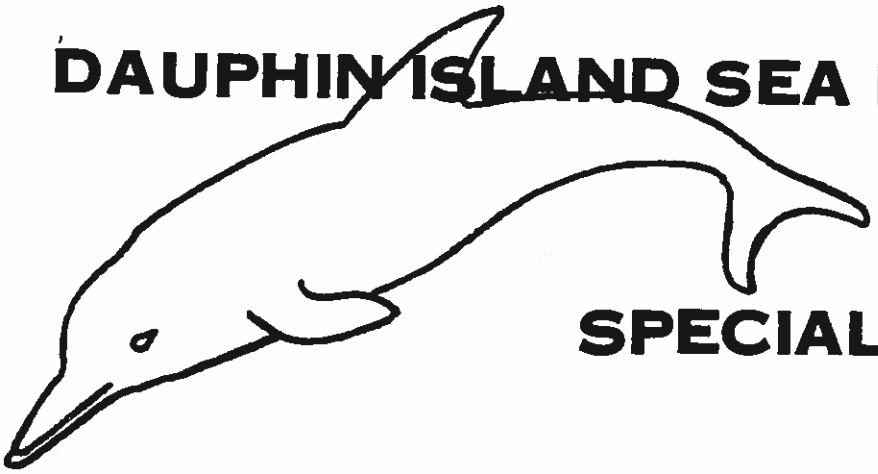
DAUPHIN ISLAND SEA LAB



SPECIAL REPORT

ANNUAL REPORT

MARINE ENVIRONMENTAL SCIENCES CONSORTIUM

October 1, 1977 - September 30, 1978

Submitted By: George F. Crozier
Executive Director

Dauphin Island Sea Lab
Dauphin Island , Alabama 36528

Report No. 78-1

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Director's Preface:

The year can best be described as one of consolidation. The Consortium was the only "institution" which received no increase in funding from the legislature for this period and was still operating with a deficit developed in the formative years. I am delighted to present this report which will describe significant fiscal gains as well as some programmatic advances. The credit for achieving some financial stability go to May Tillman, Business Manager, Fred Rees' management of the physical plant and the faculty who managed one more year of high extramural support.

Our visibility was enhanced immeasurably by a variety of exercises ranging from legal negotiations with Mobil Oil on behalf of the state to a dramatic submersible exploration of the De Soto Canyon. Every year the Sea Lab becomes better recognized in the community and respected throughout marine academia.

All of these factors are perhaps best reflected in the response by the Commission on Higher Education and subsequently the legislature, in allocating the largest increase in funding to MESC for 1978-79 that we have ever had. The credit for this must go to those presidents who supported the cooperative experiment and the Executive Committee of the Board of Directors, particularly Dr. Howard M. Phillips. Dr. Phillips retired from the University of South Alabama during this year and he will be sorely missed by the MESC administrative structure. His support has been the cornerstone to our survival in times past and his sage advice and counsel still provide a very real service to our efforts.

I must not close my personal note without expressing my appreciation and respect to another retiree. Mr. George Oakes, Technical Support Supervisor, has been working with me since I came to Alabama ten years ago. I held the other end of the board and cleaned the other end of the sewer pipe as his apprentice for most of that time. No one has given more and had a greater impact on the development of marine education in this state than George Oakes. He has assisted graduate students in their research, undergraduates by building facilities where no one else could, designed and built gear for faculty all over the state and fixed my kids' bikes. He has given me more personal support, pleasure, service, laughs, aggravation, high blood pressure and advice than any man I've ever known. And if you think we're rid of him finally, you're wrong again - he can be contacted at the Point aux Pins field station.

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I. General Structure:

The organization has continued to evolve along the lines developed a year ago (Figure 1). The most significant change has been the improved conception of the Discovery Hall Project under Dr. Judy Stout. This is an internal grouping of several educational and service exercises that are actually found in several places throughout the programmatic structure which is dictated in part by state budgeting protocol. The Discovery Hall Project consists of the Summer High School Institute (Instruction), the Secondary School Short Courses (Instruction), the Public Environmental Awareness Program (Public Service) and the College Program (Academic Support) which provides the logistical support to college-level field trips.

The position of Coordinator of the Discovery Hall Project remained vacant from October through May, while a search was underway to fill the position. During this interim period the Program was maintained piece-meal with Mr. Fred Rees and Mrs. Debbie Branstetter providing continuity for the high school program and Dr. Judy Stout coordinating the PEA Program and field trip requests. Four willing and able graduate students, Steve Dawson, John Dindo, Ross Lysinger and Steve Branstetter, are commended for their efforts throughout the year in hosting and conducting tours and field trips for the various programs. In the absence of a permanent coordinator, Mr. John Dindo, assisted by Mr. John Booker, stepped in to teach the most successful series of Spring High School Institutes to date.

A total of 1,531 people, 80 percent Alabamians, participated in the various programs. Fourteen other states were also represented (Table 1).

Mr. John Booker was selected by the search committee to be Coordinator of the Discovery Hall Project. Mr. Booker joined the staff on June 1, 1978

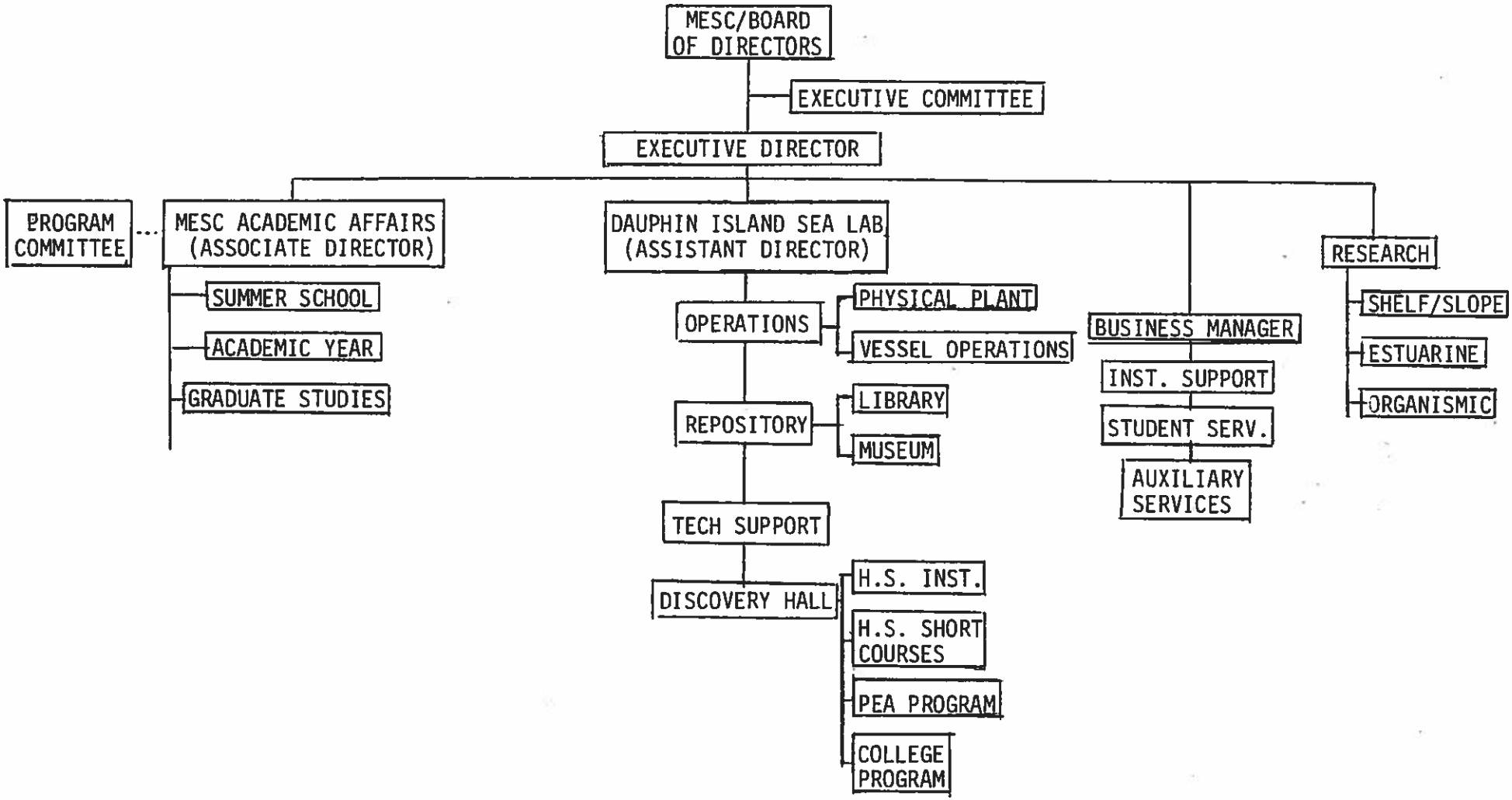


Figure 1. Organizational Structure of MESC

TABLE 1.

DISCOVERY HALL PROJECT SUMMARY

OCTOBER, 1977 - AUGUST, 1978

	NO. TRIPS	NO. PARTICIPANTS	*DISL FACULTY UTILIZATION (# TRIPS) 1	2	3	4	5	6	7	8	9
College Level (MESC)	32	318	31	8	2	8	2	6	7	8	9
College Level (Non-MESC)	9	163	8	6	4	1	0	5	1	1	0
Public Environmental Awareness (K-12)	18	501	6	2	14	3	0	2	2	0	0
PEA (Civic Organizations, Scouts, etc.)	17	285	6	3	4	0	0	3	6	6	5
Secondary School Short Courses	13	264				NA					
TOTALS	89	1,531	51	21	24	12	2	16	11	11	5
Alabama Participation Totals	72	1,229									
Alabama Participation % of TOTALS	80.8	80.2									

* 1 - living space
2 - lab space
3 - guided tour
4 - vessel
5 - technician
6 - gear
7 - MESC conducted program
8 - Faculty participation
9 - Meeting space

and along with Mr. Dindo, conducted the summer high school program. With completion of staffing in Discovery Hall, the total Discovery Hall concept will be implemented and developed under Mr. Booker.

The MESC membership has expanded to 19 with the addition of Talladega College, Talladega has a distinguished record in pre-professional training and should become quite a contribution to the program.

II. Program Description:

A. Instruction:

The 1978 academic year marked the first time in MESC history that the Dauphin Island facility was used for academic activity without interruption. This attainment is realization of a goal set at the inception of MESC, and similar activity should continue. The summer segment of these academic activities and the individual graduate student academic accomplishments are contained in separate reports. Table 2 is a summary of the remainder of 1978 academic offerings.

Summer school enrollment of 136 students for 1978 was the highest in MESC history. This was comprised of 103 undergraduate and 33 graduate students. This high enrollment resulted despite cancellation of Coastal Ornithology (due to Dr. Holliman's illness) and Marsh Ecology (low pre-summer enrollment). Classes were near equally populated, resulting in maximum efficiency and space utilization. However, an unbalanced offering with emphasis on the first summer term, resulted in some minor logistic problems regarding vessel scheduling, classroom availability and student selection of desired courses.

A summary of summer enrollment totals of recent years is as follows:

Table 2. Academic Year Summary, 1977-78

TERM: Fall 1977	BEGINNING: 10/10/77	ENDING: 12/16/77
COURSE	INSTITUTIONS	TOTAL CREDITS
Marine Zoogeography	USA, UA, UAB	56
Special Topics		12
TERM: January Interim	BEGINNING: 1/09/78	ENDING: 1/27/78
Coastal Ecology	Huntingdon	20
Special Topics		4
TERM: Winter/Spring	BEGINNING 1/10/78	ENDING 5/30/78
Estuarine Science	USA, UA, UAB	24
Oceanology of the Gulf of Mexico		16
Special Topics (Marine Meiofauna)	AUBURN	10
Physiology of Marine Animals		12
Thesis Research		15
Research, Special Topics		3

1972 - 71	1976 - 115
1973 - 75	1977 - 109
1974 - 89	1978 - 136
1975 - 106	

Sixteen schools were represented in the 1978 summer as follows:

University of South Alabama	47
Jacksonville State University	5
Livingston State University	5
Auburn University at Montgomery	2
Troy State University	4
Birmingham Southern College	5
Spring Hill College	8
University of Alabama in Birmingham	6
University of Alabama	26
University of North Alabama	6
University of Montevallo	2
Tuskegee Institute	1
Auburn University	14
Alabama State University	2
University of Alabama in Huntsville	2
Samford University	1
	136

Student response was generally positive, with useful constructive criticism offered in the written faculty evaluation forum. A summary of objective faculty evaluations is found in Table 3.

Student seminars alternated with presentations by numerous guest and some resident scientists. This program of professional speakers, known as colloquium, was one of the summer academic highlights and received very favorable response from students, as promoting a very professional academic atmosphere. Colloquium topics were varied and a summary of programs presented follows:

Dr. James Langdon - University of South Alabama - Fiddler crab behavior.
Dr. Eric Brugginck - University of Alabama - Law Institute - Marine International Law.
Dr. Rick Winterbottom - Royal Ontario Museum - South African Coastal Ecology.

TABLE 3. FACULTY EVALUATIONS FOR SUMMER, 1978

	Instructor knowledge	Instructor enthusiasm	Instructor interest in students	Course presentation, clear & Coherent	Exam coverage representative	Informed of progress	Lab/field exerciese	Motivation in field	Recommend to others
(Stiles) Marine Biology	4.6	4.4	4.5	4.4	4.4	3.8	4.3	4.0	4.5
(Heard) Invertebrate I	4.7	4.5	4.5	3.5	4.4	4.1	4.0	3.9	4.1
(Morrill) Marine Botany									
(Schroeder) Oceanography	4.7	4.7	4.2	4.1	4.1	4.5	-	3.4	3.8
(Lamb) Marine Geology	4.5	4.0	4.5	3.4	4.1	4.2	4.1	3.6	3.9
(Hopkins) Marine Invertebrate II	4.8	4.4	4.4	4.1	4.4	4.1	3.3	3.9	3.5
(Shipp) Marine Vertebrate	4.6	4.4	4.3	3.8	3.4	4.2	4.0	3.9	3.9
(Ivester) Marine Ecology	3.6	2.7	3.7	3.2	3.7	4.0	3.5	3.1	2.9
(Taylor) Recent Marine Sedimentation	3.0	3.6	3.1	2.8	2.2	1.7	3.0	3.0	2.3
(Crozier) Tech Methods I	4.7	3.9	4.2	3.4	3.1	3.1	4.2	2.6	3.0
(Williams) Coastal Climatology	4.8	4.2	3.5	4.3	4.2	3.8	3.7	3.2	3.9
(Rees) Commercial Fisheries	4.3	4.0	4.3	4.0	4.5	3.8	4.8	3.8	4.5
(Feldhausen) Data Management	4.9	4.6	4.5	3.3	3.7	3.9	3.5	3.0	3.4

Dr. Thomas Hopkins - University of Alabama (DISL) - Florida Middle Grounds Biology.
Dr. Bill Kruczynski - Florida A&M University - Marsh Ecology and Reclamtion.
Dr. Robert Shipp - University of South Alabama (DISL) - Research Submersible in the De Soto Canyon.
Dr. Bruce Hopper - University of Ottawa - Marine Nematodes.

The graduate studies element was proposed formally and approved by the Executive Committee as part of the 1979-80 operating budget but it has obviously always been part of our academic program and is herein reported on as such. The formal justification is found in Appendix C.

There are currently 22 graduate students actively pursuing their research, two are completed except for writing and three have defended successfully during the year. Two more students reside on campus (UA) but are pursuing marine-related theses and three new students started residence this fall. These students are reviewed in Table 4.

Through the Department of Biology at the University of Alabama and the Sea Lab over 100 inquiries have been received during the period September, 1977 to September 1978.

Declining secondary level enrollment during the summer of 1977 resulted in reduction of the summer high school institute from three four-week sessions to two four-week sessions. In addition, differential tuition charges favoring Alabama residents were instituted to encourage greater enrollment from within the state. Summer enrollment increased from 46 in 1977 to 49 in 1978, fifty-five percent from Alabama. Eleven Alabama counties were represented and eight other states (Table 5). Student ages ranged from 14 to 18, but the majority were 16 years old. Forty-five of the forty-nine students received high school science credit for the course.

TABLE 4: 1977-78 GRADUATE STUDENT SUMMARY

DEGREE	DATE ENTRANCE	TENTATIVE GRADUATION	ADVISOR	FUNDING SOURCE
Black, E. (UAB) - MS	9/76		Shoemaker/ Crozier	USF & W
Branstetter, S. (USA) - MS	6/77		Shipp	SG
Bush, D. (USA) - MS	1/78		Shipp	SG
Cunningham, K. (UA) - MS	9/76	6/79	Hopkins/ Crozier	SG
Dardeau, M. (USA) - MS	9/76	8/79	Shipp/Heard	BLM
Dawson, S. (UAB) - MS	9/76	6/79	Hopkins	COE
Dindo, J. (UAB) - MS	1/76	12/78	McGregor/ Crozier	DHP/MESC
Dowe, S. (USA) - MS	9/75		Heard	Private
Gilbert, D. (UA) - MS	9/77	9/79	Hopkins	BLM
Goeke, G. (USA) - MS	9/77		Dean	SG
Harp, C. (USA) - MS	9/76	12/78	Shipp/Ivester	SG
Hooker, A. (UA) - MS	9/77	8/79	Hopkins	BLM
Johnson, P. (UAB) - MS	1/76		Vittor	Private
Lee, C. (UA) - MS	9/75	12/78	Hopkins	MSP
Lysinger, R. (UA) - MS	6/76	5/79	Schroeder	WRRI/COE
Marley, D. (USA) - MS	9/77		Shipp	
Nance, M. (USA) - MS	9/76	12/78	Shipp	SG
Omholt, P. (UAB - MS	9/77		Marion/ McGregor	COE
Reames, R. (USA) - MS	1/77	12/78	Heard	COE
Shipp, L. (UA) - Ph.D.	9/78		Ivester	
Stewart, J. (USA) - MS	9/76	12/78	Shipp/Heard	SG
Williams, L. (USA) - MS	9/77		Shipp	

Student and parent response was very favorable. A frequently occurring request is that an advanced, follow-up course be designed. This suggestion will be considered in the coming year. Examples of student response are presented in Appendix D.

Ten short courses in marine science were conducted for 264 middle school and high school students in the Spring, 1978. Courses varied from several days to two weeks in length with content designed to meet the needs of each group. Thirteen schools were represented, seven from Alabama and six from out-of-state (Table 6). Five students from the short courses returned to attend the summer Marine Biology Institute.

B. Research:

1. Shelf/Slope Processes

The Bureau of Land Management (BLM) has been the federal agency charged with sale and management of the energy reserves of the Outer Continental Shelf (OCS). Personnel from the Dauphin Island Sea Lab, particularly Dr. Hopkins, have been involved for more than three years in the various baseline studies of the Mississippi-Alabama-Florida (MAFLA) OCS area. The efforts have largely been zoogeographic and community structure-oriented with the emphasis on the benthic fauna and to some extent the flora.

Dr. Shipp has been part of the team working up the demersal fish populations of MAFLA while Dr. Ivester has been responsible for the meiofaunal collections. The invertebrate epifauna and macro-algae have been collected by Dr. Hopkins.

Although extramural funding was terminated, the importance of the artificial reefs and their utility as study areas was clearly established and this project has been continued. Dr. Doug Clarke, who completed his Ph.D during the year, has been responsible for maintaining exceptional fish records on the reefs and Dr. Schroeder has generated some current data from that shelf area that

TABLE 5.

DISCOVERY HALL PROJECT
SUMMER HIGH SCHOOL MARINE BIOLOGY INSTITUTE 1978

	TOTAL	ALA. RESIDENTS	ALA. %	NO. FOR H.S. CREDIT
First Term	22	14	64	19
Second Term	27	13	48	26
TOTALS	49	27	55	45

Alabama Counties Represented: (11)

Mobile (4)
Jefferson (13)
Madison (2)
Etowah
Calhoun
Tuscaloosa
Barbour
Civington
Morgan
Walker
Montgomery

Other States Represented: (8)

New York
Georgia (7)
Louisiana (5)
Tennessee (5)
Indiana
Missouri
New Mexico
Mississippi

TABLE 6.

DISCOVERY HALL PARTICIPANT BREAKDOWN
OCTOBER 1977 - AUGUST 1978

MESC MEMBERS - 11 (UA, UAB, UAT, AU, SCH, TI, UM USA, MC, SU, TSU)

NON-MESC ALABAMA COLLEGES - 2 (Snead State Junior College, Bishop State Junior College)

OUT OF STATE COLLEGES - 6 (U. SW LA, U. N. Colo., Miss. Gulf Coast J. Coll., TAMU, OK St. U., Ga. St. U.)

K-12 Schools - Representing 6 Alabama Counties (Mobile, Madison, Chactaw, Autauga, Jefferson, Montgomery)

Secondary School Short Courses

Alabama Schools - 7 counties (Clahoun, Dallas, Escambia, Montgomery, Jefferson)

OUt of State - 6 (Ky., La., Mich., Ill.)

represents the first continuous recording made for the north-central Gulf of Mexico.

The scyllarid lobster project was funded for its second year and supplemental award of a ten day cruise with the DSRV Diaphus (submersible capable of 300' depths) was received during the summer. This resulted in the pioneer dives by Drs. Shipp and Hopkins on the head of the De Soto Canyon. Observers noted striking rock terraces split at right angles and a sizeable population of lobster in the cracks. Numerous range extensions of fish were noted and the cruise was considered tremendously productive despite a few harrowing experiences in the submersible.

2. Estuarine Processes

Two multiple year projects, the NASA sponsored "SPM/Turbidity study of Mobile Bay and the Inner Continental Shelf" and the Sea Grant sponsored "Hydrography of lower Mobile Bay" terminated in early 1978. Both projects were considered successful and will certainly contribute to the overall understanding of coastal Alabama. The WRRI sponsored "Dispersion of river waters in Mobile Bay" completed field sampling in September and the results are scheduled to be published in early 1979. The interdisciplinary "Theodore Ship Channel Project", sponsored by the COE, will have the baseline phase completed in October 1978. The monitoring phase will start up in November.

The Theodore project has been one of the most productive ever pursued by the Consortium. Investigators are found not only at the Sea Lab but also at Auburn and the University of Alabama. Baseline parameters on Mobile Bay are being taken in almost every discipline and the sector involved will certainly be the best described part of the Bay system. It could conceivably serve as a model for an expanded monitoring program envisioned by the Coastal Area Board.

A complete year of oyster settling data has been collected by Mr. Chong Koo Lee under Dr. Hopkins' direction. This classic study included hydrographic data and should provide valuable information for managing the resource. This project was funded by the Sea Grant Program.

Dr. Stout was made project coordinator of the two-state, multi-institutional marsh management study sponsored by Sea Grant. She and Dr. Ivester have pursued several management techniques, fertilizers and burning, and investigated the effects and impact on the various marsh types found locally. Final reports are expected in Spring of 1979.

There is a growing interest in the occurrence, distribution and communities associated with the submerged marine meadows of our coast. The interaction between the marine and estuarine meadows is another point of interest being pursued. At the moment this program is intramural but discussions are being held with the U.S. Fish and Wildlife Service.

3. Organismic Processes

Most of the initiative in this area is being carried by graduate students from the University of Alabama in Birmingham. John Dindo has completed the research on his thesis dealing with seasonal cycles of hormones and blood lipids in mullet. Eric Black has completed the development of methodology oriented toward study of the transport of ions across gills of osmoregulating fish. He has been recommended for a Ph.D. program. Steve Dawson is proposing similar work but hopes to deal specifically with the function of the enzyme, Na-K ATPase.

C. Public Service:

The role of the Consortium in this nebulous area has been one of the most rewarding over the past year. This element has to include a variety of agency and general public requests for aid, specific contract work which is not

considered research, and special activities (intramural) which seem to benefit the public as a whole. These range from civic organizations using facilities for meetings to the highly visible Public Environmental Awareness Program within the Discovery Hall Project.

The most dramatic exercise was probably the response to the problem of designing an adequate environmental scope of work for Mobil Oil's exploratory well in the mouth of Mobile Bay. This was an extremely controversial subject and the technical staff of the Alabama Water Improvement Commission called upon the expertise at the Sea Lab to help them resolve the matter. Mobil had filed suit against AWIC because of their initial refusal to grant the appropriate permit. The Attorney General's office was also involved and the situation was finally resolved by Drs. Hopkins and Crozier joining the negotiations with Mobil's legal representatives.

Virtually all of the staff responded to a contract from the Coastal Area Board which asked for the descriptive material concerning the environment of the Coastal Zone.

The Sea Lab's Meteorological Station continues to play a major public service role. Observations at Dauphin Island are made available to the public on both the "Weather Board" at the Sea Lab and on the National Weather Service radio broadcasts (VHF-FM). The station has operated for four and one-half years and all of the data through 1977 has been published in the "Physical Environment Atlas of Coastal Alabama" Schroeder 1976 & 1977. Mississippi-Alabama Sea Grant Program 76-034.

A special service that the station is always prepared to perform is the reporting of conditions during severe weather. For example, during hurricane season the Sea Lab would start to take additional observations for the National

Weather Service if any tropical disturbances were to move into the northeastern Gulf of Mexico.

In conjunction with the meteorological program Dr. Schroeder was asked to serve an additional three years on the American Meteorological Society Committee "Meteorology of the Coastal Zone".

The U.S. Fish and Wildlife Service awarded Dr. Crozier a contract which specified that graduate students would provide environmental field assessments of permit requests in the Alabama coastal zone. The students, Mike Dardeau (USA) and Eric Black (UAB), have done an outstanding job. Fish and Wildlife has judged their reports to be model efforts and have asked that they take on the adjacent county in Mississippi.

The Public Environmental Awareness Program is directed toward non-formal education of the public within the Discovery Hall concept. A series of 35 lab tours, environmental experiences, seminars, etc. were conducted at the request of groups as diverse as K-12 classes, scout groups, 4-H programs, sunday school classes, special programs for both the gifted and the disadvantaged and others. Approximately 800 individuals, most of them Alabamians, were exposed to the Dauphin Island Sea Lab, marine and coastal environments and the conflicts of man and nature in various marine/coastal settings. In terms of impact, interest generated and rewarding experiences for Sea Lab personnel, this program has been an overwhelming success.

During fiscal year 1978, Northeast Gulf Science, Volume 1, Number 2 and Volume 2, Number 1 were published. Total pagination for Volume 1 was 125. Pagination for the first issue of Volume 2 is 75. With Volume 2, Dr. Susan Ivester became Associate Editor. Dr. Robert Shipp continues as Editor.

Total runs are 1,000/number, of which about half are distributed to subscribers, libraries for exchange, editorial boards, etc., and the remainder archived. Subscriptions are increasing steadily.

Total cost per number is about $4000, half of which is recovered in page charges, reprint receipts and subscriptions. Subscription rate is maintained at $4/year.

D. Library

The library has been assisted this year in its continued growth by a HEW College Library Resources Grant of $3,855. Renewal of the grant was approved for FY-78-79. Three hundred and twenty-one new book titles were purchased, bringing the total book holdings to 2,324 volumes. New titles have especially strengthened the geology section of the library. Serial holdings now number 453 titles, only 72 of which are received by paid subscription. Exchange arrangements for Northeast Gulf Science provide 82 titles of the total. Complete sets of many titles are now held through purchase of 2,164 back issue items. Increased funding has also allowed the initiation of a binding program to protect and preserve library holdings. Two hundred and sixty-nine volumes were bound during the reporting period. Additional numbers were acquired as bound volumes. The library obtained 189 inter-library loan items for faculty and students.

Shelving has been increased by 35 percent to accomodate new acquisitions. However, competing demands for shelf space and study/research space have become an increasing problem. Additional shelving can now be added only with a significant loss of library work area.

Library summary data is presented in Table 7.

Table 7. Library Statistics - October 1, 1977-August 18, 1978

Books		
Total Book Holdings	2324	
Books and Publications Processed	321	
Expenditures for Books & Publications		$3,606
Reprints		
MESC Reprints	5140	
Reprints Processed	366	
Interlibrary Loans		
Interlibrary Loans Requested	189	
Unable to Complete	11	
Expenditures		$ 93
Journals		
Current Subscriptions	72	
Expenditures		$3,880
Memberships	3	
Expenditures		$ 90
Current Titles	453	
Exchange Publications		
Institutions Agreeing to Exchange	82	
Back Issues		
Volumes or Issues	2164	
Expenditures		$3,603
Bound Volumes		
Number	269	
Expenditures		$1,018

E. Academic Support

These various services are described as providing direct specialized functions which are part of the unique academic program of the Consortium.

There are numerous non-marine offerings on campus which benefit from a field experience and there has been a concerted effort to increase the use of the facilities at Dauphin Island by the membership of MESC and other colleges. This College Program is another element of the Discovery Hall Project.

Forty-one college trips were hosted by the Sea Lab, 32 of which represented MESC schools and nine non-MESC schools (Table 1).

Eleven of the nineteen MESC institutions utilized the facilities, personnel and field gear of the Sea Lab (Table 1). Institutions from six other states were accommodated through the program, most of which expressed an interest in a continued contact with the Sea Lab in the future.

The museum is functionally divided into two sections:

1. Herbarium - The herbarium function of the museum facility has more than doubled in space and holdings as we have received over 300 specimens representing over 100 species of pressed and mounted marine algae from the northeastern Gulf of Mexico. As expected, the herbarium provided valuable teaching support to Dr. Joy Morrill and the Marine Botany class. Improved accessibility and data recording was aided by two summer work-study students from the University of Alabama and the efforts of Ms. Maggie Cameron.

2. Invertebrate Repository - The invertebrate repository function has increased its holdings by about one-third in the area of Decapod Crustaceans, Echinoderms and Molluscs. We are in the process of cataloging the collection via a computer listing and a numerical code index compatible with NOAA. This process is being aided by the now terminating BLM-MAFLA shelf epifaunal program and by

two student stipends provided by MSP-MASG funds. Students Doug Gilbert (UA) and Gary Goeke (USA) are recipients.

(As our data on taxonomic holdings are still in the computer at this time we cannot report taxa per major group. We will do so on receipt of a corrected print out).

The Technical Support Shop in the person of George Oakes continued to construct special gear and provide maintenance to the scientific apparatus at the Lab. The function of the shop itself will remain the same following Mr. Oakes' retirement but the actual labor will be borne by the projects' personnel or the maintenance staff.

The diving locker facilities have been reorganized into two separate facilities which provide (1) a greater service capability for the rapid charging of bottles and (2) a more safe charging facility during the filling process. The new facility, located in the old pump house next to the storage tanks, now houses the electric compressor with a sixteen flask storage bank (6,900 cu.ft.), along with a sturdy tank inspection and repair bench, tank racks for singles and doubles, and two mobile gas powered compressors for shipboard use. The former facility is less crowded now and emphasis there now revolves around the repair of cameras, regulators, buoyancy compensators and general gear storage.

The overall diving program has been enhanced by the construction of a versatile diving ladder on the "Flying Tiger" and by the acquisition of an underwater tape recording system. This coupled with our underwater TV and telephone system should make our facility one of the best programs in the U.S.

At the time of this writing a new and definitive diving policy and procedures manual for the DISL is undergoing final review and should be

implemented by October 1. The policies and procedures should meet or exceed those prescribed by the OSHA regulations promulgated July 22, 1977.

Vessel operations was summarized in a major report prepared by Mr. Rees and Mrs. Debbie Branstetter which covered 1973 through December 1977. The activities of the current reporting period are summarized in Table 8. The major concerns addressed throughout the year besides routine maintenance were acquisition of adequate insurance and the construction of a new bay boat. The boat has not been completed and it would appear to be a lost cause at this time. The shipyard simply underbid the job and has deliberately stalled in order to force our abandoning the project. They can certainly sell the hull for more than we contracted. No money has been invested to date.

Table 8.

RESEARCH VESSEL REPORT TOTALS

(October 1977 - August 1978)

	R/V G.A. Rounsefell	R/V Flying Tiger
Cruises	74	46
Participants	1386	250
Days at Sea	108	46
Nautical Miles Steamed	4813	1870
Cruises for Scientific Research	16	30
Cruises for Education - College Level	33	14
Cruises for Education - High School	18	1
Other	7	1

III. Staff Activities

The professional staff have continued to provide a multitude of services without the relief and a recognition of formal time release and percent time assignments. This lack of organization has not blunted their sense of purpose and drammatic strides have been taken even though level-funded for the year. (Table 9)

The high points of the year are fairly striking. The most satisfying to the group as a whole was the completion of the Ph.D. by Judy Stout who has run the Sea Lab for the past year as well as managed the largest on-going Mississippi-Alabama Sea Grant project. Dr. Stout's original dissertation was a victim of the fire at Point aux Pins in 1972 and since then she re-oriented her professional goals, funded her own research (including salary) and has become one of the most highly respected marsh ecologists on the northern Gulf Coast.

The most dramatic was the 10-day submersible cruise granted Drs. Shipp and Crozier. Parts of the De Soto Canyon were dived which have never been seen before. Further proposals have been invited and this exciting prospect has provided a real impetus to the shelf research element.

Perhaps the most geniunely useful and certainly most visible was the assistance provided to the Attorney General's Office and the Water Improvement Commisstion on the Mobil Oil permit request and legal suit. Drs. Hopkins and Schroeder provided early consultations and Dr. Hopkins provided the environmental scope of work. He and Dr. Crozier then assisted in the legal negotiations.

Some efforts have been made to formalize the time assignments and balance the work load to a degree. Most have been given formal liaison roles with the

TABLE 9. MESC STAFF ACTIVITIES

	INSTRUCTION	RESEARCH	PROFESSIONAL DEVELOPMENTS
G. F. Crozier Associate professor Biology - UAB	Physiology of Marine Organisms Tech. Methods I Tech. Methods II Lecture in Estuarine Biology HS Inst. 6 - MS Committees 2 - Ph.D. Committees	Turbidity Study (NASA) Lobster Fishery (SG) Reef Study (Intramural) Theodore Baseline (COE)	Director MSP/MESC Member - CAB Chairman - DISL Staff Council Chairman - DISL Faculty Council Library Committee Diving Safety Advisory Board Co-Chairman "Women in Science" (NSF)
T. S. Hopkins Professor Biology - UA	Estuarine Biology Marine Invertebrates II Lecture in Physiology Lecture in Oceanography 15 - MS Committees	Oyster Set (SG) Theodore Baseline (COE) MAFLA (BLM) Florida Middle Grounds (BLM)	9 publications DISL Staff Council, DISL Faculty Council Library Committee, Vessel Operations Committee Diving Safety Advisory Board Director, DISL Invertebrate Repository Chaired 2 sessions ASB 3 MAFLA cruises
M. S. Ivester Assistant Professor Biology - UA	Marine Meiofauna Lecture in Estuarine Biology Marine Ecology Scientific Data Mgt. Lecture in DH 6 - MS Committees	MAFLA (BLM) Marsh Studies (SG)	3 publications DISL Staff Council - DISL Faculty Council, MSP Adviso Committee (NA) Coordinator, Graduate Studies (DISL) Assoc. Editor, Northeast Gulf Science Sec. - Treasurer, Gulf Estuarine Research Society Program Committee, Estuarine Research Federation Attended: Nematode Workshop (U. South Carolina) Conf. on Ecol. Processes in Coastal & Mar. Systems (U. of FL). Ecol. Soc. Am. (U. of GA)
W. W. Schroeder Associate Progessor Biology - UA	Oceanology of Gulf Of Mexico Intor. to Oceanog. Research, Special Topics Lecture in Estuarine Biology Seminar Coordinator 9 - MS Committees	Hydrography of Mobile Bay Turbidity Study (NASA) Riverine Influence on Mobile Bay (WRRI) Theodore Baseline (COE)	3 Publications Vessel Operations Committee, Diving Safety Advisory B Inform. & Serv. Committee, DISL Staff Council DISL Faculty Council, MSP Advisory Committee (UA), DISL Rep. to Aquatic Biology Program (UA), Coastal Research Council of Nat'l Sea Grant (Chair.) Meteorology of Coastal Zone Committee (AMS) Attended: Estuarine Research Federation (presented paper), Am. Meteorology Soc. (Chaired session)

TABLE 9. CONTINUED

	INSTRUCTION	RESEARCH	PROFESSIONAL DEVELOPMENTS
R. L. Shipp Professor Biology - USA	Marine Zoogeography Marine Vert. Zoology Lecture in Marine Ecology	Demersal Fish - MAFLA (BLM) Lobster Fishery (SG) Longlining Fishery (SG) Theodore Baseline (COE)	2 Publications Assoc. Director - MESC MESC Program Committee MESC Executive Committee Miss. - Ala. Sea Grant Admin. Council Editor - Northeast Gulf Science Member Scientific and Statistical Committee, Gulf of Mexico Fisheries Council - Reef Fishes.
J. P. Stout Res. Assoc. Biology - USA	Lecture in Estuarine Biology Lecture in Marine Ecology Lecture in Discovery Hall	Marsh Management (SG) Theodore Baseline (COE)	2 publications, Asst. Director - DISL, Completed Ph.D. Editor, GERS Newsletter, Co-chairman "Women in Science (NSF), Attended Nat'l. Mar. Ed. Ass'n., Paper and 2 sessions chaired at ASB, Invited paper Gulf & Caribbean Fisheries Inst. - Cartagena, Columbia, S.A. Director - Discovery Hall Project., Chair. - DISL Information & Service Committee, Chair. - DISL Facilities, Utilization Committee

various state and federal agencies with which the Consortium interacts. Dr. Schroeder has the difficult task of dealing with the complex activities of the Crops of Engineers. Dr. Stout is the principal liaison with the Coastal Area Board while Dr. Hopkins deals with the Bureau of Land Management.

All participate in the deliberations of the professional staff and faculty at the Dauphin Island Sea Lab and most efforts are cooperative and team-oriented. Some standing committees exist (library, vessel operations, diving safety) but most activities are overviewed at a weekly staff meeting so that all can participate. A real effort has been made to avoid the development of "vast programmatic empires" since the entire MESC exercise doesn't quite measure up to that glorious level.

The extramural activities projected for next year appear to be relatively light with the exception of Dr. Hopkins' major effort on the Florida Middle Grounds (BLM). This may be optimistic but the staff need some time to regroup, consolidate some academic goals, refine course offerings and begin to write up some of the results achieved over the last three years of feverish activity. This year was not without productivity however, with 19 articles published. (Appendix B).

IV. Financial Review

The detailed financial statement obviously cannot be finalized until after September 30, 1978 but to the best of our ability the fund balance is as shown on the following tabulation:

STATEMENT OF OPERATIONS & CHANGE IN FUND BALANCE

Year ending September 30, 1978

Bank Balance Forward 10/1/77		49,851.90
Expenditures through 9/8/77	651,421.17	
Revenue through 9/8/78	692,938.86	
Bank Balance 9/8/78		41,517.69

Condition of Account 9/8/78

Bank Balance	41,517.69	
Receivables	57,643.08	
State Appropriation Due	27.084.00	
Paid Receipts	1,563.45	
COE payment due	41,005.04	
	$168,813.26	
COE Encumbrances	32,626.10	
Purchase Encumbrances	2,689.76	
Payrolls due USA, Jun, Jul Aug	85,307.97	
Estimated Sep payroll due USA	24,849.84	
DHEW grant encumbrances	912.84	
	$146,386.51	ESTIMATED FUND BALANCE 9/8/78 $22,426.75

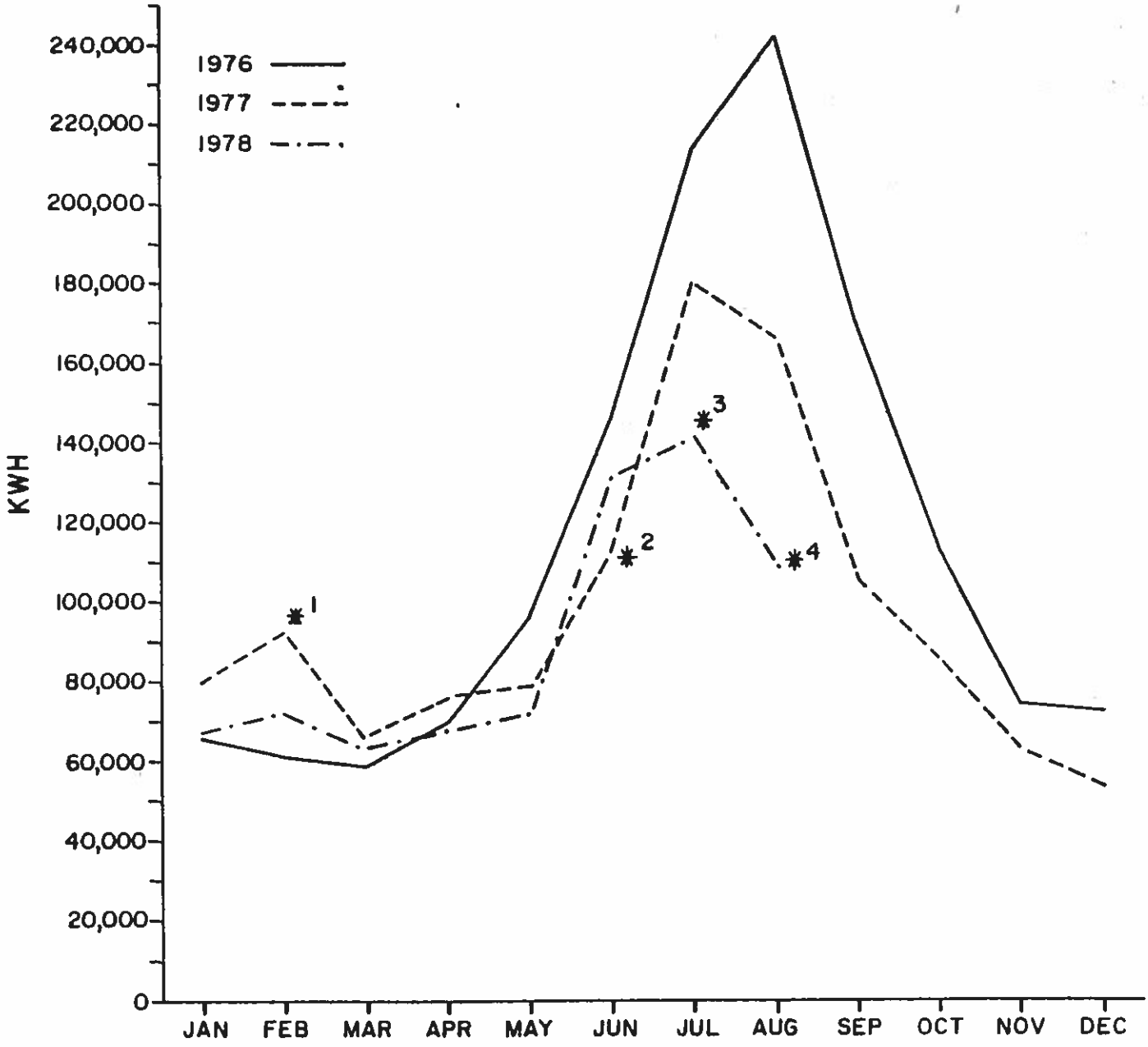
It is more than satisfying to point out that compared to the current positive figure of +$22,426.75 the balance, for 1976 was -$38,062 and for 1977 it was -$29,774.87. This astonishing reversal can be attributed in part to the recovery of overhead and salary release from the faculty's efforts but some specific triumphs must be noted from the operational budgets of the last 3 years. (Table 10) We have made a very real effort to conserve energy and reduce costs as evidenced in Figs. 2 and 3. Maintenance supervisors from USA, UAB and particularly Mr. Joe Biddle from the University of Alabama advised us in this matter.

Table 10. Highlights of operational budgets, 1976-1977-1978.

Item	Expended 75-76	Expended 76-77	Expended 77-78	Changed From 75-76
Inst. Support Salaries	115,081	50,002	38,974	-66%
Copying	7,253	4,424	2,689	-63%
Telephone	17,427	19,396	16,042	- 7%
Plant Oper. Salaries	90,347	53,796	64,620	-28%
Power	41,411	55,261	40,688	- 1%
Heat/fuel	11,140	11,437	5,460	-51%

The amounts budgeted for academic pursuits remain terribly low and overexpenditures were noted in virtually all categories. The laboratory is notably deficient in instrumentation, electronic and optical.

Figure 2. ELECTRICITY CONSUMED AT DAUPHIN ISLAND SEA LAB

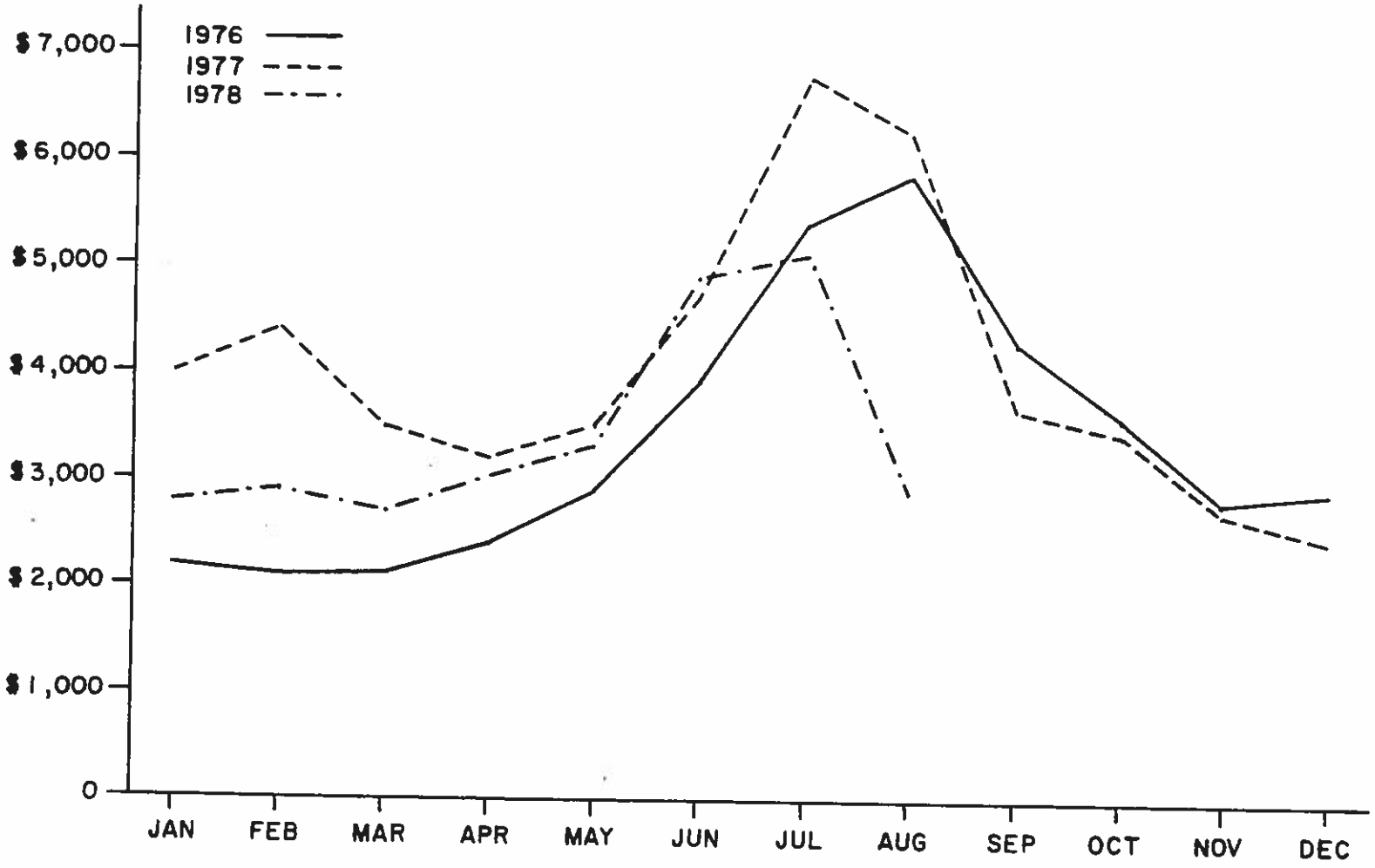


#1 Electric space heaters used in otherwise unheated areas.

#2 Air conditioning compressors not functioning in Marine Science Hall during May and June of 1977.

#3 & #4 July and August 1978 were the first two months the AC units operated properly.

Figure 3. ELECTRICITY COSTS AT DAUPHIN ISLAND SEA LAB



APPENDICES

APPENDIX A

CAPITAL OUTLAY NEEDS - DAUPHIN ISLAND SEA LAB
- 5 year plan -

PROJECT	ESTIMATED COST
(1) Classroom Building	$400,000

Justification/Need - The instructional element at the DISL is largely pursued in the Marine Science Hall which is a partially renovated military installation of 8,000 sq. ft. with 3 windows, inadequate lighting, poor acoustics, channeled floors and a "Topsy-like" floor plan. During the summer session over 100 students are crowded into the 4 laboratory/classrooms. The numbers and building layout constitute a number of problems ranging from nuisance of traffic patterns to hazards of fire safety. Its bomb-proof status has little redeeming value.

Description - Six-eight courses are offered simultaneously during each summer session and it seems likely that this number will not increase significantly in light of the specialized nature of the lab's mission. A variety of other fiscal and physical constraints emerge almost simultaneously which maintain enrollment at roughly the current level.

The proposed building would be most useful continuing the protocol of combining lecture and laboratory functions in each classroom. A single lecture hall/auditorium would be highly desirable for seminars, larger lecture sections and major meetings.

The support needs would be minimal in the form of 4-6 faculty offices, a summerschool secretary and a reasonable conference room.

(2) Docking Facility $100,000

Justification/Need - MESC is currently leasing Dauphin Island dockage for the R/V G.A. Rounsefell at $400/mo and has no guarantees of lease conin-

uity at any price. This situation is untenable from a management and fiscal standpoint. Thousands of student-trips are staged each year from Dauphin Island and the requirement is clearly a major one.

Furthermore, the existing space is inadequate for our needs. Currently, MESC vessels are docking at three different locations. This too is an incredibly poor management situation which is difficult to control and manpower inefficient.

Description - Alternative L: A "block-v" configuration indented into the north seawall of MESC property is considered most desirable. Some better protected land belonging to the U. S. Coast Guard is presently unused and would be a more desirable location. The space should accomodate an 80' vessel on one side, two 40' vessels on the other and a variety of skiffs at the bottom of the "v".

Alternative 2: Possibly cheaper, the existing small boat anchorages on DISL property could be enlarged to accomodate most of the existing fleet but would certainly not allow for the slight enlargements and improvements contained in the first alternative. The pursuit of this alternative is marginal in our admittedly naive judgement and qualified engineering is needed to develop a solid recommendation.

(3) Construction of Library Gallery $50,000

Justification/Need - It is clear that the volume of the renovated gypnasium will accomodate the holdings for the foreseeable future. But much of this volume is presently inaccessible and due to high ceilings, therefore useless to us.

The interagency nature of the library is attractive and Dr. Stout is receiving federal aid for development of the holdings. This growth must be accomodated and an open gallery would raise the "stacks" above flood level and provide the badly needed shelf space.

Description - In order to avoid the cost of renovating the air-handling systems of the Administration Building it is felt that a U-shaped gallery leaving the main floor open to the ceiling would be most desirable. This gallery would house the stacks and leave the majority of the main floor space as a reading and seminar room.

(4) Improvement of Dormitory Facilities $180,000

Justification/Need - 95% of the student head count using the MESC facilities at Dauphin Island are transient. Their stay ranges from 1 night to 5 weeks. Those in residence for an academic year course are considered residents for that period. These students occupy space in the three dormitories. All are of military design and 20 years old. It would be a euphemism to describe them as spartan. Even Albatross Hall, the "apartment building", is marginally comfortable and none can conceivably be considered conducive to academic pursuits.

Description - The three buildings need to be completely reworked in terms of air handling systems. This is the major cost item but would probably pay for itself in power savings within 20 years. This is obviously a cost-effective move since these are all permanent buildings with a life-expectancy beyond that point.

The surplus bunk beds should be replaced with the more attractive and comfortable dormitory bed/couches now available. Adequate study sites and lighting should be established within each room

Reasonable drapes and carpeting would make all more liveable and productive. These efforts would probably assist in the insulating needs as well.

(5) Renovation of Marine Science Hall 75,000

Justification/Need - The pursuit of this particular project is dependent upon the successful development of the classroom building. The Graduate Studies element is a primary activity for fully 1/3 of the MESC membership and virtually all of the staff residing at Dauphin Island. There is currently no more than 1,000 square feet dedicated solely to the graduate student population. This group varies in size depending upon the number taking course work at the sponsoring campus during any given quarter but ranges from 10-25 in residence. Obviously a figure of 50-100 ft^2/student is intolerable.

These students represent most of the bone and muscle for laboratory function and deserve better than they are getting.

Description - The three teaching labs will be completely renovated into 5-6 graduate research laboratories. The museum space will be improved and traffic patterns improved.

There is a crying need for improved flooring and lighting as well as salt-water and distilled water systems.

(6) Renovation of 2nd floor - Endeavor Hall 15,000

Justification/Need - This project is a considerably less desirable alternative to address some of the needs which would be dealt with be the construction of a classroom building. Although a "temporary" building in military parlance, the structure is sound and could provide office space to graduate students and summer faculty.

Decription - The second floor would be converted to perhaps a dozen small offices by partitioning, re-wiring and cabinetry.

(7) Development of Diving Locker Facilities $15,000

Justification/Need - The Sea Lab continues to house one of the best known and productive scientific diving programs in this country yet it remains a "poor relative" at Dauphin Island. Locker and compressed air facilities are crowded into converted dormitory rooms and an abandoned pump house. Divers are checked out in a swimming pool that is 450 square feet and averages 8' in depth.

Description - The two small block buildings near the septic tanks would be joined into an L-shaped configuration. This building would provide personal and program gear storage as well as the compressor facilitiy. A small maintenance shop would be included.

A paved staging/loading/washing area will be constructed within the angle. The emergency fire water tank will be converted to a diver/gear testing tank. A filter system will be installed as will lights, stairs and an internal platform.

(8) Development of histology/microscopy laboratory $15,000

Justification/Need - The bowling alley itself is broken and a maintenance headache. The structure housing it is the newest on the entire base and well air-conditioned. In our quest for space it is a potentially valuable resource.

Description - The exceedingly long and narrow nature of the structure makes utilization difficult since the suggestion of a health food bar will gain little support. It is not inconceivable to visualize a series of small rooms suitable for offices or small classes. There are, however, no windows at all.

A more attractive suggestion recently offered was the conversion to a dark room/photography lab and microscopy/histology suite. These facilities would represent a desirable expansion in both teaching and research areas. Considerable interest has been shown from several members for transmission and scanning electron microscopic capability. This enthusiasm is shared by several faculty and students at the Sea Lab

(9) Aquarium-Museum $1,500,000

Justification/Need - There is growing interest in Alabama's coastal resources including marine and estuarine life. Many people visit Dauphin Island throughout the year and frequently stop at the Sea Lab to see the "live stuff". We currently have no means addressing this educational need of the general public and schools.

Description - This would be a major effort involving an educational approach to presenting our coastal life. Aquaria, displays, etc. are all visualized for this structure. It would be built right on the main road north of the dormitories.

Staffing Plan - MESC/DISL (3 year)

The slash designation of the institution is deliberate because this plan is limited to personnel employed full-time at the Sea Lab. Extension of MESC funds to campus-based faculty is not only eventually feasible but desirable, but this development must await adequate funding, and appropriate guidelines are perhaps even more important.

1978-79:

The professional staff at the laboratory will expand by one position which is effectively a replacement for Dr. Vittor who resigned from the University of Alabama in Birmingham last year. The DISL faculty have recommended that a plankton biologist be sought in order to fill a major programmatic gap. This position will be filled in concert with the Department of Biology, UAB, where the line item resides.

Two technical support positions were approved last year for inclusion in the budget. These are a biological illustrator and a instrumentation/field technician. The latter is intended to provide field support in the acquisition of hydrographic and physical data as well as assist in the offering of Technical Methods I and II.

The positions have been placed in the technical support element of Academic Support. Both assist in the general activity and productivity of the professional staff in the areas of research, teaching and public service. As a Sea Lab-based function, it is anticipated that these positions will be responsible to the Assistant Director in general and to the user faculty as time is committed on various projects.

Earlier budgets listed the illustrator under the journal, Northeast Gulf Science, and the field tech under research.

1979-80:

The faculty have recommended that a specialty other than biology be added to the resident staff. There is much interest in the geology programs at the lab but the effort and rapport throughout the membership's geology faculty is so good that a DISL resident might do more harm than good. It therefore seems most useful to seek a marine chemist. There are several institutions expressing interest in this area but it seems that the initiative needs to be generated by MESC/DISL. This is not the case in geology.

It is hoped that an additional permanent technician could be added at this time. This individual would principally a biologist, trained in the collection, processing and identification of marine ogranisms.

General growth, particularly within the complex of Discovery Hall Projects, will necessitate the adding of another secretary to the existing staff.

Appendix B MESC/DISL Staff Publications 1977-78

THOMAS S. HOPKINS

Fishes of a Florida Oxbow Lake and its parent river. (Co-author with H. A. Beecher and W. C. Hixson). Florida Scientist. 40 (2) 140-148.

The molluscan fauna of the Florida Middle Grounds with comments on its zoogeographical affinities. (Co-author with D. R. Blizzard and K. K. Gilbert). Northeast Gulf Science. 1(1), 39-47. 1977.

A preliminary characterization of the biotic components of composite strip transects on the Florida Middle Grounds, Northeast Gulf of Mexico (Co-author with D. R. Blizzard, S. A. Brawley, S. A. Earle, D. E. Gramm, D. K. Gilbert, P. G. Johnson, E. H. Livingston, C. H. Lutz, J. K. Shaw, and B. B. Shaw). Proceedings Third Int. Coral Reef Symposium . Vol. 1 31-37, 1977.

Preliminary characterization of the octocorallian and scleractinian diversity at the Florida Middle Ground. (Co-author with D. E. Grimm). Proceedings Third Int. Coral Reef Symposium, Vol. 1, 135-141. 1977.

The Distribution of the Family Hapalocarcinidae (Decapoda, Brachyura) on the Florida Middle Ground with a description of Pseudocryptochirus hypostegus new species. (co-author with J. K. Shaw). Proceedings, Third Intl. Coral Reef Symposium. Vol. 1, 177-183. 1977.

Notes on the biology of the Pontoniine shrimp Lipkebe holthuisi chace, with a description of the male. (Co-author with J. K. Shaw, and R. W. Heard, Jr.). Proc. Biol. Soc. Wash., 90 (2) 284-290. 1977.

Stilbomastax, a new genus of spider crab (Majidae: Tychinae) from the West Indies region, with notes on American relatives. (Co-author with A. B. Williams and J. K. Shaw). Proc. Biol. Soc. Wash. 1978.

A Supplementary Description of Pinnixa thomentosa and Comparison with the geographically adjacent Pinnixa tubicola (Brachyura, Pinnotheridae) Accepted for publication. Proc. Biol. Soc. Wash. 1978.

Notes on the Occurrence of four Caridean Shrimps (Crustacea: Decapoda) in the Northeastern Gulf of Mexico. With M. R. Dardeau, D. L. Adkison and J. K. Shaw. Submitted for publication, Florida Scientist (Quart. J. Fla. Acad. Sci.) 1978.

M. SUSAN IVESTER

Ivester, M. Susan and Bruce C. Coull. 1977. Niche Fractionation Studies of Two Sympatric Species of Enhydrosoma (Copepoda, Harpacticoida). Mikrofauna Meeresboden, 61: 137-151.

Ivester, M. S. 1977. Nematocyst Differentiation in the Anthozoan Renilla (Pallas). Trans. Amer. Micros. Soc., 96 (2): 238-247.

Ivester, M. S. . The Distribution of Meiobenthic Copepods a Sediment Gradient. Bull. Mar. Sci. (accepted for publication).

WILLIAM S. SCHROEDER

"The Impact of the 1973 Flooding of Mobile River System on the Hydrography of Mobile Bay and East Mississippi Sound" Northeast Gulf Science 1(2). 1977.

"Riverine Influence on Estuaries: A Case Study" in Estuarine Interactions, Academic Press. (in press)

1977 annual update of the "Physical Environment Atlas of Coastal Alabama" MASGC76-034 1976 & 1977.

ROBERT L. SHIPP

"Fishes of the Gulf of Mexico, Texas, Louisiana and Adjacent waters," a review. Northeast Gulf Science. 1(2): 123-125.

Taxometric analysis of demersal fishes of the northeast Gulf of Mexico. Ambio (with 3 other authors). (in press).

JUDY P. STOUT

Stout, J. P. o978. Annual net primary productivity of aboveground and belowground portions of Juncus roemerianus and Spartina alterniflora. ASB Bull. 25 (2): 36.

Stout, J. P. 1978. Management in coastal wetlands. Gulf and Caribbean Fisheries Institute, Proceedings, (in press).

APPENDIX C

GRADUATE STUDIES ELEMENT
TO BE ADDED TO 1979-80 BUDGET

DESCRIPTION:

The Marine Environmental Sciences Consortium has a number of graduate schools within its membership. Those expressing some interest in marine affairs have degree programs in education, social sciences and obviously the natural sciences. MESC has been designated as the lead agency in marine expertise for a variety of state and local agencies.

There is reasonably uniform agreement nationally that marine science, "hard" or "soft", is an academic subspecialty most effectively pursued through post-graduate studies. To this end, several campus-based graduate degrees have evolved. A few specify marine activities as a major, a few more allow it as a minor and others simply utilize the marine environment and MESC facilities as means to a more traditional end product.

Students involved with MESC shall be directly responsible to their appropriate graduate school and academic department. As emphasized many times before, MESC is a service unit and has no amibtions of independent academic status. Students appropriately "enrolled" in the MESC Graduate Studies Element are eligible for financial support and space at the Dauphin Island Sea Lab. The following conditions are particularly critical to these students. (Additional details can be found in Appendix I.)

1. A DISL faculty member must agree to sponsor the individual. This will normally mean graduate committee membership, but not necessarily the chair.

RESOURCES:

The professional staff already exist, at Dauphin Island and scattered on a variety of campuses. The staff at the coast is not expected to increase tremendously because they are meant to complement campus departments rather then emerge as a competitive unit. The so-called MESC faculty will enlarge by the formal absorption of qualified and interested campus faculty.

Facilities are currently severely limited because of the historical involvement of MESC with undergraduate and lower levels of formal education. Significant renovation of the Marine Science Hall will be needed eventually and may proceed only after construction of an appropriate classroom building at the Sea Lab.

A variety of laboratory and field equipment is already located at DISL but these are frequently committed to a given contractual obligation and few back-up units are available. It thus becomes risky to throw them into a graduate education role, though this has been the practice to date.

Perhaps most critical is the establishment of some core stipend support. Funds have been historically acquired via extramural sources with impressive results but this practice does not effectively allow the development of a solid basic research effort. This is usually necessary as a foundation upon which more applied efforts can be hung. The faculty simply have marginal control over the research and the students if goals are inflexible and dictated by the funding agency.

GRADUATE STUDIES ELEMENT

Personal Services (4 stipends/.25 FTS faculty)	$25,000
Fringe	2,000
Products Purchased	50,000
Capital Outlay	25,000
	$102,000

2. The performance will be evaluated by the sponsor and progress will be reported to the graduate committee and the Coordinator of Graduate Studies who acts for the MESC Director.

3. Guidelines in the DISL graduate handbook (Appendix I) shall be adhered to.

Hopefully, a state-wide graduate faculty might evolve which would effectively constitute a graduate committee, second-to-none nationally. The resources are there if the obstacles can be circumvented. It is proposed that an advisory committee of interested graduate deans be established to assist in the development of the element.

ELEMENT JUSTIFICATION:

The need for trained specialists in the broad areas of marine science seems clear in light of the growing pressure and dependence on the coastal ocean. As stated before, most marine academicians argue vehemently that marine science is a graduate exercise based on a strong foundation in a traditional discipline.

All communities benefit from the quality of problem-solving specialists who are familiar with the peculiar needs of that population. Nowhere is this more evident than in the coastal zone where the complex dynamics of the system are staggering to even the most facile mind.

MESC was established for and has become the dominant academic force in Marine Science in Alabama. The resident staff at Dauphin Island constitute the largest pool of expertise in the State. All are academic professionals with terminal degrees, devoted to and intimately involved with graduate studies. The membership of the Consortium funnels virtually all of their marine-oriented graduate students through the facilities at Dauphin Island.

APPENDIX D. DISCOVERY HALL LETTERS

9/18/78

Dear Sir,

My name is Evie Monroe and I attended the Dauphin Island Discovery Hall Program - second session. I understand that you were in charge of the program and I just wanted to say thankyou. It was the best month of my life and all the friends that I made at the Sea Lab are better friends than anyone else I've ever known. But, what is more important than that is that I've learned so much. I didn't even realize myself how much I learned until now.

If it is possible for you to consider having a continuation course, I would be very interested. I like oceanography very much especially marine biology and am considering it for a career. Even if I don't pursue marine biology I feel that it's a valuable education to have in that I love the ocean and appreciate knowing

more about it.

I hope that there's enough interest from everyone else to promote an advanced course.

Thanks again.

Sincerely,

Evie

EMILY A. WOLFE
7916 PLUM STREET
NEW ORLEANS, LOUISIANA 70118

Tues. 22
Aug

Dear Dr Stout,

I was one of the students this summer at the Sea Lab in a course for high school students, and I thoroughly enjoyed it. I was told to write either you, Dr. Crozier or Dr. Schroeder if I wanted to have an advanced course or just a course in different areas, areas other than what we covered in our 4 short, enjoyable weeks. I hope to be able to come back next summer and take that course, and I know most of the kids in my session would like to also. Please consider it.

Sincerely
Emily Wolfe