

1303 17th Street West
Palmetto, FL 34221
(941) 722-4524
FAX (941) 721-6608
E-mail: jsmarine@ufl.edu
www.FlSeaGrant.org

September—December, 2012
Volume 53, Number 4

Merry Christmas and Happy New Year to All

All of us with the southwest Florida Sea Grant Extension Program wish all of you a great holiday season. It is truly an honor and privilege to work with so many dedicated citizens and scientists along the coast. As the years pass, change occurs. However, one thing that doesn't change is the great nature of the folks we work with. We hope 2013 is good to all of us.



Betty



Joy



Libby



John



Bryan

Marine Scene Plus Top Stories of 2012

I hope Marine Scene readers are making a habit of checking out [The Marine Scene Plus](#) blog site. Here are some of the top stories from 2012. Be sure to check them out if you haven't done so already.

[Stay Legal Between the Lines with Mangrove Snapper](#)

[Things That Glow in the Water at Night](#)

[2012 Florida Bay Scallop Season](#)

[Coriolis Effect](#)

2012 Southwest Florida Bay Scallop Update

Exciting things are happening!

There was a full slate of scallop searches in southwest Florida this past year. Here are the results.

Scallop Searches	2008	2009	2010	2011	2012
Tampa Bay	624	674	32	5	12
Sarasota Bay	947	136	15	10	93
Charlotte Harbor	N/A	94	163	24	20
Pine Island Sound	N/A	N/A	335	1026	400
Total SWFL	1571	904	545	1065	525

Marine Scene readers might look at these numbers and lament that some of the numbers are down. But take heart! Bay scallops are essentially an annual crop (read more below) and naturally subject to wide fluctuations in abundance on an annual basis. This is why it is important to collect information over a number of years throughout southwest Florida.

Also, remember, these surveys are limited and can be imprecise in terms of sampling bay scallop abundance throughout an estuary. Scallop abundance can be “spotty” and unevenly distributed within a single bay. The important thing to note is that at least some scallops are being found year to year throughout southwest Florida. And, new restoration efforts are planned.

We monitor bay scallops in southwest Florida because they are an important species to both humans and the environment. When coastal waters are able to support bay scallops it is a sign of reasonably good water quality and seagrass conditions. Many volunteers participating in the search this year commented about how healthy the seagrass looked. Healthy seagrass is very important habitat for bay scallops, but it's only part of the story.



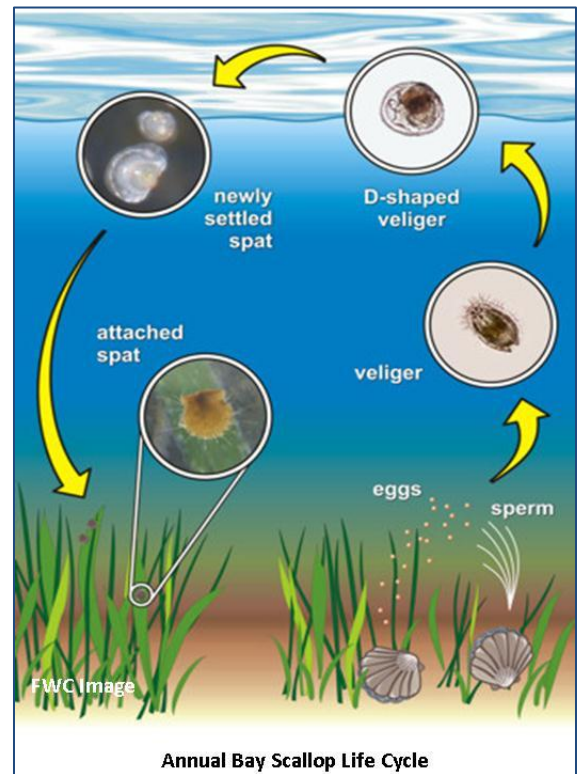
A scallop searcher finds what he's looking for.
Photo: Jeff Lafferty

Bay scallops are essentially an annual crop, completing their life cycle over the course of a year. In Florida, spawning typically occurs in the autumn. The free-floating larval stage lasts about two weeks, then the larvae settles out of the water to take the bottom-dwelling form we are familiar with. Scallops rapidly grow and mature in the spring and summer of the following year and then rapidly die after spawning. Predators take their toll and following spawning scallops are in a weakened condition and often become riddled with parasites. An 18-month old scallop is indeed a very, very old scallop. Hence the abundance of scallops in an area depends upon the success of the spawn, and the ability of larvae being transported by water currents to reach suitable seagrass habitat.

In addition to the scallop search, bay scallops are monitored throughout the year by counting recruiting scallops, referred to as spat, the phase when scallops first settle on seagrass blades. Special collectors that mimic seagrass substrate are placed in the field and then periodically checked to see if small scallops have settled out of the water. These collectors are constructed of citrus bags filled with plastic mesh. See the photo below – they may not look like much, but they work.

These surveys are conducted by the Florida Fish and Wildlife Conservation Commission with support from partners, including the Florida Sea Grant Extension Program, and volunteers from St. Andrews Bay to the north, and Pine Island Bay to the south.

Charlotte County volunteers under the direction of Sea Grant Extension Agent Betty Staugler are also monitoring scallops in cages at their docks. The caged scallops are part of a community restoration program where bay scallops are placed in areas to spawn, thus adding additional recruitment potential. Volunteers who have adopted the cages collect data monthly on their scallops. We use this information to determine the percent of survival and growth rate of the scallops.



Volunteer cleaning cage (Photo by Renee Galloway)



Scallop spat collector ready for deployment (Photo by Betty Staugler)

Looking to the future—New restoration plans using hatchery-reared larvae are in the works for the later part of 2012 and 2013. Adult bay scallops (brood stock) were collected for hatchery spawning in late summer 2012. These adult scallops are then spawned and raised so they are ready to release and settle in seagrass beds. One release has already been conducted in Sarasota Bay. Others will follow, including locations in Charlotte Harbor. These restoration sites will be carefully monitored for some time to ensure that the released larvae result in adult scallops. One experiment conducted in Pine Island Sound years ago provided promising results. It should be noted that more releases on a larger scale will most definitely be needed if we are to stand a chance at restoring local bay scallop populations.

Acknowledgments— It is impossible here to acknowledge all the folks and organizations that make this program possible. There are literally hundreds of volunteers, state and local governments, and a variety of environmental organizations that are responsible for this effort. For a more comprehensive list of program volunteers and organizations as well as more detailed information upon which this article was based, please follow this link to a site developed by Betty Staugler, Charlotte Co. Sea Grant Extension Agent. [Florida Bay Scallop Summary](#)

In the News!

Why Are Numeric Nutrient Criteria Important to You?

Numeric nutrient criteria? What is that? Not really a catchy phrase, that's for sure. But this is an important concept that you may have been reading about in newspapers recently.

First, a little background. For years our standards for protecting the quality of inland and coastal waters have been based on qualitative descriptions, rather than hard numbers. However, a number of environmental organizations took exception to this approach, claiming that it was vague and that the Environmental Protection Agency was not fulfilling its role in fully implementing the Federal Clean Water Act. Those groups and the EPA said Florida needed specific, measurable numeric water quality standards that protected all bodies of water from environmental damage.

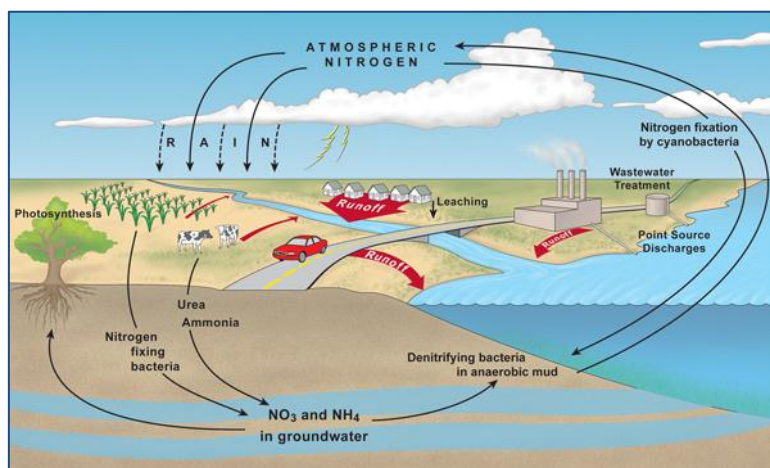
The result was legal action, and an agreement was reached to establish such criteria in Florida. That was back in 2009. Several years were spent wrangling over the details of how to best do this. The matter was just recently settled in November.

Most of us think of nutrients as a good thing, promoting the health and growth of living organisms.

True, but a balance needs to be maintained. In water bodies, too many nutrients can result in an overabundance of plant life, reduced water quality and a number of conditions that we would not consider to be part of a natural, healthy ecosystem. If levels become extremely high, compared to natural levels, nutrients can cause noxious scums of algae and even result in a loss of sport fish – and definitely make the water unsuitable for swimming and boating – the things we value about Florida coastal waters.

Establishing measurable standards sounds simple. In reality, it is not, particularly in estuaries, where fresh water meets salt water. Without going into mind-numbing details I will try and highlight some of the problems, focusing on estuaries.

One size doesn't fit all. Due to factors like geography, geology, and extent of urban development, not all our estuaries are the "same." A standard that works for the Indian River Lagoon on the Florida east coast likely will not work in Tampa Bay. What works in Tampa Bay may not work in Charlotte Harbor. In reality each estuary must be approached on a case-by-case basis because they each may have different natural levels of nutrients.



This is a simple diagram showing how nitrogen, an essential nutrient for all living things, enters our coastal waters. Too much nitrogen can result in poor water quality conditions. Florida Sea Grant image

What is the time frame under which water quality violations will be evaluated? For example, if a water quality standard is found to exceed its established level (say too much nitrogen in the water of a bay) for a month or year, does that mean there is a problem and that vast sums of money must be invested to correct a problem? What happens if it was just an extremely wet year, perhaps the result of an El Niño event, that washed excess nitrogen into the bay? Has the standard been violated, or do we need to look at more years of information to decide if we truly have a man-made problem?

Fortunately, in our neck of the woods here in southwest Florida, we have three National Estuary programs that have been diligently working with the Florida Department of Environmental, the EPA, local governments, scientists, and resource managers to develop science-based, defensible criteria for protecting Tampa Bay, Sarasota Bay and Charlotte Harbor estuaries. Legal resolution of the issue of establishing numeric nutrient criteria in Florida estuaries appears to have been realized, with EPA announcing its acceptance of the DEP revisions to their water-quality standards to respond to the mandate for establishing numeric nutrient standards.

I cannot say that we have heard the last word on this issue, and it remains to be seen whether the new standards represent a reasonable and effective solution to the problem of nutrient over-enrichment of our estuaries.

For more information on this topic, click here for the latest edition of [Bay Post Script](#), the newsletter of the Tampa Bay Estuary Program.

From the Tailpipe to Tampa Bay

Air Pollution Research Reveals Impact of Cars

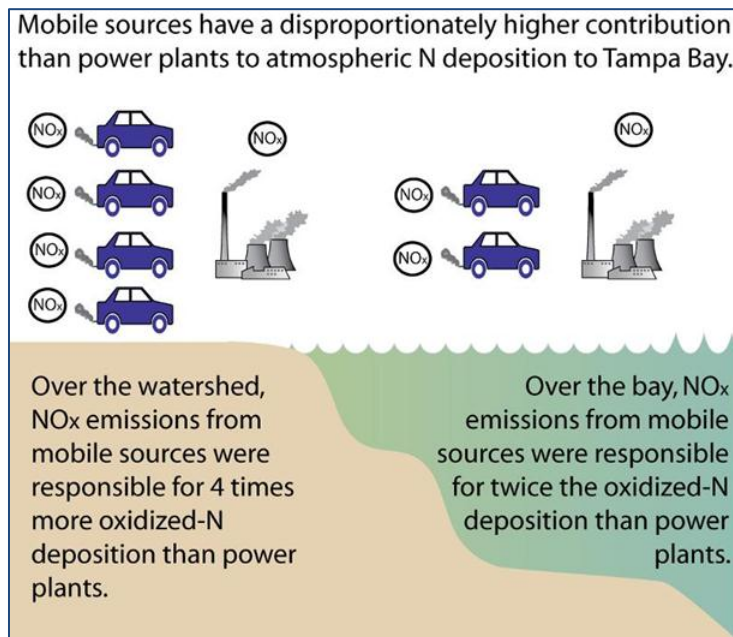
A comprehensive study that investigated the sources and extent of nitrogen fallout on Tampa Bay shows that cars, trucks, and other mobile vehicles deposit four times more nitrogen oxide, or NO_x, in Tampa Bay than power plants.

Overall, power plants are the major sources of air emissions in the bay area. But mobile sources have a disproportionately larger impact, because emissions from cars, trucks and boats are generated closer to the ground, and more of their emissions wind up in the bay. The tall stacks of power plants, on the other hand, send emissions higher into the atmosphere, where a substantial portion is carried outside the bay watershed.

The study, known as the Bay Region Atmospheric Chemistry Experiment, or BRACE, used computer modeling and extensive field sampling to measure nitrogen falling directly on the bay surface, as well as nitrogen falling on the watershed and carried to the bay in stormwater. The study examined nitrogen carried in both rain (wet deposition) and dust (dry deposition).

The Tampa Bay Estuary Program sponsored the project and funding was provided by the Florida Department of Environmental Protection.

TBEP has pioneered scientific research showing the link between air and water quality. In addition to impacting



human health, air pollution can contribute harmful nitrogen to water bodies. In Tampa Bay, direct and indirect atmospheric deposition comprises a whopping 57% of the total nitrogen loading to Tampa Bay each year.

In the last decade, upgrades at area power plants -- including the conversion of two coal-fired plants to natural gas -- have reduced NOx emissions by 95 tons. Additionally, new federal air quality regulations, including the Clean Air Interstate Rule, are projected to result in a 24% reduction of atmospheric nitrogen in the bay.

Conserving energy at home and in our offices, driving less and driving more fuel-efficient cars will help to further reduce airborne nitrogen pollution. According to the U.S. Environmental Protection Agency, driving a car is a typical citizen's most polluting daily activity. *Source: Bay Post Script*

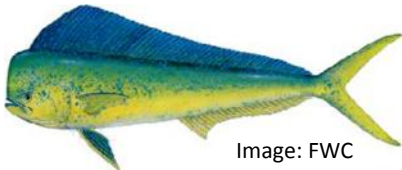


Image: FWC

Did You Know?

Mahi-mahi (dolphin fish) can reach over 2 lbs in their first six months, and over 20 lbs in the next six months. How's that for growing fast?

Visit us now at *The Marine Scene Plus!*
<http://flseagrant.ifas.ufl.edu/newsletter>



Florida Sea Grant Extension Agent Newsletter Contributors

John Stevely, Manatee, Hillsborough, Sarasota counties: jsmarine@ufl.edu

Betty Staugler, Charlotte County: staugler@ufl.edu


Joy Hazell, Lee County: hazell@leegov.com

Bryan Fluech, Collier County: fluech@ufl.edu

Libby Carnahan, Pinellas County: lcarnahan@co.pinellas.fl.us

More information on the Florida Sea Grant College Program can be found at: [Florida Sea Grant](http://FloridaSeaGrant.org)

Share this newsletter with friends and colleagues!
They can also subscribe by e-mailing me, jsmarine@ufl.edu.

Sincerely,

John Stevely
Sea Grant Extension Agent