

M E
S C

Marine Environmental Sciences Consortium

ANNUAL REPORT
1978 - 1979

DAUPHIN ISLAND SEA LAB
P. O. BOX 386
DAUPHIN ISLAND, ALABAMA 36528
TELEPHONE 205 - 861-2141

DIRECTOR'S PREFACE:

For once an adequate excuse for the lateness of my reports has been provided and the legal term "act of God" has been clarified. On the evening of September 12, hurricane Frederic struck Dauphin Island with winds recorded at 146 miles per hour. The Sea Lab was significantly damaged, losing two buildings and most of the roofs from 20 other buildings. On September 27, the administrative offices reopened and routine operations were restored on October 2. This is a tremendous tribute to the students and staff of the facility and MESC should be quite proud. Besides cleaning up and reorganizing the laboratory, these people assisted island residents clear roads, transported them to and from the mainland and provided equipment to Civil Defense and the National Guard.

To resume a more positive note, progress continued during the year on developing the identity of the consortium. This was enhanced by the Board transferring full fiscal authority to the Business Office at the Sea Lab. Discovery Hall more than doubled its productivity over last year and the preliminary plans for a small multi-purpose lecture building have been completed. The impact of the storm on this project has not yet been evaluated.

On a sad note, we record the death of Mr. George Allen. Though never formally associated with MESC, Mr. Allen was the first "state marine biologist" having served as head of the old Seafood Division of the Department of Conservation. He then served many years with the U.S. Army Corps of Engineers, first in Mobile and then Atlanta. He never wavered in his love and devotion to the Alabama coastline and Mobile Bay. He helped us develop early programs through the Corps and as an adviser to the Sea Grant Program. His passing was truly a loss to coastal Alabama.

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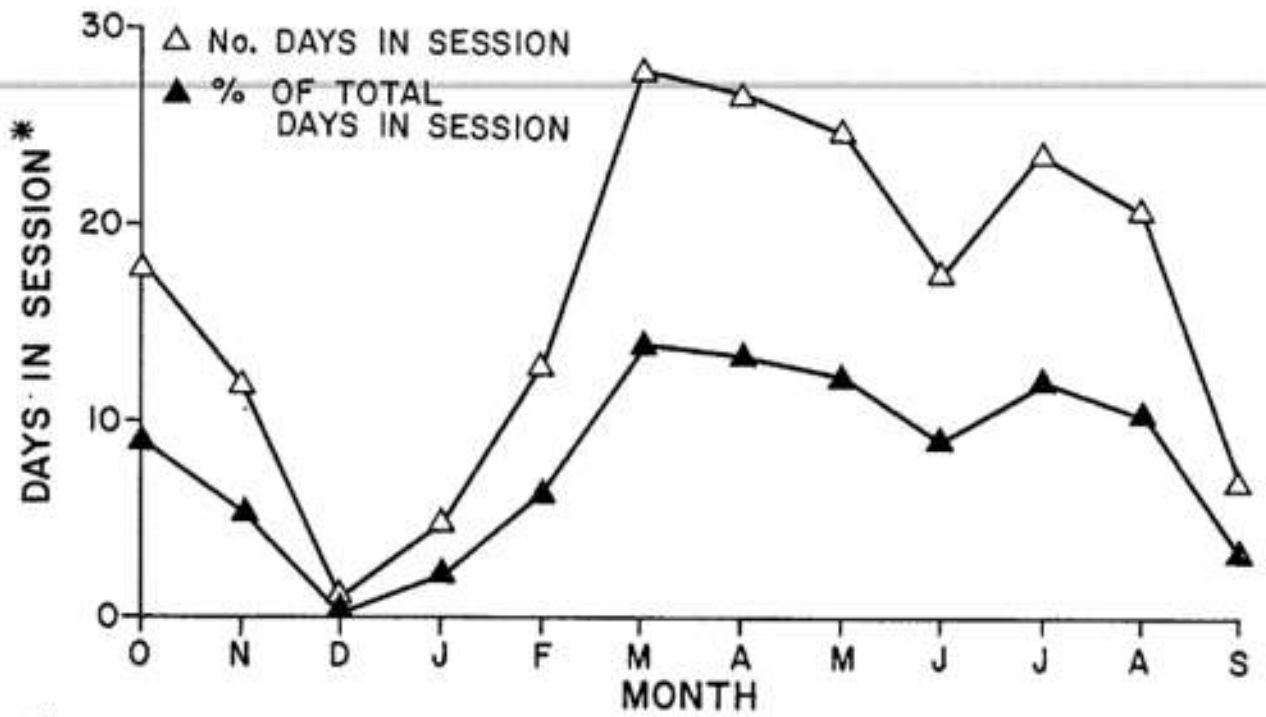
I. Instructional Element

A. DISCOVERY HALL PROJECT

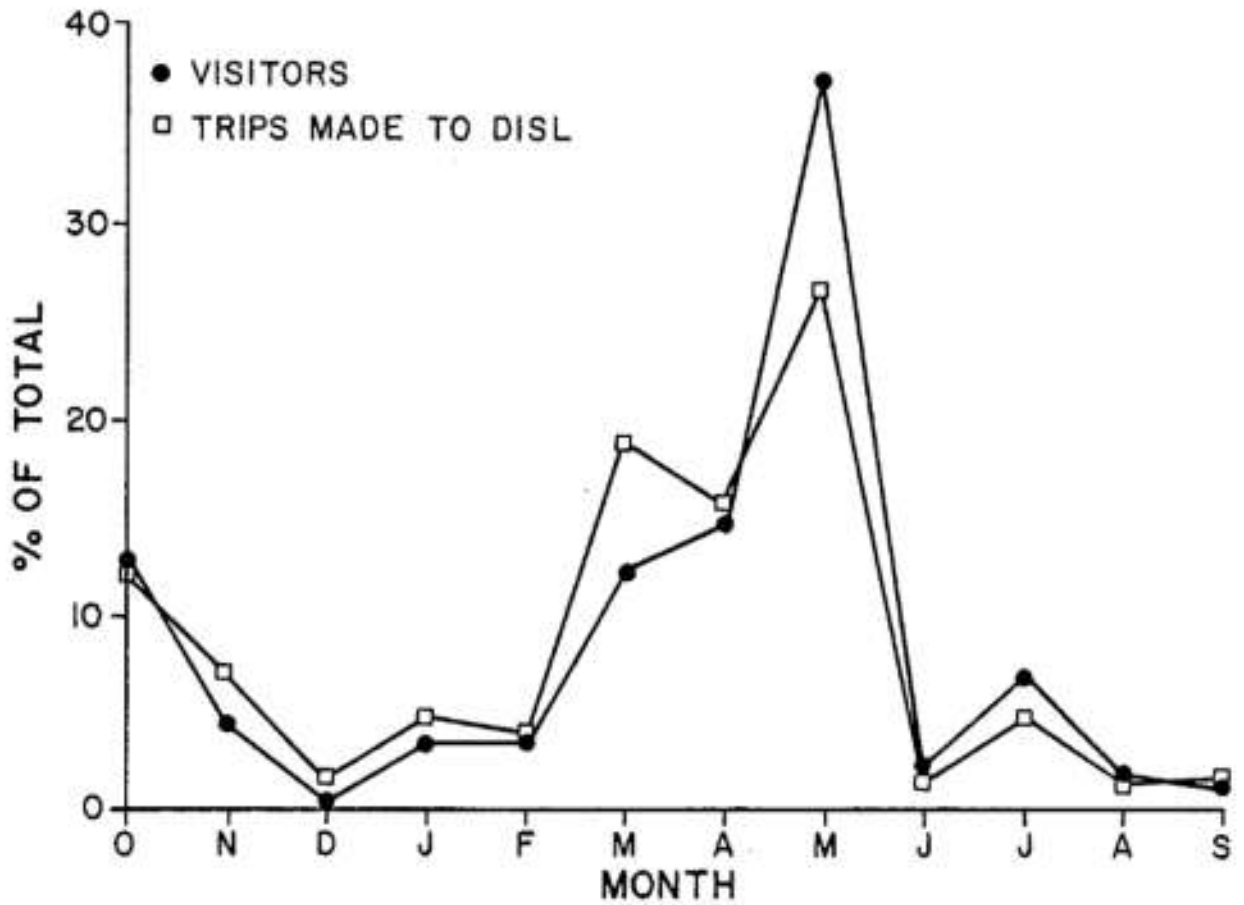
From its inception, the Discovery Hall Project has grown into a complex internal grouping of several educational and public service activities available throughout the programmatic structure of the Marine Environmental Sciences Consortium. The services in this grouping include High School Summer Institute, the Secondary School Short Courses, the Public Environmental Awareness Program, and the College Program. These discrete projects overlap with and are partially budgeted in the public service and academic support elements of the MESC College Program.

During the period from October 1978 - September 1979, the Discovery Hall Project was in session a total of 198 days. In session refers to those days when any available program is conducted at the Dauphin Island Sea Lab. In addition, multiple activities may be ongoing on any particular day. Analysis of the usage of the physical facilities in relation to month shows the peak usage of the facilities encompasses January - August with a secondary peak encompassing October and November (See Figure 1). Moreover, the slight decline in usage during the month of June would represent the time spent preparing for the summer programs.

Excluding the High School Summer Institute, a total of 3,356 people participated in the several remaining programs resulting in an increase of 119% over the same period last year. In addition, 84% of the participants were residents of Alabama. The remaining 16% represented 11 additional states. Monthly analysis of participation percentages shows peak participation during the month of May comprising 37% of the total (see Figure 2). Secondary peaks are also visible during October and July comprising 15% and 7%, respectively.



* IN SESSION REFERS TO ANY ACTIVITY AVAILABLE THROUGH DHP BEING CONDUCTED.



Facility utilization of the Dauphin Island Sea Lab is presented in tabular form (see Table 1). A total of 127 trips were made through the various programs. The most requested services were living space, lab space and guided tours comprising 41%, 20%, and 45% of total usage, respectively.

In addition, classroom lectures, career day programs, and a teacher workshop were conducted through Discovery Hall Project at facilities other than the Sea Lab (see Table 2). These programs were conducted at 9 schools representing 5 Alabama counties (Mobile, Tuscaloosa, Jefferson, Clark, Escambia) and Gulf Breeze, Florida.

HIGH SCHOOL SUMMER INSTITUTE

A total of 49 students participated in the 2 4-week High School Summer Institutes. Sessions were conducted from June 23-July 13, 1979 and July 23-August 17, 1979. Sixty percent of the total number of students were Alabama residents (see Table 3). Of these, fourteen Alabama counties were represented with the largest participation from Jefferson county (see Table 4). The remaining 39% of students represented 9 additional states. In addition, all students participating received credit for the course.

SECONDARY SCHOOL SHORT COURSES

Twelve short courses in marine science were conducted for 280 middle and high school students during the spring, 1979. The courses varied from several days to 1½ weeks. Fourteen schools representing five Alabama counties and 5 additional states participated (see Table 5). The short courses series accounted for 8% of the total participation in the Discovery Hall Project and 11% of the trips to the lab.

PUBLIC ENVIRONMENTAL AWARENESS PROGRAM

Within the Discovery Hall Concept, the Public Environmental Awareness Program is directed toward non-formal education of the public. A series of 61 lab tours, field experiences, cruise programs, seminars, etc. were conducted

Table 1. Discovery Hall Project Summary, October 1978 - September 1979

	No. Trips	No. Participation	DISL FACILITY UTILIZATION (# TRIPS)											
			1	2	3	4	5	6	7	8	9	10	11	12
College (MESC)	40	428	35	16	3	14	8	14	0	0	0	2	1	5
College (Non-MESC)	12	250	10	5	4	2	2	3	1	0	0	2	0	0
PEA (K-12)	44	1637	5	2	39	0	0	2	4	2	0	11	0	0
PEA (Civic, Scouts, etc.)	17	761	2	2	11	1	2	1	1	1	6	3	0	0
Secondary School Short Courses	14	280	N / A											
Total	127	3356	52	25	57	17	12	20	6	3	6	18	9	5
Alabama participation total	105	2808												
Alabama participation percent of Total	82.7	83.7												
Percent of Total			41	20	45	13	9	16	5	2	5	14	7	4
1. Living space														9. Meeting space
2. Lab space														10. Field trip
3. Guided														11. Cruise Program
4. Vessel														12. Point aux Pins field station
														5. Technician
														6. Gear
														7. Discovery Hall conducted Program
														8. Faculty Participation

Table 2. Career Days & Lectures

Davidson & Shaw	2
McGill-Toolen	1
Shades Valley (Birmingham)	1
Woodland Forrest (Tuscaloosa)	1
Gulf Breeze Middle (Florida)	2
Gulf Breeze High	1
Escambia County High School	1
Mobile County Teacher Workshop	1

TABLE 3
 DISCOVERY HALL PROJECT 1979
 SUMMER HIGH SCHOOL MARINE BIOLOGY INSTITUTE

State Represented	No. of students	No. for credit	Percent of total
Alabama	30	30	61
Tennessee	6	6	12
South Carolina	2	2	04
Mississippi	1	1	02
Georgia	3	3	06
Illinois	1	1	02
Missouri	1	1	02
North Carolina	1	1	02
Louisiana	3	3	06
Virginia	1	1	02

TABLE 4
 DISCOVERY HALL PROJECT 1979
 SUMMER HIGH SCHOOL MARINE BIOLOGY INSTITUTE

Alabama County Represented	Number Students	Percent of Alabama Total	Percent of Total
Mobile	4	13	08
Jefferson	8	26	16
Madison	4	13	08
Washington	1	03	02
Coffee	1	03	02
Morgan	1	03	02
St. Clair	3	10	06
Montgomery	1	03	02
Lauderdale	2	06	04
Walker	1	03	02
Covington	1	03	02
Tuscaloosa	1	03	02
Blount	1	03	02
Lee	1	03	02

Table 5. Discovery Hall Participant Breakdown, October 1978 - August 1979

MESC Schools

12 schools (UAT, UAB, UAH, SU, AU, BSU, HC, LU, TI, TC, USA, TC, TSU)

12.6% of total participation

31.5% of trips

Other Colleges

11 schools (UT Knoxville, Sargamon St. Univ., Texas A & M, LSU, Univ. of South Carolina, Morehead State Univ., No. Illinois Univ., Snead St. Jr. Colle-e, Selma Univ., Judson College, Calhoun St. Community College

7% of total participation

9% of trips

PEA (Civic, Scouts, etc.)

13 organizations (Comm. Action of Baldwin County, Girl Scouts, GERS, Grove Hill 4-H, Ala. Conservancy, Oiled Bird Workshop, CEEC, AOS, MACAC, Libra House, Alabama 4-H, Cottage Hill Baptist Church)

22% of total participation

13% of trips

PEA (K-12)

34 schools Representing Alabama counties (Clark, Mobile, Baldwin, Montgomery, Madison, Autauga, Greene, Calhoun) and Gulf Breeze, FL, Ringgold, GA, Baton Rouge, LA)

49% of total participation

35% of trips

Secondary School Courses

14 Schools Representing Alabama counties (Montgomery, Escambia, Madison, Autauga, Greene) and Memphis, TN; Bloomfield Hills, MI; Greenwich, Conn.; Metairie, LA; Luling, LA; Louisville, KY.

8% of total participation

11% of trips

at requests as diverse as K-12 classes, scouting, programs for both the gifted and the disadvantaged and others. A total of 2,398 individuals were exposed to the Lab and marine/coastal environments. This phase of the Discovery Hall Project represented 71% of total participants and 48% of the trips to the facilities. A total of 34 schools representing 9 Alabama counties participated. In addition, 3 additional states were represented.

COLLEGE PROGRAMS

Under the Discovery Hall framework, the College Program consists of logistical support and technical assistance for college field experiences. A total of 52 trips were made, 40 by MESC schools and 11 by non-MESC schools. Twelve of the nineteen MESC institutions utilized the facilities, personnel, and gear of the Sea Lab which represented 12.6% of the total participants and 31.5% of trips. In addition, the 11 non-MESC schools contributed 7% of the total participant and 9% of the trips to the lab.

Four percent of the trips were conducted at the Point aux Pins field station. The field station is now an integral part of the activities available in the College Program. Moreover, this activity could not have been possible without the complete renovation of the facility by Mr. George Oakes.

PHYSICAL FACILITIES

Discovery Hall was severely damaged by Frederic and the construction of the new instructional facility will probably be delayed by the loss of the bridge. The current plan calls for the establishment of the Discovery Hall projects within Endeavor Hall until new facilities are prepared.

CONCLUSION

In conclusion, the year has been an overwhelming success. The major change in scheme has been the shift toward year-round facility usage. On the average, the facilities were used 16.5 days during each month with a low of 1 day in December and a high of 28 days in March (see Table 6). In addition,

TABLE 6
DISCOVERY HALL PROJECT
DAYS IN SESSION

Month	Days	Percent of Total
October	18	9.2
November	11	5.6
December	1	0.5
January	5	2.5
February	13	6.6
March	28	14.1
April	27	13.6
May	25	12.6
June	18	9.1
July	24	12.1
August	21	10.6
September	7	3.5

new programs initiated for the PEA program include the cruise programs and the field trip series. The Point aux Pins field station was initiated as a College Program activity.

Due to the increased workload, these activities would not have been possible without a sincere and dedicated effort by Mr. John Dindo. It is important to note that the resident faculty and graduate students assist these programs as needed and without their help, it would be impossible to accomodate all the requests.

B. SUMMER SCHOOL - 1979

Summer school enrollment fell during 1979. The biggest single factor responsible for this decline from 1978 was the shortage of graduate - level offerings. During 1978, Data Management, to be taken for graduate credit only, had an enrollment of 16, many of whom were commuting graduate students from the University of South Alabama campus.

The undergraduate enrollment figures of the past five years have indicated a leveling off at about 100 to 115 students/summer. Academically this figure is near the ideal, because classes are of optimal size for instructional purposes. In addition, "standby" status of late registrants is minimized.

The balance of course offerings in each of the two summer terms was much improved when compared to summer 1978.

The inclusion of this very different course will hopefully be continued and should reflect the breadth of the Consortium's interest in coastal affairs. Marine and Environmental Law was the sole new offering during 1979.

Although exact comparisons were not computed, it appears that there was a far greater number of "first time" students during 1979. It will be interesting to note whether this is followed by the reverse pattern in summer 1980, or whether we are witnessing a new trend in the Sea Lab.

Expenditures this summer included nearly \$8,000.00 in new microscopes, partially alleviating a particularly troublesome deficiency in the past.

Table 7. Summer School Enrollment Summary

1972 -	71	1976 -	115
1973 -	75	1977 -	109
1974 -	89	1978 -	136
1975 -	106	1979 -	100

Table 8. Schools Represented, Summer 1979

Alabama State University	1
Auburn University	6
Birmingham Southern College	6
Jacksonville State University	6
Livingston State University	5
Samford University	1
Spring Hill College	6
Talladega College	3
Troy State University	4
University of Alabama, Tuscaloosa	24
University of Alabama, Birmingham	5
University of Alabama, Huntsville	1
University of North Alabama	6
University of South Alabama	26
	<u>100</u>

It is virtually impossible to utilize evaluations for program comparison purposes (Table 9) but purely subjective observation of student response during the summer indicates that this summer program may have had the best cadre of instructors to date.

The Colloquium series, in its second year, was again well received. The guest speakers were of exceptional quality and competence, their topics varied and relevant. Program Committee members appear to favor incorporation of the series into the Seminar course offering.

Table 10. 1979 Colloquium Speakers

Metabolic Respiration of Sea Anemones Under Stress
Dr. Ross Ellington, University of Southwestern Louisiana

Table 9. Summer School Faculty Composite Evaluations (5 highest, 1 lowest)

	Instructor Knowledge	Instructor Enthusiasm	Instructor Interest in Students	Course Presentation Clear & Coherent	Exam Coverage Representative	Informed of Progress	Lab/Field Exercises	Motivation of Student Toward Discipline	Recommend to Others
Marine Biology (Shipp)	4.8	4.4	4.0	3.7	4.0	4.2	3.0	3.5	3.6
Marine Invert. Zoology (Modlin)	4.7	4.7	4.9	4.5	4.5	4.5	4.4	4.2	4.5
Marine Botany (Pecora/Stout)	4.7	4.6	4.4	4.1	4.2	4.4	4.5	3.8	4.4
Coastal Ornithology (Holliman)	5.0	4.9	5.0	4.5	4.5	4.6	5.0	4.5	5.0
Marine Geology (Canis)	4.5	4.1	3.3	3.4	3.2	4.0	3.4	2.7	2.7
Marine Tech Methods I (Crozier)	3.9	4.3	4.0	4.0	4.0	3.7	3.5	3.7	4.0
Commercial Marine Fish. (Rees)	4.3	4.4	4.6	4.0	4.5	3.8	4.9	4.0	4.8
Marine Vertebrate Zoology (Boschung)	4.3	3.3	3.0	2.5	3.1	3.4	3.3	3.3	3.1
Oceanography (Schroeder)	5.0	4.9	4.8	4.4	4.8	4.9	4.5	4.2	4.3
Marine Ecology (Abele)	4.7	4.1	3.9	3.2	4.0	3.0	2.8	3.3	3.3
Marsh Ecology (Ivester/Stout)	4.1	4.2	4.3	4.0	4.3	4.4	4.0	3.7	3.8
Environmental Law (Bruggink)	4.5	4.6	4.4	3.5	3.5	3.4	3.8	3.5	4.1
	4.6	4.4	4.3	3.8	4.0	4.0	3.9	3.7	4.0



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Table 10. 1979 Colloquium Speakers (continued)

Careers in the Marine Sciences - Prospects and Pitfalls
Dr. Thomas Scanland, Dames & Moore Consultants

Protozoa of Mobile Bay
Dr. E. E. Jones, University of South Alabama

Hurricanes - The Atlantic Ocean, Caribbean Sea, and Gulf of Mexico
Mr. Gene Merritt, National Weather Service

Species Diversity of some Caribbean Shelf Regions
Dr. John Briggs, University of South Florida

Nutrient Cycles in Estuaries
Mr. Jonathan Garber, University of Rhode Island

Experiments with Islands and their Animal Communities
Dr. Dan Simberloff, Florida State University

Meiofauna in the Food Web - Do They Really Belong?
Dr. Bruce Coull, University of South Carolina

Endangered Marine Turtles
Dr. James Tyler, NOAA, Office Endangered Species

C. ACADEMIC YEAR 1979

The 1979 academic year, other than summer school and graduate student activities which we treated elsewhere in the report, is summarized below:

Table 11. Academic Year Activities

Term: Fall 1978

<u>COURSE</u>	<u>TOTAL CREDITS</u>
Benthic Community Structure (Ivester)	24

Term: Winter 1979

<u>COURSE</u>	<u>TOTAL CREDITS</u>
Marine Zoogeography (Shipp)	24
Directed Research	28

This activity was well below those of the previous academic year. This was due in part to the extensive commitment of many of the resident graduate student population to contract research the vacant faculty slot in the Marine

Animal Physiology. A moderate upturn is anticipated during the next two years.

The following tentative schedule of Fall/Winter/Spring offerings has been adopted and promulgated to affiliated students:

Fall 1979:	
Winter 1980:	Estuarine Science
Spring 1980:	Oceanology of the Gulf of Mexico
Fall 1980:	Physiology of Marine Organisms
Winter 1980:	Marine Zoogeography
Spring 1981:	Benthic Community Structure

D. GRADUATE STUDIES

The graduate studies element was new this year and the only funds allocated were for student assistantships. These are awarded on the basis of academic merit as determined by a standing review/advisory committee of graduate deans.

The importance of this element cannot be overemphasized. These students represent the backbone and muscle to our academic effort and hopefully, the funding level can be increased.

Interest in graduate studies remains high despite the job market. Over 100 inquiries have been received and answered over the past year. Funding (Table 13) is still dominated by extramural support.

II. Research Element

The environmental activities of the research faculty have traditionally been divided geographically into two areas, one dealing with the dynamic processes of the continental shelf and slope and the other with estuarine phenomena. The thrust of both are interdisciplinary in that we attempt to deal with the biological characteristics of these areas and their interaction with

