President's Message

Hello Estuarians, happy December! Now as we transition into winter, I want to take an opportunity to look back on the busy summer and fall that the AFS Estuaries Section had in 2019. I'll recap some highlights here:

- Over summer 2019 we had our elections for the executive committee and I am excited to announce our new President-Elect, John Mohan. Read on in this newsletter to learn more about John! I am also excited to announce the re-election of our Secretary, Jim Vasslides, and re-election of our Treasurer, Konstantine Rountos. Thank you to everyone who participated in the elections and I look forward to another great year of work by our section.

- Lynn Waterhouse transitioned to Past-President at our Section's annual business meeting and I transitioned from President-elect to President. I want to thank Lynn for two exemplary years of serving the Estuaries Section as President. During Lynn's time in office, she helped lead the 2018 "Monsters of Climate Science" workshop at the Atlantic City meeting, supported multiple symposia sponsored by our Section, helped improve our procedures for our Section's student travel awards, gave awesome guidance to me and the rest of the ex-com, among other things. She also completed her PhD from Scripps Institution of Oceanography and began a position at the Shedd Aquarium! Thank you Lynn for your great contributions to our Section and congratulations on all of your accomplishments!

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Winter 2019/2020

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- We had a good Estuaries Section business meeting, which took place on Sunday September 30th in Reno before the AFS/TWS Joint Annual Meeting got underway and was held jointly with the AFS Marine Fisheries Section. You can see the draft notes from that meeting in a recent email from me and they are also posted on our Section website (https://estuaries.fisheries.org/current-officers/annual-business-meeting/).

- We awarded two graduate students (Emily Chen and Andrew Shamaskin) with Student Travel Awards to attend the Reno Meeting. Read on to learn more about one of those students, Emily, and her research! A write-up by Andrew about his work will appear in our next newsletter.

- The Estuaries Section sponsored a symposium called "Management Applications of Estuarine Datasets" in Reno, which you can learn more about on page 3 of this newsletter!

- Speaking of the Reno meeting, it was great! The fact that it was joint with The Wildlife Society allowed for some great interactions and introductions to research I don't usually think about. There was a lot to try and see, but I made my way into a few wildlife talks that I really enjoyed, such as one on identifying drivers of blue whale migration timing.

- Regarding the wider American Fisheries Society, Scott Bonar transitioned into President of AFS at the Reno meeting. A primary focus for Scott's year as president is to help AFS support its members on climate change communication and engagement. In his remarks at the Reno business meeting, he encouraged every AFS member to take action on climate change and provided some suggestions on how we can do that. Scott has challenged all AFS members to step outside of our comfort zones and talk with at least ten people this year who disagree with climate change or related conservation issues. There is now a handy page at the AFS website that provides resources to help each member tackle Scott's challenge: https://fisheries.org/policy-media/climate-change/. I am excited about Scott's passion for this topic and agree that this is an important and valuable activity, so encourage us all to take on the challenge!

Catherine Johnston
Estuaries Section President

Sponsored Symposium Synopsis

Management Applications of Estuarine Datasets

Fifteen speakers representing eleven North American estuaries contributed to the symposium “Management Applications of Estuarine Datasets”, which was sponsored by the AFS Estuaries Section. We heard about diverse topics all centered around the theme of how data collected in estuaries informs management decisions. Some speakers described case studies of using long term monitoring datasets to help plan habitat restoration activities and monitor efficacy of restoration. A few talks focused on how unconventional or previously unexplored datasets contributed to evaluating important questions, such as how a North Carolina water intake facility impacts estuarine fish communities or how the epibenthic community in Chesapeake Bay has changed over time. A few talks dealt with datasets synthesized across multiple states; for example state survey datasets from Florida to Texas were synthesized to examine what spatial scale is relevant to consider for managing Red Drum recruitment. Overall, the session provided a broad sampling of the kinds of valuable datasets being generated in estuaries and provided many examples of how that information is used.

Management Applications of Estuarine Datasets
AFS/TWS Joint Annual Meeting
September 30, 2019

Slide displayed during the “Management Applications of Estuarine Datasets” symposium, mapping out locations of the estuaries discussed by the speakers.

(L to R) Catherine Johnston (AFS Estuaries Section President and symposium organizer) with speakers Denise Barnard, Margaret McGinty, Stewart DesMeules, and Brian Mahardja.

John Mohan: President-Elect Bio

John grew up in eastern Pennsylvania where he developed a passion for fly fishing. In order to catch more fish, he had to 'match the hatch' and collect local invertebrates in the water and air and study the stream habitat types that trout and bass prefer. Without realizing it, John was becoming a fish ecologist by studying the feeding patterns and habitat preferences of freshwater fish. While getting his B.S. at Penn State University, he was active in the PSU fly fishing club and developed an obsession with the art of fly tying, using hooks, fur and feathers to imitate fish prey items. After catching his fair share of smaller freshwater species, John wanted to catch larger fish, which drew him to the study of saltwater species. After spending a few months hiking the Appalachian Trail, he pursued a M.S. degree in biology at East Carolina University, where he used otolith chemistry and increment analysis to investigate habitat use and growth rates of juvenile striped bass in the Albemarle Sound, NC. He was an active member of ECU AFS student subunit and knew that being involved with AFS would greatly benefit his career. At the completion of his M.S., John worked as a contract marine biologist on lionfish and mariculture projects at the NOAA Lab in Beaufort, NC. However, many questions remained about the use of otolith chemistry to advance fish life history studies and John enrolled in the Ph.D. program at the University of Texas Marine Science Institute in Port Aransas, TX. His dissertation research used laboratory experimentation and field studies to validate otolith chemical markers of hypoxia exposure and explored feeding dynamics using tissue stable isotope analysis. During his Ph.D., John had the privilege of working in Texas estuaries, from the northern estuaries with high freshwater influence (i.e. Galveston Bay), to the southern estuaries that are hypersaline (i.e. Laguna Madre). The continuum of estuarine types along the Texas coast, is what John considers his 'favorite' estuary.

John is currently an Assistant Research Scientist at Texas A&M University at Galveston. His current research in marine fish ecology uses both natural tracers (trace elements and stable isotopes) and electronic satellite tags to study fish movement patterns, feeding dynamics, population connectivity and to characterize fish life histories in estuarine, coastal and ocean habitats. His interdisciplinary research requires collaboration between academic, state, federal, and international scientists and fishermen in the commercial and recreational sectors. His favorite current projects include quantifying post-release mortality of sharks captured in recreational fisheries and investigating population connectivity and migration dynamics of Pacific bluefin tuna populations. The ability of Pacific bluefin tuna to swim across the entire Pacific Ocean is what makes the bluefin tuna Johns favorite fish.

John is honored to become president-elect of the AFS Estuaries Section. As an early career scientist,

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John Mohan: President-Elect Bio

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John served AFS by organizing and hosting workshops and symposia at the Texas Chapter AFS meetings, judging student presentations, and reviewing manuscripts for AFS journals. His vision for the AFS Estuaries Section is to continue to expand student support and mentoring programs that increase diversity and participation. Initiatives include student-focused workshops that focus on career advancement such as: strategies for publishing research and reviewing manuscripts; tips for job searches, resumes and CVs; and advice for teaching and communicating fisheries material. Getting students to take leadership roles and organize their own symposia that lead to publication in AFS journals is a primary goal. These activities align with the parent society's goal of strengthening the fisheries profession. John truly appreciates AFS and all the chapters and sections he has been involved with (ECU student subunit, Tidewater, Estuaries, Marine Fisheries, Texas) in helping his career, and he is excited to serve the Estuaries Section as President.

In his free time, John enjoys surfing and fishing on the water and hiking, camping, skateboarding and disc golfing on land. A fun fact is that John has accumulated many nicknames by family and friends over his life including: Nabs, Jmo, PhDude, Mohaniac and Dr. Shark.

Feature Article

Contribution of Juvenile Estuarine Residency in a Bar-built Estuary to Chinook Salmon Recruitment

Emily Chen, 2019 MS Estuaries Section Travel Award Winner

Advisor: Mark Henderson

Humboldt State University

Department of Fisheries Biology

California Cooperative Fish and Wildlife Research Unit

Emily Chen being awarded the Estuaries Section Student Travel Award by section president Catherine Johnston

Juvenile Chinook Salmon

Estuaries are commonly touted as nurseries for juvenile salmonids, providing high prey availability for foraging, a physiological transition zone, and refugia from marine predators. Historically, estuaries were simply considered a corridor for salmon migration; however, in recent decades, it is becoming increasingly apparent how valuable estuaries are to Pacific salmon, especially Chinook salmon. For juveniles migrating to the ocean, estuaries provide a final opportunity for growth prior to entering the ocean. In many systems, juveniles that rear in estuaries have higher growth and survival and return disproportionately more as adults to spawn.

Estuaries on the Pacific coast are incredibly diverse, and this diversity complicates their impact on salmon populations along the coast. Bar-built estuaries in California exhibit a unique

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phenomenon and may provide greater insight into the functionality and efficacy of estuaries as salmon nurseries. In bar-built estuaries, periods of low flow result in sand-bar formation, closing access to the ocean. Juveniles are unable to exit into the ocean until the mouth breaches, often months later, regardless of conditions in the estuary. While bar-built estuaries are the rarest type of estuary on the Pacific coast, they are common in California due to the Mediterranean climate. The prevalence of this estuary type may rise in the state with the increasing frequency of drought conditions. For my master's research, I was interested in how this phenomenon affected salmon in a modified Northern California river and whether juveniles that remained survived and returned more to spawn.

During the salmon outmigration season in Redwood Creek, I tagged juvenile Chinook salmon with Passive Integrated Transponder (PIT) tags as they left the lower river. I then seined the estuary with the National Park Service to recapture those fish to understand who was remaining to rear in the estuary and what their growth and survival was. I then reconstructed the life history of returning adults using their scales and otoliths to determine how well each life history performed.

Unlike the typical storyline, I found juvenile Chinook salmon that reared in this estuary grew poorly and ultimately returned less as adults to spawn. At first, I attributed this wholly to mouth closure. When closed, these estuaries are cut-off from marine prey that enter the estuary from tides. It was not until I attended American Fisheries Society meetings that I realized this phenomenon can actually be beneficial and that bar-built estuaries elsewhere are productive salmon nurseries when closed. Although mouth closure reduces marine prey influx, it can also raise the estuary's water level and inundate surrounding terrestrial habitats. These floodplain habitats are highly productive and beneficial to juvenile growth. However, this phenomenon does not occur in Redwood Creek because of levees that confine the estuary and prevent flooding. This research is a perfect example of the complexity of estuary dynamics and the diversity of their processes and functioning.

Currently, I am working with restorationists at NOAA and the National Park Service on developing models and restoration scenarios. The California Cooperative Research Unit and my next step are to develop a bioenergetics growth model that evaluates growth under various flow regimes. Ultimately understanding how restoring the system may influence the natural processes and juvenile salmonid growth is critical to developing the most successful restoration project for juvenile salmon in Redwood Creek.

Juvenile Chinook Salmon sampling in Redwood Creek, CA.

Remembering Linda Bireley

Linda Bireley was the Estuaries Section president from 2001 to 2002 and made great contributions to our section and to fisheries. Linda's biography published in the Summer 2001 Estuaries Section newsletter read in part as follows:

Dr. Linda Bireley was until her June 2001 retirement a Senior Scientist with Northeast Utilities, the largest electric utility in New England. Dr. Bireley's career has encompassed collecting, enumerating and identifying planktonic organisms in cooling water drawn from Long Island Sound through a steam electric generating station; developing methods to assess all the impacts of power generation on ecosystems, including fisheries resources; and managing processes associated with utility company environmental compliance and with correspondence between the utility and environmental regulatory agencies. Dr. Bireley joined AFS in 1980 and served the Society in many roles, including as President of the Southern New England Chapter (SNEC) (1993-1994) and President of the Northeastern Division (1998-1999). In addition, she initiated the effort to bring the 1998 annual AFS meeting to Hartford and was instrumental in its success.

Linda volunteered to serve as President-Elect and then President following a couple of years wherein the Estuaries Section was unable to hold elections due to a perceived lack of interest in Section leadership. When a scientist of Dr. Bireley's stature stepped up to lead the Section, the tide turned. According to Past-President Lee Benaka, who preceded Linda as Section President, "Linda really helped save the Estuaries Section in 2000 by providing serious, well-respected scientific leadership when the chapter was trying to get back on its feet. Linda set the stage for a series of high-quality leaders of the Estuaries Section, a tradition that has continued to today."

Leaders and friends of the Estuaries Section have remembered Linda fondly over the past few weeks:

"I succeeded Linda as Section President, and worked with her as President-Elect. I am sorry to hear of her death; she was a wonderful person and a big asset to the Estuaries Section in its early, developmental days." Steve Jordan, Estuaries Section Past-President

"I knew Linda quite well - mostly through our AFS activities…. She was always quick with a smile and a great leader. I will miss her." Mary Fabrizio, AFS Past-President

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Remembering Linda Bireley

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"I met Linda years ago at a SNEC meeting and she recruited me to run for President of the Estuaries Section, which I did. This led to much greater involvement by myself in AFS sections and chapters. During my tenure as President of Estuaries, I (and the Estuaries Section) were able to help create the new AFS Marine and Coastal Fisheries journal." Syma Ebbin, Estuaries Section Past-President

"Linda was a role model for the rest of us, with her mix of science, application, and above all, sense of humor and joy." Karin Limburg, Estuaries Section Past-President

"I had the great fortune to work with Linda as an early career scientist. We worked together on diadromous fish runs as well as the local land conservation trust. Her positivity, work ethic, intelligence, and strong desire to use her skills to give back to her community were wonderful examples and part of her legacy that will be carried on in fisheries and her local community." Ben Gahagan, AFS Southern New England Chapter Board of Directors

Linda was also very active in her community of Lyme, Connecticut. The Lyme Land Trust will rename the Moulson Pond Fish Ladder in her honor. If you wish to make a donation in her name, a suggestion is to send it to the Lyme Land Trust to help them carry on her work on fish passage and land stewardship (http://www.lymelandtrust.org/).

Lyme Conservation Trust Remembrance
http://www.lymelandtrust.org/2019/11/linda-bireley-1949-2019/

Moulson Pond Fish Ladder, Eight Mile River
http://www.lymelandtrust.org/stewardship/fish-ladder/

Linda Bireley's Obituary
https://www.dignitymemorial.com/obituaries/old-saybrook-ct/linda-bireley-8921760

The Estuaries Section is thankful for Linda Bireley's service to the American Fisheries Society and extends our condolences to her family, friends, and colleagues.

Columbus 2020

Call for Symposia

The Estuaries Section is already starting to gear up for the 2020 AFS meeting in Columbus, OH. If you're interesting in assisting with organizing a symposium sponsored by the Estuaries Section, please contact section president Catherine Johnston: ckjohnston80@gmail.com. The deadline for symposia proposals is January 17, 2020.

Monsters

The Estuaries Section is also planning on hosting another "Monsters" symposium at the 2020 AFS meeting in Columbus, OH. The ideas for topics so far are: socio-economics or human dimensions of fisheries; ecosystem-based fishery management; and AFS presidents, past and future possible with a focus on female presidents. If you have any ideas, suggestions for possible speakers, other thoughts, or would be interested in assisting with the organization of this year's "Monsters" event, please contact Catherine Johnston (mailto:ckjohnston80@gmail.com) or Lee Benaka (lee.benaka@noaa.gov).

Estuaries Section Treasurer's Report

respectfully submitted on 12/19/2019 by
Dr. Konstantine J. Rountos (Treasurer)

Date	Balance	Credit	Debit	Note
07/31/19	4,551.03			Treasurer's Report (2019 Financial Summary)
10/31/19	4,536.03		15.00	Check #131 (AFS Invoice 9305 – Award certificates)
11/12/19	4,526.54		9.49	Check #130 (Reimbursement for certificate holders purchased by L. Waterhouse)
12/19/19	4,526.54			Current balance

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LinkedIn: https://www.linkedin.com/groups/7443198