

Survey of Federally-Funded Marine Mammal Research and Studies
FY70 - FY79

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SURVEY OF FEDERALLY-FUNDED
MARINE MAMMAL RESEARCH AND STUDIES
FY70 - FY79

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ABSTRACT

A comprehensive survey of marine mammal research funded by the United States government from FY70 through FY79 is presented. Nine hundred ninety-one research projects are considered. Thirteen different federal departmental-level agencies funded the research; of these, five were especially involved in research relevant to needs under the Marine Mammal Protection Act of 1972. These agencies were the Departments of Commerce, Defense and Interior as well as the Marine Mammal Commission and National Science Foundation. In the FY74-FY79 interval, these five agencies funded 72-90% of the annual number of projects and 70-93% of the annual cost of federally-funded research involving marine mammals.

During the period FY70-FY79, federal funding of marine mammal research had an upward trend. For example, funding increased from \$6.2 million in FY75 to \$16.7 million in FY79. More regionally-oriented research occurred in waters adjacent to Alaska than along any other state or group of adjacent states. For the period FY74-FY77, federal funding of cetacean and pinniped research was about equal; however, in FY78 and again in FY79 funding of cetacean research increased substantially. Not only did research on the tuna/porpoise issue receive more funding, but also new studies on endangered and threatened whales and porpoises were initiated. Funding for manatee and sea otter research also increased markedly in both FY78 and FY79.

Since passage of the Marine Mammal Protection Act when responsibility for marine mammals was divided between the Department of Commerce and the Department of the Interior, both agencies have shown successive increases in the funds expended on marine mammal research each year. Within Commerce, expenditures on marine mammal studies by the National Marine Fisheries Service in FY79 had almost quadrupled since FY74. Within Interior, Fish and Wildlife Service funding of marine mammal research in FY79 had doubled since FY74, although the Bureau of Land Management's coastal and offshore environmental assessment program showed a more noticeable increase. The research trends of the National Marine Fisheries Service and the Fish and Wildlife Service reflected corresponding increases in agency appropriations under the Marine Mammal Protection Act. Research support by the Marine Mammal Commission peaked in FY76, whereas annual funding levels by the National Science Foundation and U.S. Navy oscillated from year to year.

Wasteful duplicative research was not found to occur. Research topics have been numerous and, as a whole, focused on problems relevant to issues under the Marine Mammal Protection Act. Some investigators and research institutions have simultaneously had more than one marine mammal project under federal funding either by the same or by different agencies. In recent years, over one-half of the federal funds expended annually on marine mammal research have been for studies conducted by scientists employed by federal agencies as opposed to the non-federal scientific community.

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 a revision of previous surveys compiled by the author. These surveys have been initiated by the Marine Mammal Commission which by direction of the Marine Mammal Protection Act of 1972 is to conduct a continuing review of research programs conducted or proposed to be conducted under the authority of the Act and to 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 [Sec. 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 three sections list all research projects identified in the 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. Twenty-three U.S. government departments/agencies were surveyed by the Commission (those listed in Table 2 plus the U.S. Coast Guard). 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 those projects beginning with FY74. Marine mammal projects from FY70-FY79 reported by the Smithsonian Science Information Exchange (SSIE) are listed in Appendix C. In general the Appendix B data coincide with the SSIE data of Appendix C but are more extensive and reportedly more accurate. Nevertheless, on a few occasions the SSIE data helped identify projects inadvertently omitted from agency reports to the Marine Mammal Commission. Appendix D is a listing of projects summarized by agency; data for FY70-FY73 are from Appendix C, and data for the remaining six years are from Appendix B with modifications subsequently reported by agencies.

Agencies vary in their ability to identify and retrieve information on specific 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.

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I. OVERVIEW OF FEDERAL RESEARCH PROGRAMS INVOLVING MARINE MAMMALS

Thirteen departmental-level federal agencies participated in funding marine mammal research and studies from FY70 through FY79. Some agencies funded projects in all years, whereas others supported studies during only a part of the ten-year interval. Often more than one agency within the larger departments participated in funding research. The Smithsonian Science Information Exchange (SSIE) reported an average of 48 projects were funded with federal monies in each of the ten years (Table 1); nevertheless when the Marine Mammal Commission (MMC) solicited information directly from each agency, the average number of projects for FY74-FY79 rose to 138 (cf. Table 2). The trends of these data are depicted in Figure 1. Data for year 76 include the 12-month fiscal year data 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 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 Program 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 (BLM) and NOAA; it is responsible for most Alaska OCS research funded by BLM.

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 or 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, Education, and Welfare (HEW)

The Department of Health, Education and Welfare, 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 or 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.

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. The Scientific Event Alert Network gathers information on beached and stranded marine mammals.

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
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
Department of Energy (formerly AEC and ERDA)	1	-	-	1	1	1	-	-	1	-
Department of Health, Education & Welfare	6	9	7	8	5	16	15	7	2	3
Department of the Interior	2	1	1	9	-	1	1	7	3	-
Department of State	-	-	-	-	-	-	-	-	-	-
Environmental Pro- tection Agency	-	-	-	1	-	1	1	-	-	-
Marine Mammal Commission	-	-	-	-	-	-	22	18	12	6
National Aeronautics and Space Administration	-	-	-	1	1	-	1	1	-	-
National Science Foundation	9	8	17	5	8	13	13	6	12	9
Smithsonian Institution	-	-	1	2	-	2	2	3	-	-
Veterans Administration	2	1	2	2	-	1	2	-	2	-
TOTAL	28	36	51	50	35	64	82	46	60	28

*Not an all inclusive listing of federally-funded marine mammal research

TABLE 2

NUMBER OF MARINE MAMMAL RESEARCH PROJECTS SUPPORTED BY
FEDERAL AGENCIES IN FY74-79, COMPARING SMITHSONIAN SCIENCE
INFORMATION EXCHANGE DATA (A) TO INFORMATION PROVIDED DIRECTLY
TO THE MARINE MAMMAL COMMISSION BY EACH AGENCY (B)

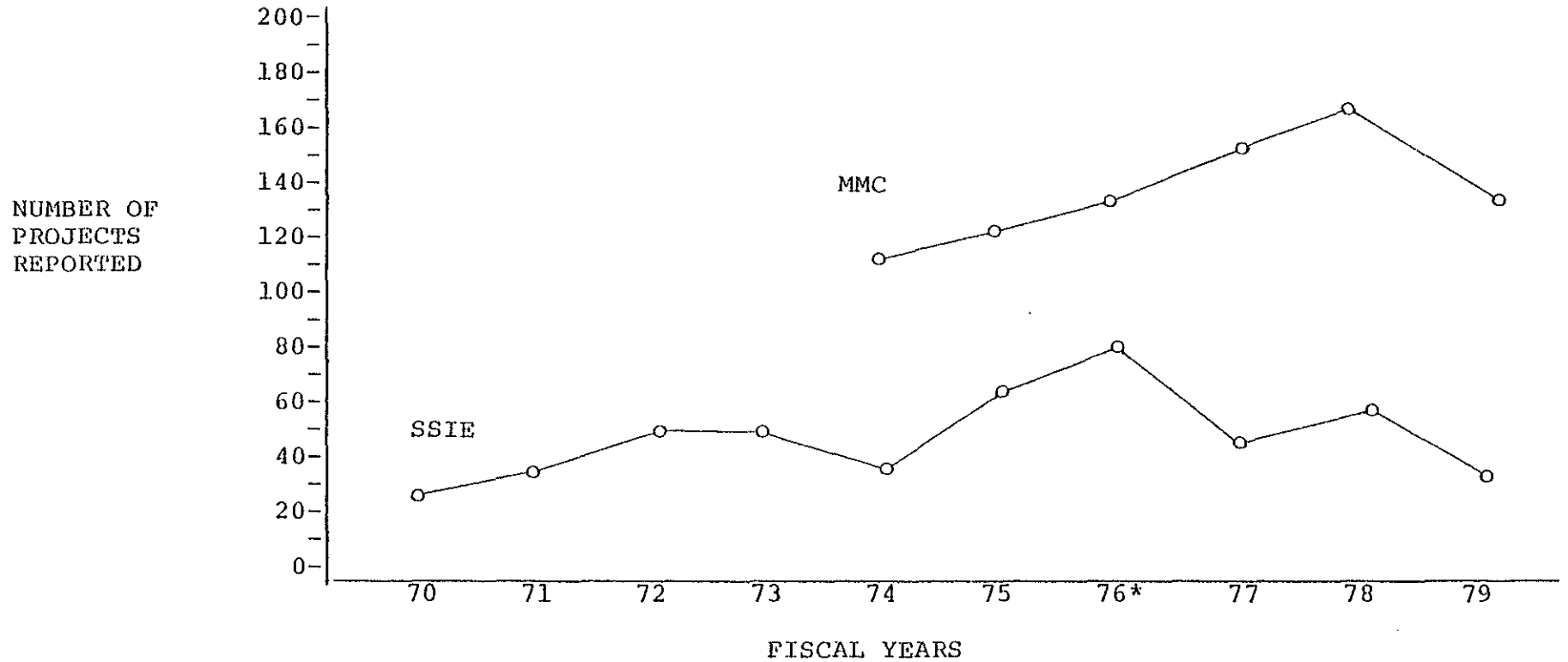
	FY74		FY75		FY76		FY77		FY78		FY79	
	A	B	A	B	A	B	A	B	A	B	A	B
Department of Agriculture	3	2	3	1	1	-	-	-	1	-	-	2
Department of Commerce												
National Marine Fisheries												
Service	9	13	7	8	10	9	-	13	15	14	-	14
Sea Grant	3	4	1	2	4	1	3	1	-	2	-	2
NOAA/OCSEAP (see below)												
Department of Defense												
Air Force	-	-	-	-	-	-	-	-	-	-	-	1
Army	-	-	-	-	-	-	-	-	-	-	-	1
Naval Ocean Systems Ctr.	2	16	8	8	3	7	-	14	2	17	2	8
Naval Research Laboratory	-	-	-	-	-	-	-	-	-	-	-	1
Office of Naval Research	3	10	10	6	7	6	1	7	10	7	8	11
Department of Energy	1	-	1	1	-	1	-	2	1	2	-	-
Department of Health, Education & Welfare	5	20	16	26	15	17	7	13	2	12	3	8
Department of Interior												
Bureau of Land Mgmt.	-	-	-	1	-	4	-	3	-	4	-	7
BLM/NOAA/OCSEAP	-	-	-	3	-	16	-	11	-	11	-	6
Fish & Wildlife Service	-	15	-	20	-	27	5	40	2	43	-	52
Geological Survey	-	-	1	-	1	-	-	1	1	1	-	1
National Park Service	-	1	-	1	-	2	2	3	-	5	-	2
Department of State	-	-	-	-	-	-	-	-	-	2	-	1
Environmental Protection Agency	-	1	1	1	1	-	-	-	-	-	-	-
Marine Mammal Commission	-	14	-	32	22	30	18	29	12	34	6	7
National Aeronautics & Space Administration	1	1	-	1	1	1	1	2	-	2	-	-
National Science Foundation	8	12	13	7	13	10	6	10	12	8	9	11
Smithsonian Institution	-	4	2	4	2	2	3	2	-	2	-	2
Veterans Administration	-	-	1	-	2	-	-	2	2	2	-	-
TOTAL	35		64		82		46		60		28	
SSIE Data												
MMC Data		113		122		133		153		168		137

FIGURE 1

TRENDS OF FEDERAL SUPPORT OF MARINE MAMMAL RESEARCH

Total Number of Marine Mammal Projects as Reported:

By the Smithsonian Science Information Exchange, FY70-79, and
To the Marine Mammal Commission by Each Agency, FY74-FY79.



*Includes Transitional Quarter (July-September 1976)

TABLE 3

FEDERAL FUNDING OF MARINE MAMMAL RESEARCH
(Thousands of Dollars)

	<u>FY1974</u>	<u>FY1975</u>	<u>FY/TQ76</u>	<u>FY1977</u>	<u>FY1978</u>	<u>FY1979</u>
Department of Agriculture	37.2	9.3	---	---	---	209
Department of Commerce						
National Marine Fisheries Service	1,218.7	1,386.6	1,456.4	2,313.8	3,603.2	4,425.9
National Sea Grant Programs	77.2	82.3	19.8	25.8	49.7	68
Department of Defense						
Air Force	---	---	---	---	---	40
Army	---	---	---	---	---	44
Naval Ocean Systems Ctr.	658	425	361	718	545	717
Naval Research Laboratory	---	---	---	---	---	20
Office of Naval Research	458.4	270	260.1	414	430	538.4
Department of Energy	---	18.3	28	80	80	---
Department of Health, Education & Welfare	916.9	1,573.5	1,078.5	781	772	392.8
Department of Interior						
Bureau of Land Management	---	706.7	2,046.4	2,242	2,519.8	7,457.3
Fish & Wildlife Service	706	734.2	933	933	1,042.7	1,452.5
Geological Survey	---	---	---	31.2	30.5	20
National Park Service	6	6	17.2	16.5	64.8	45.8
Department of State	---	---	---	---	51	500
Environmental Protection Agency	47	49.8	---	---	---	---
Marine Mammal Commission	258.8	446.7	561.7	420.3	376.1	152.6
National Aeronautics & Space Administration	45	100	---	50	65	---

Table 3 (continued)
 Federal Funding of Marine Mammal Research

	<u>FY1974</u>	<u>FY1975</u>	<u>FY/TQ76</u>	<u>FY1977</u>	<u>FY1978</u>	<u>FY1979</u>
National Science Foundation	515.6	292.8	690.4	718.9	334.2	479.3
Smithsonian Institution	68.5	80.1	102	106.1	101.1	133.4
Veterans Administration	---	---	---	102.6	98.9	---
	<hr/>					
TOTAL	\$5,013.3K	\$6,181.3K	\$7,554.5K	\$8,953.2K	\$10,164K	\$16,696K

TABLE 4

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

(Thousands of Dollars; Number of Projects in Parentheses)

Geographical Region	FISCAL YEAR					
	74	75	76*	77	78	79
Hawaii	---	5 (1)	51.5 (2)	102.6 (8)	118.2 (6)	71.4 (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)
Oregon/ Washington	17 (1)	87.3 (6)	81.6 (6)	43.5 (2)	60.3 (4)	68 (2)
California	102.5 (4)	805.4 (9)	1,370 (18)	1,132 (11)	317.2 (12)	1,675.2 (11)
Gulf of Mexico	7.9 (1)	---	6 (1)	---	2.4 (2)	144.3 (1)
Florida	121.3 (4)	187.5 (6)	139.9 (9)	171.2 (10)	269 (12)	656.3 (4)
Georgia, South Carolina and North Carolina	---	---	---	199.9 (1)	---	---
NE Coastal States	31.9 (3)	43.3 (3)	56.2 (5)	29.3 (3)	1,484 (4)	2,762.9 (1)

*Includes Transition Quarter (July-September 1976)

TABLE 5
 TAXONOMIC SUMMARY OF
 FEDERALLY-FUNDED MARINE MAMMAL RESEARCH
 (Thousands of Dollars)

		Agr.	Comm.	Def.	DOE	HEW	DOI*	DOS	EPA	MMC	NASA	NSF	SI	VA	TOTAL
Sirenia (Manatees and Dugong)	74						60								60
	75						119.2								119.2
	76						173.8								173.8
	77						190.2					50			240.2
	78						267.1					15			282.9
	79			44			580.5			0.8					624.5
Carnivora (Polar Bear and Sea Otter)	74						90								90
	75				18.3	27.3	375			15.3					435.9
	76				28		629.3			103.2					760.5
	77				30		587.3			40.6					657.9
	78				30		717.7			49.9					797.6
	79		59.7				809.4					22.6			891.7
Pinnipedia (Seals, Sea Lions and Walrus)	74	37.2	586.8	90		56.3	6			56.2		268	49.5		1150
	75	9.3	752.7	140		210.7	171			154.9		156.6	51.8		1647
	76		760.5	147		116.2	684.6			54.3		268.3	59.2		2090.1
	77		783.8	274		141.3	763.5			64.8		131.1	56.1	102.6	2317.2
	78		858.7	325			664.6			33.7		141.5	45		2068.5
	79	200	956.7	246		76.6	589			59.1		243.2	47.4		2418
Cetacea (Whales and Porpoises)	74		695.5	344		294.2				77.9		170.1	19		1600.7
	75		675	250.5		365.1				190.9		61	28.3		1570.8
	76		709.7	263.1		114.3	126.2			262.8		275.2	42.8		1794.1
	77		1555.8	527		144.6	253.4			124.9		213.1			2818.8
	78		2794.2	446		149.6	278			169.7		163.1			4000.6
	79		3326.3	746.4		74.1	2937.5	500		81		187.9			7853.2
Mixed Species or General Studies	74		13.6	682.4		566.4	556		47	124.7	45	77.5			2112.6
	75		41.2	304.5		970.4	781.7		49.8	85.6	100	75.2			2408.4
	76		6	211		848	1382.7			141.4		146.9			2736
	77			331	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

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*Budget information not available on all individual projects

TABLE 6

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

SPECIAL RESEARCH ISSUE	FISCAL YEAR						FUNDING AGENCY
	74	75	76	77	78	79	
Tuna/Porpoise: Population Assessment	85.1	108	81	516.5 2	524.5	462.7	NMFS MMC DOS
Mortality Reduction	167.4	140.2	120 178 119.6	299.6 97.1	487.6 67.4	500 512.9	NMFS MMC NSF Navy
Assessment of Taking			179	189.6	318.7	329.5	NMFS MMC
Biology	3.5 271.3 26	9.8 342.9	12.4 136	138.1	220.4	705.3	NMFS Navy MMC
				12.5	10		
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	NMFS MMC NSF
Marine Mammal/Fisheries Conflicts: Southern Ocean Krill			10	14.5	4 51	25.6	MMC DOS NSF
Fin Fish/Pinniped Interactions		17.7	19.8	25.8	49.7 59.3	68 70	Sea Grant MMC NMFS
Effects of Oil on Marine Mammals: Physiological Studies			91.5	59 2.8	65	1097.8	BLM MMC
Marine Mammal Strandings: Biological Studies	15 (6.4)	25 (18.3)	32.3 (42.8) 6	15 (11.9) 70.4 (15)	(14.6)	3.5 (18.7)	MMC SI NMFS BLM FWS

SPECIAL RESEARCH ISSUES (Cont.)	FISCAL YEAR						FUNDING AGENCY
	74	75	76	77	78	79	
Bowhead Whales: Assessment of Stocks And Taking	16	(20.6)	(38.7) (44.1)	201 (42.5)	724 (167.2) 6.7	871.1	NMFS BLM MMC
Humpback Whale: Population Assessment			(38.7)	(52.8) 25.1	(103) 21.4	15	NMFS MMC
Biology			11.2	10	31.3 39.7	39.8 40.2 48	NPS NSF Navy
Gray Whale: Population Assessment	31.4	(32.7)	(38.8)	(52.8)	(103)	25.7	NMFS
Assessment of Human- Induced Impact		14.7	16.5	9.8	20.6		MMC
Killer Whale: Population Assessment	17	(17.6) 37.9	(38.8)	(52.7)	7.9 (15.3)	3	NMFS MMC NSF
Pilot Whales: Population Assessment	10				(15.3)		Navy NSF SI
Biology	(6.3)	(5)					
Belukha: Population Assessment:			(44)	(42.5)	(17.2)		BLM
Biology			20	10	25		Navy
Dall Porpoise: Population Assessment					210	6.9	NMFS
Bottlenose Dolphin: Population Assessment	55	68.3			1.9		MMC NMFS
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	Navy HEW NSF MMC NMFS
Northern Fur Seal: Population Assessment and Monitoring	395.2	339.5	354.4	352	(367)	430.2	NMFS
Biology	145.5	330.9 32.2	330.2	366 70	384 96	269.3 88	NMFS MMC Navy

SPECIAL RESEARCH ISSUES (Cont.)	FISCAL YEAR						FUNDING AGENCY
	74	75	76	77	78	79	
Guadalupe Fur Seal: Population Studies			(13.3)	(13.3)	(16.7)		NMFS
Antarctic Seals: Population Studies	125.8	115.5			50.3	97	NSF
Biology	64.3	15.2	241.1	172.7	89	70.4	NSF
Arctic Seals: Population Studies	18.8 9.7	(20.6)					NMFS Sea Grant
Biology	7	55	78	157	85		BLM MMC Sea Grant BLM
			136	201.1	237.6	212	
Hawaiian Monk Seal: Population Assessment		5	38.2 (13.3)	52.3 (13.3)	52 (16.7)	31.2 3	FWS NMFS MMC
Biology				34.1	25.8		
Gray Seal: Population Studies	(5.2)			10.2			MMC
Biology		90	110	10	30		Navy
Harbor Seal: Population Studies	(5.3) 6	27 6	33.5 6 3	17.7 6	5.2 31	6 11.5	MMC NPS NMFS
Biology		2.3	8.6 65	2.8 60	(50)	50	MMC BLM
Northern Elephant Seal: Population Studies			(13.3)	(13.3)	(16.7)	4.1	NMFS
	27.9	25.9	27.2	33.1	31.8	41.2 10	NSF MMC
California Sea Lion: Population Studies			7			82.5	NMFS
Biology	37.2 40 29.3 50	9.3 35 64.7 2	37 12.2	74	110	200	USDA Navy HEW NSF MMC
Stellar Sea Lion: Population Studies			157.1	145.5	155	148	BLM

SPECIAL RESEARCH ISSUES (Cont.)	FISCAL YEAR						FUNDING AGENCY
	74	75	76	77	78	79	
Walrus: Population Studies		(160)	112.8	141.6	52 5	141.8	FWS MMC
Biology	17.6 38.7	27.3 48.4				20	Sea Grant MMC
Manatees & Dugong: Population Studies	(60)	100	(143.8)	159.7 50	(236.6) 15.5 0.8	(290.3)	FWS NASA NPS MMC
Biology		19.2	(30)	(30)	(30)	144.3* (127.2) 44	BLM FWS Army
Polar Bear: Population Studies	(45)	214.3	(401)	(303.1)	(223.1)	251	FWS
Biology		35.7	(50)	(50) (150)	(50)	22.6	FWS NSF
Sea Otter: Population Studies	(45)	(125)	157.2 21.1	151.9	352.1	(530.4)	FWS BLM
Biology	13.5	27.3 15.3 18.3	103.2 28	40.6 30 23.3 59	49.9 30 27.5	(28)	HEW MMC DOE FWS BLM

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 versus administrative responsibilities within the National Marine Fisheries Service and the Fish and Wildlife Service from FY73 through FY79 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 ^a					REQUESTED ^b					APPROPRIATED ^c				
	Sec 109	Sec 110	Sec 114	Sec 207	Total	Sec 109	Sec 110	Sec 114	Sec 207	Total	Sec 109	Sec 110	Sec 114	Sec 207	Total
Department of Commerce (NMFS)															
FY73	1000**	1667	2000	-	4667	375**	-	1090	-	1465	-	-	-	-	-
FY74	1000**	1667	2000	-	4667	900**	-	4400	-	5300	-	250	1350	-	1600
FY75	-	1667	2000	-	3667	-	250	2300	-	2550	-	250	1350	-	1600
FY76	-	1667	2000	-	3667	-	250	2300	-	2550	-	1100	1697	-	2797
FY77	-	1667	3000	-	4667	-	1667	3272	-	4939	-	1667	2778	-	4445
FY78	-	200	11500	-	11700	-	-	4872	-	4872	-	-	4872	-	4872
FY79	225	2700	8500	-	11425	-	200	7437*	-	7637	-	200	7437*	-	7637*
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
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

*Fur seal research is reflected in Sec. 114 as of FY79

**Section 111 funds

^aAuthorized under sections of the Act

^bRequested funding of the agencies

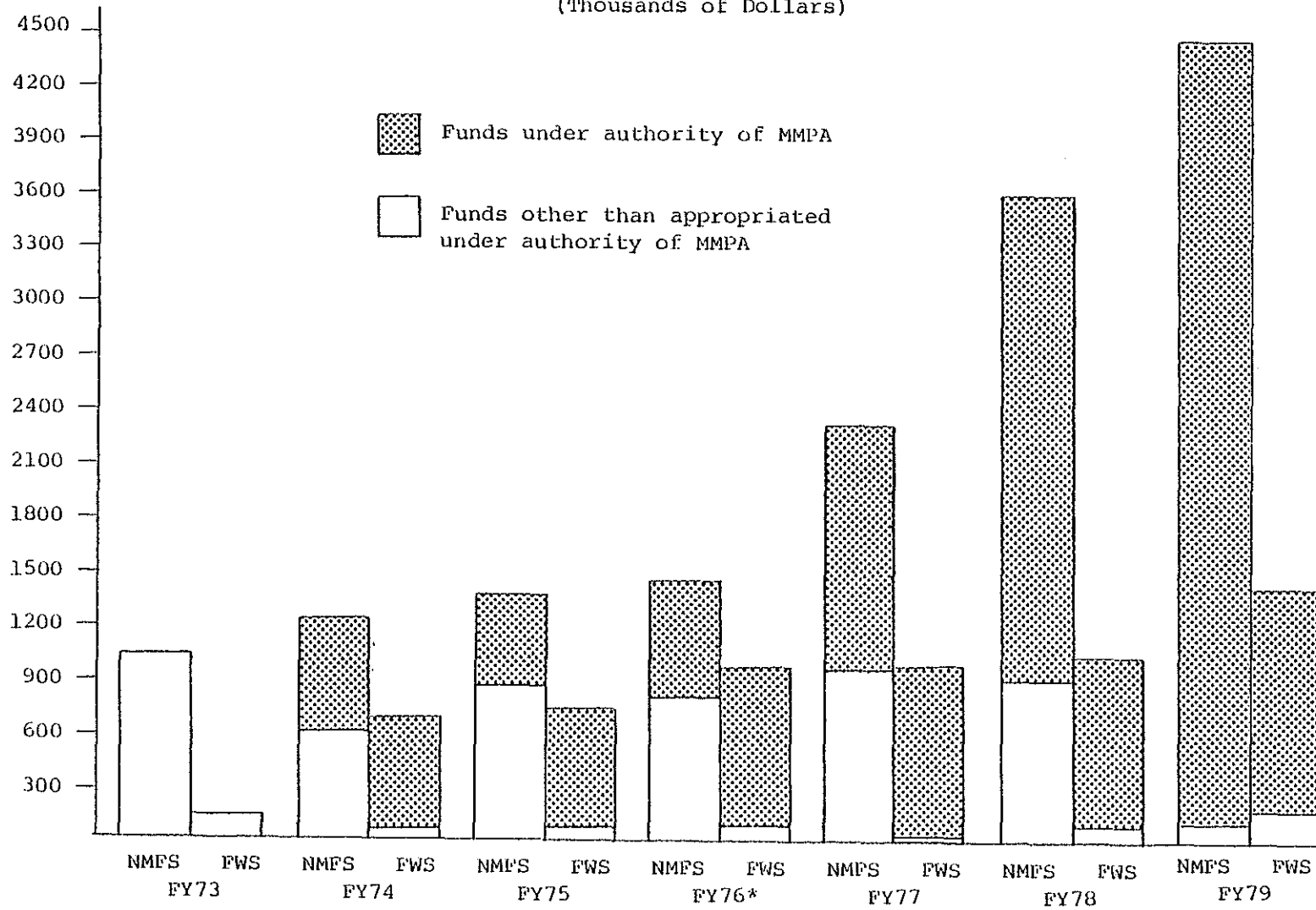
^cFunds subsequently appropriated by Congress

TABLE 8

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

<u>NOAA/National Marine Fisheries Service</u>	<u>Source</u>	<u>Amount</u>
FY73	NMFS Reprograming	300
	NOAA Reserve	424
	Fur Seal Act Authorization	309
FY74	Fur Seal Act Authorization	309
	Reprograming and Reserve	295
FY75	Fur Seal Act Authorization	395
	NOAA Reserve	442
FY76	Fur Seal Act Authorization	595
	NMFS Reprograming	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 Research Funding as of FY79 is in Sec. 114 of MMPA Appropriations	
<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
FY77	FWS Appropriation	16
FY78	Endangered Species Act Authorization	93.7
FY79	Endangered Species Act Authorization	213.1

FIGURE 2
 FUNDS EXPENDED ON MARINE MAMMAL RESEARCH
 BY THE NATIONAL MARINE FISHERIES SERVICE AND
 THE FISH AND WILDLIFE SERVICE
 FY1973 - FY1979
 (Thousands of Dollars)



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

TABLE 9

NUMBER OF MAN-YEARS AND/OR PERSONNEL
ASSIGNED TO MARINE MAMMAL ACTIVITIES
IN THE NATIONAL MARINE FISHERIES SERVICE
AND THE FISH AND WILDLIFE SERVICE FY73-FY79*

<u>National Marine Fisheries Service Personnel**</u>	FISCAL YEARS							
	<u>73</u>	<u>74</u>	<u>75</u>	<u>76</u>	<u>TQ76</u>	<u>77</u>	<u>78</u>	<u>79</u>
Administrative (includes enforcement)	11	28	28	42	49	7	8	86.5
Research	23	26	33	31	29	17	20	48.9
NMFS Total	34	54	61	73	78	24	28	135.4
<u>Fish and Wildlife Service Personnel***</u>								
Administrative (Man years)	?	12.1	14.1	15.2	****	16.6	17.1	20.3
Research (Man years)	2.6	6.0	11.0	11.8	****	14.8	13.2	17.2
FWS Total	2.6+	18.1	25.1	27.0	****	31.4	30.3	37.5

* 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.

**** 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 Bureau of Land Management 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
 Journal Fisheries Research Board of Canada
 Ecological Monographs
 Wildlife Society Bulletin
 Environmental Conservation
 Journal American Veterinary Medical Association

Department of the Interior

--Bureau of Land Management

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

IV. APPENDIX B

FEDERALLY-FUNDED MARINE MAMMAL RESEARCH PROJECTS,
PRINCIPAL INVESTIGATORS AND FUNDING LEVEL
FOR FY74 - FY79

AS REPORTED TO THE
MARINE MAMMAL COMMISSION
BY EACH AGENCY

AGENCY PROGRAMS FOR FY74

Department of Agriculture

Breese, S. S. (USDA Animal Disease Center, Greenport, N.Y.) Electron Microscopy of Foot-and-Mouth Disease Virus and Other Exotic Animal Viruses (San Miguel Sea Lion Virus)	\$ 9.3K
Dardiri, A. H. (USDA Animal Disease Center, Greenport, N.Y.) Transmissibility of San Miguel Sea Lion Virus to Domestic Swine	\$ 27.9K

Department of Commerce, NOAA

1. National Marine Fisheries Service

Barham, E. & R. McNeely (NMFS/SWFC) Porpoise Gear Dynamics and Development	\$167.4K
Barham, E., G. Stauffer & T. Smith (NMFS/SWFC) Porpoise Stock Assessment	\$ 85.1K
Fiscus, C. H. & W. M. Marquette (NMFS/NWFC) Marine Mammals of the Arctic Ocean and Bering Sea	
a. Seals of the Bering and Chukchi Seas	\$ 18.8K
b. Bowhead whale studies	\$ 16K
Fiscus, C. H. & W. M. Marquette (NMFS/NWFC) West Coast Pinnipeds	\$ 38.2K
Goodman, R. M. (Franklin Institute, Philadelphia) & K. S. Norris (U. California, Santa Cruz) Non-injurious Marking Techniques	\$ 35K
Johnson, J. H., H. Kajimura, M. C. Keyes, & R. L. DeLong (NMFS/NWFC) St. George Island Studies	\$145.5K
Leatherwood, J. S. (NUC, San Diego) Whale Field Guide: Atlantic	\$ 4K
Perrin, W., D. Holts, & W. Taguchi (NMFS/SWFC) Porpoise Life Studies	\$271.3K
Rice, D. W. & A. A. Wolman (NMFS/NWFC) Cetaceans	
a. Whale Stock Assessment and Marking	\$ 32K
b. Gray Whale Studies	\$ 31.4K
c. Killer Whale Studies	\$ 17K

Roppel, A. Y., M. C. Keyes, & H. Kajimura (NMFS/NWFC) Northern Fur Seal	\$357K
2. Office of Sea Grant	
Burns, J. & F. H. Fay (Institute of Arctic Biology, U. Alaska) The Biology of the Bering Sea Harbor Seals and Their Relationship with Other Ice In- habiting Pinnipeds	\$ 9.7K
Fay, F. (Institute of Arctic Biology, U. Alaska) Ethology and Productivity of the Pacific Walrus	\$ 17.6K
Galster, W. (Institute of Arctic Biology, U. Alaska) A Survey of Alaskan Marine Mammals for Accumulation of Pesticides and Heavy Metals	\$ 13.6K
Popenoe, H. L. (U. Florida) Florida Sea Grant: Immediate Response Funds	\$ 36.3K

Department of Defense, Department of Navy

1. Naval Undersea Center	
Au, W. W. L. (NUC) Bioacoustic Capabilities of Marine Mammals	\$ 50K
Au, W. W. L. (NUC) Dolphin Range Resolution	\$ 54K
Evans, W. E. (NUC) Pacific Pilot Whale Studies	\$ 10K
Fish, J. F. (NUC) Acoustics Research on Tuna/Porpoise Problem	\$ 11K
Gilmartin, W. G. (NUC) Antibiotic Administration Techniques in Marine Mammals	\$ 56K
Gilmartin, W. C. (NUC) Vaccines for Porpoises and Sea Lions	\$ 37K
Pepper, R. L. (NUC) Determinants of Dolphin Motivation	\$ 28K
Pepper, R. L. (NUC) Directional Hearing of Sea Lions	\$ 5K

Pepper, R. L. (NUC) Marine Mammal Behavior	\$ 56K
Ridgway, S. H. (NUC) Differential Diagnosis Laboratory Capabilities	\$ 45K
Ridgway, S. H. (NUC) Electrophysiology of Dolphin Cortex	\$ 30K
Ridgway, S. H. (NUC) Reproduction Cycle of Bottlenose Dolphins	\$ 49K
Ridgway, S. H. (NUC) Marine Mammal Hearing Screening	\$ 53K
Ridgway, S. H. (NUC) Marine Mammal Husbandry and Maintenance	\$100K
Seeley, R. L. (NUC) Radiotelemetry of Clinical Data from Marine Mammals	\$ 30K
Sweeney, J. C. (NUC) Open Ocean Diseases of Stranded Animals	\$ 44K
2. Office of Naval Research	
Evans, E. C. (NUC) Biological Sources of Sea Noise: Studies of Cetacean Bioacoustics	\$ 30K
Popper, A. N. (U. Hawaii) Minimum Auditory Angle	\$ 30K
Marx, W. (U. Southern California, Los Angeles) Metabolic Aspects of Food and Oxygen Utilization in Diving as Performed by Aquatic Mammals	\$ 3.4K
Norris, K. S. & T. P. Dohl (U. California, Santa Cruz) Studies of a Wild Porpoise School, <u>Stenella longirostris</u>	\$ 15K
Ray, G. C. & D. Wartzok (John Hopkins U.) Telemetry and Acoustics of Pinnipeds	\$ 50K
Ridgway, S. H. (NUC) Marine Mammal Bionosis	\$ 20K

Schevill, W. E. & W. A. Watkins (Woods Hole Oceanographic Institute) Oceanic Biology (Ambient Noise, Cetological)	\$ 87K
Schusterman, R. J. (California State U. Hayward) Mammal Underwater Acoustics	\$ 35K
Smith, A. W., T. G. Akers, & N. A. Vedros (Naval Biomedical Research, Berkeley) Etiology of Marine Zoonoses	\$100K
Winn, H. E. (U. Rhode Island) Marine Bioacoustics and Bio-orientation	\$ 88K

Department of Health, Education, and Welfare, NIH

Atassi, M. Z. (Wayne State U.) Immunochemical Studies on Human Hemoglobins	\$ 22.4K
Behrisch, H. M. (U. Alaska) Zoophysiology in Alaska: Hibernation and Enzymes	\$ 13.5K
Bleier, R. (U. Wisconsin, Madison) Cerebral Localization: Neuroanatomical Studies	\$ 72.1K
Buhler, D. R. (Oregon State U.) Methyl Mercury Detoxification in Marine Mammals	\$ 29.3K
Bullock, T. H. (U. California, San Diego) Studies of Comparative Neurophysiology	\$115K
Caldwell, D. K. (U. Florida, Gainesville) Studies of Communication	\$ 38.1K
Gurd, F. R. (Indiana U., Bloomington) Structure and Reactivity of Proteins and Lipoprotein	\$144.3K
Irving, L. (U. Alaska) Zoophysiology in Alaska: Marine Mammals by Coastal Residents	\$ 13.5K
Leith, D. E. (Harvard U.) Program Project in Respiratory Mechanics: Comparative Mammalian Respiratory Mechanics	\$104.1K
Lewis, U. J. (Scripps Clinic and Research Foundation) Primary Structures of Growth Hormones and Prolactins	\$ 20.7K
Miller, K. L. (U. Alaska) Metabolism and Temperature Regulations of Marine Mammals	\$ 13.5K

Miller, K. L. (U. Alaska) Zoophysiology in Alaska: Heterothermous Operations of Nerves	\$ 13.5K
Morrison, P. R. (U. Alaska) Zoophysiology in Alaska: Bioenergetic Aspects of Physiology of the Sea Otter	\$ 13.5K
Parkhurst, L. J. (U. Nebraska, Lincoln) Hemoglobin and Myoglobin Kinetic Studies	\$ 46.3K
Turcotte, J. G. (U. Rhode Island) Synthesis and Pharmacology of Renin Inhibitors	\$ 43.1K
West, G. C. (U. Alaska) Zoophysiology in Alaska: Utilization of Fat	\$ 13.5K
Wever, E. G. (Princeton U.) The Nature of Hearing: Hearing in Mammals	\$ 32K
Wick, A. N. (California State U., San Diego) Glucose Metabolism and Action of Insulin	\$ 64.6K
Willis, W. D., Jr. (U. Texas, Galveston) Comparative Neurobiology: Neutral Adaptations for Diving in Mammals	\$ 45.2K
Wittenburg, J. B. (Yeshiva U.) Hemeprotein Interactions: Models of Sickle Hemoglobin	\$ 58.7K

Department of Interior

Fish and Wildlife Service (Total Funding \$706K)

Johnson, Ancel
Intensive Studies of the Sea Otters and Other
Marine Mammals in Prince William Sound, Alaska

Studies of Recently Established Sea Otter
Populations

Aerial Surveys of Pacific Walrus

Surveys of Walrus Harvests

Cooperative Survey of Sea Otters

Jones, Clyde
Population Surveys of the Dugong

Population Surveys of Manatees

Status Reports on Marine Mammals

Studies and Salvaging of Stranded Marine Mammals

Environmental Pollutants in Marine Mammals

Lentfer, Jack

The Biology of Polar Bears of the Chukchi Sea

Alaska Coastal Denning Surveys of the Polar Bear

Polar Bears of the Pack Ice of the Arctic Ocean

Summer Distribution and Ecology of Polar Bears

Analysis of Discreteness and Populations of
Polar Bears

National Park Service

Streveler, G. P. (Glacier Bay National Monument)

Harbor Seal Studies,

Glacier Bay

\$ 6K

Environmental Protection Agency

Martin, J. H. (Moss Landing Marine Labs.)

Bioaccumulation of Heavy Metals by Littoral and
Pelagic Marine Organisms

\$ 47K

Marine Mammal Commission

Ainley, D. G. (Point Reyes Bird Observatory)

Studies of Marine Mammals at the Farallon Islands

\$ 5K

Chapman, D. G. & L. L. Eberhardt (U. Washington)

Review and Evaluation of Census Procedures for
Marine Mammals

\$ 35.6K

Clark, W. G. (U. Washington)

Review of the Incidental Taking of Marine Mammals

\$ 3.5K

Dohl, T. P. (U. California, Santa Cruz)

Remote Non-Lethal Marking Techniques for
Marine Mammals

\$ 5.3K

Fay, F. H. (U. Alaska)

The Role of the Pacific Walrus in the Trophic
System of the Bering Sea

\$ 38.7K

Fay, F. H. & J. J. Burns (U. Alaska)

Contributions to Studies of the Biology, Systematics,
and Taxonomy of the Genera Phoca (sensu stricto) and
Odobenus

\$ 7K

Kaufmann, J. H. & A. B. Irvine (U. Florida, Gainesville)	
A Study of the Movements and Activities of the Atlantic Bottlenosed Dolphin (<u>Tursiops truncatus</u>)	\$ 23K
Kooyman, G. L. (U. California, LaJolla)	
Pulmonary Function in Wild and Captive Marine Mammals	\$ 25.2K
Mead, J. G. (Smithsonian Institution)	
Marine Mammal Salvage Program	\$ 15K
Norris, K. S. (U. California, Santa Cruz)	
The Development of Techniques for Estimating the Trophic Impact of Marine Mammals	\$ 25.1K
Odell, D. K. (U. Miami)	
A Preliminary Study of the Ecology and Population Biology of Bottlenose Dolphin in Southeast Florida	\$ 32K
Richardson, D. T. (Department of Marine Resources, Maine)	
Abundance and Distribution of Harbor and Gray Seals Along the Maine Coast	\$ 10.5K
Schmidly, D. J. (Texas A & M U., College Station)	
A Biological Assessment of the Cetacean Fauna of the Texas Coast	\$ 7.9K
Vedros, N. A. & S. H. Madin (U. California, Berkeley)	
Infectious Diseases of Marine Mammals	\$ 25K

National Aeronautics and Space Administration

Ray, G. C. & D. Wartzok (Johns Hopkins U.)	
Marine Mammal Mass Tagging	\$ 45K

National Science Foundation

Brownell, R. L. (Smithsonian Institution)	
Ecology and Life History of the Franciscana Dolphin	\$ 5.8K
Bullock, T. H. (U. California, LaJolla)	
Neuronal Integrative Mechanisms and Their Organization in Useful Systems	\$ 71.7K
Erickson, A. W. (U. Idaho)	
Environmental Factors in the Distribution of Seals in the Antarctic Pack Ice	\$ 56.1K
Felts, W. J. L. (U. Oklahoma)	
An Anatomical, Histological and Neuro- anatomical Study of Antarctic Seals	\$ 58.6K

Herman, L. M. (U. Hawaii) Sensory and Learning-Memory Processes in the Dolphin	\$ 54.3K
Kooyman, G. L. (U. California, San Diego) Data Analysis of Antarctic Penguin and Seal Studies	\$ 5.7K
LeBoeuf, B. J. (U. California, Santa Cruz) Ethology of the Northern Elephant Seal, <u>Mirounga angustirostris</u>	\$ 27.9K
Litchfield, C. (Rutgers U.) Acoustical Function of Lipids in Odontocete Echolocation	\$ 45K
Norris, K. S. (U. California, Santa Cruz) Laser Branding of Marine Mammals	\$ 11.6K
Norris, K. S. (U. California, Santa Cruz) Peripheral Sound Processing in Porpoises	\$ 65K
Siniff, D. B. (U. Minnesota) Status and Population Dynamics of Antarctic Seals	\$ 69.7K
South, F. E. (U. Missouri, Columbia) Physiology of Sleep and Thermoregulation in the California Sea Lion	\$ 50K

Smithsonian Institution

1. Department of Vertebrate Zoology (Total Funding
Level \$19K)

Mead, J. G.

Aspects of the Biology of the Short-Finned
Pilot Whale

Functional Anatomy of the Facial Region of
Cetaceans

Survey of Distribution of Cetaceans in the
Western North Atlantic Based on Stranding Data

2. Department of Paleobiology (Total Funding
Level \$79.5K)

Ray, C. E.

Studies in the Evolution of Pinnipedia

AGENCY PROGRAMS FOR FY75

Department of Agriculture

Dardiri, A. H. (USDA Animal Disease Center,
Greenport, N.Y.)
Transmissibility of San Miguel Sea Lion
Virus to Domestic Swine \$ 9.3K

Department of Commerce

1. National Marine Fisheries Service

Barham, E. & R. McNeely (NMFS/SWFC) Porpoise
Mortality Reduction Technology \$140.2K

Barham, E., T. Smith, et al. (NMFS/SWFC) Porpoise
Stock Assessment \$108.0K

Fiscus, C. H. & W. M. Marquette (NMFS/NWFC)
Marine Mammals of the Arctic Ocean and Bering Sea \$ 41.2K
a. Seals of the Bering and Chukchi Seas
b. Bowhead whale studies

Fiscus, C. H. & W. M. Marquette (NMFS/NWFC)
Pinnipeds (West Coast) \$ 58.9K

Gentry, R. L. & J. H. Johnson (NMFS/NWFC)
St. George Island Studies \$330.9K

Perrin, W., et al. (NMFS/SWFC)
Porpoise Biological Studies and Field Program \$342.9K
(Formerly: Marine Mammals--Porpoise Life Studies)

Rice, D. W., A. A. Wolman & M. Tillman (NMFS/NWFC)
Cetaceans \$ 83.9K
a. Whale Stock Assessment
b. Gray Whale
c. Killer Whale

Roppel, A. Y., et al. (NMFS/NWFC)
Northern Fur Seal \$280.6K

2. Office of Sea Grant

Burns, J. (Institute of Arctic Biology, U. Alaska)
The Biology of the Bering Sea Harbor Seals
and Their Relationship with Other Ice In-
habiting Pinnipeds \$ 55.0K

Fay, F. (Institute of Arctic Biology, U. Alaska)
Ethology and Productivity of the Pacific Walrus \$ 27.3K

Department of Defense, Department of Navy

1. Naval Undersea Center

Beleau, M. H. (NUC)	
Preventive Medicine and Therapy of Marine Mammals	\$ 43K
Evans, W.E. & S.H. Ridgway (NUC)	
Sonar Pulse Sources; Study of Structure and Function	
Pepper, R. L. (NUC)	
Marine Mammal Behavior	\$ 37.5K
Pepper, R. L. (NUC)	
Nutrition Support Studies	\$ 37.5K
Ridgway, S. H. (NUC)	
Electrophysiology of the Dolphin Cortex	\$ 60K
Ridgway, S. H. (NUC)	
Reproductive Capabilities of Bottlenose Dolphin	\$ 40K
Ridgway, S. H. & R. L. Pepper (NUC)	
Screening Techniques for Marine Mammals	\$ 80K
Scronce, V. L. (NUC)	
Gray Seal Capabilities	\$ 90K
Sweeney, J. C. (NUC)	
Open Ocean Diseases of Stranded Animals	\$ 37K

2. Office of Naval Research

Beleau, M. H. (NUC)	
Marine Mammal Bionosis	\$ 20K
Norris, K. S. (U. California, Santa Cruz)	
Research on Behavioral Patterns and Acoustic Emissions of Porpoises	\$ 23K
Ray, G. C. & D. Wartzok (John Hopkins U.)	
Telemetry and Acoustics of Pinnipeds	\$ 50K
Schevill, W. E. & W. A. Watkins (WHOI)	
Oceanic Biology (Ambient Noise, Cetological)	\$ 90K
Schusterman, R. J. (Calif. State U., Hayward)	
Mammal Underwater Acoustics	\$ 35K
Winn, H. E. (U. Rhode Island)	
Marine Bioacoustics and Bio-orientation	\$ 52K

Department of Health, Education and Welfare, NIH

Atassi, M. Z. (Wayne State U.) Immunochemical Studies of Hemoglobin and Myoglobin (Whales)	\$ 61.8K
Bartlett, G. R. (Laboratory for Comparative Bio- chemistry, San Diego) Red Cell Metabolism	\$ 38K
Behrisch, H. M. (U. Alaska) Zoophysiology in Alaska: Hibernation and Enzymes	\$ 27.3K
Bleier, R. (U. Wisconsin, Madison) Cerebral Localization: Neuroanatomical Studies	\$ 52.0K
Buhler, D. R. (Oregon State U.) Methyl Mercury Detoxification in Marine Mammals (Sea Lions)	\$ 32.5K
Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology	\$142.7K
Caldwell, D. K. (U. Florida, Gainesville) Studies of Communication (Dolphin)	\$ 38.1K
Cifonelli, J. A. (U. Chicago) Biochemistry of Connective Tissues: Structure of Heparin Sulfates and Heparin	\$ 43.7K
Elsner, R. W. (U. Alaska) Circulatory Reactions to Asphyxia	\$ 72.2K
Gurd, F. R. (Indiana U., Bloomington) Structure and Reactivity of Proteins and Lipoproteins (Diving Mammals)	\$110.1K
Irving, L. (U. Alaska) Zoophysiology in Alaska: Marine Mammals by Coastal Residents	\$ 27.3K
Kooyman, G. L. (U. California, San Diego) Physiological Basis of Pulmonary Disease: Comparative Anatomy and Physiology of the Lung	\$ 59.7K
Leith, D. E. (Harvard U.) Program Project in Respiratory Mechanics: Comparative Mammalian Respiratory Mechanics	\$109.1K

Lewis U. J. (Scripps Clinic and Research Foundation) Conversion of Growth Hormone and Prolactin	\$ 89.8K
Merrifield, R. B. (Rockefeller U.) Solid Phase Synthesis of Peptides and Proteins	\$125.8K
Miller, K. L. (U. Alaska) Metabolism and Temperature Regulation of Marine Mammals	\$ 27.3K
Miller, K. L. (U. Alaska) Zoophysiology in Alaska: Heterothermous Operations of Nerves (Whales)	\$ 27.3K
Morrison, P. R. (U. Alaska) Zoophysiology in Alaska: Bioenergetic Aspects of Physiology in the Sea Otter	\$ 27.3K
Parkhurst, L. J. (U. Nebraska, Lincoln) Hemoglobin and Myoglobin Kinetic Studies	\$ 48.6K
Schwartz, H. C. (Stanford U.) Extrauterine Growth and Development: Hemoglobin Oxygen Transport (Pinnipeds)	\$ 19.2K
Turcotte, J. G. (U. Rhode Island) Synthesis of Renin Inhibitors and Analog Phosphatides	\$ 39.1K
West, G. C. (U. Alaska) Zoophysiology in Alaska: Utilization of Fat	\$ 27.3K
Wever, E. G. (Princeton U.) The Nature of Hearing	\$191.4K
Willis, W. D., Jr. (U. Texas, Galveston) Comparative Neurobiology: Neural Adaptations for Diving in Mammals (Sea Lions)	\$ 32.2K
Wittenberg, J. B. (Yeshiva U.) Hemeprotein Interactions -- Models of Sickle Hemoglobin (Whale)	\$ 54.5K
Wurtman, R. J. (Massachusetts Institute of Technology) Sympathetic Nervous System and Neuroendocrine Rhythms	\$ 49.2K

Department of Interior

1. Bureau of Land Management

Norris, K. S. (U. California, Santa Cruz)
 Marine Mammal Baseline Study of Southern
 California Bight \$652K

2. BLM/NOAA/OCSEAP

Burns, J. J., F. H. Fay & L. H. Shapiro
 (Alaska Department of Fish and Game)
 The Relationships of Marine Mammal
 Distributions, Densities and Activities
 to Sea Ice Conditions--Bering and Beaufort
 Seas \$ 20.8K

Fay, F. H. (U. Alaska)
 Morbidity and Mortality of Marine Mammals--
 Bering Sea \$ 7.4K

Fiscus, C. H. & A. Y. Roppel (NMFS/NWFC)
 Baseline Characterization of Marine Mammals \$ 26.5K

3. Fish and Wildlife Service

Walrus and Sea Otter \$250K
 Polar Bear \$250K
 Sirenia \$100K
 Pesticide & Heavy Metal Analysis \$ 75K

Campbell, Howard
 Population Surveys of Manatees

Johnson, Ancel
 Intensive Studies of the Sea Otters and other
 Marine Mammals in Prince William Sound, Alaska

 Studies of Recently Established Sea Otter Populations

 Aerial Surveys of Pacific Walrus

 Walrus Biology and Harvest

 Behavioral and Biological Studies of the
 Hawaiian Monk Seal

Jones, Clyde
 Population Surveys of the Dugong

 The Status of Marine Mammals

 Studies on Environmental Pollutants in Marine Mammals

Survey of Pesticide and Heavy Metal Residues
in Marine Mammals

Lentfer, Jack

The Biology of Polar Bears of the Chukchi Seas

Alaska Coastal Denning Surveys of the Polar Bear

Polar Bears of the Pack Ice of the Arctic Ocean

Summer Distribution and Ecology of Polar Bears

Analysis of Discreteness of Populations of Polar Bears

Radio Tracking of Polar Bears

Wilson, Don

Taxonomic Status of Alaska Polar Bear Populations

Section 110 Grants under Marine Mammal Protection Act

Alaska Department of Fish and Game \$ 40K
Alaska Walrus Studies

Odell, K. K. (U. Miami) \$ 1.5K
Biology of the Manatee

Age Determination--Manatee \$ 17.7K

National Park Service

Streveler, G. P. (Glacier Bay National Monument)
Harbor Seal Studies, Glacier Bay \$ 6K

Energy Research and Development Administration

Tester, J. R. & Siniff, D. (U. Minnesota)
Vertebrate Behavior and Ecology: Application of
Radiotelemetry Technology to Selected Problems in
Vertebrate Censusing and Population Study \$ 18.3K

Environmental Protection Agency

Martin, J. H. (Moss Landing Marine Labs.)
Bioaccumulation of Heavy Metals by Littoral and
Pelagic Marine Organisms \$ 49.8K

Marine Mammal Commission

Ainley, D. G. (Point Reyes Bird Observatory)
Studies of Marine Mammals at the Farallon Islands \$ 6K

Anderson, F. R. (Environmental Law Institute) A Study and Analysis of the Activities of the United States Pursuant to Existing Laws and International Conventions Relating to Marine Mammals	\$ 30K
Bertrand, G. A. (U. Wisconsin, Madison) Study and Analysis of the Meaning of the Term "Optimum" in the Marine Mammal Protection Act	\$ 1.6K
Chapman, D. G. & L. L. Eberhardt (U. Washington) Review and Evaluation of Census Procedures for Marine Mammals	\$ 27K
Chapman, D. G. & A. W. Erickson (U. Washington) Workshop on the Killer Whales in Puget Sound and Adjacent Waters	\$ 2.5K
Clark, W. G. (MM4AC001--Modification)	\$ 1K
Clark, W. G. (U. Washington) Study and Analysis of the Number of Porpoises Killed or Seriously Injured Incidental to the Commercial Yellowfin Tuna Fishery	\$ 4.1K
DeLong, R. L. (U. California, Berkeley) Study and Analysis of Marine Mammals on San Miguel Island	\$ 2.5K
Erickson, A. W. (U. Washington) Population Studies of the Killer Whale in the Eastern North Pacific	\$ 35.4K
Fay, F. H. (U. Alaska) The Role of the Pacific Walrus in the Trophic System of the Bering Sea	\$ 31K
Gard, R. (Colorado State U.) Aerial Census, Behavior and Population Dynamics Study of Gray Whales in Mexico During the 1974-1975 Calving and Mating Season	\$ 14.4K
Geraci, J. R. (New England Aquarium) Mass Strandings of <u>Lagenorhynchus acutus</u> : A Study into Life History and Pathobiology	\$ 24K
Gilmartin, W. G., J. C. Sweeney & M. H. Bebeau (Naval Undersea Center) Effects of Certain Environmental Pollutants on Pupping in the California Sea Lion	\$ 2K

Forslund, L. G. (Oregon State U.) Social Behavior of the Harbor Seal, <u>Phoca vitulina richardi</u> , in Oregon	\$ 2.3K
Johnson, M. L. (U. Puget Sound) Population Evaluation of the Harbor Seal (<u>Phoca vitulina</u>) in the Waters of the State of Washington	\$ 9.3K
Kaufmann, J. H. & B. Irvine (U. Florida) A Study of the Movements and Activities of the Atlantic Bottlenosed Dolphin	\$ 30.7K
Kooyman, G. L. (MM4AC012--Modification)	\$ 0.9K
Mate, B. R. (Oregon State U.) Aerial Censusing of Pinnipeds in the Eastern Pacific for Assessment of Population Numbers, Migratory Distributions, Rookery Stability, Breeding Effort, and Recruitment	\$ 40.5K
Mead, J. G. (MM4AC007--Modification)	\$ 1K
Miller, K. (U. Alaska) Energetics of the Northern Fur Seal in Relation to Food Resources and Climate of the Bering Sea	\$ 32.2K
Norris, K. S. (MM4AC013--Modification)	\$ 0.7K
Norris, K. S. (U. California, Santa Cruz) Field Testing of Whale Tracking and Data Recovery Systems	\$ 35.5K
Odell, D. K. (U. Miami) Distribution and Abundance of the Bottlenose Dolphin in Florida Waters	\$ 34.6K
Odell, D. K. (U. Miami) Bottlenose Dolphin (<u>Tursiops truncatus</u>) Assessment Workshop	\$ 3K
Parker, K. (U. Washington) Study and Analysis of the Effects of Incidental Taking in the Course of the Commercial Yellowfin Tuna Fishery Upon Behavior of Affected Porpoises	\$ 1K
Pinkus, E. (Center for Law and Social Policy) Study and Analysis of the Activities of the United States Pursuant to Existing Laws and International Conventions Relating to Marine Mammals	\$ 10.6K

Pitcher, K. W., J. S. Vania & K. B. Schneider (Alaska Department of Fish and Game) Population Productivity and Food Habits of Harbor Seals in the Vicinity of Prince William Sound, Alaska	\$ 17.7K
Pivorunas, A. (Bingham Laboratory) A Study and Analysis of the Efforts to Reduce the Mortality and Serious Injury of Porpoises Incidental to the Commercial Yellowfin Tuna Fishery and the Impact of Such Incidental Taking Upon the Porpoise Populations	\$ 3.7K
Ray, G. C. (Johns Hopkins U.) Hauling-Out Behavior of the Pacific Walrus	\$ 17.4K
Stone, P. Evaluation of Current References, Resources, and Development of an Effective Reference Resource Mechanism for the Marine Mammal Commission	\$ 4K
Vandevere, J. E. (Monterey, California) The Role of the California Sea Otter in the Trophic System of Its Environment	\$ 15.3K
Wheelus, J. (Chevy Chase, Maryland) Study and Analysis of the Regulations and Permit Mechanism Implementing the Marine Mammal Protection Act	\$ 4.8K
<u>National Aeronautics and Space Administration</u>	
Ray, G. C. & D. Wartzok (Johns Hopkins U.) Bering Sea Marine Mammal Experiment	\$100K
<u>National Science Foundation</u>	
Bullock, T. H. (U. California, LaJolla) Neuronal Integrative Mechanisms and Their Organization in Useful Systems	\$ 75.2K
Dawson, W. W. (U. Florida) Behavioral Evaluation of Feline Vision as a Model for Human Strabismic Amblyopia	\$ 5.4K
Erickson, A. W. (U. Washington) Environmental Factors in the Distribution of Seals in the Antarctic Pack Ice	\$ 48.8K
Herman, L. M. (U. Hawaii) Sensory and Learning-Memory Processes in the Dolphin	\$ 55.6K

LeBoeuf, B. J. (U. California, Santa Cruz) Ethology of the Northern Elephant Seal, <u>Mirounga angustirostris</u>	\$ 25.9K
Murrish, D. E. (Case Western Reserve U.) Cardiovascular Dynamics in Antarctic Homeotherms	\$ 15.2K
Siniff, D. G. (U. Minnesota) Status and Population Dynamics of Antarctic Seals	\$ 66.7K

Smithsonian Institution

1. Department of Vertebrate Zoology (Total Funding Level: \$28.3K)
 - Mead, J. G.
 - Aspects of the Biology of the Short-Finned Pilot Whale
 - Functional Anatomy of the Facial Region of Cetaceans
 - Survey of Distribution of Cetaceans in the Western North Atlantic Based on Stranding Data
2. Department of Paleobiology (Total Funding Level: \$51.8K)
 - Ray, C. E.
 - Studies in the Evolution of Pinnipedia

AGENCY PROGRAMS FOR FY76 & TQ76

Department of Commerce

1. National Marine Fisheries Service

Fiscus, C. H. & R. L. DeLong (Marine Mammal Division)	
Endangered Species	\$ 40K
1. Hawaiian Monk Seal	
2. Northern Elephant Seal	
3. Guadalupe Fur Seal (Contract with U. Washington)	
Fiscus, C. H. & R. L. DeLong (Marine Mammal Division)	
Pinnipeds	\$ 85.8K
1. San Miguel Island Pinnipeds, Principally Northern Fur Seal	
2. US-USSR Marine Mammal Studies	
3. Platforms of Opportunity	
4. Contracts:	
Johnson, M. L. (U. Puget Sound)	
Marine Mammal Survey Flights--Lower Columbia River, Coastal and Inland Waters (\$3K)	
Mate, B. R. (Oregon State U.)	
An Aerial Assessment of Breeding Pinnipeds in the Temperate Eastern Pacific (\$6.1K)	
Risebrough, R. (Bodega Bay Institute of Pollution Ecology)	
Analysis of California Sea Lion Tissues for Residues of DDT and PCB Compounds and other Chlorinated Hydrocarbons (\$7K)	
Stroud, R. K. (Oregon State U.)	
Collection and Examination of Marine Mammals Stranded Along the Oregon Coast (\$6K)	
Gentry, R. & J. H. Johnson (Marine Mammal Division)	
Fur Seal Ecosystems--St. George Island	\$330.2K
1. St. George Island Behavioral Studies	
2. St. George Island Subadult Males	
McNeely, R. (LaJolla Laboratory)	
Porpoise Mortality Reduction	\$120K
Perrin, W. F. (LaJolla Laboratory)	
Porpoise Biological Studies and Field Programs	\$136K
Powers, J. (LaJolla Laboratory)	
Porpoise Quantitative Analysis and Data Management	\$179K

Power, J. (LaJolla Laboratory)	\$ 81K
Porpoise Stock Assessment	
Roppel, A. Y. et al. (Marine Mammal Division)	
Northern Fur Seal--Populations and Monitoring	\$290.7K
1. Population Dynamics and Monitoring	
2. Physiology and Medicine	
3. Pelagic Studies	
Tillman, M. F. et al. (Marine Mammal Division)	
Cetaceans	\$193.7K
1. Humpback Whale (North Pacific)	
2. Gray Whale	
3. Killer Whale	
4. Bowhead Whale	
5. Whale Stock Assessment	
2. National Sea Grant Program	
Mate, B. R. (Oregon State U.)	
An Assessment of Sea Lions in the	
Rogue River Area	TQ76--\$ 19.8K

Department of Defense, Department of the Navy

1. Naval Undersea Center	
Evans, W. E. & V. Gurevich (NUC)	
Beluga Whale Capabilities	\$ 20K*
Evans, W. E. & S. H. Ridgway (NUC)	
Sonar Pulse Sources: A Study of	
Structures and Function (Tursiops)	\$ 13K
Gilmartin, W. G. & G. S. Cosgrove (NUC)	
Marine Mammal Preventive Maintenance	
and Therapy	\$ 98K*
Pepper, R. L. (NUC)	
Marine Mammal Behavioral Studies	
(Tursiops)	\$ 60K
Ridgway, S. H. (NUC)	
Reproductive Capabilities of Bottlenose	
Dolphins	\$ 60K*
Ridgway, S. H. & W. E. Evans (NUC)	
Living Sensor and Neural Processing Technology	
Scronce, B. L. (NUC)	
Gray Seal Capabilities	\$110K*
Sweeney, J. C. (NUC)	
Open Ocean Diseases of Stranded Marine Mammals	\$?

*Funding level includes both FY 76 and Transition Quarter 76.

2. Office of Naval Research

Evans, W. E. (NUC) Cetacean Radiotelemetry	FY76--\$ 39.8K TQ76--\$ 9.3K
Ray, G. C. (Johns Hopkins U.) Navy Environment: Swimmer/Diver Support and Acoustic Interference: Marine Mammal Acoustic and Behavioral Capabilities	\$ 50K
Ridgway, S. H. (NUC) Marine Mammal Bionoses	\$ 20K
Schusterman, R. J. (California State College, Hayward) Marine Mammal Visual and Acoustic Behavioral Capabilities	\$ 37K
Schevill, W. E. & W. A. Watkins (Woods Hole Oceanographic Institution) Biological Ambient Sea Noise, Bioacoustic Behavior, and Distribution of Cetaceans (Whales)	\$ 61K
Winn, H. K. (U. Rhode Island) Navy Environment: Biological Sources of Ambient Sea Noise: Bioacoustic Behavior and Sensory Capabilities of Marine Mammals	\$ 43K

Department of Health, Education, and Welfare; NIH

Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (Whales)	\$ 48.3K
Becker, R. R. (Oregon State U.) Toxicology of Environmental Chemicals: Mechanisms for Toxicity of Environmental Contaminants (human, whales)	\$ 24.2K
Buhler, D. R. (Oregon State U.) Toxicology of Environmental Chemicals: Accumulation of Environmental Contaminants in Marine Mammals	\$ 24.2K
Buhler, D. R. (Oregon State U.) Environmental Health Sciences Center: Accumulation of Environmental Contaminants in Marine Mammals	\$ 66.7K

Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology	\$ 65.6K
Elsner, R. W. (U. Alaska) Circulatory Reactions to Asphyxia (dogs, seals)	\$ 78.1K
Fitch, W. M. (U. Wisconsin) Heme Proteins--Structure, Function, Genetics (camel, whale, human)	\$ 41.8K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (chicken, human, diving mammals)	\$112.9K
Kooyman, G. L. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Comparative Anatomy and Physiology of the Lung	\$ 26.5K
Leith, D. E. (Harvard U.) Program Project in Respiratory Mechanics: Comparative Mammalian Respiratory Mechanics	\$ 93.9K
Lewis, U. J. (Scripps Clinic and Research Foundation) Conversion of Growth Hormone and Prolactin	\$ 93.9K
Lewis, U. J. (Scripps Clinic and Research Foundation) Primary Structures of Growth Hormones and Prolactins	\$ 34.1K
Schwartz, H. C. (Stanford U.) Extrauterine Growth and Development: Hemoglobin Oxygen Transport (humans, pinnipeds)	\$ 38.1K
Tinsley, I. J. (Oregon State U.) Environmental Health Sciences Center: Environmental Significance of Organo-Bromine Compounds	\$ 66.7K
Turcotte, J. G. (U. Rhode Island) Synthesis of Renin Inhibitors and Analog Phosphatides	\$ 34.2K
West, G. C. (U. Alaska) Zoophysiology in Alaska: Variation in Fatty Acid and Essential Fatty Acid Composition	\$ 37.6K
Wever, E. G. (Princeton U.) The Nature of Hearing	\$191.7K

Department of the Interior

1. Bureau of Land Management

Estes, J. A. (Fish and Wildlife Service) Behavior and Reproduction of the Pacific Walrus	\$?
Estes, J. A. (Fish and Wildlife Service) Distribution of the Pacific Walrus	\$?
Katona, S. & H. Winn (Center for Natural Areas) A Summary and Analysis of Environmental Information on the Continental Shelf from the Bay of Fundy to Cape Hatteras. Marine Mammal Subtotal	\$ 10K
Norris, K. S. et al. (U. California) Marine Mammal-Seabird Baseline Study of the Southern California Bight. Marine Mammal Subtotal	\$1,029K
2. BLM/NOAA/OCSEAP	
Burns, J. J. (Alaska Department of Fish and Game) An Aerial Census of Spotted Seals, <u>Phoca</u> <u>vitulina largha</u>	\$ 18K*
Burns, J. J. (Alaska DF&G) Trophic Relationships Among Ice- inhibiting Phocid Seals	\$ 60K*
Burns, J. J. & T. J. Eley (Alaska DF&G) The Natural History and Ecology of the Bearded Seal, <u>Erignathus barbatus</u> , and the Ringed Seal, <u>Phoca (Pusa) hispida</u>	FY76--\$106K TQ76--\$ 30K
Burns, J. J., F. H. Fay, & L. H. Shapiro (Alaska DF&G and U. Alaska) The Relationships of Marine Mammal Distri- butions, Densities, and Activities to Sea Ice Conditions	\$109.6K*
Fay, F. H. (U. Alaska) Morbidity and Mortality of Marine Mammals	\$ 83.8K*
Fiscus, C. H. & G. Y. Harry (NOAA/NMFS) Abundance and Seasonal Distribution of Marine Mammals in the Gulf of Alaska	\$ 56.6K*
Fiscus, C. H. & W. B. McAlister (NOAA/NMFS) Abundance and Seasonal Distribution of Bowhead and Belukha Whales in the Bering Sea	\$ 38.3K*
Fiscus, C. H. & A. Y. Roppel (NOAA/NMFS) Baseline Characterization of Marine Mammals (Bering Sea)	\$ 81.7K*

Gentry, R. L. & W. B. McAlister (NOAA/NMFS) Physiological Impact of Oil on Pinnipeds	\$ 91.5K*
Hall, J. D. & M. F. Tillman (FWS & NOAA/NMFS) A Survey of Cetaceans of Prince William Sound and Adjacent Vicinity--Their Numbers and Seasonal Movements	TQ76--\$ 26.9K
Marquette, W. M. & G. Y. Harry (NOAA/NMFS) Abundance and Seasonal Distribution of Bowhead Whales and Belukha	\$ 49.8K*
Pitcher, K. W. (Alaska DF&G) Biology of the Harbor Seal, <u>Phoca</u> <u>vitulina richardi</u>	\$ 65K*
Schneider, K. B. (Alaska DF&G) Assessment of the Distribution and Abundance of Sea Otters Along the Kenai Peninsula, Kamishak Bay, and the Kodiak Archipelago	\$ 11.1K*
Schneider, K. B. (Alaska DF&G) Distribution and Abundance of Sea Otters in Southwestern Bristol Bay	\$ 10K*
Schneider, K. B. & K. W. Pitcher (Alaska DF&G) Population Assessment, Ecology, and Trophic Relationships of Steller Sea Lions in the Gulf of Alaska	\$157.1K*
Ray, G. C. & D. Wartzok (Johns Hopkins U.) Analysis of Marine Mammal Remote Sensing Data	\$ 12K*
3. Fish and Wildlife Service ¹	
--Campbell, H. (FWS, Florida):	
Manatees--	\$139.9K
Age Determination Studies on Florida Manatee	
Effects of Vegetation Control Programs on Florida Manatee	
Biological Consequences of Manatee Uses of Sanctuaries and Unprotected Environments	

*Funding level includes both FY76 and Transition Quarter 76

Study and Salvage Stranded Manatees and
Other Marine Mammals

Development of Manatee Tagging and Tracking
Technology

Definition of Manatee Habitat Requirements
and Assessment of Habitat Alterations

Basic Sensory and Physiological Parameters
as Related to Technical Needs

Marine Mammal Compatibility with Urbanization

Distribution Survey and Status Report on All
Manatee Taxa and Populations

Dugong-- \$ 33.9K

Survey of Conservation Problems and Distribution

Annual Status Report

--Johnson, A. (FWS, Alaska):

Sea Otter-- \$157.2K

Annual and Seasonal Distribution, Abundance,
and Composition of Populations of Sea Otters
and Other Marine Mammals in Prince William
Sound, Alaska

Distribution and Abundance of Recently
Established Populations

Biology and Management Needs for
California Sea Otter

Annual Status Report

Walrus-- \$112.8K

Biological Activities of Pacific Walrus

Annual Status Reports on Pacific Walrus
and Atlantic Walrus

Hawaiian Monk Seal-- \$ 38.2K

Biological Studies of Hawaiian Monk Seal
to Determine Status of Population

--Jones, C. (FWS, Washington, D. C.):

Studies of Environmental Pollutants in
Marine Mammals

/2

--Lentfer, J. (FWS, Alaska):

Polar Bear--

\$451K

Biology and Ecology of Alaska Coastal
Populations

Den Ecology and Distribution

Biological Parameters of Bears of Chuckchi Sea

Biology and Ecology of Bears of Arctic Ocean

Summer Distribution and Ecology of Bears

Discreteness of Populations

Satellite Tracking of Bears

Development of Telemetry System for Long-
Range Monitoring of Movements and
Physiological Parameters

Predation on Alaska Ice Pinniped Populations

Parasites and Environmental Contaminants in Bears

Estimation of Alaska Population Size and
Productivity

Annual Status Report

3. National Park Service

Jurasz, C. and V. Jurasz (Cooperative Park Studies
Unit, U. Alaska)
Humpback Whale Studies, Glacier Bay National
Monument

\$ 11.2K

Streveler, G. P. (NPS, Glacier Bay National
Monument) Harbor Seal Studies

\$ 6K

¹Species projects funded during transition quarter in same proportions as during FY76 but at 24 percent of their FY76 levels.

²Costs of studies on environmental pollutants were distributed among all species (\$15K total).

Energy Research and Development Administration

Tester, John R. & D. B. Siniff (U. Minnesota)
Vertebrate Behavior and Ecology (Sea Otter) \$ 28K

Marine Mammal Commission

FY76--

Benirschke, K. & S. H. Ridgway (Zool. Soc. San
Diego & Naval Undersea Center)
Tursiops Breeding Workshop \$ 9.8K

Brownell, R. L. & C. M. Schonewald (Smithsonian
Institution)
Estimate of Recent Major Takings of
Marine Mammals \$ 17.9K

Chapman, D. G. (U. Washington)
Analysis of Tuna-Porpoise Data \$ 12.4K

Cornell, L. H. & E. D. Asper (Oceanic
Research Institute)
Further Investigation into Appropriate
Cryogenic Marking Processes \$ 6.7K

Evans, W. E. & J. S. Leatherwood (Naval
Undersea Center)
Acoustic Characteristics of Nets
and Floats in the Water During Purse
Seine Fishing for Yellowfin Tuna \$ 19.8K

Gard, R. (U. Alaska, Juneau)
Aerial Census and a Population Dynamics
Study of Gray Whales in Baja California
During the 1976 Calving and Mating Season \$ 13.4K

Gilmartin, W. G., J. C. Sweeney, & M. H. Bebeau
(Naval Undersea Center)
Effects of Certain Environmental
Pollutants on Pupping in the California
Sea Lion \$ 12.2K

Gonsalves, J. T. (Progressive Fishing
Enterprises)
Improved Device and Method to
Prevent Porpoise Mortality \$ 29.7K

Katona, S. K. (College of the Atlantic)
The Gulf of Maine Whale Sighting Network \$ 2.5K

Kavanau, J. L. (U. California, Los Angeles) Behavior of the Sea Otter, <u>Enhydra lutris</u>	\$ 7.8K
Kooyman, G. (U. California, San Diego) Development and Testing of a New, Low Cost Method for Monitoring at Sea Behavior of Marine Mammals	\$ 19K
Leatherwood, J. S. (Naval Undersea Center) The Comparative Utility of Some Aerial Census Methods in Cetacean Stock Assessment	\$ 7K
New England Aquarium (Boston) Marine Mammal Strandings Along the New England Coast: A Study into Pathobiology and Life History	\$ 32.3K
Norris, K. S. (U. California, Santa Cruz) Behavioral Studies Relative to the Tuna-Porpoise Problem	\$128.5K
Payne, R. S. (New York Zool. Soc. Center for Field Biology and Conservation) Assessment of Two Right Whale Populations by Means of Aerial Censusing and Photo- grammetry	\$ 22.2K
Ray, G. C. (Johns Hopkins U.) Identification and Preservation of Critical Marine Mammal Habitats Within the Juris- diction of the United States	\$ 20.9K
Reeves, R. R. The Impact of Human Activity on the Eastern Pacific Population of Gray Whales (<u>Eschrichtius robustus</u>)	\$ 3.1K
Risebrough, R. W. et al. (Bodega Bay Institute of Pollution Ecology) Population Biology of Harbor Seals in San Francisco Bay, California	\$ 22.5K
Waring, G. H. (Southern Illinois U.) Analysis of Outer Continental Shelf Development and Potential Impacts on Marine Mammal Populations	\$ 19K
Wilson, S. C. (Smithsonian Institution) Management Implications of Social Behavior of the Harbor Seal, <u>Phoca vitulina concolor</u>	\$ 8.6K

Woodhouse, C. D. (Santa Barbara Museum of Natural History)	A Summary of Knowledge of the Sea Otter and an Appraisal of the Completeness of Biological Understanding of the Species	\$ 12.5K
Transition Quarter 76--		
Ainley, D. G. (Point Reyes Bird Observatory)	Studies of Marine Mammals at the Farallon Islands	\$ 6.6K
Chapman, D. G. & M. Tillman (U. Washington)	Reassessment of Available Data on Antarctic Sei Whale Stocks	\$ 8.4K
Dayton, P. K. (U. California)	Studies Toward the Understanding of the Health and Stability of Some Sea Otter Dominated Marine Communities	\$ 53.9K
Green, K. A. (LGL Limited)	Further Development of an Ecosystem Model for the Southern Ocean	\$ 10K
Johnson, M. L. (U. Puget Sound)	Distribution, Population Dynamics, and Ecology of the Harbor Seal (<u>Phoca vitulina</u>) in the Waters of the State of Washington	\$ 11K
Kavanau, J. L. (U. California, Los Angeles)	Behavior of the Sea Otter, <u>Enhydra lutris</u>	\$ 5.5K
Pearse, J. S. (U. California, Santa Cruz)	Ecological Benchmarks in Santa Cruz County Kelp Forests Before the Re-establishment of Sea Otters	\$ 23.5K
Ridgway, S. H., W. F. Flanigan, & A. F. Langguth (Naval Undersea Center)	Investigation of a Potential Method for the Humane Taking of Certain Marine Mammals	\$ 9K
Schmidly, D. J. (Texas A & M U.)	The Population Biology of <u>Tursiops truncatus</u> , the Atlantic Bottlenose Dolphin in the Aransas Pass Area of Texas	\$ 6K

National Aeronautics and Space Administration

Ray, G. C., D. Wartzok, & P. Sebesta
(Johns Hopkins U. & Ames Res. Center)
Bering Sea Marine Mammal Experiment (No cost extension)

National Science Foundation

Awbrey, F. T. (San Diego State U.)
Study of Acoustical Factors Affecting
Porpoise Mortality in Tuna Fishing TQ76--\$119.6K

Brownell, R. L. (Smithsonian Institution)
Stock Assessment of Antarctic Minke Whales \$ 21.5K

Bullock, T. H. (U. California, San Diego)
Neuronal Integrative Mechanisms FY76--\$ 76.9K
TQ76--\$ 70K

Dawson, W. W. (U. Florida)
Vision in Dolphins and Other Cetaceans FY76--\$ 35K
TQ76--\$ 39.1K

Herman, L. M. (U. Hawaii)
Sensory and Learning-Memory Processes
in the Dolphin FY76--\$ 15K
TQ76--\$ 5K

LeBoeuf, B. J. (U. California, Santa Cruz)
Ethology of the Northern Elephant Seal
(Mirounga angustirostris) \$ 27.2K

Norris, K. S. (U. California, Santa Cruz)
Peripheral Sound Processing in Porpoises FY76--\$ 30K
TQ76--\$ 10K

Siniff, D. F. (U. Minnesota)
Colony Behavior of Antarctic Marine
Mammals FY76--\$ 50.8K
TQ76--\$ 42.4K

Siniff, D. B. (U. Minnesota)
Studies of Biota of Antarctic Pack Ice FY76--\$ 28.2K
TQ76--\$ 44.1K

Zapol, W. M. (Massachusetts General Hospital)
The Cardiovascular and Metabolic Response
to Diving and Endocrinology of the Gravid
Near-Term Weddell Seal TQ76--\$ 75.6K

Smithsonian Institution

Mead, J. G. (Smithsonian Institution)
Marine Mammal Program

FY & TQ76--\$ 42.8K

Ray, C. (Smithsonian Institution)
Studies in the Evolution of the Pinnipeds

\$ 59.2K

AGENCY PROGRAMS FOR FY77

Department of Commerce

1. National Marine Fisheries Service

a. Northwest and Alaska Fisheries Center

Fiscus, C. H. (Marine Mammal Division)
Endangered Species \$ 40K

1. Hawaiian Monk Seal
2. Northern Elephant Seal
3. Guadalupe Fur Seal (Contract with U. Washington)

Fiscus, C. H. (Marine Mammal Division)
Pinnipeds \$ 90K

1. San Miguel Island Pinnipeds, principally Northern Fur Seal
2. US-USSR Marine Mammal Studies

Gentry, R. (Marine Mammal Division)
Northern Fur Seals: Ecosystem Studies,
St. George Island \$246K

Harry, G. (Marine Mammal Division)
Northern Fur Seals: Ecosystem Studies,
Pelagic \$120K

Harry, G. (Marine Mammal Division)
Northern Fur Seals: Population and
Physiology \$262K

Tillman, M. (Marine Mammal Division)
Cetaceans \$211K

1. Humpback Whales (North Pacific)
2. Gray Whale
3. Killer Whale
4. Whale Stock Assessment

Tillman, M. (Marine Mammal Division)
Endangered Cetaceans: Arctic Whales--
Bowhead \$201K

b. Southwest Fisheries Center

Everett, J. T. (SWFC)
Porpoise:
1. Quantitative Analysis \$ 37.6K
2. Data Management \$152.0K

McNeely, R. (SWFC)	
Porpoise Mortality Reduction Technology	\$299.6K
Perrin, W. F. (SWFC)	
Porpoise Biological Studies	\$138.1K
(Also \$13.7K for Growth and Reproduction of <u>Delphinus</u> in the Eastern Tropical Pacific, C. Hui (Naval Ocean Systems Center))	
Powers, J. E. (SWFC)	
Porpoise Stock Assessment	\$516.5K

2. National Sea Grant Program

Mate, B. R. (Oregon State U.)	
An Assessment of Sea Lions in the Rogue River Area	\$ 25.8K

Department of Defense, Department of the Navy

1. Naval Ocean Systems Center (formerly NUC)

Beleau, M. H. (NOSC)	
Prepared Ration Development	\$ 15K
Gilmartin, W. G. (NOSC)	
Automated Training by Electronically- Generated Tones	\$ 74K
Biorhythms in Captive <u>Tursiops</u>	\$ 25K
Captive Breeding (<u>Tursiops</u>): Artificial Insemination Techniques	\$ 40K
Fur Seal Conditioning and Echolocation Assessment	\$ 70K
Marine Mammal Preventive Medicine & Therapy	\$ 55K
Trainability Assessment Test (Pinnipeds)	\$ 80K
Ljungblad, D. K. (NOSC)	
Comparison Hearing Threshold Techniques: Behavioral Verses Physiological	\$ 60K
Nachtigall, P. E. (NOSC)	
<u>Tursiops</u> Behavioral Study: In-air Matching-to-Sample	\$ 75K
<u>Tursiops</u> Fish/Ration Motivation Study	\$ 75K

Ridgway, S. H. (NOSC) Acoustic Neural Processes (<u>Tursiops</u>)	\$ 55K
Ridgway, S. H. (Hubbs-Sea World Research Institute) Beluga Trainability and Hearing Thresholds	\$ 10K
Scronce, B. L. (NOSC) Gray Seal Capabilities	\$ 10K
Turl, C. W. (NOSC) Active Sonar for Sea Lions	\$ 74K
2. Office of Naval Research	
Evans, W. (Hubbs-Sea World Research Institute) Radio Tracking of Cetaceans Using Telemetry Techniques	\$ 60K
Gilmartin, W. G. (NOSC) Marine Mammal Bionosis	\$ 20K
Ray, G. C. and D. Wartzok (John Hopkins U.) Telemetry and Acoustics of Pinnipeds	\$ 40K
Shusterman, R. J. (California State U.--Hayward) Mammal Underwater Acoustics	\$ 47K
Vedros, N. A. (Naval Biosciences Laboratory) Host Parasite Interaction with Mammals in a Marine Environment	\$ 60K
Watkins, W. A. & W. E. Schevill (Woods Hole Oceanographic Institution) Marine Biological Sounds	\$142K
Winn, H. E. (U. Rhode Island) Bioacoustics and Behavior of Marine Mammals	\$ 45K
<u>Department of Energy</u>	
Eberhardt, L. L. (Battelle-Pacific Northwest Laboratory) Analysis of Natural Systems	\$ 50K
Tester, J. R. and D. B. Siniff (U. Minnesota) Vertebrate Behavior and Ecology	\$ 30K

Department of Health, Education, and Welfare; NIH

Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (whales)	\$ 50.7K
Becker, R. R. (Oregon State U.) Toxicology of Environmental Chemicals: Mechanisms for Toxicity of Environmental Contaminants (humans, whales)	\$ 27.3K
Buhler, D. B. (Oregon State U.) Toxicology of Environmental Chemicals: Accumulation of Environmental Contaminants in Marine Mammals	\$ 27.3K
Buhler, D. B. (Oregon State U.) Environmental Health Sciences Center: Accumulation of Environmental Contaminants in Marine Mammals	\$ 74.9K
Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology (sharks, rays, seals, porpoises, sloths, etc.)	\$130.3K
Fetterman, G. H. (Children's Hospital, Pittsburgh) Study of Immature Kidneys by Microdissection (human, rats, seal, beaver)	\$ 24.6K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (chicken, human, diving mammals)	\$117.8K
Gurd, F. R. (Indiana U.) Specific Enrichment of Myoglobins for Carbon 13 NMR (Cetacea)	\$ 66.6K
Kooyman, G. L. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Comparative Physiology (harbor seals and California sea lions)	\$ 53.1K
Linker, A. (Veterans Administration Hospital, Salt Lake City) Structure and Function of Mucopoly- saccharides (human, seals, snakes)	\$ 43.3K
Schwartz, H. C. (Stanford U.) Extrauterine Growth and Development: Hemoglobin Oxygen Transport (human, pinnipeds)	\$ 35.1K

Tinsley, I. J. (Oregon State U.)
 Environmental Health Sciences Center:
 Environmental Significance of Organo-
 bromine Compounds (marine animals) \$ 75.9K

West, J. B. (U. California, LaJolla)
 Physiological Basis of Pulmonary Disease:
 Morphometric Studies of the Lung (harbor
 seals, California sea lions) \$ 53.1K

Department of the Interior

1. Bureau of Land Management

Fiscus, C. (NOAA/NMFS)
 Alaska Pinnipeds \$157K

Norris, K. L., B. LeBoeuf & G. Hunt (U. California,
 Santa Cruz)
 Marine Mammal-Sea Bird Survey of the
 Southern California Bight (Total 1,029K)
 (Marine Mammal Subtotal only) \$900K

Reed, W. (Center for Natural Areas, South
 Gardiner, ME)
 Summary and Analysis of Environmental
 Information on the Continental Shelf
 and Blake Plateau from Cape Hatteras
 to Cape Canaveral \$199.9K

2. BLM/NOAA/OCSEAP

Burns, J. J. and T. J. Eley (Alaska Department
 of Fish and Game)
 The Natural History and Ecology of the
 Bearded Seal, Erignathus barbatus, and the
 Ringed Seal, Phoca hispida \$104.5K

Burns, J. J., F. H. Fay & L. H. Shapiro (Alaska DF&G)
 The Relationship of Marine Mammal Distri-
 butions, Densities and Activities to Sea Ice
 Conditions \$102.2K

Burns, J. J., L. F. Lowry & K. J. Krost (Alaska
 DF&G)
 Trophic Relationships Among Ice-
 Inhabiting Phocid Seals \$ 96.6K

Fay, F. H. (U. Alaska)
 Morbidity and Mortality of Marine Mammals \$ 70.4K

Fiscus, C. H., H. Braham & B. Krogman (NOAA/NMFS)
 Bowhead and Beluga Whales in the Bering,
 Chukchi and Beaufort Seas \$ 85K

Fiscus, C. H., H. W. Braham & D. J. Rugh (NOAA/NMFS) Marine Mammals of the Bering and Southern Chukchi Seas	\$109.5K
Fiscus, C. H., R. Mercer & H. Braham (NOAA/NMFS) Seasonal Distribution and Relative Abundance of Marine Mammals in the Gulf of Alaska	\$ 25.2K
Hall, J. D. & M. F. Tillman (FWS & NOAA/NMFS) A Survey of Cetaceans of Prince William Sound and Adjacent Vicinity--Their Numbers and Seasonal Movements	\$127.2K
Kooyman, G. L. (Scripps Institute of Oceanography) Effects of Oil Pollution on Marine Mammals	\$ 59K
Pitcher, K. W. & D. Calkins (Alaska DF&G) Biology of the Harbor Seal (<u>Phoca vitulina</u> <u>richardi</u>) in the Gulf of Alaska	\$ 60K
Pitcher, K. W. & D. Calkins (Alaska DF&G) Population Assessment, Ecology and Trophic Relationships of Steller Sea Lions in the Gulf of Alaska	\$145.5K
3. Fish and Wildlife Service	
--Sea Otter (and Marine Otter)--	\$175.2K
Johnson, A. (National Fish and Wildlife Laboratory) Annual and Seasonal Distribution, Abundance and Composition of Populations of Sea Otters and Other Marine Mammals in Prince William Sound, Alaska	
Jameson, R. (NFWL) Distribution and Abundance of Recently Established Sea Otter Populations Biology and Management Needs for California Sea Otters	
Estes, J. (NFWL) Interactions Between Sea Otters and the Nearshore Community	

U. Washington Fisheries Research Institute
Nearshore Fish Communities of
Attu Island (\$18K)

Siniff, D. (U. Minnesota)
Research and Investigations on California
Populations of Sea Otters (\$5K)

Irons, D.
Sea Otter Community Interactions (\$5.3K)

Staff (NFWL)
Annual Status Reports on Sea and Marine Otters

--Walrus-- \$141.6K

Estes, J. (NFWL)
Ecological Relationships Among Ice-
breeding Pinnipeds

Reeves, R.
Survey Status of Atlantic Walrus (\$6K)

Staff (NFWL)
Annual Status Reports on Pacific and
Atlantic Walruses

--Polar Bear-- \$353.1K

Lentfer, J. (NFWL)
Biology and Ecology of Alaska Coastal Populations

Den Ecology and Distribution

Biological Parameters of Bears of Chukchi Sea

Biology and Ecology of Bears of Arctic Ocean

Summer Distribution and Ecology of Bears

Discreteness of Populations

Satellite Tracking of Bears

Parasites and Environmental Contaminants in Bears

Estimation of Alaska Population Size and Productivity

Impact of Resource Development on Bears and Their
Habitat

Handar Corporation

Development of Telemetry System for Long-range Monitoring of Movements and Physiological Parameters (\$29K)

Gilbert, J.

Status of Populations and Population Modeling (\$2.5K)

Staff (NFWL)

Annual Status Report

--Hawaiian Monk Seal--

\$ 52.3K

Johnson, A. and K. Kenyon (NFWL)

Biological Studies to Determine Status of Population

Naftel, G. (Easy Rider)

Logistical Support for Seal Survey (ship charter) (\$40.4K)

--Manatees--

\$175.2K

Campbell, H. and B. Irvine (NFWL)

Effects of Vegetation Control Programs on Florida Manatee

Biological Consequences of Manatee Uses of Sanctuaries and Unprotected Environments

Study and Salvage of Stranded Manatees and Other Marine Mammals

Development of Manatee Tagging and Tracking Technology

Definition of Manatee Habitat Requirements and Assessment of Habitat Alterations

Basic Sensory and Physiological Parameters as Related to Technical Needs

Marine Mammal Compatibility with Urbanization

Distribution and Status of All Manatee Taxa and Populations

Duplaix-Hall, N. (RARE)

Manatee Populations in Selected Areas of South America (\$4.5K)

Staff (NFWL)
Annual Status Reports

--Dugong-- \$ 14.5K

Brownell, R. (NFWL)
Survey of Distribution, Status and
Conservation Problems

Auffenberg, W.
Survey Populations in the Philippine
Islands (\$0.7K)

Staff (NFWL)
Annual Status Report

--Marine Mammal Tagging-- \$ 21.1K

Staff (National Fish and Wildlife Laboratory)

4. Geological Survey

Whitmore (USGS/Paleontology and Stratigraphy)
Mesozoic and Cenozoic Paleontology and
Stratigraphy of the Atlantic and Eastern
Gulf Coastal Plain (cetaceans) \$ 31.2K

5. National Park Service

Hendrix, G. (Everglades National Park)
Logistic Support for Survey of Endangered
Wildlife (manatees) \$ 0.5K

Jurasz, C. and V. Jurasz (Auke Bay, AK)
Ecology of Humpback Whales (harbor
porpoise, minke whales and killer whales
also) \$ 10K

Streveler, G. (Glacier Bay National Monument)
Harbor Seal Studies \$ 6K

Marine Mammal Commission

Ainley, D. G. and H. Huber (Point Reyes
Bird Observatory)
Studies of Marine Mammals at the Farallon
Islands \$ 11.7K

Benirschke, K. (Zoological Society of San Diego)
Enhancement of Captive Dolphin Breeding Through
Harmonal Studies of Ovulation \$ 21.9K

Botkin, D. B. and M. J. Sobel Concept of Optimum Sustainable Populations of Marine Mammals	\$ 10K
Chapman, D. G. (U. Washington) Whale Statistics	\$ 29.5K
Evans, C. D. (U. Alaska) Study of Pending Federal Legislation Relating to Proposed Wildlife Refuges and Other Special Areas in the State of Alaska	\$ 10K
Foster, M. S. (Moss Landing Marine Laboratories) Baseline Studies of Subtidal Communities Near the Northern Extremity of the Sea Otter's California Range	\$ 40.6K
Fowler, C. W. (Utah State U.) Comparative Population Dynamics: A Search for Management Criteria	\$ 57.2K
Geraci, J. (New England Aquarium) Marine Mammal Stranding Workshop	\$ 15K
Gilbert, J. (U. Maine) Assessment of the Status of Gray Seals (<u>Halichoerus grypus</u>) in Coastal Waters of the Northeast United States	\$ 10.2K
Green, K. A. Computer Model of the California Current Ecosystem	\$ 13.5K
Hui, C. A. (Naval Ocean Systems Center) Reliability of Dentinal Age Determination in <u>Tursiops</u>	\$ 9.9K
Johnson, B. W. and P. A. Johnson The Hawaiian Monk Seal on Laysan Island	\$ 20.2K
Johnson, M. (U. Puget Sound) Population Dynamics and Ecology of the Harbor Seal (<u>Phoca vitulina</u>) in the State of Washington	\$ 17.7K
Katona, S. K. (College of the Atlantic) Identification of Humpback Whales from Fluke Photographs	\$ 7K
Mathisen, O. A. (U. Washington) Techniques for Estimating Krill Abundance in the Southern Ocean	\$ 14.5K

Nafziger, J. A. R. (U. Oregon) Developments in the Law of Marine Mammal Management	\$ 7.4K
National Technical Information Service (Department of Commerce) Document Registration and Distribution of MMC Documents	\$ 3.4K
Naftel, G. and L. R. Taylor (Easy Rider Corporation) Predation on the Hawaiian Monk Seal (<u>Monachus schauinslandi</u>) by Large Sharks	\$ 13.9K
Norris, K. S. and W. Stuntz (U. California, Santa Cruz) Study of the "Passive" Behavior of Spotted Porpoise (<u>Stenella attenuata</u>) Captured During Commercial Purse Seine Fishing for Yellowfin Tuna	\$ 12.5K
Reeves, R. R. (Smithsonian Institution) Marine Mammal Protection and Conservation Issues	\$ 34.1K
Risebrough, R. W. (Bodega Bay Institute of Pollution Ecology) Accumulation of Petroleum Compounds in Harbor Seals in San Francisco Bay	\$ 2.8K
Shallenberger, E. (Sea Life Park) Humpback Whale Workshop	\$ 6K
Shallenberger, E. W. (Manta Corporation) Status of Cetaceans in Hawaiian Waters	\$ 10.2K
Smith, T. (U. Hawaii) Study of Recently Developed Model of Historical Abundance of Porpoise	\$ 2K
Stone, P. S. Marine Mammal Commission Reference Library	\$ 8.4K
Swartz, S. L. (San Diego Society of Natural History) Field Studies of the Gray Whale (<u>Eschrichtius robustus</u>) in Laguna San Ignacio, Baja California	\$ 9.8K
Tillman, M. F. (National Marine Fisheries Service) Whale Logbook Workshop	\$ 4K
Waring, G. H. (Southern Illinois U.) Issues Affecting the Conservation and Protection of Marine Mammals	\$ 4.8K

Winn, H. (U. Rhode Island)
 Comparative Evaluation of Aerial-Shipboard Techniques
 for Estimating the Abundance of Humpback Whales \$ 12.1K

National Aeronautics and Space Administration

Michelson, R. C., B. Irvine & L. Keene (Georgia
 Institute of Technology)
 Manatee Tracking Project--Develop a Concept
 of an Automatic Tracking System to Determine
 the Location and Movements of Manatees \$ 50K

Ray, G. C., D. Wartzok and P. Sebesta (Johns Hopkins
 U. and NASA/Ames Research Center)
 Bering Sea Marine Mammal Experiment -0-

National Science Foundation

Awbrey, F. T. (San Diego State U.)
 Acoustical Factors Affecting Porpoise Mortality
 in Tuna Fishing \$ 97.1K

Dawson, W. W. (U. Florida)
 Vision in Dolphins and Other Cetaceans \$ 39.1K

Herman, L. M. (U. Hawaii)
 Sensory and Learning-Memory Processes in the
 Dolphin \$ 7.8K

Jonkel, C. J. and B. O'Gara (U. Montana)
 Environmental and Ecological Studies of High Arctic
 Mammalian Habitat and Food Chains Affected by
 Development \$300K

Kooyman, G. L. (U. California, San Diego)
 Comparative Aquatic Biology of Antarctic Endotherms \$ 74.7K

LeBoeuf, B. J. (U. California, Santa Cruz)
 Biological Studies of the Northern Elephant Seal \$ 33.1K

Morgane, P. J. (Worcester Foundation for Experimental
 Biology, Shrewsbury, MA)
 Archicortical-Limbic Formations of Dolphin Brain \$ 39.8K

Norris, K. S. (U. California, Santa Cruz)
 Peripheral Sound Processing in Porpoises \$ 29.3K

Siniff, D. B. (U. Minnesota)
 Studies of Biota of Antarctic Pack Ice \$ 50K

Siniff, D. B. and D. P. DeMaster (U. Minnesota)
 Colony Behavior of Antarctic Marine Mammals \$ 48K

Smithsonian Institution

Mead, J. G. (Smithsonian Institution) Marine Mammal Program	\$ 50K
Ray, C. E. (Smithsonian Institution) Studies on the Evolution of the Pinnipedia	\$ 56.1K

Veterans Administration

Seal, U. S. (VA Medical Center, Minneapolis) Function, Evolution and Structure of Hormone-Binding Proteins (pinnipeds, etc.)	\$ 88.6K
Theil, G. B. (VA Medical Center, Wood, WI) The Isolation and Characterization of Fish Myohemoglobin (harbor seal, etc.)	\$ 14K

AGENCY PROGRAMS FOR FY78

Department of Commerce

1. National Marine Fisheries Service

a. Northwest and Alaska Fisheries Center

Fiscus, C. (Marine Mammal Division) Endangered Species	\$ 50K
1. Hawaiian Monk Seal	
2. Northern Elephant Seal	
3. Guadalupe Fur Seal	
Fiscus, C. (Marine Mammal Division) Pinnipeds (of California, Oregon and Washington)	\$ 93K
Gentry, R. (Marine Mammal Division) Northern Fur Seals: Ecosystem Studies, St. George Island	\$260K
Harry, G. (Marine Mammal Division) Northern Fur Seals: Ecosystem Studies, Pelagic	\$124K
Harry, G. (Marine Mammal Division) Northern Fur Seals: Population and Physiology	\$282K
Tillman, M. (Marine Mammal Division) Cetaceans	\$309K
1. Humpback Whales	
2. Gray Whales	
3. Whale Stock Assessment	
Tillman, M. (Marine Mammal Division) Endangered Cetaceans: Arctic Whales--Bowhead	\$724K
Tillman, M. (Marine Mammal Division) Endangered Cetaceans: Dall Porpoise	\$210K
b. Southwest Fisheries Center	
Coe, J. M. and W. E. Stuntz (SWFC) Porpoise Mortality Reduction	
1. Technology	\$303.9K
2. Behavior and Physiology	\$183.7K
Perrin, W. F. (SWFC) Porpoise Biological Studies	\$220.4K

Powers, J., N. Lo and C. Oliver (SWFC)
 Porpoise:
 1. Quantitative Analysis \$ 63.3K
 2. Data Management \$255.4K

Powers, J. (SWFC)
 Porpoise Stock Assessment \$524.5K

2. National Sea Grant College Program

Mate, B. R. (Oregon State U.)
 An Assessment of Sea Lions in the Rogue
 River Area \$ 26.7K

Mate, B. R. (Oregon State U.)
 Population Growth and Feeding Habits of
 Harbor Seals in an Aquacultural-Enhanced
 Environment \$ 23K

Department of Defense, Department of the Navy

1. Naval Ocean Systems Center

Gilmartin, W. G. (NOSC)
 Trainability Assessment Test (pinnipeds) \$ 21K

(Hubbs-Sea World Research Institute)
 Beluga Hearing Thresholds \$ 12K

(Hubbs-Sea World Research Institute)
 Beluga Temperature Limitations \$ 13K

Fur Seal Ecolocation Assessment \$ 11K

Pacific Tursiops Hearing Thresholds \$ 18K

Fur Seal Deep Dive Evaluation \$ 85K

Marine Mammal Bioseses \$ 37K

Health Screening Techniques (pinnipeds) \$ 10K

Captive Dolphin Breeding \$ 18K

Dolphin Immunology (Erysipelas) \$ 20K

Leatherwood, S. J. (NOSC)
 Purse Seine Acoustic Environment \$ 48K

Ljungblad, D. K. (NOSC)
 Comparison Learning Threshold Techniques:
 Behavioral vs. Physiological (Tursiops) \$ 20K

Ridgway, S. H. (NOSC)	
Acoustic Neural Processes (Tursiops)	\$ 60K
Gray Seal Echolocation Assessment	\$ 30K
Vitamin A Metabolism in Dolphins	\$ 7K
Porpoise Health Assessment by Sound Production	\$ 25K

Turl, C. W. (NOSC)	
Active Sonar For Sea Lions	\$110K

2. Office of Naval Research

Cummings, W. (San Diego Museum of Natural History)	
Analysis of Low Frequency Whale Sounds	\$ 26K

Gilmartin, W. G. (NOSC)	
Marine Mammal Bionosis	\$ 20K

Ray, G. C. and D. Wartzok (John Hopkins U.)	
Telemetry and Acoustics of Pinnipeds	\$ 58K

Shusterman, R. J. (California State U., Hayward)	
Mammal Underwater Acoustics	\$ 52K

Watkins, W. A. and W. E. Schevill (Woods Hole Oceanographic Institute)	
Marine Biological Sounds	\$133K

Winn, H. E. (U. Rhode Island)	
Bioacoustics and Behavior of Marine Mammals	\$ 46K

Vedros, N. A. (Naval Biosciences Lab, Oakland)	
Host Parasite Interactions with Mammals in a Marine Environment	\$ 95K

Department of Energy

Eberhardt, L. L. (Battelle-Pacific Northwest Laboratory)	
Analysis of Natural Systems	\$ 50K

Tester, J. R. and D. B. Siniff (U. Minnesota)	
Vertebrate Behavior and Ecology	\$ 30K

Department of Health, Education and Welfare, NIH

Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (whales)	\$ 53K
Becker, R. R. (Oregon State U.) Toxicology of Environmental Chemicals: Mechanisms for Toxicity of Environmental Contaminants (human, whales)	\$ 26.3K
Buhler, D. B. (Oregon State U.) Toxicology of Environmental Chemicals: Accumulation of Environmental Contaminants in Marine Mammals	\$ 26.3K
Buhler, D. B. (Oregon State U.) Environmental Health Sciences Center: Accumulation of Environmental Contaminants in Marine Mammals	\$ 78.5K
Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology (sharks, rays, porpoises, seals, sloths, etc.)	\$134.7K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (diving mammals, human, chicken)	\$123K
Gurd, F. R. (Indiana U.) Specific Enrichment of Myoglobins for Carbon 13 NMR (Cetacea)	\$ 70.3K
Howard, E. B. (U. Southern California) NIEHS Marine/Freshwater Biomedical Center Grant: Toxicologic, Immunologic Effects of Environmental Contaminants (Marine mammals)	\$ 13.3K
Kooyman, G. L. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Comparative Physiology (diving mammals)	\$ 62.7K
Linker, A. (Veterans Administration Hospital, Salt Lake City) Structure and Function of Mucopoly- saccharides (human, seals, snakes)	\$ 42.7K
Tinsley, I. J. (Oregon State U.) Environmental Health Science Center: Environmental Significance of Organo-bromine Compounds (marine animals)	\$ 78.5K

West, J. B. (U. California, LaJolla)
 Physiological Basis of Pulmonary Disease:
 Morphometric Studies of the Lung (diving
 mammals) \$ 62.7K

Department of the Interior

1. Bureau of Land Management

Fiscus, C. (National Marine Fisheries Service)
 Alaskan Pinnipeds \$ 85K

Kelley, J. (NARL, Barrow, Alaska)
 Project Whales: Investigation of
 Endangered Whales in Beaufort Sea Lease
 Areas \$150K

Norris, K. S., B. LeBoeuf and G. Hunt
 (U. California, Santa Cruz)
 Marine Mammal-Sea Bird Survey of
 Southern California Bight -0-

Winn, H., R. Edel, S. Katona, R. Reeves,
 J. Gilbert, C. Shoop and S. Kraus
 (U. Rhode Island)
 Characterization of Marine Mammals and
 Marine Turtles in the Mid- and North
 Atlantic Areas of the U.S. Outer
 Continental Shelf \$1,454.8K

2. BLM/NOAA/OCSEAP

Braham, H. (NMFS/NWAFC)
 Resource Assessment: Abundance and Seasonal
 Distribution of Bowhead and Beluga Whales--
 Bering Sea \$ 34.4K

Braham, H. and R. Mercer (NMFS/NWAFC)
 Abundance and Seasonal Distribution of
 Marine Mammals in the Gulf of Alaska \$ 36.7K

Burns, J., T. Eley and K. Frost (Alaska Dept.
 Fish and Game)
 The Natural History and Ecology of the
 Bearded Seal (Erignathus barbatus) and the
 Ringed Seal (Phoca hispida) \$125.4K

Calkins, D. and K. Pitcher (Alaska Dept.
 Fish and Game)
 Population Assessment, Ecology and Trophic
 Relationships of Steller Sea Lions in the
 Gulf of Alaska \$155K

Fay, F. (U. Alaska) Morbidity and Mortality of Marine Mammals	\$114K
Fiscus, C., H. Braham and D. Rugh (NMFS/NWAFC) Baseline Characteristics of Marine Mammals in the Bering Sea	\$ 36.9K
Hall, J. and M. F. Tillman (USEWS and NOAA/NMFS) A Survey of Cetaceans of Prince William Sound and Adjacent Vicinity--Their Numbers and Seasonal Movements	\$ 31.8K
Kooyman, G. (U. California, Scripps Inst. Oceanography) Effects of Oiling on Temperature Regulation in Sea Otters	\$ 65K
Lowry, L., K. Frost and J. Burns (Alaska Dept. Fish and Game) Trophic Relationships Among Ice Inhabiting Phocid Seals	\$112.2K
Pitcher, K. and D. Calkins (Alaska Dept. Fish and Game) Biology of the Harbor Seal, <u>Phoca vitulina</u> <u>richardii</u> , in the Gulf of Alaska	\$ 50K
Shapiro, L., J. Burns and F. Fay (U. Alaska) The Relationships of Marine Mammal Distri- butions, Densities and Activities to Sea Ice Conditions	\$ 68.6K
3. Fish and Wildlife Service	
--Sea Otter (and Marine Otter)--	\$379.6K
Johnson, A. (National Fish and Wildlife Laboratory) Annual and Seasonal Distribution, Abundance and Composition of Populations of Sea Otters and Other Marine Mammals in Prince William Sound, AK	
Jameson, R. (NFWL) Biology and Management Needs for California Sea Otter	
Estes, J. and G. Van Blaricom (NFWL) Interactions Between Sea Otters and the Nearshore Community	

U. Washington Fisheries Research Inst.
Nearshore Fish Communities of Attu
Island (\$24K)

Siniff, D. (U. Minnesota)
Development and Field and Lab Testing of
Radio Telemetry Packages and Systems for
Sea Otters (and other marine mammals
under Interior's jurisdiction) (\$59.9K)

Hardy, R. A. and J. Ames (California Department
of Fish and Game)
Sea Otter Research (Federal
Assistance \$93.7K)

Irons, D.
Sea Otter Community Interactions and
Problems in the California Area (\$3.5K)

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

Staff (NFWL)
Annual Status Reports on Sea and Marine
Otters

--Walrus--

\$ 52K

Estes, J. (NFWL)
Biological Activities of Pacific and
Atlantic Walruses

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

Staff (NFWL)
Annual Status Reports on Atlantic and
Pacific Walruses

--Polar Bear--

\$273.1K

Lentfer, J. and D. DeMaster (NFWL)
Biology and Ecology of Alaska Coastal
Populations

Den Ecology and Distribution

Biological Parameters of Bears of Chukchi Sea

Biology and Ecology of Bears of Arctic Ocean

Summer Distribution and Ecology of Bears

Satellite Tracking of Bears

Estimation of Alaska Population Size and Productivity

Reproductive Biology of Populations

Handar Corporation

Telemetry Packages for Tracking and Monitoring Bears (\$22K)

DeMaster, D.

Analysis of Existing Bear Data and Field Research at Radstock Bay, Devon Island, Canada (\$9K)

Staff (NFWL)

Annual Status Report

--Hawaiian Monk Seal--

\$ 52K

Johnson, A. (NFWL)

Biological Studies to Determine Status of Population

Naftel, G. (Easy Rider)

Logistical Support for Seal Survey (ship charter) (\$12.1K)

--Manatees--

\$253.5K

Irvine, B. (NFWL)

Determination of Causes of Mortality and Study and Salvage of Stranded Manatees and Other Marine Mammals

Development of Manatee Tagging and Tracking Technology

Definition of Ecosystem Relationships of Manatees and Assessment of Effects of Habitat Alteration

Basic Sensory and Physiological Parameters as Related to Technical Needs

Basic Reproductive and Behavioral Characteristics of West Indian Manatees

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

Distribution and Status of All Manatee Taxa
and Populations

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

Odell, D. (U. Maimi)
Stranded Manatee Salvage and Flood-Control-
Dam Mortality Investigations in Southern
Florida (\$15K)

Staff (NFWL)
Annual Status Reports

--Dugong-- \$ 13.1K

Brownell, R. (NFWL)
Distribution, Movements and Status of All
Dugong Populations

Parasites and Environmental Contaminants
in Dugongs

Anderson, P.
Distribution, Movements and Status of
Populations in Australia (\$3.5)

Auffenberg, W.
Survey Populations in Philippine
Islands (\$1.6K)

Staff (NFWL)
Annual Status Report

--Marine Mammal Tagging-- \$ 19.4K

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

Stimulation of Research and Development
of Marine Mammal Tags and Techniques

Pinniped Tagging Workshop
(NMFS/FWS) (FWS share \$8.7K)

4. Geological Survey

Whitmore, F. C. (Paleontology and Stratigraphy Branch)
 Mesozoic and Coastal Paleontology and Strati-
 graphy of the Atlantic and Eastern Gulf
 Coastal Plain (cetaceans) \$ 30.5K

5. National Park Service

Hendrix, G. (Everglades National Park)
 Logistics Support for Survey of En-
 dangered Wildlife (manatee) \$ 0.5K

Jurasz, C. and V. Jurasz (Auke Bay, AK)
 Ecology of Humpback Whales (and other
 cetaceans) \$ 31.3K

Murphy, E. C. (Cooperative Park Studies Unit,
 U. Alaska)
 Reactions of Wildlife to Boating Activities
 in the Kenai Fjords National Monument,
 Alaska (harbor seals) \$ 25K

Streveler, G. (Glacier Bay National Monument)
 Harbor Seal Studies \$ 6K

Woodhouse, C. (Santa Barbara Natural History Museum)
 Study of Natural Resources of Channel Island
 National Monument (pinniped survey) \$ 2K

Department of State

--Bureau of Intelligence and Research and Bureau of
 Ocean and International Environmental and Scientific
 Affairs

Green, K. A.
 The Role of Krill in the Antarctic Marine
 Ecosystem \$ 4.3K

Bakus, G. J., W. Garling and J. E. Buchanan
 (Tetra Tech, Inc., Pasadena)
 The Antarctic Krill Resource: Prospects
 for Commercial Exploitation \$ 46.7K

Marine Mammal Commission

Ainley, D. G. (Point Reyes Bird Observatory)
 Studies of Marine Mammals at the Farallon
 Islands, 1978 \$ 7.1K

Ainley, D. G. and S. Allen (Point Reyes Bird Observatory)
 The Possible Effects of Human Activities on Harbor
 Seals in Bolinas Lagoon, California \$ 5.2K

Balcomb, K. (Moclips Cetological Society)	
Studies of Killer Whale Pods in Puget Sound	\$ 7.9K
Breiwick, J. (U. Washington)	
An Analysis of Data Relating to the Western Arctic Population of Bowhead Whales	\$ 6.7K
Dayton, P. K. (U. California)	
Studies Toward the Understanding of the Health and Stability of Some Sea Otter Dominated Marine Communities	\$ 9.4K
Studies of Sea Otter-Dominated Marine Communities: Part II	\$ 40.5K
DeBeer, J.	
Implementation of a Major Research Program on the Incidental Taking of Porpoise in the Course of Commercial Yellowfin Tuna Fishing Operations	\$ 67.4K
Fay, F. (U. Alaska)	
Marine Mammal-Fishery Interactions on the Copper River and Prince William Sound, Alaska	\$ 39.2K
Report of Eskimo Whaling Conference Relating to Taking and Use of Walrus by Alaskan Eskimos	\$ 1K
Foote, K. (U. Washington)	
Statistical Analysis of Data on Pregnancy Rates of Sperm and Sei Whales	\$ 0.1K
Fowler, C. W. (Utah State U.)	
Comparative Population Dynamics: A Search for Management Criteria	\$ 3.3K
Certain Aspects of the Data and Models Used to Estimate the Abundance of North Pacific Sperm Whales	\$ 16K
Workshop on Marine Mammal Management Policies and Practices	\$ 4.2K
Green, K. A.	
Computer Model of the California Current Ecosystem	\$ 1.1K
Review and Analysis of the Fishery Conservation Management Act and Regional Fishery Management Plans with Respect to the Conservation of Marine Mammals and Their Habitats	\$ 14.9K

Horsmann, J. (SEACO, Inc.) Consultation on Marine Mammal Protection and Conservation Issues	\$ 16.8K
Johnson, B. W. and P. A. Johnson The Hawaiian Monk Seal on Laysan Island: 1978	\$ 25.8K
Johnson, M. L. (Puget Sound Museum of Natural History) Research Plan for Marine Mammal-Fishery Conflicts in Washington and Oregon	\$ 2.7K
Katona, S. K. (College of the Atlantic) Identification of Humpback Whales from Fluke Photographs	\$ 0.9K
Leatherwood, J. S. (Naval Ocean Systems Center) Aerial Survey of <u>Tursiops</u> Populations in Texas Coastal Waters	\$ 1.9K
Llano, G. A. Paper on Conservation of Living Resources of the Southern Ocean	\$ 4K
Mate, B. R. (Oregon State U.) Workshop on Marine Mammal Fishery-Interactions	\$ 17.4K
National Technical Information Service (Department of Commerce) Document Registration and Distribution of MMC Documents	\$ 1.5K
Perkins, P. L. Finalization of National Marine Mammal Research Plan Developed by the Marine Mammal Commission	\$ 3.1K
Perrin, W. F. (National Marine Fisheries Service) Workshop on Determining Age of Odontocete Cetaceans	\$ 10K
Prescott, J. (New England Aquarium) The North American Harbor Porpoise (<u>Phocoena phocoena</u>) in the Northwest Atlantic	\$ 7.8K
Ray, G. C. (Johns Hopkins U.) Identification and Preservation of Critical Marine Mammal Habitats Within the Jurisdiction of the United States	\$ 9.4K

Richardson, J. R. (Rural Alaska Community Action Program) Eskimo Walrus Conference	\$ 4K
Schmidly, D. J. (Texas A&M U.) The Population Biology of <u>Tursiops truncatus</u> , The Atlantic Bottlenose Dolphin in the Aransas Pass Area of Texas	\$ 0.5K
Shallenberger, E. W. (Manta Corporation) The Status of Cetaceans in Hawaiian Waters	\$ 0.7K
Sherman, S. C. (Brown U.) World Inventory of Whaling Logbooks and Journals	\$ 3.7K
Swartz, S. L. (San Diego Society of Natural History) Evaluation of Human Activities on Gray Whales in Laguna San Ignacio, Baja California	\$ 20.6K
Winn, H. (U. Rhode Island) Comparative Evaluation of Aerial-Shipboard Techniques for Estimating the Abundance of Humpback Whales	\$ 20.5K
Wray, P. (Endangered Species Productions, Inc.) Report on Workshop on the West Indian Manatee	\$ 0.8K

National Aeronautics and Space Administration

Michelson, R. C., B. Irvine and L. Keene (Georgia Institute of Technology) Manatee Tracking Project: Develop a Concept of an Automatic Tracking System to Determine the Location and Movement of Manatees	\$ 15K
Ray, G. C., D. Wartzok and P. Sebesta (Johns Hopkins U. and NASA Ames Research Center) Bering Sea Marine Mammal Experiment	\$ 50K

National Science Foundation

Dawson, W. W. (U. Florida) Vision in Dolphins and Other Cetaceans	\$ 39K
Erickson, A. W. (U. Washington) An Assimilative Analysis of Census Data on Antarctic Seals, 1967-1974	\$ 50.3K
Herman, L. M. (U. Hawaii, Manoa) Dolphin Information-Processing Capabilities Behaviors and Social Organization of Humpback Whales in Hawaiian Waters	\$ 53.8K \$ 39.7K

Jehl, J. R. and W. E. Evans (Hubbs-Sea World Research Institute) Distribution and Ecology of <u>Orcinus</u> and <u>Globicephala</u> in the Antarctic and Adjacent Waters	\$ 30.6K
Kooyman, G. L. (U. California, San Diego) Comparative Aquatic Biology of Antarctic Endotherms	\$ 29.6K
LeBoeuf, B. J. (U. California, Santa Cruz) Biological Studies of the Northern Elephant Seal	\$ 31.8K
Siniff, D. B. and D. P. DeMaster (U. Minnesota) Colony Behavior of Antarctic Marine Mammals	\$ 59.4K
<u>Smithsonian Institution</u>	
Mead, J. G. (Smithsonian Institution) Marine Mammal Program	\$ 56.1K
Ray, C. E. (Smithsonian Institution) Studies in the Evolution of the Pinnipedia	\$ 45K
<u>Veterans Administration</u>	
Seal, U. S. (VA Medical Center, Minneapolis) Function, Evolution and Structure of Hormone-Binding Proteins (pinnipedia, etc.)	\$ 83.2K
Theil, G. B. (VA Medical Center, Wood, WI) The Isolation and Characterization of Fish Myohemoglobin (harbor seal, etc.)	\$ 15.7K

AGENCY PROGRAMS FOR FY79

Department of Agriculture

Gelberg, H. (Plum Island Animal Disease Center) Comparative Swine and Pinniped Pathology of Swine Vesicular Exanthema and San Miguel Sea Lion Viruses	\$200K
Forrester, D. J. (U. Florida) Epizootiology of Parasites of Wildlife in Florida	\$ 9K

Department of Commerce

1. National Marine Fisheries Service

a. Northwest and Alaska Fisheries Center (NWAFC)

Braham, H. (NWAFC) Arctic Whales--Bowhead (88C5A2)	\$871.1K
(Old Dartmouth Soc.) Bowhead Whale (\$65K)	
(OAS) Bowhead Aerial Survey (\$17K)	
(U. Washington) Bowhead Computer Svcs (\$28K)	
Taber (U. Washington) Harbor Seals (\$8.7K)	
(Naval Arctic Research) Billeting, Mess & Logistic Support (\$131K)	
(Cambell Boat Captains) Biol. Samples--Bowhead (\$6.4K)	
(Evergreen State College) Bowhead Blubber Analysis (\$2.7K)	
(Portland State U.) Bowhead Stock Evaluation (\$4.8K)	
(Alaska Eskimo Whaling Comm.) Collect Samples--Bowhead (\$26K)	
(OAS) Aerial Survey--Bowhead (\$44.3K)	
(Scripps Inst.) Eye Lens Analysis (\$2.1K)	

Paul Macy
Bowhead Bibliography (\$3K)

Rice, D. (NWAFC)
Endangered Cetaceans (88C5A3; 78C5A3) \$264K

(U. California)
Gray Whales (\$8K)

(San Diego Nat. His.)
Gray Whales (\$1.5K)

(Moclips Cetalogical Society)
Killer Whales (\$3K)

Mate, B. (Oregon State U.)
Sperm Whales (\$3.5K)

(U. Washington)
Gray Whales (\$16.2K)

(Easy Rider)
Vessel--Humpback Whales (\$15K)

(U. Texas)
Dall's Porpoise (\$6.9K)

(U. Washington)
Cetacean Computer Svcs (\$15K)

Fiscus, C. and R. L. DeLong (NWAFC)
Endangered Species--Seals (88C5A1) \$ 51.0K

(Bodega Bay)
Monk Seals (\$1.5K)

(U. Hawaii)
Monk Seals (\$1.5K)

(Naval Ocean Systems)
Northern Elephant Seals (\$4.1K)

(Point Defiance)
Harbor Seals (\$5.4)

Kooyman (Scripps Inst.)
Seals (\$8K)

Ainley (Point Reyes)
Harbor Seals, Sea Lions,
Northern Fur Seals and
Cetaceans (\$3K)

Fiscus, C. and R. L. DeLong (NWAFC)	
Pinnipeds (88C4A4)	\$138.2K
(U. Washington)	
Pinniped Computer Svc (\$1K)	
(Washington State Fish and Game)	
Harbor Seals (\$6.1K)	
Harold A. Rice	
Sea Lion Survey (\$82.5K)	
Gentry, R. L. (NWAFC)	
Fur Seal Studies--St. George Island (88C4A1)	\$269.3K
(Utah State U.)	
Northern Fur Seal (\$14.6K)	
(Marine Animal Resource Center)	
Northern Fur Seal (\$17.5K)	
(U. Washington)	
Northern Fur Seal Computer Svc. (\$1K)	
Gallucci (U. Washington)	
Northern Fur Seal (\$9.3K)	
Keyes, M. C. (NWAFC)	
Veterinary Medical Services and Research	
(88C6A2)	\$ 58.9K
McAlister, W. B. (NWAFC)	
Marine Mammal Ecosystem Studies (88C4A5;	
88C6A3)	\$204.3K
(U. Washington)	
Northern Fur Seal Computer Svc. (30K;	
\$22K; \$9K)	
Roppel, A. Y. (NWAFC)	
Northern Fur Seal Population and	
Monitoring (88C6A1)	\$225.9K
b. Southeast Fisheries Center (SEFC)	
Berry, F. (SEFC)	
Marine Mammals--Tursiops (88C4L1)	\$180.8K
Leatherwood, S. (Hubbs Sea World)	
<u>Tursiops</u> Population Analysis (\$105.3K)	

Odell-Asper (Hubbs Sea World)
Tursiops Local Herd Biodynamics (\$71.5K)

c. Southwest Fisheries Center (SWFC)

Coe, J. and W. Shuntz (SWFC)
 Marine Mammal Technology, Behavior and
 Physiology (88C4H2) \$512.9K

Oliver, G. (SWFC)
 Porpoise: Quantitative Analysis and
 Data Mangement (88C4H5) \$329.5K

Smith, T. (SWFC)
 Porpoise Stock Assessment (88C4H1) \$462.7K

Perrin, W., A. Myrick and J. Jennings (SWFC)
 Porpoise Biological Studies (88C4H3) \$705.3K

Perrin, W. (SWFC)
 Assessment of Coastal Marine Mammals for
 Management (88C4H6) \$152.0K

(California Fish and Game)
 Assessment of Conflicts Between Marine
 Mammals and Fisheries in California
 Waters (\$70K) [additional \$68K funded by Southwest
 Region of NMFS]
 (LA Co. Mns.)
 Baseline Life History, Tursiops (\$9K)

(Hubbs/Sea World)
 Baseline Life History, Lagenorhynchus (\$14K)

2. National Sea Grant College Program

Mate, B. R. (Oregon State U.)
 An Assessment of Sea Lions in the
 Rogue River Area \$ 15.5K

Population Growth and Feeding Habits of
 Harbor Seals in an Aquacultural-Enhanced
 Environment \$ 52.5K

3. OCSEAP

(See Department of the Interior, BLM/NOAA/OCSEAP)

Department of Defense

1. Department of the Air Force

Jehl, J. R. and C. Cooper (San Diego State U./
 Hubbs Sea World Research Inst.)
 Baseline Study of Current Sources of
 Behavioral Perturbation \$ 40K

2. Department of the Army
- Bengston, J.L. (U. Minnesota)
St. Johns River Manatee Study \$ 44K
3. Department of the Navy
- a. Naval Ocean Systems Center
- Flanigan, W. F. (NOSC)
Chemoreception in the Bottlenose Dolphin,
A First Look
- Gilmartin, W. G. (NOSC)
Captive Dolphin Breeding \$ 85K
- Marine Mammal Preventive Medicine
and Therapy \$ 89K
- Hui, C. A. (NOSC)
Dolphin Bioenergetics \$ 63K
- Nachtigall, P. E. and A. E. Murchison (NOSC)
Dolphin Behavioral Studies \$234K
- Ridgway, S. H. (NOSC)
Signal Processing in Dolphins: Waveform
and Time Separation Features \$ 65K
- Obtaining Healthy Marine Mammals
(Medical Screening) \$ 58K
- Stress Reduction in Marine Mammals \$ 35K
- Scronce, B. L. (NOSC)
Fur Seal Capabilities \$ 88K
- b. Naval Research Laboratory, Underwater
Sound Reference Detachment
- Poché, L. B. (NRL)
Measurement of Echolocation Clicks of
Free-Swimming Dolphins \$ 20K
- c. Office of Naval Research
- Albert, T. A. and P. L. Edds (U. Maryland)
Vocalization Study of Balaenoptera \$ 12.4K
- Altes, R. (Orincon Corp., LaJolla)
Computer and Mathematical Analysis
of Dolphin Whistles \$ 6K
- Cummings, W. C. (U. California, Scripps
Inst. of Oceanography)
Analysis of Low Frequency Cetacean Sounds \$ 35K

Evans, W. (Hubbs Sea World Research Inst.) Radio Tracking of Cetaceans Using Telemetric Techniques	\$ 13K
Gilmartin, W. G. and S. H. Ridgway (NOSC) Marine Mammal Bionosis	\$ 30K
Hodgson, E. S. and R. Mathewson (Tufts U.) Facilities Evaluation for Research on Chemical Senses of Marine Mammals	-0-
Ray, G. C. and D. Wartzok (Johns Hopkins U.) Telemetry and Acoustics of Pinnipeds	\$ 54K
Schusterman, R. J. (California State U., Hayward) Mammal Underwater Acoustics	\$ 64K
Vedros, N. A. (Naval Biosciences Lab.) Marine Mammal Diseases and Immunity	\$111K
Watkins, W. A. and W. E. Schevill (Woods Hole Oceanographic Inst.) Marine Biological Sounds	\$165K
Winn, H. E. (U. Rhode Island) Bioacoustic and Behavior of Marine Mammals	\$ 48K

Department of Health, Education and Welfare; NIH

Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (whales)	-0-
Benirschke, K. (Zoological Soc. San Diego) Biomedical Research Development Grant (Viral Diseases and breeding in marine mammals)	\$100K
Berzofsky, J. A. (NCI, NIH) Genetic Control of the Immune Response to Natural Antigens (sperm whale myoglobin)	\$?
Elsner, R. W. (U. Alaska) Comparative Pathophysiology of Myocardial Ischemia (dog, seal)	\$ 76.6K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (chicken, human, diving mammal)	\$128.6K
Specific Enrichment of Myoglobins for Carbon 13 NMR (Cetacea)	\$ 74.1K

Howard, E. B. (U. Southern California)	
Marine Mammal Disease Surveillance Program	\$ 13.5K
Kooyman, G. L. (U. California, San Diego)	
Physiological Basis of Pulmonary Disease: Comparative Physiology (seal)	\$?

Department of the Interior

1. Bureau of Land Management

a. Alaska OCS Office

Kelley, J. (Naval Arctic Research Lab.)	
Investigation of the Occurrence and Behavior Patterns of Whales in the Vicinity of the Beaufort Sea Lease Area	\$1,152.8K

Mate, B. (Oregon State U.)	
Monitoring the Movements of Whales in and Adjacent to OCS Lease Areas	\$174.1K

b. New Orleans OCS Office

Fritts, T. H. (USFWS, Natl. Fish and Wildlife Lab.)	
South Atlantic and Gulf of Mexico Endangered Species Pilot Study	\$144.3K

c. New York OCS Office

Geraci, J. and D. St. Aubin (U. Guelph)	
Study of the Effects of Oil on Marine Mammals	\$1,038.1K

Lindner, E., S. Johnson, B. Gayles, and P. Thompson (USN, NOSC)	
Study of the Effects of Sound on Marine Mammals	\$512.7K

Winn, H., R. Edel and M. Hyman (U. Rhode Island)	
Characterization of Marine Mammals and Marine Turtles in the Mid and North Atlantic Areas of the U.S. Outer Con- tinental Shelf (FY79, 80, 81)	2,762.9K

d. Pacific OCS Office

Guess, R. (Cetaceans), K. T. Briggs (Birds) and M. L. Bonnell (Pinnipeds)--(U. California, Santa Cruz)	
Marine Mammal and Sea Bird Study of Central and Northern California	\$1,150K

2. BLM/NOAA/OCSEAP

Burns, J., T. Eley, and K. Frost (Alaska Dept. Fish and Game)
 The Natural History and Ecology of the Bearded Seal and Ringed Seal \$ 90K

Calkins, D. and K. Pitcher (Alaska Dept. Fish and Game)
 Population Assessment, Ecology and Trophic Relationships of Steller Sea Lion in the Gulf of Alaska \$148K

Fay, F. (U. Alaska)
 Morbidity and Mortality of Marine Mammals \$ 52.7K

Kooyman, G. (U. California, Scripps Inst. Oceanography)
 Effects of Oiling on Temperature Regulation in Sea Otters \$ 59.7K

Lowry, L., K. Frost and J. Burns (Alaska Dept. Fish and Game)
 Trophic Relationships Among Ice Inhibiting Phocid Seals \$122K

Pitcher, K. and D. Calkins (Alaska Dept. Fish and Game)
 Biology of the Harbor Seal, Phoca vitulina richardii, in the Gulf of Alaska \$ 50K

3. Fish and Wildlife Service

--Sea Otter (and Marine Otter): \$558.4K

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

Jameson, R. (FWS/NFWL)
 Biology and Management Needs for California Sea Otters

Estes, J. and G. Van Blaricom (FWS/NFWL)
 Interaction Between Sea Otters and the Nearshore Community

Brownell, R. (FWS/NFWL)
 Parasites and Environmental Contaminants in Sea Otters

Determination of Status of Marine Otters

Staff (FWS/NFWL)
Annual Status Reports on Sea and Marine Otters

Doyle, W. (U. California, Santa Cruz)
Marine and Terrestrial Ecosystems and Habitats,
With Emphasis on Marine Mammals and Land Use
Problems (\$18K)

San Nicolas Island Survey for Baseline Data
and as Potential Sea Otter Translocation
Site (\$109.9K)

Simenstad, C. A. (U. Washington Fisheries Research
Inst.)
Aleutian Nearshore Community Ecology--Sea
Urchin Growth and Fecundity (\$13K)

Siniff, D. B. (U. Minnesota)
Development and Field and Lab. Testing of
Radio Telemetry Packages and Systems for
Sea Otters, Walruses, Polar Bears, and
Manatees (\$62.6K)

Farley, T. (California Dept. Fish and Game)
Sea Otter Mortality Rates and Causes (\$28K)

Interrelationship Between Sea Otters and
Their Habitat (\$28K)

Size, Distribution, and Movements of
California's Sea Otter Population (\$58.4K)

Feasibility of Translocating Sea Otters (\$39.7K)

--Walrus: \$141.8K

DeMaster, D. (FWS/NFWL)
Biological Activities of Pacific and
Atlantic Walruses

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

Staff (FWS/NFWL)
Annual Status Reports on Pacific and Atlantic
Walruses

Doyle, W. (U. California, Santa Cruz)
Round Island Walrus Survey (\$17K)

Skoog, R. O. (Alaska Dept. Fish and Game)
Walrus Management Program (\$53.7K)

<p>--Polar Bear:</p> <p>DeMaster, D. (FWS/NFWL) Biology and Ecology of Alaska Coastal Populations</p> <p>Den Ecology and Distribution</p> <p>Biological Parameters of Bears of Chukchi Sea</p> <p>Biology and Ecology of Bears of Arctic Ocean</p> <p>Summer Distribution and Ecology of Bears</p> <p>Estimation of Alaska Population Size and Productivity</p> <p>Reproductive Biology of Populations</p> <p>Staff (FWS/NFWL) Annual Status Report</p>	<p>\$251K</p>
<p>--Hawaiian Monk Seal:</p> <p>Johnson, A. (FWS/NFWL) Biological Studies to Determine Status of Population</p>	<p>\$ 31.2K</p>
<p>--Manatee:</p> <p>Rathbun, G. (FWS/NFWL) Determination of Causes of Manatee Mortality and Study and Salvage of Stranded Manatees and Other Marine Mammals</p> <p>Development of Manatee Tagging and Tracking Technology</p> <p>Definition of Ecosystem Relationships of Manatees and Assessment of Effects of Habitat Alterations</p> <p>Basic Sensory and Physiological Parameters of West Indian Manatees as Related to Technical Needs</p> <p>Basic Reproductive and Behavioral Character- istics of West Indian Manatees</p>	<p>\$422.5K</p>

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

Distribution and Status of All Manatee Taxa
and Populations

Brownell, R. (FWS/NFWL)

Parasites and Environmental Contaminants
in Manatees

Staff (FWS/NFWL)

Annual Status Report

Odell, D. K. (U. Miami)

Visual or Sound Stimuli (Scare Devices) to
Keep Manatees Away From Dangerous Man-Made
Structures (Floodgates and Navigation Locks)
(\$5.5K)

Forrester, D. (U. Florida)

Study of Parasites and Diseases of the West
Indian Manatee (\$8K)

Odell, D. K. (U. Miami)

Study of Marine Ecosystems and Habitats,
With Special Reference to Manatees (\$8K)

Siniff, D. B. (U. Minnesota)

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

Magor, D. (U. California, Santa Cruz)

Evaluation of Existing Manatee-Propeller
Guard Technology (\$6.6K)

Odell, D. K. (U. Miami)

Upgrade Manatee Salvage in Florida (\$18.7K)

Oberheau, J. (FWS, Jacksonville/U. Miami)

Evaluation of Physiological Responses of
Captive Manatees to Boat Noises (\$17.6K)

Siniff, D. B. (U. Minnesota)

Radio-Tracking Studies of West Indian
Manatees (\$42.5K)

Odell, D. K. (U. Miami)

Effects of Dade County Automatic Flood Control
Gates on Manatees (\$28.8K)

Rathburn, G. (FWS/NFWL)
 Distribution and Movements of Manatees
 Around Florida Power and Light Plant in
 Merritt Island/Titusville Area, Fla. (\$15K)

--Dugong: \$ 13.7K

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

 Parasites and Environmental Contaminants
 in Dugongs

Staff (FWS/NFWL)
 Annual Status Report

--Marine Mammal Tagging: \$ 33.9K

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

Stimulation of Research and Development of
 Marine Mammal Tags and Techniques

4. Geological Survey

Whitmore, F. C., Jr. (USGS/Paleontology and
 Stratigraphy Branch)
 Vertebrate Biostratigraphy and Paleo-
 geography, Atlantic and Gulf Coastal
 Plain (fossil cetaceans)

\$ 20K

5. National Park Service

Jurasz, C. and V. Jurasz (Cooperative Park
 Studies Unit, U. Alaska)
 Humpback Whale Studies, Glacier Bay

\$ 39.8K

Streveler, G. P. (Glacier Bay National Monument)
 Distribution, Population Ecology and Impact
 Susceptibility of the Harbor Seal in
 Glacier Bay, Alaska

\$ 6K

Department of State

Joseph, J. (Inter-American Tropical Tuna Commission)
 Porpoise-Tuna Investigations

\$500K

Marine Mammal Commission

Ainley, D. G. (Pt. Reyes Bird Observatory) Study of Northern Elephant Seals of Farallon Islands	\$ 10K
Beddington, J. (U. York) Report on the Status of the North Atlantic Harp Seal	\$ 19.1K
Branson, J. H. (North Pacific Fishery Mgmt. Council) The Collection and Analysis of Data and the Development of Methods to Most Effectively Conserve Fishery and Marine Mammal Resources	\$ 12.5K
Clark, W. (U. Washington) Population Analysis of the Great Whales	\$ 70.9K
Fay, F. H. (U. Alaska) Monographic Manuscript on the Pacific Walrus	\$ 20K
Johnson, B. and P. Johnson (National Marine Fisheries Service) Endangered Seal Studies (transfer of funds to NMFS)	\$ 10K
Norris, K. S. and B. Ramirez-Villa (U. California, Santa Cruz) Status of <u>Phocena sinus</u> , the Gulf of California Harbor Porpoise	\$ 10.1K

National Science Foundation

Evans, W. E. and J. R. Jehl (Hubbs-Sea World Research Inst.) Distribution and Ecology of <u>Orcinus</u> and <u>Globicephala</u> in the Antarctic and Adjacent Waters	\$ 38.4K
Herman, L. M. (U. Hawaii, Manoa) Dolphin Information-Processing Capabilities	\$ 42.9K
Behaviors and Social Organization of Humpback Whales in Hawaiian Waters	\$ 40.2K
Jonkel, C. J. (U. Montana) Environmental and Ecological Studies of High Arctic Mammalian Habitat and Food Chains Affected by Development	\$ 22.6K

Kooyman, G. L. (U. California, Scripps Inst. of Oceanography) Aquatic Biology of South Georgia Endotherms	\$ 34.6K
LeBoeuf, B. J. (U. California, Santa Cruz) Biological Studies of the Northern Elephant Seal	\$ 41.2K
McWhinnie, M. A. (DePaul U.) Biological Investigations of Antarctic Krill	\$ 25.6K
Morgane, P. J. (Worcester Foundation for Experimental Biology) Archicortical-Limbic Formations of Dolphin Brain	\$ 42.4K
Norris, K. S. (U. California, Santa Cruz) Behavior of the Hawaiian Spinner Dolphin	\$ 24K
Siniff, D. B. (U. Minnesota) The Role of the Leopard Seal in the Antarctic Marine Ecosystem	\$ 70.4K
The Development of Satellite Tracking and Automatic Position/Activity Monitoring for Selected Antarctic Vertebrates	\$ 97K
<u>Smithsonian Institution</u>	
Mead, J. (National Museum of Natural History) Marine Mammal Program	\$ 86K
Ray, C. (National Museum of Natural History) Studies on the Evolution of Pinnipedia	\$ 47.4K

V. APPENDIX C

LISTING OF FEDERALLY-FUNDED
MARINE MAMMAL RESEARCH
FY 70 - FY 79

COMPILED FROM INFORMATION
PROVIDED BY THE
SMITHSONIAN SCIENCE INFORMATION EXCHANGE

AGENCY PROGRAMS FOR FY70

Atomic Energy Commission

Baker, B. E. (McGill U.)
Radioactivity, Pesticide Residues, Contents, and
Constitution of Milk of Arctic and Sub-Arctic Species

Department of Defense

1. Naval Undersea Center and other Units

Dierks, K. J. (Texas U.)
Porpoise Sonar Simulation Data Analysis

Evans, W. E. (NUC)
Open Ocean Cetacean Ecology

Johnson, C. S. (NUC)
Electronic Models of the Porpoise Sonar System

Ridgway, S. H. (NUC)
Neural Control Mechanisms

Schefer, M. H. (Naval Missile Center)
Marine Biology Facility for Naval Applications

2. Office of Naval Research

Hays, E. E. & W. E. Schevill (Woods Hole Oceanographic Institute)
Ambient Noise

Oliver, J. A. (American Museum of Natural History)
Field Studies of the Tropical Ecology of
the Bahamas

Papermaster, B. W. (U. California, Berkeley)
Marine Immunochemistry

Department of Health, Education, and Welfare

Atassi, M. Z. (Wayne State U.)
Immunochemical Studies on Human Hemoglobins

Freedman, D. X. et al. (U. Chicago)
LSD, Psychotogenic Procedures and Brain Neurohumors

Jacobs, M. S. (New York Zoological Society)
Neuromorphology of Brain--A Comparative Study

Ludowieg, J. J. (U. California, San Francisco)
 Intervertebral Connective Tissue: Composition,
 Structure

Norris, K. S. & G. W. Harvey (UCLA)
 Studies of Echolocation Systems

Robin, E. D. et al. (U. Pittsburgh)
 Adaptation to Oxygen Depletion

Department of Interior

Burns, J. J. (Alaska Department of Fish and Game)
 Marine Environment Study

Repenning, C. A. (Geological Survey)
 Cenozoic Vertebrates, Pacific Coast

National Science Foundation

Cummings, W. C. (NUC)
 Bioacoustics and Related Behavior of Sub-
 antarctic Cetaceans

Elsner, R. W. (U. California, San Diego)
 Temperature Regulation in the newborn
 Weddell Seal

Erickson, A. W. & D. B. Siniff (U. Minnesota)
 Status and Population Dynamics of Antarctic Seals

Gilmore, R. M. (San Diego Society of Natural History)
 Population, Distribution, and Behavior of Whales in
 Antarctic Waters

Kooyman, G. L. (U. California, San Diego)
 Biology of Deep Diving in Antarctic Birds and Mammals

LeBoeuf, B. J. (U. California, Santa Cruz)
 Ethological Studies of the Northern Elephant Seal

Müller-Schwarze, D. (Utah State U.)
 Anti-Predator and Social Behavior of Adelie Penguins

Paine, R. T. (U. Washington)
 Effects of Seal and Fish Predation on Antarctic
 Benthic Communities

Whittow, G. C. (U. Hawaii)
 Physiology of Thermoregulation

Veterans Administration

Olsen, C. R. & F. C. Hale (UCLA School of Medicine)
In Vitro Study of Diseased Human Airways

Shurley, J. T. & R. Elsner (Oklahoma U. & Scripps
Institute)
Sleep in Cetaceans, EEG Study: The Pilot
Whale, Globicephala scammoni

AGENCY PROGRAMS FOR FY 71

Department of Agriculture

Chevill, N. F. (National Animal Disease Lab.)
Cellular Reaction to Intracellular Microbial Agents

Windus, W. (Eastern Utilization Research Lab)
Development of Improved Beaming and Tanning Processes

Department of Commerce

--Office of Sea Grant

Hassler, W. W. (North Carolina State U.)
Abundance, Exploitation, Migration and Propagation
of the Dolphin

Hughes, D. A. & J. D. Richard (U. Miami)
Acoustic Studies in Marine Animals

Department of Defense

1. Air Force

Bullock T. H. (U. California, LaJolla)
Biological Sensors of Electricity and Sound:
Neural Processing of Sensory Input

2. Naval Undersea Center and other units

Evans, W. E. (NUC)
Study of Marine Mammal Populations to Assist
in Discrimination of false Sonar Targets

Johnson, C. S. (NUC)
Porpoise Sonar Simulation: An Approach to
Improved Small Object Detection Sonar

Ridgway, S. H. (NUC)
Neural Control Mechanisms

3. Office of Naval Research

Baldwin, H. A. (Sensory Systems Lab)
Navy Environment--Factors in Prediction of Naval
ASW Operating Conditions--Telemetry Investigations
of Low Frequency Acoustic Sensitivity

- Caldwell, D. K. (Marineland Research Lab)
Navy Environment--Biological Sources of Ambient
Sea Noise--Analysis of Sonic Emmission of
Cetaceans (Porpoises).
- Gilbert, P. W. (Mote Marine Laboratory)
Navy Environment--Naval Swimmer/Diver Protection--
Shark Behavioral Studies
- Johnston, D. G. & S. H. Ridgway (St. Johns Hospital)
Navy Environment--Response of Marine Mammals to
Human Pathogens
- Norris, K. S. & D. Malins (Oceanic Institute)
Navy Environment--Field Studies of Marine Mammals
- Ridgway, S. H. & J. G. Simpson (NUC)
Navy Environment--Diseases of Marine Mammals of
Interest to the Navy
- Schevill, W. E. (Woods Hole Oceanographic Institute)
Navy Environment--Biological of Ambient Sea Noise--
Bioacoustic Behavior and Distribution of Cetaceans
(Whales)
- Sigel, M. M. (Variety Childrens' Research Foundation)
Navy Environment--Diseases of Experimental Marine
Mammals
- Winn, H. E. (Rhode Island U.)
Navy Environment--Biological Sources of Ambient Sea
Noise--Bioacoustics, Behavior and Sensory Capabilities
of Fishes and Cetaceans

Department of Health, Education and Welfare

- Atassi, M. Z. (Wayne State U.)
Immunochemical Studies on Human Hemoglobins
- Elsner, R. W. (U. California, San Diego)
Circulatory Reactions to Asphyxia
- Hanania, G. I. H. (American U., Beirut)
Heme-Linked Effect of Hemoglobin Reactions
- Jacobs, M. S. (New York Zoological Society)
Neuromorphology of Brain: A Comparative Study
- Kretsinger, R. E. (U. Virginia)
Comparison of Protein Tertiary Structure

Ludowieg, J. J. (U. California, San Francisco)
Intervertebral Connective Tissue Composition

Norris, K. S. (U. California, Los Angeles)
Studies of Echolocation Systems

Robin, E. D. (Stanford U.)
Adaptations to Oxygen Depletion

Wurtman, R. J. (Massachusetts Institute of Technology)
Sympathetic Nervous and Neuroendocrine Rhythm

Department of Interior

Repenning, C. A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast

National Science Foundation

Bartholomew, G. A. (U. California, Los Angeles)
Ecological Physiology and Behavior

Cummings, W. C. (Naval Undersea Center)
Bioacoustics and Related Behavior of Subantarctic
Cetaceans

Felts, W. J. L. (U. Oklahoma)
Anatomical, Histological and Neuroanatomical
Study of Antarctic Seals

Howe, S. (Conservation Foundation)
International Conference on the Biology of Whales

LeBoeuf, B. J. (U. California, Santa Cruz)
Ethological Studies of the Northern Elephant Seal

Müller-Schwarze, D. (Utah State U.)
Anti-Predator and Social Behavior in Adelie Penguins

Murbaugh, H. B. Jr. (Mount Desert Island Biological Laboratory)
Comparative Studies of Renal and Cardiovascular Function

Whittow, G. C. (U. Hawaii)
Behavioral Thermoregulation in Marine Mammals

Veterans Administration

Shurley, J. T. & R. Elsner (U. Oklahoma & Scripps Institute)
Sleep in Cetaceans, EEG Study: I. The Pilot Whale
Globicephala scammoni

AGENCY PROGRAMS FOR FY 72

Department of Agriculture

Cheville, N. F. (National Animal Disease Center)
Cellular Reaction to Intercellular Microbial Agents

Department of Commerce

1. National Marine Fisheries Service

Fiscus, C. H., H. Kajimura & A. A. Wolman (NMFS/NWFC)
Pelagic Investigations, Fur Seals

Malins, D. C. & U. Varanasi (Pioneer Research Labs)
Chemistry of Porpoise Biosonar

Perrin, W. F. (NMFS/SWFC)
Alleviation of Porpoise Mortality

Rice, D. & W. F. Perrin (NMFS/SWFC)
Marine Mammal Research

Roppel, A. Y., et al (NMFS/NWFC)
Population Dynamics--Fur Seals

2. Office of Sea Grant

Hickok, D. M. (U. Alaska)
Environmental Assessment--Marine Mammals,
Shell Fisheries, Sea Ice Engineering

Department of Defense

1. Naval Undersea Center and other units

Evans, W. E. (NUC)
Study of Marine Mammal Population to Assist
in Discrimination of False Sonar Targets

Johnson, C. S. (NUC)
Porpoise Sonar Capabilities: An Approach to
Improved Small Object Detection Sonar

Ridgway, S. H. & J. L. Mattsson (NUC)
Sound Processing Mechanism of Marine Mammals
for Sonar and ASW Studies

2. Office of Naval Research

- Aron, W. I. & R. Brownell (Smithsonian Institution)
Navy Environment--Underwater Sources of Ambient
Sea Noise--Behavioral and Acoustic Studies of
Cetaceans (Porpoises)
- Bullock, T. H. (U. California, San Diego)
Navy Environment--Swimmer/Diver Support--
Marine Mammal Capabilities
- Caldwell, D. K. (Marineland Research Laboratory)
Navy Environment--Biological Sources of Ambient
Sea Noise--Analysis of Sonic Emission of
Cetaceans (Porpoises)
- Gilbert, P. W. (Mote Marine Laboratory)
Navy Environment--Naval Swimmer/Diver Protection--
Shark Behavioral Studies
- Johnston, D. G. (St. Johns Hospital)
Navy Environment--Response of Marine Mammals
to Human Pathogens
- Norris, K. S. & D. Malins (Oceanic Institute)
Navy Environment--Field Studies of Marine Mammals
- Ray, C. (Johns Hopkins U.)
Navy Environment--Swimmer/Diver Support--Marine
Mammal Acoustic Orientation Capabilities
- Ridgway, S. H. & W. G. Gilmartin (NUC)
Marine Animal Diseases
- Schevill, W. E. (Wood Hole Oceanic Institute)
Navy Environment--Biological Sources of Ambient
Sea Noise--Bioacoustic Behavior and Distribution
of Cetaceans (Whales)
- Schusterman, R. J. (Stanford Research Institute)
Navy Environment--Swimmer/Diver Support--Marine
Mammal Visual/Acoustic Capabilities
- Sigel, M. M. (U. Miami)
Navy Environment--Diseases of Experimental Marine
Mammals
- Weaver, E. G. (Princeton U.)
Communications--Sound Conduction in the Ear
Affecting Military Communications

Winn, H. E. (U. Rhode Island)
 Navy Environment--Biological Sources of Ambient
 Sea Noise--Bioacoustic Behavior and Sensory
 Capabilities of Fishes and Cetaceans

Department of Health, Education and Welfare

Attassi, N. Z. et al. (Wayne State U.)
 Immunochemical Studies Hemoglobins

Caldwell, D. K., H. Hollien & M. C. Caldwell (U. Florida)
 Studies of Communication

Elsner, R. W., D. D. Hammond & B. A. Gooden (U. California,
 San Diego)
 Circulatory Reactions to Asphyxia

Gurd, F. R., P. Kein & R. C. Marshall (Indiana U.)
 Structure and Reactivity of Proteins and Lipoproteins

Norris, K. S., G. W. Harvey & T. P. Dohl (U. California,
 Los Angeles)
 Studies of Echolocation Systems

Robin, E. D. et al. (Stanford U.)
 Adaptations to Oxygen Depletion

Schwartz, H. C., T. J. Gribble & D. Edmunds (Stanford U.)
 Formation of Hemoglobin and other Heme proteins

Department of Interior

Repenning, C. A. (Geological Survey)
 Cenozoic Vertebrates, Pacific Coast

National Science Foundation

Benson, A. A. (U. California, San Diego)
 Support for Research Vessel, Alpha Helix

Cummings, W. C. (NUC)
 Bioacoustics and Related Behavior of Subantarctic
 Cetaceans

Elsner, R. W. (U. California, San Diego)
 Temperature Regulation in the Newborn Weddell Seal

Erickson, A. W. et al. (U. Idaho)
 Population Studies of Antarctic Seals--Census
 and Reproductive Biology

- Felts, W. J. (U. Oklahoma)
An Anatomical, Histological, and Neuroanatomical
Study of Antarctic Seals
- Herman, L. M. (U. Hawaii)
Sensory and Learning-Memory Processes in the Dolphin
- Howe, S. (Conservation Foundation)
International Conference on the Biology of Whales
- Kooyman, G. L. (U. California, San Diego)
Biology of Deep Diving in Antarctic Birds and Mammals
- LeBoeuf, B. J. (U. California, Santa Cruz)
Ethological Studies of the Northern Elephant Seal
- Litchfield, C. (Rutgers)
The acoustical Function of Lipids in Odontocete
Echolocation
- Murdaugh, H. V. (Mount Desert Island Biological Lab)
Comparative Studies of Renal and Cardiovascular Function
- Norris, K. S. (U. California, Los Angeles)
Marine Mammalogy--Doctoral Dissertation Research
- Pierce, R. W. (U. California, Santa Cruz)
Comparative Study of Physiological Adaptations of
Marine Mammals
- Siniff, D. B. (U. Minnesota)
Population Studies of Antarctic Seals--Modeling and
Regulatory Biology
- Vangelder, R. G. (American Museum of Natural History)
Operational Support for the Mammalogy Collection
- Whittow, G. C. (U. Hawaii)
Behavioral Thermoregulation in Marine Mammals
- White, F. N. (U. California, Los Angeles)
Circulatory Regulation in Vertebrates

Smithsonian Institution

- Handley, C. O. (Smithsonian Institution)
Marine Mammal Program

Veterans Administration

- Shurley, J. T. et al. (U. Oklahoma)
Sleep in Cetaceans, and EEG Study--I. The Pilot Whale,
Globicephala scammoni

Sinha, A. A. et al. (U. Minnesota)
Ultrastructural Study of Estrogen Effects and
of Placenta

AGENCY PROGRAMS FOR FY 73

Atomic Energy Commission

Seymour, A. H. et al. (U. Washington)
 Distribution and Effects of Radionuclides in the
 Marine Environment and Biota of Amchitka Island
 and the Central Pacific Ocean

Department of Commerce

--Office of Sea Grant

Burns, J. J. & F. H. Fay (U. Alaska)
 The Biology of Bering Sea Harbor Seals and Relation-
 ships with other Ice Inhabiting Pinnipeds

Galster, W. & J. J. Burns (U. Alaska)
 Survey of Important Marine Organisms for the
 Presence of Pesticides and Heavy Metals

Miller, K. & L. Irving (U. Alaska)
 Adaptation of Marine Mammals to their Environment

Morrison, P. R., R. P. Lyons & P. D. Shaughnessy (U. Alaska)
 Biochemical Analysis of Marine Mammal Species and
 Population

Department of Defense

--Naval Undersea Center and Other Units

Evans, W. E. (NUC)
 Study of Marine Mammal Populations to Assist in
 Evaluation of Effect on ASW and Assessment of
 Supply and Animals for Systems Concepts

Mattsson, J. L. & R. L. Seeley (NUC)
 Radiotelemetry of Clinical Data from Marine Mammals

Ridgway, S. H. (NUC)
 Electrophysiology of Dolphin Cortex

White, C. T. & C. S. Johnson (Electronics Laboratory Center)
 Bioelectronic Study of Marine Mammals

--Office of Naval Research

Bullock, T. H. (U. California, San Diego)
 Navy Environment--Swimmer/Diver Support--Sensory
 Capabilities of Marine Vertebrates

- Caldwell, D. K. (Marineland Research Laboratory)
Navy Environment--Biological Sources of Ambient Sea
Noise--Analysis of Sonic Emissions of Cetaceans
(Porpoises)
- Evans, C. (NUC)
Navy Environment--Biological Sources of Sea Noise--
Studies of Cetacean Bioacoustics System
- Malins, D. C. (Seattle U.)
Navy Environment--The Biochemistry of Lipids Peculiar
to the Organs and Tissues of Cetaceans Involved in
Sound Transmission as in Echolocation
- Marx, W. (U. Southern California)
Navy Environment--Metabolic Aspects of Food and Oxygen
Utilization in Diving as Performed by Aquatic Mammals
- Niskin, S. J. & H. Frohlich (U. Miami)
Navy Environment--Design and Development of Ocean-
ographic Instrumentation
- Norris, K. S. & D. Malins (U. California, Santa Cruz)
Navy Environment--Biological Sources of Ambient Sea
Noise--Studies of Cetacean Behavior and Bioacoustic
System (Porpoises)
- Ray, C. (Johns Hopkins U.)
Navy Environment--Swimmer/Diver Support--Marine
Mammal Acoustic Orientation Capabilities
- Ridgway, S. H. & W. G. Gilmartin (NUC)
Marine Mammal Bionosis
- Schevill, W. E. (Woods Hole Oceanographic Institute)
Navy Environment--Biological Sources of Ambient Sea
Noise--Bioacoustic Behavior and Distribution of
Cetaceans (Whales)
- Schusterman, R. J. (California State U., Hayward)
Navy Environment--Swimmer/Diver Support--Marine
Mammal Visual/Acoustic Capabilities
- Sigel, M. M. (U. Miami)
Navy Environment--Diseases of Experimental Marine
Mammals
- Winn, H. E. (U. Rhode Island)
Navy Environment--Biological Sources of Ambient Sea
Noise--Bioacoustic Behavior and Sensory Capabilities
of Fishes and Cetaceans (Whales)

Department of Interior

- Burns, J. J. (Alaska Department of Fish and Game)
The Biology and Ecology of Ice Inhabiting Spotted Seals
- Hartman, D. S. (Manatee Research Project)
A Study of the Current Status of the Manatee in Florida
with Recommendations for its Conservation
- Lentfer, J. W. (Alaska Department of Fish and Game)
Polar Bear Distribution and Movements
- Lentfer, J. W. (Alaska Department of Fish and Game)
Polar Bear Age Determination Technique
- Lentfer, J. W. (Alaska Department of Fish and Game)
Polar Bear Reproduction and Denning
- Lentfer, J. W. (Alaska Department of Fish and Game)
Environmental Contaminants and Parasites in Polar
Bears of the Western Arctic
- Schneider, K. (Alaska Department of Fish and Game)
Reproduction in the Female Sea Otter
- Schneider, K. (Alaska Department of Fish and Game)
Age Determination of Sea Otters
- Schneider, K. (Alaska Department of Fish and Game)
Sex and Age Segregation of Sea Otters

Department of Health, Education, and Welfare

- Buhler, D. R. & B. R. Mate (Oregon State U.)
Methylmercury Detoxification in Marine Mammals
- Bullock, T. H. (U. California, San Diego)
Studies in Comparative Neurophysiology
- Chen, R. F. (NIH Lab of Technical Development)
Fluorescent Complexes of Proteins
- Gurd, F. R. & R. C. Marshall (Indiana U.)
Structure and Reactivity of Proteins and Lipoproteins
- Lewis, U. J. et al. (Scripps Clinic Research Foundation)
Conversion Products of Growth Hormone and Prolactin
- Robin, E. D. (Stanford U.)
Adaptations to Oxygen Depletion

Wick, A. N., R. P. Metzger & J. Guilmette (California State U., San Diego)
Glucose Metabolism and the Reaction of Insulin

Wurtman, R. J., H. J. Linch & F. Larin (Massachusetts Institute of Technology)
Sympathetic Nervous System and Neuroendocrine Rhythm

Environmental Protection Agency

Martin, J. H. & D. K. Phelps (Moss Landing Marine Labs)
Bioaccumulation of Heavy Metals by Littoral and Pelagic Marine Organisms

National Aeronautics and Space Administration

Klein, H. P. (Ames Research Center)
Biologic and Behavior Mechanisms in Animal Navigation and Orientation

National Science Foundation

Erickson, A. W. et al. (U. Idaho)
Population Studies of Antarctic Seals--Census and Reproductive Biology

Kooyman, G. L. (U. California, San Diego)
Biology of Deep Diving in Antarctic Birds and Mammals

Müller-Schwarze, D. (Utah State U.)
Anti-Predator and Social Behavior in Adelie Penguins

Pierce, R. W. (U. California, Santa Cruz)
Comparative Study of Physiological Adaptations of Marine Mammals

Siniff, D. B. (U. Minnesota)
Population Studies of Antarctic Seals--Modeling and Regulatory Biology

Smithsonian Institution

Mead, J. G. (Smithsonian Institution)
Marine Mammal Program

Ray, C. E. (Smithsonian Institution)
Studies in the Evolution of the Pinnipedia

Veterans Administration

Shurley, J. T. et al. (U. Oklahoma)
Sleep in Cetaceans, and EEG Study--I. The Pilot Whale,
Globicephala scammoni

Sinha, A. A. et al. (U. Minnesota)
Ultra Structural Study of Estrogen Effects and of
Placenta

AGENCY PROGRAMS FOR FY 74

Atomic Energy Commission

Eberhardt, L. L., R. G. Gilbert & J. M. Thomas
 (Battelle Memorial Institute)
 Analysis of Natural Systems

Department of Agriculture

Breese, S. S. (Animal Disease Center)
 Electron Microscopy of Foot-And-Mouth Disease Virus
 and Other Exotic Animal Viruses

Ritchie, A. E. (National Animal Disease Center)
 Ultrastructural Characteristics of the Microbiota
 of Domestic Animals

Trautman, R. (Animal Disease Center)
 Ultracentrifugation of Exotic Animal Viruses,
 Viral Degradation and Associated Products

Department of Commerce

1. National Marine Fisheries Service

Barham, E. & R. McNeely (NMFS/SWFC)
 Porpoise Gear Dynamics and Development

Barham, E., G. Stauffer & T. Smith (NMFS/SWFC)
 Porpoise Stock Assessment

Fiscus, C. H., E. M. Marquette & G. Y. Harry (NMFS/NWFC)
 Seals of the Bering and Chukchi Seas

Fiscus, C. H., W. M. Marquette & G. Y. Harry (NMFS/NWFC)
 Bowhead Whale Studies

Johnson, J. H. et al. (NMFS/NWFC)
 St. George Island Studies

Perrin, W., D. Holts and W. Taguchi (NMFS/SWFC)
 Porpoise Life Studies

Rice, D. W. & A. A. Wolman (NMFS/NWFC)
 Whale Stock Assessment and Marking

Rice, D. W. & A. A. Wolman (NMFS/NWFC)
 Gray Whale Studies

Rice, D. W. & A. A. Wolman (NMFS/NWFC)
 Killer Whale Studies

2. Office of Sea Grants

Burns, J. J. & F. H. Fay (U. Alaska)
 The Biology of Bering Sea Harbor Seals and Their
 Relationship with Other Ice Inhabiting Pinnipeds

Fay, F. H. (U. Alaska)
 Ethology and Productivity of the Pacific Walrus

Galster, W. (U. Alaska)
 A Survey of Alaskan Marine Mammals for Accumulation
 of Pesticides and Heavy Metals

Department of Defense

1. Naval Undersea Center and Other Units

Leatherwood, J. S. & W. E. Evans (NUC)
 Study of Marine Mammal Population to Assist in
 Evaluation of Effect on ASW and Assessment of
 Supply of Animals for Systems Concepts

White, C. T. & C. S. Johnson (Electronics Laboratory
 Center)
 Bioelectronics Study of Marine Mammals

2. Office of Naval Research

Bullock, T. H. (U. California, San Diego)
 Navy Environment: Swimmer/Diver Support:
 Sensory Capabilities of Marine Vertebrates

Caldwell, D. K. (Marineland Research Laboratory)
 Navy Environment: Biological Sources of Ambient
 Sea Noise; Analysis of Sonic Emission of Cetaceans
 (Porpoises)

Sigel, M. M. (U. Miami)
 Navy Environment: Diseases of Experimental
 Marine Mammals

Department of Health, Education and Welfare

Atassi, M. Z., & J. Koketsu (Wayne State U.)
 Immunochemical Studies on Human Hemoglobins

Caldwell, D. K. & H. Hollien (U. Florida)
 Studies of Communication

Holt, J. P. (U. Louisville)
Residual Volume and Similarity in the Circulation

Lewis, U. J. (Scripps Clinic Res. Fdn.)
Primary Structures of Growth Hormones and Prolactins

Parkhurst, L. J. (U. Nebraska)
Hemoglobin and Myoglobin Kinetic Studies

National Aeronautics and Space Administration

Klein, H. P. (Ames Research Center)
Ground-Based Platforms, Bio-Instrumentation and
Animal Tracking Systems & Techniques

National Science Foundation

Ambrosino, M. J. (WGBH Educational Foundation)
Partial Support for Weekly Science Series on
National Public Television

Brownell, R. L. (Smithsonian Institution)
Ecology and Life History of the Franciscana Dolphin

Kooyman, G. L. (U. California)
Data Analysis of Antarctic Penguin and Seal Studies

Maxwell, M. S. (Michigan State U.)
Dorset and Pre-Dorset Culture Change

Norris, K. S. (U. California, Santa Cruz)
Peripheral Sound Processing in Porpoises

Sarich, V. M. (U. California, Berkeley)
Immunological Studies of Protein Evolution in Mammals

South, F. E. (U. Missouri, Columbia)
Physiology of Sleep and Thermoregulation in the
California Sea Lion

Wu, T. (California Institute of Technology)
Symposium on Swimming and Flying in Nature

AGENCY PROGRAMS FOR FY 75

(AEC) Energy Research and Development Administration

Perkins, R. W. et al. (Battelle Memorial Institute)
Physical and Radiological Chemistry of Ocean Solution

Department of Agriculture

Lichtenfels, J. R. (Haemoprotozoan Disease Laboratory)
Systematics and Identification of Helminths and Other
Parasites Important to Human and Animal Health

Polatnick, J. & H. L. Bachrach (Animal Disease Center)
Amino Acid Sequences in Foot-and-Mouth Disease Virus
Types and Immunogenic Peptide Fragments

Rothfus, J. A. (Industrial Crops Laboratory)
Lubricants from New Seed Oils

Department of Commerce

1. National Marine Fisheries Service

Fiscus, C. H., W. M. Marquette & G. Y. Harry (NMFS/NWFC)
Pinnipeds

Fiscus, C. H., W. M. Marquette & G. Y. Harry (NMFS/NWFC)
Marine Mammals of the Arctic Ocean and Bering Sea

Harry, G. Y. et al. (NMFS/NWFC)
St. George Island Studies

Harry, G. Y. et al. (NMFS/NWFC)
Northern Fur Seal

Harry, G. Y., D. W. Rice & A. A. Wolman (NMFS/NWFC)
Cetaceans

Lenarz, W., D. Au & T. Smith (NMFS/SWFC)
Porpoise Stock Assessment

Perrin, W. et al. (NMFS/SWFC)
Porpoise Biological Studies and Field Program
(Formerly Porpoise Life Studies)

2. Office of Sea Grant

Popenoe, H. L. (U. Florida)
Florida Sea Grant Immediate Response Funds

Department of Defense

1. Naval Undersea Center and Other Units

- Au, W. W. (Naval Undersea Center)
Bioacoustic Capability of Marine Mammals
- Evans, W. E. & J. S. Leatherwood (NUC)
Pacific Pilot Whale Evaluation of its Effect on
High Frequency Sonar and its Feasibility as a
Monitoring Platform
- Evans, W. E. & S. H. Ridgway (NUC)
Sonar Pulse Sources: Study of Structures and Function
- Pepper, R. L. (NUC)
Directional Hearing of Sea Lions
- Pepper, R. L. & P. E. Nachtigall (NUC)
Determinates of Dolphin Motivation
- Popper, A. N. (U. Hawaii)
Sound Localization in the Bottlenosed Dolphin
- Ridgway, S. H. & W. F. Flanigan (NUC)
Electrophysiology of Dolphin Cortex
- Seeley, R. L. & D. Vandike (NUC)
Radiotelemetry of Clinical Data from Marine Mammals

2. Office of Naval Research

- Evans, E. C. (NUC)
Navy Environment: Biological Sources of Sea
Noise: Studies of Cetacean Bioacoustic Systems
- Gruber, S. H. (U. Miami)
Navy Environment: Naval Swimmer/Diver Protection:
Studies of Visual Perception in Sharks and Marine
Mammals
- Malins, D. C. (Seattle U.)
Navy Environment: The Biochemistry of Lipids
Peculiar to the Organs and Tissues of Cetaceans
and Involved in Sound Transmission as in
Echolocation
- Marx, W. (U. Southern California)
Navy Environment: Metabolic Aspects of Food and
Oxygen Utilization in Diving as Performed by
Aquatic Mammals

- Norris, K. S. (U. California, Santa Cruz)
 Navy Environment: Biological Sources of Ambient
 Sea Noise: Studies of Cetacean Behavior and Bio-
 Acoustic System
- Ray, C. (Johns Hopkins U.)
 Navy Environment: Swimmer/Diver Support and
 Acoustic Interference: Marine Mammal Acoustic
 and Behavioral Capabilities
- Ridgway, S. H. & M. H. Bebeau (NUC)
 Marine Mammal Bionosis
- Schevill, W. E. (Woods Hole Oceanographic Institute)
 Navy Environment: Biological Sources of Ambient
 Sea Noise: Bioacoustic Behavior and Distribution
 of Cetaceans (Whales)
- Schusterman, R. J. (California State U., Hayward)
 Navy Environment: Swimmer/Diver Support: Marine
 Mammal Visual/Acoustic Behavioral Capabilities
- Winn, H. E. (U. Rhode Island)
 Navy Environment: Biological Sources of Ambient
 Sea Noise: Bioacoustic Behavior and Sensory
 Capability of Fishes and Cetaceans

Department of Health, Education and Welfare

- Bartlett, G. R. (Laboratory for Comparative Biochemistry)
 Red Cell Metabolism
- Behrisch, H. M. (U. Alaska)
 Hibernation and Enzymes
- Buhler, D. R. (Oregon State U.)
 Methylmercury Detoxification in Marine Mammals
- Bullock, T. H. (U. California, San Diego)
 Studies in Comparative Neurophysiology
- Elsner, R. W. (U. Alaska)
 Circulatory Reactions to Asphyxia
- Gurd, F. R., O. Oster, & M. H. Garner (Indiana U.)
 Structure and Reactivity of Proteins and Lipoproteins
- Irving, L. (U. Alaska)
 Marine Mammals by Coastal Residents

- Miller, K. L. (U. Alaska)
Heterothermous Operations of Nerves
- Miller, K. L. (U. Alaska)
Metabolism and Temperature Regulation of
Marine Mammals
- Morrison, P. R. (U. Alaska)
Bioenergetic Aspects of Physiology in the Sea Otter
- Schwartz, H. C. (Stanford U.)
Hemoglobin Oxygen Transport
- Silver, I. (U. Pennsylvania)
Cellular Hypoxia in Shock and Stroke
- Stavitsky, A. B. (Case Western Reserve U.)
Regulation of Humoral Immunity
- West, G. C. (U. Alaska)
Utilization of Fat
- Willis, W. D. (U. Texas)
Neural Adaptations for Diving in Mammals
- Willis, W. D. et al. (U. Texas)
Comparative Neurobiology

Department of Interior

- Addicott, W. O. (Geological Survey)
Cenozoic & Mesozoic Stratigraphy, Pacific Coast
& Alaska--Cenozoic Vertebrates, Pacific Coast

Environmental Protection Agency

- Martin, J. H. (Moss Landing Marine Labs)
Bioaccumulation of Heavy Metals by Littoral
and Pelagic Marine Organisms

National Science Foundation

- Anderson, S. (American Museum of Natural History)
Operational Support for the Mammalogy Collection
- Erickson, A. W. (U. Washington)
Environmental Factors in the Distribution of
Seals in the Antarctic Pack Ice
- Griffin, D. R. (Rockefeller U.)
Biological Basis of Orientation Behavior

- Herman, L. M. (U. Hawaii)
Sensory and Learning-Memory Processes in the Dolphin
- Jehl, J. R. (San Diego Natural History Museum)
Comparative Studies of Oceanic Birds in the Austral Winter
- LeBoeuf, B. J. (U. California, Santa Cruz)
Ethology of the Northern Elephant Seal
- Litchfield, C. (Rutgers)
Acoustical Function of Lipids in Odontocete Echolocation
- Luthi, B. (Rutgers)
Magnetic Materials Using Ultrasonic Techniques
- Murdaugh, H. V. (Mount Desert Island Biological Lab)
Renal and Cardiovascular Function and Ionic Regulation
- Murrish, D. E. (Case Western Reserve Univ.)
Cardiovascular Dynamics in Antarctic Homeotherms
- Robertson, D. E. (Battelle Memorial Institute)
Investigation of the Origin, Occurrence and Biogeochemistry of Heavy Metals in the Antarctic Marine Ecosystem
- Siniff, D. B. (U. Minnesota)
Status and Population Dynamics of Antarctic Seals
- White, F. N. (U. California, Los Angeles)
Circulatory Regulation in Vertebrates

Smithsonian Institution

- Mead, J. G. (Smithsonian Institution)
Biological Survey of Cetaceans of the Northwestern Atlantic
- Ray, C. E. (Smithsonian Institution)
Studies in the Evolution of the Pinnipedia

Veterans Administration

- Forrest, I., D. Green & M. Serra (Stanford U.)
Investigation of Intermediary Metabolites of Phenothiazine Derived Drugs

AGENCY PROGRAMS FOR FY 76

Department of Agriculture

Bachrach, H. L., D. Moore & J. Polatnick (Animal Disease Center)

Amino Acid Sequences in Foot-and-Mouth Disease Virus Types and Immunogenic Peptide Fragments (San Miguel sea lion virus)

Department of Commerce

1. National Marine Fisheries Service

Fox, W. (LaJolla Laboratory)
Porpoise Biology

Fox, W. (LaJolla Laboratory)
Porpoise Mortality Reduction Technology

Fox, W. (LaJolla Laboratory)
Porpoise Stock Assessment

Fox, W. (LaJolla Laboratory)
Porpoise/Tuna Quantitative Analysis and Data Management

Harry, G. Y. (Marine Mammal Division)
Cetaceans

Harry, G. Y. (Marine Mammal Division)
Marine Mammals of the Arctic Ocean and Bering Sea

Harry, G. Y. (Marine Mammal Division)
Northern Fur Seal

Harry, G. Y. (Marine Mammal Division)
St. George Island Studies

Harry, G. Y. (Marine Mammal Division)
West Coast Pinnipeds, Antarctic Seals, Northern Sea Lions

Shomura, R. (Honolulu Laboratory)
Recreational Fisheries (predatory behavior of porpoises included)

2. Office of Sea Grant

- Brauer, R. (U. North Carolina)
 Research in Marine Sciences on the North Carolina Shelf (wet submersible development for behavior studies)
- Mate, B. R. (Oregon State U.)
 An Assessment of Sea Lions in the Rogue River Area
- Popenoe, H. L. (U. Florida)
 Florida Sea Grant Immediate Response Funds (acoustical devices to repel porpoises)
- Wolke, R. E. (U. Rhode Island)
 Marine Pathology

Department of Defense

1. Naval Undersea Center

- Evans, W. E. & S. H. Ridgway (NUC)
 Sonar Pulse Sources: Study of Structures and Function (Tursiops truncatus)
- Ridgway, S. H. & W. E. Evans (NUC)
 Living Sensor and Neural Processing Technology (neurosensory physiology and modeling)
- Ridgway, S. H. & W. F. Flanigan (NUC)
 Electrophysiology of Dolphin Cortex

2. Office of Naval Research

- Beleau, M. H. & R. D. Gunnels (NUC)
 Marine Mammal Bionosis
- Malins, D. C. (Seattle U.)
 The Biochemistry of Lipids Peculiar to the Organs and Tissues of Cetaceans and Involved in Sound Transmission as in Echolocation
- Norris, K. S. (U. California, Santa Cruz)
 Navy Environment: Biological Sources of Ambient Sea Noise: Studies of Cetacean Behavior and Bioacoustic System
- Ray, C. (Johns Hopkins U.)
 Navy Environment: Swimmer/Diver Support and Acoustic Interference: Marine Mammal Acoustic and Behavioral Capabilities

Schevill, W. E. (Woods Hole Oceanographic Institute)
 Navy Environment: Biological Sources of Ambient
 Sea Noise: Bioacoustic Behavior and Distribution
 of Cetaceans

Schusterman, R. J. (California State U., Hayward)
 Swimmer/Diver Support: Marine Mammal Visual/
 Acoustic Behavioral Capabilities

Winn, H. K. (U. Rhode Island)
 Navy Environment: Biological Sources of Ambient
 Sea Noise: Bioacoustic Behavior and Sensory
 Capabilities of Marine Mammals

Department of Health, Education and Welfare

Becker, R. R. (Oregon State U.)
 Mechanisms for Toxicity of Environmental
 Contaminants (humans, whales)

Berisch, H. M. (U. Alaska)
 Hibernation and Enzymes (ground squirrels, seals,
 caribou, birds)

Buhler, D. R. (Oregon State U.)
 Accumulation of Environmental Contaminants in
 Marine Mammals

Bullock, T. H. (U. California, San Diego)
 Studies in Comparative Neurophysiology (porpoises,
 seals, sloths, sharks, electric fish, etc.)

Elsner, R. W. (U. Alaska)
 Circulatory Reactions to Asphyxia (seals)

Gurd, F. R. (Indiana U.)
 Structure and Reactivity of Proteins and Lipoproteins
 (marine mammals)

Gurd, F. R. (Indiana U.)
 Specific Enrichment of Myoglobins for Carbon 13 NMR
 (sperm whale myoglobin utilized)

Irving, L. (U. Alaska)
 Marine Mammals by Coastal Residents (climatic
 adjustment--human, seals, whales)

Miller, K. L. (U. Alaska)
 Heterothermous Operations of Nerves (squirrels, marmots,
 whales)

- Miller, K. L. (U. Alaska)
Metabolism and Temperature Regulation of Marine Mammals (seals, small birds)
- Schwartz, H. C. (Stanford U.)
Hemoglobin Oxygen Transport (human, pinnipeds)
- West, G. C. (U. Alaska)
Utilization of Fat (lemmings, moose, caribou, marine mammals)
- Willis, W. D. (U. Texas)
Neural Adaptations for Diving in Mammals (dogs, sea lions)
- Wissler, R. W. (U. Chicago), H. W. Casey & G. Migaki
(Armed Forces Institute of Pathology)
The Registry of Comparative Pathology (fish, bird and mammal diseases)
- Wurtman, R. J. & H. Lynch (Massachusetts Institute of Technology)
Sympathetic Nervous System and Neuroendocrine Rhythm
(sheep, seals, mink, ferrets)

Department of the Interior

- Addicott, W. O. (Geological Survey)
Cenozoic & Mesozoic Stratigraphy, Pacific Coast & Alaska--Cenozoic Vertebrates, Pacific Coast (age and faunal data--includes marine mammal)

Environmental Protection Agency

- Martin, J. H. (Moss Landing Marine Labs.)
Bioaccumulation of Heavy Metals by Littoral and Pelagic Marine Organisms

Marine Mammal Commission

- Ainley, D. G. (Point Reyes Bird Observatory)
Studies of Marine Mammals at the Farallon Islands
- Benirschke, K. (San Diego Zoological Society) and S. H. Ridgway (Naval Undersea Center)
Tursiops Breeding Workshop
- Brownell, R. L. & C. M. Schonewald (Smithsonian Institution)
Estimate of Recent Major Takings of Marine Mammals
- Chapman, D. G. (U. Washington)
Analysis of Tuna-Porpoise Data

- Cornell, L. H. & E. D. Asper (Ocean Research Institute)
Further Investigation into Appropriate Cryogenic
Marking Processes
- Dayton, P. K. (U. California, Los Angeles)
Studies Toward the Understanding of the Health
and Stability of Some Sea Otter Dominated Marine
Communities
- Evans, W. E. & J. S. Leatherwood (Naval Undersea Center)
Acoustic Characteristics of Nets and Floats in the
Water During Purse Seine Fishing for Yellowfin Tuna
- Gard, R. (U. Alaska, Juneau)
Aerial Census and a Population Dynamics Study of Gray
Whales in Baja California During the 1976 Calving and
Mating Season
- Gonsalves, J. T. (Progressive Fishing Enterprises)
Improved Device and Method to Prevent Porpoise
Mortality
- Johnson, M. L. (U. Puget Sound)
Distribution, Population Dynamics, and Ecology of
the Harbor Seal (Phoca vitulia) in the Waters
of the State of Washington
- Katona, S. K. (College of the Atlantic)
The Gulf of Maine Whale Sighting Network
- Kavanau, J. L. (U. California, Los Angeles)
Behavior of the Sea Otter, Enhydra lutris
- Kooyman, G. (Scripps Institute of Oceanography)
Development and Testing of a New, Low-Cost Method
for Monitoring at Sea Behavior of Marine Mammals
- Leatherwood, J. S. (Naval Undersea Center)
The Comparative Utility of Some Aerial Census
Methods in Cetacean Stock Assessment
- Norris, K. S. (U. California, Santa Cruz)
Behavioral Studies Relative to the Tuna-Porpoise
Problem
- Payne, R. S. (New York Zoological Society)
Assessment of Two Right Whale Populations by Means
of Aerial Censusing and Photogrammetry
- Ray, G. C. (Johns Hopkins U.)
Identification and Preservation of Critical Marine Mammal
Habitats within the Jurisdiction of the United States

Risenbrough, R. W., et al. (Bodega Bay Institute of
Pollution Ecology)
Population Biology of Harbor Seals in San
Francisco Bay, California

Stone, P. (Silver Spring, Maryland)
Marine Mammal Commission Reference Library

Waring, G. H. (Alexandria, Virginia)
Analysis of Outer Continental Shelf Development and
Potential Impacts on Marine Mammal Populations

Wilson, S. C. (Smithsonian Institution)
Management Implications of Social Behavior of the
Harbor Seal, Phoca vitulina concolor

Woodhouse, C. D. (Santa Barbara Museum of Natural History)
A Summary of Knowledge of the Sea Otter and an
Appraisal of the Completeness of Biological Under-
standing of the Species

National Aeronautics and Space Administration

Ray, G.C., D. Wartzok & P. Sebesta (Johns Hopkins U.)
Study of Predictive Ecological Models Useful for the
Management and Conservation of Bering Sea Mammals

National Science Foundation

Ainley, D. G. (Point Reyes Bird Observatory)
The Role of Sea Birds in Antarctic Marine Ecosystems
(predator-prey interactions with marine mammals)

Anderson, S. (American Museum of Natural History)
Operational Support for the Mammalogy Collection
(cetaceans)

Awbrey, F. T. (California State U., San Diego)
Study of Acoustical Factors Affecting Porpoise
Mortality in Tuna Fishing

Brownell, R. L. (Smithsonian Institution)
Stock Assessment of Antarctic Minke Whales

Bullock, T. H. (U. California, San Diego)
Studies in Comparative Neurology--Neuronal Integrative
Mechanisms (porpoises, seals, sloths, sharks, electric
fishes, etc.)

Caldwell, L. K. (Indiana U.)
Partial Support for a Major Public Conference on Marine
Science Research, Bloomington, Indiana, November 9-12, 1975

Dawson, W. W. (U. Florida)
Cetacean Vision

Griffin, D. R. (Rockefeller U.)
Biological Basis of Orientation Behavior (birds,
bats, humans, cetaceans)

Herman, L. M. (U. Hawaii)
Sensory and Learning-Memory Processes in the Dolphin

LeBoeuf, B. J. (U. California, Santa Cruz)
Ethology of the Northern Elephant Seal, Mirounga
angustirostris

Siniff, D. B. (U. Minnesota)
Colony Behavior of Antarctic Marine Mammals

Siniff, D. B. (U. Minnesota)
Studies of Biota of Antarctic Pack Ice (seals)

Zapol, W. M., et al. (Massachusetts General Hospital)
The Cardiovascular and Metabolic Response to Diving
and Endocrinology of the Gravid Near-term Weddell Seal

Smithsonian Institution

Mead, J. G. (Division of Vertebrate Zoology)
Marine Mammal Salvage Program

Ray, C. E. (Division of Paleobiology)
Studies in the Evolution of the Pinnipedia

Veterans Administration

Seal, U. S. (V.A. Hospital, Minneapolis)
Function, Evolution and Structure of Hormone-Binding
Proteins (pinnipeds, carnivores, deer, humans)

Sinha, A. A., et al. (V.A. Hospital, Minneapolis)
Ultrastructural Study of Estrogen Effects and of
Placenta (seals, skunks, etc.)

AGENCY PROGRAMS FOR FY 77

Department of Commerce

National Sea Grant Program

Ball, J. L. (U. Hawaii)

Marine Advisory Program: Marine Conservation
Education (Marine mammals)

Lewis, D. H. and C. D. Brown (Texas A&M U.)

Development and Presentation of Courses in Aquatic
Animal Health (marine mammal medicine)

Mate, B. R. (Oregon State U.)

Assessment of Sea Lions in the Rogue River Area

Department of Defense, Navy

--Office of Naval Research

Evans, W. E. and J. S. Leatherwood (Naval Ocean Systems Center)

Radiotelemetric Study of the Pacific Pilot Whale

Department of Health, Education and Welfare

Becker, R. R. (Oregon State U.)

Mechanisms for Toxicity of Environmental Contaminants
(human, whales)

Behrisch, H. W. (U. Alaska)

Molecular Adaptation to Asphyxia (harbor seal)

Berzofsky, J. A., D. H. Sachs, D. Pisetsky, R. H. Schwartz
and A. N. Schechter (National Cancer Institute)Genetic Control of the Immune Response to
Natural Protein Antigens (sperm whale myoglobin)

Buhler, D. B. (Oregon State U.)

Accumulation of Environmental Contaminants in
Marine Mammals

Bullock, T. H. (U. California, San Diego)

Studies in Comparative Neurophysiology (porpoises,
seals, sloths, sharks, etc.)

McClelland, G. (Dalhousie U.)

Production of Nematode Ova and Host Sera to Study
a Fishborne Parasitic Disease--Course of Infection
and Pathology in the Natural Host (harbor and gray seals)

Schwartz, H. C. (Stanford U.)
Hemoglobin Oxygen Transport (human, pinnipeds)

Department of the Interior

1. Fish and Wildlife Service

Bailey, E. P. (Fish and Wildlife Service)
Breeding Bird Distribution and Abundance in
Barren Islands, Alaska (also marine mammals)

Campbell, H. and B. Irvine (FWS/NFWL)
Studies of Marine Mammals--Sirenia

Estes, J. A., J. B. Faro and A. M. Johnson (FWS)
Activity and Behavior of Pacific Walrus

Johnson, A. (FWS/NFWL)
Studies of Marine Mammals--Walruses and Sea Otters

Johnson, A. M. (FWS)
Intensive Study of Sea Otters in Prince William
Sound

2. National Park Service

Jurasz, C.
Humpback Whale Studies

Streveler, G. P. (National Park Service, Glacier
Bay National Monument)
Harbor Seal Studies

Marine Mammal Commission

Benirschke, K. (Zoological Society of San Diego)
Enhancement of Captive Dolphin Breeding Through
Hormonal Studies of Ovulation

Botkin, D. B. and M. J. Sobel (Marine Biological
Laboratory, Woods Hole)
Concept of Optimum Sustainable Populations
of Marine Mammals

Chapman, D. G. (U. Washington)
Whale Statistics

Foster, M. S. (Moss Landing Marine Labs.)
Baseline Studies of Subtidal Communities Near the
Northern Extremity of the Sea Otter's California
Range

- Fowler, C. W. (Utah State U.)
Comparative Population Dynamics--A Search for
Management Criteria
- Geraci, J. (New England Aquarium)
Marine Mammal Stranding Workshop
- Gilbert, J. (U. Maine)
Assessment of the Status of Gray Seals (Halichoerus
grypus) in Coastal Waters of the Northeast United
States
- Hui, C. A. (Naval Ocean Systems Center)
Reliability of Dentinal Age Determination in Tursiops
- Johnson, B. W. and P. A. Johnson
The Hawaiian Monk Seal on Laysan Island
- Katona, S. K. (College of the Atlantic)
Identification of Humpback Whales from Fluke
Photographs
- Nafziger, J. A. (U. Oregon)
Developments in the Law of Marine Mammal Management
- Naftel, G. and L. R. Taylor (East Rider Corp.)
Predation on the Hawaiian Monk Seal (Monachus
schauinslandi) by Large Sharks
- Risebrough, R. W. (Bodega Bay Institute of Population
Biology)
Accumulation of Petroleum Compounds in Harbor
Seals in San Francisco Bay
- Shallenberger, E. (Sea Life Park, Hawaii)
Humpback Whale Workshop
- Smith, T. (U. Hawaii)
Study of Recently Developed Model of Historical
Abundance of Porpoise
- Swartz, S. L. (San Diego Society of Natural History)
Field Studies of the Gray Whale (Eschrichtius robustus)
in Laguna San Ignacio, Baja California
- Tillman, M. F. (National Marine Fisheries Service)
Whale Logbook Workshop
- Waring, G. (Southern Illinois U.)
Issues Affecting the Conservation and Protection
of Marine Mammals

National Aeronautics and Space Administration

Michelson, R. C. (Georgia Institute of Technology)
 Manatee Tracking Project--Develop a Concept of an
 Automatic Tracking System to Determine the Location
 and Movements of Manatees

National Science Foundation

Ainley, D. G. (Point Reyes Bird Observatory)
 The Role of Sea Birds in Antarctic Marine Ecosystems
 (marine mammal)

Awbrey, F. T. (California State U.)
 Acoustical Factors Affecting Porpoise Mortality
 in Tuna Fishing

Jonkel, C. J. (U. Montana)
 Environmental and Ecological Studies of High Arctic
 Mammalian Habitat and Food Chains Affected by Develop-
 ment (polar bear, arctic seals, etc.)

Murdaugh, H. V. (Mt. Desert Island Biological Lab.)
 Renal Cardiovascular Function and Ionic Regulation
 (seals, fish, etc.)

Norris, K. S. (U. California, Santa Cruz)
 Peripheral Sound Processing in Porpoises

South, F. E. (U. Delaware)
 Physiology of Sleep and Thermoregulation (sea lions)

Smithsonian Institution

Mead, J. G. (Smithsonian Institution)
 Biological Survey of Cetaceans of the Northwestern
 Atlantic

Marine Mammal Salvage Program

Montgomery, G. G. (Tropical Research Institute,
 Smithsonian Institution)
 Ecology of Some Large Endangered Neotropical Mammals
 in Venezuela (manatee, fresh-water dolphins, etc.)

Ray, C. E. (Smithsonian Institution)
 Studies in the Evolution of the Pinnipedia

AGENCY PROGRAMS FOR FY 78

Department of Agriculture

Breese, S. S. (USDA/Animal Disease Center)
Electron Microscopy of Exotic Animal Viruses
(seals, swine, etc.)

Department of Commerce

--National Marine Fisheries Service

Amos, M. (NMFS)
Quantitative Science Services (fish, shellfish,
marine mammals)

Beardsley, G. (NMFS)
Fishery Data Analysis--Miami (fish, turtles,
dolphins)

DeLong, R. (NMFS)
Endangered Species--Seals

Fiscus, C. (NMFS)
Pinnipeds

Fox, W. (NMFS)
Porpoise Stock Assessment

Porpoise Biological Studies

Porpoise Mortality Reduction Technology

Gentry, R. (NMFS)
Fur Seal Behavior and Ecology

Kajimura, H. (NMFS)
Fur Seal Ecosystems--Pelagic

Kemmerer, A. (NMFS)
Survey Technology Development (fish, turtle,
porpoise tracking and remote sensing)

Keyes, M. (NMFS)
Northern Fur Seal--Physiology and Medicine

Landen, R. (NMFS)
Northern Fur Seal--Population Assessment

Marquette, W. (NMFS)
Arctic Whales--Bowhead

Seckel, G. (NMFS)
Ocean Modeling and Forecasting (tuna, porpoise, etc.)

Tillman, M. (NMFS)
Endangered Cetaceans

Department of Defense, Navy

1. Office of Naval Research

Evans, W. E. and V. Gurevich (Hubbs-Sea World
Research Institute)
Marine Mammal Distribution and Acoustics:
Radiotelemetric Studies of Pacific Ocean
Cetaceans

Gilmartin, W. G. and G. S. Colgrove (Naval Ocean
Systems Center)
Marine Mammal Bionosis

Hodgson, E. S. and R. Mathewson (Tufts U.)
Navy Environment: Potential Sites for Research
into Chemosensory Capabilities of Captive Marine
Mammals

Malins, D. C. (Seattle U.)
Navy Environment: The Biochemistry of Lipids
Peculiar to the Organs and Tissues of Cetaceans
and Involved in Sound Transmission

Norris, K. S. (U. California, Santa Cruz)
Navy Environment: Biological Sources of Ambient
Sea Noise: Studies of Porpoise Behavior and
Bioacoustic System

Ray, G. C. and D. Wartzok (Johns Hopkins U.)
Navy Environment: Swimmer/Diver Support and Acoustic
Interference: Marine Mammal Acoustic and Behavioral
Capabilities

Schevill, W. E. and W. Watkins (Woods Hole Oceano-
graphic Institute)
Biological Ambient Sea Noise, Bioacoustic
Behavior and Distribution of Cetaceans

Schusterman, R. J. (California State U., Hayward)
Marine Mammal Visual and Acoustic Behavioral
Capabilities

Vedros, N. A. and R. J. Heckly (U. California, Berkeley)
Navy Environment: Biology of Respiratory Disease
Microorganisms with Emphasis on Factors Affecting
Spread of Infections

Winn, H. K. (U. Rhode Island)
 Navy Environment: Biological Sources of Ambient
 Sea Noise: Bioacoustic Behavior and Sensory
 Capabilities of Marine Mammals

2. Naval Ocean Systems Center and Other Units

Ridgway, S. H. and D. Carder (NOSC)
 Sonar Pulse Sources: Study of Structures and
 Function

Ridgway, S. H. and R. L. Seeley (NOSC)
 Acoustic Neural Processes

Department of Energy

Tester, J. R. (U. Minnesota)
 Vertebrate Behavior and Ecology (sea otter,
 tree squirrels, pronghorn, etc.)

Department of Health, Education and Welfare

West, J. B., J. W. Evans, Y. Fung, E. P. Hill, G. L.
 Kooyman and P. D. Wagner (U. California, San Diego)
 Physiological Basis of Pulmonary Disease (diving
 mammals)

Wissler, R. W., H. W. Casey and G. Migaki (Univ. Assoc.
 for Res. and Educ.)
 Support for Registry of Comparative Pathology
 (marine mammals)

Department of the Interior

1. Fish and Wildlife Service

Brownell, R. L., J. Lentfer, A. Johnson, G. VanBlaricom,
 R. Jameson and J. Estes (FWS/NFWL)
 Studies of Marine Mammals

California Department of Fish and Game
 Sea Otter Research

2. Geological Survey

Sohl, N. F. (USGS/Geologic Division)
 Mesozoic and Cenozoic Paleontology and
 Stratigraphy of the Atlantic and Eastern
 Gulf Coastal Plain (Cetacea, etc.)

Marine Mammal Commission

- Ainley, D. G. and S. Allen (Point Reyes Bird Observatory)
The Possible Effects of Human Activities on Harbor
Seals in Bolinas Lagoon, California
- Breiwick, J. M. (U. Washington)
Analysis of Bowhead Whale Data
- Dayton, P. K. (U. California, Berkeley)
Studies of Sea Otter-Dominated Marine Communities,
Part II
- Fay, F. H. and C. Matkin (U. Alaska)
Marine Mammal-Fishery Interactions on the Copper
River and Prince William Sound, Alaska
- Fowler, C. W. (Utah State U.)
North Pacific Sperm Whale Data Analysis
- Fowler, C. W. (Utah State U.)
Preliminary Workshop on Marine Mammal Management
Policies and Practices
- Johnson, D. W. and P. A. Johnson
The Hawaiian Monk Seal on Laysan Island, 1978
- Johnson, M. L. (U. Puget Sound)
Workshop on Marine Mammal--Fisheries Interactions in
Washington and Oregon
- Mate, B. R. (Oregon State U.)
Workshop on Marine Mammal-Fishery Interactions
- Perrin, W. F. (National Marine Fisheries Service)
Workshop: Determining Age of Odontocete Cetaceans
- Prescott, J. (New England Aquarium)
The North American Harbor Porpoise (Phocoena
phocoena) in the Northwest Atlantic
- Sherman, S. C. (Brown U., Providence)
World Inventory of Whaling Logbooks and Journals

National Science Foundation

- Dawson, W. W. (U. Florida)
Cetacean Vision
- Gordon, K. R. and M. Hildebrand (U. California, Davis)
Analysis of Locomotor Behavior and Functional
Anatomy of the Limbs of the Walrus

- Herman, L. H. (U. Hawaii)
Dolphin Information-Processing Capabilities

Behaviors and Social Organization of Humpback
Whales in Hawaiian Waters
- Jehl, J. R. and W. E. Evans (Hubbs-Sea World Research
Institute)
Distribution and Ecology of Orcinus and
Globicephala in the Antarctic and Adjacent
Waters
- Kooyman, G. L. (U. California, San Diego)
Comparative Aquatic Biology of Antarctic Endotherms
- LeBoeuf, B. J. (U. California, Santa Cruz)
Biological Studies of the Northern Elephant Seal
- McWhinnie, M. A. (DePaul U.)
Biological Investigation of Antarctic Krill
(Euphausia superba)
- Morgane, P. J. (Worcester Foundation for Experimental
Biology)
Archicortical-Limbic Formations of Dolphin Brain
- Siniff, D. B. (U. Minnesota)
Studies of Biota of Antarctic Pack Ice
- Siniff, D. G. (U. Minnesota)
The Role of the Leopard Seal in the Antarctic
Marine Ecosystem
- Siniff, D. B. and D. P. DeMaster (U. Minnesota)
Colony Behavior of Antarctic Marine Mammals

Veterans Administration

- Seal, U. S. (VA Hospital, Minneapolis)
Function, Evolution and Structure of Hormone-
Binding Proteins (Canoidea, Pinnipedia)
- Theil, G. B. (VA Center, Wood, WI)
The Isolation and Characterization of Fish
Myohemoglobin (harbor seal, human, fish)

AGENCY PROGRAMS FOR FY79

Department of Defense, Navy

1. Naval Ocean Systems Center and Other Units

Flanigan, W. F. (NOSC)
Chemoreception in the Bottlenose Dolphin,
A First Look

Ridgway, S. H. and R. L. Seeley (NOSC)
Signal Processing by Dolphins, Waveform
and Time Separation Features (Formerly
Acoustic Neural Processes)

2. Office of Naval Research

Altes, R. (Orincon Corp., LaJolla)
Navy Environment: Computer and Mathematical
Analysis of Dolphin Whistles

Evans, W. E. and V. Gurevich (Hubbs-Sea World
Research Institute)
Marine Mammal Distribution and Acoustics:
Radiotelemetric Studies of Pacific Ocean
Cetaceans

Gilmartin, W. G. and D. Ewing (Naval Ocean
Systems Center)
Marine Mammal Bionosis

Hodgson, E. S. and R. Mathewson (Tufts U.)
Navy Environment: Potential Sites for
Research into Chemosensory Capabilities
of Captive Marine Mammals

Malins, D. C. and U. Varanasi (Seattle U.)
Navy Environment: The Biochemistry of Lipids
Peculiar to the Organs and Tissues of Cetaceans
and Involved in Sound Transmission

Schevill, W. E. and W. Watkins (Woods Hole Ocean-
ographic Institution)
Biological Ambient Sea Noise,
Bioacoustic Behavior, and Distribution
of Cetaceans

Schusterman, R. J. (California State U., Hayward)
Navy Environment: Marine Mammal Visual and
Acoustic Behavioral Capabilities

Winn, H. K. (U. Rhode Island)
 Navy Environment: Biological Sources of
 Ambient Sea Noise; Bioacoustic Behavior
 and Sensory Capabilities of Marine Mammals

Department of Health, Education and Welfare

Elsner, R. W., A. S. Blix, J. Kjekshus, L. A.
 Sordahl and D. L. Franklin (U. Alaska)
 Comparative Pathology of Myocardial
 Ischemia (seals)

Nattie, E. E. and B. Hitzig (Dartmouth College)
 Brain Metabolism, Acid-Base Balance, and
 Respiration (seal)

Wissler, R. W. (Univ. Assoc. Res. and Educ. Pathol.)
 Support of the Registry of Comparative
 Pathology (marine mammals)

Marine Mammal Commission

Ainley, D. G. (Pt. Reyes Bird Observatory)
 Studies of Marine Mammals at the Farallon Islands

Green, K. A. (El Paso, Texas)
 Review the Fishery Conservation Management
 Act and Regional Fishery Management Plans--
 Conservation of Marine Mammals and Habitats

Norris, K. S. and B. Ramirez-Villa (U. California,
 Santa Cruz)
 Status of Phocoena sinus, the Gulf of
 California Harbor Porpoise

Prescott, J. (New England Aquarium)
 The North American Harbor Porpoise, Phocoena
phocoena, in the Northwest Atlantic

Sherman, S. C. (Brown U.)
 World Inventory of Whaling Logbooks and
 Journals

Swartz, S. L. (San Diego Society of Natural History)
 Evaluation of Human Activities on Gray Whales
 in Laguna San Ignacio, Baja California

National Science Foundation

Herman, L. M. (U. Hawaii-Manoa)
 Dolphin Information-Processing Capabilities

- Herman, L. M. (U. Hawaii--Manoa)
Behaviors and Social Organization of Hump-
back Whales in Hawaiian Waters
- Jehl, J. R. and W. E. Evans (Hubbs Sea World
Research Inst.)
Distribution and Ecology of *Orcinus* and
Globicephala in the Antarctic
- Jonkel, C. J. (U. Montana)
Environmental and Ecological Studies of High
Arctic Mammalian Habitat and Food Chains
Affected by Development
- Kooyman, G. L. (U. California--Scripps Inst.)
Comparative Aquatic Biology of
Antarctic Endotherms
- LeBoeuf, B. J. (U. California, Santa Cruz)
Biological Studies of the Northern
Elephant Seal
- May, R. M. (Princeton U.)
Applications of Ecological Theory
- Morgane, P. J. (Worcester Foundation for
Experimental Biology)
Archicortical-Limbic Formations of
Dolphin Brain
- Siniff, D. B. (U. Minnesota)
The Role of the Leopard Seal in the Antarctic
Marine Ecosystem

VI. APPENDIX D
LISTING OF MARINE MAMMAL RESEARCH
FOR FY70-FY79
SUMMARIZED BY AGENCY

FY70-FY73 COMPILED FROM INFORMATION
PROVIDED BY THE
SMITHSONIAN SCIENCE INFORMATION EXCHANGE

FY74-FY79 COMPILED FROM INFORMATION
PROVIDED THE COMMISSION
BY EACH AGENCY

Department of AgricultureFY70

(No projects reported)

FY71

Cheville, N. F. (USDA Animal Disease Center)
Cellular Reaction to Intracellular Microbial Agents

Windus, W. (Eastern Utilization Research Lab)
Development of Improved Beaming and Tanning Processes

FY72

Cheville, N. F. (USDA Animal Disease Center)
Cellular Reaction to Intercellular Microbial Agents

FY73

(No projects reported)

FY74

Breese, S. S. (USDA Animal Disease Center, Greenport,
N.Y.)
Electron Microscopy of Foot-and-Mouth Disease
Virus and Other Exotic Animal Viruses
(San Miguel Sea Lion Virus) \$ 9.3K

Dardiri, A. H. (USDA Animal Disease Center, Greenport,
N.Y.)
Transmissibility of San Miguel Sea Lion Virus
to Domestic Swine \$ 27.9K

FY75

Dardiri, A. H. (USDA Animal Disease Center,
Greenport, N.Y.)
Transmissibility of San Miguel Sea Lion
Virus to Domestic Swine \$ 9.3K

145

FY76-FY78

(No projects reported)

FY79

Gelberg, H. (USDA Animal Disease Center, Plum Island) Comparative Swine and Pinniped Pathology of Swine Vesicular Exanthema and San Miguel Sea Lion Viruses	\$200K
Forrester, D. J. (U. Florida) Epizootiology of Parasites of Wildlife in Florida	\$ 9K

Department of Commerce

FY70

(No projects reported)

FY71

--Office of Sea Grant

Hassler, W. W. (North Carolina State U.)
Abundance, Exploitation, Migration and Propagation
of the Dolphin

Hughes, D. A. & J. D. Richard (U. Miami)
Acoustic Studies in Marine Animals

FY72

1. National Marine Fisheries Service

Fiscus, C. H., H. Kajimura & A. A. Wolamn (NMFS/NWFC)
Pelagic Investigations, Fur Seals

Malins, D. C. & U. Varanasi (Pioneer Research Labs)
Chemistry of Porpoise Biosonar

Perrin, W. F. (NMFS/SWFC)
Alleviation of Porpoise Mortality

Rice, D. & W. F. Perrin (NMFS/SWFC)
Marine Mammal Research

Roppel, A. Y., et al. (NMFS/NWFC)
Population Dynamics--Fur Seals

2. Office of Sea Grant

Hickok, D. M. (U. Alaska)
Environmental Assessment--Marine Mammals,
Shell Fisheries, Sea Ice Engineering

FY73

--Office of Sea Grant

Burns, J. J. & F. H. Fay (U. Alaska)
The Biology of Bering Sea Harbor Seals and Relation-
ships with other Ice Inhabiting Pinnipeds

- Galster, W. & J. J. Burns (U. Alaska)
Survey of Important Marine Organisms for the
Presence of Pesticides and Heavy Metals
- Miller, K. & L. Irving (U. Alaska)
Adaptation of Marine Mammals to their Environment
- Morrison, P. R., R. P. Lyons & P. D. Shaughnessy (U. Alaska)
Biochemical Analysis of Marine Mammal Species and
Population.

FY74

1. National Marine Fisheries Service

Barham, E. & R. Mc Neely (NMFS/SWFC) Porpoise Gear Dynamics and Development	\$167.4K
Barham, E., G. Stauffer & T. Smith (NMFS/SWFC) Porpoise Stock Assessment	\$ 85.1K
Fiscus, C. H. & W. M. Marquette (NMFS/NWFC) Marine Mammals of the Arctic Ocean and Bering Sea	
a. Seals of the Bering and Chukchi Seas	\$ 18.8K
b. Bowhead whale studies	\$ 16K
Fiscus, C. H. & W. M. Marquette (NMFS/NWFC) West Coast Pinnipeds	\$ 38.2K
Goodman, R. M. (Franklin Institute, Philadelphia) & K. S. Norris (U. California, Santa Cruz) Non-Injurious Marking Techniques	\$ 35K
Johnson, J. H., H. Kajimura, M. C. Keyes, & R. L. DeLong (NMFS/NWFC) St. George Island Studies	\$145.5K
Leatherwood, J. S. (NUC, San Diego) Whale Field Guide: Atlantic	\$ 4K
Perrin, W., D. Holts, & W. Taguchi (NMFS/SWFC) Porpoise Life Studies	\$271.3K
Rice, D. W. & A. A. Wolman (NMFS/NWFC) Cetaceans	
a. Whale Stock Assessment and Marking	\$ 32K
b. Gray Whale Studies	\$ 31.4K
c. Killer Whale Studies	\$ 17K

Roppel, A. Y., M. C. Keyes, & H. Kajimura
(NMFS/NWFC)
Northern Fur Seal \$357K

2. Office of Sea Grant

Burns, J. & F. H. Fay (Institute of Arctic Biology
U. Alaska)
The Biology of the Bering Sea Harbor
Seals and Their Relationship with Other
Ice Inhabiting Pinnipeds \$ 9.7K

Fay, F. (Institute of Arctic Biology, U. Alaska)
Ethology and Productivity of the Pacific
Walrus \$ 17.6K

Galster, W. (Institute of Arctic Biology, U.
Alaska)
A Survey of Alaskan Marine Mammals for
Accumulation of Pesticides and Heavy
Metals \$ 13.6K

Popenoe, H. L. (U. Florida)
Florida Sea Grant: Immediate Response Funds \$ 36.3K

FY75

1. National Marine Fisheries Service

Barham, E. & R. McNeely (NMFS/SWFC) Porpoise
Mortality Reduction Technology \$140.2K

Barham, E., T. Smith, et al. (NMFS/SWFC) Propoise
Stock Assessment \$108.0K

Fiscus, C. H. & W. M. Marquette (NMFS/NWFC)
Marine Mammals of the Arctic Ocean and Bering
Sea \$ 41.2K
a. Seals of the Bering and Chukchi Seas
b. Bowhead whale studies

Fiscus, C. H. & W. M. Marquette (NMFS/NWFC)
Pinnipeds (West Coast) \$ 58.9K

Gentry, R. L. & J. H. Johnson (NMFS/NWFC)
St. George Island Studies \$330.9K

Perrin, W., et al. (NMFS/SWFC)
Porpoise Biological Studies and Field Pro-
gram (Formerly: Marine Mammals--Porpoise Life
Studies) \$342.9K

- Rice, D. W., A. A. Wolman & M. Tillman (NMFS/NWFC)
 Cetaceans \$ 83.9K
 a. Whale Stock Assessment
 b. Gray Whale
 c. Killer Whale
- Roppel, A. Y., et al. (NMFS/NWFC)
 Northern Fur Seal \$280.6K
2. Office of Sea Grant
- Burns, J. (Institute of Arctic Biology, U. Alaska)
 The Biology of the Bering Sea Harbor Seals
 and Their Relationship with Other Ice In-
 habiting Pinnipeds \$ 55.0K
- Fay, F. (Institute of Arctic Biology, U. Alaska)
 Ethology and Productivity of the Pacific
 Walrus \$ 27.3K
3. OCSEAP
 (See Department of the Interior, BLM/NOAA/OCSEAP)

FY76 and TQ76

1. National Marine Fisheries Service
- Fiscus, C. H. & R. L. DeLong (Marine Mammal Division)
 Endangered Species \$ 40K
 1. Hawaiian Monk Seal
 2. Northern Elephant Seal
 3. Guadalupe Fur Seal (Contract with U.
 Washington)
- Fiscus, C. H. & R. L. DeLong (Marine Mammal Division)
 Pinnipeds \$ 85.8K
 1. San Miguel Island Pinnipeds,
 Principally Northern Fur Seal
 2. US-USSR Marine Mammal Studies
 3. Platforms of Opportunity
 4. Contracts:
- Johnson, M. L. (U. Puget Sound)
 Marine Mammal Survey Flights--Lower Columbia
 River, Coastal and Inland Waters (\$3K)
- Mate, B. R. (Oregon State U.)
 An Aerial Assessment of Breeding Pinnipeds
 in the Temperate Eastern Pacific (\$6.1K)

Risenbrough, R. (Bodega Bay Institute of
Pollution Ecology)
Analysis of California Sea Lion Tissues
for Residues of DDT and PCB Compounds
and other Chlorinated Hydrocarbons (\$7K)

Stroud, R. K. (Oregon State U.)
Collection and Examination of Marine
Mammals Stranded Along the Oregon Coast (\$6K)

Gentry, R. & J. H. Johnson (Marine Mammal Division)
Fur Seal Ecosystems--St. George Island \$330.2K
1. St. George Island Behavioral Studies
2. St. George Island Subadult Males

McNeely, R. (LaJolla Laboratory)
Porpoise Mortality Reduction \$120K

Perrin, W. F. (LaJolla Laboratory)
Porpoise Biological Studies and Field Programs \$136K

Powers, J. (LaJolla Laboratory)
Porpoise Quantitative Analysis and Data
Management \$179K

Powers, J. (LaJolla Laboratory)
Porpoise Stock Assessment \$ 81K

Roppel, A. Y. et al. (Marine Mammal Division)
Northern Fur Seal--Populations and Monitoring \$290.7K
1. Population Dynamics and Monitoring
2. Physiology and Medicine
3. Pelagic Studies

Tillman, M. F. et al. (Marine Mammal Division)
Cetaceans \$193.7K
1. Humpback Whale (North Pacific)
2. Gray Wahle
3. Killer Whale
4. Bowhead Whale
5. Whale Stock Assessment

2. National Sea Grant Program

Mate, B. R. (Oregon State U.)
An Assessment of Sea Lions in the
Rogue River Area TQ76--\$ 19.8K

3. OCSEAP

(See Department of the Interior, BLM/NOAA/OCSEAP)

FY77

1. National Marine Fisheries Service

a. Northwest and Alaska Fisheries Center

Fiscus, C. H. (Marine Mammal Division)
 Endangered Species \$ 40K
 1. Hawaiian Monk Seal
 2. Northern Elephant Seal
 3. Guadalupe Fur Seal (Contract with
 U. Washington)

Fiscus, C. H. (Marine Mammal Division)
 Pinnipeds \$ 90K
 1. San Miguel Island Pinnipeds,
 principally Northern Fur Seal
 2. US-USSR Marine Mammal Studies

Gentry, R. (Marine Mammal Division)
 Northern Fur Seals: Ecosystem Studies,
 St. George Island \$246K

Harry, G. (Marine Mammal Division)
 Northern Fur Seals: Ecosystem Studies,
 Pelagic \$120K

Harry, G. (Marine Mammal Division)
 Northern Fur Seals: Population and
 Physiology \$262K

Tillman, M. (Marine Mammal Division)
 Cetaceans \$211K
 1. Humpback Whales (North Pacific)
 2. Gray Whale
 3. Killer Whale
 4. Whale Stock Assessment

Tillman, M. (Marine Mammal Division)
 Endangered Cetaceans: Arctic Whales--
 Bowhead \$201K

b. Southwest Fisheries Center

Everett, J. T. (SWFC)
 Porpoise:
 1. Quantitative Analysis \$ 37.6K
 2. Data Management \$152.0K

McNeely, R. (SWFC)		
Porpoise Mortality Reduction Technology		\$299.6K
Perrin, W. F. (SWFC)		
Porpoise Biological Studies		\$138.1K
(Also \$13.7K for Growth and Reproduction of <u>Delphinus</u> in the Eastern Tropical Pacific, C. Hui (Naval Ocean Systems Center)		
Powers, J. E. (SWFC)		
Porpoise Stock Assessment		\$516.5K
2. National Sea Grant Program		
Mate, B. R. (Oregon State U.)		
An Assessment of Sea Lions in the Rogue River Area		\$ 25.8K
3. OCSEAP		
(See Department of the Interior, BLM/NOAA/OCSEAP)		

FY78

1. National Marine Fisheries Service		
a. Northwest and Alaska Fisheries Center		
Fiscus, C. (Marine Mammal Division)		
Endangered Species		\$ 50K
1. Hawaiian Monk Seal		
2. Northern Elephant Seal		
3. Guadalupe Fur Seal		
Fiscus, C. (Marine Mammal Division)		
Pinnipeds (of California, Oregon and Washington)		\$ 93K
Gentry, R. (Marine Mammal Division)		
Northern Fur Seals: Ecosystem Studies, St. George Island		\$260K
Harry, G. (Marine Mammal Division)		
Northern Fur Seals: Ecosystem Studies, Pelagic		\$124K
Harry, G. (Marine Mammal Division)		
Northern Fur Seals: Population and Physiology		\$282K

Tillman, M. (Marine Mammal Division)	
Cetaceans	\$309K
1. Humpback Whales	
2. Gray Whales	
3. Whale Stock Assessment	
Tillman, M. (Marine Mammal Division)	
Endangered Cetaceans: Arctic	
Whales--Bowhead	\$724K
Tillman, M. (Marine Mammal Division)	
Endangered Cetaceans: Dall Porpoise	\$210K
b. Southwest Fisheries Center	
Coe, J. M. and W. E. Stuntz (SWFC)	
Porpoise Mortality Reduction	
1. Technology	\$303.9K
2. Behavior and Physiology	\$183.7K
Perrin, W. F. (SWFC)	
Porpoise Biological Studies	\$220.4K
Powers, J., N. Lo and C. Oliver (SWFC)	
Porpoise:	
1. Quantitative Analysis	\$ 63.3K
2. Data Management	\$255.4K
Powers, J. (SWFC)	
Porpoise Stock Assessment	\$524.5K
2. National Sea Grant College Program	
Mate, B. R. (Oregon State U.)	
An Assessment of Sea Lions in the Rogue	
River Area	\$ 26.7K
Mate, B. R. (Oregon State U.)	
Population Growth and Feeding Habits of	
Harbor Seals in an Aquacultural-Enhanced	
Environment	\$ 23K
3. OCSEAP	
(See Department of the Interior, BLM/NOAA/OCSEAP)	

FY79

I. National Marine Fisheries Service

a. Northwest and Alaska Fisheries Center (NWAFC)

Braham, H. (NWAFC)

Arctic Whales--Bowhead (88C5A2) \$871.1K

(Old Dartmouth Soc.)

Bowhead Whale (\$65K)

(OAS)

Bowhead Aerial Survey (\$17K)

(U. Washington)

Bowhead Computer Svcs (\$28K)

Taber (U. Washington)

Harbor Seals (\$8.7K)

(Naval Arctic Research)

Billeting, Mess & Logistic Support (\$131K)

(Cambell Boat Captains)

Biol. Samples--Bowhead (\$6.4K)

(Evergreen State College)

Bowhead Blubber Analysis (\$2.7K)

(Portland State U.)

Bowhead Stock Evaluation (\$4.8K)

(Alaska Eskimo Whaling Comm.)

Collect Samples--Bowhead (\$26K)

(OAS)

Aerial Survey--Bowhead (\$44.3K)

(Scripps Inst.)

Eye Lens Analysis (\$2.1K)

Paul Macy

Bowhead Bibliography (\$3K)

Rice, D. (NWAFC)

Endangered Cetaceans (88C5A3; 78C5A3) \$264K

(U. California)

Gray Wahles (\$8K)

(San Diego Nat. His.)

Gray Wahles (\$1.5K)

(Moclips Cetalogical Society)
Killer Whales (\$3K)

Mate, B. (Oregon State U.)
Sperm Whales (\$3.5K)

(U. Washington)
Gray Whales (\$16.2K)

(Easy Rider)
Vessel--Humpback Whales (\$15K)

(U. Texas)
Dall's Propoise (\$6.9K)

(U. Washington)
Cetacean Computer Svcs (\$15K)

Fiscus, C. and R. L. DeLong (NWAFC) \$ 51.0K
Endangered Species--Seals (88C5A1)

(Bodega Bay)
Monk Seals (\$1.5K)

(U. Hawaii)
Monk Seals (\$1.5K)

(Naval Ocean Systems)
Northern Elephant Seals (\$4.1K)

(Point Defiance)
Harbor Seals (\$5.4)

Kooyman (Scripps Inst.)
Seals (\$8K)

Ainley (Point Reyes)
Harbor Seals, Sea Lions,
Northern Fur Seals and
Cetaceans (\$3K)

Fiscus, C. and R. L. DeLong (NWAFC) \$138.2K
Pinnipeds (88C4A4)

(U. Washington)
Pinniped Computer Svc (\$1K)

(Washington State Fish and Game)
Harbor Seals (\$6.1K)

Harold A. Rice
Sea Lion Survey (\$82.5K)

Gentry, R. L. (NWAFC)	
Fur Seal Studies--St. George Island (88C4A1)	\$269.3K
(Utah State U.)	
Northern Fur Seal (\$14.6K)	
(Marine Animal Resource Center)	
Northern Fur Seal (\$17.5K)	
(U. Washington)	
Northern Fur Seal Computer Svc. (\$1K)	
Gallucci (U. Washington)	
Northern Fur Seal (\$9.3K)	
Keyes, M. C. (NWAFC)	
Veterinary Medical Services and Research (88C6A2)	\$ 58.9K
McAlister, W. B. (NWAFC)	
Marine Mammal Ecosystem Studies (88C4A5; 88C6A3)	\$204.3K
(U. Washington)	
Northern Fur Seal Computer Svc. (30K; \$22K; \$9K)	
Roppel, A. Y. (NWAFC)	
Northern Fur Seal Population and Monitoring (88C6A1)	\$225.9K
b. Southeast Fisheries Center (SEFC)	
Berry, F. (SEFC)	
Marine Mammals--Tursiops (88C4L1)	\$180.8K
Leatherwood, S. (Hubbs Sea World)	
<u>Tursiops Population Analysis</u> (\$105.3K)	
Odell-Asper (Hubbs Sea World)	
<u>Tursiops Local Herd Biodynamics</u> (\$71.5K)	
c. Southwest Fisheries Center (SWFC)	
Coe, J. and W. Shuntz (SWFC)	
Marine Mammal Technology, Behavior and Physiology (88C4H2)	\$512.9K
Oliver, G. (SWFC)	
Porpoise: Quantitative Analysis and Data Management (88C4H5)	\$329.5K

Smith, T. (SWFC)		
Porpoise Stock Assessment (88C4H1)		\$462.7K
Perrin, W., A. Myrick and J. Jennings (SWFC)		
Porpoise Biological Studies (88C4H3)		\$705.3K
Perrin, W. (SWFC)		
Assessment of Coastal Marine Mammals for Management (88C4H6)		\$152.0K
(California Fish and Game)		
Assessment of Conflicts Between Marine Mammals and Fisheries in California Waters (\$70K) [Additional \$68K funded by Southwest Region of NMFS]		
(LA Co. Mns.)		
Baseline Life History, <u>Tursiops</u> (\$9K)		
(Hubbs/Sea World)		
Baseline Life History, <u>Lagenorhynchus</u> (\$14K)		
2. National Sea College Program		
Mate, B. R. (Oregon State U.)		
An Assessment of Sea Lions in the Rogue River Area		\$ 15.5K
Population Growth and Feeding Habits of Harbor Seals in an Aquacultural-Enhanced Environment		\$ 52.5K
3. OCSEAP		
(See Department of the Interior, BLM/NOAA/OCSEAP)		

Department of DefenseFY70

1. Naval Undersea Center and Other Units

Dierks, K. J. (Texas U.)
 Porpoise Sonar Simulation Data Analysis

Evans, W. E. (NUC)
 Open Ocean Cetacean Ecology

Johnson, C. S. (NUC)
 Electronic Models of the Porpoise Sonar System

Ridgway, S. H. (NUC)
 Neural Control Mechanisms

Schefer, M. H. (Naval Missile Center)
 Marine Biology Facility for Naval Applications

2. Office of Naval Research

Hays, E. E. & W. E. Schevill (Woods Hole Oceanographic Institute)
 Ambient Noise

Oliver, J. A. (American Museum of Natural History)
 Field Studies of the Tropical Ecology of the Bahamas

Papermaster, B. W. (U. California, Berkeley)
 Marine Immunochemistry

FY71

1. Air Force

Bullock T. H. (U. California, LaJolla)
 Biological Sensors of Electricity and Sound:
 Neural Processing of Sensory Input

2. Naval Undersea Center and other units

Evans, W. E. (NUC)
 Study of Marine Mammal Populations to Assist
 in Discrimination of false Sonar Targets

Johnson, C. S. (NUC)
 Porpoise Sonar Simulation: An Approach to
 Improved Small Object Detection Sonar

Ridgway, S. H. (NUC)
Neural Control Mechanisms

3. Office of Naval Research

Baldwin, H. A. (Sensory Systems Lab)
Navy Environment--Factors in Prediction of Naval
ASW Operating Conditions--Telemetry Investigations
of Low Frequency Acoustic Sensitivity

Caldwell, D. K. (Marineland Research Lab)
Navy Environment--Biological Sources of Ambient
Sea Noise--Analysis of Sonic Emmission of
Cetaceans (Porpoises)

Gilbert, P. W. (Mote Marine Laboratory)
Navy Environment--Naval Swimmer/Diver Protection--
Shark Behavioral Studies

Johnston, D. G. & S. H. Ridgway (St. Johns Hospital)
Navy Environment--Response of Marine Mammals to
Human Pathogens

Norris, K. S. & D. Malins (Oceanic Institute)
Navy Environment--Field Studies of Marine Mammals

Ridgway, S. H. & J. G. Simpson (NUC)
Navy Environment--Diseases of Marine Mammals of
Interest to the Navy

Schevill, W. E. (Woods Hole Oceanographic Institute)
Navy Environment--Biological of Ambient Sea Noise--
Bioacoustic Behavior and Distribution of Cetaceans
(Whales)

Siegel, M. M. (Variety Childrens' Research Foundation)
Navy Environment--Diseases of Experimental Marine
Mammals

Winn, H. E. (Rhode Island U.)
Navy Environment--Biological Sources of Ambient Sea
Noise--Bioacoustics, Behavior and Sensory Capabilities
of Fishes and Cetaceans

FY72

1. Naval Undersea Center and other units

Evans, W. E. (NUC)
Study of Marine Mammal Population to Assist
in Discrimination of False Sonar Targets

Johnson, C. S. (NUC)
 Porpoise Sonar Capabilities: An Approach to
 Improved Small Object Detection Sonar

Ridgway, S. H. & J. L. Mattsson (NUC)
 Sound Processing Mechanism of Marine Mammals
 for Sonar and ASW Studies

2. Office of Naval Research

Aron, W. I. & R. Brownell (Smithsonian Institution)
 Navy Environment--Underwater Sources of Ambient
 Sea Noise--Behavioral and Acoustic Studies of
 Cetaceans (Porpoises)

Bullock, T. H. (U. California, San Diego)
 Navy Environment--Swimmer/Diver Support--
 Marine Mammal Capabilities

Caldwell, D. K. (Marineland Research Laboratory)
 Navy Environment--Biological Sources of Ambient
 Sea Noise--Analysis of Sonic Emission of
 Cetaceans (Porpoises)

Gilbert, P. W. (Mote Marine Laboratory)
 Navy Environment--Naval Swimmer/Diver Protection--
 Shark Behavioral Studies

Johnston, D. G. (St. Johns Hospital)
 Navy Environment--Response of Marine Mammals
 to Human Pathogens

Norris, K. S. & D. Malins (Oceanic Institute)
 Navy Environment--Field Studies of Marine Mammals

Ray, C. (Johns Hopkins U.)
 Navy Environment--Swimmer/Diver Support--Marine
 Mammal Acoustic Orientation Capabilities

Ridgway, S. H. & W. G. Gilmartin (NUC)
 Marine Animal Diseases

Schevill, W. E. (Wood Hole Oceanic Institute)
 Navy Environment--Biological Sources of Ambient
 Sea Noise--Bioacoustic Behavior and Distribution
 of Cetaceans (Whales)

Schusterman, R. J. (Stanford Research Institute)
 Navy Environment--Swimmer/Diver Support--Marine
 Mammal Visual/Acoustic Capabilities

Sigel, M. M. (U. Miami)
Navy Environment--Diseases of Experimental Marine Mammals

Weaver, E. G. (Princeton U.)
Communications--Sound Conduction in the Ear Affecting Military Communications

Winn, H. E. (U. Rhode Island)
Navy Environment--Biological Sources of Ambient Sea Noise--Bioacoustic Behavior and Sensory Capabilities of Fishes and Cetaceans

FY73

1. Naval Undersea Center and Other Units

Evans, W. E. (NUC)
Study of Marine Mammal Populations to Assist in Evaluation of Effect on ASW and Assessment of Supply and Animals for Systems Concepts

Mattsson, J. R. & R. L. Seeley (NUC)
Radiotelemetry of Clinical Data from Marine Mammals

Ridgway, S. H. (NUC)
Electrophysiology of Dolphin Cortex

White, C. T. & C. S. Johnson (Electronics Laboratory Center)
Bioelectronic Study of Marine Mammals

2. Office of Naval Research

Bullock, T. H. (U. California, San Diego)
Navy Environment--Swimmer/Diver Support--Sensory Capabilities of Marine Vertebrates

Caldwell, D. K. (Marineland Research Laboratory)
Navy Environment--Biological Sources of Ambient Sea Noise--Analysis of Sonic Emissions of Cetaceans (Porpoises)

Evans, C. (NUC)
Navy Environment--Biological Sources of Sea Noise--Studies of Cetacean Bioacoustics System

Malins, D. C. (Seattle U.)
Navy Environment--The Biochemistry of Lipids Peculiar to the Organs and Tissues of Cetaceans Involved in Sound Transmission as in Echolocation

- Marx, W. (U. Southern California)
Navy Environment--Metabolic Aspects of Food and Oxygen Utilization in Diving as Performed by Aquatic Mammals
- Niskin, S. J. & H. Frohlich (U. Miami)
Navy Environment--Design and Development of Oceanographic Instrumentation
- Norris, K. S. & D. Malins (U. California, Santa Cruz)
Navy Environment--Biological Sources of Ambient Sea Noise--Studies of Cetacean Behavior and Bioacoustic System (Porpoises)
- Ray, C. (Johns Hopkins U.)
Navy Environment--Swimmer/Diver Support--Marine Mammal Acoustic Orientation Capabilities
- Ridgway, S. H. & W. G. Gilmartin (NUC)
Marine Mammal Bionosis
- Schevill, W. E. (Woods Hole Oceanographic Institute)
Navy Environment--Biological Sources of Ambient Sea Noise--Bioacoustic Behavior and Distribution of Cetaceans (Whales)
- Schusterman, R. J. (California State U., Hayward)
Navy Environment--Swimmer/Diver Support--Marine Mammal Visual/Acoustic Capabilities
- Siegel, M. M. (U. Miami)
Navy Environment--Diseases of Experimental Marine Mammals
- Winn, H. E. (U. Rhode Island)
Navy Environment--Biological Sources of Ambient Sea Noise--Bioacoustic Behavior and Sensory Capabilities of Fishes and Cetaceans (Whales)

FY74

1. Naval Undersea Center

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| Au, W. W. L. (NUC)
Bioacoustic Capabilities of Marine Mammals | \$ 50K |
| Au, W. W. L. (NUC)
Dolphin Range Resolution | \$ 54K |
| Evans, W. E. (NUC)
Pacific Pilot Whale Studies | \$ 10K |

Fish, J. F. (NUC)	
Acoustics Research on Tuna/Porpoise Problem	\$ 11K
Gilmartin, W. G. (NUC)	
Antibiotic Administration Techniques in Marine Mammals	\$ 56K
Gilmartin, W. C. (NUC)	
Vaccines for Porpoises and Sea Lions	\$ 37K
Pepper, R. L. (NUC)	
Determinants of Dolphin Motivation	\$ 28K
Pepper, R. L. (NUC)	
Directional Hearing of Sea Lions	\$ 5K
Pepper, R. L. (NUC)	
Marine Mammal Behavior	\$ 56K
Ridgway, S. H. (NUC)	
Differential Diagnosis Laboratory Capabilities	\$ 45K
Ridgway, S. H. (NUC)	
Electrophysiology of Dolphin Cortex	\$ 30K
Ridgway, S. H. (NUC)	
Reproduction Cycle of Bottlenose Dolphins	\$ 49K
Ridgway, S. H. (NUC)	
Marine Mammal Hearing Screening	\$ 53K
Ridgway, S. H. (NUC)	
Marine Mammal Husbandry and Maintenance	\$100K
Seeley, R. L. (NUC)	
Radio-telemetry of Clinical Data from Marine Mammals	\$ 30K
Sweeney, J. C. (NUC)	
Open Ocean Diseases of Stranded Animals	\$ 44K
2. Office of Naval Research	
Evans, E. C. (NUC)	
Biological Sources of Sea Noise: Studies of Cetacean Bioacoustics	\$ 30K
Marx, W. (U. Southern California, Los Angeles)	
Metabolic Aspects of Food and Oxygen Utilization in Diving as Performed by Aquatic Mammals	\$ 3.4K

Norris, K. S. & T. P. Dohl (U. California, Santa Cruz) Studies of a Wild Porpoise School, <u>Stenella longirostris</u>	\$ 15K
Popper, A. N. (U. Hawaii) Minimum Auditory Angle	\$ 30K
Ray, G. C. & D. Wartzok (John Hopkins U.) Telemetry and Acoustics of Pinnipeds	\$ 50K
Ridgway, S. H. (NUC) Marine Mammal Bionosis	\$ 20K
Schevill, W. E. & W. A. Watkins (Woods Hole Oceanographic Institute) Oceanic Biology (Ambient Noise, Cetological)	\$ 87K
Schusterman, R. J. (California State U., Hayward) Mammal Underwater Acoustics	\$ 35K
Smith, A. W., T. G. Akers, & N. A. Vedros (Naval Biomedical Research, Berkeley) Etiology of Marine Zoonoses	\$100K
Winn, H. E. (U. Rhode Island) Marine Bioacoustics and Bio-orientation	\$ 88K

FY75

1. Naval Undersea Center

Beleau, M. H. (NUC) Preventive Medicine and Therapy of Marine Mammals	\$ 43K
Evans, W. E. & S. H. Ridgway (NUC) Sonar Pulse Sources: Study of Structure and Function	
Pepper, R. L. (NUC) Marine Mammal Behavior	\$ 37.5K
Pepper, R. L. (NUC) Nutrition Support Studies	\$ 37.5K
Ridgway, S. H. (NUC) Electrophysiology of the Dolphin Cortex	\$ 60K
Ridgway, S. H. (NUC) Reproductive Capabilities of Bottlenose Dolphin	\$ 40K

Ridgway, S. H. & R. L. Pepper (NUC)	
Screening Techniques for Marine Mammals	\$ 80K
Scronce, V. L. (NUC)	
Gray Seal Capabilities	\$ 90K
Sweeney, J. C. (NUC)	
Open Ocean Diseases of Stranded Animals	\$ 37K
2. Office of Naval Research	
Beleau, M. H. (NUC)	
Marine Mammal Bionosis	\$ 20K
Norris, K. S. (U. California, Santa Cruz)	
Research on Behavioral Patterns and Acoustic Emissions of Porpoises	\$ 23K
Ray, G. C. & D. Wartzok (John Hopkins U.)	
Telemetry and Acoustics of Pinnipeds	\$ 50K
Schevill, W. E. & W. A. Watkins (WHOI)	
Oceanic Biology (Ambient Noise, Cetological)	\$ 90K
Schusterman, R. J. (Calif. State U., Hayward)	
Mammal Underwater Acoustics	\$ 35K
Winn, H. E. (U. Rhode Island)	
Marine Bioacoustics and Bio-orientation	\$ 52K

FY76 and TQ76

1. Naval Undersea Center	
Evans, W. E. & V. Gurevich (NUC)	
Beluga Whale Capabilities	\$ 20K
Evans, W. E. & S. H. Ridgway (NUC)	
Sonar Pulse Sources: A Study of Structures and Function (Tursiops)	\$ 13K
Gilmartin, W. G. & G. S. Cosgrove (NUC)	
Marine Mammal Preventive Maintenance and Therapy	\$ 98K
Pepper, R. L. (NUC)	
Marine Mammal Behavioral Studies (Tursiops)	\$ 60K
Ridgway, S. H. (NUC)	
Reproductive Capabilities of Bottlenose Dolphins	\$ 60K

Ridgway, S. H. & W. E. Evans (NUC)
 Living Sensor and Neural Processing
 Technology

Scronce, B. L. (NUC)
 Gray Seal Capabilities \$110K

Sweeney, J. C. (NUC)
 Open Ocean Diseases of Stranded Marine Mammals

2. Office of Naval Research

Evans, W. E. (NUC)
 Cetacean Radiotelemetry
 FY76--\$ 39.8K
 TQ76--\$ 9.3K

Ray, G. C. (Johns Hopkins U.)
 Navy Environment: Swimmer/Diver Support
 and Acoustic Interference: Marine Mammal
 Acoustic and Behavioral Capabilities \$ 50K

Ridgway, S. H. (NUC)
 Marine Mammal Bionoses \$ 20K

Schusterman, R. J. (California State College,
 Hayward)
 Marine Mammal Visual and Acoustic
 Behavioral Capabilities \$ 37K

Schevill, W. E. & W. A. Watkins (Woods Hole
 Oceanographic Institution)
 Biological Ambient Sea Noise, Bioacoustic
 Behavior, and Distribution of Cetaceans
 (Whales) \$ 61K

Winn, H. K. (U. Rhode Island)
 Navy Environment: Biological Sources
 of Ambient Sea Noise: Bioacoustic Behavior
 and Sensory Capabilities of Marine Mammals \$ 43K

FY77

1. Naval Ocean Systems Center (formerly NUC)

Beleau, M. H. (NOSC)
 Prepared Ration Development \$ 15K

Gilmartin, W. G. (NOSC)
 Automated Training by Electronically-
 Generated Tones \$ 74K

Biorhythms in Captive <u>Tursiops</u>	\$ 25K
Captive Breeding (<u>Tursiops</u>): Artificial Insemination Techniques	\$ 40K
Fur Seal Conditioning and Echolocation Assessment	\$ 70K
Marine Mammal Preventive Medicine & Therapy	\$ 55K
Trainability Assessment Test (Pinnipeds)	\$ 80K
Ljungblad, D. K. (NOSC) Comparison Hearing Threshold Techniques: Behavioral Verses Physiological	\$ 60K
Nachtigall, P. E. (NOSC) <u>Tursiops</u> Behavioral Study: In-air Matching-to-Sample	\$ 75K
<u>Tursiops</u> Fish/Ration Motivation Study	\$ 75K
Ridgway, S. H. (NOSC) Acoustic Neural Processes (<u>Tursiops</u>)	\$ 55K
Ridgway, S. H. (Hubbs-Sea World Research Institute) Beluga Trainability and Hearing Thresholds	\$ 10K
Scronce, B. L. (NOSC) Gray Seal Capabilities	\$ 10K
Turl, C. W. (NOSC) Active Sonar for Sea Lions	\$ 74K
2. Office of Naval Research	
Evans, W. (Hubbs-Sea World Research Institute) Radio Tracking of Cetaceans Using Telemetry Techniques	\$ 60K
Gilmartin, W. G. (NOSC) Marine Mammal Bionosis	\$ 20K
Ray, G. C. and D. Wartzok (John Hopkins U.) Telemetry and Acoustics of Pinnipeds	\$ 40K
Shusterman, R. J. (California State U.--Hayward) Mammal Underwater Acoustics	\$ 47K
Vedros, N. A. (Naval Biosciences Laboratory) Host Parasite Interaction with Mammals in a Marine Environment	\$ 60K

Watkins, W. A. & W. E. Schevill (Woods Hole
Oceanographic Institution)
Marine Biological Sounds \$142K

Winn, H. E. (U. Rhode Island)
Bioacoustics and Behavior of Marine Mammals \$ 45K

FY78

1. Naval Ocean Systems Center

Gilmartin, W. G. (NOSC)
Trainability Assessment Test (pinnipeds) \$ 21K

(Hubbs-Sea World Research Institute)
Beluga Hearing Thresholds \$ 12K

(Hubbs-Sea World Research Institute)
Beluga Temperature Limitations \$ 13K

Fur Seal Ecolocation Assessment \$ 11K

Pacific Tursiops Hearing Thresholds \$ 18K

Fur Seal Deep Dive Evaluation \$ 85K

Marine Mammal Bionosis \$ 37K

Health Screening Techniques (pinnipeds) \$ 10K

Captive Dolphin Breeding \$ 18K

Dolphin Immunology (Erysipelas) \$ 20K

Leatherwood, S. J. (NOSC) \$ 48K
Purse Seine Acoustic Environment

Ljungblad, D. K. (NOSC)
Comparison Learning Threshold Techniques:
Behavioral vs. Physiological (Tursiops) \$ 20K

Ridgway, S. H. (NOSC)
Acoustic Neural Processes (Tursiops) \$ 60K

Gray Seal Echolocation Assessment \$ 30K

Vitamin A Metabolism in Dolphins \$ 7K

Porpoise Health Assessment by Sound
Production \$ 25K

Turl, C. W. (NOSC)	
Active Sonar for Sea Lions	\$110K
2. Office of Naval Research	
Cummings, W. (San Diego Museum of Natural History)	
Analysis of Low Frequency Whale Sounds	\$ 26K
Gilmartin, W. G. (NOSC)	
Marine Mammal Bionosis	\$ 20K
Ray, G. C. and D. Wartzok (John Hopkins U.)	
Telemetry and Acoustics of Pinnipeds	\$ 58K
Shusterman, R. J. (California State U., Hayward)	
Mammal Underwater Acoustics	\$ 52K
Watkins, W. A. and W. E. Schevill (Woods Hole Oceanographic Institute)	
Marine Biological Sounds	\$133K
Winn, H. E. (U. Rhode Island)	
Bioacoustics and Behavior of Marine Mammals	\$ 46K
Vedros, N. A. (Naval Biosciences Lab, Oakland)	
Host Parasite Interactions with Mammals in a Marine Environment	\$ 95K

FY79

1. Department of the Air Force	
Jehl, J. R. and C. Cooper (San Diego State U./ Hubbs Sea World Research Inst.)	
Baseline Study of Current Sources of Behavioral Perturbation	\$ 40K
2. Department of the Army	
Bengtson, J. L. (U. Minnesota)	
St. Johns River Manatee Study	\$ 44K
3. Department of the Navy	
a. Naval Ocean Systems Center	
Flanigan, W. F. (NOSC)	
Chemoreception in the Bottlenose Dolphin, A First Look	

Gilmartin, W. G. (NOSC)		
Captive Dolphin Breeding		\$ 85K
Marine Mammal Preventive Medicine and Therapy		\$ 89K
Hui, C. A. (NOSC)		
Dolphin Bioenergetics		\$ 63K
Nachtigall, P. E. and A. E. Murchison (NOSC)		
Dolphin Behavioral Studies		\$234K
Ridgway, S. H. (NOSC)		
Signal Processing in Dolphins: Waveform and Time Separation Features		\$ 65K
Obtaining Healthy Marine Mammals (Medical Screening)		\$ 58K
Stress Reduction in Marine Mammals		\$ 35K
Scronce, B. L. (NOSC)		
Fur Seal Capabilities		\$ 88K
b. Naval Research Laboratory, Underwater Sound Reference Detachment		
Poché, L. B. (NRL)		
Measurement of Echolocation Clicks of Free-Swimming Dolphins		\$ 20K
c. Office of Naval Research		
Albert, T. A. and P. L. Edds (U. of Maryland)		
Vocalization Study of <u>Balaenoptera</u>		\$ 12.4K
Altes, R. (Orincon Corp., LaJolla)		
Computer and Mathematical Analysis of Dolphin Whistles		\$ 6K
Cummings, W. C. (U. California, Scripps Inst. of Oceanography)		
Analysis of Low Frequency Cetacean Sounds		\$ 35K
Evans, W. (Hubbs Sea World Research Inst.)		
Radio Tracking of Cetaceans Using Telemetric Techniques		\$ 13K
Gilmartin, W. G. and S. H. Ridgway (NOSC)		
Marine Mammal Bionosis		\$ 30K

Hodgson, E. S. and R. Mathewson (Tufts U.) Facilities Evaluation for Research on Chemical Senses of Marine Mammals	-0-
Ray, G. C. and D. Wartzok (Johns Hopkins U.) Telemetry and Acoustics of Pinnipeds	\$ 54K
Schusterman, R. J. (California State U., Hayward) Mammal Underwater Acoustics	\$ 64K
Vedros, N. A. (Naval Biosciences Lab.) Marine Mammal Diseases and Immunity	\$111K
Watkins, W. A. and W. E. Schevill (Woods Hole Oceanographic Inst.) Marine Biological Sounds	\$165K
Winn, H. E. (U. Rhode Island) Bioacoustic and Behavior of Marine Mammals	\$ 48K

Department of Energy (former Atomic Energy Commission and
Energy Research and Development Administration)

FY70

Baker, B. E. (McGill U.)
Radioactivity, Pesticide Residues, Contents, and
Constitution of Milk of Arctic and Sub-Arctic Species

FY71-FY72

(No projects reported)

FY73

Seymour, A. H. et al. (U. Washington)
Distribution and Effects of Radionuclides in the
Marine Environment and Biota of Amchitka Island
and the Central Pacific Ocean

FY74

(No projects reported)

FY75

Tester, J. R. & Siniff, D. (U. Minnesota)
Vertebrate Behavior and Ecology: Application of
Radiotelemetry Technology to Selected Problems in
Vertebrate Censusing and Population Study \$ 18.3K

FY76

Tester, John R. & D. B. Siniff (U. Minnesota)
Vertebrate Behavior and Ecology (Sea Otter) \$ 28K

FY77

Eberhardt, L. L. (Battelle-Pacific Northwest
Laboratory)
Analysis of Natural Systems \$ 50K

Tester, J. R. and D. B. Siniff (U. Minnesota)
Vertebrate Behavior and Ecology \$ 30K

FY78

Eberhardt, L. L. (Battelle-Pacific Northwest
Laboratory)
Analysis of Natural Systems \$ 50K

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Tester, J. R. and D. B. Siniff (U. Minnesota)
Vertebrate Behavior and Ecology

\$ 30K

FY79

(No projects reported)

Department of Health, Education and WelfareFY70

- Atassi, M. Z. (Wayne State U.)
Immunochemical Studies on Human Hemoglobins
- Freedman, D. X. et al. (U. Chicago)
LSD, Psychotogenic Procedures and Brain Neurohumors
- Jacobs, M. S. (New York Zoological Society)
Neuromorphology of Brain--A comparative Study
- Ludowieg, J. J. (U. California, San Francisco)
Intervertebral Connective Tissue: Composition,
Structure
- Norris, K. S. & G. W. Harvey (UCLA)
Studies of Echolocation Systems
- Robin, E. D. et al. (U. Pittsburgh)
Adaptation to Oxygen Depletion

FY71

- Atassi, M. Z. (Wayne State U.)
Immunochemical Studies on Human Hemoglobins
- Elsner, R. W. (U. California, San Diego)
Circulatory Reactions to Asphyxia
- Hanania, G. I. H. (American U., Beirut)
Heme-Linked Effect of Hemoglobin Reactions
- Jacobs, M. S. (New York Zoological Society)
Neuromorphology of Brain: A Comparative Study
- Kretsinger, R. E. (U. Virginia)
Comparison of Protein Tertiary Structure
- Ludowieg, J. J. (U. California, San Francisco)
Intervertebral Connective Tissue Composition
- Norris, K. S. (U. California, Los Angeles)
Studies of Echolocation Systems
- Robin, E. D. (Stanford U.)
Adaptations to Oxygen Depletion
- Wurtman, R. J. (Massachusetts Institute of Technology)
Sympathetic Nervous and Neuroendocrine Rhythm

FY72

- Attassi, N. Z. et al. (Wayne State U.)
Immunochemical Studies Hemoglobins
- Caldwell, D. K., H. Hollien & M. C. Caldwell (U. Florida)
Studies of Communication
- Elsner, R. W., D. D. Hammond & B. A. Gooden (U. California,
San Diego)
Circulatory Reactions to Asphyxia
- Gurd, F. R., P. Kein & R. C. Marshall (Indiana U.)
Structure and Reactivity of Proteins and Lipoproteins
- Norris, K. S., G. W. Harvey & T. P. Dohl (U. California,
Los Angeles)
Studies of Echolocation Systems
- Robin, E. D. et al. (Stanford U.)
Adaptations to Oxygen Depletion
- Schwartz, H. C., T. J. Gribble & D. Edmunds (Stanford U.)
Formation of Hemoglobin and other Heme proteins

FY73

- Buhler, D. R. & B. R. Mate (Oregon State U.)
Methylmercury Detoxification in Marine Mammals
- Bullock, T. H. (U. California, San Diego)
Studies in Comparative Neurophysiology
- Chen, R. F. (NIH Lab of Technical Development)
Fluorescent Complexes of Proteins
- Gurd, F. R. & R. C. Marshall (Indiana U.)
Structure and Reactivity of Proteins and Lipoproteins
- Lewis, U. J. et al. (Scripps Clinic Research Foundation)
Conversion Products of Growth Hormone and Prolactin
- Robin, E. D. (Stanford U.)
Adaptations to Oxygen Depletion
- Wick, A. N., R. P. Metzger & J. Guilmette (California
State U., San Diego)
Glucose Metabolism and the Reaction of Insulin
- Wurtman, R. J., H. J. Linch & F. Larin (Massachusetts
Institute of Technology)
Sympathetic Nervous System and Neuroendocrine
Rhythm

FY74

Atassi, M. Z. (Wayne State U.) Immunochemical Studies on Human Hemoglobins	\$ 22.4K
Behrisch, H. M. (U. Alaska) Zoophysiology in Alaska: Hibernation and Enzymes	\$ 13.5K
Bleier, R. (U. Wisconsin, Madison) Cerebral Localization: Neuroanatomical Studies	\$ 72.1K
Buhler, D. R. (Oregon State U.) Methyl Mercury Detoxification in Marine Mammals	\$ 29.3K
Bullock, T. H. (U. California, San Diego) Studies of Comparative Neurophysiology	\$115K
Caldwell, D. K. (U. Florida, Gainesville) Studies of Communication	\$ 38.1K
Gurd, F. R. (Indiana U., Bloomington) Structure and Reactivity of Proteins and Lipoprotein	\$144.3K
Irving, L. (U. Alaska) Zoophysiology in Alaska: Marine Mammals by Coastal Residents	\$ 13.5K
Leith, D. E. (Harvard U.) Program Project in Respiratory Mechanics: Comparative Mammalian Respiratory Mechanics	\$104.1K
Lewis, U. J. (Scripps Clinic and Research Foundation) Primary Structures of Growth Hormones and Prolactins	\$ 20.7K
Miller, K. L. (U. Alaska) Metabolism and Temperature Regulations of Marine Mammals	\$ 13.5K
Miller, K. L. (U. Alaska) Zoophysiology in Alaska: Heterothermous Operations of Nerves	\$ 13.5K
Morrison, P. R. (U. Alaska) Zoophysiology in Alaska: Bioenergetic Aspects of Physiology of the Sea Otter	\$ 13.5K
Parkhurst, L. J. (U. Nebraska, Lincoln) Hemoglobin and Myoglobin Kinetic Studies	\$ 46.3K

Turcotte, J. G. (U. Rhode Island)	
Synthesis and Pharmacology of Renin Inhibitors	\$ 43.1K
West, G. C. (U. Alaska)	
Zoophysiology in Alaska: Utilization of Fat	\$ 13.5K
Wever, E. G. (Princeton U.)	
The Nature of Hearing: Hearing in Mammals	\$ 32K
Wick, A. N. (California State U., San Diego)	
Glucose Metabolism and Action of Insulin	\$ 64.6K
Willis, W. D., Jr. (U. Texas, Galveston)	
Comparative Neurobiology: Neutral Adaptations for Diving in Mammals	\$ 45.2K
Wittenburg, J. B. (Yeshiva U.)	
Hemeprotein Interactions: Models of Sickle Hemoglobin	\$ 58.7K
<u>FY75</u>	
Atassi, M. Z. (Wayne State U.)	
Immunochemical Studies of Hemoglobin and Myoglobin (Whales)	\$ 61.8K
Bartlett, G. R. (Laboratory for Comparative Bio- chemistry, San Diego)	
Red Cell Metabolism	\$ 38K
Behrisch, H. M. (U. Alaska)	
Zoophysiology in Alaska: Hibernation and Enzymes	\$ 27.3K
Bleier, R. (U. Wisconsin, Madison)	
Cerebral Localization: Neuroanatomical Studies	\$ 52.0K
Buhler, D. R. (Oregon State U.)	
Methyl Mercury Detoxification in Marine Mammals (Sea Lions)	\$ 32.5K
Bullock, T. H. (U. California, San Diego)	
Comparative Neurophysiology	\$142.7K
Caldwell, D. K. (U. Florida, Gainesville)	
Studies of Communication (Dolphin)	\$ 38.1K
Cifonelli, J. A. (U. Chicago)	
Biochemistry of Connective Tissues: Structure of Heparin Sulfates and Heparin	\$ 43.7K
Elsner, R. W. (U. Alaska)	
Circulatory Reactions to Asphyxia	\$ 72.2K

Gurd, F. R. (Indiana U., Bloomington) Structure and Reactivity of Proteins and Lipoproteins (Diving Mammals)	\$110.1K
Irving, L. (U. Alaska) Zoophysiology in Alaska: Marine Mammals by Coastal Residents	\$ 27.3K
Kooyman, G. L. (U. California, San Diego) Physiological Basis of Pulmonary Disease: Comparative Anatomy and Physiology of the Lung	\$ 59.7K
Leith, D. E. (Harvard U.) Program Project in Respiratory Mechanics: Comparative Mammalian Respiratory Mechanics	\$109.1K
Lewis U. J. (Scripps Clinic and Research Foundation) Conversion of Growth Hormone and Prolactin	\$ 89.8K
Merrifield, R. B. (Rockefeller U.) Solid Phase Synthesis of Peptides and Proteins	\$125.8K
Miller, K. L. (U. Alaska) Metabolism and Temperature Regulation of Marine Mammals	\$ 27.3K
Miller, K. L. (U. Alaska) Zoophysiology in Alaska: Heterothermous Operations of Nerves (Whales)	\$ 27.3K
Morrison, P.R. (U. Alaska) Zoophysiology in Alaska: Bioenergetic Aspects of Physiology in the Sea Otter	\$ 27.3K
Parkhurst, L. J. (U. Nebraska, Lincoln) Hemoglobin and Myoglobin Kinetic Studies	\$ 48.6K
Schwartz, H. C. (Stanford U.) Extrauterine Growth and Development: Hemoglobin Oxygen Transport (Pinnipeds)	\$ 19.2K
Turcotte, J. G. (U. Rhode Island) Synthesis of Renin Inhibitors and Analog Phosphatides	\$ 39.1K
West, G. C. (U. Alaska) Zoophysiology in Alaska: Utilization of Fat	\$ 27.3K
wever, E. G. (Princeton U.) The Nature of Hearing	\$191.4K
Willis, W. D., Jr. (U. Texas, Galveston) Comparative Neurobiology: Neural Adaptations for Diving in Mammals (Sea Lions)	\$ 32.2K

Wittenberg, J. B. (Yeshiva U.) Hemeprotein Interactions -- Models of Sickle Hemoglobin (Whale)	\$ 54.5K
Wurtman, R. J. (Massachusetts Institute of Technology) Sympathetic Nervous System and Neuroendocrine Rhythms	\$ 49.2K
<u>FY76 and TQ76</u>	
Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (Whales)	\$ 48.3K
Becker, R. R. (Oregon State U.) Toxicology of Environmental Chemicals: Mechanisms for Toxicity of Environmental Contaminants (human, whales)	\$ 24.2K
Buhler, D. R. (Oregon State U.) Toxicology of Environmental Chemicals: Accumulation of Environmental Contaminants in Marine Mammals	\$ 24.2K
Buhler, D. R. (Oregon State U.) Environmental Health Sciences Center: Accumulation of Environmental Contaminants in Marine Mammals	\$ 66.7K
Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology	\$ 65.6K
Elsner, R. W. (U. Alaska) Circulatory Reactions to Asphyxia (dogs, seals)	\$ 78.1K
Fitch, W. M. (U. Wisconsin) Heme Proteins--Structure, Function, Genetics (camel, whale, human)	\$ 41.8K
Gurd, F.R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (chicken, human, diving mammals)	\$112.9K
Kooyman, G. L. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Comparative Anatomy and Physiology of the Lung	\$ 26.5K
Leith, D. E. (Harvard U.) Program Project in Respiratory Mechanics: Comparative Mammalian Respiratory Mechanics	\$ 93.9K

Lewis, U. J. (Scripps Clinic and Research Foundation) Conversion of Growth Hormone and Prolactin	\$ 93.9K
Lewis, U. J. (Scripps Clinic and Research Foundation) Primary Structures of Growth Hormones and Prolactins	\$ 34.1K
Schwartz, H. C. (Stanford U.) Extrauterine Growth and Development: Hemoglobin Oxygen Transport (humans, pinnipeds)	\$ 38.1K
Tinsley, I. J. (Oregon State U.) Environmental Health Sciences Center: Environmental Significance of Organo-Bromine Compounds	\$ 66.7K
Turcotte, J. G. (U. Rhode Island) Synthesis of Renin Inhibitors and Analog Phosphatides	\$ 34.2K
West, G. C. (U. Alaska) Zoophysiology in Alaska: Variation in Fatty Acid and Essential Fatty Acid Composition	\$ 37.6K
Wever, E. G. (Princeton U.) The Nature of Hearing	\$191.7K

FY77

Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (whales)	\$ 50.7K
Becker, R. R. (Oregon State U.) Toxicology of Environmental Chemicals: Mechanisms for Toxicity of Environmental Contaminants (humans, whales)	\$ 27.3K
Buhler, D. B. (Oregon State U.) Toxicology of Environmental Chemicals: Accumulation of Environmental Contaminants in Marine Mammals	\$ 27.3K
Buhler, D. B. (Oregon State U.) Environmental Health Sciences Center: Accumulation of Environmental Contaminants in Marine Mammals	\$ 74.9K

Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology (sharks, rays, seals, porpoises, sloths, etc.)	\$130.3K
Fetterman, G. H. (Children's Hospital, Pittsburgh) Study of Immature Kidneys by Microdissection (human, rats, seal, beaver)	\$ 24.6K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (chicken, human, diving mammals)	\$117.8K
Gurd, F. R. (Indiana U.) Specific Enrichment of Myoglobins for Carbon 13 NMR (Cetacea)	\$ 66.6K
Kooyman, G. L. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Comparative Physiology (harbor seals and California sea lions)	\$ 53.1K
Linker, A (Veterans Administration Hospital, Salt Lake City) Structure and Function of Mucopoly- saccharides (human, seals, snakes)	\$ 43.3K
Schwartz, H. C. (Stanford U.) Extrauterine Growth and Development: Hemoglobin Oxygen Transport (human, pinnipeds)	\$ 35.1K
Tinsley, I. J. (Oregon State U.) Environmental Health Sciences Center: Environmental Significance of Organo- bromine Compounds (marine animals)	\$ 75.9K
West, J. B. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Morphometric Studies of the Lung (harbor seals, California sea lions)	\$ 53.1K
<u>FY78</u>	
Atassi, M. Z. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (whales)	\$ 53K
Becker, R. R. (Oregon State U.) Toxicology of Environmental Chemicals: Mechanisms for Toxicity of Environmental Contaminants (human, whales)	\$ 26.3K
Buhler, D. B. (Oregon State U.) Toxicology of Environmental Chemicals: Accumulation of Environmental Contaminants in Marine Mammals	\$ 26.3K

Buhler, D. B. (Oregon State U.) Environmental Health Sciences Center: Accumulation of Environmental Contaminants in Marine Mammals	\$ 78.5K
Bullock, T. H. (U. California, San Diego) Comparative Neurophysiology (sharks, rays, porpoises, seals, sloths, etc.)	\$134.7K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (diving mammals, human, chicken)	\$123K
Gurd, F. R. (Indiana U.) Specific Enrichment of Myoglobins for Carbon 13 NMR (Cetacea)	\$ 70.3K
Howard, E. B. (U. Southern California) NIEHS Marine/Freshwater Biomedical Center Grant: Toxicologic, Immunologic Effects of Environmental Contaminants (Marine mammals)	\$ 13.3K
Kooyman, G. L. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Comparative Physiology (diving mammals)	\$ 62.7K
Linker, A. (Veterans Administration Hospital, Salt Lake City) Structure and Function of Mucopoly- saccharides (human, seals, snakes)	\$ 42.7K
Tinsley, I. J. (Oregon State U.) Environmental Health Science Center: Environmental Significance of Organo-bromine Compounds (marine animals)	\$ 78.5K
West, J. B. (U. California, LaJolla) Physiological Basis of Pulmonary Disease: Morphometric Studies of the Lung (diving mammals)	\$ 62.7K

FY79

Atassi, M. A. (Mayo Medical School) Immunochemical Studies on Hemoglobin and Myoglobin (whales)	-0-
Benirschke, K. (Zoological Soc. San Diego) Biomedical Research Development Grant (Viral Diseases and breeding in marine mammals)	\$100K
Berzofsky, J. A. (NCI, NIH) Genetic Control of the Immune Response to Natural Antigens (sperm whale myoglobin)	

Elsner, R. W. (U. Alaska) Comparative Pathophysiology of Myocardial Ischemia (dog, seal)	\$ 76.6K
Gurd, F. R. (Indiana U.) Proteins, Lipoproteins--Structure and Reactivity (chicken, human, diving mammal)	\$128.6K
Specific Enrichment of Myoglobins for Carbon 13 NMR (Cetacea)	\$ 74.1K
Howard, E. B. (U. Southern California) Marine Mammal Disease Surveillance Program	\$ 13.5K
Kooyman, G. L. (U. California, San Diego) Physiological Basis of Pulmonary Disease: Comparative Physiology (seal)	

Department of the InteriorFY70

Burns, J. J. (Alaska Department of Fish and Game)
Marine Environment Study

Repenning, C. A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast

FY71

Repenning, C. A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast

FY72

Repenning, C. A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast

FY73

1. Fish and Wildlife Service

Burns, J. J. (Alaska Department of Fish and Game)
The Biology and Ecology of Ice Inhabiting Spotted Seals

Hartman, D. S. (Manatee Research Project)
A Study of the Current Status of the Manatee in
Florida with Recommendations for its Conservation

Lentfer, J. W. (Alaska Department of Fish and Game)
Polar Bear Distribution and Movements

Lentfer, J. W. (Alaska Department of Fish and Game)
Polar Bear Age Determination Technique

Lentfer, J. W. (Alaska Department of Fish and Game)
Polar Bear Reproduction and Denning

Lentfer, J. W. (Alaska Department of Fish and Game)
Environmental Contaminants and Parasite in Polar
Bears of the Western Arctic

Schneider, K. (Alaska Department of Fish and Game)
Reproduction in the Female Sea Otter

Schneider, K. (Alaska Department of Fish and Game)
Age Determination of Sea Otters

Schneider, K. (Alaska Department of Fish and Game)
Sex and Age Segregation of Sea Otters

2. Geological Survey

Repenning, C. A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast

\$ 37.9K

FY74

1. Fish and Wildlife Service (Total Funding \$706K)

Johnson, Ancel

Intensive Studies of the Sea Otters and Other
Marine Mammals in Prince William Sound, Alaska

Studies of Recently Established Sea Otter
Populations

Aerial Surveys of Pacific Walrus

Surveys of Walrus Harvests

Cooperative Survey of Sea Otters

Jones, Clyde

Population Surveys of the Dugong

Population Surveys of Manatees

Status Reports on Marine Mammals

Studies and Salvaging of Stranded Marine Mammals

Environmental Pollutants in Marine Mammals

Lentfer, Jack

The Biology of Polar Bears of the Chukchi Sea

Alaska Coastal Denning Surveys of the Polar Bear

Polar Bears of the Pack Ice of the Arctic Ocean

Summer Distribution and Ecology of Polar Bears

Analysis of Discreteness and Populations of
Polar Bears

2. Geological Survey

Repenning, C. A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast \$ 55.8K

3. National Park Service

Streveler, G. P. (Glacier Bay National Monument)
Harbor Seal Studies,
Glacier Bay \$ 6K

FY75

1. Bureau of Land Management

Norris, K.S. (U. California, Santa Cruz)
Marine Mammal Baseline Study of Southern
California Bight \$652K

2. BLM/NOAA/OCSEAP

Burns, J. J., F. H. Fay & L. H. Shapiro
(Alaska Department of Fish and Game)
The Relationships of Marine Mammal
Distributions, Densities and Activities
to Sea Ice Conditions--Bering and Beaufort
Seas \$ 20.8K

Fay, F. H. (U. Alaska)
Morbidity and Mortality of Marine Mammals--
Bering Sea \$ 7.4K

Fiscus, C. H. & A. Y. Roppel (NMFS/NWFC)
Baseline Characterization of Marine Mammals \$ 26.5K

3. Fish and Wildlife Service

Walrus and Sea Otter \$250K
Polar Bear \$250K
Sirenia \$100K
Pesticide & Heavy Metal
Analysis \$ 75k

Campbell, Howard
Population Surveys of Manatees

Johnson, Ancel
Intensive Studies of the Sea Otters and other
Marine Mammals in Prince William Sound, Alaska

Studies of Recently Established Sea Otter Populations

Aerial Surveys of Pacific Walrus

Walrus Biology and Harvest

Behavioral and Biological Studies of the
Hawaiian Monk Seal

Jones, Clyde

Population Surveys of the Dugong

The Status of Marine Mammals

Studies on Environmental Pollutants in Marine
Mammals

Survey of Pesticide and Heavy Metal Residues
in Marine Mammals

Lentfer, Jack

The Biology of Polar Bears of the Chukchi Seas

Alaska Coastal Denning Surveys of the Polar Bear

Polar Bears of the Pack Ice of the Arctic Ocean

Summer Distribution and Ecology of Polar Bears

Analysis of Discreteness of Populations of Polar Bears

Radio Tracking of Polar Bears

Wilson, Don

Taxonomic Status of Alaska Polar Bear Populations

Section 110 Grants under Marine Mammal Protection Act

Alaska Department of Fish and Game
Alaska Walrus Studies

\$ 40K

Odell, K. K. (U. Miami)
Biology of the Manatee

\$ 1.5K

Age Determination--Manatee

\$ 17.7K

4. Geological Survey

Repenning, C.A. (Geological Survey)
Cenozoic Vertebrates, Pacific Coast

\$ 55.5K

5. National Park Service

Streveler, G. P. (Glacier Bay National Monument)
Harbor Seal Studies, Glacier Bay \$ 6K

FY76 and TQ76

1. Bureau of Land Management

Estes, J. A. (Fish and Wildlife Service)
Behavior and Reproduction of the
Pacific Walrus

Estes, J. A. (Fish and Wildlife Service)
Distribution of the Pacific Walrus

Katona, S. & H. Winn (Center for Natural Areas)
A Summary and Analysis of Environmental
Information on the Continental Shelf from
the Bay of Fundy to Cape Hatteras. Marine
Mammal Subtotal \$ 10K

Norris, K. S. et al. (U. of California)
Marine Mammal-Seabird Baseline Study of
the Southern California Bight. Marine
Mammal Subtotal \$1,029K

2. BLM/NOAA/OCSEAP

Burns, J. J. (Alaska Department of Fish and Game)
An Aerial Census of Spotted Seals, Phoca
vitulina largha \$ 18K

Burns, J. J. (Alaska DF&G)
Tropic Relationships Among Ice-
inhibiting Phocid Seals \$ 60K

Burns, J. J. & T. J. Eley (Alaska DF&G)
The Natural History and Ecology of the
Bearded Seal, Erignathus barbatus, and the
Ringed Seal, Phoca (Pusa) hispida FY76--\$106K
TQ76--\$ 30K

Burns, J. J., F. H. Fay, & L. H. Shapiro
(Alaska DF&G and U. Alaska)
The Relationships of Marine Mammal Distri-
butions, Densities, and Activities to Sea
Ice Conditions \$109.6K

Fay, F. H. (U. Alaska)
Morbidity and Mortality of Marine Mammals \$ 83.8K

Fiscus, C. H. & G. Y. Harry (NOAA/NMFS) Abundance and Seasonal Distribution of Marine Mammals in the Gulf of Alaska	\$ 56.6K
Fiscus, C. H. & W. B. McAlister (NOAA/NMFS) Abundance and Seasonal Distribution of Bowhead and Belukha Whales in the Bering Sea	\$ 38.3K
Fiscus, C. H. & A. Y. Roppel (NOAA/NMFS) Baseline Characterization of Marine Mammals (Bering Sea)	\$ 81.7K
Gentry, R. L. & W. B. McAlister (NOAA/NMFS) Physiological Impact of Oil on Pinnipeds	\$ 91.5K
Hall, J. D. & M. F. Tillman (FWS & NOAA/NMFS) A Survey of Cetaceans of Prince William Sound and Adjacent Vicinity--Their Numbers and Seasonal Movements	TQ--\$ 26.9K
Marquette, W. M. & G. Y. Harry (NOAA/NMFS) Abundance and Seasonal Distribution of Bowhead Whales and Belukha	\$ 49.8K
Pitcher, K. W. (Alaska DF&G) Biology of the Harbor Seal, <u>Phoca</u> <u>vitulina richardi</u>	\$ 65K
Schneider, K. B. (Alaska DF&G) Assessment of the Distribution and Abundance of Sea Otters Along the Kenai Peninsula, Kamishak Bay, and the Kodiak Archipelago	\$ 11.1K
Schneider, K. B. (Alaska DF&G) Distribution and Abundance of Sea Otters in Southwestern Bristol Bay	\$ 10K
Schneider, I. B. & K. W. Pitcher (Alaska DF&G) Population Assessment, Ecology, and Trophic Relationships of Steller Sea Lions in the Gulf of Alaska	\$157.1K
Ray, G. C. & D. Wartzok (Johns Hopkins U.) Analysis of Marine Mammal Remote Sensing Data	\$ 12K
3. Fish and Wildlife Service ¹	
--Campbell, H. (FWS, Florida):	
Manatees--	\$139.9K
Age Determination Studies on Florida Manatee	

Effects of Vegetation Control Programs on
Florida Manatee

Biological Consequences of Manatee Uses of
Sanctuaries and Unprotected Environments

Study and Salvage Stranded Manatees and
Other Marine Mammals

Development of Manatee Tagging and Tracking
Technology

Definition of Manatee Habitat Requirements
and Assessment of Habitat Alterations

Basic Sensory and Physiological Parameters
as Related to Technical Needs

Marine Mammal Compatibility with Urbanization

Distribution Survey and Status Report on All
Manatee Taxa and Populations

Dugong-- \$ 33.9K

Survey of Conservation Problems and Distribution

Annual Status Report

--Johnson, A. (FWS, Alaska):

Sea Otter-- \$157.2K

Annual and Seasonal Distribution, Abundance,
and Composition of Populations of Sea Otters
and Other Marine Mammals in Prince William
Sound, Alaska

Distribution and Abundance of Recently
Established Populations

Biology and Management Needs for
California Sea Otter

Annual Status Report

Walrus-- \$112.8K

Biological Activities of Pacific Walrus

Annual Status Reports on Pacific Walrus
and Atlantic Walrus

Hawaiian Monk Seal--	\$ 38.2K
Biological Studies of Hawaiian Monk Seal to Determine Status of Population	
--Jones, C. (FWS, Washington, D. C.):	
Studies of Environmental Pollutants in Marine Mammals	/2
--Lentfer, J. (FWS, Alaska):	
Polar Bear--	\$451K
Biology and Ecology of Alaska Coastal Populations	
Den Ecology and Distribution	
Biological Parameters of Bears of Chuckchi Sea	
Biology and Ecology of Bears of Arctic Ocean	
Summer Distribution and Ecology of Bears	
Discreteness of Populations	
Satellite Tracking of Bears	
Development of Telemetry System for Long- Range Monitoring of Movements and Physiological Parameters	
Predation on Alaska Ice Pinniped Populations	
Parasites and Environmental Contaminants in Bears	
Estimation of Alaska Population Size and Productivity	
Annual Status Report	
3. Geological Survey	
Repenning, C. A. (Geological Survey) Cenozoic Vertebrates, Pacific Coast	\$ 48.4K
4. National Park Service	
Jurasz, C. and V. Jurasz (Cooperative Park Studies Unit, U. Alaska)	

¹Species projects funded during transition quarter in same proportions as during FY76 but at 24 percent of their FY76 levels.

²Costs of studies on environmental pollutants were distributed among all species (\$15K total).

Humpback Whale Studies, Glacier Bay National Monument

\$ 11.2K

Streveler, G. P. (NPS, Glacier Bay National Monument) Harbor Seal Studies

\$ 6K

FY77

1. Bureau of Land Management

Fiscus, C. (NOAA/NMFS)
Alaska Pinnipeds

\$157K

Norris, K. S., B. LeBoeuf & G. Hunt (U. California, Santa Cruz)
Marine Mammal-Sea Bird Survey of the Southern California Bight (Total 1,029K)
(Marine Mammal Subtotal only)

\$900K

Reed, W. (Center for Natural Areas, South Gardiner, ME)
Summary and Analysis of Environmental Information on the Continental Shelf and Blake Plateau from Cape Hatteras to Cape Canaveral

\$199.9K

2. BLM/NOAA/OCSEAP

Burns, J. J. and T. J. Eley (Alaska Department of Fish and Game)
The Natural History and Ecology of the Bearded Sea, Erignathus barbatus, and the Ringed Seal, Phoca hispida

\$104.5K

Burns, J. J., F. H. Fay & L. H. Shapiro (Alaska DF&G)
The Relationship of Marine Mammal Distributions, Densities and Activities to Sea Ice Conditions

\$102.2K

Burns, J. J., L. F. Lowry & K. J. Krost (Alaska DF&G)
Trophic Relationships Among Ice-Inhabiting Phocid Seals

\$ 96.6K

Fay, F. H. (U. Alaska)
Morbidity and Mortality of Marine Mammals

\$ 70.4K

Fiscus, C. H., H. Braham & B. Krogman (NOAA/NMFS)
Bowhead and Beluga Whales in the Bering, Chukchi and Beaufort Seas

\$ 85K

- Fiscus, C. H., H. W. Braham & D. J. Rugh (NOAA/NMFS)
Marine Mammals of the Bering and Southern
Chukchi Seas \$109.5K
- Fiscus, C. H., R. Mercer & H. Braham (NOAA/NMFS)
Seasonal Distribution and Relative Abundance
of Marine Mammals in the Gulf of Alaska \$ 25.2K
- Hall, J. D. & M. F. Tillman (FWS & NOAA/NMFS)
A Survey of Cetaceans of Prince William
Sound and Adjacent Vicinity--Their Numbers
and Seasonal Movements \$127.2K
- Kooyman, G. L. (Scripps Institute of Oceanography)
Effects of Oil Pollution on Marine Mammals \$ 59K
- Pitcher, K. W. & D. Calkins (Alaska DF&G)
Biology of the Harbor Seal (Phoca vitulina
richardi) \$ 60K
- Pitcher, K. W. & D. Calkins (Alaska DF&G)
Population Assessment, Ecology and Trophic
Relationships of Steller Sea Lions in the
Gulf of Alaska \$145.5K
3. Fish and Wildlife Service
- Sea Otter (and Marine Otter)-- \$175.2K
- Johnson, A. (National Fish and Wildlife Laboratory)
Annual and Seasonal Distribution, Abundance
and Composition of Populations of Sea Otters
and Other Marine Mammals in Prince William
Sound, Alaska
- Jameson, R. (NFWL)
Distribution and Abundance of Recently
Established Sea Otter Populations
- Biology and Management Needs for California
Sea Otters
- Estes, J. (NFWL)
Interactions Between Sea Otters and the
Nearshore Community
- U. Washington Fisheries Research Institute
Nearshore Fish Communities of
Attu Island (\$18K)

Siniff, D. (U. Minnesota)
 Research and Investigations on California
 Populations of Sea Otters (\$5K)

Irons, D.
 Sea Otter Community Interactions (\$5.3K)

Staff (NFWL)
 Annual Status Reports on Sea and Marine Otters

--Walrus-- \$141.6K

Estes, J. (NFWL)
 Ecological Relationships Among Ice-
 breeding Pinnipeds

Reeves, R.
 Survey Status of Atlantic Walrus (\$6K)

Staff (NFWL)
 Annual Status Reports on Pacific and
 Atlantic Walruses

--Polar Bear-- \$353.1K

Lentfer, J. (NFWL)
 Biology and Ecology of Alaska Coastal Populations
 Den Ecology and Distribution
 Biological Parameters of Bears of Chukchi Sea
 Biology and Ecology of Bears of Arctic Ocean
 Summer Distribution and Ecology of Bears
 Discreteness of Populations
 Satellite Tracking of Bears
 Parasites and Environmental Contaminants in Bears
 Estimation of Alaska Population Size and Productivity
 Impact of Resource Development on Bears and Their
 Habitat

Handar Corporation
 Development of Telemetry System for Long-range
 Monitoring of Movements and Physiological
 Parameters (\$29K)

Gilbert, J.
 Status of Populations and Population
 Modeling (\$2.5K)

Staff (NFWL)
 Annual Status Report

--Hawaiian Monk Seal--

\$ 52.3K

Johnson, A. and K. Kenyon (NFWL)
 Biological Studies to Determine Status
 of Population

Naftel, G. (Easy Rider)
 Logistical Support for Seal Survey
 (ship charter) (\$40.4K)

--Manatees--

\$175.2K

Campbell, H. and B. Irvine (NFWL)
 Effects of Vegetation Control Programs on
 Florida Manatee

Biological Consequences of Manatee Uses of
 Sanctuaries and Unprotected Environments

Study and Salvage of Stranded Manatees and
 Other Marine Mammals

Development of Manatee Tagging and Tracking
 Technology

Definition of Manatee Habitat Requirements
 and Assessment of Habitat Alterations

Basic Sensory and Physiological Parameters
 as Related to Technical Needs

Marine Mammal Compatibility with
 Urbanization

Distribution and Status of All Manatee
 Taxa and Populations

Duplax-Hall, N. (RARE)
 Manatee Populations in Selected Areas of
 South America (\$4.5K)

Staff (NFWL)
 Annual Status Reports

--Dugong--		\$ 14.5K
Brownell, R. (NFWL)	Survey of Distribution, Status and Conservation Problems	
Auffenberg, W.	Survey Populations in the Philippine Islands (\$0.7K)	
Staff (NFWL)	Annual Status Report	
--Marine Mammal Tagging--		\$ 21.1K
Staff (National Fish and Wildlife Laboratory)		
4. Geological Survey		
Repenning, C. A. (Geological Survey)	Cenozoic Vertebrates, Pacific Coast	\$ 48K
Whitmore (USGS/Paleontology and Stratigraphy)	Mesozoic and Cenozoic Paleontology and Stratigraphy of the Atlantic and Eastern Gulf Coastal Plain (cetaceans)	\$ 31.2K
5. National Park Service		
Hendrix, G. (Everglades National Park)	Logistic Support for Survey of Endangered Wildlife (manatees)	0.5K
Jurasz, C. and V. Jurasz (Auke Bay, AK)	Ecology of Humpback Whales (harbor porpoise, minke whales and killer whales also)	\$ 10K
Streveler, G. (Glacier Bay National Monument)	Harbor Seal Studies	\$ 6K
	<u>FY78</u>	
1. Bureau of Land Management		
Fiscus, C. (National Marine Fisheries Service)	Alaskan Pinnipeds	\$ 85K
Kelley, J. (NARL, Barrow, Alaska)	Project Whales: Investigation of Endangered Whales in Beaufort Sea Lease Areas	\$150K

Norris, K. S., B. LeBoeuf and G. Hunt (U. California, Santa Cruz) Marine Mammal-Sea Bird Survey of Southern California Bight	-0-
Winn, H., R. Edell, S. Katona, R. Reeves, J. Gilbert, C. Shoop and S. Kraus (U. Rhode Island) Characterization of Marine Mammals and Marine Turtles in the Mid- and North Atlantic Areas of the U.S. Outer Continental Shelf	\$1,454.8K
2. BLM/NOAA/OCSEAP	
Braham, H. (NMFS/NWAFC) Resource Assessment: Abundance and Seasonal Distribution of Bowhead and Beluga Whales-- Bering Sea	\$ 34.4K
Braham, H. and R. Mercer (NMFS/NWAFC) Abundance and Seasonal Distribution of Marine Mammals in the Gulf of Alaska	\$ 36.7K
Burns, J., T. Eley and K. Frost (Alaska Dept. Fish and Game) The Natural History and Ecology of the Bearded Seal (<u>Erignathus barbatus</u>) and the Ringed Seal (<u>Phoca hispida</u>)	\$125.4K
Calkins, D. and K. Pitcher (Alaska Dept. Fish and Game) Population Assessment, Ecology and Trophic Relationships of Steller Sea Lions in the Gulf of Alaska	\$155K
Fay, F. (U. Alaska) Morbidity and Mortality of Marine Mammals	\$114K
Fiscus, C., H. Braham and D. Rugh (NMFS/NWAFC) Baseline Characteristics of Marine Mammals in the Bering Sea	\$ 36.9K
Hall, J. and M.F. Tillman (USFWS and NOAA/NMFS) A Survey of Cetaceans of Prince William Sound and Adjacent Vicinity--Their Numbers and Seasonal Movements	\$ 31.8K
Kooyman, G. (U. California, Scripps Inst. Oceanography) Effects of Oiling on Temperature Regulation in Sea Otters	\$ 65K

Lowry, L., K. Frost and J. Burns (Alaska Dept.
Fish and Game)
Trophic Relationships Among Ice Inhabiting
Phocid Seals \$112.2K

Pitcher, K. and D. Calkins (Alaska Dept. Fish
and Game)
Biology of the Harbor Seal, Phoca vitulina
richardii, in the Gulf of Alaska \$ 50K

Shapiro, L., J. Burns and F. Fay (U. Alaska)
The Relationships of Marine Mammal Distri-
butions, Densities and Activities to Sea
Ice Conditions \$ 68.6K

3. Fish and Wildlife Service

--Sea Otter (and Marine Otter)-- \$ 379.6K

Johnson, A. (National Fish and Wildlife Laboratory)
Annual and Seasonal Distribution, Abundance
and Composition of Populations of Sea Otters
and Other Marine Mammals in Prince William
Sound, AK

Jameson, R. (NFWL)
Biology and Management Needs for California
Sea Otter

Estes, J. and G. Van Blaricom (NFWL)
Interactions Between Sea Otters and the
Nearshore Community

U. Washington Fisheries Research Inst.
Nearshore Fish Communities of Attu
Island (\$24K)

Siniff, D. (U. Minnesota)
Development and Field and Lab Testing of
Radio Telemetry Packages and Systems for
Sea Otters (and other marine mammals
under Interior's jurisdiction) (\$59.9K)

Hardy, R. A. and J. Ames (California Department
of Fish and Game)
Sea Otter Research (Federal
Assistance \$93.7K)

Irons, D.
Sea Otter Community Interactions and
Problems in the California Area (\$3.5K)

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

Staff (NFWL)
Annual Status Reports on Sea and Marine
Otters

--Walrus--

\$ 52K

Estes, J. (NFWL)
Biological Activities of Pacific and
Atlantic Walruses

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

Staff (NFWL)
Annual Status Reports on Atlantic and
Pacific Walruses

--Polar Bear--

\$273.1K

Lentfer, J. and D. DeMaster (NFWL)
Biology and Ecology of Alaska Coastal
Populations

Den Ecology and Distribution

Biological Parameters of Bears of Chukchi Sea

Biology and Ecology of Bears of Arctic Ocean

Summer Distribution and Ecology of Bears

Satellite Tracking of Bears

Estimation of Alaska Population Size and
Productivity

Reproductive Biology of Populations

Handar Corporation
Telemetry Packages for Tracking and
Monitoring Bears (\$22K)

DeMaster, D.
Analysis of Existing Bear Data and Field Research
at Radstock Bay, Devon Island, Canada (\$9K)

Staff (NFWL)
Annual Status Report

--Hawaiian Monk Seal-- \$ 52K

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

Naftel, G. (Easy Rider)
Logistical Support for Seal Survey
(ship charter) (\$12.1K)

--Manatees-- \$253.5K

Irvine, B. (NFWL)
Determination of Causes of Mortality and
Study and Salvage of Stranded Manatees
and Other Marine Mammals

Development of Manatee Tagging and Tracking
Technology

Definition of Ecosystem Relationships of
Manatees and Assessment of Effects of
Habitat Alteration

Basic Sensory and Physiological Parameters
as Related to Technical Needs

Basic Reproductive and Behavioral Characteristics
of West Indian Manatees

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

Distribution and Status of All Manatee Taxa
and Populations

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

Odell, D. (U. Miami)
Stranded Manatee Salvage and Flood-Control-
Dam Mortality Investigations in Southern
Florida (\$15K)

Staff (NFWL)
Annual Status Reports

--Dugong-- \$ 13.1K

Brownell, R. (NFWL)
 Distribution, Movements and Status of All
 Dugong Populations

Parasites and Environmental Contaminants
 in Dugongs

Anderson, P.
 Distribution, Movements and Status of
 Populations in Australia (\$3.5)

Auffenberg, W.
 Survey Populations in Philippine
 Islands (\$1.6K)

Staff (NFWL)
 Annual Status Report

--Marine Mammal Tagging-- \$ 19.4K

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

Stimulation of Research and Development
 of Marine Mammal Tags and Techniques

Pinniped Tagging Workshop
 (NMFS/FWS) (FWS share \$8.7K)

4. Geological Survey

Whitemore, F. C. (Paleontology and Stratigraphy Branch)
 Mesozoic and Coastal Paleontology and Strati-
 graphy of the Atlantic and Eastern Gulf
 Coastal Plain (cetaceans) \$ 30.5K

5. National Park Service

Hendrix, G. (Everglades National Park)
 Logistics Support for Survey of En-
 dangered Wildlife (manatee) \$ 0.5K

Jurasz, C. and V. Jurasz (Auke Bay, AK)
 Ecology of Humpback Whales (and other
 cetaceans) \$ 31.3K

Murphy, E. C. (Cooperative Park Studies Unit,
 U. Alaska)
 Reactions of Wildlife to Boating Activities
 in the Kenai Fjords National Monument,
 Alaska (harbor seals) \$ 25K

Streveler, G. (Glacier Bay National Monument)	
Harbor Seal Studies	\$ 6K
Woodhouse, C. (Santa Barbara Natural History Museum)	
Study of Natural Resources of Channel Island	
National Monument (pinniped survey)	\$ 2K

FY79

1. Bureau of Land Management

a. Alaska OCS Office

Kelley, J. (Naval Arctic Research Lab.)	
Investigation of the Occurrence and	
Behavior Patterns of Whales in the	
Vicinity of the Beaufort Sea Lease Area	\$1,152.8K

Mate, B. (Oregon State U.)	
Monitoring the Movements of Whales in and	
Adjacent to OCS Lease Areas	\$174.1K

b. New Orleans OCS Office

Fritts, T. H. (USFWS, Natl. Fish and Wildlife Lab.)	
South Atlantic and Gulf of Mexico Endangered	
Species Pilot Study	\$144.3K

c. New York OCS Office

Geraci, J. and D. St. Aubin (U. Guelph)	
Study of the Effects of Oil on Marine	
Mammals	\$1,038.1K

Lindner, E., S. Johnson, B. Gayles, and P.	
Thompson (USN, NOSC)	
Study of the Effects of Sound on Marine	
Mammals	\$512.7K

Winn, H., R. Edel and M. Hyman (U. Rhode Island)	
Characterization of Marine Mammals and	
Marine Turtles in the Mid and North	
Atlantic Areas of the U.S. Outer Con-	
tinental Shelf (FY79, 80, 81)	\$2,762.9K

d. Pacific OCS Office

Guess, R. (Cetaceans), K. T. Briggs (Birds) and	
M. L. Bonnell (Pinnipeds)--(U. California, Santa	
Cruz)	
Marine Mammal and Sea Bird Study of Central	
and Northern California	\$1,150K

2. BLM/NOAA/OCSEAP

Burns, J., T. Eley, and K. Frost (Alaska Dept.
Fish and Game)
The Natural History and Ecology of the
Bearded Seal and Ringed Seal \$ 90K

Calkins, D. and K. Pitcher (Alaska Dept. Fish
and Game)
Population Assessment, Ecology and Trophic
Relationships of Steller Sea Lion in the
Gulf of Alaska \$148K

Fay, F. (U. Alaska)
Morbidity and Mortality of Marine Mammals \$ 52.7K

Kooyman, G. (U. California, Scripps Inst.
Oceanography)
Effects of Oiling on Temperature Regu-
lation in Sea Otters \$ 59.7K

Lowry, L., K. Frost and J. Burns (Alaska Dept.
Fish and Game)
Trophic Relationships Among Ice
Inhibiting Phocid Seals \$122K

Pitcher, K. and D. Calkins (Alaska Dept. Fish
and Game)
Biology of the Harbor Seal, Phoca vitulina
richardii, in the Gulf of Alaska \$ 50K

3. Fish and Wildlife Service

--Sea Otter (and Marine Otter): \$558.4K

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

Jameson, R. (FWS/NFWL)
Biology and Management Needs for
California Sea Otters

Estes, J. and G. Van Blaricom (FWS/NFWL)
Interaction Between Sea Otters and the
Nearshore Community

Brownell, R. (FWS/NFWL)

Parasites and Environmental Contaminants
in Sea Otters

Determination of Status of Marine Otters

Staff (FWS/NFWL)

Annual Status Reports on Sea and Marine Otters

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

Marine and Terrestrial Ecosystems and Habitats,
With Emphasis on Marine Mammals and Land Use
Problems (\$18K)

San Nicolas Island Survey for Baseline Data
and as Potential Sea Otter Translocation
Site (\$109.9K)

Simenstad, C. A. (U. Washington Fisheries Research
Inst.)

Aleutian Nearshore Community Ecology--Sea
Urchin Growth and Fecundity (\$13K)

Siniff, D. B. (U. Minnesota)

Development and Field and Lab. Testing of
Radio Telemetry Packages and Systems for
Sea Otters, Walruses, Polar Bears, and
Manatees (\$62.6K)

Farley, T. (California Dept. Fish and Game)

Sea Otter Mortality Rates and Causes (\$28K)

Interrelationship Between Sea Otters and
Their Habitat (\$28K)

Size, Distribution, and Movements of
California's Sea Otter Population (\$58.4K)

Feasibility of Translocating Sea Otters (\$39.7K)

--Walrus:

\$141.8K

DeMaster, D. (FWS/NFWL)

Biological Activities of Pacific and
Atlantic Walruses

Brownell, R. (FWS/NFWL)

Parasites and Environmental Contaminants
in Walruses

Staff (FWS/NFWL)

Annual Status Reports on Pacific and Atlantic
Walruses

Doyle, W. (U. California, Santa Cruz)
Round Island Walrus Survey (\$17K)

Skoog, R. O. (Alaska Dept. Fish and Game)
Walrus Management Program (\$53.7K)

--Polar Bear: \$251K

DeMaster, D. (FWS/NFWL)
Biology and Ecology of Alaska Coastal
Populations

Den Ecology and Distribution

Biological Parameters of Bears of
Chukchi Sea

Biology and Ecology of Bears of Arctic Ocean

Summer Distribution and Ecology of Bears

Estimation of Alaska Population Size and
Productivity

Reproductive Biology of Populations

Staff (FWS/NFWL)
Annual Status Report

--Hawaiian Monk Seal: \$ 31.2K

Johnson, A. (FWS/NFWL)
Biological Studies to Determine Status
of Population

--Manatee: \$422.5K

Rathbun, G. (FWS/NFWL)
Determination of Causes of Manatee Mortality
and Study and Salvage of Stranded Manatees
and Other Marine Mammals

Development of Manatee Tagging and Tracking
Technology

Definition of Ecosystem Relationships of
Manatees and Assessment of Effects of Habitat
Alterations

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

Basic Reproductive and Behavioral Characteristics of West Indian Manatees

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

Distribution and Status of All Manatees Taxa and Populations

Brownell, R. (FWS/NFWL)

Parasites and Environmental Contaminants in Manatees

Staff (FWS/NFWL)

Annual Status Report

Odell, D. K. (U. Miami)

Visual or Sound Stimuli (Scare Devices) to Keep Manatees Away from Dangerous Man-Made Structures (Floodgates and Navigation Locks) (\$5.5K)

Forrester, D. (U. Florida)

Study of Parasites and Diseases of the West Indian Manatee (\$8K)

Odell, D. K. (U. Miami)

Study of Marine Ecosystems and Habitats, With Special Reference to Manatees (\$8K)

Siniff, D. B. (U. Minnesota)

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

Magor, D. (U. California, Santa Cruz)

Evaluation of Existing Manatee-Propeller Guard Technology (\$6.6K)

Odell, D. K. (U. Miami)

Upgrade Manatee Salvage in Florida (\$18.7K)

Oberheau, J. (FWS, Jacksonville/U. Miami)

Evaluation of Physiological Responses of Captive Manatees to Boat Noises (\$17.6K)

Siniff, D. B. (U. Minnesota)

Radio-Tracking Studies of West Indian Manatees (\$42.5K)

- Odell, D. K. (U. Miami)
Effects of Dade County Automatic Flood Control
Gates on Manatees (\$28.8K)
- Rathburn, G. (FWS/NFWL)
Distribution and Movements of Manatees
Around Florida Power and Light Plant in
Merritt Island/Titusville Area, Fla. (\$15K)
- Dugong: \$ 13.7K
- Brownell, R. (FWS/NFWL)
Distributions and Status of All Dugong
Populations
- Parasites and Environmental Contaminants
in Dugongs
- Staff (FWS/NFWL)
Annual Status Report
- Marine Mammal Tagging: \$ 33.9K
- Hobbs, L. (FWS/NFWL)
Serve as Clearinghouse and Information
Center for Marine Mammal Tagging Operations
- Stimulation of Research and Development of
Marine Mammal Tags and Techniques
4. Geological Survey
- Whitemore, F. C., Jr. (USGS/Paleontology and
Stratigraphy Branch)
Vertebrate Biostratigraphy and Paleo-
geography, Atlantic and Gulf Coastal
Plain (fossil cetaceans) \$ 20K
5. National Park Service
- Jurasz, C. and V. Jurasz (Cooperative Park
Studies Unit, U. Alaska)
Humpback Whale Studies, Glacier Bay \$ 39.8K
- Streveler, G. P. (Glacier Bay National Monument)
Distribution, Population Ecology and Impact
Susceptibility of the Harbor Seal in
Glacier Bay, Alaska \$ 6K

Department of StateFY70-FY77

(No projects reported)

FY78

--Bureau of Intelligence and Research and Bureau of
Ocean and International Environmental and Scientific
Affairs

Green, K. A.

The Role of Krill in the Antarctic Marine
Ecosystem

\$ 4.3K

Bakus, G. J., W. Garling and J. E. Buchanan
(Tetra Tech, Inc., Pasadena)

The Antarctic Krill Resource: Propects
for Commercial Exploitation

\$ 46.7K

FY79

Joseph, J. (Inter-American Tropical Tuna Commission)
Porpoise-Tuna Investigations

\$500K

Environmental Protection Agency

FY70-FY72

(No projects reported)

FY73

Martin, J. H. & D. K. Phelps (Moss Landing Marine Labs)
Bioaccumulation of Heavy Metals by Littoral and
Pelagic Marine Organisms

FY74

Martin, J. H. (Moss Landing Marine Labs.)
Bioaccumulation of Heavy Metals by Littoral and
Pelagic Marine Organisms

\$ 47K

FY75

Martin, J. H. (Moss Landing Marine Labs.)
Bioaccumulation of Heavy Metals by Littoral and
Pelagic Marine Organisms

\$ 49.8K

FY76-FY79

(No projects reported)

Marine Mammal Commission (Established in FY74)FY74

Ainley, D. G. (Point Reyes Bird Observatory) Studies of Marine Mammals at the Farallon Islands	\$ 5K
Chapman, D. G. & L. L. Eberhardt (U. Washington) Review and Evaluation of Census Procedures for Marine Mammals	\$ 35.6K
Clark, W. G. (U. Washington) Review of the Incidental Taking of Marine Mammals	\$ 3.5K
Dohl, T. P. (U. California, Santa Cruz) Remote Non-Lethal Marking Techniques for Marine Mammals	\$ 5.3K
Fay, F. H. (U. Alaska) The Role of the Pacific Walrus in the Trophic System of the Bering Sea	\$ 38.7K
Fay, F. H. & J. J. Burns (U. Alaska) Contributions to Studies of the Biology, Systematics, and Taxonomy of the Genera <u>Phoca</u> (<u>sensu stricto</u>) and <u>Odobenus</u>	\$ 7K
Kaufmann, J. H. & A. B. Irvine (U. Florida, Gainesville) A Study of the Movements and Activities of the Atlantic Bottlenosed Dolphin (<u>Tursiops truncatus</u>)	\$ 23K
Kooyman, G. L. (U. California, LaJolla) Pulmonary Function in Wild and Captive Marine Mammals	\$ 25.2K
Mead, J. G. (Smithsonian Institution) Marine Mammal Salvage Program	\$ 15K
Norris, K. S. (U. California, Santa Cruz) The Development of Techniques for Estimating the Trophic Impact of Marine Mammals	\$ 25.1K
Odell, D. K. (U. Miami) A Preliminary Study of the Ecology and Population Biology of Bottlenose Dolphin in Southeast Florida	\$ 32K
Richardson, D. T. (Department of Marine Resources, Maine) Abundance and Distribution of Harbor and Gray Seals Along the Maine Coast	\$ 10.5K
Schmidly, D. J. (Texas A & M U., College Station) A Biological Assessment of the Cetacean Fauna of the Texas Coast	\$ 7.9K

Vedros, N. A. & S. H. Madin (U. California, Berkeley) Infectious Diseases of Marine Mammals	\$ 25K
<u>FY75</u>	
Ainley, D. G. (Point Reyes Bird Observatory) Studies of Marine Mammals at the Farallon Islands	\$ 6K
Anderson, F. R. (Environmental Law Institute) A Study and Analysis of the Activities of the United States Pursuant to Existing Laws and International Conventions Relating to Marine Mammals	\$ 30K
Bertrand, G. A. (U. Wisconsin, Madison) Study and Analysis of the Meaning of the Term "Optimum" in the Marine Mammal Protection Act	\$ 1.6K
Chapman, D. G. & L. L. Eberhardt (U. Washington) Review and Evaluation of Census Procedures for Marine Mammals	\$ 27K
Chapman, D. G. & A. W. Erickson (U. Washington) Workshop on the Killer Whales in Puget Sound and Adjacent Waters	\$ 2.5K
Clark, W. G. (MM4AC001--Modification)	\$ 1K
Clark, W. G. (U. Washington) Study and Analysis of the Number of Porpoises Killed or Seriously Injured Incidental to the Commercial Yellowfin Tuna Fishery	\$ 4.1K
DeLong, R. L. (U. California, Berkeley) Study and Analysis of Marine Mammals on San Miguel Island	\$ 2.5K
Erickson, A. W. (U. Washington) Population Studies of the Killer Whale in the Eastern North Pacific	\$ 35.4K
Fay, F. H. (U. Alaska) The Role of the Pacific Walrus in the Trophic System of the Bering Sea	\$ 31K
Gard, R. (Colorado State U.) Aerial Census, Behavior and Population Dynamics Study of Gray Whales in Mexico During the 1974-1975 Calving and Mating Season	\$ 14.4K
Geraci, J. R. (New England Aquarium) Mass Strandings of <u>Lagenorhynchus acutus</u> : A Study into Life History and Pathobiology	\$ 24K

Gilmartin, W. G., J. C. Sweeney & M. H. Bealeu (Naval Undersea Center) Effects of Certain Environmental Pollutants on Pupping in the California Sea Lion	\$ 2K
Forslund, L. G. (Oregon State U.) Social Behavior of the Harbor Seal, <u>Phoca</u> <u>vitulina richardi</u> , in Oregon	\$ 2.3K
Johnson, M. L. (U. Puget Sound) Population Evaluation of the Harbor Seal (<u>Phoca</u> <u>vitulina</u>) in the Waters of the State of Washington	\$ 9.3K
Kaufmann, J. H. & B. Irvine (U. Florida) A Study of the Movements and Activities of the Atlantic Bottlenosed Dolphin	\$ 30.7K
Kooyman, G. L. (MM4AC012--Modification)	\$ 0.9K
Mate, B. R. (Oregon State U.) Aerial Censusing of Pinnipeds in the Eastern Pacific for Assessment of Population Numbers, Migratory Distributions, Rookery Stability, Breeding Effort, and Recruitment	\$ 40.5K
Mead, J. G. (MM4AC007--Modification)	\$ 1K
Miller, K. (U. Alaska) Energetics of the Northern Fur Seal in Relation to Food Resources and Climate of the Bering Sea	\$ 32.2K
Norris, K. S. (MM4AC013--Modification)	\$ 0.7K
Norris, K. S. (U. California, Santa Cruz) Field Testing of Whale Tracking and Data Recovery Systems	\$ 35.5K
Odell, D. K. (U. Miami) Distribution and Abundance of the Bottlenose Dolphin in Florida Waters	\$ 34.6K
Odell, D. K. (U. Miami) Bottlenose Dolphin (<u>Tursiops truncatus</u>) Assessment Workshop	\$ 3K
Parker, K. (U. Washington) Study and Analysis of the Effects of Incidental Taking in the Course of the Commercial Yellow- fin Tuna Fishery Upon Behavior of Affected Porpoises	\$ 1K

Pinkus, E. (Center for Law and Social Policy) Study and Analysis of the Activities of the United States Pursuant to Existing Laws and International Conventions Relating to Marine Mammals	\$ 10.6K
Pitcher, K. W., J. S. Vania & K. B. Schneider (Alaska Department of Fish and Game) Population Productivity and Food Habits of Harbor Seals in the Vicinity of Prince William Sound, Alaska	\$ 17.7K
Pivorunas, A. (Bingham Laboratory) A Study and Analysis of the Efforts to Reduce the Mortality and Serious Injury of Porpoises Incidental to the Commercial Yellowfin Tuna Fishery and the Impact of Such Incidental Taking Upon the Porpoise Populations	\$ 3.7K
Ray, G. C. (Johns Hopkins U.) Hauling-Out Behavior of the Pacific Walrus	\$ 17.4K
Stone, P. Evaluation of Current References, Resources, and Development of an Effective Reference Resource Mechanism for the Marine Mammal Commission	\$ 4K
Vandevere, J. E. (Monterey, California) The Role of the California Sea Otter in the Trophic System of Its Environment	\$ 15.3K
Wheelus, J. (Chevy Chase, Maryland) Study and Analysis of the Regulations and Permit Mechanism Implementing the Marine Mammal Protection Act	\$ 4.8K
<u>FY76</u>	
Benirschke, K. & S. H. Ridgway (Zool. Soc. San Diego & Naval Undersea Center) <u>Tursiops</u> Breeding Workshop	\$ 9.8K
Brownell, R. L. & C. M. Schonewald (Smithsonian Institution) Estimate of Recent Major Takings of Marine Mammals	\$ 17.9K
Chapman, D. G. (U. Washington) Analysis of Tuna-Porpoise Data	\$ 12.4K

Cornell, L. H. & E. D. Asper (Oceanic Research Institute) Further Investigation into Appropriate Cryogenic Marking Processes	\$ 6.7K
Evans, W. E. & J. S. Leatherwood (Naval Undersea Center) Acoustic Characteristics of Nets and Floats in the Water During Purse Seine Fishing for Yellowfin Tuna	\$ 19.8K
Gard, R. (U. Alaska, Juneau) Aerial Census and a Population Dynamics Study of Gray Whales in Baja California During the 1976 Calving and Mating Season	\$ 13.4K
Gilmartin, W. G., J. C. Sweeney, & M. H. Beleau (Naval Undersea Center) Effects of Certain Environmental Pollutants on Pupping in the California Sea Lion	\$ 12.2K
Gonsalves, J. T. (Progressive Fishing Enterprises) Improved Device and Method to Prevent Porpoise Mortality	\$ 29.7K
Katona, S. K. (College of the Atlantic) The Gulf of Maine Whale Sighting Network	\$ 2.5K
Kavanau, J. L. (U. California, Los Angeles) Behavior of the Sea Otter, <u>Enhydra lutris</u>	\$ 7.8K
Kooyman, G. (U. California, San Diego) Development and Testing of a New, Low Cost Method for Monitoring at Sea Behavior of Marine Mammals	\$ 19K
Leatherwood, J. S. (Naval Undersea Center) The Comparative Utility of Some Aerial Census Methods in Cetacean Stock Assessment	\$ 7K
New England Aquarium (Boston) Marine Mammal Strandings Along the New England Coast: A Study into Pathobiology and Life History	\$ 32.3K
Norris, K. S. (U. California, Santa Cruz) Behavioral Studies Relative to the Tuna-Porpoise Problem	\$128.5K

- Payne, R. S. (New York Zool. Soc. Center for
Field Biology and Conservation)
Assessment of Two Right Whale Populations
by Means of Aerial Censusing and Photo-
grammetry \$ 22.2K
- Ray, G. C. (Johns Hopkins U.)
Identification and Preservation of Critical
Marine Mammal Habitats Within the Juris-
diction of the United States \$ 20.9K
- Reeves, R. R.
The Impact of Human Activity on the Eastern
Pacific Population of Gray Whales (Eschrichtius
robustus) \$ 3.1K
- Risenbrough, R. W. et al. (Bodega Bay Institute
of Pollution Ecology)
Population Biology of Harbor Seals in
San Francisco Bay, California \$ 22.5K
- Waring, G. H. (Southern Illinois U.)
Analysis of Outer Continental Shelf
Development and Potential Impacts on
Marine Mammal Populations \$ 19K
- Wilson, S. C. (Smithsonian Institution)
Management Implications of Social Behavior
of the Harbor Seal, Phoca vitulina concolor \$ 8.6K
- Woodhouse, C. D. (Santa Barbara Museum of
Natural History)
A Summary of Knowledge of the Sea Otter
and an Appraisal of the Completeness of
Biological Understanding of the Species \$ 12.5K
- TQ76
- Ainley, D. G. (Point Reyes Bird Observatory)
Studies of Marine Mammals at the
Farallon Islands \$ 6.6K
- Chapman, D. G. & M. Tillman (U. Washington)
Reassessment of Available Data on Antarctic
Sei Whale Stocks \$ 8.4K
- Dayton, P. K. (U. California)
Studies Toward the Understanding of the
Health and Stability of Some Sea Otter
Dominated Marine Communities \$ 53.9K
- Green, K. A. (LGL Limited)
Further Development of an Ecosystem Model
for the Southern Ocean \$ 10K

Johnson, M. L. (U. Puget Sound) Distribution, Population Dynamics, and Ecology of the Harbor Seal (<u>Phoca vitulina</u>) in the Waters of the State of Washington	\$ 11K
Kavanau, J. L. (U. California, Los Angeles) Behavior of the Sea Otter, <u>Enhydra lutris</u>	\$ 5.5K
Pearse, J. S. (U. California, Santa Cruz) Ecological Benchmarks in Santa Cruz County Kelp Forests Before the Re-establishment of Sea Otters	\$ 23.5K
Ridgway, S. H., W. F. Flanigan, & A. F. Langguth (Naval Undersea Center) Investigation of a Potential Method for the Humane Taking of Certain Marine Mammals	\$ 9K
Schmidly, D. J. (Texas A & M U.) The Population Biology of <u>Tursiops truncatus</u> , the Atlantic Bottlenose Dolphin in the Aransas Pass Area of Texas	\$ 6K
<u>FY77</u>	
Ainley, D. G. and H. Huber (Point Reyes Bird Observatory) Studies of Marine Mammals at the Farallon Is.	\$ 11.7K
Benirschke, K. (Zoological Society of San Diego) Enhancement of Captive Dolphin Breeding Through Hormonal Studies of Ovulation	\$ 21.9K
Botkin, D. B. and M. J. Sobel Concept of Optimum Sustainable Populations of Marine Mammals	\$ 10K
Chapman, D. G. (U. Washington) Whale Statistics	\$ 29.5K
Evans, C. D. (U. Alaska) Study of Pending Federal Legislation Relating to Proposed Wildlife Refuges and Other Special Areas in the State of Alaska	\$ 10K
Foster, M. S. (Moss Landing Marine Laboratories) Baseline Studies of Subtidal Communities Near the Northern Extremity of the Sea Otter's California Range	\$ 40.6K

Fowler, C. W. (Utah State U.) Comparative Population Dynamics: A Search for Management Criteria	\$ 57.2K
Geraci, J. (New England Aquarium) Marine Mammal Stranding Workshop	\$ 15K
Gilbert, J. (U. Maine) Assessment of the Status of Gray Seals (<u>Halichoerus grypus</u>) in Coastal Waters of the Northeast United States	\$ 10.2K
Green, K. A. Computer Model of the California Current Ecosystem	\$ 13.5K
Hui, C. A. (Naval Ocean Systems Center) Reliability of Dentinal Age Determination in <u>Tursiops</u>	\$ 9.9K
Johnson, B. W. and P. A. Johnson The Hawaiian Monk Seal on Laysan Island	\$ 20.2K
Johnson, M. (U. Puget Sound) Population Dynamics and Ecology of the Harbor Seal (<u>Phoca vitulina</u>) in the State of Washington	\$ 17.7K
Katona, S. K. (College of the Atlantic) Identification of Humpback Whales from Fluke Photographs	\$ 7K
Mathisen, O. A. (U. Washington) Techniques for Estimating Krill Abundance in the Southern Ocean	\$ 14.5K
Nafziger, J. A. R. (U. Oregon) Developments in the Law of Marine Mammal Management	\$ 7.4K
National Technical Information Service (Department of Commerce) Document Registration and Distribution of MMC Documents	\$ 3.4K
Naftel, G. and L. R. Taylor (Easy Rider Corporation) Predation on the Hawaiian Monk Seal (<u>Monachus schauinslandi</u>) by Large Sharks	\$ 13.9K
Norris, K. S. and W. Stuntz (U. California, Santa Cruz) Study of the "Passive" Behavior of Spotted Porpoise (<u>Stenella attenuata</u>) Captured During Commercial Purse Seine Fishing for Yellowfin Tuna	\$ 12.5K

Reeves, R. R. (Smithsonian Institution) Marine Mammal Protection and Conservation Issues	\$ 34.1K
Risebrough, R. W. (Bodega Bay Institute of Pollution Ecology) Accumulation of Petroleum Compounds in Harbor Seals in San Francisco Bay	\$ 2.8K
Shallenberger, E. (Sea Life Park) Humpback Whale Workshop	\$ 6K
Shallenberger, E. W. (Manta Corporation) Status of Cetaceans in Hawaiian Waters	\$ 10.2K
Smith, T. (U. Hawaii) Study of Recently Developed Model of Historical Abundance of Porpoise	\$ 2K
Stone, P. S. Marine Mammal Commission Reference Library	\$ 8.4K
Swartz, S. L. (San Diego Society of Natural History) Field Studies of the Gray Whale (<u>Eschrichtius</u> <u>robustus</u>) in Laguna San Ignacio, Baja California	\$ 9.8K
Tillman, M. F. (National Marine Fisheries Service) Whale Logbook Workshop	\$ 4K
Waring, G. H. (Southern Illinois U.) Issues Affecting the Conservation and Protection of Marine Mammals	\$ 4.8K
Winn, H. (U. Rhode Island) Comparative Evaluation of Aerial-Shipboard Techniques for Estimating the Abundance of Humpback Whales	\$12.1K

FY78

Ainley, D. G. (Point Reyes Bird Observatory) Studies of Marine Mammals at the Farallon Islands, 1978	\$ 7.1K
Ainley, D. G. and S. Allen (Point Reyes Bird Observatory) The Possible Effects of Human Activities on Harbor Seals in Bolinas Lagoon, California	\$ 5.2K
Balcomb, K. (Moclips Cetological Society) Studies of Killer Whale Pods in Puget Sound	\$ 7.9K
Breiwick, J. (U. Washington) An Analysis of Data Relating to the Western Arctic Population of Bowhead Whales	\$ 6.7K

Dayton, P. K. (U. California)	
Studies Toward the Understanding of the Health and Stability of Some Sea Otter Dominated Marine Communities	\$ 9.4K
Studies of Sea Otter-Dominated Marine Communities: Part II	\$ 40.5K
DeBeer, J.	
Implementation of a Major Research Program on the Incidental Taking of Porpoise in the Course of Commercial Yellowfin Tuna Fishing Operations	\$ 67.4K
Fay, F. (U. Alaska)	
Marine Mammal-Fishery Interactions on the Copper River and Prince William Sound, Alaska	\$ 39.2K
Report of Eskimo Whaling Conference Relating to Taking and Use of Walrus by Alaskan Eskimos	\$ 1K
Foote, K. (U. Washington)	
Statistical Analysis of Data on Pregnancy Rates of Sperm and Sei Whales	\$ 0.1K
Fowler, C. W. (Utah State U.)	
Comparative Population Dynamics: A Search for Management Criteria	\$ 3.3K
Certain Aspects of the Data and Models Used to Estimate the Abundance of North Pacific Sperm Whales	\$ 16K
Workshop on Marine Mammal Management Policies and Practices	\$ 4.2K
Green, K. A.	
Computer Model of the California Current Ecosystem	\$ 1.1K
Review and Analysis of the Fishery Conservation Management Act and Regional Fishery Management Plans with Respect to the Conservation of Marine Mammals and Their Habitats	\$ 14.9K
Horsmann, J. (SEACO, Inc.)	
Consultation on Marine Mammal Protection and Conservation Issues	\$ 16.8K

Johnson, B. W. and P. A. Johnson The Hawaiian Monk Seal on Laysan Island: 1978	\$ 25.8K
Johnson, M. L. (Puget Sound Museum of Natural History) Research Plan for Marine Mammal-Fishery Conflicts in Washington and Oregon	\$ 2.7K
Katona, S. K. (College of the Atlantic) Identification of Humpback Whales from Fluke Photographs	\$ 0.9K
Leatherwood, J. S. (Naval Ocean Systems Center) Aerial Survey of <u>Tursiops</u> Populations in Texas Coastal Waters	\$ 1.9K
Llano, G. A. Paper on Conservation of Living Resources of the Southern Ocean	\$ 4K
Mate, B. R. (Oregon State U.) Workshop on Marine Mammal-Fishery Interaction	\$17.4K
National Technical Information Service (Department of Commerce) Document Registration and Distribution of MMC Documents	\$ 1.5K
Perkins, P.L. Finalization of National Marine Mammal Research Plan Developed by the Marine Mammal Commission	\$ 3.1K
Perrin, W. F. (National Marine Fisheries Service) Workshop on Determining Age of Odontocete Cetaceans	\$ 10K
Prescott, J. (New England Aquarium) The North American Harbor Porpoise (<u>Phocoena phocoena</u>) in the Northwest Atlantic	\$ 7.8K
Ray, G. C. (John Hopkins U.) Identification and Preservation of Critical Marine Mammal Habitats Within the Jurisdiction of the United States	\$ 9.4K
Richardson, J. R. (Rural Alaska Community Action Program) Esimo Walrus Conference	\$ 4K
Schmidly, D. J. (Texas A&M U.) The Population Biology of <u>Tursiops truncatus</u> , The Atlantic Bottlenose Dolphin in the Arkansas Pass Area of Texas	\$ 0.5K

Shallenberger, E. W. (Manta Corporation) The Status of Cetaceans in Hawaiian Waters	\$ 0.7K
Sherman, S. C. (Brown U.) World Inventory of Whaling Logbooks and Journals	\$ 3.7K
Swartz, S. L. (San Diego Society of Natural History) Evaluation of Human Activities on Gray Whales in Laguna San Ignacio, Baja California	\$ 20.6K
Winn, H. (U. Rhode Island) Comparative Evaluation of Aerial-Shipboard Techniques for Estimating the Abundance of Humpback Whales	\$ 20.5K
Wray, P. (Endangered Species Productions, Inc.) Report on Workshop on the West Indian Manatee	\$ 0.8K

FY79

Ainley, D. G. (Pt. Reyes Bird Observatory) Study of Northern Elephant Seals of Farallon Islands	\$ 10K
Beddington, J. (U. York) Report on the Status of the North Atlantic Harp Seal	\$ 19.1K
Branson, J. H. (North Pacific Fishery Mgmt. Council) The Collection and Analysis of Data and the Development of Methods to Most Effectively Conserve Fishery and Marine Mammal Resources	\$ 12.5K
Clark, W. (U. Washington) Population Analysis of the Great Whales	\$ 70.9K
Fay, F. H. (U. Alaska) Monographic Manuscript on the Pacific Walrus	\$ 20K
Johnson, B. and P. Johnson (National Marine Fisheries Service) Endangered Seal Studies (transfer of funds to NMFS)	\$ 10K
Norris, K. S. and B. Ramirez-Villa (U. California, Santa Cruz) Status of <u>Phocena sinus</u> , the Gulf of California Harbor Porpoise	\$ 10.1K

National Aeronautics and Space AdministrationFY70-FY72

(No projects reported)

FY73

Klein, H. P. (Ames Research Center)
 Biologic and Behavioral Mechanisms in Animal
 Navigation and Orientation

FY74

Ray, G. C. & D. Wartzok (Johns Hopkins U.)
 Marine Mammal Mass Tagging \$ 45K

FY75

Ray, G. C. & D. Wartzok (John Hopkins U.)
 Bering Sea Marine Mammal Experiment \$100K

FY76 and TQ76

Ray, G. C., D. Wartzok, & P. Sebesta
 (Johns Hopkins U. & Ames Res. Center)
 Bering Sea Marine Mammal Experiment (No cost extension)

FY77

Michelson, R. C., B. Irvine & L. Keene (Georgia
 Institute of Technology)
 Manatee Tracking Project--Develop a Concept
 of an Automatic Tracking System to Determine
 the Location and Movements of Manatees \$ 50K

Ray, G. C., D. Wartzok and P. Sebesta (Johns Hopkins
 U. and NASA/Ames Research Center)
 Bering Sea Marine Mammal Experiment -0-

FY78

Michelson, R. C., B. Irvine and L. Keene (Georgia
 Institute of Technology)
 Manatee Tracking Project: Develop a Concept
 of an Automatic Tracking System to Determine
 the Location and Movement of Manatees \$ 15K

Ray, G. C., D. Wartzok and P. Sebesta (Johns Hopkins
 U. and NASA Ames Research Center)
 Bering Sea Marine Mammal Experiment \$ 50K

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FY79

(No projects reported)

National Science FoundationFY70

- Cummings, W. C. (NUC)
Bioacoustics and Relative Behavior of Sub-
antarctic Cetaceans
- Elsner, R. W. (U. California, San Diego)
Temperature Regulation in the newborn
Weddell Seal
- Erickson, A. W. & D. B. Siniff (U. Minnesota)
Status and Population Dynamics of Antarctic Seals
- Gilmore, R. M. (San Diego Society of Natural History)
Population, Distribution, and Behavior of Whales in
Antarctic Waters
- Kooyman, G. L. (U. California, San Diego)
Biology of Deep Diving in Antarctic Birds and Mammals
- LeBoeuf, B. J. (U. California, Santa Cruz)
Ethological Studies of the Northern Elephant Seal
- Müller-Schwarze, D. (Utah State U.)
Anti-Predator and Social Behavior of a Adelie Penguins
- Paine, R. T. (U. Washington)
Effects of Seal and Fish Predation on Antarctic
Benthic Communities
- Whittow, G. C. (U. Hawaii)
Physiology of Thermoregulation

FY71

- Bartholomew, G. A. (U. California, Los Angeles)
Ecological Physiology and Behavior
- Cummings, W. C. (Naval Undersea Center)
Bioacoustics and Related Behavior of Subantarctic
Cetaceans
- Felts, W. J. L. (U. Oklahoma)
Anatomical, Histological and Neuroanatomical
Study of Antarctic Seals
- Howe, S. (Conservation Foundation)
International Conference on the Biology of Whales

- LeBoeuf, B. J. (U. California, Santa Cruz)
Ethological Studies of the Northern Elephant Seal
- Müller-Schwarze, D. (Utah State U.)
Anti-Predator and Social Behavior in Adelie Penguins
- Murbaugh, H. B. Jr. (Mount Desert Island Biological Laboratory)
Comparative Studies of Renal and Cardiovascular Function
- Whittow, G. C. (U. Hawaii)
Behavioral Thermoregulation in Marine Mammals

FY72

- Benson, A. A. (U. California, San Diego)
Support for Research Vessel, Alpha Helix
- Cummings, W. C. (NUC)
Bioacoustics and Related Behavior of Subantarctic
Cetaceans
- Elsner, R. W. (U. California, San Diego)
Temperature Regulation in the Newborn Weddell Seal
- Erickson, A. W. et al. (U. Idaho)
Population Studies of Antarctic Seals--Census
and Reproductive Biology
- Felts, W. J. (U. Oklahoma)
An Anatomical, Histological, and Neuroanatomical
Study of Antarctic Seals
- Herman, L. M. (U. Hawaii)
Sensory and Learning-Memory Processes in the Dolphin
- Howe, S. (Conservation Foundation)
International Conference in the Biology of Whales
- Kooyman, G. L. (U. California, San Diego)
Biology of Deep Diving in Antarctic Birds and Mammals
- LeBoeuf, B. J. (U. California, Santa Cruz)
Ethological Studies of the Northern Elephant Seal
- Litchfield, C. (Rutgers)
The Acoustical Function of Lipids in Odontocete
Echolocation
- Murdaugh, H. V. (Mount Desert Island Biological Lab)
Comparative Studies of Renal and Cardiovascular Function

- Norris, K. S. (U. California, Los Angeles)
Marine Mammalogy--Doctoral Dissertation Research
- Pierce, R. W. (U. California, Santa Cruz)
Comparative Study of Physiological Adaptations of
Marine Mammals
- Siniff, D. B. (U. Minnesota)
Population Studies of Antarctic Seals--Modeling and
Regulatory Biology
- Vangelder, R. G. (American Museum of Natural History)
Operational Support for the Mammalogy Collection
- Whittow, G. C. (U. Hawaii)
Behavioral Thermoregulation in Marine Mammals
- White, F. N. (U. California, Los Angeles)
Circulatory Regulation in Vertebrates

FY73

- Erickson, A. W. et al. (U. Idaho)
Population Studies of Antarctic Seals--Census and
Reproductive Biology
- Kooyman, G. L. (U. California, San Diego)
Biology of Deep Diving in Antarctic Birds and Mammals
- Müller-Schwarze, D. (Utah State U.)
Anti-Predator and Social Behavior in Adelie Penguins
- Pierce, R. W. (U. California, Santa Cruz)
Comparative Study of Physiological Adaptations of
Marine Mammals
- Siniff, D. B. (U. Minnesota)
Population Studies of Antarctic Seals--Modeling
and Regulatory Biology

FY74

- Brownell, R. L. (Smithsonian Institution)
Ecology and Life History of the Franciscana
Dolphin \$ 5.8K
- Bullock, T. H. (U. California, LaJolla)
Neuronal Integrative Mechanisms and Their
Organization in Useful Systems \$ 71.7K
- Erickson, A. W. (U. Idaho)
Environmental Factors in the Distribution
of Seals in the Antarctic Pack Ice \$ 56.1K

Felts, W. J. L. (U. Oklahoma) An Anatomical, Histological and Neuro- anatomical Study of Antarctic Seals	\$ 58.6K
Herman, L. M. (U. Hawaii) Sensory and Learning-Memory Processes in the Dolphin	\$ 54.3K
Kooyman, G. L. (U. California, San Diego) Data Analysis of Antarctic Penguin and Seal Studies	\$ 5.7K
LeBoeuf, B. J. (U. California, Santa Cruz) Ethology of the Northern Elephant Seal, <u>Mirounga angustirostris</u>	\$ 27.9K
Litchfield, C. (Rutgers U.) Acoustical Function of Lipids in Odontocete Etholocation	\$ 45K
Norris, K. S. (U. California, Santa Cruz) Laser Branding of Marine Mammals	\$ 11.6K
Norris, K. S. (U. California, Santa Cruz) Peripheral Sound Processing in Porpoises	\$ 65K
Siniff, D. B. (U. Minnesota) Status and Population Dynamics of Antarctic Seals	\$ 69.7K
South, F. E. (U. Missouri, Columbia) Physiology of Sleep and Thermoregulation in the California Sea Lion	\$ 50K

FY75

Bullock, T. H. (U. California, LaJolla) Neuronal Integrative Mechanisms and Their Organization in Useful Systems	\$ 75.2K
Dawson, W. W. (U. Florida) Behavioral Evaluation of Feline Vision as a Model for Human Strabismic Amblyopia	\$ 5.4K
Erickson, A. W. (U. Washington) Environmental Factors in the Distribution of Seals in the Antarctic Pack Ice	\$ 48.8K
Herman, L. M. (U. Hawaii) Sensory and Learning Memory Processes in the Dolphin	\$ 55.6K

LeBoeuf, B. J. (U. California, Santa Cruz) Ethology of the Northern Elephant Seal, <u>Mirounga angustirostris</u>	\$ 25.9K
Murrish, D. E. (Case Western Reserve U.) Cardiovascular Dynamics in Antarctic Homeotherms	\$ 15.2K
Siniff, D. G. (U. Minnesota) Status and Population Dynamics of Antarctic Seals	\$ 66.7K

FY76 and TQ76

Awbrey, F. T. (San Diego State U.) Study of Acoustical Factors Affecting Porpoise Mortality in Tuna Fishing	TQ76--\$119.6K
Brownell, R. L. (Smithsonian Institution) Stock Assessment of Antarctic Minke Whales	\$ 21.5K
Bullock, T. H. (U. California, San Diego) Neuronal Integrative Mechanisms	FY76-\$ 76.9K TQ76-\$ 70K
Dawson, W. W. (U. Florida) Vision in Dolphins and Other Cetaceans	FY76-\$ 35K TQ76-\$ 39.1K
Herman, L. M. (U. Hawaii) Sensory and Learning-Memory Processes in the Dolphin	FY76-\$ 15K TQ76-\$ 5K
LeBoeuf, B. J. (U. California, Santa Cruz) Ethology of the Northern Elephant Seal (<u>Mirounga angustirostris</u>)	\$ 27.2K
Norris, K. S. (U. California, Santa Cruz) Peripheral Sound Processing in Porpoises	FY76-\$ 30K TQ76-\$ 10K
Siniff, D. F. (U. Minnesota) Colony Behavior of Antarctic Marine Mammals	FY76-\$ 50.8K TQ76-\$ 42.4K
Siniff, D. B. (U. Minnesota) Studies of Biota of Antarctic Pack Ice	FY76-\$ 28.2K TQ76-\$ 44.1K

Zapol, W. M. (Massachusetts General Hospital)
 The Cardiovascular and Metabolic Response
 to Diving and Endocrinology of the Gravid
 Near-Term Weddell Seal TQ76--\$ 75.6K

FY77

Awbrey, F. T. (San Diego State U.)
 Acoustical Factors Affecting Porpoise Mortality
 in Tuna Fishing \$ 97.1K

Dawson, W. W. (U. Florida)
 Vision in Dolphins and Other Cetaceans \$ 39.1K

Herman, L. M. (U. Hawaii)
 Sensory and Learning-Memory Processes in the
 Dolphin \$ 7.8K

Jonkel, C. J. and B. O'Gara (U. Montana)
 Environmental and Ecological Studies of High Arctic
 Mammalian Habitat and Food Chains Affected by
 Development \$300K

Kooyman, G. L. (U. California, San Diego)
 Comparative Aquatic Biology of Antarctic Endotherms \$ 74.7K

LeBoeuf, B. J. (U. California, Santa Cruz)
 Biological Studies of the Northern Elephant Seal \$ 33.1K

Morgane, P. J. (Worcester Foundation for Experimental
 Biology, Shrewsbury, MA)
 Archicortical-Limbic Formations of Dolphin
 Brain \$ 39.8K

Norris, K. S. (U. California, Santa Cruz)
 Peripheral Sound Processing in Porpoises \$ 29.3K

Siniff, D. B. (U. Minnesota)
 Studies of Biota of Antarctic Pack Ice \$ 50K

Siniff, D. B. and D. P. DeMaster (U. Minnesota)
 Colony Behavior of Antarctic Marine Mammals \$ 48K

FY78

Dawson, W. W. (U. Florida)
 Vision in Dolphins and Other Cetaceans \$ 39K

Erickson, A. W. (U. Washington)
 An Assimilative Analysis of Census Data
 on Antarctic Seals, 1967-1974 \$ 50.3K

Herman, L. M. (U. Hawaii, Manoa)
 Dolphin Information-Processing Capabilities \$ 53.8K

Behaviors and Social Organization of Humpback Whales in Hawaiian Waters	\$ 39.7K
Jehl, J. R. and W. E. Evans (Hubbs-Sea World Research Institute) Distribution and Ecology of <u>Orcinus</u> and <u>Globicephala</u> in the Antarctic and Adjacent Waters	\$ 30.6K
Kooyman, G. L. (U. California, San Diego) Comparative Aquatic Biology of Antarctic Endotherms	\$ 29.6K
LeBoeuf, B. J. (U. California, Santa Cruz) Biological Studies of the Northern Elephant Seal	\$ 31.8K
Siniff, D. B. and D. P. DeMaster (U. Minnesota) Colony Behavior of Antarctic Marine Mammals	\$ 59.4K
<u>FY79</u>	
Evans, W. E. and J. R. Jehl (Hubbs-Sea World Research Inst.) Distribution and Ecology of <u>Orcinus</u> and <u>Globicephala</u> in the Antarctic and Adjacent Waters	\$ 38.4K
Herman, L. M. (U. Hawaii, Manoa) Dolphin Information-Processing Capabilities	\$ 42.9K
Behaviors and Social Organization of Humpback Whales in Hawaiian Waters	\$ 40.2K
Jonkel, C. J. (U. Montana) Environmental and Ecological Studies of High Arctic Mammalian Habitat and Food Chains Affected by Development	\$ 22.6K
Kooyman, G. L. (U. California, Scripps Inst. of Oceanography) Aquatic Biology of South Georgia Endotherms	\$ 34.6K
LeBoeuf, B. J. (U. California, Santa Cruz) Biological Studies of the Northern Elephant Seal	\$ 41.2K
McWhinnie, M. A. (DePaul U.) Biological Investigations of Antarctic Krill	\$ 25.6K
Morgane, P. J. (Worcester Foundation for Experimental Biology) Archicortical-Limbic Formations of Dolphin Brain	\$ 42.4K

Norris, K. S. (U. California, Santa Cruz)	
Behavior of the Hawaiian Spinner Dolphin	\$ 24K
Siniff, D. B. (U. Minnesota)	
The Role of the Leopard Seal in the Antarctic Marine Ecosystem	\$ 70.4K
The Development of Satellite Tracking and Automatic Position/Activity Monitoring for Selected Antarctic Vertebrates	\$ 97K

Smithsonian InstitutionFY70-FY71

(No projects reported)

FY72

Handley, C. O. (Smithsonian Institution)
Marine Mammal Program

FY73

Mead, J. G. (Smithsonian Institution)
Marine Mammal Program

Ray, C. E. (Smithsonian Institution)
Studies in the Evolution of the Pinnipedia

FY74

Mead, J. G. \$ 19K

Aspects of the Biology of the Short-Finned
Pilot Whale

Functional Anatomy of the Facial Region of
Cetaceans

Survey of Distribution of Cetaceans in the
Western North Atlantic Based on Stranding Data

Ray, C. E. \$ 79.5K

Studies in the Evolution of Pinnipedia

FY75

Mead, J. G. \$ 28.3K

Aspects of the Biology of the Short-Finned
Pilot Whale

Functional Anatomy of the Facial Region of
Cetaceans

Survey of Distribution of Cetaceans in the
West North Atlantic Based on Stranding
Data

Ray, C. E. \$ 51.8K

Studies in the Evolution of Pinnipedia

FY76 and TQ76

Mead, J. G. (Smithsonian Institution)	
Marine Mammal Program	\$ 42.8K
Ray, C. (Smithsonian Institution)	
Studies in the Evolution of the Pinnipeds	\$ 59.2K

FY77

Mead, J. G. (Smithsonian Institution)	
Marine Mammal Program	\$ 50K
Ray, C. E. (Smithsonian Institution)	
Studies on the Evolution of the Pinnipedia	\$ 56.1K

FY78

Mead, J. G. (Smithsonian Institution)	
Marine Mammal Program	\$ 56.1K
Ray, C. E. (Smithsonian Institution)	
Studies in the Evolution of the Pinnipedia	\$ 45K

FY79

Mead, J. (National Museum of Natural History)	
Marine Mammal Program	\$ 86K
Ray, C. (National Museum of Natural History)	
Studies on the Evolution of Pinnipedia	\$ 47.4K

Veterans AdministrationFY70

Olsen, C. R. & F. C. Hale (UCLA School of Medicine)
In Vitro Study of Diseased Human Airways

Surley, J. T. & R. Elsner (Oklahoma U. & Scripps
Institute)
Sleep in Cetaceans, EEG Study: The Pilot
Whale, Globicephala scammoni

FY71

Shurley, J. T. & R. Elsner (U. Oklahoma & Scripps Institute)
Sleep in Cetaceans, EEG Study: I. The Pilot Whale
Globicephala scammoni

FY72

Shurley, J. T. et al. (U. Oklahoma)
Sleep in Cetaceans, and EEG Study--I. The Pilot Whale,
Globicephala scammoni

Sinha, A. A. et al. (U. Minnesota)
Ultrastructural Study of Estrogen Effects and
of Placenta

FY73

Shurley, J. T. et al. (U. Oklahoma)
Sleep in Cetaceans, and EEG Study--I. The Pilot Whale,
Globicephala scammoni

Sinha, A. A. et al. (U. Minnesota)
Ultra Structural Study of Estrogen Effects and of
Placenta

FY74-FY76

(No projects reported)

FY77

Seal, U. S. (VA Medical Center, Minneapolis)
Function, Evolution and Structure of
Hormone-Binding Proteins (pinnipeds, etc.) \$ 88.6K

Theil, G. B. (VA Medical Center, Wood, WI)
The Isolation and Characterization of Fish
Myohemoglobin (harbor seal, etc.) \$ 14K

235

FY78

Seal, U. S. (VA Medical Center, Minneapolis) Function, Evolution and Structure of Hormone-Binding Proteins (pinnipedia, etc.)	\$ 83.2K
Theil, G. B. (VA Medical Center, Wood, WI) The Isolation and Characterization of Fish Myohemoglobin (harbor seal, etc.)	\$ 15.7K

FY79

(No projects reported)