

## UPCOMING EVENTS

The North Carolina Coastal Federation invites you to visit their calendar for upcoming **SUMMER EVENTS**  
[www.nccoast.org/calendar.asp](http://www.nccoast.org/calendar.asp)

The Town of Oriental invites you to visit the **PAMLICO COUNTY CROAKER FESTIVAL**  
July 1 - July 2, 2011  
[www.croakerfestival.com](http://www.croakerfestival.com)

## SPATIFIEDS

The **SOSM Project** invites you to **TELL A FRIEND!** We need more volunteers along **ALL** of coastal North Carolina.

## THE HALF SHELL

Community, Collaborative Rain, Hail & Snow Network invites interested volunteers to visit their website  
Because Every Drop Counts!  
[www.cocorahs.org](http://www.cocorahs.org)

**COMING SUMMER 2011!**  
**NEW and IMPROVED**  
Oyster Spat Monitoring Project Website  
We look forward to your feedback.

## SPAT BITS

COUNTY	ACTIVE SITES
Brunswick	4
Carteret	8
Craven	1
Dare	1
New Hanover	8
Onslow	2
Pamlico	4
Pender	10

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# The SPAT Light

ISSUE NO. 5

SPRING ☘ SUMMER 2011

## For Our Volunteers



Happy **JUNE** Volunteers! **WELCOME** to the fifth issue of our Statewide Oyster Spat Monitoring (SOSM) Project newsletter. We are now in our fourth year of data collection, which is entirely possible because of your continuing effort and support. My fellow North Carolinians, Citizen Scientists, and Oyster Lovers, **YOU** are making a difference! We recently gained the attention of Coastwatch magazine, the flagship publication of North Carolina Sea Grant. Visit the North Carolina Sea Grant website, [www.ncseagrant.org](http://www.ncseagrant.org), to read our inspiring project article by Pam Smith.

As warm weather brings our first oyster spat sightings, along with

sunshine, thunderstorms, and flowers, reflect on the value of the data you collect for the SOSM project. Long-term monitoring of valuable resources, such as our eastern oyster, *Crassostrea virginica*, can expose trends or patterns which may help us better understand environmental processes and change, all in the name of advancing ecological science and policy. In a recent review article, *Who Needs Environmental Monitoring?*, published by the Ecological Society of America, the authors share why science needs long-term monitoring...

*Many ecosystems require long-term study because they change slowly, and sustained monitoring of key variables provides the principal*

*record of change. Long-term monitoring data also provide context for short-term experiments and observations.*

Believe it or not, aside from oysters, we monitor many things in our daily lives, such as the weather, the stock market, sports, and our health. We may monitor daily things for a variety of individual reasons; however, a common reason, including why we monitor oyster spat, is that we simply...*care*.

As the season begins my friends, get excited about counting and identifying oyster spat, as well as the other spectacular marine and estuarine organisms that may call your tiles home. We wish you a successful **SPAT** collecting season!

## In the SPAT Light - Picture An Oyster

*For those that call the water home or even those that cherish visits to the sea, the Outer Banks, a dynamic string of barrier islands in North Carolina, is a place like no other. How do you share its story?*

The picture tells it like it is, according to Mike Halminski, from his photoblog about Serendipity, the Hatteras Island house which served as the 'place of romance' in the film, *Nights in Rodanthe*.

Mike is a freelance photographer, operating a studio and gallery at his home in the village

of Waves on Hatteras Island, North Carolina. Mike began to photograph the Outer Banks when he first moved to Hatteras Island in 1973. His photographs tell it like it is...

They capture the beauty and knowledge of many locals, landscapes, seascapes and wildlife. Each picture shares something personal, like an old story or a new friend.

Along with his move to Hatteras Island and a developing photography career, so came his fascination for a very valuable marine resource, the eastern oyster. Mike found his first



Photo features  
Mike Halminski with a  
coir bag from October 2010.

## Picture An Oyster continued...



Top photo features Mike Halminski deploying a spat rack. Bottom photo features a close-up image of bushy bryozoans, a common growth on many tiles.

Photos contributed by Mike Halminski.

oyster with a young Hatteras local, Bruce Midgett, which led to a favorite pastime of collecting oysters. In his photoblog about Chesapeake Bay Skipjacks, Mike stated...

*Back then you could walk the shore of the Pamlico Sound and get all the oysters you wanted for a great meal.*

Over the winters of 1982 and 1983, Mike crewed on an oyster dredging skipjack, the *Virginia W*, from Tilghman Island, Maryland. His main motivation for joining the oyster crew as a 'greenhorn' was to photograph the historic skipjack fleet. The skipjacks were the only commercial fishing vessels still using sail power in the United States. However, he also wanted to learn more about the eastern oyster, especially why they grew in certain places and not others.

After his experience on the skipjack, Mike returned to Hatteras, and so began the process of caring for oysters through 'trial and error' learning.

In 2004, Mike attended an oyster conference in Morehead City, North Carolina seeking answers to questions about the growth and care of oysters. At the conference, he met various oyster growers and scientists, but most importantly, he met his mentor, Skip Kemp, who manages the aquaculture program at Carteret Community College. Mike collected oyster broodstock for Skip, and in return, he received 40,000 eyed larvae for a successful remote setting to develop an oyster garden.

Mike has built oyster reefs and continues to experiment with different oyster growing techniques within his garden.

Recently, he teamed with North Carolina Sea Grant to conduct research utilizing grow-out bags made from coir, a natural fiber extracted from the husk of a coconut, rather than the standard plastic materials. Additionally, Mike began volunteering for the SOSM Project in May 2008. He continues to be a dedicated and valuable volunteer.

His photographs have appeared in numerous publications, such as Newsweek, Orion Nature Quarterly, the Washington Post, and many more...including our recent project article published in Coastwatch magazine.

Visit his photoblog, [www.photoblog.michaelhalminski.com](http://www.photoblog.michaelhalminski.com), to reflect and enjoy an Atlantic maritime world like it is and was.

Contributed by Mike Halminski

## In the News - CFCC MarTech Program Not Shucked Yet



The Marine Technology Program (MarTech) at Cape Fear Community College (CFCC) in Wilmington, North Carolina is cruising out of rough waters. The North Carolina House and Senate budgets both propose full funding for MarTech in the 2011-2012 fiscal year. The final state budget for North Carolina is still in negotiation; however, the outcome looks positive for this thriving marine technical education program.

Students, graduates, faculty, staff, and employers have been instrumental in educating state government about the value of MarTech. The hands-on training and shipboard experience are the heart of this program, which ultimately produces scientific support technicians that are well-prepared for the technical job market. Students are required to take five experiential cruises, which amounts to spending a minimum of 30 days on an offshore training vessel, such as the R/V Dan Moore, fostering a competitive workforce advantage. MarTech faculty also provide real-world experience

and knowledge, which is vital when educating students on how to succeed, both skillfully and safely, in the marine industry.

MarTech has experienced unprecedented growth in enrollment over the last 17 years. The program currently has 148 students, with all classes at capacity and required training cruises with their full complement of students. Department Chair, Jason Rogers, explains...

*Employers visit our campus annually to recruit graduates. We have not experienced any downturn in the demand for our graduates even during the last several years of a less than robust economy.*

He also states...

*94% of our students acquire jobs in the industry or continue their education.*

MarTech has been an active program at CFCC for over 45 years, nationally recognized by the Marine Advanced Technology Education

Center and the National Science Foundation as a leader in improving marine technical education, as well as supplying the marine industry with a skilled workforce. When MarTech experienced its first threat of elimination during the 2009-2010 fiscal year, the CFCC President, Eric McKeithan, stated...

*Community college programs like Marine Technology are part of the solution for our local citizens who need jobs and employers who need trained workers.*

Visit the MarTech website, [www.cfcc.edu/martech](http://www.cfcc.edu/martech), for more information about this practical and seaworthy academic program.

As the 2011-2012 budget is finalized for the state of North Carolina, the UNC Education System as well as the Division of Marine Fisheries may continue to cruise the rough waters that once surrounded MarTech. The North Carolina budget and how it may impact oyster and shellfish conservation will be featured in our next newsletter.

Contributed by Megan Rudolf

# PenderWatch and a CAMA 'Pearl'



PenderWatch & Conservancy received its 'pearl' on March 31, 2011...a Coastal Area Management Act (CAMA) Major Permit, valid through 2014, to build 12 oyster reefs in the waters of Pender County. PenderWatch members and volunteers, along with scientists and students from the Benthic Ecology Lab at the University of North Carolina Wilmington (UNCW) will begin construction for the first two oyster reefs on June 11, 2011 and June 12, 2011.

An unnamed marsh island, near the Washington Acres subdivision in Hampstead, is the chosen site for oyster reef construction. The marsh island lies on the western and mainland side of the Intracoastal Waterway (ICW), south of ICW Marker 100, and just outside the mouth of Mill Creek. The marsh island is eroding due to heavy boat traffic. If the island and marsh grass disappear, then it is likely nearby property will also be subject to this erosion.

The CAMA permit is a proud achievement for PenderWatch, an all-volunteer, non-profit organization, first established in 1986, and currently celebrating its 25th year of responsible advocacy for

environmentally sound policies and programs. According to President, Allie Sheffield...

*Rarely are permit applications submitted by parties such as us, who seek to enhance our coastal environment rather than develop it.*

PenderWatch stated clear objectives in the CAMA proposal for building oyster reefs, leveraging on their success with oyster shell collecting as well as lessons learned by working on oyster reefs with scientists from UNCW.

The first objective is to control erosion due to boat wakes. The expectation is that the oyster reefs will slow, if not stop, marsh erosion. Furthermore, the silting that accumulates behind the reefs should foster the natural regeneration and extension of marsh grasses into the accreted bottom.

The second objective is to demonstrate the success of building reefs with bagged shell in the spat rich coastal waters of Pender County. The expectation is that oyster recruitment will continue to increase as settled spat mature and spawn. In addition, spat settling on bagged shell, which provides elevation from the bottom, should be more robust and grow faster, as opposed to spat settling on loose shell, which may smother and die from silt accumulation.

The third objective is to increase habitat for various marine and estuarine fauna, especially shrimp and finfish. Many organisms, such as juvenile Gag Grouper and a variety of shore birds, feed on organisms within oyster beds in Pender County. Therefore, the greatest economic value of restored oyster reefs may be as habitat for other species.

The final objective is to improve water quality by



Photos feature oyster shell and oyster bags (far left), as well as volunteers preparing bags (left) in March 2011 for reef construction this June.

Photos contributed by Allie Sheffield.

increasing habitat for submerged aquatic vegetation (SAV). Oysters have the capacity to clean stormwater, as they filter and remove particulates, heavy organics, and contaminants from the water column. Clean water will allow sunlight to penetrate the bottom and promote photosynthesis, which will greatly improve SAV conditions.

After the first two reefs are built in June, PenderWatch will still have approximately 2000 bushels of oyster shell to bag for future reef construction. The oyster shell, donated by the public, is stored on a cement pad behind the old Topsail High School on Highway 17 in Hampstead. The shell pile is turned over frequently with a front end loader to dry the shells before placement in plastic mesh bags.

PenderWatch & Conservancy continues to succeed and advocate for a healthy coast because of the gracious dedication and labor of volunteers. If you are interested in volunteering for the current oyster restoration effort and want to learn more about PenderWatch & Conservancy, visit their website at [www.penderwatch.org](http://www.penderwatch.org). More 'pearls' about PenderWatch and oyster restoration will be featured in our next newsletter.

Contributed by Allie Sheffield

# Shellfish Hatchery Welcomes Oyster Larvae



The Shellfish Research Hatchery, on the grounds of the Center for Marine Science (CMS) at the University of North Carolina Wilmington, has been conditioning four eastern oyster broodstocks from different locations in North Carolina, and proudly welcomed their first *Crassostrea virginica* spawn on May 18, 2011. The oysters released around 20,000,000 embryos that yielded some 6,000,000 D-stage larvae

on May 20, 2011. The D-stage larvae should be ready to set the first part of June. The Hatchery Director, Ami Wilbur stated...

*This is not a record breaking conversion from embryo to D-stage, but we are pleased at the success of our first effort.*

D-stage or straight-hinge larvae are named for their shell, which has a flat hinge and resembles a capital D. The D-stage is considered an early veliger stage. Late stage veligers are referred to as pediveligers because they develop a foot, which is used for locomotion. Both early and late stage veligers have a common ciliated feeding and swimming organelle called the velum. The veliger stage is the second and longest planktonic larval stage of the oyster, and it is during this time that the larvae seek suitable settlement substrate over an approximate two week period.

The current focus of the Hatchery is to demonstrate the overall efficacy of culture systems, by developing specific facility protocols for culturing algae, culturing



Photos feature Shellfish Hatchery technicians.

Photos contributed by Ami Wilbur.

and setting oysters, as well as maintaining broodstock and the culture equipment. Hatchery personnel include a primary research technician, Amy Finelli (left), and a number of undergraduate students, such as Mary Showalter (top), either working as technicians or taking Directed Independent Studies, which are approved courses that involve investigation beyond the classroom.

The Hatchery is open to facility tours relative to any operation that may prevent a tour. Interested groups should visit the CMS link, [www.uncw.edu/cms/](http://www.uncw.edu/cms/) **AboutScheduleTour.**

Contributed by Ami Wilbur

**SPATacular Fact:**

Many organisms that live in and around oyster reefs may use empty shells as nests. Since Mike has seen a lot of toadfish around his grow out oyster bags, it is likely the orange color on this half shell



is a group of toadfish eggs. Once the male toadfish locates a nest, he bellows to attract a female. If she approves, the female will lay her eggs, then leave the nest. The male toadfish will remain to protect the nest.



## Oyster Spat Monitoring Project

### University of North Carolina Wilmington

Center for Marine Science  
Benthic Ecology Laboratory  
5600 Marvin K. Moss Lane  
Wilmington, NC 28409

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Emails: [alphint@uncw.edu](mailto:alphint@uncw.edu); [tatems@uncw.edu](mailto:tatems@uncw.edu)

### GET SPAT-TERED!

Contact Troy Alphin or Sharon Tatem for Volunteer Information



Newsletter Contact Emails

Sharon A. Tatem: [tatems@uncw.edu](mailto:tatems@uncw.edu)  
Megan E. Rudolf: [rudolfm@uncw.edu](mailto:rudolfm@uncw.edu)

The SOSM Project is a Citizen Science effort initially funded by the North Carolina Sea Grant and now managed through the BEL. Since June 2007, volunteers along coastal North Carolina have been recruited to track the settlement of oysters on a set of ceramic tiles cable-tied to a "Spat Rack" design. Volunteers are trained to collect environmental data, as well as identify oyster spat and local benthic organisms. There have been more than 152 participating volunteers to date, comprised of retirees, professionals, teachers and students. Our current data set includes 53 sites, ranging south from Brunswick County and north to Dare County.



**SPATacular Fact:**

Many organisms live with oysters, grow on oysters, and may only move around oyster reefs at night. Mike placed some live oysters in his aquarium for a few days. He found much more than just oysters. He photographed barnacles and slow-moving sea anemones. How many do you see?



SPATacular Facts from Observations and Photographs by Mike Halminski. For More Information about Interesting Sea Creatures, such as the Oyster Toadfish, Visit Weirdfins, a NOAA Fisheries Service Website and Weekly Podcast... <http://www.nmfs.noaa.gov/rss/podcasts/weirdfins/toadfish.htm>.

## SOSM Volunteer Service

**3 + YEARS**

- Mary and Wayne Grossnickle
- Paul Reinmann
- Taylor Ryan
- Bill Halkovitch
- Cary and David Paynter
- John Thompson
- Carlton (Smoke) Betts
- Steve Eitelman
- Charlie Baker
- Pat Donovan-Potts
- Sharon Mooney-Hughes
- Ben Schosek
- Mike Halminski

**2 + YEARS**

- Jim Barber
- Nicole Guite
- Dick and Sue Hayes
- Mary Sheffield
- Eric Bolen
- Dale Lockwood
- Pat McNeese
- Lee Bailey

## SPATful Tips - Not Spat?

**WATCH OUT** volunteers, Jingle Shells and Slipper Shells may appear spat-like; however, these common species are actually a clam (bivalve) and a snail (gastropod), respectively.

**Common Jingle Clam (*Anomia simplex*)**

Jingle clams have two dissimilar valves. The lower (right) valve is attached to a hard surface and is perforated by a large hole through which passes a limy byssus, or silky filament used for attachment. This valve is thin and flat; whereas, the upper (left) valve is arched, thin, glossy, irregular, and translucent. The shells range in color from orange, beige, yellow, silver, to black. Jingle clams may reach 3.8 cm in diameter, but are usually smaller.

**Slipper Snails (*Crepidula species*)**

Slipper snails superficially resemble limpets, but retain a tiny coiled apex at one end of the shell. Limpet is commonly used to describe snails with shells that do not appear to be spirally coiled in the adult stage. Slipper snails have a one-part shell with a foot on the underside. There is a characteristic shelf inside which extends partially across the opening. They often occur in stacks, with the female, who is typically the oldest and largest, at the bottom. Slipper snails range in color from white to dark reddish-brown, and range in size from 1.3 cm to 5 cm in diameter.

SPATful Tips from Ruppert and Fox. Seashore Animals of the Southeast: A Guide to Common Shallow-Water Invertebrates of the Southeastern Atlantic Coast. University of South Carolina Press, 1988.

## SPATastic Cookin' - Simply Oysters

**INGREDIENTS**

- North Carolina Oysters
- Parmesan Cheese
- Butter
- Parsley or Favorite Herb

**DIRECTIONS**

Open oyster so it is on the half shell. Add a small amount of butter and top with parmesan cheese. Place under broiler to steam in juices. The cheese will also form a nice crust. Garnish with parsley or favorite herb. Enjoy!

*Contributed by Matthew Stokley, Environmental Technician for the Shellfish Sanitation Program at the Division of Environmental Health, North Carolina Division of Environment and Natural Resources*



Left photo features a Slipper Shell attached to a Jingle Shell. Photo by Bill Halkovitch. Right photo features a Slipper Shell. Photo by Megan Rudolf.

## Benthic Lab Graduates - 2011

**UNCW COLLEGE OF ARTS AND SCIENCES**

Department of Biology and Marine Biology

- Dylan Bennink
- Samantha Ehert
- James Hargrove
- Jennifer Herbig
- Heather Page
- Ashley Whitt

**CAPE FEAR COMMUNITY COLLEGE**

Marine Technology Program (MarTech)  
Megan Rudolf