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# FIVE-YEAR PLAN

Volume 2    Resource Requirements



November 1980

U.S. Department of Commerce

National Oceanic and Atmospheric Administration

ENVIRONMENTAL RESEARCH LABORATORIES

PACIFIC MARINE ENVIRONMENTAL LABORATORY

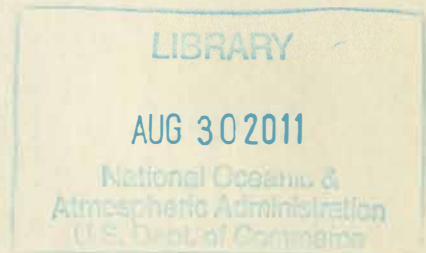


Pacific Marine Environmental Laboratory

Five Year Plan

Volume II

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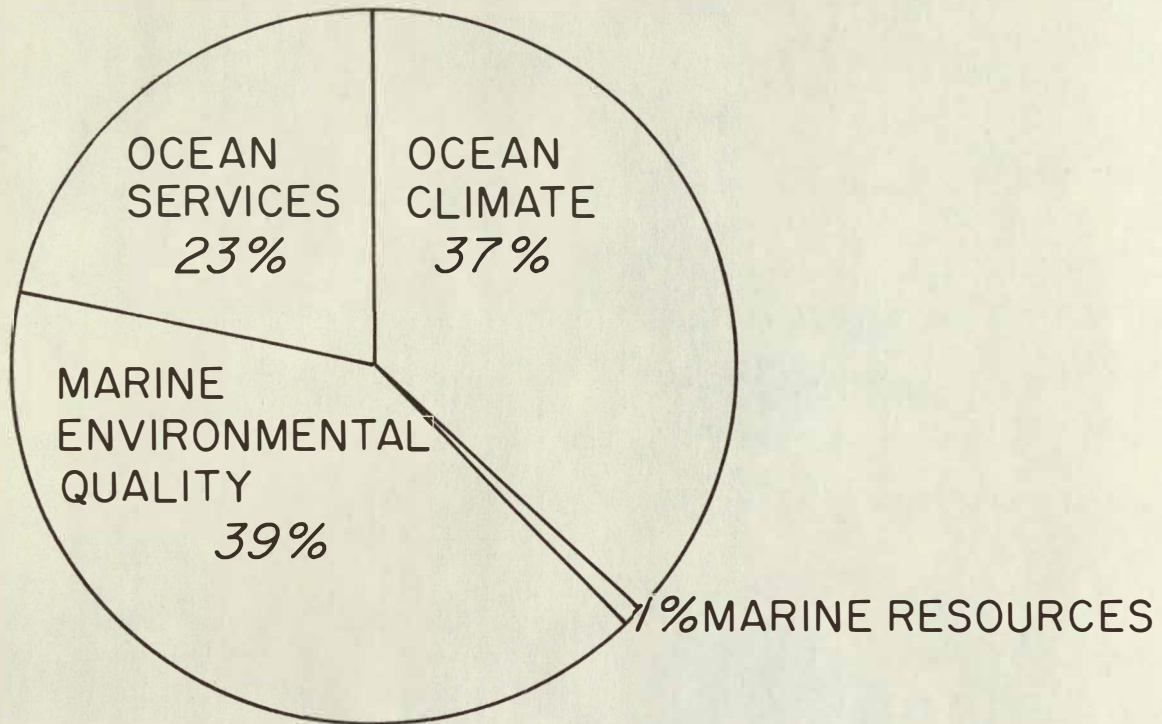
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## INTRODUCTION

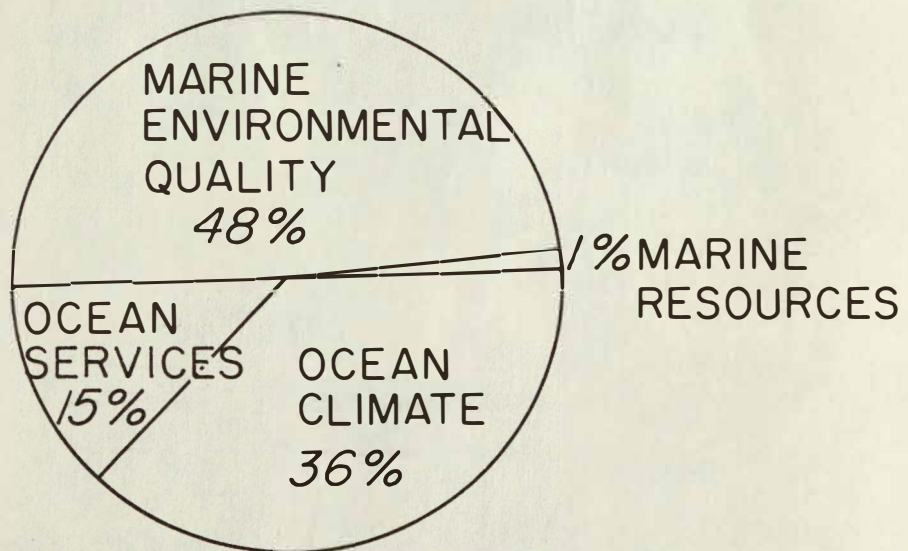
This volume of the Five Year Plan is intended to illustrate the resources required to carry out the programs described in Volume I. This volume has been organized according to the four major areas of research in ocean climate, ocean services, marine environmental quality, and marine resources. Resource requirements are represented by money, people, ship time, computer resources, and physical facilities. Each resource is described in terms of distribution among the four research categories and then each resource element is projected five years into the future. It should be noted that these projections are based upon the program plans laid out in Volume I. Any major deviation from Volume I will likewise affect the extrapolations in this volume.

I. Resource Allocation According to Research Category - FY-80

A. Total Expenditures of Dollars - FY-80 Budget - \$5.6M



B. Total Staff - FY-80 Effort - 100 person years



## PERSONNEL

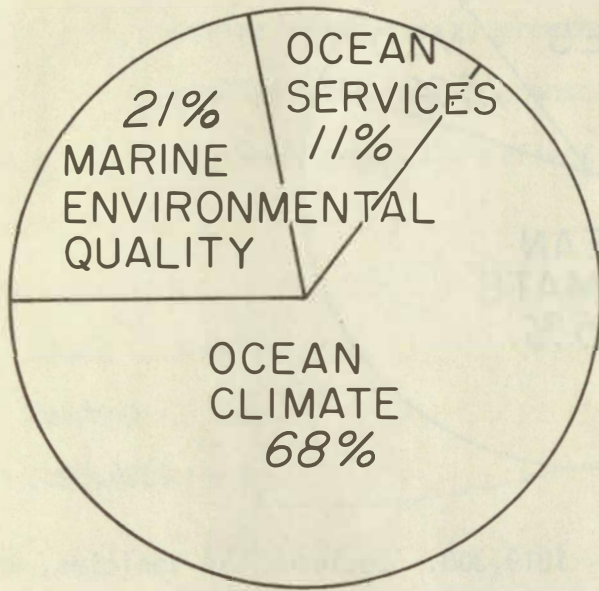
As of early 1980, PMEL has a staff of 79 permanent employees. Thirty-nine of these positions are held by professional scientists and engineers. Twenty-three of these thirty-nine hold Ph.D.'s, and the remainder have masters' degrees with the predominant degree specialization being oceanography, followed by physics and mathematics. Administrative services are provided by a group of twelve people headed by Ms. Cynthia L. Loitsch, and the remaining employees are about equally divided between clerical-secretarial support and technical support for field, laboratory, and computer operations. In addition to the permanent staff, PMEL usually has three to six postdoctoral visiting scientists and a similar number of NOAA Corps officers. The staff is further augmented with professionals from the Joint Institutes (JIMAR and JISAO) who work cooperatively with the PMEL staff. PMEL employs a number of intermittent employees, as well as students who work either through the nationwide ERL Cooperative Program, or on a part-time basis as allowed by their class schedules.

The fundamental organizational unit is the research group, within which there is a collection of professional and supporting staff, proportioned according to the group's activities. The group is the major level of personnel integration; however the program elements outlined above involve considerable intergroup cooperation and planning, with the result being a matrix-management style of organization. The table on the following page summarizes the activities of the forty principal, senior, and associate staff members in the fourteen program elements making up the four major program areas.

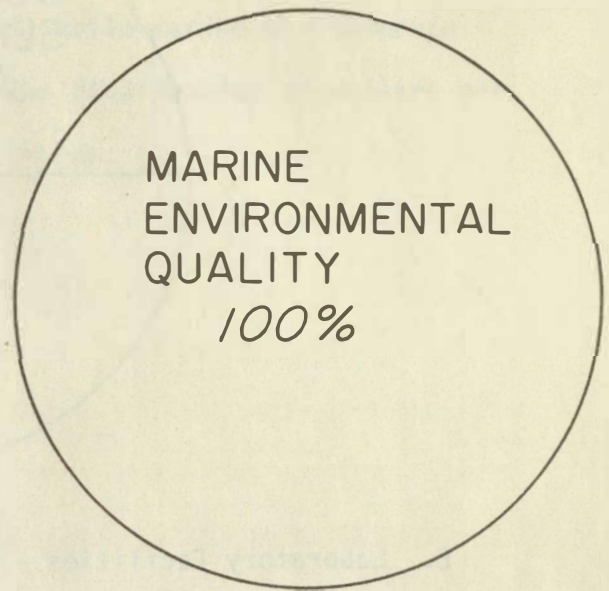
		THEORETICAL STUDIES	OFFICE OF THE DIRECTOR	COASTAL PHYSICS	DEEP SEA PHYSICS	ENG. STUD.	MARINE METEOROLOGICAL STUDIES	GEOCHEMISTRY
		PREISENDORFER LARSEN LAVELLE COKELET STEWART	APEL BERNARD LOITSCH	CANNON MOFJELD SCHUMACHER REED HOLBROOK PASHINSKI	HALPERN HAYES LOOMIS SPIELVOGEL BYRNE PULLEN	MILBURN NAKAMURA	OVERLAND GONZALEZ PEASE REYNOLDS WALTERS MACKLIN	CURL BAKER CLINE FEELY BATES MASSOTH PAULSON YOUNG
OCEAN CLIMATE RESEARCH	UPPER OCEAN SMALL-SCALE PROCESSES		•	•	•	•	•	
	LOWER ATMOSPHERE SMALL-SCALE PROCESSES					•	•	
	LARGE-SCALE HEAT AND MOMENTUM TRANSPORT	•	•		•	•		
	CLIMATE PREDICTABILITY	•						
OCEAN SERVICES RESEARCH	DYNAMICS OF CO <sub>2</sub> AND OTHER TRACE GASES		•					•
	COASTAL AND INSHORE WINDS					•	•	
	COASTAL WAVES	•	•			•	•	
	COASTAL FRONTS AND CIRCULATION			•	•	•	•	
MARINE ENVIRONMENTAL QUALITY RESEARCH	TSUNAMI		•	•		•		
	SEA ICE PROCESSES		•				•	
	PHYSICAL TRANSPORT PROCESSES		•	•	•	•	•	•
	EFFECTS OF POLLUTANTS ON MARINE MICROORGANISMS		•					
MARINE RESOURCES RESEARCH	PARTICULATE TRANSPORT PROCESSES		•			•		•
	POLLUTANT TRANSFORMATIONS AND FATE		•					•
	DEEP SEA PARTICULATE TRANSPORT PROCESSES	•	•			•		
	DEEP SEA PHYSICAL TRANSPORT PROCESSES	•	•		•	•		
	ENVIRONMENTAL EFFECTS OF OCFAN MINING	•						

C. Ship Time - FY-80 Ship Days - 265 Class I

60 Class II

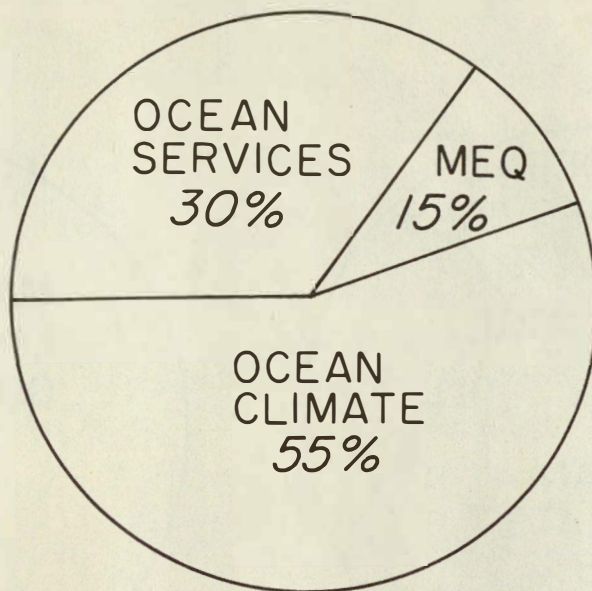


Class I

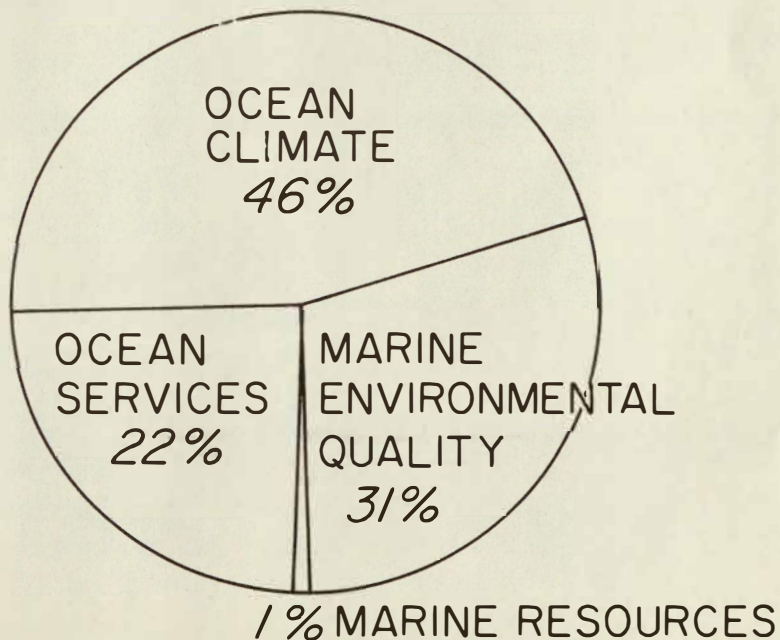


Class II

D. Computer Expenditures - FY-80 - \$292,800. Includes Boulder System, Image Processing System, UW Computing Facility.



E. Laboratory Facilities - FY-80 - \$819,300. Includes GSA Vehicles, Rent, Telephone, Word Processor, Copier, COLA, Capital Equipment, Furniture, Expendable Supplies.

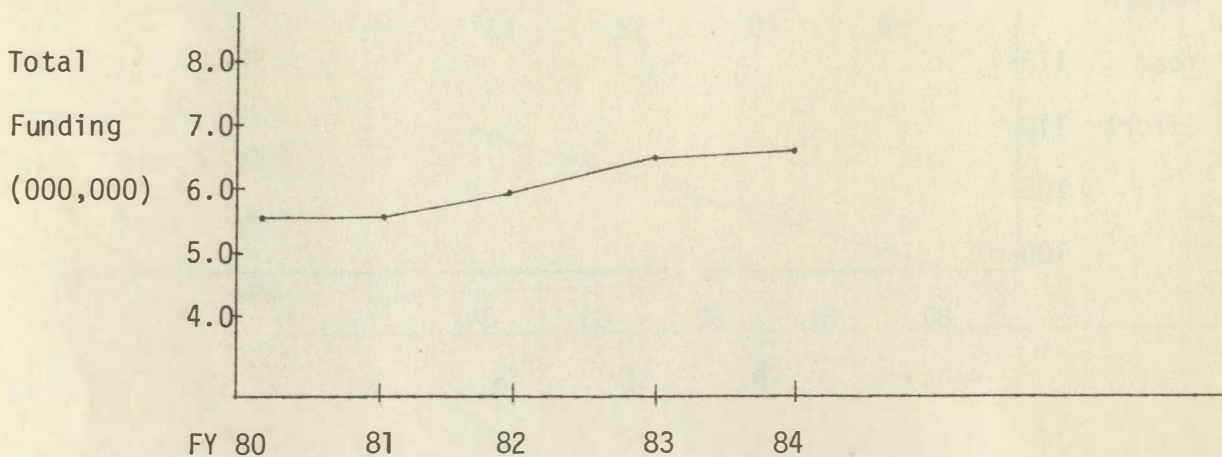




II. Projection to FY-84

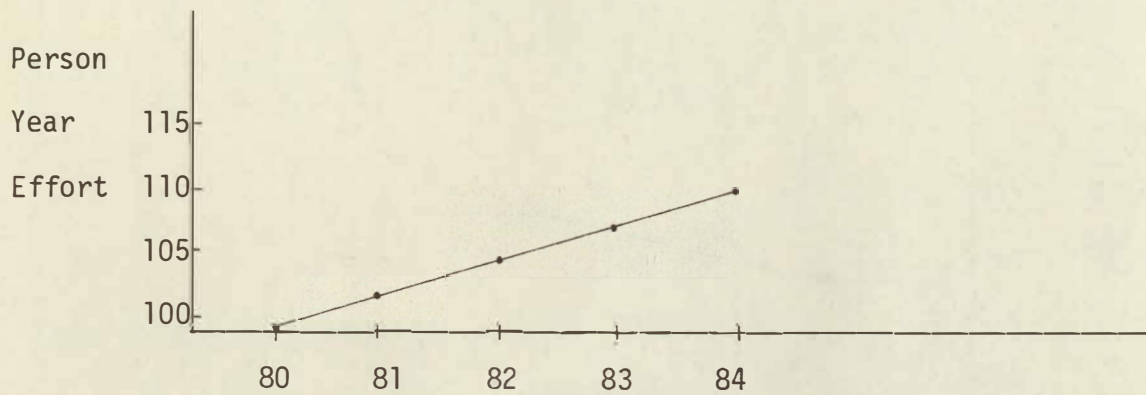
A. Total Funding:

PMEL's fiscal growth is projected to be similar to the growth of the parent organization, ERL, of about 10% per year. We foresee the research areas of ocean climate, ocean services, and marine resources as growth sectors, while marine environmental quality will remain constant. The distribution of dollars per research area will reflect these trends.



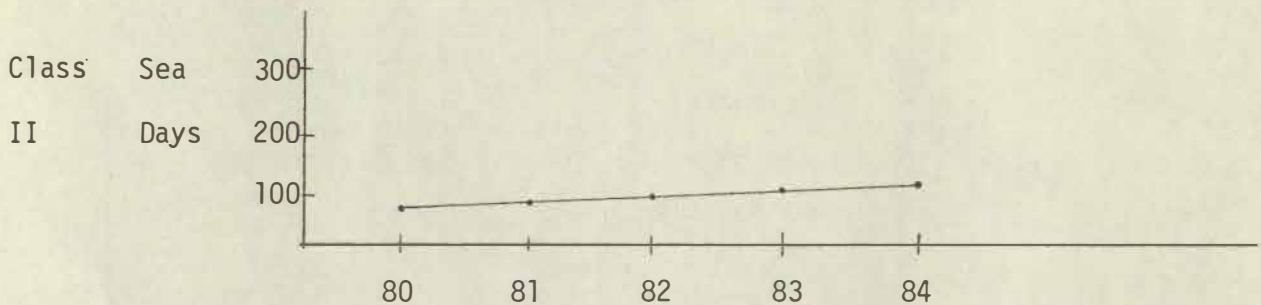
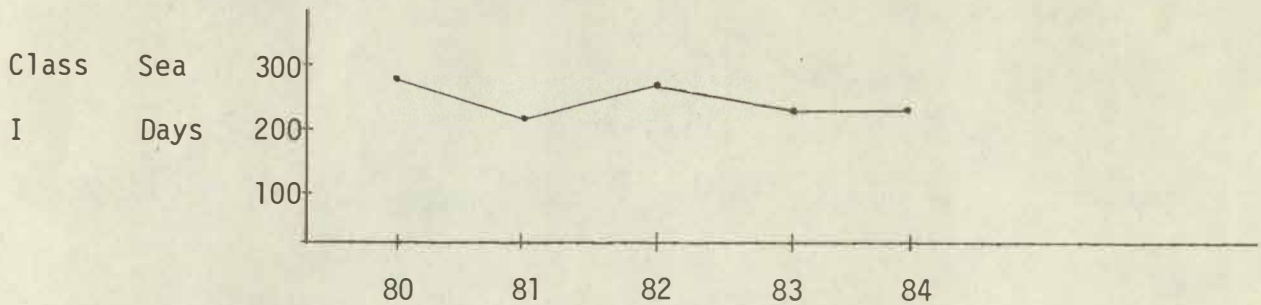
B. Total Staffing

We project a 10% rise over the next 5 years in person effort. Restrictions in hiring federal employees may prevent the augmentation of PMEL staff, but personnel must be acquired to meet program demands. One source of personpower is through contract agreements. The distribution of people among research areas is expected to remain about the same as in FY-80.

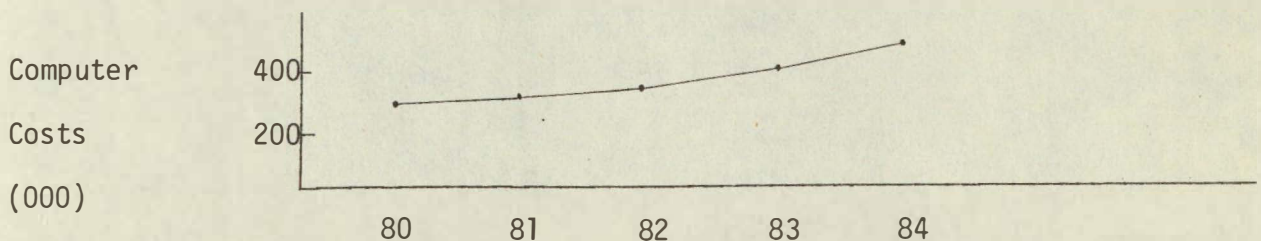


C. Ship Time - We project full use of a Class I ship and half use of a Class II vessel to support the climate, ocean services, and marine environmental quality field programs.

Distribution among research areas will remain about the same throughout the five year period.



D. Computer Requirements - We project computer requirements growth at about 15%/year because of the trend in oceanography to use numerical modeling as a tool for understanding the physics and chemistry of the oceans. Distribution among categories will remain about the same throughout the period. Marine Environmental Quality may experience a modest increase due to modeling of CO<sub>2</sub>.



E. Laboratory Facilities - We project inflationary use in the cost of facilities ( 10%/year). Distribution among categories will remain about the same. The anomalous high year in 1982 reflects moving into the Sand Point facility.

