

Survey of Federally-Funded Marine Mammal Research and Studies  
FY 70 - FY 83

George H. Waring

Southern Illinois University  
Carbondale, Illinois

Jun 84

U.S. DEPARTMENT OF COMMERCE  
National Technical Information Service

**NTIS**<sup>®</sup>

Report No. MMC-83/05

**SURVEY OF FEDERALLY-FUNDED  
MARINE MAMMAL RESEARCH AND STUDIES  
FY 70 - FY 83**

George H. Waring  
Department of Zoology  
Southern Illinois University  
Carbondale, Illinois 62901

June 1984

Final Report to U.S. Marine Mammal Commission  
in Fulfillment of Contract MM2629857-9

Availability Unlimited

Prepared for

U.S. Marine Mammal Commission  
1625 I Street, N.W.  
Washington, D.C. 20006

REPRODUCED BY  
NATIONAL TECHNICAL  
INFORMATION SERVICE  
U.S. DEPARTMENT OF COMMERCE  
SPRINGFIELD, VA. 22161

<b>REPORT DOCUMENTATION PAGE</b>	1. REPORT NO. MMC-83/05	2.	3. Recipient's Accession No. PB84-215086
4. Title and Subtitle Survey of Federally-Funded Marine Mammal Research and Studies, FY 70 - FY 83		5. Report Date June 1984	
7. Author(s) George H. Waring		8. Performing Organization Rept. No.	
9. Performing Organization Name and Address Dr. George H. Waring Department of Zoology Southern Illinois University Carbondale, Illinois 62901		10. Project/Task/Work Unit No.  11. Contract(C) or Grant(G) No. (C) MM2629857-9 (G)	
12. Sponsoring Organization Name and Address  U.S. Marine Mammal Commission 1625 I Street, N.W. Washington, D.C. 20006		13. Type of Report & Period Covered  Final Report	
15. Supplementary Notes The data and information contained in this report were given, in final form, to the involved agencies for review and comment. The agencies consider the contents of this report to be accurate.			
16. Abstract (Limit: 200 words)  See page ii.			
17. Document Analysis a. Descriptors   b. Identifiers/Open-Ended Terms   c. COSATI Field/Group			
18. Availability Statement:  Availability Unlimited		19. Security Class (This Report) Unclassified	21. No. of Pages 92
		20. Security Class (This Page) Unclassified	22. Price

## PREFACE

The following review of federally-funded marine mammal research and studies is a reference document presented primarily in tabular form rather than as a continuous text. It is an update of previous surveys compiled by the author for the Marine Mammal Commission.\* The Commission conducts a continuing review of research programs conducted or proposed to be conducted under the authority of the Marine Mammal Protection Act and undertakes or causes to be undertaken such other studies as it deems necessary or desirable in connection with its assigned duties as to the protection and conservation of marine mammals [Section 202 (a) 2,3]. Under Section 205 of the Act, the Commission is provided access to all studies and data compiled by federal agencies regarding marine mammals so as to ensure that unnecessary duplication of research is avoided and to carry out the purposes of the Act.

The user of this document will find the Table of Contents especially helpful for locating specific information and for understanding the organization and breadth of the material. The first section is an overview of all federally-funded research involving marine mammals. The second section focuses upon research and studies conducted under authority of the Act. The last section lists all research projects identified in the FY80 through FY83 surveys.

The data came from two major sources: (1) directly from agency officials at the request of the Marine Mammal Commission and (2) from the Smithsonian Science Information Exchange. More than two dozen U.S. government agency offices were surveyed by the Commission. Principal investigators have on a few occasions supplemented information on their projects. Appendix A is a listing of publications identified by the agencies as sources (or pending sources) of marine mammal information resulting from federally-funded research. Unless otherwise noted, the tables and figures summarize data supplied directly to the Commission by each agency. Appendix B is a listing of all FY80 to FY83 projects that were identified by the sources.

Agencies vary in their ability to identify and retrieve information on special projects. From year to year, both intra- and interagency variability occurs reducing the accuracy of the data for comparative purposes. Inherent also in such a study is the difficulty of separating administrative costs from costs specifically for data collection and analyses. Generally the funds reported included both costs and must be viewed accordingly.

21 April 1984

George H. Waring, Ph.D.  
Carbondale, IL

\*See Waring, G.H. 1981. Survey of federally-funded marine mammal research and studies, FY70-FY79. Publication PB81-174336, National Technical Information Service, Springfield, Virginia. 235 p.

## TABLE OF CONTENTS

	Page
PREFACE .....	ii
LIST OF FIGURES .....	v
LIST OF TABLES .....	vi
I. OVERVIEW OF FEDERAL RESEARCH PROGRAMS .....	1
Federal Agencies Funding Marine Mammal Research.....	2
Number of Marine Mammal Research Projects Supported by Federal Agencies (FY70-FY80) as Reported by the Smithsonian Science Information Exchange.....	5
Number of Marine Mammal Research Projects Supported by Federal Agencies in FY74-FY83, Comparing Smithsonian Science Information Exchange Data to Information Provided Directly to the Marine Mammal Commission by Each Agency.....	6
Trends in Federal Support of Marine Mammal Research, FY74-FY83	
--By Agency.....	9
--By Geographical Region.....	11
--By Taxonomic Group.....	12
--By Research Issue.....	14
II. RESEARCH AND STUDIES UNDER AUTHORITY OF THE MARINE MAMMAL PROTECTION ACT OF 1972 .....	21
Research Responsibilities of Federal Agencies Under the Act.....	22
Federal Funding Authorized, Requested, and Appropriated Under the Act.....	24
Funds Expended on Marine Mammal Research Other Than Appropriated Under Authority of the Act by the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY83.....	26

Funds Expended on Marine Mammal Research by the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY83.....	28
Number of Personnel Assigned to Marine Mammal Administration and Research Activities in the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY83.....	29
III. APPENDIX A	
Publications Identified by Agencies as Sources or Pending Sources of Marine Mammal Information from Federally-Funded Research.....	30
IV. APPENDIX B	
Listing of Marine Mammal Research Projects, Principal Investigators, and Funding Level for FY80-FY83.....	33
--Department of Agriculture.....	34
--Department of Commerce.....	34
--Department of Defense.....	46
--Department of Energy.....	51
--Department of Health and Human Services.....	52
--Department of the Interior.....	55
--Department of State.....	73
--Department of Transportation.....	74
--Environmental Protection Agency.....	74
--Marine Mammal Commission.....	74
--National Aeronautics and Space Administration.....	80
--National Science Foundation.....	80
--Smithsonian Institution.....	83
--Veterans Administration.....	84

LIST OF FIGURES

Figure		Page
1.	Trends in federal support of marine mammal research: Total number of marine mammal projects as reported by the Smithsonian Science Information Exchange, FY70-FY80, and to the Marine Mammal Commission by each agency, FY74-FY83 . . . . .	8
2.	Funds expended on marine mammal research by the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY83 . . . . .	28

LIST OF TABLES

Table	Page
1. Number of marine mammal research projects supported by federal agencies as reported by Smithsonian Science Information Exchange . . . . .	5
2. Number of marine mammal research projects supported by federal agencies in FY74-FY83, comparing Smithsonian Science Information Exchange data to information provided directly to the Marine Mammal Commission by each agency . . .	6
3. Federal funding of marine mammal research . . . . .	9
4. Regionally oriented marine mammal research in waters adjacent to the United States . . . . .	11
5. Taxonomic summary of federally-funded marine mammal research . . . . .	12
6. Federal funding of marine mammal research by research issue . . . . .	14
7. Federal funding under the Marine Mammal Protection Act . . .	24
8. Funds expended on marine mammal research other than those appropriated under authority of the Marine Mammal Protection Act . . . . .	26
9. Number of personnel assigned to marine mammal activities in the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY83 . . . . .	29



## I. OVERVIEW OF FEDERAL RESEARCH PROGRAMS INVOLVING MARINE MAMMALS

Fourteen departmental-level federal agencies participated in funding marine mammal research and studies from FY70 through FY83. Some agencies funded projects in all years, whereas others supported studies during only part of the period. Often more than one agency within the larger departments participated in funding research. The Smithsonian Science Information Exchange (SSIE) reported an average of 46.5 projects were funded with federal monies in each of the years surveyed (Table 1); nevertheless using the Marine Mammal Commission (MMC) information solicited directly from each agency, the average annual number of projects for FY74-FY83 was 142 (Table 2). The trends of these data are depicted in Figure 1. Data for year 76 include the 12-month fiscal year plus a transition quarter (TQ76 = July to September 1976) when the first day of the federal fiscal year was shifted from 1 July to 1 October. Total funds expended by each agency annually for marine mammal research are shown in Table 3. Funding by geographic region, taxonomic group, and research issue are listed in Tables 4, 5, and 6, respectively.

## FEDERAL AGENCIES FUNDING MARINE MAMMAL RESEARCH

Department of Agriculture (USDA)

The Department of Agriculture has conducted studies related to contagious disease organisms associated with marine mammals. The San Miguel sea lion virus has been of special interest. Clinically, the sea lion virus infection resembles the lesions of foot-and-mouth disease in ruminants.

Department of Commerce (DOC)

The Department of Commerce, through the National Marine Fisheries Service (NMFS), conducts marine mammal and fisheries research with emphasis on resource surveys, biological and ecological investigations, and resource management for the use and conservation of living marine resources. The cetaceans and pinnipeds (exclusive of the walrus) are among the responsibilities of this department. Research funding has been concentrated on the northern fur seal, the incidental take of porpoise in the yellow-fin tuna purse-seine fishery, and whale assessment. In addition, the National Sea Grant College Program (NSGCP), the Sanctuary Programs Division within the Office of Ocean and Coastal Resource Management (OCRM), and the Office of Oceanography and Marine Services (OMS) all in the National Oceanic and Atmospheric Administration (NOAA) have supported studies on marine mammals. OCSEAP (the Outer Continental Shelf Environmental Assessment Program managed by NOAA/National Ocean Service/Office of Oceanography and Marine Services) was created through interagency agreement between the Bureau of Land Management (now Minerals Management Service--MMS) and NOAA; it is responsible for most Alaska OCS research funded by MMS.

Department of Defense (DOD)

The Department of Defense conducts marine mammal research through the Headquarters Space Division of the Air Force, the Corps of Engineers of the Army, and the Navy. Units of the Navy conducting this research include the Naval Ocean Systems Center (formerly Naval Undersea Center) and the Office of Naval Research. DOD research varies from basic environmental impact research to applied military research. Differentiating marine mammals from military targets, furthering the understanding of the undersea environment, and the utilization of marine mammals with specific behavioral traits for applied research are the major thrusts of the Navy program; studies on behavior modification, husbandry, bioacoustics, migration and distribution, as well as sensory perception are supported. Navy research also includes studies of the bacterial, viral, fungal, and parasitic diseases of marine mammals with particular emphasis on those diseases that can be transmitted.

Department of Energy (DOE)

The Department of Energy (formerly the Atomic Energy Commission and the Energy Research and Development Administration) has occasionally supported marine mammal research. The thrust of the research has been directed at the behavioral ecology of sea otters, especially at Amchitka Island in the area of the CANNIKAN Shot, and also on problems associated with censusing marine mammals.

Department of Health and Human Services (DHHS)

The Department of Health and Human Services, formerly the Department of Health, Education and Welfare (HEW), through the National Institutes of Health, funds some research related to marine mammals; the research is basically oriented toward an understanding of human health and physiology. It consists primarily of research on physiological mechanisms and adaptations. Marine mammals are often one of several vertebrates used in the research projects.

Department of the Interior (DOI)

The Department of the Interior, through the Minerals Management Service (MMS), supports environmental assessment studies involving the effects of outer continental shelf development on marine mammals and their habitats. Special studies such as the effects of hydrocarbons and other disturbances from oil and gas activities are also supported. The Fish and Wildlife Service (FWS) supports management related research on the biology and population ecology of walrus, sea otter, polar bear, and sirenians (manatees and dugong). Additional studies are conducted on tissue contaminant levels in marine mammals, marine mammal tagging, and population assessment of the Hawaiian monk seal in the Hawaiian Islands National Wildlife Refuge. The Geological Survey conducts research in marine mammal paleontology, and the National Park Service supports some marine mammal studies relative to national park and monument development.

Department of State (DOS)

The Department of State has supported studies of the Antarctic krill resource (a major food resource of Southern Ocean marine mammals) in consideration of the prospect of international commercial exploitation of krill in waters adjacent to Antarctica. Funds have also been provided to further cetacean research of the Inter-American Tropical Tuna Commission and the International Whaling Commission.

Department of Transportation (DOT)

The Department of Transportation, through the Coast Guard, has supported research to identify potential applied uses of the perception and capabilities of animals, including marine mammals.

### Environmental Protection Agency (EPA)

The Environmental Protection Agency has indirectly supported marine mammal research through the study and monitoring of pollutant levels in coastal and pelagic marine organisms.

### Marine Mammal Commission (MMC)

The Marine Mammal Commission supports research and studies pertaining to the conservation and protection of marine mammals to improve the operation of the Marine Mammal Protection Act. Policy studies; methodological research; information overviews; issue-specific research on population assessment, critical habitats, taking, man-induced hazards, ecological inter-relationships, and socio-economic/legal aspects of marine mammal conservation; and reviews of agency actions and research under the Act are integrated into the directed research program of the Commission.

### National Aeronautics and Space Administration (NASA)

The National Aeronautics and Space Administration develops and provides technological support for marine mammal research and studies of user agencies. Telemetric and remote sensing capabilities through aircraft and satellite support are provided.

### National Science Foundation (NSF)

Through its various divisions, the National Science Foundation supports marine mammal research; however, there is no directed effort on marine mammals per se. The studies of Antarctic marine mammals have been supported through this agency in accordance with the Antarctic Treaty.

### Smithsonian Institution (SI)

The Smithsonian Institution, through the Department of Vertebrate Zoology and the Department of Paleobiology of the Museum of Natural History, supports their staff on marine mammal research in evolution and general biology. Additional studies are conducted at the National Zoological Park.

### Veterans Administration (VA)

The Veterans Administration has supported a few projects on the physiological characteristics of marine mammals. Among these has been an electroencephalographic study of sleep in the pilot whale.

TABLE 1

NUMBER OF MARINE MAMMAL RESEARCH PROJECTS  
SUPPORTED BY FEDERAL AGENCIES AS REPORTED  
BY SMITHSONIAN SCIENCE INFORMATION EXCHANGE\* --

	Fiscal Year										
	70	71	72	73	74	75	76	77	78	79	80
Department of Agriculture	-	2	1	-	3	3	1	-	1	-	-
Department of Commerce	-	2	6	4	12	8	14	3	15	-	-
Department of Defense	8	13	16	17	5	18	10	1	12	10	15
Department of Energy (formerly AEC and ERDA)	1	-	-	1	1	1	-	-	1	-	1
Department of Health and Human Services (formerly HEW)	6	9	7	8	5	16	15	7	2	3	4
Department of the Interior	2	1	1	9	-	1	1	7	3	-	3
Department of State	-	-	-	-	-	-	-	-	-	-	-
Department of Transportation	-	-	-	-	-	-	-	-	-	-	-
Environmental Protection Agency	-	-	-	1	-	1	1	-	-	-	-
Marine Mammal Commission	-	-	-	-	-	-	22	18	12	6	-
National Aeronautics and Space Administration	-	-	-	1	1	-	1	1	-	-	1
National Science Foundation	9	8	17	5	8	13	13	6	12	9	8
Smithsonian Institution	-	-	1	2	-	2	2	3	-	-	-
Veterans Administration	2	1	2	2	-	1	2	-	2	-	-
<b>TOTAL</b>	<b>28</b>	<b>36</b>	<b>51</b>	<b>50</b>	<b>35</b>	<b>64</b>	<b>82</b>	<b>46</b>	<b>60</b>	<b>28</b>	<b>32</b>

\*Not an all inclusive listing of federally-funded marine mammal research.  
The Smithsonian Science Information Exchange no longer exists.

TABLE 2

NUMBER OF MARINE MAMMAL RESEARCH PROJECTS SUPPORTED BY FEDERAL AGENCIES  
IN FY74-FY83, COMPARING SMITHSONIAN SCIENCE INFORMATION EXCHANGE DATA (A)\*  
TO INFORMATION PROVIDED DIRECTLY TO THE MARINE MAMMAL COMMISSION BY EACH AGENCY (B)

	FY74		FY75		FY76		FY77		FY78		FY79		FY80		FY81	FY82	FY83
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	B	B	B
Department of Agriculture	3	2	3	1	1	-	-	-	1	-	-	2	-	1	4	-	-
Department of Commerce																	
National Marine Fisheries Service	9	13	7	8	10	9	-	13	15	14	-	14	-	34	31	25	31
National Sea Grant	3	4	1	2	4	1	3	1	-	2	-	2	-	2	2	1	3
NOAA/OCSEAP (see below)																	
North Pacific Fishery Management Council	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Ocean and Coastal Resource Mgmt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	6
Oceanography and Marine Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
Department of Defense																	
Air Force	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-
Army	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-
Naval Ocean Systems Ctr. (NMC)	2	16	8	8	3	7	-	14	2	17	2	8	3	9	6	8	7
Naval Research Laboratory	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Office of Naval Research	3	10	10	6	7	6	1	7	10	7	8	11	12	8	7	6	4
Department of Energy	1	-	1	1	-	1	-	2	1	2	-	-	1	1	1	1	0
Department of Health and Human Services	5	20	16	26	15	17	7	13	2	12	3	8	4	9	11	12	9
Department of the Interior																	
Fish & Wildlife Service	-	15	-	20	-	27	5	40	2	43	-	52	1	44	33	27	29
Geological Survey	-	-	1	-	1	-	-	1	1	1	-	1	-	1	1	1	1
Minerals Mgmt. Service	-	-	-	1	-	4	-	3	-	4	-	7	2	12	8	10	9
MMS/NOAA/OCSEAP	-	-	-	3	-	16	-	11	-	11	-	6	-	6	7	9	8
National Park Service	-	1	-	1	-	2	2	3	-	5	-	2	-	2	4	3	3

TABLE 2 (continued)  
 Number of Marine Mammal Projects Supported by Federal Agencies

	FY74		FY75		FY76		FY77		FY78		FY79		FY80		FY81	FY82	FY83
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	B	B	B
Department of State	-	-	-	-	-	-	-	-	-	2	-	1	-	1	2	2	2
Department of Transportation	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Environmental Protection Agency	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Marine Mammal Commission	-	14	-	32	22	30	18	29	12	34	6	7	-	21	16	15	13
National Aeronautics & Space Administration	1	1	-	1	1	1	1	2	-	2	-	-	1	-	1	-	-
National Science Foundation	8	12	13	7	13	10	6	10	12	8	9	11	8	14	8	10	11
Smithsonian Institution	-	4	2	4	2	2	3	2	-	2	-	2	-	2	2	3	3
Veterans Administration	-	-	1	-	2	-	-	2	2	2	-	-	-	-	-	-	-
TOTAL:	SSIE Data		64		82		46		60		28		32				
	MMC Data		122		133		153		168		137		172		148	140	142

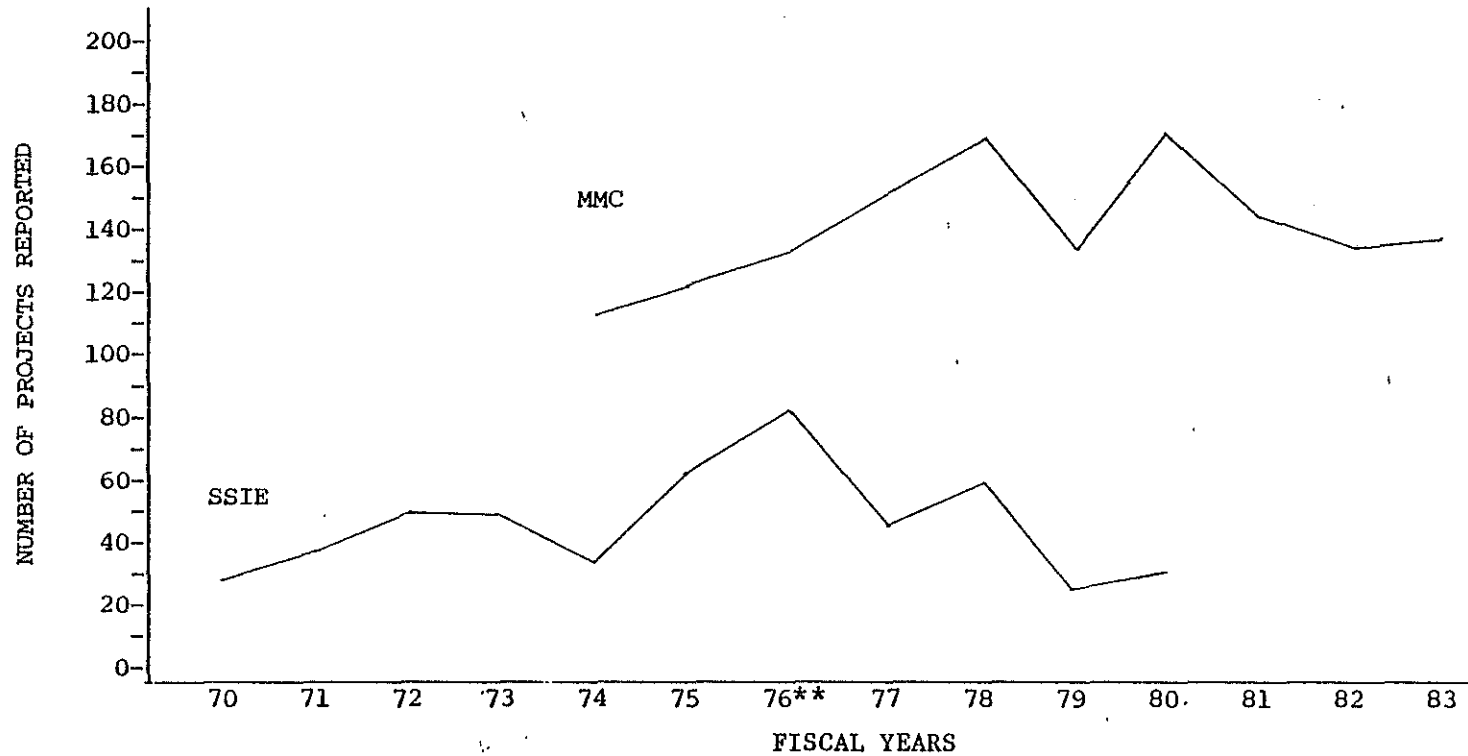
\*The Smithsonian Science Information Exchange no longer exists.

FIGURE 1

TRENDS IN FEDERAL SUPPORT OF MARINE MAMMAL RESEARCH

Total Number of Marine Mammal Projects as Reported:

By the Smithsonian Science Information Exchange (SSIE)\* and  
To the Marine Mammal Commission (MMC) by Each Agency.



\*The Smithsonian Science Information Exchange no longer exists.  
\*\*Includes Transitional Quarter (July-September 1976)



TABLE 3

FEDERAL FUNDING OF MARINE MAMMAL RESEARCH  
(Thousands of Dollars)

	FY74	FY75	FY/TQ76	FY77	FY78	FY79	FY80	FY81	FY82	FY83
Department of Agriculture	37.2	9.3	---	---	---	209	---	84.7	---	---
Department of Commerce										
National Marine Fisheries Service	1218.7	1386.6	1456.4	2313.8	3603.2	4425.9	5126.7	4531.6	3896.4	4050.7
National Sea Grant Program	77.2	82.3	19.8	25.8	49.7	68	59.7	35.1	30	46.7
North Pacific Fishery Mgmt. Council	---	---	---	---	---	---	97.2	28.9	10	11.5
Ocean and Coastal Resource Mgmt.	---	---	---	---	---	---	---	67	56.6	35.9
Oceanography & Marine Service	---	---	---	---	---	---	---	---	58	123.6
Department of Defense										
Air Force	---	---	---	---	---	40	15	79.2	---	---
Army	---	---	---	---	---	44	122	---	---	---
Naval Ocean Systems Center	658	425	361	718	545	717	1979	1729	1524	1708
Naval Research Laboratory	---	---	---	---	---	20	---	---	---	---
Office of Naval Research	485.4	270	260.1	414	430	538.4	462.8	302.6	204	195.2
Department of Energy	---	18.3	28	80	80	---	30	20	25	---
Department of Health and Human Services	916.9	1573.5	1078.5	781	772	392.8	602.5	755.8	899.2	684.4
Department of the Interior										
Fish and Wildlife Service	706	734.2	933	933	1042.7	1452.5	1418.9	1127.2	1221	1261.2
Geological Survey	---	---	---	31.2	30.5	20	45.5	79.6	62.8	76
Minerals Mgmt. Service	---	706.7	2046.4	2242	2519.8	7457.3	6173.2	3507.2	3830.6	4274.4
National Park Service	6	6	17.2	16.5	64.8	45.8	68	376.9	223	300.4
Department of State	---	---	---	---	51	500	592.9	719.4	644.6	540.6

TABLE 3 (continued)  
Federal Funding of Marine Mammal Research

	FY74	FY75	FY/TQ76	FY77	FY78	FY79	FY80	FY81	FY82	FY83
Department of Transportation	---	---	---	---	---	---	95	---	---	---
Environmental Protection Agency	47	49.8	---	---	---	---	---	---	---	---
Marine Mammal Commission	258.8	446.7	561.7	420.3	376.1	152.6	358.7	134.7	84.1	204.9
National Aeronautics and Space Administration	45	100	194	50	65	---	12	143.3	---	---
National Science Foundation	515.6	292.8	690.4	718.9	334.2	479.3	677.6	574.5	560.6	503
Smithsonian Institution	68.5	80.1	102	106.1	101.1	133.4	142.8	152.3	148.8	170.4
Veterans Administration	---	---	---	102.6	98.9	---	---	---	---	---
TOTAL	5013.3	6181.3	7748.5	8953.2	10,164	16,696	18,079.5	14,449	13,478.7	14,186.9

TABLE 4

## REGIONALLY ORIENTED MARINE MAMMAL RESEARCH IN WATERS ADJACENT TO THE UNITED STATES

(Thousands of Dollars; Number of Projects in Parentheses)

Geographical Region	Fiscal Year									
	74	75	76*	77	78	79	80	81	82	83
Hawaii	---	5 (1)	51.5 (2)	102.6 (8)	118.2 (6)	71.4 (2)	411.1 (11)	114.8 (2)	130 (2)	481.7 (4)
Alaska	780.4 (22)	1670.5 (31)	2451.5 (36)	2861.7 (39)	3336.8 (46)	3746.7 (17)	5407.4 (34)	3992.1 (29)	4949.4 (31)	4367.5 (30)
Oregon/Washington	17 (1)	87.3 (6)	81.6 (6)	43.5 (2)	60.3 (4)	68 (2)	229.9 (2)	234.5 (5)	73.6 (4)	165.3 (4)
California	102.5 (4)	805.4 (9)	1370 (18)	1132 (11)	317.2 (12)	1675.2 (11)	3234.9 (19)	862.3 (13)	1160.7 (17)	1693.9 (25)
Gulf of Mexico	7.9 (1)	---	6 (1)	---	2.4 (2)	144.3 (1)	200 (1)	330.8 (2)	275.5 (3)	20 (1)
Florida	121.3 (4)	187.5 (6)	139.9 (9)	171.2 (10)	269 (12)	656.3 (4)	858.2 (21)	306.8 (9)	429.8 (8)	610.6 (12)
Georgia, South Carolina and North Carolina	---	---	---	199.9 (1)	---	---	200 (2)	296.3 (1)	4 (1)	---
NE Coastal States	31.9 (3)	43.3 (3)	56.2 (5)	29.3 (3)	1484 (4)	2762.9 (1)	292.7 (14)	1025.1 (8)	170 (6)	145.2 (10)

\*Includes Transition Quarter (July-September 1976)

TABLE 5

TAXONOMIC SUMMARY OF FEDERALLY-FUNDED MARINE MAMMAL RESEARCH  
(Thousands of Dollars)

	USDA	DOC	DOD	DOE	DHHS	DOI	DOS	DOT	EPA	MMC	NASA	NSF	SI	VA	TOTAL
Sirenia	74					60									60
(Manatees	75					119.2									119.2
and Dugong)	76					173.8									173.8
	77					190.2					50				240.2
	78					267.1					15				282.9
	79		44			580.5				0.8					624.5
	80		122			328.7				109					559.7
	81					358						46.5			404.5
	82					353									353
	83					391.6				2.5					394.1
Carnivora	74					90									90
(Polar Bear	75			18.3	27.3	375				15.3					435.9
and Sea	76			28		629.3				103.2					760.5
Otter)	77			30		587.3				40.6					657.9
	78			30		717.7				49.9					797.6
	79		59.7			809.4						22.6			891.7
	80		71	30		718						36.3			855.3
	81	22.2	5.1	20		639.2				18					704.5
	82			25		914				5.6					944.6
	83					1096.7				31.8					1128.5
Pinnipedia	74	37.2	586.8	90	56.3	6				56.2		268	49.5		1150
(Seals,	75	9.3	752.7	140	210.7	171				154.9		156.6	51.8		1647
Sea Lions	76		760.5	147	116.2	684.6				54.3		268.3	59.2		2090.1
and Walrus)	77		783.8	274	141.3	763.5				64.8		131.1	56.1	102.6	2317.2
	78		858.7	325		664.6				33.7		141.5	45		2068.5
	79	200	956.7	246	76.6	589				59.1		243.2	47.4		2418
	80		1454.7	353	43.5	467.7				106		240.7			2665.6
	81		940.2	149.2	51.4	541.9				56		292.3			2031
	82		1081.4	50	38.4	385.1				12		359.1	11.8		1937.8
	83		1188.8	72.9		268				159.1		330.4	22.4		2041.6

TABLE 5 (continued)  
 Taxonomic Summary of Federally-Funded Marine Mammal Research

	USDA	DOC	DOD	DOE	DHHS	DOI	DOS	DOT	EPA	MMC	NASA	NSF	SI	VA	TOTAL
Cetacea	74	695.5	344		294.2					77.9		170.1	19		1600.7
	75		675	250.5		365.1				190.9		61	28.3		1570.8
	76		709.7	263.1		114.3	126.2			262.8		275.2	42.8		1794.1
	77		1555.8	527		144.6	253.4			124.9		213.1			2818.8
	78		2794.2	446		149.6	278			169.7		163.1			4000.6
	79		3326.3	746.4		74.1	2937.5	500		81		187.9			7853.2
	80		3542.8	1583.8		167.1	2239.8	592.9		133.7		380.8			8640.9
	81	44.6	3118	1485.6		463.4	1910.4	719.4		34.4	143.3	235.7			8154.8
	82		2304.2	1355		229.9	2580.9	644.6		28		158.3			7300.9
	83		2037	1522.3		146.9	1904.1	540.6		5		162.6			6318.5
Mixed Species or General Studies	74		13.6	682.4		566.4	556		47	124.7	45	77.5			2112.6
	75		41.2	304.5		970.4	781.7		49.8	85.6	100	75.2			2408.4
	76		6	211		848	1382.7			141.4		146.9			2736
	77			311	50	495.1	1428.3			190		374.7	50		2919.1
	78			204	50	622.4	1730.4	51		122	50	29.6	56.1	98.9	3014.4
	79	9	210.9	323		242.1	3999.5			12.5		25.6	86		4908.6
	80		245.1	520		391.9	3945.9		95	10		19.8	142.8		5370.5
	81	17.9	635.9	476		241	1654.3			26.3			152.3		3203.7
	82		635.4	323		630.9	1091.7			38.5		43.2	137		2899.7
	83		1042.6	318		537.5	2200.6			6.5		10	148		4263.2

TABLE 6

FEDERAL FUNDING OF MARINE MAMMAL RESEARCH BY RESEARCH ISSUE  
(Thousands of Dollars)

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY
<u>Tuna/Porpoise:</u>											
Population Assessment	85.1	108	81	516.5 2	524.5	462.7	676.9	615	462 4	570	NMFS MMC DOS
Mortality Reduction	167.4	140.2	120 178 119.6	299.6 97.1	487.6 67.4	512.9	433.1	687.1 303.6 5.6	609.2 30	673.9 30.9	NMFS MMC NSF Navy
Assessment of Taking			179	189.6	318.7	329.5	346.9	246.7	320.7	225	NMFS MMC
Biology	3.5 271.3 26	9.8 342.9	12.4 136	138.1	220.4	705.3	382.4	430.2	318.3	331	NMFS Navy MMC NSF
				12.5	10		31.6				
<u>International Whaling Convention:</u>											
Assessment of Stocks and Taking	32	(33.6)	(38.7) 26.3 21.5	(52.8) 33.5	(103) 19.8	70.9	340.5 65	433		(700)	NMFS MMC NSF DOS
								32.3	35.4	35.3	
<u>Marine Mammal/Fisheries Conflicts:</u>											
Southern Ocean Krill			10	14.5	4 51				10		MMC DOS NSF
Fin Fish/Pinniped Interactions		17.7	19.8	25.8	49.7 59.3	68	25.6	30	30	39.2	NSGCP MMC NMFS
						70	604.6	349.9	309.3	226.4	

TABLE 6 (continued)  
Federal Funding of Marine Mammal Research by Research Issue

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY
Shell Fish/Sea Otter Interactions							6 4.5	5.1		(31)	NSGCP FWS
Fin Fish/Porpoise Interactions							2	142.4	10 5		NMFS NPFMC MMC
Incidental Taking									10 (29)	12	MMC NMFS
<u>Effects of Oil and Gas</u>											
<u>Dev. on Marine Mammals</u>											
Physiological Studies			91.5	59 2.8	65	1097.8	394.1	111.8 2	1390.3	2484	MMS MMC
Risk Analysis									184.4	51.8 3.3	MMS MMC
<u>Marine Mammal Strandings</u>											
Biological Studies	15 (6.4)	25 (18.3)	32.3 (42.8) 6	15 (11.9) 70.4 (15)	(14.6)		3.5 (15)	20 (15)	30	31.5 60	6 SI NMFS MMS FWS
<u>Bowhead Whales:</u>											
Assessment of Stocks and Taking	16	(20.6)	(38.7) (44.1)	201 (42.5)	724 (167.2) 6.7	871.1	737.2 591	765.1 345.3	456.9	(317.4)	NMFS. MMS MMC MMS
Biology							590				
<u>Humpback Whale:</u>											
Population Assessment			(38.7)	(52.8) 25.1	(103) 21.4	15	39.1 15	70.7 9	39 5	38.8 5	NMFS MMC
Biology			11.2	10	31.3	39.8	63	376.3 4.1	223	293.4 12.6	NPS NMFS NSF Navy
					39.7	40.2	42.3 48				

TABLE 6 (continued)  
Federal Funding of Marine Mammal Research by Research Issue

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY
<u>Gray Whale:</u>											
Population Assessment	31.4	(32.7)	(38.8)	(52.8)	(103)	25.7		37	9		NMFS Navy MMS (317.4)
Assessment of Human- Induced Impact		14.7	16.5	9.8	20.6			3.8	6		MMC
Biology							187.7	58.1	497		MMS
<u>Northern Right Whale:</u>											
Population Assessment								27.8	25	47.7	NMFS MMC
Biology								3	4	9	Navy
<u>Killer Whale</u>											
Population Assessment	17	(17.6)	(38.8)	(52.7)		3					NMFS MMC NSF
		37.9			7.9						(15.3)
<u>Pilot Whales:</u>											
Population Assessment	10										Navy NSF
Biology	(6.3)	(5)									SI USDA
								10			
<u>Belukha:</u>											
Population Assessment			(44)	(42.5)	(17.2)			49.8			MMS
Biology			20	10	25		350	525	134	130.3	MMS Navy
									102	(100)	
<u>Harbor Porpoise:</u>											
Population Assessment							45		30	9.6	NMFS OCRM
										4	
<u>Dall Porpoise:</u>											
Population Assessment					210	6.9	264		(228)	(165)	NMFS



TABLE 6 (continued)  
Federal Funding of Marine Mammal Research by Research Issue

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY	
<u>Bottlenose Dolphin:</u>												
Population Assessment	55	68.3			1.9						MMC	
Biology	211	100	133	270	168	467	180.8	219.9	221.8	248.3	236.5	NMFS
	38.1											Navy
	54.3	55.6	20	86.7	92.8	85.3	90.1	107	48.9	56.5		DHHS
			15.8	31.8	0.5				4			NSF
						9				13.5		MMC
												NMFS
<u>Northern Fur Seal:</u>												
Population Assessment	395.2	339.5	354.4	352	(367)	430.2	246	156.6	263.3	(237.4)		NMFS
Biology	145.5	330.9	330.2	366	384	269.3	410.9	420.2	285.4	(237.4)	4.1	MMC
		32.2		70	96	88						NMFS
												MMC
												Navy
<u>Guadalupe Fur Seal:</u>												
Population Studies			(13.3)	(13.3)	(16.7)							NMFS
<u>Antarctic Seals:</u>												
Population Studies	125.8	115.8			50.3	97			68.4	39.9		NSF
Biology	64.3	15.2	241.1	172.7	89	70.4	171.7	252.2	168.5	179		NSF
<u>Arctic Seals:</u>												
Population Studies	18.3	(20.6)										NSF
	9.7											NSGCP
Biology	7		78	157	85							MMS
		55										MMC
			136	201.1	237.6	212						NSGCP
								281.6	157			MMS
								38.8				NSF
										75.5		NMFS

TABLE 6 (continued)  
Federal Funding of Marine Mammal Research by Research Issue

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY
<u>Hawaiian Monk Seal:</u>											
Population Assessment		55	38.2 (13.3)	52.3 (13.3)	52 (16.7)	31.2 3	50.9 108.3 60.9	31	(28) 102	(15) 311.7	FWS NMFS MMC
Biology				34.1	25.8		34.9			150	MMC
<u>Gray Seal:</u>											
Population Studies	(5.2)			10.2				2.3	1.3	1.4	MMC NMFS
Biology		90	110	10	30						Navy
<u>Harbor Seal:</u>											
Population Studies	(5.3)	27 6	33.5 6	17.7 6	5.2 31				23.5		MMC NPS NSGCP
Biology		2.3	3 8.6 65	2.8 60	(50)	50	53.7 39.4	3.5	20		NMFS MMC MMS Navy NMFS OCRM NSGCP OMS
							25	36.3	(15)	23.8	
									(50)	(20)	
<u>Northern Elephant Seal:</u>											
Population Studies			(13.3)	(13.3)	(16.7)	4.1					NMFS
Biology	27.9	25.9	27.2	33.1	31.8	41.2 10	30.2 5.3 43.5		45 12 38.4	51	NSF MMC DHHS
<u>California Sea Lion:</u>											
Population Studies			7			82.5					NMFS

TABLE 6 (continued)  
Federal Funding of Marine Mammal Research by Research Issue

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY
<u>California Sea Lion:</u> (cont.)											
Biology	37.2	9.3				200					USDA
	40	35	37	74	110		247				Navy
	29.3	64.7									DHHS
	50										NSF
		2	12.2								MMC
									11.8	22.4	SI
<u>Steller Sea Lion:</u>											
Population Studies			157.1	145.5	155	148	95				MMS
								34.9			NMFS
										11.5	NPFMC
										5	MMC
<u>Walrus</u>											
Population Studies		(160)	112.8	141.6	52	141.8	231.8	99	(50)	(50)	FWS
								130.3	150.1	25	MMS
					5						MMC
Biology	17.6	27.3									NSGCP
	38.7	48.4				20					MMC
									77.2	60.5	NSF
<u>Manatees and Dugong:</u>											
Population Studies	(60)	100	(143.8)	159.7	(236.6)	(290.3)	(265.7)	(300)	(150)	(100)	FWS
				50							NASA
					0.5		3				NPS
					0.8		109				MMC
						10					MMS
Biology		19.2	(30)	(30)	(30)	(127.2)	45	(52)	(173)	(291.6)	FWS
						44	122				Army
<u>Polar Bear</u>											
Population Studies	(45)	214.3	(401)	(303.1)	(223.1)	251	(140.8)	(200)	(80)	(73.7)	FWS
		35.7	(50)	(50)	(50)		(50)	(54)	(140)	(100)	FWS
				(150)		22.6	36.3				NSF

TABLE 6 (continued)  
Federal Funding of Marine Mammal Research by Research Issue

SPECIAL RESEARCH ISSUE	74	75	76	77	78	79	80	81	82	83	FUNDING AGENCY
<u>Sea Otter:</u>											
Population Studies	(45)	(125)	157.2	151.9	352.1	(530.4)	(400)	(185.2)		(100)	FWS
			21.1							770.8	MMS
Biology	13.5	27.3									DHHS
		15.3	103.2	40.6	49.9			16	5.6	8.9	MMC
		18.3	28	30	30		30	20	25		DOE
				23.3	27.5	(28)	(189.8)	200	470	(403.9)	FWS
				59					124		MMS

Amounts indicated in parentheses are estimated subunits of totals reported by agencies under more general categories.

## II. RESEARCH AND STUDIES UNDER AUTHORITY OF THE MARINE MAMMAL PROTECTION ACT OF 1972

The Marine Mammal Protection Act of 1972 (MMPA) established the Marine Mammal Commission and distributed marine mammal protection and conservation responsibilities to the Secretary of Commerce and the Secretary of the Interior, including the agencies under their purview. The Act acknowledged the need for further information and encouraged research; some responsibilities for research and its implementation were designated in Sections 108, 109, 111, 112, 202, and 205. Prior to 1982, funding authorized for marine mammal activities conducted by the National Marine Fisheries Service and the Fish and Wildlife Service were authorized under Title I of the Act on a section by section basis. As of Fiscal Year 1982, however, authorized funding for the various sections was combined so that Commerce and Interior now each receive a single authorized funding level that covers all expenses incurred under Title I. Table 7 is a list of annual funding authorized under the various sections of the Act, the amounts requested by agencies pursuant to the Act, and amounts appropriated by Congress. Additional federal funds have been spent in activities related to marine mammals; the additional sources and amounts of research funding are shown in Table 8 and Figure 2. The number of personnel assigned to marine mammal research versus administrative responsibilities within the National Marine Fisheries Service and the Fish and Wildlife Service from FY73 through FY83 are listed in Table 9.

RESEARCH RESPONSIBILITIES OF FEDERAL  
AGENCIES UNDER THE MARINE MAMMAL PROTECTION ACT

Congress, in developing the Marine Mammal Protection Act, recognized that there was inadequate knowledge of the ecology and population dynamics of marine mammals as well as of other factors important for marine mammal protection and conservation. The Act, therefore, specified certain research and study responsibilities for the Department of Commerce, Department of the Interior, and the Marine Mammal Commission.

The Secretary of Commerce was directed to undertake, in consultation with the Marine Mammal Commission, a study of the North Pacific fur seals to determine whether herds of such seals, subject to the jurisdiction of the United States, are presently at their optimum sustainable population and what population trends are evident. The Secretary was also to undertake a comprehensive study in consultation with the Secretary of State, to determine what modifications, if any, should be made to the provisions of the North Pacific Fur Seal Convention, or of the Marine Mammal Protection Act, or both, to make the Convention and the Act consistent with each other. These studies were to be completed by 21 October 1973 [Sec. 108 (b) (1)].

The Secretary of Commerce was also directed to immediately undertake a program of research and development for the purpose of devising improved fishing methods and gear so as to reduce to the maximum extent practicable the incidental taking of marine mammals in connection with commercial fishing. For purposes of this research, Congress authorized the sum of \$1,000,000 to be appropriated for both FY73 and FY74. Funds appropriated for this research remain available until expended [Sec. 111 (a)].

Both the Secretary of Commerce and the Secretary of the Interior are authorized by the Act to make grants to each state whose laws and regulations relating to protection and management of marine mammals which primarily inhabit waters or lands within the boundaries of that state are found to be consistent with the purposes and policies of the Act. The purpose of such grants shall be to assist such states in developing and implementing state programs for the protection and management of such marine mammals. Such grants are not to exceed 50 per centum of the costs of a particular program's development and implementation [Sec. 109 (b)].

The Secretaries are also authorized to make, after review by the Marine Mammal Commission, grants to any federal or state agency, public or private institution, or other person to enable research on topics relevant to the protection and conservation of marine mammals. Authorized to be appropriated for these grants in FY73 and for each of the next four fiscal years was an amount not to exceed \$2,500,000 -- one-third of the sum to be available to the Secretary of the Interior and two-thirds to the Secretary of Commerce [Sec. 110 (a) (b) (c)].

The Secretaries, as appropriate, are directed to review annually the operation of each program in which the United States participates involving the taking of marine mammals on land [Sec. 112 (d)]. The Secretaries are required by the Act to report annually to the public and to the Congress on the current status of all marine mammal species and population stocks subject to the provision of the Act [Sec. 103 (f)].

The Marine Mammal Commission established under Section 201 of the Act was directed in Section 202 (a) to:

1. Undertake a review and study of the activities of the United States pursuant to existing laws and international conventions relating to marine mammals, including, but not limited to, the International Convention for the Regulation of Whaling, the Whaling Convention Act of 1949, the Interim Convention on the Conservation of North Pacific Fur Seals, and the Fur Seal Act of 1966;
2. Conduct a continuing review of the condition of the stocks of marine mammals, of methods for their protection and conservation, of humane means of taking marine mammals, of research programs conducted under authority of the Act, and of all applications for permits; and
3. Undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with its assigned duties as to the protection and conservation of marine mammals.

The Act gave the Commission access to all studies and data compiled by federal agencies regarding marine mammals. With the consent of the appropriate Secretary or agency head, the Commission may also utilize the facilities or services of any federal agency and shall take every feasible step to avoid duplication of research and to carry out the purposes of the Act [Sec. 205].

TABLE 7

FEDERAL FUNDING UNDER THE MARINE MAMMAL PROTECTION ACT  
(Thousands of Dollars)

	AUTHORIZED <sup>a</sup>					REQUESTED <sup>b</sup>					APPROPRIATED <sup>c</sup>				
	Sec 109	Sec 110	Sec 114	Sec 207	Total	Sec 109	Sec 110	Sec 114	Sec 207	Total	Sec 109	Sec 110	Sec 114	Sec 207	Total
<b>Department of Commerce (NMFS)</b>															
FY73	1000*	1667	2000	-	4667	375*	-	1090	-	1465	-	-	-	-	-
FY74	1000*	1667	2000	-	4667	900*	-	4400	-	5300	-	250	1350	-	1600
FY75	-	1667	2000	-	3667	-	250	2300	-	2550	-	250	1350	-	1600
FY76	-	1667	2000	-	3667	-	250	2300	-	2550	-	1100	1697	-	2797
FY77	-	1667	3000	-	4667	-	1667	3272	-	4939	-	1667	2778	-	4445
FY78	-	200	11500	-	11700	-	-	4872	-	4872	-	-	4872	-	4872
FY79	225	2700	8500	-	11425	-	200	6842	-	7042	-	200	6842	-	7042
FY80	225	2700	9000	-	11925	-	100	6628	-	6728	-	100	7128	-	7228
FY81	225	2700	9500	-	12425	-	100	7775	-	7875	-	100	6980	-	7080
FY82	-----7223-----			-	7223	-----7416-----			-	7416	-----7416-----			-	7416
FY83	-----8000-----			-	8000	-----7416-----			-	7416	-----7475-----			-	7475
<b>Department of Interior (FWS)</b>															
FY73	-	833	700	-	1553	-	100	700	-	800	-	0	0	-	0
FY74	-	833	525	-	1358	-	400	300	-	700	-	400	300	-	700
FY75	-	833	525	-	1358	-	833	525	-	1358	-	833	525	-	1358
FY76	-	833	525	-	1358	-	833	525	-	1358	-	833	525	-	1358
FY77	-	833	525	-	1358	-	833	525	-	1358	-	833	525	-	1358
FY78	-	1200	850	-	2050	-	833	525	-	1358	-	950	589	-	1539
FY79	400	1300	650	-	2350	-	1000	600	-	1600	400	1000	600	-	2000
FY80	400	1500	760	-	2660	400	1000	600	-	2000	400	1000	600	-	2000
FY81	400	2100	876	-	3376	400	1000	600	-	2000	400	1000	600	-	2000
FY82	-----1600-----			-	1600	-----1600-----			-	1600	-----1600-----			-	1600
FY83	-----1760-----			-	1760	-----1600-----			-	1600	-----1600-----			-	1600



TABLE 7 (continued)  
Federal Funding Under the Marine Mammal Protection Act

	AUTHORIZED <sup>a</sup>					REQUESTED <sup>b</sup>					APPROPRIATED <sup>c</sup>				
	Sec	Sec	Sec	Sec	Total	Sec	Sec	Sec	Sec	Total	Sec	Sec	Sec	Sec	Total
	109	110	114	207		109	110	114	207		109	110	114	207	
<u>Marine Mammal Commission</u>															
FY73	-	-	-	1000	1000	-	-	-	0	0	-	-	-	0	0
FY74	-	-	-	1000	1000	-	-	-	825	825	-	-	-	412	412
FY75	-	-	-	1000	1000	-	-	-	1000	1000	-	-	-	750	750
FY76	-	-	-	1000	1000	-	-	-	1000	1000	-	-	-	900	900
FY77	-	-	-	1000	1000	-	-	-	1000	1000	-	-	-	1000	1000
FY78	-	-	-	1000	1000	-	-	-	900	900	-	-	-	900	900
FY79	-	-	-	1000	1000	-	-	-	702	702	-	-	-	702	702
FY80	-	-	-	1000	1000	-	-	-	640	640	-	-	-	940	940
FY81	-	-	-	1000	1000	-	-	-	1000	1000	-	-	-	734	734
FY82	-	-	-	672	672	-	-	-	672	672	-	-	-	672	672
FY83	-	-	-	1000	1000	-	-	-	594	594	-	-	-	822	822

\*Section 111 funds

<sup>a</sup>Authorized under sections of the Act. As of FY82, funding for all Title I sections was combined.

<sup>b</sup>Requested funding of the agencies

<sup>c</sup>Funds subsequently appropriated by Congress

TABLE 8

FUNDS EXPENDED ON MARINE MAMMAL RESEARCH  
 OTHER THAN THOSE APPROPRIATED UNDER AUTHORITY OF THE  
 MARINE MAMMAL PROTECTION ACT  
 (Thousands of Dollars)

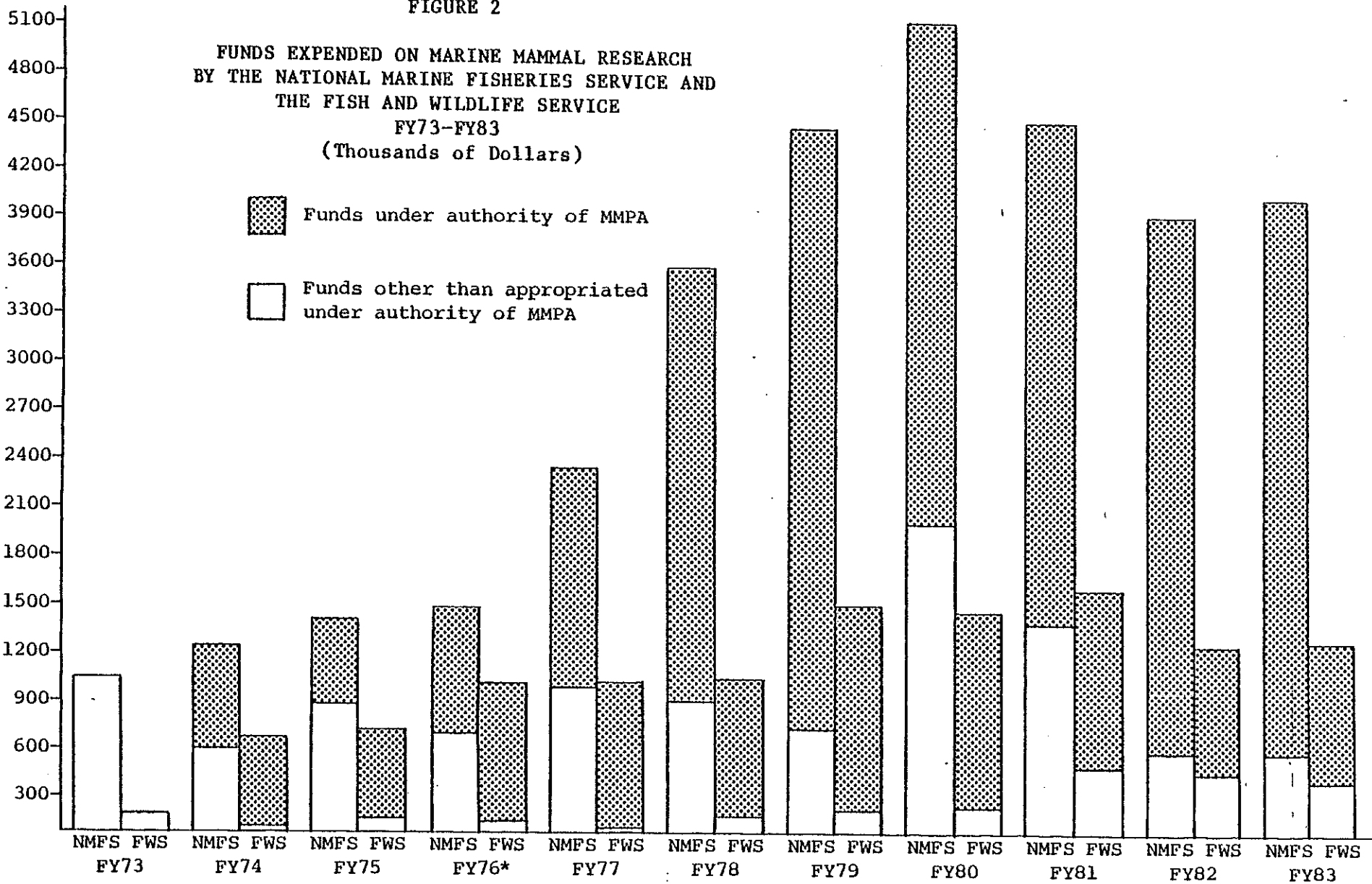
<u>NOAA/National Marine Fisheries Service</u>	<u>Source</u>	<u>Amount</u>
FY73	NMFS Reprogramming	300
	NOAA Reserve	424
	Fur Seal Act Authorization	309
FY74	Fur Seal Act Authorization	309
	Reprogramming and Reserve	295
FY75	Fur Seal Act Authorization	395
	NOAA Reserve	442
FY76	Fur Seal Act Authorization	595
	NMFS Reprogramming	59
TQ76	Fur Seal Act Authorization	148
FY77	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	294
	Saltonstall-Kennedy Reserve	78
FY78	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	294
FY79	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	132
FY80	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	1428.4
FY81	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	775
FY82	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	0
FY83	Fur Seal Act Authorization	595

TABLE 8 (continued)  
 Funds Expended on Marine Mammal Research Other Than Those Appropriated  
 Under Authority of the Marine Mammal Protection Act

<u>DOI/Fish and Wildlife Service</u>	<u>Source</u>	<u>Amount</u>
FY73	FWS Appropriation	149
FY74	FWS Appropriation	49
FY75	FWS Appropriation	75
FY76	FWS Appropriation	67.2
TQ76	FWS Appropriation	16.1
FY77	FWS Appropriation	16
FY78	Endangered Species Act Authorization	93.7
FY79	Endangered Species Act Authorization	213.1
FY80	Endangered Species Act Authorization FWS Appropriation	162 82.2
FY81	Endangered Species Act Authorization	521.7
FY82	Endangered Species Act Authorization	502.2
FY83	Endangered Species Act Authorization	450.9

FIGURE 2

FUNDS EXPENDED ON MARINE MAMMAL RESEARCH  
 BY THE NATIONAL MARINE FISHERIES SERVICE AND  
 THE FISH AND WILDLIFE SERVICE  
 FY73-FY83  
 (Thousands of Dollars)



\*FY76 data include transition quarter (July-September 1976)

TABLE 9

NUMBER OF PERSONNEL ASSIGNED TO MARINE MAMMAL ADMINISTRATIVE AND RESEARCH ACTIVITIES  
IN THE NATIONAL MARINE FISHERIES SERVICE AND FISH AND WILDLIFE SERVICE, FY73 - FY82\*

National Marine Fisheries Service\*\*

	FY73	FY74	FY75	FY76	TQ76	FY77	FY78	FY79	FY80	FY81	FY82	FY83
Administrative (Including enforcement)	11	28	28	42	49	7	8	86.5		33.5	27.1	16
Research	23	26	33	31	29	17	20	48.9		60.7	61.2	42.7
NMFS Total:	34	54	61	73	78	24	28	135.4	166.1	94.2	88.3	58.7

Fish and Wildlife Service Personnel\*\*\*

	FY73	FY74	FY75	FY76	TQ76	FY77	FY78	FY79	FY80	FY81	FY82	FY83
Administrative	?	12.1	14.1	15.2	****	16.6	17.1	20.3	24.6	23.3	21.5	6
Research	2.6	6.0	11.0	11.8	****	14.8	13.2	17.2	17.4	17.8	16.5	16
FWS Total:	2.6+	18.1	25.1	27.0	****	31.4	30.3	37.5	42.0	41.1	38.0	22

\*Figures provided by the Agencies.

\*\*The National Marine Fisheries Service changed their method of reporting at least twice -- once in FY77 (to number of personnel) and again in FY79 (to permanent employee man-years).

\*\*\*Reported in man-years FY73-FY81 and as full-time equivalents thereafter.

\*\*\*\*Man-years maintained at 24% of the FY76 level.

## III. APPENDIX A

PUBLICATIONS IDENTIFIED BY AGENCIES AS  
 SOURCES OR PENDING SOURCES OF  
 MARINE MAMMAL INFORMATION FROM FUNDED RESEARCH

Department of Commerce

## --National Marine Fisheries Service

Administrative reports of the various fisheries centers  
 Marine Mammal Division - Annual Reports on Fur Seal Investigations  
 Fishery Bulletin (NMFS, NOAA, Department of Commerce)  
 Marine Fisheries Review (NMFS, NOAA, Department of Commerce)  
 Journal of Mammalogy  
 International Whaling Commission Annual Reports  
 Canadian Journal of Fisheries and Aquatic Sciences (Journal Fisheries  
 Research Board of Canada)  
 Proceedings of the Conferences on the Biology of Marine Mammals  
 NOAA Technical Reports/NMFS Scientific Reports--Fisheries  
 Other journals as appropriate

## --National Sea Grant College Program

Marine Mammal Information

## --NOAA/OCSEAP reports (see Minerals Management Service below)

--Office of Ocean and Coastal Resource Management, Sanctuary Programs  
Division

Administrative reports of contractors  
 Fishery Bulletin  
 Marine Fisheries Review  
 Proceedings of the Conferences on the Biology of Marine Mammals  
 NOAA Technical Reports

Department of Defense

## --Department of the Air Force

Headquarters Space Division Technical Report  
 Space Shuttle Final Environmental Impact Statement

## --Department of the Navy

Naval Ocean Systems Center Technical Reports  
 Marine Fisheries Review  
 Annals of the New York Academy of Science  
 Fishery Bulletin

Vision Research  
 Cetology  
 Deep-Sea Research  
 Journal Acoustical Society of America  
 American Journal of Veterinary Research  
 Journal of the American Veterinary Medical Association  
 Science  
 Arctic  
 Journal of Wildlife Diseases  
 Microbios Letters  
 Transactions of the San Diego Society of Natural History  
 Journal of Mammalogy  
 Contributions to edited books

Department of Energy

Progress reports on projects  
 Canadian Journal of Fisheries and Aquatic Sciences  
 Ecological Monographs  
 Wildlife Society Bulletin  
 Environmental Conservation  
 Journal of the American Veterinary Medical Association

Department of the Interior

--Minerals Management Service

NOAA/OCSEAP Annual Reports  
 NOAA/OCSEAP Final Reports  
 NOAA/OCSEAP Lease Area Synthesis Reports  
 Other reports available through the National Technical  
 Information Service

--Fish and Wildlife Service

North American Fauna Series  
 U.S. Department of the Interior, Fish and Wildlife Service,  
 Wildlife Research Reports  
 U.S. Fish and Wildlife Service, National Fish and Wildlife  
 Laboratory Reports  
 Acta Anatomica  
 Aquatic Mammals  
 Biological Conservation  
 Fishery Bulletin  
 Journal of the American Veterinary Medical Association  
 Journal of Comparative Physiology  
 Journal of Mammalogy  
 Journal of Morphology  
 Journal of Wildlife Diseases  
 Journal of Wildlife Management  
 National Technical Information Service  
 Cornell Veterinarian  
 Veterinary Clinical Pathology  
 Bulletin of Marine Science

## --Geological Survey

Systematic Zoology  
 Smithsonian Institution Contributions to Paleobiology  
 Geological Survey Professional Papers  
 Publications of the Charleston Museum

## --National Park Service

Project reports to the National Park Service

Department of State

Project reports available through National Technical  
 Information Service  
 EIS: Possible Regime for the Conservation of Antarctic  
 Marine Living Resources  
 IWC Scientific Reports

Marine Mammal Commission

Reports available through the National Technical  
 Information Service

National Science Foundation

Antarctic Journal of the United States  
 Antarctic Bibliography  
 Other publications as appropriate

Smithsonian Institution

Fishery Bulletin  
 Journal of Mammalogy  
 Proceedings of the Biological Society of Washington  
 Systematic Zoology  
 Smithsonian Institution Contributions to Paleobiology  
 Florida State Museum, Plaster Jacket  
 Smithsonian Institution Contributions to Zoology  
 Smithsonian Institution Contributions to Marine Sciences  
 Contributions to edited books



IV. APPENDIX B

LISTING OF MARINE MAMMAL RESEARCH PROJECTS,  
PRINCIPAL INVESTIGATORS, AND FUNDING LEVEL  
FOR FY80 - FY83\*

COMPILED FROM INFORMATION PROVIDED  
THE MARINE MAMMAL COMMISSION  
BY EACH AGENCY  
AND SUPPLEMENTED WITH INFORMATION FROM THE  
SMITHSONIAN SCIENCE INFORMATION EXCHANGE (SSIE)

\*For a listing of projects for the period FY70-FY79, see Waring, G. H., 1981, Survey of federally-funded marine mammal research and studies, FY70-FY79, Publication PB81-174336, National Technical Information Service, Springfield, Virginia, 235 p.

Department of AgricultureFY80

Gelberg, H. (Plum Island Animal Disease Center)  
 Comparative Swine and Pinniped Pathology  
 of Swine Vesicular Exanthema and San Miguel  
 Sea Lion Viruses \$ ?

FY81

Forrester, D.J. (U. Florida)  
 Epizootiology of Parasites of Wildlife in  
 Florida--Pilot Whale (FL-VY-01851) \$ 10 K

Jeness, R. (U. Minnesota)  
 Comparative Biochemistry of Milks of Various  
 Mammals (incl. sea otter) \$ 22.2K

Kim, K.C. (Pennsylvania State U.)  
 Biology and Ecology of Mammalian Ectoparasites  
 (Steller sea lion, northern fur seal, sea otter, rats) \$ 17.9K

Schmidly, D.J. (Texas A&M U.)  
 A Resource Analysis of Non-game Mammals in Texas  
 with Emphasis on Fur-bearing Species (incl. whale  
 aerial survey) \$ 34.6K

FY82 - FY83

(No projects)

Department of Commerce

## 1. National Marine Fisheries Service

## A. Alaska Regional Office

FY81

Hall, J.D. (Solace Enterprises)  
 Population Studies of Humpback Whales and  
 Monitoring of Vessel Traffic in Southwestern  
 Prince William Sound, Alaska (81-ABC-00265) \$ 14.4K

FY82

Calkins, D. (Alaska Department of Fish and Game)  
 Study of Pinnipeds in Southern Alaska (81-ABC-00280) \$ 69.7K

FY83

Calkins, D. and K. Pitcher (Alaska Department of Fish and Game)  
Pinniped Investigations (81-ABC-00280) \$ 75.5K

## B. Northeast Fisheries Center

FY80

Austin, H.M. (Virginia Institute of Marine Science)  
Distribution and Abundance of Bottlenose Dolphins  
in the Nearshore Waters of Virginia (NA80FA-D8) \$ 9.9K

Gilbert, J.R. (U. Maine)  
Impact of Harbor Seal Populations on New England  
Fisheries (NA80FA-C29) \$ 36.7K

Katona, S.K. (College of the Atlantic)  
Creating and Maintaining a Catalog of Individually  
Identified Humpback Whales (NA80FA-D6) \$ 23.4K

Mayo, C.A. III (Provincetown Center of Coastal Studies)  
Summary of Recent Observations from Whale-Watching  
Boats off Provincetown, Massachusetts (NA80FA-D3) \$ 4.9K

Powers, K.D. (Manomet Bird Observatory)  
Development and Supervision of an Oceanic Marine  
Mammal Observer Training Program (NA80FA-D4) \$ 24.7K

Habitat Usage by Harbor Seals at Winter Haul-out  
Site in Cape Cod Bay (NA80FA-D5) \$ 9.4K

Prescott, J.H. (New England Aquarium)  
Characterization of Habitat and Distribution; an  
Estimate of Population Size; and an Assessment of  
the Impact of Human Activities on the Harbor  
Porpoise (NA80FA-D9) \$ 45 K

An Assessment of the Distribution and Relative  
Abundance of Large Cetaceans in the Western Approaches  
to the Bay of Fundy (NA80FA-C48) \$ 20.7K

Organize and Convene a Workshop on Humpback Whales  
of the Western North Atlantic in Fall 1980 (NA80FA-C55) \$ 15.7K

Investigation of Harbor Seal Mortality and Determination  
of the Infectious Agent in the New England Region  
(NA80FA-H9) \$ 30 K

Schurman, V.R. (Cape Cod Museum of Natural History)  
A Report on the Grey Seal Population at Nantucket,  
Massachusetts (NA80FA-A229) \$ 2.3K

Sears, R. (Mingan Island Cetacean Study, Falmouth) Behavior and Distribution of Cetaceans on the North Shore of the Gulf of St. Lawrence (NA80FB-A241)	\$ 2.5K
Stangroom, R. (Kendall Whaling Museum, Sharon) Compilation of Biological Data from 19th Century Whaling Logbooks and Journals (NA80FA-D2)	\$ 5 K
<u>FY81</u>	
Conlogue, G. and J. Ogden (Yale U.) Radiographing Harbor Seal Flippers as a Method of Determining Age (NA-81-FB-A-00230)	\$ 1.5K
Gilbert, J. (U. Maine) Harbor Seal Population Estimation and Marine Mammal/Fisheries Interactions (NA-80-FA-C-00029)	\$ 45.9K
Coordinate Winter Census of Harbor Seals, Block Is. to Eastport, ME (amendment to above)	\$ 3.5K
Katona, S. (College of the Atlantic) Maintaining and Improving the Humpback Whale Fluke Catalog (NA-81-FA-C-00027)	\$ 47.1K
Mattila, D. (Provincetown Center for Coastal Studies) Humpback Whale Fluke Identification Off the NW Coast of Puerto Rico (NA-81-FA-D-00003)	\$ 9.2K
Nichols, G., H. Winn and J. Lien (Ocean Research and Education Society, Boston) Support of Steering Committee to Establish International Consortium for Humpback Whale Research (NA-81-FB-A-00221)	\$ 2 K
Powers, K. (Manomet Bird Observatory) Implementation of Marine Mammal Observer Program Aboard NMFS Ships (NA-81-FA-C-00023)	\$ 41.2K
Prescott, J. (New England Aquarium) The North Atlantic Right Whale in the Lower Bay of Fundy (NA-81-FA-C-00030)	\$ 25.3K
Winter Aerial Survey of the Bay of Fundy (amendment of above)	\$ 2.5K
Schurman, V. (Cape Cod Museum of Natural History) Population Survey of Grey Seals at Nantucket Island, MA (NA-81-FB-A-00282)	\$ 1.3K
Weinrich, M. (Glocester Fishermen's Museum) Behavior and Ecology of Humpback Whales Off Glocester, MA (NA-81-A-00231)	\$ 2.1K

FY82

Gilbert, J. (U. Maine) Harbor Seal Population Estimation and Marine Mammal/Fisheries Interactions (NA-80-FA-C-00029)	\$ 40 K
Katona, S. (College of the Atlantic) Maintaining and Improving the Humpback Whale Catalog (NA-81-FA-C-00027)	\$ 25 K
Mattila, D. (Provincetown Center for Coastal Studies) Humpback Whale Fluke Identification Off the NW Coast of Puerto Rico (NA-81-FA-D-00003)	\$ 14 K
Payne, P.M. and C.C. Rimmer (Manomet Bird Observatory) Radio Tracking of the Harbor Seal in Massachusetts (NA-82-FA-C-00007)	\$ 20 K
Powers, K. and P.M. Payne (Manomet Bird Observeratory) Implementation of Marine Mammal Observer Program Aboard NMFS Ships (NA-81-FA-C-00023)	\$ 30 K
Prescott, J. and S. Kraus (New England Aquarium) The North Atlantic Right Whale in the Lower Bay of Fundy (NA-81-FA-C-00030)	\$ 25 K
A Characterization of Habitat and Distribution, an Estimation of Population Size, and an Assessment of the Impact of Human Activities on the Harbor Porpoise (NA-82-FA-C-00027)	\$ 30 K

FY83

Gilbert, J.R. (U. Maine) Harbor Seal Population Estimate and Marine Mammal/Fisheries Interaction (NA80FAC-00029)	\$ 15 K
Hyman, M. (U. Rhode Island) Calculations of Biomass and Energetics Requirements of the Cetacean Component of the Northeast United States Outer Continental Shelf (NA83FAC-00009)	\$ 10 K
Katona, S.K. (College of the Atlantic) The North Atlantic Humpback Fluke Catalogue (NA81FAC-00027)	\$ 15 K
Lambertson, R. (U. Florida) Biopsy Research of North Atlantic Humpbacks for Sex Determination (NA83FAC-00017)	\$ 12.6K
Mattila, D. (Provincetown Center for Coastal Studies) Humpback Fluke Identification Off NW Puerto Rico (NA83FAC-0000H)	\$ 14 K

Payne, M. and C. Kimmel (Manomet Bird Observatory) Radio Tracking of the Harbor Seal (NA82FA-00007)	\$ 23.8K
Powers, K. and M. Payne (Manomet Bird Observatory) Marine Mammal Observer Program (NA81FAC-00023)	\$ 30.9K
Prescott, J. (New England Aquarium) Harbor Porpoise Habitat, Distribution, Population Estimate, and Assessment of Impact of Human Activities (NA80FAD-00009)	\$ 7.2K
Prescott, J. and S. Kraus (New England Aquarium) Right Whales in the Bay of Fundy (A81FAC-00030)	\$ 47.7K
Prescott, R. (Massachusetts Audubon Society) Impact of Decaying Pilot Whale Carcasses on a Salt Marsh (NA83FBA-00075)	\$ 2.6K
Shurman, V. (Cape Cod Museum of Natural History) Grey Seals on Nantucket Island (NA83FBA-00075)	\$ 1.4K
C. Northwest and Alaska Fisheries Center, National Marine Mammal Laboratory	

FY80

Braham, H. (NMML) Arctic Whales--Bowhead (NWC-59)	\$737.2K
DeLong, R. and R. Everitt (NMML and Washington Department of Game) Washington-Oregon Marine Mammal/Fisheries Interactions (NWC-53)	\$176.2K
Fiscus, C. and R. DeLong (NMML) Pinnipeds (NWC-53)	\$ 98.5K
Fowler, C.W. and A. Roppel (NMML) Northern Fur Seal Population (NWC-3)	\$246 K
Gentry, R. (NMML) Fur Seal Studies--St. George Island (NWC-51)	\$278.4K
Jones, L. (NMML) Dall's Porpoise Investigations (NWC-4)	\$264 K
Kajimura, H. (NMML) Marine Mammal Ecosystem--Pelagic (NWC-57)	\$132.5K
Keyes, M.C. (NMML) Veterinary Medical Services (NWC-56)	\$ 61.8K
McAlister, W.B. (NMML) Marine Mammal/Fishery Interactions --Bering Sea (NWC-8)	\$155.5K

Rice, D. et al. (NMML)  
Endangered Cetaceans (NWC-58) \$340.5K

FY81

Braham, H. and B. Krogman (NMML)  
Arctic Whales--Bowhead (NWC-059) \$765.1K

DeLong, R. (NMML)  
Pinnipeds (including Columbia River Marine  
Mammal/Fishery Interaction Study) (NWC-053) \$148.5K

Fowler, C.W. and A. Roppel (NMML)  
Northern Fur Seal Population (NWC-003) \$152.6K

Gentry, R. (NMML)  
Fur Seal Studies--St. George Island (NWC-051) \$287.7K

Jones, L. and D. Rice (NMML)  
Endangered and Small Cetaceans (including Dall  
Porpoise) (NWC-058) \$433.0K

Kajimura, H. (NMML)  
Marine Mammal Ecosystems--Pelagic (NWC-057) \$132.5K

Keyes, M.C. (NMML)  
Veterinary Medical Services (NWC-056) \$ 61.8K

McAlister, W.B. and R. DeLong (NMML)  
Marine Mammal/Fishery Interactions--Bering Sea  
(NWC-008) \$155.5K

FY82

Braham, H.W. (NMML)  
Arctic Whales--Bowhead (NWC-059) \$456.9K

DeLong, R.L. (NMML)  
Pinnipeds (NWC-053) \$199.4K

Fowler, C.W. (NMML)  
Northern Fur Seal Populations and Monitoring  
(NWC-003) \$263.3K

Gentry, R.L. (NMML)  
Fur Seal Studies--St. George Island (NWC-051) \$285.4K

Jones, L.L. (NMML)  
Endangered and Small Cetaceans (NWC-058) \$374 K  
[plus additional \$228K from Japan for Dall  
porpoise research]

Keyes, M.C. (NMML)  
Veterinary Medical Services and Research (NWC-056) \$ 57.3K

Loughlin, T.R. (NMML)  
 Marine Mammal/Fishery Interactions--Bering Sea  
 Ecosystem (NWC-008) \$159.3K

FY83

Braham, H.W., L.L. Jones and J. Breiwick (NMML)  
 Population Assessment of Endangered and Small  
 Whales (NWC-358) \$649.5K

DeLong, R.L. and T.R. Loughlin (NMML)  
 Assessment of Pinniped Populations and Marine  
 Mammal/Fishery Interactions (NWC-353) \$211.4K

Fowler, C.W., R. Gentry and M. Keyes (NMML)  
 Fur Seal Research Program. (NWC-303) \$474.8K

Tillman, M.F. and R.V. Miller (NMML)  
 Laboratory Administration and International  
 Treaty Research (NWC-352) \$294 K

D. Southeast Fisheries Center

FY80

Benigno, J. (SEFC)  
 Marine Mammal Project Management (88C4L1KB) \$ 51.8K

Benigno, J. and R. Ford (SEFC)  
Tursiops Local Herd Biodynamics (88C4L1KC) \$105 K

Marine Mammal and Sea Turtle Stranding and  
 Salvage Network (88C4L1KG) \$ 20 K

Benigno, J. and R. Gracy (SEFC)  
Tursiops Population Analysis \$105 K

FY81

Benigno, J. (SEFC)  
 Marine Mammal Project Management--Tursiops  
 (88C4L1KB) \$ 56.8K

Ford, R. Jr. (SEFC)  
Tursiops Local Herd Biodynamics (88C4L1KC) \$118 K

Marine Mammal Stranding and Salvage Network  
 (88C4L1KN) \$ 30 K

Gracy, R. and J. Powers (SEFC)  
Tursiops Population Survey and Analysis  
 (88C4L1KD) \$ 47 K



FY82

Ford, R. Jr. (SEFC, Mississippi Lab.) <u>Tursiops</u> Local Herd Biodynamics (FSN230-8L1ACMJG)	\$ 43.5K
Gracy, R. (SEFC, Mississippi Lab.) Local <u>Tursiops</u> Population Surveys (FSN230-8L1ACMJD)	\$132 K
Powers, J. (SEFC, Miami Lab.) Local <u>Tursiops</u> Population Analysis (88C4L1KA)	\$ 72.8K
Scott, G. (SEFC, Miami Lab.) Southeast U.S. Marine Mammal Stranding and Salvage Network (FSN000-8L1CCOJL)	\$ 31.5K

FY83

Carew, R. (MAR, Inc.) Local <u>Tursiops</u> Population Surveys (FSN230-8L1ACMJD)	\$ 28.5K
Carley, W. (Aero Systems, Inc.) Regional Surveys and Estimates of <u>Tursiops</u> Abundance (FSN000-8L1CCOJB)	\$128 K
Duffield, D. (Genetik Associates) Genetic Variability in <u>Tursiops truncatus</u> and <u>Caretta caretta</u> (FSN000-8L1CCOJK)	\$ 27 K
Ford, R. (SEFC, Mississippi) <u>Tursiops</u> Local Herd Biodynamics (FSN230-8L1ACMJG)	\$ 20 K
Odell, D. (U. Miami) Southeast U.S. Marine Mammal Stranding and Salvage Network (FSN000-8L1CCOJL)	\$ 22 K
Powers, J. (SEFC, Miami) <u>Tursiops</u> Population Analysis (FSN100-8L1CCOJA)	\$ 19 K
Scott, G.P. (SEFC, Miami) Marine Mammal Program Management (FSN000-8L1CCOJE)	\$ 53.7K
Photogrammetric Estimation of <u>Tursiops</u> (FSN000-8L1CCOJH)	\$ 41 K

E. Southwest Fisheries Center

FY80

Gilmartin, W. (SWFC) Hawaiian Monk Seal	\$108.3K
--	----------

Perrin, W., D. Au and J. Henderson (SWFC) Assessment of Coastal Marine Mammals for Management	\$111.5K
Perrin, W., J. Coe and W. Stunz (SWFC) Marine Mammal Technology, Behavior and <u>Physiology</u>	\$433.1K
Perrin, W., A. Myrick and J. Jennings (SWFC) Marine Mammal Biological Studies	\$382.4K
Smith, T., R. Holt and D. Au (SWFC) Porpoise Stock Assessment	\$676.9K
Smith, T., C. Oliver and N. Lo (SWFC) Quantitative Analysis and Data Management	\$346.9K

FY81

DeMaster, D.P. (SWFC) Assessment of Coastal Marine Mammals for Management (096)	\$176.1K
Gilmartin, W.G. (SWFC) Marine Mammals and Endangered Species	\$110.5K
Perrin, W.F. (SWFC) Marine Mammal Technology, Behavior and Physiology (010)	\$303.6K
Research on the Biology of Dolphins for Stock Assessment (011)	\$430.2K
Smith, T.D. (SWFC) Assessment of Dolphin Populations for Management (008)	\$615 K
Marine Mammal Mortality Monitoring and Data Management (057)	\$246.7K

FY82

DeMaster, D.P. (SWFC) Assessment of Coastal Marine Mammals (096)	\$254.3K
Gilmartin, W.G. (SWFC) Marine Mammal and Endangered Species Identification (119)	\$102 K
Perrin, W.F. (SWFC) Research on the Biology of Dolphins for Stock Assessment (011)	\$318.3K
Ralston, F. (SWFC) Marine Mammal Monitoring and Data Management (057)	\$320.7K
Sakagawa, G. (SWFC) Assessment of Dolphin Population for Management (008)	\$462 K

FY83

DeMaster, D. (SWFC) Coastal Marine Mammal Assessment	\$271 K
Gilmartin, W.G. and J. R. Henderson (SWFC, Honolulu) Hawaiian Monk Seal Research; Marine Mammal and Endangered Species Investigations	\$311.7K
Perrin, W. (SWFC) Dolphin Biological Research for Stock Assessment	\$331 K
Ralston, F. (SWFC) Marine Mammal Mortality Monitoring and Data Management	\$225 K
Sakagawa, G. (SWFC) Assessment of Dolphin Population for Management	\$570 K
F. Southwest Regional Office	

FY80

Miller, D. (California Department of Fish and Game) Marine Mammal/Fishery Interaction Study (80-JG-054) [Additional funding of \$77.4K from SWFC project on Assessment of Coastal Marine Mammals for Management]	\$ 65 K
---	---------

FY81

Miller, D. (California Department of Fish and Game) Marine Mammal/Fishery Interaction Study (81-JG-078) [Additional funding of \$76.5K from SWFC-096]	\$ 65 K
---	---------

FY82

Miller, D. (California Department of Fish and Game) Harbor Seal Population Assessment/Marine Mammal Mortality in California Gill Net Fisheries (82-ABH-89) [Additional funding of \$28.8K from SWFC-096]	\$110 K
---	---------

FY83

Dohl, T.P. (U. California, Santa Cruz) Harbor Porpoise Survey (FSR 100 - FMR 300)	\$ 2.4K
Hannon, D. (California Department of Fish and Game) Coastal Marine Mammal Study (FMR 300/FSR 100)	\$115 K

2. NOAA/OCSEAP (See Department of the Interior--MMS)

## 3. National Sea Grant College Program

FY80

Cicin-Sain, B. (U. California, San Diego) Marine Mammal/Fisheries Conflicts: Emphasis on Sea Otter/Shellfish Conflicts in California	\$ 6 K
Mate, B.R. (Oregon State U.) Population Growth and Feeding Habits of Harbor Seals in an Aquacultural-Enhanced Environment	\$ 53.7K

FY81

Cicin-Sain, B. (U. California, Santa Barbara) Marine Mammal/Fisheries Conflicts: Emphasis on Sea Otter/Shellfish Fishery Conflicts (NA80AA-D-00120A)	\$ 5.1K
Mate, B.R. (Oregon State U.) Seal Exclusion System (NA81AA-D-00086)	\$ 30 K

FY82

Mate, B.R. (Oregon State U.) Seal Exclusion System (R/CP-19)	\$ 30 K
---	---------

FY83

Lambertson, R.R. (U. Florida) Quantitative Investigations of Natural Morbidity and Mortality in Fin and Sei Whales of the North Atlantic (M/LR-83-7)	\$ 5 K
Mate, B.R. (Oregon State U.) Applications of Acoustic Control to Marine Mammals in Fisheries Conflicts (R/CP-22)	\$ 39.2K
Scholz, A.T. (Eastern Washington U.) Biotelemetry Investigations of Harbor Seals (R/M-1)	\$ 2.5K

## 4. North Pacific Fishery Management Council

FY80

Fay, F.H. and L.F. Lowry (U. Alaska and Alaska Department of Fish and Game) Seasonal Use and Feeding Habits of Walruses in the Proposed Bristol Bay Clam Fishery Area	\$ 97.2K
--	----------

FY81

Calkins, D., L. Lowry and K. Frost (Alaska Department of Fish and Game)  
 Compilation and Evaluation of Data on Feeding Habits and Food Requirements of Marine Mammals in the Bering Sea (81-4) \$ 28.9K

FY82

Melteff, B. (U. Alaska)  
 Workshop on Biological Interactions Among Marine Mammals and Commercial Fisheries in the Southeastern Bering Sea \$ 10 K

FY83

Calkins, D.G. (Alaska Department of Fish and Game)  
 Sea Lion Pup Count in Shelikof Strait \$ 11.5K

5. Office of Ocean and Coastal Resource Management,  
 Sanctuary Programs Division

FY81

Allen, S. and H. Huber (Point Reyes Bird Observatory)  
 Pinnipeds Along the Point Reyes Coastline \$ 17 K

DeMaster, D. (NMFS/SWFC)  
 Pinniped Population Dynamics Monitoring \$ 50 K

FY82

Allen, S. and H. Huber (Point Reyes Bird Observatory)  
 Pinnipeds Along the Point Reyes Coastline \$ 19 K

Assessment of Pinniped/Human Interaction \$ 7.8K

DeMaster, D. (NMFS/SWFC)  
 Food Habits of Pinnipeds Within Channel Islands National Marine Sanctuary \$ 29.8K

DeMaster, D. and R. DeLong (NMFS/SWFC)  
 Movement Patterns and Hauling-out Behavior of Harbor Seals in Channel Islands National Marine Sanctuary (funded under project above)

FY83

DeMaster, D. (NMFS/SWFC)  
 Pinniped Census at Santa Barbara Island \$ 2 K

Cooperative Marine Mammal Salvage Effort on San Miguel Island (no charge)

DeMaster, D. and R. DeLong (NMFS/SWFC) Food Habits of Pinnipeds at San Miguel Island, Channel Islands NMS	\$ 12 K
Dohl, T. (U. California, Santa Cruz) Aerial Survey of Harbor Porpoises at Pt. Reyes-Farallon Islands NMS	\$ 4 K
Leatherwood, S. (Hubbs-Sea World Research Institute) Distribution and Ecology of Cetaceans in the Channel Islands NMS	\$ 8 K
Mayo, C.A. (Provincetown Center for Coastal Studies) Analysis of Cetacean Population Data for Stellwagen Bank	\$ 9.9K
6. Office of Oceanography and Marine Service	

FY82

Calambokidis, J. (Cascadia Research Collective) Pollutants in Marine Mammals from Washington State (NA82-RAC00126)	\$ 13 K
DeLong, R.L. (NMFS/NMML) Assessment of Marine Pollutants in Tissues of Harbor Seals from Southern Puget Sound, Washington	\$ 45 K

FY83

Calambokidis, J. (Cascadia Research Collective) Biological Disorders Among Marine Mammals and Birds in Puget Sound (83-ABC-00221)	\$115.6K
DeLong, R.L. (NMFS/NMML) Investigation of Premature Births and Neonatal Mortality in Harbor Seals in Southern Puget Sound, Washington	\$ 8 K

Department of Defense

## 1. Air Force (Headquarters Space Division)

FY80

Jehl, J.R. and R. Schreiber (Hubbs-Sea World Research Institute) Effects of Loud Impulse Noises in Causing Startle Behavior and/or Panic Responses in Pinnipeds	\$ 15 K
--	---------

FY81

Jehl, J., C. Cooper and B. Stewart (San Diego State U.  
and Hubbs-Sea World Research Institute)  
Field Studies of Pinniped Populations Likely to be  
Affected by Sonic Boom from the Space Shuttle \$ 79.2K

FY82 - FY83

(No projects)

## 2. Army (Corp of Engineers)

FY80

Bengston, J. (U. Minnesota)  
St. John's River Manatee Project Study \$ 44 K

Haller, W.T. (U. Florida)  
Herbicide Residues in Crystal River \$ 78 K

FY81 - FY83

(No projects)

## 3. Navy

## A. Naval Ocean Systems Center

FY80

Bowers, C.A. (NOSC)  
Marine Mammal Capabilities (Delphinapterus)  
(MM01510C0) \$350 K

Gilmartin, W.G. (NOSC)  
Captive Dolphin Breeding (Tursiops) (MM02510B) \$ 95 K

Gilmartin, W.G. and S.H. Ridgway (NOSC)  
Marine Mammal Medical Research and Animal  
Health (MM01510N) \$405 K

Hui, C.A. (NOSC)  
Dolphin Bioenergetics (Delphinus) (MM02510H) \$ 79 K

Nachtigall, P.E. (NOSC)  
Dolphin Behavioral and Biosonar Research (Tursiops)  
(MM01510K) \$600 K

Tursiops Directional Hearing (MM02510D) \$ 60 K

Ridgway, S.H. (NOSC)  
Neurophysiological Research (Tursiops)  
(ZS39510A) \$143 K

Schusterman, R.V. (California State U., Hayward) Pinniped Behavioral Evaluation ( <u>Zalophus</u> ) (MMO2510E)	\$ 27 K
Scronce, B. (NOSC) Sea Lion Training Evaluation: Wild Caught vs. Captive Born ( <u>Zalophus</u> ) (MMO1510T)	\$220 K
<u>FY81</u>	
Bowers, C.A. (NOSC) Marine Mammal Capabilities ( <u>Delphinapterus</u> ) (MMO1511C)	\$525 K
Hughes, T.W. (NOSC) Dolphin Hydrodynamics (MMO2511T)	\$150 K
Johnson, W. (NOSC) Captive Dolphin Breeding (MMO2511B)	\$100 K
Nachtigall, P.E. (NOSC) Dolphin Behavioral Research (MMO1511K)	\$600 K
Ridgway, S.H. (NOSC) Marine Mammal Medical Research and Animal Health (MMO1511N)	\$211 K
Neurophysiological Research (ZS39511A)	\$143 K
<u>FY82</u>	
Au, W.W. (NOSC) Dolphin Critical Bandwidth/Critical Ratio (MMO2512D)	\$129 K
Haun, J.E. (NOSC) Dolphin Hydrodynamics (MMO25121; ZS81512A; MM29512A)	\$345 K
Risso's Dolphin Echolocation (MMO2512X)	\$ 50 K
Nachtigall, P.E. (NOSC) Dolphin Behavioral and Biosonar Research (MMO1512K; MMO1512D; MMO1512Z)	\$331 K
Penner, R.H. (NOSC) Beluga Echolocation (MMO2512K)	\$102 K
Ridgway, S.H. (NOSC) Signal Processing by Dolphins: Communication and Cognition (ZS39512A)	\$ 75 K
Marine Mammal Medical Research and Animal Health (MMO1512N)	\$298 K



Schroeder, J.P. (NOSC)  
Captive Dolphin Breeding (MMO2512B) \$194 K

FY83

Au, W.W. (NOSC)  
Target Strength Characterization by Echolocating  
Dolphins (Tursiops) (MMO2513D) \$141 K

Friedl, W.A. (NOSC)  
Taste Reception in Dolphins and Sea Lions (MMO1513R) \$260 K

Haun, J.E. (NOSC)  
Dolphin Hydrodynamics (Tursiops)  
(MMO2513T, MM29513A, MM30513A, ZS81513A) \$440 K

Moore, P.W. (NOSC)  
Dolphin Echolocation Pulse Control (MMO2513P) \$130 K

Penner, R.H. (NOSC)  
Echolocation Comparisons (cetaceans) (MMO2513K) \$200 K

Ridgway, S.H. (NOSC)  
Marine Mammal Medical Research and Animal  
Health (MMO1513N) \$318 K

Schroeder, J.P. (NOSC)  
Captive Dolphin Breeding (Tursiops) (MMO1513B) \$219 K

## B. Office of Naval Research

FY80

Altes, R. (Oricon Corp.)  
Computer and Mathematical Analysis of Dolphin  
Whistles SSIE \$ 5.9K

Cummings, W.D. (U. California, San Diego)  
Distribution and Identification of Low Frequency  
Biological Noises in the Ocean SSIE \$ 35 K

Evans, W.E. (Hubbs-Sea World Research Institute)  
Research on Small Pacific Ocean Cetaceans (NR083-102-31) \$ 10 K

Gilmartin, W.G. (NOSC)  
Marine Mammal Bionosis (NR-204-008) \$ 30 K

Malins, D.C. and U. Varanasi (Seattle U.)  
The Biochemistry of Lipids Peculiar to Organs  
and Tissue of Cetaceans and Involved in  
Sound Transmission SSIE \$ 18.9K

Mate, B. (Oregon State U.)  
The Distribution of Cetaceans (gray whale)  
(NR-083-102-31) \$ 37 K

Schusterman, R. (California State U., Hayward) Marine Mammal Acoustics (California sea lion and northern fur seal) (NR-104-131)	\$ 66 K
Vedros, N.A. (Naval Biosciences Lab.) Marine Mammal Diseases and Immunity (NR-204-001)	\$ 85 K
Wartzok, D. and G.C. Ray (Johns Hopkins U.) Marine Mammal Behavior, Acoustics and Ecology (spotted seal and harbor seal) (NR-104-676)	\$ 25 K
Watkins, W.A. and W.E. Schevill (Woods Hole Oceanographic Institution) Marine Biological Sounds (NR-083-004-39)	\$126 K
Winn, H.E. (U. Rhode Island) Bioacoustics and Behavior of Marine Mammals (humpback whale) (NR-083-165-4)	\$ 24 K

FY81

Evans, W.E. (Hubbs-Sea World Research Institute) Research on Small Pacific Ocean Cetaceans (NR-104-157)	(no funds extension)
Mate, B. (Oregon State U.) The Distribution of Cetaceans (NR-083-102-31)	\$ 9 K
Ridgway, S.H. (NOSC) Marine Mammal Bionosis (NR-204-008)	\$ 25 K
Schusterman, R.J. (California State U., Hayward) Marine Mammal Visual and Acoustic Capabilities (NR-104-131)	\$ 70 K
Vedros, N.A. (Naval Biosciences Lab.) Marine Mammal Diseases and Immunity (NR-204-001)	\$ 97 K
Watkins, W.A. and W.E. Schevill (Woods Hole Oceanographic Institution) Marine Biological Sounds (NR-083-004-39)	\$101.6K
Winn, H.E. (U. Rhode Island) Bioacoustics and Behavior of Marine Mammals (humpback whales) (NR-083-165-4)	(no funds extension)

FY82

Evans, W.E. (Hubbs-Sea World Research Institute) Research on Small Pacific Ocean Cetaceans (NR-104-157)	\$ 10 K
---	---------

Mate, B. (Oregon State U.) The Distribution of Cetaceans (NR-083-102-31)	(no funds extension)
Ridgway, S.H. (NOSC) Marine Mammal Bionosis (NR-204-008)	\$ 25 K
Schusterman, R.J. (California State U., Hayward) Marine Mammal Visual and Acoustical Behavioral Capabilities (NR-104-131)	\$ 50 K
Watkins, W.A. and W.E. Schevill (Woods Hole Oceanographic Institution) Marine Biological Sounds (NR-083-004-39)	\$110 K
Spero, D.R. (West Quoddy Marine Research Station) Whale Acoustic Behavior (right whale) (NR-104-178)	\$ 9 K

FY83

Evans, W.E. and W.F. Perrin (Hubbs-Sea World Research Inst.) Conference on Cognition in Marine Mammals (NR-104-157)	\$ 20 K
Haun, J.E. (NOSC) Biochemical and Anatomical Characteristics of Dolphin Muscles (NR-104-181)	\$ 20 K
Schusterman, R.J. (California State U., Hayward) Marine Mammal Visual and Acoustical Behavioral Capabilities (NR 104-131)	\$ 42.9K
Watkins, W.A. and W.E. Schevill (Woods Hole Oceanographic Institution) Behavior and Ambient Sea Noise, Bioacoustic Behavior and Distribution of Cetaceans (NR 083-004-39)	\$112.3K

Department of EnergyFY80

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EV01332)	\$ 30 K
---	---------

FY81

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EV01332)	\$ 20 K
---	---------

FY82

Tester, J.R. and D.B. Siniff (U. Minnesota) -----  
 Vertebrate Behavior and Ecology (sea otter)  
 (DE-AC0Z-76EV01332) \$ 25 K

FY83

(No projects)

Department of Health and Human Services

## National Institutes of Health

FY80

Atassi, M.Z. (Mayo Foundation)  
 Immunochemical Studies on Hemoglobin and  
 Myoglobin (whales) \$ 89.1K

Bryan, W.P. (Indiana U. School of Medicine)  
 The Role of Water in Protein Structure and  
 Function (whales, human) \$ 47.4K

Elsner, R.W. (U. Alaska)  
 Comparative Pathophysiology of Myocardial  
 Ischemia (dog, seals) \$ 85.2K

Gurd, F.R. (Indiana U.)  
 Structure and Reactivity of Proteins and  
 Lipoproteins (human, cetaceans, etc.) \$147.3K

Specific Enrichment of Myoglobins for Carbon 13  
 NMR (cetaceans) \$ 78 K

Hawkridge, F.M. (Virginia Commonwealth U.)  
 Electron Transfer at Surface Electrodes  
 (horse, whales) \$ 38.3K

Howard, E.B. (U. Southern California)  
 Toxicologic, Immunologic Effect of Environmental  
 Contamination (marine mammals) \$ 17.1K

Kooyman, G.L. (U. California, San Diego)  
 Physiological Basis of Pulmonary Disease:  
 Comparative Physiology (vertebrates) \$ 56.6K

Ortiz, C.L. (U. California, Santa Cruz)  
 Northern Elephant Seal in Its Natural Habitat \$ 43.5K

FY81

Atassi, M.Z. (Mayo Foundation) Immunochemical Studies on Hemoglobin and Myoglobin (whales) (5R01AM18920-06)	\$ 93.3K
Bryan, W.P. (Indiana U. School of Medicine) The Role of Water in Protein Structure and Function (whales, human) (5R01GM27036-02)	\$ 44.1K
Elsner, R.W. (U. Alaska) Comparative Pathophysiology of Myocardial Ischemia (dog, seal) (5R01HL23950-03)	\$ 91.2K
Fathman, C.G. (Stanford U.) Antigen Reactive T-Cell Clones: Isolation and Characterization (whales) (IR01AI18705-01)	\$101.4K
Gurd, F.R. (Indiana U.) Structure and Reactivity of Proteins and Lipoproteins (cetaceans) (5R01HL05556-22)	\$151.6K
Specific Enrichment of Myoglobins for Carbon 13 NMR (cetaceans) (5R01HL14680-10)	\$ 84.1K
Hawkridge, F.M. (Virginia Commonwealth U.) Electron Transfer at Surface Electrodes (horse, whales) (5R01GM27208-02)	\$ 36.9K
Howard, E.B. (U. Southern California) Toxicologic, Immunologic Effects of Environmental Contamination (cetaceans) (5P30ES01965-04)	\$ 13.3K
Kooyman, G.L. (U. California, San Diego) Physiological Basis of Pulmonary Disease (seals, sea lions, porpoises) (5P01HL17731-07)	\$ 68.8K
Ogden, J.A. (Yale U.) Normal and Abnormal Postnatal Skeletal Development (whales) (5R01HD10854-05)	\$ 19.7K
Ortiz, C.L. (U. California, Santa Cruz) The Physiology of Fasting in Young Northern Elephant Seals (2S06RR08132-07)	\$ 51.4K

FY82

Atassi, M.Z. (Mayo Foundation) Dissection of Antigen Recognition in the Clonal Level (mice, whales) (1R01AI-18657-01)	\$116.9K
Immunochemical Studies on Hemoglobin and Myoglobin (whales) (5R01AM-18920-07)	\$127.2K

Berzofsky, J.A. (National Cancer Institute) Genetic Control of the Immune Response to Natural Antigens (whales) (1Z01CB-04020-06)	\$ 0 K
Bryan, W.P. (Indiana U. School of Medicine) The Role of Water in Protein Structure and Function (whale, human) (5R01GM-27036-03)	\$ 48.4K
Buchwald, J.S. (U. California, Los Angeles) Auditory Information Processing (human, cat, elephant seal) (5P01HD-05958-12)	\$ 77.7K
Fathman, C.G. (Stanford U. Medical School) Antigen Reactive T-Cell Clones: Isolation and Characterization (whales) (5R01AI-18705-02)	\$102.7K
Gurd, F.R. (Indiana U.) Structure and Reactivity of Proteins and Lipoproteins (human, cetaceans, etc.) (5R01HL-05556-23)	\$154.7K
Specific Enrichment of Myoglobins for Carbon 13 NMR (cetaceans, human, cattle) (2R01HL-14680-11)	\$135.2K
Hawkridge, F.M. (Virginia Commonwealth U.) Electron Transfer at Surface Electrodes (horse, whales) (5R01GM-27208-02)	\$ 36.9K
Howard, E.B. (U. Southern California) Toxicologic, Immunologic Effects of Environmental Contamination (marine mammals) (5P30ES-01965-04)	\$ 4.3K
Kooyman, G.L. (U. California, San Diego) Comparative Respiratory and Exercise Physiology (seals, sea lions, porpoises) (5P01HL-17731-08)	\$ 56.8K
Ortiz, C.L. (U. California, Santa Cruz) The Physiology of Fasting in Young Northern Elephant Seals (5S06RR-08132-08)	\$ 38.4K

FY83

Atassi, M.Z. (Mayo Foundation) Immunochemical Studies on Hemoglobin and Myoglobin (whale) (5R01AM18920-08--Mayo)	\$ 72.9K
Immunochemical Studies on Hemoglobin and Myoglobin (whale) (R01AM33969-01--Baylor College of Medicine)	\$ 74 K
Dissection of Antigen Recognition at the Clonal Level (mice, whales) (5R01AI18657-02--Mayo)	\$135.4K
Berzofsky, J.A. (NIH) Genetic Control of the Immune Response to Natural Antigens (whales) (1Z01CB04020-07)	\$ .0 K

Fathman, C.G. (Stanford U.) Antigen Reactive T-Cell Clones: Isolation and Characterization (whales, mice) (5R01A118705-03)	\$108.9K
Gurd, F.R. (Indiana U.) Structure and Reactivity of Proteins and Lipoproteins (cetaceans) (5R01HLO5556-24)	\$160.9K
Specific Enrichment of Myoglobins for Carbon 13 NMR (cetaceans, human, cattle) (5R01HLL4680-12)	\$132.3K
Kooyman, G.L. (U. California, San Diego) Physiological Basis of Pulmonary Disease: Comparative Respiratory and Exercise Physiology (marine mammals) (5P01HLL17731-09)	\$ 0 K
Ortiz, C.L. (U. California, Santa Cruz) The Physiology of Fasting in Young Northern Elephant Seals (5S06RR08132-09)	\$ 0 K

Department of the Interior

1. Fish and Wildlife Service

FY80

--Alaska Marine Mammals

	\$190.8K (Polar Bears)
DeMaster, D. (National Fish and Wildlife Lab.) Satellite Tracking of Bears (904.02.01)	
Biological Parameters of Bears of Western Beaufort Sea (904.02.02)	
Feasibility of Ecosystem-Oriented Studies of Bears in Beaufort Sea (904.02.03)	
Biology and Ecology of Bears of Arctic Ocean (904.02.04)	
Summer Distribution and Ecology of Bears (904.02.05)	
DeMaster, D. (NFWL) and D. Siniff (U. Minnesota) Produce Model to Simulate Population Dynamics of the Northern Alaska Polar Bear Population (904.02.06)	
Staff (NFWL) Annual Status Report (904.02.07)	

Siniff, D.B. (U. Minnesota)  
 Development and Field and Lab Testing of Radio  
 Telemetry Packages and Systems for Polar-Bears  
 [as well as sea otters, walruses, and manatees] (\$67K)

\$231.8K  
 (Walruses)

DeMaster, D. (NFWL)  
 Biological Activity of Pacific and  
 Atlantic Walruses (904.03.06)

Brownell, R. (NFWL)  
 Parasites and Environmental Contaminants in  
 Walruses (904.03.07)

Staff (NFWL)  
 Annual Status Report on Pacific and Atlantic  
 Walruses (904.03.08)

Doyle, W. (U. California, Santa Cruz)  
 Round Island Walrus Survey (\$17.7K)

Alaska Regional Office, FWS  
 Aerial Walrus Survey

--Hawaiian Monk Seal

Johnson, A.M. (NFWL)  
 Biological Studies to Determine Status  
 of Population (904.03.05) \$ 50.9K

--Marine Mammal Tagging \$ 25.5K

Hobbs, L. (NFWL)  
 Serve as Clearinghouse and Information Center  
 for Marine Mammal Tagging Operations (904.04.01)

Stimulate Research and Development of Marine  
 Mammal Tags and Techniques (904.04.02)

Archive Data from Tagging/Marking Studies (904.04.03)

--Sea Otters and Marine Otter \$594.2K

Jameson, R.J. (NFWL)  
 Biology and Management Needs for Sea Otters in  
 California (904.03.01)

Estes, J.A. and G.R. Van Blaricom (NFWL)  
 Interaction Between Sea Otters and the Nearshore  
 Community (904.03.02)



Johnson, A.M. (NFWL)  
 Annual and Seasonal Distribution, Abundance, and  
 Composition of Populations of Sea Otters and  
 Other Marine Mammals in Prince William Sound,  
 Alaska (904.03.04)

Brownell, R.L. (NFWL)  
 Parasites and Environmental Contaminants in  
 Sea Otters (904.03.07)

Staff (NFWL)  
 Annual Status Report (904.02.08)

Doyle, W. (U. California, Santa Cruz)  
 Kelp Canopy Interactions in Monterey Bay (\$31K)

Economics of Pismo Clam Fishery (\$4.5K)

San Nicolas Island (California) Survey for  
 Baseline Data and as Potential Sea Otter  
 Translocation Site (\$133.2K)

Hardy, R.A. (California Dept. Fish and Game)  
 Sea Otter Mortality Rates and Causes (E-M-2)

Interrelationship Between Sea Otters and  
 Their Habitat (E-M-2)

Size, Distribution, and Movements of  
 California's Sea Otter Population

Feasibility of Translocating Sea Otters

--Sirenia

\$319.3K  
 (Manatee)

Rathbun, G.B. (NFWL)  
 Distribution and Status of All Manatee Taxa  
 and Populations (904.01.01)

Basic Reproductive and Behavioral Characteristics  
 of West Indian Manatees (904.01.02)

Define Ecosystem Relationships of the Manatee  
 and Assess Effects of Habitat Alterations (904.01.03)

Determine Causes of Manatee Mortality; Study and  
 Salvage Stranded Manatees and Other Marine Mammals  
 (904.01.04)

Influence of Warm Water Effluents on Manatee Distribution  
 and Movements Around Selected Powerplants (904.01.05)

Basic Sensory and Physiological Parameters of West  
Indian Manatees as Related to Technical Needs (904.01.06)

Develop Manatee Tagging and Tracking Technology-(904.01.07)

Brownell, R.L. (NFWL)

Parasites and Environmental Contaminants in Manatees  
(904.01.08)

Staff (NFWL)

Annual Status Reports (904.01.09)

Forrester, D. (U. Florida)

Study of Parasites and Diseases of the West Indian  
Manatee (\$5K)

Doyle, W. (U. California, Santa Cruz)

Evaluation of Existing Manatee-Propeller Guard  
Technology (\$1.8)

Siniff, D.B. (U. Minnesota)

Ecology and Behavior of the West Indian Manatee  
in the St. Johns River, Florida (\$40K)

Brownell, R.L. (NFWL)

Distribution and Status of All Dugong  
Populations (904.01.01)

\$ 6.4K  
(Dugong)

Parasites and Environmental Contaminants  
in Dugongs (904.01.09)

Staff (NFWL)

Annual Status Report (904.01.09)

FY81

--Alaska Marine Mammals

Amstrup, S. (FWS, Denver Wildlife  
Research Center)

Identify Areas Critical for High Denning  
Success and General Movement Patterns of Adult  
Females (904.21)

\$254 K  
(Polar Bears)

Develop Alternative Techniques to Capture  
Free-Ranging Polar Bears (904.22)

Produce Model That Will Simulate Population  
Dynamics of the Northern Alaska Polar Bear  
Population (904.23)

Determine Biological Parameters of Polar Bears  
of the Western and Northern Populations (904.24)

Siniff, D.B. (U. Minnesota)  
Monitoring Polar Bear Movements (\$13K)

Johnson, A. (FWS/DWRC)  
Evaluate Selected Areas for Potential Use  
for Population Assessment; Assess the Size of  
Populations and Investigate Hauling Out  
Patterns (904.25)

\$ 99 K  
(Walrus)

Doyle, W. (U. California, Santa Cruz)  
Round Island Walrus Survey (\$14.7K)

--Hawaiian Monk Seal

Johnson, A. (FWS/DWRC)  
Biological Studies to Determine Status  
of Hawaiian Monk Seal (904.27)

\$ 31 K

--Sea Otters and Marine Otter

Brownell, R. (FWS/DWRC)  
Status of Marine Otter (904.33)

\$385.2K

Parasites and Environmental Contaminants  
in Marine Mammals (904.34)

Dobbin, J.L. (Dobbin Associates, Toronto)  
Compilation and Mapping of Available Biological,  
Ecological, and Socio-economic Information  
Relative to the Protection, Management, and  
Restoration of the Southern Sea Otter  
(\$80K, ESA; \$10K, MMC)

Doyle, W. (U. California, Santa Cruz)  
Kelp-Canopy Interactions in Monterey Bay (\$32K)

San Nicolas Island Survey for Baseline Data (\$121.2K)

Estes, J. (FWS/DWRC)  
Occurrence and Habitat Survey of Sea Otters in  
Baja California (904.35)

Estes, J. and G. Van Blaricom (FWS/DWRC)  
Interactions Between Sea Otters and the Nearshore  
Community (904.32)

Jameson, R. (FWS/DWRC)  
Biology and Management Needs for California Sea  
Otter (904.31)

Johnson, A. (FWS/DWRC)

Annual and Seasonal Distribution, Abundance, and  
Composition of Populations of Sea Otters and Other  
Marine Mammals at Prince William Sound, Alaska  
(904.26) (\$49K)

Staff (FWS/DWRC)

Annual Status Report (904.36)

--Sirenia

\$352 K  
(plus \$18K from MMC)  
(Manatee)

Florida Marine Patrol (Florida Department  
of Natural Resources)  
Aerial Survey Investigations (\$8K)

Forrester, D. (U. Florida)  
Study of Parasites and Diseases of the West  
Indian Manatee (\$5K)

Odell, D.K. (U. Miami)  
Study of Marine Ecosystems and Habitats,  
with Special Reference to Manatees (\$22K)

Packard, J.M. (U. Minnesota)  
Abundance, Distribution, and Feeding Areas of  
Manatees in the Riviera Beach/Hobe Sound Area  
of Florida (\$18K, MMC)

Rathbun, G.B. (FWS/DWRC)  
Distribution and Status of All Taxa and  
Populations of Sirenians (904.11)

Basic Reproductive and Behavioral Characteristics  
of West Indian Manatees (904.12)

Define Ecosystem Relationships of the  
Manatee (904.13)

Causes of Mortality and Salvage Stranded Manatees  
and Other Marine Mammals (904.14)

Develop Manatee Tagging and Tracking Technology  
(904.15)

Determine Parasites and Environmental Contaminants  
in Manatee and Dugong (904.16)

Mortality Assessment (\$15K, ESA)

Staff (FWS/DWRC)

Prepare Annual Status Reports on Manatee  
and Dugong (904.17)

Tabb, D. (Tropical Bio-Industries)

Crystal River Manatee Management and Research  
Plan (\$25K)

Woods, C.A. (U. Florida)

Observe and Quantify Feeding Habits of West  
Indian Manatee (14-16-0009-81-923) (\$9K)

Brownell, R.L. (FWS/DWRC)

Distribution and Status of All Dugong Populations

\$ 6 K  
(Dugong)

FY82

--Alaska Marine Mammals

\$328 K

Johnson, A. (FWS/DWRC)

Areas Crucial for High Denning Success by  
Polar Bears and General Movement Patterns of  
Adult Females (904.21)

Model Simulating Population Dynamics of  
Northern Alaska Polar Bear Population (904.23)

Biological Parameters of Polar Bears of Western  
and Northern Populations (904.24)

Evaluation of Selected Areas for Potential Use  
for Population Assessment of Walruses, Assessment  
of Size of Populations, Investigation of Hauling  
Out Patterns, and Population Model Refinement (904.25)

Annual and Seasonal Distribution, Abundance, and  
Composition of Populations of Sea Otters and Other  
Marine Mammals at Prince William Sound, Alaska (904.26)

Status of Hawaiian Monk Seal (904.27)

Annual Status Report on Polar Bear, Pacific Walrus,  
and Atlantic Walrus (904.28)

--Hawaiian Monk Seal (see 904.27 under Alaska Marine Mammals)

--Sea Otters and Marine Otter

\$275 K

Estes, J. and R. Jameson (FWS/DWRC)

Biology and Management Needs for the  
California Sea Otter (904.31)

Interactions Between Sea Otters and the  
Nearshore Community (904.32)

Status of the Marine Otter (904.33)

Occurrence of Sea Otters and the Nature of  
Sea Otter Habitat in Baja California (904.35)

Annual Status Report on the Sea Otter and  
Marine Otter (904.36)

Baseline Data for the San Nicolas Island  
Ecosystem (904.37)

Support Services  
(904.4) \$ 70 K

Doyle, W. (U. California, Santa Cruz)  
San Nicolas Island Survey for Baseline Data  
and as a Potential Sea Otter Translocation  
Site (14-16-009-78-937) \$160 K

Siniff, D.B. (U. Minnesota)  
Experimental Radiotransmitter Implant Studies  
on the Sea Otter (14-16-0008-1217) \$ 20 K

Dobbin, J.L. (Dobbin Associates, Toronto)  
Compilation and Mapping of Available Biological,  
Ecological, and Socio-economic Information  
Relative to the Protection, Management, and  
Restoration of the Southern Sea Otter  
(14-16-0009-81-050) \$ 15 K

--Sirenia \$265 K

Rathbun, G. (FWS/DWRC)  
Distribution and Status of All Taxa and  
Populations of Sirenians (904.11)

Basic Reproductive and Behavioral Characteristics  
of West Indian Manatees (904.12)

Ecosystem Relationships of the Manatees (904.13)

Causes of Mortality and Salvage Stranded Manatees  
and Other Marine Mammals (904.14)

Manatee Tagging and Tracking Technology (904.15)

Parasites and Environmental Contaminants in  
Manatees and the Dugong (904.16)

Annual Status Reports on the Manatees and  
Dugong (904.17)

Packard, J. (U. Florida) Population Index and Mark/Recapture Methodology for the West Indian Manatee in Florida (14-16-0009-1544, No. 1)	\$ 50 K
Mace, A.C. (U. Florida) Research/Management Plan for the Crystal River West Indian Manatee Population, Levy and Citrus Counties, Florida (14-16-0009-1544, No. 2)	\$ 30 K
Woods, C.A. (U. Florida) Techniques to Analyze the Diet of the West Indian Manatee (14-16-0009-81-1009)	\$ 8 K

FY83

—Alaska Marine Mammals (904.2 and 954.2) \$323.7K  
(Polar Bear, Walrus, Sea Otter)

Johnson, A. and S. Amstrup (FWS/DWRC)  
Distribution, Timing, and Importance of  
Polar Bear Denning in Alaska (904.21)

Size and Trend of Alaskan Polar Bear  
Populations (904.22)

Movement and Distribution Patterns of  
Alaskan Polar Bears (904.23)

Biological Parameters of Polar Bears of the  
Western and Northern Populations (904.24)

Evaluation of Selected Areas for Potential Use  
for Population Assessment, Investigation of  
Hauling Out Patterns, and Determination of Age/Sex  
Composition and General Behavior of Walruses on  
Hauling Grounds (904.25)

Annual and Seasonal Distribution, Abundance, and  
Composition of Populations of Sea Otters and  
Other Marine Mammals at Prince William Sound,  
Alaska (904.26)

Biological Basis for Determining OSP, Estimating  
Sustainable Yield, Delineating Management Stocks, and  
for Identifying Factors Important to Effective Zonal  
Management of Sea Otters in Southeastern Alaska  
(904.27)

--California Sea Otters, Marine Otter, and Hawaiian Monk Seal (904.3)	\$153 K
Estes, J., R. Jameson, and G. Van Blaricom (FWS/DWRC) Biology and Management Needs for the California Sea Otter (904.31)	
Interactions Between Sea Otters and the Nearshore Community (904.32)	
Status of the Marine Otter (904.33)	
Status of the Hawaiian Monk Seal (904.34)	
Occurrence of Sea Otters and the Nature of Sea Otter Habitat in Baja California (904.35)	
Baseline Data for the San Nicolás Island Ecosystem (904.36)	
Dobbins, J.L. (Dobbins Associates, Ltd.) Compilation and Mapping of Available Biological, Ecological, and Socio-economic Information Relative to the Protection, Management, and Restoration of the Southern Sea Otter (14-16-0009-81-050)	\$ 15 K
Doyle, W. (U. California, Santa Cruz) San Nicolas Island Ecological Study (sea otter) (14-16-0009-78-937) [\$71K (ESA) plus \$89K (MMPA)]	\$160 K
Farley, T. (California Dept. Fish and Game) Sea Otter Studies: Improvement of Capture Techniques, Behavioral Response to Artificial Stimuli, Mortality Studies, and Population Studies	\$ 37.5K
Feasibility of Regulating Movement of Sea Otters; Methods to Contain the Distribution of Sea Otter	\$ 60.4K
Index of Mortality Rates and Causes of Mortality in Sea Otter	\$ 43 K
Siniff, D.B. (U. Minnesota) Experimental Radiotransmitter Studies on the Sea Otter (14-16-0008-1217)	\$ 10 K
--Marine Mammal Support Services (904.4)	\$ 67 K
Brownell, R. (FWS/DWRC) Marine Mammal Support Services	



--Sirenia (904.1)		\$281.6K
Rathbun, G. and T. O'Shea (FWS/DWRC)		
Distribution and Status of All Taxa and Populations of Sirenians (904.11)		
Basic Reproductive and Behavioral Characteristics of West Indian Manatees (904.12)		
Ecosystem Relationships of the Manatee (904.13)		
Causes of Mortality and Salvage of Stranded Manatees and Other Marine Mammals (904.14)		
Manatee Tagging and Tracking Technology (904.15)		
Parasites and Environmental Contaminants in Manatees and Dugong (904.16)		
Basic Sensory and Physiological Parameters of Manatees as Related to Technical Needs (904.17)		
Odell, D. (U. Miami)		
West Indian Manatee Carcass Salvage in South Florida (14-16-009-79-935)		\$ 60 K
Packard, J. (U. Florida)		
Population Index and Mark/Recapture Methodology for the West Indian Manatee in Florida (14-16-0009-1544, No. 1)		\$ 50 K

## 2. Geological Survey

### FY80

Whitmore, F.C. (USGS)		
Vertebrate Biostratigraphy and Paleogeography, Atlantic and Gulf Coastal Plain		\$ 45.5K

### FY81

Whitmore, F.C. (USGS)		
Vertebrate Biostratigraphy and Paleogeography, Atlantic and Gulf Coastal Plain		\$ 79.6K

### FY82

Whitmore, F.C. (USGS)		
Vertebrate Biostratigraphy (cetaceans, etc.) (9590-02738)		\$ 62.8K

FY83

Whitmore, F.C. (USGS)  
Vertebrate Biostratigraphy (cetaceans, etc.)  
(9590-02738) \$ 76 K

## 3. Minerals Management Service

FY80

Albert, T. (U. Maryland)  
Tissue Analysis of Endangered Whales in the  
Beaufort Sea (AA851-CTO-22) \$350 K

Braithwaite, L. (Brigham Young U.)  
The Effect of Oil on the Feeding Mechanism  
of the Bowhead Whale (AA851-CTO-55) \$ 44.1K

Dohl, T.P. (U. California, Santa Cruz)  
Marine Mammal and Seabird Study of Central  
and Northern California \$2,442.8K

Fraker, M. and J. Richardson (LGL Ecological  
Research Associates)  
Possible Effects of Acoustic and Other Stimuli  
Associated with Oil and Gas Exploration/Development  
on the Behavior of the Bowhead Whale (AA851-CTO-44) \$629 K

Fritts, T.H. (U.S. Fish and Wildlife Service)  
Gulf of Mexico and South Atlantic Endangered  
Species Study, Year 1 (AA851-MUO-21) \$494.9K

Geraci, J.R. and D.J. St. Aubin (U. Guelph)  
Study of the Effects of Oil on Marine  
Mammals (AA851-CT9-29) \$ 0 K

Hobbs, L. (NMFS, Marine Mammal Tagging Office)  
Development of Large Cetacean Tagging and  
Tracking Capability in OCS Lease Areas (AA851-IAO-32) \$244.5K

Lindner, E., B. Gayles, S. Johnson, P. Thompson  
(Naval Ocean Systems Center)  
Study of the Effects of Sound on Marine  
Mammals (AA851-IAO-5) \$512.7K

Ljungblad, D. (NOSC)  
Aerial Surveys of Bowhead Whales, North Slope  
of Alaska (AA851-IAO-1) \$591 K

Mate, B. (Oregon State U.)  
Monitoring the Movements of Whales in and  
Adjacent to OCS Lease Areas (AA551-CT9-34) \$ 25.7K

Watkins, W. (Woods Hole Oceanographic Institution) Effects of Whale Monitoring System Attachment Devices on Whale Tissues (AA851-CT0-23)	\$ 74.5K
Winn, H., R. Edel and M. Hyman (U. Rhode Island) Characterization of Marine Mammals and Turtles in the North and Mid-Atlantic Areas of the U.S. Outer Continental Shelf (AA551-CT8-48)	\$ 0 K

FY81

Fritts, T.H. (USFWS) Gulf of Mexico and South Atlantic Endangered Species Study (AA851-MUO-21)	\$500 K
Geraci, J. (U. Guelph) Effects of Oil on Marine Mammals (AA551-CT9-29)	\$111.8K
Hobbs, L. (NMFS, Marine Mammal Tagging Office) Development of Large Cetacean Tagging and Tracking Capability in OCS Lease Areas (AA851-IAO-32)	\$ 41.9K
Lindner, E. (NOSC) Effects of Sound on Marine Mammals (AA851-IAO-5)	\$178.6K
Ljungblad, D. (NOSC) Aerial Surveys of Endangered Whales--Northern Bering, Chukchi and Beaufort Seas (AA851-IA2-3)	\$345.3K
Mate, B. (Oregon State U.) Development of Large Cetacean Tagging and Tracking Capability in OCS Lease Areas (AA851-CT9-34)	\$118.4K
Richardson, J., M. Fraker, B. Wursig, R. Payne, et al. (LGL Ecological Research Associates, Inc.) Possible Effects of Acoustic and Other Stimuli Associated with Oil and Gas Exploration/Development on the Behavior of the Bowhead Whale (AA851-CT0-44)	\$741.4K
Winn, H. (U. Rhode Island) Characterization of Marine Mammals and Marine Turtles in the North and Mid-Atlantic (AA551-CT8-48)	\$942 K

FY82

Albert, T. (U. Maryland) Tissue Analysis of Endangered Whales in the Beaufort Sea (AA851-CT0-22)	\$ 0 K
Braithwaite, L (U. Brigham Young U.) The Effects of Oil on the Feeding Mechanism of the Bowhead Whale (AA851-CT0-55)	\$ 0 K

Dohl, T.P. (U. California, Santa Cruz) Marine Mammal and Seabird Study of Central and Northern California	\$ 0 K
Ford, G. (Woodward Clyde Consultants, San Diego) Southern California Marine Mammal Risk Analysis	\$184.4K
Fritts, T.H. (USFWS) Gulf of Mexico Study of Distribution and Abundance of Endangered and Vulnerable Mammals, Birds, and Turtles (14-12-001-29118)	\$100 K
Geraci, J. and D. St. Aubin (U. Guelph) Effects of Oil on Marine Mammals (AA551-CT9-29)	\$500 K
Ljungblad, D. (NOSC) Aerial Surveys of Endangered Whales--Northern Bering, Chukchi, and Beaufort Seas (AA851-IA2-3)	\$395.5K
Malme, C.I. (Bolt, Beranek & Newman, Inc.) Investigations of the Potential Effects of Acoustic Stimuli Associated with Oil and Gas Exploration/Development on the Behavior of Migratory Gray Whales (also sea otter)	\$245.5K
Mate, B.R. (Oregon State U.) Development of Satellite-Linked Methods of Large Cetacean Tagging and Tracking Capabilities in OCS Lease Areas (AA551-CT9-34)	\$ 94.6K
Richardson, J. (LGL Ecological Research Associates) Possible Effects of Acoustic and Other Stimuli Associated with Oil and Gas Exploration/Development on the Behavior of the Bowhead Whale (AA851-CT0-44)	\$513 K

FY83

Albert, T. (U. Maryland) Tissue Analysis of Endangered Whales in the Beaufort Sea (14-12-0001-29046)	\$ 0 K
Braithwaite, L. (Brigham Young U.) The Effect of Oil on the Feeding Mechanism of the Bowhead Whale (14-12-0001-29052)	\$ 0 K
Geraci, J. and D. St. Aubin (U. Guelph) Effects of Oil on Marine Mammals (14-12-0001-29169)	\$1,038.1K
Ljungblad, D.K. (NOSC) Aerial Surveys of Endangered Whales--Northern Bering, Chukchi, and Beaufort Seas (14-12-0001-29056)	\$634.8K

Malme, C.I. and W.C. Clark (Bolt, Beranek & Newman, Inc.) Investigations of the Potential Effects of Acoustic Stimuli Associated with Oil and Gas Exploration/Development on the Behavior of Migratory Gray Whales (also sea otter) (14-12-0001-29033)	\$618.8K
Mate, B.R. (Oregon State U.) Development of Satellite-Linked Methods of Large Cetacean Tagging and Tracking Capabilities in OCS Lease Areas (14-12-0001-29042)	\$102 K
Reed, M. (Applied Science Assoc.) Computer Simulation of the Probability of Endangered Whale Interaction with Oilspills in the Beaufort, Chukchi, and Bering Seas (14-12-0001-30076)	\$ 51.8K
Richardson, J. (LGL Ecological Research Associates) Possible Effects of Acoustic and Other Stimuli Associated with Oil and Gas Exploration/Development on the Behavior of the Bowhead Whale (14-12-0001-29051)	\$591.1K
Siniff, D.B. (U. Minnesota) Population Status of California Sea Otters (14-12-0001-30033)	\$770.8K

## 4. MMS/NOAA/OCSEAP

FY80

Calkins, D. and K. Pitcher (Alaska Dept. Fish and Game) Population Assessment, Ecology, and Trophic Relationships of Steller Sea Lions in the Gulf of Alaska (RU243)	\$ 95 K
Fay, F.H. (U. Alaska) Morbidity and Mortality of Key Marine Mammal Species (RU194)	\$ 82 K
Jones, L. and H. Braham (NMFS/National Marine Mammal Lab.) Collection and Analysis of NMFS Marine Mammal Platforms of Opportunity Data (RU68)	\$ 47 K
Lowry, L., J. Burns and K. Frost (Alaska Dept. Fish and Game) Trophic Relationships, Habitat Use, Winter Ecology Among Ice-Inhabiting Phocid Seals and Functionally Related Marine Mammals in the Arctic (RU232)	\$ 90 K

Nerini, M. and H. Braham (NMFS/NMML) Feeding Ecology of the Gray Whale in the Norton Basin (RU592)	\$150 K
Rice, D. and W. Wolman (NMFS/NMML) Habitat Use by Humpback, Gray, and Fin Whales in the Gulf of Alaska (RU592)	\$300 K

FY81

Burns, J.J. (Alaska Dept. Fish and Game) Biological Investigations of Belukha Whales in the Coastal Waters of Alaska (RU612)	\$ 49.8K
Investigations of Ice-Dependent Marine Mammals in the Coastal Zone During Summer and Autumn (RU613)	\$163.3K
Fay, F.H. (U. Alaska) Modern Populations, Migrations, Demography, Trophics, and Historical Status of the Pacific Walrus in Alaska (RU611)	\$130.3K
Hessing, P. (College, Alaska) Gray Whale Migration Into the Bering Sea	\$ 9.5K
Jones, L., H. Braham and L. Consiglieri (NMFS/NMML) Collection and Analysis of NMFS Marine Mammal Platforms of Opportunity Program Data (RU68)	\$ 8 K
Lowry, L.F., J.J. Burns and K.J. Frost (Alaska Dept. Fish and Game) Trophic Relationships, Habitat Use, and Winter Ecology Among Ice-Inhabiting Phocid Seals and Functionally Related Marine Mammals in the Arctic (RU232)	\$118.3K
Nerini, M. and H. Braham (NMFS/NMML) Feeding Ecology of the Gray Whale in the Chirikof Basin (RU593)	\$ 48.6K

FY82

Bruggeman, J.J. (Envirosphere, Bellevue, Washington) Endangered Whale Surveys in Naverin Basin, Alaska (RU625)	\$304 K
Burns, J. (Alaska Dept. Fish and Game) Winter Ecology of Ringed Seals (RU232)	\$157 K

Burns, J., L. Lowry and K. Frost (Alaska Dept. Fish and Game) Biological Investigations of Beluga Whales of Alaska (RU612)	\$134 K
Cimberg, R. (VTN, Inc., Beaverton, Oregon) Ecological Characterization of Shallow Subtidal Habitats in the Northern Aleutian Shelf, Alaska (sea otter) (RU623)	\$124 K
Evans, W. (Hubbs-Sea World Research Institute) The Effects of Manmade Waterborne Noise on the Behavior of Beluga Whales in Bristol Bay, Alaska (RU634)	\$ 70 K
Fay, F.H. (U. Alaska) Modern Population, Migrations, Demography, Trophics, and Historical Status of Pacific Walrus in Alaska (RU611)	\$150.1K
Leatherwood, S. (Hubbs-Sea World Research Institute) Aerial Surveys for Endangered Whales in the Southern Bering Sea and Gulf of Alaska (Shelikof Strait) (RU622)	\$361.3K
Nelson, H. (USGS, Menlo Park, California) Side-Scan Sonar Records of Gray Whale Feeding Events in the Northern Bering Sea, Alaska (RU629)	\$ 70 K
Thomson, D. (LGL Ltd., Toronto) Feeding Ecology of Gray Whales in the Chirikof Basin, Alaska (RU626)	\$427.1K
<u>FY83</u>	
Bruggeman, J.J. (Envirosphere) Aerial and Shipboard Surveys for Endangered Whales in the Naverin Basin, Bering Sea, Alaska (RU625)	\$ 1.2K
Burns, J. (Alaska Dept. Fish and Game) Effects of Seismic Exploration on Ringed Seal Distribution, Abundance, and Reproductive Success (RU232)	\$138.9K
Belukha Whale Studies (RU612)	\$ 56.9K
Evans, W. (Hubbs-Sea World Research Institute) Belukha Whale Disturbance Studies (RU629)	\$ 73.4K
Fay, F.H. (U. Alaska) Modern Populations, Migrations, Demography, Trophics, and Historical Status of the Pacific Walrus in Alaska (RU611)	\$ 25 K

Holliday, V. (Tracor, Inc.) Direct Effects of Acoustic Disturbance Sources on Ringed Seal Reproductive Behavior, Vocalization, and Communication (RU636/PU3025)	\$ 97.1K
Leatherwood, S. (Hubbs-Sea World Research Institute) Aerial Surveys of Endangered Whales in the Southern Bering Sea and Northern Gulf of Alaska (RU622)	\$ 74.5K
Thomson, D. (LGL, Ltd.) Feeding Ecology and Habitat Dependency of the Gray Whales in the Chirikof Basin (RU626)	\$ 0

## 5. National Park Service

FY80

Dean, F. (U. Alaska), C. & V. Jurasz (Sea Search) Glacier Bay Humpback Whale Data Analysis (CK9000-0-E099)	\$ 65 K
Everglades National Park, NPS Manatee Survey	\$ 3 K

FY81

English, T.S. (U. Washington) Humpback Whale Prey Study (9410-0002-182/81-ABC-00116)	\$ 90.5K
Herman, L.M. (U. Hawaii) Behavioral Study of Humpback Whales (9140-0002-182/81-ABC-00114)	\$113.5K
Jurasz, C. & V. (Sea Search, Ltd.) Humpback Whale Data Purchase (CX-9000-9-E073-C05)	\$ 35.9K
Malme, C.I. (Bolt, Beranek and Newman, Inc.) Acoustic Environment Study (9140-0002-182/81-ABC-00115)	\$137 K

FY82

Baker, C.S. and L.M. Herman (U. Hawaii, Manoa) The Impact of Vessel Traffic on the Behavior of Humpback Whales in Southeast Alaska	\$ 87 K
Malme, C.I. and P.R. Miles (Bolt, Beranek and Newman, Inc., Cambridge, Massachusetts) Glacier Bay Acoustic Environment (Phase III) (humpback whale)	\$ 46 K



Wing, B. and K. Krieger (NMFS/NMML) Study of Humpback Whale Prey Abundance and Distribution	\$ 90 K
---	---------

FY83

Fellers, G.M. (Point Reyes National Seashore) Management and Data Collection Assistance to NOAA (harbor seal and sea lions)	\$ 7 K
---	--------

Herman, L.M. (U. Hawaii, Manoa) Humpback Whale Behavior Study and Monitoring --Glacier Bay (MT-9700-3-0210)	\$ 70 K
---	---------

Wing, B.L. and K.J. Krieger (NMFS) Glacier Bay Humpback Whale Prey Studies (IA-9700-3-8027)	\$223.4K
---	----------

Department of State

Bureau of Oceans and International Environmental  
and Scientific Affairs

FY80

Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$592.9K
--	----------

FY81

Gambell, R. (International Whaling Commission) Research Fund for International Whaling Commission	\$ 32.3K
--	----------

Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$687.1K
--	----------

FY82

Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$ 35.4K
--	----------

Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$609.2K
--	----------

FY83

Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$ 35.3K
--	----------

Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$505.3K
--	----------

Department of Transportation

Coast Guard, Office of Research and Development

FY80

Naval Ocean Systems Center  
 Final Report on the Coast Guard Program  
 in Biological Phenomena \$ 95 K

FY81 - FY83

(No projects)

Environmental Protection AgencyFY80 - FY83

(No projects)

Marine Mammal CommissionFY80

Ainley, C. and H. Huber (Point Reyes Bird Observatory)  
 Analysis of Tagged Elephant Seal Data Collected  
 on the Farallon Islands, California (MM1801125-6) \$ 5.3K

Cedar Creek Laboratory (U. Minnesota)  
 Provide Radio Transmitters for Hawaiian Monk  
 Seal Dive Profile (MM1800944-6) \$ 2.8K

Clark, W. (U. Washington)  
 Continuation of Population Analysis and Research  
 on Stocks of Great Whales (MM1801114-6) \$ 42 K

Fish and Wildlife Service  
 Manatee Recovery Activities Coordinator  
 (MM1800908-6) \$ 50 K

Pilot Program--Development of Site-Specific  
 Research/Management Plans for Areas of Special  
 Significance to the West Indian Manatee  
 (MM1801024-4) \$ 25 K

Initiation of a Study to Assess and Characterize  
 Food Preference and Feeding Areas of Manatees in  
 the Crystal River of Florida (MM1801025-7) \$ 18 K

Johnson, B. and P. Johnson Evaluation of Hawaiian Monk Seal Survey and Molt Data Collected on Laysan Island in 1977-1979 (MM1533701-4)	\$ 6.9K
Kasuya, T. (Ocean Research Institute) The Fishery-Dolphin Conflict in the Iki Island Area of Japan (MM1533791-7)	\$ 2 K
Mayo, C. (Provincetown Center for Coastal Studies) Field Observations of Cetacea of Provincetown, Massachusetts Area: 1975-1979 (MM1800925-5)	\$ 9.7K
National Academy of Science Evaluation of Marine Ecosystem Research in the Antarctic (MM1800913-2)	\$ 10 K
National Marine Fisheries Service Continuation and Expansion of Monk Seal Population Studies (MM1800911-6)	\$ 50 K
Workshop to Develop a Monk Seal Die-Off Response Plan (MM1800967-9)	\$ 4 K
Assessment and Monitoring of Endangered Whales, Harbor Porpoise, and Other Cetaceans Along the Northeast Coast of the United States (MM1801023-1)	\$ 65 K
Workshop on Humpback Whales of the Western North Atlantic (MM18001038-3)	\$ 15 K
Analyses of Data Concerning the Biology, Ecology, Behavior and Population Dynamics of Monk Seals in Laysan Island (MM1801102-3)	\$ 21 K
Nolan, R. (Ocean Research Consulting and Analysis, Ltd.) Review of Available Information Concerning the Possible Effects of a Shark Control Program on Shark Populations and Other Components of Marine Communities of the Vicinity of Kure Atoll or Elsewhere in the Northwest Hawaiian Islands (MM1801065-5)	\$ 4.2K
Seaco (Kailua, Hawaii) Identification and Evaluation of On-Going and Planned Fisheries in the Northwest Hawaiian Islands (MM1801069-7)	\$ 6.9K
State of Florida Department of Natural Resources Workshops for the Education of Florida Law Enforcement Officers Relating to Manatees (MM1800941-7)	\$ 6.8K
Manatee Advisory Group (MM1800942-0)	\$ 4.2K

Manatee Education and Information Program (MM1801124-3)	\$ 5 K
Swartzman, G. (U. Washington) Exploring Interactions Between Fur Seal Populations and Fisheries in the Bering Sea (MM1800969-5)	\$ 4.9K
<u>FY81</u>	
Fish and Wildlife Service Compilation and Mapping of Available Biological, Ecological and Socioeconomic Information Bearing on Protection, Management and Restoration of the Southern Sea Otter (MM2079330-0)	\$ 10 K
Green-Hammond, K. (Ecosystem Modeling, Inc.) Requirements for Effective Implementation of the Antarctic Living Resources Convention (MM2079173-9)	\$ 9.5K
Preparation for the Fourth Meeting of the Ad Hoc Group of U.S. Antarctic Scientists (MM2079349-4)	\$ 4.3K
Hubbs-Sea World Research Institute Logistic Support Meeting on Alternative Methods of Fishing for Yellowfin Tuna (MM2079237-2)	\$ 5.6K
National Marine Fisheries Service Marine Mammal/Fisheries Interactions in the Columbia River and Adjacent Waters (MM2079221-7)	\$ 25 K
Antarctic Minke Whale Assessment Cruise (MM2079354-6)	\$ 11.5K
Individual Recognition and Assessment of Right Whales in the Northwest Atlantic (MM2079355-9)	\$ 2.5K
Partial Support for International Symposium on Cetacean Reproduction (MM2079356-2)	\$ 2 K
National Oceanic and Atmospheric Administration Third Meeting of Ad Hoc Group of U.S. Antarctic Scientists (MM2079305-4)	\$ 5.5K
Packard, J.M. (U. Minnesota) Research Needs Relative to Zonal Management of Sea Otters (MM2079342-3)	\$ 6 K
Swartz, S.L. (Cetacean Research Associates) Report on Preliminary Results of Ongoing Studies of Gray Whales ( <u>Eschrichtius robustus</u> ) in Laguna San Ignacio, Baja California Sur, Mexico (MM2079219-4)	\$ 3.8K

Waring, G.H. (Southern Illinois U., Carbondale) Survey of Federally-Funded Marine Mammal Research (MM1801196-8; MM2079343-6)	\$ 7 K
Washington Department of Fish and Game Workshop on Marine Mammal-Fisheries Interactions (MM2079345-2)	\$ 7.5K
Assessment of Harbor Seal Populations and Feeding Habits in the Columbia River and Adjacent Waters (MM2079357-5)	\$ 23.5K
Whitehead, H. and K. Chu (Cambridge U.) Distribution Patterns and Movement of Humpback Whales in North Atlantic (MM2079259-2)	\$ 9 K
Williams, T.D. (Monterey, California) Cleaning and Reconditioning the Pelage of Oil-Contaminated Sea Otters (MM2079247-9)	\$ 2 K
<u>FY82</u>	
California Department of Fish and Game Assessment, Monitoring and Mitigation of the Incidental Take of Marine Mammals by Gill Net Fisheries in the Coastal Waters of California (MM2324806-9)	\$ 10 K
Department of State Support of a Conference on the Application of Genetics to the Management of Wild Plant and Animal Populations (MM2324718-3)	\$ 1 K
Fish and Wildlife Service Supplement to an Ongoing Project to Compile and Map Available Biological, Ecological and Socioeconomic Information Bearing on the Protection, Management and Restoration of the Southern Sea Otter (MM2324808-5)	\$ 5.6K
Green-Hammond, K.A. (Ecosystem Modeling, Houston) Evaluation of Some Potential Pinniped and Seabird Species as Indicators of Changes in the Abundance of Antarctic Krill (MM2324753-6)	\$ 10 K
Jones, M.L. and S.L. Swartz (Cetacean Research Associates, San Diego) Demography and Behavior of Gray Whales During 1978-1982 Winter Seasons in Laguna San Ignacio, Baja California Sur, Mexico (MM2324713-8)	\$ 6 K
Medway, W. (U. Pennsylvania) Evaluation of the Safety and Usefulness of Techniques and Equipment Used to Obtain Biopsies From Free-Swimming Cetaceans (MM2324809-8)	\$ 2 K

National Marine Mammal Laboratory (NMFS) Research on Humpback Whales in Glacier Bay and/or Other Southeast Alaska Waters (MM2324752-3)	\$ 5 K
Development of a Research and Studies Plan to Identify the Most Effective and Appropriate Methods and Technologies for Mitigating Marine Mammal/Fisheries Conflicts in the Columbia River and Adjacent Waters (MM2324788-2)	\$ 10 K
New England Aquarium Workshop on the Biology and Past and Present Status of Right Whales (MM2324803-0)	\$ 3 K
North Pacific Fisheries Management Council Workshop on Marine Mammal-Fisheries Interactions in the Bering Sea (MM2324802-7)	\$ 5 K
Reynolds, J.E. (Eckerd College) Identification and Evaluation of Possible Differences in the Hardiness of Bottlenose Dolphins From Different Coastal Areas of the Southeastern United States (MM2324822-1)	\$ 4 K
Southwest Fisheries Center (NMFS) Data Analyses Relative to the Estimation of the Size and Species Composition of Porpoise Schools in the Eastern Tropical Pacific (MM2324792-1)	\$ 4 K
Analysis of Farallon Islands Elephant Seal Data (MM2324775-6)	\$ 12 K
Waring, G.H. (Southern Illinois U., Carbondale) Survey of Federally-Funded Marine Mammal Research (MM2324754-9)	\$ 2.5K
Winn, H.E. (Biological Writers and Consultants, Narragansett, Rhode Island) Development of a Right Whale Sighting Network in the Southeastern United States (MM2324805-6)	\$ 4 K
<u>FY83</u>	
Bishop, J.B. Assessment of Incidental Take of Sea Otters in Set-Nets in the Vicinity of Morro Bay, California (MM2629676-2)	\$ 8.4K
Ferrari, D.A. and M.J. Ferrari Analysis of Photographs and Other Information Concerning the Identification, Behavior and Vital Rates of Humpback Whales in Hawaii (MM2629752-5)	\$ 5 K

Gerrodette, T. Review of the California Sea Otter Salvage Program (MM2629677-5)	\$ 1.6K
Gilmartin, W. (NMFS/SWFC, Honolulu) Research and Other Activities Related to the Protection and Recovery of the Hawaiian Monk Seal (MM2629667-8)	\$150 K
Gluckman, D. Assessment of Mechanisms for Protecting Areas of Special Biological Importance to Manatees (MM2324910-7)	\$ 2.5K
Jameson, G.L. Surveys of Beaches in the Central Part of the California Sea Otter Range (MM2629849-8)	\$ 6 K
Keating, T.M. and D.A. Croll (Moss Landing Marine Lab.) Monitoring the Incidental Take of California Sea Otters in Certain Net Fisheries (MM2629603-4)	\$ 3.6K
Lentfer, J.W. Assessment of Issues Bearing Upon Marine Mammals in Alaska (MM2324909-7)	\$ 4 K
North Pacific Fishery Management Council Steller Sea Lion Pup Counts In and Near Shelikof Strait, Alaska (MM2629856-6)	\$ 5 K
Swartzman, G.L. Review Information on Demography, Dynamics and Management of North Pacific Fur Seal (MM2629737-7)	\$ 4.1K
Tinney, R.T., Jr. Assessment of Past, Present and Future Risks of Oil Spills In and Near the Present Sea Otter Range in California (MM2324944-0)	\$ 3.3K
Van Wagenen, R. Mapping and Monthly Surveys of Kelp Canopies in the Range of the Southern Sea Otter Population (MM2629668-1)	\$ 8.9K
Waring, G.H. (Southern Illinois U., Carbondale) Survey of Federally-Funded Marine Mammal Research (MM2629857-9)	\$ 2.5K

National Aeronautics and Space AdministrationFY80

Ray, G.C., D. Wartzok (Johns Hopkins U.) and P. Sebesta  
 (Ames Research Center)  
 Study of Predictive Ecological Models Useful  
 for the Management and Conservation of Bering  
 Sea Mammals SSIE \$ 12 K

FY81

Smith, R.C., K.S. Baker and P. Dustan (U. California,  
 San Diego)  
 Ship Satellite Bio-Optical Research in the  
 California Bight (cetaceans) \$143.3K

FY82 - FY83

(No projects)

National Science FoundationFY80

Awbrey, F.T. (San Diego State U.)  
 Artificial Aggregating System for Tuna  
 Purse Seining SSIE \$ 0 K

Dawson, W.W. (U. Florida)  
 Physiology of Vision in Dolphins and  
 Other Cetaceans (79-14129) \$ 99.2K

Fay, F.H. (U. Alaska)  
 Energy Cost and Control of Molting in Bering  
 Sea Harbor and Spotted Seals (80-06957) \$ 38.8K

Hall, E.R. (U. Kansas)  
 A Systematic Classification of North American  
Ursus (80-14252) \$ 36.3K

Herman, L.M. (U. Hawaii, Manoa)  
 Behaviors and Social Organization of Humpback  
 Whales in Hawaiian Waters (77-24943) \$ 42.3K

Dolphin Information-Processing Capabilities  
 (77-16882) \$ 43.5K

Jehl, J.R. and W.E. Evans (Hubbs-Sea World Research  
 Institute)  
 Distribution and Ecology of Orcinus and  
Globicephala in the Antarctic (8022633) \$ 33.8K



Kooyman, G.L. (Scripps Inst. Oceanography) Biology of Weddell Seals During the Austral Summer (79-23623)	\$ 95.3K
LeBoeuf, B.J. (U. California, Santa Cruz) Biological Studies of the Northern Elephant Seal (77-17063)	\$ 30.2K
Morgane, P.J. (Worcester Foundation for Experimental Biology, Inc.) Archicortical-Limbic Formations of Dolphin Brain (77-8660)	\$ 46.6K
Norris, K.S. (U. California, Santa Cruz) Behavior of the Hawaiian Spinner Dolphin (78-24638)	\$ 83.8K
Siniff, D.B. (U. Minnesota) The Role of the Leopard Seal in the Antarctic Marine Ecosystem (80-17257)	\$ 76.4K
The Development of Satellite Tracking and Antarctic Position/Activity Monitoring for Selected Antarctic Vertebrates (80-17348)	\$ 19.8K
Wormuth, J. (Texas A&M U.) A Study of Feeding Relationships in Tuna and Porpoise Through the Application of Cephalopod Beak Analysis (79-24779)	SSIE \$ 31.6K

FY81

Bengtson, J. and D.B. Siniff (U. Minnesota) Changes in Reproduction Patterns of Antarctic Seals as Indicators of Shifts in Ecosystem Structure and Function (DPP 80-20087)	\$ 78.5K
Doming, D.P. (Howard U.) Tertiary Sirenian Systematics and Paleontology in West Atlantic and Caribbean (DEB 80-20265)	\$ 46.5K
Fay, F.H. (U. Alaska) The Energy Cost and Control of Molting in Bering Sea Harbor and Spotted Seals (DPP 80-06957)	\$ 40.1K
Herman, L.M. (U. Hawaii) Dolphin Information Processing: Linguistic Competencies (BNS 81-09653)	\$107 K
Kooyman, G. (Scripps Inst. Oceanography) Biology of Weddell Seals During the Austral Winter (DPP 79-23623)	\$ 68 K

Morgane, P.J. (Worcester Foundation for Experimental Biology) Neocortical Formations of Dolphin Brain (BNS 81-00064)	\$ 44.9K
Norris, K.S. (U. California, Santa Cruz) Behavior of the Hawaiian Spinner Dolphin (BNS 78-24683)	\$ 83.8K
Siniff, D.B. (U. Minnesota) Seasonal Movements and Interactions of Weddell Seals and Antarctic Cod in McMurdo Sound, Antarctica (DPP 80-20097)	\$105.7K
<u>FY82</u>	
Dawson, W.W. (U. Florida) Physiology of Vision in Dolphins and Other Cetaceans (BNS 79-14129)	\$ 99.2K
Erickson, A.W. (U. Washington) Census of Seals in the Eastern Section of Antarctic Pack Ice (DPP 82-10588)	\$ 68.4K
LeBoeuf, B.J. and L. Ortiz (U. California, Santa Cruz) Biological Studies of Northern Elephant Seals (DEB 81-17024)	\$ 45 K
Morgane, P.J. (Worcester Foundation for Experimental Biology) Neocortical Formations of Dolphin Brain (BNS 81-00064)	\$ 48.9K
Nybakken, J. and J.S. Oliver (San Jose State U.) Walrus Feeding in the Bering and Chukchi Seas (DPP 81-21722)	\$ 77.2K
Singer, M.C. and M.L. Oldfield (U. Texas, Austin) Doctoral Dissertation Research in Population Biology (whales) (DEB 82-06441)	\$ 3.3K
Siniff, D.B. (U. Minnesota) Seasonal Movements and Interactions of Weddell Seals and Antarctic Cod in McMurdo Sound (DPP 80-20097)	\$143.7K
Thomas, J.A. and J. Jehl, Jr. (Hubbs-Sea World Research Institute) Circumpolar Analysis of the Marine Mammal Faunas of the Pack Ice, Antarctica (DPP 82-05761)	\$ 43.2K
Wartzok, D. and D. Ketten (Johns Hopkins U.) Doctoral Dissertation Research in Sensory Physiology and Perception (cetaceans) (BNS 81-18072)	\$ 6.9K
Zapol, W.M. (Massachusetts General Hospital) Diving Physiology of the Fetal Weddell Seal (DPP 81-00212)	\$ 24.8K

FY83

Costa, D.P. (U. California, Santa Cruz) Bioenergetics of the Antarctic fur seal (DPP 83-11799)	\$ 72 K
Dawson, W.W. (U. Florida) Physiology of Vision in Dolphins and Other Cetaceans (BNS 83-07891)	\$ 2.2K
Erickson, A.W. (U. Washington) Census of Seals in the Eastern Section of Antarctic Pack Ice (DPP 82-10588)	\$ 39.9K
LeBoeuf, B.J. (U. California, Santa Cruz) Biological Studies of Northern Elephant Seals (BSR 81-17024)	\$ 51 K
Morgane, P.J. (Worcester Foundation for Experimental Biology) Neocortical Formations of Dolphin Brains (BNS 81-00064)	\$ 54.3K
Nybakken, J.W. and J.S. Oliver (San Jose State U.) Walrus Feeding in the Bering and Chukchi Seas (DPP 81-21722)	\$ 60.5K
Siniff, D.B. (U. Minnesota) Seasonal Movements and Interactions of Weddell Seals and Antarctic Cod in McMurdo Sound, Antarctica (DPP 80-200097)	\$ 60 K
Staley, J.T. (U. Washington) Digestive Physiology and Gastrointestinal Microbiology of Whales (DPP 83-00719)	\$ 60.1K
Thomas, J. and J. Jehl, Jr. (Hubbs-Sea World Research Institute) Circumpolar Analysis of the Marine Mammal Faunas of the Pack Ice, Antarctica (DPP 82-05761)	\$ 10 K
Watkins, W.A. (Woods Hole Oceanographic Institution) Sperm Whale Identification Sounds (BNS 82-14089)	\$ 46 K
Zapol, W.M. (Massachusetts General Hospital) Diving Physiology of the Fetal Weddell Seal (DPP 81-00212)	\$ 47 K

Smithsonian InstitutionFY80

Mead, J. (National Museum of Natural History) Marine Mammal Program	\$ 93.5K
Ray, C. (National Museum of Natural History) Fossil Marine Mammals	\$ 49.3K

FY81

Mead, J. (National Museum of Natural History)	
Marine Mammal Program	\$103 K
Ray, C. (National Museum of Natural History)	
Fossil Marine Mammals	\$ 49.3K

FY82

Boness, D.J. O.T. Oftedal and K.A. Ono (National Zoological Park)	
Lactation and Mother-Infant Interactions in the California Sea Lion (5699-06)	\$ 11.8K
Mead, J.G. (National Museum of Natural History)	
Marine Mammal Program (82337100)	\$ 97 K
Ray, C.E. (National Museum of Natural History)	
Fossil Marine Mammals	\$ 40 K

FY83

Boness, D.J., O. Oftedal and K. Ono (National Zoological Park)	
Maternal Investment in California Sea Lions, <u>Zalophus californianus</u>	\$ 22.4K
Mead, J. (National Museum of Natural History)	
Marine Mammal Program (83337100)	\$108 K
Ray, C.E. (National Museum of Natural History)	
Fossil Marine Mammals	\$ 40 K

Veterans AdministrationFY80 - FY83

(No projects)