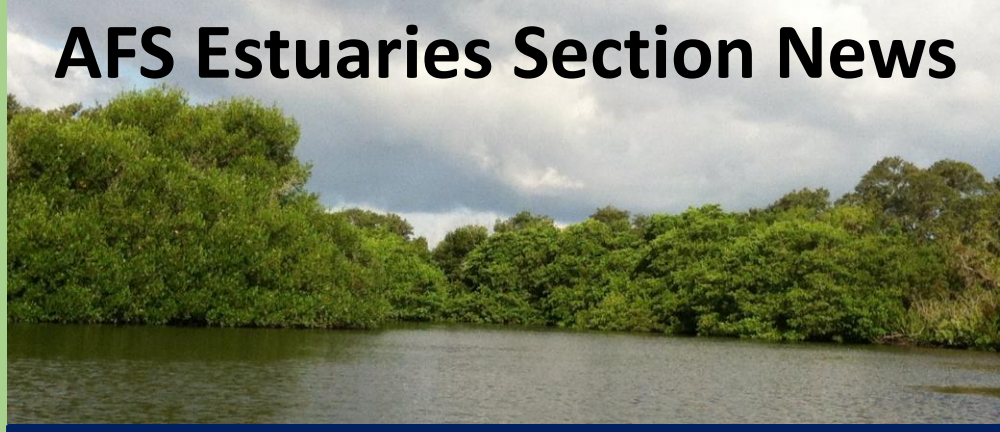
AFS Estuaries Section News



President's Message

Greetings AFS Estuaries Section Community!

I am currently in the field as part of the Grouper Moon Project, a collaboration between REEF (Reef Environmental Education Foundation), Cayman Islands Department of Environment (CIDOE), and Scripps Institution of Oceanography (where I am currently a graduate student). This field work is part of my PhD thesis, but being part of this project also gives me the chance to participate in an ocean success story. The west end spawning aggregation of Nassau grouper has been protected since 2003, thanks to work by CIDOE and the Grouper Moon Project team. Those protections have worked, in a really big way. In 2008, we estimate there were 1,500 fish, and in 2017 the estimate was 7,500. That's a fivefold increase in the number of Nassau Grouper. Elsewhere in the world, Nassau grouper are listed as threatened by the US Endangered Species Act and protected under the IUCN CITES listing. The hope is that the work done in the Cayman Islands will provide other locations with Nassau grouper spawning aggregations a pathway towards success. So far, this year's field work is going great, and the population continues to be a great success story.

www.reef.org/groupermoon project

Recently, I have also

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Winter 2018

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encountered some uplifting events brought to us by AFS parent society. They are fundraising for travel awards for scientists affected by the Hurricane in Puerto Rico to the Southern Division of the AFS (SDAFS) Spring 2018 meeting in San Juan, Puerto Rico. This meeting will be co-hosted by the Puerto Rico Chapter. Just prior to the SDAFS Spring 2018 meeting, AFS will have its mid-year governing board meeting at the same location. While I will not be attending in person, I will be participating over the web/phone links, and I am incredibly proud to say the AFS Estuaries section has stepped up and donated to support the cause. More details can be found in this newsletter, or you can find more for yourself online at https://secure.fisheries.org/MemberResponsive/Donations/AFSGivesBack_PuertoRico.aspx.

The Estuaries section is also gearing up to sponsor symposia at the AFS annual meeting in Atlantic City. It looks like we will be sponsoring two great symposia, plus another "Monsters" event. In 2018, the "Monsters" event will focus on Climate Change. I look forward to seeing the great speakers we gather for this important fundraiser for student travel awards. The 2017 and 2015 Monsters events were both exciting and informative, so I encourage everyone to check out the 2018 event if you are attending the annual meeting in Atlantic City. We will have more details on this event and the symposia coming soon.

If you, or someone you know of, has another ocean success story (particularly one tied more to estuaries). I would love to learn more about it and share it with the section. Please email me at lwaterho@ucsd.edu. Until next time, safe researching everyone and stay positive.

Lynn Waterhouse
Estuaries Section President

www.reef.org/groupermoon project

2018 Student Travel Award

The Estuaries Section of the American Fisheries Society (AFS) is pleased to offer two financial awards: one for a doctoral student, and the other for a Master's or exceptional undergraduate student, in support of their attendance at the AFS 2018 Annual Meeting. The meeting is scheduled for August 19-23 in Atlantic City, NJ. The amount of each award will be $400. If no Ph.D. students apply, or vice-versa, we reserve the right to award two travel grants in the other category.
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.

Application Procedures

1. Interested students must submit a Curriculum Vitae, and a 1-2 page letter of application describing: (a) educational and professional background, including involvement with AFS, (b) description of research and how it will be presented at the meeting (or if not presenting, how research will benefit from attending the meeting) (c) interest in pursuing a career related to the goals of the Estuaries Section (http://estuaries.fisheries.org/2017/05/01/welcome/) and (d) a statement of financial need. The letter must include all contact information including mailing address, telephone number(s) and e-mail address.

2. The application package must also include a letter of advocacy from an academic advisor or other appropriate faculty member at the student's college or university. This letter should state (a) why the student deserves the award and (b) corroborate the need for the award.

3. Complete application packages should be sent electronically with "Estuaries Section Student Travel Award Application" as the title to: Lynn Waterhouse (waterhlz@gmail.com) Questions may be directed to either Lynn Waterhouse (waterhlz@gmail.com or lwaterho@ucsd.edu), Catherine Johnston (ckjohnston80@gmail.com), or Karin Limburg (klimburg@esf.edu).

4. Applications must be received no later than 5:00 PM Eastern Time on Friday, April 27, 2018.

Selection Procedures

All applications received by April 27, 2018 are reviewed by a committee representing the Executive Committee of the Estuaries Section. The applications will be judged on the relevance of the research work to the mission of the Estuaries Section, the student's involvement with AFS, how the student's career goals align with the goals of the Estuaries Section, financial need, and the letter of recommendation.

Awards and Notification

Those selected for awards will be notified by telephone or e-mail no later than May 18, 2018. The Award will be presented (by check) at the AFS Annual Meeting in Atlantic City, NJ during the Estuaries Section reception and business meeting on Sunday, August 19, circa 4 PM (exact time and venue TBD). Thus, we strongly encourage the winners to plan to be there. The awardees will also be asked to write an article about their research for publication in the Estuaries Section newsletter.

Feature Article

Exploring shellfish population dynamics from the Delaware Bay to the Mid-Atlantic

Sarah Borsetti, 2017 Estuaries Section Travel Award Winner

Advisor: Daphne Munroe
Rutgers University
Haskin Shellfish Research Laboratory
Department of Marine and Coastal Science

Effective fisheries management of wild populations requires a detailed understanding of population demographics, such as density, abundance, size structure, as well as certain life history traits (i.e. growth, reproduction, and size of maturity). Understanding how these dynamics influence species populations are critical in determining stock size and assist in making future predictions about the population. As a graduate student at Rutgers University, I work in both the Delaware Bay estuary and Mid-Atlantic continental shelf examining population demographics and life history traits of economically and ecologically important shellfish populations. In the Delaware Bay, using a long-term dataset, I examined how settlement timing, temperature, and salinity influence early growth in wild eastern oysters (*Crassostrea virginica*). Additionally, I have worked to collect baseline data on waved whelk (*Buccinum undatum*), this species remains unregulated in the Mid-Atlantic waters of the United States but fishery development is starting to occur. The majority of my research aims to further understand shellfish population dynamics which can be used to better inform management.

Sarah Borsetti being presented the Estuaries Section Student Travel Award by Past-President Karin Limburg.

Wild eastern oysters are a keystone species in the Delaware Bay that provide ecological functions and economic importance. A number of direct and indirect ecosystem services are generated by oysters themselves and via their provision of hard substrate. In addition to this species'

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ecological importance, the eastern oyster is an economically important species, with landings ranging between approximately 75,000 to 90,000 bushels annually in the Delaware Bay. Management and restoration of wild oyster populations required detailed understanding of population dynamics, including how growth responds to temporally and spatially varying environmental conditions. Previous studies document growth rates for large, protected, or hatchery-spawned oysters, however, little is known about early growth in wild oyster populations. Monitoring growth rates of wild spat is difficult due to the inability to identify when settlement occurs and difficulties in marking and tracking specific cohorts. This work examined early post-settlement growth rates for wild oysters and tested how settlement timing, temperature, and salinity influenced early growth through tracking growth of naturally recruited oysters on 21 different subtidal shell plant enhancement sites within the central portion of the oyster resource in the Delaware estuary between 2005 and 2013.

Oysters in the Delaware Bay follow a relatively linear growth trajectory in the first year of life, interspersed by periods of little to no growth in the colder months, and tend to reach greater heights at 1 year in higher average salinity and at temperatures averaging 23 °C. In general, this work found that population-based estimates of growth to 1 year are lower than many of those previously published. Multi-year estimates of wild growth such as these are important for understanding population-level changes in oysters and resulting ecosystem services under naturally variable conditions. This work has been published in *Estuaries and Coasts*[1].

In addition to working in estuaries, I also study shellfish fisheries in the Mid-Atlantic. Recent expansion of the unmanaged waved whelk fishery within the United States has prompted my work investigating local life history parameters of this species. Currently, this species remains unregulated in the Mid-Atlantic waters, the southern extent of the species' range, but fishery development is starting to occur. As commercial demand and interest in this fishery continue, it is critical to obtain baseline life history information to inform future stock assessments and support fishery management. During the summer of 2015, a comprehensive survey was undertaken to describe the population structure of waved whelk in the Mid-Atlantic via an examination of the species range, size structure, sex ratio, and size of sexual maturity.

Samples for this study were collected in partnership with the Northeast Fisheries Science Center sea scallop assessment surveys and the Virginia Institute of Marine Science sea scallop Research Set-Aside cooperative surveys. These surveys target the Atlantic sea scallops (*Placopecten magellanicus*) although whelk are incidentally caught. Whelk samples were collected from 228 of 798 survey dredge tows. All whelk collected (n = 3,877) were sexed, weighed, measured, and assessed for maturity. Because of the extensive sampling in the Mid-Atlantic examination of whelk distribution patterns were possible. Whelk were found in clumped

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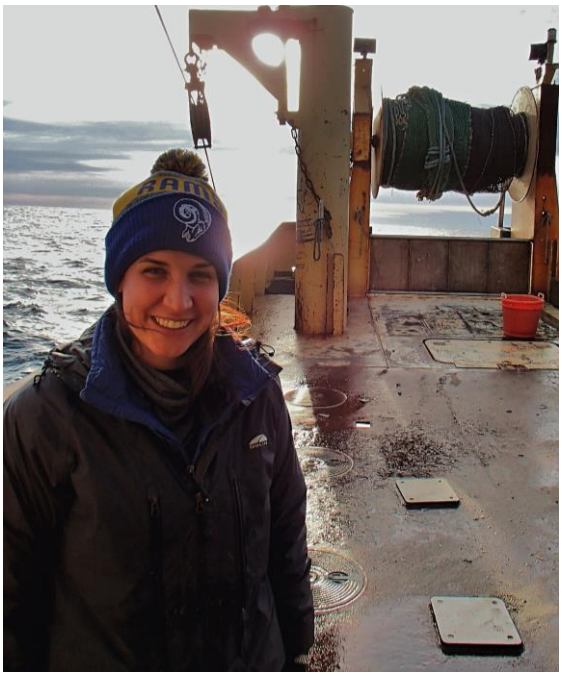
distributions at stations in water depths between 40 and 75 m and that their southern limit appears to be close to 38°N. Relative abundance estimates were calculated and used to examine the relationship between relative abundance per m^2 and depth. Size of maturity (SOM) was determined for males and females throughout the range and maturity at length curves were calculated. Significant regional variability and sexual differences were evident in SOM for this species with females consistently matured at a larger size than males.

Waved whelk populations in the U.S. portion of the Northwest Atlantic show regional variability in length distribution, sex ratio, and size of sexual maturity. In addition to the observed differences in life history characteristics, this study is the first to document the spatial distribution of waved whelk in this region. To date, no formal fishery management plan exists for waved whelk in the U.S. A possible approach to sustainable management would be to ensure that the fishery does not target individuals that have yet to spawn at least once (those smaller than the size of maturity). This strategy would minimize fishing impacts on whelk below the SOM, and allow retention of individuals that have already contributed to the spawning stock. The long-term productivity and sustainability of this fishery relies on maintaining a healthy spawning stock and level of recruitment. This work was presented at the 147th Annual AFS meeting in Tampa, Florida and has recently been published in *Fisheries Research*[2]. This work is ongoing; currently, I am working on aging whelk via their statoliths, a small calcium carbonate structure within the foot which contain distinct growth rings. This age information will be used to generate sex-specific age-at-length relationships for whelk in the Mid-Atlantic. Additionally, I am exploring the genetic structure of waved whelk in the Mid-Atlantic; this work will be the first to start to characterize spatial population structure for this species in the US.

[1] Munroe, D., Borsetti, S., Ashton-Alcox, K., and Bushek, D. 2017. Estuaries and Coasts. 40(3): 880-888.

[2] Borsetti, S., Munroe, D., Rudders, D. B., Dobson, C., and Bochenek, E. A. 2018. Fisheries Research, 198; 129- 137.



Sarah Borsetti on a sea scallop survey in the Northwest Atlantic.

Puerto Rico SDAFS Fundraiser

On September 20 Hurricane Maria made landfall on the island of Puerto Rico and caused devastating damage and destruction. Not just a disaster, Hurricane Maria became and continues to be a catastrophic event. For many, the scope of the loss is still hard to quantify.

We, at the American Fisheries Society (AFS), have actively sought the most appropriate way for us to support the needs of those colleagues and natural resources in recovery from the storm. After much discussion with leadership from various units within the AFS we have identified the following as ways we can support our colleagues in Puerto Rico.

While AFS recognizes natural disasters of this scope can cause significant trauma and loss, we believe it is important to also address the professional need that is included in that loss. Professional need is fundamental to addressing human need during times of disaster as livelihood capacity is critical to restoring order and generating outreach in communities. We understand other professional needs of our Puerto Rico colleagues that we may not have anticipated following the devastation caused by Hurricane Maria will exist. We also understand a significant portion of the people in Puerto Rico will be without power and adequate water supplies for months to come.

FUNDRAISING FOR TRAVEL GRANTS

Help us assist our Puerto Rican colleagues in attending this meeting. AFS has set the goal of funding at least 15 professionals to receive travel grants to attend the meeting in San Juan. The funds will be available to those fisheries colleagues in Puerto Rico that demonstrate (to the PR Chapter leadership) that they have suffered personal financial loss from the hurricane. For those who will receive travel assistance, we plan to cover:

- Full registration AFS Southern Division Spring Meeting
- Travel support and hotel accommodations
- Federal per diem (Food expenses)

https://secure.fisheries.org/MemberResponsive/Donations/AFSGivesBack_PuertoRico.aspx

Estuaries Section Sponsored Symposia submitted to the 2018 AFS Meeting in Atlantic City, NJ

Monstees of Climate Change

Organizers: Lee Benaka, Lynn Waterhouse, James Vasslides

Symposium Description: Full understanding of the effects of climate change on marine and freshwater ecosystems remains a hot topic of study. A variety of linked changes may also impact these environments and the species that dwell within, including warming temperatures, ocean acidification, de-oxygenation of water. While scientists have been assessing many of these impacts for decades, our understanding, tools, and management approaches are constantly evolving. The objectives of this symposium are to 1) highlight the most recent and pertinent research on these topics and 2) chart future areas of research. We aim to elicit broad discussion and draw contributions from a diversity of leading experts, young professionals, and students who are actively advancing this discipline of fisheries science. This symposium is meant to highlight talks by early career scientists and students, as a counterpart to the ”Monsters of Climate Change” symposium which will feature talks from leading scientists in the field.

Life in the Big City: Understanding Urbanization Impacts on Estuarine Fishes and Shellfish

Organizers: James Vasslides and Catherine Johnston

Symposium Description: Estuaries provide critical habitat for an assortment of fish species that rely on them during some, or all of, their life history. Humans also depend on estuaries in a number of ways, as they provide a variety of economic, cultural, and ecological services. Nearly 50% of the population of the U.S. lives in coastal counties, most of that falling within estuarine watersheds. These watersheds are undergoing different rates of urbanization and the change from “natural” systems to those dominated by human development can impose significant stressors on estuaries. The purpose of this symposium is to explore the impacts of urbanization on estuarine fishes and shellfish. Many human activities have adverse consequences for estuarine organisms (e.g., dredging, shoreline hardening, flow manipulation, pollution, and introduced species to name a few) so topics of interest are diverse. We invite presentations from researchers working in estuaries across the country that examine both direct and more indirect impacts of urbanization on fishes and shellfish.

Estuaries Section Treasurer's Report

respectfully submitted on 02/13/2018
by
Dr. Konstantine J. Rountos (Treasurer)

Date	Balance	Credit	Debit	Note
11/13/17	3,031.79			Treasurer's Report (Fall Newsletter)
11/27/17	2,971.79		60.00	Check #119 (AFS Invoice #8394, Certificates and Plaques for 2017 Meeting)
11/28/17	3,372.64	400.85		Deposit online registrations from AFS Monsters of Fish Habitat ($348.69) + Check from Marine Fisheries Section for 50% of the reimbursement for not having wine at the 2017 meeting ($52.16).
01/18/18	3,372.64			Executive Board Meeting
02/13/1/	3,372.64			Current balance

Check us out online!

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