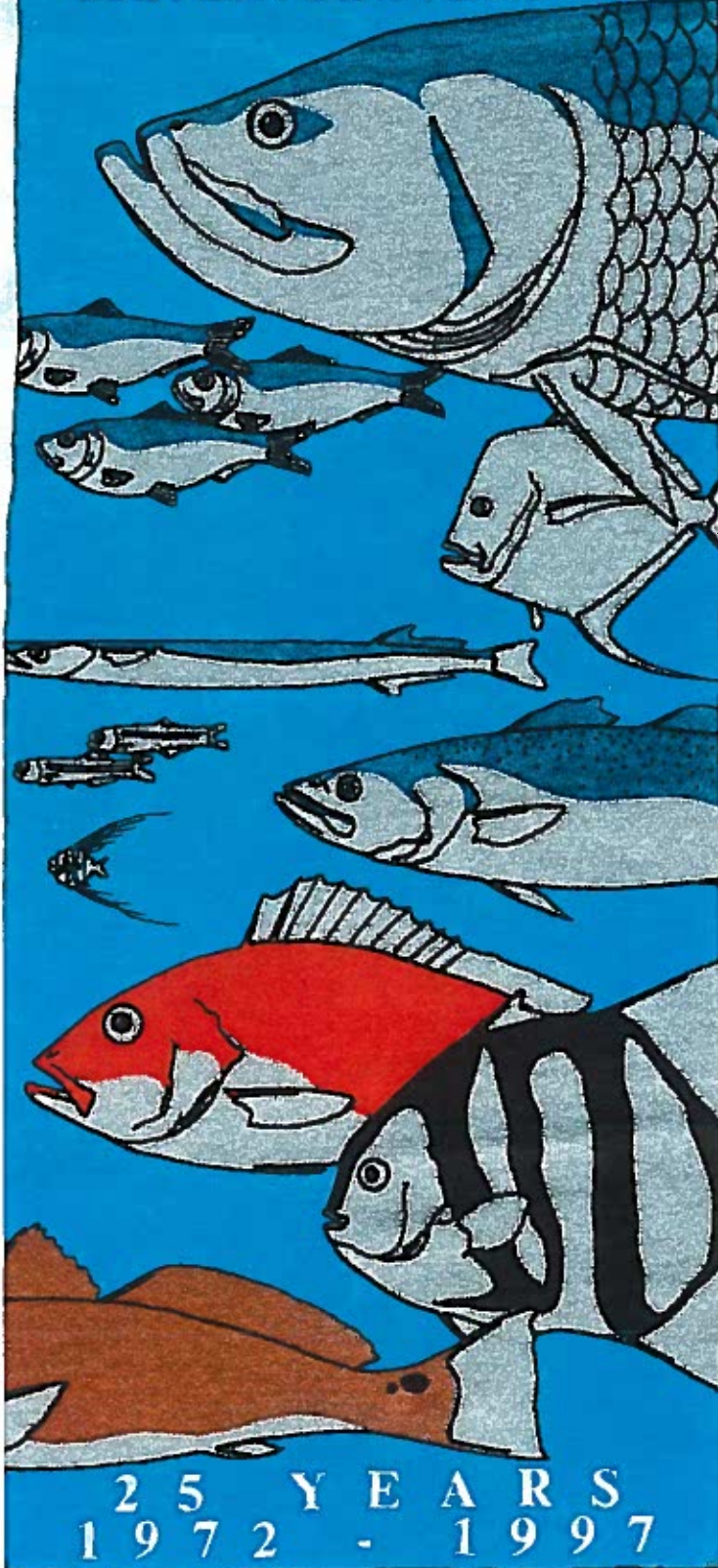


Dauphin Island Sea Lab

DAUPHIN ISLAND SEA LAB
SILVER ANNIVERSARY



1996-97

Annual Report

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.

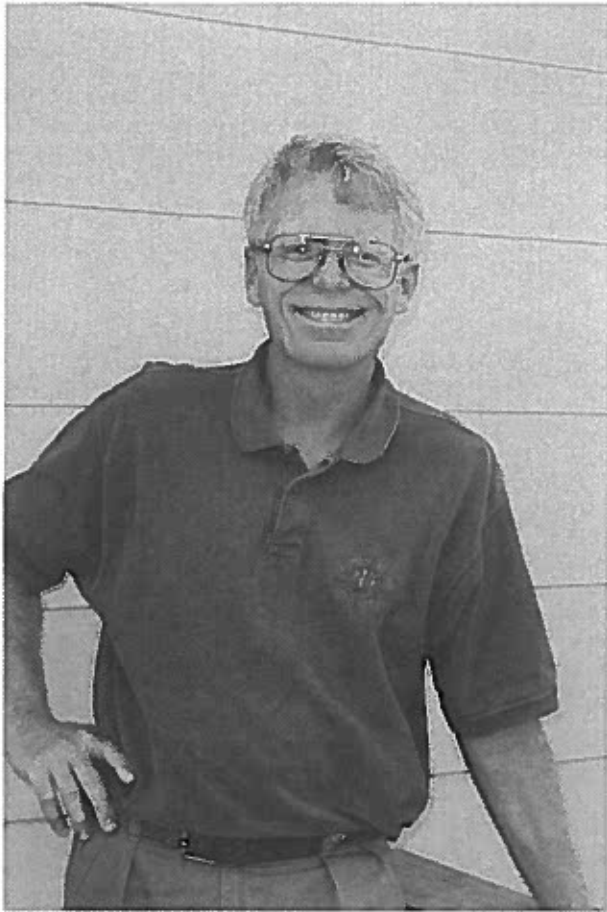


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Staff, faculty and students of the Dauphin Island Sea Lab.



Letter from the Director

1997 was truly a landmark year, constituting the 25th year of operation of the Dauphin Island Sea Lab, in that The Estuarium actually emerged from the ground and the internal reorganization of the laboratory began to take effect. Most of the year was occupied with trying to raise funds to complete the facility, including the creation of the Dauphin Island Public Education Authority to facilitate the bond issue.

Graduate studies within our Department of University Programs reached saturation levels with an accompanying increase in quality of student. This relatively large class of graduate students was complemented by a challenging group of undergraduates participating in our first National Science Foundation Research Experience for Undergraduates grant. This project was directed by Dr. Stout and was certainly one of the best experiences for the Sea Lab that I have ever seen. We can only hope that it was as beneficial for them as it was for the institution.

The Lab was also honored by NSF's awarding of an Early Faculty Career Grant to Dr. Flo Thomas. This project effectively takes advantage of the great strengths of the laboratory and the Consortium — breadth, diversity and depth of educational programs. Flo (and the Sea Lab) were further honored by her project being selected for a Presidential citation. Unfortunately, she had to miss the 25th anniversary party with the alumni in order to be in Washington to receive her award.

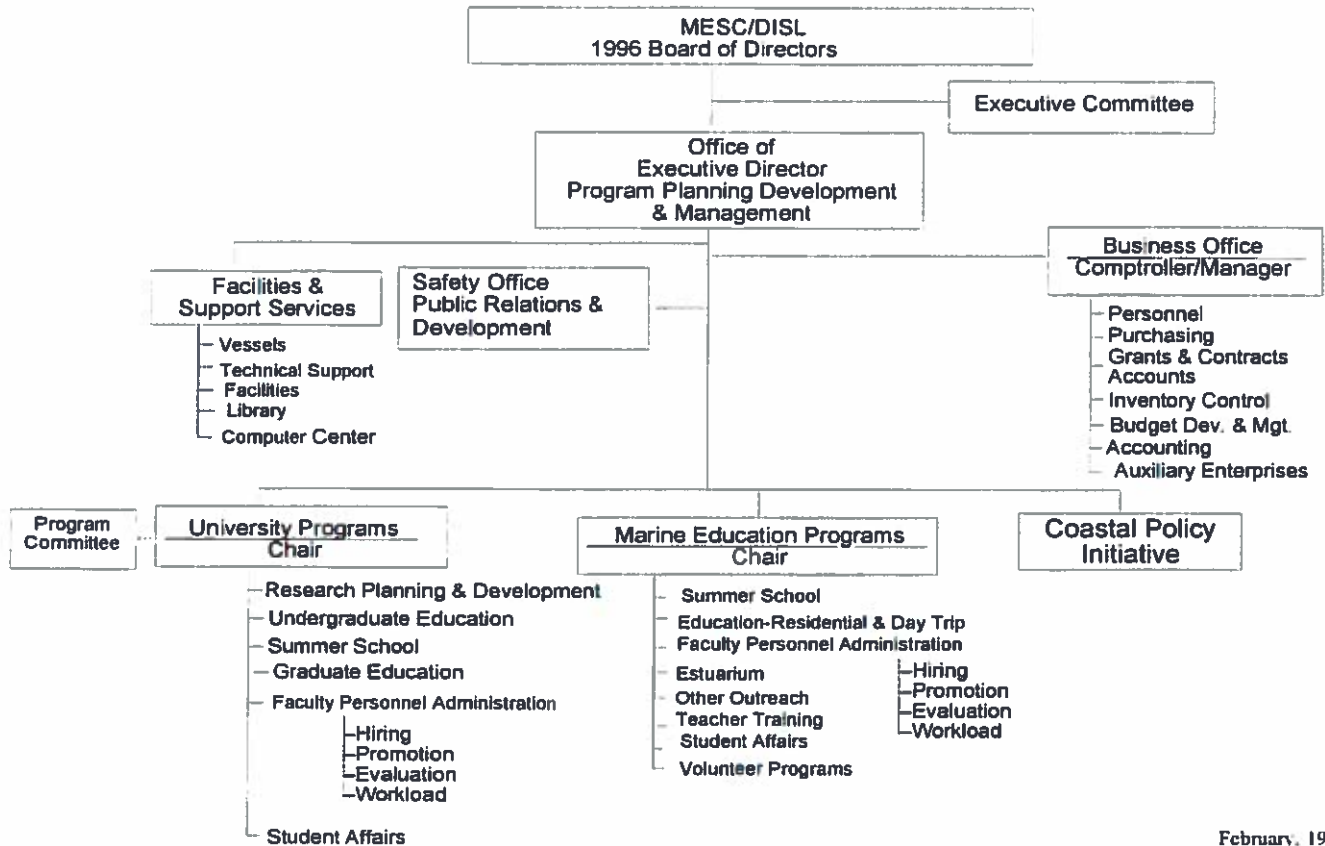
In many ways, 1997 was a year like no other, but there haven't ever been two alike, so the observation is probably moot. Certainly I can hope that the next 25 years will be less eventful than the first 25!

Sincerely,

George F. Crozier

Organizational Overview

Although there have been a number of personnel changes in administration, the overall structure has not changed significantly since the reorganization in 1996. The regular staff meetings and Planning Council sessions have allowed the laboratory to function more efficiently than in the past simply because of improved communications. The resignation of Ms. Martha Caldwell from the Safety Office resulted in the role being assumed by Dr. Crozier's office. The Docent Program was also de-centralized and moved largely into Discovery Hall Programs.



February, 1997

Administration and Facilities

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

Four buildings located on the south campus provide over 9,000 square feet of classroom/laboratory facilities. The Marine Science Hall, the main research facility, contains over 7,000 square feet of research space, and 1,250 square feet of office space. The campus can accommodate over 160 persons in residence. Two 84-person dormitories, a two story efficiency apartment complex with twelve units, a cafeteria and ten 3-bedroom houses provide quarters for visiting faculty and students.

Administration

Administrative Personnel

George Crozier, Executive Director
John Dindo, Chair, 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 DISL operates under the principles of Fund Accounting set forth by the National Association of College and University Business Officers (NACUBO). MIP Fund Accounting system continues to meet the needs of the growing contracts and grants received by DISL faculty. Procedures, accounting records and policies of the DISL business office are audited annually by the State Examiners of Public Accountants.

Business/Finance Personnel

Georgia Mallon, Comptroller/Business-Auxiliary Manager
Lynn Bryant, Bursar/Contracts & Grants Manager
Tiffany Cotton, Accounts Payable/Payroll
David England, Purchasing Agent/Bursar Trainee
Rita George, Registrar/Student Services
Joyce Carroll, Receptionist
Denise Keaton, DHP Registrar
Carolyn Wood, Faculty Administrative Assistant

Auxiliaries

Auxiliaries of DISL include the bookstore/gift shop, cafeteria, laundromat and vending machines

Auxiliary Personnel

Anna Harbison, Assistant Supervisor

Computer Center

Dauphin Island Sea Lab Website: <http://sites.gulf.net/sealab>

Computer Center Personnel

Randy Schlude, Computer Center Manager
Chris Miles, Applications Programmer/Network Technician

Library

During the '96-'97 reporting year, the Sea Lab library contained 6,715 books and 147 journal subscriptions, with access to over 600 periodical titles. Over 660 interlibrary loan requests were handled this year.

Library Personnel

Connie Mallon, Librarian

Plant Operations

Plant Operations installed a number of improvements to the facilities at the Sea Lab, including enlarging the flume room in the wet lab; renovating the attic of Endeavor into an office for Dr. Dindo; adding a 16' x 56' deck in front of Endeavor; and adding a 20' x 48' deck to the cafeteria, complete with covered walkway to Challenger.

Plant Operations Personnel

Darrel Mallon, Plant Operations Supervisor
Donald Anderson
Wilton Barber
Michael Connell
Jim Daves
Ricky Gibbs
Shirley Kirkpatrick
Dottie Mallon
Mary McLaughlin
Tamara Moorer
Dennis Patronas
Theresa Porter
Steve Ruf
Ron Schuett
Russell Wilson
David Yommer

Public Relations Office

During the first full year of the Public Relations Office at the Sea Lab, much energy was devoted to significantly increasing print and electronic media coverage locally, statewide and nationally of the DISL and its programs. The DISL received press attention in twenty-seven counties throughout Alabama, as well as in states as far away as California. Everything from the Estuarium to pre-service teacher training to faculty research served as topics for media storylines.

In terms of infrastructure, regular working relationships with members of the press were established and maintained. *Tidings*, the DISL newsletter, was both re-established and expanded in format and distribution, as the database increased from 900 recipients to well over 4,000, including members of the media, legislature and educators from around the state.

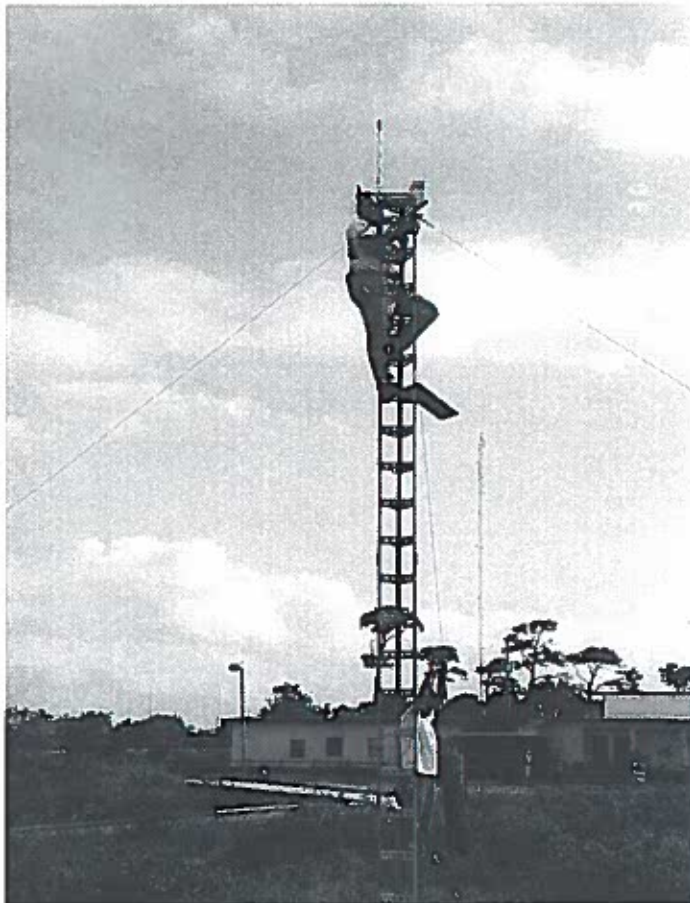
Public Relations Personnel

Lisa Young, Public Relations Officer

Technical Support

Technical Support Personnel

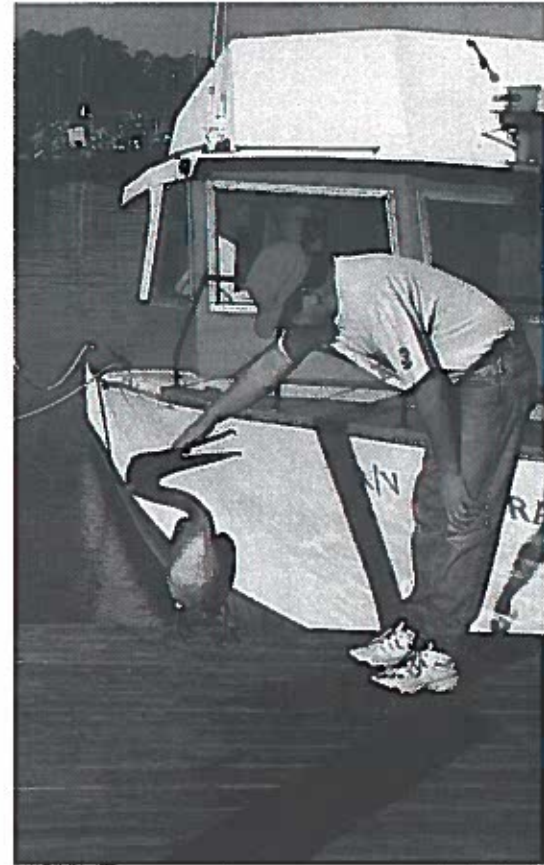
Mike Dardeau, Marine Scientist
Jean Cowan, Marine Technician
Al Gunter, Marine Technician



Sea Lab Technician Al Gunter (top of weather station) and Marine Scientist Michael Dardeau tend to the Weather Station on the campus of the facility.

Vessels

The crew at the DISL were kept busy during the reporting year with a number of improvements and maintenance of the 65' *A.E. Verrill*, including replacing 150' of rail cap; rebuilding the forward capstan and the primary and secondary bilge pumps; and replacing the bilge piping and suction/cutoff valves. The *Deborah B.* also saw a number of repairs, including installing new running lights and anchor lights; rebuilding the bilge/deckwater pump; and replacing the exhaust hose on the main engine.



Captain Rodney Collier pats a friend on the dock.

Vessel days at sea (including 1/2 days)

<u>Vessel</u>	<u>94/95</u>	<u>95/96</u>	<u>96/97</u>
<i>A.E. Verrill</i>	97	87	94
<i>Deborah B.</i>	15	3	18
Small boats	107	114	81

Vessel Personnel

Rodney Collier, Supervisor
Joe Sullivan
Russell Wilson

Academic Programs

Discovery Hall Programs

The Discovery Hall Programs offer a variety of learning experiences for all ages. Elementary students to senior citizens participate in field activities ranging from the measurement of coastal waves and currents to the exploration of salt marshes. Schools receive special lectures on marine careers and habitats. Workshops equip teachers to carry the "oceans" into their classrooms. It is through the Discovery Hall Programs that the Dauphin Island Sea Lab reaches beyond the scientific and higher education communities to promote good stewardship of the world's oceans.

Fiscal Year	K-5	Middle School	High School	College	Teachers	Other	Total
FY 90-91	2,759	533	265	103	62	415	4,137
FY 91-92	5,918	1,732	1,061	677	129	681	10,198
FY 92-93	7,236	2,139	1,486	663	30	360	11,914
FY 93-94	7,847	2,141	1,906	624	172	642	13,332
FY 94-95	5,626	1,483	1,151	606	8	342	9,216
FY 95-96	7,165	1,916	1,482	577	78	254	11,472
FY 96-97	6,793	2,147	1,068	637	33	225	10,903
TOTAL	43,339	12,091	8,419	3,887	512	2,919	71,167

UPDATED MAY 25, 1998

Foundation, and Scott Paper Company. BayMobile is very much in demand and its visits include: Kid's Day in Bienville (12,000-15,000); Axis Community Day (900); NEP's Discover Mobile Day; Coden Heritage Days (200); Earth Day in Mobile and Fairhope (1,100) and many more.

Field and Lab Programs

The basis of the Discovery Hall Program...let's explore...please touch...ask lots of questions...is the hands-on approach to learning science. Discovery Hall educators lead students to salt marshes, beach walks, maritime forest explorations, and out on research vessels where all participate in hands-on learning. This unique ability to blend classroom activities with field or lab application results in a better understanding of the ecosystem, and how the knowledge of science is applied. In the 1996/97 academic year, Discovery Hall delivered programs to 223 schools from 34 Alabama counties — in all, 10,903 students and teachers during the academic year, not including the summer program.

Outreach — BAYMOBILE

The staff of the Discovery Hall Programs and the members of DISL's Docent Program offer and administer a traveling touch program known as "BayMobile." BayMobile is an exhibit that provides a marine educational experience to large, heterogeneous groups that are unable to visit the Sea Lab. It is sponsored in part by Exxon, Alabama Power

Community Service

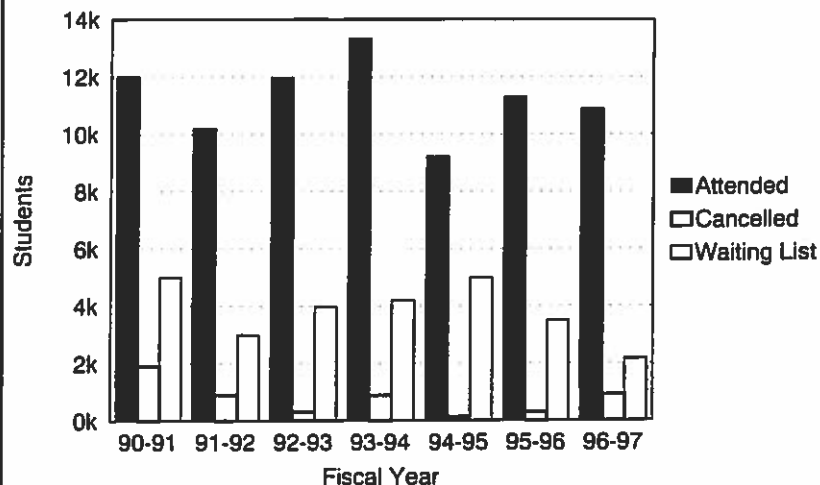
The marine educators of the Discovery Hall Programs continue to participate in many Community Service activities. There are various community needs and interests that call for the special resources within the Discovery Hall Programs, and DHP attempts to meet all special interest requests when possible. Some 1996 Community Service activities were: Environmental Studies Day; judging county and regional science fairs; speaking at Griggs School's Career Day; meeting with PACE groups; assisting with Girl/Boy Scout Badges; touch lab for Camp Rap-a-Hope, a camp for children living with cancer; field trips with Eureka, a mentor program for minorities; membership with Week's Bay Educational Subcommittee; presenting at marine science days for local high school marine biology students at the Harrigan Center; and touch labs and face painting for the Dauphin Island Spring Fest.

High School Marine Science Course

In addition to the field and lab programs offered during the academic school year, high school students from across the nation and from other countries participate in the Discovery Hall's summer marine science class. Students live on campus for the duration of the course and participate in over 170 hours of lectures, field studies, research projects, and written and practical exams. The course is offered during two summer sessions lasting four weeks each. It introduces students to physical and chemical oceanography, marine ecology and marine biology. The Alabama State Department of Education approves this course and recommends local school systems grant credit toward a Standard or Advanced High School Diploma for students participating in Discovery Hall's marine science class.

This year 40 students, 21 from Alabama and 19 from other states, participated in the

DISCOVER HALL ENROLLMENT



summer course; three of these students were on scholarship. Scholarships to students from the state of Alabama were awarded from the Dauphin Island Sea Lab (1) and the Beth Ladner Memorial Scholarship (1). A scholarship was also awarded to one Mississippi student by

workshops. College juniors and seniors who have chosen the teaching profession as a career were introduced to the principles of science using examples from Mobile Bay and coastal Alabama. PSTT provided K-4 grade pre-service teachers with field, lab, and teaching experiences. This experience was supplemented by a plethora of resources and background materials. This project is funded by the Mississippi-Alabama Sea Grant Consortium



Dr. John Dindo instructs teachers during a "World of Water" course aboard the R.V. Verrill.

the Mississippi-Alabama Sea Grant Consortium. Additionally, funding for minority students was provided by the Summer Search Foundation in California.

Teacher Training

The World of Water for Teachers, a Title II-funded summer inservice program, received applications from 461 Alabama teachers, of which we were able to host 154. Approximately 27 of these teachers were working on advanced degrees and chose to take this course for credit through the University of West Alabama. In the eight years of this program, Discovery Hall has been able to teach over 1754 teachers, who in turn serve as satellite teachers for their schools, bringing specimens and curriculum materials back to the school to be shared among their colleagues. We hope that the Title II program will continue to be federally funded, and we look forward to another great summer with teachers.

For the first time in eight years, a reduction in funding for "World of Water for Teachers" reduced the number of workshops we were able to offer from seven weeks to five. This allowed Discovery Hall Programs to offer a second set of workshops called "Coastal Connections". "Coastal Connections" is an unfunded, three-day field-oriented workshop that participants paid for with professional development moneys. This course not only offered teachers of all grades hands-on field experience, but also sent them home with many activities and marine specimens for their classrooms. A total of 110 teachers from public and private institutions were able to attend "Coastal Connections" this summer.

Pre-Service Teacher Training

DHP completed its pre-service (student) teacher training

Professional Activities

Sessions were presented at the National Science Teachers Association, the National Marine Educators Association, the Southern Association of Marine Educators, the Alabama Science Teachers Association, the Mobile Association of Christian Schools, South Alabama Math and Science Conference and the Environmental Education Association of Alabama.

Discovery Hall faculty also attended several marine biology workshops, including Project Tellus, Project Marine Discovery: Beaches and Barrier Islands, Water Education for Teachers, Project Aquatic Wild Workshop, Global Change Workshop, and The Belize Teacher's Workshop, organized by Oceanic Society Expeditions.

The Discovery Hall Program also produces "Wavelengths," the newsletter of the Southern Association of Marine Educators. It is distributed to marine science educators in Louisiana, Mississippi, Alabama and Florida.

Grants

The Discovery Hall Programs received a number of grants during the reporting period, including two from International Paper (\$2,400 for costumes for marine skits and \$2,000 for a hydrolab) and a \$3,000 grant from Chevron for a Video Discovery Scope.

Discovery Hall Faculty

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

Jenny Cook, M.S. 1991 (University of South Alabama). Marine Educator. Emphasis on K-12 and high school summer course.

John DiPlacido, Jr., M.S. 1996 (Oregon State University). Marine Educator. Emphasis on K-12.

Angie Dixon, M.S. 1994 (University of Texas, Arlington). Marine Educator. Emphasis on K-12 and high school summer course.

Dana Roberts, B.S. 1992 (Samford University). Marine Educator. Emphasis on K-12 and teacher training.

Hazel Wilson, B.S. 1981 (Memphis State University). Marine Educator. Emphasis on K-12 and teacher training.

Denise Keaton, Registrar.

University Programs

The University Programs faculty are responsible for the undergraduate and graduate education and research activities at the DISL, including the Summer School Program. The primary activities of the 1996-97 academic year are highlighted below.

Faculty

During the year, the ten resident University Programs faculty published 17 papers in the refereed literature with additional 10 manuscripts in press and 20 submitted for publication. The faculty were also involved in the presentation of over 50 research papers at international and national meetings, 13 at which they served as program chairs.

University Programs faculty were also 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; Pennock – Estuaries; and Schroeder – Gulf of Mexico Science), (2) workshop and panel participation (Aronson – USAID Biodiversity Support Program; Cowan – National Research Council and Gulf Fisheries Council; Heck – Gulf of Mexico Coral Reef Panel; Pennock – EPA Ecosystem Indicators Program and NOAA Nitrogen Inputs to Watersheds workgroup; Stout – EPA Environmental Biology and National Institute for Global Environmental Change Panel; Thomas – NSF Research Experience for Undergraduates Review Panel), and (3) manuscript and proposal review.

Several faculty were also elected to major society office and recognized for special awards for their professional activities. Most notable of these was Flo Thomas' award of a Presidential Early Career Award for Scientists and Engineers (PECASE). This award is made by the Executive Office of the President National Science and Technology Council, to only twenty scientists nationwide each year. It is the highest honor awarded to early career scientists in the United States.

In addition, Ken Heck was awarded the Outstanding Scholar Award at the University of South Alabama, while Rich Aronson was awarded a key to metropolitan Dade County, Florida for his contributions to coral reef conservation. Will Schroeder was recognized for his Outstanding Service to the Advisory Board of the Southeast Regional Center, National Institute for Global Environmental Change, and Jonathan Pennock was elected Secretary of the Estuarine Research Federation.

Undergraduate Program

The Summer School Program is conducted primarily in support of undergraduate degree programs at the 22 DISL member institutions. In 1996-97, this program once again delivered over 900 undergraduate semester hours of marine related courses to students from 21 of the 22 member universities (See

Course Listing). Major changes to the curriculum included the addition of GIS Applications in the Marine Environment in the Pre-Term Session and the addition of a successful Post-Term session that included courses in Marine Protozoology, Marine Animal Diseases and Introduction to Neurobiology. Of special note were the efforts of Drs. Paul Gamlin and Kent Keyser of the University of Alabama at Birmingham to obtain Sea Grant support for the purchase of equipment to be used in the Introduction to Neurobiology course.

University Programs was also 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 in 1997 included: Catherine Clark (University of South Alabama), Charles Honea (University of West Alabama), Tracy Maxwell (Samford University), and Heather McNatt (Samford University). This support was made available through funds provided by the DISL.

Graduate Program

During the 1996-97 academic year, there were 35 graduate students who based their studies and received research support from the DISL. Two students (Emile Lores and Steven Beddingfield) completed their theses and graduated during the spring of 1997. Emile was the first Ph.D. graduate of the Marine Science Department at the University of South Alabama.

During the 1996-97 academic year, University Programs also provided graduate fellowships to four students: Mr. Walter Ingram (MS, University of South Alabama), Mr. Jonathan O'Neal (MS, University of South Alabama), Ms. Patricia Spitzer (MS, University of South Alabama), and Ms. Julie Woodcock (MS, 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.



Dr. Monty Graham explains the workings of a CTD.



Dr. Florence Thomas (r) instructs a student during a beach lab.

Economic and Community Affairs and the Alabama Department of Environmental Management.

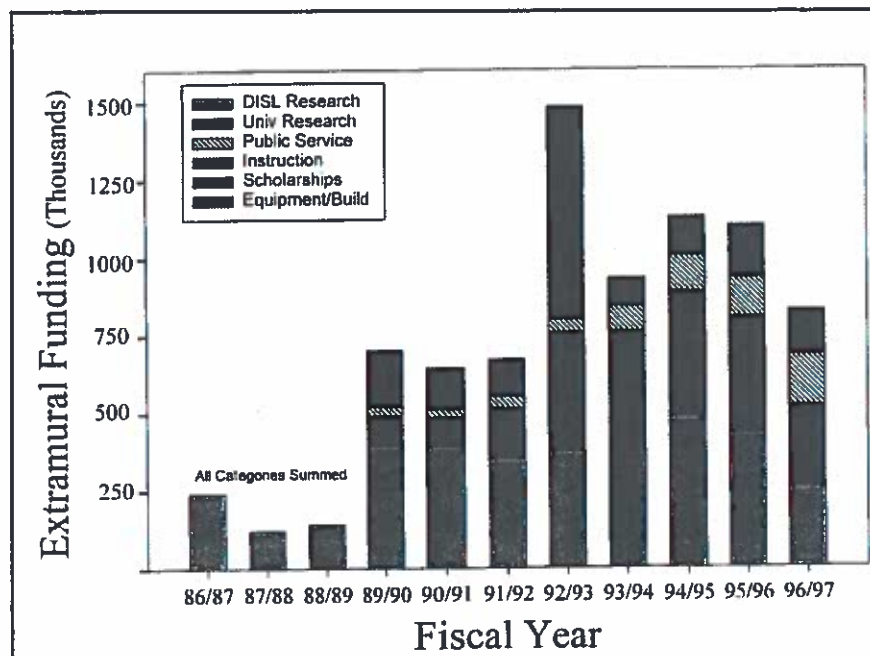
As a result of the completion of numerous large research projects in 1996, University Programs faculty were extremely active in the submission of proposals during the year. Overall, twenty-nine proposals were submitted, requesting a total of over \$4.3 million in research funding. By the end of the year, sixteen of those proposals had been awarded for \$2.1 million.

Judy Stout is the lead investigator in a NSF Research Experience for Undergraduates (REU) grant to bring seven undergraduates to DISL for ten weeks during the fall terms in 1997 and 1998. This program is designed to give talented undergraduates the opportunity to carry out independent research and explore careers in science, and is one of only two marine-oriented programs in the country that will operate during the academic year. Drs. Stout, Cowan, Graham, Kiene, Miller-Way, Pennock, Thomas and Valentine will serve as mentors for students during 1997.

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 over \$800,000 in extramural support during the 1996-97 academic year (see Figure). 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

Flo Thomas was the recipient of a prestigious Early NSF Career award that will provide five years of funding for her research on effects of morphology on hydrodynamics and the uptake of chemicals by marine communities. Other new research support was awarded for projects to examine (1) the effect of nutrients and grazers on seagrass systems in Mississippi Sound (Heck, Pennock, and Valentine - EPA), (2) the role of physical processes on reproduction of marine invertebrates (Thomas - NSF) and (3) harmful algal blooms in Mobile Bay (Pennock -MASG).



Dauphin Island Sea Lab 1996-97 Class Schedule

Fall Quarter 1996

Course	Credit	Instructor(s)
Advanced Marine Ecology	(4)	Aronson/Valentine
Fisheries Techniques	(3)	Cowan
Biological Oceanography	(6)	Graham
Sedimentary Biochemistry	(3)	Kiene
Global Change	(2)	Kiene/Schroeder
Field Marine Science - Maine	(3)	Valentine/Heck

Winter Quarter 1997

Course	Credit	Instructor(s)
Chemical Oceanography	(6)	Kiene
Seagrass Ecology	(3)	Stout
Hydrodynamics	(3)	Thomas
Benthic Ecology	(4)	Valentine
Resource Management	(3)	Crozier/Shipp

Spring Quarter 1997

Course	Credit	Instructor(s)
Physical Oceanography	(6)	Cowan/Schroeder
Larval Ecology	(3)	Graham
Zoogeography	(4)	Heck/Aronson
Marine Analytical Instrumentation	(3)	Pennock

Summer Quarter 1997 - Pre-Term

Course	Credit	Instructor(s)
Dolphins and Whales	(3)	Regan
GIS Applications	(3)	Wu

Summer Quarter 1997 - First Session

Course	Credit	Instructor(s)
Marine Biology (A)	(6)	O'Brien
Marine Biology (B)	(6)	Thomas
Marine Invertebrate Zoology	(6)	Aronson
Marine Botany	(6)	Hall/Stout/Tomasco
Oceanography	(6)	Schroeder
Marine Technical Methods	(3)	Dardeau
Coastal Climatology	(3)	Blackwell

Summer Quarter 1997 - Second Session

Course	Credit	Instructor(s)
Marine Ecology	(6)	Heck
Marine Behavioral Ecology	(6)	Richardson
Marine Vertebrate Zoology	(6)	Cowan
Marine Geology	(6)	Canis
Marsh Ecology	(6)	Stout/LaSalle
Marine Technical Methods(3)	(3)	Dardeau
Commercial Marine Fisheries	(3)	Shipp

Summer Quarter 1997 - Post-Term

Course	Credit	Instructor(s)
Introduction to Neurobiology	(6)	Gamlin/Keyser
Protozoology	(3)	Landers
Marine Fish Diseases	(3)	Brady

1997 DISL Visiting Summer School Faculty

Dr. Daniel Beckman, Southwest Missouri State University
 Dr. Keith Blackwell, University of South Alabama
 Dr. Yolanda Brady, Auburn University
 Dr. Wayne Canis, University of North Alabama
 Dr. Scott Douglass, University of South Alabama
 Dr. Paul Gamlin, University of Alabama at Birmingham
 Dr. Penny Hall, Florida Marine Research Institute
 Dr. John Harrington, University of South Alabama
 Dr. Kent Keyser, University of Alabama at Birmingham
 Dr. Stephen Landers, Troy State University
 Dr. Mark W. LaSalle, Mississippi State University
 Dr. Frank Moore, University of Southern Mississippi
 Dr. Jack O'Brien, University of South Alabama
 Dr. Glen Parsons, University of Mississippi
 Fr. Gerald Regan, Spring Hill College
 Dr. Terry Richardson, University of North Alabama
 Dr. Glen Sebastian, University of South Alabama
 Dr. Robert Shipp, University of South Alabama
 Dr. David Tomasko, Southwest Florida Water Management
 Dr. Richard Wallace, The Alabama Cooperative Extension Service
 Dr. Aaron Williams, University of South Alabama
 Dr. Victor Wu, Samford University

1997 Graduates

Beddingfield, Steven The nutrition, growth, reproduction and population dynamics of *Lytechinus variegatus* (Lamarck) from three contrasting habitats in St. Joseph's Bay, FL M.S. (UAB). 1997.

Lores, Emile Humic mediated transfer of absorbed chemicals from microbes to zooplankton. Ph.D. (USA). 1997.

Public Service

Coastal Policy Initiative

The CPI continued to provide technical support to the ADECA Coastal Area Management Program. Major efforts were made in the rewriting of the Alabama Coastal Area Management Plan and planning a major Coastal Issues Symposium to be held early in 1998. This latter effort is headed by Ms. Wagner and will bring Dr. Orrin Pilkey to the Alabama coast for the first time. Public education and Outreach was provided through an IPA for Ms. Schimmel and a grant funded the summer internship for Phillip West, a graduate student from Alabama A&M University in Huntsville.

Dr. Crozier, Ms. Arceneaux and Mr. Dardeau have also committed significant time to the Mobile Bay National Estuary Program. Dr. Crozier serves on the Management Committee while Mr. Dardeau is chair of the Technical Advisory Committee.

Coastal Policy Personnel

Dr. George F. Crozier, Director
Cherie Arceneaux, Research Associate
Alma Wagner, Research Associate
Cathy Schimmel, Research Associate
Michael Dardeau, Marine Scientist
Phillip West, CZM Intern

Sea Lab Docent Program

With the impending opening of the Estuarium, the Sea Lab staff began preparations for an ambitious and extensive docent training program that would cover five three-hour sessions of marine education. As the reporting period ended, the marine educators of the DISL were preparing to train 40 volunteers, whose great enthusiasm and willingness to impart their knowledge would set the tone for the kind of hearty welcome visitors would receive in the new facility.

Our faithful Master Gardeners Blanche Emerson and Rena Schuett continued their persistent efforts in the native plantings that beautify the campus grounds, and once again their hard work paid off with bountiful blooms and grateful butterflies. Visitors and locals alike marvel at their flowering handiwork.

Docent Personnel

Denise Keaton, DHP Docent Coordinator

The Estuarium

During this reporting period, the Sea Lab raised approximately \$2.1 million dollars towards the construction of the Estuarium. In an effort to complete the building and exhibits, the Sea Lab, with Board approval, negotiated an education bond for the remaining \$2 million needed. Hurricane Danny set us back due to the volume of rain that was received in the 72 hour period — close to 42 inches. We had no structural damage, but the roof was still under construction, allowing water inside the building. Life support systems and exhibits will start arriving for installation towards the end of this reporting year, with the grand opening set for March of 1998.



The Estuarium at the Dauphin Island Sea Lab

ESTUARIUM CAMPAIGN PROGRESS REPORT

September 30, 1997

Goal: 3 Million Dollars
(Exhibit Hall and Displays)

Total Cash/Pledges Paid to Date	\$1,614,314
Balance Due on Pledges.....	\$181,350
Donations for Boardwalk Plaques	\$2,900
Total Donations and Pledges to Date	\$1,798,564

Contributors (Cash/Pledge ≥ \$500)

Aaron Oil
Akzo Nobel Chemical, Inc.
Alabama Power Foundation
Alabama River Pulp
AMSouth Bank
Atlantic Marine
Auburn High School Science Club
B & B Pet Stop
Bedsole Foundation
Dr. Barry Booth
BP America
Brown & Root
Betty, Jennifer, Wayne Canis
Cargill Marketing
Chandler Foundation
Chevron U.S.A. Inc.
Ciba Geigy
Coastal Builders
Coastal Land Trust
Coca Cola
Community Found. of South Alabama
Cooper/T. Smith
Courtaulds Fibers
Dr. and Mrs. William Crotwell
George and Deanna Crozier
Cytec Chemical
Degussa
Delaney Foundation

Delchamps, Inc.
Dr. and Mrs. Jack DiPalma
Dr. and Mrs. Sam Eichold
Elf Atochem
Exxon Company, U.S.A.
First Alabama Bank
Bernie Fogarty
Nathan and Joanie Friedlander
Gayfers
Graham Oil Field Services
Hand Arendall, L.L.C.
Dr. and Mrs. David Hassell
Hoechst Celanese
Holnam, Inc.
Dr. and Mrs. John Howell, III
c/o James and John Howell, IV
Huls America
International Paper Foundation
Kerr McGee
Doris and Gerald Ladner
Lillian C. McGowin Foundation
Robert Meador
Midstream Fuel
Mitchell Foundation
Mobil Exploration & Producing
Mobile Big Game Fishing Club
Mobile Gas Service

Monte L. Moorer Foundation
Mr. and Mrs. Harwell Moose
Sheldon Morgan
Occidental Chemical Corp.
Olin Corp. Charitable Trust
Port City Rental
Andrew and Carolyn Saunders
Saunders Engine
Scott Paper Foundation
Seamen's Club of Mobile, Inc.
Sears Roebuck & Company
Smith, M. W. Jr. Foundation
South Central Bell
Southtrust Bank
Steiner Shipyard
Roderick and Judy Stout
Taylor Wharton Manufacturing
William and Marietta Urquhart
Dr. and Mrs. John Val-Galas
Dr. and Mrs. Milton Wallace
Dr. and Mrs. Claude Warren, III
Waste Management
Whitney Bank
Dr. and Mrs. Neil Wimberley
Russell Wimberly
Zeneca

Gifts-in-kind

ADECA
AmSouth
Baldwin Times
BCM
Catholic Charities
Clarion Hotel
Susan Estes
Golden Stevedoring
Holnam
Lewis Communications
Mobile Press Register

Realtor Association
Port City Rental
Port of Mobile
SARPC
Sullivan/St. Clair Ad.
Scott Paper
Sea Lab Architects
Southtrust Bank
Steiner Shipyard
Ellis Taul
Telephone Pioneers

May Tillman
Army Corps of Eng.
Army Reserve
Coast Guard
Vision Design
WKRK TV5
Waller Brothers
Dr. and Mrs. William A. Warren
Wire Rope & Rigging

Core Research Faculty

Richard B. Aronson, Ph.D. 1985. (Harvard University). Senior Marine Scientist. Ecology and paleoecology of softbottom marine communities, with emphasis on dense populations of echinoderms. A second area of interest is the ecology and diversity of coral reefs.

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. Focuses on taxonomy, community structure and ecological relationships of marine invertebrates. Involved in the 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. Interests include 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. Efforts focus on ecological studies of seagrass-associated macrofauna, especially shrimps, crabs and fishes. Current studies include assessment of seagrass nursery value and rates of secondary production and investigations of herbivory nutrients and bioturbation as they influence the size and growth of seagrass meadows.

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 radiatively important trace gases in relation to phytoplankton 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. Interests focus on the 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.

Robert L. Shipp, Ph.D. 1970. (Florida State University). Senior Marine Scientist and Professor and Chair, Department of Marine Sciences, University of South Alabama. Interests include transport of larval fishes and their association with various substrates, zoogeography of marine fish groups. Also interested in the role of artificial reefs as management tools.



Dr. John Valentine on a field trip in Mobile Bay with the REU Undergraduate participants.

Judy P. Stout, Ph.D. 1978. (University of Alabama). Senior Marine Scientist. Emphasis on the plant ecology of coastal and shallow water habitats especially salt marshes, estuarine grassbeds and beach/dune systems. Study efforts include primary productivity and growth related to environmental factors, temporal and spatial variability, plant-animal interactions, and restoration of habitats.

Florence 'Flo' I. M. Thomas, Ph.D. 1992. (University of California, Berkeley). Senior Marine Scientist. Interests focus on the role of physical processes in ecology and evolution. current research includes the role of water motion in the reproductive ecology of free-spawning marine invertebrates and on the uptakes of nutrients by coral reefs and seagrass communities.

John F. Valentine, Ph.D. 1989. (University of Alabama). Senior Marine Scientist. Structuring mechanisms and secondary production of seagrass habitats; echinoderm ecology and systematics.

Faculty Activity 1996-97

Refereed Articles

Aronson, R. B. and W. F. Precht. 1997. Stasis, biological disturbance, and community structure of a Holocene coral reef. *Paleobiology* 23:326-346.

Aronson, R. B. and D. W. Swanson. 1997. Video surveys of coral reefs: uni- and multivariate applications. *Proceedings of the Eighth International Coral Reef Symposium, Panama* 2:1441-1446.

Atkinson, M. J., F. I. M. Thomas and N. Larson. 1996. Effects of pressure on oxygen sensors. *Journal of Atmospheric and Oceanic Technology* 13:1267-1274.

Benson, D. J., W. W. Schroeder and A. W. Shultz. 1997. Sandstone hardbottoms along the western rim of DeSoto Canyon, northeast Gulf of Mexico. *Transactions - Gulf Coast Association of Geological Societies XLVII*:43-48.

Cowan, J. H., Jr., K. A. Rose and E. D. Houde. 1997. Size-based foraging success and vulnerability to predation: survivorship in individual based models of larval fish populations. Chapter 13, pp. 357-386. In: R. C. Chambers & E. A. Trippel (Eds.), *Early Life History and Recruitment in Fish Populations*. Chapman and Hall's Fish and Fisheries Series, New York.

Cowan, J. L. W., J. R. Pennock and W. R. Boynton. 1996. Seasonal and inter-annual patterns of sediment-water nutrient and oxygen fluxes in Mobile Bay, Alabama (USA): Regulating factors and ecological significance. *Marine Ecology Progress Series* 141:229-245.

Graham, W. M. and J. L. Largier. 1997. Upwelling shadows as nearshore retention sites: the example of northern Monterey Bay. *Continental Shelf Research* 17:509-532.

Heck, K. L., Jr. D. A. Nadeau and R. Thomas. 1997. The nursery role of seagrass beds. *Gulf of Mexico Science* 15:48-52.

Kieber, D. J., J. Jiao, R. P. Kiene and T. S. Bates. 1996. Photochemistry of dimethylsulfide and its impact on methyl sulfur cycling in the Equatorial Pacific Ocean. *J. Geophys. Res.* 101(C2): 3715-3722.

Kiene, R. P. 1996. Turnover of dissolved DMSP in estuarine and shelf waters of the Northern Gulf of Mexico. Pp. 337-349 In: R. P. Kiene, P. T. Visscher, G. O. Kirst and M. D. Keller (Eds.), *Biological and Environmental Chemistry of DMSP and related sulfonium compounds*. Plenum Press, New York.

Macintyre, I. G. and R. B. Aronson. 1997. Field guidebook to the reefs of Belize. *Proceedings of the Eighth International Coral Reef Symposium, Panama* 1:203-222.

Noble, M. A., W. W. Schroeder, W. J. Wiseman, Jr., H. F. Ryan and G. Gelfenbaum. 1996. Subtidal circulation patterns in a shallow, highly stratified estuary: Mobile Bay, Alabama. *Journal of Geophysical Research* 101(C11):25,689-25,703.

Ryan, H. F., M. A. Noble, E. A. Williams, W. W. Schroeder, J. R. Pennock and G. Gelfenbaum. 1997. Tidal current shear in a broad, shallow, river-dominated estuary. *Continental Shelf Research* 17(6):665-688.

Schroeder, W. W. and T. S. Hopkins. 1997. Northern record for the zooxanthellate scleractinian coral *Siderastrea siderea* (Ellis and Solander) from the Gulf of Mexico. *Gulf Research Reports* 9(4):361-364.

Schroeder, W. W., Wm. J. Wiseman, Jr., J. R. Pennock and M. Noble. 1996. A note on very low-frequency salinity variability in a broad, shallow estuary. Pp. 255-263, In: D. G. Aubrey & C. T. Friedrichs (Eds.), *Buoyancy Effects, on Coastal and Estuarine Dynamics, Coastal and Estuarine Studies*, Vol. 53, American Geophysical Union, Washington, DC.

Thomas, F. I. M. and M. J. Atkinson. 1997. Ammonia uptake by coral reefs: effects of water velocity and surface roughness on mass transfer. *Limnology and Oceanography* 42:81-88.

Valentine, J. F., K. L. Heck, Jr., J. Busby and D. Webb. 1997. Seagrass responses of macrograzer herbivory: experimental evidence for overcompensation in seagrasses. *Oecologia* 112:193-200.

Non-Refereed Publications

Aronson, R. B. and T. J. T. Murdoch. 1997. Coral faunas of the Florida Keys: a report on the Keyswide Coral Reef Expedition. Dauphin Island Sea Lab Technical Report 97-001. 33 pp.

McNider, R. T., A. Davis, S. R. Goodrick, W. W. Schroeder and L. Hadji. 1997. Implications to the Earth's Climate System. Final Technical Report, Southeast Regional Center of the National Institute for Global Environmental Change, Cooperative Agreement No. DE-FC03-90ER61010. 271 p.

Schroeder, W. W. (Contributor). 1996. Undersea Vehicles and National Needs. Marine Board, National Research Council. National Academy Press, Washington, DC. 99 p.

Schroeder, W. W. 1996. Bibliography of Selected References on Katabatic, Ocean and Ice Systems of Antarctica. Dauphin Island Sea Lab Technical Report 96-002, Dauphin Island, AL. 33 p.

Published Abstracts and Presentations

Alley, R. R., W. M. Graham. 1997. Developing a nutritional index for scyphomedusae: preliminary results. American society of Limnology and Oceanography, Aquatic Sciences Meeting, Santa Fe, NM.

Aronson, R. B. 1996. Community dynamics of Caribbean coral reefs: coordinated stasis or individualistic dynamics? *Geological Society of America Abstracts with programs* 28:A177.

Aronson, R. B. and W. F. Precht. 1996. Long-term dynamics of coral communities in the barrier reef lagoon. Page 12 in *Caribbean Coral Reef Ecosystems Progress Report 1994-95*. National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Aronson, R. B. and W. F. Precht. 1997. Telling tales on multiple scales: scale-independent and scale-dependent surprises from the fossil record. *Geological Society of America Abstracts with Programs* 29(3): 2.

Aronson, R. B., D. B. Blake and T. Oji. 1996. Paleozoic-type echinoderm populations from the late Eocene, Antarctica. Ninth International Echinoderm Conference, San Francisco, CA.

Aronson, R. B., D. B. Blake and T. Oji. 1997. Counterrevolution in the Antarctic: echinoderms in the right place at the wrong time. Marine Benthic Ecology Meeting, Portland, ME.

Bailey, H. K., IV, J. H. Cowan, Jr. and R. L. Shipp. 1996. Potential interactive effects of habitat complexity and sub adults on age-0 red snapper behavior. 20th Annual Meeting of the Early Life History Section of the American Fisheries Society. New Orleans, LA.

Benson, D. J., W. W. Schroeder and A. W. Shultz. 1997. Cementation in sandstone hardbottoms outer continental shelf, northeast Gulf of Mexico. SEGSA 46th Annual Meeting 1997 Abstracts with Programs 29(3):5.

Brackin, M. T., J. H. Cowan, Jr., J. R. Pennock and K. M. Shotts. 1997. Biomass production of bay anchovy and gulf menhaden in the Weeks Bay National Estuarine Research Reserve, Alabama. GERS Meeting, Ocean Springs, MS.

Cowan, J. H., Jr. 1997. Are fishes able to deplete prey resources during early life? Department of Oceanography/Biological Sciences, Florida State University, Tallahassee, FL.

Cowan, J. H., Jr. 1997. Cohort biomass, prey consumption and density-dependence during ontogeny of marine fishes: a case study of bay anchovy. Symposium on Juvenile Fish Studies: Contributions to Early Life History and Recruitment Process, Proc. 21st Annual Meeting of the Early Life History Section of the American Fisheries Society of the British Isles. Galway, Ireland.

Cowan, J. H., Jr. 1997. Effects on prey resources during early life: a meta-analysis of past studies of marine fishes. Annual International Symposium on Ichthyoplankton Ecology, fisheries Society of the British Isles. Galway, Ireland.

Cowan, J. H., Jr. 1997. Linking climate and fish population/community dynamics: examples of the individual-based modeling approach. Symposium on Models for Linking Climate Change and Fish, climate Change and Carrying Capacity Working Group, PISCES (North Pacific Marine Science Organization) 6th Annual Meeting, Pusan, Republic of Korea.

Cowan, J. H., Jr., D. Gregory, N. Ehrhardt, P. Goodyear, H. Lazauski, R. Muller, and D. Stanley. 1997. Final Report of the Reef Fish Stock Assessment Panel. Miami Laboratory, Southeast Fisheries Science Center Lib. Contrib. No. MIA-96/97-XX.

Cowan, J. H., Jr. and J. Mattilla. 1996. Fish effects on prey resources during early life: a meta-analysis of past studies. 20th Annual Meeting of the Early Life History Section of the American Fisheries Society. New Orleans, LA.

Cowan, J. H., Jr., K. A. Rose and E. D. Houde. 1997. Size-base foraging success and vulnerability to predation: survivorship in individual based models of larval fish populations. Chapter 13 pages 357-386. In: R. C. Chambers and E. A. Trippel (eds.).

Cowan, J. L. W., W. R. Boynton, F. Fernandez, D. A. Jasinski and J. R. Pennock. 1997. The impact of bottom-water oxygen on estuarine sediment-waters nutrient fluxes. ERF Biennial Meeting, Providence, RI.

Edmonds, P. J., J. F. Bruno and R. B. Aronson. 1996. Coral reef heterogeneity: variation in susceptibility to and recovery from disturbance. Ecological Society of America Annual Meeting, Providence, RI.

Goodrick, S., W. Schroeder, R. McNider, T. Davis. 1996. Influence of Antarctic Katabatic winds on the circulation of the coastal southern ocean with implications for phytoplankton distribution. EOS, Trans. AGU, 77(3), Ocean Sciences Meet. Supl., OS95.

Graham, W. M. 1997. Aggregation patterns of the scyphomedusa *Chrysaora fuscescens* along central California. American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Santa Fe NM.

Graham, W. M. and A. L. Aldredge. 1997. Evaluation of camera-derived POC flux by comparison with a drifting sediment trap. American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Santa Fe NM.

Hancock, K. M., W. W. Schroeder, D. J. Benson. 1997. Paleocology of Late Pleistocene carbonate buildups on the Mississippi-Alabama Continental shelf. SEGSA 46th Annual Meeting 1997 Abstracts with Programs 29(3):21.

Heck, K. L., Jr., J. F. Valentine, J. R. Pennock and S. A. Sklenar. 1997. Effects of food web manipulation in seagrass ecosystems of the northern Gulf of Mexico Benthic Ecology Meetings, Portland, ME.

Heck, K. L., Jr., J. F. Valentine, J. F. Pennock, Jr., S. A. Sklenar. 1997. Nutrient enrichment a necessary but insufficient condition for epiphyte overgrowth of seagrasses? 14th ERF (197) International Conference, Providence, RI.

Hill, J. E., J. H. Cowan, Jr., J. R. Pennock, M. T. Brackin, and K. M. Shotts. 1997. Biomass production of Atlantic Croaker and Spot in Weeks Bay, Alabama. GERS Meeting, Ocean Springs, MS.

Hines, M. E., R. Reich, and R. P. Kiene. 1997. Degradation of dimethylsulfide in bogs and other freshwater environments. ASLO, Santa Fe, NM.

Keller, M. D., P. A. Matrai, and R. P. Kiene. Production of glycine betaine (GBT) and dimethylsulfoniopropionate (DMSP) in batch cultures of marine phytoplankton. ASLO, Santa Fe, NM.

Kellogg, M. L. and R. B. Aronson. 1997. Counterrevolution in the Antarctic: echinoderms in the right place at the wrong time. Marine Benthic Ecology Meeting, Portland, ME.

Kellogg, M. L. and R. B. Aronson. 1996. The reefs of Discovery Bay, Jamaica: slow recovery of alternate community state? University of South Alabama 3rd Annual Research Forum.

Kiene, R. P. 1997. Uptake of Choline and its conversion to glycine betaine by bacteria in estuarine waters. American Society for Microbiology, Miami, FL.

Kiene, R. P. 1997. Rapid uptake and partial retention of DMSP and glycine betaine by the bacterial size fraction in sea water. ASLO, Santa Fe, NM.

McManus, G. B., S. L. McLeroy-Ethridge and J. R. Pennock. 1997. Seasonal changes in phytoplankton pigments in a shallow temperate estuary and its coastal plume. ASLO Meeting, Santa Fe, NM.

MacDonald, I. R., F. J. Kelly, J. L. Guinasso and W. W. Schroeder. 1996. Deep ocean sea fans (*Gorgonacea: Callogorgia* sp.). EOS, Trans. AGU, 77(3), Ocean Sciences Meet. Suppl., OS95.

Matrai, P. A., M. D. Keller, and R. P. Kiene. Production of glycine betaine (GBT) and dimethylsulfoniopropionate (DMSP) in nitrogen limited chemostat cultures of marine phytoplankton. ASLO, Santa Fe, NM.

Miller, S. L., J. C. Ogden and R. B. Aronson. 1996. 1995 Keys-Wide Coral Reef Expedition: preliminary results. Florida Bay Science Conference.

Mueller, M. M. and R. P. Keine. Dimethylsulfoniopropionate (DMSP) in corals and zooxanthellae and the release of methylated sulfur compounds from coral microcolonies. 8th International Coral Reef Symposium. Panama City, Panama.

Murdoch, T. J. T., R. B. Aronson, J. C. Ogden and L. L. Miller. 1997. Scale-dependent spatial variability of coral assemblages of the Florida Reef Tract. University of South Alabama 4th Annual Research Forum.

Noble, M., H. Ryan, W. Schroeder, K. Kinoshita, E. Williams, W. Wiseman and G. Gelfenbaum. 1997. Sheared circulation patterns in a shallow, highly stratified estuary. Gordon Research Conference, coastal ocean circulation, New London, NH.



Dr. Ken Heck presenting a talk at the University of South Alabama.

Pennock, J. R., J. L. W. Cowan and J. C. Lehrter. 1996. Sources and fates of organic matter in the Mobile Bay estuary, USA. ECSA 26/ERF 96 Symposium, Middelburg, The Netherlands.

Pennock, J. R., J. H. Cowan, Jr., M. T. Brackin, J. E. Hill and K. M. Shotts. 1997. Nutrient-enhanced production in the oligohaline Weeks Bay Estuary, Alabama (USA). ERF Biennial Meeting, Providence, RI.

Precht, W. F. and R. B. Aronson. 1996. Present status and future of reefs from the Caribbean Biogeographic province. Canadian Society of Petroleum Geologists-Society of Economic Petrologists and Mineralogists Joint convention, Calgary, Alberta.

Precht, W. W. and R. B. Aronson. 1996. Response of Belizean coral reefs to large-scale disturbance. 8th International Coral Reef Symposium, Panama City, Panama.

Schroeder, W. W. 1997. Hydrography and circulation of Mobile Bay, Northern Gulf of Mexico. 7th Annual Russian Seminar and Workshop on Advances in Mathematical Modeling. Abrau-Durso, Black Sea, Russia.

Schroeder, W. W. 1997. The role of physical processes in structuring the dissolved oxygen regime in a shallow, river dominated estuary. 7th Annual Russian Seminar and Workshop on Advances in Mathematical Modeling. Abrau-Durso, Black Sea, Russia.

Schroeder, W. W. 1997. A comparison of the hydrography and circulation of Mobile Bay, Northern Gulf of Mexico with Taganrog Bay, Northern Azov Sea. Research Institute of the Azov Sea Fisheries Problems, Rostov-on-Don, Russia.

Schroeder, W. W., D. J. Benson, P. J. Pearce, A. W. Shultz and G. W. Jacobs. 1996. Sandstone hardbottom along the western rim of the De Soto Canyon, northeast Gulf of Mexico. 45th Annual SE Section, GSA, 28(2):42.

Stout, J. P. 1996. Restoration of estuarine submerged grassbeds: Is recovery recruitment limited? MASGC Review and Planning Retreat, Gulf Shores, AL.

Stout, J. P. 1997. The relative importance of facilitation and competition between *juncus roemerianus* and *Spartina alterniflora* in coastal Alabama. Society of Wetland Scientists, Bozeman, MT.

Stout, J. P. 1997. Reproductive ecology of *Vallisneria americana*: The effect of salinity on seed germination, seedling growth and seedling survival. Society of Wetlands Scientists, Bozeman, MT.

Thomann, C. D. and R. B. Aronson. 1997. Latitudinal gradients in predation on gastropods. University of South Alabama 4th Annual Research Forum.

Thomas, F. I. M. 1997. Catastrophic collapse of coral reef communities: a biochemical approach. Marine Benthic Ecology Meeting, Portland ME.

Thomas, F. I. M. 1996. Physical process in invertebrate reproduction: the role of egg properties. Society for Integrative and comparative biology. Annual Meeting, Albuquerque, NM.

Richardson, L., R. B. Aronson, K. Kuta, W. Goldberg, K. Ritchie, S. Miller, E. Peters, J. Halas, and R. Carlton. 1997. Coral disease outbreak in the Florida Keys: white plague type II. 28th Annual Meeting of the Association of Marine Laboratories of the Caribbean.

Valentine, J. F., K. L. Heck, Jr., K. L. Scarborough, and J. Zande. 1997. Low nutritive quality in seagrass leaves: a defense against sea urchin herbivory? 14th ERF (197) International Conference, Providence, RI.

Valentine, J. F., K. L. Heck, Jr., K. L. Scarborough, and J. Zande. 1997. Low nutritive quality in seagrass leaves: a defense against sea urchin herbivory? Benthic Ecology Meetings, Portland, ME.

Wang, S. B., J. H. Cowan, Jr., K. A. Rose and E. D. Houde. 1997. Variability in recruitment and production potential of bay anchovy *Anchoa mitchilli* in mid-Chesapeake Bay. Annual International Symposium on Ichthyoplankton Ecology. Fisheries Society of the British Isles, Galway, Ireland.

Walker, J. L., A. S. Thompson and R. P. Kiene. 1997. Turnover of dissolved dimethylsulfoniopropionate and its contribution to bacterial carbon demand in coastal seawater. American Society of Microbiology, Miami, FL.

Grants & Contracts

Aronson, R. B. Synoptic survey of coral reefs in the Florida Keys National Marine Sanctuary. NOAA National Undersea Research Program, 1995-1997, \$120,000.

Aronson, R. B. Paleocological setting of Eocene echinoderms at Seymour Island, Antarctic Peninsula. National Science Foundation, 1994-1997, \$23,031.

Aronson, R. B. Disturbance and diversity of Caribbean coral reefs: a biogeographic study. National Geographic Society, 1994-1997, \$8,500.

Aronson, R. B. Long-term dynamics of a coral community in the Belizean Barrier Reef lagoon. Smithsonian Institution Ecosystems Program, 1996-1997, \$2,000.

Cowan, J. H., Jr. Co-PI, ADCNR, Marine Resources Division, 1997-2000, \$337,000.

Cowan, J. H., Jr. and L. A. Fuiman. Peril of the unfit or the unfortunate: Larval fish fitness and vulnerability to predators. National Science Foundation, 1995-1999, \$25,675 (Cowan - \$248,000).

Cowan, J. H., Jr. and E. D. Houde. Recruitment processes in estuarine fishes: Pattern, scale and ontogenetic trends. National Science Foundation, 1995-1999, \$640,652 (Cowan - \$60,479).

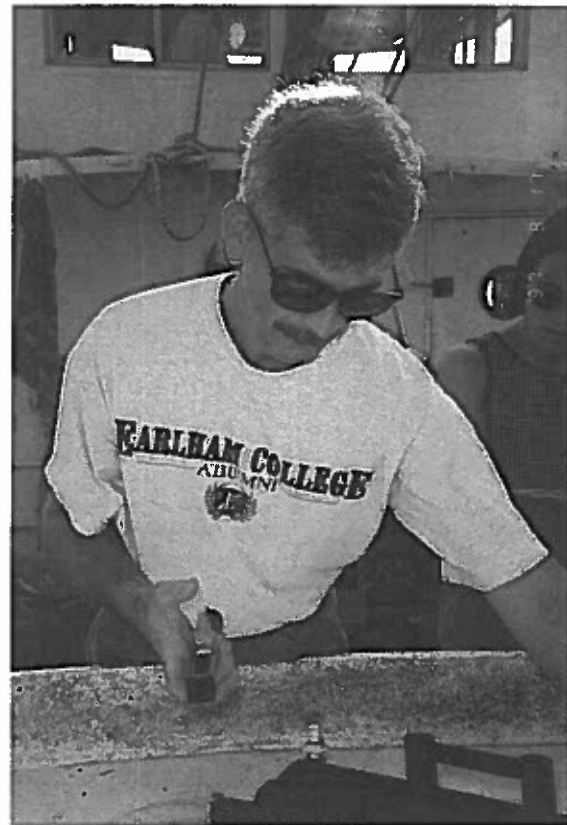
Cowan, J. H., Jr. Comparative study of the life history and production potential of bay anchovy *Anchoa mitchilli* and northern anchovy *Engraulis mordax*: An individual-based modeling approach. Sport Fishing Institute, EPRI Fellowship in Population Biology, (Shyh-Bin Wang, Ph.D. Fellowship), 1993-1997, \$40,450.

Cowan, J. H., Jr. Contributing Investigator, NOAA Coastal Oceans Program, 1994-1999, \$1,200,000.

Cowan, J. H., Jr. Key species project development: striped bass and anchovy. Electric Power Research Institute and the Oak Ridge National Laboratory, 1991-1998, \$180,227.

Cowan, J. H., Jr. Directed field sampling and individual-based modeling: Striped bass in the San Joaquin-Sacramento River System. California Department of Water Resources, 1991-1997, \$210,000.

Cowan, J. H., Jr. Biogeochemical tracers in red snapper otoliths: A test of the unit stock hypothesis. Mississippi-Alabama Sea Grant Student Fellowship (Will Patterson, Ph.D. Fellowship), 1996-1997, \$6,000.



Dr. Jonathan Pennock on an educational cruise in Mobile Bay.



Dr. Judy Stout explains the physical characteristics of Mobile Bay.

Graham, W. M., W. R. Petty, A. L. Alldredge and H. M. Page (UC Santa Barbara). An automated nutrient analyzer for biological research. National Science Foundation BIO/IID/MBE, 1996-1997, \$50,398.

Graham, W. M., J. P. Stout, W. W. Schroeder and J. Lima. Study of Gulf Coast Oil Spill Contingency Plans with Respect to Remediation and Restoration. National Sea Grant/U.S. Army Corps of Engineers, 1996-1997, \$188,994.

Graham, W. M. Undergraduate summer internship, Exxon Oil, 1997, \$1,500.

Heck, K. L., Jr., Coastal Alabama Seafood Harvest (CASH): Oyster Studies, U.S. Department of Agriculture, 1995-1997, \$88,000.

Heck, K. L., Jr., Principal Investigator, U.S. Environmental Protection Agency (Gulf of Mexico Program), 1997-1998, \$30,000.

Heck, K. L., Jr. and J. F. Valentine. Blue crab recruitment in Mobile Bay Estuary, Alabama Department of Conservation and Natural Resources, 1997-1999, \$180,000

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, U.S. Environmental Protection Agency, 1997, \$184,155.

Kiene, R. P. Dimethylsulfide metabolism in relation to carbon cycling pathways in Sphagnum-dominated wetlands. National Science Foundation - Ecosystems, 1996 - 1999, \$137,218.

Kiene, R. P. Marine biogeochemistry of dissolved DMSP and its sulfur-containing degradation products. National Science Foundation - Chemical Oceanography, 1996 - 1999, \$308,721.

Kiene, R. P. Biogeochemical cycling of dimethylsulfide in seawater. National Science Foundation - Chemical Oceanography, 1992 - 1996, \$282,453.

Kiene, R. P. Sphagnum dominated wetland as sources of atmospheric dimethyl sulfide. National Science Foundation - Ecosystems. 1992 - 1997, \$70,262.

Kiene, R. P. Quantitative role of glycine betaine and DMSP in the nitrogen and sulfur budgets of marine phytoplankton. National Science Foundation - Biological Oceanography, 1993 - 1997, \$133,861.

Pennock, J. R. and J. H. Cowan. Nutrient enhanced production and trophic dynamics in Weeks Bay, Alabama. Mississippi-Alabama Sea Grant Consortium, 1996 - 1998, \$107,369.

Pennock, J. R., R. Stumpf, P.A. 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, 1996 - 1999, \$682,110 (Pennock - \$119,776).

Pennock, J. R. A proposal to establish a Mobile Bay monitoring program. Gulf of Mexico Program, 1997 - 1998, \$49,139.

Schroeder, W. W. Hardbottoms of the Mississippi-Alabama Continental Shelf: A Geologic Synthesis. Mississippi-Alabama Sea Grant Consortium, R/MT-38-PD, 1997, \$9,952.

Schroeder, W. W. A Water Quality Information System Integrating the Spatio-Temporal Dynamics of the Water Quality Characteristics of Mobile Bay and its Tributary Watersheds. Mississippi-Alabama Sea Grant Consortium, R/ER-35, 1997, \$46,324.

Schroeder, W. W. MESC Graduate Studies Fellowship Fund. Shell Companies Foundation, Houston, Texas. 1983-1997, \$67,500 (\$2,500 in 1997).

Schroeder, W. W. MESC Graduate Studies Fellowship Fund. Mobil Foundation, New Orleans, Louisiana. 1984-1995, \$70,000 (\$5,000 in 1997).

Shipp, R. L. PI, MARFIN, Site fidelity and homing behavior in red snapper (*Lutjanus campechanus*) in the northern Gulf of Mexico, \$126,052, 1995-1997.

Stout, J. P. Research experiences for undergraduates in coastal and nearshore marine systems of the northeastern Gulf of Mexico. National Science Foundation. 1997 - 1998, \$70,080.

Stout, J. P., K. L. Heck, Jr. and J. F. Valentine. Preliminary characterization of habitat loss: Mobile Bay National Estuary, Alabama. Mobile Bay National Estuary Program-EPA, 1997 - 1998, \$61,590.

Stout, J. P. Alabama wetlands mitigation bank, mitigation bank review team, and wetlands management program development. U.S. EPA/ ADEM, State Wetlands Grant, 1997 - 2000.

Thomas, F. I. M. PECASE: Effects of water velocity and morphology on mass transfer. National Science Foundation, Ocean Sciences Division, 1997 - 2002, \$500,000.

Thomas, F. I. M. Physical processes in reproduction: the role of echinoid egg physical properties. National Science Foundation, Biology Division: Integrative Biology, Ecological and Evolutionary Physiology, 1997 - 2000, \$192,000.

Valentine, J. F. Seagrass herbivory in the Florida Keys. EPA Intensive Site Study Demonstration Project. U.S. Environmental Protection Agency, 1997, \$19,637.

Valentine, J. F. Biological Diversity in Coastal Alabama. Alabama Dept. Of Conservation and Natural Resources, 1997, \$35,000.

Awards

Aronson, R. B. 1997 - Key to Metropolitan Dade County, presented by the Mayor's Office for contributions to coral reef conservation.

Heck, Kenneth L., Jr. 1997 - Outstanding Scholar, University of South Alabama.

Schroeder, William W. 1997 - Southeast Regional Center, National Institute for Global Environmental Change, recognition for Outstanding Service to the Advisory Board.

Thomas, F. I. M. 1997 - Presidential Early Career Award for Scientists and Engineers (PECASE). Executive Office of the President, National Science and Technology Council.

Extramural Support 1996/97

Agency	Principal Investigator(s)	Title/Description	Income FY 96/97
Fellowships			
Ladner Foundation	Cook	DHP Fellowship	1,090
Summer Search Found.	Dindo	DHP Fellowships (2)	2,240
Shell Oil Co.	Schroeder	Graduate Fellowships	2,500
Mobil Oil Co.	Schroeder	Graduate Fellowships	10,000
Education			
MASG	Dindo (206)	Preservice Teacher Training	34,164
State Title II	Dindo (217)	World of Water - Teacher Training	79,864
International Paper	Dindo/Dixon (230)	Costumes for Educational Presentations	2,400
Research			
ADEM	Stout (40321)	Functional Assessment	41,667
NSF	Aronson (50222)	Paleoecological Setting of Eocene Echinoderms...	27,842
MASG	Graham (201)	Study of Gulf Coast Oil Spill Contingency Plans	26,488
NPS	Heck (202)	Functional Assessment of Seagrass Resources...	19,110
NMFS	Heck (203)	Ground Surveys for Stranded Sea Turtles	14,900
MASG	Pennock (204)	Ocean Color Algorithm Evaluation for Remote...YR1	38,145
MASG	Pennock (213)	Nutrient-Enhanced Production & Trophic Dynamics...	37,324
NSF	Stout (220)	Research Experience for Undergraduates YR1	8,522
Nat. Park Service	Valentine (221)	Cause of Seagrass Decline in SE United States	5,264
NOAA	Pennock (222)	Non-Point Nutrient Inputs, Role in WBNERR	0
USA Subcontract	Cowan (223)	Predation Mortality of Fish Larvae	4,140
NSF	Thomas (224)	Physical Processes in Reproduction: The Role... YR1	6,046
NEP	Stout (225)	Preliminary Characterization of Habitat Loss...	0
NSF	Thomas (228)	Career: Effects of Morphology and Water...YR1	7,604
EPA	Heck (229)	Recovery of the Seagrasses...	7,828
AL Dept. of Cons.	Heck (231)	Blue Crab Study Project	7,066
NMFS	Heck (233)	Ground Survey, Stranded Sea Turtles YR2	0
EPA	Pennock (234)	Mobile Bay Monitoring Program	0
MASG	Pennock (235)	Ocean Color Algorithm Evaluation for Remote...YR2	0
Public Service			
MS Mar. Res.	Crozier/Arceneaux (205)	Assessment & Strategy Phase II	30,000
ADECA	Crozier/Schimmel (207)	Public Education	40,157
ADECA	Crozier/Arceneaux (208)	Technical Assistance	7,000
ADECA	Crozier/Arceneaux (210)	Section 309/Coastal Zone Management	20,000
WBNEER	Crozier/Dardeau (211)	Weeks Bay Monitoring	10,777
ADECA	George Crozier (214)	Wastewater Treatment Workshop	750
MS Mar. Res.	Crozier/Arceneaux (215)	Tech. Asst. 309 Assessment & Strategy	24,000
ADECA	Crozier/Arceneaux (218)	Study Assessment - Bicycle Trail	19,250
ADECA	Dindo (219)	Boardwalk Construction	0
SARPC	Crozier (227)	Dog River Watershed Project Meetings	6,500
SARPC	Crozier/Arceneaux (232)	Regulatory Survey and Evaluation...	0
Miscellaneous			
Hearin/Chandler	Crozier (209)	Erosion Film	15,000
Cargill	Crozier (212)	DHP Programs Assistance	5,000
Exxon	Pennock/Graham (216)	Summer Jobs Program	3,000
City of Mobile	Crozier/Schroeder (226)	Mobile Bay Modeling Project	0
International Paper	Dindo	DHP Equipment/Tools Grant	2,900
Exxon	Dindo	NMEA Board Meeting Expenses	400
Ciba Geigy	Stout	Research Equipment	2,500
Exxon	Crozier	BayMobile Project	4,500
TOTAL			\$575,938

Board of Directors

The Board of Directors of the Dauphin Island Sea Lab/ Marine Environmental Sciences Consortium consists of the chief executive officer of each member institution. The Board of Directors determine the general policies of the DISL/MESC.

The Board at reporting time includes:

Dr. William H. Harris, Alabama State University
Dr. Jerry F. Bartlett, Athens State College
Dr. William Muse, Auburn University
Dr. Roy H. Saigo, Auburn University at Montgomery
Dr. Neal R. Berte, Birmingham Southern College
Dr. Wanda D. Bigham, Huntingdon College
Dr. Harold J. McGee, Jacksonville State University
Dr. David E. Potts, Judson College
Dr. Thomas E. Corts, Samford University
Fr. Gregory Lucey, S.J., Spring Hill College
Dr. Joseph B. Johnson, Talladega College
Dr. Jack Hawkins, Jr., Troy State University
Dr. Michael Malone, Troy State University at Dothan
Dr. Benjamin F. Payton, Tuskegee University
Dr. Andrew Sorenson, University of Alabama
Dr. J. Claude Bennett, University of Alabama at Birmingham (until 6/97)
Dr. Ann Reynolds, University of Alabama at Birmingham (as of 6/97)
Dr. Frank A. Franz, University of Alabama at Huntsville
Mr. Walter Hovell, Interim President, University of Mobile
Dr. Robert M. McChesney, University of Montevallo
Dr. Robert L. Potts, University of North Alabama
Dr. Frederick Whiddon, University of South Alabama
Dr. Don C. Hines, University of West Alabama

Executive Committee

The Executive Committee at reporting time includes:

Dr. Robert L. Potts, President, University of North Alabama - **Chairman, Board of Directors**
Dr. George F. Crozier, Executive Director, DISL/MESC - **Secretary (ex officio)**
Dr. Don C. Hines, President, University of West Alabama - **Chairman, Executive Committee and Institutional Representative**
Dr. Asa Green - **Chair Emeritus**
Dr. Frank Romano, Jacksonville State University - **Program Committee Chairman**
Dr. Ken Marion, University of Alabama, Birmingham - **Program Committee Representative**
Dr. Doug Hileman, Tuskegee University - **Program Committee Representative**
Dr. Malcolm Braid, University of Montevallo - **Program Committee Representative**
Dr. Robert Pullen, Troy State University - **Vice-Chairman**
Dr. Michael Moriarty, Auburn University - **Institutional Representative**
Fr. Gregory Lucey, President, Spring Hill College - **Institutional Representative**
Dr. Joseph Thomas, University of North Alabama - **Institutional Representative**
Dr. James Wolfe, University of South Alabama - **Institutional Representative**

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. Shivendra Sahi, Alabama State University
Dr. Tom Jandebour, Athens State College
Dr. Ray Henry, Auburn University
Dr. John Aho, Auburn University at Montgomery
Dr. Dan C. Holliman, Birmingham Southern College
Dr. Doug McGinty, Huntingdon College
Dr. Frank Romano, Jacksonville State University
Dr. Thomas Wilson, Judson College
Dr. Robert Stiles, Samford University
Fr. Gerald Regan, Spring Hill College
Dr. Arthur Bacon, Talladega College
Dr. Stephen Landers, Troy State University
Dr. Stacey Mixon, Troy State University at Dothan
Dr. Douglas Hileman, Tuskegee University
Dr. William Schroeder, 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 College, 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,
Troy, AL

Tuskegee University, Tuskegee, AL*

**University of Alabama,
Tuscaloosa, AL***

**University of Alabama at Birmingham, Birmingham,
AL***

University of Alabama in Huntsville, Huntsville, AL*

University of Mobile, Mobile, AL

University of Montevallo,
Montevallo, AL

University of North Alabama,
Florence, AL

**University of South Alabama,
Mobile, AL***

University of West Alabama,
Livingston, AL

***Graduate degree programs**

Finances 1996-97

Marine Environmental Sciences Consortium Balance Sheet September 30, 1997

<u>Assets</u>	<u>Current Year</u>	<u>Liabilities & Fund Balances</u>	<u>Current Year</u>
Current Funds		Current Funds	
Unrestricted		Unrestricted	
Cash	704,202	Accts Payable	14,395
Investments		Deposits Liability	
Accts Receivable	40,740	Accrued Leave	184,271
Inventory	67,182	Fund Balance	
		Allocated	613,458
		Unallocated	
Total Unrestricted	812,124	Total Unrestricted	812,124
Restricted		Restricted	
(Cash)	(461,395)	Accts Payable	10,732
Investments		Bridge Loan Amsouth	850,000
Accts Receivable	414,792	Fund Balance	
		Allocated	(907,335)
		Unallocated	
Total Restricted	(46,603)	Total Restricted	(46,603)
Total Current Funds	765,521	Total Current Funds	765,521
Plant Fund		Plant Fund	
Investment in Plant		Investment in Plant	
Land	658,757	Net Investment	
Buildings & Improve	3,263,053	in Plant	8,464,959
Improve other than Bldgs.	24,951		
Equipment	1,451,050		
Vessels	258,040		
Library Books	379,282		
Construction in Progress	2,429,826		
Total Investment in Plant	8,464,959	Total Investment in Plant	8,464,959
Total Plant Fund	8,464,959	Total Plant Fund	8,464,959
Agency Fund		Agency Fund	
Cash	42,776	Deposit Held in Custody for Others	42,776
Accts Receivable		Obligations to Employ	
Property Rights Held		Defer Comp	21,524
Defer Comp	21,534		
Total Agency Fund	64,300	Total Agency Fund	64,300

