

National Shellfisheries Association

QUARTERLY NEWSLETTER

January 2013



ORONO, ME

President's Message

If you haven't already registered for Aquaculture 2013 "Strike a Chord for Sustainable Aquaculture" and the 105th Annual Meeting of the NSA in Nashville, February 21 – 25, 2013, then it's time to step up to the microphone. As a fan of country music, I'm pretty excited about this venue. For the uninitiated, Nashville (and the Grand Ole Opry) is to country and western music what Hollywood is to acting. And this year it's going to be the host to one of the largest gatherings of aquaculture and shellfish scientists in the world. It will be our traditional Triennial conference with the Fish Culture Section of the American Fisheries Society and World Aquaculture Society. Over 90 technical sessions are planned along with the unique aquaculture tradeshow that will attract over 4,000 attendees representing 90 countries. Thanks to Sandy Shumway and Jay Parsons, Aquaculture 2013 Program Co-Chairs, and Steve Allen, NSA Program Committee Representative, for their tireless efforts on our behalf. Learn more about the upcoming conference in this *Newsletter*.



In Savannah it was Scarlet O'Hara. In Baltimore it was Edgar Allan Poe. In Seattle it was the iconic Evergreen Geoduck. Somehow we always seem to enlist a famous local character to be the guest auctioneer for our annual Student Endowment Fund Auction — and it has paid off handsomely! I can't help but wonder what hero of the Grand Ole Opry may rise to the occasion this year? The annual SEF Auction is a great time and it is a wonderful way for everyone to help support our student scholarships and activities. So, please send your interesting *shellfishy* donations to Sandy Shumway or bring them along to Nashville.

As I write this message, the NSA Web Portal is undergoing a transition to a new service provider. The "migration", as it is called, has been going well and should be relatively seamless to the casual user (such as my non-IT self). NSA owes a great deal of gratitude to NSA past-president Scott Siddall and the Longsight Group for their creative energy in developing and servicing the Web Portal for many years. Karolyn Hansen,

Dave Bushek, Chris Davis, and others have stepped up to make this metamorphosis possible and their dedication to the task is greatly appreciated.

Many of you may have been fortunate to attend the joint meeting of NACE (Northeast Aquaculture Conference & Exposition), the International Conference on Shellfish

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Aquaculture 2013 is just around the corner. The Triennial meeting co-sponsored by the NSA, the Fish Culture Section of the American Fisheries Society and the World Aquaculture Society, will be held in beautiful and exciting Nashville, Tennessee. To register for the meeting visit www.shellfish.org or www.was.org, today.

In this issue:

- ***Triennial Meeting Information***
- ***Carriker and Castagna Award Research Reports***
- ***The Business of Shellfish Restoration***

Recruits' Corner



Hello, Recruits!

We hope you had a wonderful and productive 2012. As the New Year begins, we are once again gearing up for the NSA Annual Meeting. This year the meeting will be a Triennial, held in conjunction with the Fish Culture Section of the American Fisheries Society

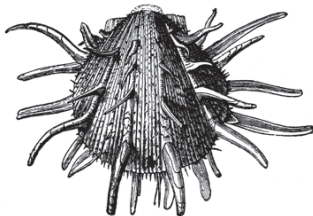
and the World Aquaculture Society. Make plans to join us at the Triennial February 21-25, 2013, in Nashville, TN. With dozens of concurrent sessions, two days of poster presentations, and an industry trade show, there is sure to be something for everyone.

The Recruits have several exciting events planned this year. Get your singing voice and country tunes ready as we will be participating in a Karaoke “crawl” through several downtown Music City destinations. We will also be organizing teams for our annual Scavenger Hunt, as well as the Triennial-exclusive Quiz Bowl. A schedule of all activities will be provided to students in their meeting packet and be sure to keep an eye out for the Student Orientation at which we will go over all Triennial activities and resources.

If you received a registration or lodging award from the Student Endowment Fund, keep an eye out for an email from us containing your “volunteer” assignment. Those who did not receive an award, but would like help finding a fellow Recruit to share a room should email us (maria.rosa@uconn.edu or Allison.mass@csi.cuny.edu), ASAP! Stay tuned, as we will soon be putting out a call for volunteers to man the NSA Sales Booth and to help during the auction; we will need lots of help for these very important fund-raising activities.

We are very excited to catch up on research progress with the Recruits we met last year and to meet any and all new Recruits. Look for us in Nashville, and don't be shy! We'd love to meet you!

Maria Rosa and Allison Fitzgerald
Recruits Co-Chairs



NSA Website Migration

You may have noticed the ‘Under Construction’ message at www.shellfish.org if you visited the NSA Website in early January 2013. We are making the move from a custom web portal system to a function-based portal system hosted by MemberClicks. Longsight Inc. has done a fabulous job over the past 15+ years in establishing and maintaining our web presence, but the cost and continual maintenance of a custom system was becoming burdensome. MemberClicks uses a function-based association management software package that provides for our main functions, including content, membership, financial transactions, and annual meeting information.

During the transition you may be asking some important questions, such as: Will I still be able to manage my own account? YES. Will I be able to submit abstracts and register for the annual meetings? YES, beginning with the 2014 meeting. Will I still have direct access to *JSR* and the *Newsletter*? YES. In short, you will be able to do everything on the new NSA Website that you could do on the old.

The migration is taking place during the first half of January and we hope to go ‘live’ with the new site by mid-January, about the time you receive this *Newsletter*. Please bear with us as we make the change – a lot is going on behind the scenes as we make the migration. Should you have any questions please consult the e-mail that was sent to all NSA members and non-member website users on December 31, 2012 – all contact information for NSA officers, the Secretariat, and the Web migration committee is listed there. The Web Portal Committee looks forward to a more streamlined system that reduces our behind-the-scenes maintenance requirements yet still provides the web experience that our members have come to rely on and enjoy.

Enjoy the New Year and look for the re-launch of shellfish.org later in January!

Dave Bushek, LeRoy Creswell, Chris Davis, Karolyn Hansen, and Scott Siddall
The Web Migration Committee

STUDENT ENDOWMENT FUND 22nd ANNUAL AUCTION

Saturday, February 23, 2013

Send shellfishy or fishy auction items to Sandy Shumway or bring them to the meeting. Nothing is too tacky or trivial.

NASHVILLE IS JUST AROUND THE CORNER!

Everything is ready for an exciting and productive conference, so mark your calendars and don't miss AQUACULTURE 2013, February 21-25, Nashville, Tennessee. There is something for everyone - There are over 90 sessions, 1200 abstracts and yes, shellfish is well represented!! Oysters, clams and geoducks, tridacna, freshwater mussels, IMTA, open ocean culture, shellfish disease, shellfish nutrition, shellfish genetics, sustainable shellfish aquaculture in developing countries, working waterfronts, acidification, history of aquaculture, ecosystem modelling, contaminants and shellfish, conservation / restoration of shellfish, biofouling, macrobrachium, sea lice, a full shrimp program and others.

To view the program and register for the conference, check the web page at www.shellfish.org. When you register, be sure to check the box for NSA Member - our share of the revenues depends upon it!

Sandy Shumway and Steve Allen



FUTURE NSA MEETINGS

AQUACULTURE 2013

Nashville, TN
February 21-25, 2013

NSA 106th Annual Meeting

Jacksonville, FL
March 29 – April 2, 2014

NSA 107th Annual Meeting

TBA

AQUACULTURE 2016

Las Vegas, NV
February 22 – 26, 2016

Judges Needed for Student Presentations in Nashville

The NSA meeting in Nashville is almost upon us, and with 16 concurrent sessions it's shaping up to be a challenging one for judging student presentations. With so many sessions, we need to organize the judging schedule ahead of time to make sure all presenters are fairly and sufficiently rated. Show your support for our student members by volunteering for this important, worthwhile, and rewarding duty. Don't worry if you have not judged talks in a while or are new to judging, there will be a judges meeting prior to the first session to go over the process and procedures.

Please let us know if you are willing to judge (oral and/or poster) ASAP so that we can work out the logistics. To volunteer, contact Lisa Milke (lisa.milke@noaa.gov) or Stan Allen (ska@vims.edu). As always, your dedication to and support of the students of NSA is appreciated!

Stan Allen & Lisa Milke
Student Endowment and Awards Committee

It's All in a Song

Are you ready for Nashville?

The host city for our Annual Meeting and the Triennial is well known for beautiful, historic mansions and southern plantations, the "Parthenon", the Nashville Zoo, and Vanderbilt University. The state Capitol for the great state of Tennessee is located in Nashville and many country music stars, including Taylor Swift, Toby Keith, Dolly Parton, Alan Jackson, and Trisha Yearwood, have homes in Nashville. And, of course, the Grand Ole Opry, home of the nation's longest-running live radio show is one of the highlights of any visit to this historic city.

For those of you who consider yourselves country music fans, see if you can identify the connection between the following country music (genre, broadly defined) artists and our favorite group of animals.

- Elvis Presley
- Johnny Horton
- LeAnn Rimes
- Jimmy Buffet
- Prairie Oyster

(see page 10 for answers.)

The Business of Shellfish Restoration

Hurricane Sandy was another reminder of how vulnerable our shorelines are to catastrophic damage by tropical and subtropical storms. Loss of life, land and property are the greatest concern. Lives and livelihoods, however, are disrupted for days, weeks, months, and even years. Weathering such storms can be a painful and frustrating experience.



Shellfish resources can be negatively impacted, as well. Storm surge and flooding from excessive rainfall can have lasting effects. Surge can cause scouring of reefs and habitat. Flooding can reduce salinities to zero for weeks, causing vast mortality. Overburden by sediment and vegetation can smother reefs, beds and flats, killing shellfish beneath and inhibiting recruitment over the short- and long-term.

Shellfish restoration following storms seeks to replenish lost resources that many coastal communities and businesses depend on. Once docks and fleets are repaired or replaced, the business of reef cleaning, cultch planting and seeding can get underway. Since resources can be limited following storms, business and family income can be stymied, more so if market share is lost. State agencies can help by contracting fishermen and farmers to help with restoring shellfish resources, providing an income while business gets back to normal. Most fishermen and farmers would rather work their way through a recovery, putting purpose and meaning back into their disrupted lives.

It makes good business sense to have a healthy shellfish resource and supporting and participating in restoration is smart business. It begins by using Best Management Practices (BMPs). The Interstate Shellfish Sanitation Conference (ISSC) Shellfish Restoration Committee's BMPs for Shellfish Restoration stress community-based programming, with planning, communication and partnership, and can be found at www.issc.org/publications. The committee's recommended BMPs follow five key themes:

1. *Protect public health while restoring the environment*

- Form partnerships among restoration proposers, regulators, funding agencies, academic institutions and non-governmental organizations to promote restoration of native shellfish and ecosystem services, and to conserve and restore coastal water quality.
- Conduct restoration projects in open waters and those historically suitable for shellfish whenever possible.
- Submit additional plans for biosecurity of projects in non-approved waters working closely with enforcement

officials and, when suitable, include funding for security efforts in project cost.

- Submit restoration project information to state resource managers, to provide centralized records and data bases.

2. *Define Goals and Objectives*

- Define goals and objectives in project proposals, actions to achieve them, methods to track project results and responsibilities of partners involved in the project.
- Establish criteria to define project success in terms of ecological services, harvest (who, when, how much), sanctuary (how long), relay (size, security, harvest requirements), and reef building (structural/ecological stability).

3. *Expand Communication and Education*

- Restoration partners meet with state resource managers prior to submitting applications and receiving funding to discuss issues including location, participants, duration, project goals, methods, species, harvest or relay requirements, site maintenance and security measures.
- Discuss shellfish gardening locations and plan for oversight by resource managers.
- Provide education component (biology, growing methods, pests, competitors, diseases and public health aspects of shellfish) for restoration programs using volunteers.
- Demonstrate to health officials that plans to educate volunteers will ensure that shellfish grown in unapproved waters will not be consumed.
- Use project to educate public about estuaries, growing shellfish and the importance of shellfish in maintaining biological health of an estuary.

4. *Expand Community-wide Restoration*

- Encourage restoration in community associations where people can work together to improve the environment in their own back yard.
- Share knowledge through lectures, written articles, and as guest speakers at civic association meetings and other community events.
- Start shell recycling programs.
- Provide volunteers to help shellfish control agencies conduct water sampling, provide education and security of the site. State agencies should solicit and accept volunteer help when appropriate.

5. *Use Non-Commercial Species in Restoration Efforts*

- Use commercially important species as a first choice but if biosecurity of commercial species is a concern, consider alternative native species for their filtering capacity and beneficial role in the ecosystem.

John Supan
Industry Committee

Impressive Attendance at the NACE – MAS – ICSR meeting in Groton, CT

In mid-December, nearly 400 aquaculture producers, vendors, researchers, regulators and students came together in Groton, CT for a joint meeting of the Northeast Aquaculture Conference & Exposition, the NOAA Milford Aquaculture Seminar and the International Conference on Shellfish Restoration. The four day event commenced with seven sold-out field trips to area research, education and production facilities, including Roger Williams University's marine culture facility, the Noank Oyster Cooperative, the Bridgeport Aquaculture High School and a commercial mussel processing plant. Later that day, the NSA joined thirty other vendors as an exhibitor in the trade show and opening reception. Thanks are due to the efforts of Sandy Shumway, Noreen Blaschik, Steve Allen, and others for pulling together an informative and colorful booth!

An opening plenary session on the role of aquaculture in fisheries and restoration set the tone for a fun and informative three days of exchanging ideas among colleagues. With four concurrent sessions and workshops, attendees were able to choose from over 170 presentations on diverse topics such as the latest shellfish culture methods, water quality and bio-security issues, marketing of aquaculture products, impacts of ocean acidification and efforts to restore shellfish populations and their habitats around the world. Hands-on workshops focused on topics such as preparation of shellfish for disease diagnostics and use of GIS and instrumentation for improved aquaculture site selection. Due to significant support from meeting sponsors, over 80 high school and college students were able to attend at a reduced cost. Thanks to all the sponsors, exhibitors, presenters and attendees for a great meeting!

Chris Davis
NACE Conference Coordinator

RENEW YOUR MEMBERSHIP TODAY!

Current membership entitles you to discounted registration for the upcoming Triennial Meeting.

You can renew by mail by returning the dues invoice recently sent to all members.

Presidents Message... continued from page 1

Restoration, and the 37th Annual Milford Aquaculture Seminar that took place in Groton, CT this past December. The event hosted over 400 attendees, 180 presentations at 28 special sessions, 30 industry vendors, and included 7 pre-conference field trips. Our young scientists were well represented with over 80 college and high school students attending or giving presentations. Our very own Chris Davis and Gef Flimlin were Conference and Tradeshow Coordinators, respectively. Thanks to everyone who volunteered their time to staff the NSA table at the tradeshow, including Sandy Shumway, Bill Walton, John Scarpa, Steve Allen, Joth Davis, Noreen Blaschik, and Maria Rosa.

Finally, congratulations to Sandy Shumway, Editor of the *Journal of Shellfish Research*, and the JSR Editorial Board for recognition in the 2012 *Association Trends All Media Contest*. This is an annual competition held exclusively "for associations, recognizing the most creative and effective communication vehicles developed in the industry over the prior year". For the second consecutive year, JSR received a SILVER MEDAL AWARD in the category for Scholarly/Technical/Scientific Journals. Well deserved!

I look forward to seeing you all in Nashville for the 105th Annual NSA conference and wish you a healthy and prosperous 2013.

LeRoy Creswell
President



Noreen Blaschik (left), Sandy Shumway (center), and Maria Rosa (right) staff the NSA table at the recent joint meeting of the Northeastern Aquaculture Conference and Exposition, Milford Seminar, and International Conference on Shellfish Restoration in Groton, CT.

2012 Melbourne Carriker Student Research Grant Update

Awardee: Brian Cheng

“Climate Change and Species Interactions in an Estuarine Community”



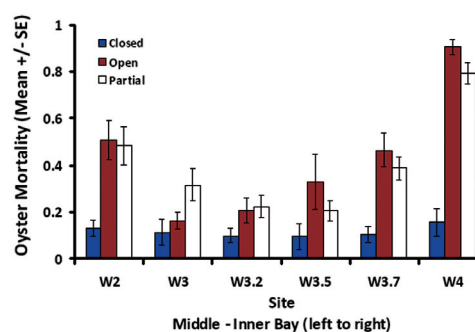
The native Olympia oyster (*Ostrea lurida*) is the focus of restoration efforts along the West Coast of North America. Although Olympia oysters provide a number of ecosystem services in estuaries, current population sizes for this species are only a fraction of historical estimates. One factor limiting the recovery of Olympia oysters has been the introduction

of the eastern oyster drill (*Urosalpinx cinerea*) from the east coast of the United States. This predatory whelk was accidentally introduced to the region, as early as 1869, when American oysters (*Crassostrea virginica*) were brought to the San Francisco Bay area for consumption and seed production. Mortality from oyster drills in Tomales Bay, located 48 km northwest of San Francisco, can be substantial at sites where drill density is high. In prior research, I have shown that oyster drills have a higher temperature tolerance than oysters and there is increased predation by drills on oysters with increasing temperature. Thus, climate change may modify the strength of the predator-prey interaction and increase their area of overlap leading to increased oyster mortality. Will climate change facilitate the expansion of eastern oyster drills in Tomales Bay?

The first goal of my study was to evaluate spatial patterns in oyster mortality related to predation and physical forces, such as temperature, desiccation, and burial. To estimate mortality, I deployed tagged oysters at six sites over a distance of 8 km in Tomales Bay. The sites were chosen to span a gradient of oyster drill density. Oysters were subjected to one of three caging treatments. The “closed” cages were 2 m x 2 m mesh cylindrical cages that completely excluded drills. “Partial” cages were the same as “closed” except for the presence of two windows where a 25 mm x 25 mm square of cage material was removed to allow predator access. These partial cages allowed me to estimate the effects of cage shading. In the “open” treatments oysters were not caged. Oyster mortality was estimated in a total of 180 plots deployed across the six sites over a six month period, beginning in

June of 2012. I hypothesized that oyster mortality would increase with increasing distance into the bay, concomitant with increasing oyster drill density.

My results indicate that oysters in closed cages had low mortality (12%, on average). In contrast, oysters exposed to predation in open and partial cages had much higher mortality that increased with increasing distance into the bay and peaked (90%) at the innermost site (see figure, below). The variation in mortality was correlated with increasing density of oyster drills (peak density was 9.6 whelks•m⁻² at site W4). Although the middle bay site, W2, also exhibited high oyster mortality, I have never observed drills at this site. Thus, mortality at W2 was likely associated with high sedimentation rates or predation by crabs (*Cancer sp.*) that are in high abundance at this site.



My study has provided evidence that oysters are under significant predation pressure from oyster drills at the inner-bay sites of Tomales Bay. If climate change results in expansion range for eastern oyster drills into areas previously uninhabitable, then the amount of available oyster habitat within Tomales Bay may become significantly reduced. This will be problematic if high burial rates or low recruitment limits range expansion for Olympia oysters to the outer parts of Tomales Bay. Future research will determine the limits to and likelihood of oyster drill range expansion to sites with high oyster density.



2012 Michael Castagna Grant for Applied Research Update

Awardee: Julie Davis

“Effect of Gear Orientation and Stocking Density on Eastern Oysters, *Crassostrea virginica*, in an Adjustable Long-line System”

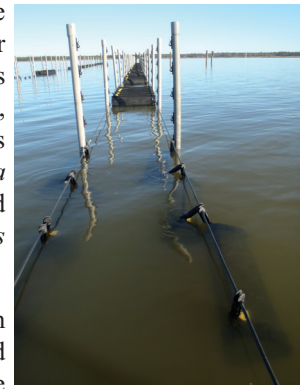
My project examined the effects of basket arrangement and stocking density in an adjustable long-line system for oyster grow-out in Alabama. The adjustable long-line system (ALS) is comprised of a tensioned monofilament line strung between two pilings. Riser posts, with clips to adjust the height of the line, are placed at uniform intervals along the line. The space between riser posts is termed a bay. Baskets, containing oysters, are then hung from the line. Lines are installed in pairs, allowing a grower to hang baskets parallel to the line (in-line) or between the lines (cross-line; see figure, above right). In addition to basket arrangement, I was concerned with the effects of stocking density on oyster growth and quality. I combined these two questions into a two-factor experimental design replicated on the level of bay. I left an empty bay between each bay occupied by a treatment replicate to maintain independence. I compared the maximum bay capacity when baskets are hung cross-line (9 baskets) with the maximum bay capacity when the baskets are hung in-line (6 baskets). I then placed 75, 90, or 105 oysters in each basket in a bay (e.g., 6 baskets hung in-line with 75 oysters in each basket). To control for the cascading effect this created on the number of oysters in a bay, I had a series of treatments where six baskets were hung cross-line. This design resulted in a total of nine treatments and a total of 21,690 oysters involved in the experiment.

On January 5, 2012 oyster seed (*Crassostrea virginica*), spawned at the Auburn University Shellfish Lab in May 2011 and averaging 50.5 mm in shell height, were placed in final grow-out baskets (12 mm mesh) and deployed onto the ALS at Porterville Bay, Alabama. I maintained the oysters according to local husbandry practices designed to control bio-fouling. This practice involves 18-24 hours of air drying once weekly. Every other month I randomly selected three baskets from each bay and measured five oysters from each basket then returned the oysters to the basket. By August 2012 oysters had, on average, reached legal size (75 mm)



so I haphazardly selected five oysters from each basket for measurement of shell metrics and condition index. In addition, I haphazardly selected oysters for quantification of *Polydora websterii* infestation and intensity of *Perkinsus marinus* infection.

There was no interaction between basket arrangement and stocking density for any of the response variables, so I considered basket arrangement and stocking density, separately. Oysters grown in baskets hung in-line were bigger in shell height, width, and length than oysters grown in baskets hung cross-line. Arrangement had no effect on condition index, but in-line oysters had a higher dry tissue weight than cross-line oysters. Despite being larger, oysters grown in in-line baskets were not as cupped and accumulated more bio-fouling than oysters grown in cross-line baskets. Oysters grown in bays with six baskets cross-line were similar in size to those grown in bays with nine baskets cross-line. Oysters stocked at higher densities grew larger in shell height, however, they had a smaller cup than those stocked at lower densities. Stocking density had no effect on dry tissue mass but oysters stocked at 75 per basket had a higher condition index than those stocked at higher densities. Stocking density had no effect on the accumulation of bio-fouling.



Mud worm infestation directly affects the marketability of an oyster destined for the half shell market and dermo disease may affect meat quality. I found that basket arrangement and stocking density had no effect on the intensity of *Perkinsus* infection or *Polydora* infestation. Beginning oyster farmers motivated this research by seeking to increase production up to 50% on an ALS run by turning baskets cross-line. The results from my project indicate that this can be done with little effect on shell shape or condition. Due to heavy fouling on oysters grown in in-line baskets, the cross-line arrangement also represents a cost savings for the farmer because less effort is required to clean oysters for market. I would like to thank the staff and students of the Auburn University Shellfish Lab, Mississippi-Alabama Sea Grant, Alabama Co-operative Extension System, and Dauphin Island Sea Lab for their assistance in completing this project.



Pacific Coast Section Update

The 66th Annual Meeting of the Pacific Coast Section of the National Shellfisheries Association took place from September 24 – 27, 2012 at the Tulalip Hotel and Resort in Tulalip, Washington. The conference, co-sponsored by the Pacific Coast Shellfish Growers Association, brought together participants from academia, industry, government agencies, and environmental organizations to exchange ideas and discuss shellfish research. Two hundred and forty-six people attended the event, of which 52 were NSA members. The PCS sincerely thanks the shellfish industry, the conference planning committee, Margaret Barette, and especially Connie Smith for making this annual joint conference a great success.

A field trip to the Tulalip Tribal Salmon Hatchery and ageing laboratory was an exciting and interesting start to the conference. Tribal biologists have compiled a substantial database on salmon returns to local streams providing for predictive annual run estimates. They are also investigating the spatial patterns in geoduck clam recruitment and have found more consistent settlement and improved juvenile survival in the vicinity of “elders” (100 year old clams). Field trip participants had the opportunity to see first-hand how tribal biologists age fish and clams using scales and shells, respectively (see photo, below).



Dr. Jodie Toft of the National Capital Project gave the opening plenary address. She introduced the audience to several on-going NCP projects in the U.S. and abroad that seek to quantify and place a value on ecosystem services, including projects on shellfish restoration planning in Mobile Bay, AL, and spatial planning to reduce the impact of coastal development on lobster habitat in Belize. The plenary was followed by a grower roundtable led by Dr. Jennifer Ruesink (University of Washington) where shellfish growers were invited to describe ecosystem services that they had witnessed on their farms. Research scientists found the roundtable helpful and informative because they rarely have the opportunity to observe such services first-hand. National Geographic fellow, noted chef, and author Barton Seaver gave an intriguing luncheon presentation on

sustainable seafood followed by a public discussion with other renowned shellfish chefs on the same topic. The rest of the day was devoted to a mix of talks covering ecosystem services, the difficulty of implementing spatial planning and permitting for expanded shellfish culture and restoration, and ongoing research in shellfish aquaculture-environmental interactions.

Ocean chemistry, acidification and climate change continued to be a hot topic at this year's meeting, and was covered along with disease and human pathogens during the second day. Other sessions and workshops were devoted to burrowing shrimp, genetics and broodstock development, oil spill response and vessel inspection, outreach and education, sustainability and certification, and shellfish sanitation. Student involvement continues to be the focus of the PCS mission; students from the University of Washington and the University of Victoria gave 14 out of the roughly 63 presentations at the meeting. The best student paper award was given to Kate McPeck (University of Washington) for her presentation “Patterns of Utilization of Geoduck Aquaculture Plots by Pacific Staghorn Sculpin in Puget Sound Washington: Results from Mark-Recapture and Stable Isotope Studies” co-authored by Glenn Van-Blaricom, David Beauchamp, and Sean McDonald. She 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. Thanks to those who put on the balloon popping raffle and solicited and donated items for the silent auction. The proceeds from both events helped support student attendance at the meeting. Suggestions for and help at the next meeting are always welcome!

The NSA-PCS held its Annual Business Meeting and announced the results of officer elections during the 2012 conference. Brett Dumbauld (USDA-ARS) agreed to stay on as PCS Chair, Sean McDonald (University of Washington) was elected PCS Vice-Chair, Chris Kaplan (Jamestown S’Klallam Tribe) was elected Secretary, and Bethany Stevick (Washington Dept. of Fish and Wildlife) was elected Treasurer. Chris Burns and Sarah Dudas will continue as Members-at-Large and will be joined by David Fyfe. The members in attendance approved a revised PCS Constitution and Bylaws with one minor amendment.

The 2013 PCSGA/NSA-PCS conference is scheduled to be held at the Sun River Resort in Sun River, Oregon from September 30 to October 3, 2013. Meeting details and a call for papers will be posted on the PCS Website in early spring. We need to get the word out to student recruits about what a great opportunity this meeting is and I look forward to seeing a good turn-out of PCS members at the Triennial meeting in Nashville!

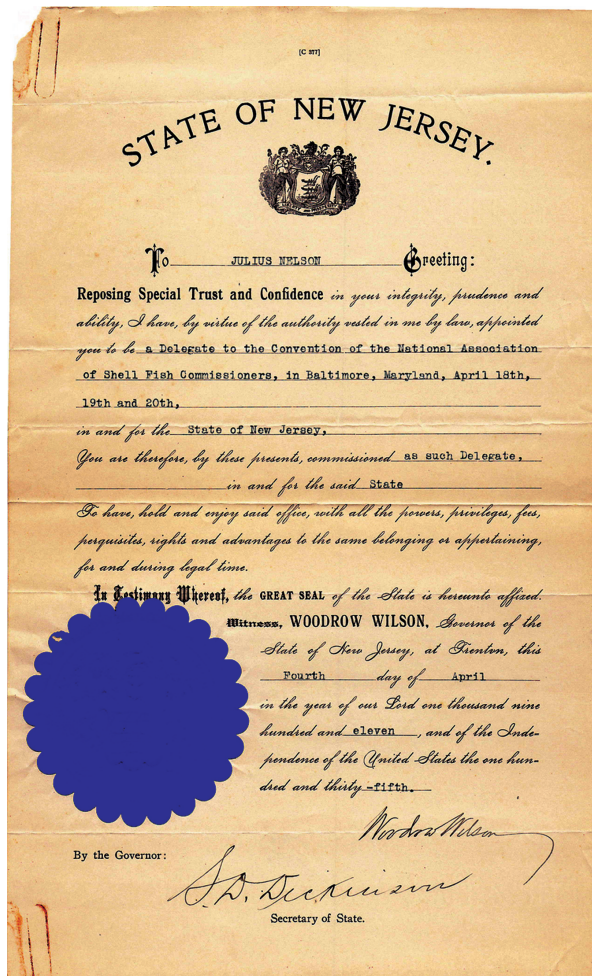
Brett Dumbauld
Pacific Coast Section Chair

A Piece of NSA History

It's amazing what can be found in old file drawers at the Haskin Shellfish Research Lab!

I was looking for some old reports and stumbled on three 100 year-old documents. The one pictured, below, is unique in that it was signed by Woodrow Wilson when he was Governor of New Jersey. It gives permission for Julius Nelson to represent the State of New Jersey at the National Association of Shellfish Commissioners, in Baltimore, MD! This was signed just before Wilson became President. I'm just sorry I didn't find this while Mel Carriker was alive and working on the NSA history.

John Kraeuter
Haskin Shellfish Research Laboratory



What's Cookin'?

SHELLFISH! Plans are underway for another NSA Shellfish Cookbook. Details to follow, but start digging out your favorite recipes - send at any time to Sandy Shumway.



Shellfish in the News

- Researchers from the University of Edinburgh working in Loch Alsh, a sea inlet between the Isle of Skye and the Scottish mainland, discovered a flaming-orange shellfish reef. The vibrant color was due to an extremely high density of clams known as flame shells (*Limaria hians*). Flame shells are generally considered to be a rare, but recent surveys in Loch Alsh found perhaps as many as 100 million flame shells in a 4.5 square mile area. The mantle of this species has neon orange-colored tentacles that it extends when feeding creating a vibrant splash of color in an otherwise drab rock reef. see www.ouramazingplanet.com/3929-flame-shell-reef-scotland.html for more on this story.
- Economists and aquaculturists have often lamented the large U.S. trade imbalance for seafood products. However, the news is not all bleak. A recent story by Mark Godfrey of SeafoodSource suggests there is a growing demand for high quality oysters from buyers in Beijing, Guangzhou and Shanghai that has some West Coast growers struggling to keep up with demand. Godfrey describes the challenges faced by Liu Xin of Oregon Oyster Farms, including dealing with problems associated with ocean acidification, as he seeks to supply this growing market. See www.seafoodsource.com/newsarticledetail.aspx?id=18970 for more.
- Several recent articles have drawn attention to efforts to restore populations of bay scallops to Florida waters. An article in the Gasparilla Gazette covered a recent release of eight million post-set scallops organized by Florida Sea Grant's Betty Staugler. Staugler and other volunteers produced scallop seed in a commercial hatchery in the hope that releasing juveniles into local habitats will increase scallop survival and the likelihood that restoration efforts are successful. See www.gasparillagazette.com/page/content.detail/id/519201/8M-bay-scallop-larvae-to-be-strewn-Sunday.html?nav=5054 for more on this story.

Membership Report

At the end of 2012, NSA membership totaled 683 members in good standing, of which 149 (22%) were student members. This is essentially the same level of membership we had in 2011 (685 members). As we head into 2013, it will come as no surprise to you that we hope you will renew your membership. But we also hope that you will suggest NSA membership to your colleagues as one of the best professional investments that they can make.

If you haven't received your dues invoice yet, you will soon. If you've attempted to renew on-line, you may have discovered that the NSA Website is in a state of transition to a new provider. During this process, you will be unable to pay your 2013 annual dues online. To reduce any inconvenience this may cause to our members, **the deadline for 2013 dues payment has been extended to February 28, 2013 (postmarked by, in case of mailing)**. Payments can be mailed, faxed or emailed to Linda Kallansrude.

Linda Kallansrude, Bookkeeper
14 Carter Lane
East Quogue, NY 11942-4335 USA
E-mail: lindajk@optonline.net
Phone & Fax: 631-653-6327

We are excited about the possibilities offered by the new website provider, and we believe that members will benefit from a site with an updated look, new content, and increased security measures to protect sensitive personal information. We appreciate your patience as we make this change and we look forward to improving your on-line experience as a member of the National Shellfisheries Association.

We are also thrilled to announce that Peter Kingsley-Smith, Associate Marine Scientist in South Carolina's Department of Natural Resources, Marine Resources Research Institute, has accepted the position of Co-Chair of the Membership Committee. Despite the challenges presented by today's economy, our goal is to not only maintain, but grow the membership of NSA. The Association had a booth at the recent, joint meeting of the Northeast Aquaculture Conference & Exposition, Milford Aquaculture Seminar, and International Conference on Shellfish Restoration. Special thanks to Sandy Shumway, Steve Allen and Maria Rosa for volunteering their valuable time to man the booth. We are looking forward to similar opportunities to recruit new members in the coming year. Membership in NSA remains one of the best values among professional societies. Please renew your membership and encourage colleagues and students to join.

Bill Walton and Peter Kingsley-Smith
Membership Committee Co-Chairs

Ecology of Infectious Diseases Oysters and Estuaries

An upcoming special issue of the *Journal of Marine Research* contains one overview and 11 research articles that describe the results from a NSF-funded Ecology of Infectious Diseases Program in Delaware Bay. This program focused on host-parasite relationships in eastern oyster populations that are affected by MSX and dermo diseases and how these might be altered by climate change. The papers in this issue provide historical perspectives of MSX and dermo diseases in oysters, the role of local water properties and circulation patterns in establishing and maintaining zones of refuge from disease in an estuary, mechanisms that may influence the rate at which disease resistance develops, the movement of oyster genotypes conferring disease resistance or susceptibility in the estuary, the role of oyster food supply in regulating disease, and the impact of disease on sustainability of oyster reefs and the implications of this for restoration and management.



A table of contents and links to all of the articles in this *Journal of Marine Research* special issue are available at <http://hsrl.rutgers.edu/research/EID%20paper%20list.htm>.

It's All in a Song

Answers to country music quiz from page 3.

In the 1962 musical comedy "Girls! Girls! Girls!", Elvis Presley sang a tune titled "Song of the Shrimp". While Elvis is often classified as a 50s Rock and Roll artist, he has roots in country music and his estate, Graceland, in Memphis, TN, is not far removed from Nashville.

In his 1957 song titled "I've Got a Hole in My Pirogue" Johnny Horton sings about fishing for crawdads.

In her album "This Woman", released in 2005, LeAnn Rimes included a song titled "Nothin' 'Bout Love Makes Sense", the lyrics of which refer to "A pearl in an oyster or a circus of fleas" and "A jumbo shrimp or a baby grand".

Jimmy Buffett's third album, released in 1973, bore the title A White Sport Coat and a Pink Crustacean.

And who isn't familiar with the award winning Canadian country band out of Toronto known as Prairie Oyster. Okay, so prairie oyster does not refer to a shellfish but to a specialty dish prepared from bulls, but given climate change the prairie may some day have real oysters, too.

Aquaculture Canada^{OM} 2013

Farming our waters - Agrifood Innovations

June 2 - 5, 2013
Guelph, Ontario, Canada

General Information/Conference Coordinator:
Joanne Burry
ph:709-437-7203
email: jmburry@nl.rogers.com
www.aquacultureassociation.ca



NSA thanks the Aquaculture Association of Canada for sponsoring this issue of the *Quarterly Newsletter*.

Upcoming Events

Aquaculture 2013 / National Shellfisheries Association, 105th Annual Meeting: February 21-25, 2013, Renaissance Nashville Hotel & Nashville Conference Center, Nashville, TN, USA. For more information visit www.shellfish.org or <https://www.was.org/WasMeetings/meetings/Default.aspx?code=AQ2013>.

9th International Conference on Shellfish Safety: March 17-22, 2013, Bayview Boulevard, Sydney, Australia. For more information visit <http://www.icmss2013.com/>.

42nd Annual Benthic Ecology Meeting: March 20-23, 2013, Hyatt Regency Hotel, Savannah, GA, USA. For more information visit <http://ceps.georgiasouthern.edu/conted/beminfo.html>.

19th International Pectinid Workshop: April 10-16, 2013, Florianópolis, Brazil. For more information contact Guilherme Rupp, ipw2013@gmail.com.

Aquaculture Canada 2013: June 2-5, 2013, Guelph, ON, Canada. For more information visit www.aquacultureassociation.ca.

Aquatic Ecosystems at the Edge - 11th Biennial Conference of Aquatic Ecosystems Health & Management Society: June 17-20, 2013, Victoria, BC, Canada. For more information visit <http://conferences.aehms.org/AEHMS11/>.

67th Annual Meeting of the Pacific Coast Shellfish Growers Association/NSA Pacific Coast Section: September 30-October 3, 2013, Sun River Resort, Sun River, OR, USA. For more information visit www.nsapcs.org.

22nd Biennial Conference of the Coastal & Estuarine Research Federation: November 3-7, 2013, Town and Country Resort & Conference Center, San Diego, CA, USA. For more information visit www.erf.org/cerf2013.

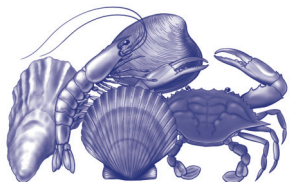
Asian Pacific Aquaculture 2013 - Positioning for Profit: December 10-13, 2013, Ho Chi Minh City, Vietnam. For more information visit www.was.org.



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).

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