

Tributary

The newsletter of the Western Division of the American Fisheries Society since 1975

Volume 42 Issue 3

Fall 2018



In this issue

President's Hook
Yellowstone Dam
New Cutthroat Trout Book
Student Colloquium
and more!

President: Jackie Watson **Vice President:** Todd Pearsons
Sec.-Treasurer: Tracy Wendt **Past-President:** Brian Missildine **President-Elect:** Daniel Dauwalter
Student Representative: Britta Baechler **Tributary Editors:** Niall Clancy & Tim D'Amico

PRESIDENT'S HOOK

Have you ever found yourself thinking: I'm not sure I belong here, where do I fit in? I don't know how I can contribute in a meaningful way. Or how the heck did I get here?

I, for one, feel like this is my daily inner dialogue. And then one day, about three weeks ago, I woke up Western Division AFS President. Now the inner dialogue includes: I am humbled. I am walking in the footsteps of fisheries giants. Please don't let them (AFS members) down. And on constant repeat, how the heck did I get here?

The truth is I got here the way many of us got where we are. I was blessed to find something, fisheries, I was passionate about and then I set out to become the best version of a fisheries professional I could be. Obviously, that doesn't mean I always get it right but somehow my passion has allowed me the honor of serving my professional society at various levels, for many years now.

There are two things I would like to focus on during my presidency. One is strengthening our professional society by building on the diversity and inclusion initiatives of our Past Presidents Steve McMullin and Brian Missildine and the many dedicated members of our Equal Opportunity Section. An easy way for all of us to make AFS more inclusive is through mentorship. Let me be clear, you don't have to be a well-established, well-published, or well-esteemed professional to be a mentor. Any of us can be effective mentors and make a lasting impression with minimal effort. Share your stories of interview mistakes, and what you learned from the experience, with early career

professionals. Share your excitement for current work projects with your local community, even that guy on the treadmill next to you at the gym! Take some city folks fishing. Make yourself available and continue to highlight the importance of our profession. Fisheries, by their nature, are all inclusive and so our profession should be as well.

My second goal is to work with AFS leaders to garner better employer support of employee AFS involvement. I recognize there is a diverse array of support (or lack of) from employers when it comes to AFS activities. I am looking for stories, both good and bad, of your personal work situation and how it impacts your AFS involvement. I am also looking for your ideas on how to improve these situations. What can AFS do to help you get the support you need to be more involved or benefit more from your professional society?

My door is always open! Please share your thoughts, ideas, and concerns with me at jackiewatsonafs@gmail.com. One thing I can assure you is when it comes to AFS, you fit in, you belong here in my professional family, and you're going to do great things. If you'd like to become more involved in AFS but aren't sure how to get that done please be sure to contact me.



Jackie Watson
WDAFS President



A Yellowstone Elegy

Amidst a particularly difficult time for the conservation movement, news of the small victories and defeats is often passed by with little fanfare. Actions of great consequence to aquatic species—common and endangered alike — may be smothered by the latest Eastern fiasco. For Pallid Sturgeon, the long-lived prehistoric fish of the Missouri basin, a decision of great consequence was rendered early last April. Overturning a previous ruling, the U.S. 9th Circuit Court of Appeals opted to allow construction of a diversion dam on the Yellowstone River near Glendive, Montana.

Long known as *Intake Dam*, the current structure more closely resembles a boulder field—retarding flows enough to divert water for irrigation of 2,300 acres of cropland. For more than a century, this rock weir has impacted upstream fish movement, most notably that of the endangered Pallid Sturgeon (*Scaphirhynchus platyrhynchus*). Concerns over water shortages led the Army Corps of Engineers (ACE) to propose reconstructing Intake Dam as a fully cemented structure. In conjunction with the Bureau of Reclamation and Fish & Wildlife Service, the ACE suggested that creating a fish-bypass around the dam would lead to population recovery of the Pallid Sturgeon. However, in a 2013 letter to regional directors of the three federal agencies, then Montana Fish, Wildlife & Parks (MFWP) Director Jeff Hagener stated, “We have little faith that this passage design will function as proposed,” adding that “[the dam] will further exacerbate fish passage at Intake and eliminate future options to ensure Pallid Sturgeon passage at this diversion.”

Given the apprehension of fisheries biologists, representatives from Defenders of Wildlife and the Natural Resources Defense Council requested the Montana Chapter of AFS provide expert testimony during litigation proceedings. In 2015, the Montana Chapter voted 61 - 3 to approve the writing of a biological brief and to allow members Brad Shepard and Bill Gardner to testify in court.

According to Shepard, a longtime fisheries biologist in Montana, “one of the stated purposes of this project [was] linked to improving Pallid Sturgeon populations.” But, as Shepard says, “construction of a concrete dam could actually further reduce Pallid populations if the bypass channel does not allow adult fish to move upstream and ...will likely cause higher mortality of Pallid fry drifting down-river.”

Defenders of Wildlife’s Jonathan Proctor says his organization is still determining whether further appeal of the court’s decision is warranted. But, in the words of MFWP’s former Chief of Fisheries Chris Hunter, “the corps should return to the drawing board. Otherwise, this remnant wild population, whose ancestors were around when dinosaurs walked the landscape, is doomed” With this latest ruling, it seems likely that reproduction of the Pallid Sturgeon is now entirely in the hands of hatchery personnel.

Leanne Roulson, Second Vice-President of AFS and Montana Chapter Chair of Resource Management Concerns, says that, “once an adversarial role of *us versus them* thinking is established, it prevents folks from looking at reasonable alternatives.” Looking back, she says, “if we could go back in time we would have developed a better relationship with the local irrigation district and tried to have a civil conversation before unmovable positions solidified.”

While future headlines for the Pallid Sturgeon are likely to be bleak, the debacle at Intake should serve as a reflective moment for the fisheries profession. Managers and policy-makers will have to continue to fight for a resource that is seemingly under constant barrage. When public opinion seems to shout for an action that will lead to environmental harm, scientists will need to approach the table with a calm demeanor, empathy for all viewpoints, and most of all a determination to give voice to those species in whose protection we are entrusted.

Niall G. Clancy, *Tributary* Co-Editor

Quantifying Uncertainty in Aquatic Telemetry: Using Received Signal Strength to Estimate Telemetry Error

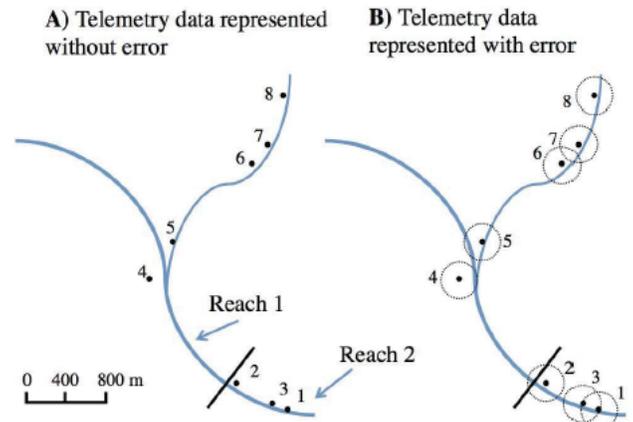
Kurt C. Heim, Michael E. Steeves, Thomas E. McMahon, Brian D. Ertel, and Todd M. Koel

Abstract:

Telemetry error is not regularly considered in aquatic studies, but when it is, it is generally treated as a static value despite high variation that can occur even within a single tracking event. We describe a simple procedure to use received signal strength (RSS) to estimate telemetry error. We recorded RSS of ground and air based detections of large (10 g, 11 x 59 mm) and small (8 g, 11 x 43 mm) 172 MHz radio transmitters across a range of distances. Received signal strength was an excellent predictor of distance-to-transmitter for ground tracking detections ($r^2 = 0.98$ large transmitter, 0.97 small transmitter) and a fair predictor for aerial detections ($r^2 = 0.49, 0.57$). We also manipulated transmitter antenna lengths and unexpectedly found both transmitters performed better with shorter antennas relative to factory lengths. With calibrated models relating RSS to distance-to-transmitter, RSS from field-collected data can be used to approximate telemetry error and draw spatial confidence areas around location estimates for analysis and interpretation. We estimated telemetry error for 2436 detections of fish at large collected during a concurrent movement study. Ground tracking error estimates ranged from 1 – 131 m (median = 24 m) and aerial error estimates were most often < 300 m but up to 1 km. The benefits of representing telemetry data as spatial confidence areas guided by the RSS of each detection are discussed. With appropriate caution this method will provide a more robust alternative to the assumption that error is constant or negligible or both.

Citation:

Heim, K. C., Steeves, M. E., McMahon, T. E., Ertel, B. D., & Koel, T. M. Quantifying Uncertainty in Aquatic Telemetry: Using Received Signal Strength to Estimate Telemetry Error. *North American Journal of Fisheries Management*. Published online September 5, 2018.



Questions:

- Did fish move between subsequent detections (point 6 - 7)?
- How far did it move from point 6 to point 7?
- What reach (point 2) or stream (point 5) is the fish in?



NEW BOOK

Cutthroat Trout: Evolutionary Biology and Taxonomy – AFS Press

The Cutthroat Trout is an important western North American fish species whose numbers are seriously depressed throughout its historical range. For almost 40 years now, a phylogeny consisting of 14 modern subspecies first proposed by the late Robert J. Behnke has generally guided research, management, and conservation actions for Cutthroat Trout—this despite his phylogeny being based on methods no longer widely employed, and despite occasional lumping of subspecies together by federal and state agencies for ESA listing and recovery planning. Recently, data from sophisticated new molecular taxonomy methods have revealed greater differentiation and diversity in Cutthroat Trout than previously used methods were able to detect, casting new doubts on Behnke's classification. But researchers have differed on how this new evidence should be interpreted, which in turn has generated uncertainty in programs ranging from aquatic habitat management for Cutthroat Trout to ESA recovery efforts. In 2015, the Western Division convened a panel of experts in evolutionary biology, phylogeography, phylogenetics, and systematics for a Special Workshop to consider the different viewpoints, reconcile differing interpretations of the evidence, and, if deemed necessary, offer a revised classification of Cutthroat Trout that is consistent with all available evidence.

A new book, *Cutthroat Trout: Evolutionary Biology and Taxonomy*—AFS Special Publication 36, sponsored by the Western Division Executive Committee, will soon be available with the outcome of this Special Workshop. This book has two purposes: 1) to present the findings and

recommendations of the Special Workshop panel to the community of scientists who work on classification of these and other fishes, and to scientists and managers charged with aquatic habitat management and restoration of Cutthroat

Trout, and 2) to lay out the full array of available evidence considered by the panel together with the certainties and uncertainties inherent in this evidence.

The book brings together the latest available evidence for Cutthroat Trout evolutionary history and present levels of genetic diversity. It confirms the need for a revised classification of Cutthroat Trout. It proposes a revised phylogeny with four deep evolutionary divergences, each line having diverged further into one or more uniquely identifiable evolutionary subunits. It presents arguments (pro and con) for classifying the four major lineages themselves as full species, and for

delineating each of the 25 modern subunits. It provides a new systematics-based classification to guide and inform recovery and management decisions for the modern Cutthroat subunits, and identifies future research needs for clarifying lingering classification and nomenclature issues. It should be of value to anyone with interest in the fields of systematics, taxonomy, evolutionary biology and genetics, phylogenetics, molecular biology and genetics, and to fisheries biologists and managers at all levels from student to longtime professionals.

Cutthroat Trout: Evolutionary Biology and Taxonomy—AFS Special Publication 36 is now available for pre-order. It is listed in the AFS Publications catalog along with an order form in the May 2018 issue of *Fisheries*.

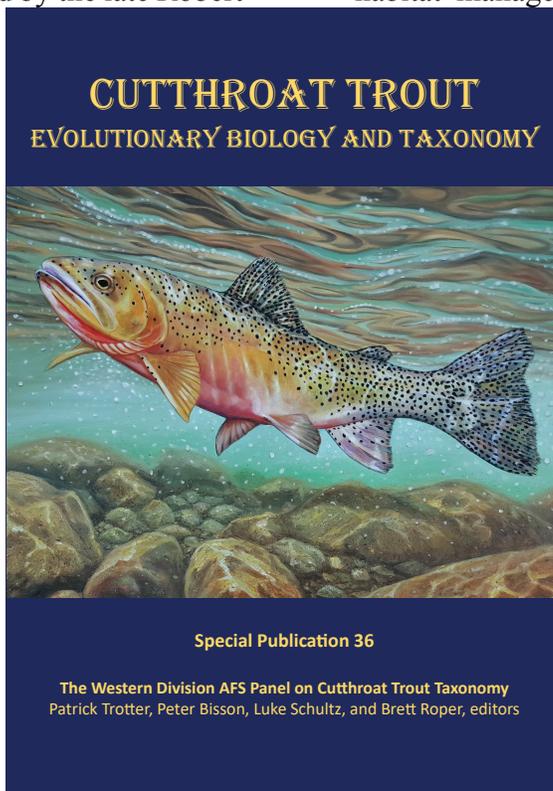




Photo from: www.kitsapconferencecenter.com

2019 WA–BC Chapter Annual Meeting

April 8 – 11, 2019

Kitsap Conference Center, Bremerton, WA



2019 Midwest Fish & Wildlife Conference Symposium

Using Standardized Assessments to Evaluate Harvest Regulations: Advancing Science-based Fisheries Management

Why have this symposium? Harvest regulation (i.e., minimum length limits, daily bag limits) use by agencies is ubiquitous. However, how agencies and research staff evaluate the effectiveness of regulations is less well known. Data which result from standardized assessments likely provide direct ways to assess outcomes of regulations. Here, we seek to provide a forum to:

- Summarize what is known about the effectiveness of harvest regulations across a wide variety of aquatic ecosystems;
- Share information on regulations evaluated, data collected, identified data gaps, and data sharing needs; and,
- Address how data from standardized assessments inform regulation evaluations and effective fishery management.

Who should submit their abstract to this symposium? All agency managers and/or research scientists that evaluate the effectiveness of regulations and collect standardized data from which they manage should consider submitting to this symposium. Presentations of particular use would address:

- Descriptions of state agency approaches to regulations and regulation evaluations, including indications of the data needed to evaluate;
- Descriptions of the use of standardized assessments to evaluate regulations; and,
- Considerations of how much data (e.g., how many years, how many generations) is needed to evaluate a regulation.

Find additional information here: <http://midwestfw.org/html/symposia.shtml>

Symposium organizers: Joseph Conroy, Jeremy Pritt, Ohio Dept. of Natural Resources; Martha Mather, Kansas Cooperative Fish and Wildlife Research Unit; and, John Dettmers, Great Lakes Fishery Commission



Cleveland, OH • January 27-30, 2019

Calling all students!



2018 Western Division of the American Fisheries Society Student Colloquium

When: November 15-18, 2018

Where: Menucha Conference Center: Corbett, Oregon



Who: Hosted jointly by the Oregon State University & Mt. Hood Community College Student Subunits

This event is a great way to:

- Meet your fellow AFS student members
- Present your research in a friendly, student-only environment
- Learn to create engaging infographics
- Explore Oregon!

More info to come!

For questions, contact:

Britta Baechler
WDAFS Student Rep.
baechler@pdx.edu

OREGON CHAPTER AFS 2019 ANNUAL MEETING

THE RIVERHOUSE IN BEND
MARCH 4-8, 2019



"At the nexus of science and restoration: What do we know?"

Hello Western Division AFS members!

It's not too early to start thinking about joining the Oregon Chapter for our next Annual Meeting in Bend in 2019! We will be including a series of symposia on the effects of habitat restoration from ecological and social dimensions. We will also have symposia on local topics focused on Central Oregon, a Hatchery Innovations symposia, and another Skills for all Stages symposia. There will be three workshops including one on GIS for Fisheries Professionals, another on Diversity, Equity and Inclusion in fisheries, and a third on Hatchery Innovations.

The theme next year is "At the nexus of science and restoration: What do we know?" After over twenty years of conservation focus in Oregon from the Oregon Plan for Salmon and Watersheds, and the federal Northwest Forest Plan, what do we know?



Restoration and conservation are key aspects of life for most fish and aquatic ecologists. What have we learned? We know how to complete restoration projects, but what do they do? How has restoration and conservation efforts affected our lives and communities? These are the core topics we will be addressing at the meeting through a series of planned symposia and plenary speakers. If you would like more information about the meeting, please send email Becky Flitcroft at presidentelect@orafs.org.



Vermillion River, British Columbia

Important Dates

November 15-18

WDAFS Student Colloquium
Corbett, OR

January 27-30

Midwest Fish & Wildlife Conf.
Cleveland, OH

March 4-8

Oregon Chapter Meeting
Bend, OR

April 8-11

WA-BC Chapter Meeting
Bremerton, WA