

MIMES REPORT

Minorities in Marine and Environmental Sciences

Spring 1998

Summer Intern Program Summary of Summer 1997 Activities

Students Enjoy Another Great Summer

Six college students from Louisiana, Nevada and South Carolina participated in the South Carolina Department of Natural Resources (SCDNR), Marine Resources Division's (MRD) minority summer training program. This twelve-week program, funded by the National Science Foundation (NSF), Ocean Science Program, is designed to provide undergraduates with "hands-on" experience in the field of marine and environmental science. The research projects undertaken by the 1997 summer interns covered a diversity of subjects including: the niche partitioning of a habitat by two species of *Fundulus*; transport mechanisms used by larval shrimp; and the applicability of using SPMDs (Semipermeable Mem-



Students of the summer of 1997.

brane Devices) to measure contaminant levels in estuarine waters. The students conducted their research projects under the guidance of marine scientists, who were responsible for training the students in basic principles of marine and environmental science and scientific theory.

In preparation for the summer minority program, the MRD Minority Affairs Committee sent application packets to over fifty colleges and universities nationwide. A total of twenty-eight students applied, and six young men and women



Reginald Garner's (left with Dr. Pete Sampou) poster was a great success at the 1997 ERF meeting in Rhode Island.

participated in the summer program. The committee conducted phone interviews to determine the students' interests and to allow mentors to ask questions pertinent to the specific assignment. Yvonne Bobo, the summer training coordinator, said "I was impressed with this year's students from the beginning. I first noticed their enthusiasm about the program during the many telephone conversations we had before they arrived, as they sought background information about the types of research projects they might undertake." "After just a short introduction to MRD, the students were quickly involved in their research projects and focused on learning new things," noted Bobo.

Early in the summer, interns worked extensively on their independent research projects and attended classes to expand their knowledge in marine science. They also worked



Monica Rawlison examined hundreds of bacteria colonies during the summer.

on a daily basis to learn more about the specifics of the mentors' research. Through classwork, the students developed an appreciation for the many different scientific disciplines, including chemistry, hydrology, physiology, fisheries science, and ecology that make up the field of marine science. The twelve to fourteen hour days worked by the interns demonstrated their dedication and enthusiasm for research. "The high quality of the final oral presentations and project reports also demonstrated that the students had gained considerable knowledge over the summer," noted Dr. Fred Holland, Director of MRD's Marine Resources Research Institute (MRRI).

Reginald Garner, a senior chemistry major at Winthrop University in South Carolina spent the summer testing his hypothesis that dimethylsulfoniopropionate (DMSP) concentrations in *Spartina alterniflora* and the surrounding sediments and water increased as salinity increased. Surprised when the data did not support his hypothesis, Reginald spent hours poring through the literature in search of answers, and discovered that many other environmental fac-

tors affect DSMP levels. In October, Reginald gave a poster presentation of his summer research at the Estuarine Research Federation annual meeting in Providence, Rhode Island. His mentor, Dr. Jack DiTullio of the University of Charleston, told us that he was not surprised that the poster was well-received because "Reginald is the type of student that applies himself and can accomplish great research."

Naomi Walker, a rising junior at Grambling University in Louisiana majoring in biology, got an "up close and friendly look" at oysters as she worked on her research, entitled "The Occurrence of Lathyrose on *Crassostrea virginica* Hemocytes from Three Regions of the United States." Not only did she learn how to identify oyster pathogens and spawn oysters resistant to the MSX pathogen, she had the opportunity to work with Dr. Thomas Cheng of the Marine Research Institute at the Atlantic Littleneck Clam Farm on developing a diagnostic kit to identify oysters resistant to the MSX pathogen. However, Naomi said, "I wouldn't recommend research on oysters to anyone who likes an animal which moves around."

TrVera Williams, a biology major and rising senior at Newberry College in Newberry, South Carolina, worked on a project entitled "Catch the Wave (A Wave in a New Direction SPMDs: Semipermeable Membrane Devices)". At the end of the summer, TrVera commented that, "My research project is going to assist future scientists assess contaminant loads within estuaries." Her mentor, Dr. Thomas Mathews from the Marine Resources Division, agreed by saying, "TrVera is working on an exciting new technique to monitor contaminants by sampling with oil-filled selective membrane bags."

Marc Maynor, a rising sophomore at Clafin College in South Carolina, with a double major in chemistry and biology, found out very early in the summer that there is more to a "marsh mud minnow" than meets the eye as he worked on his research, entitled "An Ecological Study of the Killifishes, *Fundulus heteroclitus* and *Fundulus majalis*. Marc spent the summer looking at minnow body structure, gut, and gonads. Near the end, Marc commented "It was difficult as a young man to sit at a microscope all day and remain focused on a dead fish." However, with the encouragement of his mentors, Drs. Tony Harold and Bill Anderson of the University of Charleston, he persevered and learned a lot about the feeding habits of these two species and how they partition the resources of their habitat.

Monica Rawlison never realized that "research was so difficult and that so much time was required to obtain a high quality product." Monica, a rising sophomore at South Carolina State University with plans to major in biology, looked at one of the most important groups in an estuarine marsh



Marla Taylor assisted in the collection of estuarine plankton from the R/V Anita.

environment, the bacteria, and their interactions in the food chains of benthic invertebrates. Under the direction of her mentor, Dr. Craig Plante of the University of Charleston, she learned a lot of microbiological techniques, and she commented that, “the experience was very valuable.” Monica’s research, was entitled “An Ecological Study of the Direct Relationship between Lytic Susceptibility and Capsule Thickness in Bacteria.”

“Most people don’t think of a student having to be brave as part of their intern research,” remarked Marla Taylor’s mentor, Dr. Charles Barans of the Marine Resources Division. Marla did not know how to swim, and she spent a good deal of her summer on the waters of a coastal inlet assisting in the collection of plankton and larval shrimp. She collected data for her project entitled “Shrimp Transport Mechanisms into an Estuary.” Marla’s study focused on the mechanisms by which larval white shrimp (*Peneaus setiferus*) entered the estuary. Marla is a biology major and rising senior at Southern University in New Orleans.

During the last two weeks of the program, the students analyzed their data, wrote technical reports, and prepared oral presentations. On August 14, students presented summaries of their research to Marine Resources Division’s (MRD) scientists, their family and friends, and supporting colleagues for which they received high praises. Following the presentations, the mentors and Dr. John Miglarese, MRD Deputy Director, presented the students with certificates of accomplishment. Dr. Miglarese commented that he was impressed with the students’ oral presentations and professionalism. The festivities were followed by a congenial luncheon at a local seafood restaurant. Mentors, the MRD Minority Affairs Committee, and family members joined the students for the lunch. Dr. Paul Sandifer, Director of South Carolina Department of Natural Resources (SCDNR), summarized the summer experience as “outstanding with excellent participants.”

Visiting Scientists - Excellent Role Models

During July, three minority scientists representing several areas of expertise made presentations to the students, MRRRI staff and the local scientific community. The first speaker was Dr. Lisa White from the Department of Geoscience of San Francisco State University presented a talk titled “Recycling Center or Refuse Dump? What Happens to Marine sediments at the Costa Rican Subduction Zone: Ocean Drilling Program Leg 170.” Students of the Marine Biology program at Savannah State College also attended Dr. White’s presentation. After her visit in Charleston, Dr. White continued to Columbia where she addressed students of Dr. Michael Howell’s SC AMP program and was introduced to many of South Carolina’s interesting geological areas.

In mid-July, Dr. Pernell Lewis of the Biological Sciences Department of the University of South Carolina talked to the students about his ichthyological research. A week later,



Dr. Cecil Jennings (far right) enjoyed relaxed discussions with students after his scientific seminar.

Dr. Cecil Jennings of the School of Forest Resources of the University of Georgia presented his research results entitled "History and Status of the Imperiled Robust Redhorse, *Moxostoma robustum*, on the Oconee River, Georgia."

In early August, Dr. Mamie Parker, Deputy Assistant Regional Director Geographic Area I for the Fish and Wildlife Service in Atlanta, spoke on "My Lifelong Journey: An Uncommon Woman," with examples of her research and management experiences. Both the MRD/NSF interns and twenty-two interns of the College of Charleston SC AMP program enjoyed and benefited from her advice.

After the seminars, the speakers spent time with the students, sharing experiences about minorities in science, as well as giving the students valuable information and advice about the professional world.

Update On Previous Intern Students

Gerald Johnson, a 1994 summer intern, is pursuing a career in the health profession. Gerald was accepted into the Doctoral Pharmaceutical Research Program at Medical University of South Carolina in fall of 1997. Amy Belton, a

1995 MRD summer intern, participated in summer internship programs during 1996 and 1997. Summer of 1996, she attended Medical University of South Carolina program and assisted researchers with experiments on a new method for testing AIDS patients for Tuberculosis. In 1997, she was a summer intern at Princeton University where she worked on a project that involved characterizing gene expression pattern during oogenesis in *Drosophila melanogaster*. Amy graduates in May 1998, and she plans to attend graduate school next year.

Ms. Jada Richardson, a 1996 MRD summer intern, is a full-time temporary staff member of MRD assisting with shellfish research. Two other 1996 interns, Veronica Cline and Vanessa Martinez, attended the 1997 annual meeting of the American Society of Limnology and Oceanography in Santa Fe, New Mexico. Vanessa plans to present the findings of her intern project at the annual meeting of the North Carolina Academy of Science. In 1997, Veronica attended a summer internship program at Lamont-Doherty Geological Laboratory of the Columbia University, and she was accepted into a M.S. program working with Geographical Information Systems at the University of Texas at El Paso.

Past Students

Are you a past student or know where one is hiding? We would love to know how all our previous interns are doing and where they are now. We would appreciate phone numbers, home address, and/or e-mail address. Thanks!

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