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National Shellfisheries Association Quarterly Newsletter

2017 (3)

President's Message



Greeting from Vacationland! I can't believe we are already knocking on Fall's door. It feels like I was just in Knoxville with many of you at the 109th Annual Meeting. I hope you have been productive with your research/field seasons this summer. I can tell you that summer in Maine has

been as close to perfect as you can get.

Plans are well underway for the 110th Annual Meeting. NSA will return to the Renaissance Hotel in Seattle, WA (a real favorite) from March 18-22, 2018. We have four great Plenary Speakers lined up: Peter Beninger, Donal Manahan, Malcom Shick, and Gary Wikfors. Proposed Special Sessions are listed on the website. Registration and abstract submission will open soon. Also returning to the 110th Annual Meeting is the famous Ken Chew Chinese Dinner! Space will be limited and tickets will be available soon. The abstract submission deadline is December 1st, so you have plenty of time to get yours together. Several exciting workshops are planned for this meeting - stay tuned for further information.

A number of important dates are now on the horizon. Nominations for the Honored Life Member, David H. Wallace and Neil Bourne - Ken Chew Awards are due November 1st. Students, research grant award applications (Melbourne R. Carriker, Michael Castagna, and George R. Abbe) are due on or before November 1st. Student Endowment Fund Travel Award applications are due on December 1st. Advisors, please encourage your students to apply for these awards. Application instructions for all awards can be found at www.shellfish.org/student-members.

As always, thank you for being members of the National Shellfisheries Association. The rest of the EXCOM and myself appreciate that you have chosen to share your time and research with the NSA. We are here for you to ensure that this association is first-rate and able to provide annual meetings, an award-winning journal, and the avenue for industry, research, and policy to come together and share ideas.

Until next time, enjoy the last few weeks of summer.

Steven Allen, President

REMINDER Important Deadlines

November 1: Nominations for:

- Honored Life Member Award
- David H. Wallace Award
- Neil Bourne - Ken Chew Award

Student Research Grant Awards:

- Melbourne R. Carriker Award
- Michael Castagna Award
- George R. Abbe Award

December 1: SEF Travel Awards

WANT FREE REGISTRATION TO ATTEND AQ 2019?

The first three people to recruit five new members will receive a free registration for Aquaculture 2019 in New Orleans. Be sure to let Linda Kallansrude know who you have recruited. Only new memberships are eligible.

HEADING WEST - SEATTLE UPDATE

Plans for the upcoming 110th annual conference are well underway and it is shaping up to be an outstanding meeting. The plenary speakers are all on board: Peter Beninger, Donal Manahan, Malcolm Shick, and Gary Wikfors, and there are over 25 special sessions currently being organized. These include two hands-on workshops, one by Bruce Koike who will provide instruction in *Gyotaku* Printing (shell printing) – a great activity for outreach efforts. The other will be a workshop on the Preparation of Shellfish for Disease Diagnostics led by Roxanna Smolowitz and Dale Leavitt. See the notice below for information on the “Omics” workshop being organized by Maureen Krause, Sarah Kingston, and Steve Roberts. Space for both of these workshops will be limited and sign up will be at the conference registration desk on a first-come, first-serve basis. There will be two dedicated poster sessions, there promises to be something for everyone - hopefully the biggest problem will be trying to decide which sessions to attend!

ABSTRACT DEADLINE IS DECEMBER 1. Please do not assume that it will automatically be extended. It is a deadline and it is set to allow the necessary time for everything else that goes into preparing the final program. A lot of work to prepare the actual program takes place after the abstracts are submitted– and it all takes time. There are printing deadlines that need to be met along with shipping deadlines to ensure that the program arrives at the conference on time, not to mention the onslaught of email messages asking when the final program will be posted. It doesn't take very long to compose a 200-word abstract, please start early.

The biggest treat is another Ken Chew Penultimate Chinese Dinner to be held on Wednesday, March 21st. We are very excited that this will be possible. Thanks to Joth Davis who has volunteered to help Ken with the arrangements, and a very special thanks to Ken for agreeing to make it happen. For those who have not had the privilege, these dinners used to be an annual tradition and over the past few years have become an opportunistic treat not to be missed. Tickets will be \$20 and you can sign up early by sending an email to Sandy Shumway or purchase tickets at the Registration Desk. Advisors: please consider purchasing a few extra tickets to make it possible for as many students as possible to attend. We will also include a series of short student presentations on historical figures during the dinner activities as part of the Recruits program.

All of the regular activities are on the agenda including the President's Reception, Auction, Student Breakfast, and Business Luncheon. And don't forget the Scallop Gallop, and the Recruits are planning some special student activities. So, mark your calendars and see you in Seattle!

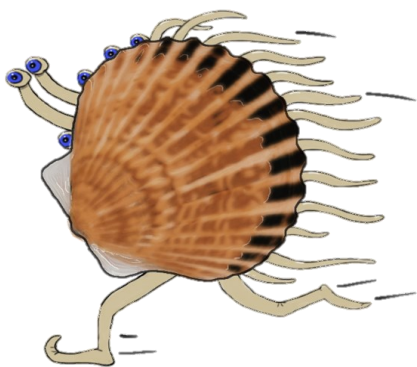
Sandy Shumway



Ken and Joth making early plans for what promises to be a spectacular evening in Seattle. (Photo credit: Sandy Shumway)

The Scallop Gallop

NSA 5K in Seattle



For more information contact
Lewis Deaton: led9784@louisiana.edu

Got ‘Omics?:

*A hands-on workshop to help you
understand and analyze
genomics data*

Want to learn more about genomics and its applications in shellfish biology? Have a dataset but not sure how to deal with it? Collaborating on a genomics project but not quite sure what your colleagues are doing?

If you are interested in participating in a hands-on workshop to during the Seattle meeting, most likely on the last day of the meeting, please indicate your interest by December 1st, 2017 at <https://doodle.com/poll/3r4h94ngztxh4nqa> so we can best plan for the day. Remember to bring your laptop to the meeting!

Maureen Krause, Sarah Kingston, and Steve Roberts

Recruits' Corner

Hello, Recruits!

The summer season is drawing to a close, and we hope it has been successful and productive. Now is the time to start preparing your abstracts and titles for the Annual Meeting, taking place March 18-22, 2018 in Seattle at the Renaissance Hotel! Mark your calendars, and take a moment to visit <http://www.shellfish.org/annual-meeting> to see what's in store. As usual we have several student events planned to take advantage of the beautiful city. An oyster bar crawl through downtown Seattle, and a student-run session on the History of NSA, with distinguished guest speakers. And don't forget the Scallop Gallop

Abstracts for the Annual Meeting in Seattle are due December 1st. Early bird registration fees apply prior to January 8th, 2018 and regular registration fees apply until February 23rd, after which late registration fees apply. Student members receive an appreciable discount, so make sure you are a student member of NSA prior to paying your registration fee!

Don't forget to apply for Student Endowment Fund (SEF) Travel Awards and Research Grants. Check out the Student Members section of the NSA website for more information on applying for research grants. Applicant pools can be small, so don't hesitate to apply, as the odds are in your favor! Remember, you can apply for the SEF Travel Award and research grants every year, even if you have previously won.

Both Hillary Lane Glandon and Lillian Keuhl completed their degrees this year, which means that they will be leaving their posts as Recruits Co-Chairs. We thank them for dedication and hard work. Stepping in are Erin Roberts and Laura Spencer. Erin is in her second year as a PhD student at the University of Rhode Island working with Dr. Marta Gomez-Chiarri. Her research investigates the genetic basis of mechanisms of innate immunity in the eastern oyster (*Crassostrea virginica*). She received her B.S. in Biological Science from the College of William and Mary, where she studied the functional morphology of gill structures in the American shad (*Alosa sapidissima*). She hopes to apply her knowledge of eastern oyster genetics and innate immunity to shellfish pathology research and aquaculture breeding programs to improve the health and sustainability of shellfish as a food source.

Laura Spencer is in her second year at the University of Washington in Steven Roberts' lab as an NSF Fellow, studying the Olympia oyster (*Ostrea lurida*) and Pacific geoduck (*Panopea generosa*), both native West Coast species. She is exploring the potential for potential for transgenerational plasticity in the Olympia oyster in the face of environmental stressors, and the proteomic stress signals in geoducks in different habitats. Prior to starting graduate school, Laura worked with the Puget Sound Restoration Fund in the Ken Chew hatchery to produce Olympia oyster seed for restoration projects, worked as an environmental consultant and program manager, and holds a B.S. in Chemical Oceanography from the UW. Laura lives in Seattle and has a long list of favorite restaurants, coffee shops, breweries, and running routes, so contact her if you'd like help planning your March trip.

As new Co-Chairs, we will do our best to keep you apprised of deadlines, opportunities, and events, but please contact us with any problems or questions. As the meeting date approaches we will be seeking volunteers to help ensure the meeting in Seattle

goes smoothly. As a Recruit, this is an essential way to make contacts with your student peers and senior researchers. In the meantime, if you are interested in getting more involved send us an email. We look forward to working with you over the next few years!

Here's to another great year!

Laura Spencer (lhs3@uw.edu)



Erin Roberts (erin_roberts@my.uri.edu)



Student Research Grants – Apply Now

Deadline: November 1, 2017

These awards provide students with \$1,250. The funds are intended for the purchase of supplies and equipment essential to perform their research. The application requirements are listed on our webpage (www.shellfish.org/grants-and-awards). Briefly, a complete application packet requires: Cover Sheet, Project Description, Budget, Resume, and a Letter of Endorsement from the student's major advisor. All applications should be sent as a single PDF to Past-President Karolyn Hansen (karolyn.hansen@udayton.edu). Applicants will be notified of the status of their application by January 15th, 2018 and awards presented at the Annual Business Luncheon in Seattle, WA.



2016 Melbourne Carriker Student Research Grant Update

Awardee: Carrie Schuman
University of Florida

"Estimating in situ oyster filtration rates and subsequent control of primary production in the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM NERR), St. Augustine, FL"

The eastern oyster (*Crassostrea virginica*), a reef-building bivalve, provides a wealth of ecosystem services including shoreline protection, carbon sequestration, and provides important structure and habitat for macroinvertebrates and other organisms. This provision of services provides an over-arching framework for my dissertation work at the University of Florida.

The first portion of my research focuses on the filter feeding function of *Crassostrea virginica*. In this role, *C. virginica* has the potential to positively affect water quality by removing excess particulates and nutrients from the water column, and by controlling primary productivity. Clearance rates attributed to oysters (and bivalves in general) have often been the result of laboratory studies under ideal conditions that may not mimic the complexity of environmental characteristics that influence these rates in natural systems. Studies that have extended this exploration



to *in situ* measurements are limited.

The research grant helped me complete field and lab studies to estimate clearance rates in the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM NERR) in the St. Augustine region of Florida along with the subsequent control of primary productivity in the Reserve. I also had two subquestions under this objective: 1) How does reef position influence clearance rates? And 2) How do clearance rates change with oyster aggregation?

Clearance rates on nine reefs within the Reserve were explored using a stratified sampling scheme. The GTM NERR was divided into nine "slices" and one reef was randomly chosen within each slice. Clearance rates were quantified using a biodeposition method where oyster production of feces and pseudofeces is related to the rate of particle removal (see Yu and Culver 1999 and Sroczyńska

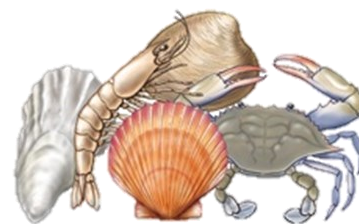
et al 2012 for more details). I employed pairs of sediment traps high and low on reefs for two weeks at a time and for three iterations (May 2015, Aug 2015, Jan 2016). Each pair included a control that collected background sediment, and an experimental trap containing 10 live, filtering oysters. Background sediment production could then be subtracted from experimental traps to isolate the oyster-produced fraction which was used to calculate effective clearance rates integrated over the entire two-week period. Environmental data was also collected.

These experiments yielded some interesting results. Clearance rates never exceeded an average of $2.0 \text{ L hr}^{-1} \text{ g}^{-1}$ dry weight, which is lower than the $6\text{-}10 \text{ L hr}^{-1} \text{ g}^{-1}$ some lab studies have suggested. Also, there was a statistically significant difference between low and high clearance on reefs with the majority of clearance occurring on the lower parts of reefs. When correcting the clearance rate for immersion times during trials using data estimated from water level profilers, that difference was no longer significant suggesting tidal cycles in the Reserve play an important role in regulating how much time oysters have available to feed.

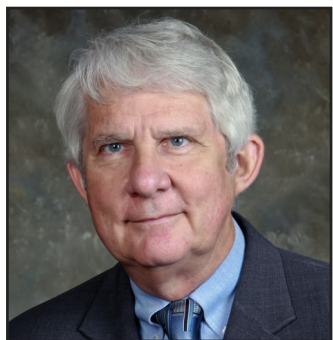
To explore the effects of aggregation, I built a seawater flow-through system that was employed on a dock at UF's Whitney Laboratory. Four small upwelling columns were built to catch the biodeposits of filtering oysters; one of which was designated a control while the others were experimental columns. Three different size classes of oysters were examined (small: 35-50 mm; medium: 55-70 mm; large: 75-90 mm). For each, the number of oysters in the experimental columns varied from 1, 5, and 10 individuals. There was no statistical difference in the effect between size classes, but columns containing more oysters, while resulting in more bioproduction overall, yielded lower clearance rates per unit of mass. The decrease in clearance efficiency followed an exponential decline, with the largest drop occurring between one and five oysters (avg decline of 60.5%, SD \pm 21.6%).

The next step in this project involved upscaling results to the reef and system-wide level to understand the possible impacts of primary productivity. This means incorporating data on total area coverage of reefs, abundance of oysters on reefs, and primary productivity rates. Recently, RTK GPS measurements were taken at GTM NERR that will help analyze the reefs to mean sea level and allow for more accurate estimates of tidal coverage during the time my traps were deployed. Results forthcoming!

Because my degree is in Interdisciplinary Ecology, I also have a final dissertation chapter that employs social science. I am currently conducting one-on-one interviews with oystermen and fishermen to understand how they use and view the oyster reefs in the same region. You can follow my research, at <https://themeanderingscientist.com/category/oyster/>



The David H. Wallace Award presented to Dr. Eric N. Powell



lifetime” by the award of the namesake David H. Wallace Award. The history of the Wallace award includes many outstanding recipients. At the 2017 NSA meeting in Knoxville TN the name of Dr. Eric N. Powell was added to that distinguished list.

Eric completed his graduate work at the University of North Carolina before joining Texas A&M University. Every benthic ecologist who passed through A&M came to know Sammy Ray and it was inevitable that Eric would join those ranks. Before long he was literally knee-deep in the oyster reefs of Galveston Bay, mapping them and beginning a career long and very productive collaboration with Eileen Hofmann and John Klinck building biological-physical models of the bay populations.

Eric would subsequently move to Rutgers University to assume the Director position at the Haskin Shellfish Research Laboratory at Bivalve, NJ (where else!) on the northern shore of the Delaware Bay. Here he inherited the annual oyster surveys begun many years earlier by Hal Haskin. As Chief Biologist in charge of NJ oyster stock assessment program Eric revised these survey efforts to produce the first comprehensive, reference point managed oyster fishery in the United States (arguably in the world). He did this in full collaboration with the New Jersey industry to help stabilize and expand the fishery. At the time of this move New Jersey was also central (and remains so) to the Mid Atlantic surf clam and ocean quahog fisheries. The federal assessment presented some challenges at that time. Eric started a coordinated joint academic-NMFS-Fishing Industry cooperative research program on these two economically important species in the EEZ, a program remains active to this day in insuring that both fisheries are categorized by NMFS as not overfished and have no overfishing occurring. Eric’s efforts were instrumental in developing industry vessels as platforms for both clam assessment and research needs over the past twenty years. During this same period Eric became the Chief Science Liaison for the NFI (National Fisheries Institute)-Scientific Monitoring Committee and the NFI-Clam Committee, and a Member of the National Marine Fisheries Service, Invertebrate Subcommittee - positions that he still holds. Eric’s efforts in New Jersey were acknowledged in a number of prestigious awards that focus on the academic-research-industry interaction. These included a Certificate of Special US Congressional Recognition for “dedication and service to the commercial and recreational fishing industries” presented by Congressman Frank Lobiondo on August 14, 2012, and recognition by a Joint Legislative Resolution by the Senate and Assembly of New Jersey for “meritorious history of leadership and dedication on behalf of the fishing industry and the academic community”, presented August 14, 2012, signed by the President of the New Jersey Senate and the Speaker of the New Jersey House.

The National Shellfisheries Association periodically acknowledges the career contributions of shellfish biologists “whose activities in shellfisheries, aquaculture and conservation have promoted understanding, knowledge, and cooperation among industry members, the academic community, and government, as exemplified by Mr. David H. Wallace during his

Warmer climates called, and Eric moved south again to Mississippi in 2012 to serve as the Director of the Gulf Coast Research Laboratory in Ocean Springs, MS. Eric stepped down from the administrative role in 2014 to return to research and his most recent academic-industry collaboration. Eric, with his now long-time industry collaborators, developed the first and only National Science Foundation (NSF) Industry University Cooperative Research Center focused on marine fisheries – titled the Science Center for Marine Fisheries (SCeMFIS, more details at www.scemfis.org). The Center is currently funded for a 5-year period with joint support from NSF and industry – a testament to the value that industry places on Eric’s efforts and products. Indeed, SCeMFIS embodies much of Eric’s career philosophy on how cooperative science should be generated – through full engagement with industry and with highest scientific standards and student participation – and that all products should be freely shared with the greater community through peer publication. SCeMFIS now supports a wide range of activities varying from clam assessment, development of finfish assessment models and alternatives to risk based catch advise, fisheries economic impacts, and uncertainties in slow growing marine mammal populations and the interactions between marine mammals and fishing operations.



Eric is a prolific writer with 255 peer publications to date and more in the pipeline. These are influential and widely cited. As an example, in 2011 the *Journal of Shellfish Research* announced the 20 most referenced articles published during the 2008-2011 period. Eric first authored or co-authored four of these, including two in the top five.

Eric remains a dynamic researcher and a colleague who leads by example. I am fortunate to have enjoyed a research collaboration with him for the past 20 years. To his students he is a driver with exacting standards, but also someone whose sense of humor and willingness to drag them along into every possible encounter from the deck of a commercial fishing vessel to the management council meetings insures that they will graduate with a sound foundation for their future careers. The academic research – industry interface remains a large part of Eric’s daily efforts to develop and sustain fisheries of many species, very much in the spirit of the efforts of David H. Wallace.

Roger Mann

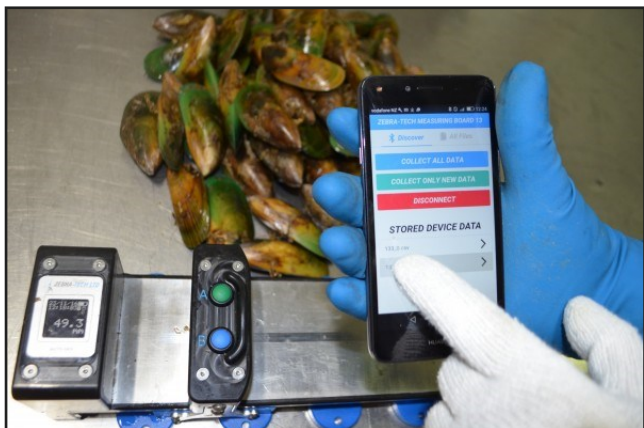
A New Tool for Rapid Shellfish Measurement

Almost 28,000 scallops measured, 10 days in the field, 2 researchers plus crew, all data checked in the field, and data entered into spreadsheets via an app without the usual data entry or paperwork. This is what makes electronic recording and Bluetooth data offload using a Digital Measuring Board so appealing out on the water.



The Digital Measuring Board for shellfish is the newest tool in Zebra-Tech's fisheries data collection range and is ideal for field work, wet labs and vessel decks. Based in New Zealand, Zebra-Tech (www.zebra-tech.co.nz) manufactures instrumentation for marine research and fisheries data collection. Among its products, it boasts the world's only logging Dive Calliper for benthic surveys, logging wireless Wet Tags to collect data for static gear fisheries such as whelk or lobster. They also make Deck Loggers for both ecological surveys and fisheries reporting.

In January and February this year, a team from the National Institute of Water and Atmospheric Research (NIWA) of New Zealand conducted scallop surveys where a total of 27,442 scallop shells were measured using the Digital Measuring Board (26,083 live scallops and 1,359 cluckers, the still hinged articulated shells of recently dead scallops) – The scallops were dredged mainly from the Marlborough Sounds in the South Island of New Zealand. The report for the Ministry of Primary Industries was released in May 2017 <http://fs.fish.govt.nz/Doc/24280/FAR-2017-23-SCA-7-Survey-Jan-2017.pdf.ashx>



The researchers found that aside from being robust and functional (fast, accurate and easy to use), the main benefit from the new measuring boards was that data could be checked in real-time on a tablet using Bluetooth. The immediate availability of data for checking/validation and

subsequent analysis is a huge convenience. In the past researchers had relied on engineering-type callipers; however, there were problems with the cable connections cracking and leaking as well as data buttons malfunctioning resulting in multiple replacements...an experience that lead them to the Digital Measuring Board.

Entering data from paper notes in the field to a PC back in the office is a significant source of error that can be eliminated by simply offloading a .csv file directly via Bluetooth. The data can also be shared wirelessly with the Zebra-Tech Deck logger to further automate a fish survey. The Digital Measuring Boards' Bluetooth app was successfully trialled at Cloudy Bay and Talley's mussel factories where it was used to measure hundreds of Green lip mussels in a wet factory environment.



The commercial fishing industry is also keen to save time and improve data collection with electronic tools. Jeremy Cooper, CEO of the New Zealand Paua Industry Council notes that "The New Zealand Paua (Abalone) Industry uses Zebra-Tech Digital Measuring Boards for our data collection program and the Catch Sampling contract we have with the Ministry of Primary Industries. The Zebra-Tech measuring boards are simple to use and greatly speed up the whole measurement process for us without having to waste time on data entry - a huge time saver."

Contact gavin@zebra-tech.co.nz for more information.



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Forwarding Service Requested

Upcoming Events

71st PCSGA Annual Shellfish Conference & Tradeshow: September 19-21, 2017. Welches, Oregon (USA). For more information: <http://pcsga.org/annual-conferences/>

8th Congresses of the European Malacological Societies (EUROMAL): September 10-14, 2017. For more information: <http://www.euromal.pl/index.php?id=13>

8th International Conference on Fisheries & Aquaculture: October 2-4, 2017. Toronto, Canada. For more information: <http://fisheries.conferenceseries.com>

45th Scientific Symposium of the United States-Japan Natural Resources Panel on Aquaculture (UJNR): October 16-19, 2017. For more information: http://www.nmfs.noaa.gov/aquaculture/supplemental_pages/27_ujnr_.html

“Global Marine Science Summit on Coastal Resiliency and Blue Economy”. November 5-8, 2017. University of North Carolina - Wilmington (USA). More information??

24th Biennial Coastal & Estuarine Research Federation (CERF): November 5-9, 2017. Providence, Rhode Island (USA). For more information: <http://www.erf.org/cerf-2017-biennial-conference>

110th NSA Annual Meeting: March 18-22, 2018. Seattle, Washington (USA). For more information, visit: www.shellfish.org

10th International Abalone Society Symposium: May 8-12, 2018. Xiamen, China. For more information: <http://internationalabalonesociety.org>

For more information on these conferences:
www.was.org

Aquaculture Europe 2017: Oct. 17-20. Dubrovnik, Croatia

Aquaculture America 2018: Feb. 19-22. Las Vegas, Nevada, USA

AQUA 2018: Aug. 25-29. Montpellier, France

Aquaculture 2019: Mar. 6-10. New Orleans, Louisiana, USA

If you would like to announce a meeting, conference, workshop, or publication that might be of interest to NSA members, please contact the *QNL* Editor, LeRoy Creswell (creswell@ufl.edu).