Dauphin Island Sea Lab

Annual Report
1999-2000

Dauphin Island Sea Lab • Alabama •

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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Letter from the Executive Director

Dr. George Crozier received the 2000 Wright Gardner Award from the Alabama Academy of Science.

"If you don't have something nice to say, don't say anything at all."

I have indeed had to struggle to put a good face on the first year of the new millenium. Our budget was reduced for the first time in many years and that always creates enormous problems, particularly when growth is necessary and is occurring. We are watching the completion of both the Auburn Shellfish Laboratory at the south end of the campus and the Experimental Wet Laboratory adjacent to the Marine Science Hall. These capital expansions have been funded through federal and private sector sources and probably portend the future of the Laboratory.

Offices have also been established for the Coastal Program of the Alabama Department of Conservation and Natural Resources as well as the Associate Director of the Mississippi-Alabama Sea Grant Consortium. These logistical interactions will markedly strengthen the relationship between DISL and these agencies. I am particularly pleased to welcome Dr. LaDon Swann as the Sea Grant Associate Director because he also represents the first Auburn faculty to be assigned to DISL, joining the University of Alabama and the University of South Alabama institutional faculty.

We have strengthened our engagement with the nutrient loading issues of the coast, fragmentation of natural habitats, and perhaps of utmost importance, the issue of invertebrate population explosions and the appearance of exotic species. The Laboratory gained international attention due to Dr. Monty Graham's expertise and interest in the explosion of gelatinous zooplankton. It has been noted that this issue may bring the attention of the public to marine biology in much the same way that *El Nino* engaged the public with oceanography as a scientific discipline. It has also fostered an improved working relationship with our sister laboratory in Mississippi, the Gulf Coast Research Laboratory.

It seems obvious that this has been a year of building and establishing partnerships with entities and institutions with which we share common interests. These will certainly mature into working and productive relationships that will allow us to make the most of our limited resources.

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

The Dauphin Island Sea Lab is located on 36 acres on the eastern end of Dauphin Island, a barrier island three miles from the mainland and 40 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.

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.This reporting year, the MIP Fund Accounting was updated to the new Windows version.

Business/Finance Personnel

Georgia Mallon
Comptroller/Business-Auxiliaries Manager

Lynn Bryant
Contracts & Grants Manager

Tiffany Cotton
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. This year, the Gift Shop not only handled the usual winter holiday rush, it also helped sell ornaments to benefit the Dauphin Island Elementary School.

Cafeteria Personnel

Classie Beritiech
Supervisor

Judy Barber,
Assistant Supervisor

Estuarium Admissions and Gift Shop Personnel

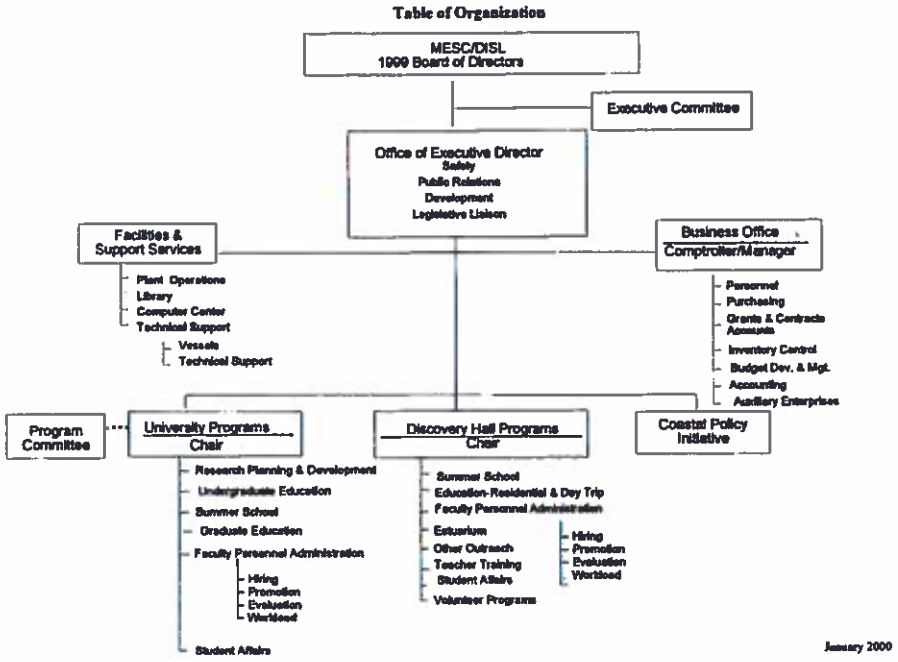
Jeana Layne
Supervisor

Mandy Harbison
Supervisor

Jeannine Waltman
Jamelle Ellington
Amy Hannah
Brandi White

Computer Center

The Computer Center provides user services and support for over 130 computers in both academic and administrative departments. In September 2000 the Computer Center expanded connectivity on the Lab's Local Area Network to include the entire campus, bringing the number of computers on the network to 109. Early in 2000 the Computer Center implemented localized Email and Web services utilizing Internet connectivity through the Alabama Research and Education Network. Over 30 new computers were purchased in 2000, nearly one third of these computers



were purchased for student use in the computer lab and in the classroom. Also in 2000, the Dauphin Island Sea Lab's Web page (www.disl.org) was redesigned and greatly enhanced.

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, made many improvements in FY '99/'00. A new document delivery system, Ariel, and a new scanner were purchased so that interlibrary loans could be scanned and sent/received online, rather than photocopied. 7150 books were accessioned through October 2000, and 130 journals were subscribed. The library sent out 327 interlibrary loan requests, and accommodated 643 requests for lending. CSA's Internet Database Service (Aquatic Sciences and Fisheries Abstracts and Oceanic Abstracts) and Alabama Virtual Library provide students and faculty access to many databases and online catalogs.

Library Personnel
Connie Mallon
Librarian

Public Relations
The Sea Lab's research and educational efforts became the focus of national and international media attention during 2000, thanks to the hard work of the public relations office. Diverse media outlets, from the Financial Times of London to the New York Times to the Boston Globe, all highlighted the work of Sea Lab scientists and educators. Local recognition also continued apace, from media outlets such as the Daily Mountain Eagle in Jasper, Alabama and the Mobile Press Register.

This year, the Public Relations Office also took on the task of spearheading and collaborating on a number of pro-active committees. This office coordinated the Public Outreach Task Force, a group of outreach coordinators with environmental interests from local and regional agencies, non-profit groups and corporations; co-chaired the Mobile Area Attractions Committee; and collaborated with the Marketing Committee of the Mobile Convention and Visitors Bureau.

The PR Director is grateful to ExxonMobil for providing a grant for her first summer intern, Megan Sebastian, who produced a photojournalism essay of the summer activities of the Sea Lab. Materials from this project will be used for a variety of Sea Lab publications and brochures.

Public Relations Personnel
Lisa Young
Public Relations Director

Plant Operations
Plant Operations has had an active year in 2000. One of the on-going goals was greater utilization of available space, in practices ranging from building the new loft storage in the Animal Husbandry building of the Estuarium to better use of housekeeping supply space.

In the research facility, Marine Science Hall, Plant Ops conducted major remodeling in two faculty laboratories - Dr. Ron Kiene's and new faculty member Dr. Just Cebrian's.

Other improvements included the exterior and interior re-painting of Horizon Hall; new exterior doors and casements for the visiting faculty houses; and major improvements to the Estuarium boardwalk, which was the victim of storms and erosion. These same weather related difficulties have eroded the beach on the South Campus, necessitating the removal of several sections of the walkway and moving the observation deck twenty-five feet inland.

Plant Operations Personnel
Maintenance/Operations
Darrel Mallon
Supervisor

Steve Ruf
Assistant Supervisor/Supervisor (Dec. 00)

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

Housekeeping
Don Anderson
Supervisor

Mike Connell
Shirley Emerson
Cindy Johnson
Shirley Kirkpatrick
Dottie Mallon
Tammy Self

Technical Support and Vessels

The close of 2000 signaled the end of 20 years of service by the Deborah B, a 41 foot sports fisherman used for diving operations, day trips for visiting classes, and sample collection. Named for Ms. Debbie Branstetter, the first administrative assistant to Vessel Ops, the Deborah B was acquired in 1980 as surplus property from the Federal government. A victim of budget cuts by the state, she was auctioned off as surplus property by DISL in late 2000.

Several new pieces of equipment purchased by the faulty this year were turned over to Tech Support. New hand held GPS units, a new CTD with a rosette and a Data Flow sampling package to examine horizontal distribution of water quality characteristics have all seen heavy use this year.

Tech Support also turned over some personnel this past year. Kevin Kirsch followed his dream to the Florida Keys, taking a job with the sanctuary program to monitor the effects of ship groundings. Yantzee Hintz, a recent graduate of the University of North Alabama, has replaced him as a marine technician. Jana Daniel is continuing the soft money tradition in Tech Support, helping Jean Cowan out part time with the marine chemical instrumentation.

A 3600 square foot metal building is currently under construction to house the life support systems of the wet lab. Following the estimated completion date in March, Tech Support will install 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.

Technical Support Personnel
Michael Dardeau
Marine Scientist

Al Gunter
Jean Cowan
Yantzee Hintz
Jana Daniel

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

Vessel	'97/'98	'98/199	'99/'00
A.E. Verrril	79	103	147
Deborah B.	25	33	7
Small Boats	43	122	196

Vessels Personnel
Capt. Rodney Collier
Capt. Russell Wilson
Engineer Joe Sullivan

Field and Lab Programs

The basis of the Discovery Hall Programs is one awakening the enthusiasm that all students have with the oceans and directing that eagerness to the applications of science and math in the marine environment. Hands-on learning, as evidenced when a student picks up a seine net or measures waves in the Gulf of Mexico, is the key to lifelong curiosity and educational pursuit. Discovery takes place from the salt marshes of Dauphin Island to the middle of Mobile Bay aboard our research vessel, the *A.E. Verrill*. The unique ability to blend classroom activities with field and lab applications results in a better understanding of the ecosystem and the applications of science that affect it. During the 1999/2000 academic year 10,454 students in grades K-12 participated in classroom activities. The Estuarium had 38,223 students from across the state that visited. Each student group receives a complete curriculum by grade level, which is sent to each teacher prior to arriving at the Estuarium. The curriculum is copied by the teacher and given to each student, providing a full set of activities while visiting the Estuarium.

High School Summer Program

The two summer marine science courses for high school students had a total of forty-eight students enrolled from eleven states and the District of Columbia. These students earned a full credit in advanced biology by completing the 152 contact hour course. Many of these students came from inner-city schools in California, Massachusetts, and New York through a program titled Summer Search. For most of these students it was the first time they had been to the coast.

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 and looked at grass-bed communities to historic Blakeley Park. 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.

Outreach

DHP faculty hit the road running, during the months of January and February of 2000. 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)

Angie Dixon,

Marine Educator
M.S. 1994 (University of Texas, Arlington)

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
Total	66,783	19,967	14,422	5,696	2,723	4,142	113,733

Includes Teacher Workshop and Summer High School totals

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, the National Science Foundation sponsored Research Experiences for Undergraduates Program at DISL. The primary activities of the program during the 1999-2000 academic year are outlined below.

Faculty

In March 2000, Dr. Just Cebrian, a marine ecologist/botanist from the Boston University Marine Program and the Marine Biological Lab in Woods Hole joined the DISL faculty. Just brings a background in comparative ecosystem ecology and marine botany to the faculty. We also initiated a search during fall 2000 for marine scientist who we hope will bring new skills to our faculty in one of several areas including, molecular ecology, modeling or stable isotope techniques. We hope to be able to fill this position in the fall of 2001.

During the year, the 9 resident University Programs faculty published 31 papers in the refereed literature and have an additional 22 manuscripts in press. The faculty also delivered over 50 presentations at national and international scientific meetings and 11 seminars to the general public. In addition, the faculty authored 16 technical/popular publications during the year. A few of the highlights of the year included Dr. Aronson's publication in the journal Nature, concerning the degradation of coral reefs in Belize resulting from global warming. In addition, Dr. Graham was a leader in establishing efforts to better understand recent invasions of non-native jellyfish into the northern Gulf of Mexico; these efforts included his hosting of the First International Conference on Jellyfish Blooms in Gulf Shores in January. Finally, Dr. Kiene received recognition as the Outstanding Scholar at the University of South Alabama by the USA Alumni Association.

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 and Estuaries; 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 – Gulf of Mexico Coral Reef Panel; Pennock – National Academy of Sciences Eutrophication Workshop and (3) manuscript and proposal review.

Table 1. DISL 1999-2000 Course Offerings

Fall Semester 1999

Course	Credit	Instructor(s)
Physical Oceanography	(3)	Cowan
Advanced Marine Ecology	(2)	Heck/Valentine
Microbial Ecology	(3)	Kiene
Oceanographic Experiences	(Var)	Graham
Seminar	(1)	Valentine

Spring Semester 2000

Course	Credit	Instructor(s)
Biological Oceanography	(3)	Graham
Chemical Oceanography	(3)	Kiene
Marine Analytical Instrumentation	(3)	Pennock
Coastal Ecosystems Dynamics	(2)	Graham
Seminar	(1)	Pennock
Ocean Science	(2)	Schroeder

Summer Semester 2000 - May-Term

Course	Credit	Instructor(s)
Marine Biology (A)	(4)	O'Brien
Coral Reef Ecology	(4)	Aronson/Pennock
Marine Conservation Biology	(4)	Valentine
Oceanology of the GOM	(3)	Schroeder
Dolphins and Whales	(2)	Regan

Summer Session 2000 – First Session

Course	Credit	Instructor(s)
Marine Biology	(4)	Romano
Marine Ecology	(4)	Heck
Marine Invertebrate Zoology	(4)	Aronson
Marine Botany	(4)	Cebrian
Introduction to Oceanography	(4)	Schroeder
Marine Technical Method	(2)	Dardeau
Coastal Climatology	(2)	Blackwell

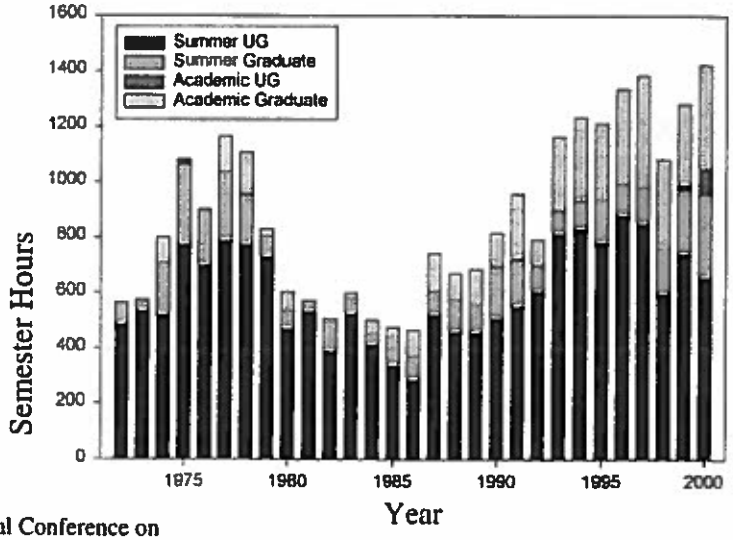
Summer Session 2000 – Second Session

Course	Credit	Instructor(s)
Marine Vertebrate Zoology	(4)	Cowan
Marine Behavioral Ecology	(4)	Richardson
Marine Geology	(4)	Canis
Marsh Ecology	(4)	Faulkner
Marine Fish Diseases	(3)	Brady
Introduction to Neurobiology	(4/5)	Gamlin/Keyser
Marine Technical Methods	(2)	Dardeau
Coastal Geomorphology	(2)	Douglass
Coastal Zone Management	(2)	Crozier

Undergraduate and Graduate Academic Programs:

In 1999-2000, University Programs offered 32 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. During 2000, the 1425 semester hours delivered by University Programs, was the greatest number ever for the DISL.

Figure 1. Credit Hours



Undergraduate Program

The Summer School Program is conducted primarily in support of undergraduate degree programs at the 22 DISL member institutions. In 1999-2000, University Programs delivered 747 undergraduate semester hours (see Figure 1). The summer program saw students from 16 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 1999-2000 included: Ms. Katherine Alexander (University of West Alabama), Ms. Sarah Branson (University of West Alabama), Mr. Anthony Jackson (Auburn University), and Mr. Glenn Miller (University of Alabama). This support was made available through funds provided by the DISL.

Table 2. 2000 REU Research Projects, Dauphin Island Sea Lab

Micah Russell	Pacific University. Shifts in dietary components and feeding habits of Atlantic croaker, *Micropogonias undulatus*, and striped anchovy, *Anchoa hepsetus*, due to wind driven resuspension of Mobile Bay sediments. *Mentor – Dr. Jim Cowan.*
Glenn Miller	University of Alabama. The Effects of Seagrass Disappearance Due to Eutrophication on the Abundance, Diversity, and Diet of Associated Fish Populations. *Mentor – Dr. Just Cebrian.*
Meg Goecker	Michigan State University. Seagrass Herbivory: The Effects of Predation Risk and Nutritional Content in the Upper Florida Keys National Marine Sanctuary. *Mentor – Dr. Ken Heck.*
Anne Marie LeBlanc	University of Alabama. Fluorometric Analysis of Hydrolytic Enzyme Activities in Lower Mobile Bay, Alabama. *Mentor – Dr. Ron Kiene.*
Dawn Reding	University of Dubuque. Effects of "No Take" Protection on Predation of Macroinvertebrate Communities in the Upper Florida Keys National Marine Sanctuary. *Mentor – Dr. John Valentine.*
Luke Stafford	Southwestern University. Intraspecific Agnostic Behavior of the Mud Dwelling Stomatopod, *Squilla empusa* (Crustacea: Stomatopoda). *Mentor – Dr. Rich Aronson.*
Newton Wong	Cal State Los Angeles. System-Wide Assessment of Phytoplankton and Micro-Phytobenthic Production in Mobile Bay Using a Continuous Flow Monitoring System. *Mentor – Dr. Jon Pennock.*
Allison Arnold	Stanford University. The Effects of Simulated Resuspension Events on Nutrient Availability and Primary Productivity in Marine Mesocosms. *Mentor – Dr. Jon Pennock.*

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 spring of 1999, Jonathan Pennock received a three-year extension to the REU program that will continue the program through 2001. In the fall of 2000, DISL completed the second year of the three-year award, which brought 8 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 2000 students and their REU projects are listed in Table 2.

Table 3. 1999-2000 Graduates

Patterson, Will	Ph.D. (USA). Aspects of the Population Ecology of Red Snapper, *Lutjanus campechanus*, in an Artificial Reef Area off Alabama. Summer 1999 (Dr. James Cowan)
Kirsch, Kevin	M.S. (USA). Seagrass Consumption by Herbivorous Fish: An Underestimated Trophic Pathway in the Florida Keys National Marine Sanctuary. Fall 1999 (Dr. John Valentine)
Thompson, Kip	Ph.D. (USA). Feeding Ecology, Energetics, and Production of Finfish Legadon rhomboides (Linnaeus) in Temperate Seagrass Meadows. Summer 2000 (Dr. James Cowan)
Thomann, Chris	M.S. (USA). Latitudinal Gradients in Predation. Summer 2000 (Dr. Richard Aronson)
Noel, Jessica	M.S. (USA). Biomass Production of Bay Anchovy (*Anchoa mitchilli*) and Gulf Menhaden (*Brevoortia patronus*) in Weeks Bay, AL and Their Potential Roles in Nutrient Translocation. Summer 2000 (Dr. James Cowan)
Stutes, Jason	M.S. (USA). The Relative Importance of Vertebrate and Invertebrate Grazing on Seagrass Epiphytes in the Northern Gulf of Mexico: An Experimental Assessment. Summer 2000 (Dr. Kenneth Heck)

Graduate Program

During the 1999-2000 academic year, there were 49 graduate students who based their studies and received research support from the DISL. During the year, University Programs delivered 678 graduate semester hours (see Figure 1) and provided graduate fellowships to 3 students: Ms. Heather Albright (M.S., University of South Alabama), Ms. Theresa Berrell (M.S., University of South Alabama), and Ms. Leslie Gallagher (M.S., University of South 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.

Overall, 5 students who completed a majority of the thesis research at the DISL graduated from member schools during the 1999-2000 academic year (Table 3).

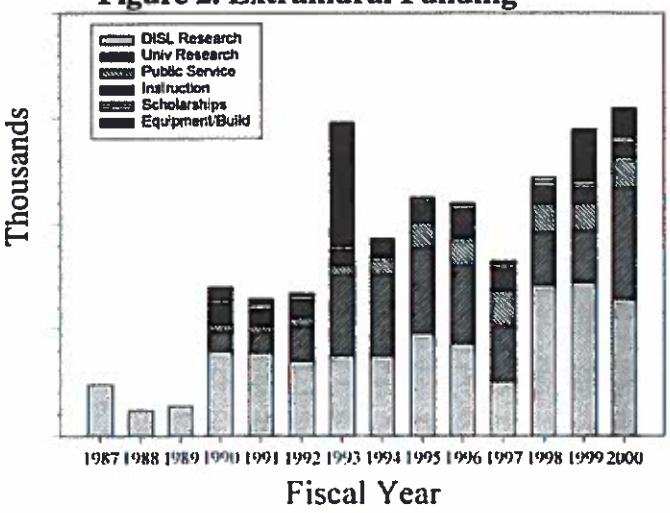
Research

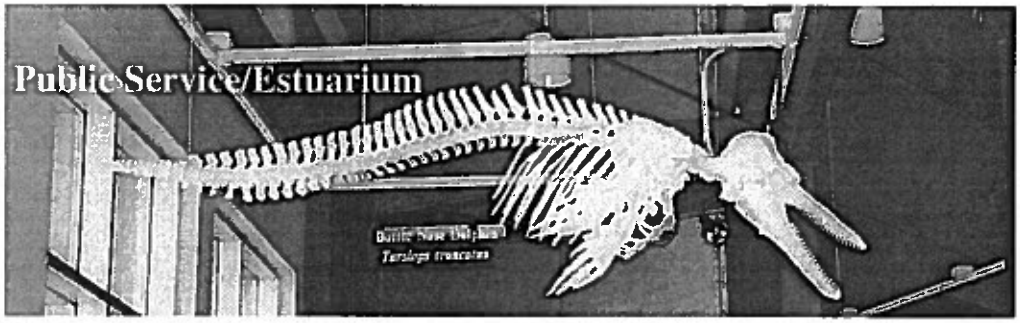
Basic and applied research is a central component to the educational programs and the overall mission of the DISL. University Programs faculty are extremely active in the pursuit of extramural funding in support of research activities, resulting in $1,551,536 in extramural support for research, equipment and facilities, instruction, public outreach and student fellowships during the 1999-2000 academic year (see Figure 2). Research grants and contracts come from diverse sources, including: the National Science Foundation, the Mississippi-Alabama Sea Grant Consortium, the National Oceanographic and Atmospheric Administration (NOAA) Coastal Ocean Program, the Electric Power Research Institute, 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 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*
Jenny Foster, *Administrative Assistant*
Carolyn Wood, *Administrative Assistant*

Figure 2. Extramural Funding





The Estuarium

The Estuarium continues to grow as an educational facility that combines first-rate science and engaging visual and interactive displays. In 2000, we welcomed 73,055 visitors to the facility, bringing the grand total of visitors since we opened to 192,582. Our guest books have been filled with positive comments, both about the design of the exhibitry and the warmth of the staff and docents. Our unique displays offer visitors a chance to view close-up the animals and flora that populate the Mobile Estuary system, the fourth largest by volume in North America. During April 2000, the Estuarium was the site of much activity during the town of Dauphin Island's Spring Fest. While the rest of the Lab was open to visitors, the Estuarium offered free children's activities on its decks and reduced admission to the facility itself. In the fall of 2000, the National Weather Service came to the Estuarium to present the Lab with an award for twenty-five years of service in weather observing and reporting. Visitors today can see weather equipment set up on the dunes of the Living Marsh Boardwalk; once inside, they can view the results on the computerized Weather Station. Another computer with a large wall-mounted screen resides in the Little Billy Goat Hole Room, allowing kids of all ages to investigate the seas through interactive software. Because of all the hard work of the entire Estuarium staff and docents, the facility has recently garnered some awards, including being named one of Alabama's "Top Twenty Attractions."

The Estuarium at the Dauphin Island Sea Lab Visitor Totals

Year	Students	Adults	Seniors	Members Passes Employees, Comps	Total
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
Total	99,441	55,593	30,088	7,460	192,582

Estuarium Personnel

Robert Dixon
Estuarium Manager

Brian Jones
Senior Aquarist

Kyle Weis
Sharyl Crossley, start 12/00
Gina Fisher, end 8/00

Coastal Policy Initiative

The CPI continued to provide support to the Mobile Bay National Estuary Program and Coastal Programs of ADCNR. Marina planning workshops were conducted for the State of Mississippi Dept. of Natural resources. In addition, a public access study was conducted and a plan for future development provided. The Coastal Counties Wetlands Management plan was completed. Coordination of the Coastal Cleanup resulted in a record amount of corporate sponsorship and a very successful program

Coastal Policy Personnel

George F. Crozier
Executive Director

Cherie Arceneaux
Senior Research Associate

Michael Dardeau
Marine Scientist

Alma Wagner
Research Associate

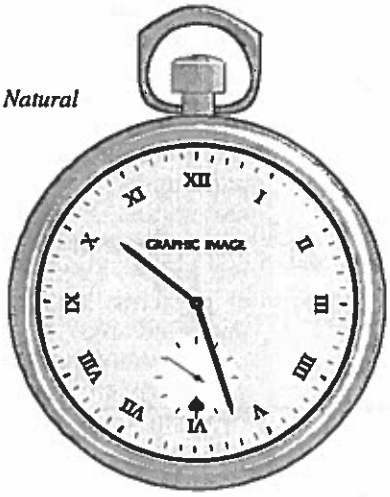
Cathy Barnette
Research Associate

Jeff Jordan
Alabama Dept. of Conservation and Natural Resources

Dana Word
Graduate Intern

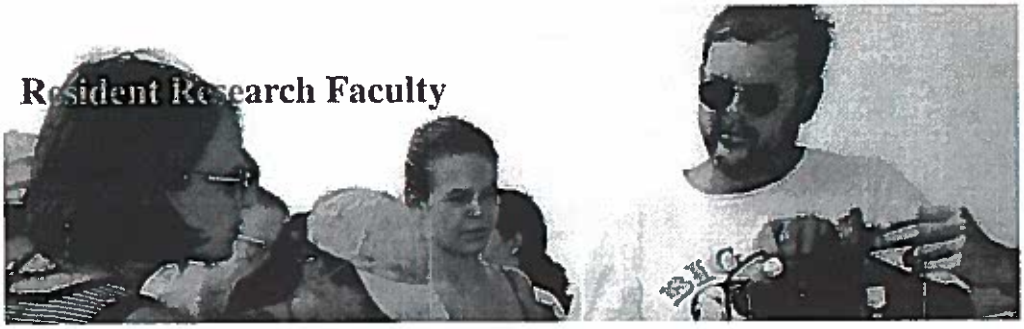
Docent Program

The Dauphin Island Sea Lab is greatly enhanced by the wonderful people that volunteer their time and energy as Docents. Currently there are 60 docents that help teach in the Estuarium, and throughout the community at events like Kids Day in the Park, BayFest, the Festival of Flowers and many others. Additionally, another group of docents are involved in beautification of our campus by creating a spectacular butterfly garden, "greening up" the front entrance to the Administration Building and making the campus a visual delight for visitors and employees. This past year, docents have helped with large mail-outs and classroom material preparations. The docents are a vital link to our overall mission and bring to us wonderful ideas and opportunities. If you are interested in our docent program, we'd love to have you. Please call Ms. Denise Keaton at 861-7515 or e-mail her at dkeaton@disl.org.



Docent Hours
1998 - 2,447
1999 - 3,022
2000 - 3,700

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 detridal 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.

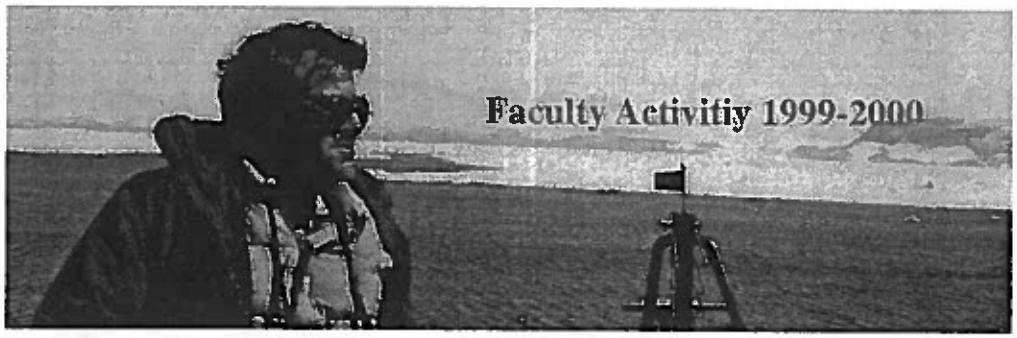
Ronald P. Kiene, Ph.D. 1986. (SUNY Stony Brook). Senior Marine Scientist. Biogeochemical cycling of organic matter in coastal and ocean systems with emphasis on compounds containing sulfur and nitrogen. Cycling of climatically important trace gases in relation to phytoplankon and food web dynamics. Microbial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



Awards

Cebrian, J. 1999. "Premi Extraordinari de Doctorat" (Award to best Ph.D. dissertation) by the Universitat Politecnica Catalunya (Spain).

Cowan, J. H., Jr. 2000. Distinguished Visiting Fellow, National Sea Grant College Program.

Heck, K. L., Jr. 2000. Nominated for Council Delegate (a policy making position) of the AAAS.

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

Schroeder, W. W. 1999. Mobil Corporation in recognition for "Extraordinary Service in Fostering Productive Interactions Between the Academic Community and the Petroleum Industry over the past 26 Years".

Book Reviews

Cowan, J. H., Jr. 1999. The First Year in the Life of Estuarine Fishes in the Middle Atlantic Bight, by Kenneth W. Able and Michael P. Fahay, Rutgers University Press. Estuaries 22:337-338.

Book Chapters

Aronson, R. B. and W. F. Precht. 2000. 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.

Refereed Articles

Aronson, R. B. and W. F. Precht. 2000. Herbivory and algal dynamics on the coral reef at Discovery Bay, Jamaica. Limnol. Oceanogr. 45:251-255.

Aronson, R. B., W. F. Precht, I. G. Macintyre and T. J. T. Murdoch. 2000. Coral bleach-out in Belize. Nature 405:36.

Bologna, P. A. X. and **K. L. Heck, Jr.** 2000. Impact of pea crab parasitism on bay scallop reproductive potential. Gulf Research Reports 12:43-46.

Bologna, P. A. X. and **K. L. Heck, Jr.** 2000. Impacts of seagrass habitat architecture on bivalve settlement. Estuaries 23:449-457.

Carey, A. E., **J. R. Pennock**, J. C. Lehrter, W. B. Lyons, **W. W. Schroeder** and J. C. Bonzongo. 1999. The Role of the Mississippi River in Gulf of Mexico Hypoxia. Final Technical Report. Environmental Institute Publication Number 70. Prepared for The Fertilizer Institute by The University of Alabama, Tuscaloosa, Alabama.

Cebrián, J. 1999. Patterns in the fate of production in plant communities. Am. Nat. 154: 449-468.

Cebrián, J. and I. Valiela. 1999. Seasonal patterns in phytoplankton biomass in coastal ecosystems. J. Plankton Res. 21:429-444.

Cebrian, J., M. F. Pedersen, K. D. Kroeger and I. Valiela. 2000. Fate of seagrass *Cymodocea nodosa (Ucria)* Ascherson production across a process of meadow formation. Mar. Ecol. Prog. Ser. 204:119-130.

Cebrián, J., S. Enríquez, N. Agawin, C. M. Duarte, M. Fortes and J. Vermaat. 1999. Epiphyte accrual on *Posidonia oceanica* (L.) Delile leaves: implications on light absorption. Bot. Mar. 42:123-128.

Cowan, J. H., Jr., K. A. Rose, D. R. DeVries. 2000. Is density-dependent growth in young-of the-year fishes a function of critical weight? Rev. Fish Biol. Fish. 16:61-89.

Cowan, J. J. Jr., W. Ingram, J. McCawley, B. Sauls, A. Strelcheck and M. Woods. 1999. The attraction vs. production debate: does it really matter from the management perspective? A response to the commentary by Shipp. Gulf Mex. Sci. XVII:137-138.

Evgenidou A., A. Konkle, A. D'Ambrosio, A. Corcoran, J. Bowen, E. Brown, D. Corcoran, C. Dearholt, S. Fern, A. Lamb, J. Michalowsky, I. Ruegg and **J. Cebrian**. 1999. Effects of Increased Nitrogen Loading on the relative abundance of diatoms and dinoflagellates in estuaries. Biol. Bull. 197:292-294.

Graham, W. M., S. MacIntyre and A. L. Alldredge. 2000. Diel patterns in the concentration of marine snow and particle flux in surface waters. Deep-Sea Research I 47:367-395.

Heck, K. L., Jr., **J. R. Pennock**, **J. F. Valentine**, L. D. Coen, and S. A. Sklenar. 2000. Effects of nutrient enrichment and overfishing on seagrass ecosystems: an experimental assessment. Biologia Marina Mediterranea. 7:220-222.

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

Kiene, R. P. and L. Linn. 2000. The fate of dissolved dimethylsulfoniopropionate (DMSP) in seawater: Tracer studies using ^{35}S-DMSP. Geochim. Cosmochim. Acta. 64:797-2810.

Kiene, R. P. and L. J. Linn. 2000. Turnover of dissolved DMSP and its relationship with bacterial production in the Gulf of Mexico. Limnol. Oceanogr. 45(4):849-861.

Kiene, R. P., L. J. Linn and J. A. Bruton. 2000. New and important roles for DMSP in marine microbial communities. J. Sea Res. 43:209-224.

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.

Lores, E. M. and **J. R. Pennock**. 1999. Bioavailability and trophic transfer of humic-bound copper from bacteria to zooplankton. Mar. Ecol. Prog. Ser. 187:67-75.

Macintyre, I. G., W. F. Precht and **R. B. Aronson**. 2000. Origin of the Pelican Cays ponds, Belize. Atoll Res. Bull. 466:1-12.

McClanahan, T. R., **R. B. Aronson**, W. F. Precht and N. A. Muthiga. 1999. Fleshy algae dominate the remote coral reefs of Belize. Coral Reefs 18:61-62.

Murdoch, T. J. T. and **R. B. Aronson**. 1999. Scale-dependent spatial variability of coral assemblages along the Florida Reef Tract. Coral Reefs 18:341-351.

Nowlin, W. D., Jr., A. E. Jochens, M. K. Howard, S. F. DiMarco and **W. W. Schroeder**. 2000. Hydrographic Properties and Inferred Circulation Over the Northeastern Shelves of the Gulf of Mexico during Spring to Midsummer of 1998. Gulf Mex. Sci. XVIII(1):40-54.

Rose, K. A. and **J. H. Cowan, Jr.** 2000. Predicting fish population dynamics: compensation and the importance of site-specific considerations. Environ. Sci. Policy 3:S433-S443.

Sager, W. W., C. S. Lee, I. R. MacDonald and **W. W. Schroeder**. 1999. High-frequency near-bottom acoustic reflection signatures of hydrocarbon seeps on the northern Gulf of Mexico continental slope. GeoMarine Letters 18:267-276.

Schroeder, W. W. 2000. Disturbances: Their role in shaping coastal environments. Pp. 430-440, IN: G. R. Rodríguez, C. A. Brebbia and E. Pérez-Martell, Eds. Environmental Coastal Regions III. WIT Press, Southampton.

Schroeder, W. W., Wm. J. Wiseman, Jr., S. P. Volovik, I. A. Nicolayev, Z. V. Aleksandrova, Y. Gargopa and V. M. Shishkin. 2000. Aspects of the Oceanography of the Azov Sea. Pp. 161-175, IN: T. Yanagi, Ed. Interactions between Estuaries, Coastal Seas and Shelf Seas, Terra Scientific Publishing Company, Tokyo.

Spitzer, P. M., **K. L. Heck, Jr.** and J. Mattila. 2000. The effects of vegetation density on the relative growth rates of juvenile pinfish, *Lagodon rhomboides*, in Big Lagoon, Florida. J. Exp. Mar. Biol. Ecol. 244:67-86.

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. Mar. Ecol. Prog. Ser. 200: 213-228.

Valentine, J. F., K. L. Heck, Jr., K. D. Kirsch and D. Webb. 2000. Role of sea urchin *Lytechinus variegatus* grazing in regulating subtropical

turtlegrass *Thalassia testudinum* meadows in the Florida Keys (USA). Mar. Ecol. Prog. Ser. 200:213-228.
Valiela, I., G. Tomasky, J. Hauxwell, M. L. Cole, **J. Cebrian** and K. D. Kroeger. 2000. Operationalizing sustainability: Management and risk assessment of land-derived nitrogen loads to estuaries. Ecol. Appl. 10(4):1006-1023.

Non-Refereed Publications

Aronson, R. B. 1999. Mass mortality of Caribbean corals: unique event or repeated pattern? Final Report to the National Geographic Society for research grant 6380-98. 11 pp.
Aronson, R. B. 2000. Photographs for Eliot, J. L. Coral die-off in Belize—a core issue. National Geographic Magazine, June 197(6).
Aronson, R. B., et al. 1999. International Society for Reef Studies. ISRS Statement on Diseases on Coral Reefs. Lead Author/Compiler.
Cowan, J. H. Jr., H. Blanchet, S. Diamond, D. Murray, C. Koenig, M. Murphy and K. A. Rose. 2000. September 2000 Report of the Reef Fish Stock Assessment Panel. Miami Laboratory, Southeast Fisheries Science Center Lib. Contrib. No. MIA-99/00-September.
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.
Dindo, C. and **R. Aronson**. 1999. The Pelican's Nest science lab: linking an early childhood school with the Antarctic. Current, The Journal of Marine Education 15(3):22-24.
Heck, K. L., Jr., P. Carlson, K. Canter and L. Yarbro. Response of the seagrass *Thalassia testudinum* and *Halodule wrightii* to relaxation of shading in St. Joseph Bay, Florida. Completion report for EPA Gulf of Mexico Program, March 2000. 75 p.
Kiene, R. P. 2000. Dedication to Maureen Keller. A short dedication of a special issue of the Journal of Sea Research containing papers from the 1999 DMSP & Phaeocystis symposium.
Malone, T., L. Atkinson, F. Coleman, M. Fletcher, R. Jahnke, C. Mooers, J. Ogden, **W. Schroeder** and N. Walker. 1999. Toward a southeastern coastal ocean observation and prediction system. A Report of the Coastal Marine Research Workshop, Charleston, SC, August, 1999. Sponsored by Southeastern University Research Consortium (SURA) and the NOAA Coastal Services Center (CSC), 9 p.
Mullins, M., H. Burch, **M. Dardeau**, (Eds.). 1999. Our Water, Our Future: Mobile Bay and Delta. A Report to the Mobile Bay National Estuary Program. 64 pp.
Sager, W. W., **W. W. Schroeder**, I. R. MacDonald and I. D. Walsh. 2000. Mississippi-Alabama Marine Ecosystems Study Geological Characterization: High-Resolution Geological and Geophysical Survey of Outer Shelf Carbonate Mounds and their Environs. Proceedings: Eighteenth Annual Gulf of Mexico Information Transfer Meeting, New Orleans, LA, December, 1998. OCS Study MMS 2000-030, Pp. 317-331.
Schroeder, W. W. (Contributor). 1999. Northeastern Gulf of Mexico Coastal and Marine Ecosystem Program: Ecosystem Monitoring, Mississippi/Alabama Shelf. U.S. Department of the Interior, U.S. Geological Survey, Biological Resources Division, USGS/BRD/CR-1999-0005. 211 p.
Valentine, J. F. and K. Kirsch. 1999. The role of sea urchin grazing and predation in regulating subtropical turtlegrass meadow size: evidence from field manipulations in the Florida Keys. A report to the National Park Service and U.S. Environmental Protection Agency. 47 Pages.

Published Abstracts and Research Presentations

Alley, R. R. and **W. M. Graham**. 2000. Lipid composition of jellyfish tissue: a useful indicator of recent feeding and nutritional condition. International Conference on Jellyfish Blooms, Gulf Shores, AL.
Aronson, R. B. and D. B. Blake. 1999. Climate change and benthic community structure in Antarctica. American Zoologist 39:2A.
Aronson, R. B., W. F. Precht and I. G. Macintyre. 1999. Holocene history of mass coral mortalities on Caribbean reefs. EOS 80 (Supplement):OS98.
Berrell, T. A. and **J. F. Valentine**. 2000. Correlation between RNA:DNA and growth of brackish water clam, *Rangia cuneata*. Benthic Ecology Meetings, Wilmington, NC.
Berrell, T. A. and **J. F. Valentine**. 2000. Correlation between RNA:DNA and growth of brackish water clam, *Rangia cuneata*. University of South Alabama, 6th Annual Research Forum.
Bruton, J. A. and **R. P. Kiene**. 2000. Reaction of methanethiol with dissolved and colloidal substances in seawater. 2000 Ocean Sciences Meeting (AGU/ASLO), San Antonio, Texas, January.
Chaplin, G. I. and **J. F. Valentine**. 2000. Linking marine and freshwater foodwebs: Spatial subsidies for adult freshwater consumers from migratory fishes and crustaceans in the Mobile Bay Delta. University of South Alabama, 6th Annual Research Forum.
Chaplin, G. I. and **J. F. Valentine**. 2000. Linking marine and freshwater foodwebs: Spatial subsidies for adult freshwater consumers from migratory fishes and crustaceans in the Mobile Bay Delta. Benthic Ecology Meetings, Wilmington, NC.
Cinkovich, A. M. and **W. M. Graham**. 1999. Observations of jellyfish around density discontinuities using an *in situ* video profiler. GCRL Graduate Student Symposium.
Graham, W. M., H. Perry, et al. 2000. Diaphanous denizens from down under: first occurrence of *Phyllorhiza punctata* in Mississippi coastal waters. Gulf and Caribbean Fisheries Institute Meeting, Biloxi, MS.
Graham, W. M. 2000. Are jellyfish blooms in the northern Gulf of Mexico on the increase? An analysis of 10 years of fishery survey by-catch data. International Conference on Jellyfish Blooms, Gulf Shores, AL.
Hauxwell, J., **J. Cebrian** and I. Valiela. 1999. Effect of Macroalgal Shading on Eelgrass Production: Understanding Eelgrass Decline Associated with Eutrophication, 15th Estuarine Research Federation biannual meeting, New Orleans, LA, September 27-October 1.
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., R. Thomas and R. J. Horwitz. 2000. Growth of brown shrimp and spotted seatrout: a comparison of vegetated and unvegetated substrates. Poster presentation at Gulf of Mexico Symposium 2000, Mobile, AL, April.
Hines, M. E., K. N. Duddleston, R. B. Reich and **R. P. Kiene**. 2000. Low molecular weight organic compounds are not consumed in northern wetlands: implications for methane formation. INTECOL VI International Wetland Conference, Quebec, Canada.
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 14-19, Honolulu Hawaii.
Kiene, R. P., T. G. Stets and L. J. Linn. 2000. New insights into the control of DMS concentrations in surface seawater. SOLAS Conference, Damp, Germany, February 20-25.
Kiene, R. P., T. G. Stets, J. A. Bruton and L. J. Linn. 2000. Importance of organic sulfur turnover and assimilation to bacterial communities in marine and freshwater systems. ASLO, Copenhagen, June.
Kolesar, S. E., D. L. Breitburg, K. A. Rose and **J. H. Cowan, Jr.** 2000. The influence of hypoxia on the ctenophore *Mnemiopsis leidyi*: behavior and predation on *Gobiosoms bosc* larvae and *Anchoa mitchilli* eggs. International Conference on Jellyfish Blooms, Gulf Shores, AL, January.
Lewis, J. S., D. K. Odell and **W. W. Schroeder**. 2000. Unique foraging strategy by the bottlenose dolphin (*Tursiops truncatus*) in the Florida Keys. Atlantic Coastal Dolphin Conference, Wilmington, NC, March 24-26.
Lopez, R. C., **J. R. Pennock**, R. A. Arnone and S. D. Ladner. 2000. Mobile Bay sediment plume variability and chlorophyll distributions in the Alabama coastal zone using SeaWiFS satellite imagery. Sixth International Conference, Remote Sensing for Marine and Coastal Environments, Charleston, SC.
Martin, J. C. and **W. M. Graham**. 2000. Using *in situ* videography to describe fine-scale distributions of gelatinous megaplankton in the northern Gulf of Mexico. International Conference on Jellyfish Blooms, Gulf Shores, AL.
McCawley, J. R. and **J. H. Cowan, Jr.** 2000. Red snapper (*Lutjanus campechanus*) diet on Alabama artificial reef. Gulf of Mexico Fish and Fisheries: Bringing Together New and Recent Research, New Orleans, LA, October.

Miller-Way, T., **J. R. Pennock** and **W. W. Schroeder**. 2000. Dissolved oxygen dynamics in Mobile Bay: 1993-1995. Gulf of Mexico Symposium 2000, Mobile, AL, April 9-12.

Precht, W. F. and **R. B. Aronson**. 1999. Compositional changes in reef sediments related to changes in coral reef community structure. National Coral Reef Institute International Conference on Scientific Aspects of Coral Reef Assessment, Monitoring, and Restoration, Fort Lauderdale, FL.

Patterson, W., **J. H. Cowan, Jr.** and R. Shipp. 2000. Site fidelity and velocity of movement of tagged red snapper, *Lutjanus campechanus*, in the northern Gulf of Mexico. Gulf of Mexico Fish and Fisheries: Bringing Together New and Recent Research, New Orleans, LA, October.

Precht, W. F., L. S. Kaufman and **R. B. Aronson**. 2000. Shifts in microhabitat utilization by the threespot damselfish: implications for Caribbean reef ecology. Marine Benthic Ecology Meeting, Wilmington, NC.

Sager, W. W., **W. W. Schroeder** and G. A. O'Donnell. 2000. Carbonate mounds on the Mississippi-Alabama outer continental shelf: Indicators of past sea level and climate. EOS, Transactions, American Geophysical Union 80(49):134.

Sager, W. W., **W. W. Schroeder** and G. A. O'Donnell. 2000. Carbonate mounds on the Mississippi-Alabama outer continental shelf: Indicators of past sea level and climate. AGU/ASLO 2000 Ocean Sciences Meeting, San Antonio TX, January 24-28.

Schroeder, W. W. 1999. Stratification-destratification cycles in a shallow, microtidal, coastal plain estuary: potential consequences of climate change. ECSA Bulletin 32:20-21.

Schroeder, W. W. 2000. Video documentation of the geology and distribution of *Lophelia prolifera* at a deep-water reef site in the northeastern Gulf of Mexico. First International Symposium on Deep Sea Corals: Science and Conservation, Halifax, Nova Scotia, Canada, July 30 - August 3.

Schroeder, W. W. 2000. Disturbances: Their role in shaping coastal environments. Third International Conference on Environmental Problems in Coastal Regions: Coastal Environment 2000, Las Palmas de Gran Canaria, Spain, September 18-20.

Schroeder, W. W., R. Dunbar and K. Ludwig. 2000. Isotopic analyses of scleractinian corals from the northeastern Gulf of Mexico reveal insight into the Paleoenvironment of the late Pleistocene. EOS, Transactions, American Geophysical Union 80(49):134.

Schroeder, W. W., R. Dunbar and K. Ludwig. 2000. Isotopic analyses of scleractinian corals from the northeastern Gulf of Mexico reveal insight into the Paleoenvironment of the late Pleistocene. AGU/ASLO 2000 Ocean Sciences Meeting, San Antonio, TX, January 24-28.

Spitzer, P., **K. L. Heck, Jr.** and **J. F. Valentine**. 2000. Then and Now: a comparison of Blue Crab Research During the Early and Late 1990's in the Mobile Bay System. Benthic Ecology Meetings (Blue Crab Symposium), Wilmington, NC.

Stets, T. and **R. P. Kiene**. 2000. Microbiological controls on the production and consumption of dimethylsulfide in high and low latitude peat bogs. ASLO, Copenhagen, June.

Stumpf, R. P., V. Ransibrahmanakul, M. Culver, P. A. Tester, A. Subramaniam, R. A. Arnone, P. Martinolich, R. G. Steward, and **J. R. Pennock**. 2000. SeaWiFS Ocean Color Data for US Coastal Waters. Sixth International Conference, Remote Sensing for Marine and Coastal Environments, Charleston, SC.

Valentine, J. F. and K. L. Heck, Jr. 2000. Top-down control of seagrass habitat persistence: new evidence that herbivores can control seagrass density. Tampa Bay NEP Seagrass Workshop.

Invited Presentations

Aronson, R. B. and S. L. Miller. 2000. The role of monitoring in the management of coral reef resources. Gulf of Mexico Symposium 2000, Mobile, AL.

Aronson, R. B., W. F. Precht and I. G. Macintyre. 2000. Holocene history of mass coral mortalities on Caribbean reefs. Ocean Sciences Meeting, San Antonio, TX.

Aronson, R. B. and D. B. Blake. 2000. Global climate change and benthic community structure in Antarctica. Symposium on Antarctic Marine Biology, Society for Integrative and Comparative Biology Annual Meeting, Atlanta, GA.

Aronson, R. B. 1999. Rice University Geological Field Course, Belize, October.

Aronson, R. B. 1999. University of North Alabama, Florence, AL, November.

Aronson, R. B. 2000. University of Louisiana, Lafayette, LA, March.

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

Cowan, J. H. Jr. 2000. Fishes and their function in the Weeks Bay National Estuarine Research Reserve. Weeks Bay Symposium, Fairhope, AL, October.

Cowan, J. H, Jr. 2000. Fishes and their function in coastal ecosystems. Oceanography Seminar Series, Louisiana State University, Baton Rouge, August.

Cowan, J. H., Jr. 2000. Predation on larval marine fishes: perspective from 10 years of research. Marine Sciences Seminar Series, University of South Florida, April.

Cowan, J. H., Jr. and K. A. Rose. 2000. Jellyfish, larval fish and individual-based models. International Conference on Jellyfish Bloom, Gulf Shores, AL, January.

Graham, W. M. 1999. Are jellyfish blooms on the rise in coastal ecosystems? University of California-Santa Cruz.

Graham, W. M. 1999. Developing Collaboration Between Ocean Scientists and Science Educators: Should Old Sea Dogs Learn New Tricks? Monterey Bay Aquarium Research Institute.

Graham, W. M. 2000. Evaluating regional ecological shifts towards large gelatinous zooplankton. University of South Florida, Department of Marine Sciences.

Graham, W. M. 2000. Jellyfish! University of Southern Mississippi/IMS, Public Lecture Series (Evening at the Aquarium).

Graham, W. M. and **J. D. Dindo**. 2000. Developing collaboration between ocean scientists and science educators: Should old sea dogs learn new tricks? American Society for Limnology and Oceanography, Copenhagen, Denmark.

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, January.

Kiene, R. P. 2000. Max Planck Institute for Marine Microbiology. February 17.

Pennock, J. R. 2000. Eutrophication of Gulf of Mexico Estuaries. Invited Plenary Lecture, Gulf of Mexico Symposium, Mobile, AL.

Pennock, J. R. 2000. Nutrients and estuarine ecosystem health. 52nd Association of Food and Drug Officials of the Southern States, Orange Beach, AL, March.

Pennock, J. R. 2000. Nutrient and phytoplankton production dynamics in Weeks Bay, Alabama. Weeks Bay NERRS Symposium, Fairhope, AL, September.

Peterson, B. J. and **K. L. Heck, Jr.** 2000. The interrelationships between seagrasses and benthic suspension feeders. Invited paper. National Shellfish Association Annual Meeting, Seattle, WA, March.

Schroeder, W. W. 1999. Shelf hard bottom habitats. Physical/Biological Oceanographic Integration Workshop. MMS Gulf of Mexico, OCS Region. Mobile, AL, October 19-21.

Schroeder, W. W. 1999. Physical/biological oceanographic integration workshop. 19th Information Transfer Meeting, MMS Gulf of Mexico, OCS Region. Mobile, AL, November 30 - December 2.

Valentine, J. F. 2000. Alabama Society of Professional Engineers Presentation.

Meetings Chaired

Graham, W. M. 2000. International Conference on Jellyfish Blooms. Conference Organizer and Moderator, Gulf Shores, Alabama.

Meetings Organized

Schroeder, W. W. 1999. Physical/Biological Oceanographic Integration Workshop for the DeSoto Canyon and Adjacent Shelf. October 19-21, Mobile, AL.

Valentine, J. F. Gulf of Mexico Symposium 2000, Mobile, AL; Research Track Co-Organizer.

Sessions Chaired/Convened

Aronson, R. B. Gulf of Mexico Symposium 2000, Mobile, AL; Invited Session - Coral Reefs (with G. P. Schmahl).

Aronson, R. B. National Coral Reef Institute International Conference on Scientific Aspects of Coral Reef Assessment, Monitoring, and Restoration, Fort Lauderdale, FL, 1999. Special Session, The Limits of Detectability: Short-Term Events and Short-Distance Variance in the Community Structure of Coral Reefs.

Schroeder, W. W. Chaired Hydrodynamics and Water Quality Sessions at the 3rd International Conference on Environmental Problems in Coastal Regions – CE2000. September 18-20, Las Palmas de Gran Canaria, Spain.

Valentine, J. F. Coastal Habitat Enhancement and Restoration Technology, 2000 NOAA Workshop-Co-Chair

Grants & Contracts Active During 1999-2000

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 (1997-2000); Principal Investigator in 4-investigator team; Total award $650,000 – Aronson $221,331.

Aronson, R. B., G. F. Crozier and F. I. M. Thomas. FSML: Renovation of Dauphin Island Sea Lab's Wet Lab Facility. NSF - National Science Foundation (1998-2000); $150,000.

Aronson, R. B. Local Extinction of *Acropora cervicornis*, the Primary Framework Builder of Lagoonal Reefs in Belize. National Science Foundation Biological Oceanography Program – SGER (1999); $6,000.

Aronson, R. B. Mass Mortality of Caribbean Corals: Unique Event or Repeated Pattern? National Geographic Society (1999-2000); $10,000.

Aronson, R. B. Factors affecting the settlement of larval oysters, *Crassostrea virginica*: the roles of substratum topography, larval behavior and waterborne settlement cues. MASGC – Mississippi-Alabama Sea Grant Consortium Student Fellowship (Lisa Kellogg, Ph.D. Fellowship) (1999-2000); $5,000.

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.

Beck, M. and **K. L. Heck, Jr.** Evaluation of the nursery role of wetlands and seagrasses for better conservation and management. National Center for Ecological Analysis and Synthesis. (1999-2000); $88,000.

Boettcher, A., T. Sherman and **J. Valentine**. Role of invasive species in shaping plant-animal interactions in the Mobile Bay Delta. ACES - Alabama Center for Estuarine Studies-USEPA (2000-2001); $34,113.

Cebrian, J. and **J. R. Pennock**. Effects of anthropogenic eutrophication on the magnitude and trophic fate of microphytobenthic production in estuaries. ACES - Alabama Center for Estuarine Studies - USEPA (10/2000-10/2001); $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 C98-92 (7/1998-6/2001); $368,171.

Cebrian, J., J. Herrera, F. Comin and C. Madden. Estado trofico del ecosistema costero marino del Norte de Yucatan. CONACYT - Consejo Nacional de Ciencia y Tecnologia, Mexico, 32356-T (3/2000-2/2002); $100,300.

Cowan, J. H., Jr. Biogeochemical Tracers in Red Snapper Otoliths: A Test of the Unit Stock Hypothesis. MASGC - Mississippi-Alabama Sea Grant Consortium (1998-1999); $14,971.

Cowan, J. H., Jr. and L. Fuiman. Peril of the Unfit or the Unfortunate: Larval Fish Fitness and Vulnerability to Predators. NSF - National Science Foundation (1995-1999); $525,675.

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

Cowan, J. H., Jr. Temporal stability of microchemical fingerprints in otoliths of age-0 red snapper from the northern Gulf of Mexico. ADCNR - Alabama Department of Conservation and Natural Resources, Marine Resources Division (1998); $24,000.

Cowan, J. H., Jr. and A. Shah. Red snapper demographics on artificial reefs: the effects of nearest-neighbor dynamics. ACES - Alabama Center for Estuarine Science - USEPA (1999-2000); $78,000.

Cowan, J. H., Jr., D. Breitburg, et al. The Importance of Understanding the Ecological Complexity to Predicting the Effects of Multiple Stressors on Coastal Systems. NOAA Coastal Oceans Program (1994-1999); $1,200,000.

Cowan, J. H., Jr. and E. D. Houde. Recruitment Processes in Estuarine Fishes: Pattern, Scale and Ontogenetic Trends. NSF – National Science Foundation (1995-1999); $640,652.

Cowan, J. H., Jr. and R. L. Shipp. Evaluation of Artificial Reef Modules in the north central Gulf of Mexico. ADCNR - Alabama Department of Conservation and Marine Resources, Marine Resources Division (1997-2000); $337,000.

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 (1999-2000); $45,000.

Cowan, J. H., Jr., J. F. Valentine and **W. M. Graham**. Effects of variation in river discharge and wind-driven resuspension on higher trophic levels in the Mobile Bay ecosystem. ACES Alabama Center for Estuarine Studies-USEPA (1999-2002); $306,405.

Cowan, J. H., Jr., W. M. Graham and **J. F. Valentine**. Effects of variation in river discharge and wind driven resuspension on the potential for regulating human-induced impacts on the Mobile Bay ecosystems. ACES - Alabama Center for Estuarine Studies - USEPA (1999-2002); $306,405.

Crozier, G. F., C. Arceneaux and **J. F. Valentine**. Mobile Bay National Estuary Program Nomination Package. USEPA-National Estuary Program (1995-present); (est. $1.5 million).

Graham, W. M. Interaction between water-column structure and reproduction in jellyfish populations of Mobile Bay. ACES - Alabama Center for Estuarine Studies - USEPA (1999-2001); $44,319.

Graham, W. M. Estimation of water residence times and nutrient exchange in the polyhaline region of Mobile Bay. MASGC – Mississippi-Alabama Sea Grant Consortium (1998-1999); $35,060.

Graham, W. M. Request for sponsorship of the First International Conference on Jellyfish Blooms: 'Jellyfish Blooms of North America: A Scientific and Societal Agenda'. MASGC - Mississippi-Alabama Sea Grant Consortium (1999-2000); $36,000.

Graham, W. M. Energetic consequences of feeding in a patchy environment: possible limitations to jellyfish production in coastal ecosystems. NSF – National Science Foundation OCE CAREER (1998-2002); $390,026.

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

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

Heck, K. L., Jr. and **J. F. Valentine**. Fragmentation of SAV habitat and its influence on fisheries production. US Environmental Protection Agency – GOMP (10/2000-12/2001); $53,000.

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. ACES – Alabama Center for Estuarine Studies – USEPA (2000-2002); $52,327.

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

Heck, K. L., Jr., et al. Indicators of ecosystem health and sustainability in Gulf of Mexico estuaries. US Environmental Protection Agency (1/2000-12/2004); $6,149,312.

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. 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. ACES - Alabama Center for Estuarine Studies – USEPA (1999-2002); $ 261,062.

Heck, K. L., Jr., J. R. Pennock and **J. F. Valentine**. Effects of nutrient enrichment and large predator removal on seagrass nursery habitats: an

experimental assessment. US Environmental Protection Agency (1/1998-6/2000); $281,365.

Kiene R. P., J. R. Pennock and F. I. M. Thomas. Effects of variation in river discharge and wind-driven resuspension on lower trophic levels in the Mobile Bay ecosystem. ACES – Alabama Center for Estuarine Studies – USEPA (1/1999-8/2002); $258,580.

Kiene, R. P. Effects of salinity stress on natural and anthropogenically-derived bacteria in estuarine environments. ACES - Alabama Center for Estuarine Studies – USEPA (1/1999-12/2000); $54,500.

Kiene, R. P. Sulfur Cycling in Estuaries: Interaction with Mercury and other Metals. MASGC - Mississippi-Alabama Sea Grant Consortium Student Fellowship (Jody Bruton, Ph.D. Fellowship); (6/2000-5/2001); $5,000 + $5000 match from University of South Alabama.

Kiene, R. P. Impacts of solar ultraviolet radiation and the enhanced effects due to coastal pollution. MASGC - Mississippi-Alabama Sea Grant Consortium Student Fellowship (Rita Peachey, Ph.D. Fellowship) (6/1999-5/2000); $5,000.

Kiene, R. P. Biogeochemical fate of DMSP in seawater. NSF - National Science Foundation - Chemical Oceanography (9/1999-3/2002); $350,108.

Kiene, R. P. Marine biogeochemistry of dissolved DMSP and its sulfur-containing degradation products. NSF - National Science Foundation - Chemical Oceanography (4/1996-3/1999); $308,721.

Kiene, R. P. Dimethylsulfide metabolism in relation to carbon cycling pathways in Sphagnum-dominated wetlands. NSF - National Science Foundation – Ecosystems (9/19996-3/1999); $137,218 - Completed August 2000.

Lyons, B., E. Reyes, A. Carey, J. Day, S. R. Durans, M. Inoue and **J. R. Pennock.** Establishment of an input database and modeling framework for the Northern Gulf of Mexico at the watershed level. MASGC - Mississippi-Alabama Sea Grant Consortium (2/1999-1/2000); $24,957.

Pennock, J. R. Digitization of Alabama estuarine and coastal water quality data. ADEM – Alabama Department of Environmental Management (1/1999-12/1999); $26,267.

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. ACES - Alabama Center for Estuarine Studies – USEPA (7/1999-6/2001); $97,428.

Pennock, J. R. Land-use and land-cover changes in the Mobile Bay watershed and the impact of these changes on estuarine and coastal water quality. Alabama Space Grant Consortium Graduate Fellowship Program (Principal Investigator of award to John Lehrter) (9/1998-8/2000); $20,000.

Pennock, J. R. Non-point source nutrient inputs and their role in the food web of the Weeks Bay National Estuarine Research Reserve, Alabama. NOAA-National Estuarine Research Reserve System Fellowship Program (Principal Investigator of award to K. Shotts) (6/1997-5/2000); $49,500.

Pennock, J. R. FSML: Field and laboratory instrumentation in support of interdisciplinary marine research at the Dauphin Island Sea Lab, Alabama. NSF - Biological Field Stations and Marine Laboratories (12/1999-11/2000); $103,245.

Pennock, J. R. Research experiences for undergraduates in coastal and nearshore marine systems of the northeastern Gulf of Mexico. NSF – National Science Foundation - Research Experiences for Undergraduates (1/1999-12/2001); $106,701.

Pennock, J. R., Q. Dortch and C. Moncreif. Threat of *Gymnodinium breve* blooms in low salinity waters of the northern Gulf of Mexico. MASGC - Mississippi-Alabama Sea Grant Consortium (11/1997-10/1999); $60,000.

Pennock, J. R., R. Stumpf, P. Tester, R. Arnone, K. Carder and C. Thomas. Ocean color algorithm evaluation for remote sensing of coastal and estuarine waters: U.S. South Atlantic bight and eastern Gulf of Mexico. NOAA Coastal Ocean Program (10/1996-9/1999); $682,110.

Rabalais, S. and **W. M. Graham.** Proposal to install high-speed data communications for Internet access at sea. UNOLS SEANET Consortium (1998-1999); (Approx. $5000 in support for Graham's CAREER cruises beginning in 1999).

Schroeder, W. W. Physical/Biological Oceanographic Integration Workshop on DeSoto Canyon and Adjacent Shelf Areas. USDI-MMS (1999-2000); $86,542.

Schroeder, W. W. Forecasting of the ecological catastrophes for the Azov Sea (Russia), Mobile Bay (USA) using model of the inland seas and bays. Soros Foundation, Research Support Scheme, Czech Republic (1999-2000); $13,500. Schroeder 33%. Awarded to the University of Rostov, Rostov, USSR, for data acquisition and processing.

Schroeder, W. W. MESC Graduate Studies Fellowship Fund. Mobil Foundation, New Orleans, Louisiana (1984-2000); $85,000 ($5,000 in 2000).

Schroeder, W. W. Acquisition of a Gas-Source Mass Spectrometer Facility for Geological, Hydrological and Ecology Research at The University of Alabama. NSF – National Science Foundation - Office of Science & Technology Infrastructure(1999); $212,000.

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. MESC Graduate Studies Fellowship Fund. Shell Companies Foundation, Houston, Texas (1983-2000); $75,000 ($2,500 in 2000).

Valentine, J. F., T. Sherman, **J. H. Cowan, Jr.** and S. Madhavan. 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. ACES - Alabama Center for Estuarine Studies – USEPA (2000-2001); $22,348.

Valentine, J. F. Biological Diversity in Coastal Alabama. ADCNR - Alabama Department of Conservation and Natural Resources (1998-1999); $35,000.

Valentine, J. F. Seagrass herbivory in the Florida Keys: EPA Intensive Site Study Demonstration Project. US Environmental Protection Agency (1997-1998); $20,000.

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 (2000-2001); Estimated budget $64,600 each year.

Valentine, J. F. 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. Andres Mellon Foundation Ecosystem Research Program (2001-2003); $180,000.

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. NOAA – NURC (1999-2000); $40,000.

Extramural Support 1999/2000

CONTRACT AGENCY	P.I.(S)	TITLE	BEGIN DATE	END DATE	AMOUNT FUNDED	INCOME FY 99/00
ACES/USA	Heck	Establishment Of Usa Estuarine And Coastal Gulf Environmental Research Center	Jan-99	Dec-00	100,991	26,279
UAT/MMS	Schroeder	Minerals Management Workshop	Jun-99	May-00	34,130	30,776
MASGC	Graham	Jellyfish Conference		Jun-00		15,860
FDA	Crozier	Oyster Research (Griffin)	Sep-99	Sep-00	21,000	13,764
ACES/USA	Heck	Establishment Of Usa Estuarine And Coastal Gulf Environmental Research Center	Jan-00	Dec-00	103,954	84,393
ALA. EDUC. DEPT.	Dindo	World Of Water Ô00 Teacher Inservice	Jan-00	Sep-00	70,124	67,892
NSF	Pennock	Research Experiences For Undergraduates In Coastal And Nearshore Marine Systems Of The Northeastern Gulf Of Mexico.	May-99	Feb-00	106,701	30,338
EXXON	Crozier	2000 Summer Jobs			1,500	1,500
EXXON	Young	2000 Summer Jobs			1,500	1,500
NOAA	Pennock	The Linkage Between Land-Use/Land-Cover, Nitrogen Flux, And Dentrification In Estuarine Habitats	Jun-00	May-01	16,500	83
EXXON	Pennock	1999 Summer Jobs			3,000	1,000
MASGC	Aronson	Factors Affecting The Settlement Of Larval Oysters, Crassostrea Virginica: The Roles Of Substratum Orientation, Larval Behavior And A Waterborne Settlement Cue (Kellogg)	Jun-99	May-00	5,000	2,177
MASGC	Thomas	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-00	5,000	876
ADECA	Crozier	Disl Operating Expenses			100,000	
MDMR	Crozier	Voluntary Conservation Easements Program	Aug-99	Mar-00	15,000	11,250
MDMR	Crozier	Guidebook Development Coastal Marinas	Aug-99	Mar-00	13,500	10,125
ADECA	Crozier	Public Information, Outreach And Education	Oct-99	Sep-00	45,000	45,000
ADECA	Crozier	Alabama Coastal Wetlands	Oct-99	Sep-00	23,000	23,000
ADECA	Crozier	Coastal Area Management Program	Oct-99	Sep-00	7,000	7,000
ADECA	Crozier	Comprehensive Coastal Public Access Plan	Oct-99	Sep-00	18,000	18,000
ADEM	Crozier	Support For The Gulf Of Mexico Symposium	Apr-00	Sep-00	5,000	5,000
MDMR	Crozier	Northern Gulf Coast Partnership Project	Jul-00	Jun-01	52,500	10,009
NSF	Crozier	Fsml: Renovation Of Dis! Wet Lab Facility	May-98	Feb-02	150,000	31,749
BEDSOLB	Crozier	Wetlab Renovation Funding			225,000	
MOBIL	Crozier	Wetlab Renovation Funding			15,000	
USA	Crozier	Renovate And Improve Educational Facilities Of Mesc		Jan-01	250,000	
EPA	Heck Pennock Valentine	Effects Of Nutrient Enrichment And Large Predator Removal On Seagrass Nursery Habitats: An Experimental Assessment	Jan-98	Jan-01	216,672	119,358
MASGC	Graham	Estimation Of Water Residence Times And Nutrient Exchange In The Polyhaline Region Of Mobile Bay	May-98	Oct-99	22,598	7,360
NSF	Graham	Energetic Consequences Of Feeding In A Patchy Invironment: Possible Limitations To Jellyfish Production In Coastal Ecosystems	Jul-98	Jun-03	390,028	80,858
MASGC	Pennock	Threat Of Gymnodinium Breve Blooms In Low Salinity Waters Of The Northern Gulf Of Mexico	Nov-98	Oct-99	30,000	3,823
NSF	Aronson	Sger: Local Extinction Of Acropora Cervicornis, The Primary Framework Builder Of Lagoonal Reefs In Belize	Jan-99	Dec-99	6,000	

CONTRACT AGENCY	P.I.(S)	TITLE	BEGIN DATE	END DATE	AMOUNT FUNDED	INCOME FY 99/00
ADEM	Pennock	Digitization Of Alabama Estuarine And Coastal Water Quality Data	Feb-99	Dec-99	26,267	18,161
ACES/USA	Heck	Fisheries-Induced Changes In The Structure And Function Of Shallow Water Nursery Habitats: An Experimental Assessmentéyr1	Jan-99	Dec-00	94,889	71,808
ACES/USA	Graham	Subaward To Conduct Research On Jellyfish	Jan-99	Dec-00	15,000	
NMFS	Heck	Turtle Survey	Jun-99	Jan-00	11,667	10,327
NOAA	Pennock	Non-Point Source Nutrient Inputs And Their Role In The Food Web Of The Weeks Bay Neer, Alabama	Jun-99	May-00	16,500	11,045
ACES/USA	Pennock	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	Jun-01	38,812	11,149
ACES/USA	Cowan	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	25,431
ACES/USA	Kiene	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	6,086
ACES/USA	Graham	Interaction Between Water-Column Structure And Reproduction In Jellyfish Populations Of Mobile Bay	Apr-99	Dec-02	5,252	193
ACES/USA	Heck	Fisheries-Induced Changes In The Structure And Function Of Shallow Water Nursery Habitats: An Experimental Assessmentéyr2 & Yr3	Jan-00	Dec-02	166,173	16,603
UNCW/NOAA	Valentine	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	13,500
FIO/NOAA	Aronson	The No-Take Zones Of The Florida Keys National Marine Sanctuary (Additional Funding #236)	Sep-98	Jun-00	7,125	7,125
NFWF	Dindo	Shell Marine Habitat Program To Support The Cat Island Heronry Restoration Project.	Oct-99	Sep-00	11,500	5,000
FIO/NOAA	Aronson	The No-Take Zones Of The Florida Keys National Marine Sanctuary (Yr3)	Sep-99	Dec-00	61,835	27,057
MASGC	Graham	Rapid Response Sampling To A Recent Non-Indigenous Jellyfish Bloom	Aug-00	Jul-01	5,000	9,292
NSF	Aronson	Global Climate Change And The Evolutionary Ecology Of Antarctic Mollusks In The Late Eocene	Sep-00	Aug-03	87,000	
NATURE CONSER-VANCY	Valentine	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	
ACES/USA	Cebrian	Effects of Anthropogenic Eutrophication on the Magnitude and Trophic Fate of Microphytobenthic Production in Temperate Estuaries	Sep-00	Dec-02	29,480	149
TOTAL						1,104,526

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*
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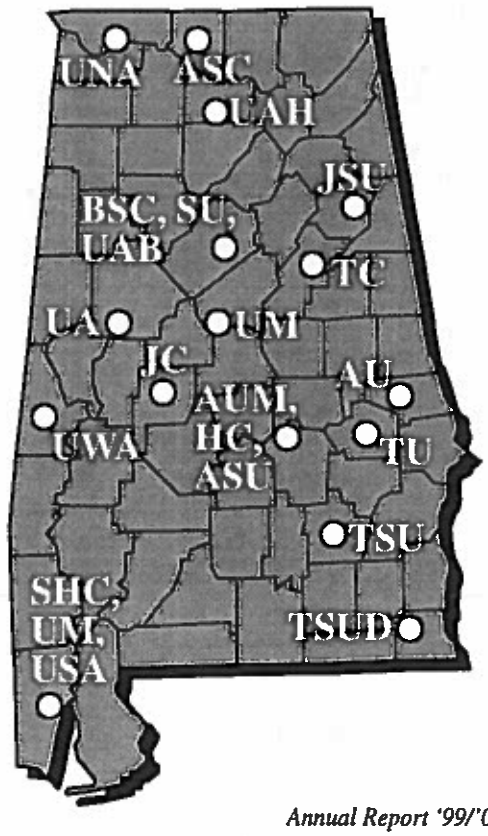
Talladega College, Talladega, AL
Troy State University, Troy, AL
Troy State University at Dothan, Dothan, AL
Tuskegee University, Tuskegee, AL*
University of Alabama, Tuscaloosa, AL*
University of Alabama at Birmingham, Birmingham, AL*
University of Alabama in Huntsville, Huntsville, AL*
University of 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***



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Mr. V. Gordon Moulton, President
University of South Alabama *(7-29-98)*

Dr. Ed Roach, President
University of West Alabama *(9-1-98)*

*** Denotes private institution** (8)
November 2000

EXECUTIVE COMMITTEE

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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, 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

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Dr. Lawrence Drummond, Talladega College

Dr. Stephen Landers, Troy State University

Dr. Stacey Mixon, Troy State University at Dothan

Dr. Douglas Hileman, Tuskegee University

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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

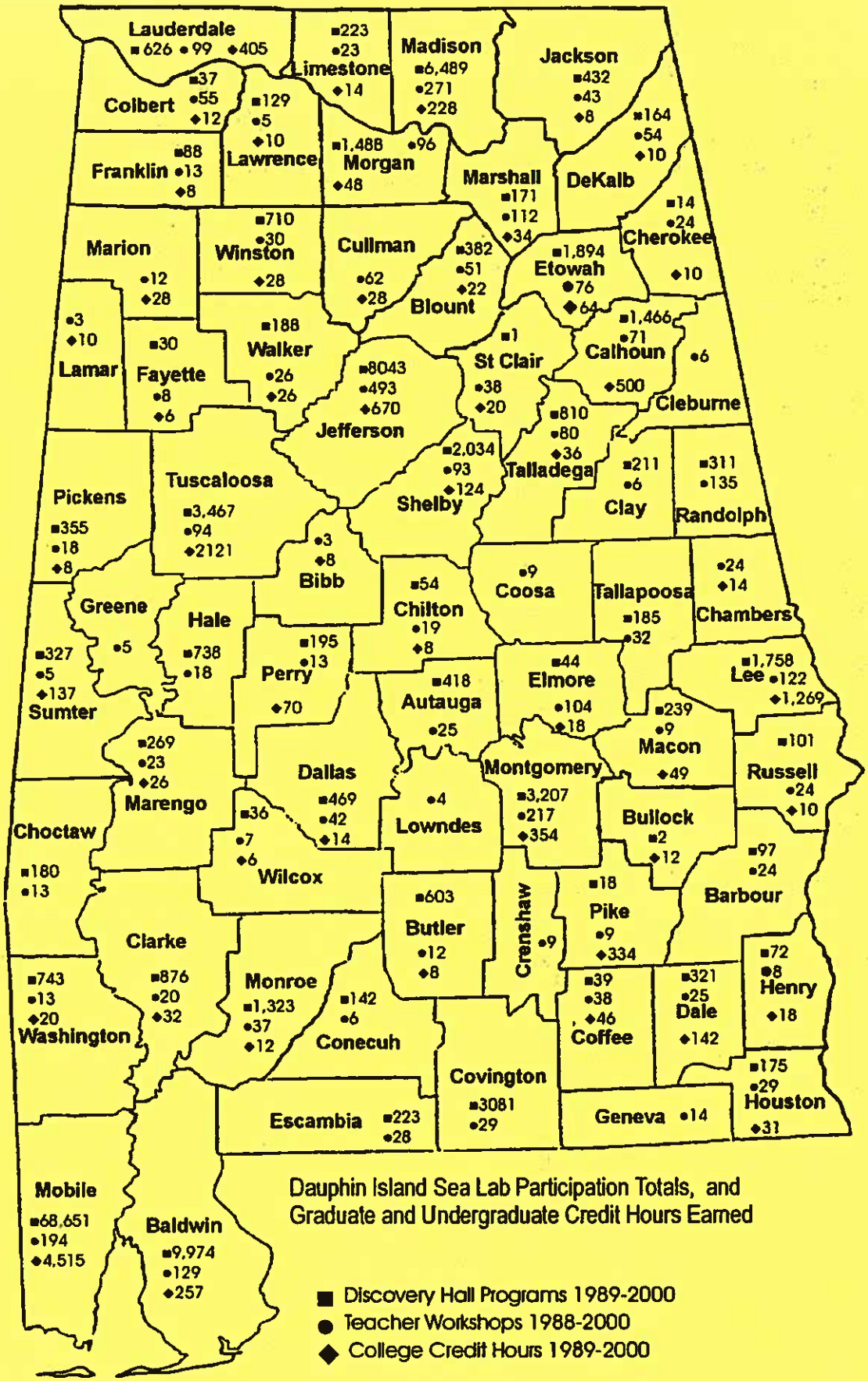
Dr. Jack O'Brien, University of South Alabama

Dr. John McCall, University of West Alabama

Balance Sheet

Dauphin Island Sea Lab
Statements of Changes in Fund Balances
From 10/01/99 through 09/30/00

	Current Funds		Investment
	Unrestricted	Restricted	In Plant
Revenues and Other Additions			
Unrestricted current fund revenues	$ 4,589,016.60	$	$
Federal grants and contracts		1,104,018.46	
State grants and contracts		100,000.00	
Private gifts, grants and contracts		35,040.60	
Retirement of indebtedness			130,629.45
Expended for plant facilities (Including $565,139.63 charged to current fund expenditures)			565,139.63
Total Revenues and Other Additions	4,589,016.60	1,239,059.06	695,769.08
Expenditures and Other Deductions			
Educational and general expenditures	3,728,020.33	959,487.01	
Auxiliary enterprise expenditures	1,059,186.56		
Indirect costs recovered		148,861.77	
Disposals of plant facilities			45,735.31
Total Expenditures and Other Deductions	4,787,206.89	1,108,348.78	45,735.31
Net Increase/(Decrease) for the Year	(198,190.29)	130,710.28	650,033.77
Fund balance at the beginning of the year	1,053,649.66	435,305.55	7,510,801.33
Prior period adjustments	(21,681.71)	(21,195.41)	
Fund balance at the beginning of the year-restated	1,031,967.95	414,110.14	7,510,801.33
Fund balance at the end of the year	$ 833,777.66	$ 544,820.42	$ 8,160,835.10


Lauderdale
■626 ●99 ◆405
■223
●23
Limestone
◆14
Madison
■6,489
●271
◆228
Jackson
■432
●43
◆8
Colbert
■37
●55
◆12
■129
●5
◆10
Lawrence
■88
Franklin ●13
◆8
■1,488 ●96
Morgan
◆48
Marshall
■171
●112
◆34
DeKalb
■164
●54
◆10
■14
●24
Cherokee
◆10
Marion
●12
◆28
■710
●30
Winston
◆28
Cullman
●62
◆28
■382
●51
◆22
Blount
■1,894
Etowah
●76
◆64
●3
◆10
Lamar
■30
Fayette
●8
◆6
■188
Walker
●26
◆26
■8043
●493
◆670
Jefferson
■1
St Clair
●38
◆20
■1,466
●71
Calhoun
◆500
●6
Cleburne
■810
●80
◆36
■2,034
●93
◆124
Shelby
Talladega
■211
●6
Clay
■311
●135
Randolph
Pickens
■355
●18
◆8
Tuscaloosa
■3,467
●94
◆2121
●3
◆8
Bibb
■54
Chilton
●19
◆8
●9
Coosa
Tallapoosa
■185
●32
●24
◆14
Chambers
Greene
●5
Hale
■738
●18
■195
●13
Perry
◆70
■327
●5
◆137
Sumter
■418
Autauga
●25
■44
Elmore
●104
◆18
■239
●9
Macon
◆49
■1,758
Lee ●122
◆1,269
■269
●23
◆26
Marengo
Dallas
■469
●42
◆14
Montgomery
■3,207
●217
◆354
■101
Russell
●24
◆10
Choctaw
■180
●13
■36
●7
◆6
Wilcox
●4
Lowndes
Bullock
■2
◆12
■97
●24
Barbour
■603
Butler
●12
◆8
Crenshaw
●9
■18
Pike
●9
◆334
Clarke
■743
●13
◆20
Washington
■876
●20
◆32
Monroe
■1,323
●37
◆12
■142
●6
Conecuh
■39
●38
◆46
Coffee
■321
●25
Dale
◆142
■72
●8
Henry
◆18
Covington
■3081
●29
■175
●29
Houston
◆31
Escambia ■223 ●28
Geneva ●14
Mobile
■68,651
●194
◆4,515
Baldwin
■9,974
●129
◆257
Dauphin Island Sea Lab Participation Totals, and
Graduate and Undergraduate Credit Hours Earned
■ Discovery Hall Programs 1989-2000
● Teacher Workshops 1988-2000
◆ College Credit Hours 1989-2000