's native Prosopium.

Native fisheries

Friday March 6th

Session 8 – Talk 3 (9:00 AM)
Population ecology of Mountain Whitefish in Idaho
Darby McMartin*, dmcmartin@uidaho.edu

Demographic data are crucial for fisheries managers to make informed management decisions regarding fish populations. Collection of demographic data using fishery-independent methods (e.g., electrofishing) may not be possible for a variety of reasons including the presence of Endangered Species Act (ESA) protected fish species. This research evaluates the use of angler-supplied data to evaluate Mountain Whitefish Prosopium williamsoni (MWF) by comparing population characteristics of MWF collected by angling to those collected using electrofishing in the Clearwater River, Idaho. Over 400 MWF were sampled in June 2025 using both angling and electrofishing, otoliths were collected from 265 of the sampled individuals. Mountain Whitefish sampled using angling were generally longer (mean ± SD; 380.2 ± 43.7 mm) and older (9.8 ± 6.9 yrs) than those sampled using electrofishing (length, 351.9 ± 55.2 mm; age, 8.6 ± 4.6 yrs). Although we observed differences in age- and length-frequency distributions, estimates of body condition, growth, and total annual mortality were comparable between sampling methods. Furthermore, yield-per-recruit models produced similar estimates using data from both collection methods. Results of this study suggest that angler-supplied data may provide an efficient approach for monitoring MWF population dynamics.

Session 8 – Talk 4 (9:20 AM)
Using Conservation Aquaculture to Preserve Bonneville Cutthroat Trout
Ryan Hillyard, ryan.hillyard@idfg.idaho.gov

Bonneville cutthroat trout (Oncorhynchus clarkii utah; BCT) have declined in abundance and distribution in their native range. In Idaho, BCT are native to the Bear River drainage. On the mainstem Bear River, in Idaho, there are four hydroelectric dams operated by the PacifiCorp power company. When PacifiCorp relicensed these dams, in the early 2000's, as part of their mitigation, they established an agreement with the Idaho Department of Fish and Game to fund a BCT conservation aquaculture program. The objective of this program was to increase the abundance and distribution of BCT within the Bear River drainage in Idaho by releasing 20,000 BCT progeny. There were five components identified for this program to meet this objective. Components consisted of 1) broodstock collection from the wild; 2) growth and survival in broodstock ponds; 3) spawning and rearing in the hatchery; 4) releasing progeny into the wild; and 5) progeny post release evaluations. The number of progeny produced in 2023-2025 was low. Using data from passive integrated tags, we can monitor components two and three for individual fish. These data indicated that both growth and survival were declining, which may be contributing to the low production of progeny. We are concerned that high phosphorous levels in the pond have increased macrophyte and algae growth, which has altered habitat conditions. We have deployed a system that uses beneficial bacteria to stabilize pond productivity. Increasing growth and survival of BCT broodstock in the pond will be essential for the future success of this program.

Session 8 – Talk 5 (10:00 AM)
Selenium Dynamics and Ecological Impacts in the Kootenai River
Manuel Carballo*, mcarballo@uidaho.edu

The Kootenai River in northern Idaho contains elevated levels of dissolved selenium, an element known to be toxic to fishes. We developed models to predict selenium concentrations in Burbot (Lota lota) and White Sturgeon (Acipenser transmontanus) tissues. We also developed a spatial model to predict dissolved selenium concentrations within the Idaho and Montana portions of the Kootenai River. Results showed that Burbot tissue selenium concentrations could be predicted fairly accurately, while White Sturgeon tissue selenium concentrations could not be predicted well. Within the river, dissolved selenium concentrations were positively correlated with Nitrate + Nitrite concentrations as well as the year the sample was collected and negatively correlated with pH and flow input from tributaries below Libby Dam. These findings could help managers assess selenium risk in the Kootenai River and future research needed.

Native fisheries

Friday March 6th

Session 8 – Talk 6 (10:20 AM)

Using Geospatial Data Tools to Track, Display and Promote Native Trout Conservation at Landscape Scales

Selena Barrett, Reflectiongeospatial@gmail.com

The Western Native Trout Initiative (WNTI) is a nationally recognized Fish Habitat Partnership that, since 2006, has leveraged over $ 9 million in federal and private funds to support projects benefiting 21 western native trout species. In addition to securing and distributing trout conservation funding, WNTI also has a robust mission to disseminate information about native trout science, conservation and fishing information with the public. To streamline these applications and data management processes, WNTI has utilized several ArcGIS Online resources, including Survey123, online databases, and Story Maps. Survey 123 is used to collect RFPs for NFHP, small grants, and portfolio projects, which provides the framework to automatically populate reports, maps, and webpages. Recent portfolios for Yellowstone Cutthroat and other species were developed, following the success of the Bear River portfolio. Portfolio projects are submitted and prioritized by state, federal, and private organizations involved in species management. WNTI also shares an interactive map sourced from the online database showing funded projects and the ranges of native trout species, which are provided by state and federal agencies. To further public interaction, WNTI also hosts the Western Native Trout Challenge, which encourages anglers to learn about and value native trout while raising funds for trout conservation projects. This is accomplished using an interactive Story Map that includes fishing locations and links to state regulations and fishing planners. ArcGIS Online tools have allowed WNTI to streamline critical mission functions to save time and money, while making trout-centric outreach more effective and engaging.

Session 8– Talk 7 (10:50 AM)

The Bear River Project Hydroelectric Project: offsite mitigation actions to benefit cutthroat trout and water quality

Jim DiRito, jderito@tu.org

The effects of hydropower projects are typically mitigated within the license boundary (onsite). However, offsite mitigation or enhancement may present unique opportunities not available onsite. We reviewed the offsite mitigation efforts for the Bear River Hydroelectric Project (the Project), which consists of three hydropower facilities (77 MW total capacity) along the mainstem of the Bear River in Southeast Idaho. The Project was relicensed in 2003, creating the Bear River Environmental Coordination Committee (ECC) and establishing two offsite funds: 1) the Habitat Enhancement Fund; and 2) the Land and Water Conservation Fund, with annual contributions from PacifiCorp. The ECC makes funding award decisions with the intended beneficiaries of Cutthroat Trout and water quality. The Habitat Enhancement Fund has made 166 awards for about 100 projects totaling over $4.4M in funding contributions. About one third of the completed projects focused on tributary stream fish passage. Through the Land and Water Conservation Fund, 26 land protection projects were completed with funding contributions of over $7.5M to assist with the acquisition of 19 conservation easements and 7 fee-title purchases resulting in perpetual protection of 9,130 acres and 25.7 miles of linear stream or riverbank. In addition, about $950,000 of Land and Water Funds were recently spent to assist with the decommissioning of the Paris Hydroelectric Project. These offsite conservation actions included substantial additional investments from diverse state and federal funding programs along with landowner match. Additional research is needed to assess the effects of the funded projects upon intended natural resource outcomes.

Session 8– Talk 8 (11:10 AM)

Patterns of recent Brook Trout invasion in Bull Trout streams in relation to habitat, source connectivity, biotic resistance, and disturbance

Nicholas Voss, nvoss@uidaho.edu

The ability to anticipate and prevent biological invasions by nonnative species is critical to effective conservation. Nonnative Brook Trout Salvelinus fontinalis represents one of the most widespread threats to native Bull Trout S. confluentus, but the factors allowing or preventing ongoing range expansions are poorly understood. We addressed this uncertainty by resampling 221 survey locations in Bull Trout streams in Idaho and relating shifts in Brook Trout occupancy to four controls on biological invasion (habitat suitability, source connectivity, biotic resistance, and disturbance). Brook Trout detections increased between the historical period (58 sites) and contemporary period (94 sites) due to high persistence in previously occupied sites and colonizations of previously unoccupied sites. Site colonizations were positively associated with water temperature and negatively associated with landscape resistance metrics (i.e., highest stream discharge and gradient between a site and the nearest source) in all top models. In contrast, there was weak support for a positive association with wildfire and limited support for hydrologic distance and biotic resistance metrics. Brook Trout invasions in Bull Trout streams are ongoing, limited by cold temperatures, highly influenced by dispersal barriers that may not inhibit native salmonids, and more likely to occur in stream networks that already contain established populations than in networks that do not. However, suitable habitat that suddenly become accessible (e.g., through barrier removal or illegal introduction) may be rapidly colonized. Our results highlight the importance of considering landscape resistance when assessing invasion risk and the insight that is provided by widespread resampling of species range boundaries.