



Tidings

A publication of
The Florida State University
Coastal & Marine Laboratory
www.marinelab.fsu.edu



Summer 2010

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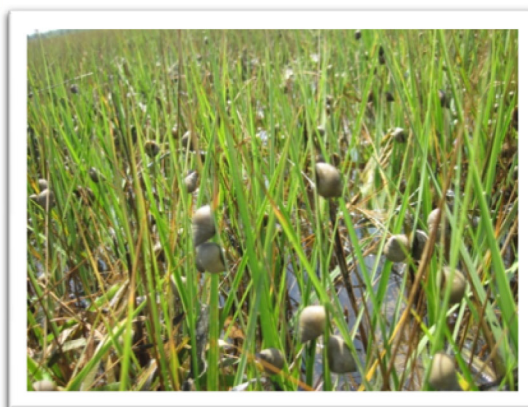
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What does it mean to be green? By A. Randall Hughes

When choosing a place to live, do you prefer an apartment in the city? Farmhouse in the country? Something in between? Animals in salt marshes also face choices when choosing where to spend time among the plants that provide their habitat. Because many marsh plants can reproduce clonally, a single genetic individual can dominate a patch of marsh by producing multiple, similar plants that are all connected underground – sort of like a marsh condo unit. Or, numerous genetic individuals can intermingle, creating patches with greater variation in plant height, density, and other characteristics. These distinctive “neighborhoods” can attract different numbers or types of animals looking for food and shelter. With funding from the National Science Foundation, I am investigating how variation among plant genotypes influences the growth and survival of animal species that rely on these plants for habitat, and, ultimately, whether having a diversity of genotypes leads to greater abundances of these ecologically- and economically-important animals.



Salt marshes are one of the dominant habitats along the Gulf and Atlantic coasts of the United States, acting as a buffer against erosion, filtering nutrients and sediments from terrestrial run-off, and providing nursery and refuge for many fish and invertebrate species. Salt marshes and other coastal ecosystems are increasingly impacted by development, fishing, and other human activities, and they have experienced significant declines in some areas. In addition to potentially increasing the abundance of fishes and crabs that live within the marsh, plant genetic diversity could provide “insurance” against these various stressors. Basically, having more genotypes increases the chances that one of those genotypes can withstand or recover quickly from any given disturbance. For instance, one contributor to marsh die-off along the Gulf and Atlantic coasts is the marsh periwinkle (*Littoraria irrorata*), a conspicuous member of the marsh community that can reach very high abundances. These snails create grazing scars on the leaves



of marsh cordgrass (*Spartina alterniflora*) that are then colonized by fungi. Though the snails only consume a small portion of leaf tissue (they prefer to cultivate and consume the fungi), the fungal infection can kill the entire plant. My lab is currently conducting experiments to see if some cordgrass genotypes are more resistant to the effects of snails, either due to qualities that deter snail grazing in the first place or that increase survival following fungal infection. In addition, we are examining whether plant diversity (either the number of species or the number of genotypes) can provide

“insurance” against snail grazing and other common disturbances. These results will have important implications for salt marsh conservation, as well as restoration projects that are currently the focus of significant time, effort, and money.

Message from the Director

Oil Spills, Dispersants, and Other Transgressions

Many, perhaps even most, people living along the coast of the Gulf of Mexico direct some level of outrage at BP. They are outraged about the oil that has gushed from the Deepwater Horizon well and about the use of dispersants to quell its visible effects. It's easy to do. An oil company made repeated errors in judgment that resulted in (at this writing) the release of 145 million gallons of crude oil and 1.8 million gallons of dispersants on the surface and at 5,000 ft. depths.

BP made a calculated tradeoff. It traded the ecological and economic well-being of an entire region for potential profit. Ultimately, it also traded its reputation, at least in the near term. Further, these problems were facilitated by the inadequate regulatory framework provided by the Minerals Management Service (whose name changed to the Bureau of Ocean Energy Management, Regulation, and Enforcement on 18 June 2010, two months after the start of the spill), the federal entity responsible for protecting the interests of citizens of the United States. This leaves the citizens asking for greater oversight, more stringent environmental impact statements that not only identify what species are affected, but address the effects of oil and gas development on the structure and function of ecosystems, and on the economic structure of the region.

We too make tradeoffs. We use non-renewable resources like oil, gas, and coal, and don't fully understand our contributions to oil spills, increased carbon dioxide in the atmosphere, and climate change. Individuals who understand their contribution to these events and are not willing to make those tradeoffs invest in reducing their individual carbon footprints in fundamental ways. This is obvious in the many grassroots efforts growing around the nation focused on effecting change from the bottom up, intent on reducing ecological consequences of energy use, and intent on garnering government support.

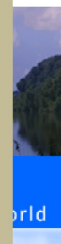
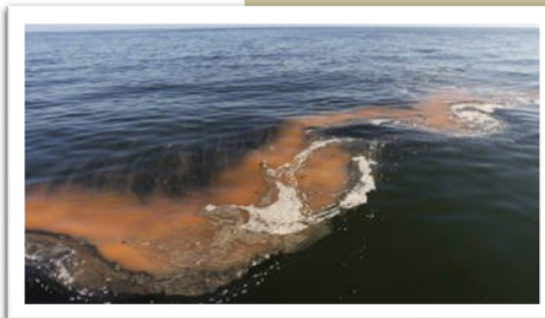
Perhaps a guide for increasing our awareness of the tradeoffs is to consider the impact this oil spill will have on the immense biological productivity that characterizes the northeastern Gulf of Mexico. This region has the most to give in terms of biological diversity, fisheries production, and tourism (the industries collectively valued in the billions of dollars), and the most to lose when habitats essential to their sustained existence are compromised. Inshore, for instance, consider the foundation species -- saltmarshes, seagrass beds, oyster reefs, and mangroves -- and the biological communities they support by providing the structural integrity, the nursery grounds for many fisheries species, and essential ecosystem services that, among other things, protect coastal regions from storms. Offshore, consider the less visible and far less well-known communities that include sponges, hard and soft coral, and tubeworms across the continental shelf and into the deep-sea. While the effect of the oil spill is most visible along the coast where it could take decades for recovery to occur, the offshore consequences are no less severe and will likely take far longer to recover.

Even before the full impact of the oil spill is known, many would call this event the largest human-induced environmental disaster of our time. But what about the incalculable small transgressions that have occurred without a flutter across the Gulf over many decades? The variances that allow removal of a quarter acre of saltmarsh here or a half acre of seagrass there, that move houses into, over, or in place of the dunes; the outfalls from industries that dump chemicals in rivers and eventually reach the coast, or offshore across the continental shelf where they are distributed unseen and largely forgotten. These have resulted in the slow, inexorable march through habitat after habitat, causing losses of tens of thousands of acres of vital foundation species. Where is our outrage for these? Or has the cumulative effect simply occurred at such a slow pace that we never noticed? With the focus on scientists conducting baseline studies so that they can evaluate the effects of oil, don't forget that the baseline has ratcheted forward with each passing generation so that the losses we experience today become the baselines of tomorrow. There is likely plenty of outrage to go around.

Leticia Coleman

The FSUCML

Mission: To conduct research on environmental issues in the coastal and marine ecosystems of the northeastern Gulf of Mexico that leads to sound policy decisions.



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News and Notes

Scientists Learn to Deliver Their Message

Scientists, in general, are ill-prepared to translate their science into a language that is accessible to non-scientists. In fact we as a group are not trained to reach beyond our comfort zone of scientific jargon and complex, detailed explanations of what we do. Yet doing so is enormously important if that science is to be used and understood by the press, by the public, and by policy makers. In April 2010, the FSUCML organized a one-day workshop on "Communicating Science to Non-Scientists," that engaged leading journalists in helping FSU scientists deliver clear and compelling messages. The workshop -- facilitated by COMPASS, a program based on the prestigious [Aldo Leopold Leadership Program at Stanford University](http://www.marinelab.fsu.edu/news/compass/), and sponsored by the FSU College of Arts and Sciences, The Office of Research, the FSUCML, the Center for Ocean-Atmosphere Prediction Studies, and the Departments of Biological Science, Chemistry, and Earth, Ocean, and Atmospheric Science –provided an opportunity for the journalists –Jeff Burnside (NBC), Christopher Joyce (NPR), Jessica Marshall (New Scientist, Discovery News), and Julie Hauserman (Florida writer) – to demystify the cultural differences between journalism and science, and then help scientists hone their interview skills. The workshop was a huge success. And as Brian Fairhurst, Associate Director of the High Magnetic Laboratory, put it, "I was particularly impressed by the participants' fundamental desire to communicate the importance of their research." Read more about the program here: <http://www.marinelab.fsu.edu/news/compass/>.



Oberlin College Undergraduates Visit the FSUCML

In January, three undergraduates from Oberlin College in Ohio, Sam Slowinski, Meaghan Harty and Emily Gardner (pictured left to right), worked with Dr. David Kimbro and Dr. Randall Hughes at FSUCML to fulfill their Winter Term internships. During their stay at FSUCML, the students participated in several research projects, including (1) sampling and identifying invertebrates in oyster reef communities; (2) conducting a lab experiment to examine the effects of tidal inundation duration and frequency on the anti-predator behavior of marsh periwinkles; and (3) completing a field experiment to determine how marsh periwinkle behavior and predation risk vary across different marsh habitats. In addition to gaining experience with a variety of research techniques, the students had the opportunity to explore the local area, with visits to St. Marks National Wildlife Refuge and Wakulla Springs State Park. And they certainly enjoyed the mild (when compared to Ohio) winter weather!

Other Visiting Groups and Researchers

Among the other visitors this summer were two high school groups and various university groups. High school groups came from **Florida A&M's Upward Bound Program** and from **The World Aquarium in St. Louis, Missouri**. Upward Bound exposes students to opportunities available to them in college. Six different groups each spent two days at the FSUCML, in the field and in lectures with Dr. Chris Koenig. The World Aquarium students had completed a six-week winter marine-related course at the aquarium before ever arriving at the lab. They then spent a week in the field learning about the region. Universities conducting classes at the FSUCML this summer included **Lincoln Memorial University** (Dr. Stan Kunigelis), **University of Georgia, Athens** (Dr. Catherine Ketter), **University of Southern Mississippi** (Dr. Richard Heard); and **Athens State University** (Professor George Williams).

Outside research scientists using the lab included Dr. Jennifer Cherrier (**Florida A& M University**); working on phytoplankton and bacteria; Dr. Jeffrey Donnelly (**Woods Hole Oceanographic Institution**) conducting geophysical surveys of sink holes; Dr. Shala Hankison (**Ohio Wesleyan University**), working on the sailfin molly genetics; Dr. Nicole Lopanik (**Georgia State University**), collecting invertebrate larvae for genetic studies; and Dr. Thomas Manning (**Valdosta State University**), investigating potential cancer-inhibiting chemicals. Collecting samples related to the oil spill were Dr. Paul Carlson (**Florida Fish & Wildlife Institute, St. Petersburg, FL**); and Dr. Anthony Moss (**Auburn University**).



New Faculty member

We are so pleased to announce that **Dr. David Kimbro** has joined the faculty of the FSUCML. Dr. Kimbro earned his Ph. D. and M. Sc. degrees from the University of California, Davis, and his B. Sc. from the University of North Carolina, Chapel Hill. His primary research interests center on understanding how biotic and abiotic processes interactively control the population dynamics of habitat-forming species (e.g., oysters and salt marsh plants) in estuarine systems. He views these habitats as ideal study systems in which to develop highly collaborative and interdisciplinary research, because they are generally influenced by a diversity of species interactions and dramatic physical gradients at the local (within an estuary) and biogeographic (across temperate latitudes) scale that are in turn linked to climate and coastal oceanography. During his post doctoral term at the FSUCML, Dr. Kimbro developed a very impressive research program focused on these issues. He has a deep interest in graduate and undergraduate training and already has developed initiatives that involve students in all facets of his work. Read more about Dr. Kimbro's work on oyster reefs and the potential effects of the oil spill here <http://www.marinelab.fsu.edu/research/kimbroyoysterreef.aspx>.



Mary

Sonja



Danny

Margaret



Bob

More New Faces

We have many new faces around the FSUCML these days. There's **Mary Balthrop, Associate Director**, who served as Director of FSU's London International Program for a number of years and brings to the lab exceptional experience in running the day-to-day operations of an educational facility. There are two new faces in Marine Technical Operations (now led by Captain Rosanne Weglinski): **Danny Gouge, Interim Diving Safety Officer** and **Sonja Bridges, Dive Technician**. Danny served for 25 years as DSO at the College of William and Mary's Virginia Institute of Marine Science and brings to the FSUCML a wealth of experience in science diving and extensive knowledge about the American Association of Underwater Science. Sonja comes from fifteen years of running a dive-shop in Panama City. Also joining the lab this year are **Margaret McMullen, receptionist**, and **Bob Williams, carpenter**.

As if this were not enough, we now have thirteen technicians supported on various grants, including **Chris Peters, Justin Lewis, and Kelly Kingon** (Ph. D. candidate, FSU Dept. Geography) in the Coleman-Koenig lab; **Samantha Bosman and Donnie McClain*** in the Craig Lab; **Ryan Corley, Kristin Berger, Liz Hibner, and Robyn Zerebecki** in the Hughes lab; **Hanna Garland, Tanya Rogers, and Evan Pettis** in the Kimbro Lab; and **Alejandra Mickle** in the Stallings Lab.

High School, Undergraduate, and Graduate Research at the FSUCML Summer 2010

We are thrilled to have two high school students involved in saltmarsh research at the lab this summer, **Prathyusa Pamidi** from Rickards High School International Baccalaureate Program, and **A. J. Gelin** From Lincoln High School. There are also eight undergraduate students, including seven from FSU, two of whom are working on honors theses in Biological Science: **Kirsten Nordin*** (in Craig's lab), and **Michele Sosa*** (in Hughes's lab); **Alexa Davis** (Kimbro's lab); **Mariah Pflieger[£]** in Grubbs's lab studying shark ecology; and **Christopher Matechik*[£], Vince Ramos and Jenna Testa** in Stallings's lab studying various aspects of fish ecology with one international student, **Alexander Cruz**, a Northern Gulf Institute intern from the University of Puerto Rico. There are five FSU students working at other labs around the country: **Peter Wilson*** and **Kristi Malone*** in Dr. Janie Wulff's lab conducting research on sponges in the Florida Keys, **Maria Daughtry*** at the National Marine Fisheries Service Laboratory, Miami, working on coral spawning; **Tom Harrah*** at the NMFS Panama City Lab evaluating habitat surveys offshore, and **Rachel Walsh*** at the Duke University Laboratory studying dolphin behavior.

Grad students include **Travis Richards** (habitat effects on juvenile fish in Apalachicola), **Mollie Taylor** (studying environmental effects on foraging ecology of juvenile spot in Apalachicola Bay) and **Chelsea Wagner** (hypoxia effects on apex predators) in Craig's lab; **Lisa Hollensead** (studying movements patterns of the endangered smalltooth sawfish) and **Matt Kolmann** (investigating the feeding behavior of stingray and their effects upon commercial shellfish) in the Grubbs lab, **Emily Field** and **Althea Moore** in the Hughes lab, and **Bob Ellis** (looking at interaction strengths among species associated with red grouper holes) from Coleman's lab.

*students enrolled in the FSU Certificate Program in Marine Biology; [£]students working on honors theses

Talk, Talk, and More Talk

Lunch Bunch

The Lunch Bunch is an informal gathering at the FSUCML in which scientists, natural resource managers, and others throughout the region meet with FSUCML scientists to discuss pressing scientific and management issues. The typical format involves the guest giving a short presentation followed by a more drawn out question and answer period as the speaker and audience members explore areas for research and management interactions. Speakers this year included **Chad Hanson, Senior Analyst for The Pew Environment Group** and **Joe Murphy, Gulf Restoration Network** (Gulf fisheries and essential fish habitat); **Ken Jones, The PBSJ Corporation** (seagrass management); **Dr. Catherine Edwards, COAPS** (postdoc, possible sea- and land-breeze drivers for larval transport in shallow water of the Big Bend); **Jimmy Nelson, Department of Earth, Ocean, and Atmospheric Science** (grad student, trophic linkages between inshore and offshore reef fish populations); **Ann Birch, The Nature Conservancy** (oyster reef restoration); **Anthony Marshak, University of Alabama grad student** (tropical reef fish fisheries and their response to climate change); **Dr. Loren McClenachan, FSU Dept. Biological Science** (post doc, using historical photographs to track fisheries exploitation in the Florida Keys); **Professor Phil Steinberg, FSU Geography Dept.** (maritime geopolitics and geophysics); **Professor Emeritus Bill Herrnkind** (using scuba as a tool in studies of the spiny lobster); **Dr. Holly Nance, Clemson University** (postdoc, population genetics of the endangered scalloped hammerhead sharks); **The Apalachicola Riverkeeper staff David McLain, Andy Smith, and Dan Tonsmeire** (BP oil spill: Who's in charge?); and **Dr. Shannon Martin, FFWCC Eastpoint, FL** (The FFWCC fisheries independent monitoring program).

2010 FSUCML Conservation Lecture Series & Other Events

The lecture series is a regular monthly event that occurs typically on the second Thursday of each month, although we take advantage of special opportunities to have other lectures during the evening whenever the opportunity arises. These "special events" are listed with the regular lectures.

- January 28 - **Dr. Marc Mangel**, University of California, Santa Cruz, "*Southern Ocean Krill, Krill Predators and Krill Fishery Management in a Changing Climate*"
- February 18 - **Dr. Wilson White**, University of Calif Bodega Marine Laboratory, "*Designing Marine Reserves for Population Persistence in Theory and Practice*"
- March 18 - **Dr. Chris Koenig**, FSU Dept. of Biological Science, "*Goliath Grouper: the Return of a Native Floridian*"
- April 22 - **Dr. Loren McClenachan**, FSU Dept. of Biology, "*The Environmental History of Florida's Coastal Seas*"
- May 13 - **Dr. Randall Hughes**, FSU Coastal & Marine Laboratory, "*Biodiversity in Salt Marshes and Seagrasses: Does It Matter?*"
- June 10th - **Dr. Michael Wetz**, FSU Earth, Ocean, Atmospheric Sciences, "*Can Algae Contribute to the Nation's Energy Demands? An Introduction to Algae-Based Bioenergy Research at FSU.*"
- July 1 – **Unspoiled – Writers Speak for Florida's Coast**. A book release and signing event with readings by some of the authors, including Susan Cerulean, Dr. Diane Roberts, Erin Canter, Dr. Felicia Coleman, Grace Jackson, Jack Rudloe and remarks by Dr. Jeff Chanton. Books available from this website: <http://www.unspoiledbook.com/>
- July 8 – **Harley Means**, Florida Geological Survey, "*The Springs of North Florida.*"
- August 12 – **Dr. Jose Castro**, National Marine Fisheries Service, "*Sharks: The Perfect Predators?*"
- September 9 – **Dr. Donna Christie**, FSU College of Law, and **Dr. Felicia Coleman** (FSUCML) – Oil in the Gulf of Mexico – The Legal and Ecological Consequences.
- October 14 -- **Dr. C. Edward Proffitt**, Florida Atlantic University, Harbor Branch Oceanographic Institution.

Check the website for more information: <http://www.marinelab.fsu.edu/outreach.html#lecture>

Education

Last summer signaled the beginning of the “Marine Science Saturation Maymester,” with undergraduates staying at the FSUCML 24-7 immersed in the **Biology of Fishes**, in which they explored fish and fish habitats in marine and freshwater systems with *Dr. Christopher Koenig* (FSU Department of Biological Science) and **Marine Invertebrate Zoology**, focused on the ecology and behavior of invertebrates inhabiting the coastal area of Franklin County with *Dr. Bill Herrnkind* (Professor Emeritus of Biological Science) and *Dr. David Kimbro* (FSUCML). This year, the tradition continued, as we offered **Biology of Fishes** with *Dr. Dean Grubbs* (FSUCML) and a new course, **Field Marine Science** with *Dr. Koenig*. This course provided students with an overview of the structure, function, and biological diversity of aquatic habitats in the near-shore environment of St. James Island, while teaching them how to detect human impacts that provide early warnings of habitat decline. Also on the agenda was **Science Inquiry for Teachers**, in which *Dr. Herrnkind* provided a research experience for teachers in how to promote scientific inquiry

in their students in a marine environmental setting. This course, funded by The National Science Foundation, has been a popular draw to the marine lab for the past five years. For fall, we will offer **Introduction to Science Diving** at the MORCOM facility in Innovation Park, and dive-related workshops that can be found on this website: <http://www.marinelab.fsu.edu/requests/courses.aspx>.



Facility Improvements

There have been so many facility changes at the lab in the past year that it's hard to know where to start. How about this? The whole campus is now wireless, the dumpster is bear-proof, and the administration building's deck now sports tables and chairs! In support of *education and training*, we converted one greenhouse into an outside classroom-laboratory for *Dr. Herrnkind's* teacher class; purchased an overhead power-point projector for the SATS laboratory; redesigned the pontoon boats for SATS classes; carpeted the auditorium to improve acoustics; and converted half of the old admin building into grad student living space (including two bedrooms to sleep six, a bathroom, living room, and office space – and NO CHARGE for FSU graduate students conducting research at the FSUCML). *For research*, we reskinned the other two greenhouses, improved water quality for research by installing a new submersible pump for the well, re-bedded the potable water filter tanks, installed a 24-h automatic pump alternator and meter to track daily water use, and a reverse osmosis system. In addition, resident faculty used start-up funds to purchase a walk-in freezer, a MAZDA minivan, a -80C freezer, a 26-ft Calcutta research vessel. *Minor Renovation Grants* provided fiberglass entrance doors for the administration building, replaced outdated diesel and gasoline storage tanks and fueling stations; and provided new heatpump systems for the research laboratory. On top of all that, all the buildings have been repainted inside and out, and received ADA funding for laboratory entrance doors and a new ramp. *Summer renovations* nearing completion include a new boat ramp in the boat basin and a replacement platform for the saltwater tanks. In addition, the Academic Diving Program is updating the dive gear to be more useful for science divers, renovated its work space, and is in the process of identifying much needed new research equipment to expand its capabilities.



SCIENTIFIC PAPERS

Baustian, M. M., **J. K. Craig**, and N. N. Rabalais. 2009. Effects of summer 2003 hypoxia on macrobenthos and Atlantic croaker foraging selectivity in the northern Gulf of Mexico. *Journal of Experimental Marine Biology and Ecology* **381**:S31-S37.

Bethea, D. M., L. LaPorte, J. K. Carlson, M. J. Ajemian, **R. D. Grubbs**, E. R. Hoffmayer, J. Imhoff, C. Campbell, and J. Romine. 2010. Shark nursery grounds and essential fish habitat studies. Report to NOAA Fisheries, Highly Migratory Species Division. Contribution No.PCB-10/01. 62 pp.

Breitburg, D. L., **J. K. Craig**, R. S. Fulford, K. A. Rose, W. R. Boynton, D. C. Brady, B. J. Ciotti, R. J. Diaz, K. D. Friedland, J. D. Hagy, D. R. Hart, A. H. Hines, E. D. Houde, S. E. Kolesar, S. W. Nixon, J. A. Rice, D. H. Secor, and T. E. Targett. 2009. Nutrient enrichment and fisheries exploitation: interactive effects on estuarine living resources and their management. *Hydrobiologia* **629**:31-47.

Christie, M. R., D. J. Johnson, **C. D. Stallings**, and M. A. Hixon. 2010. Self recruitment and sweepstakes reproduction amid extensive gene flow in a coral-reef fish. *Molecular Ecology* **19**:1042-1057.

Coleman, FC, CC Koenig, K. Scanlon, S. Heppell, S. Heppell, MW Miller. 2010. Benthic habitat modification through excavation by red grouper *Epinephelus morio* (Valenciennes) in the northeastern Gulf of Mexico. *The Open Fish Science Journal* **3**:1-15.

Daly-Engel, TS., **RD Grubbs**, KA Feldheim, BW Bowen, RJ. Toonen. 2010. Is multiple mating beneficial or unavoidable? Low multiple paternity and genetic diversity in the shortspine spurdog (*Squalus mitsukurii*). *Marine Ecology Progress Series* **403**:255-267.

Grubbs, R. D. 2010. Chapter 7. Ontogenetic Shifts in Movements and Habitat Use. *in* J. F. Carrier, J. A. Musick, and M. R. Heithaus, editors. *Biology of Sharks and their Relatives ? Volume 2*, . CRC Press, New York, NY.

Hughes, AR, RJ Best, JJ Stachowicz. 2010. Genotypic diversity and grazer identity interactively influence seagrass and grazer biomass. *Marine Ecology-Progress Series* **403**:43-51.

Hughes, AR, JJ Stachowicz. 2009. Ecological impacts of genotypic diversity in the seagrass *Zostera marina*. *Ecology* **90**:1412-1419.

Hughes, A. R., S. L. Williams, C. M. Duarte, K. L. Heck Jr., and M. Waycott. 2009. Associations of concern: declining seagrasses and threatened dependent species. *Frontiers in Ecology and the Environment* **7**:242-246.

Kimbro, D. L., E. D. Grosholz, A. J. Baukus, N. J. Nesbitt, N. M. Travis, S. Attoe, and C. Coleman-Hulbert. 2009. Invasive species cause large-scale loss of native California oyster habitat by disrupting trophic cascades. *Oecologia* **160**:563-575.

Kimbro, D. L., J. Largier, and E. D. Grosholz. 2009. Coastal oceanographic processes influence the growth and size of a key estuarine species, the Olympia oyster. *Limnology and Oceanography* **54**:1425-1437.

Qian, SS, **JK Craig**, MM Baustian, and NN Rabalais. 2009. Bayesian hierarchical modeling approach for analyzing observational data from marine ecological studies. *Marine Pollution Bulletin* **58**:1916-1921.

Rose, KA, AT Adamack, CA Murphy, SE Sable, SE Kolesar, **JK Craig**, DL Breitburg, P Thomas, MH Brouwer, CF Cerco, S Diamond. 2009. Does hypoxia have population-level effects on coastal fish? Musings from the virtual world. *Journal of Experimental Marine Biology and Ecology* **381**:S188-S203.

Stallings, C. D. 2010. Experimental test of preference by a predatory fish for prey at different densities. *Journal of Experimental Marine Biology and Ecology* **389**:1-5.

GRANTS

F. C. Coleman	Moore Foundation	The FSU Mote Fisheries Conference	\$10,000
Coleman & Koenig	NOAA	Protection of reef fish spawning in marine reserves in NE GOM	\$471,335
Coleman & Koenig	NOAA	Behavior of grouper species in marine reserves in the NE Gulf of Mexico	\$75,616
Koenig & Coleman	NOAA	Can human intervention increase recovery potential of deep-water <i>Oculina</i> communities?	\$39,991
Koenig & Coleman	NOAA	Goliath grouper reproductive ecology	\$300,000
D. Kimbro	NSF	Oyster ecosystem function (part of a \$1 million grant)	\$291,833
K. Craig	NOAA	Effects of hypoxia on harvest dynamics and the economic condition of the shrimp fishery (part of a grant with Duke University for \$702,970)	\$366,631
	NOAA	Modeling Reproductive and Population Impacts of Hypoxia in the N GOM	\$149,955
	Sea Grant	Environmental controls nursery habitat quality for estuarine-dependent fishes.	\$169,949
	NOAA/ANERR Fellowship.	Effects of river flow on juvenile fish nursery habitat function: Developing an Ecosystem perspective (with Mollie Taylor, graduate student)	\$60,000
	NOAA	Bioeconomic linkage of Hypoxia induced Habitat Degradation to Shrimp Fishery Outcomes	\$94,160
		Reproductive and Population Effects of Moderate Hypoxia	\$60,147
	NGI	Assessment of Ecosystem Services of Marsh Dominated Habitats in Apalachicola Bay: Towards a Model-based Toolset for Management Planning	\$36,256
K. Craig & J. Chanton	Sea Grant	Tracing intrusion of the oil spill on coastal food webs using radiocarbon (14C)	\$10,000
R. Dean Grubbs	NOAA/FAU	Efficacy of electropositive metals for by-catch reduction	\$71,275
	National Geographic	Long term movements of adult smalltooth sawfish	\$14,900
	NOAA	Habitat use and seasonal residency of juvenile small tooth sawfish in south Florida	\$30,187
	NOAA	Cooperative GOM States Shark Pupping and Nursery Survey	\$7,000
	NOAA/FWC	Movements, habitat use of smalltooth sawfish using multiple telemetry methods	\$675,989
	NOAA/UNF	Reproduction and Population Structure of blacknose sharks	\$13,836
	NOAA/TAMU	Stock Discrimination of blacknose sharks	\$27,947
R. Hughes	NSF	Effects of Salt marsh genotypic diversity	\$380,710
	NSF	Clonal variation in salt marsh cordgrass: Effects on and responses to associated species	\$11,887
L. Petes	FWC	An Ecological Approach to Oyster Reef Restoration in Apalachicola Bay	\$15,466
C. Stallings	NOAA	Indirect Effects of the Bait Shrimp Fishery on Juvenile gag	\$76,847
	NGI	Faunal Communities of the Big Bend Seagrass Meadows	\$55,802

A Case for Giving:

Private support provides us with tremendous flexibility to respond rapidly to exciting new opportunities and to plan for long-term development. We are now embarking on a capital campaign to build new housing, an education center, new research facilities, and a floating dock system in our boat basin. Your financial support makes it possible for us to provide invaluable support for these initiatives and for research, undergraduate and graduate scholarships, equipment, and general program support. The Coastal and Marine Laboratory depends on generous supporters like you to help create workable solutions locally and globally. So please consider a gift at any level that suits you best.

Why donate to the Florida State University Coastal and Marine Laboratory?

- Scholarships—Florida needs students who are well-trained in the challenges of the scientific understanding, conservation, and management of marine ecosystems. We provide an extraordinary opportunity for them to get hands-on field experience working on relevant problems.
- Research is needed to better understand this biologically rich part of a changing world. Ecologists, oceanographers, meteorologists, and others use our facilities as a base for their studies.
- Florida State University is doing its part by investing in our future through facility upgrades and resident faculty positions.
- The Florida State University Coastal and Marine Laboratory has a hard-working staff that is dedicated to providing a first-rate field laboratory to faculty and students.

Donor form found online here: http://www.marinelab.fsu.edu/documents/donor_form.pdf

Thanks to Friends of the Lab

<u>Conchs</u> (\$25-\$99)	<u>Conchs</u> (cont)	<u>Groupers</u> (\$500 - \$999)	<u>Volunteers</u> (cont)
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