



# GRICE LOGBOOK

A NEWSLETTER OF THE GRICE MARINE LABORATORY AND THE  
GRADUATE PROGRAM IN MARINE BIOLOGY, COLLEGE OF CHARLESTON

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## Undergrad Researchers Pursue Advanced Degrees

Just after Memorial Day, 2007, ten fresh new faces appeared in the Grice Dorm. They came from all over the country, from Missouri and Nebraska to New York City. They left ten weeks later as budding young researchers, as friends, and as alumnae of the nationally recognized Fort Johnson Research Experiences for Undergraduates (REU) Program. Since 1992, the ten-week REU program has provided 132 rising juniors and seniors the opportunity to



conduct independent research under the mentorship of scientists from the College of Charleston, the Medical University of South Carolina, SC Department of Natural Resources, the National Institutes of Standards and Technology and NOAA. More broadly, the NSF and DoD-funded Summer Program helps students explore their interest in science as a career. They live in the Grice Dormitory and participate in lectures, discussion groups and field trips. Whether they operated sophisticated instruments or sequenced DNA, grew their study organisms in a lab dish or fished for them in Dog House Creek, summer interns long remember their research experience at Fort Johnson. More than 80% of Summer Program alumnae pursue advanced degrees in science or medicine.

The 2007 Interns enjoyed a particularly broad menu of research projects. Fahd Abdus-Sabur and Lily Ngai looked for low-level contaminants in terrapins and turtles, and Sarah Wallace from

*Continued on page 6*

## Searockets and Kites

Understanding the ecology of natural and managed populations of organisms is especially important as humans encroach on our coastline. **Dr. Allan Strand** and his students use genetic data and evolutionary theory to do this working with plants (searocket, seabeach amaranth, beach vitex) and animals (dolphins, swallowtail kites, shortnose sturgeon). Marine Biology (GPMB) grad student **Dave Couillard** characterized genetic variation in searocket, a plant found commonly along our beaches while **Amelia Viricel** (GPMB) did similar studies on dolphins. Several Environmental Studies (MES) grad students have contributed to these efforts, including **Miranda McManus**, **Susan Fox**, and **Al Plan**. Strand and his students use population genetic theory to estimate dispersal and connectivity among populations. The group has developed its own generic simulation framework

*Continued on page 6*

## The Very Passionate Dr. Wiseman

Dr. Reid Wiseman is a passionate man! He is passionate about the environment, about student learning, and about his teaching. Since 1976, Dr. Wiseman has been a familiar face at the College of Charleston. He knows the local marine flora and fauna like no one else. He has taught generations of students about science and the context of science in the world.



*Continued on page 3*



## Recent GPMB Degrees

**Stacey Crocker** – Non-Equilibrium Processes Structuring Benthic Bacterial Communities Following Deposit Feeding by the Sea Cucumber *Isostichopus badionotus* (Selenka). (Advisor: Craig Plante)

**Beth Cushman** – Population Structure of the Gag *Mycteroperca microlepis* (Goode and Bean) in the Southeastern United States With Reflections on Statistical Analysis in a High Gene Flow Species. (Advisor: Erik Sotka)

**Meaghan Finnegan** – Effects of the Antifoulant Biocide Irgarol 1051 on the Eastern mudsnail, *Ilyanassa obsoleta*, and Estuarine Periphyton. (Advisor: Marie DeLorenzo)

**Becky Gregory** – Botanical Survey of the Marsh Hammocks of South Carolina: Charleston Area and ACE Basin National Estuarine Research Reserve. (Advisor: Betty Wenner)

**Heather Harper** – The Effects of the Insecticide Bifenthrin on Grass Shrimp, *Palaemonetes pugio* and Sheepshead Minnow, *Cyprinodon variegatus*. (Advisor: Paul Pennington)

**Suzanne Lane** – Comparison of Survival Models Using Mark-Recapture Rates and Age-at-Death Data for Bottlenose Dolphins, *Tursiops truncatus*, Along the South Carolina Coast. (Advisor: Lori Schwacke)

**Kristen Mazzarella** – Analysis of Stranded Loggerhead Sea Turtles (*Caretta caretta*) In North and South Carolina : Genetic Composition and the Effectiveness of Newly Implemented T.E.D. Regulations. (Advisor: Thomas Greig)

**Eileen Roy** – Population Structure of Black Sea Bass, *Centropristis striata*, Along the U.S. Atlantic Coast and Gulf of Mexico. (Advisor: Thomas Greig)

**Jamie Rudisill** – Effect of Increased CO<sub>2</sub> on Dimethylsulfoniopropionate (DMSP) Lyase Activity in the Coccolithophorid *Emiliana huxleyi*. (Advisor: Jack DiTullio)



**Jeff Schwenter** – Monitoring Mercury in the Diamondback Terrapin (*Malaclemys terrapin*): Kinetics and Accumulation of an Emerging Global Contaminant. (Advisor: David Owens)

**Lindy Thibodeaux** – Respiration and Energy Metabolism During Exercise in *Callinectes sapidus*, the Atlantic Blue Crab: Effects of the Bacterial Pathogen *Vibrio campbellii*. (Advisor: Lou Burnett)

**Kim Wieber** – Habitat Associations of Demersal Fishes on the Charleston Bump and Adjacent Blake Plateau. (Advisor: George Sedberry)

**Heidi Williams** – The Immune Response of the Eastern Oyster *Crassostrea virginica*: Effects of Cadmium and the Localization and Bacteriostasis of Introduced *Vibrio*. (Advisor: Karen Burnett)

**Ginger Winder** – Fluoxetine in the Marine Environment: Effects on Sheepshead Minnow (*Cyprinodon variegatus*) Locomotor and Reproductive Behavior. (Advisor: Ed Wirth)

**Deb Zdankiewicz** – Distribution and Stratification of Persistent Organic Pollutants in the Blubber of Bottlenose Dolphin (*Tursiops truncatus*). (Advisor: John Kucklick)

**Gabe Ziskin** – Age, Growth and Reproduction of Speckled Hind, *Epinephelus drummondhayi*, Off the Atlantic Coast of the Southeastern United States. (Advisor: Pat Harris)

**Marcus Zokan** – The Life History of Morays (Anguilliformes: Muraenidae) off the Southeastern Atlantic Coast of the United States. (Advisor: George Sedberry)



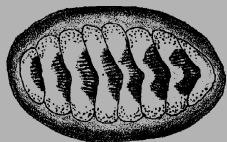
## Alumni Notes

**Jack McGovern (1986)**: In 1986, Jack entered the graduate program at the Virginia Institute of Marine Science at the College of William and Mary and got a Ph.D. in 1991. He was employed by the Florida Department of Natural Resources until 1993 when he took a job at South Carolina Department of Natural Resources to oversee the MARMAP program. In June 2003, he accepted a position with NOAA Fisheries in Florida. Jack has been married for 19 years to Beth and has two children, Molly (age 17) and John (age 12).

**George Riekerk (1992)**: George is working at the SCDNR, in the Environmental Research Section, on a variety of estuarine and coastal projects. He splits his time between data management, analysis and playing in the mud. George has two children, Annalise (7 yrs) and Nicolai (3 yrs), who are happy, growing, and also play in the mud.

**Mike Janech (1998)**: Mike accepted a faculty position at the Medical University of South Carolina in 2005 and is an assistant professor in the Department of Medicine - Division of Nephrology. He also holds faculty positions in the Marine Biomedicine and Environmental Science Program at MUSC and the Grad Program in Marine Biology at the Grice Marine Lab. Mike's lab is currently using proteomics to study sea-ice diatoms, stingray renal physiology, and California sea lions.

**Rusty Day (2003)**: Rusty accepted a position with the National Institute of Standards and Technology at the Hollings Marine Laboratory



## Faculty Notes

**From the Burnett lab.** Lou and Karen Burnett received a three-year grant renewal from NSF to continue their multidisciplinary studies exploring the physiological consequences of mounting an immune defense against bacterial infection. The new work will incorporate genomic and NMR-based techniques along with more traditional measurements to profile the impacts of hypoxia and exercise stress in infected animals. The new grant also supports a three-year postdoctoral position in the Burnett Lab. Potential candidates should have expertise in marine molecular biology and/or microbiology. **Dr. Brett Macey** recently completed postdoctoral studies in the Burnett Lab funded by the Hollings Marine Laboratory Center of Excellence in Oceans and Human Health. He returned to Cape Town, Africa, to take a permanent post at the Marine Research Aquarium in the Department of Environmental Affairs and Tourism, Marine and Coastal Management.

**From the Harold lab.** Tony Harold continues his research on deep-sea stomiiform and gobioid fish systematics. He recently had a collaborative article on phylogenetics of coral gobies published in the *Bulletin of Marine Science*. Graduate students working in Tony's lab are **Jackie Wilkie** (sand bottom fish community ecology) and **Ray Simpson** (bregmacerotid fish systematics). **Rachel Worthen** (MES) is working as an assistant in the Collections, and is also involved in a collaborative research project on mesopelagic hatchetfishes. This fall Tony will be teaching Systematic Biology (BIOL 445/645), a cross-listed undergraduate/graduate course with a major focus on the theory and practice of phylogenetic tree reconstruction.

**From the Owens lab.** In January **Gaëlle Blanvillain** and Dave Owens presented papers at the 28th International Symposium on the Biology and Conservation of Sea Turtles at Loreto in Baja California Sur. Gaëlle's poster was on the reproductive biology (anatomy and endocrinology) of the enormous male loggerheads in the Cape Canaveral ship channel breeding aggregation and Dave's paper was on the impacts of global warming on sea turtle reproductive biology. **Courtney Arthur** is happily embedded in her Washington DC NOAA sponsored Knauss Fellowship in the Marine Debris Program. She plans to return to the Grice lab later this summer to defend her MS thesis on mercury in terrapins from Key West to the Chesapeake Bay.

**From the Plante lab.** An ongoing line of work has examined the role of disturbances in structuring communities of benthic microbes. Iowa State University undergraduate and summer

REU student **Sarah Freitag** looked at the effects of disturbance caused by sediment-feeding invertebrates on benthic microalgae. She quantified biomass removal of benthic diatom biomass (via chlorophyll measurements) by various deposit feeders, and characterized modes and rates of recovery. Dr. Plante presented a portion of this research at the 10<sup>th</sup> *Symposium on Aquatic Microbial Ecology* in Faro, Portugal. CofC graduate student **Stacey Crocker** performed analogous work wherein she examined the effects of deposit-feeding sea cucumbers on sedimentary bacteria in shallow subtidal waters off the shores of Panama. A

*Continued on page 8*

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**Dr. Wiseman** - *Cont. from page 1*

Dr. Wiseman received his doctorate, master's, and bachelor's degrees at Duke University. He is interested in the systematics and ecology of marine algae and teaches courses in botany and phycology in the Dept. of Biology.

For many years Dr. Wiseman has led our summer students on field trips to the local mudflats and beaches. These students have come from all over the country and many of them have not experienced the ocean and its creatures. Dr. Wiseman works his magic on these students, weaving his stories of the natural history of blue crabs, worms, and salt marsh plants. He walks



them across the mud flats and gives some of them their first experience with pluff mud. They absolutely love it and they love the hands-on experience that Dr. Wiseman gives them.

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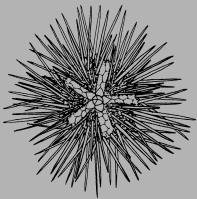
## Grice Welcomes New Staff

Grice Marine Laboratory (GML) welcomes two new staff members **Tricia Roth** and **Dawn Malone**. Tricia was hired in 2007 to manage both the Molecular Core Facility (MCF) and Dr. Craig Plante's laboratory. Dr. Plante is the current director of the Graduate Program in Marine Biology (GPMB). Tricia earned a BA in Biology and a BS in Environmental Protection from West Virginia University before moving to Chincoteague, VA to teach Coastal Ecology at the Wallops Island Marine Consortium. She moved to Charleston with her husband Stephen and earned her Masters in Marine Biology at Grice. Her research focused on the microbial interactions that occur within blooms of *Karenia brevis*, a dinoflagellate commonly linked with red tides. In 2005, Tricia became a full-time member of the Marine Biotoxins Program at CCEHBR and switched from a molecular microbiology focus to toxicology.



As the laboratory manager for Plante's laboratory, Tricia performs biological experiments, oversees student projects, and coordinates laboratory supplies and upkeep. Her role as the MCF lab manager requires Tricia to run and maintain the variety of complex instrumentation and associated computer software in the lab. Additionally, Tricia provides instruction and troubleshooting for those CoFC faculty and students that utilize the MCF.

**Dawn Malone** joined the GML staff in November 2007. She moved to Charleston from Boone, North Carolina in August of 2007 after she received a BS in Exercise Science from Appalachian State University. She provides administrative support to the GML and GPMB staff members including database maintenance and public relations. She also assists staff with laboratory facility organization, management and maintenance issues. Her varied job duties are associated with dorm use, safety monitoring, equipment utilization, wet lab operation, building storage and boating operations. She is currently a graduate student at The Citadel where she is pursuing a MS in Health, Exercise, and Sport Science.



## Student & Faculty Awards

### Faculty Awards

**Bob Chapman**, of SCDNR, was appointed a AAAS Fellow for his work in marine genomics. **Jack DiTullio**, of the Grice Marine Lab, was awarded a Fulbright Scholar Grant to study the effects of light and temperature on biogenic sulfur compounds and mycosporine amino acid production in *Phaeocystis antarctica* at the Zoological Station in Naples, Italy.



### Student Awards

**Tom Baird** won best oral presentation award at the 2008 Graduate Research Colloquium for his presentation, "Toxicity of selected conazole fungicides to the halotolerant chlorophyte *Dunaliella tertiolecta*: Sublethal effects on osmoregulatory function and lipid composition". **Lyndsey Lefebvre**, won best student oral presentation award for "Reproductive dynamics of cobia, *Rachycentron canadum*, in Port Royal Sound and St. Helena Sound SC." SC chapter American Fisheries Society annual meeting.

**Joe Pollock**, a graduate student in marine biology, was awarded a Fulbright Scholarship to study coral disease in Australia.

**Kim Wieber** – American Institute of Fisheries Research Biologists - Research Assistance Award 2007

**Courtney Arthur, Luis Leandro, and Amanda McCarty** – Knauss Fellowships

**Thomas Baird, Claudia Friess, Sara Jones, and Juliana Miller** - Presidential Summer Research Awards from College of Charleston (\$3750 each)

**Carole Berini, Beth Cushman, Adair Dempsey, Meaghan Finnegan, Jen Fountain, Heather Harper, Jessalyn Ierardi, Suzanne Lane, Steven O'Connell, Katie Olds, Claire, Samaha, Lindy Thibodeaux, Heidi Williams, Kim Wieber, Marcus Zokan** – Graduate School Research and Presentation Grants (\$500 each)

**Adair Dempsey and Jennifer Fountain** – McLeod-Frampton Scholarship from the South Carolina Agricultural Society (\$5000 each)

**Jessalyn Ierardi, Joe Pollock, Artur Veloso, and Drew Wham** – Marine Genomics Fellowships (\$20,000 each)

**Suzanne Kacenas and Ray Simpson** – Joanna Deep Water Fellowship (\$3600 each)

**Drew Wham & Joe Pollock** won best Marine Biology Poster for "A Genomic Analysis of Stress Response Proteins in The Starlet Sea Anemone *Nematostella vectensis*." Second Annual Graduate Research Poster Session at the CoFC.

## Research Colloquium

The 11<sup>th</sup> annual Marine Biology Student Research Colloquium was held on February 8 and 9, 2008. The keynote speaker, **James T. Carlton**, is a Professor of Marine Sciences at Williams College and has directed the Williams-Mystic Program in Mystic, CT since 1989. He holds a Ph.D. from the University of California, Davis in Ecology, and was a postdoctoral scholar at the Woods Hole Oceanographic Institution. His research is on global marine bioinvasions (their ecosystem impacts, dispersal mechanisms, and management strategies) and on marine extinctions in modern times. He is the founding Editor-in-Chief of the Journal of Biological Invasions. In 1999 he was the first scientist to receive the federal government's Interagency Recognition Award for his national and international work to reduce the impacts of exotic invasions in the sea. His keynote speech was titled Marine Bioinvasions: History, Science, and Policy. "We know surprisingly little about the history of the world's marine animals and plants over the past 1,000 years, particularly the extent to which modern-day distributions have been altered by human activities over the past millennium. The resolution we have since 1850 suggests that many marine communities were impacted dramatically by human-mediated invasions long before marine biologists appeared on the scene. In turn, the diversity of vectors now in play continues to introduce non-native species around the world. We look at some of these invasions in the context of maritime history, modern-day shipping, ecological impacts, and environmental policy challenges."

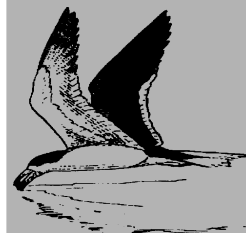
Sixteen students participated in the oral presentations this year. The oral presentations were evaluated by a panel of six judges on the basis of: 1) scientific content including introduction of the problem, hypothesis testing,

methodologies, and analyses; 2) presentation of the material including delivery, organization, and graphics; and 3) functional understanding of the science as demonstrated in the question and answer period. Peer reviews were also conducted by audience members to facilitate the presenters' oratory development. **Tom Baird** received the award this year for his talk titled "Toxicity of Selected Conazole Fungicides to the Halotolerant Chlorophyte *Dunaliella tertiolecta*: Sublethal Effect on Osmoregulatory Function and Lipid Composition." The objectives of his study are to determine the toxicity of four conazole fungicides to the marine chlorophyte *Dunaliella tertiolecta* by examining effects on growth, osmoregulatory function and lipid composition. Using 96 h static algal bioassay protocols, he established EC50 values for propiconazole, hexaconazole, triadimefon and for triadimenol. Future work aims to investigate the sublethal effects of conazole exposure on *D. tertiolecta*'s ability to synthesize and dissimilate its glycerol osmolyte following an osmotic shock. Lastly, additional methods will be developed to generate post-exposure lipid profiles using mass spectrometry to identify any alterations in overall plasma membrane structure. The data generated from this research will benefit pesticide regulators in making informed environmental management decisions.

The day was finalized with a talk from Dr. James Carlton titled The Maritime History and Marine Biology of Exotic Species Invasions and the award presentation ceremony. A cookout complete with Frogmore Stew and veggie burgers was held in the outdoor classroom at the Marshlands House.



Tom Baird



Pete Meier and grad student Jackie Wilkie talk with the next generation of marine biologists, celebrating the opening of the James Island Elementary School outdoor classroom.



## GML Merchandise

The Marine Biology Graduate Student Association sells a variety of items to raise money to support students presenting oral and poster presentations at scientific meetings as well as funding some social and community-related activities throughout the year. Items for sale include t-shirts, coffee mugs and pint glasses, koozies, and hats. Go to <http://www.cofc.edu/marine/> and click on the GML Merchandise link.

**Strand** - Cont. from page 1

to test their methods in real world situations. **James Niehaus**, a Computer Science undergrad, has implemented much of this simulation framework. The model has recently been adopted by the International Whaling Commission to test their management efforts.

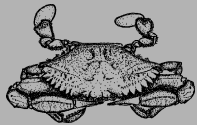


Dr. Allan Strand

In a second area of research, done in collaboration with **Dr. Seth Pritchard** in the Dept. of Biology, Strand infers the population ecology of roots in forest soils using image data. Survival analysis is applied to understand the lifespan of individual roots by following them through time. The resulting estimates of root

lifetime are essential to understand the rate at which carbon is cycled through forest soils. Much of the original data collection for this research was performed by **Luke McCormack**, a recent graduate of the College of Charleston's Department of Biology. Strand and Pritchard published their findings in the prestigious journal *Science* in January.

The third focus of Strand's work is to develop a better understanding of rules that determine genome-wide rates of gene duplication in higher plants. This work has been performed in collaboration with **Drs. Matt Rutter** and **Courtney Murren** in the Department of Biology. "In this work we leverage the genomic data available for *Arabidopsis thaliana* (a small flowering plant and important model organism) to determine the distribution of mutational effects on plant fitness



**Undergrad Research** - Cont. from page 1

explored how climate change might alter the toxicity of those contaminants. Nikki Oakman, Andrea Buchwald, and Megan Lohmiller studied harmful algae and their effects on fish and amphipods, while Sarah Freitag examined how deposit feeders may impact microalgae. Greg Matthews and Ikenna Achilihu studied disease-causing marine bacteria in corals and oysters.

Then, there were the field trips! The interns got wet, dirty, hot and tired, but they had lots of fun. Once again, Dr. Reid Wiseman, and Dr. Dave Owens, and Bill Roumillat guided the interns through the diverse habitats of South Carolina's coastline by boat, kayak and on foot. Photos of the summer's activities and research topics can be viewed at the Program website:

[www.cofc.edu/reu](http://www.cofc.edu/reu).

by intentionally knocking out genes. Surprisingly, we have identified several genes that actually increase a plant's fitness when their function is interrupted. We are currently investigating the performance of these mutant genes in an array of different environments to confirm our initial observation." These results should provide a better understanding of the "dispensability" of genes and the rate at which duplicated genes might be retained or lost through evolutionary time.

During the past year, Dr. Strand has served as interim chair of the Department of Biology. He also teaches a graduate course in Biometry.



**George D. Grice, Jr. Lecture**

The George D. Grice, Jr. lecture, the first in a series, was presented last fall by Dr. William Kier, Professor of Biology at the University of North Carolina Chapel Hill.

Dr. Kier, who is interested in the biomechanics of marine invertebrates and musculoskeletal systems, talked about his work on fast and slow muscles in squid.



Dr. William Kier

The lecture series was introduced by Dr. Lou Burnett, Director of the Grice Marine Lab, with a brief biography of Dr. George D. Grice, Jr., who was a well-known marine biologist who spent most of his career at the Woods Hole Oceanographic Institute in Woods Hole, Massachusetts. The lecture was attended by Dr. George D. Grice III and his family.

The Summer Program at the Grice Laboratory began in 1992 and has received continuous support from NSF since 2000. Over the past 15 summers, more than 100 undergraduates from 47 states have conducted research with mentors





**Alumni Notes** - Cont. from page 2

working as a research biologist in the inorganic chemistry group. He is currently an adjunct

faculty member in the Graduate Program in Marine Biology at the Grice Marine Lab and will begin working toward his PhD with the University of Pau in France over the next several months. Rusty's research includes assessing the



exposure and toxic effects of mercury in marine organisms such as turtles and seabirds, and using trace element levels and isotope patterns in bony structures to reveal an animal's life history traits. Rusty lives on James Island, and is an avid traveler who enjoys fishing, surfing, sailing, and scuba diving. He has recently founded a non-profit organization (Marine Science and Nautical Training Academy) devoted to field studies in marine science education.

**Stacey Crocker (2007):** Stacey is the Program Manager at Lowcountry Earth Force. As a national nonprofit organization, Earth Force combines the best practices of environmental education, service-learning and civic engagement to provide comprehensive, relevant instruction for youth. Stacey handles programming for the local

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field office of Earth Force which involves working with students, educators, and community leaders to partner with local government offices and NPO's. Annually they engage approximately 2,500 students and 60 educators through in-class and after-school programming as well as programming at a variety of community events. For more information about Lowcountry Earth Force go to: <http://www.earthforce.org/section/offices/lowcountry>.



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New Tee Shirt Design  
Graduate Program  
Marine Biology

## New Grice Building

The old boathouse is gone to make way for a new building occupying 16,800 square feet. Funding for the project was procured from the State of South Carolina and the College of Charleston.

- Features of the building include
- a modern teaching laboratory for experimental biology and marine genomics courses
  - one lecture classroom
  - housing for 24 individuals, which will allow expansion of our summer programs and especially our NSF-REU site
  - housing for visiting scientists and their families
  - 10 graduate student cubicles, office space for 3 postdocs and a study lounge
  - a conference facility including multi-purpose meeting rooms and a catering kitchen
  - four staff offices
  - workshop, boat repair and storage areas
  - display area accessible to the public that addresses the history of Grice Marine Lab and Fort Johnson



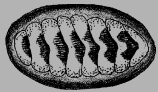
*Demolition of the boathouse*

The Liollo Architecture firm has designed the building. Fort Johnson is listed on the National Register of Historic Places, which requires an assessment of cultural resources when new construction is considered on the site. The Diachronic Research Foundation conducted an archaeological survey of the proposed building site and surrounding areas to search for historically significant artifacts. The first phase involved shovel tests at 10 m intervals. The second phase involved hand and



mechanical excavation of areas of interest including the cisterns and building foot-print. Numerous artifacts were uncovered and a select few are to be displayed in the new building. Construction is scheduled to begin in October of this year and commissioning is scheduled for November 2009.





**Faculty Notes - Cont. from page 3**

new area of research deals with the production of antimicrobial compounds by benthic bacteria and will characterize the ecological role of antagonistic interactions among bacteria. Much of this work has been performed by undergraduate student **Amanda Kinney**, with the help of **Tricia Roth**, a technician in the Plante lab. Amanda has received a Summer Undergraduate Research Fellowship (SURF) from the CofC to continue this work into the summer.

**From the Podolsky lab.** The Podolsky lab is continuing work on the physiological ecology of early development in intertidal habitats, especially in marine molluscs. A graduate student in the lab, **Suzie Kacenas**, has been working on factors that regulate oxygen availability to embryos inside intertidal egg masses, focusing on the role of diatom growth in elevating oxygen levels for embryos. A new graduate student in the lab, **Daniel Fernandes**, is studying the effects of intertidal temperature fluctuation on early development by estimating the separate contributions of temperature mean, variance, and stress level to embryo success.

**From the Sancho lab.** This spring Gorka Sancho received tenure and was promoted to Associate Professor. He also published four papers on his research on fish aggregations around floating objects in the equatorial Indian

Ocean. This summer he intends to continue his studies on the behavior of spotted seatrout in Grice Cove along with CofC undergraduates **Chad Capece** and **Michael Illig**.

**From the Sotka lab.** **Beth Cushman** (GPMB) gave a preview of her successfully-defended Masters' Thesis to the Southeastern Ecology and Evolution Conference (March 2008; Tallahassee, FL). Beth will continue working as a technician through the summer. Erik Sotka and Beth gave a presentation on fisheries genetics and gag grouper to the monthly meeting of the Hilton Head Fishing Club in March, 2008.

**Amanda McCarty** (GPMB) is in Washington DC pursuing a Knauss fellowship with the US Senate Commerce Committee. **Jonathan Craft** (GPMB) joined the lab this spring. He will spend most of his summer working at the Smithsonian Institute Research Station in Fort Pierce, Florida on the detoxification enzymes employed by herbivorous urchins to metabolize chemically-rich seaweeds.

**Brentley Wiles**, a CofC undergraduate, used funds from a Summer Undergraduate Research Grant from the Biology Department to pursue a field project on induced chemical defenses in the marsh grass. **Alaina Voss**, CofC undergraduate received a Summer Undergraduate Research Fellowship this spring to work on a laboratory selection experiment to address whether a marine herbivore can evolve feeding tolerance for a chemically-rich seaweed.

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