National Shellfisheries Association
Quarterly Newsletter
Est. 1908
2019 (1)

President's Message

Another annual meeting for the National Shellfisheries Association has occurred, which means it's spring for us in the Northern Hemisphere and autumn in the Southern Hemisphere. This is a time of change for Mother Nature and for many of us as well, as we change modes with the seasons, academic year, or production cycle. My personal change is moving from President-Elect to President of our wonderful Association, and to guide it through its 112th and 113th years. I am honored that you have given me this opportunity.

This year will be a challenging year for the Executive Committee as our membership remains between 400 and 500. At one point during my membership (37 years) it was almost 1000. Let's strive to revitalize our organization to its former robust energy by recruiting new members. Ask your colleagues if they are members. If they are not, let them know they are missing out on a dynamic and intimate group of individuals. Bring membership applications to other conferences you attend; drop an e-mail to us and we will mail those pamphlets to you or directly to the hotel where you are staying for the conference.

Professors, gift a membership to your students. Students, please continue your membership for a few more years after earning your degree to ensure that the next group of students has a network to grow from, even if your first job is not shellfish-related. Student members benefit from reduced membership costs as well as from the travel and research awards made available only to them that resulted from donor gifts.

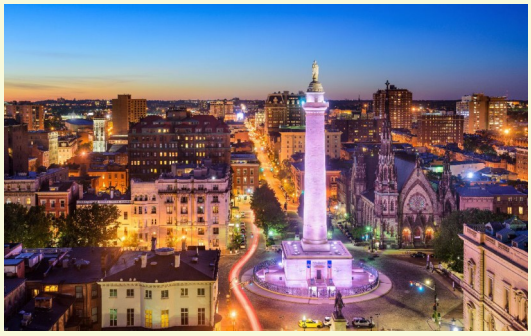
Membership dues only pay for the basic operation of our Association. These basics are handled by three contracted part-time employees whose dedication keep the Association running smoothly. Our award-winning publication *Journal of Shellfish Research* is not paid for by your membership dues, but by page-charges and royalties received through BioOne downloads (keep on downloading). Direct your research papers to, and photos for the cover of, *JSR* so it may maintain its award-winning status, as well as being the go-to journal for shellfish-related research.

Immediate Past-President Allen has reiterated that this society is managed by volunteers. If you wish to volunteer in any manner, from assisting with our annual meeting to serving on the Executive Committee, contact us and let us know. Become an active part of your organization. It is well worth your time and effort, even if it is as simple as suggesting a session topic or plenary speaker to conference manager, Sandy Shumway.

The past year was a challenging year for many that I talked to at the New Orleans conference. Let us all make this year a success for the Association by recruiting new members, assisting the Association in any manner, participating in the next annual meeting in Baltimore, and publishing your research findings in the *Journal*. May 2019 be a banner year for you personally and professionally that will reflect well on the Association.

John Scarpa, *President*

SAVE THE DATE



112th Annual NSA Meeting
Crowne Plaza Hotel Downtown-Inner Harbor
March 29 - April 2, 2020

In this issue:

A Message from the Past-President

With yet another successful meeting in the books, I return to the winter stronghold of Maine to reminisce about warmer temperatures, beignets, and great colleagues. This meeting marked my transition from President of the National Shellfisheries Association to Immediate Past-President. This, as most who have come before me in this position will tell you, is where the work really begins. I will be chairing a number of committees over the next two years including the Elections Committee and Student Awards Committee. As I have said over and over again, our Association is nothing without its members, and what we want is active members. We are sustained by the volunteers that participate on committees, act as judges, and serve as members of the EXCOM. Over the course of the next year, ask yourselves what the National Shellfisheries Association means to you and why you are a member. I know we are all busy with what life throws at us, but if you can spare the time to volunteer and help out with the Association please reach out to one of the EXCOM members or chairs of the various committees and ask how you can help. OK, I will get off of my soapbox now and wrap this up. I wanted to make sure I got this last article in saying how much of an honor it has been serving as your President for the past two years, and I look forward to serving the Association for the next two years as Chair of the aforementioned committees. I hope your research and harvests all go great as we head into spring. If you are ever up in my neck of the woods, feel free to drop in and say hi!

Steven Allen
Past-President

Wallace Award Recipient Recognized

Dr. Kevin Stokesbury, UMass Dartmouth School of Marine and Science, has been named The Standard-Times' SouthCoast Man of the Year for 2018.

Stokesbury tenaciously fought for years to improve the ways ocean life is measured, and to wed the inescapably important work of environmentalists to the equally vital work of the men and women who know the ocean best -- those who make their living on it.

Starting in the late 1990s, Stokesbury, working with SMAST founding Dean, Brian Rothschild, developed a video technique to count scallops on the seafloor without harvesting or killing them. Along the way, he pioneered a partnership with local fishermen.

Some fishermen say the research saved the New Bedford scallop industry. (Other observers point out that federal regulations protected the species at critical times.)

CONGRATULATIONS!

NSA Colleague and Friend Remembered

Dr. Norman J. Blake passed away December 26, 2018 at the age of 74 following heart surgery. Norm was an institution at NSA and Pectinid Workshop meetings. He received his doctorate from the University of Rhode Island under the direction of Dr. Akella Sastry. Norm grew up in St. Petersburg and returned in 1972 to join the USF Marine Science Department from which he retired in 2007. Officially, he was the advisor to more than two dozen masters and doctoral students, affectionately known as "Blake's Flakes", unofficially his students numbered in the hundreds. His research centered on shellfish ecology and reproduction, with a focus on the restoration of Florida's native scallop populations.

Norm loved meeting new people. Most will remember him in his Greek fisherman's hat holding court. He cared about his students, and any student who crossed his path he considered one of his own. He mentored and supported students around the world, from Norway to South Africa. Sometimes that support was known, often it was not, as he anonymously supported many students financially. He loved deeply, and was well loved. He spotted his wife, Virginia, when they arrived at college, they were married for fifty-two years with an F1 of three and an F2 of five. The love he broadcast extended beyond immediate family, it was taken up by his students and colonies of that love are everywhere. He could drink any of his students under the table, but he bought far more drinks for others than he managed to consume himself. His keen intellect will be missed, but his lessons in loving and caring for others left an indelible mark upon all who knew him.

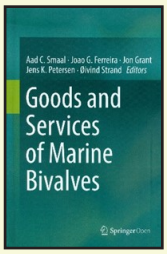
Bruce Barber
Michael Moyer

Save the Date!
PCSGA -PCS
2019 Annual Meeting

September 17-19, 2019
Portland, Oregon

PCSGA
PACIFIC COAST SHELLFISH GROWERS ASSOCIATION

Book Review: Goods and Services of Marine Bivalves



Smaal, A.C., J.G. Ferreira, J. Grant, J.K.Petersen, and Ø. Strand (Editors). 2019. Springer Open. 591 p.

When asked to write the Foreword for this volume, I had not seen the text. I was, however, excited to see such a talented group of scientists and writers banding together to address the topic, and had no doubt that it would be a valuable contribution to the literature. I was not disappointed.

The term ecosystem services is tossed around routinely with regard to bivalve molluscs and what they provide to their environment; however, the term is oft misconstrued or even misunderstood by many, and the goods and services aspects often not clearly defined or even acknowledged. We all know that bivalves are highly efficient filter feeders, they facilitate benthic-pelagic coupling, influence sediment processes, provide structure, impact water quality, and contribute to habitat diversity and biodiversity. While the term is relatively new, the role of molluscs in these services has been recognized for centuries. Only in recent decades have these attributes been studied, quantified, modelled, and put forth as integral to ecosystem development, maintenance, and sustainability. The development of advanced models to capture the complex integrative nature of the functions of bivalves has provided both theorists and practitioners with the means to understand these interactions, and the editors of this volume have led the field in these advancements. This book brings together an integrated and diverse group of experts who have placed bivalve molluscs in their prominent position as ecosystem engineers and providers of ecosystem services. This differentiation is evident throughout the volume – it is not about ecosystem functions per se, it is about the goods and services valued by humans. More importantly, the editors have done so in a very comprehensive and readable book. The chapters on 'Shells as collectors' items' and 'Archaeology and sclerochronology of marine bivalves' were especially enjoyable.

The book is a result of a workshop held in Rotterdam in 2015. It is comprised of 27 chapters written by 72 authors, and is divided into four sections: Provisioning Services, Regulating Services, Cultural Services, and Assessment Services. Most of the illustrations are of high quality, some are not high resolution. Typographical errors were minimal and there is some inconsistency in labelling of figures and use of tenses – things that give an editor heartburn, but do not detract from the overall value and presentation of the book.

The stated aims of the book were to "review and analyse the goods and services of bivalve shellfish" and to "deliver a better understanding of the bivalves and their various options for making better use of them" - the final product does just that. It is refreshing to see an effort that puts bivalve molluscs and their attributes in a positive light and veers away from the 'impacts of shellfish aquaculture on the environment' discussions. The focus is clearly on the benefits people obtain from marine bivalves, and, as such, the book will be of use to shellfish farmers, scientists, students, policy makers, managers, and coastal engineers. As the global need for increased food production continues to expand, the information provided in this book lays a solid foundation and argument for more shellfish culture in an integrated and sustainable fashion. Interestingly and fittingly, each chapter includes an abstract in Chinese, and the best news of all is that the book is available free of charge. This book will occupy a prominent and easily accessible position on my bookshelf. Congratulations to the Editors for an outstanding and much needed contribution to the literature, and for securing the funding to make it freely available to the community.

To download the electronic version of the book free of charge: https://link.springer.com. Both hardcover ($59.99) and softcover ($29.99) available.

Sandra E. Shumway

2019 NSA 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 10th of March, 2019, the National Shellfisheries Association formally recognizes and thanks:

This year, the following Resolutions were presented.

- Norman J. Blake - For his tireless support of students and giving of his time, expertise, and financial backing to further their research activities and participation in NSA conferences and events. Norm was a staunch advocate for shellfisheries science and aquaculture, a stalwart reviewer for the *Journal of Shellfish Research*, and his contributions and great spirit will be missed.

- The AQ 2019 Steering Committee: Sandra Shumway, Chair; Michael Denson, Michael Masser, Paul Zachek; the Program Committee: Jay Parsons and Sandra Shumway, Co -Chairs, Steve Allen, Jim Tidwell, Steve Lochmann; The Student Committee: Laura Spencer, Erin Roberts, and Taylor Lipscomb, and the group that brings the Triennial meetings together in apparently seamless fashion, John, Mary, and Noah Cooksey, and Mario Stael. For their continuing efforts to highlight the aquaculture and shellfish industries through their tireless and outstanding efforts in conference management, as advocates for the field -- and for always going the extra mile with a smile!

- Brett Dumbauld - For his service on the NSA Board, and his continuing efforts to highlight the aquaculture and shellfish industries through his tireless and outstanding efforts in research, conferences, as an advocate for the field -- and especially for always going the extra mile with a smile!

- Laura Hoberecht - For her service on the Executive Committee as Chair of the NSA Pacific Coast Section, and her continuing efforts to highlight the aquaculture and shellfish industries through her tireless and outstanding efforts in research, conferences, as an advocate for the field -- and especially for always going the extra mile with a smile!

- Karolyn Mueller Hansen - For her service on the NSA Executive Committee, and her continuing efforts to highlight shellfish research through her tireless and outstanding efforts in research, conferences, as an advocate for the field -- and especially for always going the extra mile with a smile!

- Peter Cook - For his tireless and outstanding efforts as Guest Editor of the special issues of the Journal of Shellfish Research focused on abalone biology, ecology, fisheries, and aquaculture, and his continued outstanding efforts in research, conference presentations, advocacy for the field, and his continuing efforts to highlight shellfish biology and aquaculture globally.

2019 NSA Student Presentation Awards

The 111th Annual Meeting of NSA in New Orleans, LA had a strong student showing from both undergraduate and graduate attendees.

In advance of the meeting, 22 applications were received from student members seeking travel funds. The SEF and Conference Management were able to support 10 students at the New Orleans meeting, awarding four registration waivers and providing three shared rooms, supporting six students in total.

A total of 28 graduate students were eligible for the Thurlow C. Nelson Award (outstanding oral presentation), and 12 graduate students were eligible for the Gordon Gunter Award (outstanding poster presentation). 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.

The Thurlow C. Nelson Outstanding Oral Presentation Award was presented to Alexandria Marquardt, California Polytechnic State University, for her presentation on "Population trends and abundance of Pismo clams *Tivela stultorum* in California".

The Gordon Gunter Outstanding Poster Presentation Award was presented to Sarah Bodenstein, Auburn University, for her poster "Comparison of shell-closing strength for triploid and diploid eastern oysters *Crassostrea virginica*".

Winners will receive a certificate of accomplishment and two years of membership in the NSA.

Congratulations Sarah and Alexandria!!!

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

3rd Annual Scallop Gallop

This year's Scallop Gallop was attended by 54 NSA members and the race course ran along the banks of Old Man River in New Orleans. Participants gathered at the Audubon Aquarium on a warm afternoon and ran down to the Governor Nichols St. Wharf and back. The course was certified by Ellen Deaton. Two tours of this loop made a nice (if a bit short) 5K. The river was very high and a nice cooling breeze was blowing off the water. The steamboat Natchez contributed several blasts from her whistle, putting all in mind of Mark Twain's Life on the Mississippi. Given that this looks to be a year for really high water, a fascinating account of the hydrology of the Mississippi and Atchafalaya Rivers can be found in John McPhee's book, The Control of Nature. Without the continuing intervention of the Corps of Engineers, the Mississippi would change course and follow the Atchafalaya to Morgan City, leaving Baton Rouge and New Orleans high and dry.

The first male finisher was Joey Matt and the first female finisher was Portia Sapp. Congratulations to them and all who turned out. This year's t-shirt was again designed by Thomas Deaton (you can see his art on Instagram (@thomasdeaton) or the Where Y'Art online gallery (I promised him a plug since he gave me a big family discount on the design). Of continuing concern to the organizers is the people who bailed out of the run. If you take a t-shirt, you should show up for the race. For those who did participate, take pride, read the St. Crispin's Day speech in Shakespeare's Henry V, and know that you, in contrast to the no-shows, need not count your manhood (or womanhood) cheap.

Lewis Deaton

NSA 111th ANNUAL MEETING WRAP UP

Aquaculture 2019 is now history and it was a most memorable occasion. New Orleans was still buzzing with Mardi Gras festivities and the fever spread throughout the conference. This was the largest Triennial yet with 3500 participants, 205 trade show booths, 104 sessions, 1350 speakers, and 225 posters representing 85 countries. While it was a challenge to locate friends, it was a great opportunity to see the latest advances in the field, from both scientific and industrial perspectives. The NSA was well represented and all of our regular activities were on the schedule. The auction was held on the first evening and attracted a large audience, especially students, representing all of the societies. Thanks to all of those who found time to clean their offices and donate their treasures to the cause. Also thanks to Elsevier for their generous book donations. The Student Endowment Fund benefited greatly from auction proceeds, and also from a very busy sales table. Thanks to all of the students who helped as 'runners' at the auction and staffed the sales table. We couldn't do it without you! And speaking of running, the Scallop Gallop is now an institution. Over 50 people took off from the lobby of the hotel and sprinted their way around New Orleans led by Lewis and Ellen Deaton (well, at least they were leaders for the first few seconds). Start training now for Baltimore, the t-shirts are becoming collector items. The annual business luncheon was a festive affair on the top floor of the hotel and welcomed in the new President, John Scarpa, and said farewell to out-going Past President, Karolyn Hansen. Thanks, Karolyn, for many years of service, don't go too far. Steve Allen has moved into the Past-President's seat and will now be busier than ever. It was great to see many past presidents among the attendees and hopefully there will be many more among the attendees in Baltimore next year. Get it on your calendar: NSA 112th Annual Meeting, Baltimore, Maryland, March 29 – April 2, 2020. And start gathering those auction goodies early.

See you in Baltimore!

Sandy Shumway
Conference Manager

National Shellfisheries Association Quarterly Newsletter 2019(1)

Innovative Collaboration in Scholarly Publishing

By: Nicole Colovos

In the late 1990s scholarly publishing was transitioning into the digital world. Society publishers were operating on a cost-recovery basis or fixed rate of profit, and struggled to keep pace with emerging digital technologies. Their concerns of exclusion often forced publishers to resort to restrictive, long-term deals with large commercial publishers, who exercised editorial control and raised subscription prices beyond library budgets.

As a result, commercial journal price increases were forcing research libraries to cancel valuable subscriptions. The Association of Research Libraries (ARL) called for the exploration of new publishing models to ensure access to research and scholarship. In 1998, the chief academic officers of the US "Big 12" institutions (a regional higher education association) issued a statement that began:

"...in collaboration with other higher education associations, scholarly societies, and not-for-profit publishers, [we] must devise a collective action agenda to address the effective management of intellectual property in order to protect and promote scholarly communication. Failure to meet this challenge will put at risk the very nature of the research enterprise, which demands for students and scholars wide access to information about the theories, methods, and findings of others engaged in the search for knowledge."

Collective Action Agenda

It was thus clear that there was a critical need for a nonprofit alternative that respected the independence of scientific societies and the limited capacity of library budgets. In early 1999, a group of far-sighted librarians and publishers met to discuss an idea for a publishing collaborative supported, developed, and directed by stakeholders from both sides of the scholarly publishing enterprise—libraries and publishers.

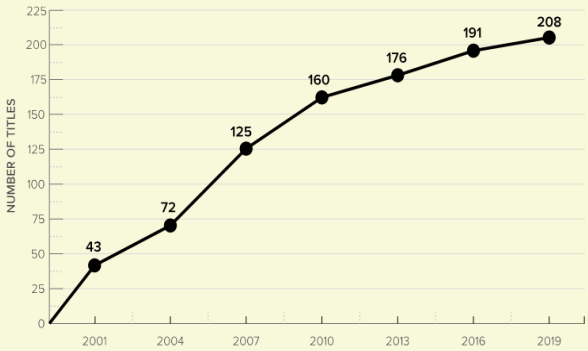
The idea initially sketched out on a napkin developed into a concept for an aggregated database of nonprofit bioscience journals. In June 1999, the project was presented to the community in a concept paper. By summer's end, five organizations established a 501(c)(3) nonprofit corporation called BioOne. Its goal was to develop into a curated database now known as BioOne Complete. BioOne founding members included: Allen Press, American Institute of Biological Sciences (AIBS), Big 12 Plus Libraries Consortium (now GWLA, the Greater Western Library Alliance), SPARC (Scholarly Publishing and Academic Resources Coalition), and The University of Kansas.

Library supporters and sponsors initially capitalized BioOne Complete. The first collection launched in 2001 offering the current contents of 40 journals to a group of 320 subscribing libraries and institutions on a platform using the best practices in technology. As the database grew in quality and quantity, BioOne attracted the attention of more subscribers, publishers, and researchers from around the world.

A Curated Collection of Biology, Ecology, and Environmental Science Research

BioOne Complete is now available to more than 1,450 subscribing institutions across 48 countries. Through philanthropic partnerships, the database is also available at no costs to more than 2,500 institutions in 95 countries across the developing world. BioOne Complete provides researchers with access to 208 titles from publishers in 63 countries. Inclusion in the database is competitive. BioOne adds a select number of titles annually to control costs and ensure the continuing high quality of the aggregation.

BioOne Complete Content Growth 2001-2019



20 Years & Counting

This year BioOne marks 20 years of service and celebrates the community that invested in its success. The organization remains committed to meeting library, publisher, and researcher needs, for BioOne continues to develop programs and services to support its mission. Recent organizational initiatives include:

1. BioOne Career Center—launched in 2017—provides a trusted destination for both jobseekers and employers across the biosciences. The Career Center includes jobs from the academic, nonprofit, and private sector, with positions at research institutions, museums, associations, zoos, and laboratories.
2. The BioOne Ambassador Award recognizes early-career authors of articles published in BioOne Complete. Begun in 2018, the Award showcases the talents of the newest generation of researchers from our publishing partners and is designed to inspire creative approaches to communicating specialized research to the general public.
3. A new website for BioOne Complete developed in collaboration with fellow nonprofit SPIE—the International Society for Optics and Photonics. The new site leverages SPIE's proprietary platform for improved navigation, expanded functionality, and more powerful tools for research. This is another example of how nonprofit scholarly organizations can successfully collaborate for the greater good of scientific research.

Lobster's underbelly is as tough as industrial rubber

Scientists at the Massachusetts Institute of Technology have said lobsters could be key to creating super-strong and flexible armor in the future. The underbellies of these famous crustaceans contain a translucent membrane that scientists have now found to be one of the toughest hydrogels in the world. And they're eyeing it for the future generations of protective gear for the military.

Hydrogels are gels that are normally composed of one or more polymers suspended in water. For decades, they have been investigated for their biomedical qualities—they hold huge potential for applications relating to wound healing and bone regeneration, for example.

Photo credit: https://www.flickr.com/photos/kit4na/8303686406

More recently, scientists have started to look at hydrogels for their military applications—from high-tech winter gloves that are able to absorb sweat and other liquid to keep hands warm and dry, to medical dressings that could stop bleeding on the battlefield.

Researchers at MIT are now looking at a specific hydrogel found in lobsters. The translucent soft membrane found on the underside of these marine creatures has been analyzed by scientists, who have found it is made of a layer of "plywood-like structure" that makes it highly resilient to cuts. It is also very flexible and stretchy, allowing the lobster to move its tail around.

Publishing their research in the journal *Acta Biomaterialia*, the team found the membrane on the belly of the American Lobster is the toughest material of all known natural hydrogels. In terms of strength, it is comparable to industrial rubber that is used to make car tires and conveyor belts.

Its strength and flexibility, the team say, make it an ideal material to use as a blueprint for body armor. "We think this work could motivate flexible armor design," Ming Guo, one of the study authors, said in a statement. "If you could make armor out of these types of materials, you could freely move your joints, and it would make you feel more comfortable."

Guo started to study lobsters after noticing their unusual properties—their underbellies are particularly difficult to chew, for example. When they are swimming, they are able to move their joints and tails very fast, meaning they must have soft tissue connections. "But nobody has looked at the membrane before, which is very surprising to us," he said.

The team carried out experiments on the membrane, and found it could be stretched to twice its normal length. It was also found to be resilient to small cuts. "We made scratches to mimic what might happen when they're moving through sand, for example," Guo said. "We even cut through half the thickness of the membrane and found it could still be stretched equally far. If you did this with rubber composites, they would break."

The researchers then zoomed in on the membrane's microstructure using electron microscopy. What they observed was a structure very similar to plywood. Each membrane, measuring about a quarter of a millimeter thick, is composed of tens of thousands of layers. A single layer contains untold numbers of chitin fibers, resembling filaments of straw, all oriented at the same angle, precisely 36 degrees offset from the layer of fibers above. Similarly, plywood is typically made of three or more thin layers of wood, the grain of each layer oriented at right angles to the layers above and below.

"When you rotate the angle of fibers, layer by layer, you have good strength in all directions," Guo says. "People have been using this structure in dry materials for defect tolerance. But this is the first time it's been seen in a natural hydrogel."

The team also carried out simulations to see how a lobster membrane would react to a simple cut if its chitin fibers were aligned like plywood, versus in completely random orientations. To do this, they first simulated a single chitin fiber and assigned it certain mechanical properties, such as strength and stiffness. They then reproduced millions of these fibers and assembled them into a membrane structure composed of either completely random fibers or layers of precisely oriented fibers, similar to the actual lobster membrane.

In addition to flexible body armor, Guo says materials designed to mimic lobster membranes could be useful in soft robotics, as well as tissue engineering. If anything, the results shed new light on the survival of one of nature's most resilient creatures.
The team is now hoping to understand the mechanisms underlying the strength of the lobster membrane. "We think this membrane structure could be a very important reason for why lobsters have been living for more than 100 million years on Earth. Somehow, this fracture tolerance has really helped them in their evolution," Guo said.

Concluding, they said: "The knowledge learned from the soft membrane of natural lobsters sheds light on designing synthetic soft, yet strong and tough materials for reliable usage under extreme mechanical conditions, including a flexible armor that can provide full-body protection without sacrificing limb mobility."

Abstracted from Newsweek & MIT News, February 2019

Recruits' Corner

Fellow Recruits,

It was wonderful to see so many of you in New Orleans. It was an extremely busy week, with many concurrent sessions, a bustling trade show, many posters, and social events. Many of the 54 NSA students presented their recent research. Thirty NSA members and 14 NSA students participated in our first Mentor-Mentee breakfast. Students and mentors with like interests were paired for breakfast either at the hotel, sponsored by Tyson, or nearby at a location of their choosing. From all accounts, this was extremely successful and enjoyable for all involved and we hope to repeat the activity. Thanks to all who participated. The Recruits also experienced NOLA nightlife as they wandered Bourbon and Frenchmen streets listening to jazz and blues, and eating beignets at Cafe Du Monde. We also gazed upon tarpon, paddlefish, alligator gar, and a leucistic alligator at the Aquarium of the Americas. All in all, a fantastic Triennial.

We extend a huge thank you to all Recruits who helped staff the sales booth. This year we sold out of most merchandise, with the pin collection being particularly popular. Thanks for your time and energy in support of the Student Endowment Fund.

Please send any feedback about your experience volunteering, this year's student activities, and suggestions for next year. Were there student activities you think were missing from the program? Anything to consider removing? Would you like to become involved at next year's meeting in Baltimore?

Congratulations to the NSA Travel Award recipients. The Student Endowment Committee announced that, beginning with the 2020 meeting, the NSA Travel Award will be decided by lottery. Any student who submits an abstract to attend the meeting AND is a current member of NSA will be eligible. Further details on how and when to apply will be posted on the NSA website.

Save the date for the 112th Annual NSA Meeting: Mar. 29 - Apr. 2, 2020 at the Radisson Hotel Baltimore Downtown-Inner Harbor. Students should also consider applying for the Carriker, Castagna, and Abbe Research Awards, each worth $1,250. Please see additional details at www.shellfish.org. This is a considerable amount of money and the application process is straightforward., good luck!

Do not forget about the member recruitment challenge: recruit five new NSA members and you will receive a 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 *Journal of Shellfish Research* and *Quarterly Newsletter*. 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

NSA Pacific Coast Section News

Greetings from the Pacific Coast!

The National Shellfisheries Association – Pacific Coast Section (NSA-PCS) would like to thank the organizers and attendees of Aquaculture 2019. It was a great meeting and we left New Orleans with many new ideas. Now it's time to turn our attention to the 73rd Annual Shellfish Conference.

NSA-PCS and the Pacific Coast Shellfish Growers Association invite submissions of abstracts for oral presentations at the Annual Shellfish Conference, September 17-19, 2019, in Portland, Oregon. The 73rd meeting of this important joint conference brings together shellfish growers, suppliers, service providers, researchers, academicians, government agencies, environmental organizations, and students to discuss all aspects of shellfish science and industry. **Abstract Deadlines: May 1, 2019 – abstract title due (placeholder) and June 1, 2019 – full abstract due.** Submit your abstract at http://pcsga.org/annual-conferences/abstract-login/. We hope all NSA members with an interest in Pacific coast shellfish will attend!

The primary focus of NSA-PCS is student involvement, and we particularly encourage students to participate in the 73rd Annual Shellfish Conference. We're planning several activities to facilitate professional development and build science-industry collaboration. Financial assistance may be available to student contributors for lodging, travel expenses, conference registration, abstract fees and banquet tickets. Students requiring financial assistance should indicate a request with their abstract. Students will be notified of awards prior to the early-bird registration deadline. Questions regarding student financial assistance may be directed to the Treasurer, Chris Eardley at Christopher.Eardley@dfw.wa.gov.

Sessions may include, but are not limited to: Climate Change, Ocean Chemistry, Acidification; Marine Pathogens, Shellfish Disease, Harmful Algal Blooms; Human Health Issues; Emerging Species: Beyond Bivalves; Kelp, Seaweed; Restoration and Protection Efforts (Species and Habitat); Estuarine Habitat, Ecosystem Services, Multitrophic Interactions; Genetics, Broodstock Development; Wild Stock Management; Public Engagement, Education and Outreach; Markets, Trade; and Marine Debris, Microplastics. Abstracts on additional research topics will be considered.

In addition to the traditional oral format (12-minutes, plus 3-minutes Q&A), we will once again have a session of Shellfish Shorts (5-minute lightning talks in the Ignite Format). Shellfish Shorts are intended to stimulate the exchange of innovative and exciting ideas. Each Shellfish Short will feature 20 slides that advance automatically every 15 seconds and can address any aspect of shellfish science or farming.

We hope to see many old and new faces in September. Please let me know (psean@uw.edu) if you have any questions. As a reminder, the NSA-PCS Twitter feed and Facebook page are your best resources for news and information about the PCS and our events and annual meetings.
Please join our community online.

You can follow NSA-PCS on Twitter: @nsapcs or on Facebook.

P. Sean McDonald
NSA-PCS Chair

WOULD YOU LIKE A YEAR OF FREE MEMBERSHIP?

The Membership Drive Continues….

It's simple, just recruit five new members (not renewals). Be sure to let Linda Kallansrude know that you recruited that person (secretariat@shellfish.org).

Remember, the NSA is only as strong as its membership, and its continued success depends on you. It's an easy sell - access to the *Journal of Shellfish Research* (print and on-line), the *Quarterly Newsletter*, reduced registration at annual conferences, and a strong and friendly group of like-minded individuals to share their interests in all things shellfish. Encourage your students and post-docs to become members.

Thank you and congratulations to last year's winner, Dr. Acacia Alcivar-Warren, who recruited 14 new members!

NSA Students Shine in Student Spotlight Presentations at AQ `19

NSA students Laura Spencer won the first prize ($500 cash), and Michael Acquafredda won second prize ($200 cash) for their Student Spotlight Presentations at the Triennial meeting.

CONGRATULATIONS!

Support NSA using BioOne

The National Shellfisheries Association (NSA) joined BioOne in 2007. More than 1,500 articles and 14,000 pages from the *Journal* are published in BioOne Complete. This represents over 14 years of content beginning in 2005 with Volume 24(1).

NSA members whose dues are paid can access the BioOne site via the Association website, but if your institution subscribes to BioOne.2 or BioOne Complete, **please access BioOne via your library's portal.** "Hits" from libraries (but not the NSA site) count when it comes to royalties. Because BioOne is a non-profit organization, most of the money that it receives from subscriptions is returned to publishing societies. From 2007 when NSA joined BioOne, through 2015, NSA has earned nearly $425,000. So, use BioOne often.

Got a favorite *JSR* cover?

SUPPORT THE SEF

Purchase a cover $10 (unframed) $20 (framed) (includes postage)

Contact Sandy Shumway for availability (Sandra.shumway@uconn.edu)

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HAVE YOU RENEWED YOUR NSA DUES FOR 2019?

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

www.shellfish.org

Upcoming Events

19th International Conference on Diseases of Fish and Shellfish: Sept. 9-12, 2019. Porto, Portugal. For more information: www.eafp2019.com

2019 PCSGA/NSA-PCS Conference: Sept. 17-19, 2019. Red Lion Hotel on the River, Portland, OR. For more information: www.pcsga.org/annual-conferences

112th Annual NSA Meeting: Mar. 29 - Apr. 2, 2020. Crowne Plaza Hotel Baltimore Downtown-Inner Harbor. For more information: www.shellfish.org

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

Aquaculture 2020: Feb 9-12. Honolulu, Hawaii USA
Aquaculture Canada/WAS North America 2020: Aug 30-Sept 2. St. John's, Newfoundland, Canada
Aquaculture 2022: Feb 27-Mar 3. San Diego, California, USA
Aquaculture America 2023: Feb 19-22. 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).