

Linda Kallansrude, NSA Secretariat
20790 Country Creek Drive
Unit #516
Estero, FL 33928
Forwarding Service Requested

HAVE YOU RENEWED YOUR NSA DUES FOR 2018?

If not, this is your last issue of the Newsletter, so head on over to
www.shellfish.org

Upcoming Events

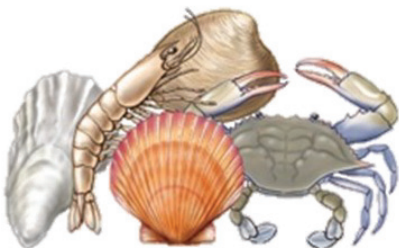
148th Annual American Fisheries Society Meeting - Aquaculture to Inform and Support Fisheries Symposium: August 19-23, 2018. Atlantic City, New Jersey (USA). For more information: <https://afsannualmeeting.fisheries.org>

International Symposium on Aquatic Animal Health (ISA AH): September 2-6, 2018. Charlottetown, PEI Canada: For more information: www.isaah2018.com

72nd Annual Shellfish Conference & Tradeshow: Sept 18-20, 2018. Blaine, Washington (USA). For more information: <http://pcsga.org/annual-conferences>

18th International Conference on Harmful Algae - From Ecosystems to Socio-Ecosystems: Oct 21-26. Nantes, France. For more information: <https://www.icha2018.com>

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).



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

Aquaculture 2019: Mar. 6-10. New Orleans, Louisiana, USA
AQUA 2018: Aug. 25-29. Montpellier, France
Aquaculture 2022: Feb. 27-Mar. 3. San Diego, California, USA
Aquaculture America 2023: Feb. 19-22. New Orleans, Louisiana, USA



President’s Message



As we finally welcome springtime here in Maine after a long winter, I happily think back to the great time that was had at the 110th annual meeting in Seattle. Our annual meetings are not just venues to learn about exciting scientific accomplishments or hear about groundbreaking techniques aimed at improving the way we grow our shellfish. For me at least it is a time to reconnect with old colleagues and forge relationships with new ones. I genuinely look forward to these gatherings each year and this year did not disappoint.

This year’s meeting was truly a successful event on all fronts because of the effort of numerous individuals. First and foremost, Sandy Shumway for overseeing all of the planning. Assisting Sandy, as always, is Noreen Blaschik, she is the real brawn behind the scenes and not even downed trees would prevent her from getting the job done. Thank you to those of you who organized sessions, the program was filled to the brim with great talks and posters that addressed a wide range of topics. Thank you to the plenary speakers each of whom delivered great presentations that set a great tone each day.

I want to thank all of the sponsors of our Seattle meeting whose generosity reduced the cost and increased the value of our meeting, in particular by supporting students. The growers and businesses that donated seafood to the President’s Reception exceeded expectations this year as well.

Special thanks to Eric Heupel for being the ‘go to guy’ for all things meeting related. Eric was instrumental in making this meeting run as smoothly as it did, and we are happy that he has been so willing to do what is needed in order to make these meetings an enjoyable experience for all who attend.

With every annual meeting there is transition within the NSA Executive Committee. Thank you to outgoing Secretary, Lisa Milke, for her many years of service. Also, thank you to outgoing Vice-President Peter Kingsley-Smith for his contributions to our Association. Outgoing Member-at-Large Lewis Deaton has transitioned to Vice-President. Finally, allow me to welcome Paul Rawson back to the EXCOM in his role as Secretary and Melissa Southworth as the newest Member-at-Large. I look forward to working with you in the coming years.

Special thanks to the Recruit Chairs Laura Spencer and Erin Roberts for organizing all of the student activities and also organizing the student workers. I can’t mention the student workers without thanking them as well. The students were always up for the tasks thrown at them from registration to AV and handled any issues that they encountered with ease. I was thrilled to see so many student presentations this year as well.

From the comments I have heard during and after this year’s meeting, it seems as if everybody in attendance had a wonderful experience. We are always trying to improve the experience and we rely heavily on our members to help us to do this. Volunteering not only your ideas, but also your time, our members are what make our organization and the things we do as success. If you have an interest in helping us in the future by organizing a session, wanting to join a committee, or you just have an idea that may make our Association better, please reach out to me or any member of the EXCOM.

With that I will wrap up and say start looking ahead to our next meeting in New Orleans, LA. We are currently seeking individuals to organize sessions. Please send suggestions to either Sandy Shumway or me. I look forward to seeing you all again next year.

Steven Allen, President

In this issue:

- *Seattle Meeting Recap*
- *Student Awards Announced*
- *NSA Resolutions*
- *Shellfish Growers Climate Coalition*

SEATTLE now a memory....



This was our largest meeting short of the Centennial and its initial fate was in question when the east coast was battered with several major storms in succession. All of the meeting materials were being packed for FED-EX pick-up when yet another storm struck and on-time pick-up and subsequent delivery in Seattle were called into question. Our able assistant, Noreen Blaschik tackled the storm (see photo) and Fed Ex identified a routing that would avoid further storms and get our meeting materials to us on time.

Almost 500 people (including over 100 students and a large number of day-trippers) gathered at the Renaissance Seattle for the 110th Annual Meeting of the NSA. As always, the EXCOM spent all day Sunday going over the business of running the NSA, and the official festivities kicked off with the President's Reception on Sunday evening. It was an outstanding presentation of shellfish and other treats prepared by the hotel chef and his team. A very special thanks to Becky Mabardy and the Pacific Coast Shellfish Growers Association for organizing the shellfish donations and to the generous donors: Ian Jefferds, Penn Cove, Clara Varadi-True, Taylor Shellfish, Brian Kingzett, Goose Point, Rebecca Richards, Clausen Oyster, and Joth Davis, Baywater. Also a very big thank you to the conference sponsors: Washington, Oregon, and California Sea Grants, the FUCOBI Foundation, the Sheridan Press, NOAA Aquaculture, Baywater Oysters, Reed Mariculture, Shellevator, Little Pond Nature Prints, the PCSGA, and the Bigelow Laboratory for Ocean Sciences. Their generous donations made it possible to support plenary speakers, student participation, and the auction, and their display materials in the poster area made for some interesting breaks. Much of the meeting organization goes on 'behind the scenes' and the efforts of Linda Kallansrude, Noreen Blaschik, and Todd Fake are gratefully acknowledged. The hotel staff, led by Karyn Tanaka and her team did an amazing job of keeping us all organized and things running smoothly.

The overall program included 27 special sessions with over 300 oral presentations and 60 posters. This incredible showing necessitated five concurrent sessions and the participants seemed to navigate the program without too much trouble. Each day began with an opening plenary lecture and a special thanks to those presenters for their efforts: Suzanne Williams (Natural History Museum, London) opened the conference with a beautifully illustrated talk on color in molluscs, followed by Peter Beninger on Tuesday who used his lecturing skills to make functional anatomy both interesting and understandable. One the newest Honored Life Members, Donal Manahan, spoke on Wednesday and provided the audience with a thought-provoking and insightful presentation on adaptive responses of molluscs to ocean change and potential implications for aquaculture. The last of the series was presented by Gary Wikfors who provided a fascinating historical overview of algal culture methodologies and the role of several scientists and the Milford Laboratory in that process. This lecture was a precursor to the session honoring HLM Robert R.L. Guillard.

The 6:30-a.m. Student Breakfast was overflowing with some 80 students who were a strong component of the conference. Not only did they present some of the best talks and posters, but they were also indispensable as helpers at the registration and sales

tables, and as enthusiastic participants in what promises to be the new NSA tradition - the Scallop Gallop. A very special thank you to Laura Spencer and Erin Roberts, Recruits Co-Chairs, for their untiring efforts in organizing all of the Recruits' efforts and helping to keep the meeting running smoothly. Eric Heupel was indispensable by keeping the Registration area together, troubleshooting various computer issues, and saving many presentations! The 2nd Annual Scallop Gallop took off from the hotel on Wednesday afternoon. Organized by Lewis Deaton, there were about 20 participants and a cleverly designed race t-shirts. This event will probably be on a hiatus during the Triennial, so you have some time to get in shape for the next race in 2020!

The auction (with 'Sasquatch') and book raffles brought in over \$3600 for the SEF. A very big thank you to John Wiley & Sons and Elsevier for book donations. The Business Luncheon was packed, and the conference closed on Thursday afternoon with a well-attended closing happy hour. Another successful meeting in the record books! THANK YOU to all the helpers, sponsors, and participants for making the 110th Annual Conference a huge success!

Plans are already well underway for Aquaculture 2019, the next Triennial to be held in New Orleans in 2019. If you have an interest in organizing a special session, or just have an idea for a session, send them along. Keep an eye on the web page for updates.

So now it's on to New Orleans – see you there!

Sandy Shumway
Conference Manager

Save the Date! PCSGA-PCS 2018 Annual Meeting

September 18-20, 2018
Blaine, Washington



NSA Welcomes Two New Honored Life Members

The National Shellfisheries Association acknowledged the career contributions of Dr. Donal Manahan (left) and Dr. Dennis Hedgecock (right), both from the University of Southern California, at the 110th Annual Meeting in Seattle, Washington.

Full biographies will be published in the a future issue of the *Journal of Shellfish Research*.

Congratulations Donal and Dennis!



Ken Chew Laboratory Alumni gathered at the Chinese Dinner.



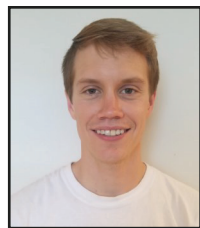
A gathering of Past Presidents

From left to right: Joth Davis, Dave Bushek, LeRoy Creswell, Chris Davis, Karolyn Mueller Hansen, John Kraeuter, Evan Ward, Danielle Kreeger, Sandy Shumway, John Manzi, and Ken Chew.

2018 NSA Student Presentation Awards

The 110th Annual Meeting of NSA in Seattle, WA had a strong student showing, with close to 100 student (undergraduate and graduate) attendees. In advance of the meeting, 37 applications were received from student members seeking travel funds. The SEF and Conference Management were able to support 17 students at the Seattle meeting, awarding five registration waivers and providing six shared rooms.

A total of 71 graduate students were eligible for the Thurlow C. Nelson Award (outstanding oral presentation), and 32 graduate students were eligible for the Gordon Gunter Award (outstanding poster presentation). It is important to note that both of these awards are for *outstanding* presentations, as opposed to simply the best (such that there is no requirement by the SEF to give out both of these awards every year... more to come on that). The SEF is grateful to everyone who contributed their time, energy, and expertise to the judging process. Fifty seven individuals volunteered (although only around half of these folks ultimately submitted scores). Following the meeting, judging scores were standardized across different judges, averaged, and ranked to identify outstanding presentations. No poster presentation stood out from the crowd, and as such the decision was made not to give out the Gordon Gunter Award in 2018. In the future, students are encouraged to take extra care when it comes to typos, correct scientific names, and overall presentation.



Standish K. Allen, Jr.). Joey will receive a certificate of accomplishment and two years of membership in the NSA.

Congratulations Joey!!!

Peter Kingsley-Smith, Melissa Southworth, and LeRoy Creswell
Student Endowment Fund Committee

Second Annual Scallop Gallop

The 2nd annual Scallop Gallop took place on March 21, 2018 in Freeway Park in downtown Seattle. After much reconnaissance, the race organizer decided against a course along the waterfront, which would have entailed a half mile hike straight down to get there and the same distance straight up to get back to the hotel after the race. Instead, we marked out a loop in the park. This one mile course was challenging, with several sets of uphill steps and a long quadriceps-shattering descent. Runners could opt for 1-3 laps. The weather was perfect, the cherry trees were in bloom, and no one got injured or arrested. Finishers:

Protobranches (1 mile)

Vincent Encomio
Ben Schmeusser
David Irvetti
Inge Sunilla

Filibranchs (2 miles)

Erik Broussard
Marlene Meaders
Sam Gurr
Natalie Lowell

Eulamellibranchs (3 miles) Septibranch (4 miles)

Kathryn Zimlich
Spencer Roberts
Joey Matt
Tuan Phan
Paul Rawson
Danielle Kreeger

Rick Burris

New this year, a hand-printed t-shirt (still available – see below) was available to participants. Next year there will be a t-shirt with a new design. The race course in New Orleans will parallel Old Man River and will be flat; I look forward to a big group.

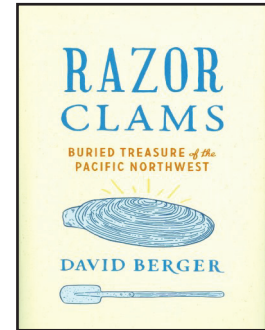
There were a number of people who signed up for the race but did not run it. When I was a post-doc at the Whitney Marine Lab in Florida (this was, of course, when dinosaurs still ruled the Earth), lots of the lab crew regularly ran in local road races. One of these was a lab technician, Karen Doble. Karen was single at the time, there are bars in St. Augustine; she often was up late on the Friday nights before the races, and was consequently hors de combat the next morning. Thus, she frequently signed up for a race and did not run it. The rest of us dubbed this behavior “dobleing” a race, as in “If it rains on race day, I’ll just doble it.” So, all you doblers, I assume you enjoyed alternative diversion in Seattle. I will not shame you by naming names.

On a final note, Freeway Park is of considerable historic and cultural importance. The story of the park is part of a PBS production called “Ten Parks that Changed America.” It is quite interesting.

Lewis Deaton

Race t-shirts are still available for purchase for \$12
Contact Sandy Shumway

NEW BOOK AVAILABLE



An easy and entertaining read covering all aspects of razor clams in the Pacific northwest from digging, history and folklore, to recipes.

Available from University of Washington Press or from the author: davidberger@hilakers.org

Shellfish Can’t Say No to Drugs

From developmental problems to reproductive issues, drug waste is affecting marine wildlife

From coastal cities around the world, through pipes lurking just beneath the waves, streams of human waste flood into the sea. Sometimes this water is cleaned—filtered, aerated, and treated with bleach. Sometimes it is not, and the reams of sewage—whatever we wash down the drain or flush down the toilet—flow into the ocean raw. If that grosses you out, consider that human excrement is probably the least crappy component of the flow, at least when it comes to environmental impacts. More troubling are certain invisible substances that easily pass through wastewater treatment plants and end up in the ocean.

Every Advil you pop or antidepressant you swallow is processed in your body and excreted, often as chemical byproducts that can still affect other organisms. Scientists have only tested a fraction of pharmaceuticals for their effects on marine life, and most remain unregulated in wastewater.



Photo credit: Øvind Strand

In their quest to understand the effects of drugs on marine life, however, scientists have found an involuntary ally: shellfish. Because they live stationary lives, clams and mussels have been accidental test subjects in pharmaceutical pollution research. Now, these shellfish are helping sound the alarm about several common drugs and chemicals.

Off the shore of São Paulo, Brazil, a pipe releases mostly untreated sewage into Santos Bay. And as biologist Fabio Pusceddu of the University of São Paulo reports in a recent study, the animals around this outfall appear to be feeling the effects of our drugs. Recent studies have raised concerns about substances making it into the environment, including antibiotics in soaps and personal care products, estrogen mimics in birth control, and painkillers, but there’s not much data on the effects of these compounds on wildlife. So, Pusceddu grew shellfish in the lab on sediment contaminated with two drugs, exposing them to the same concentrations they face in Santos Bay.

One was ibuprofen, a common painkiller, and the other was triclosan, an antibacterial compound found in products including toothpastes and body washes. The drug exposure caused a range of negative effects, including malformed membranes and reproductive difficulties. This is a problem, Pusceddu says, because most toxicity assessments done by governments to see if a substance should be regulated only look at acute effects, which usually means whether the compound is lethal. But just because animals are surviving our pharmaceutical pollution doesn’t mean they are unaffected. Studies of chronic impacts from longer-term exposure are expensive and time-consuming, but it’s exactly these impacts that worry Pusceddu.

“We’re not talking about issues in one individual,” Pusceddu says, “but in a population in the long term.”

Coastal environments vary widely from city to city. São Paulo’s sewage lingers in sheltered Santos Bay, amplifying the effects of drug exposure. But on Canada’s west coast, deep water, dynamic tides, and strong currents routinely flush the Juan de Fuca Strait, where the city of Victoria, British Columbia, and surrounding municipalities have been pumping raw sewage through only a coarse screen since the 1960s. Regional wastewater officials, however, are worried about pharmaceuticals and began routinely monitoring the outfalls for drugs in 2004.

In a recent study, Chris Lowe, program manager with the Wastewater and Marine Environment Program for the Victoria region, showed that shellfish, sediment, and water in the region immediately around sewage outfalls show traces of drugs, including triclosan and ibuprofen. Lowe’s study only looked in detail at a dozen drugs, but he and his colleagues have detected many more.



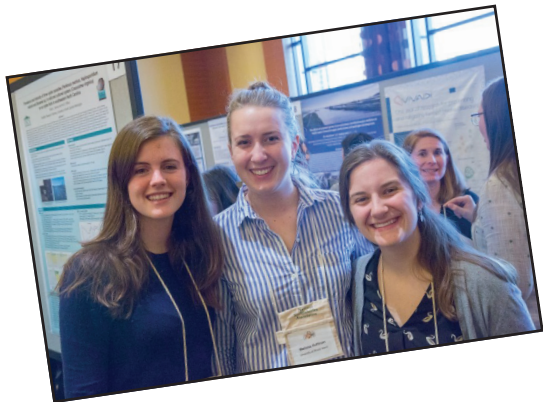
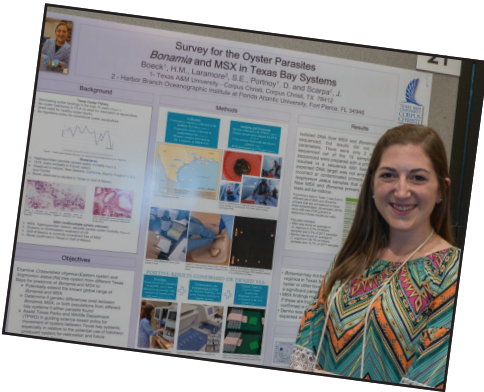
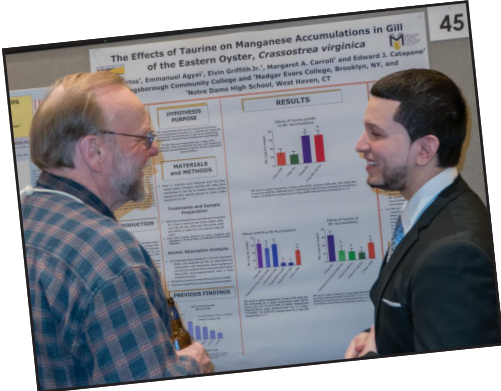
So what does this outpouring of pharmaceutical waste mean for ocean life? Unlike heavy metals, most drugs don’t accumulate up the food chain. Though some compounds, such as triclosan, can build up in animal fat. But since drugs are designed to be effective at low doses, a little can do a lot of potential damage.

As of yet, there’s no widely used technology to target drugs. The only way these compounds are removed from sewage is if they bind to particles that are otherwise filtered out by standard treatments or if they break down naturally. Some researchers are developing systems that can be added to treatment plants to filter out pharmaceuticals, such as activated carbon filters or bacteria specifically designed to break down drugs. But these are still in development, and many drugs escape even the most advanced treatment plants currently operating.

Pusceddu says the effects of pharmaceutical waste vary by location and solutions should, too. In Brazil, for example, ibuprofen often comes in large packages, so people may flush a lot of expired medication. In this case, the solution may be to try to get manufacturers to make smaller packages. But ultimately, Pusceddu says we need to learn a lot more about what these compounds do in the environment. Only then can we tell if the drugs that keep us healthy are making the ocean sick.

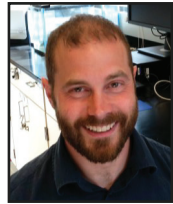
Reprinted from Hakai Magazine, January 8, 2018.

NSA 110th ANNUAL MEETING



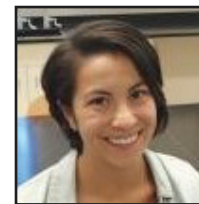
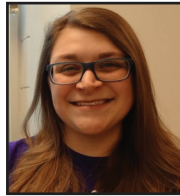
2018 NSA Student Research Awards

The student research awards were announced during the Annual Business Meeting at 110th NSA Annual meeting in Seattle, WA. These competitive grants provide \$1250 in support funding earmarked for student research projects as well as for the best student paper published in the *JSR*.



The **George R. Abbe Award** for student research to recognizes a student's excellence in any research in the areas of crustacean biology and fisheries management. Winning this year was Patrick Barnes, Western Washington University, for his project entitled, "Evidence of biotic resistance to invasion by European green crab in Coos Bay, Oregon".

The **Melbourne R. Carriker Award** supports a students research project in any topic of shellfisheries. The 2018 Carriker Award was presented to Alyssa Outhwaite, University of Dayton, for her proposal entitled, "Cracking the shell: an investigation of shell repair in the oyster, *Crassostrea virginica*".



The **Michael Castagna Award** for student research is an award devoted to the area of applied shellfisheries. Winning this year was Caitlin O'Brien, for her proposal entitled, "Genetic evaluation of pinto abalone, *Haliotis kamtschatkana*, at long-term restoration sites in the San Juan Island Archipelago, Washington".

Judging of the **Sandra E. Shumway Award** for the Best Student Paper published in the *JSR* has specific selection and evaluation criteria: (1) The lead author must have been a student when the work was completed, (2) the paper must present the student's work, not that of a co-author, (3) it will be evaluated on the quality of science and writing, and (4) the importance of the work to the field of shellfish research. A panel of judges deliberated, and the award was presented to Megan Levesque, University of Massachusetts Dartmouth, for her manuscript:



Levesque, M.M., Inglis, S.D., Shumway, S.E., and Stokesbury, K.D.E. 2016. Mortality assessment of Atlantic sea scallops (*Placopecten magellanicus*) from grey-meat disease. *Journal of Shellfish Research*, 35(2): 295-305.

I wish to thank all the students for submitting their proposals as well as the reviewers for taking the time to evaluate each these proposals and student papers so thoughtfully.

Application deadline for 2018 is November 1st.

Start planning now! Details are available at www.shellfish.org.

Karolyn Hansen, Past-President
Steve Allen, President

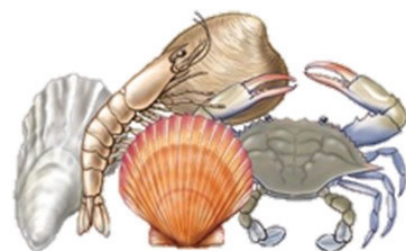
2018 Resolutions

Each year, the National Shellfisheries Association recognizes individuals for special contributions to the society in the form of Resolutions. Each begins with the same introduction:

Whereas, the National Shellfisheries Association, Inc. (NSA) is a Not-for Profit Corporation, and Whereas, members serve as officers and committee members on a voluntary basis, Be It Resolved that on the 21st of March, 2018, the National Shellfisheries Association formally recognizes and thanks:

This year, the following Resolutions were presented.

- Susan Elizabeth Ford - Recipient of the Thurlow C. Nelson Award, David H. Wallace Award, and Honored Life Member for her many years of dedication and service to the National Shellfisheries Association as co-Chair of the Publications Committee, Member of the Editorial Board for the *Journal of Shellfish Research*, Editor of the *Quarterly Newsletter*, and organizer of the Centennial Round Table to help preserve our history, including documentation of the contributions of women to the Association in the *Taming of the Oyster*. Her foresight and efforts to establish collaboration with BioOne were key to the financial success of the NSA. Susan was a regular and reliable reviewer of manuscripts for JSR, she organized and moderated many special sessions at Annual Meetings, mentored students, and challenged colleagues to strive for excellence. The NSA values and treasures her contributions and her legacy.
- Christopher V. Davis and Karolyn Mueller Hansen for their multiple years and tireless service as webmasters for the National Shellfisheries Association, and for keeping the Association alive electronically.
- The extraordinary staff of the Seattle Renaissance Hotel, especially Karyn Tanaka, Richard Frame, and Erick Gonzalez for their outstanding assistance in making the 110th Annual Meeting of the National Shellfisheries Association a great success. Everyone went 'above and beyond' and their professionalism, attention to details, and friendliness were instrumental in making the meeting memorable. WE THANK THEM ALL FOR THEIR OUTSTANDING EFFORTS!
- The Sheridan Press for another year of outstanding service and collaboration publishing the *Journal of Shellfish Research*. We especially recognize Joyce Coulter, Susan Parente, Kim Salois, and Lisa Small for their efforts on behalf of the *Journal* and the National Shellfisheries Association, which are gratefully acknowledged and appreciated.



Recruits' Corner

Fellow Recruits,

It was a pleasure meeting many of you in Seattle in March during the annual meeting. It was a busy week, and in addition to the myriad of fantastic presentations and posters, some highlights included the endless 11-course meal at the Ken Chew Chinese Dinner, the 2nd Annual Scallop Gallop through hilly Seattle, and an evening wandering through Pike Place Market in search of oysters. A resounding thank you to all Recruits who helped staff the registration and sales booth and run AV! As this was our first year as Co-Chairs, we would have been lost without all your hard work and expertise. Thank you again!

While this year's meeting is fresh in everyone's minds, please send us any feedback about your experience volunteering, the student activities, and suggestions for next year. For example, were there any student activities you think were missing from the program? Any that we should consider removing? Would you like to become involved or spearhead an activity at next year's meeting in New Orleans, LA?

Congratulations to this year's NSA travel award recipients! Winners were announced at the NSA Business Luncheon in Seattle, and include: **[AWARD WINNERS HERE]**. These awards are offered every year and provide fantastic financial resources and recognition. If you did not apply this year, make sure you don't miss your opportunity next year!



Save the date for Aquaculture 2019 which will also be the 111th Annual Meeting of NSA. This meeting is held in conjunction with the World Aquaculture Society, and the Fish Culture Section of the American Fisheries Association. Many other groups will be present and this meeting includes a large trade show. A reminder to all students who plan to attend AQ 2019 in New Orleans, do not forget to apply to the SEF Travel Awards next fall. The application is simple, and if awarded you will get support for lodging and/or registration. Only a small fraction of eligible students applied this year, so the odds are in your favor - why not apply?



Do not forget about the member referral challenge: refer five new NSA members, and you will receive one year of membership free. This is especially achievable for students, since student dues are highly discounted (only \$50/year!), and some of your classmates may receive lab support for membership. Remind your friends that as members, they will receive the monthly *Journal of Shellfish Research* in the mail. Just make sure that your new "recruit" provides your name when signing up.

As usual, please email Erin (erin_roberts@my.uri.edu) or Laura (lhs3@uw.edu) with any ideas or concerns. Good luck with your projects this summer!

Laura & Erin

BIOONE 10 MOST CITED PAPERS FROM THE *JOURNAL OF SHELLFISH RESEARCH* (2014 – 2017)

Most-referenced by other scholarly papers over a three year period (2014-2017). Citation data are harvested from CrossRef's Cited-by Linking service. The displayed results are updated on the 1st day of each month.

- Mann, Roger, & Powell, Eric N. 2007. Why Oyster Restoration Goals in the Chesapeake Bay are Not and Probably Cannot be Achieved. *Journal of Shellfish Research*, 26(4): 905-917.
- Waldbusser, George G., Steenson, Ryan A., & Green, Mark A. 2011. Oyster Shell Dissolution Rates in Estuarine Waters: Effects of pH and Shell Legacy. *Journal of Shellfish Research*, 30(3): 659-669.
- Wang, H., Qian, L., Liu, X., Zhang, G., & Guo, X. 2010. Classification of a Common Cupped Oyster from Southern China. *Journal of Shellfish Research*, 29(4): 857-866.
- Kraeuter, John N., Ford, Susan, & Cummings, Meagan. 2007. Oyster Growth Analysis: A Comparison of Methods. *Journal of Shellfish Research*, 26(2): 479-491.
- Trimble, Alan C., Ruesink, Jennifer L., & Dumbauld, Brett R. 2009. Factors Preventing the Recovery of a Historically Overexploited Shellfish Species, *Ostrea lurida* Carpenter 1864. *Journal of Shellfish Research*, 28(1): 97-106.
- Cook, Peter A., & Gordon, H. Roy. 2010. World Abalone Supply, Markets, and Pricing. *Journal of Shellfish Research*, 29(3): 569-571.
- Gordon, H. Roy, & Cook, Peter A. 2013. World Abalone Supply, Markets, and Pricing: 2011 Update. *Journal of Shellfish Research*, 32(1): 5-7.
- Watson, Sue-Ann, Southgate, Paul C., Tyler, Paul A., & Peck, Lloyd S. 2009. Early Larval Development of the Sydney Rock Oyster *Saccostrea glomerata* Under Near-Future Predictions of CO₂-Driven Ocean Acidification. *Journal of Shellfish Research*, 28(3): 431-437.
- Taleb, H., Vale, P., Amanhir, R., Benhadouch, A., Sagou, R., & Chafik, A. 2006. First Detection of Azaspiracids in Mussels in Northwest Africa. *Journal of Shellfish Research*, 25(3): 1067-1070.
- Karatayev, Alexander Y., Boltovskoy, Demetrio, Padilla, Dianna K., & Burlakova, Lyubov E. 2007. The Invasive Bivalves *Dreissena polymorpha* and *Limnoperna fortunei*: Parallels, Contrasts, Potential Spread and Invasion Impacts. *Journal of Shellfish Research*, 26(1): 205-213.

NSA members have access to these articles and others via BioOne. Just log into your member portal at www.shellfish.org and find BioOne under Publications and Resources.

Announcing the Shellfish Growers Climate Coalition



Oysters from Fishers Island Oyster Farm, New York. Photo by Sarah Malinowski

The Shellfish Growers Climate Coalition (SGCC) is a partnership initiated by seven shellfish farms and The Nature Conservancy. The SGCC recognizes that climate change and carbon pollution pose threats to the growers' businesses and effective food production. Growers have real, front-line experience with climate impacts, and their stories are compelling. The Coalition acts to promote effective climate action by educating consumers, reaching out to policy makers, and advancing research.

How is climate change costing us? Over a quarter of carbon dioxide emissions are absorbed by the oceans, changing the very chemical composition of the water. A decade ago the Pacific northwest shellfish industry production of oyster larvae failed in two of the major hatcheries and in the wild due to ocean acidification.

Increasing global temperatures also affect the industry. There is strong evidence linking increases in *Vibrio* abundance to increasing temperatures. Also, the rising sea levels significantly impact the industry by exacerbating storm damage from heightened flooding, and storm tides. Fluctuation in salinity levels can result in excessive shellfish mortality, and flooding and storm damage can disrupt the transportation and sale of our products. All of these impacts on shellfish farms add up to the need to take action to address climate change.

The SGCC is committed to shining a light on how climate change is already affecting food production in the United States, and using the stories of shellfish growers and other businesses endangered by climate change as a way to start a broader conversation about the urgent need for climate action.

What can you do? The Coalition is open to businesses from all food sectors wanting to engage with consumers and policy-makers to help chart America's course towards a low carbon future. Members engage with the public and the media about climate impacts – especially at food industry events and festivals. Members may also talk with policy-makers, not only going to their offices, but also bringing them to farms to see first-hand what's happening.

For more information on the SGCC's mission and how to get involved visit: www.nature.org/shellfish4climate or email Sally McGee at the Nature Conservancy (smcgee@tnc.org).

NSA NEEDS YOU TO HELP MAKE AQ 2019 A SUCCESS!!



The success of the conference depends upon the quality of the sessions, and the financial success for NSA depends upon your participation. Consider organizing a special session or send your suggestion for a session topic to Steve Allen or Sandy Shumway.

See you in New Orleans

AQUACULTURE COURSE

Applied Methods in Shellfish Farming

Darling Marine Center, Walpole, Maine

June 25-29, 2018



This intensive, hands-on workshop is intended to familiarize students with practical methods used to cultivate commercially important bivalve molluscs including oysters, mussels, clams, and scallops. Students will become familiar with bivalve hatchery methods, algal production, and monitoring water quality. Students will be exposed to upweller and nursery operations and visit commercial oyster, mussel, and clam farms. An emphasis on identification of optimal aquaculture sites will include extensive use of instrumentation, GIS, and field survey methods. The regulations associated with leasing, permitting, public health, and biosecurity will also be addressed. For more information, visit <https://dmc.umaine.edu/2018/03/29/applied-methods-shellfish-farming-workshop/>

Officers, Committee Chairs & Staff of the National Shellfisheries Association

Steven M. Allen
President, Webmaster
Bowdoin Coastal Studies Center
15 Bowdoin St
Brunswick, ME 04011
Phone: (443) 994-5164
Email: sallen@bowdoin.edu

John Scarpa
President-Elect
Texas A&M University - Corpus Christi
Dept. of Life Sciences
6300 Ocean Drive (Unit 5800)
Corpus Christi, TX 78412
Phone: (361) 825-2369
Email: john.scarpa@tamucc.edu

Lewis Deaton
Vice President
University of Louisiana - Lafayette
P.O. Box 42451
Lafayette, LA 70504
Phone: (337) 482-6549
Email: led9784@louisiana.edu

Nature McGinn
Treasurer
PO Box 7343
Alexandria, VA 22307
Email: naturemcginn@gmail.com

Paul Rawson
Secretary
University of Maine
5751 Murray Hall
Orono, ME 04469
Phone: (207) 581-4326
Email: prawson@maine.edu

Karolyn Mueller Hansen
Chair, Past-Presidents', Elections, Awards Committees
University of Dayton
300 College Park
Dayton, OH 45469
Phone: (937) 229-2141
Email: khansen1@udayton.edu

Brett Dumbauld
2016-2019 Member-at-Large
Oregon State University
2030 SE Marine Science Drive
Newport, OR 97365
Email: brett.dumbauld@oregonstate.edu

Kay McGraw
2017-2020 Member-at-Large
Chair, Resolutions Committee
NOAA Restoration Center
10409 Edgefield
Adelphi, MD 20783
Phone: (301) 427-8686
Email: kay.mcgraw@noaa.gov

Melissa Southworth
2018-2021
Co-Chair, Student Endowment Awards
VIMS
PO Box 1346
1208 Greate Rd
Gloucester Point, VA 23062
Phone: (804) 684-7821
Email: melisouth@vims.edu

Laura Hoberecht
Chair, Pacific Coast Section
WCR/NOAA/NMFS
7600 Sand Point Way Northeast Bld #1
Seattle, WA 98115
Phone: (206) 526-4453
Email: laura.hoberecht@noaa.gov

Sandra E. Shumway
Editor, *JSR*; Conference Manager, Membership Committee
University of Connecticut
Dept. of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340
Phone: (860) 405-9282
Email: sandra.shumway@uconn.edu

John N. Kraeuter
Chair, Audit-Budget-Finance Committee
Co-Chair, Publications Committee
1 Hills Beach Road
Biddeford, ME 04005
Email: kraeuter@hsrl.rutgers.edu

Lou D'Abramo
Co-Chair, Publications Committee
University of Alabama Birmingham
3366 Beaver Creek Drive SE
Southport, NC 28461
Phone: (662) 617-0257
Email: lrd4@msstate.edu

Peter Kingsley-Smith
Co-Chair, Student Endowment Awards
Marine Resources Research Institute
South Carolina Dept. of Natural Resources
217 Fort Johnson Road
Charleston SC 29412
Phone: (843) 953-9840
Email: kingsleysmithp@dnr.sc.gov

Tessa Getchis
Membership Committee
CT Sea Grant
University of Connecticut
1080 Shennecossett Road
Groton, CT 06340
Phone: (860) 405-9104
Email: tessa.getchis@uconn.edu

Hillary Lane Glandon
Membership Committee
Univ. of North Carolina Wilmington
Biology and Marine Biology
601 S. College Road
Wilmington, NC 28403
Phone: (301) 405-9701
Email: hillaryannelane@gmail.com

Erin Roberts
Recruits, Co-Chair
University of Rhode Island
346 Broadway
Apt. 2
Newport, RI 02840
Email: erin_roberts@my.uri.edu

Laura Spencer
Recruits, Co-Chair
University of Washington
9656 26th Ave SW
Seattle, WA 98106
Email: lhs3@uw.edu

LeRoy Creswell
Editor, *NSA Quarterly Newsletter*,
Co-Chair, Student Endowment Awards
Florida Sea Grant Extension Program
2199 South Rock Road
Ft. Pierce, FL 34945
Phone: (772) 834-9062
Email: creswell@ufl.edu

Noreen Blaschik
Associate Editor, *NSA Quarterly Newsletter*
Webmaster
University of Connecticut
Dept. of Marine Sciences
1080 Shennecossett Rd
Groton, CT 06423
Email: noreen.blaschik@uconn.edu

Linda Kallansrude, *Secretariat*
20790 Country Creek Drive
Unit #516
Estero, FL 33928
Phone: (239) 676-5685
Email: lindajk@optonline.net

