

Report No. MMC-84/06

**SURVEY OF FEDERALLY-FUNDED
MARINE MAMMAL RESEARCH AND STUDIES
FY 70 - FY 84**

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

July 1985

Final Report to U.S. Marine Mammal Commission
in Fulfillment of Contract MM2910918-6

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

REPORT DOCUMENTATION PAGE	1. REPORT NO. MMC-84/06	2.	3. Recipient's Accession No. PB85 225613/AS
4. Title and Subtitle Survey of Federally-Funded Marine Mammal Research and Studies, FY 70 - FY 84		5. Report Date July 1985	
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) MM2910918-6 (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 14.	
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 20. Security Class (This Page) Unclassified	21. No. of Pages 106 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 and study projects identified in the FY80 through FY84 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 of 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. No distinction is made between research projects and studies per se. Appendix B is a listing of all FY80 to FY84 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.

16 May 1985

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 and Studies...	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-FY84, 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-FY84	
--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-FY84.....	26

Funds Expended on Marine Mammal Research by the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY84.....	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-FY84.....	29
III. APPENDIX A	
Publications Identified by Agencies as Sources or Pending Sources of Marine Mammal Information from Federally-Funded Research and Studies.....	30
IV. APPENDIX B	
Listing of Marine Mammal Research and Study Projects, Principal Investigators, and Funding Level for FY80-FY84.....	33
--Department of Agriculture.....	34
--Department of Commerce.....	34
--Department of Defense.....	50
--Department of Energy.....	56
--Department of Health and Human Services.....	57
--Department of the Interior.....	61
--Department of State.....	83
--Department of Transportation.....	84
--Environmental Protection Agency.....	85
--Marine Mammal Commission.....	85
--National Aeronautics and Space Administration.....	93
--National Science Foundation.....	93
--Smithsonian Institution.....	98
--Veterans Administration.....	99

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-FY84	8
2. Funds expended on marine mammal research by the National Marine Fisheries Service and the Fish and Wildlife Service, FY73-FY84	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-FY84, 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-FY84	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 FY84. 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-FY84 was 142.9 (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 AND STUDIES

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 Assessment (OMA) 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 Assessment) 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	-	-
TOTAL	28	36	51	50	35	64	82	46	60	28	32

*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-FY84, 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	FY84
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	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	26
National Sea Grant	3	4	1	2	4	1	3	1	-	2	-	2	-	2	2	1	3	2
NOAA/OCSEAP (see below)																		
North Pacific Fishery Management Council	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1
Ocean and Coastal Resource Mgmt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	6	4
Oceanography and Marine Assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1
Department of Defense																		
Air Force	-	-	-	-	-	-	-	-	-	-	-	1	-	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	8
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	4
Department of Energy	1	-	1	1	-	1	-	2	1	2	-	-	1	1	1	1	-	-
Department of Health and Human Services	5	20	16	26	15	17	7	13	2	12	3	8	4	9	11	12	9	8
Department of the Interior																		
Fish & Wildlife Service	-	15	-	20	-	27	5	40	2	43	-	52	1	44	33	27	29	22
Geological Survey	-	-	1	-	1	-	-	1	1	1	-	1	-	1	1	1	1	1
Minerals Mgmt. Service	-	-	-	1	-	4	-	3	-	4	-	7	2	12	8	10	9	12
MMS/NOAA/OCSEAP	-	-	-	3	-	16	-	11	-	11	-	6	-	6	7	9	8	6
National Park Service	-	1	-	1	-	2	2	3	-	5	-	2	-	2	4	3	3	3

TABLE 2 (continued)

Number of Marine Mammal Projects Supported by Federal Agencies

	FY74		FY75		FY76		FY77		FY78		FY79		FY80		FY81	FY82	FY83	FY84
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	B	B	B	B
Department of State	-	-	-	-	-	-	-	-	-	2	-	1	-	1	2	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	30
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	10
Smithsonian Institution	-	4	2	4	2	2	3	2	-	2	-	2	-	2	2	3	3	3
Veterans Administration	-	-	1	-	2	-	-	2	2	2	-	-	-	-	-	-	-	-
TOTAL:																		
SSIE Data	35		64		82		46		60		28		32					
MMC Data		113		122		133		153		168		137		172	148	140	142	144

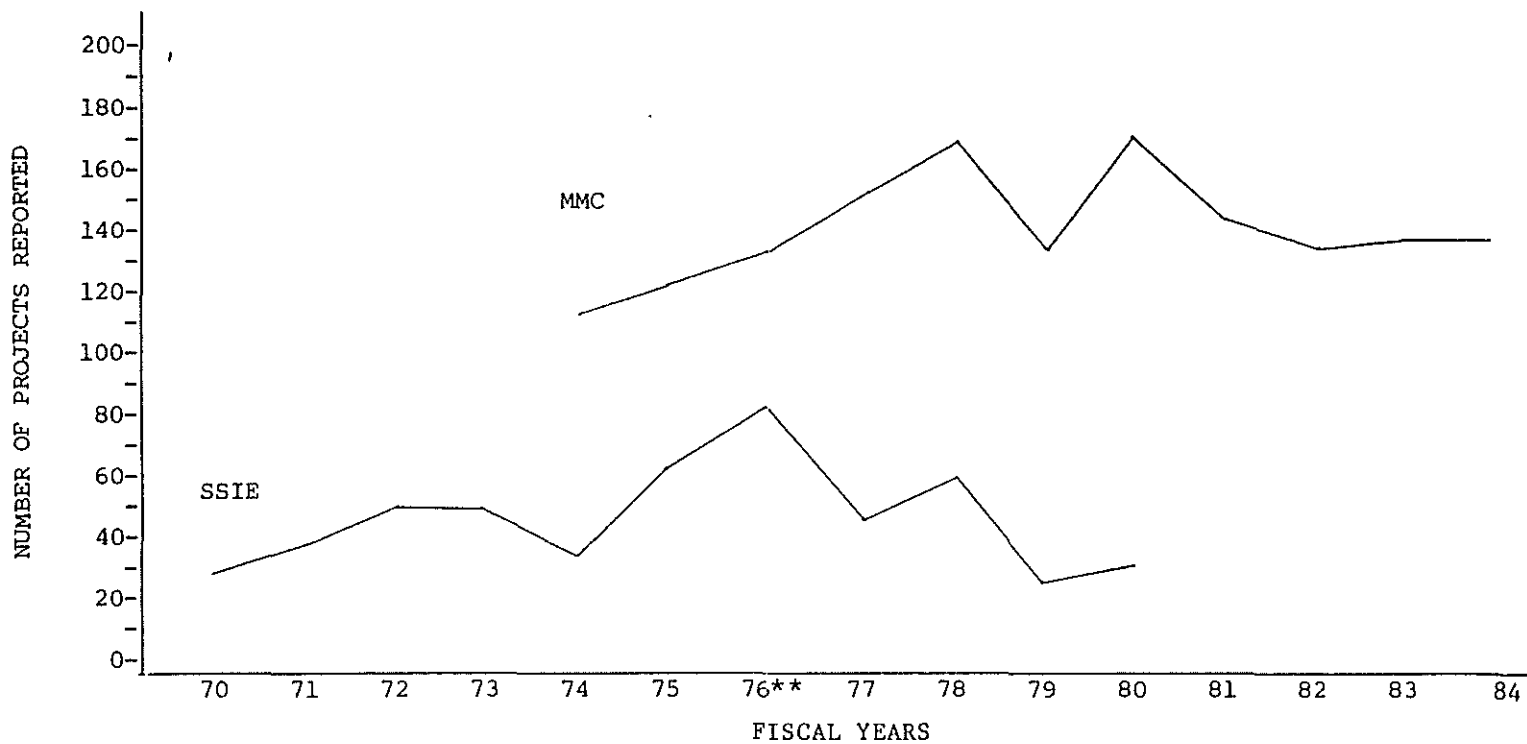
*The Smithsonian Science Information Exchange no longer exists.

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	FY84
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	4077
National Sea Grant Program	77.2	82.3	19.8	25.8	49.7	68	59.7	35.1	30	46.7	79.6
North Pacific Fishery Mgmt. Council	---	---	---	---	---	---	97.2	28.9	10	11.5	5
Ocean and Coastal Resource Mgmt.	---	---	---	---	---	---	---	67	56.6	35.9	81
Oceanography & Marine Assessment	---	---	---	---	---	---	---	---	58	123.6	---
Department of Defense											
Air Force	---	---	---	---	---	40	15	79.2	---	---	6
Army	---	---	---	---	---	44	122	---	---	---	---
Naval Ocean Systems Center	658	425	361	718	545	717	1979	1729	1524	1708	1506
Naval Research Laboratory	---	---	---	---	---	20	---	---	---	---	---
Office of Naval Research	485.4	270	260.1	414	430	538.4	462.8	302.6	204	195.2	224
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	629
Department of the Interior											
Fish and Wildlife Service	706	734.2	933	933	1042.7	1452.5	1418.9	1127.2	1221	1261.2	1007.7
Geological Survey	---	---	---	31.2	30.5	20	45.5	79.6	62.8	76	71
Minerals Mgmt. Service	---	706.7	2046.4	2242	2519.8	7457.3	6173.2	3507.2	3830.6	4275.9	3595.9
National Park Service	6	6	17.2	16.5	64.8	45.8	68	376.9	223	300.4	235

TABLE 3 (continued)
Federal Funding of Marine Mammal Research

	FY74	FY75	FY/TQ76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84
Department of State	---	---	---	---	51	500	592.9	719.4	644.6	540.6	709.4
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	298.7
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	691.9
Smithsonian Institution	68.5	80.1	102	106.1	101.1	133.4	142.8	152.3	148.8	170.4	207.5
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	14,188.4	13,424.7

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	84
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)	302.5 (3)
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)	4960.2 (25)
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)	--- (1)
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)	1491.4 (31)
Gulf of Mexico	7.9 (1)	---	6 (1)	---	2.4 (2)	144.3 (1)	200 (1)	330.8 (2)	275.5 (3)	20 (1)	238.5 (3)
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)	384.8 (8)
Georgia, South Carolina and North Carolina	---	---	---	199.9 (1)	---	---	200 (2)	296.3 (1)	4 (1)	---	2.6 (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)	141.3 (7)

*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
	84					276.8				4.5					281.3
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
	84					1156.3				67					1223.3
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
	84		1269.4	68		494.8				12.5		420.7	42.5		2307.9

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	1905.6	540.6		5		162.6			6320
84		2421.7	1218		162.4	2354.2	709.4		63		221.3			7150	
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
84		551.5	450		466.6	624.4			151.7		49.9	165		2459.1	

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	84	FUNDING AGENCY
<u>Tuna/Porpoise:</u>												
Population Assessment	85.1	108	81	516.5	524.5	462.7	676.9	615	462	570	507.3	NMFS MMC
				2					4			
Mortality Reduction	167.4	140.2	120	299.6	487.6	512.9	500	687.1	609.2	673.9	673.9	DOS NMFS MMC
			178		67.4			5.6	30	30.9		
			119.6	97.1								NSF
Assessment of Taking			179	189.6	318.7	329.5	346.9	246.7	320.7	225	181.8	Navy NMFS MMC
	3.5	9.8	12.4									
Biology	271.3	342.9	136	138.1	220.4	705.3	382.4	430.2	318.3	331	296.5	NMFS Navy MMC NSF
	26			12.5	10			31.6				
<u>International Whaling Convention:</u>												
Assessment of Stocks and Taking	32	(33.6)	(38.7)	(52.8)	(103)		340.5	433		(700)	(856)	NMFS MMC NSF DOS
			26.3	33.5	19.8	70.9	65					
			21.5					32.3	35.4	35.3	35.5	
<u>Marine Mammal/Fisheries Conflicts:</u>												
Southern Ocean Krill			10	14.5	4				10		49.2	MMC DOS NSF
					51							
						25.6						
Fin Fish/Pinniped Interactions		17.7	19.8	25.8	49.7	68		30	30	39.2	79.6	NSGCP MMC NMFS
					59.3			4.9	32.5	10		
						70	604.6	349.9	309.3	226.4	221.1	

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	84	FUNDING AGENCY
Shell Fish/Sea Otter Interactions							6 4.5	5.1		(31)		NSGCP FWS NMFS
Fin Fish/Porpoise Interactions							2	142.4	10 5		14.1	NPFMC MMC
Incidental Taking									10 (29)	12	64.9 14.8 5	MMC NMFS NPFMC
<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	1390.3	2485.5	1650.1	MMS MMC
Risk Analysis									184.4	51.8 3.3	617.8 5.9	MMS MMC
<u>Marine Mammal Strandings</u>												
Biological Studies	15 (6.4)	25 (18.3)	32.3 (42.8)	15 (11.9)	(14.6)		(15)		(20)	6 (25)	1.8 (30)	MMC SI NMFS MMS FWS
			6	70.4 (15)	(30)	3.5 (18.7)	20 (15)	30	31.5	24.6	2 (103)	
<u>Bowhead Whales:</u>												
Assessment of Stocks and Taking	16	(20.6)	(38.7) (44.1)	201 (42.5)	724 (167.2)	871.1	737.2 591	765.1 345.3	456.9		(806) (317.4)(625.4)	NMFS MMS MMC
Biology					6.7		590				589.6	MMS

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	84	FUNDING AGENCY
<u>Humpback Whale:</u>												
Population Assessment			(38.7)	(52.8)	(103)	15	39.1	70.7	39	38.8	30.1	NMFS
				25.1	21.4		15	9	5	5		MMC
Biology			11.2	10	31.3	39.8	63	376.3	223	293.4	225	NPS
								4.1		12.6	(11)	NMFS
					39.7	40.2	42.3					NSF
						48	24					Navy
<u>Gray Whale:</u>												
Population Assessment	31.4	(32.7)	(38.8)	(52.8)	(103)	25.7						NMFS
							37	9				Navy
										(317.4)	(536.4)	MMS
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	(11)	NMFS
								3	4		32.1	MMC
Biology									9			Navy
<u>Killer Whale</u>												
Population Assessment	17	(17.6)	(38.8)	(52.7)		3						NMFS
		37.9			7.9							MMC
					(15.3)							NSF
<u>Pilot Whales:</u>												
Population Assessment	10											Navy
					(15.3)							NSF
Biology	(6.3)	(5)										SI
								10				USDA

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	84	FUNDING AGENCY
<u>Belukha:</u>												
Population Assessment			(44)	(42.5)	(17.2)			49.8				MMS
Biology			20	10	25		350	525	134	130.3		MMS
									102	(100)	(162.5)	Navy
<u>Harbor Porpoise:</u>												
Population Assessment							45		30	9.6	1	NMFS
										4		OCRM
<u>Dall Porpoise:</u>												
Population Assessment					210	6.9	264		(228)	(165)	(165)	NMFS
<u>Bottlenose Dolphin:</u>												
Population Assessment	55	68.3			1.9						15	MMC
Biology	211	100	133	270	168	180.8	219.9	221.8	248.3	236.5	248.5	NMFS
	38.1					467	903.9	850	1074	1310	975.5	Navy
	54.3	55.6	20	86.7	92.8	85.3	90.1	107	48.9	56.5	221.3	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)	(309.5)	NMFS
Biology	145.5	330.9	330.2	366	384	269.3	410.9	420.2	285.4	(237.4)	(309.5)	MMC
		32.2		70	96	88					1.5	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	49.9	NSF
Biology	64.3	15.2	241.1	172.7	89	70.4	171.7	252.2	168.5	179	292.9	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	84	FUNDING AGENCY
<u>Arctic Seals:</u>												
Population Studies	18.3 9.7	(20.6)										NSF NSGCP
Biology	7		78	157	85						65.4	MMS MMC NSGCP
		55										MMS
			136	201.1	237.6	212		281.6 38.8	157		292	NSF NMFS
										75.5		
<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	31	(28)	(15)		FWS NMFS
Biology				34.1	25.8		60.9 34.9			150		MMC MMC
<u>Gray Seal:</u>												
Population Studies	(5.2)			10.2								MMC
Biology		90	110	10	30		2.3	1.3		1.4		NMFS Navy
<u>Harbor Seal:</u>												
Population Studies	(5.3) 6	27 6	33.5 6	17.7 6	5.2 31	6			23.5			MMC
Biology		2.3	3 8.6		2.8		11.5	39.4	3.5	20		NPS NSGCP
			65	60	(50)	50		25				NMFS MMC MMS
									36.3			Navy
										(15)	23.8	NMFS
											2.5	OCRM
										(50)	(20)	NSGCP OMA

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	84	FUNDING AGENCY
<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	30.2		45	51	16	OCRM
						10	5.3		12		61	NSF
							43.5	51.7	38.4			MMC
												DHHS
<u>California Sea Lion:</u>												
Population Studies			7				82.5					NMFS
Biology	37.2	9.3				200					15	OCRM
	40	35	37	74	110		247				(3.5)	NPS
	29.3	64.7									124	USDA
	50											Navy
		2	12.2									DHHS
									11.8	22.4	42.5	NSF
												MMC
												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)	(53.9)	FWS
								130.3	150.1	25		MMS
Biology	17.6	27.3			5							MMC
	38.7	48.4				20						NSGCP
									77.2	60.5	66.8	MMC
												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	84	FUNDING AGENCY
<u>Manatees and Dugong:</u>												
Population Studies	(60)	100	(143.8)	159.7	(236.6)	(290.3)	(265.7)	(300)	(150)	(100)	(211.8)	FWS NASA NPS MMC MMS FWS Army
				50								
					0.5		3					
					0.8		109				4.5	
Biology		19.2	(30)	(30)	(30)	(127.2)	45	(52)	(173)	(291.6)	(20)	
						44	122					
<u>Polar Bear</u>												
Population Studies	(45)	214.3	(401)	(303.1)	(223.1)	251	(140.8)	(200)	(80)	(73.7)	(80.9)	FWS
Biology		35.7	(50)	(50)	(50)		(50)	(54)	(140)	(100)	(80.9)	FWS NSF
				(150)		22.6	36.3					
<u>Sea Otter:</u>												
Population Studies	(45)	(125)	157.2	151.9	352.1	(530.4)	(400)	(185.2)		(100)	(195.2)	FWS MMS
			21.1							770.8	86.1	
Biology	13.5	27.3										DHHS
		15.3	103.2	40.6	49.9			16	5.6	8.9	35.1	MMC
		18.3	28	30	30		30	20	25			DOE
				23.3	27.5	(28)	(189.8)	200	470	(403.9)	(196.8)	FWS
				59					124		463.2	MMS

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

**Not all projects listed in Appendix B are reflected in this table, and a few projects have been assigned to more than one issue.

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 FY84 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 ^a					REQUESTED ^b					APPROPRIATED ^c				
	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
Department of Commerce (NMFS)															
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
FY84	-----	8000	-----	-	8000	-----	5571	-----	-	5571	-----	7700	-----	-	7700
Department of Interior (FWS)															
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
FY84	-----	2000	-----	-	2000	-----	1398	-----	-	1398	-----	1398	-----	-	1398

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

	AUTHORIZED ^a					REQUESTED ^b					APPROPRIATED ^c				
	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
Marine Mammal Commission															
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
FY84	-	-	-	1100	1100	-	-	-	648	648	-	-	-	929	929

*Section 111 funds

^aAuthorized under sections of the Act. As of FY82, funding for all Title I sections was combined.

^bRequested funding of the agencies

^cFunds 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)

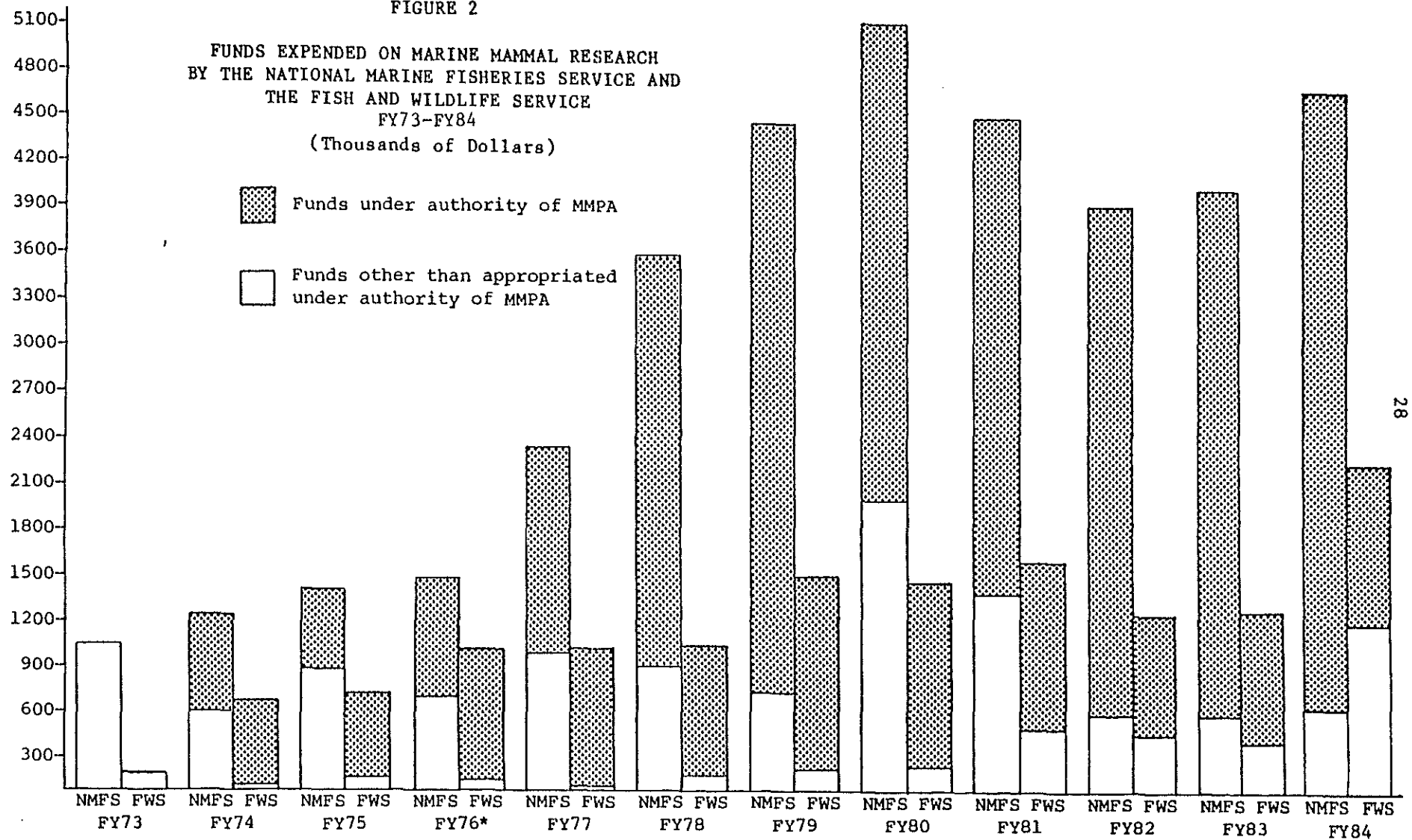
<u>NOAA/National Marine Fisheries Service</u>	<u>Source</u>	<u>Amount</u>
FY73	NMFS Reprogramming	300
	NOAA Reserve	424
	Fur Seal Act Authorization	309
FY74	Fur Seal Act Authorization	309
	Reprogramming and Reserve	295
FY75	Fur Seal Act Authorization	395
	NOAA Reserve	442
FY76	Fur Seal Act Authorization	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
FY84	Fur Seal Act Authorization	619

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
FY84	Endangered Species Act Authorization	1208

FIGURE 2

FUNDS EXPENDED ON MARINE MAMMAL RESEARCH
 BY THE NATIONAL MARINE FISHERIES SERVICE AND
 THE FISH AND WILDLIFE SERVICE
 FY73-FY84
 (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 - FY84*

National Marine Fisheries Service**

	<u>FY73</u>	<u>FY74</u>	<u>FY75</u>	<u>FY76</u>	<u>TQ76</u>	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>
Administrative	11	28	28	42	49	7	8	86.5		33.5	27.1	16	19.9
Research	23	26	33	31	29	17	20	48.9		60.7	61.2	42.7	55.3
NMFS Total:	34	54	61	73	78	24	28	135.4	166.1	94.2	88.3	58.7	75.2

29

Fish and Wildlife Service Personnel***

	<u>FY73</u>	<u>FY74</u>	<u>FY75</u>	<u>FY76</u>	<u>TQ76</u>	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>
Administrative	?	12.1	14.1	15.2	****	16.6	17.1	20.3	24.6	23.3	21.5	6	18.1
Research	2.6	6.0	11.0	11.8	****	14.8	13.2	17.2	17.4	17.8	16.5	16	17.6
FWS Total:	2.6+	18.1	25.1	27.0	****	31.4	30.3	37.5	42.0	41.1	38.0	22	35.7

*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 AND STUDIES

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
 Biology of Reproduction
 Canadian Journal of Zoology
 Acta Zoologica Fennica
 Science
 Polar Record
 Arctic
 Breviora
 Journal of Wildlife Diseases
 Microbios Letters
 Transactions of the San Diego Society of Natural History
 Journal of Mammalogy
 Conference proceedings
 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

--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
 Acta Zoologica
 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
 Florida Scientist
 Northeast Gulf Science
 Veterinary Clinical Pathology
 Bulletin of Marine Science
 Zoomorphology

--Geological Survey

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

--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

--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
 Journal of Marine 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 AND STUDY PROJECTS,
PRINCIPAL INVESTIGATORS, AND FUNDING LEVEL
FOR FY80 - FY84*

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 - FY84

(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

FY84

Calkins, D. and K. Pitcher (Alaska Department of
Fish and Game)
Pinniped Investigations in Southern Alaska
(81-ABC-00280) \$ 0 K

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 Observatory)
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. Rimmer (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
<u>FY84</u>	
Gilbert, J.R. and K.M. Wynne (U. Maine) Marine Mammal and Commercial Fishery Interactions (NA80FAC00029)	\$ 14.8K
Katona, S.K. (College of the Atlantic) Maintenance of the Humpback Whale Catalogue (NA84EAC0080)	\$ 23.1K
Mantilla, D. (Provincetown Center for Coastal Studies) 1984 Fluke Identification Survey and Song Recordings of Humpback Whales Along the NW Coast of Puerto Rico (NA83FAC00004)	\$ 7 K
Mayo, C. (Provincetown Center for Coastal Studies) Study of Right and Humpback Whales and Habitats of Stellwagen Bank and Cape Cod Bay (NA84EAC00084)	\$ 22 K
Payne, P.M. (Manomet Bird Observatory) Monitoring and Assessment of Cetaceans in the Shelf Water of the Northeastern United States (NA84EAC00062)	\$ 52.5K

Winter Harbor Seal Population Survey in Southern New England (NA84ENA00149)	\$ 0.7K
C. Northwest and Alaska Fisheries Center, National Marine Mammal Laboratory	
<u>FY80</u>	
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
<u>FY81</u>	
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) [plus additional \$228K from Japan for Dall porpoise research]	\$374 K
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

FY84

Braham, H.W. and R.V. Miller (NMML)
Laboratory Administration and International
Treaty Research (NWC-352) \$249.5K

DeLong, R.L. and T.R. Loughlin (NMML)
Assessment of Pinniped Populations and Marine
Mammal/Fishery Interactions (NWC-353) \$219.1K

Fowler, C.W. and R. Gentry (NMML)
Fur Seal Research Program (NWC-303) \$619 K

Jones, L.L., M.K. Nerini and J. Breiwick (NMML)
Population Assessment of Endangered and
Small Cetaceans (NWC-358) \$971 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
 (88C4LIKD) \$ 47 K

FY82

Ford, R. Jr. (SEFC, Mississippi Lab.)
Tursiops Local Herd Biodynamics (FSN230-8L1ACMJC) \$ 43.5K

Gracy, R. (SEFC, Mississippi Lab.)
 Local Tursiops Population Surveys (FSN230-8L1ACMJD) \$132 K

Powers, J. (SEFC, Miami Lab.)
 Local Tursiops 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 Tursiops Population Surveys
 (FSN230-8L1ACMJD) \$ 28.5K

Carley, W. (Aero Systems, Inc.)
 Regional Surveys and Estimates of Tursiops
 Abundance (FSN000-8L1CCOJB) \$128 K

Duffield, D. (Genetik Associates)
 Genetic Variability in Tursiops truncatus
 and Caretta caretta (FSN000-8L1CCOJK) \$ 27 K

Ford, R. (SEFC, Mississippi)
Tursiops Local Herd Biodynamics (FSN230-8L1ACMJC) \$ 20 K

Odell, D. (U. Miami)
 Southeast U.S. Marine Mammal Stranding and Salvage
 Network (FSN000-8L1CCOJL) \$ 22 K

Powers, J. (SEFC, Miami)
Tursiops Population Analysis (FSN100-8L1CCOJA) \$ 19 K

Scott, G.P. (SEFC, Miami)
 Marine Mammal Program Management (FSN000-8L1CCOJE) \$ 53.7K

Photogrammetric Estimation of Tursiops
 (FSN000-8L1CCOJH) \$ 41 K

FY84

Duffield, D. (Genetik Associates) and S. Braddon (SEFC, Charleston) <u>Genetic Variability in <i>Tursiops truncatus</i> and <i>Caretta caretta</i></u> (FSN000-8L1CC0JK)	\$ 0 K
Ford, R. (SEFC, Mississippi) <u>Tursiops Local Herd Biodynamics</u> (FSN230-8L1C5TJD)	\$ 48.5K
Odell, D. (U. Miami) Southeast U.S. Marine Mammal Stranding and Salvage Network (FSN000-8L1C4TJL)	\$ 2 K
Scott, G. (SEFC, Miami) <u>Tursiops Population Analysis</u> (FSN100-8L1C4TJA)	\$ 20 K
Marine Mammal Program Management (FSN000-8L1C4TJE)	\$ 81 K
Photogrammetric Estimation of <u>Tursiops</u> (FSN100-8L1C4TJH)	\$ 5 K
Scott, G. (SEFC, Miami) and G. Carter (Biological Surveys Inc.) <u>Regional Surveys and Estimates of Tursiops</u> Abundance (FSN100-8L1C4TJB)	\$175 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 Physiology	\$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

FY84

Coan, A. (SWFC) Multispecies Data Management and Fisheries Monitoring (SWC-057)	\$181.8K
DeMaster, D. (SWFC) Coastal Marine Mammals (SWC-096)	\$278.2K
Gilmartin, W. (SWFC, Honolulu) Hawaiian Monk Seal Research; Marine Mammal and Endangered Species Program (SWC-119A,B,C)	\$300 K
Holt, R. (SWFC) Dolphin Population Assessment (SWC-008)	\$410.6K
Perrin, W. (SWFC) Cetacean Biological Research for Stock Assessment (SWC-011)	\$296.5K
Reilly, S. (SWFC) Multispecies Stock Assessment (SWC-012)	\$ 96.7K

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

FY84

Ainley, D. (Point Reyes Bird Observatory)
Shore Observations of Harbor Porpoise During
Vessel Census Days (84-JFA-00127) \$ 1 K

Aubrey, F.T. and J.A. Thomas (Hubbs/Sea World
Research Institute)
Measurement of Sound Propagation from Several
Acoustic Harassment Devices (84-JFA-00062) \$ 2 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

FY84

Costa, D.P. (U. California, San Diego)
 Assessment of the Impact of the California Sea Lion
 and Elephant Seal on Commercial Fisheries (R/F-92) \$ 24.5K

Mate, B. (Oregon State U.)
 Applications of Acoustic Control of Marine Mammals
 in Fisheries Conflicts (R/CP-22) \$ 55.1K

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

FY84

Shomura, R.S. (SWFC, Honolulu)
 Support for Workshop on Fate and Impact of
 Marine Debris \$ 5 K

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

FY84

DeMaster, D. (NMFS/SWFC)
 Pinniped Monitoring in the Channel Islands NMS \$ 20 K

DeMaster, D. and R. DeLong (NMFS/SWFC)
 Determination of Critical Areas for California
 Sea Lions in the Channel Island NMS \$ 15 K

Huber, H. (Point Reyes Bird Observatory)
 Monitoring to Determine the Maximal Population
 of Elephant Seals at the Farallon Islands \$ 16 K

Perryman, W. (NMFS/SWFC)
 Monitor Use of the Channel Islands NMS
 by Cetaceans \$ 30 K

6. Office of Oceanography and Marine Assessment

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

FY84

Calambokidis, J. (Cascadia Research Collective)
 Biological Disorders Among Marine Mammals (harbor seal)
 and Birds in Puget Sound (NC 3202) \$ 0 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)

FY84

Cooper, C. (San Diego State U.)
Studies of Pinnipeds on Southern California
Channel Islands (F04701-8-C-0018) \$ 6 K

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 - FY84

(No projects)

3. Navy

A. Naval Ocean Systems Center

FY80

Bowers, C.A. (NOSC)
Marine Mammal Capabilities (Delphinapterus)
(MMO1510CO) \$350 K

Gilmartin, W.G. (NOSC) Captive Dolphin Breeding (<u>Tursiops</u>) (MMO2510B)	\$ 95 K
Gilmartin, W.G. and S.H. Ridgway (NOSC) Marine Mammal Medical Research and Animal Health (MMO1510N)	\$405 K
Hui, C.A. (NOSC) Dolphin Bioenergetics (<u>Delphinus</u>) (MMO2510H)	\$ 79 K
Nachtigall, P.E. (NOSC) Dolphin Behavioral and Biosonar Research (<u>Tursiops</u>) (MMO1510K)	\$600 K
<u>Tursiops</u> Directional Hearing (MMO2510D)	\$ 60 K
Ridgway, S.H. (NOSC) Neurophysiological Research (<u>Tursiops</u>) (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

FY82

Au, W.W. (NOSC) Dolphin Critical Bandwidth/Critical Ratio (MM02512D)	\$129 K
Haun, J.E. (NOSC) Dolphin Hydrodynamics (MM025121; ZS81512A; MM29512A)	\$345 K
Risso's Dolphin Echolocation (MM02512X)	\$ 50 K
Nachtigall, P.E. (NOSC) Dolphin Behavioral and Biosonar Research (MM01512K; MM01512D; MM01512Z)	\$331 K
Penner, R.H. (NOSC) Beluga Echolocation (MM02512K)	\$102 K
Ridgway, S.H. (NOSC) Signal Processing by Dolphins: Communication and Cognition (ZS39512A)	\$ 75 K
Marine Mammal Medical Research and Animal Health (MM01512N)	\$298 K
Schroeder, J.P. (NOSC) Captive Dolphin Breeding (MM02512B)	\$194 K

FY83

Au, W.W. (NOSC) Target Strength Characterization by Echolocating Dolphins (<u>Tursiops</u>) (MM02513D)	\$141 K
Friedl, W.A. (NOSC) Taste Reception in Dolphins and Sea Lions (MM01513R)	\$260 K
Haun, J.E. (NOSC) Dolphin Hydrodynamics (<u>Tursiops</u>) (MM02513T, MM29513A, MM30513A, ZS81513A)	\$440 K
Moore, P.W. (NOSC) Dolphin Echolocation Pulse Control (MM02513P)	\$130 K
Penner, R.H. (NOSC) Echolocation Comparisons (cetaceans) (MM02513K)	\$200 K
Ridgway, S.H. (NOSC) Marine Mammal Medical Research and Animal Health (MM01513N)	\$318 K

Schroeder, J.P. (NOSC)
 Captive Dolphin Breeding (Tursiops) (MM01513B) \$219 K

FY84

Au, W.W. (NOSC)
 Target Strength Characterization by Echolocating
 Dolphins (Tursiops) (MM02514D) \$155 K

Friedl, W.A. (NOSC)
 Taste Reception in Dolphins and Sea Lions
 (MM01514R) \$124 K

Haun, J.E. (NOSC)
 Dolphin Hydrodynamics
 (MM2514T, MM30514A, ZS81514A) \$165 K

Moore, P.W. (NOSC)
 Dolphin Echolocation Pulse Control (Tursiops)
 (MM02514P) \$160 K

Penner, R.H. (NOSC)
 Echolocation Comparisons (Tursiops and
Delphinapterus) (MM02514K) \$207 K

Ridgway, S.H. (NOSC)
 Marine Mammal Medical Research and
 Animal Health (MM01514N) \$326 K

Comparison of Underwater Acoustics of
Delphinapterus and Tursiops
 (ZT08514A) \$118 K

Schroeder, J.P. (NOSC)
 Captive Dolphin Breeding (Tursiops)
 (MM01514B) \$251 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

FY84

Evans, W.E. (Hubbs/Sea World Research Institute) Studies of Small Whale (<u>Grampus</u> and <u>Globicephala</u>) Movement Patterns Using Satellite and Acoustic Towed Array Technology (NR 104-157)	\$ 0 K
Haun, J.E. and H.W. Goforth, Jr. (NOSC) Biochemical and Anatomical Characteristics of Dolphin Muscle (<u>Tursiops</u>) (NR 104-181)	\$ 20 K
Schusterman, R.J. (California State U., Hayward) Marine Mammal Cognition (<u>Zalophus</u>) (NR 104-131)	\$ 62 K
Watkins, W.A. and W.E. Schevill (Woods Hole Oceanographic Institution) Marine Biological Sounds (cetaceans) (NR 083-004)	\$142 K

Department of EnergyFY80

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EVO1332)	\$ 30 K
---	---------

FY81

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EVO1332)	\$ 20 K
---	---------

FY82

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EVO1332)	\$ 25 K
---	---------

FY83-FY84

(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
Hawkrige, 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) (1R01AI18705-01)	\$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) (5R01AI18705-03)	\$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) (5R01HLL14680-12)	\$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
<u>FY84</u>	
Atassi, M.Z. (Baylor College of Medicine) Dissection of Antigen Recognition at the Clonal Level (mice, whales) (5R01AI21336-01)	\$150.1K
Immunochemical Studies of Hemoglobin and Myoglobin (whales) (5R01AM33969-02)	\$162.4K
Berzofsky, J.A. (NIH) Genetic Control of the Immune Response to Natural Antigens (cetaceans) (1Z01CB04020-08)	\$ 0 K
Gurd, F.R. (Indiana U.) Structure and Reactivity of Proteins and Lipoproteins (5R01HLO5556-25)	\$172.2K
Specific Enrichment of Myoglobins for Carbon 13NMR (cetaceans, cattle, human)	\$144.3K
Kooyman, G.L. (U. California, San Diego) Comparative Respiratory and Exercise Physiology (seals, sea lions, porpoises) (5P01HLL17731-10)	\$ 0 K
Ortiz, C.L. (U. California, Santa Cruz) The Physiology of Fasting in Young Northern Elephant Seals (2S06RR08132-10)	\$ 0 K
Stoskopf, M. (Johns Hopkins U.) Anatomy of the Pinniped Anterior Chamber (5P40RR00130-21)	\$ 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

\$ 31 K

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

--Sea Otters and Marine Otter

\$385.2K

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

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 Nicolas 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

FY 84

--Alaska Marine Mammals (946.2) \$323.7K

(Polar Bear, Walrus, Sea Otter)

Johnson, A. and S. Amstrup (FWS/DWRC)
 Distribution, Timing, and Importance of
 Polar Bear Maternity Denning in Alaska (946.21)

Movement and Distribution Patterns
 of Alaskan Polar Bears (946.23)

Biological Parameters of Polar Bears of
 the Western and Northern Populations (946.24)

Evaluation of Areas for Potential Use for
 Population Assessment, Investigation of Hauling
 Out Patterns, and Determination of Basic Biology
 of Walruses on Hauling Grounds (946.25)

Annual and Seasonal Distribution, Abundance, and
Composition of Populations of Sea Otters and
Other Marine Mammals at Prince William Sound,
Alaska (946.26)

Biological Basis for Determining OSP, Estimating
Sustainable Yield, Delineating Stocks, and for
Identifying Factors Important to Effective Zonal
Management of Sea Otters in Southeastern Alaska (946.27)

--California Sea Otters, Marine Otter, and Hawaiian Monk Seal
(960.2) \$179.9K

Estes, J., R. Jameson, and G. Van Blaricom (FWS/DWRC)
Abundance, Size, and Status of Sea Otter
Populations (960.21)

Physiology, Behavior, and Life History of
Sea Otters in California (960.22)

Interaction Between Sea Otters and
Nearshore Communities (960.23)

Status of the Marine Otter (960.24)

Status of the Hawaiian Monk Seal (960.25)

California Department of Fish and Game
Salvage/Necropsy (sea otter)
(Section 6, ESA) \$ 53 K

Monitor Populations (sea otter)
(Section 6, ESA) \$ 40 K

Doyle, W. (U. California, Santa Cruz)
San Nicolas Island Ecological Study (sea otter)
(14-16-0009-78-937; Section 15, ESA) \$ 53 K

Siniff, D.B. (U. Minnesota)
Initial Studies of Radiotelemetry Implants
in California Sea Otter (14-16-0008-1217;
Section 15, ESA) \$ 11.3K

--Marine Mammal Support Services (904.3) \$ 70 K

Brownell, R. (FWS/DWRC)
Marine Mammal Support Services

--Sirenia (960.1)		\$241.8K
Rathbun, G. and T. O'Shea (FWS/DWRC)		
Status, Distribution, Movements, and		
Population Biology of All Taxa of		
Sirenians (960.11)		
Basic Reproductive and Behavioral Characteristics		
of the West Indian Manatee (960.12)		
Ecosystem Relationships of the West Indian		
Manatee (960.13)		
Causes of Mortality and Biological Studies on		
Materials Salvaged from Carcasses of the West		
Indian Manatee in the U.S. and Puerto Rico (960.14)		
Florida Department of Natural Resources		
Manatee Public Awareness (Section 6, ESA)	\$ 15	K
Odell, D. (U. Miami)		
Marine Ecosystem and Habitats with Specific		
Reference to Manatee Salvage and Mortality		
(14-16-0009-79-935; Section 15, ESA)	\$ 20	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

FY84

Whitmore, F.C. (USGS)
Vertebrate Biostratigraphy (fossil cetaceans)
(9590-02738) \$ 71 K

3. Minerals Management Service
(This agency defines all their projects as studies)

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-MU0-21)	\$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-IA0-32)	\$ 41.9K
Lindner, E. (NOSC) Effects of Sound on Marine Mammals (AA851-IA0-5)	\$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 and Humpback Whales (14-12-0001-29033)	\$620.3K
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
<u>FY84</u>	
Brueggemen, J. (Envirosphere Co.) Winter Monitoring of Bowhead Whales in the Navarin Basin Through Association with Sea Ice (14-12-0001-30182)	\$ 57.1K
Ford, R.G. (Ecological Consulting) Completion of Marine Mammal and Seabird Risk Analysis of Southern California (14-12-0001-30224)	\$ 38.8K

Geraci J. and D. St. Aubin (U. Guelph) Study of Effects of Oil on Marine Mammals (14-12-0001-29169)	\$480.3K
Ljungblad, D. (Naval Oceans Systems Center) Aerial Surveys of Endangered Whales: Northern Bering, Chukchi and Beaufort Seas (14-12-0001-29056)	\$1,104.7K
Malme, C.I. and P.R. Miles et al. (Bolt, Beranek and Newman, Inc.) Investigations of the Potential Effects of Acoustic Stimuli Associated with Oil and Gas Exploration/ Development on the Behavior of Migratory Gray Whales and Humpback Whales (14-12-0001-29033)	\$ 0 K
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)	\$ 0 K
Reed, M. (Applied Science Associates, Inc.) Computer Simulation of the Probability of Endangered Whale Interaction with Oil Spills in the Beaufort, Chukchi and Bering Seas (14-12-0001-30076)	\$227 K
Simulation Modeling of the Effects of Oil Spills on Population Dynamics of Northern Fur Seals (14-12-0001-30145)	\$112 K
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 Bowhead Whale (14-12-0001-29051)	\$553.7K
Setzler-Hamilton, E. (U. Maryland, Eastern Shore) Development of Visual Matrix Charts Which Categorize Research Literature on Endangered Marine Mammals (14-12-0001-30208)	\$ 74.7K
Siniff, D.B. (U. Minnesota) Population Status of California Sea Otters (14-12-0001-30033)	\$ 86.1K
Thomas, J., L. Cornell, R. Davis and T. Williams (Hubbs/Sea World Research Institute) Sea Otter Oil Spill Mitigation Study - Phase I (14-12-0001-30157)	\$463.2K

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

FY83

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

Burns, J., L. Lowry and K. Frost (Alaska Dept.
 Fish and Game)
 Biological Investigations of Belukha Whales of
 Alaska (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

FY84

Bruggeman, J.J. (Envirosphere)
 Aerial and Shipboard Surveys for Endangered Whales
 in the Naverin Basin, Bering Sea, Alaska (RU625) \$ 5.1K

Analysis of Seal, Sea Lion, Walrus and Belukha
Whale Data from 1979 Aerial and Vessel Surveys of
the Naverin Basin (RU669) \$ 32.3K

Burns, J. (Alaska Dept. Fish and Game)
Monitoring Relationships of Ringed Seals to
Geophysical Exploration and Habitat Characteristics
(RU232) \$143 K

Burns, J., L. Lowry and K. Frost (Alaska Dept.
Fish and Game)
Ringed Seal Monitoring (RU667) \$ 65.4K

Fishman, P. (Fishman Environmental Services)
Lethal and Sublethal Effects of Oil on Food
Organisms of the Bowhead Whale (RU662) \$ 35.9K

Van Holliday, D. (Tracor, Inc.)
Direct Effects of Acoustic Disturbance on
Ringed Seal Reproduction, Behavior, Vocalizations
and Communication (RU636) \$113.5K

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

FY84

Channel Islands National Park Logistics Assistance to NOAA, California Projects	\$ 3 K
Fellers, G.M. (Point Reyes National Seashore) Management and Data Collection Assistance to NOAA (harbor seal and sea lions)	\$ 7 K
Wing, B.L. and K.J. Krieger (NMFS, Auke Bay) Glacier Bay Humpback Whale Prey Studies (IA-9700-3-8027)	\$225 K

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

FY84

Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$ 35.5K
Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$673.9K

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 - FY84

(No projects)

Environmental Protection AgencyFY80 - FY84

(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

FY81

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

FY82

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

FY84

Allen, S. (Point Reyes Bird Observatory)
 Effects of Housing Development on Harbor Seals at
 Strawberry Spit, San Francisco Bay, California
 (MM2910890-9) \$ 7 K

Bean, M.J. (Environmental Defense Fund)
 Domestic and International Authorities Applicable
 to the Entanglement Problem (MM2629994-7) \$ 6.5K

Bengston, J.L. Development of a Long-Range Plan to Detect and Monitor the Possible Effects of Krill Harvest on Whales, Seals, and Other Components of the Antarctic Marine Ecosystem (MM2629914-1)	\$ 49.2K
Bishop, J.B. Observations of Gill and Trammel Net Fisheries in Morro Bay, California (MM2629900-7)	\$ 18.2K
British Antarctic Survey Support for International Symposium and Workshop on the Biology of Fur Seals (MM2910700-7)	\$ 1.5K
Brownell, R.L., Jr. Recovery of Beach Cast Gulf of California Harbor Porpoise Carcasses (MM2910771-9)	\$ 1.8K
Center for Ocean Management Studies (U. Rhode Island) Support for Conference on Antarctic Politics and Marine Resources (MM2910791-3)	\$ 5 K
Davidson, J.R. (U. Hawaii) International Workshop on Marine Mammal Entanglement in Lost and Discarded Fishing Gear and Other Debris (MM269949-7)	\$ 4 K
Foster, M.S. (Moss Landing Marine Laboratories) Effects of Sea Otter Foraging on Kelp Forest Communities (MM2910919-9)	\$ 10 K
Friends of the National Zoo Workshop on Genetic Management of Captive Populations (MM2910864-0)	\$ 3 K
Garrett, T. Status of Manatee Populations in Greater Caribbean Area (MM2629993-4)	\$ 4.5K
Green-Hammond, K. (Ecosystem Modeling, Inc.) Preparations for the 1984 Meetings of the Commission and Scientific Committee for the Conservation of Antarctic Marine Living Resources (MM2629905-7, MM2910729-1)	\$ 7.5K
Hatfield, B.B. and B.W. Arnold Observations of Gill and Trammel Net Fisheries in and near the California Sea Otter Range (MM2910872-1, MM2910887-3, MM2910891-2)	\$ 7.8K
Heneman, B. Assessment of Incidental Take Rates of Sea Otter, Harbor Porpoise and Other Marine Mammals in California Coastal Waters (MM2910866-6)	\$ 24.4K

Kraus, S.D. and J.H. Prescott (New England Aquarium) Review of Status and Development of a Research and Management Plan for the Northwest Atlantic Right Whale Population (MM2910905-0)	\$ 24.8K
Census and Photographic Identification of Right Whales in the Bay of Fundy (MM2910793-9)	\$ 4 K
Lentfer, J.W. and Associated Contractors Development of a Long-Range Plan to Protect and Conserve Marine Mammals in Alaska (MM2910798-4, MM2910861-1, MM2910862-4, MM2910886-0)	\$ 46.8K
North Pacific Fishery Management Council Survey of Lost and Discarded Fishing Gear on Beaches Along Southeast Alaska (MM2910786-1)	\$ 4 K
Pacific Western Aerial Surveys Photoreconnaissance of Disabled Oil Tanker Off Big Sur, California (MM2910748-9)	\$ 1.6K
Participant Travel Workshop on Methods and Procedures for Making Optimum Sustainable Population Determinations (MM2910818-7, MM2910837-8, MM2910860-8)	\$ 2.8K
Point Reyes Bird Observatory Workshop to Assess Possible Methods for Regulating the Distribution and Movements of Sea Otters (MM2910916-0)	\$ 8 K
Reynolds, J.E. Assessment of Bottlenose Dolphin/Fishery Interactions in Coastal Waters of the Southeastern United States (MM2910892-5)	\$ 2.6K
Risebrough, R.W. (Bodega Bay Institute) Accumulation of Heavy Metals and Chlorinated Hydrocarbons in Sea Otters (MM2910790-0)	\$ 7.2K
Shallenberger, E.W. (Pacific Basin Maritime, Inc.) Assessment of Marine Mammal/Fishery Interactions in Hawaii (MM2629897-7)	\$ 2.5K
Shane, S.H. Interactions Between Pilot Whales and Fisheries Near Santa Catalina Island, California (MM2629899-3, MM2910859-8)	\$ 9 K
Southeast Fisheries Center, NMFS Tag-Resighting Surveys of Bottlenose Dolphins in the Mississippi Sound (MM2910909-2)	\$ 15 K

Tinney, R.T., Jr. Update Assessment of Oil Spill Risks on the California Sea Otter Range (MM2910765-4)	\$ 4.3K
Van Wagenen, R.F. Mapping and Monthly Surveys of Kelp Canopies in the California Sea Otter Range (MM2910735-3)	\$ 9.9K
Waring, G.H. (Southern Illinois U., Carbondale) Survey of Federally-Funded Marine Mammal Research (MM2910918-6)	\$ 2.5K
Winn, H.E. (U. Rhode Island) Aerial Surveys of Right Whales in the Great South Channel (MM2910792-6)	\$ 3.3K

National Aeronautics and Space Administration

FY80

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 - FY84

(No projects)

National Science Foundation

FY80

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 <u>Ursus</u> (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 <u>Orcinus</u> and <u>Globicephala</u> 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

FY82

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

FY84

Costa, D.P. (U. California, Santa Cruz)
Bioenergetics of the Antarctic Fur Seal
(DPP 84-43673) \$ 73.2K

Erickson, A.W. (U. Washington)
Antarctic Marine Ecosystem Research at the
Ice Edge Zone (AMERIEZ): Census of Seals
and Other Marine Mammals (DPP 82-18339) \$ 49.9K

Herman, L.M. (U. Hawaii)
Dolphin Information Processing: Linguistic
Competencies (BNS 81-09653A1) \$ 16.9K

Dolphin Information Processing: Cognitive
Characteristics (BNS 84-08465, BNS 81-09653A2) \$150.1K

LeBoeuf, B.J. (U. California, Santa Cruz)
Biological Studies of Northern Elephant Seals
(BSR 84-40769, BSR 81-17024A1, BSR 85-40404,
BSR 81-17024A2) \$ 61 K

Morgane, P.J. (Worcester Foundation for Experimental
Biology)
Neocortical Formations of Dolphin Brain (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)	\$ 66.8K
Siniff, D.B. (U. Minnesota) Behavior and Ecology of Weddell Seals (DPP 83-18473)	\$109.8K
Seasonal Movements and Interactions of Weddell Seals and Antarctic Cod in McMurdo Sound, Antarctica (DPP 84-41958)	\$ 90 K
Zapol, W.M. (Massachusetts General Hospital) Diving Physiology of the Fetal Weddell Seal (DPP 81-00212)	\$ 19.9K

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

FY84

Boness, D., K.A. Ono and O. Oftedal (National Zoological Park) Maternal Investment and Pup Development in California Sea Lions	\$ 42.5K
Mead, J.G. (National Museum of Natural History) Marine Mammal Program (85337100)	\$125 K
Ray, C.E. (National Museum of Natural History) Fossil Marine Mammals	\$ 40 K

Veterans AdministrationFY80-FY84

(No projects)