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TRIBUTARY

Western Division of the American Fisheries Society

WDAFS Small-Grants issue

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PRESIDENT'S HOOK

Jackie Watson

I can't believe I'm writing my last President's Hook and a whole year has gone by already. It seems like I woke up three weeks ago as WDAFS President. What a blessing; I'm truly going to miss this year.

I find it difficult to reflect on what I have accomplished during my Presidency while I'm so deep in Reno meeting details. Three more weeks, 24 days 5 hours 54 minutes the meeting website tells me.

Did I fulfill my goals? Well here's the thing about setting goals, in the beginning you do not have a realistic idea of what your workload will be. It's easy to be idealistic and set goals in the beginning. About three months in you realize, I can only focus on so much and my goals are being pushed to the side. It's a little disheartening; you were elected on a platform based on these goals, you've shared your goals with the entire membership, and now you don't have time to work on them. Fortunately for me I have a great friend and mentor in a similar position, Jesse Trushenski, and she reminded me that we have one more year, as Past Presidents, to carry out our initiatives. Therefore, my plan is to focus more on strengthening our professional society through diversity and inclusion, and to work on garnering better employer support of employee AFS involvement, next year.

So what has WDAFS accomplished during my term as President? Quite a lot actually. In April, we submitted a letter to the US Environmental Protection Agency acting administrator and the US Army Corps of Engineers assistant secretary regarding our opposition to the revised definition of "waters of the United States." In June, we partnered with AFS and the Alaska Chapter to submit comments to the US Army Corps of Engineers regarding their Pebble Mine draft environmental impact statement. Thank you to the members of our Resource Policy and Environmental Concerns Committee, Drue Winters, and the Alaska Chapter for their diligence in composing these letters. Both of these documents can be found on the Western Division website.



Our funding for small project grants was increased in 2019 and we awarded \$7,500 to nine different projects. We contributed to two book projects, *Diversity and Status of Trouts and Chars of the World* and *Multispecies and Watershed Approaches to Freshwater Fish Conservation*. We awarded \$5,000 in scholarships, \$11,500 in Reno travel grants including a newly developed Diversity & Inclusion award, \$1,500 in travel support to Riparian Challenge award winners, and \$500 in sponsorship to the Columbia Basin Transboundary Conference. I may go down as the least frugal president in our history, but I feel strongly that our members should receive as many benefits as possible. And, because I'm no spendthrift, we began developing a Western Division financial sustainability plan so that we may continue to be financially sustainable, while giving back to our members.

We, especially the Cal-Neva Chapter, have worked tirelessly planning the first-ever joint conference of AFS and TWS in Reno. This is going to be an unforgettable meeting and I'm especially looking forward to our two AFS plenary speakers, Dr. Kristy Kroeker of University of California, Santa Cruz and Dr. Sudeep Chandra of University of Nevada, Reno. Both speakers will focus on environmental changes related to climate, one in marine systems and one in mountain lake systems.

On top of all this, we are already in the thick of planning the next WDAFS meeting with the WA-BC Chapter. We look forward to seeing everyone in Vancouver, BC April 12-16, 2020! Meeting details can be found on the WA-BC Chapter website <https://wa-bc.fisheries.org/2020-meeting/>

It has been an honor to serve as your WD President. I have had an amazing year working with incredible, passionate, and dedicated people. Thank you for all the support and keep on "gettin' s**t done."

I can't write my last President's Hook without offering a book recommendation. My favorite book this year was *The Feather Thief: Beauty, Obsession, and the Natural History Heist of the Century* by Kirk Wallace Johnson.

WDAFS FUNDED PROJECTS

Each year, WDAFS accepts applications for funding of small fisheries-related projects in the western United States, US territories, Mexico, and Canadian provinces represented by the WDAFS. Grants are usually modest, averaging less than \$1000, but can help get a project started or be used to supplement funding from other sources. In 2019, the WDAFS Executive Committee approved a budget of \$7,500 to fund as many small projects as possible.

Using an ecohydraulics approach to investigate physical drivers of Chinook Salmon straying behavior

Sean Luis (University of California, Davis)

Greetings, my name is Sean Luis, I am a second-year PhD student at the University of California, Davis in the Graduate Group in Ecology. I have been an active member of AFS for over three years, volunteering on the Executive Committee of the California-Nevada Chapter and also serving as President of the Sacramento-Davis Student Subunit for the 2017-2018 academic year. I am very grateful to be a recipient of the 2019 WDAFS Small Project Grant award. Over the last few years, my involvement with AFS has afforded me many opportunities to expand my professional network and develop as both a student and a professional.

My graduate research involves the investigation of physical (non-olfactory) drivers of straying behavior in adult Chinook salmon using tools and techniques in the field of ecohydraulics. For decades, fisheries scientists have been studying the role that olfactory cues play in the migratory behavior of anadromous fish. However, studies on straying behavior in salmonids (adults returning to spawn in non-natal stream reaches) have noted that there are likely other environmental cues besides olfaction that influence migratory navigation as adults progress upstream through a watershed. In the case of hatchery-origin individuals, juvenile release strategies may limit olfactory imprinting in early life stages, forcing those individuals to navigate by other means when they return to spawn as adults. A natural “background” rate of straying appears to be approximately 5-10% in a Pacific salmon population. In California, however, stray rates have been shown to be much higher depending on hatchery release practices. As we see in California, this can be problematic when it leads to genetic introgression between hatchery-origin and imperiled wild-origin fish.



Fall-run Chinook salmon escapement data for the Feather and Yuba rivers in northeastern California have indicated patterns of Feather River hatchery-origin fish entering the Yuba that appear to be largely driven by discharge magnitude and temperature ratios between the two rivers. My study examines the confluence of the Feather and Yuba Rivers and asks the following two questions: (1) Are migratory behavioral cues at the Feather/Yuba confluence driven by flow and temperature ratios between the rivers, which are primarily controlled by upstream flow regulation? (2) Are migratory behavioral cues driven by physical microhabitat conditions (velocity, depth, temperature) that are primarily controlled locally within the confluence region itself? To address these questions, I am collecting geo-referenced observations of adult fall-run Chinook migrating past the confluence using a dual-frequency identification sonar (DIDSON). I am then comparing the behavioral observations to depth and velocity maps generated using a 2-D hydrodynamic model of the confluence under variable discharge scenarios, as well as temperature maps using an array of temperature loggers deployed during the fall-run Chinook migration window. The goals of this analysis are to: 1) identify the physical (hydraulic and thermal) characteristics of preferred migratory “microhabitats” (1m² scale); 2) understand how microhabitats are distributed in space and time within the confluence as a function of discharge in the two rivers; and 3) simulate Feather/Yuba confluence conditions that occurred in years with high rates of straying to characterize the extent to which discharge and temperature may have played a role in those events.

The funds that I have received this year via the 2019 WDAFS Small Project Grant will be used to purchase stationary temperature data loggers that will be deployed within the confluence site to monitor temperatures throughout the 2019 fall-run Chinook spawning migration.

WDAFS FUNDED PROJECTS, continued

Impact of the Pacific Sierra gillnet fishery on elasmobranchs captured as bycatch in the Gulf of California

Felipe Amezcua (Universidad Nacional Autónoma de México)

The Pacific Sierra (*Scomberomorus sierra*) fishery in the south east of the Gulf of California, Mexico, is a highly important small scale fishery, comprising of outboard motor boats utilising gillnets. The gill nets are up to 800m long with a mesh size of 2.5 to 3.5 inches and catch on the fish’s gills as it attempts to swim through. The major problem with this fishery is that gillnetting is not selective and high levels of bycatch are encountered; particularly elasmobranch bycatch. Elasmobranchs may be caught via the gills or by becoming entangled in loose netting. Bycatch of elasmobranchs is particularly problematic due to their k-selected life history strategies: long-lived, late-maturing, reaching large sizes, and producing few offspring. This has the result of a low intrinsic rate of population increase for many species, when combined with high levels of bycatch this can cause drastic population crashes. In particular the regions fished for the *S. sierra* fishery are shallow coastal areas which are characteristic of elasmobranch nursery areas. If the bycatch is taken from nursery areas then the catch will be predominantly comprised of juveniles and their mothers. Taking immature individuals as well as the reproductive stock, can severely impact that species’ population. In this study bycatch was collected from the Pacific sierra fishery, and taken to the laboratory to assess length-at-maturity and length frequencies of all the elasmobranchs that became entangled in the net, in order to determine the vulnerability of every elasmobranch species that is being caught as bycatch of this fishery. The measurements included total length (cm), sex, and maturity stage. For each species the length-at-maturity was found by fitting a logistic regression model to the binomial maturity data, and cohorts were identified by length frequency. Results from this study will be used to propose mitigation measures to prevent juvenile elasmobranchs and their mothers from being caught as bycatch in these shallow coastal nursery areas.



Boys & Girls Club Fish Class

Santa Cruz-Monterey Bay Area Subunit (SCMBAS)

Our program, ‘Boys & Girls Club Fish Class’ offers a potentially life-altering experiences to a group of young students who may never have otherwise had exposure to fisheries science. SCMBAS, in partnership with the Boys and Girls Club of Santa Cruz County (BGCSC), California, hosts a four-part educational course series during the summer to deliver fisheries curriculum alongside a unique field learning opportunity directed at encouraging interest in fisheries science among students from underrepresented backgrounds. Of BGCSC’s 2,000 local youth members, 55% live below or slightly above the federal poverty level, 35% live in single-parent households and 60% identify as non-white. Risk factors for this population include homelessness, low-income households, minority groups, single parent households, and challenges facing non-native English speakers. The goal of this project is to provide these at-risk students with fisheries-focused science curriculum which not only engages them with the field, but also helps harbor interest for continued study.

This project is now in its second year running. During the first iteration, nearly every child who attended (many of whom live within 20 miles of the coast) remarked that they had never imagined they could be on a boat—nor that they could ever catch their own dinner. I was personally humbled and inspired by the experience, and grateful for the opportunity provided by WDAFS to potentially change the course of these young students’ lives.



WDAFS FUNDED PROJECTS, continued

Microplastic concentration in a coastal California stream

Rosealea Bond (Southwest Fisheries Science Center, Santa Cruz)

Lindsay Hansen (Southwest Fisheries Science Center, Santa Cruz)

Microplastics (MP; plastic particles < 5 mm in diameter) are a growing environmental concern which threatens the health of aquatic ecosystems worldwide. Recent research has documented the ubiquitous nature of MP in the marine environment and the assimilation of MP in fishes at all trophic levels. Comparatively little is known, however, about the occurrence and concentration of MP in riverine ecosystems. With the support of the WDAFS Small Grants program, we plan to address this knowledge gap by assessing the presence of MP in Scott Creek, a small (78 km²) central California coastal watershed located approximately 90 km south of San Francisco. The Scott Creek watershed contains multiple fish species of special management concern, including Coho Salmon (*Oncorhynchus kisutch*; Central California Coast evolutionarily significant unit) and steelhead (*Oncorhynchus mykiss*; Central California Coast distinct population segment) which are listed as endangered and threatened, respectively, under the US Endangered Species Act.



Lindsay Hansen secures nets into the water column at the start of sampling. Credit: Rosealea Bond

The project goal is to determine if MP is present in the Scott Creek basin. Our methods include sampling suspended MP in the water column and documenting the occurrence of MP in the stomachs of juvenile steelhead. If present, we plan to quantify the concentration and composition of MP and investigate potential spatial and temporal trends in the watershed. We have initiated sampling at five sites in the watershed and will continue to collect samples monthly throughout the summer. This project is an important first step in identifying the presence of MP in coastal watersheds and is a starting point for assessing potential impacts on riverine fishes. We are extremely grateful for the support of the WDAFS Small Grants program.



WDAFS FUNDED PROJECTS, continued

Prevention of bacterial kidney disease in juvenile Chinook Salmon by addition of dietary fluoride or iodide

Martin F. Chen (Northwest Indian Fisheries Commission)

Bacterial kidney disease (BKD) is an infectious disease affecting all salmonid species, and is caused by the bacterium *Renibacterium salmoninarum*. BKD is a major cause of mortality of adult spring chinook salmon that have returned to hatcheries and are held for spawning, and causes juvenile morbidity and mortality in hatchery-reared chinook, coho and sockeye salmon. Mortality of juvenile salmon infected with *R. salmoninarum* in freshwater continues in saltwater. Bacterial kidney disease is a significant problem in captive rearing of endangered chinook salmon stocks and also causes mortality in chinook, coho and Atlantic salmon reared in enhancement and commercial marine netpen facilities. Salmonid species vary in their susceptibility to *R. salmoninarum* infection with Chinook, coho and sockeye salmon considered more sensitive and Atlantic salmon and rainbow trout being more resistant.

BKD is currently managed by avoidance of infected broodstock, antibiotic treatment, and in the case of commercial marine netpens, rearing resistant salmonid species. The current treatment for BKD, oral erythromycin often results in feed rejection, poor growth and frank toxicity/mortality in the course of a 21 day treatment. Previous research (Bowser et al. 1988) has shown that pretreatment with dietary fluoride (F) protects rainbow trout from an injected live *R. salmoninarum* challenge. However, to make this work more relevant to conservation hatcheries, this protection needs to be demonstrated in a more susceptible species. Previous work funded by the Northwest Indian Fisheries Commission and hosted at the Suquamish Tribal hatchery demonstrated that juvenile coho salmon ready eat and grow well on diets supplemented with F at a rate of 10 mg F/kg fish/day for up to 60 days.

This three-year project will determine if a diet supplemented with F will protect juvenile spring chinook salmon from live injected *R. salmoninarum*. The first year will establish the parameters of the injection challenge by injecting different levels of live *R. salmoninarum* into juvenile spring chinook salmon. This preliminary work, which began June 24 at the Oregon State University Aquatic Animal Health Laboratory (AAHL), should determine the dose of bacteria producing clinical disease in 50% of injected fish in 21-35 days. This dose will be used in years 2 and 3. The Hood River (Central Oregon) stock fish are a gift from the Consolidated Tribes of Warm Springs. In year 2, fish will be pretreated for 21 days with levels of dietary F from 0-20 mg/kg fish/day and then given the standard challenge. In year 3, levels of feed supplemented with dietary iodide (I) from 0-10 mg/kg fish/day as well as a combination of dietary F and I will be given as a 21 day pretreatment followed by injection challenge. A diet with a combination of F and I was found to protect Atlantic salmon held under hatchery conditions from *R. salmoninarum* (Lall et al. 1985).

Test-tube experiments currently being performed indicate that merely adding F to bacterial culture broth up to a level of 100 mg/L does not inhibit growth of *R. salmoninarum*, so F may act to increase the resistance of the fish.

If successful, this project could increase the success of captive salmon brood programs, increase pre- and post-release hatchery fish survival, reduce use of antibiotics and enable commercial marine netpens to rear more valuable chinook salmon in place of Atlantic salmon and rainbow trout.



*Steady Hands: injecting live *R. salmoninarum* into spring chinook at the AAHL.*

WDAFS FUNDED PROJECTS, continued

Drivers and ecological impacts of local adaptation by Tui Chub to lake and stream habitats

Henry Baker (University of California, San Diego)

Tui Chub (*Siphateles bicolor* spp.) are members of the minnow family (Cyprinidae) and comprise several species native to the Great Basin region of California and Nevada. Within a watershed, Tui Chub can inhabit and reproduce in a variety of lentic and lotic habitats, providing an ideal system for studying the environmental drivers and ecological consequences of local adaptation in freshwater fishes.

Populations occupying different habitats within the same biogeographic region can experience localized selective pressures. With strong selective pressures and sufficient genetic variability, local adaptation can drive divergence in morphological, physiological, and/or behavioral traits across habitat types. This trait divergence can drive ecological divergence in an eco-evolutionary feedback. Trait differences have been observed between lake- and stream-residing populations of a number of fishes. These trait differences have typically been assumed to be driven by natural selection, with water velocity as the putative driver. However, divergent traits can arise through processes other than natural selection (e.g. genetic drift), and should not be assumed to be adaptive. Furthermore, a number of variables other than water velocity can exert selective pressure, leaving the generality and predictability of trait divergence between lentic and lotic populations unclear. The extent to which populations are locally adapted may also determine the strength of their interactions with other members of the food web. Thus, resolving the drivers of trait divergence can help us not only understand the generation and maintenance of biodiversity, but also variability in food web structure.



Using both a large-scale field survey and a reciprocal transplant experiment mesocosm experiment, my research seeks to (1) characterize Tui Chub traits across lentic and lotic populations; (2) identify the relationship between Tui Chub traits and a suite of environmental predictors; (3) test whether Tui Chub are locally adapted to their habitat type; and (4) quantify the effects of local adaptation on food web structure.



CONFERENCE

FINAL CALL FOR PAPERS AND POSTERS

Catfish 2020: *The Third International Catfish Symposium*

February 18-20, 2020, Little Rock, AR

You are invited to attend and participate in the 3rd International Catfish Symposium to be held February 18-20, 2020 in Little Rock, Arkansas, in conjunction with the AFS Southern Division Annual Meeting. This is the **FINAL** call for oral platform and poster presentations at the symposium, including those to be considered for publication within the resulting peer-reviewed proceedings in a special issue of *North American Journal of Fisheries Management*. This meeting will provide a forum for the exchange of information about the biology, ecology, management and conservation of worldwide populations of both game and nongame catfish species. Previous publications from the First and Second Symposia continue to sell and have served as important references for managers and researchers alike.



The theme for the 3rd International Symposium is “Communicating Catfish Science” and will bring together the last decade’s work on the conservation, ecology, and management of worldwide catfish populations and their habitats. We encourage you to submit your research findings on any topic pertinent to management of catfishes and are actively seeking presentations pertaining to conservation and management challenges. Individuals interested in developing topical review papers are encouraged to contact the Program Committee Co-Chairs to assist with topic coordination.

To submit an oral or poster presentation and for the most up-to-date information on the symposium, please visit the web site at catfish2020.com. The presentation **abstract submission deadline is September 27, 2019**. Symposium presenters may submit their manuscript for consideration using the AFS manuscript submission portal (<https://mc.manuscriptcentral.com/najfm>) and indicate the Catfish 2020 special issue before the **manuscript submission deadline of February 11, 2020**.

Please contact Dr. Dan Shoup (daniel.shoup@okstate.edu) or Ben Neely (ben.neely@ks.gov) with questions about the program and Dr. Tom Kwak (tkwak@ncsu.edu) or Mark Porath (mark.porath@nebraska.gov) with questions about the proceedings.

Visit catfish2020.com for updated information, guidelines for oral and poster presentations, manuscript submission instructions, and symposium details.

COMMON PATHWAYS FOR CONSERVATION

The 2019 Western Division meeting will be held in conjunction with AFS and TWS, and is hosted by the Cal-Neva Chapter of AFS in Reno, Nevada, September 29 – October 3, 2019. This is the first-ever joint meeting of AFS and TWS, and will likely be the largest gathering of fisheries and wildlife professionals and students ever. Proposals for Continuing Education workshops and symposia opened December 14, 2018. Please see the meeting website at <https://afstws2019.org/> for more information.

JOIN US IN RENO!
AFSxTWS JOINT MEETING
SEPT 29 - OCT 3

WDAFS 2020

2020 Annual Meeting of the Western Division

April 12-16 in Vancouver, BC

FIRST CALL FOR SYMPOSIA

The Western Division and Washington-British Columbia Chapter of the American Fisheries Society invite you to submit your symposium proposals for the 2020 Annual General Meeting to be held in Vancouver, British Columbia, Canada April 12 - 16. The theme this year will be **“Crossing Boundaries and Navigating Intersections”**.

In order to advance our understanding and management of fisheries and aquatic ecosystems we will need to boldly cross boundaries and navigate intersections – we will need to go where we have not gone before. Boundaries are divides that may include technology, methodology, mindsets, disciplines, environments, borders, politics, communications, values and the like. Intersections represent pathways where these often-separate factors converge. This meeting will highlight the myriad and successful ways boundaries have been crossed and intersections navigated in fisheries and aquatic sciences to achieve desired outcomes. *A special focus will be given on generating outcomes from the diversity of symposia presented.* Outcomes may include publications, proposals, recommendations, agreements, identification or clarification of uncertainties, and other action items. Generating outcomes within our meeting will leverage collective talent and help us to cross boundaries and navigate intersections for the betterment of our fisheries profession and advancement of aquatic culture.

Symposium organizers are encouraged to submit proposals, recruit presenters, solicit presenter abstracts, and direct presenters to submit their abstracts. Organizers are not required to have recruited a full symposium at the time of proposal submissions. A symposium should include a minimum of 5 presentations. Time slots are limited to 20 minutes, but multiple time slots (i.e. 40 or 60 minutes) may be offered to keynote symposia speakers or wrap-up panel discussions.

FORMAT FOR SYMPOSIUM PROPOSALS - When submitting your proposal, please include the following:

- 1. Organizer’s information:** Provide first and last name, affiliation, telephone number, and e-mail address of organizer. (More than one person can help organize a symposium, but we will only collect information from the lead person.)
- 2. Symposium title:** Be brief but descriptive.
- 3. Description:** Submit a brief (<300 word) abstract that describes your proposed symposium. Deadline for symposia submittals is **Friday November 8, 2019.**
- 4. Outcome:** Please describe expected outcomes (e.g., may include publications, proposals, recommendations, agreements, identification or clarification of uncertainties, and other action items)
- 5. Audiovisual requirements:** LCD projectors and laptops will be available in every room. Please list special A/V requirements, if any.
- 6. Special seating requests:** Standard rooms will be arranged theater-style. Please indicate special seating requests (for example, “after the break, a panel discussion with seating for 10 panel members will be needed”).

Email your symposia topics or contact for additional information:

Paul Spruell pspruell@ewu.edu (509) 359-7006 and Todd Pearsons tpearso@gcpud.org (509) 859-2862.

CALL FOR LOGO SUBMISSIONS

WESTERN DIVISION AMERICAN FISHERIES SOCIETY

ANNUAL MEETING April 12 – 16, 2020

Vancouver, British Columbia

<https://wa-bc.fisheries.org/2020-meeting/>

The Washington-British Columbia Chapter and Western Division of the American Fisheries Society invite you to submit a logo design for the 2020 Western Division Annual Meeting to be held in Vancouver, British Columbia, CAN, April 12–16. The meeting theme will be “**Crossing Boundaries and Navigating Intersections**,” and we’d like to spread the word using a meeting specific logo.

WHAT: Please send a hand drawn or computer designed logo to go with the 2020 theme: “Crossing Boundaries and Navigating Intersections.”

HOW: Send it as a photo/graphic attachment, to the Executive Committees at afs.wabc@gmail.com with the subject “**2020 WDAFS Logo Submission.**”

Make sure to include your name, e-mail, and telephone number.

WHEN: Submissions will be accepted until 11:59 PM (PST) on October 31, 2019.

WHY: If selected, you will win a \$300 cash prize and be recognized during the 2020 Business Meeting.

Our thoughts on the meaning behind the theme:

In order to advance our understanding and management of fisheries and aquatic ecosystems we will need to boldly cross boundaries and navigate intersections – we will need to go where we have not gone before. Boundaries are divides that may include technology, methodology, mindsets, disciplines, environments, borders, politics, communications, values and the like. Intersections represent pathways where these often-separate factors converge. This meeting will highlight the myriad and successful ways boundaries have been crossed and intersections navigated in fisheries and aquatic sciences to achieve desired outcomes. A special focus will be given on generating outcomes from the diversity of symposia presented. Outcomes may include publications, proposals, recommendations, agreements, identification or clarification of uncertainties, and other action items. Generating outcomes within our meeting will leverage collective talent and help us to cross boundaries and navigate intersections for the betterment of our fisheries profession and advancement of aquatic culture.

Here are some characteristics of a great logo:

1. **Simple:** Simple logos are the ones people can recognize at a glance and remember the most.
2. **Scalable:** A great logo should be simple enough that it can be made larger or smaller and still look good. This means not using too many colors that make it too expensive to print, and avoiding too many details that would be lost if the image was shrunk.
3. **Memorable/Impactful:** A great logo should make an impact. You want to capture your viewer’s attention and leave an impression.
4. **Versatile:** A great logo should look equally good on any web device and on any kind of print material. We are excited to see what you come up with!

NOTE: By submitting your logo design, the winner is agreeing that their logo design will become property of the WA-BC Chapter of the American Fisheries Society and may be used for any marketing or branding purpose. Artists will be given full credit for their work.

WDAFS Student Subunit Logos



IMPORTANT DATES

September 28/29 Continuing Education Classes at AFS-TWS Reno

Sept 29-Oct 3 AFS-TWS First Ever Joint National Meeting

October 31 Logo Submission deadline for Vancouver 2020

Read the new virtual journal issue celebrating the joint meeting of the **American Fisheries Society** and **The Wildlife Society**



afspubs.onlinelibrary.wiley.com

Featuring contributions from *Fisheries*, the *North American Journal of Fisheries Management*, the *Journal of Wildlife Management*, and *Transactions of the AFS*

WILEY **AFS**



Have a story you'd like to share?

Submit project updates, opinion letters, photos, and more to

westerndivnewsletter@gmail.com