

AFS Estuaries Section Newsletter
April 2014

Newsletter Editor – Lee Benaka
NOAA, NMFS, F/ST4
1315 East-West Highway, 12th Floor
Silver Spring, MD 20910
Email: Lee.Benaka@noaa.gov

Abigail Franklin Archer—President
Karin Limburg—President-Elect
Anthony Overton—Treasurer
Lynn Waterhouse—Secretary
http://www.fisheriessociety.org/estuaries/
http://www.facebook.com/EstuariesSectionAFS

Issue Highlights

SECTION NEWS

President's Message

Happy Spring Estuaries Section members! Hopefully by now you're all seeing signs of spring in your regions. I haven't seen any river herring migrating up the local rivers yet, but they should be along soon. I cannot wait to see those silver fins and big eyes make their way upstream.

On January 29 I attended the AFS Mid-Year Governing Board (GB) meeting via WebEx. For the first time in AFS history it was possible to attend remotely. The AFS staff did an excellent job of setting everything up, and the Board considered the use of this technology a success. Face-to-face contact is important, but I think using remote meeting services like this will help AFS maintain member involvement in this era of scare travel funding.

The agenda focused on advocacy. Before the meeting, members were given documents to read in order to prime the conversation. Our homework included articles about the role of science in public debate, examples of documents that AFS has been asked to comment on or sign on to, and sample editorials and letters to consider. Our final assignment was to fill out a survey asking if we agreed or disagreed with statements in the articles.

During the meeting a review of this survey generated fruitful discussion on issues such as:

- When is it appropriate for AFS Officers to make decisions on their own vs. polling the Governing Board or the membership?
- What issues are best addressed by chapters or divisions vs. the parent society?
- Are the Society's current advocacy tools, i.e., position statements, briefing statements and policies, still useful? Are they timely enough? How will they get updated?

Governing Board members expressed a range of opinions, and debate was lively. By the end of the meeting, the GB generated a draft list of guidelines that officers and AFS staff should follow when an opinion or action is requested of AFS by a member or outside groups.

In related news, a new position of Policy Director has been created at AFS, and Tom Bigford stepped into this role in February. One of the projects he'll be working on is developing briefings for Capitol Hill staff. If you have any estuarine-focused ideas, please get in touch with Tom. Check out the press release about his new position here: http://fisheries.org/tom-bigford-named-afs-policy-director.

I'll close with some news related to the upcoming annual meeting in Quebec. This newsletter includes the official announcement of our Student Travel Scholarship. Please spread the word at your local Chapter or Division meetings and to any students you are in contact with. Also, a date has been set for our annual business meeting. I look forward to seeing many of you on Sunday, August 17 at 5PM.

I wish you all a happy, healthy, and productive spring.

--Abigail Franklin Archer, President, Estuaries Section

Treasurer's Report

Starting Balance 8/1/13	$4,030.31
Expenses	
2013 Student Travel Awards	$1,500.00
Award Certificates/Plaques for 2012 and 2013	$ 350.00
Total expenses	$1,850.00
Total Balance on Hand 1/6/14	$2,180.31

--Anthony Overton, Treasurer, Estuaries Section

Looking to Contribute?

Want to be involved but not sure where to start? Here are some ways to join in and help the Estuaries Section:

- Design or send in some ideas for an Estuaries Section logo! Contact: aarcher@barnstablecounty.org
- Review student travel scholarship applications! Contact: aarcher@barnstablecounty.org
- Write a newsletter article on anything estuarine-related! Contact: lee.benaka@noaa.gov
- Join the Section LinkedIn page and post an interesting news story!

2014 STUDENT TRAVEL AWARDS

The Estuaries Section is pleased to offer financial awards for up to three undergraduate or graduate students in support of their attendance at the AFS 2014 Annual Meeting. The amount of each award will be $500.00.

The Estuaries Section will fund one award, and the Southern Association of Marine Laboratories (SAML) may fund two. For the Estuaries Section award, priority will be given to students who are presenting their own research at the conference (in an oral or poster presentation), are AFS Estuaries Section members, and have a demonstrated financial need. If SAML awards are available, then in addition to the criteria listed above, preference will be given to those students representing a SAML institution.

For more details on how to apply, please visit the Estuaries Section website at http://www.fisheriessociety.org/estuaries/ Complete applications must be sent to aarcher@barnstablecounty.org by June 2, 2014. Award winners will be notified by July 7, 2014.

--Abigail Archer, President, Estuaries Section

LINKEDIN UPDATE!

As mentioned in our last issue, with the help of Konstantine Rountos, the Estuaries Section has created a LinkedIn Group! The Group was created with the goal of fostering member activity, collaborations, and discussions, while also serving as a forum for disseminating Section news and job opportunities. This group will only be open to members that have paid their section dues and will be moderated by an Estuaries section member.

Currently the Group has 60 members and many interesting postings. Join up soon to see what is being discussed!

For those not familiar with LinkedIn (http://www.linkedin.com/), it is a free social media website where users can create a professional online profile (resume) and network with other professionals around the world. There are an estimated 225 million users on LinkedIn

currently. So far, the AFS Bioengineering Section and the New York Chapter of AFS have been communicating with each other via LinkedIn and have reported success.

Setting up your LinkedIn account is easy – check out the following website for instructions: http://jobsearch.about.com/od/networking/a/linkedin2.htm . Once you have set up your account search for the group, "The Estuaries Section of the American Fisheries Society" and request to join. If you have additional questions about our LinkedIn Group, please contact Konstantine Rountos at krountos@gmail.com

--Lee Benaka, Past-President, Estuaries Section

ESTUARINE FISHERIES RESEARCH IN CENTRAL NEW YORK

Even if we aren't a stone's throw from either sea or estuary, our lab at the College of Environmental Science and Forestry (ESF) in Syracuse, NY continues to pursue estuarine research, primarily on diadromous species but also on a few other things. Here is a roundup of our recent activities:

- Tom Evans (PhD in progress) is studying an often-forgotten member of the anadromous clan: sea lampreys in their native range. He is examining trophic ecology of larval ammocoetes, movements, and is exploring the use of a novel chronometric structure – the eye lenses of lampreys – to track trace elemental uptake from different habitats. His work takes him to the Hudson River estuary, the Delaware, and points north in Maine.
- Jonas Hamberg (MSc in progress) comes to us from Sweden via India, moving from a political science background into estuarine restoration research. Jonas is planning to test some methods for restoring *Vallisneria*, a key submersed macrophyte in the Hudson and many other estuaries. Submersed aquatic vegetation (SAV) was all but eradicated from the Hudson during hurricane season in 2011 (see below).
- George Jackman, our "honorary ESF-er" (PhD in progress, CUNY Queens College, co-advised by KL), studies the ecology of young winter flounder in embayments around Long Island and the metropolitan New York region. He uses the method of otolith chemistry analysis to test the quality of habitats.
- Sarah Mount (MSc in progress), formerly half of the NYSDEC's glass eel monitoring program, has shifted her focus to the other end of American eel's life cycle, and is researching whether non-lethal metrics can be developed to predict silvering (maturation) in eels prior to emigration. While much of the indicator development relies on morphometrics, Sarah is also testing whether body fat content can be estimated with bioelectrical impedance analysis, a technique developed for humans and now in testing on a number of different fish taxa. Sarah's work focuses on tributaries of the Hudson River Estuary.
- Christopher Nack (MSc 2013; PhD in progress) continues studying the importance of different habitats for larval and juvenile American shad rearing in the Hudson River estuary. In early life, American shad rear in tidal freshwater nurseries in this estuary. Chris had the unanticipated opportunity to study the impact of two major storms – Hurricane Irene and Tropical Storm Lee – which occurred after his first two years of research. Now with two more years of sampling under his belt, he will be able to quantify the impacts on YOY shad, including the nearly complete eradication of submersed aquatic vegetation in the mainstem littoral zone. His research has expanded from a fisheries recovery plan to an examination of climate change impacts.
- Emily Ogburn (MSc 2014) has just completed a study of banded killifish and their parasites in different tidal, freshwater habitats in the Hudson River estuary. Her research views parasites as a "window" on ecological connectivity within habitats, since many parasites require multiple hosts. Thus, if a certain parasite found in the killifish has a terminal host of great blue heron, we can conclude that those birds are found in this ecosystem, etc. Emily found fairly high diversity of parasites and may even

have found a new species.

- Sara Turner (PhD in progress) has been working tirelessly on an ambitious river herring project. The project, funded by the Hudson River Foundation and the National Fish and Wildlife Foundation, is examining which combinations of trace elements and isotopes found in river herring otoliths provide "signatures" that permit discrimination of natal rivers. It complements a concurrent genetic study led by Eric Palkovacs of UC Santa Cruz. Sara's work is patterned on Benjamin Walther's study of American shad; but unlike Walther's study, Sara is also examining early habitat use through retrospective analysis of otolith chemistry, looking at such factors as watershed characteristics and habitat accessibility. She plans to defend her dissertation in April.
- I, the advisor of these bright students, also keep busy with various studies… my latest work, titled "In search of the dead zone: use of otoliths for tracking fish exposure to hypoxia" is in press as we speak (Journal of Marine Systems, http://dx.doi.org/10.1016/j.jmarsys.2014.02.014). Marine Section President-Elect Ben Walther is second author–check it out!

--Karin E. Limburg, SUNY ESF, Estuaries Section President-Elect

FEATURE ARTICLE

Killifish Hypo-Osmotic Sensitivity during Early Life History Stages

by Shane Ramee
Mississippi State University
Mississippi State, MS 37962
sramee@cfr.msstate.edu

I was honored to receive one of the student travel awards given by the Estuaries Section and the Southern Association of Marine Laboratories during the Estuaries Section business meeting at the 2013 AFS annual meeting in Little Rock, AR.

I am currently working on a Master of Science degree at Mississippi State University under the guidance of Dr. Peter Allen. My research focuses on the low salinity and fresh water tolerance of Gulf killifish (*Fundulus grandis*), specifically focusing on how Gulf killifish hypo-osmotic tolerance changes during embryonic, larval, and juvenile life stages.

Gulf killifish are an important forage fish and a popular baitfish in the salt marshes of the Gulf of Mexico coast. Wild-caught killifish are sold in bait shops along the coast as part of the ever-growing recreational fisheries market. Though there is no evidence of population declines, there are problems with bait dealers meeting the year round demand for killifish due to seasonal fluctuations in catch-rates and killifish sizes. Killifish are a promising candidate for alternative aquaculture, since they supply a completely different market than traditional food fish aquaculture. Their broad salinity tolerance allows for the possibility of inland culture utilizing established aquaculture infrastructure. Yet, there are still several obstacles in developing inland culture methods. My research addresses the extent of killifish hypo-osmotic sensitivity during early life history stages.

In an initial experiment, embryo and larval survival were measured for air incubated eggs and larvae up to 2 weeks post-hatch in either 0ppt, 7ppt, or a sequential combination of these salinities. Survival of both the embryos and larvae were higher in 7ppt conditions than freshwater conditions, leading to the hypothesis that Gulf killifish freshwater tolerance may improve at a later age.

In the second experiment, killifish were challenged with low salinity treatments of 0, 2.5, 5, and 7.5ppt at 2, 7, and 12 weeks post-hatch for four weeks to determine growth, survival, gill Na^+, K^+-ATPase activity, and whole body ion content. Gill Na^+, K^+-ATPase and whole body ion samples were taken at 0, 2, 14, and 28 days post-transfer for each age group. Preliminary results indicate Gulf killifish at 2 weeks post-hatch grew and survived as well at 2.5 ppt as at higher salinities but growth was reduced in freshwater. At 7 and 12 weeks post-hatch, freshwater survival and growth rates were comparable to other salinity treatments. These results suggest low salinity levels are feasible for killifish culture, and stocking of freshwater ponds will be more successful after 7 weeks post-hatch.

Shane Ramee displays a Brown trout, *Salmo trutta.*

A Gulf killifish, *Fundulus grandis.*

MEETING NEWS

International Congress on the Biology of Fish
August 3-7, 2014, Edinburgh, Scotland
http://icbf2014.sls.hw.ac.uk
This meeting will cover everything from physiology of fish aquaculture, nutrition, parasites and disease to swimming and migratory physiology, ecological physiology, environmental stress and toxicology, in both fresh and seawater environments.

Summit 2014: Inspiring Action, Creating Resilience
November 1-5, 2014, Washington, DC
http://www.estuaries.org/summit

This meeting is the 7th National Summit on Coastal and Estuarine Restoration and the 24th Biennial Meeting of The Coastal Society. All presentation proposals were due by February 28, 2014.

American Fisheries Society
144th Annual Meeting
August 14-17, 2014, Quebec City
http://afs2014.org/

The Estuaries Section is sponsoring two symposia at this meeting:

Community Ecology and Trophic Interactions of Fishes
Ron Heintz, Jason Link, Ed Farley Jr., Anthony Overton, and Richard McBride

Telemetry on the Atlantic Coast: Tagging Locally and Observing Globally
John F. Kocik, James P. Hawkes, Gayle Zydlewski, Heather Haas, and Gordon Waring