

ANNUAL REPORT:

September 1, 1976 - September 30, 1977

Marine Environmental Sciences Consortium
Dauphin Island Sea Lab
Dauphin Island, Alabama 36528

Director's Preface:

This has been a year of transition in terms of leadership, and hopefully direction, for the consortium. A very real effort has been made to bring the existence of the MESC to the consciousness of the local community and the membership. The fruits of this labor will be weighed in Montgomery next spring.

A number of reorganizations and efforts to better structure management have been pursued and more are anticipated. The reaction has been largely favorable and the course of action will be pursued until some conclusion, positive or negative, can be reached.

I must express the great sorrow that the MESC community felt at the passing of Dr. George Armytage Rounsefell during the year. He was a fine scientist who dealt in resources of concern to the entire world. His early gloomy forecasts of world fishery productivity were unpopular and unprecedented in an era that spoke hopefully of "turning to the oceans" -- but he was incredibly accurate. His contributions were noted in one of the year's great achievements by MESC in the form of the first issue of Northeast Gulf Science. Papers contributed to the memorial issue reflect the high regard that the scientific community had for Dr. Rounsefell. The resulting quality was so exceptional that the marine community has commented very favorably on the journal. The future for the journal looks bright and even in passing, Dr. Rounsefell contributed again to the growth and success of MESC.

New directions are being pursued in the areas of teacher training and general public education. Alabama is a coastal state whose marine heritage and involvement far surpasses her length of coastale. All the people, regardless of educational

status and background, are therefore targets for the MESC effort, and I would like to think that we have something for all and an obligation to offer it.

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I. GENERAL STRUCTURE

The administration of MESC affairs has been rearranged to better identify the component units. Dr. Robert Shipp was named Associate Director for Academic Affairs of MESC while Ms. Judy Stout was made Assistant Director of the Dauphin Island Sea Lab. It was felt that the distinction was occasionally important but frequently difficult to articulate. Dr. Susan Ivester serves as Coordinator of Graduate Studies and oversees the activities and performance of all graduate students working at the Sea Lab.

Within the support function, Ms. May Tillman is the Business Manager overseeing office functions, auxiliary enterprises and serving as Registrar. Mr. Fred Rees is the Manager of Facilities which includes Plant Operations, Vessel Operations and the Technical Support Shop.

II. PROGRAM DESCRIPTION

A. Instruction:

The instructional element for MESC has two components, separated principally on chronology and secondarily on content. Almost all of the members participate in the Summer Activity which is oriented toward providing the "core" courses of a variety of degree programs. Most of these courses are at the advanced undergraduate/graduate level with two at the lower level.

The 1977 summer instructional program was marked by a number of positive developments. First, a much more beneficial distribution of students resulted from the improved advance deposit policy which enabled the registrar to know well in advance when an applicant became unable to attend. This reduced waiting lists rapidly, and ultimately resulted in almost every student attending the class of his or her first choice. In addition, no classes were overcrowded. Only Ocean Science showed a disappointing enrollment; on the other hand the 18 students in Marine Geology was a record and underscores the broadening base of interest at the Sea Lab. Coastal Climatology was the only new offering of the summer, but enrollment was adequate to guarantee its future. It is offered during both summer terms, and allows students an excellent alternative of "Wednesday only" courses to fill out their schedules.

Visiting summer faculty included Dr. Wayne Adams (Troy State, Ocean Science), Dr. Wayne Canis (Livingston State, Marine Geology), Dr. Robert Stiles (Samford, Marine Biology), Dr. Ron Taylor (Auburn, Recent Marine Sedimentation), and Dr. Aaron Williams (University of South Alabama, Coastal Climatology).

A summary of the summer enrollment is presented in Table 1. Comparison with preceding years indicates that a plateau may have been reached. Funding, space and available student population all are playing a role in limiting growth.

The Academic Year Activity is oriented toward graduate-level courses offered by the resident staff and a variety of mini-terms throughout the spring. This was

the first year that a winter term was offered and both fall and winter were successful (Table 2) in terms of graduate education and now extends our teaching effort to a year-round schedule.

An "academic participation" survey was attempted during the spring in an effort to quantitate each member's involvement with MESC activities. Liaison officers were queried as to campus affairs in the form of curricula, numbers of students and faculty interest. Sea Lab records of student enrollment and field trip activity were reviewed. The results are presented in Table 3. The fact that 210 students in the state are interested enough in marine science at the undergraduate level to participate at the Sea Lab is astounding. The consortium is a statewide academic unit serving all these students, though only a small percentage actually enter the field after graduation. Current graduate activities are in Appendix I.

B. Research:

1. General

It is difficult to summarize the research activity in terms of cash flow because of shifting initiation dates. Table 4 summarizes all activities during fiscal 1976-77. Those designated as "terminated" did end during that period after some period of activity. There is value to comparing activities even on this crude scale. Table 5 breaks research activity out by agency and Table 6 by staff professional. It is immediately evident that the current year is significantly poorer than last in which most now terminating were current. Equally obvious is the attempt to recoup in the submitted proposals. The majority of these have a reasonable probability of funding. This year would be much more disastrous if the recent renewal of the BLM contracts had not occurred.

2. Shelf/Slope Processes

Virtually the entire year was consumed in negotiating a renewal of the Bureau of Land Management MAFLA contract. This has been settled with approximately \$300,000 being awarded as sub-contracts to staff at the Dauphin Island Sea Lab. Details may be found under the Faculty Activities section.

A major effort toward NSF funding was turned down. This proposal involved most of the resident staff in a zoogeographic study of the De Soto Canyon. Papers presented during the year on this topic sparked such interest within the scientific community that discussions of both submersible and habitat work at the head of the Canyon are underway. The former possibility is via the Harbor Branch Foundation and the latter with the Manned Undersea Science and Technology Office (MUST) of NOAA.

The Sea Grant funds for the artificial reef study terminated during the year but successional studies on the reefs are continuing with available funds. Sea Grant support for the lobster project has funded three cruises with some success and the acquisition of an underwater TV camera system has broadened the observational capability considerably. Gravid females were obtained and several larval stages were successfully maintained by campus faculty.

3. Estuarine Processes

The marsh projects are proceeding on schedule and renewal is anticipated on January 1, 1978 with Sea Grant funding carrying the load. Dr. Hopkins was supported by discretionary funds in mid-year to study the hydrographic parameters associated with oyster settling.

The Water Resources Research Institute provided the funds for Dr. Schroeder to move farther up the Bay and several proposals to the Corps of Engineers for work on the Theodore Channel may continue the upper Bay work. NASA has continued its support of the Bay work, but levels have been greatly reduced.

4. Organismic Processes

The wet lab facilities have been further improved and a Gilson respirometer added to the Dauphin Island Sea Lab equipment. Work on seasonal hormone variation in mullet is progressing well. Additional ties to both medical schools have been made. With Drs. Hawkins, Tate and Sarphie, Dr. Crozier is involved in a study of heavy metal accumulations with an intramural grant from the University of South Alabama College of Medicine. A major effort is being planned in the area of biomedical research with personnel from the University of Alabama in Birmingham and the University of South Alabama.

C. Public Service:

Northeast Gulf Science has been well received by the scientific community and papers have been received for the second number. Dr. Robert Shipp is the editor of the journal.

The climatology station has continued to function as our best continuing example of public service. The group operating the station is headed by Dr. Schroeder. The system was "honored" this year by being elevated to incorporation into the main pipeline of data flowing directly to the National Weather Service.

A new activity was established during the summer within this element. The persistent request for tours of the laboratory was redirected in a most positive manner. Principally through a cooperative project with the Mobile Area Community Action Committee (MACAC), a program was initiated for exposing people from all walks of life to the resources and conflicts of the coastal environment. Approximately 250 children and adults visited the Sea Lab during July and August alone. The groups ranged from MACAC's disadvantaged youth to explorer posts and even a paid tour from Grayline Tours. This Public Environmental Awareness (PEA) project is likened to the fable of "the princess and the pea" in that it is subliminal in approach but hopefully will touch those segments of the population who would not otherwise appreciate the problems of the coastal zone.

D. Library:

The library has grown significantly and has been recognized by the major marine lab libraries because of the unique cooperative nature of the Repository. In addition, a grant of \$3,400 was received from HEW under Title II. This will be used to further upgrade the holdings and begin binding of back issues.

E. Academic Support:

The Technical Support Shop has continued to provide those functions and capabilities somehow peculiar to marine stations. The scientific diving activity has been concentrated on the reef project, but there has been renewed discussion of habitat involvement with the MUST office. The Museum has become a physical reality during the year, but the level-funding anticipated for the next fiscal period will prevent any further development in this area and major cuts are anticipated for the next fiscal year.

The Herbarium/Invertebrate Repository:

1. Overview: This facility has been constructed in Marine Science Hall under the instrument lab/staff illustrator space. After a small amount of partition and ceiling construction, we were able to develop about 750 square feet into a well-lighted efficiently designed facility equipped with benches, tables and some 121 running feet of free standing shelf units. In addition to the two herbarium cabinets on hand, two new herbarium cabinets are on order. In addition to the curatory bench, there is microscopy space for two visiting investigators. A policy guide is in preparation and should be finalized before this year is out.

2. Herbarium: The herbarium will house over 200 species of algae from the eastern Gulf of Mexico and approximately 500 plant species from coastal Alabama.

3. The Invertebrate Repository: At the present time, we are organizing the invertebrate collections on the shelves. The collections can be roughly estimated at:

Porifera = 200 species
Coelenterata = 60 species
Polychaeta = 400 species

Mollusca = 250 species
Decapod Crustacea = 200 species
Echinodermata = 100 species

The major change in Academic Support is the addition of Vessel Operations which was originally set up in auxiliary enterprises. The boats are used totally in support of either research or education and the objectives of a trip are reasonably well defined, so the shift was effected during this year. The budget recap does not reflect the change but the 1977-78 budget does. The vessel utilization is summarized in Table 7.

F. Student Services:

The functions of registrar, admissions and records, etc., have continued to evolve and the paper flow seems to have become acceptable to the membership and reasonably uniform. The Alabama Commission on Higher Education has reviewed our procedures and now receives our input directly. It was generally agreed that MESC should not be subject to the formula calculations.

G. Institutional Support:

The most significant development within this management element has been the reduction of the original \$100,000+ budget to less than \$50,000.

H. Plant Operations:

The failure of air conditioning and sewage treatment systems in the spring threatened summer school but adequate repairs to the septic tanks relieved that problem temporarily. The cooperative attitude and patience of the students got us all through the summer and most of the air conditioning was functional by the end of the summer session.

Rising power costs remain the most significant area of concern for the facility. The original installation was not energy-conscious and it is most evident now. The sharing of the power system with the U. S. Coast Guard has cost MESC far more than originally anticipated but the relationship is scheduled to terminate in January.

I. Auxiliary Enterprises:

The major concern of the auxiliaries is the cafeteria. Ms. Tillman took over the management in May and reported balanced books at the end of the summer.

III. STAFF ACTIVITIES

A great deal of effort this year went into the nebulous and frustrating role of contract/grant proposal and negotiation. Few changes were made other than the creation of the position Research Associate for the Sea Lab. These are unfunded positions which allow talented professionals a platform from which to operate. Ms. Linda P. Shipp is currently the only so-titled individual. These activities are summarized in Table 8.

Several personnel changes are anticipated since resignations have been received from Tom Walker, director of the high school program, and Dr. Barry Vittor, Associate Professor of Biology, University of Alabama in Birmingham.

Staff publications are presented in Appendix I.

IV. FINANCIAL STATEMENT

An accurate financial report cannot be prepared until mid to late September. The projections of the enrollment and income were reasonably accurate and a six-month projection indicated that the consortium might operate within the year's budget. These projections do not include any reduction of the deficits carried over from 1975-76 fiscal year. An accurate accounting will be prepared as soon as possible and forwarded as an appendix when available.

Table 1: Summer Enrollments (Students)

<u>Year</u>	<u>First Session</u>	<u>Second Session</u>	<u>Total</u>
1972	54	50	71
1973	60	46	75
1974	74	70	89
1975	97	70	106
1976	98	77	115
1977	91	81	109

Table 2: Academic Year Enrollment, 1977
(with credit hour production)

<u>School</u>	<u>Fall</u>	<u>Mini-Term</u>	<u>Winter</u>
USA	5 (26 hrs.)		10 (48 hrs.)
UA	5 (45 hrs.)		2 (8 hrs.)
UAB	3 (21 hrs.)	41 (82 hrs.)	1 (4 hrs.)
Totals:	13 (92 hrs.)	41 (82 hrs.)	13 (60 hrs.)

Table 3: Results of MESC Academic Survey

	Students Summer '76	Students Summer '77	Field Trips	Total Students (2) '76-'77	Teaching Faculty	Research Faculty	Advisory Committee	Marine UG Major	Marine UG Minor (1)	No. Students	Grad. Degrees	No. Students	Mini-Term Periods
Alabama State	1	2	0	2	0		+		X(Biol.)	3			
Auburn Univ.	6	16	1	46	9	6	+	X(Biol.)	X(Geol.)	60			Fall
Auburn U., Mont.	0	1	0	1		2	nr						
Birmingham-Southern	2	1	2	32	1		-						January
Huntingdon College	0	0	0	0			nr						January
Jacksonville State	5	10	0	10			+						May
Livingston Univ.	3	3	1	25	2		nr	X(Biol.)					May
Mobile College	0	0	1	24	1		-						
Samford University	2	3	1	16	2	2	+		X(Biol.)	5			January
Spring Hill College	1	2	1	8	2	2	-		X(Biol.)	10			
Troy State Univ.	13	12	1	42	2	1	nr		X(Biol.)	12			
Tuskegee Institute	0	0	0	0	3	4	-						May
Univ. of Alabama	26	20	4	86	4		+	X(M Sci.)		35	X	10	May
UAB	8	5	1	84	7	12	+						Sept., Feb., Dec.
UAH	1	3	1	13	2		nr						
U. of Montevallo	3	0	2	21	2	1	-						
U. of North AL	8	8	0	8	4	10	-	X		15			February
U. of South AL	36	27	1	68	4	6	-	X		70			

i "minor" should be interpreted as "option", "emphasis", "program", "track", or "concentration"
 nr = no response
 total = summer + field trips + mini-terms + academic year courses

Table 4: Activities During Fiscal 1976-77

Agency	Project	PI	Extramural	Terminated	Current	Proposed
MASGC	Marsh Inventory	Stout	\$ 13,333	X		
COE	Plant Monitoring	Stout	\$ 34,750	X		
NASA	Ground Truth	Crozier	\$ 27,514	X		
NASA	Data Collection	Schroeder	\$ 10,000		X	
NASA	Ground Truth	Schroeder	\$ 12,000		X	
Bus Foun	Scientific Diving	Crozier	\$ 10,000	X		
WRRI	Bay-River Hydrogra.	Schroeder	\$ 9,985		X	
MASGC	Marsh Evaluation	Stout	\$ 15,800 ¹⁰⁹²⁷		X	
MASGC	Marsh Evaluation	Stout	\$ 20,659			X
MASGC	Marsh Evaluation	Ivester	\$ 22,864		X	
MASGC	Marsh Evaluation	Ivester	\$ 17,811			X
MASGC	Atlas	Schroeder	\$ 28,000	X		
MASGC	Atlas	Schroeder	\$ 8,978		X	
MASGC	O ₂ Depletion	Schroeder	\$ 28,892			X
MASGC	Lobster	Crozier/Vittor	\$ 10,874		X	
MASGC	Lobster	Crozier	\$ 11,000			X
MASGC	Lobster	Shipp, R.	\$ 11,582		X	
MASGC	Lobster	Shipp, R.	\$ 15,400			X
MASGC	Reef Studies	Crozier	\$ 25,148	X		
MASGC	Reef Studies	Shipp, R.	\$ 15,000	X		
MASGC	Oyster Settling	Hopkins	\$ 9,000		X	
BLM	Epi fauna	Hopkins	\$ 118,709		X	
BLM	Meiofauna	Ivester	\$ 144,831		X	
BLM	Crustacea	Heard	\$ 22,088			X
MASGC	Handbook	Heard	\$ 9,880			X
NSF	Crustacea	Heard	\$ 25,605			X
BLM	Demersal Fishes	Shipp, R.	\$ 31,124		X	
COE	Theodore Channel					
	-management	Crozier/Schroeder	\$ 11,500			X
	-turbidity	Crozier	\$ 7,200			X
	-hydrography	Schroeder	\$ 50,400			X
	-sedimentology	Brett	\$ 10,400			X
	-benthic quality	Pamatmat	\$ 15,600			X
	-macroinfauna	Hopkins/Vittor	\$ 9,000			X
	-demersal fauna	Shipp/Hopkins	\$ 8,400			X
	-submersed grasses	Stout	\$ 5,100			X
MASGC	Decapod Larvae	Shipp, L.	\$ 8,222			X
CAB	PEA Program	Crozier	\$ 12,862			X
VIH	Coliform Sampling	Crozier	\$ 42,000			X

MASGC = Mississippi-Alabama Sea Grant Consortium
 NASA = National Aeronautics & Space Administration
 COE = Corps of Engineers
 BLM = Bureau of Land Management
 CAB = Coastal Area Board

Table 5: Analysis of Research by Funding Agency

<u>Agency</u>	<u>Terminated</u>	<u>Current</u>	<u>Proposed</u>
COE	\$ 34,750	--	\$ 91,600
NASA	\$ 27,514	\$ 22,000	--
Russell Foundation	\$ 10,000	--	--
WRI	--	\$ 9,985	--
BLM	--	\$294,664	\$ 22,083
MASGC	\$ 81,481	\$ 79,098	\$111,864
NSF	--	--	\$ 25,605
CAB	--	--	\$ 12,862
NIH	--	--	\$ 42,000
Totals:	\$153,745	\$405,747	\$306,014

Table 6: 1976-77 Funding Level by MESC Professional Staff

<u>Principal Investigator</u>	<u>Terminated</u>	<u>Current</u>	<u>Proposed</u>
Crozier	\$ 62,662	\$ 5,437	\$ 78,812
Heard	--	--	\$ 57,568
Hopkins	--	\$127,709	\$ 8,700
Ivester	--	\$167,695	\$ 17,811
Schroeder	\$ 28,000	\$ 40,963	\$ 85,042
Shipp, R.	\$ 15,000	\$ 42,706	\$ 29,600
Shipp, L.	--	--	\$ 8,222
Stout	\$ 48,083	\$ 15,800	\$ 25,759
Vittor	--	\$ 5,437	\$ 4,500
Totals:	\$153,745	\$405,747	\$306,014

Table 7: Research Vessel Report Totals
(October 1976-August 1977)

	<u>R/V G. A. Rounsefell</u>	<u>R/V Pisces</u>
Cruises	81	7
Participants	1,255	23
Days at Sea	107	11
Nautical Miles Steamed	3,886	172
Cruises for Scientific Research	32	7
Cruises for Education - College Level	32	0
Cruises for Education - High School Level	14	0
Other (i.e., Audubon, Media Workshop, etc.)	3	0

Table 8: MESC Professional Staff Activities
(October 1976-September 1977)

	<u>Administrative</u>	<u>Instructional</u>	<u>Professional</u>
Crozier, G. F.	<p>Director, MSP; Associate Director, MESC Director, MESC (3-1-77) Advisor, MASGC</p> <p>Committees: Diving Control Board** Library Affairs UNOLS Coastal Vessel Design Group</p>	<p>Physiology of Marine Animals* (7) Introduction to Coastal Marine Environments* (22)</p> <p>Graduate Committees: 9</p>	<p>P.I.-MASGC/Artificial Reef Program (terminating) P.I.-NASA/Bay Turbidity Studies (terminating) Assoc. P.I.-MASGC/Lobster Studies (current/renewal proposed) Assoc.-NIH/Data Collection (proposed) Co-P.I.-COE/Theodore Channel Baseline (proposed)</p>
Heard, R. W.	<p>Curator, DISL Museum</p>	<p>Marine Invert. I & II* (24 & 8) Participated in: Estuarine Biology Intro. to Coastal Environ. Marine Resource Div. Workshop Graduate Committees: 3 (12 hours independent research)</p>	<p>Trips to USNM, TAMU invertebrate collection, Florida Dept. of Natural Resources Museum P.I.-MASGC/Estuarine Invert. Handbook (proposed) P.I.-BLM/Benthic Decapods (proposed) P.I.-NSF/BLM Decapods (proposed)</p>
Hopkins, T. S.	<p>Director, DISL Museum Diving Officer, DISL Committees: Library Affairs Facilities & Development Vessel Operations Diving Control Board</p>	<p>Physiology Marine Animals* (7) Participated in: Estuarine Biology Scientific Data Management Oceanology of Gulf of Mexico Intro. to Coastal Environment Marine Invert. I & II Graduate Committees: 16 (8 as chairman)</p>	<p>P.I.-MASGC/Oyster Studies (current) P.I.-BLM/Epifauna, MAFLA (new) Assoc.-COE/Theodore Channel Baseline (proposed) Assoc.-MASGC/O₂ levels in Mobile Bay (proposed)</p>

*Principal Responsibility

**Chairman

Administrative

Wester, M. S. Coordinator, Graduate Studies
Committees:
Facilities & Development

ees, F. Manager of Facilities (3-1-77)
Committees: Information & Public Service

chroeder, W. W. Committees:
Coastal Meteor. AMS/
Research Council**
Nat'l. Sea Grant Assoc/
Programs & Excut. GERS/
NSP Advisory, Univ. AL
College Arts & Sci./
Vessel Operations**,
Diving Control Bd.,
Public Service, MESC

hipp, R. L. Acting Director, MESC (10-1-76/2-3-77)
Assoc. Director, MESC
Executive Comm., MESC
Program Comm., MESC
Assoc. Editor/Editor,
NE Gulf Science
Committees: Vessel Operations
Coastal Research
Coordinating

Instructional

Marsh Ecology* (12)
Estuarine Biology* (11)
Participated in:
Scientific Data Management
Audubon Workshop
Graduate Committees: 5

Commercial Marine Fisheries
of Alabama* (12)

Oceanology of Gulf of Mexico* (9)
Participated in:
Estuarine Biology; Sci. Data
Management
Audubon Workshop
Graduate Committees: 7
(chairman of one)
Intro. to Oceanography* (12)

Marine Vert. Zoology*
Graduate Committees: 11 (5
as chairman)

Professional

P.I.-MASGC/Marsh Studies (new)
P.I.-BLM/Meiofauna (new)
P.I.-MASGC/Marsh Studies (on-going)
Attended: Gulf Est. Res. Soc. Meeting
Marsh Value Symposium

Attended Nat'l. Mar. Ed. Assn. Conf.

P.I.-MASGC/Charac. Mobile Bay
(current)
P.I.-WRRI/Dispersion Patterns (current)
P.I.-NASA/Data Collection (on-going)
P.I.-NASA/Sea Truth, Turbidity (new)
Assoc. NASA/Bay Turbidity Studies
(terminating)
P.I.-MASGC/O₂ levels in Mobile Bay
(proposed)
Co-P.I.-COE/Theodore Channel Moni-
toring (proposed)

P.I.-BLM/Demersal Fishes
P.I.-MASGC/Artificial Reef Program
(terminating)
P.I.-MASGC/Lobster Studies (proposed)
Sec./Tres. Amer. Soc. Ichthy. &
Herpetol. (SE Division)
Assoc.-COE/Theodore Channel Baseline
Editorial Bd. AL Mar. Res. Bull.

*Principal Responsibility
**Chairman

Administrative

Instructional

Professional

Shipp, L. P.	Research Associate, DISL		P. I.-MASGC/Larval Decapods in Marsh Systems (proposed) R.A.-BLM/Melofauna
Stout, J. P.	Assistant Director, DISL Director, DISL Marine Repository Committees: Library Affairs** Information & Public Service**	Marsh Ecology* (12) Marine Botany* (19) Participated in: Estuarine Biology Intro. to Coastal Environ. Mar. Res. Div. Workshop Audubon Workshop	P. I.-COE/Spoil Monitoring (terminating) P. I.-MASGC/Marsh Assess. (terminating) P. I.-MASGC/Marsh Studies (current) P. I.-MASGC/Marsh Studies (proposed) Assoc.-COE/Theodore Channel (proposed) Attended: Gulf Estuarine Res. Soc Marsh Value Symposium E. Coast Librarian Association

Vittor, B. A.	Committees: Facilities & Development** Coastal Research** Coordinating	Benthic Community Structure* (4) Scientific Data Management* (6) Nat'l. Hist. of Commercial Marine Invertebrates* (7) Seminar* (28) Marine Ecology* (15) Participated in: Oceanol. Gulf of Mex.; Audubon Workshop Graduate Committees: 10 (5 as chairman)	P. I.-BLM/MAFLA Studies (terminating) P. I.-MASGC/Lobster Studies (current) Assoc.-COE/Theodore Channel (proposed)
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Walker, T. H.	Director, Discovery Hall Project	Four High School Spring Classes (80) Participated in: Commercial Marine Fisheries of AL Three Summer Institutes (46)	Attended Marine Education Association Meeting Visited 15 high schools/counseled up to 1,000 students
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*Principal Responsibility
**Chairman

APPENDIX I

RESIDENT GRADUATE STUDENTS

- Eric W. Black. "An investigation of the Na⁺ uptake mechanism in the Striped Mullet (Mugil cephalus)". M.S. candidate, UAB.
- Steven G. Branstetter*, M.S. candidate, UAB.
- Douglas Clarke. "Resource utilization by coexisting populations of Freckled Blenny, Hypsoklennius ionthas, and Frill-fin Goby, Bathygobius soporator". Ph.D. candidate, UAB.
- Katherine M. Cunningham*, M.S. candidate, UA.
- Mike Dardeau, M.S. candidate, USA.
- Steven C. Dawson, M.S. candidate, UAB.
- John J. Dindo. "Analysis of reproductive hormones, in relation to temperature, photoperiod, and salinity, involved in the migration of the Striped Mullet, Mugil cephalus". M.S. candidate, UAB.
- Douglas K. Gilbert, M.S. candidate, UA.
- J. Charles Harp, M.S. candidate, USA.
- Paul G. Johnson. "Polychaetous annelids of the Middle Ground Reefs of Florida, with notes on the abundance, diversity, and distribution of the cryptic coral-inhabiting forms". M.S. candidate, UAB.
- Chong Koo Lee. "The seasonal and spatial settings of oyster spat and other settling organisms in Mobile Bay in relation to hydrography and water quality". M.S. candidate, UA.
- Charles H. Lutz. "The association of the sea anemone Calliactis tricolor (Lesueur) with the crab Hepatus epheliticus (Linnaeus) in the Northern Gulf of Mexico". M.S. candidate, UA.
- W. Ross Lysinger. "A characterization of the hydrographic parameters of Main Pass, Mobile Bay, Alabama". M.S. candidate, UA.
- Linda L. McNeff. "A survey of the occurrence and incidence of infection by larval digenetic trematodes of the salt marsh Horn Snail, Cerithidea pliculosa from Dauphin Island, Mobile County, Alabama". M.S. candidate, UA.

*entering student, 1977

APPENDIX II

STAFF PUBLICATIONS

GEORGE F. CROZIER

Publications:

1. An Approach to Measuring Turbidity in Mobile Bay, Alabama via Remote Imagery (with S. R. Heath). Proceedings of the Remote Sensing Data Users Conference. December 4-5, 1975. Mobile, Alabama. Published January 1977.
2. Observations on the Ecology and Behavior of the Sand Tilefish, Malacanthus plumieri (with D. Clarke and W. W. Schroeder). Third Intl. Coral Reef Symp.

(In Preparation):

3. Succession of Reef-Dwelling Fish Communities on Artificial Reefs of the Mississippi-Alabama Shelf (with D. Clarke and R. Lukens). Trans. Amer. Fish. Soc.

RICHARD W. HEARD

Publications:

1. Phoronids from the east coast of the United States (with Stancyk and Maturo). Bull. Mar. Sci. 26(4):576-584. December 1976.
2. Parasites of the Clapper Rail, Rallus longirostris Boddaert. III. Description of Notocotylus schmidtii sp. n. (Digenea: Notocotylidae) (with Brooks). Helm. Soc. of Washington. January 1977.

(In Press):

3. Notes on the biology of the pontoniine shrimp Lipkebe holthuisi Chace, with a description of the male (with Shaw and Hopkins). Biol. Soc. of Washington.
4. The description of Colomastix janiceae n. sp., a commensal amphipod (Colomastigidae) from the Florida Keys (with Perlmutter). Proc. Biol. Soc. of Washington.
5. Biogenic sedimentary structures formed by rays (with Mayou and Howard). J. Sedimentology.

(In Preparation):

6. Description new species of marine parasites giving information on life cycles and economic importance.

THOMAS S. HOPKINS (continued)

Publications:

9. Stilbomastax, a new genus of spider crab (Majidae: Tychinae) from the West Indies Region, with notes on American relatives (with A. B. Williams and J. K. Shaw). Proc. Biol. Soc. Washington.

M. SUSAN IVESTER

Publications:

1. "Niche fractionation studies of two sympatric species of Enhydrosoma (Copepoda, Harpacticoida)". Mikrofauna Meeresboden, 61: 131-145.
2. "Nematocyst differentiation in the Anthozoan Renilla reniformis (Pallas)". Trans. Amer. Micros. Soc., 96: 238-247.

WILLIAM W. SCHROEDER

Publications:

1. ERTS Data Collection Platform System for Monitoring the Surface Hydrography of Mobile Bay, Alabama (with R. Morton). Mar. Tech. Soc. J. 10(8). 1976
2. Physical Environment Atlas of Coastal Alabama. Mississippi-Alabama Sea Grant Program. MASGP-76-034. 1976.
- *3. Coastal Marine Laboratories and Meteorological Data Acquisition: An Example. Conference on Coastal Meteorology. Amer. Meteor. Soc. 1976.
4. Sea Truth and Environmental Characterization Studies of Mobile Bay, Alabama, Utilizing ERTS-1 Data Collection Platforms. Remote Sensing of Environ. J. 6(1). 1977.
5. Mobile Bay Water Quality Monitoring. Proceedings of the Remote Sensing Data Users Conference. NASA G. C. Marshall Space Flight Center and MESC. December 1975 (published January 1977).
- *6. Current and Hydrographic Characterization of the South Central Insular Shelf of Grand Bahama Island. Third Intl. Coral Reef Symp., Vol. 2. Univ. of Miami, Florida. 1977.
7. Observations on the Ecology and Behavior of the Sand Tilefish, Malacanthus plumieri (with D. Clarke and G. Crozier). Third Intl. Coral Reef Symp., Vol. 1. Univ. of Miami, Florida. 1977.
8. Physical Environment Atlas of the South Central Insular Shelf, Grand Bahama Island. Hydro-Lab Jour. 4(1). 1977.

BARRY A. VITTOR (continued)

Publications:

(In Press)

4. Annotated checklist of the benthic polychaetes collected for the Bureau of Land Management in the Northeastern Gulf of Mexico, 1974-76 (with G. R. Gaston, P. G. Johnson and J. M. Uebelacker). NE Gulf Science.
5. Distribution and seasonal abundance of the polychaetous annelids of the Northeastern Gulf of Mexico. NE Gulf Science.

	<u>BUDGET (ORIGINAL)</u>	<u>12 MONTH PROJECTION</u>	<u>BALANCE</u>
PUBLIC COMMUNICATIONS (RLS)			
9-99202			
SALARIES	2,000.00	3,446.62	-1,446.62
FRINGE	.00	102.67	-102.67
PRINTING	4,000.00	4,000.00	.00
<hr/>			
METEOROLOGICAL (WWS)			
9-99203			
SUPPLIES	1,344.00	1,344.00	.00
<hr/>			
LIBRARY (JPS)			
9-99250			
SALARIES	9,500.00	9,499.88	.12
FRINGE	665.00	665.00	.00
SUPPLIES	650.00	650.00	.00
XEROX-BINDING	1,500.00	1,500.00	.00
FREIGHT	250.00	250.00	.00
EQUIPMENT	325.00	325.00	.00
BOOKS	3,500.00	3,500.00	.00
PERIODICALS	7,000.00	7,000.00	.00
<hr/>			
MUSEUM (TSH)			
9-99300			
SALARIES	8,000.00	7,999.98	.02
FRINGE	560.00	560.00	.00
SUPPLIES	1,000.00	1,000.00	.00
<hr/>			
TECH SUPPORT (FR)			
9-99303			
SALARIES	24,850.12 (25,090)	24,850.12	.00
FRINGE	1,756.00	1,756.00	.00
SUPPLIES	1,000.00	849.64	150.36
EQUIP. REPAIR	.00	150.36	-150.36
<hr/>			
SCIENTIFIC DIVING (TSH)			
9-99304			
SUPPLIES	500.00	500.00	.00
<hr/>			

MESC Activity Report: October-March

Director's Preface:

Because of the hopefully unusual events of the first two quarters of this year, I felt that some formal review of activities within MESC should be attempted. It is with deep sorrow that this time period should note the passing of Dr. George Armytage Rounsefell. "Doc" left his imprint on what has, and will emerge as MESC. His absence is most obvious to those of us who sought to tap his vast experience and the graduate students with whom his participation in oral exams had become legend.

The first half of this year has obviously been more than a little difficult with much loss of momentum and confusion in direction and management. These problems were not abrupt in developing and their solution will take even longer. I will try to show what has continued to function and explain the measures taken to reduce the deficit and financial burdens of inflation and rising energy costs.

Personnel:

The resignation of Dr. Sidney Upham was followed by two more at the "middle management" level and had been preceded by another at the same level. The three middle level people were replaced by one individual, Mr. Fred Rees, who has done an outstanding job in his brief tenure as Manager of Facilities. Mr. Rees was transferred from the high school program and his load in that program assumed on a part-time basis by graduate students.

Upon assuming the executive directorship, Dr. George Crozier asked Ms. Judy Stout to assist him in the affairs of the Dauphin Island Sea Lab and Dr. Robert Shipp to assume the responsibility for the summer program and related academic affairs within the Consortium programs. Ms. May Tillman was confirmed as Business Manager for the Lab and Consortium. These lateral transfers and in-house duty assignments provide a talented administrative structure at considerable savings to the severely stressed budget.

Captain Barton Kern, master of the R/V G. A. Rounsefell for almost five years, has taken indefinite leave of absence due to degenerative disc disease and has been replaced by Captain Tom Lamey.

Programs:

It is difficult to maintain stable program development when it is dependent upon extramural support subject to political vagaries and funding restrictions. There are no structured academic programs within the Consortium which are adequately funded, including the summer school which is forced to support the entire academic year, both in terms of tuition and credit hour production.

During the past year, the professional staff optimistically organized itself into three dynamic interdisciplinary programs euphemistically entitled Shelf/Slope, Estuarine, and Organismic Processes. The support of each of these was based on 90%+ extramural funds which promptly went into a decline. All of our principal supporting agencies (BLM, NASA, Sea Grant, and CAB) cut back for a variety of reasons unrelated to our programs. The appropriation, tuition and auxiliary income do not adequately support the teaching program and year-round maintenance of the Sea Lab so the present situation was predictable and unavoidable.

The most viable efforts are currently directed toward the marsh and estuarine environment, where Sea Grant has continued support to Ms. Stout, Drs. Ivester, Hopkins and Schroeder, and the Corps of Engineers is negotiating a contract with Dr. Vittor. Dr. Schroeder has successfully interfaced support from WRRRI and NASA with his Sea Grant project to maintain a viable monitoring of the Bay system.

In the shelf studies Drs. Vittor, Crozier and Shipp have obtained Sea Grant funds for study of the fishery potential of the bulldozer lobster, and Dr. Hopkins will continue the reef studies using internal support. A major proposal concerning the influence of the De Soto Canyon on the zoogeography of the northern Gulf of Mexico has been submitted by Dr. Hopkins. This effort involves Drs. Heard, Ivester, Vittor and Shipp as associates.

Drs. Hopkins, Vittor, Ivester and Shipp have engaged in almost continual negotiations with BLM and three prime potential management contractors on the MAFLA studies, but the issue has not yet been resolved. The ultimate level and timing of involvement with that project will determine the final status of the MESC budget.

Staff Activities:

To facilitate the review these have been tabulated in Table 1. Recent publications have been listed in Appendix I.

Facilities:

Mr. Rees has been challenged by the addition of inoperable air conditioning systems and broken septic lines to the normal headaches of running the Sea Lab. These problems resulted from years of improper maintenance and were not anticipated for this year's budget. The wheels are in motion but bids on these major projects have not been received. Our best estimate at this time is a total of \$35,000 for both. We feel that one of these is included (@ \$17,500) in the budget recap presented (Appendix II) but not both.

In an effort to reduce the power consumption, we have curtailed use of Endeavor Hall, the Recreation Center, one of the dorms and reduced mess hall operations. A recent rate increase is expected to obscure all these conservation measures.

Library:

The Library has finally recovered from losses suffered in the Point of Pines fire and is now firmly established as a viable tool in both the research and educational programs of MESC. Through increased funding and gifts, acquisition of back journal issues and difficult to locate reference titles was begun in FY 76-77 and has strengthened the holdings considerably. A listing of serial holdings was printed in early April.

Very beneficial cooperative arrangements have been made with MESC member libraries, other U. S. marine institutions, and U. S. FDA and Alabama Marine Resources

Division Laboratories on Dauphin Island. The Library has just recently been invited to join the East Coast Marine Science Librarians and be listed in their Directory.

Budget:

A detailed recap of the so-called amalgamated budget is presented in Appendix II. Briefly, it reflects transfers of the salary money saved by the in-house promotions, etc. into operating categories. My statement also does not include one of the major DISL repairs, last year's deficit of \$38,000 or the \$22,000 for boat hull repair last year. To the best of our ability to understand the process, it would appear that we are now operating within our budget as projected. Our income period is in the last quarter and our last shot at BLM funding also. Our estimated cumulative income is \$610,000 and anything less than that tends to increase the deficit.

Table 1: MESC Professional Staff Activities
October 1976 - March 1977

	<u>Administrative</u>	<u>Instructional</u>	<u>Professional</u>
Crozier, G. F.	Director, MSP; Associate Director, MESC Director, MESC (3/1/77) Advisor, MASGC Committees: Diving Control Board [†] Library Affairs UNOLS Coastal Vessel Design group	Physiology of Marine Animals* Introduction to Coastal Marine Environments* Graduate Committees: 9	P. I.-MASGC/Artificial Reef Progra (terminating) P. I.-NASA/Bay Turbidity Studies (terminating) Assoc.-MASGC/Lobster Studies (new) Editorial Board-AL Mar. Res. Bull
Heard, R. W.	Curator, DISL Museum	Participated in: Estuarine Biology Intro. to Coastal Environ. Graduate Committees: 3 (12 hours independent research)	Trips to USNM, TAMU invertebrate collection, Florida Department of Natural Resources Museum
Hopkins, T. S.	Director, DISL Museum Diving Officer, DISL Committees: Library Affairs Facilities & Development Vessel Operations Diving Control Board	Physiology Marine Animals* Participated in: Estuarine Biology Scientific Data Management Oceanology of Gulf of Mexico Intro. to Coastal Environment Graduate Committees: 16 (8 as chairman)	P. I.-MAFLA Contracts (terminating) P. I.-MASGC/Oyster Studies (new) Assoc.-Artificial Reef Program

[†]Chairman

*principal responsibility

(Table 1, continued)

Administrative

Instructional

Professional

Ivester, M. S. Coordinator, Graduate Studies
Committees: Facilities & Development

Estuarine Biology*
Participated in:
Scientific Data Management
Graduate Committees: 5 (1 as chairman)

P.I.-MASGC/Marsh Studies (new)

Rees, F. Manager of Facilities (3/1/77)
Committees: Information & Public Service

Commercial Marine Fisheries of Alabama*

Schroeder, W. W. Committees: Coastal Meteor./ Amer. Met. Soc. College of Coastal Research/ Arts & Sci. Nat'l. Sea Grant MSP Advisory Association† Committee) Executive & Program/CERS Vessel Operations Diving Control Bd.

Oceanology of Gulf of Mexico* Participated in: Estuarine Biology; Sci. Data Management
Graduate Committees: 7 (chairman of one)

P.I.-MASGC/Charac. Mobile Bay (ongoing)
P.I.-WRRI/Dispersion Patterns (new)
P.I.-NASA/Data Collection (ongoing)
P.I.-NASA/Sea Truth, Turbidity (new)
Assoc. NASA/Bay Turbidity Studies

Shipp, R. L. Acting Director, MESC
Executive Committee, MESC
Program Committee, MESC
Associate Editor/Editor, NE Gulf Science

Systematic Ichthyology (on USA campus)

P.I.-MASGC/Artificial Reef Program (terminating)
P.I.-MASGC/Lobster Studies (new)
Sec./Tres. Amer. Soc. Ichthy. & Herpetol. (SE Division)
Editorial Bd. AL Mar. Res. Bull. (Papers in Press: UN-FAO)

Committees: Vessel Operations
Coastal Research
Coordinating

Graduate Committees: 11 (5 as chairman)

W. Cen. Atlantic Fish Field Identification Guidebook Series
Tetraodontid Section

†Chairman

*principal responsibility

(Table 1, continued)

Administrative

Instructional

Professional

Stout, J. P. Assistant Director, DISL
 Director, DISL Marine
 Repository

Committees: Library Affairs[†]
 Information &
 Public Service[†]

Participated in:
 Estuarine Biology
 Intro. to Coastal
 Environments

P.I.-COE/Spoil Planting (terminati
 P.I.-MASGC/Marsh Assess. (term.)
 P.I.-MASGC/Marsh Studies (new)

Vittor, B. A. Committees: Facilities &[†]
 Development
 Coastal Research[†]
 Coordinating

Benthic Community Structure*
 Scientific Data Management*
 Nat'l. Hist. of Commercial*
 Marine Invertebrates

P.I.-BIM/MAFLA Studies (terminati
 P.I.-MASGC/Lobster Studies (new)

Participated in:
 Oceanology of Gulf of Mexico

Graduate Committees: 10 (5 as
 chairman)

Walker, T. H. Director, Discovery Hall
 Marine Biology Institute

One High School class
 Participated in:
 Commercial Marine
 Fisheries of Alabama

attended Marine Education Ass'n.
 meeting
 Visited 15 high schools/counseled
 up to 1000 students

[†]Chairman

*principal responsibility

Appendix I: Staff Publications

GEORGE F. CROZIER

Publications:

1. An Approach to Measuring Turbidity in Mobile Bay, Alabama via Remote Imagery (with S. R. Heath). Proceedings of the Remote Sensing Data Users Conference. December 4-5, 1975. Mobile, Alabama. Published January 1977.

(In Press):

2. Observations on the Ecology and Behavior of the Sand Tilefish, Malacanthus plumieri (with D. Clarke and W. W. Schroeder). Third Intl. Coral Reef Symp.

(In Preparation):

3. Succession of Reef-Dwelling Fish Communities on Artificial Reefs of the Mississippi-Alabama Shelf (with D. Clarke and R. Lukens). Trans. Amer. Fish. Soc.

RICHARD W. HEARD

Publications:

1. Phoronids from the east coast of the United States (with Stancyk and Maturo). Bull. Mar. Sci. 26(4):576-584. December 1976.
2. Parasites of the Clapper Rail, Rallus longirostris Boddaert. III. Description of Notocotylus schmidti sp. n. (Digenea: Notocotylidae) (with Brooks). Helm. Soc. of Washington. January 1977.

(In Press):

3. Notes on the biology of the pontonine shrimp Lipkebe holthuisi Chace, with a description of the male (with Shaw and Hopkins). Biol. Soc. of Washington.
4. The description of Colomastix janiceae n. sp., a commensal amphipod (Colomastigidae) from the Florida Keys (with Perlmutter). Proc. Biol. Soc. of Washington.
5. Biogenic sedimentary structures formed by rays (with Mayou and Howard). J. Sedimentology.

(In Preparation):

6. Description new species of marine parasites giving information on life cycles and economic importance.

Publications:

(In Preparation):

7. Preparation of monographs on the sponge-dwelling amphipods and caridean shrimps of the Florida Department of Natural Resources "Project Hourglass" Cruises in the eastern Gulf of Mexico.
8. Description of two new estuarine crustacea.
9. Description of new decapod crustaceans from the U. S. National Museum.

THOMAS S. HOPKINS

Publications:

1. Epifaunal and Epifloral Benthic Communities in the MAFLA Year 02 Area (with GRUNT Laboratory Staff). Final Report, BLM Contract No. 08550-CT5-30. 1976.
2. Escarosa: The Anatomy of Panhandle Citizen Involvement in Estuarine Preservation. In: Estuarine Pollution Control and Assessment; Proceedings of a Conference; U. S. Environmental Protection Agency. Vol. II, pp. 567-579. 1977.

(In Press):

3. Fishes of a Florida Oxbow Lake and its Parent River (with H. A. Beecher and W. C. Hixson). Florida Sci.
4. Notes on the Biology of the Pontonine Shrimp Lipkebe holthuisi Chace, with a description of the male (with J. K. Shaw and R. W. Heard). J. Biol. Soc. of Washington.
5. A Preliminary Characterization of the Biotic Components of Composite Strip Transects on the Florida Middle Grounds, Northeastern Gulf of Mexico (with D. R. Blizzard, S. A. Brawley, S. A. Earle, D. E. Grimm, D. K. Gilbert, P. G. Johnson, E. H. Livingston, C. H. Lutz, J. K. Shaw, and B. B. Shaw). Proc. Third Intl. Coral Reef Symp.
6. The Distribution of the family Hapalocarcinidae (Decapoda, Brachyura) on the Florida Middle Ground with a description of Pseudo cryptochirus hypostegus, new species (with J. K. Shaw). Proc. Third Intl. Coral Reef Symp.
7. A Preliminary Characterization of the Octocorallian and Scleraetinian Diversity of the Florida Middle Grounds (with D. E. Grimm). Proc. Third Intl. Coral Reef Symp.
8. The Molluscan Fauna of the Florida Middle Grounds with Comments on its Zoogeographical Affinities (with D. R. Blizzard and D. K. Gilbert). J. NE Gulf Sci.

M. SUSAN IVESTER

Publications:

1. Niche fractionation studies of two sympatric species of Enhydrosoma (Copepoda, Harpacticoida) (with B. C. Coull). Mikrofauna Meeresboden, 61:131-145.
2. Nematocyst differentiation in the Anthozoan Renilla reniformis (Pallas). Trans. Amer. Micros. Soc., 96:238-247.

(In Preparation):

3. Physical control of community structure in meiobenthic copepods (submitted to Oecologia).

WILLIAM W. SCHROEDER

Publications:

1. ERTS Data Collection Platform System for Monitoring the Surface Hydrography of Mobile Bay, Alabama (with R. Morton). Mar. Tech. Soc. J. 10(8). 1976.
2. Physical Environment Atlas of Coastal Alabama. Mississippi-Alabama Sea Grant Program. MASGP-76-034. 1976.
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5. Mobile Bay Water Quality Monitoring. Proceedings of the Remote Sensing Data Users Conference. NASA G. C. Marshall Space Flight Center and MESOC. December 1975 (published January 1977).

(In Press):

6. Current and Hydrographic Characterization of the South Central Insular Shelf of Grand Bahama Island. Third Intl. Coral Reef Symp.
7. Observations on the Ecology and Behavior of the Sand Tilefish, Malacanthus plumieri (with D. Clarke and G. Crozier). Third Intl. Coral Reef Symp.

ROBERT L. SHIPP

Publication: (In Press)

1. Tetraodontidae. In: Western Central Atlantic, Fisheries Guide. FAO Series, United Nations, Rome.

BARRY A. VITTOR

Publications:

1. Proceedings of the Remote Sensing Data Users Conference. NASA George C. Marshall Space Flight Center and MESC. December 1975 (published January 1977).
2. Benthic polychaete fauna of MAFLA study transects V and VI. BLM Contract No. 08550-CT5-30. 1976.

(In Press):

3. Polychaete abundance, diversity and trophic role in coral reef communities at Grand Bahama Island and the Florida Middle Ground (with P. G. Johnson). Proc. Third Intl. Coral Reef Symp.
4. Distribution and seasonal abundance of the polychaetous annelids of the northeastern Gulf of Mexico. NE Gulf Sci.