



# THE Open Reading Frame

## Newsletter of the Genetics Section of the American Fisheries Society

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Lake Michigan near Good Hart, MI by Shannon M. Homola

## President’s Message

Greetings Genetics Section Members,

Welcome to a belated Spring 2020 edition of the Genetics Section newsletter amidst the COVID-19 pandemic. We delayed the newsletter until we learned about the fate of an in-person meeting in Columbus, which has been officially cancelled. A

virtual version of the annual conference is currently being planned. Abstracts are due June 15th and the tentative conference dates are from September 15 through the 25th.

We will be moving forward with this year’s Genetics Section awards. Please think about someone you might want to nominate for the Early Career Award or as an inductee to the Hall of Excellence. Nomination deadlines will be in June and you can find out more about the awards on the Genetics Section website and in this newsletter on pages 6 and 7. With respect to student awards, we are planning to use the Wright Award to support student presentations at the virtual annual conference. We will wait to see how the virtual annual conference comes together and how much registration costs before we determine the number of awards.

We will hold a Genetics Section annual meeting this autumn to give out awards and to address other Section business.

This meeting will likely be held in conjunction with the virtual annual conference, or we might end up holding it as a standalone event. Look for more details once we know more about the virtual conference.

I hope you all have managed to stay healthy during these challenging times.



Dr. Andrew Whiteley  
AFSGS President

Andrew

# Genetics Section Executive Committee Election Candidates Announced

The Genetics Section Executive Committee consists of a President, Secretary-treasurer, and member-at-large. These volunteer positions help keep the Section running and allow us to provide members with opportunities to interact at meetings, stay informed about upcoming meetings, training, jobs, and grant opportunities. The Secretary-treasurer and member-at-large positions are a two year terms and the President will spend two years as President-elect, two years as President and two years as Past-president.

This year we have two candidates for Secretary-treasurer and one candidate for President-elect. You can read their bio-sketches below. Additional details including a link to vote will be emailed in the coming days.

## President-elect candidate Dr. Garrett McKinney



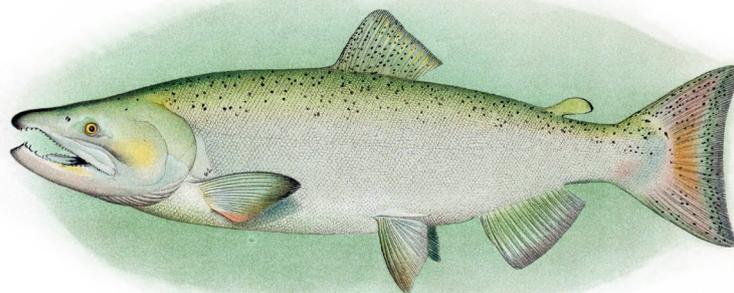
**AFS Genetics Section  
President-elect candidate  
Dr. Garrett McKinney**

From a young age I have been interested in oceans and fish, and while I started my undergraduate pursuing marine biology, my interests increasingly focused on genetics and conservation. My first exposure to fisheries genetics was as an undergraduate at Washington State University working with Dr. Gary Thorgaard. This set me on a path that led to a PhD from Purdue University, followed by postdoctoral positions at University of Washington and at NOAA National Marine Fisheries Service.

Throughout my career I have been actively involved in research related to fisheries genetics, including the genomics of adaptation in salmonids, development of marker panels for genetic stock identification, and the creation of methods for genome-scale analyses. This work has involved collaboration with multiple state and federal agencies, as well as tribal fish hatcheries, and has given me a broad view of how genetics can be useful for fisheries management.

I believe that as a scientist, I have a duty to provide service to others in the field because I have been helped by so many others throughout my career. I have been an invited instructor at domestic and international workshops aimed at teaching conservation genomics, I have organized seminar series promoting cross-disciplinary fisheries research, and I have participated on multiple graduate student committees. My involvement with the AFS genetics section began in 2015 when I organized the "Genomics of adaptation in natural populations" symposium for the AFS annual meeting in Portland,

Oregon. As AFS Genetics Section president-elect I would continue promoting scientific training by striving to expand workshops and travel opportunities for AFS genetics section members. I am excited for the opportunity to expand my involvement and service with AFS and help to lead the Genetics Section towards an even brighter future. Thank you for your consideration.



## Secretary-treasurer candidate Dr. Nick Sard

I am an Assistant Professor in the Biological Sciences Department at the State University of New York at Oswego. At the start of my career, my research interests were mainly focused on fish because of my love for fishing as a kid, which in part, is why I became a member of the American Fisheries Society (AFS). Now, my research program broadly focuses on using genetic-based approaches to aid in the conservation of native species. Prior to my current position, I worked as a post-doctoral researcher at Michigan State University, where I studied a range of questions associated with the detection of fish using environmental DNA sampling methods, invasive species colonization patterns, and fish dispersal. In terms of my education, I received both my bachelor's and master's degrees in Biology from the State University of New York at Fredonia, and a Ph.D. in Fisheries Science at Oregon State University.



**AFS Genetics Section  
Secretary-treasurer candidate  
Dr. Nick Sard**

I have been a member of the Genetics Section of the AFS since 2012; however, I have been attending and presenting my research at AFS meetings since 2008. Throughout my time as an AFS member, I have enjoyed and benefited from interactions with many wonderful people helping to manage and conserve fish. I am running for Secretary/Treasurer because I want to become more involved in the Genetics Section, and more generally, give back to a great organization.

## Secretary-treasurer candidate Dr. Mary Peacock



**AFS Genetics Section  
Secretary-treasurer candidate  
Dr. Mary Peacock**

I am a Conservation Geneticist who works primarily on ESA listed threatened and endangered fish species found in the western United States. My primary research question focuses using molecular tools to assess how organisms assort themselves on the landscape and how anthropogenic disturbance affects these patterns. I have a large research program on Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) where I work closely with federal and state land and species management agencies as well as non-governmental organizations such as Trout Unlimited, in formulating recovery strategies and implementing genetic monitoring of restoration activity outcomes.

I received my PhD in Zoology from Arizona State University in 1995. I have been a faculty member in the Department of Biology at the University of Nevada, Reno since 2004. Prior to that, I was the Assistant Director for Research for the Biological Resources Research Center, a conservation biology organization with the University of Nevada system. I have been a member of the American Fisheries Society since 1994 and active in the Genetic section for at least the past decade. On a personal note, I attend the American Fisheries Society and Western Division meetings just about every year. I rarely miss the meetings. I do this because the research presented at these meetings is not only germane to my own program but is always on the cutting edge of conservation biology and genetics. It is at these meetings that collaborative projects are often hatched and life-long friendships made. If elected I am interested in expanding our capacity to provide research

funds for students and funding to attend meetings. As mentors for students entering this field we can as a section provide support and opportunities to interact with other fisheries geneticists.



# AMERICAN FISHERIES SOCIETY

## VIRTUAL ANNUAL MEETING

### SEPTEMBER 2020

## AFS 2020: Genetics Symposia

### Retrospectives and Horizon Scans for Fish Genetics/Genomics

*Sponsored By: AFS Genetics Section and American Society of Ichthyologists and Herpetologists*

Our symposium appropriately aligns with the AFS 150th meeting theme: “Learning from the past, meeting challenges of the present, advancing to a sustainable future.” Fish conservation/management has made tremendous strides, largely driven by methodologies non-existent in late 19th/early 20th centuries, with few disciplines rivalling its technological growth. For example, fish stocks, previously propagated by manually selecting phenotypes, are now characterized by molecular genomic techniques.

Our symposium highlights the evolution of molecular genetic approaches by employing historic, contemporary, and futuristic perspectives. Speakers will review previous challenges and legacy approaches, and how subsequent state-of-the-art approaches overcame the former and enhanced the latter. Such insights will enlighten early-career professionals who never experienced the tedium of manual sequencing or microsatellite genotyping. Students/postdocs are encouraged to present ongoing research employing contemporary analytical approaches, while luminaries in the field will offer horizon-scans that not only delineate anthropogenic challenges in coming decades, but also potential solutions. Interdisciplinary speakers will be solicited to introduce a burgeoning array of approaches related to genetics/genomics, such as automated eDNA sampling, field-deployable molecular labs, and smart-phone tools.

However, one admonition remains: History repeats itself with each technological advancement. Will early enthusiasm become a bridesmaid to contemporary realism?

*Organizers: Marlis R Douglas (mrd1@uark.edu) and Michael E Douglas*

## The Expanding Role of “omics” in Fisheries Management: Past, Present, and Future Applications

*Sponsored By: AFS Genetics Section, Great Lakes Fisheries Commission*

Genomic, transcriptomic, and epigenomic technologies and computational methods are rapidly advancing and show great promise for addressing questions in fisheries management and conservation. Applications of these approaches have increased the accuracy and precision of conventional analyses while making previously intractable research and monitoring feasible. In this session, we will bring together fisheries managers and geneticist to (1) discuss how “omic” technologies are being used to directly address fisheries management and conservation issues, (2) identify ways in which these technologies can be further exploited by managers, and (3) increase synergistic interactions between management biologists and genomicists. We invite submissions from fisheries managers and researchers who are applying “omic” data to management questions. Presentations will be organized around 4-6 theme areas. These could include applications of genomics in hatchery programs and fish health (including response to stress and pathogens), integration of adaptive and functional variation into management decisions, understanding impacts of fish translocation and restoration programs, connectivity and demographic inference, and other topics. Theme areas will be introduced by invited speakers who are uniquely qualified to highlight key questions, emerging routes of inquiry, and potential contributions of “omics” methods. We welcome talks on wild and captive populations of marine and freshwater species.

*Organizers: Seth Smith (smithsr.90@gmail.com), Kim Scribner, Louis Bernatchez and Gordon Luikart*



American Fisheries Society

# AFS 2020: Genetics Symposia, cont'd

## Fisheries Genomics: Illuminating the Past, Present, and Future of Exploited Fish Populations

Genome-scale sequencing has become increasingly accessible in the past decade, allowing the application of new genomic tools to better understand exploited aquatic species. These data have allowed greater insight into past, present, and future changes in fisheries species, with important implications for their management. The utilization of genomic data is uncovering fine-scale genetic differences associated with behavior, life history, or environmental variation between populations in fished species previously thought to be genetically homogenous open populations. Demographic genomic tools have similarly allowed exploration of how species and populations have responded to past disturbances, providing direct evidence of the impacts of exploitation and environmental change. Genomic methods are also being used to refine models that predict future impacts associated with climate change, directly informing management of fisheries under future climate scenarios. In this symposium, we explore how new genomic tools are being used to study population diversity, ecological adaptation, demographic history, and future climate impacts of fisheries species, and also explore how these methods can inform their management and conservation. We will focus both on potential gains and limitations of the application of genomic data to inform stock assessment, fisheries management, and spatial planning in both marine and freshwater species

*Organizers: Tony Kess (tony.kess@dfo-mpo.gc.ca), Sarah Lehnert, Nina Overgaard Therkildsen, and Ian Bradbury*

## Using Genomics to Explore Adaptation and Improve Management

A critical component of developing management plans that promote long-term population sustainability is understanding the capacity for marine and freshwater fishes to adapt to increasing anthropogenic stressors, including pollution, habitat modification, introduction of non-native species, and climate change. Recent advances in genomic methods not only allow for characterizing patterns of neutral genetic diversity within and among populations, but also enable understanding of how anthropogenic stressors function as selective pressures to shape genetic variation. Studies incorporating these methods are capable of quantifying spatiotemporal changes in adaptive diversity, linking underlying genetic variation to adaptive traits, and characterizing molecular mechanisms mediating genome-to-phenome pathways. These studies collectively improve our understanding of the capacity for species to persist under changing or stressful conditions and provide information vital for effective conservation strategies. However, identifying how to integrate genomic insights into fisheries management plans remains challenging. Goals of this symposium are to bring together scientists and policymakers from backgrounds spanning marine and freshwater systems to: 1) highlight findings from studies focused on understanding adaptation in fishes inhabiting ecosystems exposed to diverse stressors, and 2) explore how to integrate findings into management efforts that conserve adaptive capacity and mitigate impacts of anthropogenic stressors on aquatic systems.

*Organizers: Nadya Mamoozadeh (mamooz@msu.edu), Shannon O'Leary, Tasha Thompson, Peter T. Euclide, and Avril Harder*

# American Fisheries Society

## Genetics Section Hall of Excellence

It can be difficult to remain positive during these uncertain times brought to our personal and professional lives by the COVID-19 pandemic. The shifting academic and job landscapes that have resulted can be particularly disturbing for our students and early career professionals.

Nevertheless, what better opportunity is there to uplift our collective spirits and shift our focus towards new possibilities and challenges than by recognizing and acknowledging those successes achieved by our professional colleagues?

Given this, we ask the following: Please nominate your favorite 'fish genetics hero/heroine' for potential induction into the AFS Genetics Section Hall of Excellence. The Hall of Excellence recognizes professionals who have made outstanding contributions to the advancement of management or conservation of aquatic species and ecosystems through the application of genetics tools, techniques, or theory.

Up to four inductees are entered into the Hall of Excellence per year, and presentation(s) are made at the AFS Annual Meeting. To view profiles of the inductees recognized since 2014 take a tour of the AFS-GS Virtual Hall of Excellence. Nomination procedure: Nominations should identify individuals (past or present) that have made a significant contribution(s) to genetics of aquatic organisms, conservation or management-oriented fisheries/aquatic research, or the promotion of genetic applications for fisheries and aquatic resource conservation, protection, and management. Nominee membership in AFS and the Genetics Section are not pre-requisites, but service to AFS and the Genetics Section will be considered in the award process.

Nominations for the Hall of Excellence can be provided by any Genetics Section member. Please download a Word version of the nomination form, [linked here](#).

**A nomination package should include:**

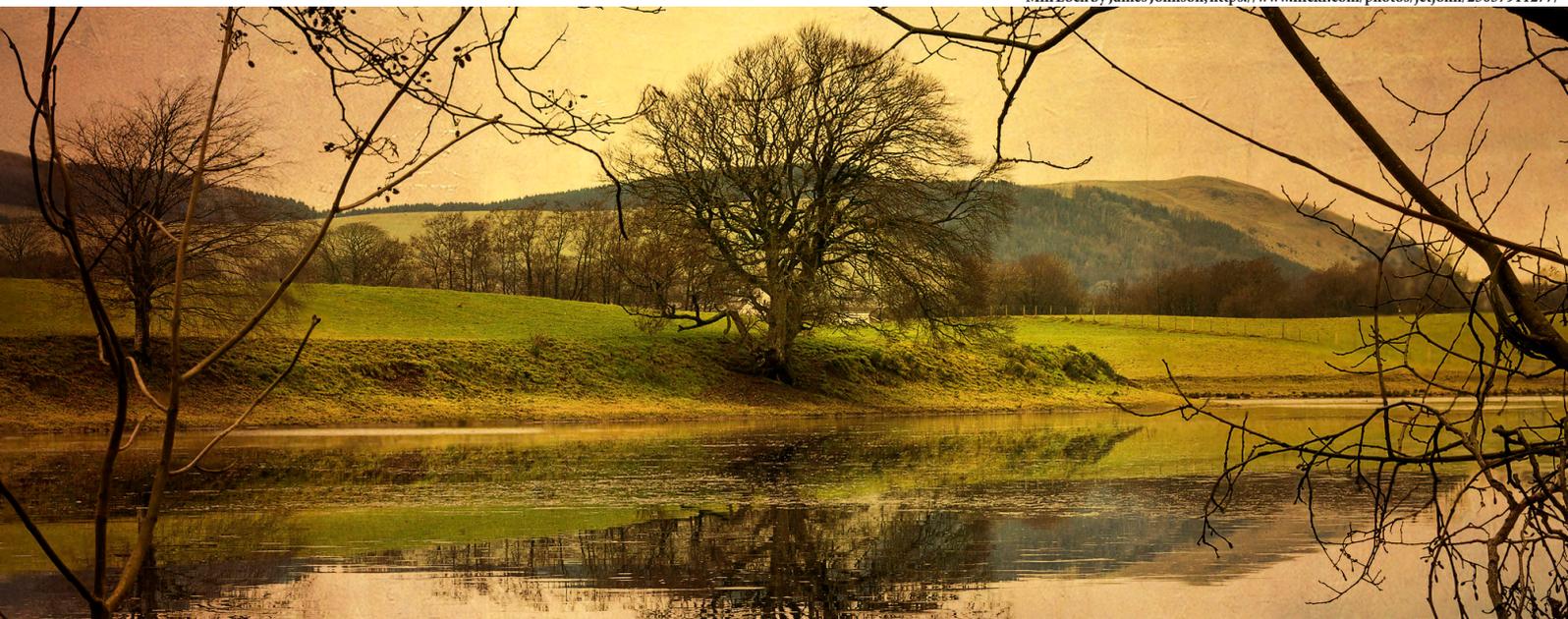
1. Name of the nominee
- 2 Short biography and curriculum vitae
3. Explanation of his or her contribution to the field, as well as to AFS, if applicable
4. Contact information (current address, phone, and email), date of birth, and date of death, if applicable

Note: Nomination packages for nominees not inducted can be updated by the nominator and rolled over for consideration for up to two years.

**Selection procedure:** The Hall of Excellence Award Committee is composed of four members, including the Genetics Section President-Elect (Chair), the two previous past presidents, and a member-at-large. The nominations are reviewed by the Award Committee, and recommendations are made by the Chair to the Genetics Section President. Candidates selected for induction need to provide a photo (head and shoulders) for display on the website.

**Deadline:** 30-June-2020. Send all application materials via email to: President-Elect Marlis R Douglas (mrd1@uark.edu)

Mill Loch by James Johnson; <https://www.flickr.com/photos/jetjohn/25057911277/>



# Genetics Section Award Nominations

## Early Career Award

The Genetics Section Early Career Award is given annually and recognizes the contribution of early-career researchers to the field of fisheries genetics. The goal of this award is to promote innovative and particularly applicable genetics research, increase interest in fisheries genetics careers, and enhance professional connections among fisheries geneticists. The candidate's genetics work should be applicable to the Society's mission to "improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science". The award will be presented at the Genetics Section meeting during the AFS Annual Meeting.

**Eligibility:** There are no restrictions on nominators. A nominee must be a full or affiliate member of the AFS Genetics Section and must be within five years of having completed graduate training, including post-doctoral research, and in the initial stages of career development whether that be in an academic, agency, NGO, or other conservation setting.

**Nomination package:** 1. Cover letter with the nominee's name, professional address and contact information, and the same for the person submitting the nomination. 2. A one-page letter of nomination. 3. The nominee's C.V. 4. Three reprints of publications or other summary material representative of the nominee's contribution to fisheries genetics.

Nominations should provide clear evidence of how the candidate's research furthers our understanding of fish evolution, ecology, conservation or management. Leadership in integrating genetic research with education or end-user/community outreach is considered strongly.

Please submit nominations by June 10th to Craig Stockwell, Committee Chair, at [Craig.Stockwell@ndsu.edu](mailto:Craig.Stockwell@ndsu.edu), and cc Committee Members: Emily Lescak; [elescak@alaska.edu](mailto:elescak@alaska.edu) and Scott Pavey; [scottapavey@gmail.com](mailto:scottapavey@gmail.com)

## James E. Wright Graduate Award

The Genetics Section of the American Fisheries Society is pleased to announce the James E. Wright Graduate Award. This award is presented annually by the Genetics Section at the AFS Annual Meeting and is intended to recognize excellence in graduate-level work in fisheries genetics. The Section anticipates awarding several awards to assist graduate students with registration fees to attend the virtual AFS Annual Meeting in 2020.

**Eligibility:** The applicant must be a full or affiliate member of the Genetics Section at the time of application. Students are eligible to win the award once per graduate degree program. For example, a student who received the award as a Masters student is eligible to win again as a PhD student, but a PhD student who wins the award once is not eligible to win in future years.

**Selection Criteria:** 1. Potential for success in research in fisheries genetics (60%) 2. Anticipated contribution to upcoming annual meeting, e.g. paper, poster, or other contribution (20%) 3. Service to the Society, Sections, or Chapters (10%) 4. Demonstrated need for travel assistance (10%)

**Application Procedure:** Application package should include: a. A brief curriculum vitae including anticipated degree, date of completion, and career goals b. A statement of the thesis or dissertation and abstract of progress to date c. The names and contact information for two references familiar with the applicant's background and abilities d. A statement of previous service to the Society, Sections, or Chapters, and need for travel assistance e. A statement addressing anticipated contribution to the upcoming AFS Annual Meeting

**Deadline for application:** 16 June, 2020

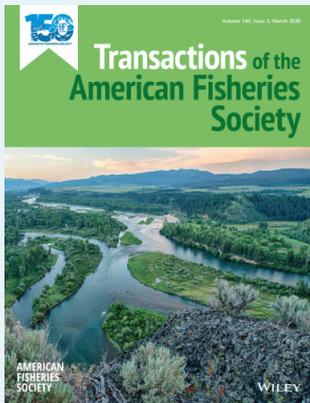
**Send all application materials via email to:** Andrea Schreier at [amdrauch@ucdavis.edu](mailto:amdrauch@ucdavis.edu)



# In case you missed it...

## Recent genetics papers from AFS journals and beyond

Editor's note: Click citations for link to papers



Genetic structure of smallmouth bass (*Micropterus dolomeiu*) in Lake Michigan and the Upper Mississippi drainages relates to habitat, distance, and drainage boundaries. Euclide et al. TAFS, accepted articles.

Genetic family reconstruction characterizes lake sturgeon use of newly constructed spawning habitat and larval dispersal. Hunter, et al. TAFS, early view.

Tracking stocking success in a long-lived species through genetics and demographics: Evidence of natural reproduction in lake sturgeon after twenty-two years. Welsh et al. TAFS, 149:121-130.

Genetic evaluation of population structure in tautog, *Tautoga onitis*. Small, et al. TAFS, accepted articles.

Genomic characterization of Coho salmon spawning population from the Hood Canal. Bohlin et al. TAFS 149:3-13.

RAD-Seq refines previous estimates of genetic structure in Lake Erie walleye. Chen et al. TAFS, 149:159-173.

Empirical evaluation of oxytetracycline and  $F_1$  genetics to differentiate stocked from wild largemouth bass. Bunch et al. NAJFM, early view.

A genetic assessment of Missouri's lake sturgeon after 30 years of restoration releases. Berkman et al. NAJFM, early view.

Hybridization and population genetics of Alligator Gar in Lake Texoma. Taylor et al. NAJFM, early view.

Genetic integrity of lake trout in Cold Lake, Alberta, despite decades of supplemental stocking. McDermid et al. NAJFM 40:459-474.



Unraveling hierarchical genetic structure in a marine metapopulation: A comparison of three high-throughput genotyping approaches. D'Aloia et al. Molecular Ecology, early view.

Stacking up RADSeq assembly programs: From complete hit to completely abysmal. Marrano et al. Molecular Ecology Resources, 20:357:359.

Environmental DNA analysis shows high potential as a tool for estimating inraspecific genetic diversity in a wild fish population. Tsuji et al. Molecular Ecology Resources, accepted articles.

Simulation with RADinitio improves RADseq experimental design and sheds light on sources of missing data. Rivera-Colon et al. Molecular Ecology Resources, accepted articles.

Evaluating the probability of CRISPR-based gene drive contaminating another species. Courtier-Orgogozo et al. Evolutionary Applications, early view.

Multiple decades of stocking has resulted in limited hatchery introgression in wild brook trout (*Salvelinus fontinalis*) populations of Nova Scotia. Evolutionary Applications, early view.

Genome-wide SNPs resolve spatiotemporal patterns of connectivity within striped marlin (*Kajikia audax*), a broadly distributed and highly migratory pelagic species. Mamoozadeh, et al. Evolutionary Applications 13:677-698.

Evolution and genetics of bighead and silver carps: Native population conservation versus invasive species control. Lu et al. Evolutionary Applications, accepted articles.

Estimating the contribution of Greenland halibut (*Reinhardtius hippoglossoides*) stocks to nurseries by means of genotyping-by-sequencing: sex and time matter. Evolutionary Applications, accepted articles.

# 2020 Meeting Updates

## ***Moved online***

- June 9-11: International Association of Great Lakes Research. [iaglr.org/iaglr2020/](http://iaglr.org/iaglr2020/)
- Oct 6-8: North American Invasive Species Management Association Annual Conference. [naisma.org/conferences/](http://naisma.org/conferences/)
- July 14-17: International Convention of Allied Sportfishing Trades. [icastfishing.org/](http://icastfishing.org/)
- Aug 3-6: Ecological Society of America Meeting. Salt Lake City, UT. [esa.org/saltlake/](http://esa.org/saltlake/)
- Aug 24-27: International Marine Conservation Congress. [conbio.org/mini-sites/imcc6](http://conbio.org/mini-sites/imcc6)

## ***Rescheduled***

- 14th International Congress on the Biology of Fish. Rescheduled to July 6-9, 2021 in Montpellier, France.
- IUCN World Conservation Congress 2020. Rescheduled to January 7-15, 2021. [iucncongress2020.org/](http://iucncongress2020.org/)
- Epigenetics in Marine Biology Congress. Rescheduled to Oct 6-7, 2020. [epimar.univ-perp.fr/](http://epimar.univ-perp.fr/)
- 8th World Fisheries Congress. Rescheduled to Sept 2021. [wfc2020.com.au/](http://wfc2020.com.au/)
- 11th International Flatfish Symposium. Rescheduled to Nov 14-20, 2021. [flatfishsymposium.com/international-flatfish-symposium-2020](http://flatfishsymposium.com/international-flatfish-symposium-2020)

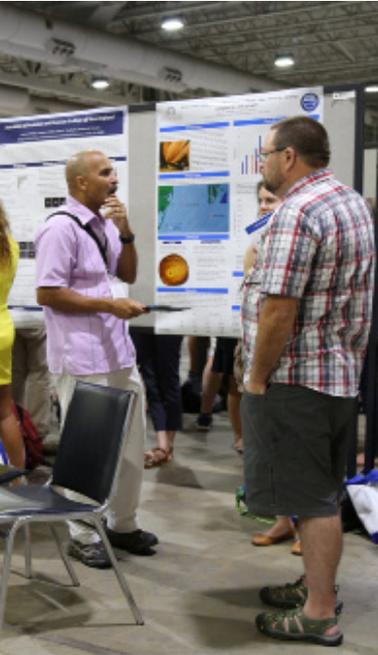
## ***Cancelled***

- Evolution Meeting. [evolutionmeetings.org/](http://evolutionmeetings.org/)
- Fish Passage 2020. [fishpassage.umass.edu/](http://fishpassage.umass.edu/)
- Joint Meeting of Ichthyologists and Herpetologists. [burkclients.com/JMIH/meetings/2020](http://burkclients.com/JMIH/meetings/2020)
- Fisheries Society of the British Isles. [fsbi.org.uk/symposium-2020/](http://fsbi.org.uk/symposium-2020/)

## ***No decision announced***

- Sept 22-25: Wild Trout Symposium XIII. West Yellowstone, MT. [wildtroutsymposium.com/](http://wildtroutsymposium.com/)
- Oct 25-28: Southeastern Association of Fish and Wildlife Agencies. Springfield, MO. [seafwa.org/conference/](http://seafwa.org/conference/)
- Nov 16-20: North American Lake Management Society. Minneapolis, MN. [nalms.org/nalms2020/](http://nalms.org/nalms2020/)

**To find dates and information for AFS chapter meetings, visit [fisheries.org/about/units/chapters/](http://fisheries.org/about/units/chapters/)**



## Job Postings

*Editor's note: Click postings for links to more information*

### **Clemson University, Lecturer**

The Department of Biological Sciences at Clemson University is seeking a full-time, 9-month Lecturer in Biological Sciences with expertise in ecology and/or evolutionary biology to begin Fall 2020.

### **University of Helsinki, Finland, Postdoc**

The postdoc in the lab of Prof. Craig Primmer will be responsible for continuing experiments on Atlantic salmon studying reaction norms of fitness-related traits in common garden and semi-natural conditions, as well as analyzing 3 years of available data.

### **University of Pennsylvania, Postdoc**

The Gao lab at the University of Pennsylvania is recruiting two postdocs in population and computational genomics.

### **Texas A&M, PhD student**

A computational systems biology lab (<https://www.genomezoo.net/>) at Texas A&M University, College Station, has an opening for a PhD student. You will be working on developing machine learning tools for single-cell data analyses.

### **USGS Cooperative Fish and Wildlife Units, Fisheries Assistant Unit Leader Openings**

Numerous opportunities are being advertised for joining the USGS Coop Unit System. These include:

- Texas Tech Univ. in Lubbock, TX - Due June 19
- NC State Univ in Raleigh, NC - Due June 19
- UW-Stevens Point in Stevens Point, WI - Due June 27
- Univ. of Maine in Orono, ME - Due June 13
- Oklahoma State Univ. in Stillwater, OK - Due June 18
- Univ. of Florida in Gainesville, FL - Due June 18
- Mississippi State Univ. in Starkville, MS - Due June 13

# Workshops

## Adaptation Genomics, September 14-18, 2020 - Online

The registrations are now open for the Physalia course on Adaptation Genomics, which will take place ONLINE from the 14th to the 18th of September: (<https://www.physalia-courses.org/courses-workshops/courseadaptationgenomics/>). Instructors: Dr. Anna Tigano (University of New Hampshire) and Dr Claire Merot (University Laval). This course provides an introduction to the study of the genomic basis of adaptation using population genomics approaches applied to the analysis of both sequence and structural genetic variation. The instructors will guide the participants from the handling of raw genomic data and data exploration (e.g., summary statistics and population structure) up to more advanced methods, including genotype-environment associations based on both sequence and structural variants. Through hands-on exercises, the course will teach basic bioinformatics skills and how to manipulate, visualize and interpret genomic data and patterns. Learning Outcomes. 1) Handling genomic data from raw reads to genetic variants, 2) Calculating basic population genetic statistics, 3) Visualizing genetic population structure, 4) Searching for signatures of selection in the genome, 5) Accounting for putative structural variants, 6) Understanding the potential and the limitations of different methods to study the genomic basis of adaptation

## Introduction to Phylogenomics, October 1-9, 2020 - Online

Instructors: Jeremy M Brown (Louisiana State University, USA) and Robert Thomson (University of Hawaii, USA). This workshop will introduce participants to the theory and tools for phylogenetic inference in the era of genome sequencing. Course material will focus on statistical methods for phylogeny estimation, software implementing these methods, applications of these methods to large molecular datasets, and discuss trade-offs and tools for improving the accuracy of phylogenomic analyses. In hands-on practical sessions, participants will gain experience working with bioinformatic and statistical tools for analyzing large datasets. The course is intended to facilitate ongoing or planned phylogenomics projects by students, so they are encouraged to notify instructors in advance about the topics of greatest relevance to their own work. Example software: RevBayes, IQTree, SVDQuartets, ASTRAL, TreeScaper. More information and registration: <https://www.transmittingscience.com/courses/evolution/introduction-to-phylogenomics/> or writing to [courses@transmittingscience.com](mailto:courses@transmittingscience.com) Payment is not required at the registration.

## Population Genomic Inference from Low-Coverage Whole-Genome Sequencing, October 19-22, 2020

Instructors: Dr. Nina Overgaard Therkildsen (Cornell University, US) and Dr. Matteo Fumagalli (Imperial College London, UK) Course website: <https://www.physalia-courses.org/courses-workshops/course64/>. In this course, we will explore workflows and the underlying rationale behind producing, processing, and analyzing low-coverage sequencing data for population genomic inference. Given that most species have insufficient reference data to allow reliable genotype imputation, we will focus on genotype likelihood-based methodology that can be applied to any system. We will primarily cover methods and algorithms implemented in the ANGSD software package and associated programs, providing best-practice guidelines and discussion of how participants can make maximal use of low-coverage whole genome re-sequencing data for their studies. The course is aimed at researchers who might have previous experience with next generation sequencing (NGS) data (e.g. exome/RAD/pooled sequencing) and wish to explore the potential for using low-coverage whole-genome sequencing for their studies. All hands-on exercises will be run in a Linux environment on remote servers. Statistical analyses and data visualization will be run in R. Should you have any questions, please feel free to contact us: [info@physalia-courses.org](mailto:info@physalia-courses.org) .

## Information request

Genetics Section member Dr. Bob Summerfelt is requesting information from a member with experience in determining gender in fish (male, female, heterosex); especially of walleye (*Sander vitreus*). Dr. Summerfelt notes that there is a wish for production of all female walleye that requires production of either all X or all Y sperm, then determination of the results within six months of hatch without waiting two years for progeny tests. Persons with knowledge of this topic please contact: Robert C. Summerfelt, Professor Emeritus Department of Natural Resource Ecology and Management, Iowa State University by email: [rsummerf@iastate.edu](mailto:rsummerf@iastate.edu), or [rsummerf@gmail.com](mailto:rsummerf@gmail.com)



## **Section Officers**

### **President**

Andrew Whiteley  
andrew.whiteley@umontana.edu

### **President-Elect**

Marlis Douglas  
mrd1@uark.edu

### **Past President**

Wendylee Stott  
wstott@contractor.usgs.gov

### **Secretary-Treasurer**

Wes Larson  
wes.larson@uwsp.edu

## **Committees**

### **Hall of Excellence**

Marlis Douglas, Chair  
Robin Waples, Member-at-large  
Jeff Olsen  
Wendylee Stott

### **James E. Wright Award**

Andrea Schreier, Chair  
Melinda Baerwald  
Carol Stepien

### **Early Career Award**

Daniel Gomez-Uchida, Chair  
Craig Stockwell  
Emily Lescak

### **Stevan Phelps Award**

Ken Currens, Chair  
Adrian Spidle  
Jason Baumsteiger  
Wes Larson

### **Membership**

Mary Peacock

## **Representatives**

### **PFIRM**

Kim Scribner

### **Black Bass Symposium**

Meredith Bartron

### **Fisheries**

Marissa Jones

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