

# National Shellfisheries Association

QUARTERLY NEWSLETTER

JANUARY 2007

GROTON, CT



## President's Message

This is my last newsletter message as your President. My two-year term will end in approximately 2 months during the triennial meeting, when NSA, The World Aquaculture Society, the US Aquaculture Society, and the Fish Culture Section of the American Fisheries Society meet in San Antonio, Texas. At that time, Dr. Dave Bushek will assume the office of President. I can confidently state that the Association is quite fortunate to be under his leadership and will be in good hands for next two years, 2007-2009. Dave has served as Vice President, Treasurer, and President-Elect. He is highly competent, very knowledgeable of NSA issues and history, and committed to the mission of NSA. During the past two years while serving as President-Elect he has devoted countless and unheralded hours working on projects to benefit the Association and its members.

Our next annual meeting in San Antonio is rapidly approaching and I strongly encourage you to attend. The program chair for the entire meeting is Sandy Shumway, and she and Leroy Creswell have devoted much time and effort in developing sessions that will be appealing to members. There are 90 special sessions and a total of 1030 papers, and shellfish sessions are scheduled for every day. The NSA Student-Endowment-Fund (SEF) Auction and the Business Meeting are scheduled during the meeting. If you have not already made plans to attend, do so and take part in a great opportunity to learn and exchange information.

My last message is an appropriate time to provide you with my reflections about the path of NSA during the last two years and beyond. I must emphasize that what has been accomplished during the two years of my term is a product of the efforts of all those who served as officers and members of the Executive Committee, and those who served as chairs, co-chairs or members of the important standing and *ad-hoc* Committees. Throughout the past two years, we have been working on retrofitting and improving our website, making it a combination of website and web portal. The portal is currently in the process of an upgrade and the website will soon undergo some cosmetic changes to make it easier for members to

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*Don't miss the science, trade show and networking opportunities that are sure to be had at the Aquaculture '07 meeting in San Antonio! Plan to attend the meeting between Feb. 26 and March 2, 2007 - hope to see you there.*

### ***In this issue:***

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\$100,000



## **President's Message...** Continued from page 1.

effectively utilize all the services offered to them. The portal is designed to allow members to manage their membership and to help officers and committee heads conduct the business of NSA effectively and efficiently.

Through the portal an accurate, ongoing tracking of members for different calendar years can now be readily achieved. This tool has revealed that membership has climbed at a mean annual rate of 11 % during the last three years. We are very pleased with these numbers and hope they continue to increase each year, particularly drawing upon those who have expired memberships, and those who are part of the international and industry shellfish communities. If you have yet to renew your membership for the 2007 calendar year, please take time to do so. Renewal requests have already been sent to you and it is very easy to renew on line at the NSA website. On time renewals contribute to a smoother operation and cost savings for NSA.

As the 100<sup>th</sup> anniversary of NSA approaches, one of my principal concerns is how to ensure that the Association will remain viable and thriving for another 100 years. NSA is most definitely in a state of transition, really at a crossroads, as we try to increase the benefits of membership while addressing the ever increasing operational costs and activities. The growth of the Association is highly satisfying, but this growth is leading to the realization that the majority of operations can no longer be dependent upon volunteer efforts. The generous volunteerism that has and continues to sustain NSA is indeed special. However, these service activities cannot always be counted upon and may be unavailable at crucial times. Also, service to professional organizations is garnering less and less acceptance and recognition by administrations, particularly those who have academic appointments at institutions of higher learning.

Recognizing that the ever-increasing magnitude of operation and service to members required daily clerical service, the EXCOM recently hired Ms. Linda Kallansrude, who will begin attending to a variety of clerical responsibilities during mid-January. As services and demands increase, I believe that continued professional operation of NSA in the not too distant future will most probably warrant a funded position of Executive Director, probably on a half-time basis at least. When this action occurs, it will be both significant and momentous in the history of NSA.

To achieve the goal of hiring an Executive Director, NSA will have to find ways to reduce costs and increase revenue. One mechanism is to increase sponsorship of our annual meetings, the *Journal of Shellfish Research*, and the NSA Newsletter. Another possible strategy is to try to schedule our annual meetings in conjunction with meetings of groups/professional societies that share common/

complementary interests to reduce meeting expenses. An Executive Director would undoubtedly play an integral role in the realization of all of these possible cost saving activities.

We are already moving in this direction. For example, the printing costs of the NSA Newsletter have been significantly reduced through monetary donations. During this past year NSA entered into an agreement with BioOne, a not for profit array of scholarly electronic publications providing published articles via request. This effort is designed to increase exposure of NSA and *JSR* by placing *JSR* online and also provide NSA with a revenue stream of royalty payments. These payments principally come from subscriber fees to BioOne and per copy fees charged for obtaining articles/abstracts of interest. Similar opportunities for on-line availability of *JSR* are being investigated. Such efforts are designed to keep membership fees and meeting registrations down at a reasonable level with only modest increases when absolutely necessary. In addition, NSA's ever growing presence and importance as a professional association can be maintained.

The commitment of NSA to its student members is unrivaled for any professional society. All of us should be pleased with how we are dedicated to the success of our legacy as illustrated by the annual SEF auction and the SEF Campaign, a major fund raising effort recently initiated and spearheaded by Sandy Shumway. Its overall goal of \$100 K fits in well as NSA approaches its 100<sup>th</sup> anniversary.

I believe that much of what has been achieved this year is founded upon the two-year presidential term whereby solutions to various issues were rapidly and thoroughly addressed because continuity was maintained. Also, during my two-year term, I fortunately was able to retain the services of most of the committee chairs or co-chairs with whom I worked during the first year. This advantage certainly contributed to the many points of progress to which we can proudly testify.

It has been an honor to serve as President of NSA and I thank you for placing your trust in me. The experience of serving during the last two years has been very rewarding personally, particularly the pleasure of working with so many fine, dedicated people and meeting new people. NSA's journey through the next five to ten years of the 21<sup>st</sup> century may be a bit bumpy as more growing pains will be experienced, and risks and opportunities will have to be carefully weighed. NSA is an organization that has a proud and coveted history, and I know that success and growth will prevail. I ask my fellow members to continue to contribute to perpetuating the mission of NSA in your own special way.

**Lou D'Abramo**  
**President**

## Bounty of the Bay: Blue Crab Industry in the Chesapeake

The Susquehannock word 'Chesapeake' means "great shellfish bay," and so it is no surprise that Native Americans and early European settlers thrived on the bountiful shellfish. One species in particular still defines the Chesapeake Bay region, the blue crab. It is the most important commercial fishery in the Bay.

The blue crab, *Callinectes sapidus*, is a decapod crustacean belonging to the family Portunidae, which includes the swimming crabs. Its Latin name actually means "beautiful swimmer." It is a benthic dwelling predator found in sub tidal waters from Nova Scotia to Argentina<sup>1</sup>; however, populations are concentrated from Massachusetts to Florida and into the Gulf of Mexico.

One of the first written accounts of the Chesapeake blue crab, in the early 1600s, tells of Indian Chief Powhatan serving crabs as a morning meal for visiting Europeans<sup>2</sup>. As colonists inhabited the Delmarva Peninsula, they took advantage of the plentiful supply of crabs, the demand for which spread to coastal settlements along the East and Gulf Coasts of the United States. According to Victor Kennedy,



Professor at the University of Maryland, Center for Environmental Science, Horn Point, the commercial crabbing industry, however, would take more than two hundred years to develop.

Export from harvest sites was limited because of the short shelf life of crabmeat. Without refrigeration and ice-making, the crabs could not be kept alive long enough to expand markets away from coastal areas<sup>3</sup>. Technology also limited the development of the industry until the 20<sup>th</sup> century, when the Chesapeake Bay crab pot was invented. Shortly after, commercial crabbing became more efficient and profitable, and harvest levels increased dramatically throughout the region<sup>4</sup>.

Blue crabs have been primarily used for human food, but the byproducts of processing have been utilized for agricultural feedstuffs, fertilizers<sup>5</sup> and also for pigments derived from the shells. For most of the history of the commercial fishery, the Chesapeake Bay supplied the majority of these products. The developments and practices of the fishery in the Bay also influenced the crabbing industry in other regions. In fact, the town of Crisfield, Maryland was the most important transportation and export center for the industry in the U.S., and has appropriately been named the "Crab Capitol of the World." Today, a thriving industry still exists in that region.

Commercial and recreational harvesters continue to utilize the simple implements used ages ago including: crab pots, dip nets, drop dredges, hand lines and seines. From March to November, harvesters capture crabs using shallow skiffs or small powerboats. Recreational harvesters may also wade or collect crabs from underneath fixed or floating docks. Until the 20<sup>th</sup> century, dip nets were the most common implements used by crabbers<sup>8</sup>, and reports tell of fishermen catching more than 600 crabs in a single day. Even more efficient, the use of pots and dredges allowed fishermen to catch anywhere from 1500 to a record 3600 crabs per day<sup>4</sup>.

With improvements in mechanization and shipping, the Chesapeake crab market gradually grew from harvest levels of approximately ten million pounds (three crabs per pound) in 1890 to 50 million pounds in 1915<sup>6</sup>. From the early 1940s to the 1960s, crab harvests increased six-fold from 1900 levels<sup>7</sup>, although natural production was decreasing.

It may be this increase in gear efficiency, along with a number of other factors that eventually led to a major downturn in blue crab production. A decline in the 1920s led to the implementation of minimum size restrictions and catch limits. While stocks stabilized within a couple of decades, the trend would not last. In the 1990s, harvest levels dropped dramatically. Kennedy claims, "Fishing pressure, water quality and habitat degradation were among some of the concerns, which brought watermen, researchers and regulators together to discuss the future of the blue crab in the Chesapeake."<sup>2</sup> As a result, in 1996 the Bi-State Blue Crab Advisory Committee (BBCAC) was formed to address threats to the resource, and to research potential management options<sup>9</sup>. In 2001, an important milestone was reached; with a Bay wide goal set to double the blue crab population from levels measured in the late 1990s<sup>10</sup>.

An alternative management option considered by the BBCAC is to use aquaculture for stock enhancement. Researchers are beginning to develop techniques to mass-produce juvenile blue crabs<sup>11,12</sup>. Although aquaculture trials have been

Continued on page 6

## Recruits' Corner

YEE HAW!! The Recruits are headed to Texas for Aquaculture 2007. And if you haven't registered yet... git along lil' doggie! Even if you are not presenting your fantastic research, you can still benefit from attending our triennial meeting. In case the name didn't give you a clue, the triennial is held every third year and is the combined annual meetings of NSA, the World Aquaculture Society (WAS) and the fish culturing section of the American Fisheries Society (AFS). Many times larger than our NSA annual meetings, Aquaculture 07 will present many more and diverse opportunities to network, find a job, and learn exciting stuff. Register early for special student discounted rates and don't forget to let them know that you are a NSA member when you register. You can find details about the meeting in this newsletter and online at shellfish.org. And, of course, while you are at the meeting, one of the best places to see and be seen is at the NSA Student Endowment Sales Booth. So why not take an hour or two out of your busy schedule (trolling the trade show for swag, come on, we know we all stock up on pens and post-it pads during these huge meetings) and volunteer for a shift at the Sales Booth to raise money for us, the Recruits. Just see me or Dane when you arrive in San Antonio and we'll set you up. If you are in need of a **ROOMMATE** to share the costs of the meeting, please use the SHELLFISH FORUM on the NSA website to find a suitable match.



NSA students Dustin and Steve help out at last year's SEF auction .

Of course, one of the highlights of any NSA meeting, even a triennial, is the **Student Endowment Auction**. Join us on Tuesday night for this special fundraising event and find out what Texas-themed costume Sandy, our auctioneer, will wear and what zaniness will ensue when our big money-makers (Gef, Maureen) try to steal the show - all for a great cause. This year will feature aquaculture and shellfish quiz questions throughout the auction (idea courtesy of our friends in the USAS student committee) with special prizes awarded. If you have any shellfishy or, this year, just fishy items that you think will bring in the

big bucks at the auction, please bring them to the meeting. In addition to the great science, the networking opportunities, and the infamous auction, there are also **special student sessions** planned for the meeting. The student committee members of USAS have some informative workshops planned on Publishing Your Work (co-moderated by Dane Frank), Aquaculture Careers, and Women in Aquaculture. All three are sure to have something instructive for everyone, so be sure to check the meeting schedule online and when you arrive for dates and times. And, as always, while you are online registering for the meeting, check out the Recruits (the student association) page on the NSA website. Dane and I are always open to suggestions for the website or for the Recruits in general. So, cowboys and cowgirls, we'll see you in Texas!!

Nature McGinn  
Dane Frank  
Student Recruits



## Student Endowment Fund Auction

Don't forget to bring your odd, exotic and/or treasured items to donate for the annual Student Endowment Fund (SEF) Auction, which will be held Tuesday night (that's the first night, so don't forget). Once again Sandy Shumway will be putting items on the block to raise money for the SEF. Any items related to shellfish (or not) are appreciated including books, posters, t-shirts, jewelry, art-deco pieces, shell arts and crafts, and libations to name a few. This is always a fun and fast-past event that benefits the students in our Association. If you have items to donate to the auction but cannot attend the meeting, contact the auctioneer (see back page)!



## Aquaculture 2007 is Here!

“Aquaculture 2007: Science for Sustainable Aquaculture” is shaping up to be a triennial conference that is true to the “Texas Style” – the biggest and best ever! If you have never attended a triennial conference - a confluence of annual meetings by NSA, the World Aquaculture Society, and the American Fisheries Society - getting to “Aquaculture 2007” is bound to broaden your horizons. Regardless of your background and interests in the shellfish world, this triennial conference will provide you with opportunities to interact with representatives from the business world and government, as well as your colleagues from the scientific community. A host of special, invited sessions, as well as contributed sessions, are scheduled. Here are the NSA sessions scheduled:

Experimental Biology of Molluscs: Cells to Organisms,  
Shellfish Genomics,  
Freshwater Mussels,  
Molluscan Shellfish Diseases,  
Dermowatch Workshop,  
Shellfish Aquaculture and the Environment,  
Shellfish Aquaculture in China,  
Clam Culture,  
Abalone Culture,  
Urchins - Aquaculture, Fisheries and Biology.

Other sessions that may be of interest include Shrimp Culture, *Macrobrachium* Culture, Aquaculture and Disasters: Dealing With Natural and Man-Made Mayhem, Footprints of Aquaculture: A Global Reality, Enhancing Aquaculture Education Through Networking and Team Building, and many more!

“Aquaculture 2007” will have the largest aquaculture trade show in the Western Hemisphere, and one of the largest in the world with over 200 booths! This is your opportunity to inspect the latest in products and services to the aquaculture industry, laboratory supplies, and scientific publications. Of course, the traditional auction to support our growing student endowment, and I can only imagine what character from the Alamo might serve as auctioneer. The annual NSA Business Luncheon is scheduled for Thursday.

So, if you have yet to register and make your travel arrangements...time's a' wastin' (I think that's Texas lingo because I heard the President say it); early registration comes to an end on January 12. When you register, **BE SURE TO CHECK THE LITTLE BOX NEXT TO NSA** that will qualify you for membership registration rates, but as importantly, so that our association gets our deserved piece of the pie with regard to meeting revenues.

For more program information and registration, go to [www.shellfish.org](http://www.shellfish.org) or [www.was.org](http://www.was.org) for complete details.

**Leroy Creswell**  
**NSA Program Chair**

## PCS Holds Annual Meeting

The 60th annual meeting of the Pacific Coast Section of the National Shellfisheries Association (NSA-PCS) was held October 2-5, 2006 in Vancouver, Washington. The meeting was held in conjunction with the Pacific Coast Shellfish Growers Association (PCSGA). Sixty-two presentations were given at the conference on issues related to Environmental Monitoring, Pinto Abalone Biology and Restoration, Olympia Oyster Biology and Restoration, Invasive Species, Geoduck Clam Biology and Culture, Shellfish Safety and Marketing and Burrowing Shrimp Control. In addition, a special technical session was convened to discuss the *Vibrio parahaemolyticus* event that severely affected shellfish growers on the west coast this year.

Over 180 participants attended and seven student presentations were made at this year's conference. Two students were awarded Best Student Paper Awards. Mr. Joshua Bouma (University of Washington) was awarded the Best Graduate Student Paper for his presentation titled, 'Early Life History of the Pinto Abalone (*Haliotis kamtschatkana*) in the San Juan Archipelago.' Mr. Nathan Wight (University of Washington) was awarded the Best Undergraduate Student Paper for his presentation titled, 'Development of a Quantitative *Ostrea conchaphila* Species-specific DNA Assay (QPCR) that will Rapidly Estimate Quantities of Oyster Larvae in Seawater Samples.' Each of these students received \$100 and one year's membership in NSA. Support for all of the students to attend the meeting and present their research was provided through the Ken Chew Student Fund. The Chew Fund is supported by a variety of fund-raising activities including student sponsorships, silent auctions and other functions. Special thanks go to T. Blewett and L. Hillier for their effort in organizing this year's silent auction.

The NSA-PCS held its annual business meeting in conjunction with the conference on October 3rd. Sandy Shumway, who spoke at the conference and attended the business meeting, provided valuable information on upcoming NSA meetings and current activities. Additionally, she generously donated a copy of the comprehensive volume *Scallops: Biology, Ecology, and Aquaculture* for a raffle to kick start the centennial campaign for the Student Endowment Fund. NSA-PCS executives were re-elected for the coming year including Don Velasquez (Chair), Kelly Toy (Vice-Chair), Randy Hatch (Treasurer), and Lizzie Nelson (Secretary). The 61<sup>st</sup> annual meeting of the NSA-PCS is being scheduled with the PCSGA for fall 2007. More information will be available at [www.nsapcs.org](http://www.nsapcs.org) and [www.pcsga.org](http://www.pcsga.org).

I hope to see everyone in at the Triennial Meeting in San Antonio.

**Don Velasquez**  
**Chair NSA-PCS**

## Chesapeake Blue Crabs... Continued from page 3.

successful, cannibalism and slow crab growth rates may limit the degree of success of stock enhancement efforts.

Although the Chesapeake blue crab populations have rebounded somewhat in the past few years, the numbers are only slightly above the average in a decade of low abundance<sup>8</sup>. Harvest production in 2006 reached 500 million crabs, as compared to 300 million in the late 1990s<sup>8</sup>. These production numbers are still at a fraction of historic levels, and annual fluctuations still puzzle scientists and resource managers. Crabbing, however, continues to be a way of life for both commercial waterman and recreational harvesters. Although the future of the crab stock is uncertain; managers, researchers and watermen are working together to ensure a sustainable resource.

Tessa Getchis  
NSA Newsletter Reporter



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## High-School Students Aim High with Shellfish Science

If you're like me, you remember high-school science projects that usually involved mock volcanoes, insect collections, growing peas and model rockets. Whereas these types of activities still have a place in secondary school science activities, some motivated students are opting for more cutting edge, real-world science research. Emily Brownlee, a Calvert High School student (Prince Frederick, Md), and Alison Yee, a Byrum Hills High School student (Byrum Hills, NY) are two such young scientists.

Recently, Emily Brownlee was named the U.S. winner of the Stockholm Junior Water Prize (SJWP) – the most prestigious international competition for water-related research – during a June 24<sup>th</sup> (2006) ceremony at the Georgia Aquarium in Atlanta, Ga. Her work, “A Tale of Two Oysters”, discusses the controversial proposal to introduce the Asian oyster, *Crassostrea ariakensis*, into the Chesapeake Bay, and examined the effect of algal blooms on the growth rates of the native and non-native species. Her project was selected from a pool of 44 state SJWP winners at the national competition held in Atlanta, June 22-24. Emily, was awarded \$3,000 and an all-expense paid trip to Stockholm, Sweden, where she competed against more than 30 countries for the international honor during World Water Week, August 20-26, 2006. She is planning on submitting a paper that describes her work to *JSR* in the near future.

Alison Yee, began a project related to Dermo disease and apoptosis in oysters at the age of 15. Working with Inke Sunila at the Department of Agriculture, Bureau of Aquaculture, in Milford, CT, she completed her research and published a paper in *JSR* at the age of 17 (Yee et al. 24(4): 1035-1042). Inke Sunila remarked, “It was her vision about a high school science project... [and] she commuted three hours every day on the train to work in my laboratory.” Alison’s work was named a finalist project for the National Intel-Westinghouse Competition.

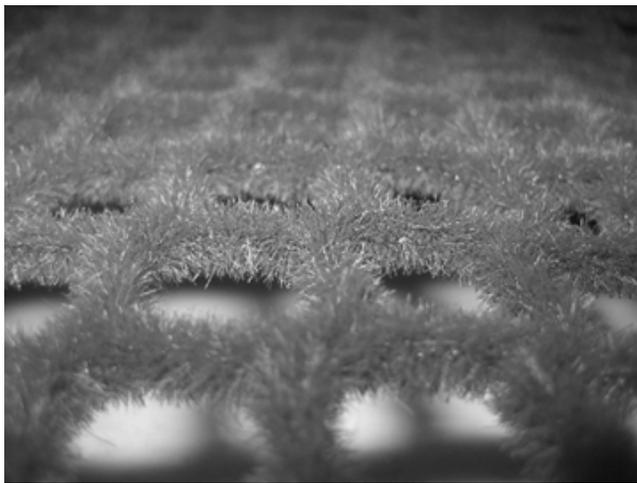
Both of these students are role models for young, aspiring scientists and are congratulated for their work.

**Evan Ward**  
Newsletter Editor



## **New Non-Toxic Antifouling Treatment for Aquaculture Nets**

DSM Dyneema announces the first commercial success of its collaboration with the Dutch company Micanti. DSM Dyneema and Micanti are engaged in the development of strong and tough aquaculture nets with a new, revolutionary non-toxic antifouling treatment. Pinar Deniz, part of Yasar Holdings and one of the largest fish farms in Turkey and Europe, signed a contract in September for the deployment of the netting system at its farms. The combination of the newly developed non-toxic Thorn-D® antifouling, from Micanti, with durable Dyneema® fibers, provides long-term, non-toxic resistance to fouling and



thus avoids most environmental and fish-health issues. The benefit for the fish farmer is reduced maintenance and lifecycle costs for fouling prevention, as well as healthier and larger sized fish. Pinar Deniz stated: “We believe that the use of nets made with Dyneema fiber and coated with Thorn-D is an important step in reducing operational cost and towards non-toxic antifouling. We gladly participate in the project.”

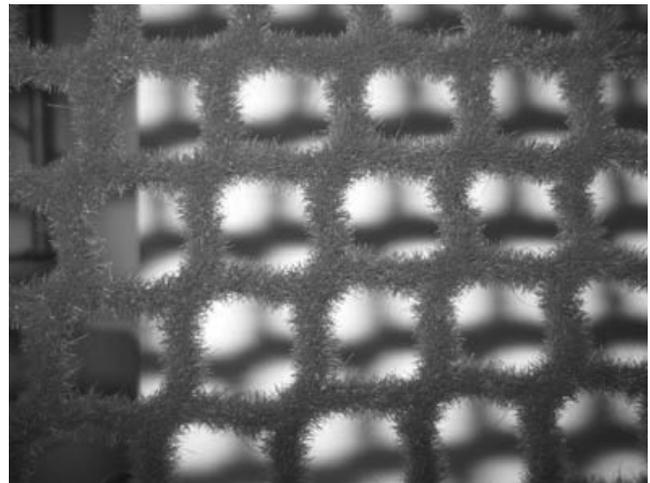
Nets made with ultra-strong and tough Dyneema fibers are established in the fish-farming industry and helping reduce stock escapes and running repairs. Due to their strength, thinner twines can be used, which in turn provides less resistance to water currents for improved cleanliness and oxygenation for healthier fish. Thinner twines also mean less surface area for algae to grow.

The Thorn-D antifouling treatment was developed by Micanti, an innovative provider of fouling defense solutions, and has been tested in various salt and fresh water environments. The major benefit of the coating, besides being non-toxic, is that the coating will remain on the net for a number of years. This period of time is longer than current, traditional antifouling solutions, decreasing

costs associated with maintenance and re-application for fouling prevention. Reduction in maintenance time for fouling prevention will also decrease the stress endured by the fish when nets need to be cleaned.

“This is an exciting moment for the fish farming industry. The combination of non-toxic Thorn-D antifouling with durable Dyneema fibers in netting will help improve the economics as well as environmental aspects of fish farming,” declared Rik Breur, co-founder of Micanti. This optimism is shared by André van Wageningen, Aquaculture Market Manager for DSM Dyneema: “As part of our pursuit of innovation to meet market demands, we regularly participate in joint projects to develop new technologies and applications. We are therefore delighted to be involved in this collaboration with Micanti and other leading institutes in the field of aquaculture. We expect this new system will receive recognition in response to the strong drive for non-toxic antifouling in the fish farming industry, as well as to reduce cost of operation and increase profitability at farm level.”

More information about Thorn-D antifouling material can be found at the following websites: [www.micanti.com](http://www.micanti.com) & [www.materialsinnovation.nl](http://www.materialsinnovation.nl). Information about Dyneema nets can be found on the company’s website at [www.dyneema.com](http://www.dyneema.com).



**Do you know someone  
interested in shellfish research?**

**Pass on this Newsletter and  
recruit a new member today!**

**To join, visit:  
[www.shellfish.org](http://www.shellfish.org)**

## It's All in the Details: A Note From the JSR Editor

Computers and their associated word-processing programs, spreadsheets and data analysis programs have proved to be great time-savers. They have also been responsible for authors' loss of attention to detail, sloppy presentation of tables and figures for scientific publication, and an unrealistic sense that putting something on a disk and sending it to an Editor will result in the reviewers and the Editor cleaning up the paper and making it suitable for publication. It is not the job of the reviewers or the Editor to proofread papers, edit poor writing and grammar or repair graphics. It is not the job of the printer to edit and, in some cases, re-label figures and tables and it costs us money.

There is going to be a renewed effort at the *Journal of Shellfish Research* to polish the final published manuscripts. A few notes below will get the process started – please read them. Manuscripts submitted in the future that do not comply with these minimal standards will be returned to the authors for revision before they are sent for review.

- Spell checkers are not perfect, do not recognize many scientific names or terms, and often make automatic corrections of their own choosing. There is no substitute for reading your manuscript in its entirety and proofreading it very carefully prior to submission.
- EXCEL is not a drawing program and the figures generated are not always publication quality. Further, the keys that are generated and placed to the side or below the figures should be either placed ON the figure or the information included in the figure legend. They should not be dangling out to the side or at the top or bottom of the figure in little boxes.
- Boxes around graphs and horizontal lines on graphs are superfluous and distracting. Do not include them.
- Lettering needs to be clear and legible upon reduction. It is not acceptable to simply print out the graph generated by EXCEL (or other spreadsheets) and submit them as final figures for publication.
- Hash marks on graphs should be on the inside of the axes, not the outside.
- Figures should be generated with the final size of the Journal page in mind, i.e. draw them to fit either one or two column widths. Keep white space to minimum.
- If English is not your first language, please have someone fluent in the language edit your paper prior to submission. While I applaud anyone who can write in a second language, there are standards that must be met for publication. Moreover, reviewers frequently refuse to review pa-

pers that are not written in proper English, or miss the important points of the paper due to poor or misunderstood writing.

Attention to these details will not only increase your chances of a better review, it will result in a better Journal! The reviewers, printer and I thank you!

Sandy Shumway  
JSR Editor



### WANTED: JSR Cover Photos

Do you have a great “shelfish” picture that you think might make the cover of the next issue of JSR? If so, send it to Sandy Shumway (see back page)



## Judges Needed for Student Awards - Aquaculture '07

NSA student members will present at least nineteen oral presentations and nine posters at the Annual Meeting in San Antonio. Once again, all student oral presentations will be in the running for the Thurlow C. Nelson Award, and all posters will be eligible for the Gordon Gunter Award. To evaluate these presentations we need your help. If you are attending the NSA Annual Meeting this year and are interested in judging either oral presentations, posters, or both, please contact us as soon as possible (see back page). We will organize judging assignments as the meeting program is finalized. See you in San Antonio!

Ami Wilbur & Ryan Carnegie  
Endowment/Student Awards

## Session Organizers Needed for NSA 2008

The Program Committee needs volunteers to organize special sessions for NSA 2008, our 100th anniversary to be held in Providence, Rhode Island. Our meeting will be held in conjunction with the Benthic Ecology Meeting, which will immediately follow and have a one-day overlap with NSA 2008. Many NSA members are working diligently to produce an informative and exciting meeting, but we need your help. If you have an idea for a special session contact Vice President Rick Karney (see back page) as soon as possible. Given the venue and the close connection with the Benthic Ecology Meeting, we expect attendance to be very high, which is sure to make our 100th anniversary an unforgettable scientific meeting!

## NSA thanks Maryland Sea Grant for sponsoring this issue of the Quarterly Newsletter

### The Blue Crab: *Callinectes sapidus*

Edited by

Victor S. Kennedy

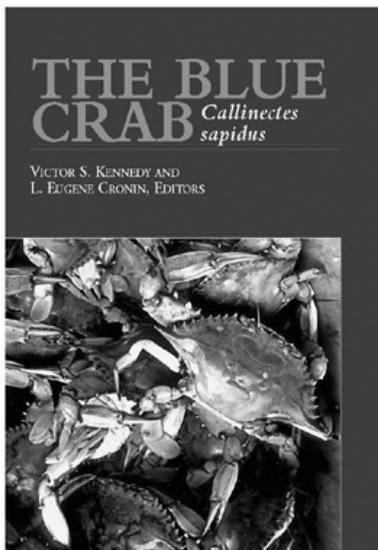
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## ***NSA Continues First Major Fund Raising Campaign***

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**replace.....!!100 years - \$100,000.** That's the goal - to raise \$100,000 for the Student Endowment Fund before the centennial meeting of NSA to be held in Providence, Rhode Island in 2008. The campaign is off to a good start and I would like to sincerely thank those who have already contributed. But this is just a beginning and we need everyone's help to make this a success. You can download a flier from our web site that describes the campaign and provides information for potential donors. Or write to

me and I'll send you copies - please distribute widely!! Locate that aged, rich aunt, your grandmother, the paperboy, your kids or any one else that can spare at least \$5. And don't forget your own donation. We can reach this goal but everybody needs to help. To track the progress of the donations that have accumulated, watch that well-endowed siphon on the WEB page or on the front page of the next few Newsletters.

The students are our future - please make an extra effort to make this campaign a success - the future of NSA depends upon it.

**Sandy Shumway  
Past-President**

## **Upcoming Events**

***Aquaculture 2007:*** February 26 - March 2, 2007, San Antonio Convention Center, San Antonio, Texas. For information contact the Conference Manager at [worldaqua@aol.com](mailto:worldaqua@aol.com).

***The American Academy of Underwater Sciences, Annual Symposium:*** March 6-10, 2007, University of Miami/Rosenstiel School of Marine and Atmospheric Sciences, FL. For information contact Rick Riera-Gomez at [rgomez@rsmas.miami.edu](mailto:rgomez@rsmas.miami.edu).

***Second National Conference on Ecosystem Restoration:*** April 22-27, 2007, Hyatt Regency Crown Center, Kansas City, MO. All abstracts must be submitted electronically via the conference web site not later than October 15, 2006. For information visit [www.conference.ifas.ufl.edu/NCER2007](http://www.conference.ifas.ufl.edu/NCER2007).

***International Pectinid Workshop:*** Spring 2007, Halifax, Nova Scotia. For information contact Jay Parsons at [ParsonsJa@dfo-mpo.gc.ca](mailto:ParsonsJa@dfo-mpo.gc.ca).

***Benthic Ecology Meeting:*** March 21-25, 2007, Georgia Tech Campus, Atlanta, GA. For information contact [benthicecologymeetings@biology.gatech.edu](mailto:benthicecologymeetings@biology.gatech.edu).

***2nd National Conference on Ecosystem Restoration (NCER):*** April 22-27, 2007, Hyatt Regency Crown Center, Kansas City, Missouri. For information visit [www.conference.ifas.ufl.edu/NCER2007](http://www.conference.ifas.ufl.edu/NCER2007).

***International Sclerochronology Conference 2007:*** July 17-21, 2007, Hilton Hotel, St. Petersburg, FL. For information visit <http://conference.ifas.ufl.edu/sclerochronology/> or contact Bill Arnold at [bill.arnold@myfwc.com](mailto:bill.arnold@myfwc.com).

***World Congress of Malacology:*** July 15-20, 2007, Antwerp, Belgium. For information contact [wcm@naturalsciences.be](mailto:wcm@naturalsciences.be).

***40th Annual Meeting of the Western Society of Malacologist:*** July 25-28, 2007, La Paz, BCS, Mexico. For information visit [www.uabcs.mx/maestros/ccaceres/wsm](http://www.uabcs.mx/maestros/ccaceres/wsm) or contact Carlos Caceres at [ccaceres@uabcs.mx](mailto:ccaceres@uabcs.mx).

***8th International Conference and Workshop on Lobster Biology and Management:*** Sept 23-28, 2007, Delta Prince Edward in Charlottetown, Prince Edward Island, Canada. For information visit [www.lobsterscience.ca](http://www.lobsterscience.ca).

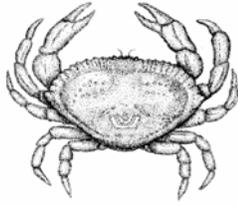
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If you would like to announce a meeting, conference or workshop that might be of interest to NSA members, please contact Evan Ward (see back page).



# THE PENULTIMATE PAGE

## Get to know your shellfish

**Cancer magister** Dana - Dungeness crab. This crab has a grayish-brown to purple shell and can be found in coastal waters from Alaska, USA to Baja, Mexico. It can grow as large as 10 inches across the shell in some areas off the coast of Washington, but typically is under 8 inches. Large crabs can weigh up to 4 pounds, and they are a popular delicacy and one of the most commercially important crabs in the Pacific Northwest. [Source: Seashore life of the Norther Pacific Coast, 1993, E.N. Kozloff, Univ of Washington Press; Wikipedia on-line resource; photo courtesy DFO, Canada]



**Cancer irroratus** Say - Rock crab. This crab has a yellowish shell that is freckled with reddish or purplish color. It can be found in coastal waters from Labrador, Canada to South Carolina, USA. The crab grows to 5 1/4 inches across the shell and inhabits rocky-intertidal regions to the north, and subtidal regions along its entire range. In Maine, rock crabs are caught in waters 20 to 40-feet deep, in traps baited with bits of fish. They are easily confused with Jonah crabs (*Cancer borealis*). [Source: A Field Guide to the Atlantic Seashore, 1978, K.L. Gosner, Houghton Mifflin Co. Publ.; photo courtesy DFO, Canada]



## Recipes of the Quarter

### Deviled Crab

Preparation Time: 35 min

Yield: 6 servings

1 lb crab meat	Dash of cayenne pepper
2 tbsp chopped onion	1/2 tsp powdered mustard
1tbsp chopped parsley	1/2 tsp sage
4 tbsp melted butter	1 tsp Worcestershire sauce
2 tbsp flour	1 tbsp lemon juice
3/4 cup milk	1 egg beaten
1/2 tsp salt	1/4 cup dry bread crumbs
Dash of black pepper	

1. Remove any shell from crab meat.
2. Cook onion in butter (reserve 1 tbsp for later) until tender. Blend in flour. Add milk gradually and cook until thick, stirring constantly. Add seasonings and lemon juice. Stir a little of the hot sauce into egg, and then add this to remaining sauce, stirring constantly. Add parsley and crab meat.
3. Place mixture in 6 well-greased, individual shells or 5 z custard cups. Combine remaining butter and bread crumbs; sprinkle over top of each shell. Bake at 350E C oven for 15 to 20 min until brown.

### Crab Salad

Preparation Time: 15 min, 2 hrs chilling

Yield: 4 servings

1 lb flaked crab meat  
4 hard-boiled eggs, chopped  
1 cup chopped celery  
1/2 cup finely chopped green peppers  
1/2 cup finely chopped onion  
juice of 1 lemon  
3 tbsp prepared Indian relish  
Mayonnaise

Toss all ingredients lightly together. Add just enough mayonnaise to bind mixture. Let stand in refrigerator at least 2 hours before serving. Taste and add salt if necessary. Serve on lettuce leaves, stuffed in tomatoes or avocado halves. Garnish with parsley and lemon wedges.

[Both recipes adapted from "The Shellfish Artistry Cookbook," Shumway & Leonard, eds., NSA]

## In the News

Congratulations **Sandy Shumway** for her selection as an **AAAS Fellow!** Each year the AAAS Council elects members whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished. The honor of being elected a Fellow of AAAS began in 1874 and is acknowledged with a certificate and rosette.

The latest edition of Shellfish News is now available on-line from Cefas, UK. Go to:

<http://www.cefas.co.uk/Publications/shellfishnews/>

For up-to-date news about shellfish from around the world, visit <http://shellfish.org/aggregator>

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