The Northeast Fish Rapper

Newsletter of the Northeastern Division of the American Fisheries Society

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In This Issue

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President's Message

NED President John Cooper

Greetings to all Division members. The AFS annual meeting in Portland, Oregon, marked the end of my presidential duties and I can be sent out to pasture, or to a creek for fishing, as a reward. Kristen Ferry now starts her term as President, and we can look forward to a productive year for the Division.

Our 63rd Annual Business Meeting was held in Newport, Rhode Island, and featured a Fisheries Professionals Reception (provided by AFS) before the business meeting began. Peter Aarrestad (Director of Inland Fisheries for the Connecticut Department of Energy and Environmental Protection), Chris O'Bara (West Virginia Department of Natural Resources), AFS Executive Director Doug Austen, and AFS President Donna Parrish addressed the attendees. The NED meeting was in conjunction with the 71st Northeast Fish and Wildlife Conference.

Terra Rentz (President, Northeast Section of The Wildlife Society) and I presented the membership concerns about our involvement with the Northeast Fish and Wildlife Conference to the State Fish Chiefs and Administrators at the Newport meeting. Our presentations were well received and the discussions that followed would indicate that we will be successful in our efforts to increase the involvement of NED and TWS in the planning of future conferences. We are revising a Memorandum of Understanding that will outline the various roles of the societies with the host state. Terra also spoke with Cindy Delaney (DelaneyMeeting Management) who handles logisitical planning of the conference, and Cindy is also supportive of our efforts.

The Dwight Webster Memorial Award, the most prestigious award given by the Northeastern Division, is given in honor of Dr. Dwight Webster, who was twice President of the Northeastern Division, and was a faculty member at Cornell University for more than 40 years. The award recipient was Dr. Donna Parrish, the Unit Leader of the Vermont Cooperative Fish and Wildlife Research Unit and Research Professor in the Rubenstein School of Environment and Natural Resources at the University of Vermont.

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President's Message

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Donna teaches a course on the Ecology of Fishes and graduate seminars on aquatic ecology and watershed science, on becoming a successful scientist, and integrating natural science and social science. Donna became a member of the American Fisheries Society in 1982 and is the current President of the Society. She is also a Past President of the Education Section and the Northeastern Division. She has served on numerous committees for the society on awards, strategic planning, membership, and publications overview. Donna was instrumental in establishing the J. Frances Allen Scholarship in 1986, and is a co-author of the recent article in Fisheries magazine titled “J. Francis Allen: Pioneer of Women in Fisheries.”

The President's Award was given to Paul Perra, who is the coordinator for recreational fisheries with the Greater Atlantic Region of NOAA Fisheries Service where he contributed to the implementation of the Marine Recreational Information Program and Artificial Reefs Initiatives. Paul led the interstate management fisheries program of the Atlantic States Marine Fisheries Commission for about two decades and was a major contributor in the recovery process of Atlantic Coast striped bass. Paul joined the American Fisheries Society in 1976 and served the Northeastern Division as Secretary-Treasurer and President, was a member of the steering committee for the international symposium ‘Challenges for Diadromous Fishes in a Dynamic Global Environment’ published by AFS in 2009, and organized and moderated the symposium ‘Northeast Atlantic Striped Bass Fisheries Management, Past, Present, and Future,' and was instrumental in developing the AFS policy statement on bycatch of marine fish.

The Meritorious Service Award was given to Greg Kozlowski, a fisheries biologist for the New York State Department of Environmental Conservation in Region 1 (Nassau and Suffolk Counties on Long Island) where he writes popular articles for the New York Conservationist for Kids magazine and contributing to the DEC website, in addition to his regular duties. Greg became a member of AFS in 1998 and has served AFS, the Northeastern Division, and the New York Chapter as an audio-visual technologist at several meetings. Greg also served as the Division’s website manager for seven years.

Two students were recognized for excellence in presentations: Connor Capizzano, University of New England, was awarded the best paper presentation “Estimating and mitigating post-release mortality of Atlantic Cod in the Gulf of Maine's recreational rod-and-reel fishery”, and Andrew Ransom, University of Connecticut, was given the best poster award for "Investigating genetic similarity among extant bridle shiner populations in Connecticut: prerequisite information for restoration of extirpated locales."

The Moring Student Travel Award was given to Lucas Nathan, University of Connecticut, who presented a poster 'Using genetics and cost-distance modeling to uncover stream network features that structure brook trout populations.' The Moring Award is named in honor of the late Dr. John Moring, Professor of Zoology and marine sciences at the University of Maine.

The Division ceremonial walking stick, carved by Dr. Robert Carline, was presented to Richard Hames, who joined AFS in 1956, and has the longest AFS membership within the Division. Previous winners (and year joined) were Edwin Cooper (1940), Saul Saila (1949), Thomas Dolan (1954), and Philip Briggs (1956).

I would like to thank all of my fellow officers, the Chapter presidents, and committee chairs for their assistance during the past year. My efforts as President were made much easier with your valuable help.

Dr. John E. Cooper
President, Northeastern Division, AFS
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CHAPTER AND SUBUNIT UPDATES

UMaine Student Subunit

Lisa Izzo and Dan Weaver

The spring semester was a busy one for the University of Maine Student Subunit. Throughout the semester, members got the chance to interact with fisheries professionals from Maine as well as other states. The year's speaker series continued with interesting talks from members of the Maine Department of Marine Resources, the USGS Maine Cooperative Fish and Wildlife Research Unit, and the US Fish and Wildlife Service in the Orono area. In addition, the subunit co-hosted Olaf Jensen of Rutgers University and Tom Quinn of the University of Washington as part of the Department of Wildlife, Fisheries, and Conservation Biology Spring Seminar Series. Members enjoyed talking with all of our speakers this past year, and plans to continue the speaker series are in the works for next semester.

Subunit members out to dinner with Dr. Olaf Jensen from Rutgers University and Dr. David Putnam from the University of Maine Presque Isle.

Workshops continued with our third Program R workshop on "Conditionals and Loops", and a new workshop on Aging Techniques in Fisheries: Otoliths and Scales. Both workshops were led by some of our graduate student members, and attracted other graduate students, faculty members, and undergraduates interested in fisheries science and data analysis. The subunit also hosted a showing of the documentary DamNation early in the semester, and helped out at the Cabin-Fever Reliever put on by the Penobscot Fly Fishers and the first Bradley Alewife Festival hosted at the Maine Forest and Logging Museum.

Betsy Irish helps out at the first Bradley Alewife Festival, teaching visitors about the river herring run on Blackman Stream.

Since the semester ended, members have headed to both the Acadia

Subunit treasurer Meg Begley leads the otolith extraction portion of the Aging Techniques in Fisheries workshop.

Institute of Oceanography and Reeds Brook Middle School to talk to middle and high school students about the life cycle of diadromous fish, why fish migrate, and how we study diadromous species in Maine.

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Participants in their best fish costumes get ready for the first ever University of Maine Spawning Run 5k.

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As always, this winter also included an ice fishing trip to Hermon Pond on one of Maine's Free Fishing Weekends. The group consisted of both experienced members and beginners, and even though there was a few feet of snow on top of the ice everyone had a great time fishing. The AFS subunit also continued its winning streak against the student chapter of The Wildlife Society in the bowling competition held at the end of each semester!

The spring brought two new events to the subunit. First off, the subunit hosted our first "Women in Science Lunch" at the end of April. The informal event consisted of a panel of both male and female faculty from the Wildlife, Marine Science, and Forestry departments, and was attended by both graduate and undergraduate students discussing issues about balancing a career and a family, salaries, and workplace dynamics in science fields. The second new event was the first University of Maine AFS Spawning Run 5K, which took place at the end of April. Over 100 runners and walkers registered for the event, which took place on the University of Maine campus and bike path. The event consisted of the race, as well as a raffle with items donated by local businesses, and a contest for "Best Fish Costume" for the runners.

Happy runners enjoying the Spawning Run 5k.

Through the Spawning Run we were able to raise $690, which has been dedicated to the subunit's new Outreach and Education Fund to be used to develop outreach materials and partner with local schools to bring fisheries and aquatic science into the classroom. We hope to make this an annual event for the subunit to help grow our outreach program and increase our presence on campus and in the community.

Lisa Izzo is the Vice President of the UMaine Student Subunit. Dan Weaver is the President of the UMaine Student Subunit. They can be reached at lisa.izzo@maine.edu and daniel.weaver@maine.edu respectively.

Southern New England Chapter

Don Danila

The 2015 summer meeting of the Southern New England Chapter was held on June 25 in the Claire T. Carney Library at the University of Massachusetts in Dartmouth, MA. Sixty-nine people were in attendance, including 25 students. Twelve presentations were given, seven of which were by students. Topics included an optical survey for Georges Bank Yellowtail Flounder; genetic structure of Brook Trout in CT headwater streams; age validation of Monkfish; placing environmental monitors on lobster traps; trends and drivers of distribution overlap among pelagic migratory marine fishes; using citizen volunteers to monitor Alewife and Blueback Herring runs in coastal MA streams; timing of Winter Flounder larvae found in Narragansett Bay; factors affecting squid availability to fisheries; changing trophic structure and energy dynamics affecting Atlantic Salmon abundance; modeling bycatch of Yellowtail Flounder in the Georges Bank sea scallop fishery; effects of zebra mussels on the feeding ecology of early-stage Striped Bass in the Hudson River; and mapping the distribution of Massachusetts Bay Atlantic Cod spawning stocks using acoustic technologies. Abstracts of all papers are available on the Chapter's website, found at www.snec.fisheries.org. Dr. Mike Fogarty, Chief of the Ecosystem Assessment Program in the Northeast Fisheries Science Center, NOAA Fisheries, gave the meeting's keynote address, entitled "Marine Ecosystem Production: Meeting the Food Security Challenges of the 21st Century". Dr. Fogarty noted the need to increase global food supplies, particularly from aquatic sources, as the human population climbs towards a projected 9 billion people in 2050. Per capita consumption of food derived from aquatic sources has increased steadily in recent years and good estimates of production potential of marine ecosystems throughout the globe are needed. He demonstrated simple food web models being developed to estimate production potential of capture fisheries and mariculture efforts. The analysis used satellite-derived estimates of microplankton and pico-nanoplankton primary production coupled with ecological transfer efficiencies. Potential increases to fisheries could come from increased capture of krill, mesopelagic fishes, and cephalopods. Mariculture industries could also increase production of bivalves, crustaceans, and milkfishes.

Mike Fogarty gives the keynote address at the SNEC summer meeting.

At the Chapter's annual business meeting Treasurer Steve Dwyer reported that the Chapter has over $19,000 in assets and is in good financial shape. An ad hoc committee composed of Steve Dwyer, Eric Schultz, and Don Danila recommended re-allocating the Chapter's Vanguard portfolio to include a bond fund along with the present money market and stock market index holdings. A 60% stock/30% bond/10% money market ratio was put forth for consideration. The Board of Directors will decide on this at its next meeting. Professionalism Chair Bill Duffy once again noted the importance of members nominating individuals or organizations for the various Chapter awards, which have been scarce in recent years. Bill also reported on the Chapter support of a bid from Boston to host the 2018 Parent Society Meeting. However, Boston was not chosen as Atlantic City came in with a bid that was far less expensive. The Chapter might be able to pursue a venue such as Providence for the next Annual Meeting to be held in the Northeastern Division area during 2022.

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Sean Lucey asked members to provide content for the Chapter's website, which has been updated and expanded in recent months. Items such as job postings and research summaries are particularly welcome. Sean also noted the success of the last joint SNEC/AIFRB dinner with more such joint ventures possible in the future. Andrew Ransom, immediate past-president of the UConn student sub-unit, reported that this group remains viable and active. The status of the Chapter affiliate membership category received much discussion among members. No action was taken at the business meeting, but the topic will be further discussed at the next Board meeting. Additional thoughts and suggestions will be solicited from Chapter membership via our listserv as to the future status of this membership type.

Several awards were given in conjunction with the annual Chapter business meeting. Kristen Ferry, President of the Northeastern Division, presented the Division's Best Student Poster Award to Andrew Ransom of University of Connecticut for "Investigating Genetic Similarity among Extant Bridle Shiner Populations in Connecticut: Prerequisite Information for Restoration of Extirpated Locales", which was given at the April Division meeting in Newport. Chapter awards for students included Tracy Bauer of the University of New England, who received the Saul B. Saila Best Student Paper Award for her presentation at the previous winter meeting entitled "Abundance and Distribution of Ichthyoplankton around the Saco River Plume in Saco Bay, Maine". Jessica Norstog of the University of New Haven won the Grace Klein-MacPhee Best Student Poster Award for "The Metabolic Costs of Osmoregulation in a Euryhaline Fish, Hogchoker (Trinectes maculatus)". Jan-Michael Hessenauer of the University of Connecticut received a $500 Student Travel Award to defray the cost of attending the AFS National Meeting in Portland, OR.

NED President Kristen Ferry (L) presents Andrew Ransom (R) with the NED Best Student Poster Award.

Bill Duffy (R) presents the Grace Klein-MacPhee Best Student Poster Award to Jessica Norstog (L)

Bill Duffy (R) presents the SNEC Student Travel Award to Jan-Michael Hessenauer (L)

Rob Johnson, Branch Chief of the Northeast Fisheries Science Center Ecosystem Survey Branch (ESB), accepted the Outstanding Organization Award for all the accomplishments of this unit. The ESB is responsible for one of the world's longest scientific data time-series, the autumn (since 1963) and spring (since 1968) trawl surveys in the northwestern Atlantic Ocean as well as several other surveys.

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The data collected in these surveys have been invaluable in the stewardship of the aquatic ecosystem. Sean Lucey was presented the Irwin Alperin Outstanding Member Award for his many undertakings for the Chapter, including service as an officer, a stint as the Professionalism Chair, organizing a scientific writing workshop, helping to pursue the AFS meeting in Boston, and running the Chapter website. Dr. Jason Link of the National Marine Fisheries Service Woods Hole office was announced as the Award of Excellence winner for his many professional accomplishments and distinguished service to U.S. fisheries science, particularly in ecosystem science. Dr. Link has focused on the scientific merits of ecosystem-based marine resource management and is primarily responsible for the development of the tools and approaches that allow fisheries managers to deal with the impacts of climate change on marine resources. He also has successfully mentored many other students and fisheries scientists.

At the close of the business meeting, Glenn Chamberlain assumed the office of President. His first action was to announce that the now Past-President Heidi Fitzpatrick, who could not be at the meeting, would receive a Certificate of Appreciation for her services as President. Stephen Dwyer ascended to the office of President-Elect and Eric Schultz was elected as the new Secretary-Treasurer. The next Chapter meeting is tentatively scheduled to be held in January 2016 at the University of Connecticut-Avery Point. Note that this meeting will include posters as well as oral presentations. The 2016 summer meeting will be held at a location in Rhode Island.

Don Danila is the Publicity Officer for the Southern New England Chapter. He can be reached at abcfish@ct.metrocast.net. Don Danila

Rob Johnson of the Northeast Fisheries Science Center Ecosystem Survey Branch (R) accepts the Outstanding Organization Award for this work unit.

Sean Lucey (R) accepts the Irwin Alperin Outstanding Member Award from Bill Duffy (L).

Work Hard, Play Hard

UMaine researchers Betsy Irish (L) and Meg Begley (R) power through a rapid during the annual Kenduskeag Canoe Race in April 2015, in Bangor, Maine.

Mid Atlantic Chapter

Daphne Munroe

Mid Atlantic Chapter members Jim Vasslides and John Balletto got in a fishing trip during Doug Austen's recent visit to Atlantic City in to kick off preparations for the national meeting in Atlantic City 2018. Doug and his team from the national office visited meeting venues in Atlantic City and surrounding area. The site visits went well and Atlantic City is thrilled to have AFS for the annual meeting in 2018. We spent some time touring the new Bass Pro Shops, just a short walk from the meeting venue, and saw the fantastic wild sites - from salty to fresh - that are within 20 minutes from the meeting hotel. Over the duration of the visit, we saw many great opportunities for field trips, family time and professional development that can be worked into the 2018 AFS Annual Meeting in Atlantic City. But the big question for Jim, John and Doug: how was the fishing? They landed 15 bluefish with charter 'Reel Reaction' out of Barnegat Light, what a great day on the water!

Daphne Munroe is the President of the Mid Atlantic Chapter of AFS. She can be reached at dmunroe@hsrl.rutgers.edu.

MAC members John Balletto (L) and Jim Vasslides (C), show off their catch alongside Doug Austen (R) from the AFS national office.

UConn Student Subunit

Lucas Nathan

The spring semester for the AFS UConn Student Subunit was eventful. Two very successful fundraisers were conducted in February; one sponsored by a local restaurant, and another selling club apparel. Graduate students from the UConn Ecology and Evolutionary Biology Department Jeffrey Divino and Mike Smirchich gave presentations on their research, and gave members insight about their respective paths to graduate school. Three fishing trips were also organized, one on the ice at a nearby lake, and two after Opening Day of trout season on our own Fenton River. The trips were a welcomed time of relaxation and fun was had by all. Officer elections were conducted in late April, and four excited new officers will be taking the reins during the next school year.

Lucas Nathan is a graduate student at the University of Connecticut, and the Web Site Manager for the Northeast Division. He can be reached at lucas.nathan@uconn.edu.

Window Shopping

A sea-run Atlantic salmon in the counting window at the Milford Dam fish lift on the Penobscot River. The facility, owned by Brookfield Renewable and operated by the Maine Department of Marine Resources, allows upstream passage of anadromous fish and provides a collection point for fish used in restoration efforts. DMR biologists trap Atlantic salmon for use as broodstock at federal hatcheries and collect river herring to stock as part of a successful reintroduction effort in the Penobscot drainage. This year, over 590,000 river herring passed through the facility.

FISHERIES IN THE NEWS

New Hampshire Biologists Study Bass Movements on Squam Lakes

Gabe Gries

The Squam Lakes (Big and Little Squam) are a popular destination for bass tournaments and recreational bass anglers, and although Big and Little Squam are connected by a short channel, they are considered to be separate water bodies. Because there is currently no available weigh-in location on Big Squam for larger bass tournaments, these tournaments typically hold their weigh-ins at the end of the day on Little Squam. By NH Fish and Game Department rule, bass are then required to be taken back to Big Squam for release. During hot weather conditions, bass survival can be compromised after a weigh-in on Little Squam due to the extra time and handling it takes to bring these bass back to Big Squam for release. Additionally, boats must travel through the channel a total of four times in a given day in order to release fish back to Big Squam, providing the potential for additional boat congestion.

Checking on a stationary radio receiver between Big and Little Squam Lakes.

Allowing bass tournaments fishing on Big Squam and weighing-in on Little Squam to release bass into Little Squam may in some cases increase bass survival and decrease social conflicts. However, the potential exists for negative impacts on bass in Little Squam if bass caught in Big Squam and released into Little Squam do not return to Big Squam on their own accord.

A tagged smallmouth bass released as part of the movement studies on the Squam Lakes.

A bass movement study was initiated last summer to determine if a rule change is warranted that would allow tournament anglers to release bass into Little Squam that were caught in Big Squam. The goal of this radio tagging study is to determine the percentage of bass returning to Big Squam after being caught in Big Squam and weighed-in and released in Little Squam, and how long it takes fish to do so. Thirty-three bass (largemouth and smallmouth) caught during a tournament on Big Squam and weighed-in on Little Squam were equipped with radio tags and released into Little Squam on August 10, 2014 at a location approximately 1.5 miles from Big Squam. All radio tagged bass have a thin wire protruding from their underside and a yellow numbered tag near their dorsal fin. A permanent antenna and receiver in the Squam Channel records when tagged bass pass by on their way back to Big Squam and bass were also manually tracked by boat.

Bass movement was surprisingly quick with a tagged bass returning to Big Squam only three days after being tagged and released. To date, 61% of tagged bass have returned to Big Squam. This study will continue through the fall of 2015 and anglers are asked to immediately release any tagged bass they catch. This research is being performed in cooperation with NH B.A.S.S. Nation and the Squam Lakes Association. Grant money obtained by NH B.A.S.S. Nation was used to purchase necessary equipment.

Gabe Gries is a fisheries biologist and warmwater project leader with the New Hampshire Fish and Game Department. He can be reached at gabe.gries@wildlife.nh.gov.

Discard Mortality in the Gulf of Maine Recreational Groundfish Fishery

Doug Zemeckis, Connor Capizzano, Emily Jones & John Mandelman

Recreational fisheries account for a considerable portion of total landings for many fish stocks. In addition to those fish which are landed, many fish are discarded by anglers due to conservation ethics or fishery regulations (e.g. possession limits, minimum sizes). Reliable mortality estimates for discarded fish are therefore required to quantify total fishery removals and inform management decisions. However, recreational discard mortality rates remain unstudied for most species commonly caught in the Gulf of Maine (GOM).

For the past several years, the New England Aquarium (NEAq), Massachusetts Division of Marine Fisheries (MADMF), UMass Dartmouth School for Marine Science and Technology (SMAST), and University of New England have teamed up to address this knowledge gap in several cornerstone species—cod, haddock, and cusk—in the GOM recreational groundfish fishery. Close collaboration with recreational fishing industry members has been critical for designing research projects that are consistent with typical fishery operations, thus ensuring maximum utility of project results for fishery managers and other invested stakeholders.

Discard mortality of Atlantic cod (Gadus morhua) was studied in 2013. Fishing with the most common tackle and gear setups, anglers with a range of experience levels recreated typical fishing conditions. Acoustic telemetry was used to estimate mortality in a subsample of fish and subsequently combined with of hundreds of observations and industry surveys to estimate a fishery-wide discard mortality rate, and identify which factors most heavily influence mortality (Capizzano et al., in review). The latter has enabled the development of "best practice" recommendations to increase survival of discarded cod, which will be disseminated to the recreational fishing community. This work has also contributed to the development of survival analysis techniques to estimate discard mortality, with applications to both recreational and commercial fisheries (Benoît et al. 2015).

Due to the current harvest restrictions on cod, other groundfish species, including haddock (Melanogrammus aeglefinus) and cusk (Brosme brosme), have become increasingly targeted by the recreational industry. In early spring 2015, the team moved on to investigate the discard mortality of these species in the recreational fishery. Along with collaborators from multiple for-hire recreational fishing vessels, over 1,000 haddock have been tagged on the Gulf of Maine's Jeffreys Ledge with a combination of acoustic transmitters and conventional tags. Data analysis is in progress and results will be available for consideration in the development of management measures for the 2016 fishing year. Cusk, a species prone to severe barotraumas from capture, is next in line for investigation. This work, slated to begin August 2015, will focus more heavily on "best practices" as the team explores the efficacy of using descending devices to return cusk to the benthos if they are unable to resubmerge on their own, thus increasing their chances of survival. High-resolution acoustic telemetry data will also provide insights into cusk behavior, which is currently unknown.

Doug Zemeckis (SMAST) watches Steve Cadrin (SMAST) land a cod. Current regulations mandate that all cod caught by recreational anglers in the Gulf of Maine be released.

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Cod discard mortality results were considered in management measures for the 2015 fishing year, and they will also likely be included in upcoming stock assessment updates. Results for the ongoing haddock study will also be available to fishery managers and stock assessment scientists in 2016. Combined with the dissemination of "best practice" guidelines for increasing the survival of released fish, the findings from these studies are expected to promote both the development and maintenance of a sustainable recreational fishery in the Gulf of Maine.

For more information on the cod project, please visit http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/cod-research.html.

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Doug Zemeckis is a researcher at the UMass Dartmouth School of Marine Science and Technology. He can be reached at dzemeckis@umassd.edu. Connor Capizzano is a researcher at the University of New England. Emily Jones and John Mandelman are scientists at the New England Aquarium.

The Great Gutshop Revival

Richard McBride

Nearly 40 year ago, a small volume (193 pp.) was published on 'Fish Food Habits Studies.' This was the first in a series of conferences and related proceedings that became known as 'gutshops.' Gutshop '76, the first gutshop, walked researchers through the full range of best practices: from designing a project, into the field and the laboratory, and through data analysis and interpretation (Simenstad and Lipovsky, 1977). Gutshop '96, one of the last gutshops, covered a diverse array of topics in these areas: gut morphology and digestion, feeding ecology, nutrition, methods and modeling (MacKinlay and Shearer, 1996).

Guts!

A revival of gutshops was announced at last year's AFS meeting, in Quebec City, by Dr. Jason Link, the keynote speaker for the symposium on 'Community Ecology and Trophic Interactions of Fishes' (http://www.tandfonline.com/doi/pdf/10.1080/03632415.2014.976860 , p. 592). This revival of gutshop is not only a tribute to the historic workshops and conference proceedings, but it will showcase the many new methods and trends in this discipline.

This August, 'Gutshop 2015: New Perspectives on Feeding Ecology of Fishes,' was scheduled at the 145th AFS meeting in Portland. This included keynote presentations by two originators of the gutshop series, Dr. Charles Simenstad and Dr. Greg Cailliet.

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Arrangements have been made to submit manuscripts from this symposium to the peer-reviewed journal 'Environmental Biology of Fishes,' planned for publication in 2016. There are embryonic plans for another gutshop in 2016 as well. Beyond those interested in research, these gutshops have the potential to be integrative and transformative, by promoting excellence in aquatic ecosystem research, education, assessment, and management. Interested in this transformation? Contact Dr. Ric Brodeur (Rick.Brodeur@noaa.gov) or the other organizers (Ron Heintz, Ed Farley Jr., Brian Smith, and Richard S. McBride).

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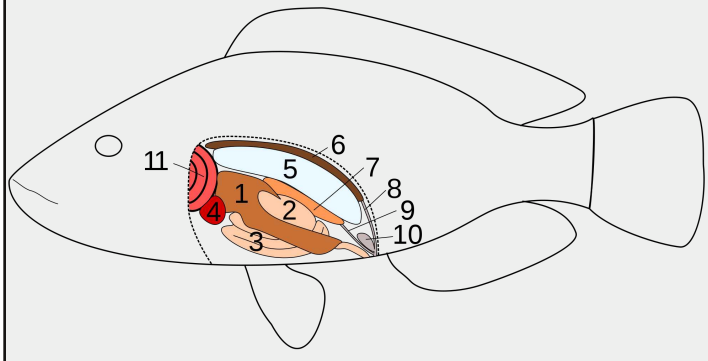
Richard McBride is a fisheries scientist at NOAA's Northeast Fisheries Science Center. He can be reached at Richard.McBride@noaa.gov.



USFWS Initiates Lake Trout Study

Dimitry Gorsky

On April 13th and 14th the US Fish and Wildlife Service's Lower Great Lakes Fish and Wildlife Conservation office collected Lake Trout from Lake Ontario for a new study they are conducting. They caught and released 42 lake trout of which 18 were tagged with Pop-off Satellite Archival Tags (PSAT). The tags are neutrally buoyant and will release themselves from the fish after one year. The tags will monitor the temperature and depth of the fish as well as take light and magnetic field measurements to estimate location in the lake at a course scale (>10 km). The tags are equipped with a solar panel so anytime the tag reaches the surface it will recharge the batteries and send a GPS signal and data. The tags are programmed to record lots of data but can only transmit a portion of that data to the satellites, so the biologists are hoping for a high recovery rate. If these tags are found return information is on the tags and the office can either pick them up or provide packaging and shipping costs to return them. Any and all help will be appreciated greatly.

A tagged lake trout is released into Lake Ontario.

Dimitry Gorsky is a Fish Biologist with the USFWS Lower Great Lakes Fish and Wildlife Office. He can be reached at dimitry_gorsky@fws.gov

NED Research Featured on Discovery Channel's Shark Week

Dr. Oliver lands a good shot in the sweet spot.

Thomas Grothues

A telemetry effort by AFS Mid-Atlantic Chapter member Dr. Thomas Grothues (Rutgers University), with and in support of long-term conservation and research efforts by Dr. Simon Oliver (University of Chester, UK, and founder of the Thresher Shark Research and Conservation Project) was broadcast internationally as part of Discovery Channel's Shark Week program. The episode "Ninja Sharks" explores adaptations of six shark species for specialist feeding strategies, but builds around a central story of the Pelagic thresher shark (Alopias pelagicus) in the Central Visayas (Visayan Sea), Philippines.

Outside of Monad Shoal, a seamount near the tiny island of Malapascua, this shark species is rarely seen in the wild except by long line fishers because of a normally deep and pelagic habitat. On Monad Shoal, however, numbers of them rise from the depths in early morning hours to be groomed of parasites by cleaner wrasses at depths accessible to divers. The predictability of this phenomenon has led to the establishment of a local dive tourism economy that relies heavily on the shark's presence. This conflicts with both traditional and illegal fishing practices such as gillnetting and dynamite fishing. Prior to this study it was unknown if the shark visitations to the cleaner sites were recurring visits from a few members of a local population or occasional visits from many members of a large and wide ranging population. Further, the fidelity of individual sharks to specific cleaner stations was unknown. These parameters are central to understanding the vulnerability of the local economy to harvest of the sharks or destruction of the cleaner sites, whether from destructive practices or natural events such as typhoons. Sharks were tagged principally by freediver Mark Healy, but also by Dr. Oliver on closed circuit (rebreather gear) to avoid bubbles, with a modified spear gun. Telemetry of 14 sharks, with depth and pressure-sensored transmitters tracked return visits using loggers moored at the cleaner sites and also tracked individual sharks off shoal by boat to establish patterns of space use and dispersal. It was hoped that the mobile tracking effort could be synergistically used to pinpoint thresher sharks feeding on Indian sardines so that the rarely observed tail-whipping behavior for which they are named could be filmed on high speed video; however, while a combination of telemetry and sonar contacts did suggest the discovery of transient feeding aggregations, it was well below the depth practically accessible to the film crew. Away from the shoal, the sharks generally oscillated between 80 and 250 m depths.

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Event-centered episodes of the story are interspersed with vignettes exploring specialties of salmon sharks (thermoregulation), hammerheads (cephalofoil), oceanic white tips (aggressiveness in exploitation of food patches), mako (speed), and bull (halo-tolerance) sharks.

The Ninja Shark Episode is available free On Demand from Discovery Channel, or for free download on Amazon Prime, Vudu, iTunes, and is viewable on several video streaming sites.

Thomas Grothues is an associate research professor in the Department of Marine and Coastal Sciences at Rutgers University. He can be reached at grothues@marine.rutgers.edu.

Dr. Grothues and intern Amy Williams prepare loggers for a shoot

A pelagic thresher shark with transmitter attched passes overhead.

University of Maine Researchers use Instrumentl to Raise Funds for Research

Katharine Corriveau

Science is in the midst of a funding crisis. The number of researchers continues to grow as universities churn out more PhDs, but federal funding of research and development by governmental agencies, like the National Science Foundation, has been on the decline since the 1970s (AAAS, 2015; Rimer, 2015). Today, scientists spend 40% of their working hours chasing grants (Scientific American, May 2011) and need to submit 30 more proposals, on average, to receive the same number of awards as they did in the 1990s (Scientific American, May 2011).

Interestingly, scientists have not always relied on public funding to fuel discovery. Prior to World War II, research funding came largely from universities, private industry and philanthropy (Kaiser, 2011). Researchers raised money for their projects from people they knew, often well-meaning wealthy individuals excited to take part in innovation and scientific discovery (Jahnke, 2015). Today, it seems that research and development may be returning to a more privately-funded model. Crowdfunding in particular has taken off among scientists looking to raise money, and public awareness, for their research.

Take University of Maine fisheries researchers Jocelyn Runnebaum and Katherine Thompson, for instance, who turned to the crowdfunding platform Instrumentl to raise funds for their projects. Jocelyn is studying the conservation of cusk, a groundfish species in low abundance that is caught as bycatch by commercial fishermen. Katherine is working to uncover the cause of the recent Gulf of Maine shrimp population collapse, an ecological shift that promises to have severe environmental and economic consequences. Though their research is essential to advising better fisheries management practices for the Gulf of Maine and beyond, both researchers have encountered funding obstacles, in different forms, when it came to finding support for their work.

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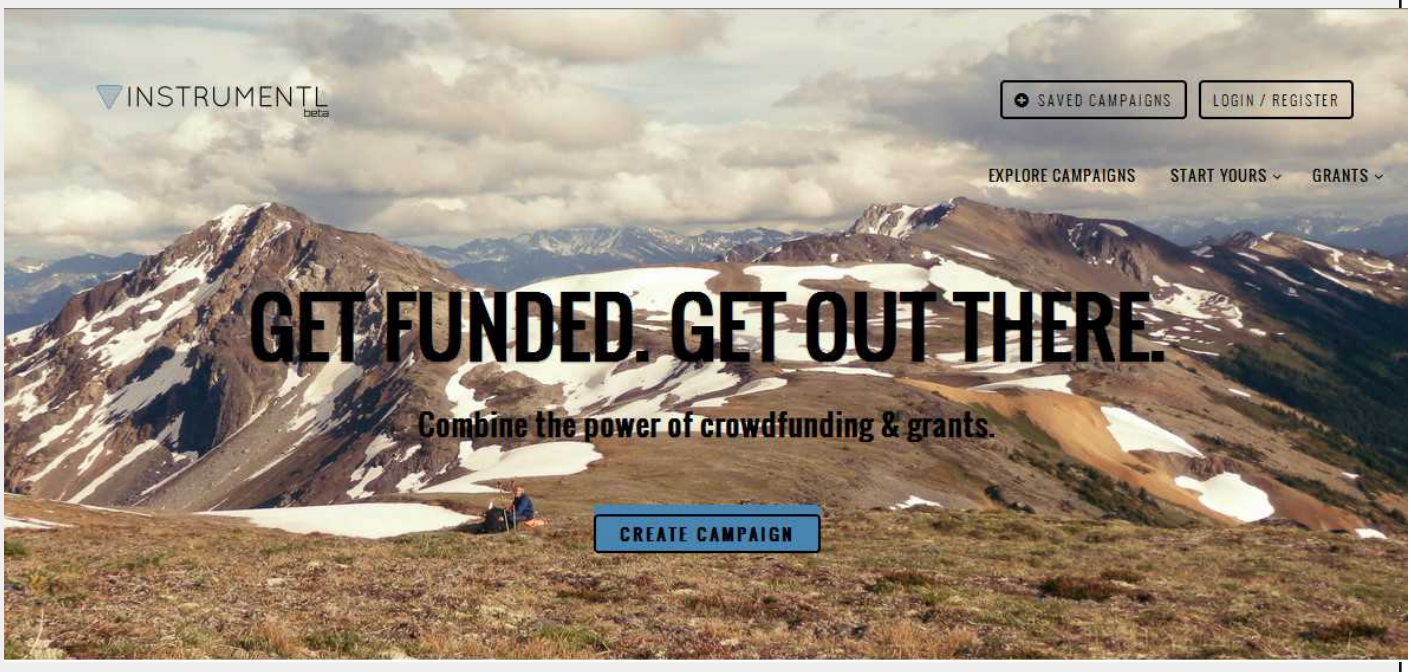

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Instrumentl is a new platform for researchers that aims to bring an end to the funding crisis. Founded by three female ecologists, Instrumentl caught Jocelyn and Katherine's attention when it launched its Grant Challenges, a powerful combination of public crowdfunding and new private-sector grants. In each Grant Challenge, researchers in a specific field (e.g. the oceans, ornithology, herpetology) compete for a private, Instrumentl-powered grant while raising a public grant via crowdfunding.

Learn more about Jocelyn Runnebaum and Katherine Thompson's research by visiting their campaign pages on Instrumentl.

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Katharine Corriveau is a co-founder and COO of Instrumentl. She can be reached at katharine@instrumentl.com.

Jocelyn (left) and Katherine (right) out in the field on the Gulf of Maine.

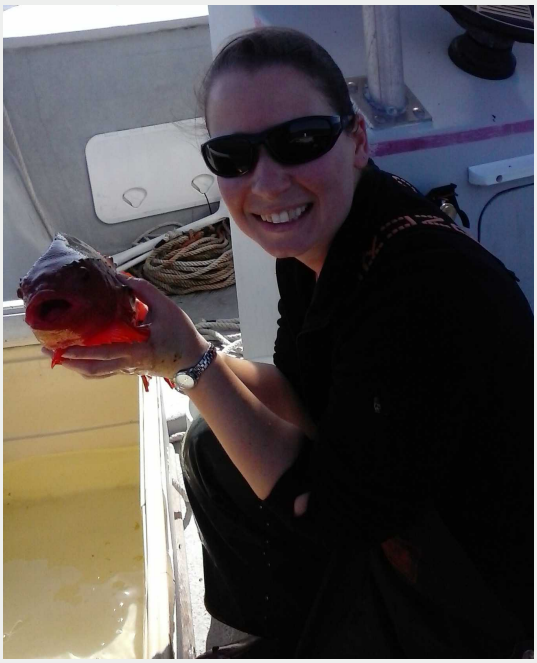
Interagency Collaborators Survey Fish Communities on the Mohawk River

Scott George, Barry Baldigo, and Scott Wells

Staff from the USGS NY Water Science Center in Troy and NYS Department of Environmental Conservation Region 4 fisheries staff conducted fish community surveys at 12 sites on the Mohawk River/Barge Canal between May 26th and June 3rd using boat electrofishing of near shore habitats. The primary goals of the study are to compare fish communities between river sections in which water levels are managed differently and to compare contemporary fish communities with those sampled from the early 1980s during the last comprehensive river-wide study. A preliminary look at the data suggests that lentic species are less abundant in river sections which experience larger winter drawdowns but statistical analyses will be conducted to confirm or refute these observations.

Scott George and Barry Baldigo are biologists with the USGS NY Water Science Center. They can be reached at sgeorge@usgs.gov and bbaldigo@usgs.gov respectively. Scott Wells is a fish biologist with tne New York State Dept. of Environmental Conservation. He can be reached at scott.wells@dec.ny.gov.

Biologists at Work



Jenna Rackovan, a researcher at the University of New Hampshire, with a lumpfish collected from the Great Bay area. Jenna's research is focused on understanding the salinity tolerance of juvenile lumpfish to potentially increase their use as cleaner fish in aquaculture.

Kevin Job, the fiisheries lead for Brookfield Renewable on the Penobscot River, shows off a sea lamprey at the Orono Dam. This year, Brookfield Renewable trucked 316 sea lamprey and 19,016 river herring above the dam.

Upcoming Meetings

Mid Atlantic Chapter

October 29-30, 2015
Cape May, New Jersey

Get out your calendars and pencil in the 2015 MAC meeting for October 29-30th. This year's meeting will be held in the scenic Cape May Conference Center overlooking the beach at the home port of much of New Jersey's productive fishing fleet, and fantastic recreational fishing.

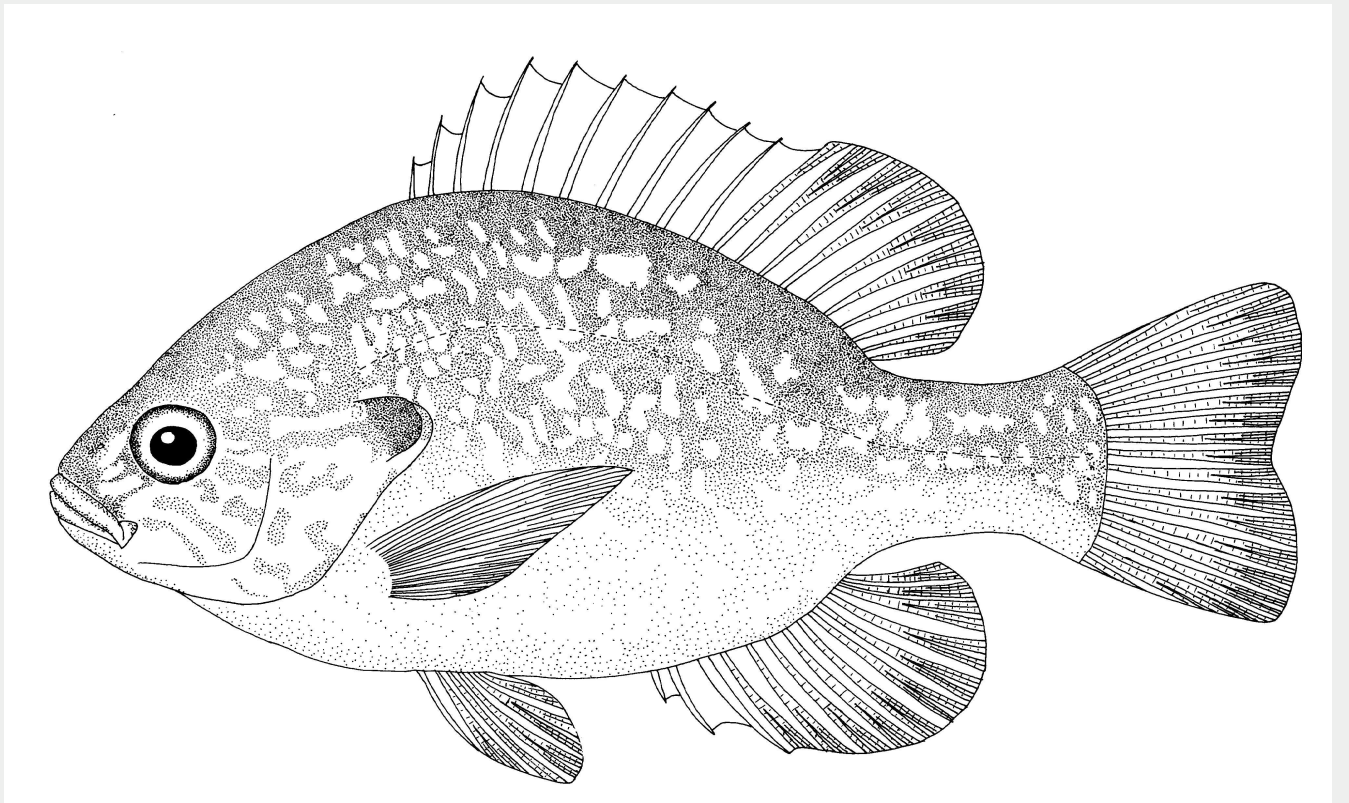
Our Chapter meeting will have science talks, a poster session (Thursday), a skills competition - yes, a fishery science skills competition! In an exciting new twist, this year's meeting will be paired up with the annual meeting of the MidAtlantic Bight Physical Oceanography and Meteorology (MABPOM, http://www.vims.edu/mabpom2014/). This group has a science focus that has lots of overlap with the types of fishy ideas we all think about, so there will be sure to be lots of great collaborative networking opportunities. The MABPOM meeting will start the day before our meeting (October 28th), with an overlap day in the middle, so consider extending your time in Cape May an extra day to attend their meeting first and continuing through to Friday for ours.

Join us for an exciting couple of days discussing recent science developments in our region, and enjoying some local seafood delicacies. Hope to see you all beachside in Cape May this October! Watch your email inbox and our facebook page (https://www.facebook.com/MidAtlanticAFS) for the call for abstracts - coming soon!

Atlantic International Chapter

September 20-22, 2015
Cap-Pelé, New Brunswick

The time is fast approaching for the annual meeting of the Atlantic International Chapter! Please join us for an exciting series of symposia on Atlantic salmon, anadromous clupeids, eels, brook trout, and much more. We'll also be presenting the chapter's annual awards and hosting a silent auction. The meeting will be hosted in beautiful Cap-Pelé, New Brunswick from September 20-22, 2015. Registration is still open, and accommodations are available at the Chalets de l'Aboiteau. For more information about the meeting, please visit http://aic.fisheries.org/2015-aic-annual-meeting/ and for more information about lodging, please see http://www.chaletsaboiteau.ca/index_en.cfm. Student stipends to cover registration, food, and lodging are still available. For more information about student stipends, please contact Dan Weaver at daniel.weaver@maine.edu.



Pumpkinseed (Lepomis gibbosus)
Print by Dr. John Cooper

Recent Publications

A GENERALIZED MODEL FOR LONGITUDINAL SHORT- AND LONG-TERM MORTALITY DATA FOR COMMERCIAL FISHERY DISCARDS AND RECREATIONAL FISHERY CATCH-AND-RELEASES

Benoît H. B., C. W. Capizzano, R. J. Knotek, D. B. Rudders, J. A. Sulikowski, M. J. Dean, W. Hoffman, D. R. Zemeckis, J. W. Mandelman

Conservation concerns and new management policies such as the implementation of ecosystem-based approaches to fisheries management are motivating an increasing need for estimates of mortality associated with commercial fishery discards and released fish from recreational fisheries. Traditional containment studies and emerging techniques using acoustic transmitters on fish released into the wild are producing longitudinal mortality time data from which discard or release mortalities can be estimated, but where there may also be a need to account analytically for other sources of mortality. In this study, we present theoretical and empirical arguments for a specifically-adapted parametric survival analysis model for discard mortality data. We show, analytically and using case studies for Atlantic cod (Gadus morhua), American plaice (Hippoglossoides platessoides), and winter skate (Leucoraja ocellata), how this model can easily be generalized to incorporate different characteristics of discard mortality data such as distinct capture-handling, post-release, and natural mortalities, and delayed mortality onset. In simulations over a range of conditions, the survival analysis model provided reliable parameter estimates for cases involving both discard and natural mortality. These results support this modelling approach, indicating that it is well suited for data from studies in which fish are released to their natural environment. The model was found to be less reliable in simulations when there was a delay in discard mortality onset, though such an effect appears only in a minority of existing discard mortality studies. Overall, the model provides a flexible framework in which to analyze discard mortality data and to produce reliable scientific advice on discard mortality rates and possibilities for mitigating mortality.

Published in: ICES Journal of Marine Science, 72(6): 1834-1847.
doi: 10.1093/icesjms/fsv039

AN EVALUATION OF THE RESIDUAL TOXICITY AND CHEMISTRY OF A SODIUM HYDROXIDE-BASED BALLAST WATER TREATMENT SYSTEM FOR FRESHWATER SHIPS.

Elskus AA, Ingersoll CG, Kemble NE, Echols KR, Brumbaugh WG, Henquinet JW, Watten BJ.

Nonnative organisms in the ballast water of freshwater ships must be killed to prevent the spread of invasive species. The ideal ballast water treatment system (BWTS) would kill 100% of ballast water organisms with minimal residual toxicity to organisms in receiving waters. In the present study, the residual toxicity and chemistry of a BWTS was evaluated. Sodium hydroxide was added to elevate pH to >11.5 to kill ballast water organisms, then reduced to pH <9 by sparging with wet-scrubbed diesel exhaust (the source of CO2). Cladocerans (Ceriodaphnia dubia), amphipods (Hyalella azteca), and fathead minnows (Pimephales promelas) were exposed for 2 d to BWTS water under an air atmosphere (pH drifted to ≥9) or a 2.5% CO2 atmosphere (pH 7.5-8.2), then transferred to control water for 5 d to assess potential delayed toxicity. Chemical concentrations in the BWTS water met vessel discharge guidelines with the exception of concentrations of copper. There was little to no residual toxicity to cladocerans or fish, but the BWTS water was toxic to amphipods. Maintaining a neutral pH and diluting BWTS water by 50% eliminated toxicity to the amphipods. The toxicity of BWTS water would likely be minimal because of rapid dilution in the receiving water, with subsurface release likely preventing pH rise. This BWTS has the potential to become a viable method for treating ballast water released into freshwater systems.

Published in: Environmental Toxicology and Chemistry. 34(6):1405-16.
doi: 10.1002/etc.2943.

HABITAT SELECTION OF A COASTAL SHARK SPECIES ESTIMATEDFROM AN AUTONOMOUS UNDERWATER VEHICLE

D.E. Haulsee, M.W. Breece, D.C. Miller, B.M. Wetherbee, D.A. Fox, and M.J. Oliver

Quantifying habitat selection in marine organisms is challenging because it is difficult to obtain species location information with multiple corresponding habitat measurements. In the ocean, habitat conditions vary on many spatiotemporal scales, which have important consequences for habitat selection. While macroscale biotic and abiotic features influence seasonal movements (spatial scales of 100-1000 km), selectivity of conditions on mesoscales (1-100 km) reflects an animal's response to the local environment. In this study, we examined habitat selectivity by pairing acoustic telemetry with environmental habitat parameters measured by an autonomous underwater vehicle (AUV), and demonstrate that migrating sand tiger sharks Carcharias taurus along the East Coast of the USA did not randomly use the coastal environment. Of the variables examined, we found evidence to suggest that sand tigers were selecting their habitat based on distance to shore, salinity, and colored dissolved organic matter (CDOM). Notably, temperature was not predictive of habitat use in our study. We posit that during their coastal migration, sand tigers select for specific mesoscale coastal habitats that may inform navigation or feeding behaviors. To our knowledge, this is the first empirical measure of mesoscale habitat selection by a coastal marine organism using an AUV. The applications of this method extend beyond the habitat selectivity of sand tigers, and will prove useful for future studies combining in situ observations of marine habitats and animal observations.

Published in: Marine Ecology Progress Series 528:277-288

doi: 10.3354/meps11259

CHANGES IN VERTICAL FISH DISTRIBUTIONS NEAR A HYDROKINETIC DEVICE IN COBSCOOK BAY, MAINE, USA

Garrett Staines, Gayle Zydlewski, Haley Viehman, Haixue Shen, James McCleave

There is increasing global interest in harnessing energy from locations with high velocity tidal currents. However, empirical data concerning the effects of energy harvesting devices on marine organisms, e.g., fishes and their populations, are largely unavailable. It is imperative that an empirical understanding of these interactions is established to better inform industry and consenting decision-makers. It is well known that fishes use tidal currents to move in tidal regions for foraging and reproductive purposes. However, specific information regarding fish use of the water column during high flows is lacking. Such information is vital to understanding fish interactions with hydrokinetic devices. We established down-looking hydroacoustic sampling protocols to determine seasonal patterns of fish vertical distribution before and after the installation of a hydrokinetic device in Cobscook Bay, USA. The proportion of fish tended to increase toward the seafloor, with some exceptions in spring. We were able to make comparisons to a nearby control site during times when a device was present. We found that vertical distribution before and after device installation only differed at the impact site, perhaps as a result of fish re-distribution in response to the presence of the hydrokinetic device.

Published in conference preceedings: http://www.ewtec.org/

DECOMPOSITION OF SEA LAMPREY PETROMYZON MARINUS CARCASSES: TEMPERATURE EFFECTS, NUTRIENT DYNAMICS, AND IMPLICATIONS FOR STREAM FOOD WEBS

Weaver, D.M., S.M. Coghlan, J. Zydlewski, R.S. Hogg, and M. Canton.

Anadromous fishes serve as vectors of marine-derived nutrients into freshwaters that are incorporated into aquatic and terrestrial food webs. Pacific salmonines Oncorhynchus spp. exemplify the importance of migratory fish as links between marine and freshwater systems; however, little attention has been given to sea lamprey (Petromyzon marinus Linnaeus, 1758) in Atlantic coastal systems. A first step to understanding the role of sea lamprey in freshwater food webs is to characterize the composition and rate of nutrient inputs. We conducted laboratory and field studies characterizing the elemental composition and the decay rates and subsequent water enriching effects of sea lamprey carcasses. Proximate tissue analysis demonstrated lamprey carcass nitrogen:phosphorus ratios of 20.2:1 (±1.18 SE). In the laboratory, carcass decay resulted in liberation of phosphorus within 1 week and nitrogen within 3 weeks. Nutrient liberation was accelerated at higher temperatures. In a natural stream, carcass decomposition resulted in an exponential decline in biomass, and after 24 days, the proportion of initial biomass remaining was 27% (±3.0% SE). We provide quantitative results as to the temporal dynamics of sea lamprey carcass decomposition and subsequent nutrient liberation. These nutrient subsidies may arrive at a critical time to maximize enrichment of stream food webs.

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Continuing Education

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Acknowledgments

The Northeast Fish Rapper is produced by volunteers. It would not be possible without contributed content from Northeast Division members. Our next edition will be published in March 2016. We are always looking for writers to contribute to our "Fisheries in the News" section. These news briefs can be based on original research, management actions, or articles published in other news outlets and should range from 350-750 words. If you have a particular interest you wish to write about, let us know! If you would like to be included when we send out a list of potential topics for news briefs, send your name and email address to Jocelyn Runnebaum or George Maynard. Additionally, we are always looking for photographs and artwork to include in the Rapper. If you have interesting pictures from field work, fishing trips, or anything else you'd care to share, send it along, no writing necessary. A big thanks goes out to everyone who contributed to this edition of the Fish Rapper.

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