

PB93-227189

SURVEY OF FEDERALLY-FUNDED MARINE MAMMAL
RESEARCH AND STUDIES, FY74 - FY92

George H. Waring

August 1993

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

NTIS[®]

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank) PB93-227189	2. REPORT DATE August 1993	3. REPORT TYPE AND DATES COVERED	
4. TITLE AND SUBTITLE Survey of Federally-Funded Marine Mammal Research and Studies, FY74 - FY92		5. FUNDING NUMBERS Contract T94070994	
6. AUTHOR(S) George H. Waring		8. PERFORMING ORGANIZATION REPORT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Department of Zoology Southern Illinois University Carbondale, Illinois 62901			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Marine Mammal Commission 1825 Connecticut Avenue, NW, Room 512 Washington, DC 20009		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The data and information contained in this report were given, in final form, to the involved agencies for review and comment. The agencies consider the contents of this report to be accurate.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Unlimited		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)			
14. SUBJECT TERMS		15. NUMBER OF PAGES 73	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited

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.

March 20, 1993

George H. Waring, PhD
Carbondale, IL

TABLE OF CONTENTS

	Page
PREFACE	ii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ACRONYMS	vii
I. OVERVIEW OF FEDERAL RESEARCH PROGRAMS	1
Federal Agencies Funding Marine Mammal Research and Studies	2
Reference List of Previous Surveys Compiled by the Author and Available from the National Technical Information Service	5
Number of Marine Mammal Research Projects Supported by Federal Agencies in FY74-FY92	6
Trends in Federal Support of Marine Mammal Research	
--By Number of Projects Supported, FY74-FY92.....	7
--By Agency, FY76-FY92.....	8
--By Geographical Region, FY76-FY92.....	9
--By Taxonomic Group, FY76-FY92.....	10
--By Research Issue, FY76-FY92.....	12
II. RESEARCH AND STUDIES UNDER AUTHORITY OF THE MARINE MAMMAL PROTECTION ACT OF 1972, AS AMENDED.....	17
Research Responsibilities of Federal Agencies Under the Act.....	18
Federal Funding Authorized, Requested, and Appropriated Under the Act.....	20
Funds Expended on Marine Mammal Research Other Than Appropriated Under Authority of the Act by the National Marine Fisheries Service and the Fish and Wildlife Service, FY74-FY92.....	22

Funds Expended on Marine Mammal Research by the National Marine Fisheries Service and the Fish and Wildlife Service, FY74-FY92..... 23

Number of Personnel Assigned to Marine Mammal Administration and Research Activities in the National Marine Fisheries Service and the Fish and Wildlife Service, FY74-FY92.....24

APPENDIX A

Published Sources of Marine Mammal Information From Federally-Funded Research and Studies..... 25

APPENDIX B

Listing of Marine Mammal Research and Study Projects, Principal Investigators, and Funding Levels for FY90-FY92..... 29

- Department of Agriculture..... 30
- Department of Commerce..... 30
- Department of Defense..... 40
- Department of Energy..... 44
- Department of Health and Human Services..... 44
- Department of the Interior..... 46
- Department of State..... 57
- Environmental Protection Agency..... 57
- Marine Mammal Commission..... 58
- National Aeronautics and Space Administration..... 63
- National Science Foundation..... 63
- Smithsonian Institution..... 66

LIST OF TABLES

Table	Page
1. Reference list of previous surveys compiled by the author and available from the National Technical Information Service.....	5
2. Number of marine mammal research projects supported by Federal agencies in FY74-FY92.....	6
3. Federal funding of marine mammal research.....	8
4. Regionally oriented marine mammal research in waters adjacent to the United States.....	9
5. Taxonomic summary of Federally-funded marine mammal research.....	10
6. Federal funding of marine mammal research by research issue.....	12
7. Federal funding under the Marine Mammal Protection Act.....	20
8. Funds expended on marine mammal research other than those appropriated under authority of the Marine Mammal Protection Act.....	22
9. Number of personnel assigned to marine mammal activities in the National Marine Fisheries Service and the Fish and Wildlife Service, FY74-FY92.....	24

LIST OF FIGURES

Figure	Page
1. Trends in Federal support of marine mammal research: Total number of marine mammal projects reported to the Marine Mammal Commission, FY74-FY92.....	7
2. Funds expended on marine mammal research by the National Marine Fisheries Service and the Fish and Wildlife Service, FY74-FY92.....	23

LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
AFSC	Alaska Fisheries Science Center
AFWRC	Alaska Fish and Wildlife Research Center
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
MMC	Marine Mammal Commission
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
NASA	National Aeronautics and Space Administration
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 (now NCCOSC)
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
OMA	Office of Oceanography and Marine Assessment (now ORCA)
SEFSC	Southeast Fisheries Science Center
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
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 FY92. 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) and the Veterans Administration gave support to a few projects early in the period; but since no further support has occurred in the past decade, those agencies are 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-FY92 was 150.2 (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, and for Navy -- the Naval Command, Control, and Ocean Surveillance Center and the Office of Naval Research. 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 Fish and Wildlife Service (FWS) supports management related research on the biology, population dynamics, and ecology of walrus, sea otter, polar bear, and sirenians (manatees and dugong). 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.

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

National Aeronautics and Space Administration (NASA)

The National Aeronautics and Space Administration 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 Department of Vertebrate Zoology and Department of Paleobiology of the Museum of Natural History and the National Zoological Park.

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, FY70-FY91. Publication PB92-190222, National Technical Information Service, Springfield, Virginia. 56 p. (1992)
-

TABLE 2

NUMBER OF MARINE MAMMAL RESEARCH PROJECTS SUPPORTED BY FEDERAL AGENCIES IN FY74-FY92

	FY74	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
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	37
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
NOAA/OCSEAP (see below)																			
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		
Department of Defense																			
Air Force						1	1	1			2	2	2	2	1	1	1	1	2
Army						1	2											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
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
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
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
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
MMS/NOAA/OCSEAP		3	16	11	11	6	6	7	9	8	6	3	4	2	1	1	2	1	
National Park Service	1	1	2	3	5	2	2	4	3	3	3		3	3	2	6	2	6	10
Department of State					2	1	1	2	2	2	2	2	3	3	2	3	3	3	3
Environmental Protection Agency	1	1												1	1	2	2	4	4
Marine Mammal Commission	14	32	30	29	34	7	21	16	15	13	30	32	20	25	25	16	18	24	23
National Aeronautics and Space Administration	1	1	1	2	2			1				1	3	2	1	1	2	2	2
National Science Foundation	12	7	10	10	8	11	14	8	10	11	10	12	12	10	8	9	12	11	11
Smithsonian Institution	4	4	2	2	2	2	2	2	3	3	3	3	5	3	1	1	1	1	1
TOTAL:	113	122	133	151	166	137	171	148	140	142	145	150	156	177	148	158	162	178	157

FIGURE 1

TRENDS IN FEDERAL SUPPORT OF MARINE MAMMAL RESEARCH

Total Number of Marine Mammal Projects Reported to the
Marine Mammal Commission, FY74-FY92

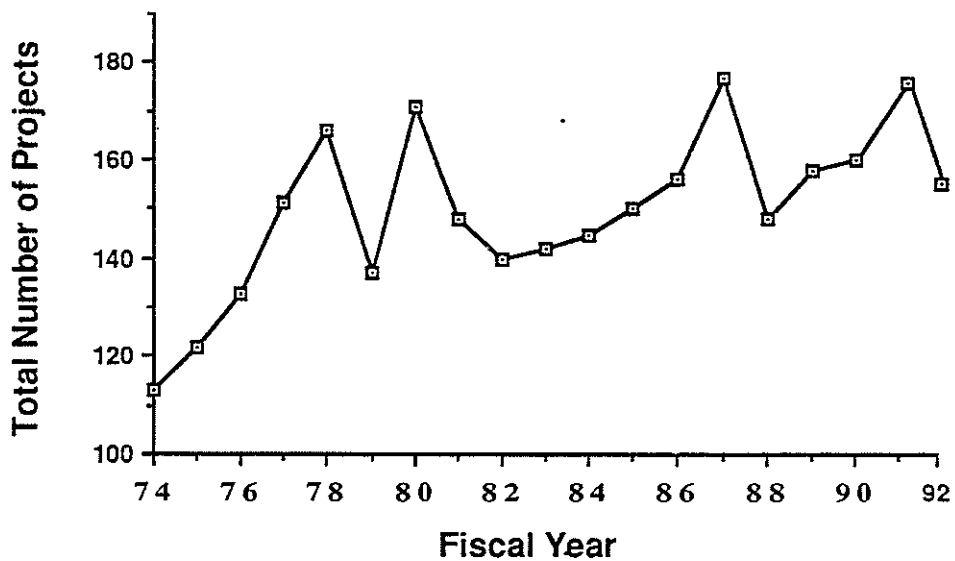


TABLE 3
FEDERAL FUNDING OF MARINE MAMMAL RESEARCH *
(Thousands of Dollars)

	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
Department of Agriculture				209		84.7											
Department of Commerce																	
National Marine Fisheries Service	1456.4	2313.8	3603.2	4425.9	5126.7	4531.8	3896.4	4050.7	4077	5021	4628.7	4852.9	4482.9	4801.4	7010.6	11925.1	16366.7
National Ocean Pollution Program Office										20							
National Sea Grant Program	19.8	25.8	49.7	68	59.7	35.1	30	46.7	79.6	66.4	21.4				32.3	47.3	105.5
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				
Oceanography and Marine Assessment							58	123.6		59	55	15	15	15	25		
Department of Defense																	
Air Force				40	15	79.2			6.5	15.5	58.5	58.5	55	55	173.9	106.7	244.4
Army				44	122											247.9	248.5
Naval Ocean Surveillance Center (NCCOSC)	361	718	545	717	1979	1729	1524	1708	1506	1699	2004.5	2094	1982	1909	979	884	865
Naval Research Laboratory				20													
Office of Naval Research	260.1	414	430	538.4	462.8	302.6	204	195.2	224	407.6	483.8	1284.2	1483.8	2128	160	200	1565
Department of Energy	28	80	80		30	20	25				70	70					
Department of Health and Human Services	1078.5	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
Department of the Interior																	
Fish and Wildlife Service	933	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
Geological Survey			31.2	30.5	20	45.5	79.6	62.8	76	71							
Minerals Management Service	2046.4	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
National Park Service	17.2	16.5	84.8	45.8	68	376.8	223	300.4	235		17.5	39.5	27	86.2	50	66	1300
Department of State			51	500	592.9	718.4	644.6	540.6	709.4	795.6	869.4	926.6	913.8	929.2	1148.5	1235.2	1488.9
Environmental Protection Agency												8.5	8	175	100	212.2	96.2
Marine Mammal Commission	561.7	420.3	376.1	152.6	358.7	134.7	84.1	204.9	288.7	197.7	85	100.5	102.6	104.8	92.7	94.2	250.9
National Aeronautics and Space Admin.	184	50	65		12	143.3				10	8.7	1.6	8.2	6	18.1	17.5	16.5
National Science Foundation	690.4	718.9	334.2	479.3	677.6	574.5	560.8	503	691.9	729.8	620.5	757.6	663.4	901.8	820.9	858.3	939.7
Smithsonian Institution	102	106.1	101.1	133.4	142.8	152.3	148.8	170.4	207.5	212.5	222.5	212	150	161.2	165	169	144.4
TOTAL	7,748.5	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	24,104.4	29,955.4

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

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	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
Hawaii	102.6 (8)	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)	(1)	3+ (3)	1.5 (1)	429 (4)	487.6 (4)	747 (3)
Alaska	2861.7 (39)	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)
Oregon/Washington	43.5 (2)	60.3 (4)	68 (2)	229.9 (2)	234.5 (5)	73.6 (4)	165.3 (4)	(1)	23.2 (1)	(3)		1524.2 (3)	1520.2 (2)	68.6 (2)	37 (3)	
California	1132 (11)	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)	2443.7 (10)	3123.1 (13)
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)	(1)	62 (4)	154.2 (4)	248.1 (4)	897.8 (6)	3353.3 (4)
Florida	171.2 (10)	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)
Mid-Atlantic States (GA, SC, NC, VA)	199.9 (1)			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)
NE Coastal States	29.3 (3)	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)	883.1 (9)

*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 6

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

	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
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	173.8	190.2	267.1	580.5	328.7	350	353	391.6	276.8	284.1	224	389.5	396.4	402.6	419.8	437.2	739.3
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
NASA		50	15							10	8.7	1.6	6.2	6	19.1	17.5	16.5
National Science Foundation						46.5					94						50
Smithsonian Institution																	
CATEGORY TOTAL	173.8	240.2	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
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																	
Department of Energy	28	30	30		30	20	25										
Dept. Health and Human Services																	
Department of the Interior	629.3	587.3	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
Department of State																	
Environmental Protection Agency														75	50	80	
Marine Mammal Commission	103.2	40.6	49.9			18	5.6	31.8	67	33.3		2		7.5		3	14
NASA																	
National Science Foundation				22.6	36.3					149.5		44	44	44		174.3	122.4
Smithsonian Institution																	
CATEGORY TOTAL	760.5	657.9	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
Pinnipedia (Seals, Sea Lions, Walrus)																	
Department of Agriculture				200													
Department of Commerce	760.5	783.8	858.7	956.7	1454.7	940.2	1081.4	1188.8	1269.4	1650.7	1169	49.8	221.1	35.6	1504.8	2022.7	4056.2
Department of Defense	147	274	325	246	353	149.2	50	72.9	68.5	179.9	233.3	344	264.9	502	173.9	106.7	184.4
Department of Energy											70	70					
Dept. Health and Human Services	116.2	141.3		76.6	43.5	51.4	38.4			57	51.8	162.2	143.9	259.5	227.5	178	72.1
Department of the Interior	684.6	763.5	664.6	589	467.7	541.9	385.1	268	494.8	75	170.2	639.3	229.1	161.2	267.9	367.8	1140.6
Department of State																	
Environmental Protection Agency																50	25
Marine Mammal Commission	54.3	64.8	33.7	59.1	106	58	12	159.1	12.5	32.8	8.7	17	3.5	7	14.7	17	11.3
NASA																	
National Science Foundation	268.3	131.1	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
Smithsonian Institution	59.2	56.1	45	47.4			11.8	22.4	42.5	42.5	76.5	58					
CATEGORY TOTAL	2090.1	2214.6	2068.5	2418	2665.6	2031	1937.8	2041.6	2308.4	2388.6	2086.8	1694.8	1201.9	1190.3	2447.2	2956	5970.5

TABLE 6 (continued)

TAXONOMIC SUMMARY OF FEDERALLY-FUNDED MARINE MAMMAL RESEARCH

	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
Cetacea (Whales and Porpoises)																	
Department of Agriculture						44.6											
Department of Commerce	709.7	1555.8	2794.2	3326.3	3542.8	3118	2304.2	2037	2421.7	2540.7	2935	2376.7	2257.5	2705.5	3111.3	3342.8	7267
Department of Defense	263.1	527	446	746.4	1583.8	1485.6	1355	1522.3	1218	1566.2	1973.5	2532.1	2565.9	2660	1139	1064	2300
Department of Energy																	
Dept. Health and Human Services	114.3	144.6	149.6	74.1	167.1	463.4	229.9	146.9	162.4	22.4			84.7	86.5	97.3	108.9	
Department of the Interior	126.2	253.4	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
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
Environmental Protection Agency														100	50	82.2	71.2
Marine Mammal Commission	262.8	124.9	169.7	81	133.7	34.4	28	5	63	74	39.8	301.2	27.7	4.5	23	30.3	61.4
NASA						143.3											
National Science Foundation	275.2	213.1	163.1	187.9	380.8	235.7	158.3	162.6	221.3	101.1	43	200	200	510.8	444	403.7	224.9
Smithsonian Institution	42.8																
CATEGORY TOTAL	1794.1	2818.8	4000.6	7853.2	8640.9	8154.8	7300.9	6320	7150	7988.6	7539.9	7261.4	7419.6	9186.9	8467.5	8026.1	13931.2
Mixed Species or General Studies																	
Department of Agriculture				9		17.9											
Department of Commerce	6			210.9	245.1	635.9	635.4	1042.6	551.5	1050.8	776.2	2586.4	1668.5	2075.3	2565.8	6606.9	5149
Department of Defense	211	331	204	323	520	476	323	318	450	326	340	560.6	690	930		247.9	438.5
Department of Energy		50	50														
Dept. Health and Human Services	848	495.1	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
Department of the Interior	1382.7	1428.3	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
Department of State			51								9.4	7.3	2.3	3.1	1.8	1.2	
Environmental Protection Agency																	
Marine Mammal Commission	141.4	190	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
NASA			50														
National Science Foundation	146.9	374.7	29.6	25.6	19.8		43.2	10	49.9	128.5	178.2	159.1	80	122	118.5	66.5	61.5
Smithsonian Institution		50	56.1	86	142.8	152.3	137	148	165	170	146	154	150	161.2	165	169	144.4
CATEGORY TOTAL	2736	2919.1	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	9258.1	6671.3

TABLE 6
 FEDERAL FUNDING OF MARINE MAMMAL RESEARCH BY RESEARCH ISSUE¹ **
 (Thousands of Dollars)

SPECIAL RESEARCH ISSUE	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FUNDING AGENCY	LINE TOTAL
Tuna/Porpoise:																		
Population Assessment	516.5	524.5	462.7	676.9	615	462	570	507.3	485.8	606.5	1079.9	1002	1025.4	919.2	554.2	1036.6	NMFS	11044.5
	2					4			1.8	1.3							MMC	9.1
			500	592.9	667.1	609.2	673.9	673.9	762	853	914.3	911.1	916.8	1138.4	1225.8	1443.9	DOS	11902.3
Mortality Reduction	299.6	487.6	512.9	433.1	303.6	30	30.9									1351.4	NMFS	3449.1
		67.4			5.6											17	MMC	90
	97.1																NSF	97.1
		48															Navy	48
Assessment of Taking	189.6	318.7	329.5	346.9	246.7	320.7	225	181.8	179.3	134.7	185.1	185.1					NMFS	2843.1
Biology	138.1	220.4	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	NMFS	6195.7
	12.5	10															MMC	22.5
				31.6													NSF	31.6
International Whaling Commission:																		
Assessment of Stocks and Taking	52.8	103		340.5	433		700	858	815	753							NMFS	4053.3
	33.5	19.8	70.9	65					16.1					3			MMC	208.3
					32.3	35.4	35.3	35.5	33.6	7	5		9.3	6.3	49		NSF	49
															45		DOS	254.9
Marine Mammal/Fisheries Conflicts:																		
Southern Ocean Krill	14.5	4				10		49.2									MMC	77.7
		51															DOS	51
			25.6														NSF	25.6
Fin Fish/Pinniped Interactions	25.8	49.7	66		30	30	39.2	79.6	44.6	21.4							NSGCP	388.3
		59.3		4.9	32.5	10									5.5	3	MMC	115.2
			70	604.6	349.9	309.3	226.4	221.1	701	365.4		801.8	772.9	1255.7	2600.8	1617.3	NMFS	9896.2
Shell Fish/Sea Otter Interactions				6	5.1				6.1								NSGCP	17.2
				4.5			31				142.5	253.9	242.6	36.9	322.9	204.6	FWS	1238.9
					142.4												NMFS	142.4
									10								OCRAM	10
Fin Fish/Cetacean Interactions				2		10		14.1		3							NPFMC	10
						5											MMC	24.1
Incidental Taking						10	12	64.9	26.8	11	4			68	716.8	337	NMFS	1123.6
						29		14.8	65	121.3	78.5	185.6			16		MMC	144.7
								5						25	3007	1497.7	NMFS	5003.9
									20								NPFMC	5
																	NOPPO	20
Effects of Oil and Gas Development on Marine Mammals:																		
Physiological Studies	59	65	1097.8	394.1	111.8	1390.3	2485.5	1650.1		221.9		65.5	134.7				MMS	7675.7
	2.6				2												MMC	4.6
													75	100	180	25	EPA	380
Risk Analysis						184.4	51.8	617.6	977.5	409.5	454.2	647.2	833.9	994.7	1363.5	1672.6	MMS	8407.1
							3.3	5.9	6.9				7.5		1.1		MMC	24.7
													923.8	580	978		FWS	2481.8
													30	50			NPS	60
														678.3	32	436.6	NMFS	1148.9

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

SPECIAL RESEARCH ISSUE	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FUNDING AGENCY	LINE TOTAL
Marine Mammal Strandings:																		
Biological Studies	15						6	1.6	10.5			7.5	32		12.4	5	MMC	90.2
	11.9	14.6		15		20	25	30	30	35	35	35	38	38	50	50	SI	427.5
			3.5	20	30	31.5	24.6	2							131.6	120	NMFS	363.2
	70.4																MMS	70.4
	15	30	18.7	15			60	103									FWS	241.7
									7.5								OCRM	7.5
															32.2	71.2	EPA	103.4
Bowhead Whale:																		
Assessment of Stocks and Taking	201	724	871.1	737.2	785.1	456.9	606			441	175.1	359	316.2	192	655		NMFS	6699.6
	42.5	187.2		591	345.3		317.4	625.4	543.6	480	180.3		360	603.3	264	512.8	MMS	5032.6
		6.7							4								MMC	10.7
Biology				590			589.6	724.5	163.5	156.6	123.5	287.7	22.5			54.8	MMS	2712.7
Humpback Whale:																		
Population Assessment	52.8	103	15	39.1	70.7	39	38.8	30.1	113.1	82.6	45.7	21.2	2.2	23	45	250	NMFS	971.5
	25.1	21.4		15	9	5	5		4.5	11		3	1.5	7.4	7.5	1.5	MMC	116.9
										15	15	23	20		20.9	16	NPS	109.9
														8			MMS	8
Biology	10	31.3	39.8	63	376.3	223	293.4	225		7					13		NPS	1261.8
		39.7	40.2	42.3	4.1		12.6	11		3.3	18	20	20	27	20		NMFS	134
			48	24							63	63					NSF	122.2
																	Navy	72
																	OCRM	126
Gray Whale:																		
Population Assessment	52.8	103	25.7					53.8	59								NMFS	304.3
				37	9												Navy	46
							317.4	538.4	521.5	488.5	180.3			84	79.6		MMS	2167.7
									45.6								OCRM	45.6
Biology			187.7	58.1	497			480	168.2					38.6			MMS	1449.6
								38.7									NSF	38.7
											10						OCRM	10
Assessment of Human-Induced Impact	9.6	20.6			3.6	6			11								MMC	51.2
Northern Right Whale:																		
Population Assessment					27.6	25	47.7	11	49.7	401.2	285.5	207.1	190	190	194	48	NMFS	1657
					3	4	32.1			4		4.2	2	2	28.4		MMC	79.7
											209.6	214.4	215	414.5	195.8		MMS	1249.3
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	52.7		3							4							NMFS	59.7
		7.9													5.4		MMC	13.3
															5.4		NPS	5.4
Biology		15.3							5								NSF	20.3
														32.3	32.3		HSGCP	64.6
															14		NPS	14

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

SPECIAL RESEARCH ISSUE	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FUNDING AGENCY	LINE TOTAL
Pilot Whales:																		
Population Assessment		15.3									10.4			45	10		NSF	15.3
																	MMC	10.4
Biology					10												NMFS	55
															10		USDA	10
																	NMFS	10
Beluga:																		
Population Assessment	42.5	17.2			49.8				4.8		0.2			84	79.6		MMS	273.1
																	MMC	5
Biology						134	130.3								25	184	NMFS	209
	10	25		350	525	102	100	162.5	219	224	250						MMS	284.3
																	Navy	1987.5
															54.6	57.1	NSF	111.7
Harbor Porpoise:																		
Population Assessment				45		30	9.6	1			7	33	87	181	270	327	NMFS	970.6
							4			9	30						OCRM	43
										10	5.8						MMC	15.8
													5				NPS	5
Biology																24	NSGCP	24
															3		MMC	3
Dall's Porpoise:																		
Population Assessment		210	6.9	264		228	185	185	127.8	117		285	327	553.6	977		NMFS	3426.1
Bottlenose Dolphin:																		
Population Assessment		1.0						15	4.5	13.5				1		3.5	MMC	39.4
			180.8	219.9	221.8	248.3	236.5	248.5	292.9	177.7	208.8	62	137	172	31.9	105	NMFS	2543.1
Biology	270	168	487	903.9	850	1074	1310	975.5	1130	1305.5	1848.1	1805.9	2318	877	864	525	Navy	16491.9
												8	100				EPA	108
	86.7	92.8	85.3	90.1	107	48.9	58.5	221.3	57.4	6.9		84.7	86.5	97.3	108.9		DHHS	377.4
	31.8	0.5				4						15.5		9.1	99.9	167.8	NSF	1129.7
			9				13.5					100	2	10.8			MMC	82.4
															35	250	NMFS	409.5
Northern Fur Seal:																		
Population Assessment	352	387	430.2	248	156.8	263.3	237.4	309.5	274.4	259.9	5	5.5		5.5	5.5	6	NMFS	2923.8
							4.1										MMC	4.1
Biology	386	384	269.3	410.9	420.2	285.4	237.4	309.5	274.4	252.5						4	NMFS	3213.8
								1.5									MMC	1.5
	70	96	88								7						Navy	254
																	OCRM	7
								112								15	MMS	127
Guadalupe Fur Seal:																		
Population Studies	13.3	18.7															NMFS	30
Antarctic Seals:																		
Population Studies		50.3	97			68.4	39.9	49.9	41.8			54.3					NSF	401.6
												180	291	326.8	335	415	NMFS	1547.8
Biology	172.7	89	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	NSF	3109.9
														2			MMC	2

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

SPECIAL RESEARCH ISSUE	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FUNDING AGENCY	LINE TOTAL
Arctic Seals:																		
Population Studies	157	85						65.7			88						MMS	395.7
															10		NPS	10
Biology	201.1	237.6	212		281.6	157		292	19.9	3.5							MMC	23.4
					38.8				60	75	250				144	25	MMS	1935.3
							75.5		38.2						102.6	98.7	NSF	278.3
										70	70						NMFS	75.5
																	DOE	140
Hawaiian Monk Seal:																		
Population Assessment	52.3	52	31.2	50.9	31	28	15										FWS	260.4
	13.3	16.7	3	108.3		102	311.7	300	340.6	326.4				417.9	447.6	731.2	NMFS	3118.7
				60.9										3.7			MMC	64.6
Biology	34.1	25.8		34.9			150										MMC	244.8
										2.5	18						SI	20.5
															15	14.3	NSGCP	29.3
															20		Army	20
Gray Seal:																		
Population Studies	10.2																MMC	10.2
				2.3	1.3		1.4										NMFS	5
Biology	10	30															Navy	40
Harbor Seal:																		
Population Studies	17.7	5.2			23.5					5.7	14			5	4		MMC	75.1
	6	31	6					3.5		0.5			15		1.2	237	NPS	300.2
				53.7													NSGCP	53.7
			11.5	39.4	3.5	20		0.7	1.3	29.2		29	33	33		259.3	NMFS	459.9
Biology	2.8							0.5	0.5	0.5	0.5						USAF	2
	60	50	50					7									MMC	9.8
				25													MMS	160
					38.3		23.8				3.8						Navy	25
						15			39.4	12	14					500	NMFS	563.9
							2.5										OCRM	80.4
						50	20									24.3	NSGCP	26.8
																	OMA	70
Northern Elephant Seal:																		
Population Studies	13.3	16.7	4.1														NMFS	34.1
								16		1	1						OCRM	18
																170	NPS	170
Biology	33.1	31.8	41.2	30.2		45	51	61	55		43.3	42.6		142.9			NSF	577.1
			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	83.4	70.3		DHHS	683.1
											20	25		57.5	27.5	25	MMS	155
California Sea Lion:																		
Population Studies			82.5														NMFS	82.5
								15	16								OCRM	30
								3.5									NPS	3.5
Biology			200														USDA	200
	74	110		247				124	164.4	174.8	285.5	209.9	447				Navy	1836.8
								11.8	22.4	42.5	42.5	30					SI	149.2
											6						OCRM	8

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

SPECIAL RESEARCH ISSUE	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FUNDING AGENCY	LINE TOTAL			
Stellar Sea Lion:																					
Population Studies	145.5	155	148	95													MMS	543.5			
					34.9												NMFS	228.2			
							11.5									191.3	NPFMC	11.5			
							5		6.8						2.5		MMC	14.3			
															1.2	2	NPS	3.2			
																24.6	NSGCP	24.6			
Biology																689.9	NMFS	689.9			
Walrus:																					
Population Studies	141.6	52	141.8	231.8	99	50	50	53.9		94.7	201.6	201.1	148.2	195.4	183.6	166.6	FWS	2009.3			
					130.3	150.1	25	19.6									MMS	325			
		5								4			7		5	5	MMC	26			
Biology			20											2			MMC	22			
						77.2	60.5	66.8	15								NSF	219.5			
														38.6			MMS	38.6			
Manatee and Dugong:																					
Population Studies	159.7	238.6	290.3	265.7	300	150	100	211.8	142	112	97	50.5	18.4			22.9	FWS	2156.9			
	50										10	5.2	1.6	6.2	6	13.9	10	10	NASA	112.9	
		0.5		3																NPS	3.5
		0.8		109				4.5												MMC	171.1
			10																	MMS	10
Biology	30	30	127.2	45	52	173	291.6	20	142	112	275	345.9	368	419.8	437.2	716.4	FWS	3585.1			
			44	122											145.2		Army	311.2			
									1.5	5			17.9	1	4		MMC	29.4			
										3.5							NASA	22.7			
											17.5		18.2	5.2	7.5	6.5	NPS	33.7			
																50	NSF	50			
Polar Bear:																					
Population Studies	303.1	223.1	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	FWS	5587.2			
																14	MMC	14			
Biology	50	50		50	54	140	100	80.9	125.1	437	85	188.1	135.4	126.8	122.3	112.2	FWS	1836.8			
	150		22.6	36.3													NSF	208.9			
Sea Otter:																					
Population Studies	151.9	352.1	530.4	400	185.2		100	125.2	120	144.8	85	527.7	572.6	560.9	210.4	24.1	FWS	4160.5			
							770.8	86.1	249.8	96							MMS	1202.5			
																360	NPS	360			
Biology	40.8	49.9			16	5.8	8.9	35.1	1.9		2						MMC	163			
	30	30		30	20	25											DOE	135			
	23.3	27.5	28	169.8	200	470	403.9	196.8	190.7	386.9	775.5	258.5	470	395.3	702.5	690.3	FWS	5419			
									149.5		44	44	44		174.3	122.4	NSF	576.2			
										2		4					NPS	6			
	50					124		463.2				90.7	18	83.9	6.6		MMS	643.6			

*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 Law 102-523 and Public Law 102-587 added additional research and study responsibilities regarding fishery conflicts, marine mammal health, and strandings. Prior to 1982, funding authorized for marine mammal activities conducted by the National Marine Fisheries Service and the Fish and Wildlife Service were authorized under Title I of the Act on a section by section basis. As of Fiscal Year 1982, however, authorized funding for the various sections was combined so that Commerce and Interior now each receive a single authorized funding level that covers all expenses incurred under Title I.

Table 7 is a list of annual funding authorized under the various sections of the Act, the amounts requested by agencies pursuant to the Act, and amounts appropriated by Congress. Additional Federal funds have been spent in activities related to marine mammals; the additional sources and amounts of research funding are shown in Table 8 and Figure 2. The number of personnel assigned to marine mammal research versus administrative responsibilities within the National Marine Fisheries Service and the Fish and Wildlife Service from FY74 through FY92 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].

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].

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

<u>Department of the Interior (FWS)</u>	<u>AUTHORIZED</u>	<u>REQUESTED</u>	<u>APPROPRIATED</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

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	862	953
FY89	1100	933	953
FY90	1140	960	960
FY91	1153	1153	1153
FY92	1250	1153	1250

Note: Figures on this table reflect administrative and enforcement costs as well as research costs. The figures for FWS 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

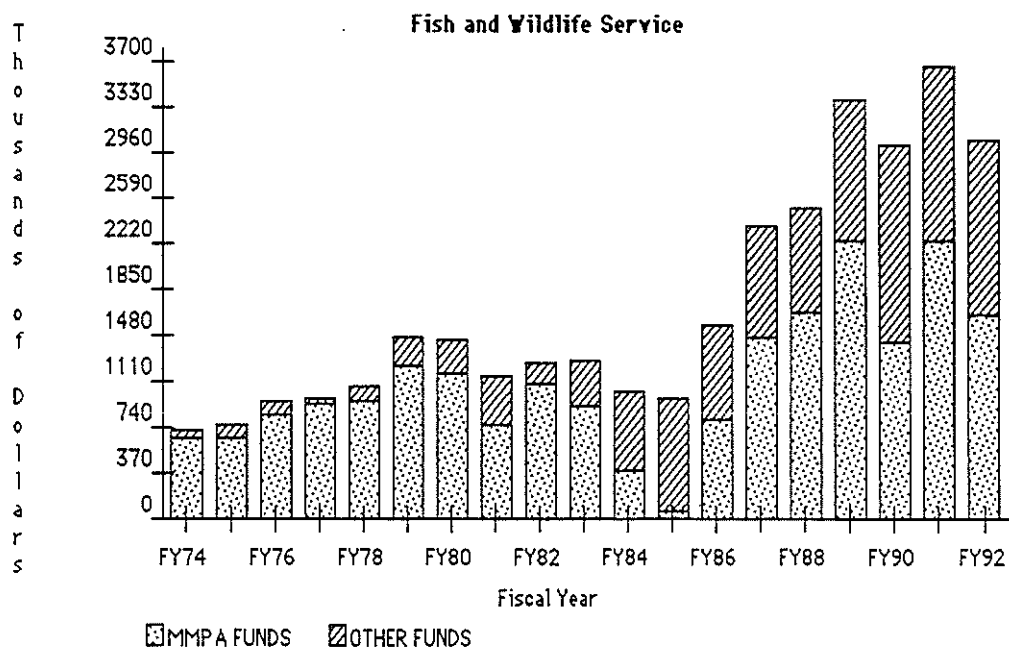
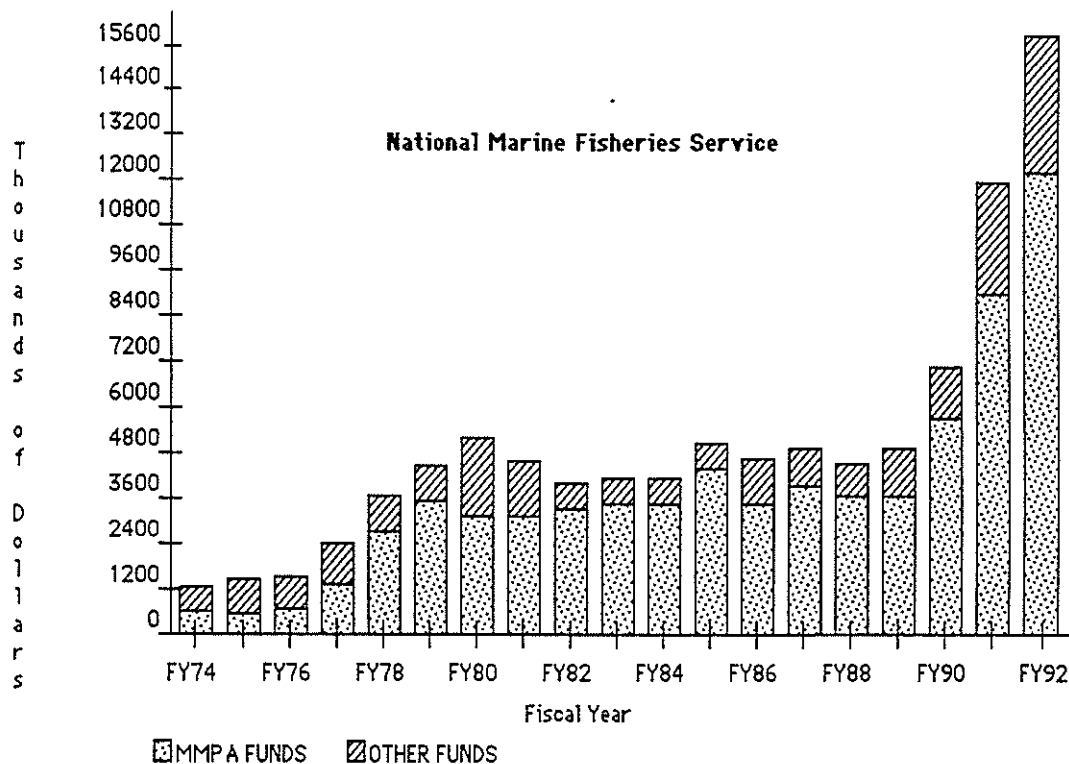
FUNDS EXPENDED ON MARINE MAMMAL RESEARCH
OTHER THAN THOSE APPROPRIATED UNDER AUTHORITY OF THE
MARINE MAMMAL PROTECTION ACT
(Thousands of Dollars)

	FY74	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
Department of Commerce, NOAA																			
National Marine Fisheries Service																			
Fur Seal Act Authorization	309	395	743	595	595	595	595	595	595	595	619	620	654	654	477	368	448		
Reprogramming and Reserves	295	442	59	78															
Endangered Species Act Appropriation				294	294	294	1428	775					500	250	350	799	803	2899	3609
NMFS TOTAL	604	837	802	967	889	889	2023	1370	595	595	619	620	1154	904	827	1167	1251	2899	3609
Department of the Interior																			
Fish and Wildlife Service																			
FWS Appropriation	49	75	83.3	16			82.2												
Endangered Species Act Appropriation					93.7	213.1	162	362.9	123	348	614	879	736.3	891	825	1125	1170	1398	1348
National Wildlife Refuge System Administration Act Appropriation									11	5									
Oil Spill Damage Assessment																	414		
FWS TOTAL	49	75	83.3	16	93.7	213.1	244.2	362.9	134	353	614	879	736.3	891	825	1125	1584	1398	1348

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

FIGURE 2

FUNDS EXPENDED ON MARINE MAMMAL RESEARCH
 BY THE NATIONAL MARINE FISHERIES SERVICE AND THE
 FISH AND WILDLIFE SERVICE, FY74-FY92*
 (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 FISH AND WILDLIFE SERVICE, FY74-FY92***

National Marine Fisheries Service**																			
	FY74	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
Administrative	28	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
Research	26	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
NMFS Total	54	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
Fish and Wildlife Service***																			
	FY74	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90	FY91	FY92
Administrative	12.1	14.1	15.2	16.6	17.1	20.3	24.6	23.3	21.5	6	18.1	21.1	19.6	1.5	5.5	5.4	4	4.2	4.2
Research	6	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
FWS Total	18.1	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

*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 in FY74-FY81 and as full-time equivalents thereafter.

APPENDIX A

SOURCES OF MARINE MAMMAL INFORMATION FROM FEDERALLY-FUNDED RESEARCH AND STUDIES

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
 Fisheries 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**

Acta Anatomica
 Acta Zoologica
 Aquatic Mammals
 Biococial 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
 Contributions to edited books
 Fishery Bulletin
 Journal of Herpetology

Journal of Mammalogy
 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-FY92***

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-FY92

(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 Driftnet (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

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

C. Northeast Fisheries Science CenterFY90

Brault, S. (National Research Council) Pilot Whale Population Dynamics (OP.4)	\$45K
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
Mayo, S. (Center for Coastal Studies) 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. (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. (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
Crieger, K. and D. Potter (New England Aquarium and NEFSC) Pilot Whale Release (OP.5)	\$10K
Drew, S., P. Gerrior, and G. Power (Manomet Bird Observatory and NEFSC) Domestic Observer Project (HI.1.1)	\$1588K
Finn, J. (Univ. of Massachuchetts) 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
Mayo, C.A. (Center for Coastal Studies) Distribution and Habitat Usage of Large Cetaceans (OP.3.1)	\$20K
Mayo, S. (Center for Coastal Studies) 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. (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. (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
<u>FY92</u>	
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
Smith, T. (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
NMFS Marine Mammal Electronic Tagging and Tracking (ETT) Program	\$350K
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

E. Northwest Regional OfficeFY90

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

(No projects reported)

F. Southeast Fisheries Science CenterFY90

McGowan (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

G. Southwest Fisheries Science CenterFY90

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

FY91

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

FY92

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

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

(No projects reported)

2. National Ocean Pollution Program Office

FY90-FY92

(No projects reported)

3. 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

4. North Pacific Fisheries Management CouncilFY90-FY92

(No projects reported)

5. Office of Ocean and Coastal Resource ManagementFY90-FY92

(No projects)

**6. 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-FY92

(No projects)

Department of Defense**1. 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

2. 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

3. 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

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
Katsourous, 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

Department of EnergyFY90-FY92

(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

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

FY92

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

2. Geological Survey

FY90-FY92

(No projects reported)

3. Minerals Management Service

FY90

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. (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. (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. (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 Chemo-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. (Offive 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. (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. (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. Green, 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

4. 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
<u>FY91</u>	
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
<u>FY92</u>	
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

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) 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

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
--	-------

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

FY91

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

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

Marine Mammal Commission

FY90

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. 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. (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
Navy Briefing on the Bombing of Sea Lion Rock (T75134736)	\$1.4K
Matkin, C. (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. Baker, and J. Calambokidis (NMFS; Univ. Wellington; and Cascadia Research Collective, Olympia, WA) Humpback Whale Calf Mortality Workshops (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)	\$81.5
Domning, 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. (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 Kellog 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

National Aeronautics and Space Administration

FY90

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

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. (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. (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. 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. (Texas A&M Univ.) Free-Ranging Energetics of Bottlenose Dolphins (OCE-9019962)	\$21.1K
<u>FY92</u>	
Berta, A. (San Diego State Univ.) Phylogenetic Relationships Within the Phocoid Pinniped Clade (BSR-9006535)	\$5K
Costa, D. P. and R. 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
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-995769)	\$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. (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)	\$150.1

Smithsonian Institution

FY90

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

FY91

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

FY92

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