Dauphin Island Sea Lab

Alabama's marine research and education institution

Dauphin Island Sea Lab • Alabama •

Annual Report 2001

Statement of Purpose

The Marine Environmental Science Consortium (MESC) 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, MESC includes twenty-two Alabama colleges and universities,both public and private. The administrative and operational base for MESC is the Dauphin Island Sea Lab.

The MESC and its faculty work toward the combined purpose 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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This year's cover photos demonstrate the Sea Lab's extraordinary range of audience/students that it reaches in all of its programs: (top left) Grant Craig teaches high school students about the anatomy of a horseshoe crab; (top right) Dr. Just Cebrian talks to a group of kindergarten and first-grade students at the Pelican's Nest Center about life in marsh; (bottom left) Estuarium docents greet visitors at the Dry Touch Table; (bottom right) Dr. Richard Aronson lectures to his Marine Invertebrates Zoology undergraduate class aboard the R/V A.E. Verrill.

Letter from the Executive Director

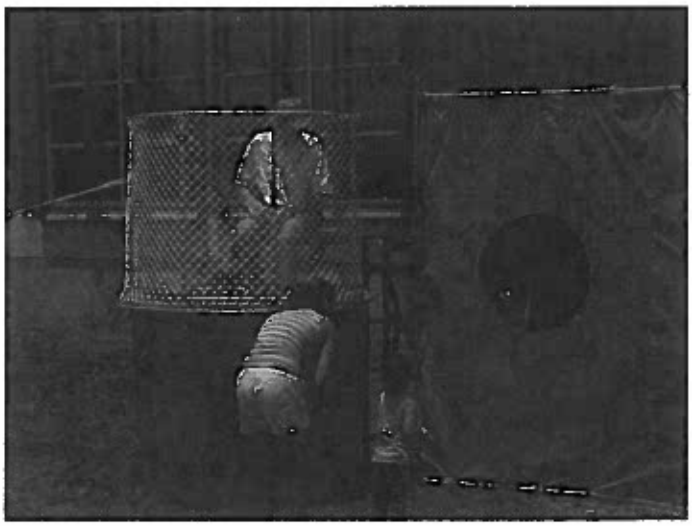
The horrific event of September 11 will always overshadow anything that could be recounted for the past year by any institution. Any concerns that we may have for the Dauphin Island Sea Lab pale by comparison. While our problems seem petty, it makes our progress and achievements ever more important in a changed environment and attitude toward resource management.

2001 has been a year of expanding roles for the Laboratory and the diversification of activities indicates the vitality inherent to the institution. Rarely does a scientific institution engage the public as effectively as we have over this past year. DockWatch, our jellyfish monitoring program, has become a model participatory tool involving citizens in the emerging issue of invasive species and Discovery Hall has joined in with an effort focused on teachers, so both academic departments have brought their specific skills into play. The efforts have extended into adjacent Gulf states with the assistance of the Mississippi-Alabama Sea Grant Consortium which has established a working presence at the Sea Lab. Our growing interaction with the Mobile Bay National Estuary Program has provided opportunities beyond those of the central Gulf.

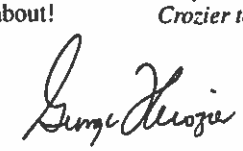
We have also had the unique role of developing a conceptual plan for the thoughtful utilization of the old Mobile Bay Causeway. The various facets of this rather unique public access have involved "hard science" in the form of concerns about elevating portions of the structure with an "envisioning" process directed by the Coastal Policy Center. This, in turn, has led to enhanced interactions with campus faculty from the member institutions.

All of these activities are embellished by the recognition and active establishment of the Sea Lab as one of the federally designated Coastal Ecosystem Learning Centers. This relationship elevates the Laboratory to national recognition and opens the door to special interactions with a variety of federal agencies that participate in Coastal America. It is our intention to continue to lead the way in K-Ph.D. marine education. This could not be more graphically demonstrated than by selection of the laboratory by Nickelodeon for a visit from the Big Helpmobile. After all, the children are what it is all about!

Dr. George Crozier with his Coastal Zone Management class



They lined up to "Dunk the Director" during Nickelodeon Day. Dr. Crozier took a great many spills that day into the tank.



Dr. George F. Crozier
Executive Director
Dauphin Island Sea Lab

Administration and Facilities

The Dauphin Island Sea Lab is located on thirty-six acres on the eastern end of Dauphin Island, a barrier island three miles from the mainland and forty miles south of Mobile, Alabama. Spanning the width of the island, the Sea Lab has direct access to the Gulf of Mexico, Mobile Bay and Mississippi Sound, making the facility ideal for marine and estuarine study.

Four buildings on the South Campus provide over 9,000 square feet of classroom and laboratory facilities. Marine Science Hall, the main research facility, contains over 8,000 square feet of research and office space. The campus can accommodate over 160 persons in residence, with two dormitories, a two-story efficiency apartment building, eight three-bedroom houses and a cafeteria. A new 3,600 square-foot Wet Lab was constructed in 2001, housing facilities for salt water tanks, re-circulating flumes and other equipment and instrumentation.

Administrative Personnel

George Crozier,
Executive Director

John Dindo
Chair, Discovery Hall Programs

Jonathan Pennock
Chair, University Programs

Georgia Mallon
Comptroller/Business-Auxiliaries Manager

Aleada Nicholson
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

Georgia Mallon
Comptroller/Business-Auxiliaries Manager

Lynn Bryant
Contracts & Grants Manager

Tiffany England
Accounts Payable/Payroll

David England
Bursar/Purchasing Agent

Brenda Garrick
Reservation Coordinator

Joyce Carroll
Receptionist

Dennis Patronas
Assistant

Auxiliaries

Auxiliaries of the DISL include the Gift Shop of the Estuarium, cafeteria, laundromat and vending machines. Select items from the Estuarium Gift Shop can now be seen online at http://estuarium.disl.org/giftshop.

Cafeteria Personnel

Classie Beritiech
Supervisor

Judy Barber,
Assistant Supervisor

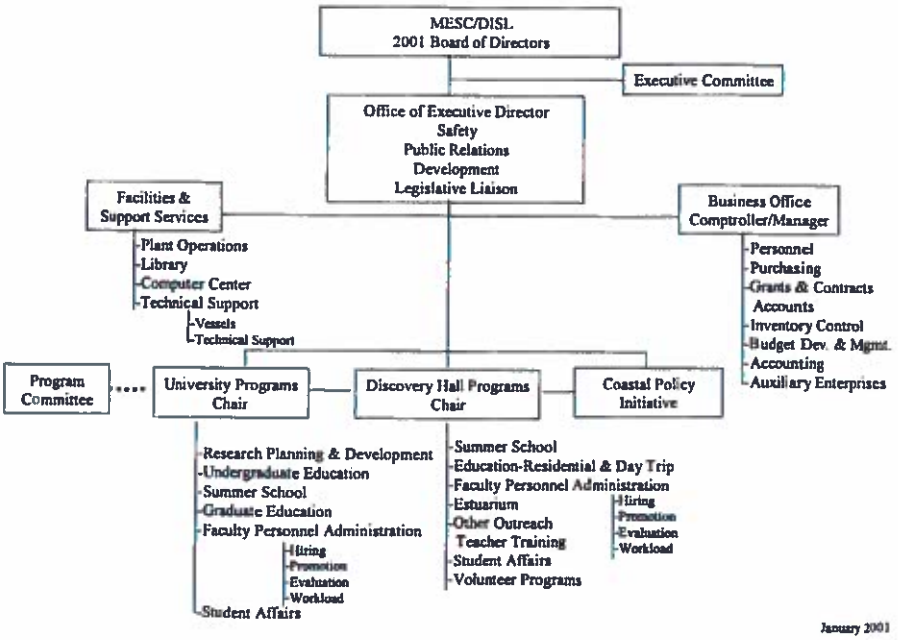
Estuarium Admissions and Gift Shop Personnel

Jeana Layne
Supervisor

Mandy Harbison
Supervisor

Jeannine Waltman
Jamelle Ellington
Amy Hannah
Brandi White

Table of Organization



January 2001

Computer Center

The Computer Center provides user services and support for 144 computers in both academic and administrative departments. In 2001, the Computer Center expanded connectivity to include the Auburn Shellfish Laboratory, The Estuarium Admissions Desk and the Cafeteria, as part of the campus-wide network. The Computer Center continues to enhance the DISL Web site (www.disl.org) and DISL Intranet Resources.

Computer Center Personnel

Randy Schlude
Computer Center Manager

Melissa Kincke
Network Administrator

Library

The Sea Lab's Library, which contains the most complete collection of marine science publications in the state of Alabama, continues to impove. 7,240 books were accessioned through October 2001, and 145 journals were subscribed. The library sent out 468 interlibrary loan requests, and accommodated 565 requests for lending. Our databases have expanded to include BioOne, which is a full text online journal database, with access to forty-eight journal titles. We have added our library catalog to our intranet site.

Library Personnel

Connie Mallon
Librarian

Public Relations

Special projects dominated 2001 for the Public Relations (PR) Department, which managed to fit them into the Sea Lab's PR agenda alongside the usual flurry of pro-active communications for the Lab.

Nickelodeon Day, sponsored by the national media outlet Nickelodeon Channel, brought over 900 visitors to the Lab in the middle of the summer. This was quite a challenge, considering the Lab was told to expect between 250-500 people! The Big Help Bus pulled into the Estuarium parking lot on July 14, ready to educate children about the need to preserve the environment. Sea Lab staff, docents, students, as well as volunteers from outside agencies, all worked tirelessly to provide a fun, educational day for all.

The PR Department also assisted Dr. Monty Graham in establishing DockWatch, a jellyfish monitoring program funded by the EPA's Gulf of Mexico Program and the Mississippi-Alabama Sea Grant Consortium. This department was responsible for volunteer recruitment, program outreach and supervision of two DockWatch interns. The program has been so successful that plans are underway to expand the Mississippi to Alabama territories into Louisiana and Florida. Hopes are high that this eventually will become a Gulf-wide monitoring program.

ExxonMobil provided a generous PR internship to Ms. April Guthrie from the University of South Alabama, who assisted the PR Director in press releases, photography and much more. She also assisted the Estuarium Manager Robert Dixon in designing new exhibits for the facility.

Due to budget cuts, the Sea Lab's newsletter Tidings was forced to switch from hard copy to online. With 5,000 names on the mailing list, some loss of readership is expected; however, the PR Department hopes that electronic "word of mouth" will keep a significant portion active, as well as attract new readers. The site URL is http://tidings.disl.org.

Public Relations Personnel

Lisa Young
Public Relations Director

Plant Operations

Conversion of space was a major priority for Plant Ops in 2001. The old tech shop became a temporary wet lab, then storage; the old wet lab became the new storage facility; and a brand new wet lab was constructed. All this was accomplished in addition to the massive amount of routine maintenance that the facility requires. The Plant Ops staff continue to produce miraculous results with limited budget and manpower.

Plant Operations Personnel
Maintenance/Operations

Steve Ruf
Supervisor

Wilton Barber
Bryan Breaux
James Daves
Richard Gibbs
Russell Wilson
David Yommer

Housekeeping

Dennis Patronas
Supervisor

Michael Connell
Shirley Emerson
Cindy Johnson
Jenny Johnson
Shirley Kirkpatrick
Dottie Mallon
Tammy Self

Technical Support and Vessels

A 3,600 square foot metal building constructed to house the life support systems of the Wet Lab was completed in April. Tech Support has installed a sea water supply and distribution system. As funds become available, independent circulating loops in each of five separate rooms will be added. Additional common use areas for aquariums and culturing larvae and algae will also be available.

Tech Support turned over more personnel this past year. Jean Cowan followed her husband to Baton Rouge, taking a job with LSU. Laura Linn, formerly a technician of Ron Kiene, has replaced her as a marine technician. Glen Chaplin is continuing the soft money tradition in Tech Support, constructing the life support systems of the new wet lab nearly single handedly.

Vessel Ops is pleased to acknowledge Estuarium docent Selden Stephens for the donation of a 20-foot SeaCraft. A new trailer was purchased to accommodate the vessel which will be added to the available fleet.

Technical Support Personnel

Michael Dardeau
Marine Scientist

Al Gunter
Laura Linn
Yantzee Hintz
Glen Chaplin

Vessels Personnel

Capt. Rodney Collier
Capt. Russell Wilson
Engineer Joe Sullivan

Vessel Days at Sea (including 1/2 day operations)

Vessel	1999	2000	2001
A.E. Verrril	103	147	141
Small Boats	122	196	197

Discovery Hall Programs

Field and Lab Programs

The philosophy that guides Discovery Hall Programs (DHP) is hands-on learning will not only invigorate educational interest, it will be the basis of creating a life-long learner. Whether students are seining in a marsh or dissecting a squid, the activity of discovery fosters scientific interest. During 2001, DHP guided 11,096 K-12 students and teachers through academic field courses and classroom activities. In addition, the Estuarium greeted 36,213 students, all of whom were able to use age-appropriate educational curricula during their visit. DHP has in the past mailed out these curricula to teachers prior to their visits; teachers can now download them directly at http://estuarium.disl.org.

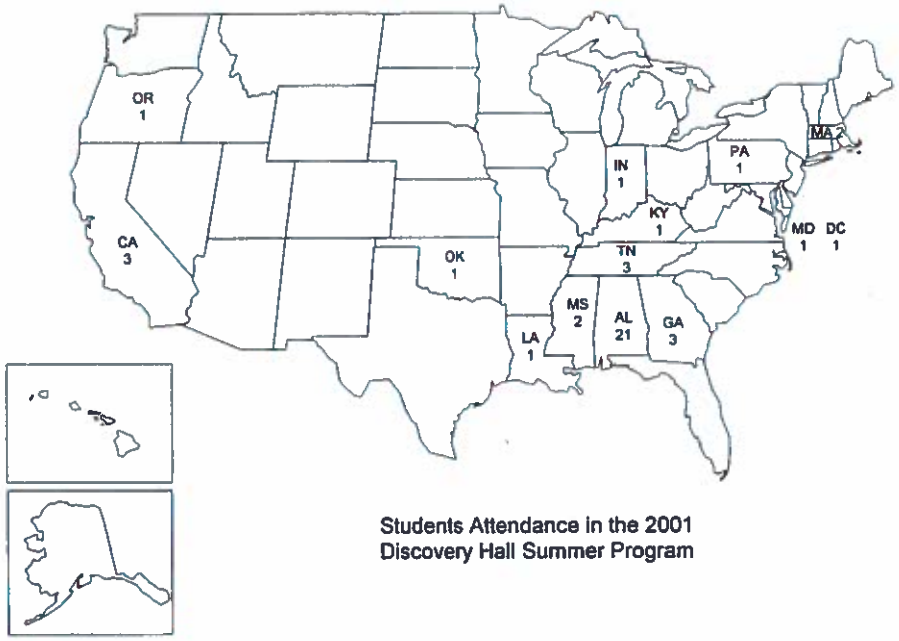
Since September 11, 2001, DHP has received a number of cancellations due to parents' reluctance to allow their children to go on field trips any great distance from home. On the other hand, we've also hosted a number of groups who normally choose Washington, DC as their annual field trip; their visits at the Lab were so successful, they have chosen to come again next year.

High School Summer Program

Forty-two students from thirteen states and the District of Columbia attended the DHP Summer School program in 2001. These students earned a full credit in advanced biology by completing the 152 contact hour course. Again this year, Summer Search, an innovative program in Massachusetts and California that offers summer learning opportunities to inner-city students, provided six students to the program. For many of these students, the Summer School program is the first time they've spent any significant amount of time away from home. Once at the Lab, they face meeting and living with a diversity of peers, as well as tackling four-weeks of intensive marine science courses. DHP has been touched by the letters it has received from these students after the completion of their course, telling the faculty how difficult the experience was, yet how rewarding and life-changing it turned out to be.

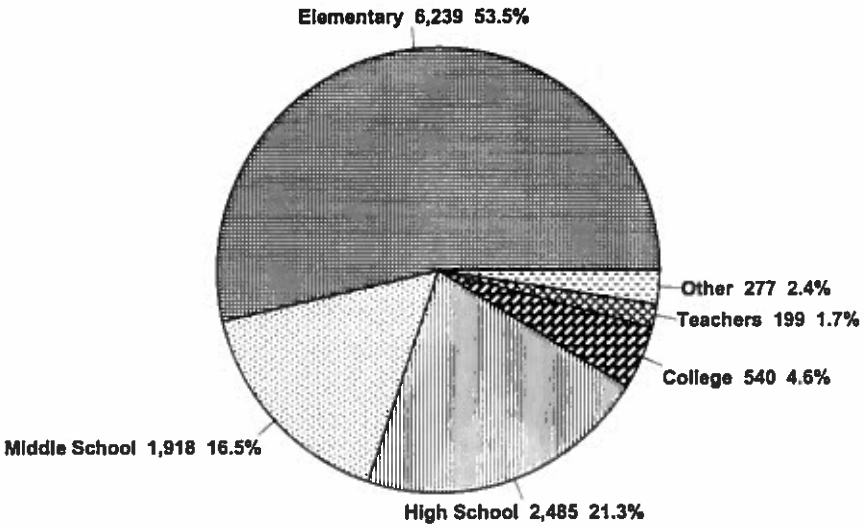
Teacher Training Programs

Enthusiasm for science education training and activities continues to grow even with a cut in available Title II World of Water opportunities. There were 400 applicants for the 125 available slots for the World of Water program last year. Over the ten years of the program, every county in the State of Alabama has had teachers participate. With the new exit exams and higher standards for graduation, more teachers than ever are seeking additional knowledge in the sciences through programs like the World of Water. Last year the Discovery Hall Programs initiated three new teacher workshops, **Beaches, Birds, and Barrier Islands; Grasses, Groupers, and Gastropods;** and **Splash into History.** In addition we offered Coastal Connections, a coastal science workshop similar to World of Water. The workshops examined birds from various habitats including Petit Bois and Sand Island to the Mobile Delta. Teachers traveled to Port St. Joe Florida to examine grass-bed communities; and visited Blakeley Park to learn about the area's history. These workshops are funded by the teachers themselves, with some of them recovering local district money to attend. One third of the teachers taking these classes took them for college credit applied to their Masters degree in science.



Students Attendance in the 2001 Discovery Hall Summer Program

Discovery Hall Student Participation in 2001



Total = 11,636
Totals include out of state enrollment

Outreach

DHP faculty hit the road running, during the months of January and February of 2001. They brought classroom activities; touch lab specimens, and their knowledge of coastal Alabama to hundreds of students from Selma to Huntsville. This is a valuable part of the mission of the Dauphin Island Sea Lab to show students throughout Alabama that they are linked to Mobile Bay and the Gulf of Mexico through the large watershed that we all share.

Discovery Hall Faculty

John J. Dindo
Department Chair
Ph.D. 1991 (University of Alabama at Birmingham)

Jenny Cook
Marine Educator
M.S. 1991 (University of South Alabama)

Grant Craig
Marine Educator
B.S. 1995 (University of Richmond)

John DiPlacido, Jr.
Marine Educator
M.S. 1996 (Oregon State University)

Kirsten Walker
Marine Educator
M.S. 1998 (University of South Alabama)

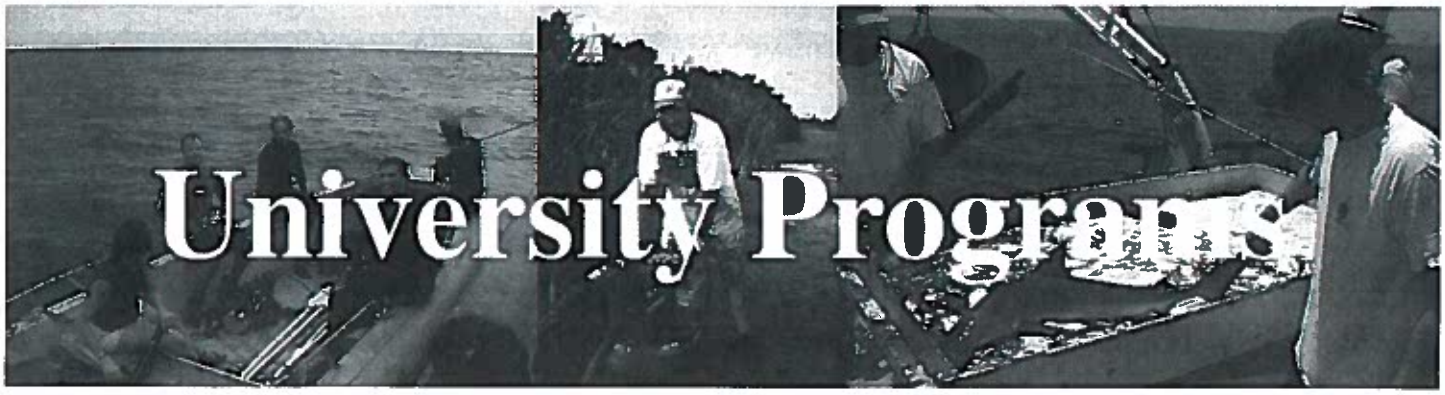
Hazel Wilson
Marine Educator
B.S. 1981 (Memphis State University).

Denise Keaton
Registrar

Dauphin Island Sea Lab's Discovery Hall Program Totals

Year	K-5	Middle School	High School	College	Teachers	Other	Total
1990	7,382	1,364	905	473	185	397	10,706
1991	2,296	745	329	127	254	620	4,371
1992	6,103	2,005	1,187	671	254	351	10,571
1993	7,128	1,784	2,123	765	238	529	12,567
1994	7,634	2,083	1,533	603	356	478	12,687
1995	5,981	1,763	1,137	634	213	336	10,064
1996	6,915	2,318	1,411	456	300	126	11,526
1997	6,312	1,630	1,170	648	269	284	10,313
1998	6,233	2,079	1,484	364	230	352	10,742
1999	4,232	2,055	1,397	479	225	301	8,689
2000	6,567	2,141	1,746	476	199	368	11,497
2001	6,239	1,918	2,485	540	177	277	11,636
Total	73,022	21,885	16,907	6,236	2,900	4,419	125,369

Includes Teacher Workshop and Summer High School totals



University Programs

The University Programs faculty is responsible for implementing the undergraduate and graduate education and research activities at the DISL. In addition to year-round graduate education and research activities, University Programs includes the DISL Summer School Program and the National Science Foundation-sponsored Research Experiences for Undergraduates Program at DISL. The primary activities of the program during the 2000-2001 academic year are outlined below.

Faculty

We began searching for two marine scientists who we hope will bring new skills to our faculty in molecular ecology, modeling or stable isotope techniques. We plan to fill these positions in the fall of 2002.

During the year, the nine resident University Programs faculty published 27 papers in the refereed literature, edited 1 book, 2 book reviews and authored 8 technical/ popular publications. The faculty also delivered over 36 presentations at national and international scientific meetings with 19 additional invited presentations.

University Programs faculty continued to be involved in numerous professional service activities during the year, including: (1) editorship of major journals (Aronson – Journal of Experimental Marine Biology and Ecology; Cowan – Estuaries and Gulf of Mexico Science; Heck – Marine Ecology Progress Series; Kiene – Applied & Environmental Microbiology and Marine Chemistry; and Schroeder – Gulf of Mexico Science), (2) workshop and panel participation (Cowan – National Research Council and Gulf Fisheries Council; Heck – Florida Bay Scientific Oversight Panel; Pennock – National Academy of Sciences Eutrophication Workshop and (3) manuscript and proposal review.

A few of the faculty highlights of the year included the presentation of the Blakeslee Annual Lecture at Smith College by Dr. Aronson, Dr. Graham's continuing Science Education at Sea Program (SEAS) which brings public school students and teachers to DISL to participate in ship board research, and Dr. Valentine's promotion to Senior Marine Scientist II at DISL along with the granting of tenure and promotion to Associate Professor at the University of South Alabama.

Undergraduate and Graduate Academic Programs

In 2000-2001, University Programs offered 31 courses at the undergraduate and graduate levels (see Table 1). These courses make up a diverse curriculum in marine biology/ecology and coastal and estuarine oceanography for both summer undergraduate students and year-round resident graduate students.

Undergraduate Program

The Summer School Program is conducted primarily in support of undergraduate degree programs at the 22 DISL member institutions. In 2000-2001, University Programs delivered 586

Table 1: DISL 2000-2001 Course Offerings

Fall 2000

Course	Credit	Instructor(s)	Schedule
Biological Oceanography	(3)	Graham	T, Th (9:30-11)
Chemical Oceanography	(3)	Kiene	M, W (9:30-11)
Fisheries Techniques	(3)	Cowan	W (1:00-4:00)
Ocean Variability & Global Change	(2)	Kiene	T (1:00-3:00)
Marine Resource Management	(2)	Shipp	TBA
Oceanographic Experience	(1-3)	Graham	TBA
Seminar	(1)	Heck	F (9:00-10:00)
Ocean Science	(3)	Schroeder	[2]

[1] The field component of this course will be carried out during August, before the beginning of the fall semester.

[2] This course will be offered as part of an External Degree program at the University of Alabama and may also be offered by other External Degree/Off-Campus Studies programs from DISL member institutions.

Winter/Spring 2001

Course	Credit	Instructor(s)	Schedule
Physical Oceanography	(3)	Park	T, Th (9:30-11)
Geological Oceanography	(3)	Haywick	M (1-2); W (1-3)
Advanced Marine Ecology	(2)	Heck/Valentine	M (9:00-11:00)
Marine Plankton	(3)	Pennock/Graham	T, Th (1:30-3:00)
Trophic Fate of Primary Production In Coastal Ecosystems	(2)	Cebrian (NEW)	W (9:00-12:00)
Oceanographic Experience	(1-3)	Kiene	TBA
Seminar	(1)	Kiene	F (9:00-10:00)

Summer 2001 - May-Term [May 14 - June 8]

Course	Credit	Instructor(s)	Schedule
Marine Biology (A)	(4)	O'Brien	M-F
Coral Reef Ecology	(4)	Aronson/Pennock	M-F
Oceanology of the GOM	(3)	Schroeder	M-F; [May 21 - June 8]
Dolphins and Whales	(2)	Regan	M-F; [May 28 - June 8]

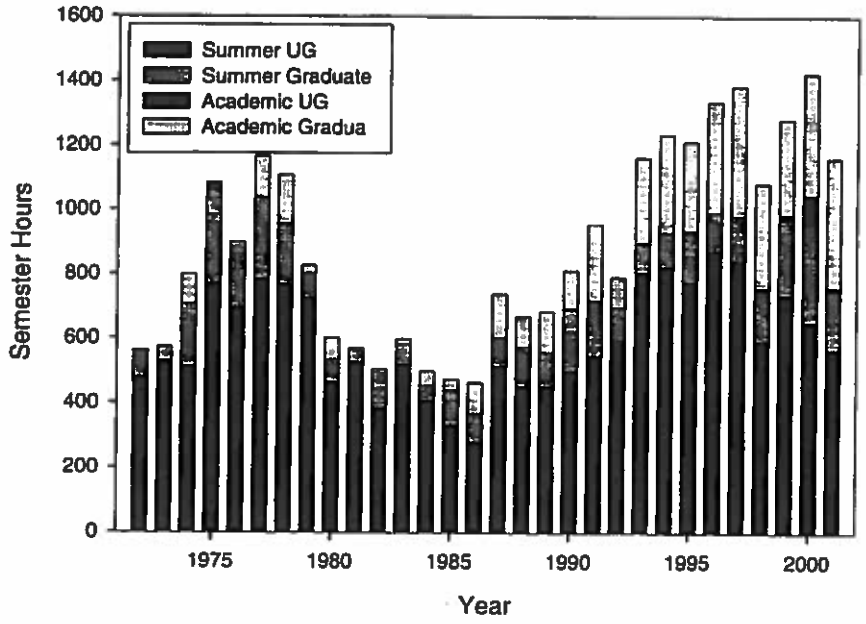
Summer 2001 - First Session [June 11 - July 13]

Course	Credit	Instructor(s)	Schedule
Marine Biology (B)	(4)	Romano	M, Th, F; T (9-12)
Marine Ecology	(4)	Heck	M, Th, F; T (9-12)
Marine Invertebrate Zoology	(4)	Aronson	M, Th, F; T (9-12)
Marine Botany	(4)	Cebrian	M, Th, F; T (9-12)
Intro. to Oceanography	(4)	Schroeder	M, Th, F, T (9-12)
Marine Technical Methods	(2)	Dardeau	Tu (2-4); W
Marine Aquaculture	(2)	Swann	Tu (2-4); W

Summer 2001 - Second Session [July 16 - August 17]

Course	Credit	Instructor(s)	Schedule
Marine Vertebrate Zoology	(4)	Cowan	M, Th, F; T (9-12)
Marine Behavioral Ecology	(4)	Richardson	M, Th, F; T (9-12)
Marine Geology	(4)	Canis	M, Th, F; T (9-12)
Marine Conservation Biology	(4)	Valentine	M, Th, F; T (9-12)
Intro to Neurobiology	(3)	Gamlin/Keyser	M-S

Figure 1 College Credit Hours Delivered



undergraduate semester hours (see Figure 1). The summer program saw students from 15 of the 22 member universities. During summer school, University Programs was able to provide support to numerous undergraduates by offering work-study positions in the library and dormitory as well as providing undergraduate summer fellowships. Fellowship recipients for 2001 included: Ms. Katherine Alexander (University of West Alabama), Ms. Sarah Branson (University of West Alabama), and Ms. Krisi Huels (Auburn University). This support was made available through funds provided by the DISL.

NSF Research Experience for Undergraduates Program

A continuing major component of the undergraduate program at the DISL is the National Science Foundation Research Experience for Undergraduates (REU) Program. In the fall of 2001, DISL completed the third year of the three-year award, which brought seven talented students from around the country to the DISL for 12-weeks. During the program, each student conducts an independent research project under the direction of a University Programs faculty member and learns about career paths in the marine sciences. The 2001 students and their REU projects are listed in Table 2.

Graduate Program

During the 2000-2001 academic year, there were 34 graduate students who based their studies and received research support from the DISL. During the year, University Programs delivered 577 graduate semester hours (see Figure 1) and provided graduate fellowships to 2 students: Ms. Cheryl Wapnick (M.S., University of South Alabama), and Ms. Alina Corcoran (M.S., University of Alabama. These fellowships were made available through funds provided through the DISL and gifts from the Mobil Oil Company Foundation and Shell Oil Company Foundation obtained through the efforts of Dr. Schroeder.

During fall 2001 a student exchange program between the Abo Akademi University in Turka, Finland, DISL and the University of South Alabama Marine Science Department was initiated. Five DISL graduate students spent three weeks during September at Abo Akardemi's Huso Biological Research Station studying the Baltic Sea, and in October, five Finish students spent three weeks at DISL investigating the Gulf of Mexico. Plans are to continue such exchanges on a 2-3 year cycle and encourage students to consider comparative work in their graduate studies.

Overall, five students who completed a majority of their thesis research at the DISL graduated from member schools during the 2000-2001 academic year (Table 3).

Research

Basic and applied research are central components of the educational programs and the overall mission of the DISL. University Programs faculty are extremely active in the pursuit of extramural funding in support of research activities, receiving $1,937,895 in extramural support for research, equipment and facilities, instruction, public outreach and student fellowships during the 2000-2001 academic year (see Figure 3). Research grants and contracts come from diverse sources, including: the National Science Foundation, the Mississippi-Alabama Sea Grant Consortium, the National Oceanographic

Table 2. 2001 REU Research Projects, Daupin Island Sea Lab

Heather Bracken, University of California - Santa Barbara. Seagrass Herbivory: The Effects of Predation Risk and Nutritional Content in the Upper Florida Keys. **Mentor: Dr. Ken Heck.**

Todd Clardy, Troy State University. The Effects of Short-term Sediment Fertilization and Water-column Shading on the Density and Growth of *Halodule wrighti*. **Mentor: Dr. Just Cebrian.**

Matthew Hendricks, Troy State University. A Sample of the Communities Surrounding Taylor Floats. **Mentor: Dr. LaDon Swann.**

Maurice Lightbourne, University of North Alabama. Effects of 'No Take' Protection on Predation of Macroinvertebrate Communities in the Upper Florida Keys National Marine Sanctuary. **Mentor: Dr. John Valentine.**

David G. Parker, The University of Florida. The Effects of Light on Dimethyl- sulfoniopropionate (DMSP) Lyase Activity in Marine Phytoplankton. **Mentor: Dr. Ron Kiene.**

John D. Robinson, The University of Alabama. Analysis of RNA: DNA Ratio as an Indicator of Growth Rate of the Moon Jellyfish, *Aurelia aurita*. **Mentor: Dr. Monty Graham.**

Marcus V. Terneus, Coastal Carolina University. The Effects of Nutrient Concentration and Pigment Composition on the Production of *Acartia tonsa* in the Northern Gulf of Mexico. **Mentor: Dr. Jonathan Pennock.**

Table 3. 2000 - 2001 Graduates

Burns, Gary L. The effect of organic forms of nitrogen on the growth rates of harmful algal species of the genus Procorentrum. M.S. (USA) Fall 2000. (Dr. Jon Pennock).

Jones, Brian D. Larval fish chemoreception, feeding, and growth: Effects of DMSP. M.S. (USA) December 2000. (Dr. Ron Kiene).

Gallagher, Leslie. An evaluation of potential artifacts associated with caging experiments. M.S. (USA) Summer 2001. (Dr. Ken Heck).

Ingram, Gary Walter. Selected aspects of the fishery biology of Gray Triggerfish (Balistes capriscus) in the northern Gulf of Mexico. Ph.D. (USA) Summer 2001. (Dr. Bob Shipp).

Strelcheck, Andy. The influence of nearest neighbor dynamics on measures of reef fish demographics on experimental artificial reefs in the north-central Gulf of Mexico. M.S. (USA) Summer 2001. (Dr. Jim Cowan).

and Atmospheric Administration (NOAA) Coastal Ocean Program, the Environmental Protection Agency, the National Park Service, the NOAA - National Undersea Research Program, the Department of Agriculture, the Office of Naval Research, the National Institute for Global and Environmental Change, the Nature Conservancy, the Alabama Department for Economic and Community Affairs and the Alabama Department of Environmental Management. An important source of research support for DISL faculty during the past year came through competitive grants submitted to the EPA sponsored Alabama Center for Estuarine Studies which is managed through the University of South Alabama. This support has enhanced faculty research efforts in the northern Gulf of Mexico region, and helps complement existing national and international research efforts.

University Programs Personnel

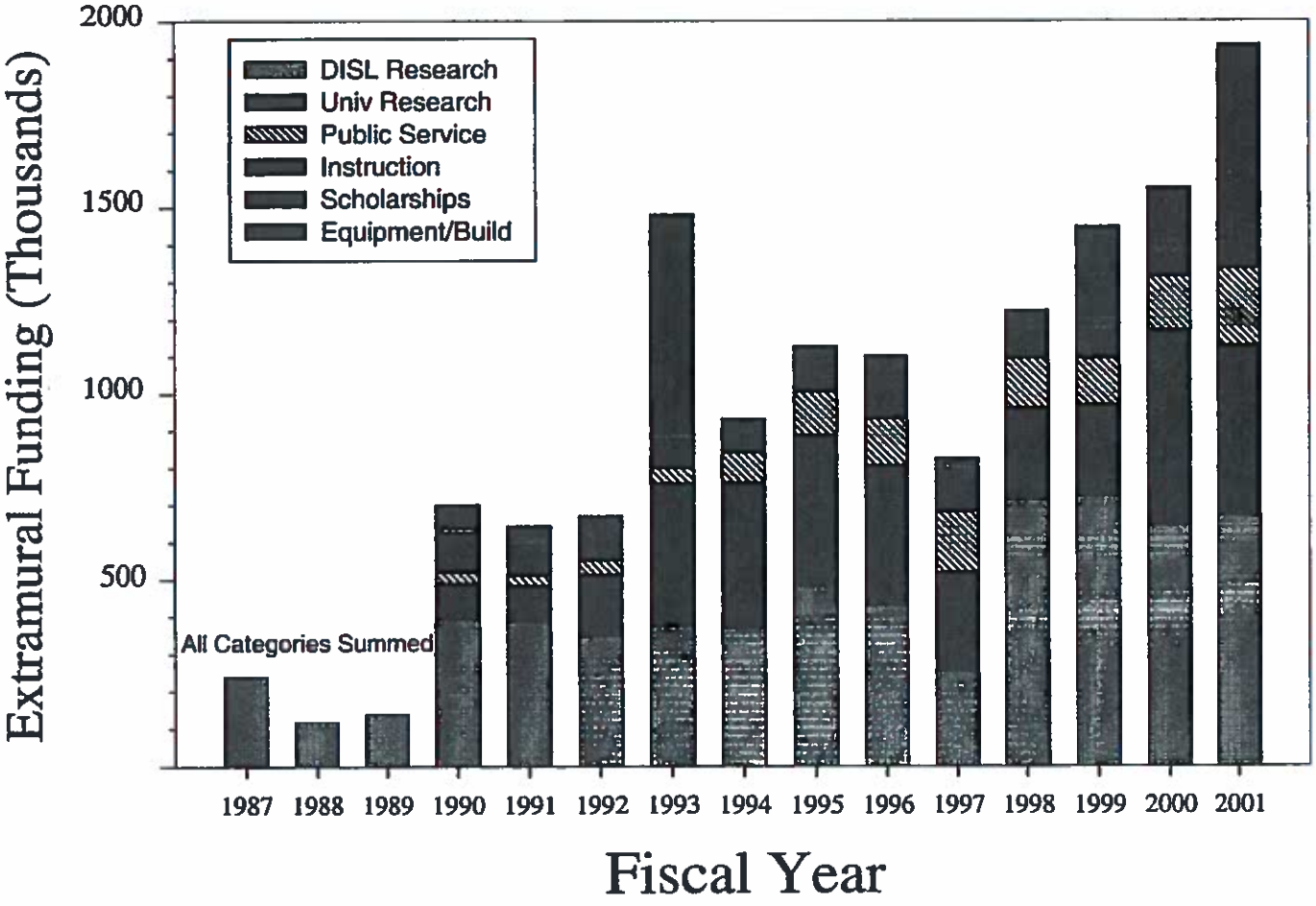
Dr. Jonathan Pennock
Chair, University Programs, 2001

Dr. Kenneth Heck
Chair, University Programs, 2002 (report submitted)

Sally Brennan
University Programs Registrar

Carolyn Wood,
Administrative Assistant

Figure 3; Extramural Funding



Public Service

Coastal Policy Center

2001 brought a significant transition to this group. Funds were solicited from the Coastal Impact Assistance Program to formally institutionalize the program and the name has been changed from "Coastal Policy Initiative" to "Coastal Policy Center" to reflect the enhanced role. The Center more closely resembles a campus interdepartmental unit and will maintain its identity as such. This year also incorporated faculty from member institutions in the form of Associate Professor Brian LaHaie from the Auburn College of Architecture, Design and Construction, Department of Landscape Architecture. He reviewed the development of the program with DISL at a national meeting in Los Angeles.

Through the technical support contract with ADCNR Lands Division's Coastal Programs, Ms. Arceneaux and Professor LaHaie prepared the Mobile Bay Causeway Corridor Management Plan for the Scenic Causeway Coalition. This document is meant to serve as a general planning and marketing document as well as a package nominating the Mobile Bay Causeway as a scenic byway. Funding for implementation of the plan has been sought from the Alabama Dept. of Transportation.

Power Point presentations on coastal issues and impacts of non-point source were completed for both the National Estuary Program and ADCNR Lands Division's Coastal Section. These public presentations drew from the Non-Point Source Education for Municipal Officials (NEMO) program which originated at the University of Rhode Island.

Among the several major projects initiated under the new format, the most significant was the negotiations leading to the assumption of the Mobile Bay National Estuary Program by the Coastal Policy Center. Some time after the first of 2002, the staff of the NEP will become associated with the Center. This is a $300-500,000 contract with Region 4 of the Environmental Protection Agency that will be managed by DISL and housed organizationally within the Center. The program will retain its own identity and continue to be located in Mobile due to the nature of its mission.

Cast-net

Cast-net, a project of the Southern Association of Marine Laboratories, addresses the need for improved connectivity among marine laboratories by creating a computer network to encourage shared access to regional data. Keri Hamilton represents DISL in this NSF EPSCoR funded project which includes technicians from LUMCON, Skidaway Institute of Oceanography and Baruch Institue. The team has developed a metadata entry form, sponsored workshops in metadata training, and developed a website for the northern Gulf states to enter Harmful Algal Bloom data into a common database.

Coastal Policy Personnel

George F. Crozier
Executive Director

Cherie Arceneaux
Senior Research Associate

Michael Dardeau
Marine Scientist

John Dindo
Marine Scientist

Jeff Jordan
Alabama Dept. of Conservation and Natural Resources

Brian LaHaie
Auburn University

Aleada Nicholson
Administrative Assistant

Amy Peper
Alabama Dept. of Conservation and Natural Resources

John Valentine
Senior Marine Scientist

Dana Word
Graduate Intern

Lisa Young
Public Relations Director

Docent Program

The Estuarium and our beautifully maintained flower gardens could not be accomplished without the wonderful, dedicated volunteers in our docent programs. Thousand of adults and students from across the nation benefit from the interactions our docent have with them in the Estuarium.

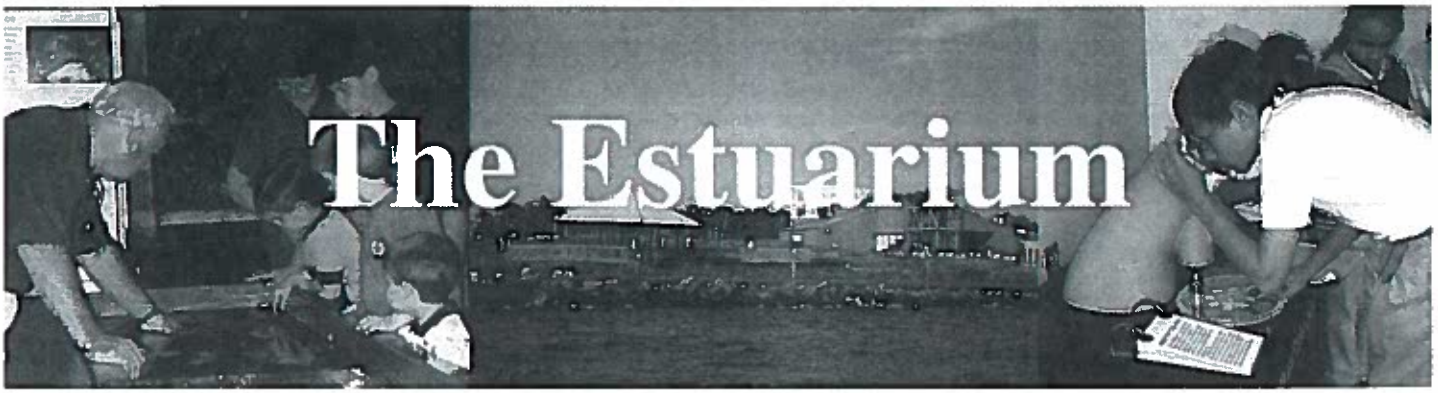
Community events like Kids Day in the Park, Dauphin Island Arts Festival, BayFest and many other local events are staffed by these volunteers. Guests marvel at the gardens surrounding the Cafeteria, the Director's Office and Administration Building – the gracious beauty of these landscapes are due to countless hours our volunteers put into to making our facility stand out.

Volunteer opportunities are open to anyone and cover all areas - from assisting in a lab, to helping identify organism in the Estuarium, to beautifying our gardens. If you have the time and are interested please contact Ms Denise Keaton at 861-7515.

Docent Hours:
1999 - 3,022
2000 - 3,700
2001 - 3,380

Graduate Student Organization

Approximately 40 M.S. and Ph.D. students are working towards their degrees at the Sea Lab. While here, they give generously of their time and effort toward community service projects. In 2001, these included helping out at the Alabama Coastal Clean-up; volunteering at the Dauphin Island Hurricane Run; participating in the Adopt-a-Mile program with their "mile" at Cedar Point Pier; giving towards the Salvation Army's Angel Tree program; and tutoring at Wilmer Hall, a transitional living program for at-risk children. The community is grateful for their enthusiasm and generous spirit.



The Estuarium

The Estuarium, the public aquarium of the Dauphin Island Sea Lab, has continued to grow as a valuable teaching tool for students and the general public. In January 2001 the Estuarium hosted dignitaries from the Southeast region and Washington, DC as the Sea Lab was designated a Coastal Ecosystem Learning Center by Coastal America. Taking its place alongside such aquariums as the New England Aquarium, Monterey Bay Aquarium and the National Aquarium in Baltimore, the Sea Lab and Estuarium is proud to be considered of rank with these much larger prestigious facilities.

The Estuarium was also the site of Nickelodeon's Big Help Day in July, hosting over 900 visitors who learned about the importance of keeping our environment healthy. The activities aboard the Big Help Bus were accompanied by Kids Activities hosted by the Sea Lab, Mobile Bay National Estuary Program, Auburn University Marine Education and Research Center, Baldwin County Extension's Master Environmental Educators, and the Mississippi-Alabama Sea Grant Consortium.

Another educational opportunity in which the Estuarium participated was the Mobile Area Education Foundation's Vital Link program. Six seventh-graders from Alba Middle School shadowed aquarists Brian Jones, Sharyl Crossley and Kyle Weis, and learned just what it takes to become a professional aquarist. Joseph Carter, Kee Orea Cobb, Jonathan Marion, Aladrian Payne, Stephany Stewart, Roumorng Suon were accompanied by their chaperone/teacher Martin Welch; lessons included collecting specimens, cleaning aquariums, feeding the animals, determining water chemistry and much more.

Docents continue to be the backbone of the Estuarium's public outreach efforts, logging in over 3,300 hours, greeting our visitors and acting as ambassadors of environmental learning.

General maintenance of the existing exhibits continued, along with designs for new exhibits. The ViewScope, a high powered microscope, was mounted in the Barrier Islands gallery, allowing visitors a close-up view of zooplankton and phytoplankton, the base of the ocean's food web.

The Estuarium also became a premier venue to hold special events. The 2001 holiday season was a busy time for special events coordinator Georgia Mallon, with numerous parties occuring inside the facility. For more information on how to make your function an evening to remember, please call 251/861-7512.

An interruption in service from the Mobile Bay Ferry at the end of 2001 affected visitor traffic to the facility; still, over 72,000 guests came to marvel at the wonders of our natural world.

Estuarium Personnel
Robert Dixon
Estuarium Manager

Brian Jones
Senior Aquarist

Sharyl Crossley
Kyle Weis
Aquarists

The Estuarium at the Dauphin Island Sea Lab Visitor Totals

Year	Students	Adults	Seniors	Members Passes	Total
				Employees, Comps	
1998	26,661	16,468	7,774	2,343	**53,246**
1999	34,557	18,842	10,427	2,455	**66,281**
2000	38,223	20,283	11,887	2,662	**73,055**
2001	36,213	21,305	12,112	2,718	**72,348**
Total	**135,654**	**76,898**	**42,200**	**10,178**	**192,582**

Resident Research Faculty

Richard B. Aronson
Ph.D. 1985. (Harvard University). Senior Marine Scientist. Ecology and paleoecology of disease outbreaks on coral reefs. Climate change and community paleoecology in Antarctica.

Just Cebrian
Ph.D. 1996 (Polytechnic University of Catalonia, Spain). Senior Marine Scientist. Trophic interactions and carbon budgets in marine ecosystems. Nature and controls of trophic routes of primary production in marine and terrestrial ecosystems.

James H. Cowan, Jr.
Ph.D. 1985. (Louisiana State University). Senior Marine Scientist. Recruitment dynamics of marine and estuarine fishes with emphasis on early life stages, their transport in shelf waters, associations with river plume fronts and other linear oceanographic features, and predator-prey interactions as applied to the "single process."

George F. Crozier
Ph.D. 1966. (Scripps Institution of Oceanography, UCSD). Senior Marine Scientist and Executive Director, DISL. Active on most of the state and regional technical planning groups and involved in translating basic research into the real world of coastal resource management.

Michael R. Dardeau
M.S. 1982. (University of South Alabama). Marine Scientist. Taxonomy, community structure and ecological relationships of marine invertebrates. Issues of secondary productivity and food web interactions in both soft and hardbottom communities.

John J. Dindo
Ph.D. 1991 (University of Alabama at Birmingham). Senior Marine Scientist and Chair, Discovery Hall Programs. Marine vertebrate ecology; avian breeding biology; predator-prey relationships in avian and herpetological fauna, habitat assessments; and age, size class and recruitment rates of fish on hardbottoms.

William 'Monty' Graham
Ph.D. 1994. (University of California, Santa Cruz). Senior Marine Scientist. Physical and behavioral mechanisms that cause plankton to be distributed in patches. Also interested in processes that influence the formation and fate of detrital particles known as "marine snow."

Kenneth L. Heck
Ph.D. 1976. (Florida State University). Senior Marine Scientist. Ecological studies of interactions between seagrasses and associated macrofauna, especially shrimps, crabs and fishes. Current research includes a global assessment of seagrass nursery value, and experimental investigations of herbivory, nutrient enrichment and overfising as they impact seagrass ecosystems.

Ronald P. Kiene
Ph.D. 1986. (SUNY Stony Brook). Senior Marine Scientist. Biogeochemical cycling of organic matter in coastal and ocean systems with emphasis on compounds containing sulfur and nitrogen. Cycling of climatically important trace gases in relation to phytoplankon and food web dynamics. Microbial ecology and biogeochemistry in sediments.

Jonathan R. Pennock
Ph.D. 1983. (University of Delaware). Senior Marine Scientist and Chair, University Programs. Interactions of estuarine and near-coastal plankton and their physical and chemical environments; estuarine nutrient biogeochemistry; remote sensing of coastal processes and harmful algal blooms.

William W. Schroeder
Ph.D. 1971. (Texas AM University). Senior Marine Scientist. Interdisciplinary oceanography focusing on the characterization of continental margin environments/habitats; estuarine and shelf hydrography and circulation; the occurrence of hypoxia-anoxia; and the utilization of remote sensing techniques.

LaDon D. Swann
Ph.D. 1999 (Purdue University). Associate Director, MS-AL Sea Grant Consortium. Biological research focuses on marine aquaculture with an emphasis on oyster reproduction. Educational research interest focuses on distance education for adult learners.

John F. Valentine
Ph.D. 1989. (University of Alabama). Senior Marine Scientist. The role of biotic processes in controlling the flow of energy among trophic levels in marine habitats, particularly herbivory on seagrasses. The application of conservation techniques for the protection of nearshore marine ecosystems. The use of marine protected areas to test the impacts of higher order consumers on the strength of trophic linkages between seagrass and coral reef habitats.

Faculty Activity 2000-2001

Awards

Aronson, R. B. 2000. Technical Paper Award from PBS&J, Inc. for Presentation at 2000 Benthic Meetings.

Aronson, R. B. 2001. Albert F. Blakeslee Annual Lecture, Smith College, Presenter in Annual Distinguished Lecturer Series.

Graham, W. M. 2001. Nominated to National Invasive Species Advisory Committee.

Kiene, R. P. 2000. University of South Alabama Alumni Outstanding Scholar Award.

Pennock, J. R. 2000. Best Paper of Ocean Color Plenary Session for *"SeaWiFS Ocean Color Data For US Coastal Waters"* - 6th International Conference, Remote Sensing For Marine and Coastal Environments.

Books

Purcell, J. E., **W. M. Graham** and J. J. Dumont. (Eds.). 2001. Jellyfish Blooms: Ecological and Societal Importance. Development in Hydrobiology 155. Kluwer Academic Publishers, Reprinted from Hydrobiologia. Dordrecht: xviii + 334 pp.

Book Reviews

Aronson, R. B. 2001. *Dynamics of Coral Communities* by R. H. Karlson. Carbonates and Evaporites 16:104-105.

Aronson, R. B. 2001. *Corals of the World* by J. E. N. Veron and *Staghorn Corals of the World* by C. C. Wallace. Gulf of Mexico Science XIX(1):74-75.

Refereed Articles

Aronson, R. B. 2001. Durophagous predation in marine organisms. Pp. 393-397 *In:* D. E. G. Briggs and P. R. Crowther (Eds.), Palaeobiology II. Blackwell, Oxford.

Aronson, R. B. and D. B. Blake. 2001. Global climate change and the origin of modern benthic communities in Antarctica. American Zoologist 41:27-39.

Aronson, R. B. and W. F. Precht. 2001. Applied paleoecology and the crisis on Caribbean coral reefs. Palaios 16:195-196.

Aronson, R. B. and W. F. Precht. 2001. Evolutionary paleoecology of Caribbean coral reefs. Pp. 171-233 *In:* W. D. Allmon and D. J. Bottjer (Eds.), Evolutionary Paleoecology: The Ecological Context of Macroevolutionary Change. Columbia University Press, New York.

Aronson, R. B., K. L. Heck, Jr. and **J. F. Valentine.** 2001. The value of tethering experiments. Marine Ecology Progress Series 214:311-312.

Beck, M. W., **K. L. Heck, Jr.**, K. W. Able, D. L. Childers, D. B. Eggleston, B. M. Gillanders, B. Halpern, C. G. Hays, K. Hoshino, T. J. Minello, R. J. Orth, P. F. Sheridan and M. P. Weinstein. 2001. The identification, conservation and management of estuarine and marine nurseries for fish and invertebrates. Bioscience 51:633-641.

Graham, W. M. 2001. Numerical increases and distributional shifts of *Chrysaora quinquecirrha* (Desor) and *Aurelia aurita* (Linne) (Cnidaria: Scyphozoa) in the northern Gulf of Mexico. Hydrobiologia 451:97-111.

Graham, W. M. and R. Kroutil. 2001. Size-based prey selectivity and dietary shifts in the jellyfish, *Aurelia aurita*. Journal of Plankton Research 23:67-74.

Graham, W. M. and J. E. Purcell. 2001. Introduction: Social, economic and ecological issues involving jellyfish blooms. *In:* J. E. Purcell, W. M. Graham and H. J. Dumont (Eds.), Jellyfish Blooms: Ecological and Societal Importance. Kluwer Academic. 334 p.

Graham, W. M., F. Pages and W. M. Hamner. 2001. A physical context for gelatinous zooplankton aggregations: a review. Hydrobiologia 451:199-212.

Hauxwell J., **J. Cebrian, J.** A. Herrera-Silveira, J. Ramirez, A. Zaldivar, N. Gomez and N. Aranda-Cirerol. 2001. Measuring production of Halodule wrightii Ascherson: additional evidence suggests clipping underestimates growth rate. Aquatic Botany 69:41-54.

Heck, K. L., Jr., L. D. Coen and S. G. Morgan. 2001. Pre- and post-settlement factors as determinants of juvenile blue crab *Callinectes sapidus* abundance: results from the north-central Gulf of Mexico. Marine Ecology Progress Series 222:163-176.

Heck, K. L., Jr., J. R. Pennock, J. F. Valentine, L. D. Coen and S. A. Sklenar. 2000. Effects of nutrient enrichment and large predator removal on seagrass nursery habitats: an experimental assessment. Limnology and Oceanography 45:1041-1057.

Heck, K. L., Jr., J. R. Pennock, J. F. Valentine, L. D. Coen and S. A. Sklenar. 2001. Effects of nutrient enrichment and large predator removal on seagrass ecosystems: an experimental assessment. Biol. Mar. Medit. 7(2):220-222.

Hines, M. E., K. N. Duddleston and **R. P. Kiene.** 2001. Carbon flow to acetate and C compounds in high latitude wetlands. Geophysical Res. Lett. 28:4251-4254.

Kimmerer, W. J., **J. H. Cowan, Jr.**, L. W. Miller and K. A. Rose. 2000. Analysis of the striped bass population in the San Francisco Estuary: effects of freshwater flow mitigated by density-dependent mortality. Can. J. Fish. Aquat. Sci. 57:478-486.

Patterson, W. F., III, **J. H. Cowan, Jr.**, C. A. Wilson and R. L. Shipp. 2001. Age and growth of red snapper from an artificial reef area in the northern Gulf of Mexico. U. S. Fishery Bulletin 99:617-627.

Patterson, W. F., III, J. C. Watterson, R. L. Shipp and **J. H. Cowan, Jr.** 2001. Movement of tagged red snapper in the northern Gulf of Mexico. Transactions of the American Fisheries Society 130:533-545.

Peterson, B. J. and **K. L. Heck, Jr.** 2001. Interactions between suspension feeding bivalves and seagrass assemblages - a facultative mutualism. Marine Ecology Progress Series 213: 143-155.

Purcell, J. E., D. L. Breitburg, M. B. Decker, **W. M. Graham**, M. J. Youngbluth and K. Rastoff. 2001. Pelagic Cnidarians and Ctenophores in Low Dissolved Oxygen Environments. Pp. 77-100 *In:*: N. N. Rabalais and R. E. Turner (Eds.), Effects of hypoxia on living resources, with emphasis on the northern Gulf of Mexico. American Geophysical Union.

Turner, R. E., D. Stanley, D. Brock, **J. R. Pennock** and N. N. Rabalais. 2000. A comparison of independent N-loading estimates for U.S. estuaries. Pp. 107-118, *In:*: R. W. Valigura, R. B. Alexander, M. S. Castro, T. P. Meyers, H. W. Paerl, P. E. Stacey, R. E. Turner (Eds.), Nitrogen Loading in Coastal Water Bodies: An Atmospheric Perspective. Coastal and Estuarine Studies Volume No. 57. American Geophysical Union, Washington, D.C.

Valentine, J. F. and **K. L. Heck, Jr.** 2001. The role of leaf nitrogen content in determining turtlegrass (*Thalassia testudinum*) grazing: field and laboratory tests with a generalized herbivore. J. Exp. Mar. Biol. Ecol. 258:65-86.

Valentine J. F., K. L. Heck, Jr. and K. D. Kirsch. 2000. The importance of the grazing pathway in seagrass food webs: a changing paradigm. Biologia Marina Mediterranea. 7:290-293

Valentine, J. F., K. L. Heck, Jr., K. D. Kirsch and D. Webb. 2000. Seagrass herbivory in the turtlegrass habitats of the Florida Keys. Marine Ecology Progress Series 200:213-228.

Valentine, J. F., K. L. Heck, Jr., K. D. Kirsch and D. Webb. 2001. The role of leaf nitrogen content in determining turtlegrass (*Thalassia testudinum*) grazing by a generalist herbivore in the northeastern Gulf of Mexico. J. Exp. Mar. Biol. Ecol. 258:65-86.

Williams, S. W. and **K. L. Heck, Jr.** 2001. Seagrass Communities, Pp. 317-337 *In:* M. Bertness, S. Gaines and M. Hay (Eds.), Marine Community Ecology. Sinauer Press, Sunderland, MA.

Zubkov, M, B. M. Fuchs, S.D. Archer, **R. P. Kiene**, R. Amann and P. Burkhill. 2000. Linking the composition of bacterioplankton to rapid turnover of dissolved dimethylsulphoniopropionate in an algal bloom in the North Sea. Environ. Microbiol. 3:304-311.

Non-Refereed Publications

Dardeau, M. R., R. B. Aronson, W. F. Precht and I. G. Macintyre. 2000. Use of a hand-operated, open-barrel corer to sample uncemented Holocene coral reefs. Pp. 6-9 *In:* P. Hallock and L. French (Eds.), Diving for Science in the 21st Century: Proceedings of the American Academy of Underwater Sciences, 20th Annual Scientific Diving Symposium.

Graham, W. M. 2000. The Gulf Coast Jellyfish Problem: Economic and Ecological Challenges for the Future. A 'White Paper' prepared for long-term ecological change program development.

Mullins, M., H. Burch, **M. Dardeau.** (Eds.). 2001. Comprehensive Conservation and Management Plan of the Mobile Bay National Estuary Program. Volume 1. A Call to Action. 39 pp.

Mullins, M., H. Burch, **M. Dardeau.** (Eds.). 2001. Comprehensive Conservation and Management Plan of the Mobile Bay National Estuary Program. Volume 2. The Path to Success. 86 pp.

Mullins, M., H. Burch, **M. Dardeau.** (Eds.) 2001. Comprehensive Conservation and Management Plan of the Mobile Bay National Estuary Program. Volume 3. Working Together. 492 pp.

Pennock, J. R., J. H. Cowan, Jr., K. B. Shotts, J. L. W. Cowan and L. Gallagher. 2001. Weeks Bay Data Report: WBAY-2 to WBAY-56 Cruises (May 1996 – May 2000). DISL Technical Report No. 2001-01. 120p.

Schroeder, W. W. Shelf Hard bottom habitats. Pp. 67-71 *In:* **W. W. Schroeder** and C. F. Wood (Eds.), Physical/Biological Oceanographic Integration Workshop for DeSoto Canyon and Adjacent Shelf: October 19-21, 1999. OCS Study MMS 2000-074. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA.

Schroeder, W. W. and C. F. Wood. (Eds.) Physical/ Biological Oceanographic Integration Workshop for DeSoto Canyon and Adjacent Shelf: October 19-21, 1999. OCS Study MMS 2000-074. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. 168 pp.

Published Abstracts and Research Presentations

Adamack, A. T., K. A. Rose, D. L. Breitburg, S. E. Kolesar, M. D. Decker, J. E. Purcell and **J. H. Cowan, Jr.** 2000. Modeling the response of larval fish survival to mixing events. Proc. 24th Annual Meeting of the Early Life History Section of the American Fisheries Society, Gulf Shores, AL, November.

Albright, H. L. and **W. M. Graham.** 2000. Secondary productivity and trophic transfer along productivity gradients. ASLO Aquatic Sciences Meeting, Albuquerque, NM.

Althauser, L. L., **J. H. Cowan, Jr.** and K. A. Rose. 2000. Modeling trophic structure in Weeks Bay National Estuarine Research Reserve, Alabama, USA using Ecopath. Proc. 24th Annual Meeting of the Early Life History Section of the American Fisheries Society, Gulf Shores, AL, November.

Brackin, M. T., **J. R. Pennock** and **J. H. Cowan, Jr.** 2001. Density, growth and biomass production of Atlantic croaker and spot in the Weeks Bay National Estuarine Research Reserve, Alabama. 9th Mid-Year Meeting of the American Fisheries Society - Southern Division, Jacksonville, FL.

Burns, C. L. and **J. R. Pennock.** 2000. The effect of nitrogen source on the growth and toxicity of species of the genus *Prorocentrum*. Symposium on Harmful Marine Algae in the U.S., Woods Hole, MA.

Glass, A., D. B. Blake and **R. B. Aronson.** 2001. A peculiar early Eocene, nearshore, shallow-water suspension-feeding community from Seymour Island, Antarctica. Geological Society of America Abstracts with Programs 33(4):A23.

Glass, A., D. B. Blake and **R. B. Aronson.** 2001. Geological Society of America North-Central Section Meeting, Bloomington-Normal, IL; A peculiar early Eocene, nearshore, shallow-water suspension-feeding community from Seymour Island, Antarctica.

Graham, W. M. 2001. Ecological and economical implications of the tropical jellyfish, *Phyllorhiza punctata*, in the northern Gulf of Mexico during the summer of 2000. Tulane University Colloquium on Invasive Species.

Graham, W. M. 2001. Evidence for ecological change in the northern Gulf of Mexico: a summary of invasive and non-invasive jellyfish populations. 11th Southern States Annual Environmental Conference, Biloxi MS.

Graham, W. M., D. L. Martin, H. M. Perry and D. L. Felder. 2000. Ecological and economic implications of a new tropical jellyfish in the northern Gulf of Mexico. American Society for Limnology and Oceanography, Aquatic Sciences Meeting, Albuquerque NM.

Heck, K.L., Jr. and **J. F. Valentine.** 2000. Plant-animal interactions in a seagrass-dominated ecosystems. New Approaches to Studies of Marine Plant-Animal Interactions. Society Integrative and Comparative Biology, Atlanta GA.

Heck, K.L., Jr., J. F. Valentine and **J. R. Pennock.** 2001. When nutrient enrichment does not lead to seagrass overgrowth by algae: results from three field experiments. Estuarine Research Conference, St. Petersburg, Florida.

Heck, K. L., Jr., J. R. Pennock, J. F. Valentine, L. D. Coen and S. A. Sklenar. 2000. Effects of nutrient enrichment and large predator removal on seagrass ecosystems: an experimental assessment. 4th Intl. Seagrass Biology Workshop, Corsica, France.

Hunter, A. E. and **W. W. Schroeder.** 2000. Stratification and oxygen depletion: Temporal and spatial variability in a broad, shallow, river dominated estuary. 10th International Biennial Conference on Physics of Estuaries and Coastal Seas. Norfolk, Virginia, October.

Hunter, A. E. and **W. W. Schroeder.** 2000. Stratification and oxygen depletion: Temporal and spatial variability in a broad, shallow river dominated estuary. In: 10th International Biennial Conference on Physics of Estuaries and Coastal Seas (Abstracts). Friedrichs, C. T. & Valle-Levinson, A. (Eds.), SRAMSOE Report No. 366, Virginia Institute of Marine Science, Gloucester Point, VA, USA.

Johnson, D. R., H. Perry and **W. M. Graham.** 2001. Invasion of non-endemic species by natural means. The Joint Assembly of the International Associate for the Physical Sciences of the Oceans (IAPSO) and the International Association for Biological Oceanography (IABO), Buenos Aires, Argentina.

Kiene, R. P. 2001. Dynamics of short-lived climate-relevant compounds in the surface ocean - recent advances and future directions under SOLAS. Invited Plenary talk. US SOLAS workshop. Potomac, MD, May.

Kiene, R. P., D. J. Kieber and L. J. Linn. 2000. Complex effects of photochemistry on the biogeochemical cycles of dimethylsulfide and dimethylsulfoniopropionate in surface seawater. PacificChem 2000 - American Chemical Society, December, Honolulu Hawaii.

Kiene, R. P., D. J. Kieber and L. J. Linn. 2001. Photochemical and photobiological effects on the seawater DMS cycle. American Society of Limnology and Oceanography (ASLO) Meeting, Albuquerque, NM, February.

Kiene, R. P, **J. R. Pennock** and J. L. Cowan. 2001. Effects of variation in river discharge and wind-driven resuspension on lower trophic levels in the Mobile Bay ecosystem. ACES- Scientific Advisory Committee Annual Meeting - Dauphin Island, AL, March.

Kolesar, S. E., D. L. Breitburg, K. A. Rose, A. T. Adamack and **J. H. Cowan, Jr.** 2000. Linking water-quality to trophic interactions: Applying experiments, field sampling, and individual-based modeling to a study of fish populations in degraded coastal ecosystems. Proc. 24th Annual Meeting of the Early Life History Section of the American Fisheries Society, Gulf Shores, AL, November.

Lehrter, J. C. and **J. R. Pennock**. 2001. The magnitude of nitrogen cycling processes in three coastal plain estuaries. ERF Biennial Meeting, St. Petersburg, FL.

Lopez, C. L. and **J. R. Pennock**. 2001. The effect of nitrogen source on the growth of four species of *Prorocentrum* (Dinophyceae). ERF Biennial Meeting, St. Petersburg, FL.

Martin, J. C. and **W. M. Graham**. 2000. Spatial variability of *Phyllorhiza punctata* (Cnidaria:Rhizostomeae) within large aggregations in Lake Borgne, Louisiana. ASLO Aquatic Sciences Meeting, Albuquerque, NM.

McCloskey, B. J. and **J. F. Valentine**. 2000. The positive influences of burrowing brittlestars (Echinodermata: Ophiuroidea) on benthic community structure and dynamics. Abstract OS12F-10 - EOS, Transactions, American Geophysical Union 80:OS49.

Moran, M. A., J. M.González, **R. P. Kiene**, R. Simó and C. Pedrós-Alió. 2001. Organic sulfur cycling by the marine Roseobacter lineage. American Society of Limnology and Oceanography (ASLO) Meeting, Albuquerque, NM, February.

Noel, J. E., **J. H. Cowan, Jr., J. R. Pennock** and D. DeVries. 2000. Bay anchovy (*Anchoa mitchilli*) growth and biomass production in Weeks Bay, AL, and its potential for nutrient translocation. Proc. 24th Annual Meeting of the Early Life History Section of the American Fisheries Society, Gulf Shores, AL, November.

O'Neal, J. P., **J. H. Cowan, Jr.** and L. A. Fuiman. 2000. Using mesocosm enclosures and individual-based models as tools for studying the relationship between growth rate and predation mortality in larval fishes. Proc. 24th Annual Meeting of the Early Life History Section of the American Fisheries Society, Gulf Shores, AL, November.

Patterson, W. F., **J. H. Cowan, Jr.** and C. A. Wilson. 2000. Otolith microchemical tags of juvenile red snapper in the northern Gulf of Mexico. Proc. 24th Annual Meeting of the Early Life History Section of the American Fisheries Society, Gulf Shores, AL, November.

Pennock, J. R. and C. L. Burns. 2000. HAB distributions in Alabama coastal waters: 1998-1999. Symposium on Harmful Marine Algae in the U.S., Woods Hole, MA.

Pennock, J. R. and J. C. Lehrter. 2000. The effect of land-use on nutrient loading, nutrient speciation and ecosystem response to nutrient enrichment in two warm-temperate estuaries: Mobile Bay and Weeks Bay, Alabama. National Academy of Sciences Symposium on Nutrient Over-Enrichment of Coastal Waters, Washington, DC.

Perry, H. and **W. M. Graham**. 2001. Gulf Restoration Network. Jellyfish Blooms and Fisheries Sustainability. New Orleans LA.

Russell, C. and **J. R. Pennock**. 2001. The effect of sediment resuspension on nutrient and phytoplankton dynamics in shallow estuaries: A mesocosm experiment. ERF Biennial Meeting, St. Petersburg, FL.

Stets, E.G., **R. P. Kiene** and M. Levasseur. 2001. Biological consumption of dimethylsulfide (DMS) in the North Atlantic Ocean. American Society of Limnology and Oceanography (ASLO) Meeting, Albuquerque, NM, February.

Sunda, W., D. J. Kieber, **R. P. Kiene** and S. Huntsman. 2001. DMSP dynamics in marine algae in relation to iron, photosynthesis, and oxidative stress. American Society of Limnology and Oceanography (ASLO) Meeting in Albuquerque, NM, February.

Valentine, J. F., K. L. Heck, Jr. and K. Kirsch. 2000. The importance of the grazing pathway in seagrass food webs: a changing paradigm. 4th Intl. Seagrass Biology Workshop, Corsica, France.

Invited Presentations

Aronson, R. B. 2000. Seminar. Palmer Station, Antarctica, December.

Aronson, R. B. 2001. NCEAS (National Center for Ecological Analysis and Synthesis), University of California, Santa Barbara; Working Group on Diseases in the Ocean.

Aronson, R. B. and W. F. Precht. 2000. Ninth International Coral Reef Symposium, Bali, Indonesia; Minisymposium on Coral Diseases. Presentation: Ecological and paleoecological perspectives on diseases of benthic reef organisms.

Aronson, R. B. and W. F. Precht. 2000. Ninth International Coral Reef Symposium, Bali, Indonesia ; Minisymposium on Coral Bleaching; Presentation: A millennial-scale perspective on the 1998 mass bleaching in Belize.

Cebrian, J. 2000. Composition, palatability and trophic fate of plant communities. University System of Maryland, Horn Point Laboratory, December.

Graham, W. M. 2001. Invasive species. Hüso Biological Station, Finland.

Graham, W. M. 2001. Ecological and economical implications of the tropical jellyfish, *Phyllorhiza punctata*, in the northern Gulf of Mexico during the summer of 2000. Marine Bioinvasions, New Orleans, LA.

Graham, W. M. 2001. Evidence for ecological change in the northern Gulf of Mexico: a summary of invasive and non-invasive jellyfish populations. Second Symposium on Marine Conservation Biology, Marine Conservation Biology Institute, San Francisco CA.

Kiene, R. P. 2000. Invited speaker. Second International Symposium on Biological and Environmental Chemistry of DMS(P) and Related Compounds, Groningen, The Netherlands.

Kiene, R. P. 2001. Florida State University, December.

Kiene, R. P. 2001. Dynamics of short-lived climate-relevant compounds in the surface ocean - recent advances and future directions under SOLAS. Plenary talk. US SOLAS workshop. Potomac Maryland, May.

Murdoch, T. J. T. and **R. B. Aronson.** 2000. A functional-group approach to the diversity of corals on multiple scales. Ninth International Coral Reef Symposium, Bali, Indonesia; Minisymposium on Large-Scale Ecology.

Pennock, J. R. 2000. Eutrophication of Gulf of Mexico Estuaries. Invited Lecture, 10th Southern States Annual Environmental Conference and Exhibition, Biloxi, MS.

Precht, W. F., **R. B. Aronson** and I. G. Macintyre. 2000. Deciphering change in Holocene reef communities. Ninth International Coral Reef Symposium, Bali, Indonesia; Minisymposium on Palaeoecology

Precht, W. F., L. S. Kaufman and **R. B. Aronson**. 2000. Shifts in microhabitat utilization by the threespot damselfish *Stegastes planifrons*: implications for algal dynamics on Caribbean coral reefs. Ninth International Coral Reef Symposium, Bali, Indonesia; Minisymposium on Coral-Algal Interactions.

Schroeder, W. W. 2001. Source of suspended sediments in microtidal estuarine and coastal waters: Northeastern Gulf of Mexico. Centre for Water Research, The University of Western Australia Environmental Dynamics Seminar, February.

Valentine, J. F. and **K. L. Heck, Jr.** 2001. Human-induced changes in habitat linkages: experimental assessment using the marine reserves in the Florida Keys National Marine Sanctuary. Estuarine Research Conference, St. Petersburg, Florida.

Valentine, J. F. 2001. Seagrass herbivory: A changing paradigm. University of North Carolina At Wilmington.

Valentine, J. F. 2001. Seagrass herbivory: A changing paradigm. Hüso Biological Station, Finland.

Meetings Chaired/Convened

Cowan, J. H., Jr. Convenor, 26th Annual Larval Fish Conference (Early Life History Section of the American Fisheries Society), November, 2000.

Sessions Chaired/Organized

Aronson, R. B. and L. L. Richardson. Ninth International Coral Reef Symposium, Bali, Indonesia (2000); Minisymposium, Coral Diseases.

Grants and Contracts Active During 2000-2001

Aronson, R. B. Degradation of Caribbean coral reefs in space and time. National Geographic Society (2001-2003); $25,000.

Aronson, R. B. Effects of Hurricane Keith on Lagoonal Reefs in Belize. National Geographic Society (2000-2001); $4,200.

Aronson, R. B. Global Climate Change and the Evolutionary Ecology of Antarctic Mollusks in the Late Eocene. National Science Foundation Antarctic Geology and Geophysics Program (2000-2003); $87,000.

Aronson, R. B. The No-Take Zones of the Florida Keys National Marine Sanctuary: an interdisciplinary, comparative study of the dynamics of coral reef benthic communities. NOAA Florida Keys National Marine Sanctuary (1997-present); $24,726.

Aronson, R. B. Disturbance and the Reorganization of Caribbean Reef Communities: Unique Event or Repeated Pattern? National Science Foundation Geology and Paleontology Program (1999-2002); $235,000.

Aronson, R. B. Budget Supplement for the above grant. National Science Foundation (2001-2002), $15,000.

Aronson, R. B., G. F. Crozier and F. I. M. Thomas. FSML: Renovation of Dauphin Island Sea Lab's Wet Lab Facility. FSML: Renovation of Dauphin Island Sea Lab's Wet Lab Facility. National Science Foundation (1998-2001); $150,000.

Boettcher, A. A., T. D. Sherman, C. D. Amsler, J. B. McClintock and **J. F. Valentine**. Role of Invasive Species in Shaping Plant-Animal Interactions in the Mobile Bay Delta. Alabama Center for Estuarine Studies/USEPA (2000-2001); $34,113.

Cebrian, J. Identification and Assessment of Anthropogenic Eutrophication in Shallow Estuaries. CICEET (1999-2000); Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA.

Cebrian, J. and **J. R. Pennock**. Effects of anthropogenic eutrophication on the magnitude and trophic fate of microphytobenthic production in estuaries. Alabama Center for Estuarine Studies/USEPA. (2000-2001); $26,840.

Cebrian, J. and I. Valiela. Identification and Assessment of Anthropogenic Eutrophication in Shallow Estuaries. CICEET- (Cooperative Institute for Coastal and Estuarine Environmental Technology). (1998-2001); $368,171.

Cebrian, J. Herrera, F. Comin and C. Madden. Estado trofico del ecosistema costero marino del Norte de Yucatan. ONACYT- (Consejo Nacional de Ciencia y Tecnologia, Mexico). (2000-2002); $100,300

Cowan, J. H., Jr. Growth and reproductive biology of red snapper *Lutjanus campechanus* east and west of the Mississippi River Delta. Environmental Defense Fund Minigrant Program. (2001-2002); $8,440.

Cowan, J. H., Jr. and L. Fuiman. Larval Fish Fitness and Vulnerability to Predators. NSF. (1995-2001); $525,675.

Cowan, J. H., Jr. and J. McCawley. A bioenergetics model for red snapper (*Lutjanus campechanus*). Mississippi-Alabama Sea Grant Consortium (M.S. Fellowship). (1999-2000); $5,000.

Cowan, J. H., Jr. and A. Shah. Red snapper demographics on artificial reefs: the effects of nearest-neighbor dynamics. Alabama Center for Estuarine Science/USEPA. (1999-2000); $77,700.

Cowan, J. H., Jr. and R. L. Shipp. Evaluation of Artificial Reef Modules in the north central Gulf of Mexico. Alabama Department of Conservation and Marine Resources, Marine Resources Division. (1997-2001); $337,000.

Cowan, J. H., Jr., W. M. Graham and **J. F. Valentine**. Effects of variation in river discharge and wind-driven resuspension on higher trophic levels in the Mobile Bay ecosystem. Alabama Center for Estuarine Science/US Environmental Protection Agency. (1999-2001); $236,626.

Cowan, J. H., Jr., C. Wilson and J. Gold. Stock structure of red snapper in the northern Gulf of Mexico: Is their management as a unit justified based on spatial and temporal patterns of genetic variation, otolith microchemistry, and growth rates? MARFIN. (1998-2001); $1,200,000.

Cowan, J. H., Jr., F. Juanes, K. Rose, J. Buckel and F. Scharf. Impact of prey abundance and size-structure on growth of spring- and summer-spawned juvenile bluefish in the Hudson River estuary: an individual-based modeling approach. NOAA, NMFS. (1999-2001); $45,000.

Graham, W. M. Cooperative Agreement: Study of oil and gas platforms in the northern Gulf of Mexico as habitat for jellyfish polyps. Minerals Management Service, (2000-2001); ~$117,407.

Graham, W. M. Deriving the origin and nature of the invasive jellyfish, *Phyllorhiza punctata*, through molecular studies of native and non-native populations. National Sea Grant Office. (2001-2002); $152,210. 2001-2002.

Graham, W. M. Developing a model 'Dock-Watch' program to track nuisance and invasive jellyfish blooms. Mississippi-Alabama Sea Grant and Gulf of Mexico Program. (2000-2001); $60,001.

Graham, W. M. Interaction between water-column structure and reproduction in jellyfish populations of Mobile Bay. Alabama Center for Estuarine Studies/USEPA. (1999-2001); $31,260.

Graham, W. M. Interaction between water-column structure and reproduction in jellyfish populations of Mobile Bay: Supplemental funding. Alabama Center for Estuarine Studies/ USEAP. (2000-2001); $13,059.

Graham, W. M. Rapid response funding for ecological studies of the invasive jellyfish *Phyllorhiza punctata*. National Sea Grant College. (2000-2001); $75,922 ($50,000 Sea Grant share).

Graham, W. M. Rapid response sampling to a recent non-indigenous jellyfish bloom. Mississippi-Alabama Sea Grant. (2000-2001); $15,000.

Graham, W. M. Assessing the potential of nuisance jellyfish predation on the eggs and larvae of red drum and red snapper in the northern Gulf of Mexico. (2001-2003); $290,144.

Heck, K. L., Jr. and L. Gallagher. An evaluation of potential artifacts associated with caging studies in seagrass habitats. MASGC – Mississippi Alabama Sea Grant Consortium Student Fellowship (M.S. Fellowship) (2000-2001); $5,000.

Heck, K. L., Jr. and P. Moksnes. Shelter bottlenecks and self-regulation in the blue crab populations: assessing the roles of nursery habitats and juvenile interactions for shelter dependent organisms. Alabama Center for Estuarine Studies/ USEPA (2000-2002); $52,327.

Heck, K. L., Jr. and **J. F. Valentine**. Fragmentation of SAV habitat and its influence on fisheries production. US Environmental Protection Agency – GOMP (2000-2001); $53,000.

Heck, K. L., Jr., J. R. Pennock and **J. F. Valentine**. Effects of nutrient enrichment and food web alteration on nearshore ecosystems. US Environmental Protection Agency (1997-1999); $188,000. Supplement (1999-2000); $32,000.

Heck, K. L., Jr., J. R. Pennock and **J. F. Valentine**. Predicting seagrass survival in nutrient enriched waters: Toward a new view of an existing paradigm. Alabama Center for Estuarine Studies/USEPA. (2001-2002); $105,825.

Heck, K. L., Jr., J. H. Cowan, Jr., J. F. Valentine and D. DeVries. Fisheries-induced changes in the structure and function of shallow water "nursery habitats": an experimental assessment. Alabama Center for Estuarine Studies/ USEPA. (1998-2001); $261,062.

Kiene, R. P. Biogeochemical fate of DMSP in seawater. National Science Foundation - Chemical Oceanography. (1999-2002); $350,108.

Kiene, R. P. Effects of salinity stress on natural and anthropogenically-derived bacteria in estuarine environments. Alabama Center for Estuarine Studies/USEPA. (1999-2001) $54,500.

Kiene, R. P. A genomic approach to sulfur biotransformations in the ocean: the genome sequence of a marine Roseobacter. National Science Foundation – Microbial genetics. Sub-contract from Univ. Georgia, under grant to Mary Ann Moran. (2001-2003); $51,118.

Kiene, R. P. Osmolytes and their role as antioxidants in the salt marsh macrophyte *Spartina alterniflora*. Student Support for Danny

Husband. Alabama Center for Estuarine Studies/USEPA. (2001-2002); $26,264.

Kiene, R. P. Sulfur Cycling in Estuaries: Interaction with Mercury and other Metals. Mississippi-Alabama Sea Grant – Student Award to Mr. Jody Bruton. (2000-2001); $5,000 from Sea Grant + $5000 match from USA.

Kiene, R. P., J. R. Pennock and J. L. W. Cowan. Effects of variation in river discharge and wind-driven resuspension on lower trophic levels in the Mobile Bay ecosystem. Alabama Center for Estuarine Studies/USEPA. (1999-2002); $258,580.

Pennock, J. R. Alabama harmful algal bloom information exchange network. EPA - Gulf of Mexico Program. (2001-2002); $13,500.

Pennock, J. R. Research experiences for undergraduates in coastal and nearshore marine systems of the northeastern Gulf of Mexico. NSF – Research Experiences for Undergraduates. (1999-2001); $106,701.

Pennock, J. R. SML: Field and laboratory instrumentation in support of interdisciplinary marine research at the Dauphin Island Sea Lab, Alabama. NSF - Biological Field Stations and Marine Laboratories. (1999-2000); $103,245.

Pennock, J. R. The linkage between land-use/land-cover, nitrogen flux, and denitrification in estuarine habitats. NOAA-National Estuarine Research Reserve System Fellowship Program (award to J. Lehrter). (2000-2002); $33,000.

Pennock, J. R., J. Carlton, L. Byrd and S. Heath. An integrated HAB Monitoring Program for Alabama Waters. EPA - Gulf of Mexico Program. (2001-2002); $70,200.

Pennock, J. R. and **R. P. Kiene**. The role of land-use/land-cover and river/river-margin denitrification in the regulation of nitrogen delivery to the Mobile Bay ecosystem. Alabama Center for Estuarine Studies/USEPA. (1999-2001); $97,428

Pennock, J. R., Q. Dortch, W. Fisher, R. Greene, C. Moncrieff, J. Simons, K. Steidinger, R. Stumpf and T. Villareal. HABSOS – Integrated case study for the Gulf of Mexico. EPA - Gulf of Mexico Program. (2001-2002) $49,943.

Schroeder, W. W. Distributed Marine-Environment Forecast System (DEMFS). ONR. (2001-2002); $127,421. Subcontract with Mississippi State University (Total award $2,500,000).

Schroeder, W. W. Intergovernmental Personnel Assignment - Naval Oceanographic Office, Stennis Space Center, MS. U.S. Department of the Navy. (2001-2002); $32,071.

Schroeder, W. W. MESC Graduate Studies Fellowship Fund. Exxon-Mobil Foundation, Irving, Texas. (1984-2001); $90,000 ($5,000 in 2001).

Schroeder, W. W. MESC Graduate Studies Fellowship Fund. Shell Companies Foundation, Houston, Texas. (1983-2001); $77,500 ($2,500 in 2001).

Schroeder, W. W. Modeling Coupled Katabatic/Ice/Ocean Processes Related to the Energy and Carbon Budget in the High Latitude Southern Ocean. NASA-GODDARD. (1999-2001); $25,949. Subcontract with University of Alabama at Huntsville (Total award $417,524).

Schroeder, W. W. Processes Responsible for Hypoxia in the Gulf of Mexico: A Re-evaluation with New Data and Perspective. Texas Sea Grant College Program. (2001-2003); $83,206; Schroeder proving $12,084 in matching funds.

Valentine, J. F. Effects of fragmentation on the structure and function of submerged aquatic vegetation (SAV) habitats in the northern Gulf of Mexico. US Environmental Protection Agency. (2001); $61,235.

Valentine, J. F. and A. Cinkovich. The influence of shallow water hydrodynamics on the importance of seagrass detritus in estuarine food webs. Alabama Center for Estuarine Studies/USEPA. (2001-2002); $19,425.

Valentine, J. F. and **K. L. Heck, Jr.** Trophic cascades and spatial subsidies in a coral reef ecosystem: a field test using no take areas in the Florida Keys National Marine Sanctuary. National Oceanic and Atmospheric Administration-National Undersea Research Program. (1999-2001); $64,600.

Valentine, J. F., M. Beck and **K. L. Heck, Jr.** Human-induced changes in the cross-habitat flow of energy in a subtropical marine ecosystem: experimental assessments using newly created marine reserves in the Florida Keys. Andrew Mellon Foundation Ecosystem Research Program. (2001-2003); $180,000.

Valentine, J. F., T. Sherman and **J. H. Cowan, Jr.** Food web interactions, spatial subsidies and the flow of energy between the Mobile Bay Delta and offshore waters: A SGER proposal to the Alabama Center for Estuarine Studies. Alabama Center for Estuarine Studies/USEPA. (2000-2001); $22,348.

Other

Aronson, R. B. Mentor to high school students, Croton-on-Hudson H.S., New York for coral reef honors project: Daniel Milich (2000-2001).

Aronson, R. B. "Penguin Pals"; project to provide remote instruction from Antarctica to elementary school students at the Fairhope K-1 Center and the Dauphin Island School via the Internet (1997-2001).

Cebrian, J. Presentation for Kindergarten students: "Underwater Cities" at the Pelican's Nest Science Lab, Fairhope, AL, 2000.

Graham, W. M. Presentation for Kindergarten students: "Jellyfish" at the Pelican's Next Science Lab, Fairhope, AL, 2001.

Graham, W. M. Teaching Training Program Lecture: "Marine Bioinvasions" at the Discovery Hall Program, DISL.

Graham, W. M. Science Education At Sea (SEAS); NSF sponsored science education project in conjunction with NSF CAREER award (1998-2002) bringing high school students and teachers to sea on 1-2 wk cruises: 2000 - Mr. Grant Craig, DISL, Discovery Hall Program; Ms. Virginia O'Donnell (Student), Loyola Academy, Chicago, IL and 2001 - Ms. Jill Hanson, Sweet Water High School, AL; Ms. Julianne McDonald (Student), Birmingham, AL.

Graham, W. M. Public Outreach Brochure: 'The Spotted Jellyfish', sponsored by National Sea Grant College (written with H. Perry).

Extramural Activity 2000-2001

CONTRACT AGENCY	P.I.(S)	TITLE	BEGIN DATE	END DATE	AMOUNT FUNDED	INCOME FY 2000/2001
EPA	KLH JRP JFV	Effects Of Nutrient Enrichment And Large Predator Removal On Seagrass Nursery Habitats: An Experimental Assessment	Jan-98	Jan-01	$216,672.00	$30,673
NSF	WMG	Energetic Consequences Of Feeding In A Patchy Environment: Possible Limitations To Jellyfish Production In Coastal Ecosystems	Jul-98	Jun-03	$390,028.00	$69,360
NSF	GFC	FSML: Renovation Of DISL Wet Lab Facility	May-98	Feb-02	$150,000.00	$118,251
BEDSOLE	GFC	Wet Lab Renovation Funding			$225,000.00	$184,037
ACES/USA	KLH	Establishment Of USA Estuarine And Coastal Gulf Environmental Research Center	Jan-99	Dec-00	$100,991.00	$6,319
NSF	JRP	Research Experiences For Undergraduates In Coastal And Nearshore Marine Systems Of The Northeastern Gulf Of Mexico.	May-99	Feb-02	$106,701.00	$35,022
ACES/USA	WMG	Subaward To Conduct Research On Jellyfish	Jan-99	Dec-99	$15,000.00	$2,427
MOBIL	GFC	Wet Lab Renovation Funding			$15,000.00	
EXXON	JRP	1999 Summer Jobs			$3,000.00	$460
MASGC	RBA	Factors Affecting The Settlement Of Larval Oysters, *Crassostrea virginica*: The Roles Of Substratum Orientation, Larval Behavior And A Waterborne Settlement Cue (Kellogg)	Jun-99	Sep-01	$5,000.00	$1,811
MASGC	FIT	The Effects Of Variations In Water Velocity & Nitrate Concentrations On Nitrate Reductase Activity In *Ulva lactuca*: A Model For Benthic Marine Flora (Lartigue)	Jun-99	May-01	$5,000.00	$4,062
MASGC	WMG	Jellyfish Conference	Jul-99	Jun-00		$1,331
NSF	RBA	Disturbance And The Reorganization Of Caribbean Reef Communities: Unique Event Or Repeated Pattern?	Sep-99	Aug-02	$235,000.00	$91,414
FDA	GFC	Oyster Research (Griffin)	Sep-99	Jun-01	$21,000.00	$3,861
ACES/USA	JRP	The Role Of Land Use/Land Cover And River/River-Margin Denitrification In The Regulation Of Nitrogen Delivery To The Mobile Bay Ecosystem	Jan-00	Dec-02	$38,812.00	$18,795
ACES/USA	KLH	Establishment Of USA Estuarine And Coastal Gulf Environmental Research Center	Jan-00	Dec-00	$103,954.00	$19,561
ACES/USA	JC	Effects On Variation In River Discharge And Wind-Driven Resuspension On Higher Trophic Levels In The Mobile Bay Ecosystem (Jim Cowan)	Oct-99	Dec-02	$56,609.00	$34,178
ACES/USA	RK	Effects On Variation In River Discharge And Wind-Driven Resuspension On Lower Trophic Levels In The Mobile Bay Ecosystems	Oct-99	Dec-02	$116,994.00	$43,447
ACES/USA	WMG	Interaction Between Water-Column Structure And Reproduction In Jellyfish Populations Of Mobile Bay	Apr-99	Dec-02	$5,252.00	$5,059
ACES/USA	KLH	Fisheries-Induced Changes In The Structure And Function Of Shallow Water Nursery Habitats: An Experimental Assessment...Yr2 & Yr3	Jan-00	Dec-02	$166,173.00	$108,993
UNCW/NOAA	JFV	Trophic Cascades And Spatial Subsidies In A Coral Reef Ecosystem: A Field Test Using "No Take" Areas In The Florida Keys National Marine Sanctuary.	Jan-00	Jun-01	$19,978.00	$6,478
NFWF	JJD	Shell Marine Habitat Program To Support The Cat Island Heronry Restoration Project.	Oct-99	Sep-00	$11,500.00	$6,500
FIO/NOAA	RBA	The No-Take Zones Of The Florida Keys National Marine Sanctuary (Yr3)	Sep-99	Dec-00	$61,835.00	$27,247
NOAA	JRP	The Linkage Between Land-Use/Land-Cover, Nitrogen Flux, And Dentrification In Estuarine Habitats	Jun-00	May-01	$16,500.00	$16,418
MASGC	WMG	Rapid Response Sampling To A Recent Non-Indigenous Jellyfish Bloom	Aug-00	Jul-01	$10,000.00	$708
MDMR	GFC	Northern Gulf Coast Partnership Project	Jul-00	Sep-01	$52,500.00	$30,031
ADECA	GFC	DISL Operating Expenses			$100,000.00	$100,000
USA	GFC	Renovate And Improve Educational Facilities Of MESC		Jan-01	$250,000.00	$17,209
NSF	RBA	Global Climate Change And The Evolutionary Ecology Of Antarctic Mollusks In The Late Eocene	Sep-00	Aug-03	$87,000.00	$25,490

NATURE CONSERVANCY	JFV	Human-Induced Changes In The Cross-Habitat Flow Energy In A Subtropical Marine Ecosystem: Experimental Assessment Using Newly Created Marine Reserves In The Florida Keys	Sep-00	Oct-02	$179,996.00	$4,882
ACES/USA	JC	(Cebrian) Manage A Multidisciplinary Research Program	Oct-00	Dec-02	$17,480.00	$14,748
ACES/USA	KH	Assess The Role Of Nursery Habitats And Juvenile Interactions In Regulating Population Dynamics Of Benthic Organisms	Jan-99	Dec-02	$6,832.00	$3,506
ALA. EDUC. DEPT.	JJD	World Of Water 2001 Teacher Inservice	Jan-01	Sep-01	$61,930.00	$61,930
ADECA	GFC	Public Information, Outreach And Education	Oct-00	Sep-01	$47,000.00	$42,997
EXXON/MOBIL	JJD	Baymobile			$100,000.00	$31,404
MASGC	WMG	Rapid Response Sampling To A Recent Non-Indigenous Jellyfish Bloom	Aug-00	Dec-01	$50,000.00	$33,403
USM/MASGC	WMG	Dockwatch	Aug-01	Jan-02	$40,000.00	$23,925
BOSTON UNIV	JCEBRIAN	Idendification And Assessment Of Anthropogenic Eutrophication In Shallow Estuaries	Aug-00	Jul-02	$14,300.00	$14,300
SAML/SURA	GFC	A Regional Framework For Interconnectivity Of Coastal Ocean Observing Systems	Aug-00	Jul-02	$169,444.00	$64,568
ENV. DEFENSE	JC	Growth And Reproductive Biology Of Red Snapper...	Jan-01		$8,884.00	$7,108
ACES/USA	KLH	Establishment Of USA Estuarine And Coastal Gulf Environmental Research Center	Jan-00	Dec-00	$107,073.00	$84,078
ACES/USA	JFV	Role Of Invasive Species In Shaping Plant-Animal Interactions In The Mobile Delta	Jun-00	Dec-02	$4,000.00	$2,956
ADECA	GFC	Coastal Management Program	Oct-00	Sep-01	$22,000.00	$22,000
USM/MASGC	JJD	Teacher Camp	Feb-01	Jan-02	$48,574.00	$2,413
MMS	WMG	A Survey Of The Relationship Of The Australian Spotted Jellyfish And OCS Platforms	Jan-01	Apr-02	$117,407.00	$40,748
EPA	KLH	Effects Of Fragmentation On The Structure And Function Of Submerged Aquatic Vegetation (SAV) Habitats In The Northern Gulf Of Mexico	Jan-01	Dec-01	$53,596.00	$26,170
ADECA/DCNR	GFC	Assessment And Strategy	Oct-00	Sep-01	$15,000.00	$15,000
ADECA/DCNR	GFC	Operations Grant	Oct-00	Sep-01	$50,000.00	$50,000
UNCW/NURC	JFV	Trophic Cascades And Spatial Subsidies In A Coral Reef Ecosystem: A Field Test Using "No Take" Areas In The Florida Keys National Marine Sanctuary. YR2	Jan-01	Jun-02	$19,978.00	$13,241
SOUTHWELL	JJD					
EPA/GOMP	JRP	GOMP/AI Harmful Algal Bloom Information Exchange	Jun-01	May-02	$13,500.00	$3,223
ACES/USA	JFV		Sep-00	Jan-00	$7,480.00	$6,976
MPAA	JCEBRIAN	Effects Of Anthropogenic Eutrophication On The Magnitude And Trophic Fate Of Microphytobenthic Production In Estuaries	Jun-01	May-02	$16,500.00	$534
NOAA	JRP	The Linkage Between Land-Use/Land-Cover, Nitrogen Flux, And Dentrification In Estuarine Habitats	Jun-01	May-02	$16,500.00	$1,833
EXXON	GFC	2001 Summer Jobs			$2,000.00	$2,000
EXXON	LY	2001 Summer Jobs			$2,000.00	$2,000
EXXON	LY	2001 Summer Jobs			$2,000.00	$2,000
ADECA/DCNR	GFC	LaHaie Salary		Sep-01	$8,000.00	$8,000
MASGC	WMG	Deriving The Origin And Nature Of The Invasive Jellyfish, Phyllorhiza punctata, Through Molecular Studies Of Native And Non-Native Populations.	Jun-01	May-02	$59,875.00	$694
ACES/USA	JC	(Cebrian) Manage A Multidisciplinary Research Program	Jun-01	May-02	$24,574.00	$913

Total: $1,596,691

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University of South Alabama

PROGRAM COMMITTEE

The Program Committee of the Dauphin Island Sea Lab/ Marine Environmental Sciences Consortium consists of one faculty member from each of the member institutions appointed by the chief executive officer of that institution. Subject to the approval of the Executive Committee, the Program Committee has the following responsibility:

To serve as the primary liaison and communication link between faculty members of the participating institutions and programs of the DISL/MESC.

To advise the Executive Director in planning and implementing the education, research and service programs of the DISL/MESC.

To make recommendations to the Executive Committee dealing with major policy matters.

The Committee Members at reporting time include:

Dr. B.K. Robertson
Alabama State University

Dr. Tom Jandebeur (until 10/01)
Dr. Jim Daniels (as of 11/01)
Athens State College

Dr. Ray Henry
Auburn University

Dr. John Aho
Auburn University at Montgomery

Dr. Andew Gannon
Birmingham Southern College

Dr. Paul Gier
Huntingdon College

Dr. Frank Romano
Jacksonville State University

Dr. Thomas Wilson
Judson College

Dr. Robert Stiles
Samford University

Dr. Gerald Regan (as of 10/01)
Dr. Charles Chester (as of 11/01)
Spring Hill College

Dr. Lawrence Drummond
Talladega College

Dr. Stephen Landers
Troy State University

Dr. Stacey Mixon
Troy State University at Dothan

Dr. Douglas Hileman
Tuskegee University

Dr. Thomas Hopkins (until 5/01)
Dr. Martha Powell (as of 6/01)
University of Alabama

Dr. Ken Marion
University of Alabama at Birmingham

Dr. Richard Modlin
University of Alabama at Huntsville

Dr. Tina Miller-Way
University of Mobile

Dr. Malcolm Braid
University of Montevallo

Dr. Wayne Canis
University of North Alabama

Dr. Jack O'Brien
University of South Alabama

Dr. John McCall
University of West Alabama

Member Schools

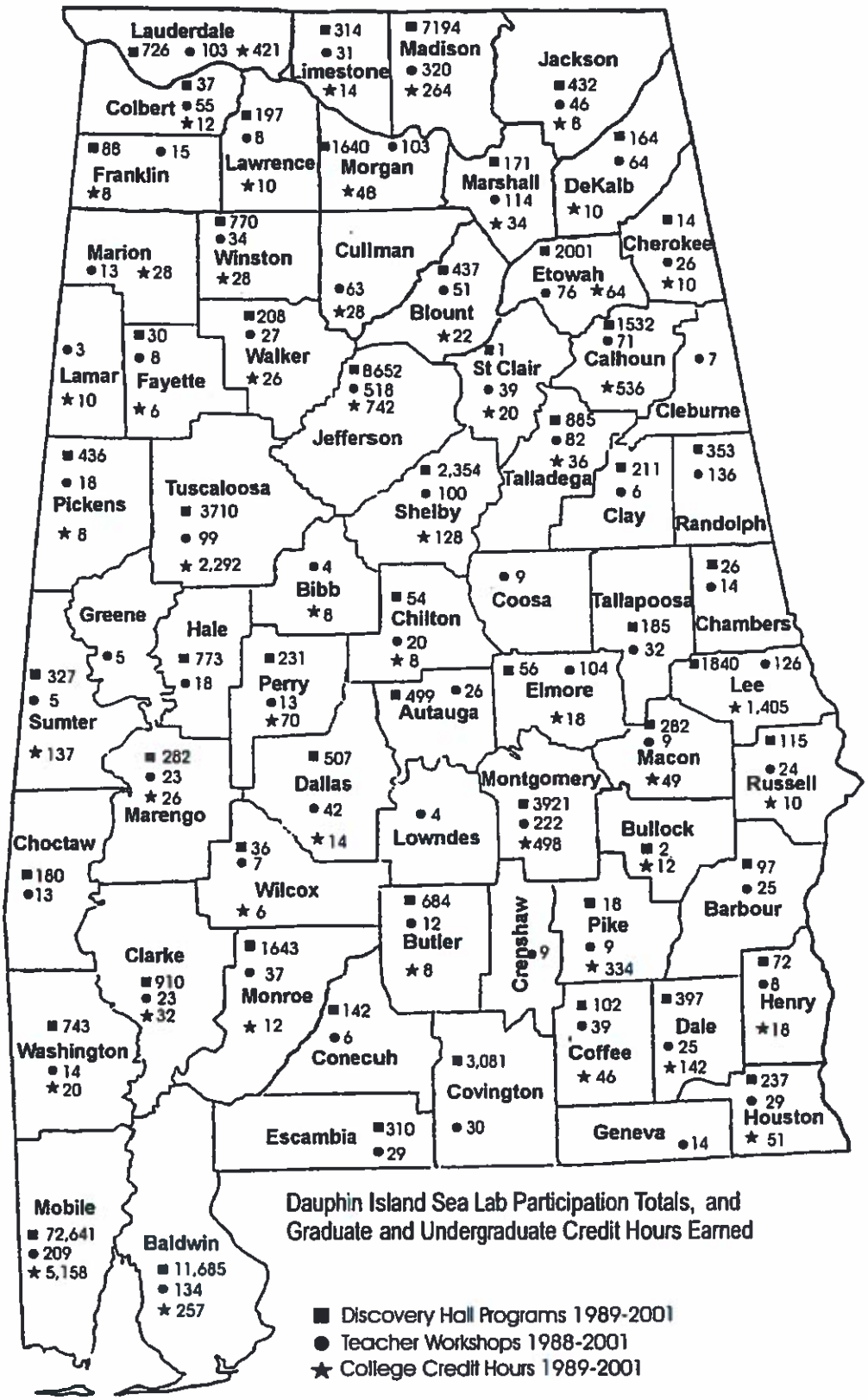
- Alabama State University, Montgomery, AL*
- Athens State University, Athens, AL
- Auburn University, Auburn, AL*
- Auburn University at Montgomery, Montgomery, AL
- Birmingham Southern College, Birmingham, AL
- Huntingdon College, Montgomery, AL
- Jacksonville State University, Jacksonville, AL*
- Judson College, Marion, AL
- Samford University, Birmingham, AL*
- Spring Hill College, Mobile, AL
- Talladega College, Talladega, AL
- Troy State University, Troy, AL
- Troy State University at Dothan, Dothan, 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

Balance Sheet

MARINE ENVIRONMENTAL SCIENCES CONSORTIUM
Dauphin Island, Alabama
Balance Sheet
September 30, 2001

Assets	Current Year	Liabilities and Fund Balances	Current Year
Current Funds		**Current Funds**	
Unrestricted		**Unrestricted**	
Cash	$ 987,099.83	Accounts Payable	$ 15,391.87
Accounts Receivable	99,051.79	Accrued Liabilities	222,035.47
Inventories	130,657.00	Fund Balance	979,381.28
Total Unrestricted	1,216,808.62	Total Unrestricted	1,216,808.62
Restricted		**Restricted**	
Cash	281,070.95	Accounts Payable	
Accounts Receivable	346,537.23	Accrued Liabilities	83.56
Due from Other Funds		Fund Balance	627,524.62
Total Restricted	627,608.18	Total Resrticted	627,608.18
Total Current Funds	1,844,416.80	Total Current Funds	1,844,416.80
Plant Fund			
Investment in Plant		**Plant Fund**	
Land	658,757.00	**Investment in Plant**	
Buildings and Improvements	6,430,113.85	Leasehold Payable	1,547,403.78
Improvements Other Than Buildings	66,030.29	Net Investment in Plant	8,754,726.76
Equipment	1,840,724.73		
Vessels	195,792.97	Total Investment in Plant	10,302,130.54
Library Books and Audiovisuals	707,456.76	Total Plant Funds	10,302,130.54
Construction in Progress	403,254.94		
Total Investment in Plant	10,302,130.54		
Total Plant Funds	10,302,130.54		
Agency Funds			
Cash	92,802.27	**Agency Funds**	
Accounts Receivable	3,210.18	Deposits Held For Others	96,012.45
Total Agency Funds	$ 96,012.45	Total Agency Funds	$ 96,012.45



The Dauphin Island Sea Lab is a member of Southern Association of Marine Laboratories (SAML); National Association of Marine Laboratories (NAML); National Marine Educators Association (NMEA) and Coastal America's Coastal Ecosystem Learning Centers (CELC).

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