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**SURVEY OF FEDERALLY-FUNDED
MARINE MAMMAL RESEARCH AND STUDIES**

FY74 - FY94

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in Fulfillment of Contract T30916452**

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The Marine Mammal Protection Act directs the Marine Mammal Commission, among other things, to conduct a continuing review of research programs conducted or proposed to be conducted under the authority of the Act. To help meet this responsibility, the Commission annually surveys other Federal agencies and the Smithsonian Institution to learn of research or studies they are either supporting or conducting which bear upon the conservation and protection of marine mammals. Information provided in response to the annual surveys is summarized in this report.

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PREFACE

The Marine Mammal Protection Act directs the Marine Mammal Commission, among other things, to conduct a continuing review of research programs conducted or proposed to be conducted under the authority of the Act. To help meet this responsibility, the Commission annually surveys other Federal agencies and the Smithsonian Institution, a trust instrumentality of the United States, to learn of research or studies they are either supporting or conducting which bear upon the conservation and protection of marine mammals. Information provided in response to the annual surveys is summarized in this report.

The summary is an update of previous summaries prepared by the author for the Marine Mammal Commission (see Table 1). The user of this summary will find the Table of Contents helpful for locating specific information and for understanding the organization and breadth of the material provided. The first section is an overview of all Federally-funded research involving marine mammals. The second section focuses upon research and studies conducted under authority of the Act. The last section lists all research and study projects identified by the surveys. Appendix A is a list of publications identified by the agencies as sources (or pending sources) of marine mammal information resulting from Federally-funded research and studies. Appendix B lists recent projects beginning with FY90. Comprehensive summaries of research and studies conducted or supported by Federal agencies and the Smithsonian Institution in fiscal years 1970 through 1979, and from fiscal years 1980 through 1989, are provided in the FY70-FY79 and FY70-FY89 reports, respectively (see p. 5).

Agencies vary in their ability to identify and retrieve information on marine mammal research and studies. Also completeness and accuracy of information provided to the Commission varies by agency and by year. One problem in this regard is the ability of various agencies to differentiate between administrative, management, enforcement, and research costs. Consequently, some of the amounts reported herein may cover activities other than research.

April 8, 1995

George H. Waring, PhD
Carbondale, IL

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LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
AFSC	Alaska Fisheries Science Center
AFWRC	Alaska Fish and Wildlife Research Center
ARPA	Advanced Research Projects Agency
ASC	Alaska Science Center (formerly AFWRC)
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DHHS	Department of Health and Human Services
DOI	Department of the Interior
DOS	Department of State
DWRC	Denver Wildlife Research Center
EPA	Environmental Protection Agency
FWS	Fish and Wildlife Service
FY	Fiscal Year
IWC	International Whaling Commission
MESC	Midcontinent Ecological Science Center (formerly NERC)
MMC	Marine Mammal Commission
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
NASA	National Aeronautics and Space Administration
NBS	National Biological Service
NCCOSC	Naval Command, Control, & Ocean Surveillance Center (formerly NOCS)
NEFSC	Northeast Fisheries Science Center
NERC	National Ecology Research Center
NFWL	National Fish and Wildlife Laboratory
NIH	National Institutes of Health
NMFS	National Marine Fisheries Service
NMML	National Marine Mammal Laboratory
NOAA	National Oceanic and Atmospheric Administration
NOSC	Naval Ocean Systems Center
NOPPO	National Ocean Pollution Program Office
NPFMC	North Pacific Fisheries Management Council
NPS	National Park Service
NSF	National Science Foundation
NSGCP	National Sea Grant College Program
NWFSC	Northwest Fisheries Science Center
OCRM	Office of Ocean and Coastal Resource Management
OCS	Outer Continental Shelf
OCSEAP	Outer Continental Shelf Environmental Assessment Program
ORCA	Office of Ocean Resources Conservation and Assessment (formerly OMA)
OMA	Office of Oceanography and Marine Assessment
SBSC	Southern Biological Science Center
SEFSC	Southeast Fisheries Science Center
SERDP	Strategic Environmental Research and Development Program
SI	Smithsonian Institution
SWFSC	Southwest Fisheries Science Center
TQ	Transition Quarter (July-September 1976)
USAF	U.S. Air Force
USDA	U.S. Department of Agriculture
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey

I. OVERVIEW OF FEDERAL RESEARCH PROGRAMS INVOLVING MARINE MAMMALS

Fourteen department-level Federal agencies reported funding marine mammal research and studies from FY74 through FY94. Often more than one agency within the larger departments funded research. Some agencies funded projects in all years, whereas others supported research or studies during only part of the period. The Department of Transportation (i.e., Coast Guard) has intermittently funded projects. The Veterans Administration gave support to a few projects early in the period; but since no further support has occurred in the past decade, this agency is no longer included in this survey. The following section in this chapter reviews the types of studies that have been supported by agencies that have funded marine mammal research during at least four of the preceding ten years. Table 1 lists previous survey information on Federally-funded marine mammal research and studies which is available through the National Technical Information Service.

The average annual number of projects funded with Federal monies during the period FY74-FY94 was 153.7 (Table 2). The trends of these data are depicted in Figure 1. Data for 1976 include the 12-month fiscal year plus a transition quarter (TQ76 = July through September 1976) when the first day of the Federal fiscal year was shifted from 1 July to 1 October. Total funds reported expended by each agency annually for marine mammal research and studies are shown in Table 3. Funding by geographical region, taxonomic group, and research issue are listed in Tables 4, 5, and 6, respectively.

FEDERAL AGENCIES FUNDING MARINE MAMMAL RESEARCH AND STUDIES

Department of Agriculture (USDA)

The Department of Agriculture has conducted studies associated with marine mammal health, environmental damage assessment, and economic interrelationships. These studies have included the San Miguel sea lion virus, investigations of epizootics, and natural resource planning.

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, basic biology, ecological interactions, and resource management for use in conserving living marine resources. For example, recent NMFS research programs have included Eastern Tropical Pacific tuna/porpoise interactions and the recovery of North Pacific fur seals, Steller sea lions, Hawaiian monk seals, and endangered whales. The cetaceans and pinnipeds (exclusive of the walrus) are among the responsibilities of this department. Research funding is heavily committed to assessment of marine mammal populations and any impacts associated with fisheries and other human activities. More recently, support for studies to determine the causes of unusual marine mammal mortality events have also been supported as well as a national marine mammal tissue banking program. Other units within the National Oceanic and Atmospheric Administration (NOAA) have supported studies on marine mammals, including the National Ocean Pollution Program Office (NOPPO), the National Sea Grant College Program (NSGCP), the Office of Ocean and Coastal Resource Management (OCRM), and the Office of Ocean Resources Conservation and Assessment (ORCA) [formerly called the Office of Oceanography and Marine Assessment (OMA)]. Additionally, the North Pacific Fisheries Management Council (NPFMC) has supported studies. The former Outer Continental Shelf Environmental Assessment Program (OCSEAP), managed by NOAA/ORCA, was responsible for part of the Alaska OCS research. OCSEAP was created through interagency agreement between NOAA and the Minerals Management Service (MMS); project funding came from MMS.

Department of Defense (DOD)

The Department of Defense conducts marine mammal research through the Headquarters Space Division of the Air Force; the Army Corps of Engineers; for Navy -- the Naval Command, Control, and Ocean Surveillance Center plus the Office of Naval Research; and the joint, multi-agency Strategic Environmental Research and Development Program (SERDP) plus the Advanced Research Projects Agency (ARPA). DOD research varies from basic environmental impact studies to applied military research to monitoring abundance and distribution of marine mammals at military facilities and bases. 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, health and husbandry, bioacoustics, cognition and memory, as well as sensory perception are supported.

Department of Energy (DOE)

The Department of Energy occasionally supports marine mammal research. Studies have focused primarily on energy flow in aquatic ecosystems and on problems associated with monitoring marine mammals.

Department of Health and Human Services (DHHS)

The Department of Health and Human Services, through the National Institutes of Health, funds some research on marine mammals; the research is basically oriented toward understanding mammalian morphology, genetics, physiology, and health (including disease processes).

Department of the Interior (DOI)

The Department of the Interior, through the Minerals Management Service (MMS), supports environmental assessment studies involving the effects of outer continental shelf (OCS) development on marine mammals and their habitats. Special studies on the effects of oil spills, noise, and other variables associated with oil and gas activities are also supported. The U.S. Geological Survey (USGS) has conducted research on marine mammal paleontology, and the National Park Service (NPS) supports some marine mammal studies relative to national park, seashore, and monument development and management. Through the end of FY93, the Fish and Wildlife Service (FWS) supported management related research on the biology, population dynamics, and ecology of walrus, sea otters, polar bears, and sirenians (manatees and dugong). With the beginning of FY94, the newly formed National Biological Service (NBS) took over conduct of research on the biology, population dynamics, and ecology of these species, in support of FWS and other DOI resource management bureaus.

Department of State (DOS)

The Department of State supports studies to compile and evaluate information on Antarctic and other treaty negotiations that may have a bearing on marine mammals and other marine species. Funds are also provided to further cetacean-related research of the Inter-American Tropical Tuna Commission, the International Whaling Commission, the National Academy of Sciences, the Marine Mammal Commission, and other organizations.

Environmental Protection Agency (EPA)

The Environmental Protection Agency supports marine mammal research through the study and monitoring of pollutant levels in coastal and pelagic marine organisms and assisting efforts to study causes of marine mammal die-off events.

Marine Mammal Commission (MMC)

The Marine Mammal Commission supports research and studies pertaining to the conservation and protection of marine mammals to improve the implementation 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 Commission's research program.

National Aeronautics and Space Administration (NASA)

The National Aeronautics and Space Administration supports research on marine mammal assessment and monitoring, especially for the manatees utilizing the environment of the Kennedy Space Center.

National Science Foundation (NSF)

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

Smithsonian Institution (SI)

The Smithsonian Institution, a trust instrumentality of the United States, supports marine mammal research on evolutionary and general biology, including a salvage program and national cetacean stranding data base, through the National Zoological Park and the Department of Vertebrate Zoology of the Museum of Natural History.

TABLE 1**Reference list of previous surveys compiled by the author
and available from the National Technical Information Service**

-
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY79. Publication PB81-174336, National Technical Information Service, Springfield, Virginia. 235 p. (1981)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY80. Publication PB81-242059, National Technical Information Service, Springfield, Virginia. 43 p. (1981)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY81. Publication PB82-227570, National Technical Information Service, Springfield, Virginia. 65 p. (1982)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY82. Publication PB83-262998, National Technical Information Service, Springfield, Virginia. 83 p. (1983)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY83. Publication PB84-215086, National Technical Information Service, Springfield, Virginia. 84 p. (1984)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY84. Publication PB85-225613, National Technical Information Service, Springfield, Virginia. 99 p. (1985)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY85. Publication PB86-235637, National Technical Information Service, Springfield, Virginia. 108 p. (1986)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY86. Publication PB87-217386, National Technical Information Service, Springfield, Virginia. 120 p. (1987)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY87. Publication PB88-212782, National Technical Information Service, Springfield, Virginia. 133 p. (1988)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY88. Publication PB90-104050, National Technical Information Service, Springfield, Virginia. 143 p. (1989)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY89. Publication PB90-272097, National Technical Information Service, Springfield, Virginia. 154 p. (1990)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY90. Publication PB91-212217, National Technical Information Service, Springfield, Virginia. 44 p. (1991)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY74-FY91. Publication PB92-190222, National Technical Information Service, Springfield, Virginia. 56 p. (1992)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY74-FY92. Publication PB93-227189, National Technical Information Service, Springfield, Virginia. 66 p. (1993)
- Survey of Federally-Funded Marine Mammal Research and Studies, FY74-FY93. Publication PB94-195021, National Technical Information Service, Springfield, Virginia. 76 p. (1994)
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TABLE 2

NUMBER OF MARINE MAMMAL RESEARCH PROJECTS SUPPORTED BY FEDERAL AGENCIES IN FY74-FY94

	FY74	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	
Department of Agriculture	2	1				2	1	4						9	7							
Department of Commerce																						
National Marine Fisheries Service	13	8	9	13	14	14	34	31	25	31	26	29	34	28	32	35	48	58	41	46	55	
National Ocean Pollution Program Office												1										
National Sea Grant	4	2	1	1	2	2	2	2	1	3	2	4	1				1	2	4	6	4	
North Pacific Fishery Management Council							1	1	1	1	1											
Ocean and Coastal Resource Management								2	4	6	4	5	9	8	1							
Ocean Resources Conservation and Assessment									2	2	1	1	1	1	1	1	1	1	1	1	1	2
Department of Defense																						
Advanced Research Projects Agency (ARPA)																						3
Air Force						1	1	1			2	2	2	2	1	1	1	1	2	1	2	
Army						1	2												1	1	1	
Naval Ocean Surveillance Center (NCCOSC)	16	8	7	14	17	8	9	6	8	7	8	12	13	13	12	12	7	7	8	7		
Naval Research Laboratory						1																
Office of Naval Research	10	6	6	7	7	11	8	7	6	4	4	3	3	11	8	8	1	1	8	32	46	
Strategic Environmental Research (SERDP)																			2	6		
Department of Energy		1	1	2	2		1	1	1				1	1								
Department of Health and Human Services	20	26	17	13	12	8	9	11	12	9	8	11	8	9	13	16	13	10	4		5	
Department of the Interior																						
Fish and Wildlife Service	15	20	27	40	43	52	44	33	27	29	22	17	21	20	19	22	22	18	16	15	1	
Geological Survey				1	1	1	1	1	1	1	1											
Minerals Management Service		1	4	3	4	7	12	8	10	9	12	12	13	26	13	24	26	28	23	10	8	
MMS/NOAA/OCSEAP		3	16	11	11	6	6	7	9	8	6	3	4	2	1	1	2	1				
National Biological Service													3	3	2	6	2	6	10	10	14	
National Park Service	1	1	2	3	5	2	2	4	3	3	3		3	3	2	6	2	6	10	10	6	
Department of State					2	1	1	2	2	2	2	2	3	3	2	3	3	3	3	2	5	
Department of Transportation (Coast Guard)																						1
Environmental Protection Agency	1	1												1	1	2	2	5	6	5	3	
Marine Mammal Commission	14	32	30	29	34	7	21	16	15	13	30	32	20	25	25	16	18	24	23	29	16	
National Aeronautics and Space Administration	1	1	1	2	2			1				1	3	2	1	1	2	2	2	2	2	
National Science Foundation	12	7	10	10	8	11	14	8	10	11	10	12	12	10	8	9	12	11	12	9	4	
Smithsonian Institution	4	4	2	2	2	2	2	2	3	3	3	3	5	3	1	1	1	1	1	2	1	
TOTAL:	113	122	133	151	166	137	171	148	140	142	145	150	156	177	148	158	162	180	165	180	184	

FIGURE 1
TRENDS IN FEDERAL SUPPORT OF MARINE MAMMAL RESEARCH

Total Number of Marine Mammal Projects Reported to the
Marine Mammal Commission, FY74-FY94

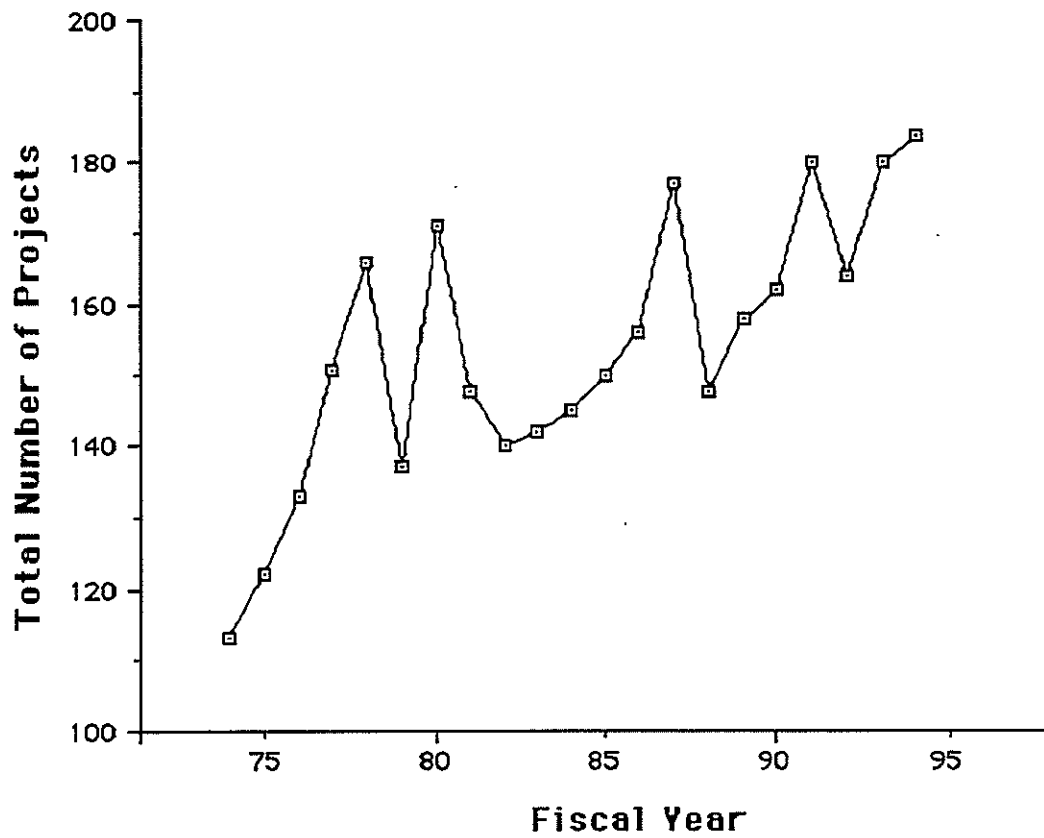


TABLE 3

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

	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Department of Agriculture			209		84.7													
Department of Commerce																		
National Marine Fisheries Service	2313.8	3603.2	4425.9	5126.7	4531.6	3896.4	4050.7	4077	5021	4628.7	4652.9	4482.9	4801.4	7010.6	11925.1	16445.9	14464.7	14339.8
National Ocean Pollution Program Office									20									
National Sea Grant Program	25.8	49.7	68	59.7	35.1	30	46.7	79.6	66.4	21.4				32.3	47.3	105.5	220.5	249.1
North Pacific Fishery Mgmt. Council				97.2	28.9	10	11.5	5										
Ocean and Coastal Resource Mgmt.					67	56.6	35.9	81	81.9	185.1	145	63						
Ocean Resources Conserv. and Assessment						58	123.6		59	55	15	15	15	25	425	425	425	848
Department of Defense																		
Advanced Research Projects Agency																	224	751
Air Force			40	15	79.2			6.5	15.5	58.5	58.5	55	55	173.9	106.7	244.4	173.2	349.7
Army			44	122											247.9	248.5	580	
Naval Ocean Surveillance Center (NCCOSC)	718	545	717	1979	1729	1524	1708	1506	1699	2004.5	2084	1982	1909	979	864	865	735	
Naval Research Laboratory			20															
Office of Naval Research	414	430	538.4	462.8	302.8	204	195.2	224	407.6	483.8	1284.2	1483.8	2128	160	200	1565	3172.2	3597.1
Strategic Environmental Research (SERDP)																	2249	1894
Department of Energy	80	80		30	20	25				70	70							
Department of Health and Human Services	781	772	392.8	602.5	755.8	899.2	684.4	629	1052.8	852.1	735.2	1089.1	1678.3	1421.5	1324.4	576.9		606.6
Department of the Interior																		
Fish and Wildlife Service	933	1042.7	1452.5	1418.9	1127.2	1221	1261.2	1007.7	936.1	1542.3	2349.4	2498.6	3367.6	3007.9	3648.5	3034	3052	17.4
Geological Survey	31.2	30.5	20	45.5	79.6	62.8	76	71										
Minerals Management Service	2242	2519.8	7457.3	6173.2	3507.2	3830.6	4275.9	3595.9	3140.7	2698.3	1695.9	3025.4	5228.9	3462.9	3088.1	2712.8	1691	618
National Biological Service																		3243.8
National Park Service	16.5	64.8	45.8	68	376.9	223	300.4	235		17.5	39.5	27	86.2	50	66	1300	621.8	84.1
Department of State		51	500	582.9	719.4	644.6	540.6	709.4	795.6	869.4	926.6	913.8	929.2	1148.5	1235.2	1488.9	1300.4	1669.5
Department of Transportation																		80
Environmental Protection Agency											8.5	8	175	100	227.2	119.2	158.9	142.6
Marine Mammal Commission	420.3	376.1	152.6	358.7	134.7	84.1	204.9	298.7	197.7	85	100.5	102.8	104.8	92.7	94.2	250.9†	150.9-	135.8Δ
National Aeronautics and Space Admin.	50	65		12	143.3				10	8.7	1.6	6.2	6	19.1	17.5	16.5	30	30
National Science Foundation	718.9	334.2	478.3	677.6	574.5	560.6	503	691.9	729.8	620.5	757.6	668.4	901.8	820.9	858.3	1039.7	549.6	316.9
Smithsonian Institution	106.1	101.1	133.4	142.8	152.3	148.8	170.4	207.5	212.5	222.5	212	150	161.2	185	169	144.4	182.1	144.2
TOTAL	8,850.6	10,065.1	16,696	17,984.5	14,449	13,478.7	14,188.4	13,425.2	14,445.6	14,423.3	15,346.4	16,565.8	21,547.4	18,669.3	24,544.4	30,331.7	29,829.4	28,981.8

* Funding totals provided on this table reflect total annual project costs identified in Appendix B as reported by each agency.

† Included in this total is \$127,000 transferred from other agencies to the Marine Mammal Commission.

- Included in this total is \$100,000 transferred from other agencies to the Marine Mammal Commission.

Δ Included in this total is \$91,500 transferred from other agencies to the Marine Mammal Commission.

TABLE 4

REGIONALLY ORIENTED MARINE MAMMAL RESEARCH IN WATERS ADJACENT TO THE UNITED STATES*
(Thousands of Dollars; Number of Projects Shown in Parentheses)

Geographical Region	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Hawaii	118.2 (6)	71.4 (2)	411.1 (11)	114.8 (2)	130 (2)	481.7 (4)	302.5 (3)	360.8 (3)	332.9 (4)		3+	1.5 (1)	429 (4)	487.6 (4)	747 (3)	1033.7 (6)	833 (3)
Alaska	3336.8 (46)	3746.7 (17)	5407.4 (34)	3992.1 (29)	4949.4 (31)	4367.5 (30)	4960.2 (25)	4708 (28)	3787.5 (31)	4294 (39)	2827.5 (23)	5776.2 (34)	5612.9 (33)	8462.6 (49)	7714.8 (43)	6435.2 (38)	6081.9 (36)
Oregon/Washington	60.3 (4)	68 (2)	229.9 (2)	234.5 (5)	73.6 (4)	165.3 (4)		23.2 (1)			1524.2 (3)	1520.2 (2)	68.6 (2)	37 (3)			85 (2)
California	317.2 (12)	1675.2 (11)	3234.9 (19)	862.3 (13)	1160.7 (17)	1693.9 (25)	1491.9 (32)	1505 (24)	1040.2 (23)	1066.8 (19)	1418.5 (12)	1318.8 (8)	1550.7 (8)	2868.7 (11)	3548.1 (14)	2281.1 (14)	2531.9 (10)
Gulf of Mexico	2.4 (2)	144.3 (1)	200 (1)	330.8 (2)	275.5 (3)	20 (1)	238.5 (3)	15 (1)	168.1 (1)		62 (4)	154.2 (4)	248.1 (4)	897.8 (6)	3353.3 (4)	3214.3 (6)	3167.7 (5)
Florida	269 (12)	656.3 (4)	858.2 (21)	306.8 (9)	429.8 (8)	610.6 (12)	384.8 (8)	622 (10)	295.6 (10)	573.9 (16)	242.5 (18)	504.2 (12)	560.9 (11)	659.5 (9)	1327.7 (8)	1346.1 (8)	627.4 (3)
Mid-Atlantic States (GA, SC, NC, VA)			200 (2)	293.3 (1)	4 (4)		2.6 (1)		1.5 (1)	669.6 (5)	455.9 (6)	725.8 (5)	544.7 (6)	520.6 (7)	437 (6)	120 (1)	885 (6)
NE Coastal States	1484 (4)	2762.9 (1)	292.7 (14)	1025.1 (8)	170 (6)	145.2 (10)	141.3 (7)	311.1 (11)	642.8 (15)	141.6 (11)	334.5 (9)	438 (13)	661 (17)	2873.2 (26)	962.3 (13)	1513.9 (15)	1111.7 (15)

*Note -- Many marine mammal projects reflected in the data on Table 3 were not regionally oriented and thus are not listed on this table.

TABLE 5

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

	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Sirenia (Manatees and Dugong)																	
Department of Agriculture																	
Department of Commerce																	
Department of Defense		44	122														
Department of Energy																	
Dept. Health and Human Services																	
Department of the Interior	267.1	580.5	328.7	358	353	391.6	276.8	284.1	224	389.5	396.4	402.6	419.8	437.2	739.3	681	597.4
Department of State																	
Environmental Protection Agency																	
Marine Mammal Commission	0.8		109			2.5	4.5	1.5	5	2	41.4	36	0.8	4	4.5	18.2	2.5
NASA	15							10	8.7	1.6	6.2	6	19.1	17.5	16.5	30	30
National Science Foundation				46.5												50	52
Smithsonian Institution																	
CATEGORY TOTAL	282.9	624.5	559.7	404.5	353	394.1	281.3	295.6	331.7	393.1	444	444.6	439.7	458.7	810.3	781.2	629.9
Carnivora (Polar Bear and Sea Otter)																	
Department of Agriculture				22.2													
Department of Commerce		59.7	71	5.1				6.1	10								
Department of Defense																	149
Department of Energy	30		30	20	25												
Dept. Health and Human Services																	
Department of the Interior	717.7	809.4	718	639.2	914	1096.7	1156.3	1303.7	1332.4	1883.4	1995.8	2938	2457.6	3148.2	2435.7	2504.1	1425.8
Department of State																	
Environmental Protection Agency												75	50	80		40	
Marine Mammal Commission	49.9			18	5.6	31.8	67	33.3		2		7.5		3	14		19.2
NASA																	
National Science Foundation		22.6	36.3					149.5		44	44	44		174.3	122.4	122.4	
Smithsonian Institution																	
CATEGORY TOTAL	797.6	891.7	855.3	704.5	944.6	1128.5	1223.3	1492.6	1342.4	1929.4	2039.8	3064.5	2507.6	3405.5	2572.1	2666.5	1594
Pinnipedia (Seals, Sea Lions, Walrus)																	
Department of Agriculture		200															
Department of Commerce	858.7	956.7	1454.7	940.2	1081.4	1188.8	1269.4	1650.7	1169	48.8	221.1	35.6	1504.8	2447.7	4522.3	3700.7	3836.2
Department of Defense	325	246	359	149.2	50	72.9	68.5	179.9	233.3	344	264.9	502	173.9	106.7	184.4	417.9	909.7
Department of Energy									70	70							
Dept. Health and Human Services		76.6	43.5	51.4	38.4			57	51.8	162.2	143.9	259.5	227.5	178	72.1		161.2
Department of the Interior	664.6	589	467.7	541.9	385.1	268	494.8	75	170.2	639.3	228.1	161.2	267.9	367.8	1140.6	391.9	33.6
Department of State																	20
Environmental Protection Agency														50	25		12.1
Marine Mammal Commission	33.7	59.1	106	56	12	159.1	12.5	32.8	8.7	17	3.5	7	14.7	17	11.3	10	10
NASA																	
National Science Foundation	141.5	243.2	240.7	292.3	359.1	330.4	420.7	350.7	307.3	354.5	339.4	225	258.4	213.8	480.9	333.7	209.9
Smithsonian Institution	45	47.4			11.8	22.4	42.5	42.5	76.5	58							66.2
CATEGORY TOTAL	2088.5	2418	2665.6	2031	1937.8	2041.6	2308.4	2388.6	2088.8	1694.8	1201.9	1190.3	2447.2	3381	6436.6	4920.4	5192.7

TABLE 5 (continued)

TAXONOMIC SUMMARY OF FEDERALLY-FUNDED MARINE MAMMAL RESEARCH

	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Cetacea (Whales and Porpoises)																	
Department of Agriculture				44.6													
Department of Commerce	2794.2	3326.3	3542.8	3118	2304.2	2037	2421.7	2540.7	2995	2376.7	2257.5	2705.5	3111.3	3342.8	7515.1	7088.1	6679.2
Department of Defense	446	746.4	1583.8	1485.6	1355	1522.3	1218	1566.2	1973.5	2532.1	2565.9	2680	1139	1064	2300	3017.1	4148.8
Department of Energy																	
Dept. Health and Human Services	149.6	74.1	167.1	463.4	229.9	146.9	162.4	22.4			84.7	86.5	97.3	108.9			221
Department of the Interior	278	2937.5	2239.8	1910.4	2580.9	1905.6	2354.2	2888.6	1688.6	932.1	1372.7	2193.5	2456.2	1760.2	2517.8	565	838
Department of State		500	592.9	719.4	644.6	540.6	709.4	795.6	860	919.3	911.1	926.1	1146.7	1234	1488.9	1300.4	1649.5
Department of Transportation																	80
Environmental Protection Agency												100	50	97.2	94.2	118.9	130.5
Marine Mammal Commission	169.7	81	133.7	34.4	28	5	63	74	39.8	301.2	27.7	4.5	23	30.3	61.4	44	14.3
NASA				143.3													
National Science Foundation	163.1	187.9	380.8	235.7	158.3	162.6	221.3	101.1	43	200	200	510.8	444	403.7	324.9	41.5	107
Smithsonian Institution																	
CATEGORY TOTAL	4000.6	7853.2	8640.9	8154.8	7300.9	6320	7150	7988.6	7539.9	7261.4	7419.6	9186.9	8467.5	8041.1	14302.3	12175	13668.3
Mixed Species or General Studies																	
Department of Agriculture		9		17.9													
Department of Commerce		210.9	245.1	635.9	635.4	1042.6	551.5	1050.8	776.2	2586.4	1688.5	2075.3	2565.8	6606.9	4939	4321.4	4659.3
Department of Defense	204	323	520	476	323	318	450	326	340	560.8	690	930		247.9	438.5	3368.4	1284.3
Department of Energy	50																
Dept. Health and Human Services	622.4	242.1	391.9	241	630.9	537.5	466.6	973.4	800.3	573	860.5	1332.3	1096.7	1037.5	504.8		224.4
Department of the Interior	1730.4	3999.5	3945.9	1654.3	1091.7	2200.6	624.4	740.4	842.9	279.9	1560	2987.4	746.6	1089.2	213.4	1222.8	1268.5
Department of State	51								9.4	7.3	2.3	3.1	1.8	1.2			
Environmental Protection Agency																	
Marine Mammal Commission	122	12.5	10	26.3	38.5	6.5	151.7	56.1	31.5	27.3	30	49.8	54.2	39.9	159.7	78.7	89.8
NASA	50																
National Science Foundation	29.6	25.6	19.8		43.2	10	49.9	128.5	176.2	159.1	80	122	118.5	66.5	61.5		
Smithsonian Institution	56.1	86	142.8	152.3	137	148	165	170	146	154	150	161.2	165	169	144.4	115.9	144.2
CATEGORY TOTAL	2915.5	4908.6	5275.5	3203.7	2899.7	4263.2	2459.1	3445.2	3122.5	4347.6	5041.3	7661.1	4748.6	9259.1	6461.3	9107.2	7670.5

*In some cases, studies were related to human health and medicine or other topics with little or no bearing on the marine mammal subjects.

TABLE 6

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

SPECIAL RESEARCH ISSUE	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FUNDING AGENCY	LINE TOTAL
Tunn/Porpoise:																		
Population Assessment	482.7	676.9	615	482	570	507.3	485.8	606.5	1079.9	1002	1025.4	919.2	554.2	1036.6	1020.1	382.3	NMFS	11385.9
				4			1.8	1.3									MMC	7.1
	500	592.9	687.1	609.2	673.9	673.9	782	853	914.3	911.1	918.8	1138.4	1225.8	1443.9	1238.5	1537.9	DOS	14678.7
Mortality Reduction	512.9	433.1	303.8	30	30.9									1351.4	475.7	450	NMFS	3587.6
			5.8										17				MMC	22.8
Assessment of Taking	329.5	346.9	246.7	320.7	225	181.8	179.3	134.7	185.1	185.1							NMFS	2334.8
Biology	705.3	382.4	430.2	318.3	331	296.5	319.2	288.8	303.5	361.6	360.1	592.7	902.6	245	357	269.4	NMFS	6463.6
		31.6															NSF	31.6
International Whaling Commission:																		
Assessment of Stocks and Taking		340.5	433		700	858	815	753								74.5	NMFS	3972
	70.9	65					16.1				3				8		MMC	163
			32.3	35.4	35.3	35.5	33.6	7	5		9.3	8.3	49	45	61.9	111.6	NSF	49
																	DOS	428.4
Marine Mammal/Fisheries Conflicts:																		
Southern Ocean Krill				10		49.2											MMC	59.2
	25.6																NSF	25.6
Fin Fish/Pinniped Interactions	68		30	30	39.2	79.6	44.6	21.4					5.5	3	5		NSGCP	312.8
		4.9	32.5	10													MMC	60.9
Shell Fish/Sea Otter Interactions	70	604.6	349.9	309.3	226.4	221.1	701	365.4		801.8	772.9	1255.7	2600.8	1617.3	1331.1	1508.3	NMFS	12735.6
		6	5.1				6.1										NSGCP	17.2
		4.5			31				142.5	253.9	242.6	36.9	322.9	204.6	207.3	157	NBS/FWS	1603.2
			142.4														NMFS	142.4
Fin Fish/Cetacean Interactions				10													OCRM	10
		2		5		14.1		3									NPFMC	10
																	MMC	24.1
Incidental Taking				10	12	64.9	26.8	11	4			68	718.8	337	535.5	231	NMFS	1890.3
				22		14.8	85	121.3	78.5	165.6			16				MMC	144.7
						5						25	3007	1497.7	767.2	1187	NMFS	6938.1
							20										NPFMC	5
																	NOPPO	20
Effects of Oil/Gas Development and Chemicals on Marine Mammals:																		
Physiological Studies	1097.8	394.1	111.8	1390.3	2485.5	1650.1		221.9		65.5	134.7						MMS	7551.7
			2														MMC	2
											75	100	195	25	73.9		EPA	488.9
													425	425	425	425	ORCA	1700
Fluk Analyses				184.4	51.8	617.8	977.5	409.5	454.2	647.2	833.9	994.7	1383.5	1872.8	1142	953	MMS	10502.1
					3.3	5.9	6.9				7.5		1.1				MMC	24.7
											923.8	580	978		598.7	224.9	FWS/NBS	3305.4
											30	50					NPS	80
												678.3	32	438.6	409	743	NMFS	2300.9
																423	ORCA	423

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

SPECIAL RESEARCH ISSUE	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FUNDING AGENCY	LINE TOTAL
Marine Mammal Strandings:																		
Biological Studies					6	1.8	10.5			7.5	32		12.4	5			MMC	75.2
		15		20	25	30	30	35	35	35	36	38	50	50		9	SI	410
	3.5	20	30	31.5	24.6	2							131.8	120	120	146.5	NMFS	629.7
	18.7	15			60	103											FWS	198.7
							7.5										OCRAM	7.5
													32.2	71.2	75	75	EPA	253.4
																3	NPS	3
Bowhead Whale:																		
Assessment of Stocks and Taking	871.1	737.2	765.1	456.9		806			441	175.1	359	316.2	192	655	499.3	313.9	NMFS	8587.8
		591	345.3		317.4	625.4	543.6	480	180.3		380	603.3	284	512.8	549	549	MMS	5921.1
							4										MMC	4
Biology		590				589.6	724.5	183.5	156.6	123.5	287.7	22.5		54.8			MMS	2712.7
Humpback Whale:																		
Population Assessment	15	39.1	70.7	39	38.8	30.1	113.1	62.8	45.7	21.2	2.2	23	45	250	240	387.8	NMFS	1443.5
		15	9	5	5		4.5	11		3	1.5	7.4	7.5	1.5	8		MMC	78.4
								15	15	23	20		20.9	16	16	20	NPS	145.9
																265	SERDP	265
												8					MMS	8
Biology	38.8	63	376.3	223	293.4	225			7				13				NPS	1240.5
			4.1		12.6	11		3.3	18	20	20	27	20				NMFS	134
	40.2	42.3															NSF	82.5
	48	24															Navy	72
								63	63								OCRAM	126
															43.4		NSGGP	43.4
Gray Whale:																		
Population Assessment	25.7						63.8	59									NMFS	148.5
		37	9														Navy	48
					317.4	538.4	521.5	468.5	180.3				84	79.6			MMS	2187.7
								45.6									OCRAM	45.6
Biology		187.7	58.1	497			480	188.2					38.6				MMS	1449.6
							38.7										NSF	38.7
									10								OCRAM	10
Assessment of Human-Induced Impact			3.8	6			11								2		MMC	22.8
Northern Right Whale:																		
Population Assessment			27.8	25	47.7	11	49.7	401.2	265.5	207.1	190	190	194	234.6	324	509.9	NMFS	2677.5
			3	4		32.1		4		4.2		2	2	28.4	20		MMC	99.7
									209.6	214.4	215	414.5	195.6				MMS	1249.3
																80	USCG	80
Biology				9													Navy	9
									200	200	249.1	283.3	200.2				NSF	1132.6
											30	45	45				NMFS	120
												19.6	3.5	12.5			MMS	35.6
Killer Whale:																		
Population Assessment	3							4									NMFS	7
													5.4				MMC	5.4
													5.4				NPS	5.4
							5										NSF	5
Biology												32.3	32.3				NSGGP	64.6
													14				NPS	14

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

SPECIAL RESEARCH ISSUE	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FUNDING AGENCY	LINE TOTAL
Pilot Whales:																		
Population Assessment									10.4			45	10				MMC	10.4
Biology			10										10	12.3			NMFS	55
																	USDA	10
																	NMFS	22.3
Beluga:																		
Population Assessment			49.8				4.8		0.2			84	79.6				MMS	213.4
													25	184	275.5	172.8	MMC	5
Biology		350	525	134	130.3												NMFS	857.3
				102	100	162.5	219	224	250								MMS	264.3
													54.6	57.1		171.7	Navy	2104.2
															107		NSF	218.7
Harbor Porpoise:																		
Population Assessment		45		30	9.6	1			7	33	67	181	270	327	553.5	353	NMFS	1877.1
					4			9	30								OCRM	43
								10	5.8								MMC	15.8
Biology											5			24	12		NPS	5
													3				NSGCP	36
															107.5	21.1	MMC	3
																	Navy	128.8
Dall's Porpoise:																		
Population Assessment	6.9	264		228	165	165	127.6	117		285	327	553.6	977				NMFS	3218.1
Bottlenose Dolphin:																		
Population Assessment	160.8	219.9	221.8	248.3	238.5	248.5	292.9	177.7	208.8	62	137	172	31.9	105	65	750	MMC	42.5
						15		4.5	13.5	8	100			23	10	55.5	NMFS	3358.1
																	EPA	196.5
Biology	467	903.9	850	1074	1310	975.5	1130	1305.5	1848.1	1805.9	2318	677	884	525	676.5	785.5	NSGCP	169
										84.7	66.5	97.3	108.9		66.3	62.7	Navy	17515.9
	85.3	90.1	107	48.9	58.5	221.3	57.4	6.9				9.1	99.9	167.8			DHHS	377.4
				4						15.5		10.6					NSF	950.2
	9				13.5					100	2		35	250			MMC	30.1
																	NMFS	409.5
Northern Fur Seal:																		
Population Assessment	430.2	246	156.6	263.3	237.4	309.5	274.4	259.9	5	5.5		5.5	5.5	6	7	9	NMFS	2220.8
					4.1												MMC	4.1
Biology	269.3	410.9	420.2	285.4	237.4	309.5	274.4	252.5						4	4		NMFS	2467.6
						1.5											MMC	1.5
	88								7								Navy	88
							112										OCRM	7
												15					MMS	127
Guadalupe Fur Seal:																		
Antarctic Seals:																		
Population Studies	97			68.4	39.9	49.9	41.8			54.3						35	NSF	388.3
										160	291	328.8	335	415	445	393.1	NMFS	2385.9
																20	DOS	20
Biology	70.4	171.7	252.2	168.5	179	292.9	159.7	231	311.2	242.5	225	115.5	51.4	377.2	333.7	174.9	NSF	3358.8
												2					MMC	2

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

SPECIAL RESEARCH ISSUE	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FUNDING AGENCY	LINE TOTAL
Arctic Seals:																		
Population Studies						65.7			88								MMS	153.7
													10				NPS	10
Biology	212		281.6	157		292	19.9	3.5									MMC	23.4
			38.8				60	75	250				144	25			MMS	1498.6
					75.5		38.2						102.6	98.7			NSF	278.3
								70	70								NMFS	75.5
																	DOE	140
Hawaiian Monk Seal:																		
Population Assessment	31.2	50.9	31	28	15												FWS	156.1
	3	108.3		102	311.7	300	340.6	326.4				417.9	447.6	731.2	717	519	NMFS	4324.7
		60.9										3.7					MMC	64.6
Biology		34.9			150												MMC	184.9
								2.5	18								SI	20.5
													15	14.3	33.7		NSGCP	83
													20				Army	20
Gray Seal:																		
Population Studies		2.3	1.3		1.4												NMFS	5
Harbor Seal:																		
Population Studies			23.5				5.7		14			5	4				MMC	52.2
	6					3.5		0.5			15		1.2	237		18.1	NPS	281.3
		53.7													12.1		NSGCP	65.8
	11.5	39.4	3.5	20		0.7	1.3	29.2		29	33	33		300.4	101		NMFS	602
						0.5	0.5	0.5	0.5								USAF	2
Biology						7											MMC	7
	50																MMS	50
		25															Navy	91.3
			38.3		23.8				3.8					500	450	443.5	NMFS	1457.4
				15			39.4	12	14								OCRM	80.4
					2.5									24.3			NSGCP	26.8
				50	20												OMA	70
Northern Elephant Seal:																		
Population Studies	4.1						16		1	1							NMFS	4.1
																	OCRM	18
														170	120		NPS	290
																12.1	EPA	12.1
Biology	41.2	30.2		45	51	61	55		43.3	42.6			142.9				NSF	512.2
	10	5.3		12				1.2	3				2				MMC	33.5
		43.5	51.7	38.4			45	39.8	149.3	131.7	30	63.4	70.3			52	DHHS	715.1
									20	25		57.5	27.5	25			MMS	155
																408.5	Navy	406.5
California Sea Lion:																		
Population Studies	82.5					15	15										NMFS	82.5
						3.5											OCRM	30
																	NPS	3.5
Biology	200																USDA	200
		247				124	164.4	174.8	285.5	209.9	447					55.4	Navy	1708
				11.8	22.4	42.5	42.5	30									SI	149.2
								.8									OCRM	8

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

SPECIAL RESEARCH ISSUE	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FUNDING AGENCY	LINE TOTAL
Stellar Sea Lion:																		
Population Studies	148	95															MMS	243
			34.9											191.3	101		NMFS	327.2
					11.5												NPFMC	11.5
					5		6.8						2.5				MMC	14.3
													1.2	2			NPS	18.7
														24.6	20.4	15.5	NSGCP	45
Biology														889.9	712.5	750	NMFS	2152.4
Walrus:																		
Population Studies	141.8	231.8	99	50	50	53.9		94.7	201.6	201.1	146.2	195.4	183.8	168.6	153.9		FWS	1969.8
			130.3	150.1	25	19.6											MMS	325
								4					7				MMC	21
Biology	20														2		MMC	22
				77.2	60.5	66.8	15										NSF	219.5
												38.8					MMS	38.8
Manatees and Dugong:																		
Population Studies	290.3	255.7	300	150	100	211.8	142	112	97	50.5	18.4			22.9			FWS	1780.6
								10	5.2	1.6	6.2	6	13.9	10	10	23.5	NASA	109.9
		3															NPS	3
		109				4.5			2	16.5	35			3.3	12.5		MMC	182.8
	10																MMS	10
Biology	127.2	45	52	173	291.6	20	142	112	275	345.9	388	419.8	437.2	716.4	681	597.4	FWS/NBS	4803.5
	44	122											145.2				Amy	311.2
							1.5	5		17.9	1		4		5.7		MMC	35.1
								3.5							6.5	6.5	NASA	35.7
									17.5		16.2	5.2	7.5	6.5	6.5	6.5	NPS	33.7
														50	52		NSF	102
Polar Bear:																		
Population Studies	251	140.8	200	80	73.7	80.9	135.8	174.9	602.2	692.9	690.6	673.8	638.5	605.9	657.5	465	FWS/NBS	6163.5
														14	17.2		MMC	31.2
Biology		50	54	140	100	80.9	125.1	437	85	166.1	135.4	126.8	122.3	112.2	121.6	133	FWS/NBS	1991.4
	22.6	36.3															NSF	58.9
Sea Otter:																		
Population Studies	530.4	400	185.2		100	195.2	120	144.8	85	527.7	572.8	560.9	210.4	24.1	15.3	43	FWS/NBS	3714.8
					770.8	86.1	249.6	90									MMS	1202.5
														380	380		NPS	720
Biology			16	5.6	8.9	35.1	1.9		2						3		MMC	72.5
		30	20	25													DOE	75
	28	189.8	200	470	403.9	196.8	190.7	398.9	775.5	258.5	470	395.3	702.5	690.3	543.7	403	FWS/NBS	6314.9
							149.5		44	44	44		174.3	122.4	122.4		NSF	700.8
								2		4							NPS	6
				124	463.2					90.7	16	63.9	6.8				MMS	784.6
																149	USAF	149

* Amounts underlined are estimated subunits of totals reported by the agency under more general categories.

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

II. RESEARCH AND STUDIES UNDER AUTHORITY OF THE MARINE MAMMAL PROTECTION ACT OF 1972, AS AMENDED

The Marine Mammal Protection Act of 1972 (MMPA) established the Marine Mammal Commission and assigned marine mammal protection and conservation responsibilities to the Secretaries of Commerce, the Interior, and State. Such responsibilities have, in some cases, been delegated to agencies within a department. The Act noted the need for better information on the biology, ecology, and management of marine mammals and assigned research responsibilities. Responsibilities for research and its implementation were specified in Sections 108, 109, 111, 112, 202, and 205. Public Laws 102-523, 102-587, and 103-238 added additional research and study responsibilities regarding fishery conflicts, marine mammal health, marine mammal strandings, and ecosystem health and stability. Funding authorized for marine mammal activities conducted by the National Marine Fisheries Service and the Fish and Wildlife Service under Title I of the Act is authorized under Section 116 of the Act. Additional funding authority for cooperative agreements between the agencies and Alaska Native organizations, including cooperative research activities is provided in Section 119. Separate funding authority for activities related to marine mammal health and stranding response under Title IV of the Act is set forth in Section 408.

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 FY74 through FY94 are listed in Table 9.

RESEARCH RESPONSIBILITIES OF FEDERAL AGENCIES UNDER THE MARINE MAMMAL PROTECTION ACT

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

With the establishment of the Act, the Secretary of Commerce was directed to undertake, in consultation with the Marine Mammal Commission, a study of North Pacific fur seals to determine whether herds of such seals, subject to the jurisdiction of the United States, were at their optimum sustainable population and what population trends were 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 to the Marine Mammal Protection Act, or both, to make the Convention and the Act consistent with one another [Sec. 108].

Among other things, the Secretary of Commerce was directed by the Act 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 [Sec. 111]. In 1984, the Secretary of Commerce was directed to commence a research program to monitor the indices of abundance and trends of marine mammal population stocks which are taken incidentally in the course of commercial purse seine fishing for yellowfin tuna. In 1988, the Secretary of Commerce was directed to conduct a study of possible impacts on marine mammals of seal control devices as well as other explosive devices used in the commercial yellowfin tuna fishery. The Secretary also was directed in 1988 to develop a fishery reporting and observation program to obtain reliable estimates of the numbers of marine mammals being taken incidentally in various fisheries in U.S. waters and, in consultation with the Marine Mammal Commission, to develop a recommended system for regulating such takes after 1 October 1993 [Sec. 114]. Title IV was added to the Act in 1992, directing the Secretary to develop contingency plans for responding to, and determining the cause and effect of, unusual marine mammal stranding events. The Secretary was also directed to establish the National Marine Mammal Tissue Bank and to develop guidance for analysis of tissue samples to monitor health trends of, and contaminant levels in, marine mammals.

Amendments enacted in 1994 require establishment of three regional scientific review groups to advise the Secretary on the status and trends of marine mammal stocks that occur in U.S. waters [Sec. 117]. Among other things, the scientific review groups are to identify research needed to resolve uncertainties regarding stock separation, abundance, or trends; factors affecting the distribution, size, or productivity of the stock; and the number, age, sex, and reproductive status of marine mammals that comprise the stock. The scientific review groups are also charged with advising the Secretary on research needed to identify modifications in fishing gear and practices likely to reduce the incidental mortality and serious injury of marine mammals. The Secretary is also required to undertake a research program to monitor the health and stability of the Bering Sea marine ecosystem and to resolve uncertainties concerning observed declines in marine mammals, sea birds, and other marine resources [Sec. 110]. The amendments also direct the Secretary to undertake an investigation of the impacts of California sea lions and Pacific harbor seals on endangered, threatened, or vulnerable salmonid stocks, and on the coastal ecosystems of Washington, Oregon, and California [Sec. 120].

Both the Secretary of Commerce and the Secretary of the Interior are authorized by the Act to make grants to states to assist them in developing programs for the conservation and management of marine mammals and in administering such programs if management authority for such species is transferred to the state. Such grants are not to exceed 50 per centum of the costs of a particular program's development and implementation [Sec. 109(j)(1 & 2)].

The Secretaries are also authorized to make grants to any Federal or state agency, public or private institution, or other person for the purpose of assisting such agency, institution, or person to undertake research in subjects which are relevant to the protection and conservation of marine mammals [Sec. 110]. In 1994, provisions were added to specifically study the Gulf of Maine ecosystem and the Bering Sea ecosystem. Additional authority for grants to Alaska Native organizations for research conducted pursuant to a cooperative agreement with the Secretary was added in 1994 [Sec. 119].

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 provisions 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 conditions of the stocks of marine mammals, of methods for their protection and conservation, of humane means of taking marine mammals, of research programs conducted or proposed to be conducted under authority of the Act, and of all applications for permits for scientific research, public display, or enhancing the survival or recovery of a species or stock; 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 gives 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)

<u>Department of Commerce (NMFS)</u>	<u>AUTHORIZED</u>	<u>REQUESTED</u>	<u>APPROPRIATED</u>
FY74	4667	5300	1600
FY75	3667	2550	4445
FY76	3667	2550	4872
FY77	4667	4939	7042
FY78	11700	4872	7228
FY79	11425	7042	7080
FY80	11925	6728	7416
FY81	12425	7875	7475
FY82	7223	7416	7700
FY83	8000	7416	9225
FY84	8800	5571	8475
FY85	8800	5615	9375
FY86	8800	5850	8670
FY87	8800	6150	9375
FY88	8800	7586	8670
FY89	15440	7128	9291
FY90	12740	7061	16595
FY91	21780	19579	19266
FY92	21780	20237	21945
FY93	22331	23428	20588
FY94	22331	21101	21337
<u>Department of the Interior (FWS/NBS)</u>			
FY74	1358	700	700
FY75	1358	1358	1358
FY76	1358	1358	1358
FY77	1358	1358	1358
FY78	2050	1358	1539
FY79	2350	1600	2000
FY80	2660	2000	2000
FY81	3376	2000	2000
FY82	1600	1600	1600
FY83	1760	1690	1690
FY84	2000	1658	1249
FY85	2500	1292	1289
FY86	3000	2024	1815
FY87	3000	1050	1310
FY88	3000	1077	1776
FY89	3000	777	1326
FY90	3120	761	1411
FY91	3240	1419	1419
FY92	3370	1450	1450
FY93	3500	1450	1450
FY94	3304	1355	1653

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

Marine Mammal Commission (MMC)	AUTHORIZED	REQUESTED	APPROPRIATED
FY74	1000	825	412
FY75	1000	1000	750
FY76	1000	1000	900
FY77	1000	1000	1000
FY78	1000	900	900
FY79	1000	702	702
FY80	1000	640	940
FY81	1000	1000	734
FY82	672	672	672
FY83	1000	594	822
FY84	1100	638	929
FY85	1100	648	929
FY86	1100	738	861
FY87	1100	855	910
FY88	1100	906	953
FY89	1100	933	953
FY90	1140	960	960
FY91	1190	1003	1153
FY92	1230	1153	1250
FY93	1280	1310	1260
FY94	1500	1290	1290

Note: Figures on this table reflect administrative and enforcement costs as well as research costs. The figures for FWS/NBS and NMFS are those reported to the Commission by those agencies. Funding under the column headings reflect levels listed as (1) authorized under sections of the Act, (2) requested funding of the agencies, and (3) funds subsequently appropriated by Congress. Implementation of the 1988 "Interim Exemptions" evident in the NMFS appropriations beginning in FY90.

TABLE 8

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

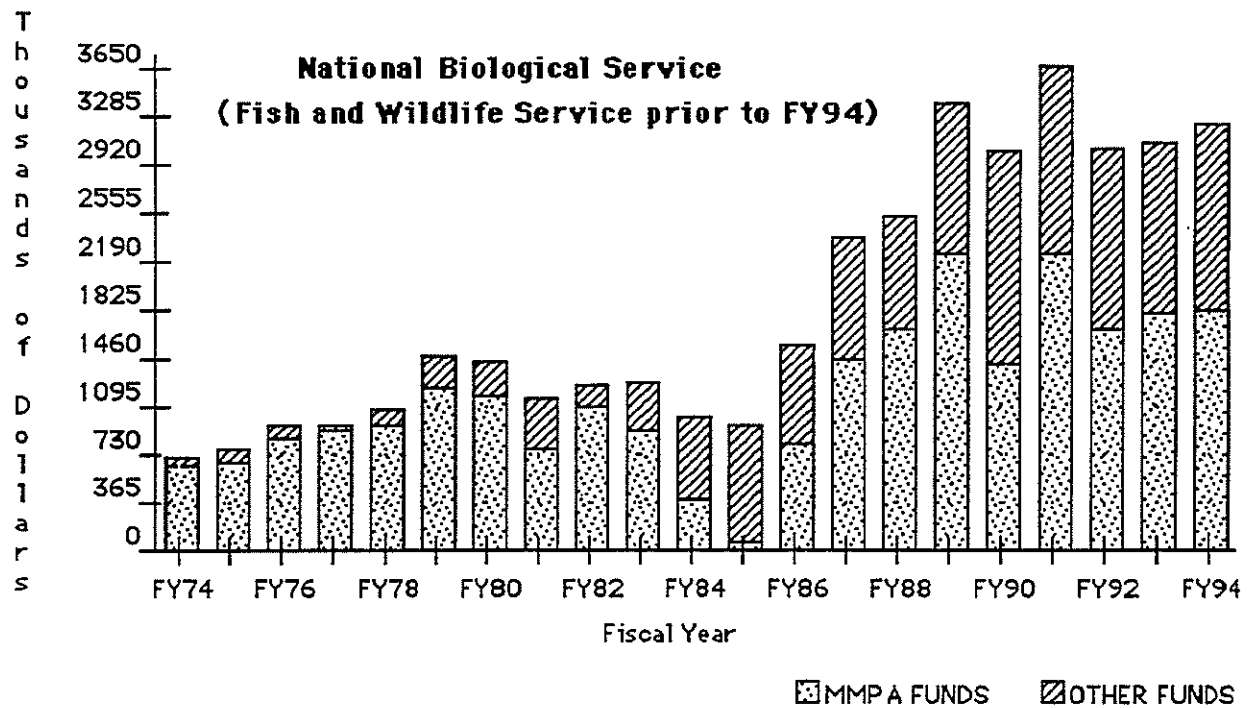
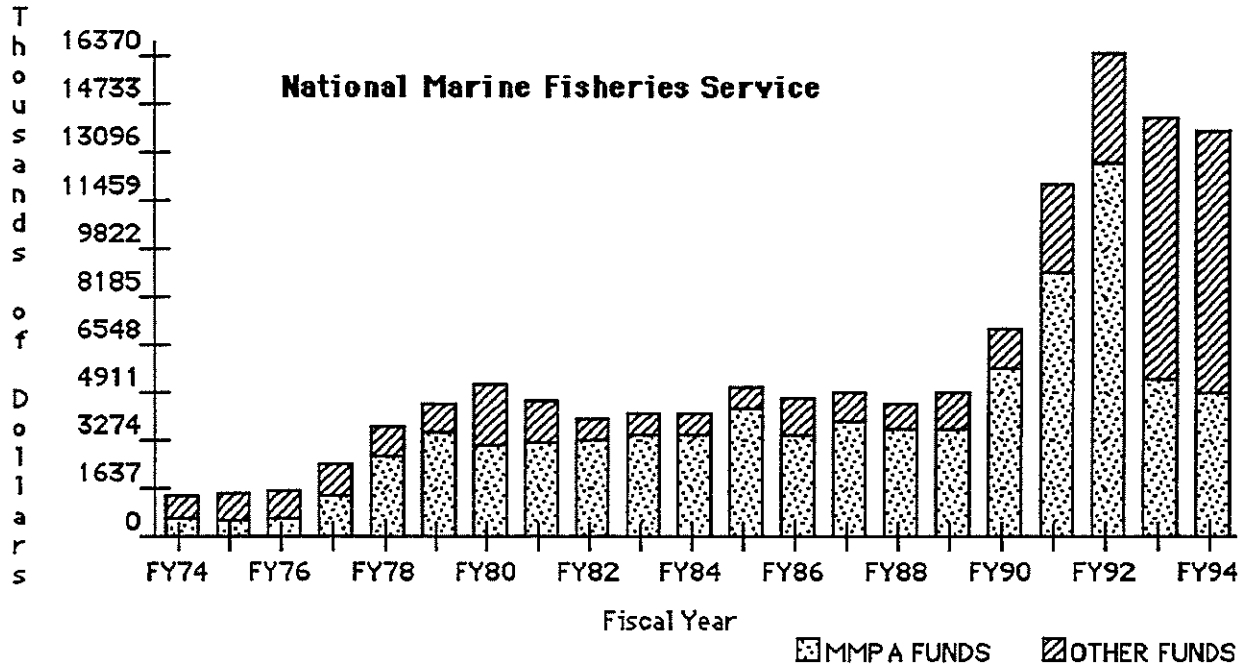
	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Department of Commerce, NOAA																				
National Marine Fisheries Service																				
Fur Seal Act Authorization	395	743	595	595	595	595	595	595	595	619	620	654	654	477	368	448				
Reprogramming and Reserves	442	59	78																	
Endangered Species Act Appropriation			294	294	294	1428	775					500	250	350	799	803	2899	3609	8821	8812
NMFS TOTAL	837	802	967	889	889	2023	1370	595	595	619	620	1154	904	827	1167	1251	2899	3609	8821	8812
Department of the Interior																				
National Biological Service																				
(re USFWS before FY94)																				
FWS Appropriation	75	83.3	16			82.2														298
Endangered Species Act Appropriation				93.7	213.1	162	362.9	123	348	614	879	736.3	891	825	1125	1170	1398	1348	1253	1050
National Wildlife Refuge System Administration Act Appropriation								11	5											
Oil Spill Damage Assessment																414				63
NBS/FWS TOTAL	75	83.3	16	93.7	213.1	244.2	362.9	134	353	614	879	736.3	891	825	1125	1584	1398	1348	1253	1411

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

FIGURE 2

FUNDS EXPENDED ON MARINE MAMMAL RESEARCH
BY THE NATIONAL MARINE FISHERIES SERVICE AND THE
NATIONAL BIOLOGICAL SERVICE, FY74-FY94*

(Thousands of Dollars)



* Figure 2 is developed from data shown on Table 3 and Table 8.

TABLE 9

NUMBER OF PERSONNEL ASSIGNED TO MARINE MAMMAL ADMINISTRATIVE AND RESEARCH ACTIVITIES
IN THE NATIONAL MARINE FISHERIES SERVICE AND THE NATIONAL BIOLOGICAL SERVICE, FY75-FY94*

National Marine Fisheries Service**																				
	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Administrative	28	42	7	8	86.5		33.5	27.1	16	19.9	23.2	21.8	11.8	22.3	23.1	38.3	51.7	58.7	53.3	59.7
Research	33	31	17	20	48.9		60.7	61.2	42.7	76.3	75.6	76.3	63.5	67.3	70.2	80.5	98.4	134.8	131.2	125.3
NMFS Total	61	73	24	28	135.4	166.1	94.2	88.3	58.7	96.2	98.8	98.1	75.3	89.6	93.3	118.8	150.1	193.5	184.5	185
National Biological Service (re Fish and Wildlife Service before FY94) ***																				
	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Administrative	14.1	15.2	16.6	17.1	20.3	24.6	23.3	21.5	6	18.1	21.1	19.8	1.5	5.5	5.4	4	4.2	4.2	4.2	5
Research	11	11.8	14.8	13.2	17.2	17.4	17.8	16.5	16	17.6	17.8	16.5	27.7	29.1	31.4	29.8	37.3	30.2	28.1	29
NBS/FWS Total	25.1	27	31.4	30.3	37.5	42	41.1	38	22	35.7	38.9	36.1	29.2	34.6	36.8	33.8	41.5	34.4	32.3	34

*Figures provided by the agencies.

**The National Marine Fisheries Service changed their method of reporting --
in FY77, to number of personnel; in FY79, to permanent employee man-years; and
in 1984, to full-time equivalents.

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

APPENDIX A

SOURCES OF PUBLISHED INFORMATION FROM FEDERALLY-FUNDED RESEARCH AND STUDIES ON MARINE MAMMALS

Department of Commerce

National Marine Fisheries Service

Administrative reports of the various fisheries centers
 Annual Reports for the Marine Mammal Protection Act
 Bulletin of Zoological Nomenclature
 Canadian Journal of Fisheries and Aquatic Sciences
 (Journal Fisheries Research Board of Canada)
 Canadian Journal of Zoology
 Conservation Biology
 Contributions to edited books
 Ecology
 Evolution
 Fishery Bulletin (NMFS, NOAA, Department of Commerce)
 International Whaling Commission Annual Reports
 International Whaling Commission, Working Papers of the
 Scientific Committee
 Journal of Mammalogy
 Journal of Theoretical Biology
 Journal of Wildlife Management
 Marine Fisheries Review (NMFS, NOAA, Department of Commerce)
 Marine Mammal Division -- Annual Reports on Fur Seal Investigations
 Marine Mammal Science
 Marine Pollution Science
 NOAA Technical Reports, NMFS Scientific Reports--Fisheries
 North Atlantic Studies
 Oceanus
 Pacific Science
 Physiological Zoology
 Polar Biology
 Proceedings of conferences

National Sea Grant College Program

Marine Mammal Information

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

Administrative reports of contractors
Fishery Bulletin
Marine Fisheries Review
NOAA Technical Reports
Proceedings of conferences

Department of Defense

Air Force

Headquarters Space Division Technical Reports
Space Shuttle Final Environmental Impact Statement

Navy

Acta Zoologica Fennica
American Journal of Veterinary Research
Animal Behavior Processes
Annals of the New York Academy of Science
Aquatic Mammals
Arctic
Behavioral and Brain Sciences
Biology of Reproduction
Brain, Behavior and Evolution
Breviora
Canadian Journal of Zoology
Cetology
Contributions to edited books
Deep-Sea Research
Diseases of Aquatic Organisms
Fishery Bulletin
Journal Acoustical Society of America
Journal American Veterinary Medical Association
Journal of Mammalogy
Journal of Morphology
Journal of Wildlife Diseases
Marine Fisheries Review
Marine Mammal Science
Microbios Letters
Naval Ocean Systems Center Technical Reports
Polar Record
Proceedings of conferences
Science
Transactions of the San Diego Society of Natural History
Vision Research

Department of Energy

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

Department of the Interior**Fish and Wildlife Service/ National Biological Service**

Acta Anatomica
 Acta Zoologica
 Aquatic Mammals
 Biological Conservation
 Bulletin of Marine Science
 Contributions to edited books
 Cornell Veterinarian
 Fishery Bulletin
 Florida Scientist
 Journal American Veterinary Medical Association
 Journal of Comparative Physiology
 Journal of Mammalogy
 Journal of Morphology
 Journal of Wildlife Diseases
 Journal of Wildlife Management
 North American Fauna Series
 Northeast Gulf Science
 Reports available through the National Technical Information Service
 U. S. Department of the Interior, Fish and Wildlife Service:

- a) Annual Reports for the Marine Mammal Protection Act
- b) Biological Services Reports
- c) National Fish and Wildlife Laboratory Reports
- d) Wildlife Research Reports

 Veterinary Clinical Pathology
 Zoomorphology

Geological Survey

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

Minerals Management Service

American Zoologist
 Bulletin of Marine Science
 Canadian Journal of Zoology
 Contributions to edited books
 Fishery Bulletin
 Journal of Herpetology

Journal of Mammalogy
 Journal of Wildlife Management
 Marine Mammal Science
 NOAA/OCEAP Annual Reports
 NOAA/OCEAP Final Reports
 NOAA/OCEAP Lease Area Synthesis Reports
 Project reports available through the National Technical Information Service
 Regional information transfer meetings
 Southwestern Naturalist
 Various workshops

National Park Service

Administrative reports

Department of State

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

Marine Mammal Commission

Project reports available through the National Technical
 Information Service
 Marine Mammal Commission Annual Report
 Numerous scientific journals and contributions to edited books

National Science Foundation

Antarctic Bibliography
 Antarctic Journal of the United States
 Numerous scientific journals

Smithsonian Institution

Behavioral Ecology and Sociobiology
 Contributions to edited books
 Fishery Bulletin
 Florida State Museum, Plaster Jacket
 Journal of Mammalogy
 Marine Mammal Science
 Physiological Zoology
 Proceedings of the Biological Society of Washington
 Smithsonian Institution Contributions to Marine Sciences
 Smithsonian Institution Contributions to Paleontology
 Smithsonian Institution Contributions to Zoology
 Systematic Zoology

APPENDIX B

LISTING OF MARINE MAMMAL RESEARCH AND STUDY PROJECTS, PRINCIPAL INVESTIGATORS, AND FUNDING LEVEL FOR FY90-FY94*

COMPILED FROM INFORMATION PROVIDED
TO THE MARINE MAMMAL COMMISSION
BY EACH AGENCY

* For a listing of projects for the period **FY70-FY79**, see Waring, G. H., 1981, Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY79, Publication PB81-174336, National Technical Information Service, Springfield, Virginia, 235 p.

For a listing of projects for the period **FY80-FY89**, see Waring, G. H., 1990, Survey of Federally-Funded Marine Mammal Research and Studies, FY70-FY89, Publication PB90-272097, National Technical Information Service, Springfield, Virginia, 154 p.

Department of AgricultureFY90-FY94

(No projects)

Department of Commerce

1. National Marine Fisheries Service

A. Alaska Fisheries Science Center

FY90

Bengtson, J. (NMML) Antarctic Ecosystem Program (8L1A5T3N)	\$326.8K
Braham, H. W. (NMML) Laboratory Administration (8L1A5T3A)	\$436.6K
Calkins, D. G. (Alaska Dept. of Fish and Game) Assessment of Injury to Steller Sea Lions in Prince William Sound and the Gulf of Alaska ("Exxon Valdez" Oil Spill)	\$171.2K
DeLong, R. L. (NMML) California Current Ecosystem Program (8L1A5T3C)	\$297.5K
Fowler, C. W. (NMML) Ecosystem and Population Assessment Program (8L1A5T3E)	\$447.9K
Jones, L. L. (NMML) High Seas Fisheries Interactions (8L1A5T3H)	\$233.4K
High Seas Squid Drifnet (8L2B5N00)	\$320.2K
Jones, L. L. and D. Withrow (NMML) Arctic Whales Program (8L1A5T3R)	\$316.2K
Lowry, L. and K. Frost (Alaska Dept. of Fish and Game) Assessment of Injury to Harbor Seals in Prince William Sound and Adjacent Areas ("Exxon Valdez" Oil Spill)	\$159.3K
Loughlin, T. R. (NMML) Bering Sea and Gulf of Alaska Ecosystem (8L1A5T3B)	\$715.3K
Matkin, C. and O. von Ziegesar (North Gulf Oceanic Society) Assessment of Injuries to Killer Whales in Prince William Sound, Kodiak Archipelago, and Southeast Alaska ("Exxon Valdez" Oil Spill)	\$255.8K
Matkin, C., D. McSweeney, J. Straley, and O. von Ziegesar Effects of the "Exxon Valdez" Oil Spill on the Distribution and Abundance of Humpback Whales in Prince William Sound, Southeast Alaska, and the Kodiak Archipelago	\$92K

FY91

Bengtson, J. (NMML) Antarctic Ecosystem Program (8L1A5T3N)	\$335K
Braham, H. W. (NMML) Laboratory Administration (8L1A5T3A)	\$589K
DeLong, R. L. (NMML) California Current Ecosystem Program (8L1A5T3C)	\$830K
Fowler, C. W. (NMML) Ecosystem and Population Assessment Program (8L1A5T3E)	\$356K
Jones, L. L. (NMML) High Seas Fisheries Interactions (8L1A5T3H)	\$977K
Jones, L. L. and D. Withrow (NMML) Arctic Whales Program (8L1A5T3R)	\$192K
Loughlin, T. R. (NMML) Bering Sea and Gulf of Alaska Ecosystem (8L1A5T3B)	\$1300K

FY92

Bengtson, J. (NMML) Antarctic Ecosystem Program	\$415K
Braham, H. W. (NMML) Laboratory Administration	\$520K
MMPA Population Assessment	\$1543K
DeLong, R. L. (NMML) California Current Ecosystem Program	\$695K
Fowler, C. W. (NMML) Ecosystem and Population Assessment Program	\$525K
Jones, L. L. (NMML) High Seas Fisheries Interactions	\$1028K
Jones, L. L. and D. Withrow (NMML) Arctic Whales Program	\$325K
Loughlin, T. R. (NMML) Alaska Ecosystem Program	\$922.3K

FY93

Bengtson, J. (NMML) Antarctic Ecosystem Program	\$445K
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Braham, H. W. (NMML)	
MMPA Population Assessment	\$965K
Laboratory Administration	\$759K
DeLong, R. L. (NMML)	
Ecosystem Program	\$345.7K
DeMaster, D. P. (NMML)	
Arctic Whales Program	\$185.4K
High Seas Fisheries Interactions	\$594.8K
Fowler, C. W. (NMML)	
Ecosystem and Population Assessment Program	\$418.8K
Loughlin, T. R. (NMML)	
Alaska Ecosystem Program	\$985.4K

FY94

Bengtson, J. L. (NMML)	
Antarctic Ecosystem Program	\$393.1K
Braham, H. W. (NMML)	
Marine Mammal Assessment Program	\$801.7K
Laboratory Administration	\$693K
DeLong, R. L. (NMML)	
California Current Ecosystem Program	\$354.2K
DeMaster, D. P. (NMML)	
Arctic Ecosystem and Oceanography Program	\$510K
Driftnet Research	\$168K
Fowler, C. W. (NMML)	
Ecosystem Ecology and Assessment Program	\$195.4K
Loughlin, T. R. (NMML)	
Alaska Ecosystem Program	\$899.1K

B. Alaska Regional OfficeFY90

Spraker, T. (Wildlife Pathology International)	
Humane Observer Studies of the Northern Fur Seal Subsistence Harvest (0-HAWF-0-00092)	\$3.5K
Zacharof, M. (Aleut Community of St. Paul)	
1990 Fur Seal Subsistence Harvest Data (0-HAWF-0-00091)	\$2K

FY91

Morris, R. (AKR/PRMD) Cook Inlet Beluga Whale Survey	\$25K
Munro, N. and D. Hicks (Saltwater, Inc.) Marine Mammal Observers: Prince William Sound and Unimak Pass Gillnet Fisheries (0-ABNF-0-00036)	\$1300K
Spraker, T. (Wildlife Pathology International) Humane Observer Studies of the Northern Fur Seal Subsistence Harvest (0-HAWF-0-00092)	\$3.5K
Zacharof, M. (Aleut Community of St. Paul) 1990 Fur Seal Subsistence Harvest Data (0-HAWF-0-00091)	\$2K

FY92

Alaska Eskimo Whaling Commission Manage the Bowhead Harvest and Conduct Research	\$330K
Alaska and Inuvialuit Beluga Whale Committee Beluga Whale Studies	\$184K
Calkins, D. (Alaska Dept. Fish and Game) Research on Steller Sea Lions	\$689.9K
Insley, S. (Univ. California, Davis) Effects of Airport Noise on Northern Fur Seals on St. George Island	\$4K
Lowry, L. (Alaska Dept. Fish and Game) Harbor Seal Research	\$500K
Spraker, T. (Colorado State Univ.) Humane Observer Studies of the Northern Fur Seal Subsistence Harvest	\$4K
Wolfe, R. (Alaska Dept. Fish and Game) Determination of Number of Steller Sea Lions and Harbor Seals Taken by Alaska Natives	\$382.6K
Zacharof, D. (Aleut Community of St. Paul) 1992 Subsistence Harvest Data (Northern Fur Seal)	\$2K

FY93

Alaska Eskimo Whaling Commission Manage the Bowhead Harvest and Conduct Research	\$313.9K
Alaska Department of Fish and Game Study to Determine the Number of Steller Sea Lions and Harbor Seals and Bristol Bay/Cook Inlet Beluga Whales Taken by Alaska Natives	\$304.7K
Alaska and Inuvialuit Beluga Whale Committee Beluga Whale Studies	\$172.8K

Calkins, D. (Alaska Department of Fish and Game) Cooperative Agreement to Conduct Research on Steller Sea Lions	\$712.5K
Insley, S. (Univ. California, Davis) Investigate the Effects of Airport Noise on Northern Fur Seals on St. George Island	\$4K
Lowry, L. (Alaska Department of Fish and Game) Cooperative Agreement to Conduct Harbor Seal Research	\$450K
Spraker, T. (Colorado State Univ.) Humane Observer Studies of the Northern Fur Seal Subsistence Harvest	\$4K
Williams, M. (Univ. Alaska) Monitor Fur Seal Subsistence Harvest by Aleut Residents of St. George Island	\$1K
Zacharof, D. (Aleut Community of St. Paul) Provide Assistance in the Collection of 1994 Subsistence Harvest Data	\$2K

FY94

Alaska Eskimo Whaling Commission Manage the Bowhead Harvest and Conduct Research	\$313.9K
Alaska and Inuvialuit Beluga Whale Committee (North Slope Borough) Beluga Whale Studies	\$172.8K
Calkins, D. (Alaska Department of Fish and Game) Cooperative Agreement to Conduct Research on Steller Sea Lions	\$750K
Lowry, L. (Alaska Department of Fish and Game) Harbor Seal Research	\$443.5K
Spraker, T. (Colorado State Univ.) Humane Observer Studies of the Northern Fur Seal Subsistence Harvest	\$4K
Williams, M. (Univ. Alaska) Saint George Fur Seal Subsistence Harvest	\$3K
Wolfe, R. (Alaska Department of Fish and Game) Alaska Native Marine Mammal Subsistence Study	\$304.7K
Wynne, K. (Alaska Sea) Copper River Delta Beachcast Surveys	\$15K
Zacharof, D. (Aleut Community of St. Paul) Provide Assistance in the Collection of 1994-95 Subsistence Harvest Data	\$2K

C. Northeast Fisheries Science CenterFY90

Brault, S. (National Research Council) Pilot Whale Population Dynamics (OP.4)	\$45K
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Finn, J. (Univ. Massachusetts) North American Right Whale Program: Population Dynamics (OP.1.4)	\$18K
Katona, S. (College of the Atlantic) Humpback Whale Individual Identification (OP.3.2)	\$23K
Kraus, S. (New England Aquarium) North American Right Whale Program: Individual Identification (OP.1.3)	\$79K
Mayo, C. A. (Center for Coastal Studies) Distribution and Habitat Usage of Large Cetaceans (OP.3.1)	\$41K
North American Right Whale Program: Habitat Requirements (OP.1.2)	\$33K
Nicolas, J. (NEFSC) Marine Mammal Biological Sampling (ER.2)	\$23K
Payne, P. M. (Manomet Bird Observatory) Fishery Resource and Marine Mammal Sighting Surveys (ER.1.1)	\$46K
Polacheck, T. (NEFSC) Harbor Porpoise Program: Sighting Survey (OP.2.2)	\$75K
Polacheck, T. and D. Potter (NEFSC) Harbor Porpoise Program: Sighting Survey Methods (OP.2.2)	\$49K
Smith, T. D. (NEFSC) Marine Mammal By-Catch Estimation (HI.2)	\$25K
North American Right Whale Program (OP.1)	\$12K
Harbor Porpoise Program OP.2)	\$25K
North Atlantic Humpback Whale Program (OP.3)	\$6K
Waring, G. T. (NEFSC) Predation and Spatial Co-Occurrence (ER.1)	\$49K
Cetacean Habitat Survey (ER.1.2)	\$19K
Winn, H. and R. Kenney (Univ. Rhode Island) North American Right Whale Program: Sighting Data and Habitat Use (OP.1.1)	\$93K
<u>FY91</u>	
Brault, S. (National Research Council) Pilot Whale Population Dynamics (OP.4)	\$10K
Christensen, D. (NEFSC) Commercial Fishery Monitoring (HI.1)	\$69K

Drew, S., P. Gerrior, and G. Power (Manomet Bird Observatory and NEFSC) Domestic Observer Program (HI.1.1)	\$1588K
Finn, J. (Univ. of Massachusetts) North Atlantic Right Whale Program: Population Dynamics (OP.1.4)	\$22K
Gerrior, P. (NEFSC) Foreign Observer Project (HI.1.2)	\$-0-
Katona, S. (College of the Atlantic) North Atlantic Humpback Whale Program: Humpback Whale Individual Identification (OP.3.2)	\$20K
Kraus, S. (New England Aquarium) North Atlantic Right Whale Program: Individual Identification (OP.1.3)	\$79K
Krieger, K. and D. Potter (New England Aquarium and NEFSC) Pilot Whale Release (OP.5)	\$10K
Mayo, C.A. (Center for Coastal Studies) Distribution and Habitat Usage of Large Cetaceans (OP.3.1)	\$20K
North Atlantic Right Whale Program: Habitat Requirements (OP.1.2)	\$33K
Nicolas, J. (NEFSC) Marine Mammal Biological Sampling (ER.2)	\$25K
Palka, D. (NEFSC) Harbor Porpoise Program: Sighting Survey (OP.2.1)	\$180K
Potter, D. (NEFSC) Harbor Porpoise Program: Harbor Porpoise Aerial Survey (OP.2.3)	\$40K
Read, A. and S. Kraus (Woods Hole Oceanogr. Inst. and New England Aquarium) Harbor Porpoise Program: Inshore Sighting Survey (OP.2.2)	\$25K
Smith, T. D. (NEFSC) Harbor Porpoise Program: HPP (OP.2)	\$25K
Marine Mammal By-Catch Estimation (HI.2)	\$50K
North Atlantic Right Whale Program: NARWP (OP.1)	\$12K
North Atlantic Humpback Whale Program: NAHWP (OP.3)	\$10K
Waring, G. T. (NEFSC) Predation and Spatial Co-Occurrence (ER.1)	\$50K
Northeast Cetacean Aerial Survey (ER.1.1)	\$173K
Cetacean Habitat Survey (ER.1.2)	\$250K
Winn, H. and R. Kenney (Univ. Rhode Island) North Atlantic Right Whale Program:	

Sighting Data and Habitat Use (OP.1.1) \$93K

FY92

Desportes, G. (Faroe Islands)
Analysis of Reproductive Status in the Northeast (40EANF-201695) \$12.3K

Gilbert, J. (Univ. Maine, Orono)
Aerial Survey of Harbor Seals in the Northeast (50EANF-2-00064) \$41.1K

Hain, J. (NEFSC)
Mitigating Human Impacts (Net Entanglements and Ship Strikes) on Right
Whales in Their Calving and Wintering Grounds Off the Southeast U.S. \$48K

Kenney, R. (Univ. Rhode Island)
An Integrated Program for Research on the North Atlantic Right Whale
Off the Eastern U. S. (NA27FEO044301) \$186.6K

Potter, D. (NEFSC)
NMFS Marine Mammal Electronic Tagging and Tracking (ETT) Program \$140K

Read, A. (Woods Hole Oceanographic Institution)
Life History of Small Cetaceans -- Part I. (50EANF-2-00082) \$49.2K

Smith, T. D. (NEFSC)
Harbor Porpoise Population Structure and Abundance \$327K

Summer Abundance Estimates by Catch and Vital Rates and Habitat Use
for the Delphinid Complex and Beaked Whales in the Northeast \$136K

Years of the North Atlantic Humpback Whale (YONAH) \$250K

Monitoring Harbor Seal Abundance and Distribution \$68K

FY93

Griffin, R. (Univ. Rhode Island)
Distributional Ecology of Apex Predators (NA17FEO414) \$28.6K

Hain, J. (NEFSC)
Endangered Species \$214.1K

Kenney, R. (Univ. Rhode Island)
Movements of North Atlantic Right Whales in the Great
South Channel (NA17FEO415) \$21K

Maintain Computer Database for Right Whales in Waters of
the Western North Atlantic (NA37FEO434) \$29.9K

Knowlton, A. (New England Aquarium, Boston)
Computer Modelled Analysis of Ship Strikes on North Atlantic
Right Whales (40EAMF-4-00534) \$24K

Kraus, S. (New England Aquarium, Boston)
Maintain North Atlantic Right Whale Photo-ID Catalog (52EANF-4-00048) \$35K

Nicolas, J. and K. Bisack (NEFSC) By-Catch and Biology (cetaceans)	\$195K
Palka, D. and D. Potter (NEFSC) Harbor Porpoise Abundance and Distribution	\$553.5K
Read, A. (Woods Hole Oceanographic Institution) Life History of Small Cetaceans -- Part II. (50EANF-2-00082)	\$95.9K
Smith, T. D. (NEFSC) Humpback Whales -- YONAH	\$240K
By-Catch Reduction	\$70.5K
Waring, G. T. and J. Nicolas (NEFSC) Large Marine Predator Abundance and Distribution	\$100K
<u>FY94</u>	
Clapham, P. (Center for Coastal Studies, Provincetown) YONAH analysis -- an Integrated Program for Research on North Atlantic Humpback Whale (NA47FL0068)	\$50K
Griffin, R. (Univ. Rhode Island) Distributional Ecology of Apex Predators (NA17FEO414)	\$30.9K
Hain, J. (NEFSC) Endangered Species	\$193.1K
Katona, S. (College of the Atlantic, Bar Harbor) Maintain North Atlantic Humpback Whale Photo-ID Catalog (50EANF-1-00056)	\$112.8K
Kenney, R. (Univ. Rhode Island) Movements of North Atlantic Right Whales in the Great South Channel (NA17FEO415)	\$40.4K
Nicolas, J. and K. Bisack (NEFSC) By-Catch and Biology	\$18.3K
Pabst, A. (James Madison Univ., Harrisburg) Physiological Function of the Dorsal Fin on Small Cetaceans	\$10.6K
Palka, D. and D. Potter (NEFSC) Harbor Porpoise Abundance and Distribution	\$268K
Potter, D. (NEFSC) By-Catch Reduction	\$36K
Electronic Tagging and Tracking	\$33.1K
Read, A. (Woods Hole Oceanographic Institution) An Integrated Program for Research into the Life History of Small Cetaceans in the Northwest Atlantic	\$91.7K

Smith, T. D. (NEFSC) Humpback Whales -- YONAH	\$175K
International Whaling Commission Scientific Report	\$74.5K
Stewart, B. (Hubbs Sea World, San Diego) Development of Satellite-linked Radio Transmitter Tag Package for Small Cetaceans	\$41.3K
Waring, G. T. (NEFSC) Large Marine Predator Abundance and Distribution	\$38.1K
D. Northwest Fisheries Science Center	
<u>FY90</u>	
Varanasi, U. (NWFSC) Chemical and Biochemical Analyses of Marine Mammals	\$27.5K
<u>FY91</u>	
Varanasi, U. (NWFSC) Chemical and Biochemical Analyses of Marine Mammals	\$54.5K
<u>FY92</u>	
Varanasi, U. (NWFSC) National Marine Mammal Tissue Bank and Marine Mammal Contaminants Monitoring Projects	\$250K
<u>FY93</u>	
Varanasi, U., J. Stein, and S. Chan (NWFSC) Toxic Chemicals in Marine Mammals: Development of Nationwide and Integrated Database to Assess Regional and Species Differences in Toxic Chemical Impact	\$200K
Expansion of the Database on Chemical Contaminants in Gray Whales; Effects of Tissue Decomposition on Analyses of Chemical Contaminant Levels in Cetaceans; Distribution of Chlorinated Hydrocarbons in Blubber of Bottlenose Dolphins	\$90K
<u>FY94</u>	
Stein, J. E., S.-L. Chan, and M. M. Krahn (NEFSC) Toxic Chemicals in Marine Mammals: Development of a Nationwide and Integrated Database to Assess Regional and Species Differences in Toxic Chemical Impact	\$334K
E. Northwest Regional Office	
<u>FY90</u>	
Brown, R. (Oregon Dept. of Fish and Wildlife)	

Oregon Harbor Seal and Sea Lion Project (NA88-ABD-00103) \$35.6K

FY91

Brown, R. (Oregon Dept. of Fish and Wildlife)
Oregon Harbor Seal and Sea Lion Project (NA17FX0278-01) \$35.6K

FY92-FY93

(No projects reported)

FY94

Scordino, J. and R. DeLong (Northwest Region Office and NMML)
Evaluation of Pinniped Deterrence Methods \$75K

F. Southeast Fisheries Science Center

FY90

McGowan, M. (SEFSC)
Image Archival and Processing for Right Whales, Humpback
Whales, and Bottlenose Dolphins (FSN100-8L1C4T) \$16K

Mullin, K. (SEFSC, Pascagoula Laboratory)
Deep Water Cetaceans of the Gulf of Mexico \$83.1K

Powers, J. (SEFSC, Miami Laboratory)
Stock Structure Analysis of Bottlenose Dolphins
(FSN100-8L1C4T) \$12K

Low-Level Monitoring of Bottlenose Dolphin Stocks in the
Coastal Waters of the Southeastern United States
(FSN100-8L1C4T) \$100K

Photogrammetric Analysis of Bottlenose Dolphin
Populations (FSN100-8L1C4T) \$10K

Regional Aerial Survey of the Gulf of Mexico (FSN100-8L1C4T) \$50K

Emergency Investigation of Gulf Dolphin Dieoff \$114K

FY91

Cross, F. (Beaufort Laboratory)
Marine Mammal and Turtle Strandings (SEC-9-91-12) \$9.1K

Kifer, R. (Charleston Laboratory)
Marine Mammals and Endangered Species, Research & Technical
Support (SEC8-91-03) \$122.5K

Nichols, S. (Mississippi Laboratory)
Low Level Marine Mammal Monitoring (SEC2-91-09) \$31.9K

Powers, J. (Miami Laboratory)	
Bottlenose Dolphin Low-Level Monitoring (SEC1)	\$-0-
Bottlenose Dolphin Fishery Interaction I (SEC1)	\$12K
Emergency Investigation -- Gulf of Mexico Dolphin (SEC1)	\$35K
Emergency Investigation -- Megaborg Oil Spill (SEC1)	\$32K
Marine Mammal Assessment Studies I (SEC1)	\$69K
Marine Mammal Assessment Studies III (SEC1)	\$86K
Marine Mammal Assessment Studies IV (SEC1)	\$110K

FY92

Brown, B. (SEFSC)	
NMFS Regional Marine Mammal Abundance Assessment (SEC1-92-01 & SEC1-92-04)	\$217K
Cooperative Marine Mammal Assessments (NMFS, MMS, TAMU & OSU) (SEC1-92-06, SEC2-92-09, SEC2-92-10)	\$1917K
SE U.S. Marine Mammal Stranding Network-Related Activities (SEC1-92-03, SEC5-92-08, SEC6-92-16, SEC8-92-03, SEC9-92-21)	\$120K
Bottlenose Dolphin Low Level Monitoring (SEC1-92-02)	\$105K
Marine Mammal Fishery By-Catch Observer Program	\$337K
Bottlenose Dolphin Mortality and Condition Indices Investigation	\$250K
Marine Mammal Abundance Assessments -- (Methods) Inter-Platform Comparison	\$88K

FY93

Gitschlag, G. (SEFSC, Galveston)	
Sea Turtle and Marine Mammal Associations with Petroleum Platforms (SEC7-94-05)	\$409K
Hansen, L. and R. Blaylock (SEFSC)	
Marine Mammal Assessments (SEC4-94-19)	\$360K
Southeastern U.S. Marine Mammal Strandings Life History Project	\$120K
Monitoring of Bottlenose Dolphin Population in Tampa Bay, Florida	\$35K
Lee, D. (SEFSC)	
Oceanic Pelagic Fishery Observers (SEC4-94-15)	\$170K
Mullin, K. and W. Hoggard (SEFSC)	
Marine Mammal Surveys (SEC5-94-08)	\$30K

Scott, G., L. Hansen, and K. Mullin (SEFSC)
 Deep Water Marine Mammals in the Gulf of Mexico (SEC4-94-20) \$2037K

FY94

Blaylock, R. (SEFSC)
 Aerial Surveys to Monitor Presence of Northern Right Whales in the
 Southeastern U.S. Calving and Wintering Grounds \$240K

Caillouet, C. (SEFSC, Galveston)
 Response to Major Marine Mammal and Sea Turtle Stranding Events \$26.5K

Hansen, L., P. Fair, and B. Curry (SEFSC)
 Bottlenose Dolphin Stock Identification \$30K

Fair, P., W. McFee, and L. Trent (SEFSC)
 Investigation of Marine Mammal Entanglement Associated with
 Coastal Net Fisheries \$85K

Gitschlag, G. (SEFSC, Galveston)
 Sea Turtle and Marine Mammal Associations with Petroleum Platforms \$409K

Hansen, L. and R. Blaylock (SEFSC)
 Marine Mammal Assessment \$360K

Synoptic Survey of Coastal Distribution of a Depleted Stock of
 Bottlenose Dolphins \$330K

SE U.S. Marine Mammal Strandings Life History Project \$120K

Hansen, L., R. Blaylock, K. Mullin, W. Hoggard, P. Fair, and V. Thayer (SEFSC)
 Marine Mammal Surveys \$30K

Hansen, L. and K. Mullin (SEFSC)
 Deep Water Marine Mammals in the Gulf of Mexico \$1852K

Lee, D. (SEFSC)
 Oceanic Pelagic Fishery Observers \$220K

G. Southwest Fisheries Science Center

FY90

Barlow, J. and D. P. DeMaster (SWFSC)
 Coastal Marine Mammals (540) \$242.9K

Dizon, A. and D. P. DeMaster (SWFSC)
 Biological Assessment Program (520) \$457.4K

Gerrodette, T. and D. P. DeMaster (SWFSC)
 Dolphin Stock Assessment Program (510) \$583.6K

Gilmartin, W. G. (SWFSC, Honolulu Lab)
 Hawaiian Monk Seal Research and Recovery
 (FSR200/8L1A3VW0) (759) \$392.9K

Northwestern Hawaiian Islands Beach Debris Clean-up (FSR200/8L1A5B7F) (742)	\$25K
Perrin, W. F. (SWFSC) Senior Scientist Unit (060)	\$135.3K
Reilly, S. and D. P. DeMaster (SWFSC) Fishery Dependent Assessment Program (530)	\$335.6K
<u>FY91</u>	
Barlow, J. and D. P. DeMaster (SWFSC) Coastal Marine Mammals (540)	\$190K
Coastal Marine Mammals (981)	\$61.8K
Coastal Delphinid Surveys (988)	\$158.6K
Whale and Bottlenose Dolphin Surveys (989)	\$75.2K
Dizon, A. and D. P. DeMaster (SWFSC) Biological Assessment Program (520)	\$470.9K
Edwards, E. and D. P. DeMaster (SWFSC) Fishery Dependent Assessment Program (550)	\$87.8K
Gerrodette, T. and D. P. DeMaster (SWFSC) Dolphin Stock Assessment Program (510)	\$466.4K
Gilmartin, W. G. (SWFSC, Honolulu Lab) Hawaiian Monk Seal Research and Recovery (FSR200/8L1A3VW0) (759)	\$422.6K
Northwestern Hawaiian Islands Beach Debris Clean-up (FSR200/8L1A5B7F) (742)	\$25K
Perrin, W. F. (SWFSC) Senior Scientist Unit (060)	\$150.9K
Reilly, S. and D. P. DeMaster (SWFSC) Dolphin Ecology Program (530)	\$280.8K
<u>FY92</u>	
Barlow, J. and S. B. Reilly (SWFSC) Coastal Marine Mammal Program (540) (\$220K from F/PR; \$66K from SWR)	\$469.7K
Dizon, A. and S. B. Reilly (SWFSC) Biological Assessment Program (520) (\$79.6K from F/PR)	\$541.8K
Edwards, E. and S. B. Reilly (SWFSC) Dolphin-Safe Research Program (550) (\$577.2K from F/PR)	\$1351.4K

Fiedler, P. C. and S. B. Reilly (SWFSC) Dolphin Ecology Program (530)	\$245K
Gerrodette, T. and S. B. Reilly (SWFSC) Dolphin Stock Assessment Program (510)	\$345.8K
Gilmartin, W. G. (SWFSC, Honolulu Lab.) Hawaiian Monk Seal Research and Recovery (750)	\$731.2K
Perrin, W. F. (SWFSC) Senior Scientist Unit (060)	\$149K

FY93

Barlow, J. and R. L. Brownell (SWFSC) Coastal Marine Mammal Program	\$172.4K
Dizon, A. and R. L. Brownell (SWFSC) Population Identify Program	\$492.3K
Edwards, E. and R. L. Brownell (SWFSC) Dolphin-Safe Research Program	\$475.7K
Gerrodette, T. and R. L. Brownell (SWFSC) Dolphin Stock Assessment Program	\$370.1K
Gilmartin, W. G. (SWFSC) Hawaiian Monk Seal Research and Recovery	\$717K
Perrin, W. F. (SWFSC) Senior Scientist Unit	\$157.7K
Reilly, S. B. and R. L. Brownell (SWFSC) Dolphin Ecology Program	\$357K

FY94

Barlow, J. and R. L. Brownell (SWFSC) Coastal Marine Mammal Program (540)	\$567.6K
Dizon, A. and R. L. Brownell (SWFSC) Population Identity Program (520,102,110)	\$606.4K
Edwards, E. and R. L. Brownell (SWFSC) Dolphin-Safe Research Program (550)	\$450K
Gerrodette, T. and R. L. Brownell (SWFSC) Dolphin Stock Assessment Program (510)	\$223.4K
Gilmartin, W. G. (SWFSC, Honolulu) Debris Inventory and Destruction, Northwestern Hawaiian Islands	\$25K
Gilmartin, W. G. and T. J. Ragen (SWFSC, Honolulu) Hawaiian Monk Seal Research and Recovery	\$494K

Perrin, W. F. (SWFSC)
Senior Scientist Unit (060) \$138.9K

Reilly, S. B. and R. L. Brownell (SWFSC)
Dolphin Ecology Program (530) \$269.4K

H. Southwest Regional Office

FY90

Hanan, D. (California Dept. Fish and Game)
California Coastal Marine Mammals (A90AB-H-FC411) \$65K

FY91

California Department of Fish and Game
Category 1 Fishery Effort and Harbor Seal Monitoring \$219K

Forestell, P. and J. Mobley
Aerial Surveys of Hawaiian Humpback Whales \$25K

FY92-FY93

(No projects reported)

FY94

Hanan, D. (California Dept. Fish and Game)
Coastal Marine Mammals Fisheries Interaction and Monitoring \$180K

2. National Sea Grant College Program

FY90

Fay, F. (Univ. Alaska)
Behavior and Vocalizations of Transient Killer Whales (R/06-C) \$32.3K

FY91

Grau, G., S. Atkinson, & W. Gilmartin (Hawaii Inst. Marine Biology and NMFS)
Behavior Modification of Male Hawaiian Monk Seals (R/MR-45) \$15K

Fay, F. and J. Kelley (Univ. Alaska)
Behavior and Vocalizations of Transient Killer Whales (R/06-31) \$32.3K

FY92

Castellini, M. A. (Univ. Alaska)
Physiological Health Status of Steller Sea Lions: Ecological Implications \$24.6K

Elsner, R. (Univ. Alaska)
Resistance to Hypoxia in the Seal Heart \$18.3K

Grau, G. E. (Hawaii Inst. Marine Biology)
Behavioral Modification of the Male Hawaiian Monk Seal \$14.3K

Wynne, K. (Univ. Alaska)
Regional Estimation of Harbor Seal and Harbor Porpoise in Alaska \$48.3K

FY93

Atkinson, S. (Hawaii Inst. Marine Biology)
Aggression in Hawaiian Monk Seals (1204) \$33.7K

Castellini, M. A. (Univ. Alaska)
Physiological Health Status of Steller Sea Lions:
Ecological Implications (784) \$20.4K

Davidson, J. R. (Hawaii Inst. Marine Biology)
The Hawaiian Spinner Dolphin, Stenella longirostris:
Effects of Human Activities (1206) \$12.6K

Rappa, P. J. (Hawaii Inst. Marine Biology)
Investigating the Feasibility of Establishing a National Marine Sanctuary
for Humpback Whales (1200) \$43.4K

Würsig, B. (Texas A&M Univ.)
Bottlenose Dolphins as Environmental Monitors (1396) \$86.3K

Wynne, K. (Univ. Alaska)
Regional Estimation of Harbor Seal and Harbor Porpoise in Alaska:
Part II. Collection and Sampling of Marine Mammals Harvested by Alaska
Native Hunters (776) \$24.1K

FY94

Castellini, M. A. (Univ. Alaska)
Physiological Health Status of Alaskan Marine Mammals (R/08-B) \$88.1K

Elsner, R. and S. O. Ebbesson (Univ. Alaska)
Resistance to Hypoxia in the Seal Heart (R/08-04) \$-0-

Goering, J. J., D. M. Schell, and O. Mathisen (Univ. Alaska)
Diet Studies of Sea Lions and Seals in Alaska Using Stable
Isotope Ratios (R/08-C) \$78.3K

Würsig, B. (Texas A&M Univ.)
Bottlenose Dolphins as Environmental Monitors (R/ES-55) \$82.7K

3. Office of Ocean and Coastal Resource Management

FY90-FY94

(No projects)

4. Office of Ocean Resources Conservation and Assessment
(formerly Office of Oceanography and Marine Assessment)

FY90

Basta, D. J. (NOAA Ocean Assessments Division)
Living Marine Resources Mapping Project:
Marine Mammals \$25K

FY91

DeLong, R. L. (NMFS, AFSC, NMML)
Determination of Injury to California Sea Lions from
PCBs and DDTs \$425K

FY92

DeLong, R. L. (NMFS, AFSC, NMML)
Determination of Injury to California Sea Lions from
PCBs and DDTs \$425K

FY93

DeLong, R. L. (NMFS, AFSC, NMML)
Determination of Injury to California Sea Lions from
PCBs and DDTs \$425K

FY94

DeLong, R. L. (NMFS, AFSC, NMML)
Determination of Injury to California Sea Lions from
PCBs and DDTs \$425K

Hameedi, M. J. and A. Robertson (NOAA Coastal Monitoring and Bioeffects
Assessment in cooperation with Office of Naval Research)
Occurrence and Probable Sources of Radionuclides in
Arctic Environment and Biota \$423K

Department of Defense

1. Advanced Research Projects Agency (ARPA)

FY93

Clark, C. W. (Cornell Univ.)
Marine Mammal Research, Hawaii: Baseline Population Studies
and Behavioral Observation Studies -- North Shore Kauai, Hawaii \$224K

FY94

Clark, C. W. (Cornell Univ.)
Marine Mammal Research, Hawaii: Baseline Population Studies
and Behavioral Observation Studies -- North Shore Kauai, Hawaii \$314K

Costa, D. (Univ. California, Santa Cruz)
 Marine Mammal Baseline Studies, California: Population and Behavioral
 Observation Studies for the Point Sur Area, Phase I \$207K

Marine Mammal Baseline Studies, California: Population and Behavioral
 Observation Studies for the Point Sur Area, Phase II \$230K

2. Air Force (Space Division, Air Force Systems Command)

FY90

Stewart, B., C. Cooper, and P. K. Yochem (Hubbs Marine Research Center)
 Field Studies of Pinniped and Seabird Populations Likely to
 be Affected by Launch-Related Noise of Military Space
 Vehicles (F0470-88C-0026) \$173.9K

FY91

Stewart, B., C. Cooper, and P. K. Yochem (Hubbs Marine Research Center)
 Field Studies of Pinniped and Seabird Populations Likely to
 be Affected by Launch-Related Noise of Military Space
 Vehicles (F0470-88C-0026) \$106.7K

FY92

Stewart, B., C. Cooper, and P. K. Yochem (Hubbs Marine Research Center)
 Field Studies of Pinniped and Seabird Populations Likely to
 be Affected by Launch-Related Noise and Sonic Booms from Titan IV/Centaur
 and Other Military Space Vehicles (F0470-88C-0026) \$184.4K

Roest, M. (The Nature Conservancy)
 Marine Mammal Monitoring and Management Plan
 (Vandenberg Air Force Base) \$60K

FY93

Stewart, B., C. Cooper, and P. K. Yochem (Hubbs Marine Research Center)
 Field Studies of Pinniped and Seabird Populations Likely to
 be Affected by Launch-Related Noise and Sonic Booms from Titan IV/Centaur
 and Other Military Space Vehicles (F0470-88C-0026) \$173.2K

FY94

Augustine, G. V. and D. Boone (Elmendorf AFB and USFWS)
 Protected Sea Otter Population Status and Ecology, Shemya Island, Alaska \$149K

Stewart, B., C. Cooper, and P. K. Yochem (Hubbs Marine Research Center)
 Field Studies of Pinniped and Seabird Populations Likely to
 be Affected by Launch-Related Noise and Sonic Booms from Titan IV/Centaur
 and Other Military Space Vehicles (F0470-88C-0026) \$200.7K

3. Army (Corps of Engineers)

FY90

(No projects)

FY91

Activities associated with planning, construction, operation, and maintenance of civil works projects (\$K by Corps Division Offices: New England, 22.0; South Atlantic, 179.4; Pacific Ocean, 32.5; and North Pacific, 14.0)

\$247.9K

FY92

Activities associated with planning, construction, operation, and maintenance of civil works projects (\$K by Corps Division Offices: New England, 32.5; South Atlantic, 161.2; Pacific Ocean, 37.7; North Pacific, 10.1; and South Pacific, 7.0)

\$248.5K

FY93

Activities associated with planning, construction, operation, and maintenance of civil works projects (\$K by Corps Division Offices: New England, 17.5; North Atlantic, 28; South Atlantic, 497; Lower Mississippi, 5; Pacific Ocean, 12; North Pacific, 8; Southwestern, 12.5)

\$580K

FY94

(No projects)

4. Navy

A. Naval Command, Control, and Ocean Surveillance Center
(formerly Naval Ocean Systems Center)

FY90

Au, W. W. L. (NOSC) Complex Echo Classification (Tursiops) (MMB2511B01)	\$117K
Gisiner, R. C. and J. A. Thomas (NOSC) Echolocation in a False Killer Whale (MMB2511B03)	\$102K
Moore, P. W. B. (NOSC) Binaural Hearing (Tursiops) (MMB2511B02)	\$130K
Nachtigall, P. E. (NOSC) Risso's Visual Acuity (MMB2511B05)	\$108K
Nachtigall, P. E., P. W. B. Moore, and H. L. Roitblat (NOSC) Matching-to-Sample (Tursiops) (MMB2511A01)	\$113K

Ridgway, S. H. and D. A. Carder (NOSC)
 Marine Mammal Medical Research and Animal Health
 (MM40510N01) \$354K

Sigurdson, J. E. (NOSC)
 Acoustic Communication (Tursiops) (MMB2511B04) \$55K

FY91

Au, W. W. L. (NOSC)
 Complex Echo Classification (Tursiops)
 (MMB2511B01) \$120K

Gisiner, R. C. and W. W. L. Au (NOSC)
 Echolocation in a False Killer Whale (MMB2511B03) \$130K

Moore, P. W. B. (NOSC)
 Binaural Hearing (Tursiops) (MMB2511B02) \$130K

Neural Network Models (Tursiops) (ZW29511A01) \$124K

Nachtigall, P. E. (NOSC)
 Risso's Visual Acuity (MMB2511B05) \$110K

Nachtigall, P. E., P. W. B. Moore, and H. L. Roitblat (NOSC)
 Matching-to-Sample (Tursiops) (MMB2511A01) \$160K

Ridgway, S. H. and D. A. Carder (NOSC)
 Marine Mammal Medical Research and Animal Health
 (MM40510N01) \$90K

FY92

Au, W. W. L. (NCCOSC)
 Complex Echo Classification (Tursiops)
 (MMB2512B01) \$-0-

Gisiner, R. C. and W. W. L. Au (NCCOSC)
 Echolocation in a False Killer Whale (MMB2512D01) \$130K

Moore, P. W. B. (NCCOSC)
 Binaural Hearing (Tursiops) (MMB2512C01) \$135K

Neural Network Models (Tursiops) (ZW29512A01) \$120K

Nachtigall, P. E. (NCCOSC)
 Risso's Visual Acuity (MMB2512A01) \$120K

Nachtigall, P. E., P. W. B. Moore, and H. L. Roitblat (NCCOSC)
 Matching-to-Sample (Tursiops) (MM47512A01) \$150K

Ridgway, S. H. and D. A. Carder (NCCOSC)
 Marine Mammal Medical Research and Animal Health
 (MM4510011A01) \$90K

Sigurdson, J. E. (NCCOSC)
Azimuth Range Monitor (Tursiops) (MMB2512F01) \$120K

FY93

Au, W. W. L. (NCCOSC)
Complex Echo Classification (Tursiops)
(MMB2512B01) \$-0-

Gisiner, R. C. and W. W. L. Au (NCCOSC)
Echolocation in a False Killer Whale (MMB2512D01) \$70K

Moore, P. W. B. (NCCOSC)
Binaural Hearing (Tursiops) (MMB2512C01) \$250K

Neural Network Models (Tursiops) (ZW29512A01) \$-0-

Nachtigall, P. E., P. W. B. Moore, and H. L. Roitblat (NCCOSC)
Matching-to-Sample (Tursiops) (MM47512A01) \$150K

Ridgway, S. H. and D. A. Carder (NCCOSC)
Marine Mammal Medical Research and Animal Health
(MM4510011A01) \$90K

Sigurdson, J. E. (NCCOSC)
Azimuth Range Monitor (Tursiops) (MMB2512F01) \$175K

FY94

(Projects reported under Office of Naval Research)

B. Office of Naval Research

FY90

Nachtigall, P. E. (NOSC)
Dolphin Echolocation: Cognitive and Perceptual Processing
Models (Tursiops) (4424262-01) \$160K

FY91

Nachtigall, P. E. (NOSC)
Dolphin Echolocation: Cognitive and Perceptual Processing
Models (Tursiops) (4424262-01) \$200K

FY92

Jones, D. (Univ. British Columbia)
Construction and Testing of Satellite Tags for Whales to Enable Research
on the Effects of Low Frequency Sound on Marine Mammals \$114.5K

Effects of Low Frequency Sound on Marine Mammals \$40K

Katsouras, M. H. (National Academy of Sciences)
Low Frequency Sound and Marine Mammals \$50K

Mate, B. (Oregon State Univ.) Development of an ARGOS Transmitter to Evaluate the Response of Marine Mammals to Low Frequency Sound Signals	\$62.8K
Nachtigall, P. E. (NCCOSC, Hawaii) Effects of Loud Low Frequency Sounds on Marine Mammal Behavior, Hearing, and Physiology	\$200K
Nachtigall, P. E. and P. W. B. Moore (NCCOSC, San Diego) Marine Animal Capabilities (RP 35A01)	\$1000K
Ridgway, S. H. (NCCOSC, San Diego) Low Frequency Sound and Marine Mammal Hearing	\$40K
Thomas, Jeanette (Western Illinois Univ.) Low Frequency Audiometric Studies on Pacific White-sided Dolphins	\$57.7K
<u>FY93</u>	
Castellini, M. (Univ. Alaska) Biochemical Indices of High Pressure Tolerance in Marine Mammals (3415811-04)	\$89K
Clark, C. W. (Cornell Univ.) Analysis and Interpretation of Whales '93 (4412147-02)	\$308.5K
Costa, D. P. (Univ. California, Santa Cruz)/IPA Administration IPA (3010056IPA)	\$166.5K
Dzjelski, J. (Pennsylvania State Univ.) IUSS Tracking Algorithms	\$30K
Dolphin, W. (Boston Univ.) Determination of Low Frequency Auditory Thresholds in Marine Mammals Using Scalp-Recorded Acoustically Evoked Responses (3414209-04)	\$128K
Fedak, M. A. (Sea Mammal Research Unit, Cambridge, U.K.) Analysis of Marine Mammal Behavior in Relation to the Oceanic Environment (4412165)	\$33.4K
Gentry, R. L. (NMML, NMFS) Analysis & Publication of Data on Seasonal Variation in Diving Behavior of Northern Fur Seals (4412173)	\$9.3K
Goodyear, J. (Univ. British Columbia) Construction and Testing of Satellite Tags for Whales to Enable Research on the Effects of Low Frequency Sound on Marine Mammals (4414214)	\$115.3K
Griggs, G. A. (Univ. California, Santa Cruz) Physiology of Freely Diving Sea Lions (4412171)	\$115.4K
Jones, D. (Univ. British Columbia) Effects of Low Frequency Sound on Marine Mammals	\$40K

Katsouros, M. H. (National Academy of Sciences) Low Frequency Sound and Marine Mammals	\$50K
Ketten, D. R. (Harvard Medical School) Three-Dimensional Analyses of Marine Mammal Ears and Estimates of Auditory Sensitivity (3414224)	\$66.1K
Three-Dimensional Sectioning and Analysis of Multi-Modal Marine Mammal Ear Data (4414aas11)	\$75.1K
Mate, B. (Oregon State Univ.) Development of an ARGOS Transmitter to Evaluate the Response of Marine Mammals to Low Frequency Sound Signals (3414217-04)	\$102K
Mattlin, R. H. (Victoria Univ. of Wellington, New Zealand) Effects of Low Frequency Sound on Seasonal Foraging (3414228-03)	\$19.2K
Mayo, C. A. (Center for Coastal Studies) Studies of Cetacean Behavior	\$14.5K
Moore, P. W. B. and T. Cranford (NCCOSC, San Diego) Three Studies in Toothed Whale Acoustics (3412166-03)	\$22K
Moore, P. W. B. and J. E. Sigurdson (NCCOSC, San Diego) Alternative Mine Detection and Classification Technologies: (1) Acoustic Response Monitor and (2) Dolphin Direction Device (904-234-4903)	\$500K
Nachtigall, P. E. (NCCOSC, Hawaii) Effects of Loud Low Frequency Sounds on Marine Mammal Behavior, Hearing, and Physiology (3414211-04)	\$220K
Nachtigall, P. E. and P. W. B. Moore (NCCOSC) Dolphin Echolocation (703-696-2085)	\$87K
Pabst, D. A. (James Madison Univ.) Functional Morphology of Vascular Structures in the Dolphin Dorsal Fin (4412167-01)	\$43K
Functional Design of Dolphin Blubber (3412152-03)	\$74.2K
Ridgway, S. H. and D. A. Carter (NCCOSC, San Diego) Low Frequency Sound and Marine Mammal Hearing (703-696-2085)	\$90K
Schusterman, R. J. (California State Univ., Hayward) Low Frequency Sound Hearing of Pinnipeds	\$120K
St. Aubin, D. and J. Geraci (Univ. Guelph) Biocompatibility of Materials Implanted Percutaneously in Bottlenose Dolphins (4412172)	\$86.5K
Stewart, B. A. and P. Thorson (Hubbs Marine Research Center) Development of a Satellite-Linked Radio-Transmitter Package for Small Cetaceans (4412169)	\$74.5K

Thomas, J. A. (Western Illinois Univ.) Low Frequency Audiometric Studies on Pacific White-sided Dolphins (4414212)	\$60.1K
Testa, J. W. (Univ. Alaska) Technical Workshop on Analysis of TDR and SLTDR (4414227)	\$4.1K
Tyack, P. and R. S. Wells (Woods Hole and Mote Marine Laboratory) Reactions of Bottlenose Dolphins to Low Frequency Sound (4424306)	\$15K
Watkins, W. A. and A. J. Read (Woods Hole Oceanographic Institution) Development and Testing of Tagging and Attachment Equipment for Harbor Porpoises in the SW Bay of Fundy (4412168)	\$107.5K
Watkins, W. A. and P. Tyack (Woods Hole Oceanographic Institution) Response of Sperm Whales to Low Frequency Sound	\$300K
Williams, T. D. (Office of Naval Research) NRaD Travel (4412174)	\$6K
<u>FY94</u>	
Clark, C. W. (Cornell Univ.) Potential Effects of Low Frequency Sound on Mysticetes (22ba22B)	\$141.1K
Acoustic Recordings of North Atlantic Whales (3412252)	\$24.3K
Costa, D. P. (Univ. California, Santa Cruz) Physiology of Freely Diving White Whales (4113005)	\$34.7K
Davis, R. (Texas A&M Univ., Galveston) Assessment of Swimming Performance and Three-dimensional Movements of Trained Dolphins at Sea (3412244)	\$25K
DeLong, R. L. (NMFS/NMML) Seasonal At-Sea Distribution and Diving Behavior of California Sea Lion Females from San Miguel Island, CA (3245189)	\$55.4K
DeMaster, D. P. and H. W. Braham (NMFS/NMML) Workshop on the Use of Ice-Associated Seals in the Bering and Chukchi Seas as Indicators of Environmental Change (3412245)	\$5K
Dolphin, W. (Boston Univ.) Determination of Low Frequency Auditory Thresholds in Marine Mammals Using Scalp-Recorded Acoustically Evoked Responses (4101268)	\$123.7K
Auditory Processing of Low Frequency Complex Sound (4113002)	\$167.7K
Fedak, M. A. (Sea Mammal Research Unit, Cambridge, U.K.) Analysis of Marine Mammal Behavior in Relation to the Oceanic Environment (4412165)	\$24.9K
Fristrup, K. M. and K. VonDerHeydt (Woods Hole Oceanographic Institution) Recording Acoustic Signals from Arctic Marine Mammals Exposed to Low Frequency Transmissions (22ha026)	\$51.2K

Greene, C. H. (Cornell Univ.) Marine Mammals and Acoustic Remote Sensing Research Initiative (3231231)	\$25K
Harvey, J. T. (Moss Landing Marine Laboratories) Effects of Low Frequency Sounds on Harbor Seals (3231227)	\$66.3K
Development of a New Delivery and Attachment System for Tagging Large Cetaceans (4113011)	\$15K
Heath, M. E. (Naval Medical Research Institute) Thermal Acclimation in Dolphins (3412242)	\$37.3K
Hohn, A. A. (NMFS/Office of Protected Resources) Satellite Tracking of a Deep-diving Small Cetacean, <u>Kogia breviceps</u> (3412247)	\$5K
Jones, D. R. and R. D. Andrews (Univ. British Columbia) Effects of Low Frequency Sound on Marine Mammals (4103213)	\$17.6K
Ketten, D. R. (Harvard Medical School) Three-Dimensional Digital Sectioning and Analysis of Multi-modal Marine Mammal Ear Data (4113003)	\$65.7K
Three-Dimensional Digital Sectioning and Analysis of Multi-Modal Marine Mammal Ear Data (4414aas11)	\$75K
Measures of Auditory Function in Stranded Marine Mammals (4101269)	\$69K
Le Boeuf, B. J. (Univ. California, Santa Cruz) Low Frequency Sound in the Marine Acoustic Environment of the Northern Elephant Seal (4203339)	\$250.7K
Losey, G. and P. E. Nachtigall (Univ. Hawaii) Dolphin Echolocation: Cognition and Perception (4424355)	\$23.4K
Mantey, P. and G. Oliver (Univ. California, Santa Cruz) Movement and Position Tracking System for Marine Mammals (3245300)	\$70.3K
Mate, B. R. (Oregon State Univ.) Development of an ARGOS Transmitter to Evaluate the Response of Marine Mammals to Low Frequency Sound Signals (4101270)	\$82K
Mattlin, R. (Moss Landing Marine Laboratories) Effects of Low Frequency Sound on the Foraging Behavior of the New Zealand Fur Seal (3414228)	\$3.8K
Moore, P. W. B. and T. Cranford (NRaD, NCCOSC, San Diego) Three Studies in Toothed Whale Acoustics (4101274)	\$65K
Moore, P. W. B., J. E. Sigurdson and R. L. Brill (NRaD, NCCOSC, San Diego) Marine Mammals for Mine Countermeasures (ONR-32)	\$530K
Nachtigall, P. E. (NRaD, NCCOSC, Hawaii) Low Frequency Hearing in Three Species of Cetaceans (3414211-04)	\$220K
Biosonar Classification (3424338)	\$60K

Sensory Systems of Aquatic Mammals (3412258)	\$5K
Pabst, D. A. (James Madison Univ.) Functional Design of Dolphin Blubber (4101275)	\$100.9K
Potter (MPL-SIO) Detection and Isolation of Marine Mammal Calls Using Artificial Intelligence Algorithms (3412252)	\$58.9K
Ridgway, S. H. (NRaD, NCCOSC, San Diego) Whale Physiology at Depth: Hearing, Sonar, and Homeostasis (22ha028)	\$137K
Marine Mammal Medicine (DON 63709N)	\$90K
Low Frequency Sound and Marine Mammal Hearing (703-696-2085)	\$90K
Rothe, M. J. (NRaD) Marine Mammal Performance -- Research Support (4101272)	\$128.5K
Schusterman, R. J. (Univ. California, Santa Cruz) Bioacoustics of Monterey Bay Pinnipeds (4113009)	\$172K
Stewart, B. S. (Hubbs Sea World Research Institute) Development of a Satellite-Linked Radio-Transmitter Package for Small Cetaceans (3412269)	\$41.3K
Stewart, B. S. and P. H. Thorson (Hubbs Sea World Research Institute) Effects of Temperature and pH on the Dynamics of Hemoglobin-oxygen Binding Properties in Marine Mammals (3412246)	\$14.9K
Thomas, J. A. (Western Illinois Univ./Shedd Aquarium) Low Frequency Hearing of Pacific White-sided Dolphins (3245302)	\$45.8K
Townsend, F. I. and F. L. Decker Development of a Non-invasive Dorsal Fin SaddlePack for Dolphins (3412237)	\$25K
Tyack, P. L. (Woods Hole Oceanographic Institution) Fusion of Acoustic and Visual Observations of Marine Mammals (33412aas08)	\$110.1K
Tyack, P. L. and R. D. Andrews (Woods Hole Oceanographic Institution) Low Frequency Sound in the Marine Acoustic Environment of the Northern Elephant Seal (4203379)	\$85.5K
Watkins, W. A. (Woods Hole Oceanographic Institution) Sperm Whale Activities and Responses from Acoustic and Radio Tracking (3231232)	\$100K
Watkins, W. A. and A. J. Read (Woods Hole Oceanographic Institution) Development and Testing of Tagging and Attachment Equipment for Harbor Porpoises in the Southwestern Bay of Fundy (3412251)	\$21.1K
Worthy, G. A. J. (Texas A&M Univ., Galveston) Insulation in Small Odontocetes: Seasonal Qualitative and Quantitative Changes (3412243)	\$29.5K

Tenth Biennial Conference on the Biology of Marine Mammals (3412177) \$7.5K

5. Strategic Environmental Research and Development Program (SERDP)

FY93

Conlon, D. and R. Gisiner (Space and Naval Warfare Systems Command/NCCOSC)
Fishing Enforcement/Whale Monitoring Using Integrated Undersea
Surveillance System (IUSS) \$2000K

Ridgway, S. H. (NCCOSC, San Diego)
Marine Mammal Health Monitoring \$249K

FY94

Clark, C. W. (Cornell Univ.)
Analysis and Interpretation of Whales '93 (SERDP) \$267K

Conlon, D. (RPI Corp.; Command, Undersea Surveillance)
Bermuda Data (various large Mysticetes) (SERDP) \$250K

Fleming, H. and C. Nishimura (Naval Research Lab.)
Whales '93 Archives (SERDP) \$630K

Fox, W. W. and H. W. Braham (NMFS/NMML)
Pacific Whale Monitoring (SERDP) \$382K

Gisiner, R. C. (ONR)
Pacific Humpbacks (SERDP) \$265K

Pei, G. (Mitre Corp.)
Statistical Analysis of IUSS Data for Whales (SERDP) \$100K

Department of Energy

FY90-FY94

(No projects)

Department of Health and Human Services

National Institutes of Health

FY90

Bullock, T. H. (Univ. California, San Diego)
Non-Standard Models for Study of Cognition ERPS
(R01 NS25963-03) \$92.1K

Castellini, M. A. (Univ. Alaska)
Sleep Apnea in Seals: Metabolic Implications
(R29 HL38675-04) \$86.1K

Fathman, C. G. (Stanford Univ.) Study of a Ternary Complex That Drives T Cell Activation (R01 AI27989-02)	\$185.3K
Hodgson, E. (North Carolina State Univ.) Pesticides and Xenobiotic Metabolizing Enzymes (P01 ES00044-25)	\$132K
Kooyman, G. L. (Univ. California, San Diego) Exercise Physiology to Maximum Lung Volume in Aquatic Mammals (P01 HL17731-16)	\$122.5K
LaMar, G. N. (Univ. California, Davis) Structural and Dynamic Study of Model Heme Complexes (R37 HL16087-17)	\$187.8K
Ortiz, C. L. (Univ. California, Santa Cruz) Developmental Physiology of Elephant Seal Pups During Natural, Prolonged Fasts (S06 GM08132-16)	\$63.4K
Rowell, L. B. (Univ. Washington) Regulation of Blood Flow Distribution (P01 HL16910-17)	\$133.1K
Tyack, P. L. (Woods Hole Oceanographic Institution) Ontogeny of Signature Whistles and Mimicry (Tursiops) (R29 DC00429-04)	\$97.3K
Weiner, S. (Weizmann Institute, Israel) Structural Studies of Matrix Proteins in Teeth and Bone (R01 DE06954-06)	\$57.7K
Wichman, H. A. (Univ. Idaho) Mammalian Genomes: Stasis and Change (R29 GM38727-05)	\$90.8K
Wicham, G. M. (Northeastern State Univ., OK) Computer Based Image Analysis of Iris Sections (R15 EY085450-1)	\$95.4K
Witztum, J. L. (Univ. California, San Diego) Apolipoprotein E Deficiency and Atherosclerosis (R01 HL39608-04)	\$78K

FY91

Castellini, M. A. (Univ. Alaska) Sleep Apnea in Seals: Metabolic Implications (HL38675-05)	\$107.7K
Fathman, C. G. (Stanford Univ.) Study of a Ternary Complex That Drives T Cell Activation (AI27989-03)	\$169.9K
Hodgson, E. (North Carolina State Univ.) Pesticides and Xenobiotic-Metabolizing Enzymes (ES00044-26)	\$134.7K

Hsueh, A. J. W. (Stanford Univ.) Role of Bioactive FSH in Reproduction (HD23273-06)	\$129.1K
Kooyman, G. L. (Univ. California, San Diego) Exercise Physiology to Maximum Lung Volume in Aquatic Mammals (HL17731-17)	\$187.2K
LaMar, G. N. (Univ. California, Davis) Structural and Dynamic Study of Model Heme Complexes (HL16087-18)	\$188.1K
Ortiz, C. L. (Univ. California, Santa Cruz) Developmental Physiology of Elephant Seal Pups During Natural, Prolonged Fasts (GM08132-17)	\$70.3K
Rowell, L. B. (Univ. Washington) Regulation of Blood Flow Distribution (HL16910-18)	\$133.6K
Tyack, P. L. (Woods Hole Oceanographic Institution) Ontogeny of Signature Whistles and Mimicry (Tursiops) (DC00429-05)	\$108.9K
Wichman, H. A. (Univ. Idaho) Mammalian Genomes: Stasis and Change (GM38727-06)	\$94.9K

FY92

Fathman, C. G. (Stanford Univ.) Study of a Ternary Complex That Drives T Cell Activation (AI27989-04)	\$162.9K
Hodgson, E. (North Carolina State Univ., Raleigh) Pesticides and Xenobiotic-Metabolizing Enzymes (ES00044-27)	\$145.4K
Kooyman, G. L. (Univ. California, San Diego) Exercise Physiology to Maximum Lung Volume in Aquatic Mammals (HL17731-18)	\$196.5K
Ortiz, C. L. (Univ. California, Santa Cruz) Developmental Physiology of Elephant Seal Pups During Natural, Prolonged Fasts (GM08132-18)	\$72.1K

FY93

(No projects reported)

FY94

Castellini, M. A. (Univ. Alaska, Fairbanks) Cardiorespiratory Pattern During Sleep Apnea (pinnipeds) (R15 HL50107-01)	\$109.2K
Fathman, C. G. (Stanford Univ.) Study of a Ternary Complex That Drives T Cell Activation (cetacean)	

(R01 CA65237-06)	\$221K
Hoezel, A. R. (National Institutes of Health) Elephant Seal Genetic Variation & Effects of Population Bottleneck (Z01 CP05764-01)	\$-0
Kooyman, G. L. (Univ. California, La Jolla) Aerobic Exercise in Aquatic Animals (P01 HL17731-20)	\$224.4K
Ortiz, C. L. (Univ. California, Santa Cruz) Developmental Physiology of Elephant Seal Pups During Natural, Prolonged Fasts (S06 GM08132-20)	\$52K

Department of the Interior

1. Fish and Wildlife Service

FY90

Amstrup, S. (AFWRC) Distribution, Timing, and Importance of Polar Bear Denning in Northern Alaska (204.01)	\$45.4K
Population Definition and Dynamics of Polar Bears in the Beaufort Sea (204.02)	\$324K
Relationships Between Polar Bears, Sea Ice, and Pagophilic Seals (204.03)	\$47.8K
Brownell, R. (NERC) Ecological Studies of Sea Otters and Other Marine Mammals (880.11)	\$263.1K
Interactions Between Sea Otters and Nearshore Ecological Communities (880.12)	\$132.2K
Translocation of Sea Otters (880.13)	\$348.6K
DeGange, A. (AFWRC) Biological Information Necessary to Establish a Zonal Management Program for Sea Otters in Alaska (210.02)	\$212.3K
Interactions Between Sea Otters and Fisheries in Alaska (210.03)	\$36.9K
Basis for Estimating Sustained Yield, and Means for Regulating Sea Otter Populations in North America (210.04)	\$-0
Assess the Fate of Sea Otters Oiled and Rehabilitated as a Result of the "Exxon Valdez" Oil Spill (210.06)	\$65K
Magnitude, Extent, and Duration of Impacts from the "Exxon Valdez" Oil Spill on Sea Otter Populations (210.05)	\$515K

Garner, G. (AFWRC) Population Definition and Dynamics of Polar Bears in Northwestern and Western Alaska (204.04)	\$349.8K
Inter-Relationships Between Sea Ice Habitats and Polar Bear Distribution in Northwestern Alaska (Bering and Chukchi Sea) (204.05)	33.6K
Hills, S. and L. F. Pank (AFWRC & Maine Cooperative Fish and Wildlife Research Unit) Techniques to Monitor Walrus Population Dynamics and Refine Estimates of Numbers (214.01)	\$195.4K
Kitchens, W. (Florida Cooperative Fish and Wildlife Research Unit) Manatee Protection Project: Survey of Boat Usage Patterns (540.05)	\$-0-
Evaluation of Manatee Distribution Patterns in Response to Public Use Activities, Crystal River, Florida (540.06)	\$-0-
Evaluation of Cumulative Impacts to the Habitat of the Manatee, Crystal River National Wildlife Refuge, Florida (540.07)	\$-0-
Manatee Movements and Foraging in Cumberland Sound and Adjacent Waters (FL 06)	\$25K
Klein, D. (Alaska Cooperative Fish and Wildlife Research Unit) Walrus Harvest Monitoring in Western Alaska (596.01)	\$?-
O'Shea, T. (NERC) Ecological Studies of Manatees and Dugongs (880.10)	\$340.2K
Hobe Sound Sea Grass Study (880.61)	\$54.6K
Schamberger, M. (NERC) Develop a Generalized Microcomputer Capability for Field Offices to Address Large-Scale Resource Assessment (640.17)	\$19K

FY91

Amstrup, S. (AFWRC) Distribution, Timing, and Importance of Polar Bear Denning in Northern Alaska (00018)	\$44.4K
Population Definition and Estimation of Survival, Recruitment, and Numbers of Polar Bears in the Beaufort Sea (00019)	\$297.7K
Relationships Between Polar Bears, Sea Ice Movement and Condition, and Pagophilic Seals (00020)	\$46K
Ballachey, B. E. (AFWRC) Assess the Fate of Sea Otters Oiled and Rehabilitated as a Result of the "Exxon Valdez" Oil Spill (00041)	\$43.6K

Magnitude, Extent, and Duration of Impacts from the "Exxon Valdez" Oil Spill on Sea Otter Populations (00042)	\$934.4K
Bodkin, J. (AFWRC) Biological Information Necessary to Establish a Zonal Management Program for Sea Otters in Alaska (00023)	\$110.5K
Interactions Between Sea Otters and Fisheries in Alaska (00024)	\$322.9K
Basis for Estimating Sustained Yield, and Means for Regulating Sea Otter Populations in North America (00025)	\$-0-
Cronin, M. (AFWRC) Use of DNA to Define Populations of Birds, Mammals, and Fish of Alaska (00043)	\$36K
Estes, J. (NERC) Ecological Studies of Sea Otters and Other Marine Mammals (00404)	\$322.9K
Interactions Between Sea Otters and Nearshore Ecological Communities (00407)	\$269.1K
Garner, G. (AFWRC) Population Definition and Estimation of Survival, Recruitment, and Number of Polar Bears in Northwestern and Western Alaska (00021)	\$340.8K
Inter-Relationships Between Sea Ice Habitats and Polar Bear Distribution in the Bering and Chukchi Seas in Northwestern Alaska (204.05)	\$31.9K
Gilbert, J., S. Hills, and M. Udevitz (AFWRC & Maine Cooperative Fish and Wildlife Research Unit) Techniques to Monitor Walrus Population Dynamics and Refine Estimates of Numbers (00026)	\$183.6K
Osborn, R. (NERC) Develop a Generalized Microcomputer Capability for Field Offices to Address Large-Scale Resource Assessment (00101)	\$17.1K
O'Shea, T. (NERC) Ecological Studies of Manatees and Dugongs (00406)	\$437.2K
Percival, F. (Florida Coop. Fish and Wildlife Research Unit) Manatee Movements and Foraging in Cumberland Sound and Adjacent Waters (FL RWO 65)	\$-0-
Rathbun, G. (NEFSC) Translocation of Sea Otters (00405)	\$210.4K
<u>FY92</u>	
Amstrup, S. (AFWRC) Distribution, Timing, and Importance of Polar Bear Denning in Northern Alaska (00018)	\$44.6K

Population Definition and Estimation of Survival, Recruitment, and Numbers of Polar Bears in the Beaufort Sea (00019)	\$289.4K
Relationships Between Polar Bears, Sea Ice Movement and Condition, and Pagophilic Seals (00020)	\$42.5K
Ballachey, B. E. (AFWRC) Magnitude, Extent, and Duration of Impacts from the "Exxon Valdez" Oil Spill on Sea Otter Populations (00042)	\$438.6K
Bodkin, J. (AFWRC) Biological Information Necessary to Establish a Zonal Management Program for Sea Otters in Alaska (00023)	\$81.4K
Interactions Between Sea Otters and Fisheries in Alaska (00024)	\$204.6K
Cronin, M. (AFWRC) Use of DNA to Define Populations of Birds, Mammals, and Fish of Alaska (00043)	\$36K
Estes, J. (NERC) Ecological Studies of Sea Otters and Other Marine Mammals (00404)	\$295.4K
Interactions Between Sea Otters and Nearshore Ecological Communities (00407)	\$313.5K
Garner, G. (AFWRC) Population Definition and Estimation of Survival, Recruitment, and Number of Polar Bears in Northwestern and Western Alaska (00021)	\$316.5K
Inter-Relationships Between Sea Ice Habitats and Polar Bear Distribution in the Bering and Chukchi Seas in Northwestern Alaska (00022)	\$25.1K
Gilbert, J., S. Hills, and M. Udevitz (AFWRC & Maine Cooperative Fish and Wildlife Research Unit) Techniques to Monitor Movements for Population Assessment, Age/Sex Composition, Behavior, and Estimates of Populations of Walrus (00026)	\$166.6K
Lefebvre, L. (NERC) Ecological Studies of Manatees and Dugongs (00406)	\$716.4K
Osborn, R. (NERC) Develop a Generalized Microcomputer Capability for Field Offices to Address Large-Scale Resource Assessment (00101)	\$16.4K
Percival, F. (Florida Coop. Fish and Wildlife Research Unit) Workshop on Florida Manatee Population Dynamics (FL RWO 88)	\$22.9K
Rathbun, G. (NERC) Translocation of Sea Otters (00405)	\$24.1K

FY93

Amstrup, S. C. (Alaska Fish and Wildlife Research Center) Population Definition and Estimation of Survival, Recruitment and Numbers of Polar Bears in the Beaufort Sea (00019)	\$267.2K
Relationships Between Polar Bears, Sea Ice Movement and Condition, and Pagophilic Seals (00020)	\$44K
Ballachey, B. E. (Alaska Fish and Wildlife Research Center) Magnitude, Extent, and Duration of Impacts From the "Exxon Valdez" Oil Spill on Sea Otter Populations (00042)	\$588K
Bodkin, J. (Alaska Fish and Wildlife Research Center) Interactions Between Sea Otters and Fisheries in Alaska (00024)	\$207.3K
Bodkin, J., B. Ballachey, and M. Cronin (Alaska Fish and Wildlife Research Center and Alaska Pacific Univ.) Biological Information Necessary to Establish a Zonal Management Program for Sea Otters in Alaska (00023)	\$46.9K
Estes, J. (San Simeon Field Station, NERC) Ecological Studies of Sea Otters and Other Marine Mammals (00404)	\$331K
Interactions Between Sea Otters and Nearshore Ecological Communities (00407)	\$212.7K
Ford, G. R. and M. L. Bonnell (Ecological Consulting, Inc.) Assessing the Potential Impacts of a Reasonable Worst-Case Oil Spill Scenario on Populations of Southern Sea Otters	\$10.7K
Garner, G. W. (Alaska Fish and Wildlife Research Center) Population Definition and Estimation of Survival, Recruitment and Number of Polar Bears in North-Western and Western Alaska (00021)	\$390.3K
Inter-Relationships Between Sea Ice Habitats and Polar Bear Distributions in the Bering and Chukchi Seas in Northwestern Alaska (00022)	\$30.7K
Gilbert, J., S. Hills, and M. Udevitz (Alaska Fish and Wildlife Research Center and Cooperative Wildlife Research Unit, Univ. Maine) Techniques to Monitor Movements for Population Assessment, Age/Sex Composition, Behavior, and Estimates of Populations of Walrus (00026)	\$153.9K
Lefebvre, L. (Gainesville Field Station) Ecological Studies of Manatees and Dugongs (00406)	\$681K
Osborn, R. (NERC) Develop a Generalized Microcomputer Capability for Field Offices to Address Large-Scale Resource Assessment Problems (00101)	\$16.5K
Rathbun, G. (San Simeon Field Station, NERC) Translocation of Sea Otters (00405)	\$15.3K
Scribner, K. (Alaska Fish and Wildlife Research Center) Use of DNA to Define Populations of Birds, Mammals, and Fish of Alaska (00043)	\$56.5K

FY94

Ford, R. G. and M. L. Bonnell (Ecological Consulting, Inc.)
 Analysis of the Relationship Between Oil Spill Risk to Sea Otters
 and Tanker Routing \$17.4K

2. Geological SurveyFY90-FY94

(No projects reported)

3. Minerals Management ServiceFY90

Becker, P., S. Wise, and R. Zeisler (NOAA, National Inst.
 of Standards and Technology)
 Acquisition and Curation of Alaskan Marine Mammal
 Tissues for Determining Levels of Contaminants
 Associated with Offshore Oil and Gas Development
 (OCSEAP RU 692) \$107K

Brueggeman, J. J. (Ebasco, Inc.)
 Oregon and Washington Marine Mammal and Seabird
 Surveys (14-35-0001-30426) \$33K

Burns, J. (Living Resources, Inc.)
 Bowhead Whale Book -- Coeditor (PO 83381) \$22.5K

Carvan, M. (Texas A&M Univ.)
 A Novel In Vitro System for Marine Toxicological
 Analysis (PO 13270) \$15.4K

Davis, R. and T. Williams (Texas A&M Univ.)
 Production of Sea Otter Rescue Training Videos and
 Monograph (14-35-0001-30522) \$83.9K

Geraci, J. and D. St. Aubin (Battelle)
 Synthesis of Effects of Oil on Marine Mammals
 (14-12-0001-30293) \$25K

Goodyear, J. (Univ. Guelph)
 Application and Construction of Satellite Tags for Large
 Whales (PO 12886) \$18.6K

Hain, J. H. W. (Associated Scientists at Woods Hole, MA)
 Publication of Scientific Results on Aspects of the
 CETAP Program (PO 11206) \$-0-

Southeast Atlantic Right Whale/Boat Interactions Using
 Coordinated Airship Overflights (PO 13269) \$19.6K

Johnson, S. (LGL Alaska Research Associates) Monitoring Beaufort Sea Waterfowl and Marine Birds; Determining Use of Kasegaluk Lagoon by Marine Birds and Mammals (14-35-0001-30491)	\$420K
Kraus, S. et al. (New England Aquarium) Endangered Right Whales of the South Atlantic (14-35-0001-30486)	\$414.5K
Lambertsen, R. (Univ. Pennsylvania) A Baseline Method to Evaluate Chemico-Biological Interactions Involving Cetacea (14-12-0001-30533)	\$56.6K
LeBoeuf, B. (Univ. California, Santa Cruz) Conference on Northern Elephant Seal (14-35-0001-30554)	\$30K
Diving Studies of Northern Elephant Seals (PO 12485) (co-funded with NSF)	\$27.5K
Mate, B. (Oregon State Univ.) Applications of Remote Methods of Large Cetacean Tracking (14-12-0001-30411)	\$329.3K
Mizroch, S. (NMFS) Workshop on the Estimation of Calf Mortality in the North Pacific Humpback Whale (PO 13184) (co-funded with NMML & MMC)	\$8K
Moore, S. (SEACO/SAIC) Monitoring the Distribution of Chukchi Whales (14-35-0001-30468)	\$252K
Mullin, K. (NMFS) Relationship Between Sea Turtles and Petroleum Platforms and Whale Species Diversity (14-12-0001-30398)	\$197.8K
Phillips, R. L. (NOAA & USGS) Delineation, Faunal Composition, and Repeated Use of Benthic Feeding Areas by Walrus and Endangered Gray Whales in the Northeastern Chukchi Sea (OCSEAP RU 722)	\$77.2K
Ragen, T. and P. Dayton (Scripps Institute) Migration of Northern Fur Seal Pups in the Bering Sea (PO 12523)	\$15K
Richardson, W. J. et al. (LGL Ecological Research Assoc.) Synthesis of Information on the Effects of Noise on Marine Mammals (14-12-0001-30362)	\$-0-
Normal Behavior of Davis Strait Bowheads: A Control Group for the Western Arctic Stock (14-12-0001-30390)	\$-0-
Effects of Production Activities on Arctic Whales (14-12-0001-30412)	\$715K

Schell, D. (Univ. Alaska) Stable Isotope Analysis of 1987 and 1988 Zooplankton and Bowhead Whale Tissues (14-12-0001-30472)	\$75.7K
Setzler-Hamilton, E. (Univ. Maryland, Eastern Shore) Development of Visual Matrix Charts Which Categorize Research Literature on Endangered Whales (14-12-0001-30208)	\$-0-
Treacy, S. D. (MMS, Alaska OCS Region) Bowhead Whale Aerial Survey Project	\$519.3K
Wartzok, D. (Society for Marine Mammalogy) Bowhead Whale Book (14-35-0004-60148)	\$-0-
Winn, H. E. (Univ. Rhode Island) South Channel Ocean Productivity Experiment (SCOPEX) (PO 14669) (co-funded with NSF)	\$-0-
<u>FY91</u>	
Alaska Sea Grant (NOAA) Workshop: Key to Declining Marine Mammal and Seabird Populations (co-funded with Alaska Sea Grant)	\$5K
Becker, P., S. Wise, and R. Zeisler (NOAA, National Inst. of Standards and Technology) Acquisition and Curation of Alaskan Marine Mammal Tissues for Determining Levels of Contaminants Associated with Offshore Oil and Gas Development (OCSEAP RU 692)	\$70K
Brueggeman, J. J. (Ebasco, Inc. and Ecological Consultants, Inc.) Oregon and Washington Marine Mammal and Seabird Surveys (14-35-0001-30426)	\$-0-
Burns, J. (Living Resources, Inc.) Bowhead Whale Book -- Coeditor (PO 83381)	\$-0-
Davis, R. (Texas A&M Univ. and NMFS/SEFC) Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico (14-35-0001-30619)	\$732.8K
Production of Sea Otter Rescue Training Videos (14-35-0001-30522)	\$-0-
DeMaster, D. P. (NMFS/SWFC) Development of Manual to Address the Issue of Safety During Aerial Surveys (PO 15156) (co-funded with NMFS/SWFC)	\$22.1K
Ford, R. G. (Ecological Consulting, Inc.) Combining Marine Mammal and Seabird Databases (14-35-0001-30596)	\$95.2K
Goodyear, J. (Univ. Guelph) Application and Construction of Satellite Tags for Large Whales (PO 12886)	\$13.7K

Hain, J. H. W. (Associated Scientists at Woods Hole, MA) Southeast Atlantic Right Whale Behavior and Whale/Boat Interactions Using Coordinated Airship Overflights (PO 13269)	\$3.5K
Publication of Scientific Results on Aspects of the CETAP Program (PO 11206)	\$-0-
Johnson, S. and K. Frost (LGL Alaska Research Associates and ADF&G) Monitoring Beaufort Sea Waterfowl and Marine Birds; Determining Use of Kasegaluk Lagoon by Marine Birds and Mammals (14-35-0001-30491)	\$109K
Kraus, S. et al. (New England Aquarium) Endangered Right Whales of the South Atlantic (14-35-0001-30486)	\$195.8K
Lambertsen, R. (Univ. Pennsylvania) A Baseline Method to Evaluate Chemico-Biological Interactions Involving Cetacea (14-35-0001-30533)	\$-0-
LeBoeuf, B. (Univ. California, Santa Cruz) Diving Studies of Northern Elephant Seals (PO 12485) (co-funded with NSF)	\$27.5K
Loughlin, T. (NMML) Use of Satellite Tags to Determine Pelagic Areas Important to Declining Populations of Fur Seals and Sea Lions (Interagency 14411)	\$144K
Mate, B. (Oregon State Univ.) Applications of Remote Methods of Large Cetacean Tracking (14-12-0001-30411)	\$58K
Moore, S. (SEACO/SAIC) Monitoring the Distribution of Chukchi Whales (14-35-0001-30468)	\$238.7K
Phillips, R. L. (NOAA & USGS) Delineation, Faunal Composition, and Repeated Use of Benthic Feeding Areas by Walrus and Endangered Gray Whales in the Northeastern Chukchi Sea (OCSEAP RU 722)	\$-0-
Ralls, K. (Smithsonian Inst.) Publication of Sea Otter Manuscripts (PO 11134 & 12419)	\$6.8K
Richardson, W. J. et al. (LGL Ecological Research Assoc.) Normal Behavior of Davis Strait Bowheads: A Control Group for the Western Arctic Stock (14-12-0001-30390)	\$-0-
Synthesis of Information of the Effects of Noise on Marine Mammals (14-12-0001-30362)	\$-0-
Effects of Production Activities on Arctic Whales (14-12-0001-30412)	\$937K
Schell, D. (Univ. Alaska) Stable Isotope Analysis of 1987 and 1988 Zooplankton and Bowhead Whale Tissues (14-12-0001-30472)	\$75.7K

Sherman, K. (NMFS/NEFSC) Workshop: Northeast Shelf Symposium (co-funded with EPA, NMFS, MMC, American Fisheries Society, and Marine Affairs Program, Univ. Rhode Island)	\$2K
Treacy, S. D. (MMS, Alaska OCS Region) Bowhead Whale Aerial Survey Project	\$184.5K
Truett, J. (LGL Ecological Research Associates) Development of Guidelines for OCS Operations in Polar Bear Habitats (14-35-0001-30631)	\$166.8K
Wartzok, D. (Society for Marine Mammalogy) Bowhead Whale Book -- Publication (14-35-0004-60148)	\$-0-
Winn, H. E. (Univ. Rhode Island) Great South Channel Ocean Productivity Experiment (PO 14669)	\$-0-
<u>FY92</u>	
Becker, P. (NMFS, Office of Protected Resources) Alaska Marine Mammal Tissue Archival Project (AMMTAP) (17909)	\$60K
Burns, J. (Living Resources, Inc.) Bowhead Book Coeditor (PO 83381)	\$18K
Costa, D. (Office of Naval Research) Tagging and Tracking Workshop (17906)	\$15K
Davis, R. (Texas A&M Univ. & NMFS/SEFSC) Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico (14-35-0001-30619 & 14-35-0001-16197)	\$1182.8K
DeMaster, D. P. (NMFS, SWFSC) Development of Manual to Address the Issue of Safety During Aerial Surveys of Marine Mammals (PO 15156)	\$-0-
Ford, R. G. (Ebasco Environmental Co. and Ecological Consulting, Inc.) Combining Marine Mammal and Seabird Databases (14-35-0001-30596)	\$6K
Frost, K., L. Lowry, and R. Davis (Alaska Dept. Fish and Game and Texas A&M Univ.) Hauling Out and At-Sea Behavior of Spotted Seals in Kasegaluk Lagoon (PO 16576)	\$25K
Hain, J. H. W. (Associated Scientists at Woods Hole, MA) Mitigating Human Impacts on Right Whale Calving and Nursery Grounds (PO 16259)	\$12.5K
Johnson, S. and K. Frost (LGL Alaska Research Associates) Monitoring Beaufort Sea Waterfowl and Marine Birds/Determining Use of Kasegaluk Lagoon by Marine Birds and Mammals (14-35-0001-30491)	\$-0-
Kraus, S. (New England Aquarium; Univ. Rhode Island) Endangered Right Whale of the South Atlantic (14-35-0001-30486)	\$-0-

Lambertson, R. (Univ. Pennsylvania Medical Center) Baseline Method to Evaluate Chemico-Biological Interactions Involving Cetacea (14-35-0001-30533)	\$-0-
LeBoeuf, B. (Univ. California, Santa Cruz) Diving Study of Northern Elephant Seal (PO 12485)	\$25K
Loughlin, T. (NMFS/NMML) Use of Satellite Tags to Determine Pelagic Areas Important to Declining Populations of Fur Seals and Sea Lions (14411)	\$-0-
Mate, B. (Oregon State Univ.) Application of Remote Methods of Large Cetacean Tracking (14-12-0001-30411)	\$189.1K
Moore, S. (SAIC, Maritime Services Division) Monitoring the Distribution of Chukchi Whales (14-35-0001-30468)	\$-0-
Phillips, R. L. and H. Nelson (USGS) Delineation, Faunal Composition, and Repeated Use of Benthic Feeding Areas by Walrus and Endangered Gray Whales in the Northeastern Chukchi Sea (14157)	\$-0-
Richardson, W. J. (LGL Ecological Research Associates) Effects of Production Activities on Arctic Whales (14-12-0001-30412)	\$549.8K
Richardson, W. J., C. R. Greene, C. I. Malme, and D. H. Thomson (LGL Ecological Research Associates) Effects of Noise on Marine Mammals (14-35-0001-30673)	\$80K
Schell, D. (Univ. Alaska, Fairbanks) Stable Isotope Analysis of 1987 and 1988 Zooplankton and Bowhead Whale Tissues (14-12-0001-30472)	\$-0-
Treacy, S. D. (MMS, Alaska OCS Region) Bowhead Whale Aerial Survey Project (MMS-001 & 14-35-0001-12493)	\$512.8K
Truett, J. (LGL Ecological Research Associates) Development of Guidelines for OCS Operations in Polar Bear Habitats (14-35-0001-30631)	\$-0-
Wartzok, D. (Society for Marine Mammalogy) Bowhead Whale Book -- Publication (60148)	\$36.8K
Winn, H. E. (Univ. Rhode Island) Great South Channel Ocean Productivity Experiment (SCOPEX) (PO 14669)	\$-0-

FY93

Becker, P., S. Wise, and R. Zeisler (NMFS; National Inst. Standards & Technology) Acquisition and Curation of Alaskan Marine Mammal Tissues for Determining Levels of Contaminants Associated with Offshore Oil and Gas Development (17909)	\$60K
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Davis, R. et al. (Texas A&M Univ.; NMFS) Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico (14-35-0001-30619)	\$647K
Frost, K. J. (Alaska Dept. Fish and Game) Hauling Out and At-Sea Behavior of Spotted Seals, <i>Phoca largha</i> , in Kaseguluk Lagoon (PO 16576)	\$-0-
Lambertson, R. (Univ. Pennsylvania Medical Center) A Baseline Method to Evaluate Chemico-Biological Interactions Involving Cetacea (14-35-0001-30533)	\$435K
Loughlin, T. (NMFS/NMML) Use of Satellite Tags to Determine Pelagic Areas Important to Declining Populations of Fur Seals and Sea Lions (14411)	\$-0-
Mate, B. (Oregon State Univ.) Application of Remote Methods of Large Cetacean Tracking (14-12-0001-30411)	\$-0-
Phillips, R. L. (USGS) Delineation, Faunal Composition, and Repeated Use of Benthic Feeding Areas by Walrus and Endangered Gray Whales in the NE Chukchi Sea (14157)	\$-0-
Richardson, W. J. (LGL Ecological Research Associates) Effects of Production Activities on Arctic Whales (14-12-0001-30412)	\$-0-
Treacy, S. D. (MMS/Environmental Studies Unit) Bowhead Whale Aerial Survey Project (MMS-001)	\$549K
Truett, J. (LGL Ecological Research Associates) Development of Guidelines for OCS Operations in Polar Bear Habitats (14-35-0001-30631)	\$-0-

FY94

Becker, P. and S. Wise (Army Engineer Waterways Exper. Station; NIST, Chemical Science and Technology Laboratory) Acquisition and Curation of Alaskan Marine Mammal Tissues for Determining Levels of Contaminants Associated with Offshore Oil and Gas Development (17909) (see also NBS 17909 below)	\$-0-
Davis, R. et al. (Texas A&M Univ.; NMFS) Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico (14-35-0001-30619 & 16197) (see also NBS below)	\$-0-
Frost, K. J. (Alaska Dept. Fish and Game) Hauling Out and At-Sea Behavior of Spotted Seals, <i>Phoca largha</i> , in Kaseguluk Lagoon (PO 16576)	\$-0-
Mate, B. (Oregon State Univ.) Application of Remote Methods of Large Cetacean Tracking (14-12-0001-30411)	\$-0-

Phillips, R. L. and H. Nelson (USGS) Delineation, Faunal Composition, and Repeated Use of Benthic Feeding Areas by Walrus and Endangered Gray Whales in the NE Chukchi Sea (14157)	\$-0-
Richardson, W. J. (LGL Ecological Research Associates) Effects of Production Activities on Arctic Whales (14-12-0001-30412)	\$69K
Schell, D. M. (Univ. Alaska, Fairbanks) Testing Conceptual Models of Marine Mammal Trophic Dynamics Using Carbon and Nitrogen Stable Isotope Ratios (14-35-0001-30661)	\$-0-
Treacy, S. D. (MMS/Environmental Studies Unit) Bowhead Whale Aerial Survey Project (MMS-001; 14-35-0001-12493)	\$549K

4. National Biological Service

FY94

Amstrup, S. C. (Alaska Science Center) Population Definition and Estimation of Survival, Recruitment and Numbers of Polar Bears in the Beaufort Sea (00019)	\$178K
Relationships Between Polar Bears, Sea Ice Movement and Condition, and Pagophilic Seals (00020)	\$31K
Ballachey, B. E. (Alaska Science Center) Magnitude, Extent, and Duration of Impacts From the "Exxon Valdez" Oil Spill on Sea Otter Populations (00042)	\$207.4K
Ballachey, B., S. Amstrup, J. Bodkin, and G. Garner (Alaska Science Center) Population Status and Trends in Marine Mammals (00058)	\$323K
Becker, P. and S. Wise (Army Corps of Engineers Waterways Exper. Station and National Institute of Standards and Technology Alaska Marine Mammal Tissue Archival Project (AMMTAP) (17909) (see MMS #17909 also)	\$60K
Bodkin, J. (Alaska Science Center) Interactions Between Sea Otters and Fisheries in Alaska (00024)	\$157K
Bodkin, J., B. Ballachey, and M. Cronin (Alaska Science Center/AK Pacific Univ.) Biological Information Necessary to Establish a Zonal Management Program for Sea Otters in Alaska (00023)	\$43K
Davis, R. W. and G. P. Scott (Texas A&M Univ., Galveston/ NMFS, SEFRC) Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico (14-35-0001-30619 and 16197) (see MMS also)	\$824K
Estes, J. (San Simeon Field Station) Ecological Studies of Sea Otters and Other Marine Mammals (00404)	\$250K
Interactions Between Sea Otters and Nearshore Ecological Communities (00407)	\$153K
Garner, G. W. (Alaska Science Center) Population Definition and Estimation of Survival, Recruitment and Number	

of Polar Bears in Northwestern and Western Alaska (00021) \$287K

Inter-relationships Between Sea Ice Habitats and Polar Bear Distributions
in the Bering and Chukchi Seas in Northwestern Alaska (00022) \$102K

Lefebvre, L. (Southeastern Biological Science Center)
Ecological Studies of Manatees and Dugong (00406) \$595.4K

Scribner, K. (Alaska Science Center)
Use of DNA to Define Populations of Birds, Mammals and Fish
of Alaska (00043) \$33K

5. National Park Service

FY90

Rice, B. (NPS)
Sea Lion, Harbor Seal, Sea Otter Surveys: Assessment of Oil
Spill, Kenai Fjords National Park, Alaska \$30K

Squibb, R. (NPS)
Sea Lion, Harbor Seal, Sea Otter Surveys: Assessment of
Oil Spill, Katmai National Park and Preserve, Alaska \$20K

FY91

Gabriele, C. (NPS)
Humpback Whale Monitoring, Glacier Bay National Park, Alaska \$20.9K

Potts, R. (NPS)
Sea Lion and Harbor Seal Survey in Katmai National Park, Alaska \$10K

Schroeder, M. (NPS)
Steller Sea Lion Surveys, Glacier Bay National Park, Alaska \$1.2K

Harbor Seal Census, Glacier Bay National Park, Alaska \$1.5K

Sharman, L. (NPS)
Whale Prey Monitoring at Glacier Bay National Park, Alaska \$27.5K

Taggart, J. (NPS)
Killer Whale Monitoring, Glacier Bay National Park, Alaska \$5.4K

FY92

Barlow, J. and M. Lowry (NMFS/SWFSC)
Pinniped Population Assessments \$15K

Benz, C. (USFWS)
Southern Sea Otter Relocation \$360K

DeLong, R. and S. Melin (NMFS/NMML)
Monitoring of Northern Fur Seals, California Sea Lions, Guadalupe
Fur Seals, and Harbor Seals at Channel Islands National Park \$100K

DeLong, R., S. Melin, J. Thomason, B. Hanson, and S. Osmek (NMFS) Effects of Organochlorine Pollutant Residues on California Sea Lions	\$400K
Gabriele, C. (NPS, Glacier Bay National Park) Population Monitoring of Humpback Whales in Glacier Bay and Adjacent Waters	\$16K
Hanan, D. (California Dept. Fish and Game) Harbor Seal Monitoring	\$220K
Irvine, G. and L. Daniel (NPS/Office of Coastal Processes) Population Monitoring of Harbor Seals in Kenai Fjords National Park and Pinniped Survey of Katmai National Park Coastline	\$10K
Mathews, E. (NMFS/NMML) Population Assessment of Harbor Seals in Glacier Bay	\$7K
Schroeder, M. (NPS, Alaska Regional Office of Natural Resources) Sea Lion Surveys in Glacier Bay and Adjacent Waters	\$2K
Stewart, B. (Hubbs/Sea World Research Institute) Northern Elephant Seal Population Biology	\$170K

FY93

Allen, S. (Point Reyes Bird Observatory) Biomonitoring of Harbor Seal, Northern Elephant Seal, California Sea Lion, and Northern Sea Lion Populations at Point Reyes	\$3K
Bailey, S. (California Academy of Science) Salvage of Stranded Marine Mammals	\$-?
Barlow, J. and M. Lowry (NMFS/SWFSC) Pinniped Population Assessments	\$15K
Benz, C. (USFWS) Southern Sea Otter Relocation	\$360K
DeLong, R. and S. Melin (NMFS/NMML) Monitoring of Northern Fur Seals, California Sea Lions, Guadalupe Fur Seals, and Harbor Seals at Channel Islands National Park	\$100K
DeLong, R., S. Melin, J. Thomason, B. Hanson, and S. Osmek (NMFS) Effects of Organochlorine Pollutant Residues on California Sea Lions	\$-?
Gabriele, C. (NPS, Glacier Bay National Park) Population Monitoring of Humpback Whales in Glacier Bay and Adjacent Waters	\$16K
Hanan, D. (California Dept. Fish and Game) Harbor Seal Monitoring in California	\$-?
Lee, K. (California Marine Mammal Center) Marine Mammal Rescue, Rehabilitation, and Release	\$7.8K

Stewart, B. (Hubbs/Sea World Research Institute) Northern Elephant Seal Population Biology	\$120K
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FY94

Gabriele, C. M. (Glacier Bay National Park) 1994 Humpback Whale Population Monitoring in Glacier Bay National Park	\$20K
Goatcher, B. L. (Katmai National Park) 1994 Marine Mammal Surveys, Katmai National Park	\$26K
Koenig, S. (Point Reyes National Seashore) Marine Mammal Stranding Network	\$3K
Kozie, K. and W. Route (Wrangell-St. Elias National Park) 1994 Harbor Seal Monitoring in Wrangell-St. Elias National Park	\$2.6K
Mathews, E. A. (Univ. Alaska Southeast) 1994 Pinniped Monitoring in Glacier Bay National Park	\$31K
Resource Management Specialist (Kenai Fjords National Park) 1994 Marine Mammal Population Monitoring in Kenai Fjords National Park	\$1.5K

Department of State**Bureau of Oceans and International Environmental and
Scientific Affairs**FY90

Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$8.3K
Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise/Tuna Investigations	\$1138.4K
Powell D. L. (Commission for the Conservation of Antarctic Marine Living Resources) Scientific Committee Budget	\$1.8K

FY91

Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$8.2K
Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise/Tuna Investigations	\$1225.8K
Powell D. L. (Commission for the Conservation of Antarctic Marine Living Resources) Scientific Committee Budget	\$1.2K

FY92

Cetacean Specialist Group (World Conservation Union--IUCN)	
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Research on Endangered Small Cetaceans	\$?-
Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$45K
Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise/Tuna Investigations	\$1443.9K
<u>FY93</u>	
Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$61.9K
Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise/Tuna Investigations	\$1238.5K
<u>FY94</u>	
Baker, C. S. (Univ. Auckland) Monitoring Environmental Change and Recovery of Mysticete Whales in the Southern Hemisphere	\$25K
Bengtson, J. (NMFS, NMML) Antarctic Seal Research	\$20K
Gambell, R. (International Whaling Commission) Research Fund of the International Whaling Commission	\$71.6K
International Whaling Commission Assessment of Southern Hemisphere Whale Populations Based on Past Soviet Whaling Activities	\$15K
Joseph, J. (Inter-American Tropical Tuna Commission) Porpoise/Tuna Investigations	\$1537.9K

Department of Transportation**Coast Guard**FY94

Blaylock, R. (NMFS, SEFSC) Aerial Surveys to Monitor Presence of Northern Right Whales in the Southeastern U.S. Calving and Wintering Grounds	\$80K
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Environmental Protection AgencyFY90

Haebler, R. and R. K. Harris (Environmental Research Laboratory and Armed Forces Institute of Pathology) Assessment of Pathological Processes and Mechanisms of Toxicity in Sea Otters That Died Following Exxon Valdez Oil Spill	\$50K
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Haebler, R. and D. Kuehl (Environmental Research Laboratory)
Environmental Pathotoxicology of Dolphins \$50K

FY91

Fisher, W. S. and C. S. Via (EPA/Environmental Research Laboratory and
Univ. Maryland School of Medicine)
Study of Immune Compromise in Bottlenose Dolphins \$15K

Haebler, R. and R. K. Harris (EPA/Environmental Research Laboratory
and Armed Forces Institute of Pathology)
Assessment of Pathological Processes and Mechanisms of
Toxicity in Sea Otters That Died Following Exxon Valdez Oil Spill \$80K

Haebler, R. and D. Kuehl (EPA/Environmental Research Laboratory)
Environmental Pathotoxicology of Dolphins \$50K

Haebler, R. and J. Lake (EPA/Environmental Research Laboratory)
Evaluation of Tissue Contaminant Concentrations in
Harbor Seals as Monitors of Temporal Trends of Pollution
in Near Coastal Environments \$50K

Sentinel Species (cetaceans) \$32.2K

FY92

Fisher, W. S. and A Hohen (EPA/Environmental Research Laboratory and
NMFS/Office of Protected Resources)
Dolphin Mortalities in North America \$8K

Fisher, W. S. and E. C. Peters (EPA/Environmental Research Laboratory and
Tetra Tech, Inc., VA)
Scientific Research on Diseases and Mortalities of Dolphins in U.S. Waters \$15K

Haebler, R. and R. K. Harris (EPA/Environmental Research Laboratory
and Armed Forces Institute of Pathology)
Assessment of Pathological Processes and Mechanisms of Toxicity in
Sea Otters That Died Following Exxon Valdez Oil Spill \$-0-

Haebler, R. and D. Kuehl (EPA/Environmental Research Laboratory)
Environmental Pathotoxicology of Dolphins \$25K

Haebler, R. and J. Lake (EPA/Environmental Research Laboratory)
Evaluation of Tissue Contaminant Concentrations in
Harbor Seals as Monitors of Temporal Trends of Pollution
in Near Coastal Environments \$25K

Sentinel Species (cetaceans) \$46.2K

FY93

Haebler, R. and R. K. Harris (EPA/Environmental Research Laboratory
and Armed Forces Institute of Pathology)
Assessment of Pathological Processes and Mechanisms of Toxicity in
Sea Otters That Died Following Exxon Valdez Oil Spill \$40K

Haebler, R. and J. Lake (EPA/Environmental Research Laboratory) Sentinel Species	\$75K
Kuehl, D. W. and K. Bottess (EPA/Environmental Research Laboratory and Midwest Research Institute, MO) Quantification of Chemical Contaminants in Dolphin Blood Samples	\$14.6K
Kuehl, D. W. and T. O. Tiernan (EPA/Environmental Research Laboratory and Wright State Univ, OH) Quantification of Chemical Contaminants in Dolphin Blood	\$19.3K
Kuehl, D. W. and R. Wells (EPA/Environmental Research Laboratory and Dolphin Biology Research Institute, FL) Collection and Hormone Analysis of Dolphin Blood from Sarasota/Tampa Bay Region	\$10K

FY94

Fisher, W. S. and J. K. Tabenberger (EPA/Environmental Research Laboratory and Armed Forces Institute of Pathology) Detection of Morbillivirus Using a PCR-based Assay in Bottlenose Dolphins from the Atlantic and Gulf of Mexico Epizootics	\$55.5K
Haebler, R. and J. Lake (EPA/Environmental Research Laboratory) Sentinel Species	\$75K
Kuehl, D. W. and L. Shoda (EPA/Environmental Research Laboratory and Armed Forces Institute of Pathology) Collection and Analysis of Blood and Milk from Northern Elephant Seals	\$12.1K

Marine Mammal CommissionFY90

Buckland, S. (Scottish Agricultural Statistical Service, Aberdeen, Scotland) Review of Information Concerning Small Cetacean Populations in the Black Sea (T75133135)	\$1K
Domning, D. P. (Howard Univ.) Communication of Information Concerning Conservation of Manatees and Dugongs (T75132327)	\$0.8K
Fay, F. H. (Univ. Alaska) International Workshop on the Ecology and Management of Walrus Populations (T75132903)	\$2K
Haigh, J. C. et al. (USDA, Animal and Plant Health Inspection Service) Training Course for APHIS Veterinary Inspectors	\$6.4K
Justman, R. A. Tern Island Site Survey (T75132669 & T75132709)	\$3.7K
Kellert, S. R. (Yale Univ.) Development of a Global Marine Environment Ethic (T75132932)	\$5K

Kraus, S. D. and R. D. Kenney (New England Aquarium and Univ. Rhode Island) Evaluation of Critical Right Whale Habitat (T75133753 & T75133740)	\$2K
LeBoeuf, B. J. (Univ. California, Santa Cruz) International Conference on Northern and Southern Elephant Seal (T75133724)	\$2K
National Marine Fisheries Service Workshop to Develop a Recommended Protocol for Evaluating Swim-With-A-Dolphin Programs	\$7.1K
Center for Marine Conservation World Conservation Union: Species Survival Commission Cetacean Action Plan (T75133685)	\$6K
Pitcher, K. W. (Alaska Dept. of Fish and Game) Tugidak Island Harbor Seal Survey (T75133261)	\$5K
Reif, J. S. and R. S. Wells (Dept. Environmental Health, Ft. Collins, Colorado, and the Brookfield Zoo) Review of Gulf of Mexico Bottlenose Dolphin Die-off Investigation (T75132851 & T75132864)	\$1K
Scientific Committee on Antarctic Research (Scott Polar Research Institute, Cambridge, United Kingdom) Handbook on Antarctic Seal Research Methods and Techniques (T75133672)	\$2K
Swartzman, G. L., J. J. Brueggeman, and K. A. Green-Hammond (Univ. Washington; EBASCO Environmental, Albuquerque, NM) Workshop on the Bering Sea and Southern Ocean Ecosystems (T75133193, T75133656, T75133669)	\$33.3K
Townsend, R. L. (Townsend Environmental, Otis, OR) Review of Information Concerning Humpback Whales in Hawaii (T75132495)	\$7.4K
Waring, G. H. (Southern Illinois Univ., Carbondale) Survey of Federally-Funded Marine Mammal Research (T75133724)	\$3.5K
Watkins, W. A. (Woods Hole Oceanographic Institution) Development of a Computerized Cetacean Bibliography (T75133685)	\$1K
Würsig, B. (Texas A&M Univ., Galveston) Bottlenose Dolphins as Possible Environmental Indicators (T75133708)	\$3.5K
<u>FY91</u>	
Aguilar, A. (Univ. Barcelona) Mediterranean Dolphin Die-off Sample Archiving (T75134516)	\$2K
Bruchhausen, P. (Condor Expeditions, New York) Marine Mammal Harvests in Argentina (T75134011)	\$0.5K

Calkins, D. (Alaska Dept. of Fish and Game) Update of Steller Sea Lion Species Account (T75136613)	\$2.5K
Clapham, P. J. (Center for Coastal Studies, Provincetown, MA) Project YONAH (Years of the North Atlantic Humpback Whale) (T75136349)	\$4K
Dearborn, R. K. (Univ. Alaska, Fairbanks) Field Guide to Alaska Marine Mammals (T75136394)	\$2K
Geraci, J. P. and G. Miller (Univ. Guelph and Navigation Systems Command) On-site Evaluation of the Striped Dolphin Die-off in the Western Mediterranean (T75133818)	\$10.4K
Hain, J. H. W. (Associated Scientists at Woods Hole, MA) Airship Surveys of Right Whale Mother/Calf Pairs (T75136394)	\$2K
Hoover-Miller, A. (Pacific Rim Research, Philo, CA, & Haines, AK) Update of Alaska Harbor Seal Species Account (T75134749)	\$4K
Alaska Marine Mammal Geographic Information System Feasibility Study (T75136297)	\$5.7K
Kelly, B. P. (Univ. Alaska, Fairbanks) Pacific Walrus Draft Conservation Plan (T75136051)	\$5K
Kimmel, M., K. Wynne, and S. Montgomery (Alaska Sea Otter Commission, Univ. Alaska-Cordova, and Woodstock, Virginia) Alaska Sea Otter Conservation Plan (T75136064, T75136226, T75136336)	\$3K
Mate, B. R. (Oregon State Univ., Newport) Identification of Programs Needed to Meet the Monitoring Requirements of Section 101(a)(5) of the Marine Mammal Protection Act (T75134833)	\$1.1K
Review of Navy Briefing on the Bombing of Sea Lion Rock (T75134736)	\$1.4K
Matkin, C. O. (North Gulf Oceanic Society, Homer, AK) Alaska Killer Whale Species Account (T75135023)	\$5.4K
Miles, E. (Univ. Washington) Workshop to Identify Issues Meriting Priority Attention by the Newly- Formed North Pacific Marine Science Organization (T75136420)	\$5.4K
Mizroch, S., C. S. Baker, and J. Calambokidis (NMFS; Univ. Wellington; and Cascadia Research Collective, Olympia, WA) Humpback Whale Calf Mortality Workshop (T75136352)	\$3.5K
Nail, D. L. (Eckerd College, St, Petersburg, FL) Selected International Agreements and Domestic Legislation Affecting Marine Resources and Marine Habitat (T75135573)	\$2.3K
Northridge, S. Second Order Effects of Large-scale High-seas Driftnet Fisheries on the North Pacific Marine Ecosystem (T75135269, T75136200)	\$16K

Read, A. (Dolphin Biology Research Associates, Sarasota, FL) Harbor Porpoise Age Determination by Tooth Sectioning (T75136381)	\$3K
Sherman, K. (NMFS) Symposium on the Northeast Atlantic Shelf Ecosystem: Stress, Mitigation, and Sustainability (T75135654) (co-funded with MMS)	\$2K
Townsend, R. (Townsend Environmental, Otis, OR) Review of the Department of the Interior's Draft Report to Congress on the Impact of Potential Crude-Oil Spills on the Arctic Ocean on Alaska Natives (T75135764)	\$0.5K
Waring, G. H. (Southern Illinois Univ., Carbondale) Survey of Federally-Funded Marine Mammal Research (T75136103)	\$3.5K
Wilson, W. (LGL Alaska Research Associates, Inc.) Amendments to the Bering Sea/Aleutian Islands Ground Fish Fishery Management Plan (T75135010)	\$5K
Worthy, G. A. J. (Texas A&M Univ., Galveston) Energetic Studies of Manatee Calves and Mothers (T75136365)	\$4K
<u>FY92</u>	
Ainley, D. G. (Point Reyes Bird Observatory) Symposium on the Biology of the White Shark (T94070415)	\$1K
Baur, D. C. (Perkins Coie, Washington, D.C.) Analysis of United States Authority for Implementing the 1973 Agreement on the Conservation of Polar Bears (T94071388)	\$14K
Review of the Possible Legal Ramifications of the Recent GATT Panel Decision on the Tuna-Porpoise Issue (T94071375)	\$17K
Carr, T. (Caribbean Conservation Corp., Gainesville, FL) Manatee Surveys in the Miskito Marine and Coastal Reserve, Nicaragua (T94070376)	\$3.3K
Center for Marine Conservation, Washington, D.C. Implementation of the World Conservation Union's Action Plan for the Conservation of Dolphins, Porpoises, and Whales (T94071605)	\$3K
Data Conversion Services, American Society of International Law, and Editorial Experts Compendium of International Treaties and Agreements Bearing Upon the Conservation and Protection of Marine Mammals and Other Marine Living Resources (T94070978, T94070981, T94071511)	\$81.5
Domning, D. P. (Howard Univ.) Publication of "Sirenews" (T94069688)	\$1.2K
Geraci, J. R. (J. R. Geraci and Associates, Guelph, Ontario, Canada) Cape Cod Aquarium Inspection (T94071595)	\$2K

Gradwohl, J. (Smithsonian Institution) Proposal Preparation by the Smithsonian Institution for the Ocean Planet Exhibit (T94071016)	\$3K
Hain, J. H. W. (Associated Scientists at Woods Hole, Woods Hole, MA) Airship Surveys of Right Whales Off the Coast of Florida and Georgia (T94070460)	\$12K
Kawerak, Inc., Nome, Alaska Implementation of the Walrus Conservation Plan (T94071579)	\$5K
Kenney, R. D. (Univ. Rhode Island and Aero Marine Surveys) Assessment of the Paucity of Right Whales and Other Cetaceans Off the New England Coast in Spring 1992 (T94070648 & T94070635)	\$16.4K
Koretsky, I. A. Maintenance of the Smithsonian Institution's Remington Kellogg Library (T94070871)	\$6K
Lounsbury, V. (Literature Research & Illustration, Salford, Ontario, Canada) Illustration of a Field Guide to Marine Mammal Strandings (T94071618)	\$2K
Mate, B. R. (Oregon State Univ., Newport) Representation of the Marine Mammal Commission at the Seventeenth International Meeting for the Study of Marine Mammals (T94070208)	\$1.2K
Mecklenburg, C. (Point Stevens Press, Auke Bay, Alaska) Editing and Publication of Species Accounts Concerning Steller Sea Lions, Harbor Seals, and Killer Whales in Alaska (T94071029)	\$10K
Naveen, R. F. (Oceanites, Cookesville, MD) Conference on Tourism in Polar Areas (T94070198)	\$0.5K
Reijniders, P. J. H. (Research Institute for Nature Management, Ben Burg, Neth.) Preparation of a Pinniped Action Plan (T94070651)	\$3.3K
Talbot, L. (Lee Talbot Associates International, McLean, VA) New Principles for the Conservation of Wild Living Resources (T94071553)	\$51K
University of Hawaii, Sea Grant Program Hawaii Humpback Whale Research Coordination Meeting (T94069523)	\$1.5K
Villa-Ramirez, B. (Naturalia, Coyoacan, Mexico) Preparation of a Recovery Plan for the Vaquita (T94070800)	\$8K
Waring, G. H. (Southern Illinois Univ., Carbondale) Survey of Federally-Funded Marine Mammal Research (T94070994)	\$4.5K
Würsig, B. G. (Texas A&M Univ., Galveston) Health of Bottlenose Dolphins in Texas Coastal Waters (T94070596)	\$3.5K

FY93

Alternative Business Systems; Editorial Experts, Inc.; Lee Kimball
Compendium of International Treaties and Agreements Bearing Upon the

Conservation and Protection of Marine Mammals and Other Marine Living Resources (T10154124, T10154111, T10154234, T94071647)	\$10.2K
Alverson, D. L. (Natural Resources Consultants, Seattle, WA) Review of Bycatch in World Fisheries (T10153921)	\$3K
Best, P., E. Norse, P. Shaughnessy, and Lee M. Talbot Associates New Principles for the Conservation of Wild Living Resources (T10153954, T10153646, T10153219, T10153714)	\$22.2K
Clapham, P. J. (Center for Coastal Studies, Provincetown, MA) Project YONAH (Year of the North Atlantic Humpback Whale) (T10153840)	\$5K
Center for Marine Conservation (Washington, D.C.) Support of Publication Which Examined the International Whaling Commission's Revised Management Scheme (T10154344)	\$3K
Dedina, S. L. (Univ. Texas, Austin) Sociological Factors Affecting the Conservation of Gray Whale Habitat in Mexico (T10155592)	\$2K
Domning, D. P. (Howard Univ.) Publication of "Sirenews" (T10155233)	\$2.5K
Environmental Research Institute (Redlands, CA) Acquisition of Geographic Information System Software for the Alaska Department of Fish and Game (T10154195)	\$6K
Geraci, J. R. (Univ. Guelph) Attend and Report on Workshop on Pathogens in Marine Mammals (T10154108)	\$1.2K
Hain, J. H. W. (Associated Scientists at Woods Hole) Reducing Ship-Strikes of Right Whales Off Florida and Georgia (T10153604)	\$17K
Hale Kohola (Lahaina, HI) Hawaii Humpback Whale Research Coordination Meeting (T10155644)	\$3K
Hoover-Miller, A. (Pacific Rim Research, Seward, AK) Workshop on Improving Access to and use of Data Relevant to Conservation of Marine Mammals in Alaska (T10155550)	\$17K
International Whaling Commission Workshop on Application of Genetic Techniques for Cetacean Stock Identity (T10155673)	\$5K
Jefferson, T. A. (San Diego, CA) Review and Evaluation of Past Research on the Use of Sound to Prevent Entanglement of Marine Mammals in Fishing Gear (T10155628)	\$2K
Kelly, B. P. and B. R. Mate (Univ. Alaska & Oregon State Univ.) Attend and Report on Workshop to Review the Program Proposed to Meet Monitoring Requirements of Section 101(a)(5) of the Marine Mammal Protection Act (T10153808, T10153811)	\$1.6K

Kooyman, G. L., B. R. Mate, and G. A. J. Worthy Attend Workshop on Improving the Marine Mammal Scientific Research Permitting Process (T10154878, T10154865, T10154852)	\$1.5K
Koretsky, I. A. Maintenance of the Smithsonian Institution's Remington Kellogg Library (T10153332, T10155220)	\$6K
Kraus, S. D. (New England Aquarium) Studies of Right Whales in the Bay of Fundy (T10155482)	\$3K
Marsh, H. D. (James Cook Univ., Australia) Development of a Draft Recovery Plan for Dugongs in the Republic of Palau (T101555340)	\$1.5K
Morales, B. (Centro de Investigaciones de Quintana Roo, Mexico) Manatee Surveys in Belize and Quintana Roo, Mexico (T10155657)	\$2K
National Museum of Natural History (Smithsonian Institution) Publication of a Comprehensive Bibliography on Manatees and Dugongs (T10155631)	\$3.2K
Naveen, R. S. (Oceanites, Cooksville, MD) Design a Field Test of a Tourist Site Inventory in Antarctica (T10155660)	\$2K
Reeves, R. R. (Okapi Wildlife Associates, Canada) Review and Edit General Bibliography on Marine Mammals (T10155589)	\$1.5K
Rough, V. (Spruce Head, ME) Assessment and Monitoring of Gray Seals in New England Waters (T10155615)	\$5K
Szelistowski, W. A. (Eckerd College) Manatee Surveys in Tampa Bay, Florida (T10154069)	\$9K
Trites, A. W. (North Pacific Universities Marine Mammal Consortium) Relationship Between Fisheries and Pinniped Population Declines in the Bering Sea and Gulf of Alaska (T10154014)	\$5K
Villa-Ramirez, B. (Naturalia, Coyoacan, Mexico) Translation and Distribution of the Vaquita Recovery Plan (T10155563)	\$1K
Waring, G. H. (Southern Illinois Univ., Carbondale) Survey of Federally-Funded Marine Mammal Research (T10155275)	\$4.5K
Würsig, B. G. (Texas A&M Univ., Galveston) Population Studies of Bottlenose Dolphins in the Coastal Waters of Texas (T10154454)	\$5K

FY94

Baker, C. S. (Univ. Auckland) Possible Illegal Trade in Whale Meat (T10157516)	\$1.8K
Brueggeman, J. J., J. Calambokidis, D. M. Lavigne, B. J. LeBoeuf, C. O. Matkin, R. R. Reeves, D. B. Siniff, M. A. Smultea, I. Stirling, B. S. Stewart,	

and G. A. J. Worthy Reviews of Marine Mammal Stock Assessment Reports (T30916708 et al.)	\$10K
Clapham, P. J. (Center for Coastal Studies, Provincetown, Massachusetts) Project YONAH (Years of the North Atlantic Humpback Whale) (T10156643)	\$5K
Domning, D. P. (Howard Univ.) Publication of "Sirenews" (T3091636)	\$2.5K
Fraker, M. A. and B. R. Mate (Sidney, British Columbia/Oregon State Univ.) Review and Analysis of Sea Lion Predation of Steelhead Trout at Ballard Locks (T10156766 and T10156737)	\$10K
International Whaling Commission (Cambridge, England) Acquiring and Evaluating Russian Whaling Data from the Past (T10157150)	\$5K
Inuit Circumpolar Conference Participation by Arctic Indigenous People in Meetings Related to the Arctic Environmental Protection Strategy (T30916177)	\$22.3K
Participation by Arctic Indigenous People in Meetings Related to the Russian/U.S. Agreement on the Management and Conservation of Polar Bear Populations and Their Habitats (T309161780)	\$17.2K
Participation by Arctic Indigenous People in a Seminar on Traditional Knowledge and in a Meeting of the Conservation of Arctic Flora and Fauna Working Group of the Arctic Environmental Protection Strategy (T30916193)	\$20.5K
Koretsky, I. A. (Falls Church, Virginia) Maintenance of the Remington Kellogg Library (T30916232)	\$3K
Naveen, R. S. (Oceanites, Cooksville, Maryland) Environmental Education and Tourist Site Inventory in Antarctica (T10157383)	\$21.5K
Society for Marine Mammalogy Preparation of a Career Guide in Marine Mammal Science (T10157419)	\$0.7K
Species Survival Commission, IUCN Support for Publication of a Conservation Action Plan "Whales, Dolphins, and Porpoises, 1994-1998" (T30916627)	\$2.5K
VanBlaricom, G. R. (Univ. Washington) Acquisition of Historical Sea Otter Data from Russia (T30916151)	\$2K
Waring, G. H. (Southern Illinois Univ., Carbondale) Survey of Federally-Funded Marine Mammal Research (T30916452)	\$4.5K
Weber, M. L. (Washington, D.C.) Analysis of International Fisheries Agreements (T30916119)	\$7.3K

National Aeronautics and Space AdministrationFY90

Lefebvre, L. and J. A. Provancha (USFWS & NASA) Determination of Long Term Changes in a Seagrass Bed Protected from Grazing by Manatees (NAS10-1162AX)	\$5.2K
Provancha, J. A. (NASA) Long Term Monitoring of Distribution and Abundance of Manatees at Kennedy Space Center, Florida (NAS10-11624A)	\$13.9K

FY91

Lefebvre, L. and J. A. Provancha (USFWS & NASA) Determination of Long Term Changes in a Seagrass Bed Excluded from Grazing by Manatees (NAS10-11624-EX)	\$7.5K
Provancha, J. A., M. Provancha, and R. Reddick (NASA) Long Term Monitoring of the Abundance and Distribution of Manatees on Kennedy Space Center, Florida (NAS10-11624-A)	\$10K

FY92

Lefebvre, L. and J. A. Provancha (USFWS & Bionetics Corp., Kennedy Space Center, FL) Determination of Long Term Changes in a Seagrass Bed Excluded from Grazing by Manatees (NAS10-11624-EX)	\$6.5K
Provancha, J. A., M. Provancha, and R. Reddick (The Bionetics Corp., Ecological Programs, Kennedy Space Center, FL) Long Term Monitoring of the Abundance and Distribution of Manatees on Kennedy Space Center, Florida (NAS10-11624-A)	\$10K

FY93

Lefebvre, L. and J. A. Provancha (USFWS & Bionetics Corp., Kennedy Space Center, FL) Determination of Long Term Changes in a Seagrass Bed Excluded from Grazing by Manatees (NAS10-11624-EX)	\$6.5K
Provancha, J. A., M. Provancha, and R. Reddick (NASA, Ecological Programs, Kennedy Space Center, FL) Long Term Monitoring of the Abundance and Distribution of Manatees on Kennedy Space Center, Florida (NAS10-11624-A)	\$23.5K

FY94

Lefebvre, L. and J. A. Provancha (USFWS & Bionetics Corp., Kennedy Space Center, FL) Determination of Long Term Changes in a Seagrass Bed Excluded from Grazing by Manatees: Carrying Capacity Determination (NAS10-11624-EX)	\$6.5K
Provancha, J. A., M. Provancha, and R. Reddick (NASA, Ecological Programs, Kennedy Space Center, FL)	

Long-Term Monitoring of the Abundance and Distribution of
Manatees on Kennedy Space Center, Florida (NAS10-11624-A) \$23.5K

National Science Foundation

FY90

Beardsley, R. C. and R. Limeburner (Woods Hole
Oceanographic Institution)
Springtime Circulation in the Great South Channel
(SCOPEX) (OCE-8713988) \$83.3K

Frost, B. and M. Macauley (Univ. Washington)
Acoustics of Copepods and Micronekton in the Great
South Channel (OCE-8915844) \$27K

Hain, J. H. W. (Woods Hole Oceanographic Institution)
Airships in Cetacean Research (OCE-9009431) \$48.6K

LeBoeuf, B. (Univ. California, Santa Cruz)
Diving Studies of Northern Elephant Seals (BSR-89169677)
(co-funded with MMS) \$55K

Biological Studies of Northern Elephant Seals (BSR-8919933) \$70K

Diving and Foraging Behavior of Northern Elephant Seals (INT-9016374) \$17.9K

Miyamoto, M. (Univ. Florida)
Molecular Systematics of Eutherian Mammals and
Other Species (BSR-8945103) \$25K

Palumbi, S. R. (Univ. Hawaii)
Genetic Diversity of Endangered Populations of Mysticete
Whales: Mitochondrial DNA and Historical Demography (BSR-9000006) \$130K

Smuts, B. (Univ. Michigan)
Social Behavior in Apes and Dolphins (BNS-885769) \$66.5K

Testa, J. (Univ. Alaska)
Dispersal and Diving Behavior of Seals Determined
by Satellite Telemetry (DPP-88-16567) \$115.5K

Tyack, P. and L. Sayigh (Woods Hole Oceanographic Institution)
Development of Signature Whistles in Free-Ranging
Bottlenose Dolphins (BNS-9014545) \$9.1K

Winn, H. E. et al. (Univ. Rhode Island)
South Channel Ocean Productivity Experiment (SCOPEX) (OCE-8915844) \$173K

FY91

Beardsley, R. C. and R. Limeburner (Woods Hole
Oceanographic Institution)
Springtime Circulation in the Great South Channel
(SCOPEX) (OCE-9101034) \$200.2K

Berta, A. (San Diego State Univ.) Phylogenetic Relationships Within the Phocid Pinniped Clade (BSR-9006535)	\$59.8K
Costa, D. P. and R. S. Wells (Univ. California, Santa Cruz) Energetics of Free-ranging Bottlenose Dolphins (OCE-9018626)	\$78.8K
Felten, D. L. (Univ. Rochester) Neural-Immune Interactions in the Beluga Whale (DCB-9105791)	\$54.6K
Palumbi, S. R. (Univ. Hawaii) CRB: Genetic Diversity of Endangered Populations of Mysticete Whales: Mitochondrial DNA and Historical Demography (BSR-9000006)	\$49K
Siniff, D. (Univ. Minnesota) The Behavioral Ecology of Sea Otters at Amchitka Island, Alaska (DPP-9101134)	\$174.3K
Smuts, B. (Univ. Michigan) Social Behavior in Apes and Dolphins (BNS-88-57969)	\$66.5K
Testa, J. (Univ. Alaska) Dispersal and Diving Behavior of Seals Determined by Satellite Telemetry (DPP-88-16567)	\$51.4K
Tyack, P. and L. Sayigh (Woods Hole Oceanographic Institution) Development of Signature Whistles in Free-ranging Bottlenose Dolphins (BNS-90-14545)	\$-0
Wartzok, D. (Univ. Missouri, St. Louis) Under-Ice Behavior of Ringed Seals (DPP-9024106)	\$102.6K
Worthy, G. A. J. (Texas A&M Univ.) Free-Ranging Energetics of Bottlenose Dolphins (OCE-9019962)	\$21.1K

FY92

Berta, A. (San Diego State Univ.) Phylogenetic Relationships Within the Phocoid Pinniped Clade (BSR-9006535)	\$5K
Costa, D. P. and R. S. Wells (Univ. California, Santa Cruz) Energetics of Free-Ranging Bottlenose Dolphins (OCE-9018626)	\$81.9K
Felten, D. A. (Univ. Rochester) Neural-Immune Interactions in the Beluga Whale (DCB-9105791)	\$57.1K
Herman, L. M. (Univ. Hawaii) Integration of Visual and Echoic Information (IBN-9121331)	\$100K
Reep, R. (Univ. Florida) Manatee Cerebral Cortex and Comparative Volumetrics (IBN-91-20450)	\$50K
Siniff, D. (Univ. Minnesota) The Behavioral Ecology of Sea Otters at Amchitka Island, Alaska	

(DPP-9101134)	\$122.4K
Smuts, B. (Univ. Michigan) Social Behavior in Apes and Dolphins (BNS-885769)	\$62.5K
Testa, J. and M. Castellini (Univ. Alaska) Physiological Development and Survival of Juvenile Weddell Seals DPP-9119885)	\$227.1K
Wartzok, D. (Univ. Missouri, St. Louis) Under-Ice Behavior of Ringed Seals (DPP-9024106)	\$98.7K
Welker, W. (Univ. Wisconsin, Madison) Comparative Neuroanatomical Study of the Brain (IBN-11934)	\$61.5K
Worthy, G. A. J. (Texas A&M Univ.) Free-Ranging Energetics of Bottlenose Dolphins (OCE-9019962)	\$23.4K
Zapol, W. (Massachusetts General Hospital) Physiological Studies of Free-Diving Weddell Seals (DPP-9118192)	\$150.1K
<u>FY93</u>	
Felten, D. A., V. Quaranta, and T. Romano (Univ. Rochester) Neural-Immune Interactions in the Beluga, <u>Delphinapterus leucas</u> (DCB-9105791)	\$-0-
Herman, L. M. (Univ. Hawaii) Integration of Visual and Echoic Information (IBN-9121331)	\$-0-
Reep, R. L. (Univ. Florida) Manatee Cerebral Cortex and Comparative Volumetrics (IBN-9120450)	\$52K
Siniff, D. (Univ. Minnesota) The Behavioral Ecology of Sea Otters at Amchitka Island, Alaska (OPP-9101134)	\$122.4K
Antarctic Pack-Ice Seals: A Workshop (OPP-9312289)	\$14K
Smuts, B. (Univ. Michigan) Social Behavior in Apes and Dolphins (BNS-88-57969)	\$41.5K
Testa, J. and M. Castellini (Univ. Alaska) Physiological Development and Survival of Juvenile Weddell Seals (OPP-9119885)	\$206K
Wartzok, D. (Univ. Missouri, St. Louis) Under-Ice Behavior of Ringed Seals (OPP-9024106)	\$-0-
Zapol, W. (Massachusetts General Hospital) Physiological Studies of Free-Diving Weddell Seals (OPP-9118192)	\$113.7K

FY94

Castellini, M. (Univ. Alaska) Physiological Development and Survival of Juvenile Weddell Seals (OPP-9119885)	\$160.9K
Felten, D., V. Quarauta, and T. Romano (Univ. Rochester) Neural-Immune Interactions in the Beluga, <u>Delphinapterus leucas</u> (MCB 9317267)	\$107K
Siniff, D. (Univ. Minnesota) Antarctic Pack-Ice Seals: A Workshop (OPP-9312289)	\$14K
The Distributional Ecology of Antarctic Seals (OPP-9403672)	\$35K

Smithsonian InstitutionFY90

Mead, J. G. (Museum of Natural History) Marine Mammal Program (80337100)	\$165K
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FY91

Mead, J. G. (Museum of Natural History) Marine Mammal Program (80337100)	\$169K
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FY92

Mead, J. G. (Museum of Natural History) Marine Mammal Program (82337100)	\$144.4K
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FY93

Boness, D. J., O. T. Oftedal, and K. Ralls (National Zoological Park) Marine Mammal Research (pinnipeds)	66.2K
Mead, J. G. (Museum of Natural History) Marine Mammal Program (82337100)	\$115.9K

FY94

Mead, J. G. and C. Potter (Museum of Natural History) Marine Mammal Program (82337100)	\$144.2K
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