TIDEWATER PRESS

NEWSLETTER OF THE TIDEWATER CHAPTER OF THE AMERICAN FISHERIES SOCIETY

Winter 2017

Volume 32, Issue 1

Inside this issue:

President's Corner | *Robert Aguilar*

Happy New Year AFS Tidewater Chapter members! I hope everyone had a harmonious and healthy holiday season and New Year. First, I want to thank the entire chapter for the honor to serve as your President. I hope it has set a fine example of Presidential dignity and integrity, the hallmarks of our centuries long democratic experiment. This President's Corner is one of my last official duties and much like myself, I shall keep it short and sweet.

Past-President Scott Baker has made significant progress with the Listserv migration to the "emaildodo" platform. You should soon see some emails from Scott regarding the move. If your email address has recently changed please update Scott (bakers@uncw.edu). Thanks Scott and Jessica Thompson for their hard work and effort.

You have probably noticed that our Tidewater website went down in the recent country-wide hack. Additionally, the Southern Division ceased hosting chapter and sub-unit webpages; thus, we are in the process of nailing down a new web host. In the meantime, a temporary site can be found at https://sd.fisheries.org/tidewater. This page will include all necessary information regarding the upcoming Annual Meeting and awards and scholarships applications.

I am really looking forward to the upcoming 31st Annual Tidewater AFS Meeting in Virginia Beach, Virginia March 9-11, 2017. During our recent executive committee conference call, we heard President-elect Sally Roman describe some of the meeting details. It looks to be an exciting event, held at great new venues. The oral and poster sessions will take place at the Chesapeake Bay Foundation's new Brock

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President's Corner, continued from page 1

Environmental Center. Not only is it one of the world's greenest buildings, but it's beautifully situated overlooking the mouth of Lynnhaven Bay. The banquet will be held at the Virginia Aquarium & Marine Science Center, which we are free to tour. It is going to be a great time, big league. Thanks all around to Sally and Willy for the fantastic job of putting together this meeting. I want to also mention that the conference hotel (Wyndham Virginia Beach Oceanfront) is offering a great group rate for attendees. Please call them directly (1 800 365-3032) to reserve a room before the rate ends on 02/09/17.

This brings me to my most important piece of business for this newsletter! The Tidewater AFS Chapter is seeking nominations for a North Carolina member to serve as President-Elect. This person chairs the Program Committee and would oversee all arrangements for the 2018 annual meeting to be held in North Carolina. The President-Elect assumes the presidency upon expiration of the current president's term, so nominees must be willing to serve if elected. As current members know, this is an important position that must be filled in order for us to host and have a successful 32st Annual Meeting in North Carolina!

Candidate bios and voting will occur through an online survey circulated via the Chapter Listserv. Officer installation will occur at the Business Meeting during the Annual Meeting in March. Send the name of your nominee, a brief bio, and a description of why they are deserving to be president, to Past-President Scott Baker bakers@uncw.edu. Remember that self-nomination is possible and encouraged.

Also, we presently have members serving in each of the other officers' roles, many of which are willing to continue serving, but that should not preclude the nomination of another individual interested in serving the Chapter. Ideally, we will have multiple individuals nominated for each position. The positions include President-elect (North Carolina member), Treasurer, Secretary, Webmaster, Maryland at-large, Virginia at-large, North Carolina at-large, Newsletter Editor, and Awards & Scholarship Committee Chair.

I will conclude by offering a big thank you to all the individuals that served as Tidewater AFS Chapter members and officers during the past year. It has been fun and very rewarding to serve as your President. I look forward to seeing everyone in March at the 31th Annual Meeting. As always, the Tidewater executive committee is open to any suggestions from our members to help make the Chapter stronger and to better meet your professional needs. Please feel free to contact any one of your Tidewater officers with ideas. I hope to see you all in Virginia Beach!

Current Financial Report	
Checking:	$15,682.33
Mutual Fund:	$1,743.94
Total:	$17,426.27

Treasurer's Report | *Stephanie McInerny*

The checking account balance reflects payments to AFS for liability insurance ($150), a student subunit sponsorship ($500), and miscellaneous costs for upcoming annual meeting (~$200). Monies received by the Chapter include payment from UNCW for purchase of the VEMCO Receiver in last year's meeting raffle and the AFS Chapter dues refund for 2016 ($567).

Annual chapter dues for 2017 are $10.00. If you are not currently a member of the Chapter but would like to join, a membership form can be found on the Chapter website or you can email me at Stephanie.McInerny@ncdenr.gov. A lifetime membership is available for a onetime fee of $150.00. Checks should be sent to:

Stephanie McInerny
TWC Secretary/Treasurer
209 Brigantine Ct.
Cape Carteret, NC 28584

Please make checks payable to: "Tidewater Chapter AFS."

Maryland State Update | *Bob Murphy*

Tred Avon River Oyster Restoration

The U.S. Army Corps of Engineers, Baltimore District, resumed the construction of oyster reef in the Tred Avon River Oyster Sanctuary on Dec. 14, 2016. Eight acres of reef will be restored using aged mixed shell in water depths greater than 9 feet mean lower low water (MLLW).

So far, the restoration team comprised of the Maryland Department of Natural Resources (DNR), National Oceanic and Atmospheric Administration (NOAA), Oyster Recovery Partnership (ORP), National Fish and Wildlife Foundation and University of Maryland Center for Environmental Science has restored 16 acres of alternate substrate reefs in water depths between 9 to 20 feet MLLW in the Tred Avon River as well as placed spat-on-shell on 19 acres of existing oyster reef habitat. There is a total of 78 acres of reef restoration work identified in the Tred Avon River Oyster Restoration Tributary Plan, plus placement of spat-on-shell (baby oysters) on an additional 69 acres of existing low-density oyster reefs, for a total of 147 acres.

The Corps also plans this winter to start the construction of an additional (up to) 10 acres in the sanctuary, primarily in water depths between 6.5 and 9 feet, based on the completion of an environmental assessment in November 2016 that found no significant impacts would occur from construction in waters at this depth. The Maryland DNR's Oyster Advisory Commission, which is comprised of conservationists, government officials, scientists and watermen recommended Aug. 1, 2016, that the Corps and non-federal sponsor DNR continue oyster restoration in the Tred Avon River after a delay was requested in December 2015.

In addition to the Tred Avon River, Harris Creek and the Little Choptank River, DNR anticipates selection of the next two tributaries for restoration in 2017. The goal is to restore 10 tributaries by 2025 – five in Maryland and five in Virginia. Harris Creek, the first sanctuary to be restored, was completed in 2015 and is considered the largest restoration project of its kind in the world.

Do Menhaden Migrate Like Striped Bass?

Atlantic Menhaden (*Brevoortia tyrannus*) are an economically and ecologically important forage fish that supports the largest fishery on the east coast. In the late 1960s, a massive mark-recapture study was undertaken to better understand stock structure and movement. The original investigators found that a single population exists on the U.S. east coast. Also, qualitative patterns in the recapture data indicated migration patterns similar to striped bass with northward migration during the spring and migration towards North Carolina (from both the north and south) in the fall and winter. The largest portion of the fishery is concentrated in and around the Chesapeake Bay, so it is important to better understand Atlantic Menhaden movement patterns.

Emily Liljestrand and Michael Wilberg (Chesapeake Biological Laboratory) are using a new mark-recapture model, along with data from the 1960s study, to estimate Atlantic Menhaden movement rates in a project funded by Maryland Sea Grant. They have found that the movement of Menhaden along the coast is substantially more complicated than just seasonal migration patterns. The stock appears to experience much more overwinter residency in the mid-Atlantic Bight than previously described, with a substantial portion of the population overwintering from southern New England to Chesapeake Bay. The patterns described by the original researchers were still present, but they often represented a minority of the fish in any given region. Menhaden were likely to be found in the same region of the Atlantic from month to month between June and October. When substantial movement was occurring, either

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from May to June or during the winter it was often northward, into the Carolinas or Chesapeake Bay region, respectively.

These findings are consistent with other recent work, which found high Atlantic Menhaden larval abundance from November to April in the inshore waters of the mid-Atlantic and southern New England regions, suggesting a substantial adult presence there during winter. If the magnitude and scope of menhaden movement is not as large as previously believed, this may have implications for how we establish biological reference points and make future management decisions.

Virginia State Update | *Willy Goldsmith*

VIMS Collaborates with Recreational Anglers to Answer Key Cobia Questions

In 2015, recreational landings of Cobia, *Rachycentron canadum*, along the U.S. east coast exceeded the Allowable Catch Limit, triggering a June 2016 closure of the recreational fishery in federal waters. The unforeseen high catch rates and resulting drastic management actions highlighted how little is understood about the biology and stock status of Cobia, as well as about the human dimensions—angler values and economic impacts—of the recreational fishery. Last fall, the Virginia Marine Resources Commission's Recreational Fishing Advisory Board agreed to fund a four-pronged, multidisciplinary study by the Virginia Institute of Marine Science (VIMS) dedicated to addressing these pressing questions while working closely with recreational anglers. On January 16, VIMS hosted a Cooperative Cobia Research Workshop, attended by over 20 recreational anglers and charter captains, to introduce the recreational fishing community to the projects, each of which will be led by a VIMS professor.

VIMS graduate student Douglas Jensen deploys a pop-up satellite archival tag on a Cobia. The tag will provide movement and habitat information over six months while indicating whether or not the fish survived following catch-and-release fishing. (Photo courtesy of John Graves)

Dr. Jan McDowell will use genetic methods to investigate the stock structure of Cobia along the Atlantic coast. While Cobia are currently managed as separate Gulf of Mexico and Atlantic stocks, divided at the Florida/Georgia line, genetic data provide conflicting evidence regarding the appropriateness of these management units. Moreover, some studies have suggested genetic differentiation between Virginia and South Carolina inshore Cobia aggregations, which both appeared to be genetically different from offshore aggregations. McDowell will analyze genetic samples from Cobia caught in and around Chesapeake Bay to further clarify stock structure—for example, the presence of a genetically distinct Chesapeake Bay spawning population of Cobia, or perhaps even a finer-scale stock structure, with sub-populations exhibiting site

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Virginia, continued

Cobia are a popular target for Virginia's saltwater recreational anglers. A new research initiative led by VIMS endeavors to inform effective management of the species. (Photo courtesy of John Graves)

fidelity to different parts of Chesapeake Bay. This project relies heavily on collaboration with recreational anglers, who will collect fin clips for genetic analysis.

Dr. John Graves, meanwhile, plans to deploy a total of 17 pop-up satellite archival tags (PSATs) on Cobia to determine movements, habitat utilization, and post-release mortality in the recreational fishery. The tags, which will be deployed by Graves and VIMS graduate student Douglas Jensen aboard collaborating recreational fishing vessels, are programmed to pop off after six months, when they will transmit light level, pressure (depth), and temperature data. Tags will be deployed in August—near the end of Cobia residence in Chesapeake Bay—to provide information regarding fall movements. Graves and Jensen tagged seven Cobia in August 2016. One tag shed prematurely from a surviving fish off Cape Hatteras in November, but the other six tags, scheduled for pop-off in February, have yet to report, suggesting survival for all seven fish. The remaining ten tags will be deployed in August 2017.

To investigate angler preferences and motivations, as well as the economic impacts of different regulatory strategies, Dr. Andrew Scheld and graduate student Shelby White will survey a subset of Virginia saltwater fishing license holders. The surveys will obtain information on angler Cobia fishing behavior, demographics, trip expenditures, and preferences for trip alternatives (e.g., Cobia regulations, target species). By applying econometric models to responses, Scheld and White will be able to identify angler management preferences and to understand how regulations and fish availability may influence Cobia targeting as well as fishing-related expenditures.

Lastly, Dr. Kevin Weng will collect trophy fish size information from recreational anglers to investigate trends in the maximize size of Cobia in Virginia waters over time, which could provide clues to the stock status of the species. For example, a stable Cobia maximum size may suggest a healthy population, while a decline could indicate that a high level of fishing mortality is occurring. Weng will collect a broad array of catch data, including Virginia Saltwater Fishing Citation records, tournament archives, and personal angler logbooks.

The research team plans to share preliminary results by late 2017, and findings could potentially be used to inform Cobia management measures for 2018. To learn more about this cooperative research effort, or to get involved, email VIMS Marine Recreation Specialist Susanna Musick, who is coordinating the project, at susanna@vims.edu.

State Ramps Up River Herring Monitoring Efforts

Harvest of Alewife, *Alosa pseudoharengus*, and Blueback Herring, *Alosa aestivalis*—collectively known as river herring—has been prohibited in Virginia since 2012. With numerous restoration efforts in place, such as dam removals and construction of fishways, it's critical to track annual herring runs to estimate abundance and determine the extent to which populations are rebounding. Fisheries scientists at VIMS and the Virginia Department

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of Game and Inland Fisheries (VDGIF) are utilizing diverse technologies to enhance this monitoring effort, complementing ongoing VIMS gillnet surveys that provide indices of river herring abundance.

VIMS Professor Dr. Eric Hilton and research scientist Dr. Pat McGrath, along with VDGIF Tidal Rivers Project Leader Aaron Bunch and Fish Passage Coordinator Alan Weaver, will deploy a Sound Metrics ARIS multi-beam sonar on Herring Creek, a tributary of the James River, in February. Michael Odom of the U.S. Fish and Wildlife Service's Harrison Lake National Fish Hatchery is providing access to the creek and assistance. The sonar, like its predecessor DIDSON, produces high-resolution images of individual fish that can be used to continuously count the number of herring moving upstream to spawn. The VIMS team first tested the technology for monitoring herring on Totopotomy Creek, a tributary of the Pamunkey River, in 2016; however, the site's remote location and constantly changing water levels made it difficult to conduct accurate counts. Because ARIS will not be able to distinguish between the two morphologically similar herring species, electrofishing will occur at regular intervals on the creek to verify species composition and refine count estimates. The device will remain in place until the cessation of the herring run in the late spring. For details about this work, contact Pat McGrath at patm@vims.edu.

In addition, Weaver and Bunch will be deploying an electronic fish counter in the newly reconstructed Denil fishway at Walkers Dam, on the Chickahominy River. The device consists of an array of PVC pipe tunnels, each of which is equipped with electrodes, and operates on the principle of a potentiometric bridge; when a fish swims through one of the tunnels, the conductivity of the water changes and a count is registered. In 2017 DGIF will focus on applying adjustment factors—understanding how to use the counts to estimate abundance. For example, fish other than river herring may swim through the tunnels, and fish may travel downstream through the tunnels as well as upstream. Species composition and relative abundance will also be assessed using hoop nets and boat electrofishing (both upstream and downstream of the dam) to ground-truth counts. For more information about the project, contact Alan Weaver at Alan.Weaver@dgif.virginia.gov.

A largemouth bass and its unwelcome guests, *Myzobdella lugubris*. (Photo courtesy of Dave Gauthier)

ODU and VDGIF Partner to Investigate Leech Parasitism of Back Bay Largemouth Bass

In recent years, while conducting routine multispecies fisheries monitoring in Back Bay, an inland, coastal bay in southeast Virginia, VDGIF Fish Biologist Chad Boyce noticed something troubling: the oral cavities of many Largemouth Bass, *Micropterus salmoides*, were infested by leeches—sometimes with many in a single fish. He contacted Dr. Dave Gauthier, a professor at Old Dominion University (ODU) and aquatic animal health specialist, who identified the parasite as

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Myzobdella lugubris, a species that was also reported in adjacent Currituck Sound during the 1990s. The two are now investigating the prevalence of such parasitization in Back Bay—a popular freshwater sportfishing destination—as well as the potential health impacts of the leech on its host.

Researchers at ODU and VGDIF have observed cocoons from the leech species on the posterior margin of adult blue crab carapaces in Back Bay. (Photo courtesy of Dave Gauthier)

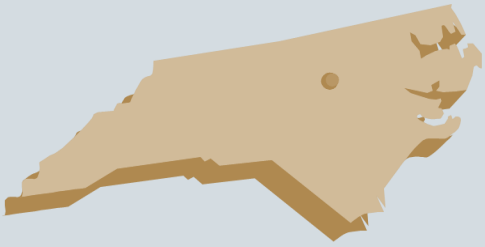
"We're basically starting from scratch," says Gauthier, citing the dearth of knowledge on the life history of the leech and its effect on host species. The team plans to examine the bacteriology, virology, and parasitology of both the infected fish and leeches to learn whether the leeches are transmitting parasites or pathogens to their hosts—or making the fish more vulnerable to infection—in addition to causing damage to the oral cavity. Also of interest is the extent to which leech infestation leads to chronic stress in the fish, which could result in mortality or reduced reproductive output.

To determine whether infection affects survival of Largemouth Bass, Gauthier, Boyce, and ODU graduate student Amanda Pomposini are deploying dart tags on both infected and uninfected fish in Back Bay and comparing recapture rates. At the same time, the researchers will photograph the oral cavity of each fish before release and after recapture to track leech attachment stage, duration, and seasonality.

And it's not just Largemouth Bass that the species may be impacting. "We have observed cocoons from these leeches on carapaces of adult Blue Crabs [*Callinectes sapidus*] in Back Bay," Gauthier explains, corroborating published studies linking blue crabs to the parasite's life cycle. Larvae are thought to hatch out of the cocoons, though how the cocoons are first deposited on the crabs remains a mystery. And the possible effect of the leeches on the blue crabs themselves remains an open question.

For more information on this study, contact Dave Gauthier (DGauthie@odu.edu) or Chad Boyce (chad.boyce@dgif.virginia.gov).

North Carolina State Update | *Jacob Boyd*



Cobia Regulations

The recreational fishery for Cobia, *Rachycentron canadum*, is very popular in North Carolina in both state and federal waters. Due to an overage of the recreational annual catch limit (ACL) of Cobia in 2015, the recreational fishery for Cobia in federal waters closed on June 20, 2016. The closure occurred during the peak Cobia season off the coasts of North Carolina and Virginia impacting both private anglers and charter captains targeting the popular species. Accountability measures are currently in place that requires a shortened season the subsequent year of an overage. Instead of following the federal closure, several states developed alternate management strategies to reduce economic impacts to their state fisheries, which resulted in differing regulations for federal and state water fishing. An intent of the complementary Cobia Fishery Management Plan (FMP) is to

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provide the states the flexibility to respond to changes in the fishery and stock that meet their state fisheries needs without impacting federal fishermen while meeting the goals and objectives of the FMP. The North Carolina Marine Fisheries Commission sought to avoid shutting the fishery down on June 20 by enacting stricter regulations. The North Carolina Division of Marine Fisheries closed the recreational fishery for Cobia in state waters on Friday, Sept. 30, 2016. Cobia are widely distributed throughout the western Atlantic and Gulf of Mexico and are managed as two distinct groups– the Gulf Migratory Group and the Atlantic Migratory Group. The Atlantic Migratory Group, which range from New York to Georgia, is managed by the South Atlantic Fisheries Management Council (SAFMC). The east coast of Florida falls under the Gulf Migratory Group. The SAFMC manages the east coast of Florida sub-ACL which is set by the Gulf of Mexico Fishery Management Council. Public meetings were held in response to a request by the SAFMC for the Atlantic States Marine Fisheries Commission to consider joint or complementary management of the resource in light of the significant overage of the 2015 recreational ACL and the impact of those overages to state management. In 2016, the recreational and total ACLs of Cobia in the Atlantic migratory group cobia were also exceeded. Therefore, the 2017 recreational season must account for this overage. Recreational harvest of Atlantic migratory group Cobia (from Georgia through New York) closed on January 24, 2017, in federal waters and will remain closed until January 1, 2018.

New State Records

The first state record Rainbow Runner, *Elagatis bipinnulata*, was certified by the North Carolina Division of Marine Fisheries on September 12, 2016. The fisherman, from Pennsylvania, caught the 23-pound, 13-ounce fish while fishing off of Ocracoke, NC. The fish was 46 inches fork length with a girth of 20.5 inches. To establish a state record fish, the angler must submit an application that is then reviewed by N.C. Division of Marine Fisheries staff and a N.C. Saltwater Fishing Tournament Advisory Board. The fish must be exceptionally large for North Carolina waters and within a reasonable range of the world record. The world record is 37 pounds, 9 ounces caught off the west coast of Mexico in 1991.

A new state record Cubera Snapper, *Lutjanus cyanopterus*, was certified by the North Carolina Division of Marine Fisheries on September 28, 2016. The fisherman, from North Carolina, caught the 58-pound fish while fishing off of Atlantic Beach, NC. The fish was 39 inches total length with a girth of 34 inches. The former state record for this species

was recorded in 1993 and weighed 47 pounds, 8 ounces. The world record in 124 pounds, 12 ounces caught off Louisiana in 2007.

UMCES CBL Student Subunit News | *Emily Liljestrand*

We are happy to congratulate TWO of our members, Aimee Hoover and Gray Redding, on becoming 2017 NOAA Knauss Fellows. They will be working in the NOAA department of highly migratory species and the national observer program, respectively. Here's to hoping they have a fun and productive year.

This semester our subunit went on a field trip to Reedville Virginia, the "town that fish built" and site of the last Menhaden processing plant on the Atlantic coast. The processing plant, Omega Protein, graciously allowed us to tour their facilities and see what it takes to turn hundreds of thousands of tons of menhaden into fish oil and fish meal. We learned a lot about menhaden products and plant sustainability and even got to go home with our own Omega-3 fatty acid fish oil pills.

A few weeks leading up to the field trip, we had a special guest lecture for our monthly meeting. CBL's newest fisheries faculty, Dr. Genny Nesslage, talked to us about the history of the menhaden fishery and management. It has inspired us to seek out more special topics and look to our own campus for guest speakers at our regular meetings. We look forward to an exciting semester of dialogue and outreach. In the summer we hope to restart our seining demonstrations at the local state park and finding more ways to connect with the broader southern Maryland community. As always, you can keep up with our events and updates on our student subunit blog: http://afs-umd.blogspot.com/

From left to right: Ammar Hanif, Eunah Han, Joe Molina, Katie Lankowicz, Reed Brodnick, Kevin Kahover, Genny Nesslage, Emily Liljestrand, Basia Hutniczak.

UMES Student Subunit News | *Noelle Olsen*

I think the whole UMES subunit can agree that the fall semester really flew by! Throughout the fall, we were able to participate a few of Salisbury's Third Friday events by setting up an information booth downtown. October was one of our favorite months, because we showcased some "spooky" sea creatures and tried to debunk the myth that sharks are deadliest animals in the kingdom! We received some great feedback and interest in our subunit from the local community, and we are planning on continuing our booth in the spring once the outdoor booths become available.

We are happy and proud (and sad to say goodbye) to two of our recently graduated subunit members: Audy Peoples and Rebecca Peters! Audy, our champion of marine mammal research, defended his master's thesis: Stranding demographics, inorganic contaminants, and cytotoxicity of bottlenose dolphins (*Tursiops truncatus*) in Maryland. Rebecca "Grouper Gal" Peters defended her master's thesis: Investigations into some aspects of the ecology of juvenile Black Sea Bass (*Centropristis striata*) in the Maryland coastal bays. We are excited that Rebecca will soon be starting her John A. Knauss Marine Policy Fellowship in the NOAA Fisheries Office of Science and Technology. We will miss them dearly! The UMES subunit would like to welcome back Wilmelie Cruz -Marrero this semester! Wilmelie, the recipient of NOAA's Saltonstall-Kennedy grant, spent last semester in Puerto Rico comparing two assessment techniques for queen conch stock assessment: diver and camera sled surveys. Wilmelie has recently completed her master's degree and is applying the data collected last semester towards her doctoral degree. Laura Almodóvar-Acevedo has had the opportunity as a NOAA LMRCSC Graduate Research & Training Scholar to work on part of her doctoral research at the NOAA Cooperative Oxford Laboratory in Maryland. Laura has been conducting various bioenergetics experiments on juvenile black sea bass while at the Oxford lab, and plans on incorporating her results in a habitat suitability model for black sea bass in the Chesapeake Bay.

The UMES student subunit at Salisbury's Third Friday event in October. From left: André Price, Rebecca Peters, Katie Fitzenreiter, Justin Wilson, and Noelle Olsen.

We would like to thank the AFS Tidewater EXCOM for selecting our proposal for the Student Subunit Enrichment Grant! We have been busy brainstorming and planning for our research symposium: DelMarVa's Aquatic Resources & Ecosystems to be held April 28, 2017. The symposium will take place at the Paul S. Sarbanes Coastal Ecology Center in Berlin, MD where many of our grad students conduct research. We will soon be soliciting for abstracts for oral and poster presentations. In addition to highlighting student research in the DelMarVa Peninsula, one of our main goals is to get the local community involved. We hope to achieve this by hosting a diverse panel discussion featuring members from various stakeholders: commercial & recreational fishing, non-profits, etc. We are also very excited to be working closely with the Assateague Island State Park and will be offering free camp sites to lessen the cost of attending! If you are interested in joining the panel discussion, presenting, or volunteering, please contact Noelle Olsen at fisheriesumes@gmail.com for more details.

Duke University Student Subunit News | *Sara Cleaver*

DukeFish

This year, our main focus is highlighting fisheries research and management from many perspectives- from the seafood industry to recreational fishers, scientists, fisheries managers, entrepreneurs, and activists. We hope that by taking this approach, DukeFish and its members will be able to gain not only a better understanding of fisheries science, but also a broader knowledge of the multifaceted issues that can arise in fisheries management and a familiarity of what is going on out on the water and on our coasts. So far this year, DukeFish has been busy and has held some very successful events!

Year-round: Walking Fish Community Supported Fishery

In 2009, a group of graduate students at Duke University's Nicholas School of the Environment developed Walking Fish in partnership with a number of North Carolina-based for-profit and non-profit organizations. Every Thursday, fresh, locally-harvested NC seafood is brought to the Triangle area from Beaufort. In Durham, members of the community who have pre-payed for a seafood share pick up their share in the Duke Gardens parking lot. Our volunteers from DukeFish interact with customers and help with the distribution of shares every week. The goals of this program are to foster economic opportunities, cultivate healthy

WALKING FISH

communities, and encourage environmental stewardship. It has been a great way for our volunteers to interact with fishermen, learn more about fisheries, and promote sustainable fisheries within our community.

March: Ocean Awareness Week: Red Gold Film Screening

In honor of Ocean Awareness Week DukeFish held a film screening of the documentary Red Gold, which highlights the issues surrounding the proposal of Pebble Mine and the implications for the world's most prolific sockeye salmon fisheries, in Bristol Bay, Alaska. After the film, students engaged in an informal discussion about some of the recent updates surrounding the Pebble Mine proposal since the documentary came out in 2008.

April: Earth Day Fish Prints

Every year, the Duke University Nicholas School of the Environment hosts an Earth Day celebration where DukeFish puts on some sort of fish-related event. This year, we chose to make traditional fish prints using a couple of extra fish from Walking Fish and cloth. This event was a total hit, despite the downpour! We had a huge crowd of people

surrounding our table, patiently awaiting their turn to make their own fish print or t-shirt. Many people were nervous about touching a real fish for their first time, but we exposed them to what kind of fish they were making a print of, and informed them of our partnership with Walking Fish. The pictures speak for themselves!

September: The North Carolina Annual Seafood Festival

First, DukeFish invited Bill from FishTowne, a local seafood

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Duke University, continued

business, to come speak about his experience helping develop a CSF (Walking Fish) as well as answering questions about the local shrimp DukeFish sold in our shrimp tacos for the Annual North Carolina Seafood Festival.

Photo Credit: Nathan Miller

Seafood Festival was a huge success; our famous local shrimp tacos hit the spot. After we braved it through a stormy, wet Friday (during which our coolers were afloat in the tent), eager festival-goers came out by the bunches on Saturday and Sunday. Consumers were thrilled with the delicious flavors of our grilled channel-net and skimmer trawl-caught shrimp seasoned with our homemade spice blend, chopped purple and green cabbage and carrot slaw, and drizzled with our special homemade chipotle crema sauce. Our unbeatable tacos drew crowds into the stand, where DukeFish was able to reach out to many consumers about the importance of supporting local fishermen, learning more about our food systems, and why it is important to ask questions about where our seafood comes from and how it is caught. Several consumers came by just to check out our educational materials or to pick up Seafood Watch cards, and several of our customers were so pleased with our tacos that they started cheering on other potential customers to come give them a try! It was not uncommon to hear positive feedback such as, "this is the best shrimp taco I've ever had"! We had some friendly competition with the booth next to us, and the fireworks on Saturday night just added to the fun.

Many folks from the Duke University Marine Lab came by to visit; thank you to all faculty and staff, their families, and students who came to support our mission and work! Sustainable seafood lovers from the Division of Marine Fisheries also stopped by to show their support and grab their share of tacos. We were in the local newspaper, and had Festival Director and NOAA employee Chris Smith come by with his family and take a photo with us as well!

We were also able to keep fellow DukeFish lovers and taco eaters pleased by exchanging a new DukeFish t-shirt or slap-on koozie for a suggested donation. We would like to thank everyone who helped us out with this fabulous event. All of the hard work was well worth it!

October: Dr. Andre Boustany, Bluefin Tunas

Later this semester, DukeFish organized a talk by Dr. Andre Boustany, Research Scientist and Senior Nippon Foundation-Nereus Fellow in Dr. Patrick Halpin's Marine Geospatial Ecology Lab at Duke University. Dr. Boustany's talk was titled, "Looking for a Way Forward on the Management and Conservation of Bluefin Tunas". Atlantic, Southern and Pacific Bluefin Tunas share similar ecological and life history traits, which affect their susceptibility to exploitation. The current management status of the three species vary, in both current population size and trajectory. This talk examined how the biology of Bluefin Tunas impacts their sensitivity to overfishing, and how institutional and organizational differences in the international bodies that oversee Bluefin Tuna management influence the ability to positively impact conservation. We looked at the history of Bluefin Tuna management at the International Commission of the Conservation of Atlantic Tunas (ICCAT, the international body responsible for the management of Atlantic Bluefin Tuna) and the Commission for the Conservation for Southern Bluefin Tuna (CCSBT, the management body responsible for southern bluefin tuna), and how the decades of failures and successes under those bodies can inform strategies to positively impact Pacific Bluefin Tuna conservation.

November: Net Effect Film Screening & Discussion

In November, DukeFish hosted a documentary showing of the

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WRAL production *Net Effect*, followed by a discussion with local recreational fishermen, guides, conservation NGO representatives, and representatives of commercial fishing interests. The documentary explored the complexities of fisheries management and the tensions between recreational and commercial fishermen in North Carolina. The film examined the recreational claim that commercial practices are having devastating effects on fish stocks and depleting a common resource. After the film, members heard from both commercial and recreational fishermen in a question and answer session. Members were able to witness tensions between the parties first hand and understand how policies and management can affect resource users on a personal level. This was an incredibly valuable experience exposing the complexities of fisheries management to our members.

December: NC State's Fish Barn

DukeFish took a trip out to North Carolina State's Fish Barn outside Raleigh in early December. First, we took a tour of their greenhouse aquaponics facility where they grow lettuce and herbs with tilapia. We learned about the

Photo Credit: Tess Petesch

bio-filtration system and their secret to maximizing plant and fish production: a decoupled system which allows the pH of the water to differ for the plant side and the fish side. Though the Fish Barn exists for research purposes, we learned that species like tilapia have low commercial value and the lettuce drives the profitability of these types of operations, if there are profits left! Next, we took a tour of their facilities where they rear flounder and striped bass, species that should command a higher value on the market but are slightly more difficult to rear. To induce spawning more than once a year, the managers at the Fish Barn manipulate the light in the room, since spawning is responsive to changes in photoperiod. We talked a lot about feed and disease control as well. Disease spreads fast in these types of systems and it's very difficult to prevent. Overall, a successful and highly educational visit that left us with an appreciation for the difficulty of raising aquatic species indoors.

DukeFish looks forward to a more speakers and a field trip in the spring, plus our traditional events for Earth Day and Ocean Awareness Week.

The DukeFish leadership team, Kelsey Dick, Sara Cleaver, Caitlin Starks, Tess Petesch, & Walter Wright.

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2017 AFS Annual Meeting Heads to Tampa, Florida!

The Florida Chapter invites you to attend the 147th Annual Meeting of the American Fisheries Society in Tampa, FL from August 20-24, 2017. Tampa is an exciting city with plenty to see and do.

Visit https://afsannualmeeting.fisheries.org/ for more information.

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