July 2021
Vol. 34, No. 1

THE Open Reading Frame

Newsletter of the
Genetics Section of the American Fisheries Society

In this issue

I wish I was a fish.... Snorkeling in Pippin Chhu, Bhutan - November 2017, Marlis Douglas

President's Message

Welcome to the June 2021 edition of the Genetics Section newsletter. When compared to 2020, we have many reasons for optimism: CoVID vaccines are available, restrictions are being updated, and many of us are emerging from isolation to do field or lab work.

Dr. Marlis Douglas
AFSGS President

Yet, a lot of uncertainty remains as well. How soon will everything return to 'normal'? When will it really be 'safe' again to mingle and travel? This unpredictability can evoke inertia, induce paralysis, prevent us from making long-term plans, and extend that lingering feeling of being overwhelmed and without control.

But, perhaps the idea of returning to normal, as in '… how it used to be' is the wrong way of thinking about a post-pandemic environment. Rather than returning to old routines, we instead have opportunities to do things differently. As a species, humans have proven to be amazingly resilient and adaptable– and the current situation presents us with an evolutionary trade-off to, in essence, climb another adaptive peak.

A year ago, barely anybody would have predicted we would not only socially distance but also work primarily from home. But we did – and we learned to remain productive, invent creative ways to teach and collaborate, and select alternative research projects without options of generating newer data. As geneticists, we are familiar with how rapidly change can occur; new lab methods and analytical pipelines emerge almost every week and it is hard to keep up with the literature. But we (mostly) consider this as something positive, as advantageous progress, in that it allows us to tackle questions relatively unattainable using a previous generation of tools. Of course, some of the 'good old ways of doing things' should be (and are being) retained such as phenol chloroform extractions that deliver squeaky-clean, high-molecular weight DNA necessary for long-range sequencing (e.g., Oxford Nanopore) despite lacking the convenience of column- or magnetic-bead technology.

Continued on next page

President's Message, cont'd

This '… change is good' perspective will help us to navigate the upcoming year. We will integrate solutions promoted by social distancing with those established by tried-&-true approaches. For example, AFS leadership and the local committee are optimistic about the 2021 AFS Annual Meeting in Baltimore (https://afsannualmeeting.fisheries.org/) and are organizing it as a hybrid event that will include both in-person and virtual activities. This provides options despite the ever-present ambiguity of a pandemic situation that while still unpredictable, steadily moves into a more favorable time of the year. Even in the face of lingering uncertainty, we can right now make the decision to submit an abstract and commit ourselves to presenting our data, while still undecided if indeed travel to Baltimore is feasible in November.

Similarly, the Genetics Section will participate in the AFS 150th Anniversary by documenting our history in a digital format, rather than generating printed materials for an exhibition 'booth' in Baltimore. The digital content of the AFS Genetics Section will also be available on the AFS website, which has the additional benefit of being accessible in (relative) perpetuity for a much broader audience. And – here we seek your assistance! (See the 'WANTED!' announcement on page 8).

To encourage participation at the Baltimore Meeting, we also decided to increase funds available for James Wright travel awards for students ($2,000) and make funds available for postdocs as well ($1,000). Travel awards can be used either for in-person (standard $500) or virtual attendance ($240). Please see details on eligibility, applications, and deadlines in our announcement on page 4 'James Wright Travel Awards'.

We are looking forward to greeting all of you soon – either virtually or in-person!

On behalf of the executive committee (Andrew Whitley – Past President, Garrett McKinney – President-Elect, Mary Peacock – Secretary/Treasurer, and Jared Homola - Newsletter Editor), I extend our gratitude and appreciation to all of you for being part of the AFS Genetics Section.

Marlis R Douglas President, AFS Genetics Section

Genetics Symposia at the Annual Meeting in Baltimore, Maryland

Beyond species detection – leveraging eDNA to inform fisheries management and conservation beyond species presence/absence applications

Environmental DNA (eDNA) has revolutionized the science of species detection. However, emergent research is demonstrating that eDNA (and potentially eRNA) could provide a trove of genetic and ecological information beyond species presence or absence data. Novel research on understanding the dynamics of eDNA (e.g. its production, degradation, and transport) in nature are refining its application as a means to study or monitor population ecology, and emergent research has highlighted its potential to monitor population genetic information. In this symposium, we focus on leveraging data from eDNA (and eRNA) for purposes beyond traditional species presence/absence applications. We invite submissions from researchers and managers who are applying eDNA data to address such issues in fisheries management and conservation. Topics could include (but are not limited to) using eDNA to monitor/infer abundance in natural populations, understanding eDNA dynamics in nature to improve modelling efforts, eDNA as a source of population-level genetic information, eDNA for biomonitoring applications, eDNA to detect transgenic organisms, and emergent applications of eRNA. Presentations in this symposium will explore opportunities to use eDNA and eRNA to study population ecology and inform fisheries management outside of species detection applications, identify gaps in knowledge, and discuss potential limitations of such applications.

Organizers

Matthew Yates, matthew.yates@outlook.com, UQAM, Université du Québec à Montréal
Ian Bradbury, ian.bradbury@dfo-mpo.gc.ca, Fisheries and Oceans Canada, Research Scientist
Paul Bentzen, paul.bentzen@dal.ca, Dalhousie University, Professor
Louis Bernatchez, louis.bernatchez@bio.ulaval.ca, Université Laval, Professor

Continued on next page

Annual Meeting Symposia, cont'd

Fishing for a Molecule – The Practical Value of eDNA Monitoring for Invasive Species

Early detection of aquatic invasive species (AIS) using environmental DNA (eDNA) monitoring could help prevent establishment of invasive species. Once an invasive species is detected, agencies may implement rapid response plans, develop regulations, or prioritize monitoring and eradication efforts. In some cases, however, false positives and false negatives or inconsistent monitoring methods can undermine efforts and lead to poor investment of resources. Despite the practical shortcomings, advancements in methodology and widespread interest in eDNA monitoring have promise for AIS programs. The goal of the proposed symposium is to elucidate the practical role (if any) of eDNA monitoring in Early Detection and Rapid Response plans for AIS programs. This symposium will feature invited speakers, include presentations from conference attendees, and focus on the costs and benefits of incorporating eDNA monitoring in AIS programs.

Organizers

Joseph Love, joseph.love@maryland.gov, Maryland Department of Natural Resources, Natural Resources Planner
Jay Kilian, jay.kilian@maryland.gov, Maryland Department of Natural Resources

Forage Fish Omics

Forage fishes have large impacts when compared to their rather diminutive sizes. These small schooling fish such as herrings, smelts and sand lances may account for 30% of global fisheries landings. In various roles when directly exploited or such as prey, forage fishes are important ecologically, culturally and economically. Nonetheless, they may be characterized as understudied as a whole and numerous species are in decline. The collapse of forage fish populations has substantial ecological impacts, particularly on dependent predator species which may be targeted by fisheries. While aspects of the basic biology of forage fishes may remain unknown, technological advancement has permitted previously impractical study of forage fishes. Various data types such as genomics, transcriptomics, and epigenomics are being applied to forage fishes that inform aspects of basic biology and lead to effective management of the species. In this symposium we bring together diverse taxa that are all forage fishes facing many of the same challenges and pressures. This session is open to contributed papers.

Organizers

Matthew Campbell, maccampbell@ucdavis.edu, UC Davis, Visiting Scholar
Amanda Finger, ajfinger@ucdavis.edu, UC Davis, Associate Director, GVL

Retrospectives and Horizon Scans for Fish Genetics/Genomics

This symposium aligns with the AFS 150th theme: "Learning from the past, meeting challenges of the present, advancing to a sustainable future." Fish conservation and management has made tremendous strides, largely driven by methodologies non-existent in late 20th/ early 21st centuries, and few disciplines parallel technological advances of molecular ecology and conservation genetics. Fish stocks, previously propagated by manually selecting phenotypes, are now characterized by molecular genomic techniques.

The symposium highlights the evolution of molecular approaches by illustrating historic, contemporary, and futuristic perspectives. Speakers will review previous challenges and legacy approaches, and how subsequent state-of-the art approaches overcame and the former and enhanced the latter. Early-career professionals who never experienced the tedium of manual genotyping should be enlightening by such insights. Students and postdocs will present ongoing research showcasing 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 introduce technologies related to genetics/genomics, such as automated eDNA sampling, field-deployable molecular labs, and smart-phone tools.

There is also a cautionary tale: History repeats itself with each technological advancement opening opportunities, but also pitfalls, and early enthusiasm matures into a more realistic perspective.

Organizers

Marlis Douglas, mrd1@uark.edu, University of Arkansas
Michael Douglas, med1@uark.edu, University of Arkansas

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 July 16th to Craig Stockwell, Committee Chair, at Craig.Stockwell@ndsu.edu, and cc Committee Members: Emily Lescak; elescak@alaska.edu and Kerry Reid; kerry.reid@stonybrook.edu

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 hybrid AFS Annual Meeting in 2021.

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: July 16, 2021

Send all application materials via email to: Andrea Schreier at amdrauch@ucdavis.edu

American Fisheries Society
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. Please click on the inductee name below to view the photo and inscription as it appears on their plaque and take a tour of our Virtual Hall of Excellence to see the plaques of all those inducted since this award program began in 2014.

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.

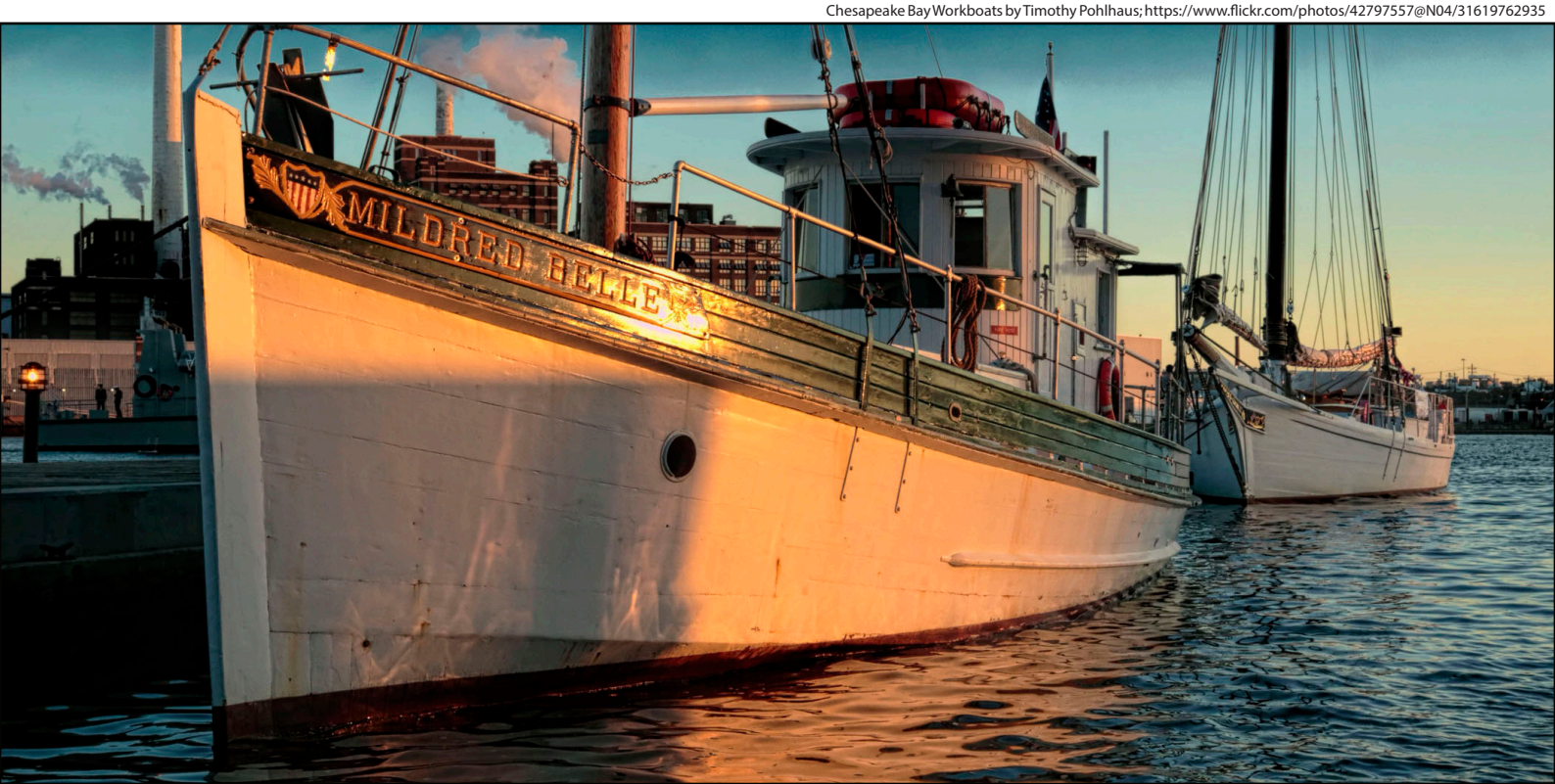
A nomination package should include:
1. Name of the nominee
2 Short biography and curriculum vitae
3. Explanation of his or her contribution to the field, as well as to AFS, if applicable
4. Contact information (current address, phone, and email), date of birth, and date of death, if applicable
Note: 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: July 30, 2021.

Send all application materials via email to: Garrett McKinney (Garrett.McKinney@dfw.wa.gov)

Chesapeake Bay Workboats by Timothy Pohlhaus; https://www.flickr.com/photos/42797557@N04/31619762935



Beach access boardwalk binoculars Chesapeake Bay First Landing State Park by Virginia State Parks; https://www.flickr.com/photos/37922399@N05/33209437815

We've got a plan – but how is it being implemented?

To make the AFS Genetics Section an even better professional network, the Excomm has outlined some ideas we hope to implement. So where do we now stand? Frankly, the first few months of 2021 have been very busy, draining energy levels and morphing us into Zoom-zombies on a regular basis. But the semester is now completed, and we feel ready to put plans into motion.

Digital-content modules for the AFS 150th Celebration

We formed a GS150 Steering Committee to guide this process, but we need your help!

We need creative individuals or entire teams/labs interested in digitally narrating the history of the Genetics Section (of course, our history is not quite 150 years). The goal is to showcase 'fish genetics' for a broader audience (i.e., members with little or no genetic expertise). We envision a variety of formats and already have some templates. The goal is to poke fun at our perceived peculiarities while simultaneously explaining what it means to '… do the genetics.' Some examples:

- Photos documenting people and activities (e.g., Those from earlier days, field/ lab events, luminaries).
- Memes (e.g., not-so-serious) featuring 'gel jockeys' and 'molecule-benders.'
- Short videos or infographics explaining genetic concepts or methods (e.g., gene flow, drift, eDNA,etc.).
- Quizzes that can be played online to answer genetic questions (e.g., Kahoots).
- Timelines for major events in genetics – and the Genetics Section.

Please contribute – send digital photos or step forward to work with the team in generating content. Please see 'Wanted' for how you can contribute and/or get involved.

Recognizing Diversity in Excellence – Broadening Excellence

The ExComm discussed how best to recognize the diversity of excellence in fish genetics. Rather than creating a new award, we felt it best to consider 'excellence' in a variety of forms, and to consider criteria more broadly for the AFS Genetics Section Hall of Excellence (AFS GS HoE) Award.

The HoE Selection Committee will use this extended definition when nominations are evaluated for our AFS GS HoE. Please see announcement on 'Nominations for Hall of Excellence'

Strengthening and Extending Connections – AFS_fish_genetics on Slack

The ExComm decided to establish an Slack Workspace for the AFS Genetics Section as a forum for members to share ideas, position announcements, requests for assistance, recommended techniques, etc. GS members will receive an invitation to join when the Workspace becomes operational. Note: some agency members may not be able to sign up using your work email. If so, please send us an alternative email address at afsfishgenetics@gmail.com so that you can be added as a workspace participant.

AFS 150th Anniversary Celebration

Genetics Section – We Need You!

Help us showcase what 'fish genetics' is and how it contributes to fisheries management and conservation.

The GS150 Steering Committee is looking for section members to help generate digital content about the AFS Genetics Section. **Each of you can contribute in small or large ways.** The goal is to **showcase 'fish genetics' for a broader audience** using a variety of formats. Let's have a bit of fun by using perceived peculiarities of 'geneticists' to explain what it means to '… do the genetics.' To get involved – contact the GS150 Steering Committee: afsfishgenetics@gmail.com

We need:

- **Pictures:** If you are a long-term member of AFS and the Genetics Section, you likely have a few pictures taken in the 'good old days' as in 'before PCR and automated sequencers'. If you are a recent or current student, you might have some pictures of memorable events in the lab or field. ***Please send us your pictures that document the section's history.***

- **Funny Stories:** Most of you will have some stories to share from mishaps in the lab. We used to have pictures of our 'PCR gone bad' disasters hung in our lab - called 'The Wall of Shame' – to illustrate what possible could go wrong. Pictures were titled as: 'Did you add the taq?' 'Did you add the DNA?'… because the results clearly indicated that said ingredient had not been in the reaction mix. ***Please contribute LIVEly anecdotes – as story, in pictures or as video.***

- **Memes/Cartoons:** Curious what a 'Gel Jockey' or 'Molecular Bender' actually looks like? So are we! BTW: these were terms colleagues of ours used when referring to the ones that 'do the genetics'. ***Please help us visualize these mysterious beings - only your imagination is the limit.***

- **Videos:** Audio-visuals are now easy to generate, can look spiffy, and are actually highly effective at explaining complex issues. There are apps and tools available to create such digital media. This is a great opportunity for you to learn how to create such a 'movie' and be inducted into the 'Genetics Section' library of informational videos or AIGs (Animated-Info-Graphics). ***Please get involved and learn to generate effective education materials.***

- **Quiz:** Perceptions about what genetics is and how it works can be fascinating - lets help others realize how much they actually do understand about fish genetics by creating an online game where they can test their knowledge. Again, there are apps that make setting up and deploying such quizzes or games very simple (e.g., Kahoot). ***But we need your questions to make the game interesting – and a bit challenging.***

- **Timeline:** The field of 'Genetics' has undergone several revolutions since the AFS Genetics Section was founded. Let's document these major events and milestones in relation to the history of our section in a timeline similar to the AFS history timeline: https://150years.fisheries.org/timeline_1870-2020/

All **digital content** will be linked to the AFS 150th website (https://150years.fisheries.org/) and also retained in perpetuity on the AFS Genetics Section website to inform new members and as a resource of educational materials.

Please help us realizing this idea. Volunteer to join the GS150 team – all you need is some motivation, or have a treasure throve of photographs, anecdotes or funny stories to share. Please get in touch with the GS150 Steering Committee: afsfishgenetics@gmail.com

Marlis R Douglas, Genetics Section President
Andrew Whiteley, Genetics Section Past-President
Garret McKinney, Genetics Section President-Elect
Mary Peacock, Genetics Section Treasurer/Secretary
Wendy Stott, Genetics Section Past-Past President
Michael E. Douglas, AFS GS150 Steering Committee

WANTED

DEAD-pan or A LIVE-ly

anecdotes story

Help Document The Genetics Section's History

Send to afsfishgenetics@gmail.com

ANECDOTES	STORIES
PICTURES	MEMEs
VIDEOS	AGIs

Your Help Is Needed!

REWARD

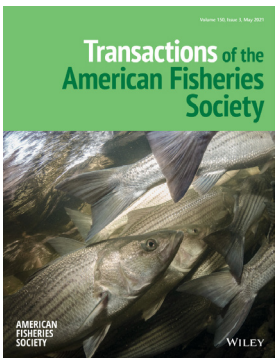
Tiny, but

Magic Lab Buddy

In case you missed it...

Recent genetics papers from AFS journals and beyond

Editor's note: Click citations for link to papers



Coen, A.E., Fish, M., Lovell, R., *et al.*, High Levels of Genetic Divergence Detected in Sacramento Perch, *Archoplites interruptus*, Suggests Two Divergent Translocation Sources. TAFS.

Quinn, T.P., Pess, G.R., Sutherland, B.J., *et al*, Resumption of anadromy or straying? Origins of Sockeye Salmon *Oncorhynchus nerka* in the Elwha River. TAFS.

Puncher, G.N., Wang, Y., Martin, R., *et al.*, Transborder Gene Flow between Canada and the USA and Fine-Scale Population Structure of Atlantic Cod in the Broader Gulf of Maine Region. TAFS.

Winsor, S., Blumenshine, S., Adelizi, P., *et al.*, Precocious Maturation in Spring-Run Chinook Salmon is Affected by Incubation Temperature, Feeding Regime, and Parentage. TAFS.

Morgan, R.P., II, Kazyak, D.C., King, T.L., *et al.*, Genetic Structure of Maryland Brook Trout Populations: Management Implications for a Threatened Species. NAJFM.

Anderson, J., Williford, D. and Olsen, Z. Estuary-Level Genomic Variation Confirms Demographic and Life History Differences among Black Drum Populations in Texas. NAJFM.

Thomas, B.L., Gomelsky, B., Delomas, T.A. and Novelo, N.D., Genetic Variability of Nile Tilapia Strains as Determined by Microsatellite DNA Markers. North Am J Aquaculture.

Papa, Y., Le Bail, P.-Y. and Covain, R. Genetic landscape clustering of a large DNA barcoding data set reveals shared patterns of genetic divergence among freshwater fishes of the Maroni Basin. Mol Ecol Res.

Mayne, B., Espinoza, T., Roberts, D., *et al*. Nonlethal age estimation of three threatened fish species using DNA methylation: Australian lungfish, Murray cod and Mary River cod. Mol Ecol Res.

Einfeldt, A.L., Kess, T., Messmer, A., *et al.*, Chromosome level reference of Atlantic halibut Hippoglossus hippoglossus provides insight into the evolution of sexual determination systems. Mol Ecol Res.

Valdivia-Carrillo, T., Rocha-Olivares, A., Reyes-Bonilla, H., *et al*, Integrating eDNA metabarcoding and simultaneous underwater visual surveys to describe complex fish communities in a marine biodiversity hotspot. Mol Ecol Res.

Kess, T., Dempson, J., Lehnert, S., *et al.,* Genomic basis of deep-water adaptation in Arctic Charr (*Salvelinus alpinus*) morphs. Mol Ecol.

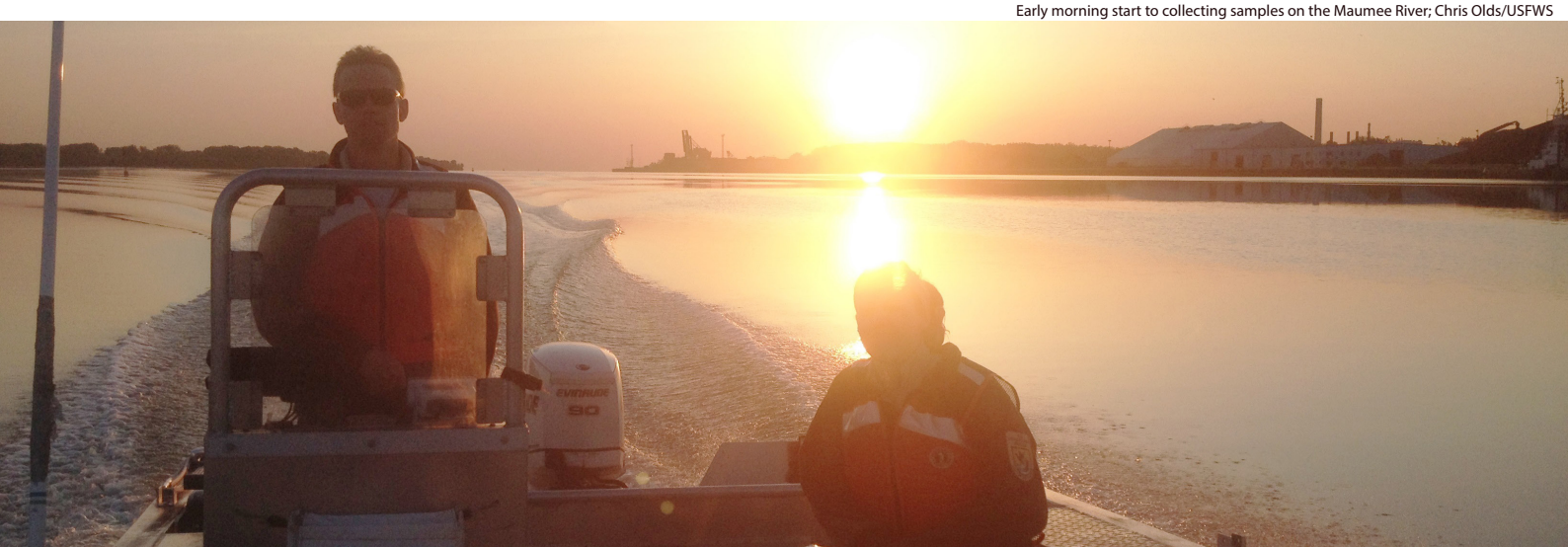
Cayuela, H., Dorant, Y., Mérot, C., *et al.*, Thermal adaptation rather than demographic history drives genetic structure inferred by copy number variants in a marine fish. Mol Ecol.

Waters, C.D., Clemento, A., Aykanat, T., *et al.*, Heterogeneous genetic basis of age at maturity in salmonid fishes. Mol Ecol.

Weitemier, K., Penaluna, B.E., Hauck, L.L., *et al.*, Estimating the genetic diversity of Pacific salmon and trout using multigene eDNA metabarcoding. Mol Ecol.

Keighley, X., Bro-Jørgensen, M.H., Ahlgren, H., *et al.*, Predicting sample success for large-scale ancient DNA studies on marine mammals. Mol Ecol Res.

Early morning start to collecting samples on the Maumee River; Chris Olds/USFWS



Calendar

August 2021

2nd-6th: Ecological Society of America Annual Meeting. Virtual Conference.

11th-14th: Aquaculture America, San Antonio, Texas.

September 2021

3rd-11th: IUCN World Conservation Congress, Marseille, France.

6th-10th: ICES Annual Science Conference. Virtual Conference.

12th-17th: 16th Deep Sea Biology Symposium. Brest, France.

20th-24th: 8th World Fisheries Congress. Adelaide, Australia.

October 2021

10th-13th: AGA 2021: Conservation Genomics: Current Applications and Future Directions. Snowbird, Utah.

November 2021

6th-10th: 151st Annual Meeting of the American Fisheries Society. Baltimore, Maryland.

7th-11th: Biennial Coastal and Estuarine Research Federation Conference. Virtual Conference.

14th-19th: 11th International Flatfish Symposium. New Castle, New Hampshire.

15th-18th: North American Lake Management Society 41st Annual Symposium. Oklahoma City, Oklahoma.

To find dates and information for AFS chapter meetings, visit fisheries.org/about/units/chapters/

Job Postings

Postdoc at Flathead Lake Biological Station. Postdoc position for research and modeling reproductive success, hybridization, and spread of invasive salmonid species under climate change. The successful applicant will conduct parentage analysis for an NSF-funded project to quantify effects of admixture on individual fitness and dispersal in hybrid rainbow trout x cutthroat trout (as in Muhlfeld et al. 2009). In a 2nd (NASA-funded) project, the applicant will develop and apply predictive models (e.g. occupancy models, Bayesian models) that combine genetic and environmental data on AIS spread to help forecast future stream-hotspots for invasion and hybridization (Kovach et al. 2016; Muhlfeld et al. 2017). Requirements include Ph.D. in Ecology, biodiversity, or population genetics and with experience modeling. Priority Application Date: July 15th, 2021. Duration: One year with possible/likely 1-year extension.Contact: gordon.luikart@mso.umt.edu

Genomics Core Director. A position is available for a molecular geneticist to direct the Genomics Core at the Clemson University Center for Human Genetics. The Center for Human Genetics is located on the Greenwood Partnership Campus adjacent to the Greenwood Genetic Center in Greenwood, SC. The ideal candidate will have a Ph.D. degree with a record of productivity and skills in high throughput DNA, RNA and ATAC sequencing using Illumina and PacBio technologies, as well as single cell RNA and ATAC sequencing. TThe position requires excellent interpersonal and communication skills. Please direct any inquiries to Dr. Trudy F. C. Mackay, tmackay@clemson.edu

Conservation Genomics Scientist. Zoo New England is seeking a full time scientist with experience in genomics and bioinformatics to help move forward ongoing innovative research exploring diseases of zoo and wildlife species, and the impacts of biodiversity and ecosystem health on human health. The qualified candidate will have a PhD in statistical, population genetics, or conservation genomics (or equivalent), with at least 3 years of postdoctoral experience and proficiency in genomic data analysis and interpretation of genetic variation. Experience with R, a Unix computing environment, and knowledge of at least one scripting language is strongly desired. Please visit https://zoonewengland.bamboohr.com/jobs/view.php?idb to upload a cover letter and curriculum vitae. Contact Dr. Eric Baitchman for inquiries, ebaitchman@zoonewengland.org. Preference will be given to applications received by July 25, 2021.

Lab manager. Research in the Lea lab sits at the intersection of evolutionary biology, genomics, and human health research. Our work focuses on the gene regulatory mechanisms that connect environmental stressors with compromised health, as well as processes that explain why health outcomes vary among individuals exposed to the same environmental challenge (e.g., genotype x environment interactions. The lab manager's duties will include performance of basic molecular biology laboratory techniques, such as DNA and RNA sample extraction, library preparation for high-throughput sequencing, human cell culture, cloning, and DNA transfection and transformation. A bachelor's degree and at least 2 years of previous laboratory technician/manager experience are required. The position is full time for 1 year, with renewal contingent on funding and performance. Anticipated start date is Sep 1, 2021.https://ecsr.fa.us2.oraclecloud.com/hcmUI/CandidateExperience/en/sites/CX/job/10000859. Contact amanda.j.lea@Vanderbilt.edu

eDNA sampling in Bhutan - Near Amo Chuu- December 2018, Marlis Douglas

Section Officers

President
Marlis Douglas
mrd1@uark.edu

President-Elect
Garrett McKinney
Garrett.Mckinney@dfw.wa.gov

Past President
Andrew Whiteley
andrew.whiteley@umontana.edu

Secretary-Treasurer
Mary Peacock
mpeacock@unr.edu

Committees

Hall of Excellence
Garrett McKinney, 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

Listserv

Andrew Whiteley

Website

Kristen Gruenthal
kristen.gruenthal@noaa.gov

Newsletter

Jared Homola
jhomola@uwsp.edu
Ellie Weise
weise.ellie97@gmail.com