As we approach the end of the year, I know you are balancing even more responsibilities than usual. The holiday season often inspires great joy while also producing a lot of extra work. I want to encourage you to double down on your determination and dedication for a few more weeks. For many of you, a semester break is coming soon!

**2024 Annual Meeting in Charlotte**

We have some important deadlines coming up as we move closer to the 116th NSA Annual Meeting, March 17-21, 2024, in Charlotte, North Carolina.

- **December 15, 2023:** Submit abstracts for the conference. This is an excellent opportunity to highlight your work and findings to our scientific community. Additionally, don’t forget that applications for the Student Travel Award are also due on the same date. We encourage students to take advantage of this opportunity for financial support.
- **January 19, 2024:** Early-bird registration for the conference concludes. Don’t miss your opportunity to take advantage of reduced rates!

**Newsletter Highlights**

Allen Pattillo, who will be chairing a special session on robotics and emerging technology at the 2024 conference, has shared insights from a recent robotics summit. This promises to be one of many exciting sessions happening in Charlotte. This issue of the newsletter also includes a fascinating column focused on a taxonomic question – *Crassostrea vs. Magallana*?

Bob “Skid” Rheault, known as the “Vibrio Evangelist,” has shared his invaluable perspective on the latest bacterial outbreaks. The Pacific Coast Section (PCS) has shared details about their recent annual meeting in September.

**Staying Connected**

As we prepare to meet in Charlotte in March, let’s stay connected through our website, social media, and this *Newsletter*. We are seeking Honored Life Member biographies for potential use on the website. By submitting their bios, you will help us showcase the wealth of knowledge within our community.

Yours in service,

Aswani K. Volety, President
UNCW Chancellor

---

Upcoming Events

**Northeast Aquaculture Conference & Exposition/43rd Milford Aquaculture Seminar (NACE/MAS):** Jan. 10-12, 2024, Providence, Rhode Island. For more information: https://www.northeastaquaculture.org

**Aquaculture America 2024:** Feb. 18-21, 2024. San Antonio, Texas. For more information: www.was.org

**116th NSA Annual Meeting:** Mar. 17-21, 2024. Charlotte, North Carolina. For more information: www.shellfish.org

**23rd International Pectinid Workshop:** Apr. 24-30, 2024. Douglas, Isle of Man. For more information: www.internationalpectinidworkshop.org

**Aquaculture 2025 (Triennial):** Mar. 6-10, 2025. New Orleans, Louisiana. For more information: www.was.org

**118th NSA Annual Meeting:** Mar. 22-26, 2026. Portland, Oregon. For more information: www.shellfish.org

---

RENEW YOUR DUES

Be sure to review your membership profile. Contact secretariat@shellfish.org with questions.

www.shellfish.org
10 Most Cited Papers from the Journal of Shellfish Research (2005-2023)

Most referenced by Altmetric, which collects relevant mentions from social media, news sites, online forums, blogs, wikis, and other sources. Source: BioOne.


Access these articles as well as hundreds of other journals/resources using your institutional BioOne subscription (see list of subscribing institutions).
Hello from the west coast where Fall is coming in slowly and bringing some much-needed rains. The 77th Annual Shellfish Conference and Tradeshow (PCS/GA) and the National Shellfisheries Association Pacific Coast Section (NSA-PCS), was held on September 18-21, 2023, in Seattle, Oregon at the Convention Center. The conference was well-attended with more than 360 registrants and the weather was great for some late afternoon surfing. The tradeshow had 26 vendors showcasing the latest technologies in aquaculture. The NSA-PCS new table cover looked great and brought folks over to buy our merchandise.

The conference included over 58 oral presentations across 18 sessions, and 3 workshops. This year, workshop topics included social licensing, social media, and OIV1. The west coast and the conference were Emily Westhoff for the Maine Aquaculture Innovation Center who spoke on “Working Toward Social License to Operate”. The John Lentz Featured Speaker was Carissa Hunter, the Aquaculture Program Manager at the Gulf of Maine Research Institute, who enlightened us about the Aquaculture Apprenticeship Program. The luncheon speakers were authors Samantha Larson and Maryann Burnham Wagner who co-authored the second edition of “Heaven on the Half Shell”, giving us a sneak peek at the new edition.

The NSA-PCS provided funding to support the participation of students at the conference. Student participation was up this year compared to the conference last year, with 21 students attending and 18 of those presenting. The 2023 NSA-PCS Outstanding Student Presentation Award went to Eileen Bates (University of Washington,) for her presentation, “Can coralite algae bolster the climate resilience of Washinton’s endangered pintado abalone?” The runner up was Julianne Green (Virginia Institute for Marine Science) for her presentation “Effects of biofouling and stocking density on microclimate in off-bottom oyster culture grow-out bags.” The students did a wonderful job presenting their research and we look forward to their presentations next year. Additional support for students to attend the meeting was generously provided by the Molluscan Broodstock Program at the New Hampshire State University, Arcadia Point Seafoods, Chelsea Farms, Chackanaut Shellfish, Pacific Shellfish Institute, Rock Point Oyster Company, LLC, SEAPA, Jorstad Creek Oyster Co., Whiskey Creek Shellfish Hattery, Hama-Hama, and Gosey Duck, LLC. I want to encourage students to think about presenting their research next year and reach out if you have any questions. This year the NSA-PCS and PCS/GA presented the first Ken Chew Research Grant Award, in honor of the late Dr. Ken Chew. The inaugural recipient was Hollis Jones (University of California Davis) who is investigating heatwave effects on Pacific oysters. Congratulations Hollis and good luck with your research.

The PCS/GA-NSA-PCS silent auction fundraising was a success. Many thanks to the NSA-PCS board members Annie Raymond (Jamestown S'Klallam Tribe) and Margaret Homarding (Nisqually Tribe) for organizing the auction and items at the conference, and thank you Alicia Burns of the PCS/GA who helped make checkout go smoothly. The NSA-PCS proceeds from silent auction will be used to support the students’ research. The silent auction proceeds, and registration fees totaled more than $5,000. This will help the NSA-PCS sponsor more students to attend future meetings. Thank you to all who donated, participated, and ran those bids up.

The NSA-PCS held its annual business meeting during the 2023 conference. Elections were held for the Chair, Secretary, and Member-at-Large positions. The results are Sandy Zeiner (Chair), Laura Butler (Secretary), and Matt Nelson (Member-at-Large). The NSA-PCS serves all the people who feed the world and live to tell about it. The NSFAS Board members are: Chair: Sandy Zeiner (Northwest Indian Fisheries Commission); Vice Chair: Jodie Toft (Puget Sound Restoration Fund); Secretary: Laura Butler (WA Department of Agriculture); Treasurer: Eric Heupel (Nisqually Tribe); Members-at-Large: (1) Margaret Homarding (Nisqually Indian Tribe), (2) Derek Epps (Seattle Shellfish Inc.), and (3) Matt Nelson (Swinomish Indian Tribal Community). Thank you fellow board members for your time and support.

The NSA-PCS Executive Committee met on May 24, 2023 to discuss budget, student volunteers, and the 2023 conference logistics. The 2024 Conference Planning Committee will begin planning the 78th Annual Shellfish Conference and Tradeshow (NSA-PCS/GA) on January 1, 2024. The conference will be held in Lynnwood, Washington at the Lynnwood Event Center. The call for presentations will open April 1st. You can find more information at: https://csga.org/annual-conference or follow the NSA-PCS on Facebook (https://www.facebook.com/NationalShellfisheriesAssociation/.

Have a wonderful winter, and I hope to see you at the 116th NSA Annual Conference in Charlotte, NC next spring.

Photo credit: Sandy Zeiner

The 2024 Conference Planning Committee will begin planning the 78th Annual Shellfish Conference and Tradeshow (NSA-PCS/GA) on January 1, 2024. The conference will be held in Lynnwood, Washington at the Lynnwood Event Center. The call for presentations will open April 1st. You can find more information at: https://csga.org/annual-conference or follow the NSA-PCS on Facebook (https://www.facebook.com/NationalShellfisheriesAssociation/). 10

faulty at 10-12:2024. The conference will be held in Lynnwood, Washington at the Lynnwood Event Center. The call for presentations will open April 1st. You can find more information at: https://csga.org/annual-conference or follow the NSA-PCS on Facebook (https://www.facebook.com/NationalShellfisheriesAssociation/).

Have a wonderful winter, and I hope to see you at the 116th NSA Annual Conference in Charlotte, NC next spring.

Sandy Zeiner
Pacific Coast Section Chair

New Orleans Bivalve Hatchery Health Consortium

With climate change and human impacts on water quality in our coastal estuaries, hatcheries worldwide have reported issues with larval crashes. To address these issues, a group of leaders in the bivalve hatchery community, including the New England Bivalve Hatchery Health Consortium (NEBHHC), have been addressing the challenges that hatchery managers are facing. This group includes hatchery managers, and extension specialists has recently established the New England Bivalve Hatchery Health Consortium (NEBHHC). This Consortium aims to identify the causes of bivalve hatchery failure and develop strategies and protocols to manage and minimize larval crashes in hatcheries. This year, the NEBHHC will be collaborating with hatcheries in other regions to help address the widespread issue of bivalve hatchery failure and provide support for hatchery managers. The consortium is funded by the USDA Northeast Regional Aquaculture Center, and we need to prioritize the analysis of samples from Maine to Maryland to expand the testing to other hatcheries based on availability of funds.

How do we plan to do this? During the 2024 and 2025 hatchery seasons, we will be working with commercial and research hatcheries wishing to participate in the project, as well as any researchers that would like to join us, to collect algae, water, and larvae from a variety of larval runs, including the “good” (successful performance) and the “bad” (lower performance or crashes). Since many issues in hatcheries occur very rapidly, we are planning to collect data and samples from the start of several production runs, before any issues are detected, to help identify potential problems before they quickly disappear. Hatcheries will also be asked to provide basic information about their protocols that would be relevant to determine the causes of issues affecting larval performance. All individual hatchery information collected will remain confidential, and hatcheries will receive a personalized pathology report along with management recommendations and overall findings. We will provide all supplies for the sample collection, and we will cover shipping fees and the cost of disease diagnosis. Participating hatcheries get a confidential individualized pathology report and management recommendations to improve larval production. Some of the methods used to analyze hatchery samples include, but are not limited to: microbiological examination using culture dependent and independent (sequencing) methods, visual examination of gross and histological features, under quenching of toxins and pollution, and evaluation of clinical history (environmental conditions, patterns of growth and mortality, and so on). If you are interested in being part of the NEBHHC or would like more information, please contact Bob Hudson (rhudson@ori.edu) or Marta Gomez-Chiarri (mgomezchi@ori.edu)

Do you have a shellfish-related video or movie you would like to share? Eric Heupel (eric@heupel.com)

Movies will be playing on a loop throughout the conference - pop in when you have time!

https://www.shellfish.org/honored-life-member-award

National Shellfisheries Association Quarterly Newsletter 2023(4)

National Shellfisheries Association Quarterly Newsletter 2023(4)
**Vibrio in the News...Again**

*Commentary by: Bob ‘Skid’ Rheault*

**Flesh-Eating Bacteria**

Well, that got your attention! Every few years the media becomes fascinated with a few rare illnesses caused by Vibrios, and suddenly every news outlet, blogger, and food writer feels compelled to run attention-grabbing headlines and stories that kill our markets. This summer, three Connecticut (CT) residents (two of whom died), and one New York (NY) resident (who died) were hospitalized with *Vibrio vulnificus* (Vv) infections. One person diagnosed with vibriosis from CT had eaten oysters from out of state, and it is unclear if that person died. At least two of the three fatalities had open wounds or cuts and swam in warm or brackish waters in Long Island Sound.

In addition to cases in the Northeast, three *Vibrio* wound infections in North Carolina resulted in fatalities. All patients were exposed to warm, brackish water, and had open wounds, and one victim had eaten recreationally-harvested oysters. On September 1, the U.S. Centers for Disease Control and Prevention (CDC) issued an alert about hazards of swimming with open wounds. Naturally, this triggered another round of breathless reporting. The gruesome nature of the victims’ wounds and the lethality of the infections kept the story on front-pages for weeks.

I have “Vibrio” in my Google alerts and received notifications of each of these stories, over three weeks, more than 35 articles and TV-news outlets picked up the story. My phone was ringing off the hook for comments, and I fielded many complaints from growers and dealers who reported oyster sales were tanking.

When this happened several years ago, a few crabber-contracted vibrios in Delaware Bay, I wrote a fact sheet on flesh-eating bacteria to deal with the deluge of requests for information. It came in handy again because, astonishingly, only a few of the news writers used the information. They didn’t seem placated by the facts or the perspectives. Nor were they concerned about the economic damage their coverage was having on hard-working shellfish farmers. I encourage everyone to visit our Vibrio Resources page (https://www.ecsga.org/vibrio-resources) and be prepared if you get cornered for a quote from an intrepid reporter looking to make a splash. Better yet, send them to me! If you do talk to the media, be sure to remind them that *Vv* is primarily a wound-infection disease and if they mention oysters in the headline.

It is important to remember that healthy individuals are usually able to tolerate *Vibrio* infections with just a few days of unpleasant gastroenteritis. On the other hand, immune-compromised individuals can very quickly become septic and then die. This includes those with liver disease, patients on immunosuppressive medications, cancer survivors, young children, and others with certain health complications. These individuals need to be very careful eating any raw oysters, as well as raw crustaceans. *Vv* is found in oysters, raw clams, and crab, and can cause very serious, with 79% of patients hospitalized and 18% of illnesses (21%) fatal. Only about 14% of *Vv* illnesses came from foods, while over 80% were the result of wound infections (and almost 24% unknown). If only 14% of the 21 deaths were from food the odds of dying from *Vv* in oysters are pretty remote. (I count over 200 million farmed oysters harvested from the East Coast annually).

**Fun facts about Vibrio**

*Vibrio* are a large class of bacteria encompassing dozens of species and thousands of strains. Most occur naturally in seawater (they have nothing to do with oysters or crab) but they all love warm water. A small subset are pathogens, but the vast majority are benign (they cause no illness and are just food for filter feeders). *Vibrio vulnificus* is only one of many types of bacteria that can cause gruesome and fatal wound infections in people who bathe in fresh and salt water (and hot tubs). But for some reason, even the vast majority of Vibrios are not making headlines. *Vibrio cholerae* seems to attract a lot of attention.

**V. parahaemolyticus** causes about 60,000 cases of food poisoning per year (the paper that make this extrapolation is a best-seller). It seems to attract quite a bit of attention. But for some reason, the fact that there are 43,000 traffic fatalities in the U.S. each year does not seem to deter people from driving or riding in cars. So why are our sales plummeting?

Just when I thought this was dying down this wonderful piece came out in September...grrrr...https://nationzworldnews.com/vibrios-the-disease-caused-by-flesh-eating-bacteria-found-in-raw-seafood/

Note the typo in the 6th sentence stating there at 800,000 cases of vibriosis and the oyster pic doesn’t do the gruesome wounds - the contamination of incredibly rare *Vv* with vibriosis of all types of which the CDC reports about 1,500 confirmed cases and from that extrapolates about 80,000 cases (the paper that make this extrapolation is a best-seller). I wrote a strongly worded response - but I can ensure you there will be no retraction or correction. I have rarely, if ever, had a comment from our industry to be reliable, but their credibility slipped a few more notches during this last bout of illnesses. Reporters rarely use the info provided, but instead seem intent on disparaging oysters. The worst culprits are people who hate oysters to begin with. As I am learning over and over that no good deed goes unappreciated. If you have any advice to anyone contacted by a reporter is to just say “no comment.” If you feel compelled to respond, focus on one or two facts and report them until they give up. Reporters can be quite charming, but they are paid to sell papers and page views with alarming and misleading headlines that will make your blood boil. Now it’s time to go take my blood pressure meds.

---

**Recruits Corner**

Fellow Recruits,

We hope you are enjoying the cooler weather and we are looking forward to seeing you in Charlotte for the 116th Annual Meeting!

The meeting will be held at the Sheraton-Le Meridien Hotel Complex in Charlotte, North Carolina, from March 17 - 21, 2024. The abstract deadline is December 15th, so make sure to submit your abstracts on time! Student presentations at the conference are also strongly encouraged to apply for Student Endowment Fund Travel Awards. Travel Awards are even in the form of either shared lodging or registration waivers and are awarded based on a lottery system. The deadline to apply is also December 15th. Students who receive a Travel Award are expected to volunteer their time during the conference to help with the registration table, loading talks, or work the sales booth. For more information on how to apply check out the NSA website: https://www.shellfish.org/self-student-presentations-and-travel-awards.

In addition to our own meetings, we are committed to supporting our 2024 members’ participation in applying in order to be considered for the Travel Award. For those who do not receive a Travel Award and would be interested in sharing a room, we will be sending out a Google form to student members, so keep an eye out for that.

Early-bird registration for the annual meeting ends January 19, 2024, so make sure to register by then to take advantage of the discounts. The fact that there are 2 million traffic fatalities in the U.S. each year does not seem to deter people from driving or riding in cars. So why are our sales plummeting?

Contact Lewis Deaton: lewis.deaton@lusfiber.net

---

**Student Presenters!**

**TRAVEL AWARD APPLICATIONS ARE DUE**

---

**The Scalpel Gallop**

NSA 5K in Charlotte

---

**Recruits Corner**

Fellow Recruits,

We hope you are enjoying the cooler weather and we are looking forward to seeing you in Charlotte for the 116th Annual Meeting!

The meeting will be held at the Sheraton-Le Meridien Hotel Complex in Charlotte, North Carolina, from March 17 - 21, 2024. The abstract deadline is December 15th, so make sure to submit your abstracts on time! Student presentations at the conference are also strongly encouraged to apply for Student Endowment Fund Travel Awards. Travel Awards are even in the form of either shared lodging or registration waivers and are awarded based on a lottery system. The deadline to apply is also December 15th. Students who receive a Travel Award are expected to volunteer their time during the conference to help with the registration table, loading talks, or work the sales booth. For more information on how to apply check out the NSA website: https://www.shellfish.org/self-student-presentations-and-travel-awards.

In addition to our own meetings, we are committed to supporting our 2024 members’ participation in applying in order to be considered for the Travel Award. For those who do not receive a Travel Award and would be interested in sharing a room, we will be sending out a Google form to student members, so keep an eye out for that.

Early-bird registration for the annual meeting ends January 19, 2024, so make sure to register by then to take advantage of the discounts. The fact that there are 2 million traffic fatalities in the U.S. each year does not seem to deter people from driving or riding in cars. So why are our sales plummeting?

Contact Lewis Deaton: lewis.deaton@lusfiber.net

---

**NEW PAID LIFE MEMBER**

Thank you, Enrique Gonzalez Ortegon

Log-in to renew and update your membership status (https://www.shellfish.org/secretariat) or contact Lewis Deaton at Lewis.deaton@lusfiber.net

---

**Hannah and Fiona**

hannah.m.colin@jcu.edu

fcho@jcu.edu

Students who receive a Travel Award are expected to volunteer their time during the conference to help with the registration table, loading talks, or work the sales booth. For more information on how to apply check out the NSA website: https://www.shellfish.org/self-student-presentations-and-travel-awards.

In addition to our own meetings, we are committed to supporting our 2024 members’ participation in applying in order to be considered for the Travel Award. For those who do not receive a Travel Award and would be interested in sharing a room, we will be sending out a Google form to student members, so keep an eye out for that.

Early-bird registration for the annual meeting ends January 19, 2024, so make sure to register by then to take advantage of the discounts. The fact that there are 2 million traffic fatalities in the U.S. each year does not seem to deter people from driving or riding in cars. So why are our sales plummeting?

Contact Lewis Deaton: lewis.deaton@lusfiber.net

LOG-IN TO RENEW AND UPDATE YOUR MEMBER STATUS (https://www.shellfish.org/secretariat) OR CONTACT LEWIS DEATON AT LEWIS.DEATON@LUSFIBER.NET

---

**NEW PAID LIFE MEMBER**

Thank you, Enrique Gonzalez Ortegon

Log-in to renew and update your membership status (https://www.shellfish.org/secretariat) or contact Lewis Deaton at Lewis.deaton@lusfiber.net

---

**Hannah and Fiona**

hannah.m.colin@jcu.edu

fcho@jcu.edu
Bivalve Hinge Teaches Scientists about Material Fatigue Resistance

More and more flexible and foldable devices are appearing in people’s lives. Long-term use requires the folded parts to endure repeated deformation which might cause fatigue damage to the devices.

Inspired by the hinge of the bivalve, Cristaria plicata, which experiences hundreds of thousands of repeating opening-and-closing valve motions throughout the bivalve’s lifetime, a research team led by Professor Yu Shuhong collaborating with Professor Wu Hengan from the University of Science and Technology of China (USTC) investigated how to improve the fatigue resistance of structural materials.

The team found that the folding fan-shaped region (FFR) in the hinge can sustain large deformation during repetitive opening-and-closing valve motions and maintain its structure and function for a long period. The tissue still functions well and shows no signs of fatigue behaviors even after 1,500,000 cycles. The hinge is composed of two regions, the outer ligament (OL) and the folding fan-shaped region (FFR). Through observation and finite element analysis, the researchers uncovered the roles of each hinge region during the valves’ motion. When closing, the stretched OL undertakes the circumferential stress dominantly and stores most of the elastic strain energy, while the FFR is deformed circumferentially and provides strong radial support to fix the OL under the limited radial deformation.

They revealed that the hierarchical structures which span from the macroscale level down to the lattice level endow the FFR with remarkable fatigue resistance even after 1,500,000 cycles. The hinge is composed of two regions, the outer ligament (OL) and the folding fan-shaped region (FFR). Through observation and finite element analysis, the researchers uncovered the roles of each hinge region during the valves’ motion. When closing, the stretched OL undertakes the circumferential stress dominantly and stores most of the elastic strain energy, while the FFR is deformed circumferentially and provides strong radial support to fix the OL under the limited radial deformation.

They revealed that the hierarchical structures which span from the macroscale level down to the lattice level endow the FFR with notable deformability and load translation capability.

This work provided a novel biomimetic model for designing artificial materials with brittle components and brings a new perspective for elongating materials’ longevity. The multi-level design strategy sheds light on development of the future fatigue-resistant materials.

For more information:

The team found that the folding fan-shaped region (FFR) in the hinge can sustain large deformation during repetitive opening-and-closing valve motions and maintain its structure and function for a long period. The tissue still functions well and shows no signs of fatigue behaviors even after 1,500,000 cycles. The hinge is composed of two regions, the outer ligament (OL) and the folding fan-shaped region (FFR). Through observation and finite element analysis, the researchers uncovered the roles of each hinge region during the valves’ motion. When closing, the stretched OL undertakes the circumferential stress dominantly and stores most of the elastic strain energy, while the FFR is deformed circumferentially and provides strong radial support to fix the OL under the limited radial deformation.

They revealed that the hierarchical structures which span from the macroscale level down to the lattice level endow the FFR with remarkable fatigue resistance even after 1,500,000 cycles. The hinge is composed of two regions, the outer ligament (OL) and the folding fan-shaped region (FFR). Through observation and finite element analysis, the researchers uncovered the roles of each hinge region during the valves’ motion. When closing, the stretched OL undertakes the circumferential stress dominantly and stores most of the elastic strain energy, while the FFR is deformed circumferentially and provides strong radial support to fix the OL under the limited radial deformation.

They revealed that the hierarchical structures which span from the macroscale level down to the lattice level endow the FFR with notable deformability and load translation capability.

This work provided a novel biomimetic model for designing artificial materials with brittle components and brings a new perspective for elongating materials’ longevity. The multi-level design strategy sheds light on development of the future fatigue-resistant materials.

For more information:
**Bottles and Snipers: Shellfish Sanctuaries and Shroud**

While collecting molluscan samples near commercial harbors and from former passenger ferry docking areas as a marine research member of a large early American glass bottles were abundant. Tourists in popular vacation spots who arrived or departed via ferries, disposed of their empty soda, beer, or harder liquor bottles into the water. Many of these bottles have historical interest in themselves, dating to prior to the US Civil War. It soon became apparent, however, that some of the bottles served as home for some molluscs to include clams, oysters, and snails.

Donning SCUBA gear, I often dove to collect live specimens using conventional collection methods. I was unaware that more exotic collection devices were right before me on the bottom of harbors and embankments. I eventually noted that discarded glass bottles deposited on the ocean floor sometimes contained hard clams (*Mercenaria mercenaria*), soft clams (*Mya arenaria*), oysters (*Crassostrea virginica*) or whelks (*Busycon spp.*). Accordingly, these mollusc-containing bottles were gathered and content identified. Some identifications were verified at the Smithsonian Natural History Museum.

Bottles from the seafloor were examined for the presence of molluscs for three years. Data were collected from one site at the site of a sunken ferry and measures 1500 square feet (30 feet by 50 feet). Over the years, the area has experienced some severe storms and it is frequented by swimmers, fishermen, and boaters in the warmer months. Generally, waters were calm during the dives made there. The site in Halifax measures 150 square feet (10 feet by 15 feet) and is located in an area of the Upper Bay that is not that heavy.

The weather and waters were calm throughout the five days under examination.

Rarely, a living animal enters through the neck of a bottle as a larva and then thrives in the protected and controlled environment of the bottle, free from predation and excesses of temperature or storms. What initially was a sanctuary eventually becomes a glass prison for the animal as it grows and becomes unable to exit the narrow neck of the bottle. It should also be noted that the bottle provided a closed cycle in that the waste from the animal fertilizes the water for phytoplankton growth resulting in oxygen production.

In the North Shore, Long Island, NY site, a total of 110 bottles were collected and four of them contained molluscs, with the percentage of bottles recovered containing molluscs of 3.6. This is in contrast to the site in Nova Scotia where the recovery of bottles with molluscs was 8% of the total bottles collected (50), more than twice the rate of recovery than the bottles from the North Shore of Long Island. One possible reason for the discrepancy is that the site on Long Island is a busier and more trafficked site in terms of swimmers and boaters than the relatively isolated site in Halifax. Other reasons could be spawning times and success, water temperature, orientation of the bottles, pollution, and wave action, all of which could have an impact on larval settlement. Furthermore, studies might include a more directed collection of bottles to assess the percentage of bottles serving as sanctuary, then to molluscs from the total number of discarded bottles in the area as well as the orientation of such bottles relative to wave action at the time of spawning.

An observation in the course of routine collection work led to noting the rare chance selection of discarded glass bottles as home to some molluscs. The protection and controlled environment of the bottle that permitted the mollusc to thrive and grow eventually became a limiting and ultimately fatal factor as the animal would become too large to exit the narrow neck of the bottle. It would be interesting to determine the particular effects at spawning time such as tide, wave action, availability and orientation of bottles, etc. that cause larve to enter a bottle as opposed to freely swimming and settling on a natural substrate as well as the percentage of larvae that enter and thrive for a while in a bottle as opposed to those that do not. Studies on the balance of phytoplankton to waste and available oxygen for the mollusc in the bottle would also have value.

Walter Blogoslawski

REFERENCE:
Letter from Martha Nizinski, PhD, Smithsonian Museum of Natural History. Division of Invertebrate Zoology, June 2016.

---

**2023 Smart Shellfish Aquaculture Summit**

The 2023 Smart Shellfish Aquaculture Summit was held August 22-24, 2023 at the Hyatt Place in Grassville, Maryland (USA). The venue was perfectly positioned on Kent Narrows inlet next to an active commercial fishing fleet, remote sensing operation, and near active oyster leases in the upper Chesapeake Bay. The event combined the research, teaching, and extension efforts from the USDA NIFA-funded Smart, Sustainable Shellfish Aquaculture Management (S3AM) project (www.S3AMoysters.com) and the NSF-funded Smart Precision Aquaculture Network (SPAN) project (www.SPAN.umd.edu). There was a total of 29 in-person attendees registered from 19 organizations. A video overview of the 2023 Smart Shellfish Aquaculture Summit can be viewed at https://www.youtube.com/watch?v=yz4zd36x9rF4.

The hybrid-in-person and online meeting kicked off with internal team updates and strategic planning for activities in the coming year for the S3AM project. The first evening featured the graduate student research, showcasing the various technologies and methods they use for detecting oysters. The next day was devoted to formal reports of the team’s efforts to our National Advisory Board (NAB), which includes members from research and extension from the Atlantic, Gulf, and Pacific regions. The project team and NAB participated in a program evaluation survey to assess how the project efforts are progressing and identify areas for improvement. Then the Summit shifted gears into the SPAN project, where the invited speakers gave presentations on following topics: Dr. John Reid, University of Illinois (Precision Agriculture), Dr. Anna Michel, Woods Hole Oceanographic Institute (Marine Robotics and Sensors), Dr. Jerry Audi, University of Miami (Artificial Intelligence for Fisheries Management), Dr. Bob Rheault, East Coast Shellfish Growers Association (Improving Aquaculture Efficiency), Dr. Dale Leavitt, Blue Stream Shellfish (Robotics Fun on the Farm), and Dr. Rob Nicholson, University of Delaware (U/ D Blue Tech Program & Project AIBLE). Presentations are available in the conference shared drive at: https://drive.google.com/drive/folders/1Ii52qIGahNu1H4 NY6R6M50nEf3ttU?usp=sharing.

The Summit also included a boat tour of Orchard Point Oyster farm in Eastern Bay. Nineteen passengers gained the perspective of the Chesapeake Bay watermen and oyster farmers, and even got to sample some oysters fresh out of the water.

The third day featured three invited presentations, which the attendees used as inspiration in the breakout and group discussions. Ultimately, the teams proposed five priority areas for research directions in the coming years and identified team leaders to shepherd those ideas into funded research projects. The priority areas are: Automation in Oyster Harvesting (lead Dr. Yang Tao); Environmental Monitoring (lead Dr. Miaoyi Yu); Oyster Planting Strategies (lead Dr. Matt Gray); Food Quality and Safety (lead Dr. Cathy Liu); and Computer Vision for Hatchery and RAS (lead Dr. Yiannis Aloimonos).

The 2023 Summit concluded with an evaluation. The top three topics of interest were: 1) oyster harvesting tools, 2) relevant technologies and technology gaps, and 3) sensors for detecting oysters. Participants wanted to hear more about farmer needs, field testing, technology gaps, advanced oyster harvesting, marine robotics applications, and ecosystem restoration.

Make sure to check out the special session on Robotics and Emerging Technology in Charlotte in 2024. If you have any questions about the session, contact Allen (dapatti@umd.edu) or Yang Tao (ytao@umd.edu). Abstracts are due by December 15, 2023.
Bottles and Snifters: Shellfish Sanctories and Shrouds

While collecting molluscan samples near commercial harbors and from passenger ferry docking areas as a marine research project, I discovered that early American glass bottles were abundant. Tourists in popular vacation spots who arrived or departed via ferries, disposed of their empty soda, beer, or harder liquor bottles into the water. Many of these bottles have historical interest in themselves, dating to prior to the US Civil War. It soon became apparent, however, that some of the bottles served as home for some molluscs to include clams, oysters, and snails.

Donning SCUBA gear, I often dove to collect live specimens using conventional collection methods. I was unaware that more exotic collection devices were right before me on the bottom of harbors and embankments. I eventually noted that discarded glass bottles deposited on the ocean floor sometimes contained hard clams (*Mercenaria mercenaria*), soft clams (*Mya arenaria*), oysters (*Crassostrea virginica*) or whelks (*Busycon* spp.). Accordingly, these mollusc-containing bottles were gathered and content identified. Some identifications were verified at the Smithsonian Natural History Museum.

Bottles from the seafloor were examined for the presence of molluscs for three years. Data were collected from one site located in an area of the Upper Bay that is not heavily used. Halifax measures 150 square feet (10 feet by 15 feet) and is located in an area of the Upper Bay that is not heavily used. The weather and waters were calm throughout the five days the site was under examination.

The weather and waters were calm during the dives made there. The site in Nova Scotia, Canada is located at the site of a sunken ferry and measures 1500 square feet (30 feet by 50 feet). Over the years, the area has experienced some severe storms and it is frequented by swimmers, fishermen, and boaters in the warmer months. Generally, waters were calm during the dives made there. The site in Halifax measures 150 square feet (10 feet by 15 feet) and is located in an area of the Upper Bay that is not heavily used.

Rarely, a living animal enters through the neck of a bottle as a larva and then thrives in the protected and controlled environment of the bottle, free from predation and excesses of temperature or storms. What initially was a sanctuary eventually becomes a glass prison for the animal as it grows and becomes unable to exit the narrow neck of the bottle. It should also be noted that the bottle provided a closed cycle in which the waste from the animal fertilizes the water for phytoplankton growth resulting in oxygen production.

In the North Shore, Long Island, NY site, a total of 110 bottles were collected and four of them contained molluscs, with the percentage of bottles recovered containing molluscs of 3.6. This is in contrast to the site in Nova Scotia where the recovery of bottles with molluscs was 8% of the total bottles collected (50), more than twice the rate of recovery than the bottles from the North Shore of Long Island. One possible reason for the discrepancy is that the site on Long Island is a busier and more trafficked site in terms of swimmers and boating than the relatively isolated site in Halifax. Other reasons could be spawning times and success, water temperature, orientation of the bottles, pollution, and wave action, all of which could have an impact on larval settlement. Future studies might include a more directed collection of bottles to assess the percentage of bottles serving as sanctuary, then to molluscs from the total number of discarded bottles in the area as well as the orientation of such bottles relative to wave action at the time of spawning.

A rare observation in the course of routine collection work led to noting the rare chance selection of discarded glass bottles as serving as sanctuary, then prison, to molluscs from the total number of discarded bottles in the area as well as the orientation of such bottles relative to wave action at the time of spawning.

In the North Shore, Long Island, NY site, a total of 110 bottles were collected and four of them contained molluscs, with the percentage of bottles recovered containing molluscs of 3.6. This is in contrast to the site in Nova Scotia where the recovery of bottles with molluscs was 8% of the total bottles collected (50), more than twice the rate of recovery than the bottles from the North Shore of Long Island. One possible reason for the discrepancy is that the site on Long Island is a busier and more trafficked site in terms of swimmers and boating than the relatively isolated site in Halifax. Other reasons could be spawning times and success, water temperature, orientation of the bottles, pollution, and wave action, all of which could have an impact on larval settlement. Future studies might include a more directed collection of bottles to assess the percentage of bottles serving as sanctuary, then to molluscs from the total number of discarded bottles in the area as well as the orientation of such bottles relative to wave action at the time of spawning.

An observation in the course of routine collection work led to noting the rare chance selection of discarded glass bottles as home to some molluscs. The protection and controlled environment of the bottle that permitted the mollusc to thrive and grow eventually became a limiting and ultimately fatal factor as the animal would become too large to exit the narrow neck of the bottle. It would be interesting to determine the particular effects at spawning time such as tide, wave action, availability and orientation of bottles, etc. that cause larvae to enter a bottle as opposed to freely swimming and settling on a natural substrate as well as the percentage of larvae that enter and thrive for a while in a bottle as opposed to those that do not. Studies on the balance of phytoplankton to waste and available oxygen for the mollusc in the bottle would also have value.

**Walter Bloboslawski**

**REFERENCE:** Letter from Martha Nizinski, PhD, Smithsonian Museum of Natural History. Division of Invertebrate Zoology, June 2016.

**2023 Smart Shellfish Aquaculture Summit**

The 2023 Smart Shellfish Aquaculture Summit was held August 22-24, 2023 at the Hyatt Place in Grasonville, Maryland (USA). The venue was perfectly positioned on Kent Narrows inlet next to an active commercial fishing fleet, remote sensing operation, and near active oyster leases in the upper Chesapeake Bay. The event combined the research, teaching, and extension efforts from the USDA NIFA-funded Sustainable Shellfish Aquaculture Management (SSAM) project (www.SSAMoysters.com) and the NSF-funded Smart Precision Aquaculture Network (SPAN) project (www.SPAN.umd.edu). There was a total of 29 in-person attendees registered from 19 organizations. A video overview of the 2023 Smart Shellfish Aquaculture Summit can be viewed at [https://www.youtube.com/watch?v=4zdJ6xJmpPE](https://www.youtube.com/watch?v=4zdJ6xJmpPE).

The hybrid-in-person and online meeting kicked off with internal team updates and strategic planning for activities in the coming year for the SSAM project. The first evening featured the graduate student research, showcasing the various technologies and methods they use for detecting oysters. The next day was devoted to formal reports of the team’s efforts to our National Advisory Board (NAB), which includes members from research and extension from the Atlantic, Gulf, and Pacific regions. The project team and NAB participated in a program evaluation survey to assess how the project efforts are progressing and identify areas for improvement. Then the Summit shifted gears into the SPAN project, where the invited speakers gave presentations on following topics: Dr. John Reid, University of Illinois (Precision Agriculture), Dr. Anna Michel, Woods Hole Oceanographic Institute (Marine Robotics and Sensors), Dr. Jerry Audi, University of Miami (Artificial Intelligence for Fisheries Management), Dr. Bob Rheeulth, East Coast Shellfish Growers Association (Improving Aquaculture Efficiency), Dr. Dale Leavitt, Blue Stream Shellfish (Robotics Fun on the Farm), and Mr. Rob Nicholson, University of Delaware (UD Blue Tech Program & Project ABLE). Presentations are available in the conference shared drive at: [https://drive.google.com/drive/folders/1w152yPQHzu34dYTzORdX5EtH1DqF72p?usp=sharing](https://drive.google.com/drive/folders/1w152yPQHzu34dYTzORdX5EtH1DqF72p?usp=sharing). The Summit also included a boat tour of Orchard Point Oyster farm in Eastern Bay. Nineteen passengers gained the perspective of the Chesapeake Bay watermen and oyster farmers, and even got to sample some oysters fresh out of the water.

The third day featured three invited presentations, which the attendees used as inspiration in the breakout and group discussions. Ultimately, the teams proposed five priority areas for research directions in the coming years and identified team leaders to shepherd those ideas into funded research projects. The priority areas are: Automation in Oyster Harvesting (lead Dr. Yang Tao); Environmental Monitoring (lead Dr. Miao Yiu); Oyster Planting Strategies (lead Dr. Matt Gray); Food Quality and Safety (lead Dr. Cathy Liu); and Computer Vision for Hatchery and RAS (lead Dr. Yiannis Alimosom). The 2023 Summit concluded with an evaluation. The top three topics of interest were: 1) oyster harvesting tools, 2) relevant technologies and technology gaps, and 3) sensors for detecting oysters. Participants wanted to hear more about farmer needs, field testing, technology gaps, advanced oyster harvesting, marine robotics applications, and ecosystem restoration.

Make sure to check out the special session on Robotics and Emerging Technology in Charlotte in 2024. If you have any questions about the session, contact Allen (dapati@umd.edu) or Yang Tao (ytao@umd.edu). Abstracts are due by December 15, 2023.
Bivalve Hinge Teaches Scientists about Material Fatigue Resistance

More and more flexible and foldable devices are appearing in people’s lives. Long-term use requires the folded parts to endure repeated deformation which might cause fatigue damage to the devices. Inspired by the hinge of the bivalve, Cristaria plicata, which experiences hundreds of thousands of repeating opening-and-closing valve motions throughout the bivalve’s lifetime, a research team led by Professor Yu Shuhong with collaborators from the University of Science and Technology of China (USTC) investigated how to improve the fatigue resistance of structural materials.

The team found that the folding fan-shaped region (FFR) in the hinge can sustain large deformation during repetitive opening-and-closing valve motions and maintain its structure and function for a long period. The tissue still functions well and shows no signs of fatigue behaviors even after 1,500,000 cycles. The hinge is composed of two regions, the outer ligament (OL) and the folding fan-shaped region (FFR). Through observation and finite element analysis, the researchers uncovered the roles of each hinge region during the valves’ motion. When closing, the stretched OL undertakes the circumferential stress dominantly and stores most of the elastic strain energy, while the FFR is deformed circumferentially and provides strong radial support to fix the OL under the limited radial deformation.

They revealed that the hierarchical structures which span from the macroscale level down to the lattice level endow the FFR with notable deformability and load translation capability. This work provided a novel biomimetic model for designing artificial materials with brittle components and brings a new perspective on elongating materials.

For more information:
Vibrio in the News…Again

Commentary by: Bob ‘Skid’ Rheault

Flesh-Eating Bacteria

Well, that got your attention! Every few years the media becomes fascinated with a few rare illnesses caused by Vibrios, and suddenly every news outlet, blogger, and food writer feels compelled to run attention-grabbing headlines and stories that kill our markets. This summer, three Connecticut (CT) residents (two of whom died), and one New York (NY) resident (who died) were hospitalized with Vibrio vulnificus (Vv) infections. One person diagnosed with vibriosis from CT had eaten oysters from out of state, and it is unclear if that person died. At least two of the three fatalities had open wounds or cuts and swam in warm or brackish waters in Long Island Sound.

In addition to cases in the Northeast, three Vibrio wound infections in North Carolina resulted in fatalities. All patients were exposed to warm, brackish water, and had open wounds, and one victim had eaten recreationally-harvested oysters. On September 1, the U.S. Centers for Disease Control and Prevention (CDC) issued an alert about hazards of swimming with open wounds. Naturally, this triggered another round of breathless reporting. The gruesome nature of the victims’ wounds and the lethality of the infections kept the story on front-pages for weeks.

I have “Vibrio” in my Google alerts and received notifications of each of these stories; over three weeks, more than 35 articles and TV-news outlets picked up the story. My phone was ringing off the hook for comments, and I fielded many complaints from growers and dealers who reported oyster sales were tanking. When this happened seven years ago, after a few crabbers contracted vibriosis in Delaware Bay, I wrote a fact sheet on flesh-eating bacteria to deal with the deluge of requests for information. It came in handy again this year, but depressingly, it was used only a few of the news writers used the information. They didn’t seem placated by the facts or the perspectives. Nor were they concerned about the economic damage their words were having on hard-working shellfish farmers. I encourage everyone to visit our Vibrio Resources page (https://www.shellfish.org/vibrio-resources) and be prepared if you get cornered for a quote from an intrepid reporter looking to make a splash. Better yet, send them to me! If you do talk to the media, be sure to remind them that Vv is primarily a wound-infection issue and if they mention oysters in the headline.

It is important to remember that healthy individuals are usually able to tolerate Vibrio infections with just a few days of unpleasant gastroenteritis. On the other hand, immune-compromised individuals can quickly become septic and turn fatal. This includes those with liver disease, those on immunosuppressive medications, cancer survivors, young children, and others with certain health complications. These individuals need to be very careful eating raw foods, but especially raw oysters from warm waters. They should always cook their food!

The other point raise routinely is that hundreds of millions of Vibrio cells are eaten each year without any illnesses at all. We see a few hundred cases of gastroenteritis a year, with only a few dozen serious cases in immune-compromised individuals. The fact that there are 43,000 traffic fatalities in the U.S. each year does not seem to deter people from driving or riding in cars. So why are our sales plummeting?

Just when I thought this was dying down this wonderful piece came out in September....grrrr...


Note the typo in the 6th sentence stating there at 800,000 cases of vibriosis and the oyster pic does not do the gruesome wounds - the caption of incredibly rare Vv with vibriosis of all types of which the CDC reports about 1,500 confirmed cases and from that extrapolates 400,000 cases (the paper that made this ‘fact’ truly a magnificent piece of crap). I wrote a strongly worded response - but I can ensure you there will be no retraction or correction.

I have rarely, if ever, wished that our industry be reliable, but their credibility slipped a few more notches during this last bout of illnesses. Reporters rarely use the info provided, but instead seem intent on disparaging oysters. The worst culprits are people who hate oysters to begin with. As I am learning over and over that no good deed goes unannealed, I am forwarding my advice to anyone contacted by a reporter is to just say “no comment.” If you feel compelled to respond, focus on one or two key points and report them until they give up. Reporters can be quite charming, but they are paid to sell papers and page views with alarming and misleading headlines that will make your blood boil. Now it’s time to go take my blood pressure meds.

Fun facts about Vibrio

Vibrios are a large class of bacteria encompassing dozens of species and thousands of strains. Most occur naturally in seawater (they have nothing to do with pollution) and they all occur naturally in seawater. Most Vibrio species and thousands of strains occur naturally in seawater. Most Vibrios are harmless to humans, but a few (Vv, V. alginolyticus, V. parahaemolyticus) can cause serious illness. V. vulnificus (Vv) is far less common than Vp (124 total reported illnesses in 2014-2018), but it can be devastating, with 75% of patients hospitalized and 18% of illnesses (21 fatal. Only about 14% of Vv illnesses came from foods, while over 90% of Vp is from the result of wound infections (and almost 24% unknown). If only 14% of the 21 deaths were from food the odds of dying from Vv in oysters are pretty remote. (I count 235 million farmed oysters harvested from the East Coast annually).

Necrotizing fasciitis

Necrotizing fasciitis is the medical term for flesh-eating disease. It results from infection in which the outcomes can be far more serious, with 75% of patients hospitalized and 18% of illnesses (21 fatal. Only about 14% of Vv illnesses came from foods, while over 90% of Vp is from the result of wound infections (and almost 24% unknown). If only 14% of the 21 deaths were from food the odds of dying from Vv in oysters are pretty remote. (I count 235 million farmed oysters harvested from the East Coast annually).

The conference are also strongly encouraged to apply for Student Endowment Fund Travel Awards. Travel Awards are open to visiting students and invited speakers. Student Endowment Fund Travel Awards are open to visiting students and invited speakers.

The Scalpel Gallop

For more information or to apply: www.shellfish.org

NEW PAID LIFE MEMBER

Thank you, Enrique Gonzalez Ortegon

Log-in to renew and update your membership status at https://www.shellfish.org/secretariat with any questions

Hannah and Fiona

hannah.collins@uconn.edu

fchobor@jwu.edu

National Shellfisheries Association (Quarterly Newsletter 2023/4)
Hello from the west coast where Fall is coming in slowly and bringing some much-needed rains. The 77th Annual Shellfish Conference and Trade show (PCS) was held on September 18, 2023, in Seattle, Washington at the Lynnwood Event Center. The conference was well-attended with about 360 registrants and the weather was great for some late afternoon surfing. The tradeshow had 26 vendors showing the latest technologies in aquaculture. The PCS-NC-PCS new table cover looked great and brought folks over to buy our merchandise.

The conference included over 58 oral presentations across 18 sessions, and 3 workshops. This year, workshop topics included social licensing, social media, and O&M. The west coast will be great for some late afternoon surfing. The tradeshow had 26 vendors showing the latest technologies in aquaculture. The PCS-NC-PCS new table cover looked great and brought folks over to buy our merchandise.

The meeting included over 58 oral presentations across 18 sessions, and 3 workshops. This year, workshop topics included social licensing, social media, and O&M. The west coast will be great for some late afternoon surfing. The tradeshow had 26 vendors showing the latest technologies in aquaculture. The PCS-NC-PCS new table cover looked great and brought folks over to buy our merchandise.

The PCS-NC-PCS provided funding to support the participation of students at the conference. Student participation was up this year compared to the conference last year, with 21 students attending and 18 of those presenting. The 2023 PCS-NC-PCS Student Poster Presentation Award went to Eileen Bates (University of Washington,) for her presentation, “Can coraline algae bolster the climate resilience of Washington’s endangered pristine abalone?” The runner up was Julianne Green (Virginia Institute for Marine Science) for her presentation “Effects of biofouling and stock density on microclimate in off-bottom oyster culture grow-out bags.” The students did a wonderful job presenting their research and we look forward to their presentations next year. Additional support for students to attend the meeting was generously provided by the Molluscan Broodstock Program through the Northeast Sea Grant, the Washshell Program at the University of Connecticut, and the Clam Shellfish Hatchery at the University of Maine. The PCS-NC-PCS provided funding to support the participation of students at the conference. Student participation was up this year compared to the conference last year, with 21 students attending and 18 of those presenting. The 2023 PCS-NC-PCS Student Poster Presentation Award went to Eileen Bates (University of Washington,) for her presentation, “Can coraline algae bolster the climate resilience of Washington’s endangered pristine abalone?” The runner up was Julianne Green (Virginia Institute for Marine Science) for her presentation “Effects of biofouling and stock density on microclimate in off-bottom oyster culture grow-out bags.” The students did a wonderful job presenting their research and we look forward to their presentations next year.

Additional support for students to attend the meeting was generously provided by the Molluscan Broodstock Program through the Northeast Sea Grant, the Washshell Program at the University of Connecticut, and the Clam Shellfish Hatchery at the University of Maine. The PCS-NC-PCS provided funding to support the participation of students at the conference. Student participation was up this year compared to the conference last year, with 21 students attending and 18 of those presenting. The 2023 PCS-NC-PCS Student Poster Presentation Award went to Eileen Bates (University of Washington,) for her presentation, “Can coraline algae bolster the climate resilience of Washington’s endangered pristine abalone?” The runner up was Julianne Green (Virginia Institute for Marine Science) for her presentation “Effects of biofouling and stock density on microclimate in off-bottom oyster culture grow-out bags.” The students did a wonderful job presenting their research and we look forward to their presentations next year.

The PCS-NC-PCS provided funding to support the participation of students at the conference. Student participation was up this year compared to the conference last year, with 21 students attending and 18 of those presenting. The 2023 PCS-NC-PCS Student Poster Presentation Award went to Eileen Bates (University of Washington,) for her presentation, “Can coraline algae bolster the climate resilience of Washington’s endangered pristine abalone?” The runner up was Julianne Green (Virginia Institute for Marine Science) for her presentation “Effects of biofouling and stock density on microclimate in off-bottom oyster culture grow-out bags.” The students did a wonderful job presenting their research and we look forward to their presentations next year.

The PCS-NC-PCS provided funding to support the participation of students at the conference. Student participation was up this year compared to the conference last year, with 21 students attending and 18 of those presenting. The 2023 PCS-NC-PCS Student Poster Presentation Award went to Eileen Bates (University of Washington,) for her presentation, “Can coraline algae bolster the climate resilience of Washington’s endangered pristine abalone?” The runner up was Julianne Green (Virginia Institute for Marine Science) for her presentation “Effects of biofouling and stock density on microclimate in off-bottom oyster culture grow-out bags.” The students did a wonderful job presenting their research and we look forward to their presentations next year.
Notes from the Taxonomic Frontier: Who is Crassostrea (Magallana) gigas?

The Pacific oyster, Crassostrea gigas (Thunberg, 1793) is one of the most important species in global aquaculture. Species names transmit a huge amount of encoded information. The species epithet “gigas” – Latin for “giant” – immediately invokes a picture of a large oyster. The genus name “Crassostrea” places it with its nearest evolutionary relatives among global oyster species. Over the last few years, this genus name has become controversial, but not for the first time. The species authority indicates the species was first described in a publication by Thunberg (1793), and the parenthetical phrases show that this name has been revised; it was originally described as “Ostrea gigas” and only later recognized as part of a different genus.

In the case of Crassostrea, its name is not only an issue for C. gigas but for almost 30 oyster species living worldwide as well as other fossil species that are now extinct. It is well known that this bigger group includes two major sub-groups, more or less West and East. One group of species are mainly from Europe and North America, including C. virginica, those in the other have their native ranges mainly in Asia, including C. gigas. This has been known since the mid-1900s, from the earliest DNA analyses on oyster evolution. Recently, in 2017, this mainly Asian group was formally named a different genus: Magallana.

It is important to note that recognizing Asian “Crassostrea” species as a separate group is not controversial per se, it has been proven by every molecular analyses since 1995. The problem is what to call them. Taxonomy has to reflect relatedness, but it also has to classify global species, including fossils, and new discoveries. It is absolutely impossible to apply a special scientific name to C. gigas: what goes for one member of the Asian group of Crassostrea-like species has to go for all of them.

Although these two groups of “Crassostrea”-like oysters evolved separately, we cannot tell them apart by looking at the shell. The only way to decide to which of these groups a new species belongs is its DNA. But DNA is not available for the majority of new species described. When my colleagues and I recently named a new Asian oyster species, we decided that the best way to solve this was to formally change the taxonomic status of “Magallana” to the subgenus level, and we published this technical taxonomic revision as part of a larger paper. This subgenus approach reflects that Magallana is a separate group within Crassostrea, which is correct, but it leaves the taxonomic door open for new discoveries that lack DNA evidence.

On the basis of our work, the correct full name is: Crassostrea (Magallana) gigas (Thunberg, 1793). The middle part is not an option but instead indicates the sub-genus or sub-group within the Crassostrea. Recognizing the group name Magallana is important: it cannot be ignored or forgotten, even if it feels like an inconvenience. This name clearly and intuitively conveys that Crassostrea (Magallana) gigas is not closely related to the native species in Europe and North America, where C. gigas is grown extensively for aquaculture. It is also important because there are many more new species of oysters still to be found. New discoveries will bring more information about global oyster biodiversity, which will probably mean more taxonomic changes, but it may also bring us the food species of the future.

Julia Sigwart
Senckenberg Research Institute and Museum
Queen’s University Belfast
j.sigwart@qub.ac.uk


Access these articles (as well as hundreds of other journals/resources) using your institutional BioOne subscription (see list of subscribing institutions).
President’s Message

As we approach the end of the year, I know you are balancing even more responsibilities than usual. The holiday season often inspires great joy while also producing a lot of extra work. I want to encourage you to double down on your determination and dedication for a few more weeks. For many of you, a semester break is coming soon!

2024 Annual Meeting in Charlotte
We have some important deadlines coming up as we move closer to the 116th NSA Annual Meeting, March 17-21, 2024, in Charlotte, North Carolina.

December 15, 2023: Submit abstracts for the conference. This is an excellent opportunity to highlight your work and findings to our scientific community. Additionally, don’t forget that applications for the Student Travel Award are also due on the same date. We encourage students to take advantage of this opportunity for financial support.

January 19, 2024: Early-bird registration for the conference concludes. Don’t miss your opportunity to take advantage of reduced rates!

Newsletter Highlights
Allen Pattillo, who will be chairing a special session on robotics and emerging technology at the 2024 conference, has shared insights from a recent robotics summit. This promises to be one of many exciting sessions happening in Charlotte. This issue of the newsletter also includes a fascinating column focused on a taxonomic question – Crassostrea vs. Magallana?

Bob “Skid” Rheault, known as the “Vibrio Evangelist,” has shared his invaluable perspective on the latest bacterial outbreaks. The Pacific Coast Section (PCS) has shared details about their recent annual meeting in September.

Staying Connected
As we prepare to meet in Charlotte in March, let’s stay connected through our website, social media, and this Newsletter. We are seeking Honored Life Member biographies for potential use on the website. By submitting their bios, you will help us showcase the wealth of knowledge within our community.

Yours in service,
Aswani K. Volety, President
UNCW Chancellor

Meeting Deadlines
2024 Annual Meeting in Charlotte
Abstract Submission: December 15, 2023
Early-bird Registration: January 19, 2024
Hotel Registration: February 16, 2024*
*prices will increase after this date

In this issue:
- Annual Meeting Update
- Notes from the Taxonomic Frontier
- Smart Shellfish Aquaculture Summit
- Northeast Bivalve Hatchery Health Consortium
- Vibrio in the News...Again

Aquaculture America 2024: Feb. 18-21, 2024. San Antonio, Texas. For more information: www.was.org

Aquaculture 2025 (Triennial): Mar. 6-10, 2025. New Orleans, Louisiana. For more information: www.was.org
118th NSA Annual Meeting: Mar. 22-26, 2026. Portland, Oregon. For more information: www.shellfish.org
If you would like to announce a meeting, conference, workshop, or publication of interest to NSA members, please contact the QNL Editor, Steven Allen (stevenallen8@gmail.com).

RENEW YOUR DUES
Be sure to review your membership profile. Contact secretariat@shellfish.org with questions.
www.shellfish.org

Upcoming Events

Noreen Blaschik Favreau, QNL Associate Editor
University of Connecticut
Marine Sciences Department
1080 Shennecossett Rd
Groton, CT 06340 USA
Forwarding Service Requested