

Dauphin Island Sea Lab



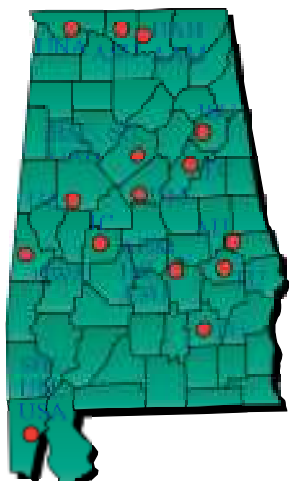
The State of Alabama's Marine Science Education and Research Institution

2011 Annual Report

The Twenty-Two Member Schools of the Dauphin Island Sea Lab/ Marine Environmental Sciences Consortium

- Alabama A&M University, Huntsville, AL*
- Alabama State University, Montgomery, AL*
- Athens State University, Athens, AL
- Auburn University, Auburn, AL*
- Auburn University at Montgomery, Montgomery, AL
- Birmingham Southern College, Birmingham, AL
- Huntingdon College, Montgomery, AL
- Jacksonville State University, Jacksonville, AL*
- Judson College, Marion, AL
- Samford University, Birmingham, AL*
- Spring Hill College, Mobile, AL
- Talladega College, Talladega, AL
- Troy University, Troy, AL
- Tuskegee University, Tuskegee, AL*
- University of Alabama, Tuscaloosa, AL*
- University of Alabama at Birmingham, Birmingham, AL*
- University of Alabama in Huntsville, Huntsville, AL*
- University of Mobile, Mobile, AL
- University of Montevallo, Montevallo, AL
- University of North Alabama, Florence, AL
- University of South Alabama, Mobile, AL*
- University of West Alabama, Livingston, AL

* Schools with Graduate Degree Programs



Statement of Purpose



The Dauphin Island Sea Lab (DISL) is Alabama's marine research and educational institution. Founded in 1971 by the Alabama legislature to maximize the marine sciences capabilities of several Alabama institutions and minimize duplication, DISL serves twenty-two Alabama colleges and universities, both public and private. DISL and its faculty work toward the combined purposes of conducting pure and applied research, and sponsoring structured educational programs for individuals and organizations interested in and dependent upon the marine environment.

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Dauphin Island Sea Lab/ MESC provides equal educational opportunity to, and is open and accessible to, all qualified students, without regard to race, color, creed, national origin, sex or qualified handicap/disability with respect to all of its programs and activities.

Disabled students will be provided "reasonable accommodations" when they have identified themselves and validated their special need(s). Complete confidentiality is maintained unless authorization for release or information has been given in regards to disability.

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For questions about this Annual Report, please e-mail Lisa Young, Public Relations Consultant, at lyoung@disl.org.



2011 Letter from the Executive Director

For more than 30 years, the Sea Lab was fortunate to operate under the steady influence of Dr. George Crozier. During those formative years, the understaffed lab survived despite miniscule state appropriations that often left it struggling just to survive. These were the days, when we were best characterized by pipes insulated with asbestos, Formica-covered chemistry benches, broken floor tiles and a rich diversity of wild mammals that made the labyrinth of cable channels once found in the underworld of the original Marine Science Hall their home. Staff and faculty alike, pitched in to teach in the classroom, serve lunches in the cafeteria and work on facilities repairs in the evenings. What held everyone together in those early days was a "dream-a-dream" that someday this nascent educational facility would become a leader in the field of marine education and research. As I think back on the stories I have been told about those days, and the many challenges our predecessors had to overcome, I think it is a miracle that they survived to build the laboratory we find ourselves working in today.

With time and a lot of hard work by the surviving staff and new faculty, our state appropriations began to grow, as did our reputation for excellence in research and education. The addition of faculty and, later, educators led to new research grants, facilities renovations and the growth of our academic programs. As success in these emerging endeavors grew, our revenue portfolio diversified, and the fluctuations in state appropriations became less damaging to our overall programmatic stability. Make no mistake about it, the \$1.5 million dollar reduction in our state appropriation the past few years has

diminished our ability to live up to our potential, but our success in acquiring extramural money has tempered this loss for the time being, and serves to illustrate just how far the lab has come and how well we are thought of today.

Amidst an atmosphere of difficult economic



Dr. John Valentine became Executive Director of the Dauphin Island Sea Lab on October 1, 2011.

times and belt-tightening battles in Montgomery and Washington, DC, I can assure you that we in administration are working hard during these challenging times to make sure our programs receive every consideration as budget priorities are developed - but nothing is guaranteed. It has not been lost on me during my visits to these two seats of government, the gratifying words of support expressed by our elected officials for the Sea Lab's mission, and their statements of appreciation about our accomplishments. All recognize the value science and education have for the citizens of our state and nation. They recognize the fact that the Gulf, despite its enormous contributions to the nation's economy, has not received the attention from federal agencies in Washington it

deserves. I am particularly proud of how hard our representatives in Washington have worked to pass the RESTORE Act. Should the Act pass in Washington, there is a very good chance the Sea Lab will be named the Center for Excellence for Alabama. Depending on the state's allocation from BP fines, this designation will represent a significant improvement in our financial position.

Since I have taken on the role of Executive Director in October 2011, I have been asked by staff and supporters alike what my plans are for the Sea Lab, so let me explain them briefly. I have two goals. It is my hope, that with continued growth in facilities and people, and with the integration of new approaches and technologies into our classrooms and laboratories, that we will become a beacon for the importance in education, science, and the application of science in coastal communities throughout the South. I also wish to promote the importance of the Gulf of Mexico both in Montgomery and Washington to anyone who will listen. I know that these will come across as simple, but I consider them to be key to our future. Already we are taking steps to achieve the first goal.

I believe that the diversification of our energy portfolio is of paramount national importance. If this diversification includes the development of sustainable sources of energy, those provided by nature, so much the better, and science will be the key to this success. Dr. Dindo's acquisition of a grant from the Department of Energy led to successful installation of solar panels on buildings along much of the southern portion of the campus. This is of significant importance to us as almost 10% of our state appropriation is spent on power. A new Sharks and Rays exhibit, which relies on geothermal energy to control water temperature, will soon be completed in the Estuarium. We are continuing to negotiate with Alabama Power for the installation of wind turbines on our campus. These will be wonderful opportunities for us to promote the application of science to our state. Dr. Heck has convinced the members of the Marine Environmental Sciences Program Committee to revise the summer curriculum which will bring more of the MESC-member institutions on to our campus.

This is not all that we are working on. Soon we will be soliciting bids for the development of a new website for the Sea Lab and campus-wide software that will allow us to be economically efficient as we continue to promote our mission. We are also close to completing our new facility searches bringing new ideas and skills to our campus. To improve the academic atmosphere of our facility, we will

continue to spruce up the campus with trees, bushes and benches wherever we can. We have every reason to believe that we will receive funding to add on to the Estuarium in the coming year. This addition will allow us to include traveling exhibits to our educational repertoire. I would also call your attention to the efforts of the Dauphin Island Sea Lab Foundation whose success in acquiring grants that contribute to the richness of the academic programs which build on our reputation for innovation in the classroom. When you add in the recognition received from the leadership shown by University Programs during the initial impact assessment phase of Deepwater Horizon Accident on Alabama's coastal resources, our work on habitat restoration and fisheries oceanography, meandering manatees and our growing educational programs, you have no choice but to conclude that our best years are not behind us! I would be remiss if I did not mention the fact that none of these successes would have been possible without the help of our excellent support staff.

I will close by saying that the administration cannot bring us into a new brighter future alone. When I was young I listened on my father's black and white television, to the inaugural address presented by the person I consider to be the best political leader of my lifetime. In this address, President Kennedy challenged the citizens of our nation to recognize that there was a greater good that we were all a part of, something that was bigger than the sum of our individual desires and wants. He called on us to proactively be a part of a greater nation, rather than limit our focus to ourselves. I find that recollection to be an appropriate metaphor for the moment we find ourselves in now. Just as our predecessors committed to the vision of a future greater Sea Lab, it is our time to take responsibility for the future growth of this remarkable institution. It is time for each of us to come together, to focus our efforts on a better Sea Lab, one that leads the way, not follows the path of others. I hope you will bring into this challenge as our success will be determined by your willingness to be a part of the Sea Lab's future.

I don't know about you, but I am excited to see what you make happen next!

Dr. John F. Valentine
Executive Director, Dauphin Island Sea Lab



Administration and Facilities

DISL is located on 36 acres on the eastern end of Dauphin Island, a barrier island approximately three miles from the mainland and 40 miles south of Mobile, Alabama. The Sea Lab spans the island and thus has direct access to the Gulf of Mexico, Mississippi Sound and Mobile Bay. A causeway and bridge connects the island to the mainland.

There are 50 buildings on campus, including eight instructional buildings; three dormitories; nine family-style houses; and two research buildings. The DISL also houses the Auburn Shellfish Laboratory, The Shelby Center, our newest research lab, has been recognized as a LEEDS Gold certified building, and is included in the Sea Lab's solar powered grid, making the Sea Lab the largest public producer of solar energy in the State of Alabama.



Solar panels, seen here on Horizon and Discovery Hall, have made the Sea Lab the largest public producer of solar power in the state of Alabama. Credit - John Dindo.

The DISL library is highly specialized in the marine sciences, particularly those areas relating to the ecology and geology of the Gulf Coast region. Its holdings include more than 7,400 bound volumes and approximately 500 periodical titles, with current subscriptions to many of those periodicals. The library also has numerous CD-ROM

databases, as well as access to a variety of on-line library catalogs.

Wet Lab facilities house modular sea-water systems, kreisels, and other instruments for experimental work on living marine organisms. Research laboratories are equipped with state-of-the-art instrumentation for biogeochemical research. Field collection equipment for marine ecological and oceanographic research is available.

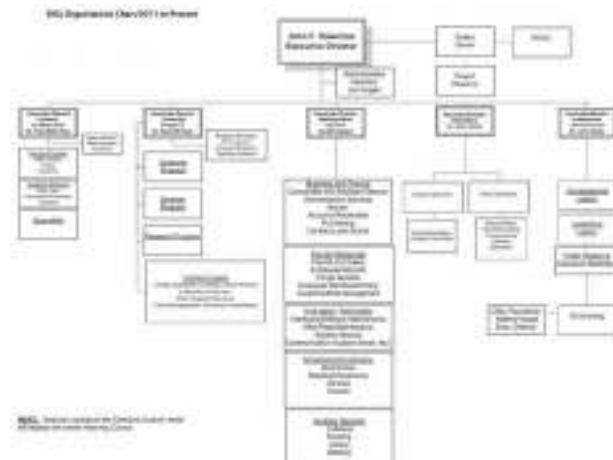
DISL maintains two large research vessels, including the 65-ft. R/V *A.E. Alabama Discovery* and the 40-ft. *E.O. Wilson*, in addition to a fleet of small boats and skiffs.

Administrative Personnel
Dr. George Crozier, Executive Director (retired Sept. 2011)

Dr. John Valentine, Executive Director (as of Oct. 2011 to present)
David England, Associate Director, Administrative Services
Dr. John Dindo, Associate Director, Operations and Institutional Advancement
Lori Angelo - Administrative Assistant to the Executive Director

Business/Finance
The Business Office of the DISL operates under the principles of Fund Accounting set forth by the National Association of College and University Business Officers. The State Examiners of Public Accountants audit annually the procedures, accounting records and policies of the DISL.

Business/Finance Personnel
David England - Associate Director, Administrative Services
Lynn Bryant - Payroll Processor
Christine Hilburn - Human Resources Generalist
Ashley Foster-Bursar/Purchasing Agent
Mary Darby-Accounts Payable



Denise Keaton-Scheduling Coordinator
Daphne Wood-Contracts and Grants Officer
Cindy Grimes-Receptionist
Dennis Patronas-Library/General Clerk

Alana Splawn
Sallie Jo Williams
Dennis Patronas

Auxiliaries
Auxiliaries of the DISL include the Cafeteria, Estuarium Gift Shop, Laundromat and vending machines.

Cafeteria Personnel
Classie Bentech-Manager
Faye Bentley
Judy Barber
Gayle Zirlott
Karen Saunders
Renee Cain

Estuarium Gift Shop Personnel
Jeana Layne-Manager
Amy Hannah
Jamelle Roy
Janice Watanabe
Shea Childress Collier

Information Technology
Information Technology (IT) instituted many cost saving projects in 2011. An onsite PBX system was installed in 2010 to help save roughly \$7200/year in phone costs by eliminating separate phone lines. Further enhancements were made to the system, such as expanding cordless phone coverage to more than 75% of the buildings on campus. This helps employees have access to their phones while away from their desk.

IT also acquired and set up a Webex portal for the use of our staff and faculty. Webex allows DISL to host or attend a meeting via video teleconference from any computer with Internet access. This has also helped save traveling costs for many people that normally have to travel in order to meet with students or other colleagues.

- Other noteworthy IT activities for 2011:
- Upgraded WiSe MSH to 1Gb LAN connection
 - Set up Vimeo.com channel for sharing and viewing of HD quality videos
 - Enacted network wide security enhancements
 - Upgraded Internet connection to 50mb, with no cost increase to DISL
 - Hosted and supported the National Benthic Ecology Meeting for over 600 participants
 - Installed upgrades to all Horizon Hall and Galathea classrooms that included, new interactive projectors, presenter viewing monitors, podiums and WiFi for students.

Information Technology Personnel
 Melissa Mills - IT Manager
 Shane Johnson - Systems Administrator
 Sam Hardwick - PC / Network Support Specialist
 Lei Hu - Data Manager
 Rachel Nowlin - Data Specialist

Library

The DISL Library is highly specialized in the marine sciences, particularly those areas relating to the ecology and geology of the Gulf Coast region. Its holdings include more than 7400 bound volumes and approximately 500 periodical titles, with current subscriptions to many of those periodicals. Online full text access to over 80 subscribed titles and hundreds of open access titles is available. Besides free Alabama Virtual Library, subscriptions to online databases Aquatic Sciences and Fisheries Abstracts, Oceanic Abstracts and Current Contents on Diskette continue to give students and faculty current bibliographic resources.

In 2011, several journals, including *Marine Biological Association of the U.K.* and *Fish Biology*, were donated to the Gulf Coast Research Laboratory in Mississippi to help stock their library, devastated by Hurricane Katrina.

Library Personnel
 Dennis Patronas - Librarian

Public Relations

Public Relations was handled in the reporting year under the auspices of Institutional Advancement's Dr. John Dindo. Working with him were Lisa Young, Public Relations Consultant; Lori Angelo, Public Relations Liaison; and Robert Dixon, Estuarium Manager, who was responsible for Estuarium marketing.

2011 presented a range of scientific discoveries, educational programs and special events, proving once again that no year is a typical year. Of

note was the expansion of Dr. Ruth Carmichael's Manatee Sighting Network to include other marine mammals (i.e. dolphins); the 40th Annual Benthic Ecology Meeting, hosted by DISL scientists, that brought over 600 marine scientists to Mobile, AL; scientific findings on jellyfish populations (Dr. Rob Condon) and stingray consumption by Great Blue Herons (Dr. Marcus Drymon); and the DISL receiving the Clover Award from the US Green Building Council of Alabama for the Shelby Center's eco-friendly design and operations.

Special events included a highly successful Discovery Day; the WiSe Lecture series, featuring Dr. Ray Hilborn of the University of Washington; and the DISL Foundation's annual fundraiser, Cocktails with the Critters.

ExxonMobil continued to support a Public Relations Intern for the summer of 2011. Niki Marchand, a Public Relations major at the University of South Alabama, spent the summer covering the participants and programs of summer school, producing feature stories for internal and external publications. She did a great job, and we are grateful for ExxonMobil's continuing support of this hands-on, intensive fellowship.

Media outlets that featured the Sea Lab included national (MSNBC, CNN, *New York Times*), regional and local electronic and print press.

The Sea Lab produces a monthly electronic newsletter, the Sea Lab Skimmer. To subscribe, visit <http://skimmer.disl.org/skimmer/skimmerform.html>.

Public Relations Personnel
 Dr. John Dindo, Institutional Advancement
 Lisa Young, Public Relations Consultant
 Lori Angelo, Public Relations Liaison
 Robert Dixon, Estuarium Manager

Facilities and Vessel Operations

Maintaining the vast Sea Lab campus, with its combination of new facilities and 60-year old structures, is often times accomplished by the sheer willpower, labor, and skill of the facilities and housekeeping crew. From building new countertops for a scientist's lab to installing a new long-line winch for the *RV Alabama*, the work is as varied and challenging as one might imagine.

One of the biggest projects of this reporting year's work was the installation of the solar panels and electrical wiring for the South Campus, specially Horizon Hall. Countless hours were also spent

on the Shelby Building's solar metering devices. The hard work and dedication of the facilities team helped the Sea Lab become the largest public solar generator in the State of Alabama, a recognition much appreciated by staff and supporters alike.

The Estuarium also saw its share of the crew's hard work with new kiosks in the building and along the Boardwalk.

New and current faculty were provided with new cabinets, lab tables, office furniture and much more, adding both cost savings and custom features for the scientists.

Existing buildings were given a facelift as well. The old maintenance shop was totally remodeled with new insulation, wiring, bathrooms, cabinets, and more; and the Challenger dorm's ancient showers were remodeled and retiled. The graduate student dorm, Albatross, received a new hot water holding tank and electrical sub-panel.

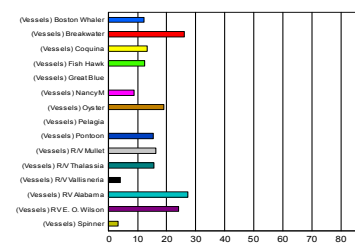
Security and safety were in mind when facilities put new lighting up along Shelby's east walkway, Estuarium boardwalk, and the boat dock.

All this and more was accomplished, on top of the hundreds of daily research and staff work requests that arose. We are grateful for their skill, hard work, and patience in dealing with the myriad of requests, all of which are tagged as "needs to be done as soon as possible!"

Facilities and Vessel Operations Personnel
 Dr. John Dindo, Associate Director, Operations
 Troy McBride, Manager, Facilities and Vessel Operations

Facilities
 Tommie Blocker
 Wilfred Gazzier
 Ricky Gibbs
 Joey Johnson
 Tom Pritchett
 Jody Schultz

Housekeeping
 Tammy McClinck, Supervisor
 Shirley Emerson
 Cindy Johnson



Resource	Reservation Count	Hours Used	Available Hours
(Vessels) Boston Whaler	94	735.5	5,980
(Vessels) Breakwater	48	1,564.0	5,980
(Vessels) Coquina	70	793.5	5,980
(Vessels) Fish Hawk	78	748.3	5,980
(Vessels) Great Blue	0	0	5,980
(Vessels) Nancy M	47	525.3	5,980
(Vessels) Oyster	78	1,138.3	5,980
(Vessels) Pelagia	0	0	5,980
(Vessels) Portonot	47	921.8	5,980
(Vessels) RV Tullis III	85	978.0	5,980
(Vessels) RV Thalassa	100	931.3	5,980

Tammy Ladnier
 Sue Ramsey
 Dina Smith

Vessels operations
 Rodney Collier
 Tom Guoba
 John Hunt
 Willie Johnston
 Russell Wilson

Technical Support

Technical Support encompasses four services in support of the faculty and students, including: diving operations; laboratory services; field support services; and data management.

The Laboratory and Field Support Services were particularly busy in 2011 with the continuing enhanced sampling of the FOCCAL transect in the wake of the BP Oil disaster, in addition to their regular duties. The Wet Lab and Mesocosm

facilities had 100% occupancy from early spring well into the late fall. Long-time field technician Yantzee Hintz went on active duty status with the National Guard and was deployed overseas. His duties were assumed by Brian Cabral, who came to DISL from an aquaculture farm on the Caribbean island of South Caicos.

In January 2011, two members of Tech Support went down to Biscayne National Park to recover a 16' buoy and instruments that broke free from the FOCCAL site just after Hurricane Katrina. The buoy had wandered the Gulf for over a year before it grounded on one of the small islands within the park.

Technical Support also provided the proving ground for the "Inst. Liason" unit manufactured by Picarro for the determination of del 13C married to the Costech Elemental Analyzer. The samples analyzed resulted in the following publication and information on the Picarro page. The DISL has the serial number "001," meaning the first one built, and had the first laboratory application of that unit.

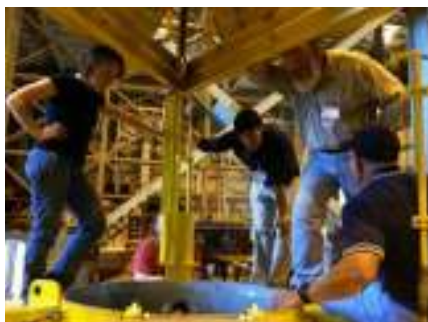
<http://iopscience.iop.org/1748-9326/5/4/045301/fulltext/>
http://www.picarro.com/resources/literature_publications/oil_carbon_entered_the_coastal_planktonic_food_web_during_the_deep

Technical Support Personnel
 Laura Linn - Coordinator Technical Support Services, Analytical Technician

Brian Cabral - Wetlab/Field Technician
 Al Gunter - Field Technician
 Roxanne Robertson - Field Technician
 Kyle Weis - Field Technician

Data Monitoring

The Mobile Bay National Estuary Program Environmental Monitoring webpage (www.mymobilebay.com) is a continuation of 25 years of meteorological observations at DISL. Various funding sources have provided more than \$1,200,000 since 2003 to add water quality monitoring to the original DISL site and establish stations on the northern edge and in the middle of the bay, completing a N-S transect across a large, ecologically important ecosystem and yielding information on the vertical



Field technicians (l-r) Roxanne Robertson, Kyle Weis, and Al Gunter at the National Data Buoy Center in Stennis, MS. National Data Buoy Center staff behind buoy and on far right.

structure of the water column in the bay that has never before been available on an hourly time scale. A fourth station was added in 2010 in Bon Secour Bay and additional stations were added in Perdido Bay and Mississippi Sound in 2011 to create an E-W transect. The principal product is the real time output and display of data 2-3 times per hour at each of the stations. The website, which averaged 3,264 visits/month in 2011, may be visited at anytime by anyone to check on weather and water conditions in their area. The data are presented in a user-friendly fashion to the public through the webpage to increase public knowledge of the parameters used to measure water quality, and to increase the public's confidence in environmental knowledge. Professionals may also download data from the website in several formats for further analysis.

Data are also served to several entities in near real time for inclusion in national and regional webpages, including the National Data Buoy Center (http://www.ndbc.noaa.gov/maps/Alabama_inset.shtml), the Gulf of Mexico Coastal Ocean Observing System (<http://gcoos.rsmas.miami.edu/>) and the Integrated Ocean Observing System (http://www.ioopenios.org/real_time_data/gos.html).

Data Monitoring Personnel
 Mike Dardeau, Marine Scientist
 Lei Hu, Data Manager
 Rachel Nowlin, Data Specialist (at reporting time)
 Roxanne Robertson, Field Technician
 Kyle Weis, Field Technician



Dauphin Island Sea Lab's Discovery Hall Program Totals

Year	K-5	Middle School	High School	College	Teachers	Other	Total
1998	7,582	1,264	80	473	183	207	10,789
1999	7,796	743	378	175	354	618	11,371
2000	8,160	3,085	1,387	671	254	311	16,571
2001	7,128	1,784	1,171	794	338	578	13,892
2002	7,634	2,687	1,573	685	256	478	13,687
2003	7,981	1,783	1,171	632	713	716	16,004
2004	6,915	2,138	1,443	459	388	128	11,526
2005	6,313	1,699	1,178	648	369	284	10,311
2006	6,233	2,079	1,884	764	238	252	10,744
2007	6,312	2,893	1,393	478	271	363	11,660
2008	6,267	2,141	1,746	476	389	368	11,497
2009	6,338	1,695	2,009	488	171	371	11,676
2010	4,196	2,954	1,865	469	173	438	10,095
2011	4,669	3,841	2,319	738	338	360	16,466
2012	4,727	1,383	1,455	282	1,150	188	8,155
2013	3,897	1,191	1,597	338	167	98	7,171
2014	6,576	2,258	1,877	1,864	117	374	13,036
2015	3,884	1,444	1,399	817	89	111	6,774
2016	3,586	2,621	1,535	46	138	173	7,299
2017	3,534	2,025	1,333	78	495	169	11,634
2018	6,296	2,667	1,138	181	89	95	12,366
2019	3,133	1,071	1,873	127	74	97	11,071
Total	107,714	36,367	31,568	8,646	4,831	6,252	197,576

Discovery Hall Programs (DHP) is the Education and Outreach arm of the Dauphin Island Sea Lab. Chaired by Dr. Tina Miller-Way, DHP employs one half-time (Mendel Graeber) and seven full-time educators (Jenny Cook, Greg Graeber, JoAnn Moody, Carrie Riley, Stephanie Serra, Joan Turner, Hazel Wilson) as well as an administrative assistant (Sara Johnson). Most of the education staff hold advanced degrees in education (2) or marine science (2) or current teaching certification (4). In 2011, we were also fortunate enough to have 2 marriages and 2 babies born among our staff. With the overarching mission of experiential marine science education, DHP consist of several different types of activities.

Academic Year programs
 During the school year, DHP offers a variety of experiential environmental education classes to visiting school groups. We currently offer 10 different classes for K-12 students. In 2011, we added ROVing the Gulf, in which students learn about the technology that marine scientists use to explore and study marine environments, particularly the deep sea. The class culminates in students building and driving their own ROV in the Sea Lab's pool. All classes have been tied to the Alabama Course of Study Standards and specified Ocean Literacy Principles.

In 2011, 221 school groups visited the Sea Lab to take one or more of these classes. These groups



Marine educator Joan Turner, holding a fish, explains the contents of a trawl net catch to students aboard the R/V Alabama Discovery.

high school students came from 11 different states and 6 different counties in Alabama. Following a successful trial in 2010, we offered 2 sessions of our short overnight camp for 5th and 6th graders, Barrier Island Explorer. Both sessions filled to capacity enrolling a total of 30 students. We offered 3 sessions of Gulf Island Journey, our week-long camp for middle schoolers. All sessions filled serving 90 students from 12 different states and 12 different counties in Alabama. We also offered a number of day camps, including Oceans Alive, Treasure Hunters and Art-Sea Discovery, reaching 53, 37 and 21 young ocean enthusiasts, respectively.

represented a total of 8713 students. Ninety (3912 students) of these groups stayed overnight at the Sea Lab. Most of our visiting groups come from Alabama (190) and 74% are from public schools (163) though we also serve private schools, college students, home-school groups and Boy & Girl Scout groups. While at the Sea Lab, groups may elect to take one or more of our classes. In 2011, DHP educators taught 604 classes.

For the first time, DHP offered an environmental education camp for special needs students titled Sea Stars in 2011 with funding from the Gulf of Mexico Alliance. Over a long weekend in September, we hosted 15 special needs students and their parents/guardians. Participants visited salt marshes and barrier island beaches and took a boat trip to Mobile Bay where they collected fish, plankton and other living marine organisms. Evaluations indicated that each student experienced growth in some manner. Counselors and educators said it was an extremely rewarding experience and we anticipate offering this again in the future.

Summer Camps and Classes

Once school is out, DHP switches gear and offers fun and educational camps for all ages during the summer. We also offer one of the few residential programs in marine science for high school students nationwide. In 2011, our Marine Science Course for high school students filled to capacity and gave over 150 contact hours of directed marine science education to each of 30 high school students. These

Professional Development
Given the state of the economy and the pressures on K-12 teachers, we have devoted significant time and resources to providing inexpensive or free professional development to K-12 teachers and informal educators. In 2011, we offered 4 different multi-day workshops during the summer, The Delta; Reefs, Rhizomes and Restoration; Fins, Fishes and Fisheries; and Oceanographic Technology Tools in Education and Research (OTTER). These workshops were funded by grants from Mississippi-Alabama Sea Grant (MASGC), the Gulf of Mexico Alliance (GOMA) and the Northern Gulf Institute (NGI) and reached 76 teachers. These workshops consist of content delivery, relevant field activities and presentation and exploration of activities suitable for the classroom or laboratory. Additionally, DHP collaborated on 2 multi-day workshops (MSU, Teachers Exploring Coastal Hazards and Resilience, funded by NGI; From the Mountains to the Gulf, funded by Legacy) which reached 42 teachers. Lastly, DHP hosted 3 single day workshops for educators. These included NOAA's Office of Exploration workshops titled Learning Ocean Science through Ocean Exploration and Why do We Explore? which reached 55 teachers. In collaboration with 3 other Gulf states, DHP also implemented and hosted a single day workshop for educators on the Deepwater Horizon event (DWH), funded by NOAA's Office of Education. Using video conferencing technology, workshops were held at 3 locations across the state of Alabama (DISL and consortium member schools UVA, JSU) as well as 7 other locations throughout the Gulf. Four scientists spoke on several aspects of the DWH event;

combined enrollment was 171 teachers with 43 of those participants being from Alabama.

BayMobile and Other Outreach
The BayMobile is DHP's traveling marine science classroom. It is a truck equipped with recirculating aquaria for transport of live animals and with storage for preserved specimens and other teaching supplies. In 2011, the BayMobile visited 53 schools in the state of Alabama (primarily Title I schools) and reached approximately 13,500 K-12 students. Educators also took the BayMobile to more than 50 outreach events, including regional and national environmentally themed events such as Earth Day, Celebrate the Gulf, My Two Boots, Delta Woods and Waters, BirdFest, Kids Day in Bienville Square, Project WetKids, EnviroBowl, zoo days, fishing rodeos and boat shows. DHP educators also participated in many other outreach events including career days, library events, science fairs and AMSTI nights. Lastly, DHP took part in the Alabama Department of Education's distance learning event, ACCESS Week.

Estuarium
DHP works with the Estuarium manager and staff to present the latest in research and issues to the public. In 2011, The Estuarium had 69,550 visitors. Approximately 30% of these visitors are students. New exhibits in 2011 included the Ocean Today Kiosk, the Deepwater Horizon Event display, a Living Shoreslines display with audio kiosk and a game

Which Niche is Which? for the younger visitors.

DHP educators offer a weekly series in the Estuarium, known as Boardwalk Talks on an almost weekly basis. These are intended to be informal conversations between Estuarium visitors and researchers at DISL or the surrounding area. In 2011, 36 Boardwalk Talks were offered on amazing variety of topics from oyster reef restoration to manatee tracking to climate change. More than 670 individuals attended these Boardwalk Talks.

Through the Estuarium, DHP also offers field trips for families known as Summer Excursions. In 2011, 69 individuals visited and learned about salt marshes or barrier island beaches and maritime forests through this program.

DHP educators continue to train docents for the Estuarium, offering training days, current events discussions, boat trips and also social events.

Grant-related events and other activities
During 2011, DHP continued work on several grants and was awarded additional grants in support of activities described above or in the following section.

Funds from the COSEE-CGOM NSF grant supported a forum on the Deepwater Horizon event for the public. Public meetings were held at 3 locations in the state, Birmingham Southern College, Auburn High School and DISL. Eighty-



Teachers help replant the shore during their summer workshop Reef, Rhizomes and Restoration.

participants heard from 4 scientists researching various aspects of the spill via web conferencing. A question and answer period followed. Attendees came from 19 different zip codes and included environmental consultants, engineers, librarians, camp counselors, K-12 teachers and aquaculturists, graduate students, K-12 students, retirees, individuals from several non-

professional environmental organizations, a commercial fisherman and a refinery technician.

Funds from the Northern Gulf Institute supported the development of approximately 20 fact sheets on research on the Deepwater Horizon event for teachers and members of the public.

The Gulf Alliance Partnership is an EPA funded program designed to provide multiple hands-on learning experiences for middle school students so that they move beyond the exploration stage and begin to develop inquiry skills. The partnership encompasses 10 locations in 4 states: in Alabama, DHP has been working with North Mobile County Middle School. In 2011, these 6th graders completed the 3rd of their 3 field experiences on watershed issues by traveling aboard DISL's research vessel, the AL Discovery, to sample the water quality and collect animals of Mobile Bay. They also began building a living shoreline, bagging more than 150 bags of oyster shell and deploying these bags just offshore Bayfront Park. This living shoreline will be completed in 2012. With the beginning of the new school year in August, we began the 2nd year of the project with a new cohort of 6th graders.

We continued work on a Climate Change Community Outreach Initiative (funded by NOAA) completing a survey designed to evaluate current knowledge and behaviors, developing an outreach exhibit on Climate Change and collaborating with the grant's partners to develop an online game for K-12 students (and the public) aimed at increasing awareness of climate change issues as well as soliciting individual behavioral changes that may help to ameliorate climate change.

In addition to these funded activities, DHP was fortunate enough to receive 2 donations through the Dauphin Island Sea Lab Foundation to support bus and tuition costs for Mobile County Public School System high school students to participate in the ROV class, ROVing the Gulf.

DHP also sent a delegation from Murphy High School in Mobile County to the Coastal Ecosystem Learning Center Student Summit on Climate Change in Washington DC. During the school year, students learned about climate change and conducted a service project that addressed climate change. The DISL supported team of 7 students and their teacher not only conducted several habitat restoration projects in the area, but also visited multiple elementary schools teaching about our local habitats and their value, particularly as they relate

to climate change. During the 4 days in Washington, DC, students met with Alabama's legislative representatives and congressional staff and many agency personnel and were treated to several events, including an evening in the Smithsonian Institution's Sant Ocean Hall hosted by Jean Michel Cousteau.

Lastly, DHP staff gave many presentations at professional meetings. These included the National Science Teachers Association national meeting (Joan Turner, March), National Science Teachers Association regional meeting (Joan Turner, November), Alabama Science Teachers Association meeting (Tina Miller-Way, Carrie Riley, October), National Marine Educators Association (Greg Graeber, July), Environmental Education Association of Alabama (Carrie Riley, April), Northern Gulf Institute annual meeting (Mendel Graeber, Tina Miller-Way, JoAnn Moody, May), Coastal Estuarine Research Federation biannual meeting (Tina Miller-Way, JoAnn Moody, November), Climate Change Community of Practice (Tina Miller-Way, June), BWET Regional meeting (Tina Miller-Way, April), and the Benthic Ecology meeting (JoAnn Moody, March).

DHP Personnel and Faculty
Dr. Tina Miller-Way, Ph.D. 1995 (Louisiana State University), Associate Director, Outreach and Education
Sara Johnson, Administrative Assistant

Faculty
Jenny Cook, M.S. 1991 (University of South Alabama)
Greg Graeber, M.E. 2008 (University of South Alabama)
Mendel Graeber/part-time, B.S. 2001 (University of Alabama)
JoAnn Moody, MAT/Biology 2005 (University of West Alabama)
Carrie Riley M.S. 2007 (College of Charleston)
Stephanie Serra, M.E. 2010 (University of South Alabama)
Joan Turner, B.A. 1999 (University of Alabama, Huntsville)
Hazel Wilson, B.S. 1981 (Memphis State University)



The George F. Crozier Estuarium
251.861.7500
Toll Free: 866.403.4409
www.sealabestuarium.org

The Estuarium at the Dauphin Island Sea Lab Visitor Totals

Year	Students	Adults	Seniors	Members/Passes	Employers, Groups	Total
1998	26,261	16,468	7,774	2,743		53,246
1999	34,557	18,642	10,427	2,669		66,295
2000	38,223	20,283	11,887	2,662		73,055
2001	36,713	21,705	13,133	3,718		75,269
2002	35,323	21,066	12,639	1,076		72,067
2003	38,622	23,589	12,475	3,318		77,974
2004	34,438	21,389	12,742	3,358		71,896
2005	36,501	13,098	6,732	2,533		48,811
2006	31,024	15,745	8,833	1,088		57,714
2007	34,152	19,689	10,564	3,228		67,633
2008	37,827	19,075	10,138	4,116		71,156
2009	37,581	18,677	10,212	2,788		71,247
2010	32,506	11,994	8,669	2,026		55,195
2011	37,904	18,756	10,799	3,064		69,563
Total	499,731	228,688	126,829	35,415		669,481

The Estuarium continues to be a much-visited local attraction, with an increase in visitation of 34 percent over the 2010 attendance. Recovering from the loss of attendance during and after the 2010 Mocondo Well Oil Spill, the Estuarium posted an attendance of 69,550 during the reporting year.

In 2011, the Estuarium also became part of the "Coastal Connection," a national scenic byway ranging from Grand Bay, across the Mobile Bay Ferry, through Orange Beach and onto Spanish Fort.

New exhibits included the Oceans Today Kiosk, part of a Coastal America initiative, and a display on the Deepwater Horizon Oil Spill. We also hosted the Mississippi River traveling exhibit "Rivers to the Sea."

The Estuarium also hosted celebrity chef Alton Brown in March 2011 for the "Eat'n' Good in Alabama" event sponsored by the West Bay and Gulf Coast Tourism Development Council. The event was designed to help South Mobile County and the

state of Alabama grow in sustainable tourism awareness.

Mr. Brown met with DISL scientists and supporters who discussed everything from fisheries to hurricanes with him.

Like all museums and aquariums around the nation, the Estuarium could not



Food Network celebrity chef Alton Brown with Aquarist Melissa Torres.



The Oceans Today Kiosk keeps visitors informed of the latest news and research in our seas. This interactive exhibit was sponsored by Coastal America.

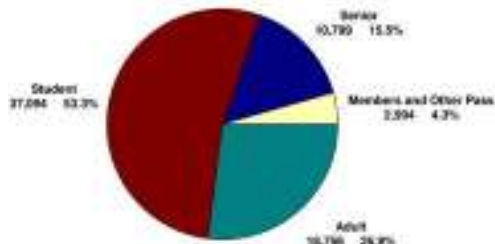
function at the level that it does today without the dedicated involvement of our docent volunteer force. Currently, we have over 55 docents who volunteer their time in the Estuarium or around the campus in other capacities helping to explain the Mobile Bay ecosystem to visitors to greening up our campus. Our stalwart crew of docents provided over 2,900 hours of service in 2011. There is no question that they are a tremendous resource for us.

If you admire our lushly landscaped butterfly gardens, please thank our volunteer gardeners: Stella Anderson; Kay Breitenfeld; Blanche Emerson; Anne Ferguson; Carol Goss; Rina Schuett; Carol Standish; Bonnie Staples and Pierce Staples.

If you are interested in volunteering at the Estuarium, please contact Ms. Jamelle Roy at jroy@disl.org.

Estuarium Personnel
 Robert Dixon, Estuarium Manager
 Brian Jones, Senior Aquarist
 Joe Ingraham, Aquarist
 Melissa Torres, Aquarist
 Denise Keaton, Estuarium Docent Coordinator (reporting period)
 Jamelle Roy, Estuarium Docent Coordinator (current)

Estuarium Visitor Breakdown for 2011



University Programs

University Programs (UP) oversees summer undergraduate and year round graduate (M.S. and Ph.D.) education, as well as faculty research.

In faculty news, Dr. John Valentine assumed the position of Executive Director in October 2011, and Dr. Ken Heck became Associate Director for University Programs.

Dr. William "Monty" Graham was named chairman of The University of Southern Mississippi Department of Marine Science in August 2011.

Seventeen (17) of the 22 member institutions sent students to the DISL for the 2011 Summer Program. UP delivered 977 undergraduate hours and 72 graduate hours during the summer and 545 graduate hours during the academic year for a total of 1594 hours (Figure 1).

Eighteen graduate students who conducted their research at the DISL received their degrees from their home institutions during the reporting period of October 1, 2010 to September 30, 2011 (Table 1).

Table 1. 2010-2011 Graduates:

Students Graduated
Ajemian, Matthew. Foraging ecology of large benthic mesopredators: effects of myliobatid rays on benthic communities. Ph.D. (USA)
Baggett, Lesley. The effects of nutrient enrichment on the stoichiometry, fitness, fecundity, and feeding preference of invertebrate grazers of seagrass (<i>Thalassia testudinum</i>) epiphytes in Florida Bay, Florida USA Ph.D. (USA)
Bianconi, Peter. Seasonal and Spatial Effects of Waste Water Effluent on Oyster Growth, Survival, and Sanitation in Mobile Bay, Alabama. M.S. (USA)
Drymon, Marcus. Distributions of Coastal Sharks within the Northern Gulf of Mexico: Consequences for Trophic Transfer and Foodweb Dynamics. Ph.D. (USA)
Fisher, Karen. Evaluating nursery habitat utilization by juvenile gray snapper (<i>Lutjanus griseus</i>) in the northern Gulf of Mexico, M.S. (USA)
Gericke, Rebecca. Effects of climate-driven range expansions of tropical snapper species (<i>Lutjanus</i> spp.) on the dominant native species (<i>pinfish</i> , <i>Lagodon rhomboides</i>). M.S. (USA)
Kenworthy, Matt. Effects of Temporal Variation in Predation Risk on Predator-Prey Interactions. M.S. (USA)
LeMoine, Nathan. Individual and community level responses of crustaceans and fish to restoration of marine biogenic habitat. M.S. (USA)
Martin, Charles. Impacts of Invasive Eurasian Milfoil and Nile Tilapia in Coastal Alabama. Ph.D. (USA)
Miller, Glenn. The influence of avian predators on nearshore communities in the northern Gulf of Mexico and Copper River Delta, Alaska: implications for habitat conservation. Ph.D. (USA)
Millet, Andrews. Zooplankton community structure in the northern Gulf of Mexico: implications for ecosystem management. M.S. (USA)
Myers, Joseph. Effects of species-specific grazing and nutrient addition on growth and production of the shoalgrass <i>Halodule wrightii</i> and its epiphyte. M.S. (USA)
Novoveska, Lucie. The influence of avian predators on nearshore communities in the northern Gulf of Mexico and Copper River Delta, Alaska: implications for habitat conservation. Ph.D. (USA)
Puntilla, Riika. Do piscivorous fish have cascading impacts on lower trophic levels in coral reef environment: comparisons of food web interactions in back reef and fore reef environments. M.S. (USA)
Shiple, Randi. Prey selectivity and Ichthyoplankton predation by scyphomedusae in the northern Gulf of Mexico. M.S. (USA)
Smith, Casey. The relationship between phytoplankton pigment concentrations and dmsp, dms, and dmso in a diatom dominated bloom in the Ross Sea, Antarctica. M.S. (USA)
Stults, Debra. Paleoclimates from two Late Neogene Fossil Floras of Eastern North America, including Comparisons with the Marine Record. Ph.D. (USA)
Wells, Tami M. Natural disasters and long-term recovery: A baseline study of historical change and habitat structure of <i>Juncus roemerianus</i> marshes in Mississippi and Alabama. Ph.D. (USA).

Table 2. 2011 Research Experience for Undergraduates - Participants and Projects

Chris Cacciapaglia (Florida Institute of Technology). Faculty Mentor - Dr. John Valentine. "Effects of predator identity, habitat structure, predator and habitat richness, and their interactions on prey mortality."

Melissa Collini (University of Texas at Dallas). Faculty Mentor - Dr. Ron Kiene. "Production of Alternative Dimethylsulfide Precursors in the Dinoflagellate *Lingulodinium polyedra*."

Jami Ivory (Humboldt State University). Faculty mentors - Dr. Monty Graham and Dr. Rob Condon. "Microbial metabolism of crude oil and dispersant using flow cytometry techniques."

Amanda Jones (Rutgers University). Faculty Mentor - Dr. Ruth Carmichael. "The contribution of oil-derived C and N to the diet of oysters due to the Deepwater Horizon oil spill."

Ian Kroll (Vassar College). Faculty Mentor - Dr. Sean Powers. "Predation threat and reef design mitigate mortality on oyster reefs."

Natasha Zarnstorff (Emporia State University). Faculty Mentor - Dr. Ken Heck. "Ecological effects of restoring seagrass in coastal Northern Gulf of Mexico waters."

Eight of these were Ph.D. graduates.

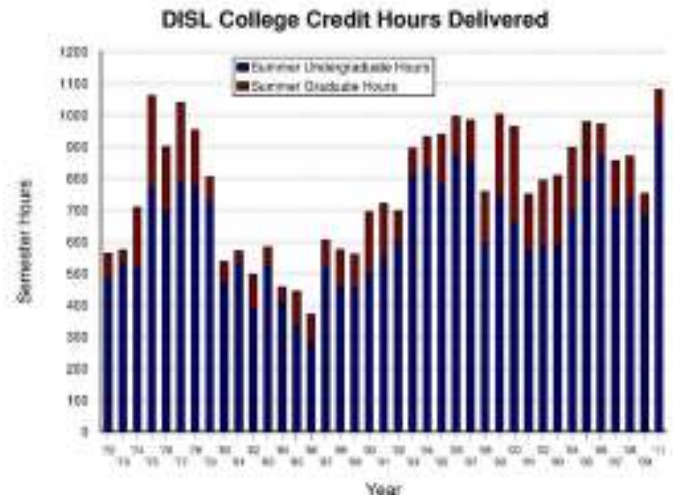
extramural funding through the University of Alabama and University of South Alabama.

Six NSF Research Experience for Undergraduates (REU) participants completed a 12-week program of workshops, lectures and research with faculty mentors in 2011 (Table 2).

During the reporting period, the faculty produced 47 refereed publications; 3 technical reports; 1 book chapter; 15 refereed publications in press; and 139 scientific presentations. A complete listing of research faculty activity can be found on pages 26-40.

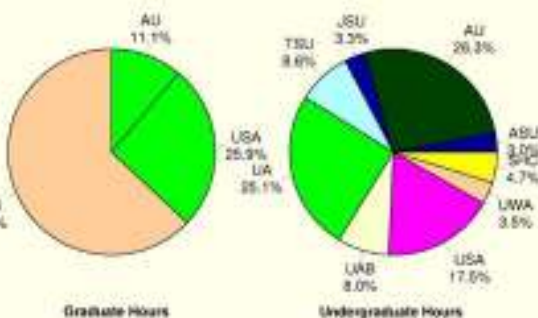
The UP Faculty contributed \$39,228,698 in extramural funding (inclusive of \$2,184,210.27 in BP Gulf Research Initiative expenditures)
 There was an additional \$1,264,585 in faculty

Figure 1



University Programs Personnel
 Dr. Kenneth L. Heck, Jr. - Associate Director, October 2011 to present
 Dr. John F. Valentine - Associate Director, January 2008 - September 2011
 Sally Brennan - University Programs Registrar
 Carolyn Wood - Administrative Assistant

Summer - 2011 Graduate and Undergraduate Credit Hour Breakdown by Institution





Mobile Bay National Estuary Program

Prepared by Roberta Arena Swann, Director, Mobile Bay National Estuary Program

PROGRAM IMPLEMENTATION

The Mobile Bay National Estuary Program (MBNEP) 2011 funding sources reflected its ability to collaborate with numerous partners. Fifteen grants from 12 different organizations were active during 2011 including two grants from the U.S. EPA Gulf of Mexico Alliance, two grants from Alabama Department of Conservation and Natural Resources, two grants from Alabama Department of Transportation, and two grants from U.S. Fish and Wildlife Service. Match funding for the MBNEP annual U.S. EPA award was received from the State of Alabama, the Alabama Department of Conservation and Natural Resources and several Mobile and Baldwin County municipalities, totaling \$215,946. Both the City of Fairhope and the City of Spanish Fort each contributed \$5,000 this year (after not contributing match dollars for several years) and the City of Daphne increased their contribution by \$5,000, to \$10,000. In total, the MBNEP managed over \$2,600,000 to conduct 42 projects affecting the water quality and living resources of Mobile Bay.



Mobile Bay National Estuary Program
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Mobile, AL 36615
(251) 431-6409
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www.mobilebaynep.com

STATUS AND TRENDS

Mobile Bay Sediment Budget
MBNEP JOINED FORCES with the U. S. Army Corps of Engineers to develop a Sediment Budget for Mobile Bay that will describe the various sediment inputs (sources) and outputs (sinks) for the entire Mobile Bay watershed. This budget will be used to predict morphological changes within over time and will be particularly useful in assessing any changes related to future habitat restoration projects. Such a tool will provide great value to regulatory and enforcement agencies to make decisions that affect policy development, project implementation, and management of habitats and living resources. Contractor: Dr. Mark Byrnes, Applied Coastal Research and Engineering, Inc.

MOBILE BAY REAL-TIME MONITORING

With continued funding (5th year) from the Gulf of Mexico Program in 2011, water monitoring sites at Meaher Park, Dauphin Island, Weeks Bay, and Mobile (Middle) Bay continue to provide real-time data that can be viewed at www.mymobilebay.com. That website also contains links to the Mobile River, Fort Morgan, and the Farewell Buoy as part of the Physical Oceanographic Real-Time System of the National Ocean Service with data particularly pertinent to shipping interests. Data is also available from Weeks Bay and Grand Bay through the NOAA National Weather Service Hydrometeorological Automated Data System. The My Mobile Bay website will ultimately be connected to a larger network of stations as part of the Gulf Coast Ocean Observing System with research

reports, maps, and other information available to the public. Contractor: Mike Dardeau, DISL

ECOSYSTEM RESTORATION AND PROTECTION

Joe's Branch

In the D'Olive watershed, Joe's Branch, a tributary parallel to Highway 31, is eroding at an accelerating rate due to increases in the volume and velocity of stormwater runoff. Identified as a high priority stabilization area in the D'Olive Creek, Tiawasee Creek and Joe's Branch Watershed Management Plan, MBNEP secured a \$645,600 grant from the Alabama Department of Environmental Management and a \$200,000 award from the Alabama Department of Transportation on behalf of its partners in Spanish Fort, Daphne, and Westminster Village. The goals of the project include removing this stream from the State's 303(d) list for impairment by siltation and demonstrating to public officials, engineers and other professionals how water quality protection through natural "green infrastructure" is a practical alternative to rock and armored bank retention systems.

The restoration will involve using a cutting-edge technology called Regenerative Step Pool Storm Conveyance. This methodology involves filling the gully to flush with a mixture of sand and sawdust and installing a series of rock step pools down the length of the impacted stream to slow velocity and promote infiltration of the runoff underlying the stream degradation. The project includes restoration of downstream wetlands impacted by sediments resulting from the upstream erosion. In addition, the Dauphin Island Sea Lab is donating in-kind services. Design and Engineering Services Contractor: Emery Baya, Thompson Engineering

Mon Louis Island

The western shore of Mobile Bay has suffered erosion and degradation of its shallow water and intertidal habitats that provide nursery grounds for fish and shellfish, benthic biodiversity, and primary production. This erosion stems not only from the effects of tropical weather events, but also from chronic impacts like prevailing winds and ship wakes. MBNEP and six contiguous property owners are undertaking this project to use "living shorelines" technology to demonstrate its benefits, including increases in acreage and ecosystem function of these near shore habitats for a greater community benefit.

MBNEP received funding from the Gulf of Mexico Foundation Community Restoration Partnership and the U. S. Fish and Wildlife Service Coastal Programs



This before and after photo to the right shows the erosion on a tributary of Joe's Branch. Ashley Campbell with the City of Daphne sits on a boulder that fell off the wall of the stream after a storm last summer. The second photo shows a completed step pool conveyance in Anne Arundel County, MD. The restoration of the tributary of Joe's Branch will resemble the Maryland project.

to undertake this project. The six property owners of parcels encompassing almost 700 feet of shoreline, have agreed to partner with the to demonstrate how such a project would be implemented on a multi-property scale and constructed under existing State and Federal regulations. The project is currently being designed by South Coast Engineers with input from the property owners.

Project goals are to create and enhance sub-tidal reef and intertidal marsh habitats. The objectives are to install 0.25 acres of reef structure to expand quality oyster settlement opportunities and to establish 0.45 acres of low energy inshore area to restore emergent marsh vegetation, while optimizing sandy areas along this stretch of shoreline. Another objective is to engage private property owners in designing and implementing this public shoreline restoration project as a demonstration of green technology as an alternative to shoreline armoring. Design and Engineering Services Contractor: Scott Douglass, Caren Dixon, South Coast Engineers

Prichard's Jackson Reading Park/Eight Mile Creek
With a Watershed Management Plan for the Eight Mile Creek (EMC) Watershed recently completed, MBNEP received a National Fish and Wildlife Foundation Five Star Grant to restore a first order tributary that borders Prichard's Jackson Reading Park in the Whistler Community. The creek conveys stormwater from a drainage area north of St. Stephens Road past the Park and downstream to Eight Mile Creek, which was listed on the State's 303(d) list for impairment by pathogens before development of a total maximum daily load (TMDL). Partners from Auburn University (Landscape Architecture Department and Alabama Cooperative Extension System (ACES)) are collaborating on developing an engineering plan for the stream restoration, scheduled for construction by the City of Prichard Public Works Department in early November, 2012. Partners also include the Coastal Alabama Clean Water Partnership and the Prichard Environmental Restoration Keepers, who will coordinate volunteer clean up and planting efforts. The restored stream will provide an educational venue to connect school-age stakeholders with environmental assets where they live. Design and Construction Management Services: Charlene LeBlue, Jessica Roberts Brown, Auburn University.

EDUCATION, OUTREACH AND CAPACITY BUILDING

A Red Fish Tale
"A Red Fish Tale," an educational video produced by MBNEP and directed by Hidden World Productions, was created as part of a grant from the Gulf of Mexico Program and was released in April, 2011. This film-short features a pair of animated red fish, Jimbo and Thibodeaux, who explain the concepts of nutrient over-enrichment, eutrophication, hypoxia, and anoxia along with storm water runoff and watershed dynamics to an elementary through middle school audience. The film premiered at the Crescent Theater in Mobile and is available via the MBNEP website. The cast was recruited from the Alabama School for Mathematics and Science student body and faculty. "A Red Fish Tale" will be distributed to area schools, libraries, and educational venues, available on the MBNEP website (www.mobilebaynep.com) and offered at interactive kiosks across the Gulf Coast. Movie Contractor: Lynn Rabren, Hidden World Productions. Kiosk Contractor: Hamline University



Clean Up the Bottom involved volunteers on water and on land.

Clean Up the Bottom

In an effort to engage the community and bring attention to the Three Mile Creek Watershed, MBNEP partnered with the City of Mobile, Keep Mobile Beautiful, the Mobile Housing Board, the Martin Luther King Redevelopment Corporation, and others to coordinate a neighborhood and waterway cleanup in "The Bottom." This historically African-American, traditionally-underserved community located along Martin Luther King Avenue near downtown Mobile has a rich heritage and is home to many area leaders and elected officials but suffers from ongoing problems with illegal disposal, trash and litter. The problems are intensified due to stormwater runoff which routinely carries discarded material into local tributaries to Three Mile Creek where it impairs rich wildlife and aquatic habitat and destroys aesthetics.

volunteers' kayaks and canoes. An eighteen-wheeled tractor trailer provided by Firestone/Bridgestone was filled with abandoned tires collected from along Conception Street Road. Local elected officials, Mobile Housing Board residents, community residents, and City and agency staffs all worked together to improve this area's condition and inspire pride in the Bottom community. The event was sponsored by BP, with support from Scotch Gulf Lumber, Coca Cola. This event was a signature event for raising awareness about the need to develop a comprehensive watershed management plan for the Three Mile Creek Watershed.

Mobile Bay National Estuary Program Personnel

Roberta Swann, Director
Tom Herder, Watershed Protection Coordinator
Katherine Eddy, Community Relations Coordinator
Brenda Lowther, Program Administrator
Christian Miller, Non Point Source Pollution Outreach

On October 21, 2011 almost 400 volunteers spent four hours on neighborhood streets and Three and One Mile Creeks to collect and dispose of litter, debris, and tires. Filled trash bags were collected by City public works staff from dead ends and intersections and Sheriff's Flotilla deputies from



Volunteers help Clean Up the Bottom in the shadow of the RSA Tower.

14.375 U. South Al. 2010-2011. Improving Deepwater Horizon risk assessment for large pelagic rays: Global-scale position via satellite telemetry. Alabama Marine Environmental Sciences Consortium: Deepwater Horizon Initiative, (Sean Powers and Matt Ajemian, PIs) \$14,375. DISL 2010-2011.

Sustainable coastal pelagic fisheries. NOAA (S. P. Powers, J. Dindo and R.L. Shipp), \$750,000. DISL 2010-2014.

Assessing fisheries resources in response to the Deep Water Horizon Oil Spill, Northern Gulf Institute (S. P. Powers, PI), \$88,000. DISL 2010-2011.

Ecological and fisheries implications of red snapper (*Lutjanus campechanus*) and gag (*Micropterus microlepis*) interactions. NOAA MARFIN (S. Powers, PI), 303,188 U. South Al. 2010-2012.

Trophic interactions in Sargassum communities of the Gulf of Mexico: potential consequences of habitat degradation. NSF Biological Oceanography (S. Powers and F. Hernandez, PIs), 155,000 U. South Al. 2010-2011.

Prince William Sound Herring Survey: Top-down regulation by predatory fish on juvenile herring. NOAA Exxon Valdez Oil Spill Trustee Council (M. Bishop and S. Powers, PIs), \$678,900 (\$210,000 U. South Al.). 2009-2013.

Costal Alabama economic recovery and ecological restoration project: creating jobs to protect shorelines, oyster reefs and enhance fisheries production. (S. Powers, K. Heck and J. Cebrían with the Nature Conservancy) NOAA Habitat Of. ce. \$3,200,000. (\$265,000 U. South Al. component), 2009-2011.

Alabama oyster reef and fisheries habitat enhancement program (R. Shipp and S.P. Powers), National Marine Fisheries Service, \$ 798,000. (USA), 2009-2012.

Dauphin Island Sea Lab: in sh and shell sh nursery habitat restoration and monitoring project. (J. Cebrían, R. Aronson, K. Heck and S. Powers, PIs), Alabama Department of Conservation and Natural Resources, \$1,500,000. DISL 2008-2009.

Nursery origins of adult gag grouper, gray snapper, and lane snapper from the northern Gulf of Mexico: onshore-offshore connectivity of reef fishes and contribution of seagrass meadows to shery production. NOAA/NMFS Marine Fisheries Initiative (MARFIN), (K. Heck, S.P. Powers and F. J. Fodrie, PIs), \$180,000. DISL 2008-2010.

Fisheries Oceanography of Coastal Alabama-FOCAL (M. Graham, S. Powers, F. Hernandez, K. Heck and K. Park, PIs), Alabama Department of Conservation and Natural Resources, \$5,000,000. (\$2,100,000 sh component, DISL), 2006-2012.

Tracking Movements of Lingcod *Ophiodon elongatus* in Prince William Sound Using Acoustic Tags and Arrays: Expanding

PWSSC Partnerships, Infrastructure and Capacity, (M. A. Bishop and S.P. Powers, PIs), Prince William Sound Oil Spill Recovery Institute and the Paci. c Ocean Shelf Tracking Network (POST), \$155,000 (\$40,000 U. South Al. component), 2008-2010.

Apex Predator Dynamics, (S. P. Powers, PI), NMFS Shelby Center for Ecosystem Fisheries Management, \$355,000. DISL 2009-2011.

Setting up CAAMP (Coastal Alabama Acoustic Monitoring Program) (S. P. Powers, M. Ajemian, M. Dymon, PIs), NMFS Shelby Center for Ecosystem Fisheries Management, \$89,000. DISL 2009-2011.

Research Projects Abroad
Just Cebrían
CONACYT (i.e. Mexican NSF)
"Evaluación ambiental del sistema lagunar Ocelim-Progreso, Yucatán" 08/09-07/11 (Gilberto Jeronimo and Xavier Chiappa as PIs, Unidad de Química-Sisal, Facultad de Química, UNAM, Mexico).
CONACYT (i.e. Mexican NSF)
"Variancias espacio-temporales de la comunidad de peces de la Boca de la Carbonera en la costa norte de Yucatán" 08/09-07/11 (Gilberto Jeronimo and Xavier Chiappa as PIs, Unidad de Química-Sisal, Facultad de Química, UNAM, Mexico).

Editorial Service
Ruth Carmichael
Journals
Marine Biology (1), Estuarine Coastal and Shelf Science (2), Aquatic Botany (1), Journal of the Marine Biological Association (1), Marine Ecology Progress Series (3), FEMSEC-Microbiology Ecology (1)
Proposals
NSF (2), WHOI Sea Grant (1), Maine Sea Grant (1)

Rob Condon
Journals
Marine Ecology Progress Series, FEMS Microbiological Ecology, Journal of Plankton Research, and Hydrobiologia
Ken Heck
Journals
Limnology and Oceanography, Ecological Applications, Proceedings of the Royal Society (B) Quarterly Review of Biology (biological), Biological Conservation, Canadian Journal of Fisheries and Aquatic Sciences
Proposals
Declined multiple requests from NSF, several Sea Grant programs

Frank Hernandez
Journals
Limnology and Oceanography - 1

Bulletin of Marine Science - 1
Proposals
NOAA Fisheries and the Environment (FATE) - 6
Texas Sea Grant College Program - 1
Program Reviews
Juvenile Menhaden Sampling Protocol (at the request of ADCNR)
SEAMAP Shrimp Ground: sh Survey
Design Revisions (at the request of ADCNR)
Reports:
Summary of DISL-ADCNR larval sh thermal tolerance experiments (for ADCNR)
Fisheries Oceanography of Coastal Alabama (FOCAL) status report (for ADCNR)

Ron Kiene
Journals
17 manuscripts for L&O, Nature, PNAS, Marine Chemistry, MEPS among others.
Proposals
NSF (2), NOW Netherlands (1)

Behzad Mortazavi
Journals
Global Change Biology (2), Journal of Geophysical Research - Biogeosciences (1), Limnology and Oceanography (1), Tree Physiology (2),
Proposals
National Science Foundation (1)

Alice Ortman
Journals
Deep-Sea Research, FEMS Microbiology Letter, Microbial Ecology, Aquatic Microbial Ecology, Aquatic Botany
Proposals
NSF

Kyeong Park
Journals
Estuaries and Coasts (1); BP Gulf Research Initiative, Competition 2, Of. ce of Research and Economic Development, LSU (1), Journal of Asian Earth Sciences (1), Journal of Marine Systems (1),
Estuarine, Coastal and Shelf Science (1), Continental Shelf Research (1)

Sean Powers
Journals
Ecology (1), Estuaries (1), Gulf of Mexico Science (3), Journal of Shell sh Research (2), Restoration Ecology (1), Fishery Bulletin (2)
Proposals
National Science Foundation: Division of International Programs Division of Ocean Sciences (2), North Paci. c Research Board (2), Texas SeaGrant (2)

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- Board of Directors
- Executive Committee
- Program Committee

The Board of Directors is comprised of the Presidents of each of the 21 member institutions.

The Executive Committee has full power and authority in the interval between meetings of the Board of Directors to do all acts and perform all functions which the Board of Directors itself might do or perform, except that it shall have no power to amend the bylaws. Among its duties are to review and approve the annual budget; approve curricular options and other major policies and procedures; and facilitate and stimulate the development of education and research programs.

The Program Committee Members consists of one faculty member, appointed by the President, from each of the member institutions. These members serve as the primary liaison between the member institution and the Sea Lab, and are responsible for advising the Sea Lab's Executive Director in planning and implementing the education, research and service programs of the DISL. The Program Committee Members listed here are for the time at print; those who served at the reporting time of 2007 are so noted.

**Schools with Graduate Programs

**Alabama A&M University
President: Dr. Andrew Hugine, Jr.
Program Committee: Dr. Malinda Westbrook
Alabama A & M University
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Federal Awards/Grants

Pass-Through Grantor/Program Title	Assistance Period	Total	Federal Share	Revenue Recognized	Expenditures
Marine Fisheries Initiative	08/01/2009-07/31/2012	211,258.00	211,258.00	40,736.14	40,736.14
Marine Fisheries Initiative	07/01/2008 - 06/30/2012	221,230.00	221,230.00	181,484.95	181,484.95
Marine Fisheries Initiative	07/01/2006 - 01/31/2011	2,129,368.00	488,362.03	488,362.03	488,362.03
Marine Fisheries Initiative	09/01/2009-08/31/2011	899,100.00	899,100.00	730,552.07	730,552.07
Marine Fisheries Initiative	09/01/2010-08/31/2013	749,250.00	749,250.00	237,022.74	237,022.74
Passed Through University of Southern Mississippi Sea Grant Support Oceanic and Atmospheric Projects	02/01/2010-01/31/2012	126,934.00	79,265.00	52,704.40	52,704.40
Sea Grant Support Oceanic and Atmospheric Projects Institute for Marine Mammal Studies	02/01/2010-01/31/2012 04/04/2011-08/31/2012	441,549.00 28,100.00	289,254.00 28,100.00	116,785.90 6,594.19	116,785.90 6,594.19
Passed through Alabama of Conservation and Natural Resources Coastal Zone Management (CZM) Unalied Management Projects	10/01/2009-02/15/2011 10/01/2006 - 06/30/2012	50,000.00 5,000,000.00	25,000.00 5,000,000.00	6,202.66 1,034,431.09	6,202.66 1,034,431.09
CZM Administration Awards	10/01/2010-03/15/2012	70,000.00	35,000.00	29,583.00	29,583.00
CZM Administration Awards	10/01/2010-03/15/2012	20,000.00	10,000.00	242.22	242.22
CZM Administration Awards	10/01/2010-03/15/2012	20,000.00	10,000.00	280.80	280.80
CZM Administration Awards	10/01/2010-03/15/2012	11,000.00	5,500.00	11,454.83	11,454.83
CZM Administration Awards	03/01/2010-02/28/2011	15,000.00	7,500.00	2,100.37	2,100.37
CZM Administration Awards	03/01/2010-09/30/2011	15,000.00	7,500.00	7,500.00	7,500.00

Passed Through the Association of National Estuary Programs, Inc.	01/1/2008-03/25/2012	56,493.00	26,450.00	4,657.50	4,657.50	184,076.46	184,076.46	75,785.39	75,785.39
Habitat Conservation						320,845.63	320,845.63	175,212.41	175,212.41
Passed Through Texas A & M research Foundation	01/01/2008 - 12/31/2011	66,297.00	66,297.00	11,675.58	11,675.58	259,362.00	259,362.00	115,131.49	115,131.49
Coastal Services Center	06/01/2011-05/31/2012	26,476.00	26,476.00	741.71	741.71	141,064.86	141,064.86	115,396.17	115,396.17
U. S. Department of the Interior	07/01/2005 - 07/30/2011	50,000.00	50,000.00	22,540.16	22,540.16	65,000.00	65,000.00	30,841.80	30,841.80
Fish and Wildlife Management Service						5,000.00	5,000.00	5,000.00	5,000.00
Habitat Restoration	09/01/2008 - 12/31/2010	53,877.00	25,000.00	3,749.81	3,749.81	88,212.00	88,212.00	11,167.52	11,167.52
Beureau of Ocean Energy Management						70,021.00	70,021.00	1,141.49	1,141.49
Coastal Impact Assistance Program	07/21/2010-11/30/2012	249,998.17	249,998.17	86,806.65	86,806.65	563,705.00	563,705.00	153,425.66	153,425.66
Passed Through State of Alabama	1/1/2011-10/31/2012	100,000.00	100,000.00	22,635.78	22,635.78	354,750.00	354,750.00	69,905.77	69,905.77
Coastal Impact Assistance Program						29,503.00	29,503.00	5,553.34	5,553.34
Passed Through Baldwin County Commission	10/01/2010-12/31/2012	250,000.00	250,000.00	51,056.65	51,056.65	224,223.00	224,223.00	64,122.65	64,122.65
Beureau of Ocean Energy Management									
Coastal Impact Assistance Program	04/20/2011-02/28/2013	200,000.00	200,000.00	4,285.83	4,285.83	250,000.00	250,000.00	122,879.22	122,879.22
Shoreline/Habitat Restoration									
Passed Through Texas A & M University	08/31/2011-01/31/2013	26,845.00	26,845.00	2,023.42	2,023.42	199,867.00	199,867.00	103,707.64	103,707.64
Gulf Coast Cooperative Studies Unit						545,289.00	545,289.00	74,500.60	74,500.60
National Parks Service									
Gulf Coast Inventory and Monitoring Network									
Passed Through Alabama Department of Conservation and Natural Resources	10/01/2010-9/30/2011	53,906.00	35,794.00	35,794.00	35,794.00	151,708.00	151,708.00	34,362.11	34,362.11
ADCNR-Wildlife and Freshwater Fisheries						27,000.00	27,000.00	19,443.35	19,443.35
Environmental Protection Agency									
Direct Programs									
National Estuary Program	10/01/2006 -09/30/2012	4,204,701.00	2,102,350.00	55,055.99	55,055.99	250,000.00	250,000.00	122,879.22	122,879.22
Passed Through University of Southern Mississippi	09/01/2005 - 12/31/2011	2,797,600.00	1,398,800.00	407,825.29	407,825.29	250,720.00	250,720.00	6,884.48	6,884.48
National Estuary Program									
Gulf of Mexico Program	12/01/2008-11/30/2011	229,765.00	205,965.00	10,500.00	10,500.00	46,500.00	46,500.00	21,243.88	21,243.88
Gulf of Mexico Program									
Passed Through State of Florida Department of Environmental Protection	9/15/2010-9/30/2012	51,152.14	51,152.14	29,276.05	29,276.05	239,283.00	239,283.00	25.00	25.00
Nonpoint Source Implementation									
National Aeronautics and Space Administration (NASA)									
Passed Through University of South Carolina	12/15/2009-12/14/2011	22,725.00	22,725.00	8,293.75	8,293.75	377,264.00	377,264.00	12,010.54	12,010.54
Science									
U.S. Department of Energy									
Passed Through Alabama Department of Economic and Community Affairs	03/01/2011-9/30/2011	338,117.00	270,000.00	270,000.00	270,000.00	4,411,204.00	4,411,204.00	214,846.30	214,846.30
State Energy Program									
Total:				6,959,749.91		106,386.00	74,388.00	4,343.54	4,343.54

Passed Through University of Southern Mississippi	09/01/2005 - 12/31/2011	250,720.00	250,720.00	6,884.48	6,884.48	250,000.00	250,000.00	122,879.22	122,879.22
Geosciences									
Passed Through University of South Alabama	06/15/2010-05/31/2012	46,500.00	46,500.00	21,243.88	21,243.88	239,283.00	239,283.00	25.00	25.00
Geosciences									
Passed Through The University of Alabama	10/01/2010-9/30/2013	29,276.05	29,276.05	29,276.05	29,276.05	239,283.00	239,283.00	25.00	25.00
In Huntsville									
Exp. Program to Stimulate Competitive Research									
Other Federal Awards									
US Department of Commerce									
Direct Programs									
Congressionally Identified Awards and Projects									
Congressionally Identified Awards and Projects	10/01/2009-09/30/2012	377,264.00	377,264.00	12,010.54	12,010.54	295,246.00	295,246.00	12,010.54	12,010.54
Congressionally Identified Awards and Projects	07/01/2006 - 01/31/2011	4,411,204.00	4,411,204.00	214,846.30	214,846.30	2,151,837.00	2,151,837.00	640,935.73	640,935.73
Congressionally Identified Awards and Projects	10/1/2008-9/30/2012	2,151,837.00	2,151,837.00	106,386.00	106,386.00	74,388.00	74,388.00	4,343.54	4,343.54
Congressionally Identified Awards and Projects	09/01/2011-06/31/2012								
Passed Through Alabama Department of Conservation and Natural Resources	07/1/2008 -06/30/2012	1,500,000.00	1,500,000.00	454,483.40	454,483.40	1,500,000.00	1,500,000.00	454,483.40	454,483.40
Unallied Management Projects (M)									
Passed Through The Florida Aquarium	07/20/2010-8/20/2011	122,560.00	122,560.00	76,407.00	76,407.00	230,000.00	230,000.00	29,903.78	29,903.78
Congressionally Identified Awards and Projects									
Passed Through Mississippi State University	02/01/2007 - 01/31/2011	230,000.00	230,000.00	950,439.00	950,439.00	950,439.00	950,439.00	99,122.33	99,122.33
National Oceanic and Atmospheric Administration (NOAA) Cooperative Institute									
National Oceanic and Atmospheric Administration (NOAA) Cooperative Institute	02/01/2007 - 06/30/2012	950,439.00	950,439.00	99,122.33	99,122.33	950,439.00	950,439.00	99,122.33	99,122.33



Balance Sheet

Marine Environmental Science Consortium Dauphin Island Sea Lab Statement of Net Assets For the Year Ended September 30, 2011

ASSETS	
Current Assets	
Cash	2,980,088
Accounts Receivable	2,804,038
Inventory	125,793
Total Current Assets	5,909,919
Noncurrent Assets	
Capital Assets	
Land	456,331
Buildings	18,972,246
Improvements Other Than Buildings	952,419
Equipment	2,275,628
Leases	1,075,942
Library Holdings	382,527
Less: Accumulated Depreciation	(13,890,525)
Total Capital Assets, net of Depreciation	11,440,128
Total Noncurrent Assets	11,440,128
Total Assets	17,350,047
LIABILITIES	
Current Liabilities	
Accounts Payable	961,160
Liabilities Payable	15,804
Compensated Absence	22,407
Deferred Revenue	6,000,219
Payable (Due) to Other	111,492
Total Current Liabilities	7,111,082
Noncurrent Liabilities	
Compensated Absence	312,800
Other Long-term Liabilities	45,307
Total Noncurrent Liabilities	358,107
Total Liabilities	7,469,189
NET ASSETS	
Invested in Capital Assets, net of Related Debt	11,788,000
Restricted for:	
Endowments	
Scholarships & Fellowships	
Instruction, Research & Public Outreach	211,390
Capital Projects	1,349,600
Unrestricted	1,560,000
Total Net Assets	17,350,047

Dauphin Island Sea Lab Participation Totals, and Graduate and Undergraduate Credit Hours Earned

