

# National Shellfisheries Association

QUARTERLY NEWSLETTER

December 2011



ORONO, ME

## President's Message

Mark your calendar and make travel arrangements to attend the 104<sup>th</sup> Annual Meeting of the National Shellfisheries Association, March 27 – 29, 2012 at the beautiful Renaissance Hotel in Seattle, Washington. For those who've attended our previous meetings in Seattle, you'll recall this impressive venue. The hotel has been renovated and now offers spacious meeting rooms, guest accommodations that feature stunning views of Puget Sound, the mountains, and the Seattle skyline, as well as a host of other amenities, including complimentary high-speed internet. The hotel is just minutes from Pike's Place Market, plenty of restaurants, pubs, and shopping opportunities. By staying at the conference hotel, you are conveniently close to the session rooms, poster exhibits, and the conference social events. NSA realizes several benefits and discounts when we meet or exceed our estimated room bookings, so make your reservations at the Renaissance and receive our special reduced meeting rate. For your convenience registration may be completed on-line via the NSA website or by mail.



Planning for the Annual Meeting is well underway. Thanks to all who have volunteered to organize technical sessions, plan activities, and donate food for social events. Before I get into some of the conference happenings, I'd like to give special thanks to Joth Davis, immediate Past-President, and Sandy Shumway, NSA Conference Manager, for their tireless efforts negotiating local arrangements, developing the technical program, soliciting sponsorships, and addressing dozens of other devilish details. The scientific program is diverse and noteworthy. Continuing a popular addition to the meeting program, each morning will begin with a plenary speaker who will examine current trends in shellfish research and set the stage for subsequent contributed sessions. A complete listing of the technical sessions can be found on the NSA website. The Poster Sessions, featured on Tuesday and Wednesday afternoons, will be large and lively with the usual "happy hour" socials.

Following the poster reception, Tuesday evening highlights will include our annual Student Auction, with the proceeds dedicated to the NSA Student Endowment Fund (SEF). Established in 1989, the SEF provides financial assistance for students to attend NSA annual conferences, present their research, interact with other students and senior scientists, and learn about the shellfish industry from resource managers and producers. Sandy Shumway, our inimitable auctioneer, graces the event with her inspired and imaginative costumes and animated style. All contributions are gratefully accepted, so bring an item to auction with you. If you can't attend, send donations with friends or get them to Sandy by March 1<sup>st</sup>. And don't miss the Annual Business Luncheon on Wednesday (included in your registration) which provides an important opportunity for the membership to participate

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The 104<sup>th</sup> Annual Meeting of the NSA will convene in Seattle, not far from the heart of the Washington State oyster industry. Be sure to check the NSA website for updates on tours, excursions, and other special events. Photo courtesy of Marco Pinchot.

### *In this issue:*

- *Carriker and Castagna Award Research Updates*
- *Get to Know the SAGB*
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## Recruits' Corner

Hello from your new Recruits' Co-Chairs, Maria Rosa and Allison Mass Fitzgerald! We are very excited to start our tenure as leaders of the Recruits and look forward to meeting and getting to know more students in NSA. One way to meet other students will be at the 104<sup>th</sup> Annual Meeting, March 25-29, 2012, in Seattle. We will be there and look forward to hearing about all the new and exciting research the NSA Recruits are doing. The upcoming Annual Meeting will be full of activities, plenary talks and sessions. Although the abstract deadline has passed, don't forget that registration is still open and early bird registration can save you money.



We are very excited about several activities at the meeting this year, specifically designed by, and for, the Recruits. The student breakfast, on the first morning of the meeting will be a great activity for first time meeting attendees and will provide students an opportunity to meet fellow Recruits and learn more about what we do. So

be sure to mark your calendars and arrive at the meeting in time to join us. The Recruits' Co-Chairs are also pleased to sponsor a seminar on how to publish a manuscript, led by the *JSR* Editor, Sandy Shumway. Come and learn important tips on how to make the submission process seamless, how the review process works, and what editors expect to see in manuscripts submitted to their journal. Bring your questions, as this will be a very informative session. The 104<sup>th</sup> Annual Meeting will also feature the return of Ken Chew's famous Chinese Dinner, a student-friendly event not to be missed. Lastly, our annual scavenger hunt will coordinate with the NSA Pacific Coast Section oyster tasting and pub crawl on Monday evening. If you have any suggestions for the pub crawl, pass them along and watch the Recruits' webpage for details on all these activities.

To help defray the cost of attending the meeting, the Recruits are organizing a roommate finder service for students. If you are interested in being included on this list, please e-mail us (Allison.Mass@csi.cuny.edu and maria.rosa@uconn.edu); if we receive a good response, we will help put you in contact with other students looking for roommates. In addition, if you have an activity you would like to see at the upcoming meeting, send us a line, we are always on the lookout for activities to make the meeting more Recruit-friendly. See you in Seattle!

**Maria and Allison**  
Recruits Co-Chairs

## SEATTLE OR BUST

The Abstract Deadline has passed and a big thanks to all who have contributed to what promises to be a very strong program. We have four outstanding **PLENARY SPEAKERS**: Dennis Hedgecock (University of Southern California), Ray Hilborn (University of Washington), Bruce Menge (Oregon State University), and Aad Smaal, (Wageningen University). Several special sessions and all of our regulars are on the schedule, so pack your bags and get ready for a great time at the Renaissance Hotel in Seattle, March 25-29, 2012. At the time of printing we had over 350 abstracts. The **COMPLETE PROGRAM** will be posted on the NSA website as soon as possible.

A special feature of this year's meeting will be another installment of the **KEN CHEW CHINESE DINNER** on Wednesday, March 28th. If you have never participated - you don't know what you've been missing. It's a lot of fantastic food and a lot of fun. Ken has already been working with the restaurant, tickets will be \$30 and can be purchased when you register or at the meeting. Sign up early, tickets will go fast. Watch the website for details.

The **AUCTION** will be held as usual on Tuesday evening, start cleaning out those closets now. If you can't make it to the meeting, feel free to send your contributions with friends or send them to reach me by March 1<sup>st</sup>.

Of course, we'll have our usual **PRESIDENT'S RECEPTION** with plenty of shellfish, **STUDENT BREAKFAST** (students only!!), **BUSINESS LUNCHEON**, **POSTER SESSIONS** and **HAPPY HOURS**, so don't miss it! Book your flights now and **REGISTER** early to take advantage of the Early Bird rates.

Any questions, contact Sandy Shumway (sandra.shumway@uconn.edu) or Leroy Creswell (lcreswell@ufl.edu)

SEE YOU IN SEATTLE!

**Registration for the 104<sup>th</sup> Annual Meeting now available on-line**

**[www.shellfish.org/104thAnnualMeeting](http://www.shellfish.org/104thAnnualMeeting)**

**Early-bird registration available through January 31, 2012.**

**Don't delay, save money, register today!**

## Presidents Message.....

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in the affairs of the Association and its vision for the future.

If you have never been to a Ken Chew's Chinese Dinner, it's time for your initiation! I can't recall my first Ken Chew's "night out", and I would be aging myself if I guessed. Suffice it to say, the dinner is a tradition that extends back to the "days of yore". Because Ken always seems to have old friends with the best Chinese restaurant in town, Ken's dinner never fails to deliver superb food, great fun, and a time of special camaraderie. This year is extra special as Seattle is Ken's hometown. The occasion will be Wednesday, March 28<sup>th</sup> at 7:00 P.M. Dinner is \$30, and restaurant details will be available soon.

In conjunction with the meeting, NSA and the Pacific Coast Shellfish Growers' Association will be offering tours of local shellfish companies which will benefit from daylight low tides. If there is interest, tours of local oyster companies can be arranged for Sunday March 25<sup>th</sup> as the heart of the Washington State oyster industry is within a couple of hours drive of Seattle. Also planned for this year's meeting is a reunion for oyster lovers; Joth Davis and Brett Dumbauld are organizing a tour of Seattle oyster bars on Monday evening.

I'd like to extend a special thanks to our outgoing Student Recruits' Co-Chairs, Stephanie Reiner and Maxine Cheney. Although the new Co-Chairs, Allison Mass and Maria Rosa, have already started covering the Recruits' Corner (see page 2), Stephanie and Maxine will officially be passing on the reins of leadership at the upcoming meeting in Seattle. During their tenure, Stephanie and Maxine have worked hard to increase student participation in NSA activities and enhance student communication through exciting events at the annual meetings, student news on the NSA website, and via Facebook. True to form, the annual student scavenger hunt and the inaugural *NSA Shellfish Feud: Recruits Edition* were challenging and entertaining. Kudos to our outgoing Recruits' Co-Chairs and to all the students who worked so hard staffing the sales booth, setting up the auction, loading presentations, or handling any number of "behind the scenes" duties to make last year's conference successful. Plans are well underway for a variety of Recruits-oriented activities in Seattle and students should contact Allison (Allison.Mass@csi.cuny.edu) or Maria (maria.rosa@uconn.edu) with additional ideas or to volunteer to help with the meeting.

The 104<sup>th</sup> NSA meeting promises to be an effective forum for disseminating our research findings and an opportunity for establishing new collegial collaborations. Old friendships are sure to be reinvigorated and new ones take root. Let's take this time, as researchers, resource managers, and shellfish producers, to refocus our efforts towards implementing innovative approaches for the advancement of shellfisheries and the National Shellfisheries Association.

**LeRoy Creswell**  
President

## Putting the 'Shell' on Shellfish

The processes involved in shell formation have fascinated scientists for decades. Even so, there has been a resurgence in shell formation research over the past 8-10 years. One paradigm for shell formation is the Matrix Mediated Model in which crystal nucleation occurs on secreted organic matrix components (Google 'shell protein matrix' for a plethora of literature articles). On the other hand, a relatively recent finding by Andy Mount and colleagues (Science 304:297-300, 2004) demonstrated the role of circulating hemocytes in shell formation in the Eastern oyster, *Crassostrea virginica*, a finding that is at the heart of the Cellular Mediated Model. These two models are not mutually exclusive and research in several laboratories is focused on elucidating the respective roles of matrix and circulating hemocytes in shell formation.

Shell Formation special sessions have been organized at several of the most recent NSA annual meetings and the diversity of abstracts and presentations is testament to the wide range of interest in shell formation processes. At the 103<sup>rd</sup> NSA in Baltimore, there was also a session on Ocean Acidification, with particular emphasis on the effects on biomineralization and shell formation in shellfish. Some of the 'shell' topics presented at the Baltimore meeting included, the varied responses of marine calcifiers to ocean acidification (J.B. Ries), ecological, evolutionary and physiological perspectives on ocean acidification and molluscs (G.H. Wikfors), the interactive effects of salinity and CO<sub>2</sub> levels on juvenile *C. virginica* (G.H. Dickenson et al.), ex vivo mineral deposition by cultured oyster hemocytes (E.A. Untener et al.), the formation of the calcareous shell of serpulid worms (G.C. Walker), a cellular model of oyster shell formation (A.S. Mount et al.), in vitro organization of mineralizing large oyster hemocyte aggregates (N.V. Gohad and A.S. Mount), microscopic observations of JOD-affected oyster shells (E. Falwell et al.), the development of molecular tools for proteomic analysis of oyster hemolymph and extrapallial fluid (Q. Xue et al.), the effect of diet on elemental composition of shell (W.N. Elsaesser et al.), and a comparison of the shell strength of *C. virginica* and *C. ariakensis* (G.D. Chon et al.).

We are organizing another Shell Formation Session for the 104<sup>th</sup> Meeting in Seattle in March 2012 and we anticipate another diverse and interesting line-up of presentations on various aspects of shell formation, including microstructure, materials properties, and the effects of acidification on biomineralization processes. Given the expanding research interest in shell formation, we are also putting together a listing of abstracts from recent NSA meetings that pertain to all aspects of shell formation. Look for hard copies at the Seattle meeting and on-line after March 2012.

**Karolyn Hansen, University of Dayton**  
**Andy Mount, Clemson University**

# 2011 Michael Castagna Grant for Applied Research Update

Awardee: Hilde Zenil

## “Passive Acoustics as a Monitoring Tool for Evaluating Oyster Reef Restoration”

There is a growing recognition that oyster reefs have a significant effect on the ecology of estuarine and coastal ecosystems and oyster reef restoration efforts have increased in the last two decades. Oysters reefs help stabilize neighboring salt marshes, provide habitat, and filter water. The importance of the habitat provided by oyster reefs has been compared to that provided by seagrass beds and salt marshes.



In general, oyster reef restoration projects have specific goals, including the recruitment and growth of oysters, provision of habitat for associated, dependent species, direct and indirect effects on local water quality, and shoreline protection. In the Saint Lucie Estuary (SLE), Florida approximately 24 acres of oyster reef were created between August 2009 and January 2010. A major goal for this restoration project, funded by the National Atmospheric Administration (NOAA), was to provide habitat for both transient and resident fauna. At present, there are various methods to monitor changes in the abundance of fauna associated with oyster reefs. These methods include lift nets, drop nets, haul seine and gill nets, sampling trays, video surveys and diver surveys/fish counts. These methods can be time consuming due to the need for extensive post-sampling sorting and species identification of the numerous specimens often sampled. Assessment of oyster reef faunal assemblages can be done through direct sampling, but an alternative to direct sampling is to use passive acoustics. My research is examining the efficacy of using passive acoustics as a new method to monitor oyster reefs.

Passive acoustics uses the naturally occurring sounds (bioacoustics) produced by marine organisms to study their behavior, biology, and location. Many marine organisms produce sounds to communicate with each other during mating, aggression or feeding. Also, organisms can produce accidental sounds associated with swimming, moving, and feeding. These intentional and non-intentional sounds can convey important information about organism behavior, location, and abundance. The added value to this methodology is that it can be extrapolated to other marine ecosystems, such as coral reefs, kelp forests and rocky reefs.

The aim of my research was to use passive acoustics as a tool to measure the progress of the SLE restoration project, as quantified by reef use and colonization by dependent species. To accomplish this, I conducted field experiments to correlate sound production and the diversity of faunal assemblages on natural and restored oyster reefs in the SLE. Oyster toadfish, naked goby, mud crabs, barnacles, and snapping shrimp are common inhabitants of oyster reefs and are known for their sound production capacity. My research has focused on snapping shrimp because they are one of the most abundant decapod crustacean species in oyster reefs and they are well known for the sounds they create.

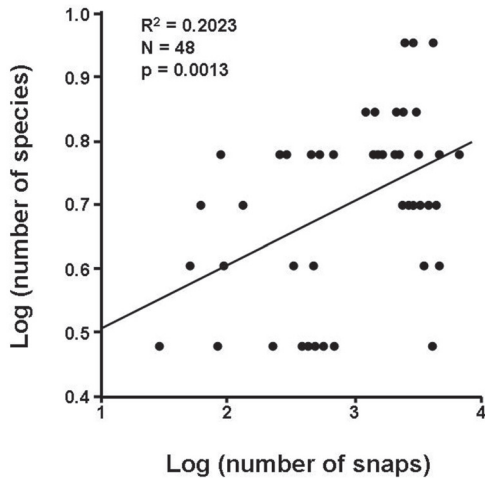
I deployed a total of eight lift nets, four each in restored and natural (control) oyster reef habitat, during the wet season and another set during the dry season to estimate the seasonal variation in the presence and abundance of faunal assemblages. Shell for the lift nets was excavated from the reef where the lift net was placed. The shell was not cleaned or scraped. After approximately 30 days, the lift nets and substrate were pulled out along with the organisms that were inhabiting the shell (see below). A few days prior to collection the eight nets were sampled acoustically at dawn, noon and dusk.



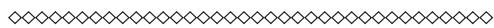
After the *in-situ* sound surveys, the lift net contents, including both the resident organisms and shells substrate, were collected and brought back to the lab. In the lab, all the decapod crustacean and fish species were identified to the lowest possible taxonomic level possible and the number of snapping shrimp snaps was estimated from the acoustic recordings.

The results analyzed, to date, indicate that number of snaps is a good metric for estimating the number of snapping shrimp and number of species in an oyster reef. There is a clear relationship between acoustic signal and species diversity; as the number of snaps increase the number of species in the oyster reef increases (Fig. 1, facing page). In addition, my results indicate that number of snaps and number of species varied between the natural and restored reefs. The restored reef had a greater number of snaps and number of species than the natural reef. Previous studies have obtained similar findings, where species composition differed between natural and restored reefs. A possible hypothesis to explain the differences in species composition and sound production between natural and restored reefs is that the cultch material

used for restoration affected the species composition of the reefs. Fossilized shell, coral and rock rubble were used to construct the restored reef. Overall, the results show that number of snaps is an adequate measure of species richness. The fact that the number of snaps can be used to obtain a broad estimate of the number of species present in a reef is promising and passive acoustics has tremendous potential to be used as a tool to monitor marine environments.



**Figure 1.** The number of species is positively correlated with the number of snaps at restored and natural reefs in the mid-estuary region of the St. Lucie Estuary, southeast Florida. The positive relationship between these variables suggests that passive acoustics are a promising new tool for monitoring invertebrate populations in coastal marine environments.



## Dr. Eugene Burreson Awarded the Mathias Medal for Lifetime Achievement

The face (and stature) of Dr. Eugene “Gene” Burreson is very familiar to the NSA community. On October 17, 2011 the highly prestigious Mathias Medal was awarded to Gene in Richmond, Virginia at a dinner reception attended by more than 50 colleagues, marine resource managers, policy makers, and industry representatives. The Mathias Medal is the only lifetime achievement award for scientists studying the Chesapeake Bay. Presented approximately every four to six years by Virginia Sea Grant, Maryland Sea Grant, and the Chesapeake Research Consortium, it recognizes a retired scientist from Virginia or Maryland who has made significant contributions to science and policy.

The award is named after Senator Charles “Mac” Mathias of Maryland, who is considered to be the father of the contemporary Chesapeake Bay Restoration Program. Senator Mathias set the tone and shape of many of the programs designed to study the Chesapeake Bay and

recognized the value of science for the public good, frequently seeking advice from the scientific community. Likewise, during Gene Burreson’s scientific career he made significant contributions to our knowledge of the shellfish resource in Chesapeake Bay promoting informed policy and management decisions.

Gene is a renowned leader in the field of shellfish pathology and has generously shared his expertise with colleagues, managers and the industry. After 34 years as a professor at the Virginia Institute of Marine Science of The College of William and Mary, Gene retired in 2009; the same year in which he received the NSA Honored Life Member Award and the Virginia Outstanding Scientist Award.

Just a few of Gene’s important research contributions to the field include a review of the oyster parasitic disease Dermo published in *Journal of Shellfish Research* (JSR 15: 17-34, 1996), which is the most cited paper focusing on this disease, and a *Journal of Aquatic Animal Health* (JAAH 12:1-8, 2000) manuscript that received the *Journal’s* Best Paper Award for 2000. The latter presented the molecular evidence demonstrating that the MSX parasite had been introduced to the US along with Japanese oysters. In addition, Gene co-authored Virginia’s strategic plan for shellfish research, convened the scientific panel that devised the oyster restoration strategy for Chesapeake Bay and led the Oyster Disease Monitoring Program at VIMS for 24 years while also providing diagnostic services to the industry. These represent only a few of the highlights from Gene’s extensive, distinguished, and very productive career.

Characteristically, after being presented the medal, Gene commented, “Although this award is only given to one person, science is not done alone. I’ve been lucky in that I’ve always hired good people to work with me.” It is true that many in our community have had the privilege to work with him and we recognize the great value of his wisdom, experience, and rigorous scientific integrity.

**Kim Reece**  
Virginia Institute of Marine Science



Gene Burreson (center), recent recipient of the Mathias Medal, poses for a picture with his first graduate student Joseph Sypek (1982) and his most recent graduate student Kristina Hill (2011). Photo courtesy of Virginia Sea Grant.

# 2011 Melbourne R. Carriker Research Grant Update

Awardee: Ashlee Lillis

## “Underwater Sound as a Potential Settlement Cue for Estuarine Larval Invertebrates”

The successful recruitment of marine larvae is central to replenishing populations and structuring benthic communities. Underwater sound has long been recognized as an important means for orientation among marine mammals and fishes, but the potential for late-stage marine invertebrate larvae to use acoustic cues for habitat selection and settlement has been overlooked. The underwater sonic environment has the potential to provide meaningful sensory information to all aquatic animals, since acoustic signals are transmitted relatively large distances, are present at all depths, and reflect biological and physical characteristics of the environment, while other sensory cues (e.g. light, chemicals) are rapidly attenuated from the source.



Sound has recently been recognized as a potentially important contributor to larval settlement behavior and habitat selection patterns. A number of marine invertebrates are known to possess sensory receptors analogous to vertebrate auditory organs. Reports suggest that these receptors respond to sound or vibrational stimuli, but the relevant sonic patterns and associated larval responses remain largely unknown, particularly in estuarine environments and for non-arthropod invertebrates. Acoustic signals may be important for marine invertebrate larvae to locate productive recruitment grounds such as reefs and hard-bottom areas, that have distinctive bio-physical sound signatures. Biological sounds produced



by conspecifics, prey-species and habitat-forming species, may facilitate the recruitment of sound-receptive species to habitats with attractive acoustic signals. This facilitation may be especially important in the context of marine conservation, where the protection or restoration of habitats that harbor relatively high densities of sound-producing animals

(e.g., snapping shrimp, drumming fish, etc.) may enhance larval replenishment of benthic species.

The overall goal of my dissertation research is to characterize spatio-temporal variation in an estuarine soundscape and to determine if larvae use soundscape cues in their settlement process. This research uses larval bivalves (eastern oyster and hard clam) and subtidal oyster reef and soft-bottom habitats in Pamlico Sound, North Carolina as a study system. The soundscapes of oyster reefs and nearby soft-bottoms (~2-3 km from oyster reefs) are being characterized using stationary and drifting hydrophone systems. The data collected indicate that subtidal oyster reef habitats in Pamlico Sound have distinct acoustic spectra, generally comprised of significantly more sound in the 1 – 20 kHz invertebrate-dominated frequency range compared to nearby off-reef soft-bottom habitats (Fig. 1). This suggests that habitat-specific sound characteristics could provide a useful orientation and settlement cue for estuarine species, particularly obligate reef-dwellers. Recordings extending away from oyster reefs and into soft-bottom habitats demonstrate that the sound characteristics are localized to the habitat and further establish that the reef-associated sound could be a useful cue for settling larvae.

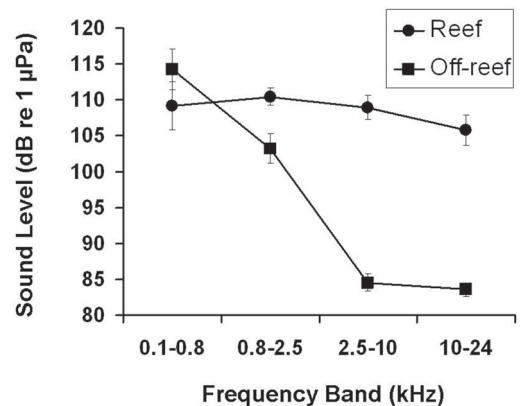
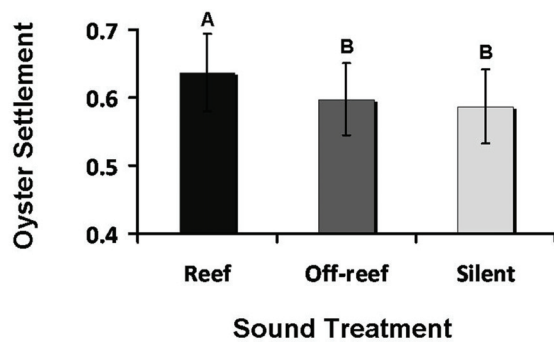


Figure 1. The mean sound pressure level (rms dB re 1µPa) as a function of frequency band differs substantially for reef and off-reef recordings taken simultaneously from July-October 2010. These differences suggest that habitat-specific sound characteristics may provide a orientation and settlement cues for estuarine species.

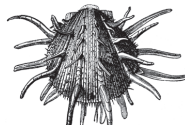
Preliminary laboratory experiments to compare oyster settlement rates in larval cultures exposed to habitat-associated sound found that significantly higher numbers of oyster larvae settled in the presence of oyster reef sounds than in silent, control treatments. The Melbourne R. Carriker research grant supported the purchase of underwater speakers that allowed better reproduction of multiple underwater sound treatments in laboratory tanks. Subsequent oyster settlement experiments showed significantly higher settlement for larvae exposed to oyster reef sound compared to both off-reef (soft-bottom) sound and no sound (Fig. 2;



**Figure 2.** Results of oyster settlement experiments showing a higher proportion settlement in reef sound treatments compared to off-reef sound and silent controls. Experiments were replicated over time, and analyzed as a randomized block ANOVA with trial as a blocking factor. Letters indicate a significant different between treatments (pairwise Tukey's HSD test).

8.5% mean increase,  $p < 0.001$ ). This suggests that oyster larval responses are specific to the acoustic characteristics of oyster reef sound. Experiments to test for specific frequency ranges that elicit settlement responses are ongoing, and the experiments will be repeated using clams in spring 2012 to compare the responses of a non reef-dweller to the reef and off-reef sounds.

Interpretation of the ecological significance of the laboratory results is limited, particularly for studies of acoustic stimuli in small tanks. Thus, field approaches are being developed to expand upon the laboratory research by conducting field experiments that will test if larval responses to habitat-related sound occur in the natural environment and shape larval settlement patterns. In Spring 2012, underwater speakers will be deployed to broadcast oyster reef sound across an unstructured habitat. Settlement densities of oysters and clams will be measured on settlement collectors as increasing distances from the sound source to test for an effect of reef sound on settlement patterns. I anticipate that these experiments will better evaluate the importance of the marine soundscape to the settlement patterns for the study species (clam and oyster) as well as elucidate sound-related settlement patterns for other non-target organisms settling in field collectors. Building knowledge of the behavioral responses of larvae to bio-physical variables, such as underwater sound, and an understanding of how these responses drive settlement patterns is central to studies of larval connectivity and recruitment. This work also informs our understanding of the potential adverse effects of noise pollution in the ocean and may elucidate previously untested benefits of soundscape diversity.



## Shellfish Aquaculture and the Environment

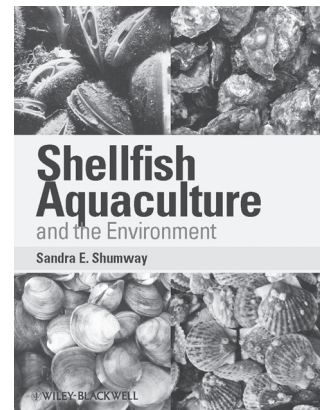
Wiley-Blackwell has recently announced the publication of a new book that is sure to be a must read to those interested in shellfish and shellfisheries. Edited by our very own Sandy Shumway, *Shellfish Aquaculture and the Environment* contains 17 chapters of the most recent data and findings on a broad diversity of shellfish-related topics, including best management practices in shellfish aquaculture, bivalve aquaculture and eutrophication, genetics, shellfish disease and health management, and the impacts of climate change on shellfish and shellfisheries.

An executive summary of *Shellfish Aquaculture and the Environment* is now available **free of charge** at:

<http://seagrant.uconn.edu/publications/aquaculture/execsumm.pdf>

More information on this book, including ordering information can be found at:

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-0813814138.html>



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## Industry Report

# Interstate Shellfish Sanitation Conference Update

The Interstate Shellfish Sanitation Conference (ISSC) held its biennial meeting in Seattle during the first week of October, 2011. For those who may be unfamiliar with the ISSC, it is a cooperative program where industry, state health officials, and federal authorities from FDA, NOAA, and EPA meet to hash out the regulations on everything from shellfish tagging to harvest area classification.



You may remember the furor kicked off at the ISSC meeting two years ago when the FDA unilaterally decided that the Gulf states would have to post-harvest treat all their oysters between April and November each year in an effort to reduce illnesses caused by the bacteria *Vibrio vulnificus*. To get the whole story see the Vibrio section on our home page [www.ESGA.org](http://www.ESGA.org). It is this kind of unilateral action that the ISSC is supposed to avoid. Although this year's meeting was not so contentious, the participants still found plenty to argue about during a grueling week of meetings, and the issues surrounding naturally occurring *Vibrio* bacteria still dominated the discussions. Despite debating an inch-thick set of proposals, we ended up with mostly minor tweaks to the existing model ordinance and most of the industry probably won't notice the changes that were adopted this year.

In the contentious Vibrio Management Committee the FDA revealed that deaths associated with *V. vulnificus* had not declined in the past year, and that the Gulf Coast industry had largely failed to implement the one-hour-to-refrigeration requirement that models had predicted would achieve the targeted illness reductions. Efforts to install and improve refrigeration units on boats and in-shore facilities were set aside when the Deepwater Horizon oilrig exploded resulting in widespread non-compliance. Plans were developed to ensure these time-to-temperature controls are properly implemented and enforced during the 2012 season, and we are still optimistic that the targeted 60% illness reduction will be achieved. Curiously, the FDA seems skeptical that this will work despite the fact that we are using their *V. vulnificus* Risk Calculator to model this effect.

Some of the changes that were approved at this year's conference were pretty esoteric. We decided to move from counting illnesses to a more scientific risk-analysis technique that calculates the risk per serving and attempts to achieve an illness *rate* reduction as opposed to a reduction in illnesses. The difference is subtle. The old method was problematic because the number of illnesses annually was

so small that there was never any statistical certainty as to whether controls were effective or if reductions were due to random chance alone. Now that we are calculating risk per serving it becomes imperative that industry and the states work together to collect accurate monthly harvest data so we can document how many meals were eaten safely without incident.

Things got dicey when the Vibrio Management Committee discussed whether two more East Coast states were going to have to join the "club" of five Gulf Coast states that are required to have *V. vulnificus* management plans. According to existing rules, any state with more than two *V. vulnificus* illnesses since 1995 must implement controls such as seasonal closures, shorter times from harvest to refrigeration or mandatory post-harvest processing in order to bring their problem under control. The regulations dictate that these illnesses must be traced to shellfish harvested in that state and result in primary septicemia for the illness to count, but some health officials wanted to include cases that resulted in only gastroenteritis. Arguments went on for hours, and occasionally got heated and passionate, but in the end both states narrowly avoided being added to the "club." The take home message was clear; *V. vulnificus* is not just a Gulf Coast issue and even New England states need to continue to improve their shellfish handling protocols if they hope to avoid draconian warm weather harvest restrictions.

Several proposals were adopted authorizing the use of new methods for detecting harmful algal toxins so we can get away from injecting mice and use some of the new rapid test kits that have been developed. These new tests should help detect algal toxins faster and with a greater degree of accuracy than the older "mouse bioassay." The Restoration Subcommittee adopted Best Management Practices following a year-long effort by Dot Leonard and Sandy MacFarlane to craft ways to minimize the risk to markets from these projects while maximizing their environmental and educational benefits.

Many proposals were sent back to committee for refinement and future consideration. I expect we will soon see changes to the tagging regulations to improve traceback and recall capabilities and I predict that temperature recorders will soon be required on common carriers. The FDA is conducting a risk analysis for norovirus in all foods, and we will be hearing a lot more about this in years to come. The seven day conference obviously covered more than I can present in this article, but you can get lots more detail from [www.ISSC.org](http://www.ISSC.org). Thankfully, we have a couple of years before we have to do this again.

**Bob Rheault**  
**Executive Director**  
**East Coast Shellfish Growers Association**



# Get to Know The Shellfish Association of Great Britain



Shellfish Association of Great Britain

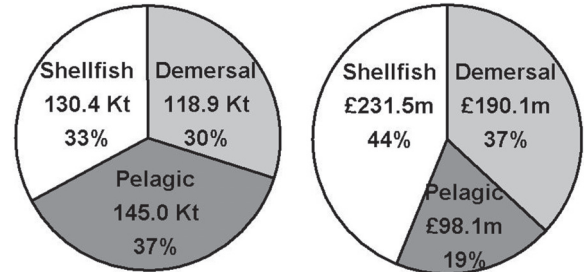
The Shellfish Association of Great Britain (SAGB) is the UK's wild-caught and cultivated shellfish industry trade body based at Fishmongers' Hall (below, right) in the City of London. Fishmongers' Hall is home to the Worshipful Company of Fishmongers, one of London's oldest livery companies. We were founded as the Oyster Merchants' and Planters' Association in 1903 reflecting the importance of the native oyster (*Ostrea edulis*) fishery in the UK. These oysters have long been appreciated; Roman invaders declared they were "the only good thing to come out of Britain". Annual landings of 10-20,000 tonnes of *O. edulis* were commonplace at the beginning of the 20<sup>th</sup> century; yet in 2009 a mere 93 tonnes of wild natives were harvested as a result of overfishing depleting stocks and tributyltin (TBT) affecting the larvae.



As the economic importance of other species increased, we were renamed the Shellfish Association of Great Britain in 1969 reflecting the variety of our work. In the last 20 years our membership has diversified from purely 'catchers & growers' to include commercial traders and companies, inshore managers, academics, scientists, and consultants. Our aim is to assist and promote the sustainable development of the Shellfish Industry in the United Kingdom from 'sea to plate'.

The SAGB represents the views of shellfisheries, both wild-caught and cultivated, in debates with the Government, other users of the sea, and environmental organizations. We are striving to ensure a more viable and sustainable future for UK shellfish operations. With the increasing legislation and financial constraints facing the industry, our role is more vital than ever. Alongside our lobbying activities, the SAGB also promotes the sustainability of shellfish and shellfisheries operations, the health benefits of eating shellfish, brings together buyers and sellers of shellfish and sells the story of this magnificent industry to the public. Recent promotional work includes a suite of shellfish "how to" guides on YouTube ([www.youtube.com/ShellfishGB](http://www.youtube.com/ShellfishGB)), a Great British oyster tasting guide and iPhone app, recipe booklets for cooked oysters and crabs (and a forthcoming UK & North American lobster one), and a series of factsheets explaining the nutritional benefits of 10 species.

Many people think (even Government officials it feels...) that the UK fishing industry is all about cod – so much so that we often use the phrase "cod is God" when discussing political priorities. In fact, the reality is quite different. If we look at the volume of seafood landed into UK by UK vessels in 2009 you'll see that a third is shellfish. In terms of value, shellfish make up 44%! Cultivated shellfish also account for 38.6K tonnes of product worth £33m. The majority of this (97%) comes from the blue mussel (*Mytilus edulis*) with 2.7% from the Pacific oyster (*Crassostrea gigas*).



The reform of the European Common Fisheries Policy offers some good opportunities. We were particularly pleased to see the many references to aquaculture in the proposals especially the requirement that Member States will have to prepare national strategic plans for aquaculture by 2014. We also welcome the proposals for renewed obligations for Member States regarding the collection and availability of data and the call for multi-annual management plans. We have been concerned for many years that non-quota shellfisheries have been overlooked in scientific assessments and this has had a negative impact on some stocks and on the ability to demonstrate sustainability in others.

We have re-structured our membership categories for the first time to better reflect the diversity of current members. We are no longer an organization that just caters for UK 'growers and catchers', and we now have dedicated categories including "seashore" for people merely interested in shellfish and shellfisheries and "international" for our friends overseas. We would welcome any NSA members to join us!

I left the SAGB in September to take up a role at the Monterey Bay Aquarium Seafood Watch program (hopefully I will get the opportunity to meet with you there). With my departure David Jarrad took over as Director. David would be delighted to tell you more about the SAGB and can be contacted at [david@shellfish.org.uk](mailto:david@shellfish.org.uk). Alternatively you can follow our activities on twitter @SAGB.

**Dr. Tom Pickerell**  
Shellfish Association of Great Britain



## Pacific Coast Section News

The 65<sup>th</sup> Annual Meeting of the Pacific Coast Section of the National Shellfisheries Association took place from September 19 to 23 at the Grand Hotel in Salem, Oregon. Two hundred and fourteen people attended the event of which 49 were NSA members. The PCS thanks the West Coast shellfish industry, the conference planning committee, Margaret Barette, and especially Connie Smith for making this annual joint conference with the Pacific Coast Shellfish Growers a success.

Two plenary speakers, Dr. Ray Hilborn from the University of Washington's School of Aquatic and Fishery Sciences and Gifford Pinchot III, President and Co-founder of the Bainbridge Graduate Institute, spoke on the first day of the conference. They spoke on the importance of shellfish to the world food supply and argued for a life cycle assessment of the role of aquaculture and fisheries in meeting the world's protein production. Mr. Pinchot suggested that "happiness or well being" and not just typical financial costs and benefits should be assessed, and that partnering with NGOs and business leaders, and effective education and outreach will become increasingly important aspects of the dialogue on the value of shellfisheries. Contributed sessions highlighting the variety of partnerships already contributing to West Coast U.S. shellfish aquaculture and on-going research on aquaculture and environmental interactions followed. Ocean chemistry, acidification and climate change continued to be hot topics and were covered in plenary talks as well as a follow-up session on the second day of the meeting. Other sessions devoted to burrowing shrimp, marine pathogens and shellfish disease, genetics and broodstock development, marketing and seed production were also timely.

Student involvement, a focus of the PCS mission, was strong as students from Oregon State University and the University of Washington gave 15 out of the roughly 63 presentations at the meeting. The best student paper award was given to Elene Dorfmeier of the University of Washington for her presentation "Ocean acidification and disease: How will a changing climate impact *Vibrio tubiashii* growth and pathogenicity" co-authored by Carolyn Friedman, Steven Roberts, and Samuel White. Elene was awarded a NSA/PCS membership and \$500. Support for students to attend the meeting was generously provided by the National Oceanic and Atmospheric Administration (thanks to Michael Rubino, Christopher Botnick, and Carole Reb) and the Ken Chew Student Endowment Fund.

A big hit, or shall we say dip, at this year's conference was the PCS-sponsored dunk tank. Many esteemed growers, advisors and even a few PCS officers signed up and got wet! Special thanks to Brent Vadopalas for the idea and all those who volunteered and contributed. Also, thanks to those who solicited and donated items for the silent auction. The proceeds from both events helped defray the costs for students attending the meeting.

The NSA-PCS held its Annual Business Meeting during the 2011 conference. Leadership of the PCS is unchanged as Brett Dumbauld (Chair), Cathy Stanley (Vice-Chair), Emma Timmins-Schiffman (Secretary), Lisa Crosson (Treasurer), Sean McDonald, Chris Burns, and Sarah Dudas (Members-at-Large) will continue to serve in their respective officer positions for the coming year. Daniel Bascom was nominated and approved as an additional Member-at-Large. The members in attendance agreed that a review and update of the PCS constitution and bylaws is warranted. A committee has been established to work on editing these documents using the NSA governing documents as a template. The revised materials will be circulated for a vote at the next PCS annual meeting.

The 2012 PCSGA/NSA-PCS conference will be held at the Tulalip Hotel and Casino, north of Everett, Washington, during the week of September 17-20. Meeting details and a call for papers will be posted on the PCS website in early spring of 2012. We also challenge all PCS members to make a grand showing at the 104<sup>th</sup> Annual Meeting of the NSA in Seattle this March where we will sponsor a pub crawl and have hats, beanies, and t-shirts for sale to help support student travel.

We look forward to seeing you in Seattle!

**Brett Dumbauld**  
**Pacific Coast Section Chair**



## USDA Releases Aquaculture Data

The Economic Research Service (ERS) of the U.S. Dept of Agriculture is responsible for keeping tabs on the background, data, and analysis on the domestic aquaculture industry and the U.S. trade in aquacultural products. According to the ERS, the U.S. is one of the world's largest exporters of seafood products and the world's second largest seafood importer, although imports currently dwarf exports. Among shellfish species, the U.S. exports "farm-raised" oysters and clams chiefly to Canada. The volume and value of exports and imports of selected fish and shellfish species is published annually on and can be downloaded from the ERS website ([www.ers.usda.gov/data/Aquaculture/](http://www.ers.usda.gov/data/Aquaculture/)). Number junkies take note, the ERS recently posted the latest data, current through October of 2011, so you can track the trade in your favorite shellfish species.

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## What Happened to the Officers' Page in this Newsletter?

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Many long-time readers of the NSA *Newsletter* have likely become accustomed to seeing a full listing of the Association officers on the last page of each edition. In order to bring you more articles and reports from the world of shellfish, a listing of NSA officers and their contact information will only appear in the edition of the *QNL* published immediately after the annual meeting. A list of officers is regularly updated on the NSA website ([www.shellfish.org](http://www.shellfish.org)) and is available to members and non-members, alike.

### *Ken Chew's Chinese Banquet*

**March 28, 2012 @ 7:00 p.m.**

**Don't miss this special event.  
Reserve your seat when registering  
for the 104<sup>th</sup> Annual Meeting.**

### STUDENT ENDOWMENT FUND 21<sup>st</sup> ANNUAL AUCTION

**Tuesday, March 27, 2012**

Send auction items to Sandy Shumway by March 1<sup>st</sup> or bring them to the meeting. Items shellfishy or fishy welcome and nothing is too tacky or trivial.

## Upcoming Events

**Aquaculture America 2012:** February 29-March 2, 2012, Paris Las Vegas Hotel, Las Vegas, NV, USA. For more information visit [www.was.org](http://www.was.org).

**32<sup>nd</sup> Milford Aquaculture Seminar:** March 12-14, 2012, Water's Edge, Westbrook, CT, USA. For more information visit <http://mi/nefsc.noaa.gov/seminarworkshop>.

**National Shellfisheries Association, 104<sup>th</sup> Annual Meeting:** March 25-29, 2012, Renaissance Seattle Hotel, Seattle, WA, USA. For more information visit [www.shellfish.org](http://www.shellfish.org).

**Dynamic Deltas: Safety and Sustainability in Rural Delta Regions:** April 17-20, 2012, Cinecity Theater and Conference Center, Vlissingen, The Netherlands. For more information visit [www.dynamicdeltas.org](http://www.dynamicdeltas.org).

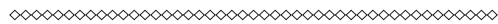
**Eighth International Abalone Symposium:** May 6-11, 2012, Hotel Grand Chancellor, Hobart, Tasmania, Australia. For more information visit [www.cdesign.com.au/ias2012/](http://www.cdesign.com.au/ias2012/).

**Aquaculture Canada 2012, New Frontiers: Bridging Technology and Economic Growth:** May 27-30, 2012, Rodd Charlottetown, Charlottetown, Prince Edward Island, Canada. For more information [www.aquacultureassociation.ca/meeting/aquaculture-canada-2012](http://www.aquacultureassociation.ca/meeting/aquaculture-canada-2012).

**The Crustacean Society Summer Meeting:** June 3-7, 2012, Royal Olympic Hotel, Athens, Greece. For more information visit [www.cssm2012.gr/](http://www.cssm2012.gr/).

**Ninth International Conference on Recirculating Aquaculture:** August 24-26, 2012, The Hotel Roanoke and Conference Center, Roanoke, VA, USA. For more information visit [www.recircaqua.com/](http://www.recircaqua.com/).

**Aqua 2012, Global Aquaculture - Securing Our Future:** September 1-5, 2012, Prague, Czech Republic. For more information visit [www.was.org](http://www.was.org).

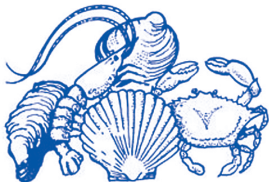


If you would like to announce a meeting, conference, workshop or publication that might be of interest to NSA members, please contact the *QNL* Editor, Paul Rawson ([prawson@maine.edu](mailto:prawson@maine.edu)).



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