

Survey of Federally-Funded Marine Mammal Research and Studies  
FY 70 - FY 82

George H. Waring

Southern Illinois University  
Carbondale, Illinois

August 1983

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SURVEY OF FEDERALLY-FUNDED  
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FY 70 - FY 82

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

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## PREFACE

The following review of federally-funded marine mammal research and studies is a reference document presented 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.<sup>1</sup> 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 Sec. 205 of the Act, the Commission is provided access to all studies and data compiled by federal agencies regarding marine mammals so as to ensure that unnecessary duplication of research is avoided and to carry out the purposes of the Act.

The user of this document will find the Table of Contents especially helpful for locating specific information and for understanding the organization and breadth of the material. The first section is an overview of all federally-funded research involving marine mammals. The second section focuses upon research and studies conducted under authority of the Act. The last section lists all research projects identified in the FY80 to FY82 surveys.

The data came from two major sources: (1) directly from agency officials at the request of the Marine Mammal Commission and (2) from the Smithsonian Science Information Exchange. More than two dozen U.S. government agency offices were surveyed by the Commission. Principal investigators have on a few occasions supplemented information on their projects. Appendix A is a listing of publications identified by the agencies as sources (or pending sources) of marine mammal information resulting from federally-funded research. Unless otherwise noted, the tables and figures summarize data supplied directly to the Commission by each agency. Appendix B is a listing of all FY80 to FY82 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.

27 June 1983

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

<sup>1</sup>See Waring, G.H. 1981. Survey of federally-funded marine mammal research and studies, FY70-FY79. Final report for MMC contract MM1533588-3. U.S. Dept. Commerce, National Technical Information Service PB81-174336. 235p.

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## 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 FY82. 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-FY82 was 142 (Table 2). The trends of these data are depicted in Figure 1. Data for year 76 include the 12-month fiscal year plus a transition quarter (TQ76=July to September 1976) when the first day of the federal fiscal year was shifted from 1 July to 1 October. Total funds expended by each agency annually for marine mammal research are shown in Table 3. Funding by geographic region, taxonomic group, and research issue are listed in Tables 4, 5, and 6, respectively.

## FEDERAL AGENCIES FUNDING MARINE MAMMAL RESEARCH

Department of Agriculture (USDA)

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

Department of Commerce (DOC)

The Department of Commerce, through the National Marine Fisheries Service (NMFS), conducts marine mammal and fisheries research with emphasis on resource surveys, biological and ecological investigations, and resource management for the use and conservation of living marine resources. The cetaceans and pinnipeds (exclusive of the walrus) are among the responsibilities of this Department. Research funding has been concentrated on the northern fur seal, the incidental take of porpoise in the yellow-fin tuna purse-seine fishery, and whale assessment. In addition, the National Sea Grant College Program (NSGCP) and other offices 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) 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 through 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, and 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 Bureau of Land Management, 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	2	-	-	-
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 FY74-82, COMPARING SMITHSONIAN SCIENCE  
INFORMATION EXCHANGE DATA (A) TO INFORMATION PROVIDED DIRECTLY  
TO THE MARINE MAMMAL COMMISSION BY EACH AGENCY (B)

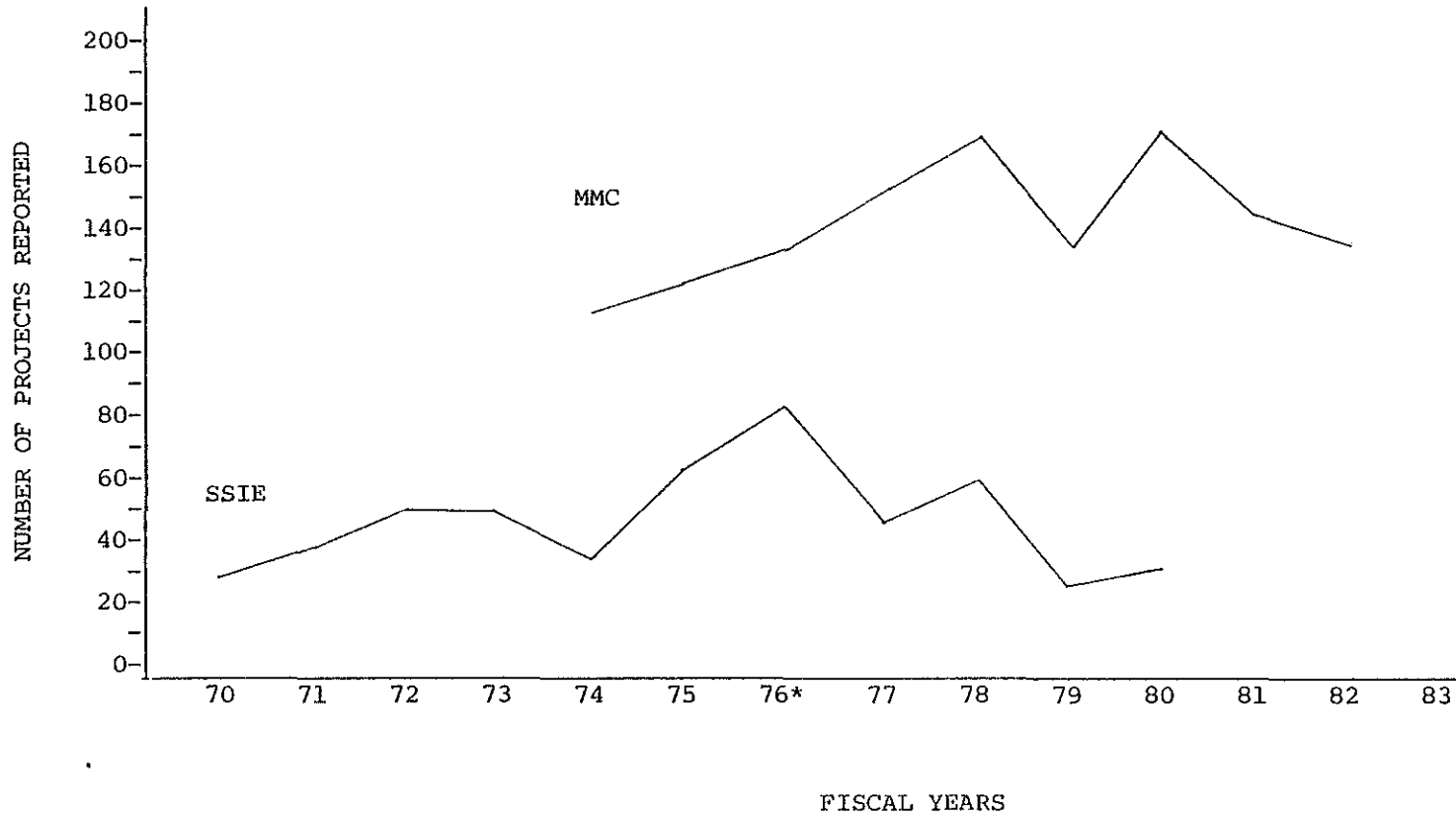
	FY74		FY75		FY76		FY77		FY78		FY79		FY80		FY81		FY82	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Department of Agriculture	3	2	3	1	1	-	-	-	1	-	-	2	-	1	4			-
Department of Commerce																		
National Marine Fisheries																		
Service	9	13	7	8	10	9	-	13	15	14	-	14	-	34	30			25
Sea Grant	3	4	1	2	4	1	3	1	-	2	-	2	-	2	2			1
NOAA/OCSEAP (see below)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
North Pacific Fishery																		
Management Council	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1			1
Ocean and Coastal Re-																		
source Mgmt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2			4
Department of Defense																		
Air Force	-	-	-	-	-	-	-	-	-	-	1	-	1	1				-
Army	-	-	-	-	-	-	-	-	-	-	1	-	2	-				-
Naval Ocean Systems Ctr.																		
(NMC)	2	16	8	8	3	7	-	14	2	17	2	8	3	9	6			8
Naval Research Laboratory	-	-	-	-	-	-	-	-	-	-	1	-	-	-				-
Office of Naval Research	3	10	10	6	7	6	1	7	10	7	8	11	12	8	7			6
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
Department of Interior																		
Fish & Wildlife Service	-	15	-	20	-	27	5	40	2	43	-	52	1	44	32			27
Geological Survey	-	-	1	-	1	-	-	1	1	1	-	1	-	1	1			1
Minerals Mgmt. Service	-	-	-	1	-	4	-	3	-	4	-	7	2	12	8			10
MMS/NOAA/OCSEAP	-	-	-	3	-	16	-	11	-	11	-	6	-	6	7			9
National Park Service	-	1	-	1	-	2	2	3	-	5	-	2	-	2	4			3
Department of State	-	-	-	-	-	-	-	-	-	2	-	1	-	1	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
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			9
Smithsonian Institution	-	4	2	4	2	2	3	2	-	2	-	2	-	2	2			3
Veterans Administration	-	-	1	-	2	-	-	2	2	2	-	-	-	-	-			-
TOTAL	35		64		82		46		60		28		32					
SSIE Data																		
MMC Data	113		122		133		153		168		137		172		146			137

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.



\*Includes Transitional Quarter (July-September 1976)

TABLE 3

FEDERAL FUNDING OF MARINE MAMMAL RESEARCH  
(Thousands of Dollars)

	<u>FY74</u>	<u>FY75</u>	<u>FY/TQ76</u>	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>
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	5156.7	4421.1	3896.4
National Sea Grant Program	77.2	82.3	19.8	25.8	49.7	68	59.7	35.1	30
North Pacific Fishery Mgmt. Council	---	---	---	---	---	---	97.2	28.9	10
Ocean and Coastal Resource Mgmt.	---	---	---	---	---	---	---	67	56.6
Department of Defense									
Air Force	---	---	---	---	---	40	15	79.2	---
Army	---	---	---	---	---	44	122	---	---
Naval Ocean Systems Ctr.	658	425	361	718	545	717	1979	1729	1524
Naval Research Laboratory	---	---	---	---	---	20	---	---	---
Office of Naval Research	485.4	270	260.1	414	430	538.4	462.8	302.6	204
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
Department of Interior									
Fish & Wildlife Service	706	734.2	933	933	1042.7	1452.5	1418.9	1127.2	1221
Geological Survey	---	---	---	31.2	30.5	20	30	50	50
Minerals Mgmt. Service	---	706.7	2046.4	2242	2519.8	7457.3	6134.2	3413.8	3856.9
National Park Service	6	6	17.2	16.5	64.8	45.8	68	376.9	223
Department of State	---	---	---	---	51	500	592.9	719.4	644.6
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
National Aeronautics & Space Administration	45	100	194	50	65	---	12	143.3	---

∞



TABLE 3 (continued)  
Federal Funding of Marine Mammal Research

	<u>FY74</u>	<u>FY75</u>	<u>FY/TQ76</u>	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>
National Science Foundation	515.6	292.8	690.4	718.9	334.2	479.3	677.6	612.5	416.9
Smithsonian Institution	68.5	80.1	102	106.1	101.1	133.4	142.8	152.3	148.8
Veterans Administration	---	---	---	102.6	98.9	---	---	---	---
TOTAL	\$5013.3K	\$6181.3K	\$7748.5K	\$8953.2K	\$10,164K	\$16,696K	\$18,055K	\$14,253.5K	\$13,290.5K

TABLE 4

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

(Thousands of Dollars; Number of Projects in Parentheses)

Geographical Region	74	75	Fiscal Year		78	79	80	81	82
			76*	77					
Hawaii	---	5 (1)	51.5 (2)	102.6 (8)	118.2 (6)	71.4 (2)	411.1 (11)	114.8 (2)	130 (2)
Alaska	780.4 (22)	1,670.5 (31)	2,451.5 (36)	2,861.7 (39)	3,336.8 (46)	3,746.7 (17)	5,407.4 (34)	3,992.1 (29)	4,949.4 (31)
Oregon/ Washington	17 (1)	87.3 (6)	81.6 (6)	43.5 (2)	60.3 (4)	68 (2)	229.9 (2)	234.5 (5)	15.6 (2)
California	102.5 (4)	805.4 (9)	1,370 (18)	1,132 (11)	317.2 (12)	1,675.2 (11)	3,234.9 (19)	862.3 (13)	1,160.7 (17)
Gulf of Mexico	7.9 (1)	---	6 (1)	---	2.4 (2)	144.3 (1)	200 (1)	330.8 (2)	275.5 (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)
Georgia, South Carolina and North Carolina	---	---	---	199.9 (1)	---	---	200 (2)	296.3 (1)	4 (1)
NE Coastal States	31.9 (3)	43.3 (3)	56.2 (5)	29.3 (3)	1,484 (4)	2,762.9 (1)	292.7 (14)	1,025.1 (8)	170 (6)

\*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						60									60
(Manatees						119.2									119.2
and Dugong)						173.8									173.8
						190.2					50				240.2
						267.1					15				282.9
			44			580.5				0.8					624.5
			122			328.7				109					559.7
						358						46.5			404.5
						353									353
Carnivora						90									90
(Polar Bear				18.3	27.3	375				15.3					435.9
and Sea				28		629.3				103.2					760.5
Otter)				30		587.3				40.6					657.9
				30		717.7				49.9					797.6
		59.7				809.4						22.6			891.7
		71		30		718						36.3			855.3
	22.2	5.1		20		639.2				18					704.5
				25		914				5.6					944.6
Pinnipedia	37.2	586.8	90		56.3	6				56.2		268	49.5		1150
(Seals, Sea	9.3	752.7	140		210.7	171				154.9		156.6	51.8		1647
Lions and		760.5	147		116.2	684.6				54.3		268.3	59.2		2090.1
Walrus		783.8	274		141.3	763.5				64.8		131.1	56.1	102.6	2317.2
		858.7	325			664.6				33.7		141.5	45		2068.5
	200	956.7	246		76.6	589				59.1		243.2	47.4		2418
		1454.7	353		43.5	467.7				106		240.7			2665.6
		940.2	149.2		51.4	541.9				56		330.3			2069
		1036.4	50		38.4	385.1				12		215.4	11.8		1749.1
Cetacea		695.5	344		294.2					77.9		170.1	19		1600.7
(Whales and		675	250.5		365.1					190.9		61	28.3		1570.8
Porpoises)		709.7	263.1		114.3	126.2				262.8		275.2	42.8		1794.1
		1555.8	527		144.6	253.4				124.9		213.1			2818.8
		2794.2	446		149.6	278				169.7		163.1			4000.6
		3326.3	746.4		74.1	2937.5	500			81		187.9			7853.2
		3542.8	1583.8		167.1	2200.8	592.9			133.7		380.8			8601.9
	44.6	3118	1485.6		463.4	1817	719.4			34.4	143.3	235.7			8061.4
		2304.2	1355		229.9	2607.1	644.6			28		158.3			7327.1

Table 5 (Continued)

	USDA	DOC	DOD	DOE	DHHS	DOI	DOS	DOT	EPA	MMC	NASA	NSF	SI	VA	TOTAL
Mixed Species	74		13.6	682.4		566.4	556		47	124.7	45	77.5			2112.6
or General	75		41.2	304.5		970.4	781.7		49.8	85.6	100	75.2			2408.4
Studies	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		622.4	323		630.9	1091.7			38.5		43.2	137		2886.7

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	FUNDING AGENCY
Tuna/Porpoise: Population Assessment	85.1	108	81	516.5 2	524.5	462.7	676.9	615	462 4	NMFS MMC DOS
Mortality Reduction	167.4	140.2	120 178 119.6	299.6 97.1	487.6 67.4 48	512.9	592.9 433.1	687.1 5.6	303.6	NMFS MMC NSF Navy
Assessment of Taking	3.5	9.8	179 12.4	189.6	318.7	329.5	346.9	246.7	320.7	NMFS MMC
Biology	271.3 26	342.9	136	138.1 12.5	220.4 10	705.3	382.4 31.6	430.2	318.3	NMFS Navy MMC NSF
International Whaling Convention: Assessment of Stocks and Taking (overview studies)	32	(33.6)	(38.7) 26.3 21.5	(52.8) 33.5	(103) 19.8	70.9	340.5 65	32.3 433	35.4	DOS NMFS MMC NSF
Marine Mammal/Fisheries Conflicts: Southern Ocean Krill			10	14.5	4 51				10	MMC DOS NSF
Fin Fish/Pinniped Interactions		17.7	19.8	25.8	49.7 59.3	25.6 68	4.9 604.6	30 32.5	30 10	NSGCP MMC
Shell Fish/Sea Otter Interactions						70	6 4.5	5.1 142.4	309.3	NMFS NSGCP FWS NMFS
Fin Fish/Porpoise Interactions							2		10 5	NPFMC MMC
Incidental Taking									10 (29)	MMC NMFS
Effects of Oil and Gas Dev. on Marine Mammals: Physiological Studies			91.5	59 2.8	65	1097.8	394.1	111.8 2	1390.3	MMS MMC
Risk Analysis									184.4	MMS

SPECIAL RESEARCH ISSUE (Cont.)	FISCAL YEAR									FUNDING AGENCY	
	74	75	76	77	78	79	80	81	82		
Marine Mammal Strandings: Biological Studies	15 (6.4)	25 (18.3)	32.3 (42.8) 6	15 (11.9) 70.4 (15)	(14.6)	(30)	3.5 (18.7)	(15) 20 (15)	30	(20) 31.5	MMC SI NMFS MMS FWS
Bowhead Whales: Assessment of Stocks and Taking	16	(20.6)	(38.7) (44.1)	201 (42.5)	724 (167.2) 6.7	871.1	737.2 591	765.1 345.3	456.9		NMFS MMS MMC MMS
Biology							590				
Humpback Whale: Population Assess- ment			(38.7)	(52.8)	(103)	15	39.1	70.7	39		NMFS
Biology			11.2	10	31.3	39.8	63	376.3 4.1	223		MMC NPS NMFS NSF Navy
Gray Whale: Population Assess- ment	31.4	(32.7)	(38.8)	(52.8)	(103)	25.7	37	9			NMFS Navy
Assessment of Human- Induced Impact		14.7	16.5	9.8	20.6			3.8	6		MMC
Biology							187.7	58.1	497		MMS
Northern Right Whale: Population Assess- ment:								27.8 3	25 4 9		NMFS MMC Navy
Biology											
Killer Whale: Population Assess- ment	17	(17.6) 37.9	(38.8)	(52.7)		3	7.9 (15.3)				NMFS MMC NSF
Pilot Whales: Population Assess- ment	10										Navy NSF
Biology	(6.3)	(5)			(15.3)				10		SI USDA

SPECIAL RESEARCH ISSUE (Cont.)	FISCAL YEAR									FUNDING AGENCY
	74	75	76	77	78	79	80	81	82	
Belukha: Population Assessment			(44)	(42.5)	(17.2)			49.8		MMS
Biology			20	10	25		350	525	134 102	MMS Navy
Harbor Porpoise Population Assessment:							45		30	NMFS
Dall Porpoise: Population Assessment					210	6.9	264		(228)	NMFS
Bottlenose Dolphin: Population Assessment	55	68.3			1.9					MMC
Biology	211 38.1 54.3	100 55.6	133 20 15.8	270 86.7 31.8	168 92.8 0.5	180.8 467 85.3 9	219.9 903.9 90.1	221.8 850 107	248.3 1074 48.9 4	MMC NMFS Navy DHHS NSF MMC NMFS
Northern Fur Seal: Population Assessment and Monitoring	395.2	339.5	354.4	352	(367)	430.2	246	156.6	263.3	NMFS
Biology	145.5	330.9 32.2	330.2	366 70	384 96	269.3 88	410.9	420.2	285.4	NMFS MMC Navy
Guadalupe Fur Seal: Population Studies			(13.3)	(13.3)	(16.7)					NMFS
Antarctic Seals: Population Studies	125.8	115.8			50.3	97			68.4	NSF
Biology	64.3	15.2	241.1	172.7	89	70.4	171.7	290.2	24.8	NSF
Arctic Seals: Population Studies	18.3 9.7	(20.6)								NMFS NSGCP
Biology	7	55	78 136	157 201.1	85 237.6	212		281.6 38.8	157	MMS MMC NSGCP MMS NSF

SPECIAL RESEARCH ISSUE (Cont.)	FISCAL YEAR									FUNDING AGENCY
	74	75	76	77	78	79	80	81	82	
Hawaiian Monk Seal: Population Assessment		55	38.2 (13.3)	52.3 (13.3)	52 (16.7)	31.2 3	60.9 50.9 138.3	31	(28) 102	MMC FWS NMFS
Biology				34.1	25.8		34.9			MMC
Gray Seal: Population Studies:	(5.2)			10.2						MMC NMFS
Biology		90	110	10	30			2.3 1.3		Navy
Harbor Seal:									15	OOCRM NSGCP
Population Studies	(5.3) 6	27 6	33.5 6 3	17.7 6	5.2 31	6 11.5	53.7 39.4	23.5 3.5		MMC NPS NMFS
Biology		2.3	8.6 65	2.8 60	(50)	50	25		20	MMC MMS Navy NMFS
Northern Elephant Seal: Population Studies			(13.3)	(13.3)	(16.7)	4.1				NMFS
Biology	27.9	25.9	27.2	33.1	31.8	41.2 10	30.2 5.3 43.5		45 12 38.4	NSF MMC DHHS
California Sea Lion: Population Studies			7				82.5			NMFS
Biology	37.2 40 29.3 50	9.3 35 64.7 2	37	74	110	200	247			USDA Navy DHHS NSF MMC SI
Steller Sea Lion: Population Studies			157.1	145.5	155	148	95			MMS NMFS
Walrus: Population Studies		(160)	112.8	141.6	52	141.8	231.8	99 130.3	(50) 150.1	FWS MMS MMC NSGCP MMC
Biology	17.6 38.7	27.3 48.4			5	20			77.2	NSF



SPECIAL RESEARCH ISSUE (Cont.)	FISCAL YEAR									FUNDING AGENCY
	74	75	76	77	78	79	80	81	82	
Manatees & Dugong: Population Studies	(60)	100	(143.8)	159.7 50	(236.6) 0.5 0.8	(290.3)	(265.7) 3 109	(300)	(150)	FWS NASA NPS MMC MMS
Biology		19.2	(30)	(30)	(30)	144.3* (127.2) 44	45 122	(52)	(173)	FWS Army
Polar Bear: Population Studies	(45)	214.3	(401)	(303.1)	(223.1)	251	(140.8)	(200)	(80)	FWS
Biology		35.7	(50)	(50) (150)	(50)	22.6	(50) 36.3	(54)	(140)	FWS NSF
Sea Otter: Population Studies	(45)	(125)	157.2 21.1	151.9	352.1	(530.4)	(400)	(185.2)		FWS MMS
Biology	13.5	27.3 15.3 18.3	103.2 28	40.6 30 23.3 59	49.9 30 27.5	(28)	30 (189.8)	16 20 200	5.6 25 470 124	DHHS MMC DOE FWS MMS

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

\*Pilot Study: Only 5-10% was for study of manatees.

## 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. 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 verses administrative responsibilities within the National Marine Fisheries Service and the Fish and Wildlife Service from FY73 through FY82 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 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 FY 73 and FY 74. Funds appropriated for this research remain available until expended [Sec. 111(a)].

Both the Secretary of Commerce and the Secretary of 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 Interior and two-thirds of the Secretary of Commerce [Sec. 110 (a) (b) (c)].

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

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

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

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

TABLE 7  
 FEDERAL FUNDING UNDER THE MARINE MAMMAL PROTECTION ACT  
 (Thousands of Dollars)

	AUTHORIZED <sup>a</sup>					REQUESTED <sup>b</sup>					APPROPRIATED <sup>c</sup>				
	Sec 109	Sec 110	Sec 114	Sec 207	Total	Sec 109	Sec 110	Sec 114	Sec 207	Total	Sec 109	Sec 110	Sec 114	Sec 207	Total
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
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
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	-	-	-	940	940
FY82	-	-	-	1000	1000	-	-	-	1000	1000	-	-	-	734	734

\*Section 111 funds

<sup>a</sup>Authorized under sections of the Act

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

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

TABLE 8

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

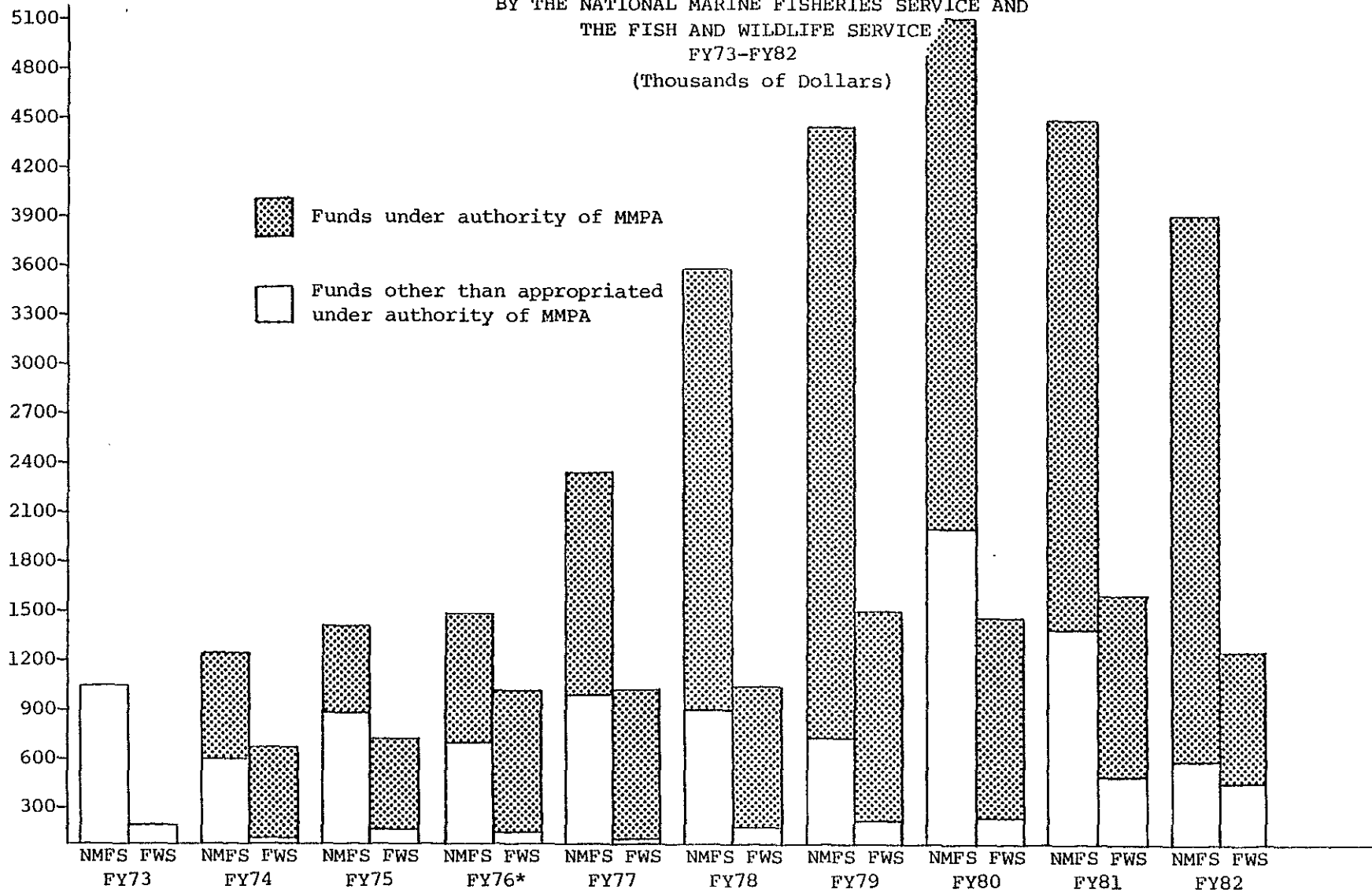
<u>NOAA/National Marine Fisheries Service</u>	<u>Source</u>	<u>Amount</u>
FY73	NMFS Reprogramming	300
	NOAA Reserve	424
	Fur Seal Act Authorization	309
FY74	Fur Seal Act Authorization	309
	Reprogramming and Reserve	295
FY75	Fur Seal Act Authorization	395
	NOAA Reserve	442
FY76	Fur Seal Act Authorization	595
	NMFS Reprogramming	59
TQ76	Fur Seal Act Authorization	148
FY77	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	294
	Saltonstall-Kennedy Reserve	78
FY78	Fur Seal Act Authorization	595
	Endangered Species Act Authorization	294
FY79	Endangered Species Act Authorization	132
	Fur Seal Act Authorization	595
FY80	Endangered Species Act	1428.4
	Fur Seal Act Authorization	595
FY81	Endangered Species Act	775
	Fur Seal Act Authorization	595
FY82	Endangered Species Act	0
	Fur Seal Act Authorization	595
<u>DOI/Fish and Wildlife Service</u>		
FY73	FWS Appropriation	149
FY74	FWS Appropriation	49
FY75	FWS Appropriation	75
FY76	FWS Appropriation	67.2
TQ76	FWS Appropriation	16.1

Table 8 Continued

<u>DOI/Fish and Wildlife Service</u>	<u>Source</u>	<u>Amount</u>
FY77	FWS Appropriation	16
FY78	Endangered Species Act Authorization	93.7
FY79	Endangered Species Act Authorization	213.1
FY80	Endangered Species Act Authorization	162
	FWS Appropriation	82.2
FY81	Endangered Species Act Authorization	521.7
FY82	Endangered Species Act Authorization	502.2

FIGURE 2

FUNDS EXPENDED ON MARINE MAMMAL RESEARCH  
 BY THE NATIONAL MARINE FISHERIES SERVICE AND  
 THE FISH AND WILDLIFE SERVICE  
 FY73-FY82  
 (Thousands of Dollars)



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



TABLE 9

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

<u>National Marine Fisheries Service Personnel**</u>	<u>73</u>	<u>74</u>	<u>75</u>	<u>76</u>	<u>TQ76</u>	<u>77</u>	<u>78</u>	<u>79</u>	<u>80</u>	<u>81</u>	<u>82</u>
Administrative (Included enforcement)	11	28	28	42	49	7	8	86.5		33.5	27.1
Research	23	26	33	31	29	17	20	48.9		60.7	61.2
NMFS Total	34	54	61	73	78	24	28	135.4	166.1	94.2	88.3
<u>Fish and Wildlife Service Personnel***</u>											
Administrative	?	12.1	14.1	15.2	****	16.6	17.1	20.3	24.6	23.3	21.5
Research	2.6	6.0	11.0	11.8	****	14.8	13.2	17.2	17.4	17.8	16.5
FWS Total	2.6+	18.1	25.1	27.0	****	31.4	30.3	37.5	42.0	41.1	38.0

\*Figures provided by the Agencies

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

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

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

## III. APPENDIX A

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

Department of Commerce

## --National Marine Fisheries Service

Administrative reports of the various fisheries centers  
 Marine Mammal Division - Annual Report 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  
 Journal Fisheries Research Board of Canada (Canadian  
 Journal of Fisheries and Aquatic Sciences)  
 Proceedings of the Second Conference 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)

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 New York Academy of Science  
 Fishery Bulletin  
 Vision Research  
 Cetology  
 Deep-Sea Research  
 Journal Acoustical Society of America  
 American Journal of Veterinary Research  
 Science  
 Arctic

## --Department of the Navy (Cont.)

Journal of Wildlife Diseases  
 Microbios Letters  
 Journal American Veterinary Medical Association  
 Transactions of the San Diego Society of Natural  
 History  
 Journal of Mammalogy  
 Contributions of edited books

Department of Energy

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

Department of the Interior

## --Mineral Management Service

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

## --Fish and Wildlife Service

North America 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

## --Geological Survey

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

## --National Park Service

Project reports to National Park Service

Department of State

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

Marine Mammal Commission

Reports available through the National  
Technical Information Service

Smithsonian Institution

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

IV. APPENDIX B  
LISTING OF MARINE MAMMAL RESEARCH PROJECTS,  
PRINCIPAL INVESTIGATORS, AND FUNDING LEVEL  
FOR FY80 - FY82\*

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, U.S. Dept. Commerce,  
National Technical Information Service PB81-174336. 235p.

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

Jenness, 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

(No projects reported)

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

## B. Northeast Fisheries Center

FY80

Austin, H.M (Virginia Institute of  
Marine Sci.)  
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 Obser-  
vatory)  
Development and Supervision of an  
Oceanic Marine Mammal Observer  
Training Program (NA80FA-D4) \$ 24.7K

Powers, K.D. (Manomet Bird Obser-  
vatory)  
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

Prescott, J.H. (New England Aquarium)  
 An Assessment of the Distribution  
 and Relative Abundance of Large Cetaceans  
 in the Western Approaches to the Bay  
 of Fundy (NA80FA-C48) \$ 20.7K

Prescott, J.H. (New England Aquarium)  
 Organize and Convene a Workshop on  
 Humpback Whales of the Western  
 North Atlantic in Fall 1980  
 (NA80FA-C55) \$ 15.7K

Prescott, J.H. (New England Aquarium)  
 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)  
 Behavioral 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

FY81

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  
 (ammendment 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. 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 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
Schruman, 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. (Gloucester Fishermen's Museum) Behavior and Ecology of Humpback Whales Off Gloucester, MA (NA-81-A-00231)	\$ 2.1K
<u>FY82</u>	
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 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
Prescott, J. and S. Kraus (New England Aquarium) 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
C. Northwest and Alaska Fisheries Center, National Marine Mammal Laboratory	

FY80

Braham, H. (NMML) Arctic Whales--Bowhead (NWC-59)	\$737.2K
DeLong, R. and R. Everitt (NMML & Wash. Dept. 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 (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 Inter- actions--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 (NWC-051)	\$287.7K
Jones, L. and D. Rice (NMML) Endangered and Small Cetaceans (including Dall's Porpoise) (NWC-058)	\$433.0K

Kajimura, H. (NMML) Marine Mammal Ecosystem-- 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 Inter- actions--Bering Sea Ecosystem (NWC-008)	\$159.3K

## D. Southeast Fisheries Center

FY80

Benigno, J. (SEFC) Marine Mammals Project Management (88C4L1KB)	\$ 51.8K
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Benigno, J. and R. Ford (SEFC) <u>Tursiops</u> Local Herd Biodynamics (88C4L1KC)	\$105 K
Benigno, J. and R. Ford (SEFC) Marine Mammal and Sea Turtle Stranding and Salvage Network (88C4L1KG)	\$ 20 K
Benigno, J. and R. Gracy (SEFC) <u>Tursiops</u> Population Analysis	\$105 K

FY81

Benigno, J. (SEFC) Marine Mammal Project Management -- <u>Tursiops</u> (88C4L1KB)	\$ 56.8K
Ford, R. Jr. (SEFC) <u>Tursiops</u> Local Herd Biodynamics (88C4L1KC)	\$118 K
Marine Mammal Stranding/ Salvage Network (88C4L1KN)	\$ 30 K
Gracy, R. and J. Powers (SEFC) <u>Tursiops</u> Population Survey and Analysis (88C4L1KD)	\$ 47 K

FY82

Ford, R. Jr. (SEFC--Mississippi Lab.) <u>Tursiops</u> Local Herd Biodynamics (FSN230-8L1ACMJC)	\$ 43.5K
Gracy, R. (SEFC--Mississippi Lab.) Local <u>Tursiops</u> Population Surveys (FSN230-8L1ACMJD)	\$132 K
Powers, J. (SEFC--Miami Lab.) Local <u>Tursiops</u> Population Analysis (88C4L1KA)	\$ 72.8K
Scott, G. (SEFC) Southeast U.S. Marine Mammal Stranding and Salvage Network (FSN000-8L1CCOJL)	\$ 31.5K

## E. Southwest Fisheries Center

FY80

Gilmartin, W. (SWFC) Hawaiian Monk Seal	\$138.3K
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
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

## F. Southwest Regional Office

FY80

Miller, D. (California Department of Fish and Game) Marine Mammal/Fishery Inter- action Study (80-JG-054) (Additional funding of \$77.4K from SWFC project on Assessment of Coastal Marine Mammals for Management)	\$ 65 K
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FY81

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

2. NOAA/OCSEAP (See Department of Interior--  
MMS)
3. National Sea Grant College Program

FY80

Cicin-Sain, B. (U. California,  
San Diego)  
Marine Mammals/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 Con-  
flicts (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



## 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 Inter-  
actions Among Marine Mammals  
and Commercial Fisheries in the  
Southeastern Bering Sea \$ 10 K

5. Office of Ocean and Coastal Resource  
ManagementFY81

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 Pt. 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)

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

(No projects)

2. Army (Corps 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 - FY82

(No projects)

## 3. Navy

## A. Naval Ocean Systems Center

FY80

Bowers, C.A. (NOSC) Marine Mammal Capabilities ( <u>Delphinapterus</u> ) (MM01510C)	\$350	K
Gilmartin, W.G. (NOSC) Captive Dolphin Breeding ( <u>Tursiops</u> ) (MM02510B)	\$ 95	K
Gilmartin, W.G. and S.H. Ridgway (NOSC) Marine Mammal Medical Research and Animal Health (MM01510N)	\$405	K
Hui, C.A. (NOSC) Dolphin Bioenergetics ( <u>Delphinus</u> ) (MM02510H)	\$ 79	K
Nachtigall, P.E. (NOSC) Dolphin Behavioral and Biosonar Research ( <u>Tursiops</u> ) (MM01510K)	\$600	K
Nachtigall, P.E. (NOSC) <u>Tursiops</u> Directional Hearing (MM02510D)	\$ 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> ) (MM02510E)	\$ 27	K
Scronce, B. (NOSC) Sea Lion Training Evaluation: Wild Caught vs. Captive Born ( <u>Zalophus</u> ) (MM01510T)	\$220	K

FY81

Bowers, C.A. (NOSC) Marine Mammal Capabilities ( <u>Delphinapterus</u> ) (MM01511C)	\$525	K
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Hughes, T.W. (NOSC) Dolphin Hydrodynamics (MM02511T)	\$150	K
Johnson, W. (NOSC) Captive Dolphin Breeding (MM02511B)	\$100	K
Nachtigall, P.E. (NOSC) Dolphin Behavioral Research (MM01511K)	\$600	K
Ridgway, S.H. (NOSC) Marine Mammal Medical Research & Animal Health. (MM01511N)	\$211	K
Neurophysiological Research (ZS39511A)	\$143	K
<u>FY82</u>		
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

## 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 Indentification of Low Frequency Biological Noises in the Ocean	SSIE	\$ 35 K
Evans, W.E. (Hubbs Sea World Research Inst.) 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 Inst.) Marine Biological Sounds (NR083-004-39)	\$126 K
Winn, H.E. (U. Rhode Island) Bioacoustics and Behavior of Marine Mammals (Humpback Whale) (NR-083-165-4)	\$ 24 K
<u>FY81</u>	
Evans, W.E. (Hubbs-Sea World Research Institute) Research on Small Pacific Ocean Cetaceans (NR-104-157)	(no funds extention)
Mate, B. (Oregon State U.) The Distribution of Cetaceans (NR083-102-31)	\$ 9 K
Ridgway, S.H. (NOSC) Marine Mammal Bionosis (NR204-008)	\$ 25 K
Schusterman, R. J. (California State U., Hayward) Marine Mammal Visual and Acoustical Capabilities (NR104-131)	\$ 70 K
Vedros, N.A. (Naval Bio- sciences Lab.) Marine Mammal Diseases and Immunity (NR204-001)	\$ 97 K
Watkins, W.A. & W.E. Schevill (Woods Hole Oceanographic Institution) Marine Biological Sounds (NR083-004-39)	\$101.6K
Winn, H.E. (U. Rhode Island) Bioacoustics and Behavior of Marine Mammals (Humpback Whales (NR083-165-4)	(no funds extention)

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 Extention
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 Inst.) 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

Department of EnergyFY80

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EV01332)	\$ 30 K
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FY81

Tester, J.R. and D.B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology (sea otter) (DE-AC0Z-76EV01332)	\$ 20 K
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FY82

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

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

Gurd, F.R. (Indiana U.)  
 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) (IR01AI18705-01) \$101.4K

Gurd, F.R. (Indiana U.)  
Structure and Reactivity of  
Proteins and Lipoproteins  
(cetacea) (5R01HL05556-22) \$151.6K

Specific Enrichment of Myoglobins  
for Carbon 13 NMR (cetacea)  
(5R01HL14680-10) \$ 84.1K

Hawkrige, 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 (cetacea) (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. (Natl. Cancer Inst.) Genetic Control of the Immune Response to Natural Antigens (whales) (1Z01CB-04020-06)	\$ 0
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, cetacea, etc.) (5R01HL-05556-23)	\$ 154.7K
Specific Enrichment of Myoglobins for Carbon 13 NMR (cetacea, human, cattle) (2R01HL-14680-11)	\$135.2K
Hawkridge, F.M. (Virginia Commonwealth U.) Electron Transfer at Surface Electrodes (horses, 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

Department of the Interior1. Fish and Wildlife Service  
--Alaska Marine MammalsFY80\$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 Reports 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

FY81

\$254 K  
(Polar  
Bears)

Amstrup, S. (FWS/DWRC)  
Identify Areas Critical  
for High Denning Success and  
General Movement Patterns of  
Adult Females (904.21)

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)

\$ 99 K  
(Walruses)

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

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)

FY82

\$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

FY80

\$ 50.9K

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

FY81

\$ 31 K

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

FY82

(see 904.27 under Alaska Marine Mammals)

--Marine Mammal Tagging

FY80

\$ 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

FY80

\$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 & 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

FY81

\$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 Socioeconomic 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 Reports  
(904.36)

FY82

\$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 Nicholas 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 Socioeconomic Information  
Relative to the Protection,  
Management and Restoration of  
the Southern Sea Otter  
(14-16-0009-81-050)

\$ 15 K

--Sirenia

FY80

\$319.3K  
(Manatees)

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, and 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  
(\$1.8K)

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

Brownell, R.L. (NFWL) \$ 6.4K  
(Dugong)  
 Distribution and Status  
 of All Dugong Populations  
 (904.01.01)

Parasites and Environmental  
 Contaminants in Dugongs  
 (904.01.08)

Staff (NFWL)  
 Annual Status Report  
 (904.01.09)

FY81

Florida Marine Patrol \$352 K  
(plus \$18 K  
from MMC)  
(Manatee)  
 (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)

\$ 6 K  
(Dugong)

Brownell, R.L. (FWS/DWRC)  
Distribution and Status  
of All Dugong Populations

FY82

\$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

## 2. Geological Survey

### FY80

Whitmore, F.C. (USGS)  
Vertebrate Biostratigraphy and  
Paleogeography, Atlantic and  
Gulf Coastal Plain \$ 30 K

### FY81

Whitmore, F.C. (USGS)  
Vertebrate Biostratigraphy and  
Paleogeography, Atlantic and  
Gulf Cost Plain \$ 50 K

FY82

Whitmore, F.C. (USGS)  
 Vertebrate Biostratigraphy  
 (cetaceans, etc.)  
 (9590-02738) \$ 50 K

## 3. Minerals Management Service

FY80

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

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

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

Fraker, M. and J. Richardson  
 (LGL Ecological Research  
 Associates)  
 Possible Effects of Acoustic  
 and Other Stimuli Associated  
 with Oil and Gas Exploration/  
 Development on the Behavior  
 of the Bowhead Whale  
 (AA851-CTO-44) \$590 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

Hobbs, L. (Marine Mammal Tagging Office) Development of Large Cetacean Tagging and Tracking Capability in OCS Lease Areas (AA851-IAO-32)	\$244.5K
Linder, 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. (Naval Ocean Systems Center) 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 Inst.) Effects of Whale Monitoring System Attachment Devices on Whale Tissues (AA851-CTO-23)	\$ 74.5K
Winn, R., 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
<u>FY81</u>	
Fritts, T.H. (USFWS) Gulf of Mexico and South Atlantic Endangered Species Study (AA851-MUO-21)	\$500 K
Geraci, J. (U. Guelph) Effects of Oil on Marine Mammals (AA551-CT9-29)	\$111.8K



Hobbs, L. (NMFS, Marine Mammal Tagging Office) Development of Large Cetacean Tagging and Tracking Capability in OCS Lease Areas (AA851-IAO-32)	\$ 41.9K
Lindner, E. (Naval Ocean Systems Center) Effects of Sound on Marine Mammals (AA851-IAO-5)	\$178.6K
Ljungblad, D. (Naval Ocean System Center) 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)	\$ 25 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 the Bowhead Whale (AA851-CTO-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-CTO-22)	\$ 0
Braithwaite, L. (Brigham Young U.) The Effects of Oil on the Feeding Mechanism of the Bowhead Whale (AA851-CTO-55)	\$ 0

Dohl, T.P. (U. California, Santa Cruz) Marine Mammal and Seabird Study of Central and Northern California	\$ 0
Ford, G. (Woodward Clyde Consultants, San Diego) Southern California Marine Mammal and Seabird 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. (NOCS) 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)	\$257.3K
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, Inc.) Possible Effects of Acoustic and Other Stimuli Associated with Oil and Gas Exploration/Develop- ment on the Behavior of the Bowhead Whale (AA851-CTO-44)	\$513 K

## 4. MMS/NOAA/OCSEAP

FY80

Calkins, D. and K. Pitcher (Alaska Dept. Fish & Game) Population Assessment, Ecology and Trophic Relation- ships of Steller Sea Lions in the Gulf of Alaska (RU243)	\$ 95	K
Fay, F. (U. Alaska) Morbidity and Mortality of Key Marine Mammal Species (RU194)	\$ 82	K
Jones, L. and H. Braham (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 & 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 (National Marine Mammal Lab.) Feeding Ecology of the Gray Whale in the Norton Basin (RU593)	\$150	K
Rice, D. and W. Wolman (National Marine Mammal Lab.) Habitat Use by Humpback, Gray and Fin Whales in the Gulf of Alaska (RU592)	\$300	K

FY81

Burns, J.J. (Alaska Dept. Fish & Game) Biological Investigations of Belukha Whales in the Coastal Waters of Alaska (RU612)	\$ 49.8K
Burns, J.J. (Alaska Dept. Fish & Game) 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) Collection and Analysis of NMFS Marine Mammal Platforms of Opportunity Program Data (RU68)	\$ 8.0K
Lowry, L.F., J.J. Burns and K.J. Frost (Alaska Dept. Fish & 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) Feeding Ecology of the Gray Whale in the Chirikof Basin (RU593)	\$ 48.6K

FY82

Bruggeman, J.J. (Enviosphere, Bellevue, Washington) Endangered Whale Surveys in Naverin Basin, Alaska (RU625)	\$304K
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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 & Game) Biological Investigations of Beluga Whales of Alaska (RU612)	\$134 K
Cinberg, 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 Inst.) The Effects of Manmade Waterborne Noise on the Behavior of Beluga Whales in Bristol Bay, Alaska (RU634)	\$ 70 K
Fay, F.A. (U. Alaska, Fairbanks) Modern Population, Migrations, Demography, Trophics, and Historical Status of Pacific Walrus in Alaska (RU611)	\$150.1K
Leatherwood, S. (Hubbs Sea World Research Inst.) Aerial Surveys for Endangered Whales in the Southern Bering Sea and Gulf of Alaska (Shelikof Strait) (RU622)	\$376 K
Nelson, H. (U.S. Geological Survey, 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 K

## 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, Baranek and Newman, Inc.) Acoustic Environment Study (9140-0002-182/81-ABC-00115)	\$137 K

FY82

Baker, C.S. and L. M. Herman (U. Hawaii, Monoa) 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 II) (Humpback whale)	\$ 46 K
Wing, B. and K. Krieger (NMFS/NMML) Study of Humpback Whale Prey Abundance and Distribution	\$ 90 K

Department of StateBureau of Oceans and International Environment  
and Scientific AffairsFY80

Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$592.9K
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FY81

Gambell, R. (International Whaling Commission) Research Fund for International Whaling Commission	\$ 32.3K
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Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$687.1K
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FY82

Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$ 35.4K
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Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise-Tuna Investigations	\$609.2K
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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
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FY81 - FY82

(no projects)

Environmental Protection AgencyFY80 - FY82

(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. & P. Johnson Evaluation of Hawaiian Monk Seal Survey and Molt Data Collected and 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



<p>Mayo, C. (Provincetown Center for Coastal Studies) Field Observations of Cetacea of Provincetown, Massachusetts Area: 1975-1979 (MM1800925-5)</p>	\$ 9.7K
<p>National Academy of Science Evaluation of Marine Ecosystem Research in the Antarctic (MM1800913-2)</p>	\$ 10 K
<p>National Marine Fisheries Service Continuation and Expansion of Monk Seal Population Studies (MM1800911-6)</p>	\$ 50 K
<p>Workshop to Develop a Monk Seal Die-Off Response Plan (MM1800967-9)</p>	\$ 4 K
<p>Assessment and Monitoring of Endangered Whales, Harbor Porpoise, and Other Cetaceans Along the Northeast Coast of The United States (MM1801023-1)</p>	\$ 65 K
<p>Workshop on Humpback Whales of the Western North Atlantic (MM18001038-3)</p>	\$ 15 K
<p>Analyses of Data Concerning the Biology, Ecology, Behavior and Population Dynamics of Monk Seals in Laysan Island (MM180-1102-3)</p>	\$ 21 K
<p>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 Else- where in the Northwest Hawaiian Islands (MM1801065-5)</p>	\$ 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 (MM180-1124-3)	\$ 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 Inter- actions 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 Inter- national 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.) 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, CA) Cleaning and Reconditioning the Pelage of Oil-Contaminated Sea Otters (MM2079247-9)	\$ .2 K
<u>FY82</u>	
California Department of Fish and Game Assessment, Monitoring and Mitigation of the Incidental Take of Marine Mammals by Gill Net Fisheries in the Coastal Waters of California (MM2324806-9)	\$ 10 K
Department of State Support of a Conference on the Application of Genetics to the Management of Wild Plants 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

<p>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 (MM232713-8)</p>	\$ 6 K
<p>Medway, W. (U. Pennsylvania)            Evaluation of the Safety and            Usefulness of Techniques and            Equipment Used to Obtain            Biopsies from Free-Swimming            Cetaceans (MM2324809-8)</p>	\$ 2 K
<p>National Marine Mammal Laboratory            (NMFS)            Research on Humpback Whales            in Glacier Bay and/or Other            Southeast Alaska Waters            (MM2324752-3)</p>	\$ 5 K
<p>Development of a Research and            Studies Plan to Identify the Most            Effective and Appropriate            Methods and Technologies for            Mitigating Marine Mammal/Fish            Conflicts in the Columbia            River and Adjacent Waters            (MM2324788-2)</p>	\$ 10 K
<p>New England Aquarium            Workshop on the Biology and            Past and Present Status of            Right Whales (MM2324803-0)</p>	\$ 3 K
<p>North Pacific Fisheries Manage-            ment Council            Workshop on Marine Mammal-            Fisheries Interactions in the            Bering Sea            (MM2324802-7)</p>	\$ 5 K
<p>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)</p>	\$ 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.) 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

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
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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
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FY82

(No projects)

National Science FoundationFY80

Awbrey, F.T. (San Diego State U.) Artificial Aggregating System for Tuna Purse Seining	SSIE	\$ 0
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 Institute) Distribution and Ecology of <u>Orcinus</u> and <u>Globicephala</u> in the Antarctic (80-22633)		\$ 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 Found- ation 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)	\$143.7K

FY82

Dawson, W.W. (U. Florida) Physiology of Vision in Dolphins and Other Cetaceans (BNS79-14129)	\$ 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 (DEB81-17024)	\$ 45 K
Morgane, P. J. (Worcester Foundation for Experimental Biology) Neocortical Formations of Dolphin Brain (BNS81-00064)	\$ 48.9K
Nybakken, J. and J.S. Oliver (San Jose State U.) Walrus Feeding in the Bering and Chukcki Seas (DPP81-21722)	\$ 77.2K

Singer, M.C. and M.L. Oldfield (U. Texas, Austin) Doctoral Dissertation Research in Population Biology (whales) (DEB82-06441)	\$ 3.3K
Thomas, J.A. and J. Jehl, Jr. (Hubbs Sea World Research Inst.) Circumpolar Analysis of the Marine Mammal Faunas of the Pack Ice, Antarctica (DPP82-05761)	\$ 43.2K
Wartzok, D. and D. Ketten (Johns Hopkins U.) Doctoral Dissertation Research in Sensory Physiology and Perception (cetaceans). (BNS81-18072)	\$ 6.9K
Zapol, W.M. (Massachusetts General Hospital) Diving Physiology of the Fetal Weddell Seal (DPP81-00212)	\$ 24.8K

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
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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

Veterans Administration

FY80 - FY82

(no projects)