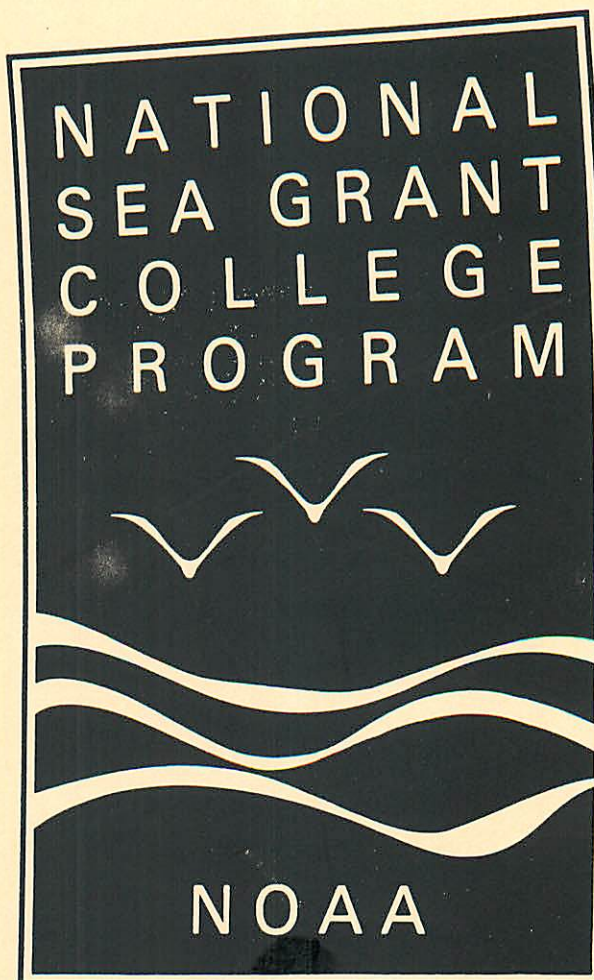


P rojects '90

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U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
March 1991

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I ntroduction

Since 1978, the staff of the National Sea Grant College Program office has prepared an annual report which included an analysis of each subject area supported by Sea Grant. A review of recent annual reports suggested that a new approach was needed. In the future, the subject-area analyses will be conducted and reported on biannually. The report prepared in the interim years will focus on major achievements and describe exciting topics pursued during the previous two years. However, the list of funded projects that accompanied each subject-area analysis was considered too valuable to let lapse for two years. Therefore, this publication, *Projects '90*, has been developed. In it are listed, by subject area, all projects supported by the National Sea Grant College Program during Fiscal Year 1990 (October 1, 1989 - September 30, 1990). The list also identifies projects supported with pass-through funds.

Projects frequently overlap subject areas. Thus, projects listed under one subject may also appear under another. Because of this situation, the sum of individual subject-area lists exceeds the total funds appropriated to Sea Grant during Fiscal Year 1990. The actual number of projects supported was 731, and these were pursued at approximately 130 academic and research institutions. Almost all of these projects were conducted through the network of 29 Sea Grant programs, whose directors are listed below.

The Sea Grant Directors shape programs to exploit the strengths of participating institutions, to focus on regional and national issues, and to address priorities set for research, education and training, and advisory services by the National Sea Grant Office. Decentralized, day-to-day management results in effective cooperation in marine affairs among academic institutions and federal, state and local governments. The research programs, while normally dealing with local, state, or regional topics, produce results of generic importance that advance science, solve problems, and exploit opportunities for the wise use and development of the nation's marine and coastal resources. Peer review is used to select projects and reconcile proposals with budgets. Successful proposals often have an applied focus even if application relates to the very long term. The combination of research, education, and advisory services in a single program makes technology transfer more effective. Sea Grant encourages researchers, educators, and advisory personnel to work across institutional and program lines, and such cooperation and collaboration have proven successful.

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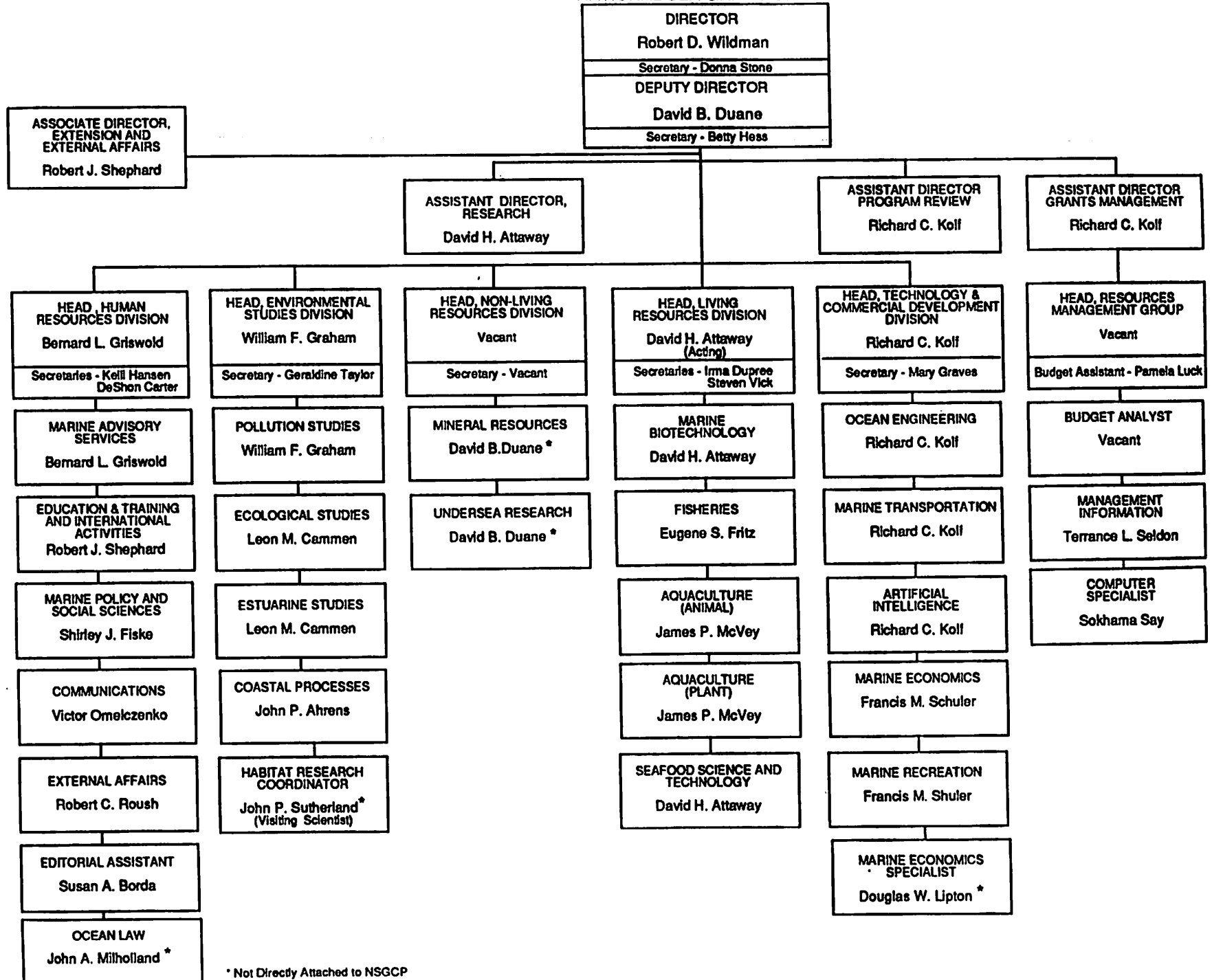
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(ME/NH=1)

+ Institutional Program (3)

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* Not Directly Attached to NSGCP

Sea Grant Technical Staff

Following is a listing of Sea Grant's technical staff, their subject area(s), and their phone numbers. They can be reached at the following address:

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Aquaculture - Dr. James P. McVey

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Dr. Douglas W. Lipton

Environmental Studies 301/427-2435

Environmental Studies - Dr. William F. Graham
Dr. Leon M. Cammen
Coastal Processes - Dr. John P. Ahrens

Non-Living Resources 301/427-2427

Marine Geological Resources - Dr. David B. Duane
Diving Physiology & Technical Development - Dr. David B. Duane

Living Resources

Following is a listing of Sea Grant's Living Resources Division technical staff, their subject area(s), and their phone number.

They can be reached at the following address:

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Silver Spring, MD 20910**

Living Resources301/427-2451

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Marine Biotechnology - Dr. David H. Attaway

Fisheries - Dr. Eugene S. Fritz

Aquaculture - Dr. James P. McVey

FISHERIES

1. Improve the capability for predicting yields, age-class strength and long-term population status.

A. Improve predictive capability of single species and multispecies models:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Toward Forecasting Stone Crab Recruitment and Environmentally induced Year-Class Strength Lindberg, W. J. 06 Florida Sea Grant College Program	59,600	49,300	0
Comparative Analysis of Year Class Strength and Population Parameters of Pink Salmon in the Upper Great Lakes Taylor, William 18 Michigan Sea Grant College Program	32,059	22,082	0
Modeling Predator-Prey Linkages in Great Lakes Food Webs Kitchell, James F. 47 Wisconsin Sea Grant Institute	50,935	39,118	0
SUBTOTALS:	142,594	110,500	0

2. Determine the developmental stage of fish and shellfish at which year class strength is established:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Influence of Temperature on survival during the "Critical Period" of Larval development in Winter Flounder Durbin, Ann 06 Rhode Island Sea Grant College Program	50,169	31,860	0
Egg and Larval Mortality of the Hawaiian Anchovy Clarke, Thomas A. 07 University of Hawaii Sea Grant College Program	16,704	35,272	0
SUBTOTALS:	66,873	67,132	0

3. Determine the physical, chemical, and biological factors most Important to recruitment:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Recruitment Dynamics of the Blue Crab: Patterns, Processes, and Fisheries Applications Orth, Robert 06 Virginia Graduate Marine Science Consortium	58,687	105,705	0
An Analysis of Factors Affecting Recruitment of Larval and Juvenile Atlantic Croaker Jones, Cynthia 06 Virginia Graduate Marine Science Consortium	39,537	21,452	0
The Advantages of Advection: Size-Structured Piscivory in Young-of-the-Year Bluefish, Pomatomus Saltatrix? Conover, David O. 06 New York Sea Grant Institute	34,471	35,459	0
Feeding, Growth and Survival of Juvenile Summer Flounder Targett, Timothy E. 06 Delaware Sea Grant College Program	4,100	22,920	0
Fisheries Oceanography: Status and Synthesis Power, James H. 06 Louisiana Sea Grant College Program	14,804	10,959	0
Planktonic Delivery of Larval Lobsters, Homarus americanus, to Selected Benthic Habitat Incze, Lewis 06 UNH/UM Sea Grant Program	42,179	0	0
Immunological Identification of Larval Fish Prey Ohman, Mark D. 06 Univ of CA Sea Grant College Program	14,875	31,331	0
Red Drum Ichthyoplankton Dynamics and Recruitment Implications Shaw, Richard F. 06 Louisiana Sea Grant College Program	14,058	20,145	0

Seasonal Abundance and Transport of Blue Crab Larvae in the Mississippi Bight and At a Tidal Pass Power, James H. 06 Louisiana Sea Grant College Program	38,239	31,069	0
Dungeness Crab and English Sole Population Dynamics & Recruitment Armstrong, David 06 Washington Sea Grant College Program	0	0	18,969
Size-dependent Recruitment Mechanism for Larval and Juvenile Fishes: Integrated Modeling and Experimental Approach Rice, J. 07 University of North Carolina	18,536	3,600	0
Spawning Temperature and Location of the Atlantic Menhaden: Inference from Strontium-Calcium Thermometry and S.I. Checkley, D. 07 University of North Carolina	22,262	27,682	0
Effects of low dissolved oxygen levels in the Chesapeake Bay on behavior, growth and survival of fish larvae Breitburg, Denise 07 Maryland Sea Grant College Program	40,000	25,100	0
Cooperative Fisheries and Oceanographic Studies (CFOS) Cooney, Robert 07 Alaska Sea Grant College Program	89,800	43,200	0
The Herring Project Collie, Jeremy 07 Alaska Sea Grant College Program	54,600	25,300	0
Enhancement of Soft-Shell Clam Recruitment in Flow-Generated Larval "Sinks" Millineaux, Lauren S 07 Woods Hole Oceanographic Institution	34,200	16,944	0
The Gulf Stream Front, Its Role in Larval Fish Survival and Recruitment in Florida Kleppel, G. S. 07 Florida Sea Grant College Program	106,000	71,300	0

Predicting First-Year Growth and Survival of Yellow Perch in Lake Michigan Horns, William H. 08 Illinois-Indiana Sea Grant Program	35,400	35,519	0
Enhancement of Coastal Productivity Associated with Processes in the Atchafalaya Bay Ecosystem: VIII. Ichthyoplankton Abundance Along a Recruitment Corridor and the Role of an Estuarine Frontal Zone as an Ephemeral Nursery Zone Shaw, Richard F. 39 Louisiana Sea Grant College Program	47,411	29,371	0
Causes and Consequences of Cladoceran Dynamics in Lake Michigan: Implications for Recruitment Success of Forage Fish Species Lehman, John T. 40 Michigan Sea Grant College Program	26,042	61,161	0
Year Class Strength of Rainbow Smelt and Lake Whitefish as Influence by Interspecific Interactions and Climate Taylor, William W. 40 Michigan Sea Grant College Program	53,158	30,594	0
Alewife Survival Rates and Recruitment Under Low Population Level in Lake Michigan Jude, David 40 Michigan Sea Grant College Program	17,803	25,440	0
Satellite Estimation of Surface Flow Fields, Mesoscale Variability and River Plume Evolution on the Texas-Louisiana Shelf Kelly, Frank 40 Texas A&M University Sea Grant College Program	0	0	45,001
Integrating Factors Controlling Recruitment Dynamics in Fishes: A Synthesis Based on Larval Size Binkowski, Fred P. 40 Wisconsin Sea Grant Institute	66,580	28,708	0
Causes and Consequences of Cladoceran Dynamics in Lake Michigan: Implications for Recruitment Success of Forage Fish Species Lehman, John T. 40 Michigan Sea Grant College Program	2,170	5,097	0

Year Class Strength of Rainbow Smelt and Lake Whitefish as Influenced by Interspecific Interactions and Climate Taylor, William W. 40 Michigan Sea Grant College Program	4,430	2,550	0
Alewife Survival Rates and Recruitment Under Low Population Levels in Lake Michigan Jude, David 40 Michigan Sea Grant College Program	1,483	2,120	0
Physical Processes and Inlets and Effect on the Transport of Immature Fishes Miller, J. 46 University of North Carolina	47,078	2,300	0
Paralabrax as a Model for Predicting Effects of Ocean Warming Rosenblatt, Richard 47 Univ of CA Sea Grant College Program	30,605	55,921	0
Satellite Analyses for Fishery Oceanography in the Gulf of Mexico Vastano, A. C. 50 Texas A&M University Sea Grant College Program	54,472	30,000	0
SUBTOTALS:	1,012,980	800,947	63,970

4. Develop Cost Effective Techniques for Assessing Stock Size and Distribution:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Use of Spatial Statistics for the Analysis of Fisheries Survey Data Swartzman, Gordon L. 06 Washington Sea Grant College Program	89,200	29,800	0
SUBTOTALS:	89,200	29,800	0

5. Develop Means for Adapting Multi Species Socio-economic Models to
Short Term Operational Models:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Management of Mixed Stock Fisheries: A Turning Point Pikitch, Ellen K. 06 Washington Sea Grant College Program	108,100	71,700	0

Management of a Mixed-stock Fishery: An Economic Evaluation of alternatives Hanna, Susan S. 14 Oregon Sea Grant College Program	26,800	62,200	0
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SUBTOTALS:	134,900	133,900	0
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B. Determine the relationships of habitat to fisheries production and the means of managing habitats for multiple users.

1. To determine the environmental characteristics of primary and secondary nursery areas and explain why some areas are more productive than others similar areas:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Study of the Impact of Fishing on Coral Reef Fish Community Structure Brock, Richard E. 06 University of Hawaii Sea Grant College Program	16,147	43,948	0
Estuarine Dependence of Juvenile Chinook Salmon McNeil, William J. 06 Oregon Sea Grant College Program	30,900	24,300	0
SUBTOTALS:	46,947	68,248	0

2. The environmental factors that affect fisheries and quantify their relationships to fisheries productivity in major habitats inshore and offshore:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Investigate Eelgrass-Blue Mussel Interactions for their Application to the Aquaculture Industry Short, F. T. 03 UNH/UM Sea Grant Program	66,630	54,952	0
Investigate Eelgrass-Blue Mussel Interactions for Their Application to the Aquaculture Industry Short. F. T. 03 UNH/UM Sea Grant Program	3,699	0	0

Abundance and Comparative Trophic Ecology of Schooling Pelagic Fishes in the Chesapeake Bay Houde, Edward D. 06 Maryland Sea Grant College Program	69,500	31,300	0
Ecological Energetics of Rainbow Smelt in the Laurentian Great Lakes Stewart, Donald J. 06 New York Sea Grant Institute	16,655	21,523	0
Movements, Vertical Distribution, and Feeding Behavior of Large and Ko'a Associated Yellowfin Tuna Holland, Kim N. 06 University of Hawaii Sea Grant College Program	21,365	25,792	0
Evaluating the ecological effects of commonly used hard clam (<i>Mercenaria mercenaria</i>) harvesting methods Fegley, Stephen R. 06 New Jersey Marine Sciences Consortium	17,431	33,869	0
In Situ Studies on the American Lobster: Its Ecology and Susceptibility to Dragging Steneck, Robert S. 06 UNH/UM Sea Grant Program	79,999	33,291	0
Effect of Substrate Size on Spawning Site Selection by Lake Trout and on Overwinter Mortality of Eggs Krueger, Charles C. 07 New York Sea Grant Institute	42,782	20,058	0
Habitat Specific Recruitment Patterns in Estuarine Dependent Fishes Able, K. W. 07 New Jersey Marine Sciences Consortium	47,060	42,338	0
An Ecosystem Comparison of Transplanted and Native Salt Marshes: The Chronological Development of Habitat Value for Fishery Species Webb, J. W. 40 Texas A&M University Sea Grant College Program	0	0	50,260
SUBTOTALS:	365,121	263,123	50,260

3. To develop models for predicting the consequences of change in environmental parameters on fisheries production:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Field Mortality Rates of Neoplastic vs. Nonneoplastic Soft-Shell Clams (MYA ARENARIA) Brousseau, D. J. 06 Connecticut Sea Grant College Program	28,400	26,161	0
Effects of Estuarine Habitat Modifications on Anadromous Salmonids Simenstads, C. A. 40 Washington Sea Grant College Program	0	0	100,000
The Impacts of Hypoxia on Benthic Populations and Fisheries Resources Harper, Donald E. Jr. 40 Texas A&M University Sea Grant College Program	0	0	25,094
The Transfer of Toxic Metals from Contaminated Sediment to the Blue Crab: An Integrated Field and Laboratory Study Levinton, Jeffrey S. 44 New York Sea Grant Institute	54,771	41,036	0
Toxic Halogenated Aromatic Hydrocarbons in Lake Trout Gametes as a Factor in Fry Survival Peterson, Richard E. 45 Wisconsin Sea Grant Institute	49,680	47,631	0
Relationship of Pollutants to the onset of disease in the Eastern Oyster, crassostrea Virginica Chu, Fu-Lin E. 45 Virginia Graduate Marine Science Consortium	0	0	72,409
SUBTOTALS:	132,851	114,828	197,503

C. Restoring and/or enhancing heavy exploited stock.

1. Develop means for evaluating management options in enhancing fisheries and the consequences of various associated strategies:

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Comparison of the Reproductive Success of Hatchery Lake Trout Strains on Different Spawning Shoals in Lake Ontario Krueger, Charles C. 07 New York Sea Grant Institute	53,960	31,309	0
The Economic Effects of Area Licensing Boyce, John 14 Alaska Sea Grant College Program	21,934	0	0
Techniques for Dealing with Uncertainty in Fisheries Management Information Hoenig, J. M. 70 Florida Sea Grant College Program	29,600	18,500	0
SUBTOTALS:	105,494	49,809	0

2. Integrating biological, environmental, social, and economic knowledge into management plans for enhancement or rehabilitation of fisheries:

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Mitochondrial DNA Variation in Red Drum and Evaluation of Red Drum Stocking Success in Texas Bays Gold, John 02 Texas A&M University Sea Grant College Program	57,214	34,426	0
Population Dynamics of Hatchery-Reared Juveniles of the Soft-Shell Clam (<i>Mya arenaria</i> L) in Maine: A Series of Manipulative Experiments Beal, Brian F. 03 UNH/UM Sea Grant Program	35,000	10,092	0
Application of Experimental Ecology to Development of a New Mya Fishery Peterson, C. 06 University of North Carolina	20,859	13,728	0

Management of Mixed Stock Fisheries: A Turning Point Pikitch, Ellen K. 06 Washington Sea Grant College Program	108,100	71,700	0
Fisheries Oceanography: Status and Synthesis Power, James H. 06 Louisiana Sea Grant College Program	14,804	10,959	0
Interactions of the Environment and the Pathogen, <u>Perkinsus marinus</u> , with Internal Defenses of Oysters Fisher, William 06 Texas A&M University Sea Grant College Program	48,596	29,056	0
Natural Production of Migratory Salmonids in Lake Ontario Tributaries Ringler, Neil H. 07 New York Sea Grant Institute	32,303	33,306	0
Identification of Parental Strains of Lake Trout Eggs Captured during Spawning in the Great Lakes Krueger, Charles C. 07 New York Sea Grant Institute	9,472	8,925	0
Effects of Environmental Contaminants on Cell-Mediated Immune Mechanisms of the Oysters Anderson, Robert S. 08 Maryland Sea Grant College Program	26,000	30,398	0
Field Verification and Application of a Host-Parasite Model for Fisheries Management of Significantly Impacted Oyster Population Powell, Eric 08 Texas A&M University Sea Grant College Program	69,163	56,147	0
International Management Regimes, the EEZ, and the U.S. Pacific Fisheries Scheiber, Harry N. 16 Univ of CA Sea Grant College Program	8,217	9,315	0
The Benefits and Costs of Managing Environmental Variability in the California Central Valley Chinook Salmon Fishery Hanemann, W. Michael 48 Univ of CA Sea Grant College Program	30,152	55,298	0

Introductions and Transfers of Molluscs: Risk Considerations and Implications Rosenfield, Aaron 74 Maryland Sea Grant College Program	0	0	18,000
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SUBTOTALS:	459,880	363,350	18,000
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3. Develop, through hybridization and genetic engineering, better strains of fish and shellfish:

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Genetic Engineering of Finfish and Shellfish by Gene Transfer Technology Chen, Thomas T. 02 Maryland Sea Grant College Program	65,000	31,900	0
Evaluation of Transgenic Fish for Aquaculture Kapuscinski, Anne R. 02 University of Minnesota	29,090	9,540	0
Development of Transcriptional Promoters for Gene Transfer into Fish Hackett, Perry B. 02 University of Minnesota	28,250	13,550	0
Economic Improvement of Fish Through Gene Transfer Guise, Kevin S. 02 University of Minnesota	28,350	10,240	0
Assessment of MSX Resistance in Hatchery-Reared Oysters Brood Stock with Demonstrated Resistance to the Disease Burreson, Eugene 03 Virginia Graduate Marine Science Consortium	16,578	7,894	0
SUBTOTALS:	167,268	73,124	0

4. Evaluate the effectiveness of fish attraction devices and artificial reefs on local fish populations and fishermen:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Techniques to Enhance the Recruitment of Juvenile Fishes to the Adult habitat Brock, Richard E. 30 University of Hawaii Sea Grant College Program	10,282	13,420	0
SUBTOTALS:	10,282	13,420	0

D. Increase commercial uses of underutilized fish and shellfish.

1. Identify and evaluate species with the greatest potential for development:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Northern California Red Sea Urchin Fishery Botsford, Louis W. 06 Univ of CA Sea Grant College Program	32,088	37,802	0
The Biology and Fishery Potential of Hagfish Cailliet, Gregor M. 06 Univ of CA Sea Grant College Program	24,077	15,223	0
Estimating Growth and Mortality Rates for Red and Purple Sea Urchins Ebert, Thomas 06 Univ of CA Sea Grant College Program	0	0	0
Evaluation and Enhancement of a Developing Claw and Whole Body Fishery for the Sheep Crab, Loxorhynchus grandis Kuris, Armand 06 Univ of CA Sea Grant College Program	18,100	12,201	0
SUBTOTALS:	74,265	65,226	0

E. Developing efficient and selective methods to harvest fish and shellfish.

1. Improve the selectivity of harvesting gear:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Support of the Turtle Excluder Device (TED) Program Hightower, M. 30 Texas A&M University Sea Grant College Program	37,683	0	0
The Selectivity of Cod-ends on Demersal fishes and the Survivability of Cod-end Escapees DeAlteris, Joseph 30 Rhode Island Sea Grant College Program	26,669	14,503	0
SUBTOTALS:	64,352	14,503	0

2. Develop harvesting gear with reduced friction drag:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Center for Fisheries Engineering Goudey, Clifford A. 73 MIT Sea Grant College Program	72,800	80,000	0
SUBTOTALS:	72,800	80,000	0

F. Investigating promising areas of research or acquisition of needed information.

1. Hormonal controls:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Hormonal Regulation of Reproduction in Penaeid Shrimp Rankin, S. M. 01 Texas A&M University Sea Grant College Program	61,354	18,919	0
Endocrine Control of Crustacean Reproduction with some emphasis on Shrimp Resources Laufer, H. 01 Connecticut Sea Grant College Program	56,800	38,200	0

Hormonal Regulation of Crustacean Growth and Reproduction Chang, Ernest S. 01 Univ of CA Sea Grant College Program	50,243	41,203	0
Peptide Hormone Control of Reproduction in a Marine Shrimp, Penaeus vannamei Quackenbush, L. S. 01 Florida Sea Grant College Program	40,700	26,200	0
Aquaculture of Temperate Basses: Hormonal Control of Reproduction and Broodstock Development Sullivan, C. 02 University of North Carolina	51,493	4,200	0
Endocrine Control in Salmonids Dickhoff, Walton W. 02 Washington Sea Grant College Program	61,100	30,000	0
Development of a technology for the manipulation of fish reproductive cycles: Controlled Release of gonadotropin-releasing hormones Langer, Robert 02 MIT Sea Grant College Program	43,800	38,930	0
Endocrine Stimulation and Regulation of Female Sturgeon Maturation Moberg, Gary P. 02 Univ of CA Sea Grant College Program	31,510	45,737	0
Smoltification of Atlantic Salmon (Salmo Salar): detection and biochemical and molecular investigations Bradley, Terence 03 Rhode Island Sea Grant College Program	53,352	31,521	0
Atlantic Salmon Smoltification: hormone physiology of growth at Sea Specker, Jennifer 03 Rhode Island Sea Grant College Program	71,702	14,374	0
Endocrinology and Physiology of the Development and Survival of Salmon and Striped Bass Bem, Howard A. 06 Univ of CA Sea Grant College Program	45,000	21,654	0

Effect of Thyroid Hormone on Neural Structure During Smoltification in Salmon Ebbleson, O. 08 Alaska Sea Grant College Program	67,800	15,300	0
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SUBTOTALS:	634,854	326,238	0
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2. Physiology:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Physiology of Gonadotropins in Atlantic Croaker and Red Drum Thomas, Peter 02 Texas A&M University Sea Grant College Program	46,242	23,121	0
Dietary Thiaminase Influence on Lake Trout Reproduction Adelman, Ira R. 06 University of Minnesota	11,900	5,910	0
Recent Growth and Nutrition in Larval Lobsters: Assessment using RNA:DNA ratios in Laboratory and Field Cobb, J Stanley 06 Rhode Island Sea Grant College Program	53,695	16,223	0
SUBTOTALS:	111,837	45,254	0

3. Life History

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Reproductive Biology of Hawaiian Pelagic Carangids Clarke, Thomas A. 07 University of Hawaii Sea Grant College Program	10,454	23,433	0
SUBTOTALS:	10,454	23,433	0

4. Species Interactions:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Trophic Relations of the Exotic Ruffe (Gymnocephalus cernuus) in the St. Louis River Estuary Newman, Raymond M. 06 University of Minnesota	22,240	8,990	0
The Role of Lake Erie Fishing and the Zebra Mussel in Ohio's North Coast Tourism Industry Hushak, Leroy J. 14 Ohio Sea Grant Program	13,689	8,320	0
Biological Invasions in Estuaries: Experimental Studies on the Introduction of Exotic Species by Seawater Ballast of Cargo Vessels Carlton, James T. 39 Oregon Sea Grant College Program	70,600	19,700	0
Plankton Size Spectrum Shifts and Food Web "Bottlenecks" Accompanying the Invasion of Lake Michigan by the Predatory Cladoceran, Bythotrephes Sandren, Craig D. 40 Wisconsin Sea Grant Institute	48,649	31,275	0
Interactions Between Newly-Introduced Zebra Mussel, Dreissena Polymorpha, and Pelagic Communities in Western Lake Erie Garton, David W. 40 Ohio Sea Grant Program	12,000	33,025	0
SUBTOTALS:	167,178	101,310	0

5. Stock Separation:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Genomic (DNA) Libraries, Genetic Markers, and Population Genetic Variation of Red Drum and Snook Florida Sea Grant College Program	40,000	49,600	0
Genetic Tagging of Pacific Mahimahi (Coryphaena hippurus) Using PCR-Amplified MtDNA Cann, Rebecca L. 02 University of Hawaii Sea Grant College Program	1,022	14,194	0

Statistical Algorithms for Stock Identification of Marine Resource Organisms Prager, Michael 06 Virginia Graduate Marine Science Consortium	62,880	34,846	0
Genetic Analysis of Adult and Larval Blue Crabs in Chesapeake Bay Chapman, Robert W. 06 Maryland Sea Grant College Program	40,000	5,900	0
Population Structure of Lobster in the Gulf of Maine Kornfield, I. 06 UNH/UM Sea Grant Program	21,751	17,462	0
SUBTOTALS:	165,653	122,002	0

6. Information for managing exploited stocks:

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
In Situ Growth Rates of the Ocean Quahog, <i>Arctica Islandica</i> , in the Mid-Atlantic Bight Fritz, Lowell W. 06 New Jersey Marine Sciences Consortium	0	9,500	0
Population Dynamics and Stock Identification of Rainbow Smelt (<i>Osmerus Mordax</i>) in Green Bay and Adjacent Waters of Lake Michigan Copes, Frederick A. 06 Wisconsin Sea Grant Institute	30,794	21,908	0
Salinity and Metabolic Adaptations of Taxa of the Genus <i>Menippe</i> in the Gulf of Mexico Perry, Harriet 06 Mississippi-Alabama Sea Grant College Program	51,516	69,795	0
Population Dynamics of <i>Callinectes</i> <i>similis</i> and <i>C. sapidus</i> : Important Implications for the Blue Crab Fishery McClintock, James B. 06 Mississippi-Alabama Sea Grant College Program	1,200	0	0

Johnston Atoll Ocean Science Study Lobel, Phillip S. 07 Woods Hole Oceanographic Institution	0	0	80,000
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SUBTOTALS:	83,510	101,20	380,000
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7. Parasitology and disease contact:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
An experimental Model of Ulcerative Mycosis Noga, E. J. 08 University of North Carolina	26,866	7,062	0
Pathogenesis and diagnosis of selected striped bass disease of microbial etiology Hetrick, Frank M. 08 Maryland Sea Grant College Program	45,000	41,500	0
Fluoroquinolone Treatment of Bacterial Diseases of Salmonids Bowser, Paul R. 08 New York Sea Grant Institute	58,153	47,472	0
Virulence Factors Important to the Pathogenesis of Fish Disease Rohovec, John S. 08 Oregon Sea Grant College Program	68,600	123,700	0
Studies of Epizootic Epitheliotropic Viral Disease of Lake Trout Bowser, Paul R. 08 New York Sea Grant Institute	20,056	19,493	0
SUBTOTALS:	218,675	239,227	0

9. Toxicity:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Disposition and Metabolism of Polychlorinated Dibenzofurans in Fish Sikka, Harish C. 45 New York Sea Grant Institute	52,083	27,431	0
SUBTOTALS:	52,083	27,431	0

10. Training:

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Seminar Series in Fishery Oceanography Wooster, Warren S. 62 Washington Sea Grant College Program	16,400	14,400	0
SUBTOTALS:	16,400	14,400	0

11. Threatened and Endangered Species

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Natural History Analysis of Sea Turtles in the Northwestern Gulf of Mexico Landry, Andree M. 06 Texas A&M University Sea Grant College Program	48,915	28,264	0
Behavior and Vocalizations of Transient Killer Whales Fay, Francis 07 Alaska Sea Grant College Program	32,300	10,800	0
Biology of Kemp's Ridley Turtle Owen, David W. 08 Texas A&M University Sea Grant College Program	55,171	60,067	0
Population Implications of Various Management Approaches to Threatened and Endangered Sea Turtles Crowder, L. 47 University of North Carolina	0	0	65,474
SUBTOTALS:	136,386	99,131	65,474
GRANT TOTAL:	4,544,960	3,361,733	475,207

AQUACULTURE

1. Aquaculture Systems and Engineering

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Improvement of Pond Water Quality Management Technology in Shrimp Culture Helfrich, Philip 01 University of Hawaii Sea Grant College Program	35,825	39,776	0
Development of Techniques for Increasing the Efficiency of Soft Shell Production by Removal/Neutralization of the Eyestalk Sinus Gland/X-Organ Complex from the Red Swamp Crawfish (<i>Procambarus clarkii</i>) Malone, Ronald F. 01 Louisiana Sea Grant College Program	50,394	43,550	0
Mahimahi (<i>Coryphaena hippurus</i>) Pathology, Nutrition, and Genetics Carlson, Bruce A. 02 University of Hawaii Sea Grant College Program	52,000	100,000	0
Assessment of Low-Level Gas Supersaturation as Stressors in Lake Trout and Rainbow Trout Kayes, Terrence B. 02 Wisconsin Sea Grant Institute	50,527	30,411	0
Improvement of Striped Bass Rearing in Hatcheries Cech, Joseph J, Jr. 02 Univ of CA Sea Grant College Program	10,059	11,487	0
Development of Sand Filtration Technologies to Support Finfish Culture Systems Malone, Ronald F. 02 Louisiana Sea Grant College Program	21,153	10,202	0
Development of Culture Techniques for Yellow Perch in Ohio Culver, David A. 02 Ohio Sea Grant Program	29,859	21,947	0

Cultchless Oyster Culture in Texas DiMichele, L. 02 Texas A&M University Sea Grant College Program	54,311	51,703	0
Trochus Ranching: Evaluation of its Effectiveness and Ecological Impacts Smith, Barry D. 03 University of Hawaii Sea Grant College Program	2,018	8,438	0
Investigate Eelgrass-Blue Mussel Interactions for their Application to the Aquaculture Industry Short, F. T. 03 UNH/UM Sea Grant Program	66,630	54,952	0
Population Dynamics of Hatchery-Reared Juveniles of the Soft-Shell Clam (<i>Mya arenaria</i> L) in Maine: A Series of Manipulative Experiments Beal, Brian F. 03 UNH/UM Sea Grant Program	35,000	10,092	0
Investigate Eelgrass-Blue Mussel Interactions for Their Application to the Aquaculture Industry Short, F. T. 03 UNH/UM Sea Grant Program	3,699	0	0
Development of a Greenhouse Bivalve Hatchery System Heffernan, Peter B. 03 Georgia Sea Grant College Program	83,875	10,074	0
An Evaluation of the Environmental Effects of Tray Farming of Hard Clams (<i>Mercenaria mercenaria</i>) Nelson, W. G. 03 Florida Sea Grant College Program	31,700	16,000	0
Strengthening Aquacultural Development in Insular Pacific Communities, Supplement No. 2 Davidson, Jack R. 04 University of Hawaii Sea Grant College Program	0	0	20,000
Controlled Culture of a New Marine Model, the Sea Anemone <i>Nematostella Vectensis</i> Hand, Cadet 04 Univ of CA Sea Grant College Program	0	0	0

Evaluating the ecological effects of commonly used hard clam (<i>Mercenaria mercenaria</i>) harvesting methods Fegley, Stephen R. 06 New Jersey Marine Sciences Consortium	17,431	33,869	0
Attaining Suitable Water Supplies for Salmon Hatcheries Johnson, Ronald 26 Alaska Sea Grant College Program	29,700	0	0
Pacific Island Network Projects (PIN) Miller, Bruce Justin 77 University of Hawaii Sea Grant College Program	0	0	45,000

SUBTOTALS:	574,181	442,501	65,000
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2. Genetics and Selective Breeding

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Genomic (DNA) Libraries, Genetic Markers, and Population Genetic Variation of Red Drum and Snook Florida Sea Grant College Program	40,000	49,600	0
Genetic Changes During Domestication of Penaeid Shrimp Palumbi, Stephen R. 01 University of Hawaii Sea Grant College Program	9,769	7,500	0
Reproduction in Marine Shrimp: Gamete Manipulation and In Vitro Cross Fertilization Lynn, John W. 01 Louisiana Sea Grant College Program	34,540	14,512	0
Analysis of Mating and Insemination in Penaeid Shrimps: Development of Models for Controlled Natural and Artificial Insemination Bauer, Raymond T. 01 Louisiana Sea Grant College Program	26,520	33,275	0
Genetic Engineering of Finfish and Shellfish by Gene Transfer Technology Chen, Thomas T. 02 Maryland Sea Grant College Program	65,000	31,900	0

Survival, Seawater Tolerance and Performance of Triploid Hybrid Salmon Thorgaard, Gary H. 02 Washington Sea Grant College Program	8,800	3,400	0
Broodstock Improvement in a Pink Salmon Hatchery Smoker, W. W. 02 Alaska Sea Grant College Program	30,900	10,200	0
Artificial Selection for Run Timing in Salmon Culture Smoker, W. W. 02 Alaska Sea Grant College Program	28,600	11,700	0
Evaluation of Transgenic Fish for Aquaculture Kapusinski, Anne R. 02 University of Minnesota	29,090	9,540	0
Development of Transcriptional Promoters for Gene Transfer into Fish Hackett, Perry B. 02 University of Minnesota	28,250	13,550	0
Economic Improvement of Fish Through Gene Transfer Guise, Kevin S. 02 University of Minnesota	28,350	10,240	0
Genetic Tagging of Pacific Mahimahi (Coryphaena hippurus) Using PCR-Amplified MtDNA Cann, Rebecca L. 02 University of Hawaii Sea Grant College Program	1,022	14,194	0
Production of Sterile and Unisexual Populations of salmonids for Aquaculture Schreck, Carl B. 02 Oregon Sea Grant College Program	26,500	9,500	0
Control of Growth, Sex and Reproduction in Great Lakes Cool-Water Fishes by Genetic and Endocrine Manipulation Kayes, Terrence B. 02 Wisconsin Sea Grant Institute	94,818	50,528	0
Mitochondrial DNA Variation in Red Drum and Evaluation of Red Drum Stocking Success in Texas Bays Gold, John 02 Texas A&M University Sea Grant College Program	57,214	34,426	0

Applied Breeding of the Hard Clam, Mercenaria Manzi, John J. 03 South Carolina Sea Grant Consortium	110,000	81,100	0
Population Genetics of Commercial Pacific Oyster Stocks Hedgecock, Dennis 03 Univ of CA Sea Grant College Program	7,409	37,938	0
Vectors for Genetic Engineering in Marine Algae: The Ti Plasmid Taylor, Kenneth B. 05 Mississippi-Alabama Sea Grant College Program	55,250	45,657	0
Porphyra Strain Improvement and Protoplast Development Waaland, J. Robert 05 Washington Sea Grant College Program	79,300	47,100	0
Gene Analysis and Transformation in Marine Algae Cattolico, Rose Ann 05 Washington Sea Grant College Program	98,700	71,500	0
Genetics of Morphology and Growth in Laminaria from the North Atlantic Sea Yarish, C. 05 Connecticut Sea Grant College Program	45,300	33,700	0
Initiation of Callus/Protoplast Cultures from Marine Seagrasses and Coastal Plants Ellender, R. D. 05 Mississippi-Alabama Sea Grant College Program	13,618	30,014	0
Plant Tissue Culture Technology for Marine Angiosperms used in Habitat Restoration Bird, K. T. 05 Florida Sea Grant College Program	36,000	46,900	0
Application of Molecular Biology in Aquaculture and Management of Salmonids Gharrett, A. G. 06 Alaska Sea Grant College Program	77,500	6,300	0
Development of Genetic Engineering Technique with Economically Important Marine Algae Minocha, Subbash C. 13 UNH/UM Sea Grant Program	50,000	30,435	0

Ship Time in Support of Sea Grant Research Projects Andren, Anders W. 80 Wisconsin Sea Grant Institute	0	55,976	0
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SUBTOTALS:	1,082,450	790,685	0
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3. Physiology and Endocrinology

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Endocrine Control of Crustacean Reproduction with some emphasis on Shrimp Resources Laufer, H. 01 Connecticut Sea Grant College Program	56,800	38,200	0
Regulation of Growth and Morphotype in freshwater crustaceans Borst, David W. 01 Illinois-Indiana Sea Grant Program	31,500	38,182	0
Hormonal Regulation of Crustacean Growth and Reproduction Chang, Ernest S. 01 Univ of CA Sea Grant College Program	50,243	41,203	0
Development of Technologies for Long-Term Storage and Genetic Manipulation of Penaeoidean Eggs Clark, Wallis H, Jr. 01 Univ of CA Sea Grant College Program	94,217	56,810	0
Nutrient Cost of Reproduction for the Model Penaeid Shrimp <i>Sycyonia</i> <i>ingentis</i> Conklin, Douglas E. 01 Univ of CA Sea Grant College Program	0	0	0
Peptide Hormone Control of Reproduction in a Marine Shrimp, <i>Penaeus vannamei</i> Quackenbush, L. S. 01 Florida Sea Grant College Program	40,700	26,200	0
Hormonal Regulation of Reproduction in Penaeid Shrimp Rankin, S. M. 01 Texas A&M University Sea Grant College Program	61,354	18,919	0

Biochemical Genetic Analysis of cosmotic Response in Penaeid Shrimp Burton, R. S. 01 Texas A&M University Sea Grant College Program	31,897	16,108	0
Aquaculture of Temperate Basses: Hormonal Control of Reproduction and Broodstock Development Sullivan, C. 02 University of North Carolina	51,493	4,200	0
Endocrine Control in Salmonids Dickhoff, Walton W. 02 Washington Sea Grant College Program	61,100	30,000	0
Indicators of Sublethal Stress in Juvenile and Adult Mahimahi (Coryphaena hippurus) and Their Application to Improved Intensive Culture Szyper, James P. 02 University of Hawaii Sea Grant College Program	29,323	53,246	0
Development of a technology for the manipulation of fish reproductive cycles: Controlled Release of gonadotropin-releasing hormones Langer, Robert 02 MIT Sea Grant College Program	43,800	38,930	0
Endocrine Stimulation and Regulation of Female Sturgeon Maturation Moberg, Gary P 02 Univ of CA Sea Grant College Program	31,510	45,737	0
Environmental Effect on the Ovarian Development in Captive Sturgeon Broodstock Doroshov, Serge I. 02 Univ of CA Sea Grant College Program	20,398	54,673	0
Physiology of Gonadotropins in Atlantic Croaker and Red Drum Thomas, Peter 02 Texas A&M University Sea Grant College Program	46,242	23,121	0

Purification and Characterization of Lipoprotein Found in Eggs of the Hard Clam, <i>Mercenaria mercenaria</i> : Lipid and Lipoprotein Concentrations in the Eggs from Wild and Genetic Lines of Clams Lee, Richard F. 03 Georgia Sea Grant College Program	37,600	18,696	0
Smoltification of Atlantic Salmon (<i>Salmo Salar</i>): detection and biochemical and molecular investigations Bradley, Terence 03 Rhode Island Sea Grant College Program	53,352	31,521	0
Atlantic Salmon Smoltification: hormone physiology of growth at Sea Specker, Jennifer 03 Rhode Island Sea Grant College Program	71,702	14,374	0
Endocrinology and Physiology of the Development and Survival of Salmon and Striped Bass Bern, Howard A. 06 Univ of CA Sea Grant College Program	45,000	21,654	0
Influence of Temperature on survival during the "Critical Period" of Larval development in Winter Flounder Durbin, Ann 06 Rhode Island Sea Grant College Program	50,169	31,860	0
Effect of Thyroid Hormone on Neural Structure During Smoltification in Salmon Ebbleson, O. 08 Alaska Sea Grant College Program	67,800	15,300	0
Isolation and Characterization of the Interferon Genes of Rainbow Trout Leong, Jo-Ann C. 08 Oregon Sea Grant College Program	89,900	23,700	0
Effects of Environmental Contaminants on Cell-Mediated Immune Mechanisms of the Oysters Anderson, Robert S. 08 Maryland Sea Grant College Program	26,000	30,398	0
SUBTOTALS:	1,092,100	673,032	0

4. Nutrition

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Force Feeding of Larval Finfish for Aquaculture Bonaventura, J. 02 University of North Carolina	5,038	16,403	0
Alternative Protein Sources for Hybrid Striped Bass Feeds Gallagher, M. 02 University of North Carolina	20,496	21,063	0
Essential fatty acid nutrition of hybrid striped bass larvae Harrell, Reginal M 02 Maryland Sea Grant College Program	29,700	16,300	0
Feeds Technology Research (Phase 2): Sensory, Hormonal, and Nutritional Aspects Grau, E. Gordon 02 University of Hawaii Sea Grant College Program	29,636	81,349	0
Influence of N-3 and Ratios of N-3:N-6 Dietary Fatty Acids on Nutritional, Physiological, and Quality Parameters in Cultured Hybrid Striped Bass Williams, W. P. 02 South Carolina Sea Grant Consortium	7,500	3,150	0
The Identification of Steroids in Fish Diets and the Role of Steroids on Juvenile Development in Atlantic Salmon Sower, S. A. 02 UNH/UM Sea Grant Program	23,999	28,856	0
Fatty Acid and Lipid Nutrition of Red Drum: Effects on Cold Adaptation, Immunocompetency and Product Quality Gatlin, D. M. 02 Texas A&M University Sea Grant College Program	35,049	19,938	0
Microencapsulated Diets for Intensive Production of Molluscan Shellfish Langdon, Christopher 03 Oregon Sea Grant College Program	58,700	40,200	0

Nutritional enrichment of rotifers (Branchionus plicatilis) for use in the hatchery production of larval siganids (Pisces, Siganidae) Nelson, Stephen G. 81 University of Hawaii Sea Grant College Program	0	0	20,000
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SUBTOTALS:	210,118	227,259	20,000
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5. Disease/Parasites

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Evaluation of the Nitrocellulose-Enzyme Immunoassay (NC-EIA) Procedure for the Rapid and Early Detection of Infectious Hypodermal and Hematopoietic Necrosis Virus (IHHNV) infection and the Establishment of Cell Lines from Penaeid Shrimp Loh, Philip C. 01 University of Hawaii Sea Grant College Program	12,307	15,632	0
Development and Evaluation of Gene Probes and Immunological Methods for the Diagnosis of Virus Infections in Penaeid Shrimp Lightner, D. V. 01 University of Arizona, Tucson	35,714	24,132	0
Noxious Phytoplankton Blooms and Marine Salmon Culture in Puget Sound Taub, Frieda B. 02 Washington Sea Grant College Program	70,000	141,900	0
Development of Therapeutics for Stress-Related Immune Dysfunction in Intensive Aquaculture Kaattari, Stephen L. 02 Oregon Sea Grant College Program	32,000	74,600	0
Identification and Production of Trout Stocks Genetically Resistant to Disease Sommer, Cynthia V. 02 Wisconsin Sea Grant Institute	55,779	30,021	0

Abalone Wasting Disease: Role of Coccidian Parasites and Environmental Factors Kuris, Armand M. 03 Univ of CA Sea Grant College Program	42,598	50,129	0
Fungal Pathogens of Nori Whisler, Howard C. 05 Washington Sea Grant College Program	17,200	11,000	0
Interactions of the Environment and the Pathogen, Perkinsus marinus, with Internal Defenses of Oysters Fisher, William 06 Texas A&M University Sea Grant College Program	48,596	29,056	0
An experimental Model of Ulcerative Mycosis Noga, E. J. 08 University of North Carolina	26,866	7,062	0
Pathogenesis and diagnosis of selected striped bass disease of microbial etiology Hetrick, Frank M. 08 Maryland Sea Grant College Program	45,000	41,500	0
Virulence Factors Important to the Pathogenesis of Fish Disease Rohovec, John S. 08 Oregon Sea Grant College Program	68,600	123,700	0
Anti-Idiotypic Antibodies as Novel Immunogens and Diagnostic Reagents for Aquatic Birnaviruses Nicholson, Bruce L. 08 UNH/UM Sea Grant Program	60,000	86,312	0
Studies of Epizootic Epitheliotropic Viral Disease of Lake Trout Bowser, Paul R. 08 New York Sea Grant Institute	20,056	19,493	0
Field Verification and Application of a Host-Parasite Model for Fisheries Management of Significantly Impacted Oyster Population Powell, Eric 08 Texas A&M University Sea Grant College Program	69,163	56,147	0

Development of DNA Probes for Pathogenic Marine Bacteria of the Genus Vibrio Shizuya, Hiroaki 45 University of Southern California Sea Grant Program	39,573	36,781	0
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SUBTOTALS:	643,452	747,465	0
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6. Policy & Economics

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
U.S. Virgin Islands/St. Croix Sea Farm Park Hernandez-Avila, Man University of Puerto Rico Sea Grant College Program	0	0	32,000
U.S. Virgin Islands/St. Croix Sea Farm Park - Phase II Hernandez-Avila, Man 02 University of Puerto Rico Sea Grant College Program	0	0	37,070
Introductions and Transfers of Molluscs: Risk Considerations and Implications Rosenfield, Aaron 74 Maryland Sea Grant College Program	0	0	18,000
Documenting Legal and Institutional Constraints on Aquaculture and Dredged Material Containment Areas Veal, C. David 77 Mississippi-Alabama Sea Grant College Program	0	0	83,046
Publication of Technology Transfer/Extension Documents for the Corps of Engineers Containment Area Aquaculture Program Veal, C. David 77 Mississippi-Alabama Sea Grant College Program	0	0	145,875
SUBTOTALS:	0	0	315,991

7. Other

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Workshop: Optimization of Biological Filtration for High Density Recirculating Aquaculture Production Units Malone, Ronald F. 02 Louisiana Sea Grant College Program	5,000	4,249	0
Comparison of the Reproductive Success of Hatchery Lake Trout Strains on Different Spawning Shoals in Lake Ontario Krueger, Charles C. 07 New York Sea Grant Institute	53,960	31,309	0
Transfer of Hybrid Striped Bass Culture Technology to the Private Sector in South Carolina Smith, Theodore I. 77 South Carolina Sea Grant Consortium	45,000	29,800	0
Aquaculture Advisory Services Binkowski, Fred P. 77 Wisconsin Sea Grant Institute	13,082	10,552	0
SUBTOTALS:	117,042	75,910	0
GRANT TOTAL	3,719,343	2,956,852	400,991

MARINE BIOTECHNOLOGY

1. Biochemistry & Pharmacology

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Bioactive Compounds from Marine Organisms Schmitz, Francis J. University of Oklahoma	70,200	37,210	0
The N-3 Polyunsaturated Fatty Acids of Marine Lipids: Determination of Biochemical Effects, Optimum Dietary intake, and Oxidative Stability Kinsella, John E. New York Sea Grant Institute	46,421	37,414	0
Structural and Synthetic Studies on Marine Natural Products Clardy, Jon C. New York Sea Grant Institute	78,549	45,558	0
Isolation and characterization of new anti-HIV products from marine sources Kraiselburd, Edmundo University of Puerto Rico Sea Grant College Program	32,800	38,700	0
Modified Nucleosides of Marine Organisms Sharma, G. New Jersey Marine Sciences Consortium	38,183	51,200	0
Biomedicinals from Pacific Northwest Marine Algae Gerwick, William H. Oregon Sea Grant College Program	67,400	22,800	0
Do Dietary Saturated Fatty Acids Reduce the Effects of Fish Oils on Lipid Metabolism and Hemostasis? Connor, William E. Oregon Sea Grant College Program	37,600	29,800	0
Marine Pharmaceutical Discovery Program: Pharmacology Jacobs, Robert S. Univ of CA Sea Grant College Program	85,198	80,302	0

Marine Pharmaceutical Discovery Program: Chemistry Component B' Fenical, William H. Univ of CA Sea Grant College Program	43,106	19,581	0
Marine Pharmaceutical Discovery Program: Chemistry Component A Faulkner, D. John Univ of CA Sea Grant College Program	48,030	28,406	0
Marine Natural Products in Pharmacology: Discovery and Development of New Chemotherapeutics from Marine Animals Univ of CA Sea Grant College Program	21,876	36,443	0
Herbivore Deterrence as an Indicator of the Pharmacological Activities of Tropical Seaweeds Paul, Valerie J. University of Hawaii Sea Grant Program	26,131	20,852	0
Marine Metabolites for Medicine and Agriculture Scheuer, Paul J. University of Hawaii Sea Grant Program	30,000	22,000	0
New Pharmaceuticals and Agrochemicals from Marine Animals that Posses Symbiotic Microorganisms Moore, Richard E. University of Hawaii Sea Grant Program	30,662	45,959	0
SUBTOTALS:	626,156	516,225	30,000

2. Molecular Biology

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Development and Evaluation of Gene Probes and Immunological Methods for the Diagnosis of Virus Infections in Penaeid Shrimp Lightner, D. V. University of Arizona, Tucson	35,714	24,132	0
Genetic Engineering of Finfish and Shellfish by Gene Transfer Technology Chen, Thomas T. Maryland Sea Grant College Program	65,000	31,900	0

Development of Transcriptional Promoters for Gene Transfer into Fish Hackett, Perry B. University of Minnesota	28,250	13,550	0
Economic Improvement of Fish Through Gene Transfer Guise, Kevin S. University of Minnesota	28,350	10,240	0
Biotechnical Approaches to Improve Triploidy and Growth in Pacific Oysters Chew, Kenneth K. Washington Sea Grant College Program	80,400	70,900	0
Vectors for Genetic Engineering in Marine Algae: The Ti Plasmid Taylor, Kenneth B. Mississippi-Alabama Sea Grant Program	55,250	45,657	0
Gene Analysis and Transformation in Marine Algae Cattolico, Rose Ann Washington Sea Grant College Program	98,700	71,500	0
Nucleic Acid Probes for the Oyster Parasite Haplosporidium nelsoni (MSX) Ford, Susan E. New Jersey Marine Sciences Consortium	39,506	35,842	0
Isolation and Characterization of the Interferon Genes of Rainbow Trout Leong, Jo-Ann C. Oregon Sea Grant College Program	89,900	23,700	0
Anti-Idiotypic Antibodies as Novel Immunogens and Diagnostic Reagents for Aquatic Birnaviruses Nicholson, Bruce L. UNH/UM Sea Grant Program	60,000	86,312	0
Crab Shell Chitosan, ITS Mode of Gene Activation Hawdiger, L. A. Washington Sea Grant College Program	69,500	19,000	0
Development of Genetic Engineering Technique with Economically Important Marine Algae Minocha, Subbash C. UNH/UM Sea Grant Program	50,000	30,435	0

Development of Genetic Engineering Techniques with Economically Important Marine Algae Minocha, Subbash C. UNH/UM Sea Grant Program	3,275	0	0
Genetic Detection of Red Tide Dinoflagellates Triplett, Edward L. Univ of CA Sea Grant College Program	25,521	11,910	0
Coupling Flow cytometry and Molecular probes for the Analysis of Microorganisms in Aquatic Ecosystems Chisholm, Sallie W. MIT Sea Grant College Program	50,000	0	0
Development of DNA Probes for Pathogenic Marine Bacteria of the Genus Vibrio Shizuya, Hiroaki Southern California Sea Grant Program	39,573	36,781	0
Detection and Survivability of Some Pathogenic Enterobacteria in the Region of White's Point Outfall Iturriaga, Rodolfo Southern California Sea Grant Program	35,509	41,340	0
SUBTOTALS:	854,448	553,199	0

3. Biochemical Engineering/Industrial Chemicals

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
The Role of Iron- and Manganese-Oxidizing Bacteria in Marine Corrosion Processes Mitchell, Ralph Harvard University	65,000	40,000	0
Development of Selective Halogenation by Naturally Occurring Enzymes in Marine Organisms: A Biotechnological Approach Butler, Alison Univ of CA Sea Grant College Program	36,665	17,298	0
Development of Coastal Fish Oil Resources for Potential US Health Industry Turcotte, Joseph G. Rhode Island Sea Grant College Program	63,030	31,217	0

New Compounds for Ice Suppression Based on Fish Antifreeze Proteins Caceci, Thomas Virginia Marine Science Consortium	63,207	33,063	0
Chitosan Delivery Systems for Medicines Allan, G. G. Washington Sea Grant College Program	44,200	22,100	0
Anticorrosive Properties of Adhesive Proteins Isolated from the Mussel Mytilus Edulis Dexter, Stephen C. Delaware Sea Grant College Program	16,275	20,939	0
Biopolymers from Marine Sources Austin, Paul R. Delaware Sea Grant College Program	13,950	15,500	0
Use of Chitosan for Plant Biotechnology Processes Knorr, Dietrich W. Delaware Sea Grant College Program	10,332	43,210	0
Influence of Marine Bacterial Films on Cathodic Reaction and on Corrosion Prevention Dexter, Stephen C. Delaware Sea Grant College Program	9,675	20,413	0
Development of NEW Biofouling Inhibitor Delivery Systems Sundberg, D. C. UNH/UM Sea Grant Program	44,000	54,158	0
Partitioning of Organic Contaminants Between Air, Water and Sediment in a Freshwater Estuary Andren, Anders W. Wisconsin Sea Grant Institute	43,861	39,325	0
SUBTOTALS:	410,195	337,223	0

4. Microbiology & Phycology

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Role of Adsorbed Proteins in Bacterial Colonization and Growth on Surfaces Kirchman, David L. Delaware Sea Grant College Program	17,112	18,030	0

Improving on Nature: Stress-tolerant Plants from the Marine and Estuarine Environments for Ecosystem Restoration and Agriculture Gallagher, John L. Delaware Sea Grant College Program	20,925	58,354	0
Genetics of Morphology and Growth in Laminaria from the North Atlantic Sea Yarish, C. Connecticut Sea Grant College Program	45,300	33,700	0
Initiation of Callus/Protoplast Cultures from Marine Seagrasses and Coastal Plants Ellender, R. D. Mississippi-Alabama Sea Grant Program	13,618	30,014	0
Plant Tissue Culture Technology for Marine Angiosperms used in Habitat Restoration Bird, K. T. Florida Sea Grant College Program	36,000	46,900	0
SUBTOTALS:	132,955	186,998	0
GRANT TOTALS:	2,053,754	1,593,645	0

SEAFOOD SCIENCE AND TECHNOLOGY

1. Engineering & Waste Treatment

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Modeling Quality Changes Which Occur During Frozen Storage of Seafoods Kolbe, Edward R. Oregon Sea Grant College Program	68,400	44,200	0
Development of Coastal Fish Oil Resources for Potential US Health Industry Turcotte, Joseph G. Rhode Island Sea Grant College Program	63,030	31,217	0
SUBTOTALS:	131,430	75,417	0

2. Product Development and By-Product Recovery

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCH FUNDS	PASS THROUGH
Expanded Uses for Surimi in Processed Muscle Foods Hamann, D. University of North Carolina	4,410	35,497	0
Control of Surimi Functionality Through Modification of Protein Composition French, J. S. Alaska Sea Grant College Program	57,900	21,900	0
Salmon Meal as a Fertilizer Sparrow, S. D. Alaska Sea Grant College Program	13,200	0	0
Surimi Preparation from Gulf Menhaden and its Quality Enhancement Veal, C. David Mississippi-Alabama Sea Grant Program	0	0	134,000
SUBTOTALS:	75,510	57,397	134,000

3. Microbial & Nutritional Quality

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Influence of N-3 and Ratios of N-3:N-6 Dietary Fatty Acids on Nutritional, Physiological, and Quality Parameters in Cultured Hybrid Striped Bass Williams, W. P. South Carolina Sea Grant Consortium	7,500	3,150	0
Shellfish Toxicity in Southern New England Anderson, Donald M. Woods Hole Oceanographic Institution	35,000	25,673	0
The N-3 Polyunsaturated Fatty Acids of Marine Lipids: Determination of Biochemical Effects, Optimum Dietary intake, and Oxidative Stability Kinsella, John E. New York Sea Grant Institute	46,421	37,414	0
Do Dietary Saturated Fatty Acids Reduce the Effects of Fish Oils on Lipid Metabolism and Hemostasis? Connor, William E. Oregon Sea Grant College Program	37,600	29,800	0
Consumer Perceptions of Seafood Quality Anderson, Joan Rhode Island Sea Grant College Program	40,237	44,200	0
Mathematical Models for Management Decisions of Fresh Seafood Quality: Combined Heat Transfer and Microbial Growth Models Torres, J. Anthonio Oregon Sea Grant College Program	25,200	14,000	0
Oxidative Metabolism of Polyunsaturated Fatty Acids in Fish; Mechanism and Physiological Function of Lipoxygenase German, J. Bruce Univ of CA Sea Grant College Program	30,348	18,133	0
Edible Films to Prevent Quality Loss in Frozen Fish Krochta, John M. Univ of CA Sea Grant College Program	9,635	41,766	0

Genetic Detection of Red Tide Dinoflagellates Triplett, Edward L. Univ of CA Sea Grant College Program	25,521	11,910	0
Quality Assessment of Consumer-oriented Seafood Packaging and Its Impact on Listeria and Clostridium botulinum Survival Gates, Keith W. Georgia Sea Grant College Program	93,003	87,287	0
Detection of Vibrio Cholerae 01 Cells in Shellfish Meat Homogenate and Meat Enrichment Broths by Dipstick ELISA Siebeling, Ronald J. Louisiana Sea Grant College Program	45,609	24,883	0
Coupling Flow cytometry and Molecular probes for the Analysis of Microorganisms in Aquatic Ecosystems Chisholm, Sallie W. MIT Sea Grant College Program	50,000	0	0
Disposition and Metabolism of Polychlorinated Dibenzofurans in Fish Sikka, Harish C. New York Sea Grant Institute	52,083	27,431	0
Determination of Coplanar Polychlorinated Biphenyls in Fish Bush, Brian New York Sea Grant Institute	11,250	8,715	0
Immune Response in Great Lakes Fisheaters Sowers, Mary F. Michigan Sea Grant College Program	65,976	11,139	0
Quick Enzymatic Test for Contamination of Marine Resources by Toxic Organics Stegeman, John J. Woods Hole Oceanographic Institution	31,200	20,645	0
PCBs in the Sera of Great Lakes Fish Eaters: Differential Congener Toxicity and Patterns of Exposure Sonzogni, William C Wisconsin Sea Grant Institute	24,278	23,556	0
Development of DNA Probes for Pathogenic Marine Bacteria of the Genus Vibrio Shizuya, Hiroaki Southern California Sea Grant Program	39,573	36,781	0

Detection and Survivability of Some Pathogenic Enterobacteria in the Region of White's Point Outfall Iturriaga, Rodolfo University of Southern California Sea	35,509	41,340	0
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SUBTOTALS:	705,943	507,823	0
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4. Handling & Processing

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Development of Techniques for Increasing the Efficiency of Soft Shell Production by Removal/Neutralization of the Eyestalk Sinus Gland/X-Organ Complex from the Red Swamp Crawfish (<i>Pocambarus clarkii</i>) Malone, Ronald F. Louisiana Sea Grant College Program	50,394	43,550	0
Studies Concerning the Uptake, Elimination, Retention and Depuration of Virulent, Avirulent and VBNC Forms of <i>Vibrio vulnificus</i> in the Eastern Oyster Rodrick, G. E. Florida Sea Grant College Program	22,300	57,000	0
Protein Recovery and Water Reuse in Surimi Manufacture Lanier, T. University of North Carolina	51,848	5,383	0
A Biotechnological Application of Biogenic Ice Nucleator for Energy Saving and Improved Quality in the Freezing of Seafood Lee, Tung-Ching New Jersey Marine Sciences Consortium	18,850	49,932	0
Stability of Fish Oils During Production and Use Hultin, Herbert O. MIT Sea Grant College Program	50,000	18,800	0
The Role of Formaldehyde in the Textural Deterioration of Frozen Gadoid Fish Muscle Parkin, Kirk L. Wisconsin Sea Grant Institute	26,221	9,829	0

Suppression of Off-Flavors in Oxidizing Fish Oils and Seafoods Lindsay, Robert C. Wisconsin Sea Grant Institute	24,383	13,447	0
Identification of Fish and Fishery Products by Monoclonal Antibody Techniques II Wei, C. Florida Sea Grant College Program	39,300	25,500	0
SUBTOTALS:	283,296	223,441	0
GRANT TOTALS:	1,196,179	864,078	134,000



Human Resources

Following is a listing of Sea Grant's Human Resources Division technical staff,
their subject area(s), and their phone number.
They can be reached at the following address:

**National Oceanic and Atmospheric Administration
National Sea Grant College Program
1335 East-West Highway
SSMC1, 5th Floor
Silver Spring, MD 20910**

Human Resources.....301/427-2431

Marine Advisory Extension Services - Dr. Bernard L. Griswold
Captain Robert Roush

Communications - Mr. Victor Omelczenko

Social Science and Marine Policy - Dr. Shirley J. Fiske

Education and Training - Mr. Robert J. Shephard

Ocean Law - Mr. John A. Milholland

MARINE ADVISORY EXTENSION SERVICES

1. MAS Core Programs

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
The MITSG/MMAFP Joint Program in Marine Advisory Callahan, John J. 66 MIT Sea Grant College Program	59,000	229,017	0
Marine Advisory Service Murray, J. 71 University of North Carolina	381,347	325,791	0
Washington Sea Grant Marine Advisory Services Spranger, Michael S. 71 Washington Sea Grant College Program	792,900	300,400	0
Alaska Marine Advisory Program Kramer, D. E. 71 Alaska Sea Grant College Program	406,200	339,800	0
UPR Marine Advisory Services for Puerto Rico and the USVI Chaparro, Ruperto 71 University of Puerto Rico Sea Grant College Program	102,100	143,000	0
US Virgin Island Marine Advisory Services Coulston, Mary Lou 71 University of Puerto Rico Sea Grant College Program	43,500	37,600	0
Marine Advisory Service Falk, James M. 71 Delaware Sea Grant College Program	192,382	166,628	0
University of Guam Sea Grant Extension Program Smith, Barry D. 71 University of Hawaii Sea Grant College Program	32,290	42,843	0
South Carolina Marine Extension Program Goodwin, Melvin H. 71 South Carolina Sea Grant Consortium	203,300	176,394	0

Michigan Sea Grant Extension Schwartz, John 71 Michigan Sea Grant College Program	362,273	190,188	0
Extension/Sea Grant Program DeYoung, Bruce R. 71 Oregon Sea Grant College Program	664,900	689,400	0
Marine Extension Program Pennisi, Christine 71 Illinois-Indiana Sea Grant Program	107,659	91,235	0
Seafood Technology Advisory Services Stuiber, David A. 71 Wisconsin Sea Grant Institute	53,141	40,843	0
Sea Grant Extension Program Skoog, Ronald O. 71 Univ of CA Sea Grant College Program	680,557	313,630	0
Marine Advisory Services: Ocean and Coastal Law Wypyszinski, A. W. 71 New Jersey Marine Sciences Consortium	6,681	0	0
Marine Advisory Services: Fisheries and Aquaculture Wypyszinski, A. W. 71 New Jersey Marine Sciences Consortium	17,137	0	0
Marine Advisory Services: Water Quality Wypyszinski, A. W. 71 New Jersey Marine Sciences Consortium	4,806	0	0
Marine Advisory Services: Marine Recreation Wypyszinski, A. W. 71 New Jersey Marine Sciences Consortium	4,806	0	0
Ohio Sea Grant Advisory Service Program Reutter, Jeffrey M. 71 Ohio Sea Grant Program	234,968	116,187	0
Virginia Sea Grant Marine Advisory Services DuPaul, William 71 Virginia Graduate Marine Science Consortium	608,025	360,219	0
Marine Advisory Services Hightower, G. M. 71 Texas A&M University Sea Grant College Program	460,847	563,436	0

Sea Grant Extension Service Miller, Bruce J. 71 University of Hawaii Sea Grant College Program	430,059	261,978	240,780
Marine Advisory Services in Louisiana Cooperative Extension Service Fowler, James F. 71 Louisiana Sea Grant College Program	214,504	498,831	0
Sea Grant Extension Program Adkins, Ralph 73 Maryland Sea Grant College Program	190,000	633,600	0
Minnesota Sea Grant Extension Program Baker, Dale 73 University of Minnesota	106,300	275,920	0
Sea Grant Marine Advisory Program Bender, N. 73 Connecticut Sea Grant College Program	129,700	216,900	0
Center for Fisheries Engineering Goudey, Clifford A. 73 MIT Sea Grant College Program	72,800	80,000	0
Massachusetts Marine Liaison Service Hall-Arber, Madelein 73 MIT Sea Grant College Program	41,900	16,069	0
Sea Grant Advisory Services - Alabama Component Hosking, William 77 Mississippi-Alabama Sea Grant College Program	83,805	41,903	0
Sea Grant Extension Program Voiland, Michael P. 77 New York Sea Grant Institute	540,000	1,015,283	77,000
New Jersey Sea Grant Marine Advisory Service: Program Management Wypyszinski, A. W. 77 New Jersey Marine Sciences Consortium	157,846	186,149	0
Marine Assistance Service White, Alan W. 77 Woods Hole Oceanographic Institution	69,800	11,053	0
Advisory Services Coordination and Field Offices Miller, Allen H. 77 Wisconsin Sea Grant Institute	167,914	158,475	0

Aquaculture Advisory Services Binkowski, Fred P. 77 Wisconsin Sea Grant Institute	13,082	10,552	0
Monitoring and Disseminating Information on the Spread of Zebra Mussel in the Upper Great lakes Miller, Allen H. 77 Wisconsin Sea Grant Institute	23,301	11,700	0
Mississippi Sea Grant Advisory Service Program Veal, C. David 77 Mississippi-Alabama Sea Grant College Program	71,374	177,440	0
Florida Sea Grant Extension Program Woeste, J. T. 77 Florida Sea Grant College Program	484,000	568,606	65,000
Advisory Services: General Ed Chin (Acting) 77 Georgia Sea Grant College Program	246,142	256,380	0
Legal Advisory Service Wascom, Michael 77 Louisiana Sea Grant College Program	76,000	47,630	0
Ports and Waterways Advisory Services Beacham, Christopher 77 Louisiana Sea Grant College Program	25,249	3,074	0
Marine Advisory Services and Education Fawcett, James A. 77 University of Southern California Sea Grant Program	194,571	48,033	0
Coastal Resources Center – Sea Grant Advisory Services Lee, Virginia 77 Rhode Island Sea Grant College Program	149,943	116,339	0
Rhode Island Sea Grant Advisory Service: Fisheries, aquaculture, seafood processing, and seafood marketing DeAlteris, Joe 77 Rhode Island Sea Grant College Program	77,943	54,175	0
SUBTOTALS:	9,030,682	8,838,061	382,780

1. Other Information/Technology Transfer

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Sea Grant Extension – Great Lakes Fishery Television Program Schwartz, John 71 Michigan Sea Grant College Program	0	0	10,000
Sea Grant Marine Advisory Program Doyle, Brian 73 UNH/UM Sea Grant Program	32,815	3,539	0
Introductions and Transfers of Mollusks: Risk Considerations and Implications Rosenfield, Aaron 74 Maryland Sea Grant College Program	0	0	18,000
Environmental Education Pertaining to the Gulf of Mexico Veal, C. David 75 Mississippi–Alabama Sea Grant College Program	0	0	82,026
Long Island Sound Study Public Education & Participation Arnold, C. 75 Connecticut Sea Grant College Program	0	0	87,003
A Long Island Sound Study Public Participation Coordinator based in New York Voiland, Michael P. 75 New York Sea Grant Institute	0	0	63,000
Reducing Fisheries Generated Marine Debris and Derelict Fishing Gear Dearborn, R. K. 75 Alaska Sea Grant College Program	18,700	0	2,930
Transfer of Hybrid Striped Bass Culture Technology to the Private Sector in South Carolina Smith, Theodore I. 77 South Carolina Sea Grant Consortium	45,000	29,800	0
Documenting Legal and Institutional Constraints on Aquaculture and Dredged Material Containment Areas Veal, C. David 77 Mississippi–Alabama Sea Grant College Program	0	0	83,046

Publication of Technology Transfer/Extension Documents for the Corps of Engineers Containment Area Aquaculture Program Veal, C. David 77 Mississippi-Alabama Sea Grant College Program	0	0	145,875
International Technology and Information Transfer Program Sullivan, James J. 77 Univ of CA Sea Grant College Program	10,000	6,000	0
SUBTOTALS:	106,515	39,339	491,880
GRANT TOTAL	9,091,567	8,856,040	874,660

COMMUNICATIONS

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Public Information Services Melteff, B. R. Alaska Sea Grant College Program ¹	111,000	206,200	0
Communications Program Sullivan, James J. Univ of CA Sea Grant College Program	235,137	36,027	0
Communications and Publications Grifman, Phyllis University of Southern California Sea Grant Program	86,028	92,447	0
Communications Van Patten, M. Connecticut Sea Grant College Program	58,800	0	0
Sea Grant Communications Donnelly, Pamela Delaware Sea Grant College Program	152,382	57,385	0
Florida Sea Grant Communications Program Woeste, J. T. Florida Sea Grant College Program	92,300	54,900	0
Communications Program Rivers, Reita Georgia Sea Grant College Program	82,976	15,746	0
The Communications Program Pfund, Rose T. University of Hawaii Sea Grant College Program	109,052	24,713	0
Communications Goettel, G. Illinois-Indiana Sea Grant Program	43,142	6,149	0
Publications and Information Dissemination Coleman, Elizabeth Louisiana Sea Grant College Program	46,575	140,283	0

Communications and Information Programs Lignell, Kathleen UNH/UM Sea Grant Program	179,999	71,061	0
Communications and Information Programs Lignell, Kathleen UNH/UM Sea Grant Program ²	25,494	4,790	0
Sea Grant Communications Leffler, Merrill Maryland Sea Grant College Program	155,000	280,300	84,600
NOAA Habitat Restoration Symposium Leffler, Merrill Maryland Sea Grant College Program	0	1,300	12,410
Marine Communications/Information Service Hartley, Karen MIT Sea Grant College Program	249,600	17,442	0
Communications and Public Outreach Ross, David A. Woods Hole Oceanographic Institution	46,000	40,000	0
Michigan Sea Grant Communications Flory, Mildred Michigan Sea Grant College Program	152,804	51,217	0
Michigan Sea Grant Communications Flory, Mildred Michigan Sea Grant College Program ²	12,735	4,268	0
Communications Tibbetts, Alice University of Minnesota	106,360	43,770	0
Program Management: Communications Jones, James I. Mississippi-Alabama Sea Grant College Program	74,064	23,519	0
Communications Kosko, Kim New Jersey Marine Sciences Consortium	52,200	15,140	0
Communications Kosko, Kim New Jersey Marine Sciences Consortium ²	16,920	0	0
Communications Klauber, Avery H. New York Sea Grant Institute	100,000	71,763	0

Program Communications Hart, K. University of North Carolina	87,822	109,824	0
Ohio Sea Grant Communications Program Brainard, Maran Ohio Sea Grant Program	14,112	74,657	0
Sea Grant Communications Larison, James R. Oregon Sea Grant College Program ¹	144,900	127,700	0
Communications/Publications Hernandez, Evangelina University of Puerto Rico Sea Grant College Program	63,700	72,300	0
Marine Information Program/Rhode Island Sea Grant Advisory Services: Information and Education Program Jaworski, Carole Rhode Island Sea Grant College Program	180,958	38,032	0
A Proposal for the Support of Continuing and New Activities of the National Sea Grant Depository Murray, Cynthia J. University of Rhode Island National Sea Grant Depository	108,560	0	0
Communication and Information Services Beach, Virginia South Carolina Sea Grant Consortium	67,600	29,900	0
Marine Information Service Broussard, Amy Texas A&M University Sea Grant College Program	146,677	201,764	0
Washington Sea Grant Communications Peyton, Patricia Washington Sea Grant College Program ¹	236,000	89,400	0
Communications Office and Subprogram Coordination Wittman, Stephen Wisconsin Sea Grant Institute	175,899	116,305	0
Earthwatch Public Service Radio Program Hoops, Richard Wisconsin Sea Grant Institute	41,172	33,754	0

Sea Grant Abstracts Quarterly Publication	72,000	0	0
Shephard, Frank			
Woods Hole Data Base, Inc.			
GRANT TOTAL ³	3,455,968	2,152,056	97,010

¹Additional funds for communications personnel are included within the advisory/extension budgets at these programs.

²Additional support for core communications effort was awarded in Fiscal Year 1990 due to revision in start of grant year.

³Funding for communications at Virginia is included in Marine Advisory Services and program management budgets.

SOCIAL SCIENCE AND MARINE POLICY

RECREATION AND TOURISM

1. Recreational Fishing

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Study of the Impact of Fishing on Coral Reef Fish Community Structure Brock, Richard E. University of Hawaii	16,147	43,948	0
SUBTOTALS:	16,147	43,948	0

2. Tourism and Other Recreation

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Estimating the Use and Nonuse Damages of Debris for Coastal Resources and Noncommercial Marine Species Smith, Kerry North Carolina State University	0	0	49,631
The Role of Lake Erie Fishing and the Zebra Mussel in Ohio's North Coast Tourism Industry Hushak, Leroy J. The Ohio State University	13,689	8,320	0
A Risk Management Program for Ocean Recreation Businesses: A Study on the Behavior of Economic Units Pfund, Rose T. University of Hawaii	11,808	15,867	0
The Attitudinal Basis of Marine/Coastal Litter: Assessing Louisiana Coastal on Users' Attitudes Toward the Environment Laska, Shirley B. University of New Orleans	14,616	8,464	0
Factors Governing Stress Responses in Scuba Divers Morgan, William P. University of Wisconsin-Madison	45,396	22,311	0

A Computer-Directed Geographic Coastal Use Classification System for Ecologic Planning: The Case of the Florida Keys Antonini, Gustavo A. University of Florida	43,700	48,400	0
Latin American Marine Debris Public Awareness Project Chaparro, Ruperto University of Puerto Rico, Mayaguez	0	0	20,000
SUBTOTALS:	129,209	103,362	69,631

COMMERCIAL FISHERIES

1. Sociocultural, Political and Historical

2. Fisheries Management

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Management of Mixed Stock Fisheries: A Turning Point Pikitch, Ellen K. University of Washington	108,100	71,700	0
Managing Adaptively: Early Experience in Western North America Lee, Kai N. University of Washington	71,200	52,400	0
Balancing Environmental and Marine Resource Management Policy Laska, Shirley B. University of New Orleans	45,969	14,751	0
SUBTOTALS:	225,269	138,851	0

3. Aquaculture

4. Fisheries Development

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
An Analysis of Market Channels for Pacific Coast Salmon and Groundfish Johnston, Richard S. Oregon State University	36,600	16,000	0

Human Behavioral Responses to Perceptions of Coastal Pollution and Seafood Safety Griffith, David East Carolina University	3,504	18,540	0
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SUBTOTALS:	40,104	34,540	0
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MARINE RESOURCES – POLICY AND GOVERNANCE

1. Estuaries, Wetlands and Coastal Zone

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Effects of land use and commoditization on the socio-political processes involved in the development of coastal gentrification in Puerto Rico Valdes-Pizzini, Manuel University of Puerto Rico, Mayaguez	28,400	31,800	0
Socio-Economic Assessment of Compliance with Estuarine Governance Programs Sutinen, Jon University of Rhode Island	33,563	47,769	0
Adaptive Response and Greenhouse-Induced Sea Level Rise Along the Mainland Shore of Long Island Sound Yohe, Gary W. Wesleyan University	25,200	21,700	0
Comparison of Trends in Condition and Use of US Estuaries Lee, Virginia University of Rhode Island	87,944	29,615	0
The Governance of Estuaries: A Comparative Analysis of Institutions, Public Policy Formulation and Implementation in US Estuaries Hennessey, Timothy University of Rhode Island	57,510	33,843	0
Sea Grant Marine Policy Fellowship Queen, William East Carolina University	14,166	0	0

Estuarine Planning Handbook Barile, Diane D. Marine Resources Council of East Florida	11,800	0	0
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Coastal Resources Center – Sea Grant Advisory Services Lee, Virginia University of Rhode Island	149,943	116,339	0
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SUBTOTALS:	408,526	281,066	0
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2. Ocean Policy and Water Policy

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
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Law of the Sea Institute Craven, John P. University of Hawaii	23,930	89,826	0
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International Management Regimes, the EEZ, and the U.S. Pacific Fisheries Scheiber, Harry N. Univ of California, Berkeley	8,217	9,315	0
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SUBTOTALS:	32,147	99,141	0
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ARCHAEOLOGY

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
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Aboriginal Exploitation of Marine and Estuarine Environments: A Thousand-Year Perspective from the Mouth of the Columbia River Minor, Rick Heritage Research Associates, Inc.	11,700	9,000	0
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Submerged Cultural Resources Survey: Selected Sites in Lakes Michigan and Superior Cooper, David Wisconsin Sea Grant Institute	8,873	5,373	0
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SUBTOTALS:	20,573	14,373	0
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OTHER

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Initiatives Malouf, Robert E. New York Sea Grant Institute	100,034	0	0
SUBTOTALS:	100,034	0	0
GRANT TOTAL	972,009	715,281	69,631

EDUCATION AND TRAINING

1. Course Development and Student Projects

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Marine Studies Sourcebook for Secondary and College Levels Weiss, H. M. 70 Connecticut Sea Grant College Program	17,000	30,500	0
SUBTOTALS:	17,000	30,500	0

2. Research Assistantships

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Sea Grant Trainees Sullivan, James J. 70 Univ of CA Sea Grant College Program	586,560	49,920	0
Graduate Student Support Tarpley, R. W. 70 Delaware Sea Grant College Program	326,841	0	0
Sea Grant/Undergraduate Opportunities Program Doelling, N. 70 MIT Sea Grant College Program	25,000	20,421	0
Sea Grant Assistantships McNaught, Donald C. 62 University of Minnesota	113,220	0	0
Sea Grant Scholars Schlenk, Cornelia G. 70 New York Sea Grant Institute	287,500	0	0
Graduate Marine Traineeships Copeland, B. 70 University of North Carolina	142,560	0	0
SUBTOTALS:	1,481,681	70,341	0

3. Pre-college Education and Teacher Training

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
NOAA Marine Engineering/Science Career Orientation Program Cox, Elbert L. 70 Howard University	5,643	26,380	47,000
Marine Education and Training Calkins, Jay R. 70 Georgia Sea Grant College Program	47,068	199,477	0
Public Education and Training Short Courses McGary, F. J. 75 MIT Sea Grant College Program	0	46,339	0
American Indians in Marine Science Kramer, Joyce 62 University of Minnesota	45,630	21,360	0
Project Marine Discovery: An Opportunity for Expansion Walker, Sharon H. 70 Mississippi-Alabama Sea Grant College Program	25,000	33,523	0
Special Enrichment Activities in Oceanography for Area Teachers and Students (SEA OATS II) Hosking, William 70 Mississippi-Alabama Sea Grant College Program	8,613	7,853	0
Project Marine Discovery Bruce, Leslie 70 Mississippi-Alabama Sea Grant College Program	8,534	13,673	0
Environmental Education Pertaining to the Gulf of Mexico Veal, C. David 75 Mississippi-Alabama Sea Grant College Program	0	0	82,026
Global Environmental Change in the Great Lakes: Information for Educators and Advisory Services Fortner, Rosanne W. 70 Ohio Sea Grant Program	36,366	13,713	0

Marine Education: Art Interdisciplinary Approach to All-Level Teacher Education Tinnin, Richard K. 70 Texas A&M University Sea Grant College Program	35,434	17,717	0
A Proposal to Develop and Test an Activity Booklet for Grades 8 Through 12 for use with NOAA Environmental Satellites	0	28,629	49,951
Berman, Ann E. 70 Virginia Graduate Marine Science Consortium			
Special Marine Education Programs Andren, Anders W. 70 Wisconsin Sea Grant Institute	22,189	25,455	0
A comprehensive marine education program for Puerto Rico Ortiz, Alida 70 University of Puerto Rico Sea Grant College Program	31,200	49,800	0
SUBTOTALS:	265,677	483,919	178,977

4. Non-formal Education

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Reducing Fisheries Generated Marine Debris and Derelict Fishing Gear Dearborn, R. K. 75 Alaska Sea Grant College Program	18,700	0	2,930
Long Island Sound Study Public Education & Participation Arnold, C. 75 Connecticut Sea Grant College Program	0	0	87,003
Techniques for Dealing with Uncertainty in Fisheries Management Information Hoenig, J. M. 70 Florida Sea Grant College Program	29,600	18,500	0
Estuarine Planning Handbook Barile, Diane D. 70 Florida Sea Grant College Program	11,800	0	0

Workshop on Adaptive Options and Policy Implications of Sea Level Rise and Other Impacts of Global Change Cato, James C. 74 Florida Sea Grant College Program	0	0	54,000
Comparison of Marsh Vertical Accretion Rates Under Altered Hydrologic Conditions in Saline and Brackish Marshes of Coastal Louisiana Cahoon, Donald R. 40 Louisiana Sea Grant College Program	11,980	12,534	0
Introductions and Transfers of Molluscs: Risk Considerations and Implications Rosenfield, Aaron 74 Maryland Sea Grant College Program	0	0	18,000
Sea Grant Lecture/Seminar Hartley, Karen 78 MIT Sea Grant College Program	26,000	31,211	0
Public and Industrial Information and Education Ross, David A. 70 Woods Hole Oceanographic Institution	27,300	97,500	0
Publication of Technology Transfer/Extension Documents for the Corps of Engineers Containment Area Aquaculture Program Veal, C. David 77 Mississippi-Alabama Sea Grant College Program	0	0	145,875
Surimi Preparation from Gulf Menhaden and its Quality Enhancement Veal, C. David 77 Mississippi-Alabama Sea Grant College Program	0	0	134,000
The Narragansett Bay Classroom Gray, Walter 75 Rhode Island Sea Grant College Program	10,724	17,352	0
Transfer of Hybrid Striped Bass Culture Technology to the Private Sector in South Carolina Smith, Theodore I. 77 South Carolina Sea Grant Consortium	45,000	29,800	0

The Relation of Waves and Storm Surges: Its Effect on Extreme-Value Statistics for Coastal Design in the Great Lakes Green, Theodore 25 Wisconsin Sea Grant Institute	30,554	16,561	0
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SUBTOTALS:	211,658	223,458	441,808
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5. Sea Grant Fellowship Program

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
John D. Isaacs Sea Grant Memorial Scholarship Sullivan, James J. 70 Univ of CA Sea Grant College Program	10,000	2,500	0
California Sea Grant State Fellowship Program Sullivan, James J. 70 Univ of CA Sea Grant College Program	20,000	11,000	0
Graduate Research Fellowship Program Holmes, Robert W. 70 Univ of CA Sea Grant College Program	24,718	5,000	0
Sea Grant Graduate Student Trainee Program Fawcett, James A. 70 University of Southern California Sea Grant Program	36,000	18,000	0
Undergraduate Ocean Internships Maynard, Sherwood D. 70 University of Hawaii Sea Grant College Program	22,165	44,027	0
United States-Asia Aquaculture Exchange Rowland, W. C. 70 University of Hawaii Sea Grant College Program	76,000	0	206,000
Opportunities for Undergraduate Research and Development in Marine Science and Engineering Drake, A. D. 61 UNH/UM Sea Grant Program	25,500	61,115	0

Opportunities for Undergraduate Research and Development in Marine Science and Engineering Watson, W. H. 61 UNH/UM Sea Grant Program	2,015	0	0
Sea Grant Fellowship Program Hanson, Roger 70 Mississippi-Alabama Sea Grant College Program	20,000	0	0
Sea Grant Post-Doctoral Fellows Schlenk, Cornelia G. 80 New York Sea Grant Institute	26,000	0	0
Sea Grant Marine Policy Fellowship Queen, W. 70 University of North Carolina	14,166	0	0
Applied Research Projects for Marine Resource Management Graduate Students Gonor, Jefferson J. 62 Oregon Sea Grant College Program	65,900	22,300	0
Marine Fellowship Program Guseman, L. F. Jr. 70 Texas A&M University Sea Grant College Program	0	57,000	0
Sea Grant Trainee Program Mackiernan, Gail B. 70 Maryland Sea Grant College Program	75,000	153,700	0
SUBTOTALS:	417,464	374,642	206,000

6. Sea Grant Fellows (John A. Knauss Marine Policy Fellowship)

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
1989 Knauss Sea Grant Fellowship Tarpley, R. W. 70 Delaware Sea Grant College Program	30,000	7,142	0
Sea Grant Fellowship - John Epifanio Espeseth, Robert D. 70 Illinois-Indiana Sea Grant Program	30,000	0	0
Sea Grant Fellowship Chrysostomidis, Chr 70 MIT Sea Grant College Program	30,000	0	0

NOAA-Sea Grant Internship – Victoria Pebbles Parsons, Michael G. 70 Michigan Sea Grant College Program	30,000	0	0
NOAA-Sea Grant Internship – Robert June Parsons, Michael G. 70 Michigan Sea Grant College Program	30,000	0	0
NOAA-Sea Grant Internship – John Rosapepe Parsons, Michael G. 70 Michigan Sea Grant College Program	30,000	0	0
Sea Grant Federal Fellows Program Cekolin, Catherine 70 Mississippi-Alabama Sea Grant College Program	30,000	0	0
Dean John Knauss Fellowship Orbach, Michael 70 University of North Carolina	30,000	0	0
Dean John A. Knauss Marine Policy Fellowship – Steven L. Stone Schreck, Carl B. 70 Oregon Sea Grant College Program	30,000	0	0
Sea Grant Internship – Maureen E. Eldredge Nixon, Scott W. 70 Rhode Island Sea Grant College Program	30,000	0	0
Sea Grant Internship – Christopher G.Mann Nixon, Scott W. 70 Rhode Island Sea Grant College Program	30,000	0	0
Sea Grant Federal Fellows Program Davidson, Margaret J. 70 South Carolina Sea Grant Consortium	30,000	0	0
Dean John A. Knauss Marine Policy Fellowship 1990 for Peter C. Hill Smith, David E. 70 Virginia Graduate Marine Science Consortium	0	0	30,000
Dean John A. Knauss Marine Policy Fellowships 1990 for Michele M. Monti Smith, David E. 70 Virginia Graduate Marine Science Consortium	30,000	0	0

Sea Grant Fellowships – Flemma Echols, Louie S. 70 Washington Sea Grant College Program	30,000	0	0
Sea Grant Federal Fellowship Program – George D Dennis III Hernandez–Avila, Man 70 University of Puerto Rico Sea Grant College Program	30,000	0	0
SUBTOTALS:	450,000	7,142	30,000

7. Other Education


TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Developing a Diverse Coastal U.S. Economy Buckley, Earl 79 National Coastal Resources Research and Development Institute	1,177,000	0	0
Seminar Series in Fishery Oceanography Wooster, Warren S. 62 Washington Sea Grant College Program	16,400	14,400	0
Seminar on Recent Advances in Limnology and Oceanography Brooks, Arthur S. 70 Wisconsin Sea Grant Institute	3,744	1,440	0
SUBTOTALS:	1,197,144	15,840	0
GRAND TOTAL:	4,040,624	1,205,842	856,785

OCEAN LAW

A. Coastal, International, and other

1. Biological

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Mississippi-Alabama Sea Grant Legal Program McLaughlin, Richard 15 Mississippi-Alabama Sea Grant College Program	47,038	107,075	0
Legal Research, Education, and Advisory Services for State Ocean Resource Managers and Users Hildreth, Richard G. 15 Oregon Sea Grant College Program	95,600	143,700	0
International Management Regimes, the EEZ, and the U.S. Pacific Fisheries Scheiber, Harry N. 16 Univ of CA Sea Grant College Program	8,217	9,315	0
Law of the Sea Institute Craven, John P. 16 University of Hawaii Sea Grant College Program	23,930	89,826	0
Analysis of the New International Law of Fisheries Burke, William T. 16 Washington Sea Grant College Program	35,500	63,200	0
GRANT TOTALS:		210,285	413,1160



Technology and Commercial Development

Following is a listing of Sea Grant's Technology and Commercial Development Division technical staff, their subject area(s), and their phone number.

They can be reached at the following address:

**National Oceanic and Atmospheric Administration
National Sea Grant College Program
1335 East-West Highway
SSMC1, 5th Floor
Silver Spring, MD 20910**

Technology and Commercial Development301/427-2445

Ocean Engineering & Marine & Coastal Transportation Systems - Dr. Richard C. Kolf

Marine Economics and Recreation - Dr. Francis M. Schuler

Dr. Douglas W. Lipton

OCEAN ENGINEERING AND MARINE AND COASTAL TRANSPORTATION SYSTEMS

OCEAN ENGINEERING

1. Education

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Opportunities for Undergraduate Research and Development in Marine Science and Engineering Drake, A. D. 61 UNH/UM Sea Grant Program	25,500	61,115	0
Opportunities for Undergraduate Research and Development in Marine Science and Engineering Watson, W. H. 61 UNH/UM Sea Grant Program	2,015	0	0
Sea Grant/Undergraduate Opportunities Program Doelling, N. 70 MIT Sea Grant College Program	25,000	20,421	0
Public Education and Training Short Courses McGary, F. J. 75 MIT Sea Grant College Program	0	46,339	0
Sea Grant Lecture/Seminar Hartley, Karen 78 MIT Sea Grant College Program	26,000	31,211	0
SUBTOTALS:	78,515	159,086	0

2. Fisheries and Seafood Processing

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Design and Development of a Sea Urchin Processing System Singh, Paul R. 30 Univ of CA Sea Grant College Program	12,146	14,712	0
Modeling Quality Changes Which Occur During Frozen Storage of Seafoods Kolbe, Edward R. 35 Oregon Sea Grant College Program	68,400	44,200	0

Mathematical Models for Management Decisions of Fresh Seafood Quality: Combined Heat Transfer and Microbial Growth Models Torres, J. Antonio 35 Oregon Sea Grant College Program	25,200	14,000	0
Center for Fisheries Engineering Goudey, Clifford A. 73 MIT Sea Grant College Program	72,800	80,000	0
SUBTOTALS:	178,546	152,912	0

3. Aquaculture

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Development of Sand Filtration Technologies to Support Finfish Culture Systems Malone, Ronald F. 02 Louisiana Sea Grant College Program	21,153	10,202	0
Development of a Greenhouse Bivalve Hatchery System Heffernan, Peter B. 03 Georgia Sea Grant College Program	83,875	10,074	0
The Development of a Vibrating Jet-and-Nozzle Apparatus for the Microencapsulation of Larval Foods Matthys, Eric F. 26 Univ of CA Sea Grant College Program	23,178	17,834	0
SUBTOTALS:	128,206	38,110	0

4. Erosion Control Structures

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Reliability Based LRFD Criteria of Anchored Bulkhead Sandford, Thomas 24 UNH/UM Sea Grant Program	39,000	16,194	0
Offshore Breakwaters: Waves and Currents Dalrymple, Robert A. 25	12,690	36,217	0

Delaware Sea Grant College Program			
Use of Sediment Fences for Marsh	0	4,383	40,000
Restoration and Creation			
Day, J. W. Jr	39		
Louisiana Sea Grant College Program			

SUBTOTALS:	51,690	56,794	40,000
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5. Remote Sensing

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Determining State Variables of Estuaries by Remote Sensing to Estimate Susceptibility to Environmental Change	18,600	27,462	0
Klemas, V.	39		
Delaware Sea Grant College Program			
Satellite Estimation of Surface Flow Fields, Mesoscale Variability and River Plume Evolution on the Texas-Louisiana Shelf	0	0	45,001
Kelly, Frank	40		
Texas A&M University Sea Grant Program			
The Implementation and Evaluation of a Real-Time AVHRR In-Situ Data System for Great Lakes Sea Surface and Heat Flux Predictions	30,695	17,278	0
Bedford, Keith W.	46		
Ohio Sea Grant Program			
Satellite Analyses for Fishery Oceanography in the Gulf of Mexico	54,472	30,000	0
Vastano, A. C.	50		
Texas A&M University Sea Grant College Program			

SUBTOTALS:	103,767	74,740	45,001
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6. Coastal Construction

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Rational Analysis and Design Procedure for Rubble Mound Coastal Structures	95,400	79,300	0
McDougal, William G.	25		
Oregon Sea Grant College Program			

SUBTOTALS:	95,400	79,300	0
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7. Ship Design, Construction, and Safety

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Geometry Data Representation, Exchange and Inspection (addendum) Chrysostomidis, Chr MIT Sea Grant College Program	0	21,949	400,000
A Multi-Sensor, Autonomous Underwater Vehicle Search System Blidberg, Richard D. 12 UNH/UM Sea Grant Program	0	0	550,000
A High Resolution Multi-Sensor Acoustic Imaging System for Autonomous Underwater Vehicles Blidberg, Richard D. 12 UNH/UM Sea Grant Program	0	0	500,000
Propellant Embedded Anchors in Sea Floor Rock Einstein, Herbert H. 22 MIT Sea Grant College Program	0	0	90,421
Automatic Optical Stationkeeping for a Subsea Remotely operated Vehicle Fox, Joel S. 23 University of Hawaii Sea Grant College Program	49,969	84,762	0
Development of an Improved Method for Predicting the Resistance of Planing Boats Vorus, William S. 23 Michigan Sea Grant College Program	29,410	17,205	0
Seakeeping and Dynamic Analysis of High-Speed Planing Craft Troesch, Armin W. 23 Michigan Sea Grant College Program	41,711	6,878	0
Shape Interrogation and Representation by Media Axis Transform Patrikalakis, N. M. 23 MIT Sea Grant College Program	50,000	20,004	0

Oscillating Foils as Efficient Propulsors for AUV Trianatyllou, M. 23 MIT Sea Grant College Program	50,000	51,043	0
Hydrodynamics of Marine Propulsors Kerwin, Justin 23 MIT Sea Grant College Program	0	0	200,000
Autonomous Underwater Systems Dunn, Stanley E. 23 Florida Sea Grant College Program	34,800	150,000	0
Slow-Drift Oscillations of Marine Structures Sclavounos, Paul D. 28 MIT Sea Grant College Program	50,000	29,164	0
SUBTOTALS:	305,890	381,005	1,740,421

8. Water and Waste Treatment--Waste Disposal

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Economic Aspects of Marine Debris McConnell, K. E. 14 Maryland Sea Grant College Program	11,499	20,002	50,369
Siting of Marine Diffusers Hudspeth, Robert T. 25 Oregon Sea Grant College Program	45,000	23,200	0
Wastewater Wetlands: Pulsed Discharges to Protect Coastal Water Bodies Zedler, Joy 39 Univ of CA Sea Grant College Program	33,264	17,271	0
Depuration of Secondary Sewage Effluents in a Mangrove Ecosystem Corredor, Jorge E. 45 University of Puerto Rico Sea Grant College Program	21,900	60,358	10,000
Extraction of PCBs and PAHs from Coastal Waters Usines Block Copolymer Micelles Hatton, T. Alan 45 MIT Sea Grant College Program	50,000	19,866	0

Marine Disposal of Solidified/Stabilized Incinerator Ash: Field Studies Kinner, Nancy E. 45 UNH/UM Sea Grant Program	34,000	18,895	0
Scales of Variability of Sewage-Influenced Water Column Properties in the Southern California Bight McGowan, John A. 45 Univ of CA Sea Grant College Program	12,945	19,400	0
Physical Forcing, Particulate Fluxes, and Primary Productivity in the Area Around White's Point Sewage Outfall Jones, Burton 45 University of Southern California Sea Grant Program	59,642	56,478	0
The Flux of Trace Metals and Nutrients from the Seafloor in the Area Around the White's Point Sewage Outfall Berelson, William 45 University of Southern California Sea Grant Program	49,648	33,232	0
Temporal Evolution of Particulate Distributions in the Vicinity of an Ocean Outfall as Forced by Physical and Biological Dickey, Tommy 45 University of Southern California Sea Grant Program	50,249	56,931	0
Detection and Survivability of Some Pathogenic Enterobacteria in the Region of White's Point Outfall Iturriaga, Rodolfo 45 University of Southern California Sea Grant Program	35,509	41,340	0
Reducing Fisheries Generated Marine Debris and Derelict Fishing Gear Dearborn, R. K. 75 Alaska Sea Grant College Program	18,700	0	2,930
SUBTOTALS:	422,356	366,973	63,299

9. Offshore Structure Design and Analysis

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Extreme Loadings of Marine Structures: Wave-Induced Structural Loading Paulling, J. Randolph 23 Univ of CA Sea Grant College Program	15,624	11,383	0
Extreme Loadings of Marine Structures: Slow Drift Motions of Offshore Platforms Webster, William C. 23 Univ of CA Sea Grant College Program	14,599	11,192	0
Repair of Damaged Offshore Structural Steel Members Using Grouting Ricles, James M. 24 Univ of CA Sea Grant College Program	31,838	81,110	0
The Dynamics of Large-Scale Vortices in the Ocean and Their Impact on Offshore Structures Ogilvie, T. E. 28 MIT Sea Grant College Program	50,000	12,000	0
SUBTOTALS:	112,061	115,685	0

10. Biofouling and Metal Corrosion

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
The Role of Iron- and Manganese-Oxidizing Bacteria in Marine Corrosion Processes Mitchell, Ralph Harvard University	65,000	40,000	0
Anticorrosive Properties of Adhesive Proteins Isolated from the Mussel Mytilus Edulis Dexter, Stephen C. 13 Delaware Sea Grant College Program	16,275	20,939	0
Polypeptide Inhibitors of Corrosion from Marine Organisms Sikes, Steven C. 13 Mississippi-Alabama Sea Grant College Program	13,227	12,807	0

Influence of Marine Bacterial Films on Cathodic Reaction and on Corrosion Prevention Dexter, Stephen C. 38 Delaware Sea Grant College Program	9,675	20,413	0
Technical Book on Tributyltin: Editorial and Preproduction Services Cato, J. C. 44 Florida Sea Grant College Program	0	0	32,000
Development of New Biofouling Inhibitor Delivery Systems Sundberg, D. C. 45 UNH/UM Sea Grant Program	44,000	54,158	0
SUBTOTALS:	148,177	148,317	32,000

11. Materials in the Marine Environment-Other

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Improved Fatigue Life for Moorings Seymour, Richard J. 24 Univ of CA Sea Grant College Program	25,034	10,818	0
Development of In-Process Nondestructive Evaluation Technique for Underwater Welding Rokhlin, Stanislav 28 Ohio Sea Grant Program	36,627	34,222	0
SUBTOTALS:	61,661	45,040	0

12. Ice Engineering

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Docks and Marinas Advisory Services Wortley, Allen C. 25 Wisconsin Sea Grant Institute	22,505	18,261	0
SUBTOTALS:	22,505	18,261	0

13. Ocean Mining

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
An Investigation of Sources, Geometries and Compositions of Potential Titanium- and zirconium-bearing Placer Deposits on the Continental Shelf Peterson, Curt D. 09 Oregon Sea Grant College Program	31,500	44,600	0
An Investigation of Alternate Economic Deposits Associated with Manganese Crusts Wiltshire, John C. 10 University of Hawaii Sea Grant College Program	9,914	10,800	0
Conversion of Marine Ferromanganese Crusts into Useful Electrical and Magnetic Materials Andermann, George 10 University of Hawaii Sea Grant College Program	9,706	24,912	0
Estimating the Value of Marine Mining for Strategic Minerals Supply Broadus, James M. 14 Woods Hole Oceanographic Institution	30,900	30,424	0
SUBTOTALS:	82,020	110,736	0

14. Instrumentation Development

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Advanced Development of a 3-D Ultrasonic Imaging System Jaffe, Jules S. 28 Univ of CA Sea Grant College Program	31,304	3,000	0
Instrumental High Resolution, Long Term Measurement of Primary Production and Oxygen Concentration in Eutrophic Coastal Ponds Taylor, Craig D. 40 Woods Hole Oceanographic Institution	37,300	26,602	0
SUBTOTALS:	68,604	29,602	0

15. Industry Relations – Industry Advisory Service

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
The University of Michigan/Sea Grant/Industry Consortium in Offshore Engineering Bernitsas, Michael 23 Michigan Sea Grant College Program	22,060	55,685	0
The MITSG/MMAFP Joint Program in Marine Advisory Callahan, John J. 66 MIT Sea Grant College Program	59,000	229,017	0
Sea Grant/Marine Industry Collegium Moore, John Jr 73 MIT Sea Grant College Program	136,300	95,132	0
SUBTOTALS:	217,360	379,834	0

16. Miscellaneous

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Proposal to Develop a Deep Ocean Rock Coring Drill Johnson, H. Paul 09 Washington Sea Grant College Program	53,100	13,900	0
Impact Analysis and Foundation Design for Collision Tolerant File Structures Baldwin, Kenneth C. 25 UNH/UM Sea Grant Program	45,000	24,838	0
Management of Human Error in Operations of Marine Systems Bea, Robert G. 28 Univ of CA Sea Grant College Program	26,353	23,763	0
Salinity Powered Distillation of Freshwater from Seawater Using Plastic Sheet Heat Exchangers Lowrey, Preston 28 Univ of CA Sea Grant College Program	19,833	10,063	0
SUBTOTALS:	144,286	72,564	0

MARINE AND COASTAL TRANSPORTATION SYSTEMS

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Ports and Waterways Advisory Services Beacham, Christopher 77 Louisiana Sea Grant College Program	25,249	3,074	0
SUBTOTALS:	25,249	3,074	0
GRANT TOTAL:	2,246,293	2,232,033	1,920,721

MARINE ECONOMICS AND RECREATION

1. Marine Recreation

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Measuring the Full Recreation Related Benefits from Improvements in Estuarine Water Quality Smith, K. 14 University of North Carolina	17,849	12,174	0
Toward a Complete Theory of Recreational Fishery Economics Anderson, Lee G. 14 Delaware Sea Grant College Program	1,938	26,823	0
Estimating the Use and Nonuse Damages of Debris for Coastal Resources and Noncommercial Marine Species Smith, K. 14 University of North Carolina	0	0	49,631
Economic Aspects of Marine Debris McConnell, K. E. 14 Maryland Sea Grant College Program	11,499	20,002	50,369
Valuation of Great Lakes Fisheries Bishop, Richard C. 14 Wisconsin Sea Grant Institute	9,344	6,559	0
The Role of Lake Erie Fishing and the Zebra Mussel in Ohio's North Coast Tourism Industry Hushak, Leroy J. 14 Ohio Sea Grant Program	13,689	8,320	0
The Economic Value of Fish Contamination Advisories to Individual Great Lakes Sport Anglers Hoehn, John 18 Michigan Sea Grant College Program	31,682	17,113	0
The Economic Value of Fish Contamination Advisories to Individual Great Lakes Sport Anglers Hoehn, John 18 Michigan Sea Grant College Program	2,640	1,426	0

Recreation Fish Harvests: The Link Between Economic Benefits, Efficient Resource Allocations, and Policy Options Swallow, S. K. 18 Rhode Island Sea Grant College Program	35,170	37,509	0
An Analysis of Tourist User Value and Its Impact on the Demand for Selected Marine Coastal Resources in Florida Bell, Frederick W. 19 Florida Sea Grant College Program	27,900	14,000	0
The Benefits and Costs of Managing Environmental Variability in the California Central Valley Chinook Salmon Fishery Hanemann, W. Michael 48 Univ of CA Sea Grant College Program	30,152	55,298	0
SUBTOTALS:	181,863	199,224	100,000

2. Fisheries Management

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Management of a Mixed-stock Fishery: An Economic Evaluation of alternatives Hanna, Susan S. 14 Oregon Sea Grant College Program	26,800	62,200	0
The Economic Effects of Area Licensing Boyce, John 14 Alaska Sea Grant College Program	21,934	0	0
SUBTOTALS:	48,734	62,200	0

3. Marketing and Demand

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
An Analysis of Market Channels for Pacific Coast Salmon and Groundfish Johnston, Richard S. 14 Oregon Sea Grant College Program	36,600	16,000	0
Consumer Preferences and the Economic Consequences of Safety Programs for Shellfish Products Milon, J. Walter 14 Florida Sea Grant College Program	8,600	17,300	0

Consumer Perceptions of Seafood Quality	40,237	44,200	0
Anderson, Joan	20		
Rhode Island Sea Grant College Program			

SUBTOTALS:	85,437	77,500	0
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4. Coastal Development/Business

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
An Economic Analysis of Beach Preservation	3,100	14,682	0
Parsons, George R.	14		
Delaware Sea Grant College Program			
Benefits of Protection from Damage Caused by Fluctuating Water Levels in the Western Basin: Evidence from the Market in Shoreline Property	30,338	23,216	0
Randall, Alan	14		
Ohio Sea Grant Program			
A Risk Management Program for Ocean Recreation Businesses: A Study on the Behavior of Economic Units	11,808	15,867	0
Pfund, Rose T.	19		
University of Hawaii Sea Grant College Program			
Socio-Economic Assessment of Compliance with Estuarine Governance Programs	33,563	47,769	0
Sutinen, Jon	20		
Rhode Island Sea Grant College Program			

SUBTOTALS:	78,809	101,534	0
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GRANT TOTAL:	394,843	440,458	100,000
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Environmental Studies

Following is a listing of Sea Grant's Environmental Studies Division technical staff,
their subject area(s), and their phone number.
They can be reached at the following address:

**National Oceanic and Atmospheric Administration
National Sea Grant College Program
1335 East-West Highway
SSMC1, 5th Floor
Silver Spring, MD 20910**

Environmental Studies..... 301/427-2435

Environmental Studies - Dr. William F. Graham

Dr. Leon M. Cammen

Coastal Processes - Dr. John P. Ahrens

ENVIRONMENTAL STUDIES

A. Environmental Characterization

1. Biological

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Application of Experimental Ecology to Development of a New Mya Fishery Peterson, C. 06 University of North Carolina	20,859	13,728	0
Fisheries Oceanography: Status and Synthesis Power, James H. 06 Louisiana Sea Grant College Program	14,804	10,959	0
Natural History Analysis of Sea Turtles in the Northwestern Gulf of Mexico Landry, Andree M. 06 Texas A&M University Sea Grant College Program	48,915	28,264	0
Dungeness Crab and English Sole Population Dynamics & Recruitment Armstrong, David 06 Washington Sea Grant College Program	0	0	18,969
Osmotic Regulation by the Euryhaline Sponge, Microciona Prolifera Loomis, S. H. 07 Connecticut Sea Grant College Program	7,600	7,600	0
Enhancement of Soft-Shell Clam Recruitment in Flow-Generated Larval "Sinks" Millineaux, Lauren S 07 Woods Hole Oceanographic Institution	34,200	16,944	0
Continuing Investigations of Louisiana Continental Slope Chemosynthetic Faunal Communities Carney, Robert S. 07 Louisiana Sea Grant College Program	21,447	25,252	0
The Gulf Stream Front, Its Role in Larval Fish Survival and Recruitment in Florida Kleppel, G. S. 07 Florida Sea Grant College Program	106,000	71,300	0

Johnston Atoll Ocean Science Study Lobel, Phillip S. 07 Woods Hole Oceanographic Institution	0	0	80,000
Ecology and Etiology of White Band Disease in Elkhorn Coral Acroporapalmata (Lamarck) Gladfelter, E. H. 08 University of Puerto Rico Sea Grant College Program	25,400	24,900	0
Biology of Kemp's Ridley Turtle Owen, David W. 08 Texas A&M University Sea Grant College Program	55,171	60,067	0
Microbial Geochemistry of Cobalt-Rich Ferromanganese Crusts Cowen, James P. 09 University of Hawaii Sea Grant College Program	24,648	19,351	0
Role of Adsorbed Proteins in Bacterial Colonization and Growth on Surfaces Kirchman, David L. 13 Delaware Sea Grant College Program	17,112	18,030	0
The Role of Iron- and Manganese-Oxidizing Bacteria in Marine Corrosion Processes Mitchell, Ralph 28 Harvard University	65,000	40,000	0
Sedimentation of Microbial-detrital Particulates in Tropical Coastal Marine Environments Tosteson, Thomas R. 39 University of Puerto Rico Sea Grant College Program	900	22,700	20,000
Assessment of Nongame Marine Invertebrates Harvest Paine, Robert T. 40 Washington Sea Grant College Program	0	24,426	14,835
Continental Shelf Hardbottom Environments: Distribution, Classification and Biology Schroeder, William W. 40 Mississippi-Alabama Sea Grant College Program	34,749	41,453	0

Studies of Hydrocarbon Seep Communities on the Texas/Louisiana Continental Slope Brooks, James M. 40 Texas A&M University Sea Grant College Program	49,598	26,002	0
Physical Processes and Inlets and Effect on the Transport of Immature Fishes Miller, J. 46 University of North Carolina	47,078	2,300	0
Microbiology and Chemistry of Active Hydrothermal Vents on Loihi Seamount Karl, David M. 48 University of Hawaii Sea Grant College Program	20,779	23,426	0
SUBTOTALS:	594,260	476,702	133,804

2. Chemical – Geological

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Chemical and Isotopic Stratigraphy of Co-Rich Ferromanganese Crusts from the Hawaiian Archipelago McMurtry, Gary M. 09 University of Hawaii Sea Grant College Program	36,866	29,880	0
The Geology of Hydrothermal Systems on Loihi Submarine Volcano Malahoff, Alexander 09 University of Hawaii Sea Grant College Program	0	14,999	25,000
Stratigraphic History and Processes of Formation of Cobalt-Rich Manganese Crusts on Pacific Seamounts Malahoff, Alexander 09 University of Hawaii Sea Grant College Program	25,237	12,877	0
The Combined Use of Chemical and Biostratigraphy to Date Ferromanganese Crusts and Estimate their Growth Rates De Carlo, Eric H. 09 University of Hawaii Sea Grant College Program	22,258	12,773	0

Stable Isotope Studies of the Co-Rich Ferromanganese Deposits of the Hawaiian Archipelago Yeh, Hsueh-Wen 09 University of Hawaii Sea Grant College Program	18,264	11,260	0
Geochemistry of Loihi Seamount Hydrothermal Vent Fields McMurtry, Gary M. 09 University of Hawaii Sea Grant College Program	25,118	15,000	0
Effects of Ion Exclusion During Hydrate Formation on Continental Rise Pore Waters Paull, C. 09 University of North Carolina	0	0	20,966
Water Mass Evolution and the Circulation and Nutrient Environment of the Gulf of Maine Brown, Wendell S. 50 UNH/UM Sea Grant Program	49,999	27,160	0
SUBTOTALS:	177,742	123,949	45,966

3. Physical

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Directional Wave Data Collection and Analysis - Kings Bay Georgia Wang, H. 25 Florida Sea Grant College Program	0	0	25,000
Numerical Modeling of Nearshore Hydrodynamics Svendsen, I. A. 25 Delaware Sea Grant College Program	6,510	48,963	0
Southern California Waves: Model Verification and Utilization Guza, Robert T. 25 Univ of CA Sea Grant College Program	69,138	18,742	0
The Dynamics of Large-Scale Vortices in the Ocean and Their Impact on Offshore Structures and Coastal Processes Ogilvie, T. E. 28 MIT Sea Grant College Program	50,000	12,000	0

Satellite Estimation of Surface Flow Fields, Mesoscale Variability and River Plume Evolution on the Texas-Louisiana Shelf Kelly, Frank 40 Texas A&M University Sea Grant College Program	0	0	45,001
Modeling Tidal Circulation and Transport in Central Puget sound Chu, Wen-sen 46 Washington Sea Grant College Program	31,700	20,800	0
An Analysis of the Hydrodynamic Regime in Delaware's Inland Bays Wong, Kuo-Chuin 46 Delaware Sea Grant College Program	3,100	23,111	0
Studies in Estuarine Dynamics Mellor, George L. 46 New Jersey Marine Sciences Consortium	0	0	90,400
Evolution of Wave Spectra in Bays - Calculations of Wave Conditions in Bays Panchang, Vijaykuman 46 UNH/UM Sea Grant Program	37,731	9,445	0
Internal Hydraulic Control of Buoyant Inflows to California Estuaries Largier, John L. 46 Univ of CA Sea Grant College Program	0	0	0
Predictive Methods for Salinity Intrusion in Galveston Bay Ward, G. H. Jr 46 Texas A&M University Sea Grant College Program	31,548	18,597	0
Buoyancy and Nutrient Exchange in the Mississippi River Outflow Region Dinnel, Scott P. 46 Mississippi-Alabama Sea Grant College Program	0	0	14,863
Long Range Forecasting of the Michigan-Huron Lake Levels using the Integrated Global Volcanic Activity of Prior Years Handler, Paul 48 Illinois-Indiana Sea Grant Program	23,999	30,906	0
Coastal Upwelling in Cape Cod Bay Geyer, Wayne R. 50 Woods Hole Oceanographic Institution	40,000	44,518	0

Numerical Analysis of Tides, Mixing and Three-Dimensional Flow-Structure in the Gulf of Maine Werner, Francisco E. 50 UNH/UM Sea Grant Program	10,201	0	0
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SUBTOTALS:	303,927	227,082	175,264
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4. Instrumentation and Observation Techniques

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Multi-Sensor, Autonomous Underwater Vehicle Search System Blidberg, Richard D. 12 UNH/UM Sea Grant Program	0	0	550,000
A High Resolution Multi-Sensor Acoustic Imaging System for Autonomous Underwater Vehicles Blidberg, Richard D. 12 UNH/UM Sea Grant Program	0	0	500,000
Advanced Development of a 3-D Ultrasonic Imaging System Jaffe, Jules S. 28 Univ of CA Sea Grant College Program	31,304	3,000	0
A Proposal to Develop a National Operational Protocol for Mapping Coastal Habitat and Land Use for the NOAA Coastal Ocean Program Klemas, Victor V. 39 Delaware Sea Grant College Program	0	2,826	24,997
Determining State Variables of Estuaries by Remote Sensing to Estimate Susceptibility to Environmental Change Klemas, V. 39 Delaware Sea Grant College Program	18,600	27,462	0
Variable Scales in an Oceanographic GIS Bokuniewicz, Henry J. 39 New York Sea Grant Institute	0	0	103,348
Detection of Event-Scale Phytoplankton Increases in the Chesapeake Bay During the Winter-Spring Transition Using Aircraft Remote Sensing Harding, Lawrence W. 40 Maryland Sea Grant College Program	28,900	7,100	0

Coupling Flow Cytometry and Molecular Probes for the Analysis of Microorganisms in Aquatic Ecosystems Chisholm, Sallie W. 40 MIT Sea Grant College Program	50,000	0	0
Instrumental High Resolution, Long Term Measurement of Primary Production and Oxygen Concentration in Eutrophic Coastal Ponds Taylor, Craig D. 40 Woods Hole Oceanographic Institution	37,300	26,602	0
Detection of Spring and Summer Phytoplankton Blooms in the Chesapeake Bay Using Aircraft Remote Sensing Harding, Lawrence W. 40 Maryland Sea Grant College Program	0	0	60,977
The Implementation and Evaluation of a Real-Time AVHRR In-Situ Data System for Great Lakes Sea Surface and Heat Flux Predictions Bedford, Keith W. 46 Ohio Sea Grant Program	30,695	17,278	0
Utility of Thematic Mapper Data for Chlorophyll Estimation in New Jersey Coastal Waters of the New York Bight Bagheri, Sima 50 New Jersey Marine Sciences Consortium	19,543	44,890	0
Satellite Analyses for Fishery Oceanography in the Gulf of Mexico Vastano, A. C. 50 Texas A&M University Sea Grant College Program	54,472	30,000	0
SUBTOTALS:	270,814	159,158	1,239,322

B. Environmental Management

1. Aquaculture

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Noxious Phytoplankton Blooms and Marine Salmon Culture in Puget Sound Taub, Frieda B. 02 Washington Sea Grant College Program	70,000	141,900	0
Trochus Ranching: Evaluation of its Effectiveness and Ecological Impacts Smith, Barry D. 03 University of Hawaii Sea Grant College Program	2,018	8,438	0

An Evaluation of the Environmental Effects of Tray Farming of Hard Clams (Mercenaria mercenaria)	31,700	16,000	0
Nelson, W. G. 03			
Florida Sea Grant College Program			

SUBTOTALS:	103,718	166,338	0
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2. Coastal/Wetland Management

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Balancing Environmental and Marine Resource Management Policy	45,969	14,751	0
Laska, Shirley B. 20			
Louisiana Sea Grant College Program			
A Computer-Directed Geographic Coastal Use Classification System for Ecologic Planning: The Case of the Florida Keys	43,700	48,400	0
Antonini, Gustavo A. 38			
Florida Sea Grant College Program			
Estuarine Planning Handbook	11,800	0	0
Barile, Diane D. 70			
Florida Sea Grant College Program			
Long Island Sound Study Public Education & Participation	0	0	87,003
Arnold, C. 75			
Connecticut Sea Grant College Program			
A Long Island Sound Study Public Participation Coordinator Based in New York	0	0	63,000
Voiland, Michael P. 75			
New York Sea Grant Institute			

SUBTOTALS:	101,469	63,151	150,003
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3. Environmental Quality Assessment

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Study of the Impact of Fishing on Coral Reef Fish Community Structure	16,147	43,948	0
Brock, Richard E. 06			
University of Hawaii Sea Grant College Program			

Measuring the Full Recreation Related Benefits from Improvements in Estuarine Water Quality Smith, K. 14 University of North Carolina	17,849	12,174	0
Estimating the Use and Nonuse Damages of Debris for Coastal Resources and Noncommercial Marine Species Smith, K. 14 University of North Carolina	0	0	49,631
Economic Aspects of Marine Debris McConnell, K. E. 14 Maryland Sea Grant College Program	11,499	20,002	50,369
Human Behavioral Responses to Perceptions of Coastal Pollution and Seafood Safety Griffith, D. 20 University of North Carolina	3,504	18,540	0
The Attitudinal Basis of Marine/Coastal Litter: Assessing Louisiana Coastal Users' Attitudes Toward the Environment Laska, Shirley B. 20 Louisiana Sea Grant College Program	14,616	8,464	0
Socio-Economic Assessment of Compliance with Estuarine Governance Programs Sutinen, Jon 20 Rhode Island Sea Grant College Program	33,563	47,769	0
Critical Data Sets for the Chesapeake Bay Grant, Joanne 39 Alaska Sea Grant College Program	35,000	12,727	0
Study of Nonpoint Source Urban and Agriculture Runoff of Small High Salinity Estuaries Verberg, F, John 39 University of South Carolina	0	264,300	287,500
Comparison of Trends in Condition and Use of US Estuaries Lee, Virginia 40 Rhode Island Sea Grant College Program	87,944	29,615	0

The Governance of Estuaries: A Comparative Analysis of Institutions, Public Policy Formulation and Implementation in US Estuaries Hennessey, Timothy 40 Rhode Island Sea Grant College Program	57,510	33,843	0
Prediction of Management Effects on Pollutant Loading from Poorly Drained Soils Adjacent to Coastal Waters Gilliam, J. 48 University of North Carolina	52,104	4,000	0
Reducing Fisheries Generated Marine Debris and Derelict Fishing Gear Dearborn, R. K. 75 Alaska Sea Grant College Program	18,700	0	2,930
Latin American Marine Debris Public Awareness Project Hernandez-Avila, Manuel L. 75 University of Puerto Rico Sea Grant College Program	0	0	20,000

SUBTOTALS:	348,436	495,382	410,430
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4. Waste Disposal

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Siting of Marine Diffusers Hudspeth, Robert T. 25 Oregon Sea Grant College Program	45,000	23,200	0
Depuration of Secondary Sewage Effluents in a Mangrove Ecosystem Corredor, Jorge E. 45 University of Puerto Rico Sea Grant College Program	21,900	60,358	10,000
Marine Disposal of Solidified/Stabilized Incinerator Ash: Field Studies Kinner, Nancy E. 45 UNH/UM Sea Grant Program	34,000	18,895	0
Scales of Variability of Sewage-Influenced Water Column Properties in the Southern California Bight McGowan, John A. 45 Univ of CA Sea Grant College Program	12,945	19,400	0

Physical Forcing, Particulate Fluxes, and Primary Productivity in the Area Around White's Point Sewage Outfall Jones, Burton 45 University of Southern California Sea Grant Program	59,642	56,478	0
The Flux of Trace Metals and Nutrients from the Seafloor in the Area Around the White's Point Sewage Outfall Berelson, William 45 University of Southern California Sea Grant Program	49,648	33,232	0
Temporal Evolution of Particulate Distributions in the Vicinity of an Ocean Outfall as Forced by Physical and Biological Processes Dickey, Tommy 45 University of Southern California Sea Grant Program	50,249	56,931	0
SUBTOTALS:	273,384	268,494	10,000

C. Exotic and Non-indigenous Introduced Species

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Trophic Relations of the Exotic Ruffe (Gymnocephalus cernuus) in the St. Louis River Estuary Newman, Raymond M. 06 University of Minnesota	22,240	8,990	0
The Role of Lake Erie Fishing and the Zebra Mussel in Ohio's North Coast Tourism Industry Hushak, Leroy J. 14 Ohio Sea Grant Program	13,689	8,320	0
Biological Invasions in Estuaries: Experimental Studies on the Introduction of Exotic Species by Seawater Ballast of Cargo Vessels Carlton, James T. 39 Oregon Sea Grant College Program	70,600	19,700	0

Interactions Between Newly-Introduced Zebra Mussel, Dreissena Polymorpha, and Pelagic Communities in Western Lake Erie Garton, David W. 40 Ohio Sea Grant Program	12,000	33,025	0
Introductions and Transfers of Molluscs: Risk Considerations and Implications Rosenfield, Aaron 74 Maryland Sea Grant College Program	0	0	18,000
Monitoring and Disseminating Information on the Spread of Zebra Mussel in the Upper Great lakes Miller, Allen H. 77 Wisconsin Sea Grant Institute	23,301	11,700	0
SUBTOTALS:	141,830	81,735	18,000

D. Global Change

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Late Holocene Sea-Level Fluctuations: Implications for Future Environmental Changes Along the Connecticut Coast Varekamp, J. C. 38 Connecticut Sea Grant College Program	10,700	17,400	0
Adaptive Response and Greenhouse-Induced Sea Level Rise Along the Mainland Shore of Long Island Sound Yohe, Gary W. 38 Connecticut Sea Grant College Program	25,200	21,700	0
Paleoclimatic Implications of Late Holocene Lake Level Fluctuations in the Lake Michigan Basin Stoermer, Eugene F. 39 Michigan Sea Grant College Program	17,404	43,170	0
Air Mass-Based Climate Change Scenarios for the Great Lakes Basin Brinkmann, Waltraud 46 Wisconsin Sea Grant Institute	42,109	28,132	0
Paralabrax as a Model for Predicting Effects of Ocean Warming Rosenblatt, Richard 47 Univ of CA Sea Grant College Program	30,605	55,921	0

Acoustic Global Ocean Warming Feasibility Experiment Spindel, Robert C. 48 Washington Sea Grant College Program	0	0	694,674
Feasibility of a New Method of Observing Ocean-Atmosphere Surface Fluxes Suomi, Verner E. 50 Wisconsin Sea Grant Institute	3,600	3,977	0
Global Environmental Change in the Great Lakes: Information for Educators and Advisory Services Fortner, Rosanne W. 70 Ohio Sea Grant Program	36,366	13,713	0
Workshop on Adaptive Options and Policy Implications of Sea Level Rise and Other Impacts of Global Change Cato, James C. 74 Florida Sea Grant College Program	0	0	54,000
SUBTOTALS:	165,984	184,013	748,674

E. Habitat Studies

1. Habitat Restoration

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Improving on Nature: Stress-tolerant Plants from the Marine and Estuarine Environments for Ecosystem Restoration and Agriculture Gallagher, John L. 05 Delaware Sea Grant College Program	20,925	58,354	0
Accelerating Salt Marsh Functional Development through Plant Genotype Selection: Intraspecific Diversity from Natural Populations and the Tissue Culture Laboratory Seliskar, Denise M. 05 Delaware Sea Grant College Program	0	0	70,000
Plant Tissue Culture Technology for Marine Angiosperms used in Habitat Restoration Bird, K. T. 05 Florida Sea Grant College Program	36,000	46,900	0

Use of Sediment Fences for Marsh Restoration and Creation Day, J. W. Jr 39 Louisiana Sea Grant College Program	0	4,383	40,000
Proposal for Funds to Publish Assessing Restored and Natural Coastal Wetlands: A Review with Examples from Southern California Zedler, Joy B. 40 Univ of CA Sea Grant College Program	0	0	16,216
Development of Estuarine Wetland Reference Sites Simenstads, C. A. 40 Washington Sea Grant College Program	61,000	2,045	0
Factors and Processes Controlling Eelgrass Habitat Persistence and Loss Frederick T. Short 40 UNH/UM Sea Grant Program	0	0	150,000
NOAA Habitat Restoration Symposium Leffler, Merrill 40 Maryland Sea Grant College Program	0	1,300	12,410
Accelerating the Development of Ecosystem Functions in Restored and Constructed Wetlands Broome, S. 40 University of North Carolina	0	0	74,897
Accelerating and Evaluating the Development of Restored and Created Seagrass Ecosystems Peterson, C. 40 University of North Carolina	0	0	40,000
An Ecosystem Comparison of Transplanted and Native Salt Marshes: The Chronological Development of Habitat Value for Fishery Species Webb, J. W. 40 Texas A&M University Sea Grant College Program	0	0	50,260
Accelerating and Evaluating the Development of Restored and Created Seagrass Ecosystems Bell, S. S. 40 Florida Sea Grant College Program	0	0	55,000

Macrobenthic Production in Natural and Restored Seagrass Beds Bell, S. S. 40 Florida Sea Grant College Program	30,600	16,300	0
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SUBTOTALS:	148,525	129,282	508,783
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2. Habitat Utilization

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Investigating Eelgrass-Blue Mussel Interactions for Their Application to the Aquaculture Industry Short. F. T. 03 UNH/UM Sea Grant Program	70,329	54,952	0
Recruitment Dynamics of the Blue Crab: Patterns, Processes, and Fisheries Applications Orth, Robert 06 Virginia Graduate Marine Science Consortium	58,687	105,705	0
The Advantages of Advection: Size-Structured Piscivory in Young-of-the-Year Bluefish, Pomatomus Saltatrix? Conover, David O. 06 New York Sea Grant Institute	34,471	35,459	0
Feeding, Growth and Survival of Juvenile Summer Flounder Targett, Timothy E. 06 Delaware Sea Grant College Program	4,100	22,920	0
Evaluating the Ecological Effects of Commonly Used Hard Clam (Mercenaria mercenaria) Harvesting Methods Fegley, Stephen R. 06 New Jersey Marine Sciences Consortium	17,431	33,869	0
Estuarine Dependence of Juvenile Chinook Salmon McNeil, William J. 06 Oregon Sea Grant College Program	30,900	24,300	0
Larval Red Drum (Sciaenops ocellatus) Transport in Non-Stratified Estuaries Holt, Scott A. 06 Texas A&M University Sea Grant College Program	40,124	21,641	0

Effect of Substrate Size on Spawning Site Selection by Lake Trout and on Overwinter Mortality of Eggs Krueger, Charles C. 07 New York Sea Grant Institute	42,782	20,058	0
Habitat Specific Recruitment Patterns in Estuarine Dependent Fishes Able, K. W. 07 New Jersey Marine Sciences Consortium	47,060	42,338	0
Factors and Processes Controlling Eelgrass Habitat Persistence and Loss Porter, David 08 Georgia Sea Grant College Program	0	0	25,000
Techniques to Enhance the Recruitment of Juvenile Fishes to the Adult habitat Brock, Richard E. 30 University of Hawaii Sea Grant College Program	10,282	13,420	0
The Influence of Inundation Regime on the Use of Gulf Coast Marshes by Fishes and Macrocrustaceans Rozas, L. P. 39 Louisiana Sea Grant College Program	0	7,475	14,999
Effects of Estuarine Habitat Modifications on Anadromous Salmonids Simenstads, C. A. 40 Washington Sea Grant College Program	0	0	100,000
Estuarine Slough Function and Restoration for Juvenile Salmon Residence and Foraging Simenstads, C. A. 40 Washington Sea Grant College Program	0	0	40,000
Ecology and Control of Larval Biting Midges Culicoides ssp. (Diptera: Ceratopogonidae) in the Salt-marsh Intertidal Zone Hagan, Daniel V. 42 Georgia Sea Grant College Program	57,000	21,257	0
SUBTOTALS:	413,166	403,394	179,999

3. Wetland Dynamics

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Soil Aeration and Salinity as Factors in the Competitive Ability of the Weedy Marsh Species Phragmites Australis Gallagher, John L. 39 Delaware Sea Grant College Program	6,975	29,670	0
Wastewater Wetlands: Pulsed Discharges to Protect Coastal Water Bodies Zedler, Joy 39 Univ of CA Sea Grant College Program	33,264	17,271	0
Tidal Processes, Morphology and Accretion, San Francisco Estuary Saltmarshes Stoddart, David R. 39 Univ of CA Sea Grant College Program	0	0	0
Intertidal Wetland Responses to a Changing Salinity Gradient Morris, James T. 40 South Carolina Sea Grant Consortium	60,000	36,700	0
The Degradation and Restoration of Wetland Vegetation: The Role of Saltwater Intrusion and Chronic Soil Waterlogging in Controlling Dieback and Restoration of Freshwater Marshes Mendelssohn, Irving 40 Louisiana Sea Grant College Program	39,721	22,782	0
Comparison of Marsh Vertical Accretion Rates Under Altered Hydrologic Conditions in Saline and Brackish Marshes of Coastal Louisiana Cahoon, Donald R. 40 Louisiana Sea Grant College Program	11,980	12,534	0
Assessment and Modeling of Flow and Transport Processes in Response to Changing Freshwater Discharge Kjerfve, Bjorn 46 South Carolina Sea Grant Consortium	50,000	31,600	0
SUBTOTALS:	201,940	150,557	0

F. Human Health

1. Pathogens and Toxic Pollutants

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Effects of Temperature Abuse on Survival, Growth and Virulence of Culturable and Non-culturable <i>V. vulnificus</i> in Oysters Oliver, J. 08 University of North Carolina	11,456	3,098	0
Detection of <i>Vibrio cholerae</i> 01 Cells in Shellfish Meat Homogenate and Meat Enrichment Broths by Dipstick ELISA Siebeling, Ronald J. 35 Louisiana Sea Grant College Program	45,609	24,883	0
Determination of Coplanar Polychlorinated Biphenyls in Fish Bush, Brian 45 New York Sea Grant Institute	11,250	8,715	0
Immune Response in Great Lakes Fish eaters Sowers, MaryFran 45 Michigan Sea Grant College Program	65,976	11,139	0
PCBs in the Sera of Great Lakes Fish Eaters: Differential Congener Toxicity and Patterns of Exposure Sonzogni, William C 45 Wisconsin Sea Grant Institute	24,278	23,556	0
Development of DNA Probes for Pathogenic Marine Bacteria of the Genus <i>Vibrio</i> Shizuya, Hiroaki 45 University of Southern California Sea Grant Program	39,573	36,781	0
Detection and Survivability of Some Pathogenic Enterobacteria in the Region of White's Point Outfall Iturriaga, Rodolfo 45 University of Southern California Sea Grant Program	35,509	41,340	0
SUBTOTALS:	233,651	149,512	0

2. Toxic Plankton

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Siderophore Production in the Red Tide Dinoflagellate Protogonyaulax tamarensis Boyer, Gregory L. 07 New York Sea Grant Institute	23,769	23,348	0
Shellfish Toxicity in Southern New England Anderson, Donald M. 07 Woods Hole Oceanographic Institution	35,000	25,673	0
Genetic Detection of Red Tide Dinoflagellates Triplett, Edward L. 35 Univ of CA Sea Grant College Program	25,521	11,910	0
SUBTOTALS:	84,290	60,931	0

G. Nutrient and Carbon Dynamics

1. Eutrophication

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
The Long-term Record of Community Structure in Chesapeake Bay Brush, Grace S. 07 Maryland Sea Grant College Program	21,000	17,900	0
Effects of Low Dissolved Oxygen Levels in the Chesapeake Bay on Behavior, Growth and Survival of Fish Larvae Breitburg, Denise 07 Maryland Sea Grant College Program	40,000	25,100	0
The Production and Fate of Phytoplankton Biomass in the Mesohaline Reach of Chesapeake Bay Conley, Daniel J. 07 Maryland Sea Grant College Program	0	32,430	78,894
Effects of Increased Nitrogen Loading in Coastal Lagoon Ecosystems: Denitrification as a Sink for Nitrogen Inputs Seitzinger, Sybil C. 40 New Jersey Marine Sciences Consortium	58,738	29,024	0

Effect of Increased Nutrient Loading on Seagrass Habitat: Importance of Nitrogen Removal via Denitrification Seitzinger, Sybil C. 40 New Jersey Marine Sciences Consortium	0	0	60,000
Influence of Phytoplankton Size and Species Composition on the Fate of Carbon and Hypoxia in the Mississippi River/Shelf Ecosystem Dortch, Quay 40 Louisiana Sea Grant College Program	0	17,430	40,274
Retrospective Analysis of Nutrient Enhanced Coastal Ocean Productivity in Sediments from the Louisiana Continental Shelf McKee, Brent A. 40 Louisiana Sea Grant College Program	0	8,465	27,500
Zooplankton Grazing and the Fate of Fixed Carbon in Louisiana Dagg, M.J. 40 Louisiana Sea Grant College Program	0	25,705	63,548
The Impacts of Hypoxia on Benthic Populations and Fisheries Resource Rabalais, Nancy N. 40 Louisiana Sea Grant College Program	0	7,428	24,906
Hypoxia Monitoring and Related Process Studies Rabalais, Nancy M. 40 Louisiana Sea Grant College Program	0	37,271	211,000
Large-Scale Synoptic Sampling of Surface Chlorophyll Pigments and Suspended Sediments Associated with the Mississippi River Plume and Louisiana Coastal Shelf Dagg, M. J. 40 Louisiana Sea Grant College Program	0	3,933	4,296
The Impacts of Hypoxia on Benthic Populations and Fisheries Resources Harper, Donald E. Jr 40 Texas A&M University Sea Grant College Program	0	0	25,094
Effect of Eutrophication on Seagrass Habitats of Coastal Lagoons Taylor, David 40 Rhode Island Sea Grant College Program	0	0	90,000

Continuing a Long-term Experimental Study of Water Quality and Productivity in Replicate Coastal Lagoon Ecosystems Receiving Various Levels of Nitrogen Enrichment Granger, Stephen 40 Rhode Island Sea Grant College Program	133,559	105,192	0
Nitrogen Budget for a Eutrophic Salt Pond: Relative Importance of Benthic Regeneration and Groundwater Inputs Howes, Brian L. 45 Woods Hole Oceanographic Institution	55,100	41,799	0
Hypoxia on the Louisiana Inner Shelf: A Modeling Study Wiseman, William J. 47 Louisiana Sea Grant College Program	0	7,791	100,000
SUBTOTALS:	308,397	359,468	725,512

2. Primary Production and Nutrient Cycling

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Effects of Crayfish Grazing on Benthic Algal Standing Crops, Turnover Rates and Productivity Tuchman, Nancy C. 05 Illinois-Indiana Sea Grant Program	13,598	27,504	0
Controls on Phosphorus Chemistry of an Urban Estuary, the Delaware Sharp, Jonathan H. 30 Delaware Sea Grant College Program	22,475	26,146	0
Isotopic Determination of Nitrogen Sources and Processing in Estuarine Environments Zieman, Joseph 39 Virginia Graduate Marine Science Consortium	63,369	30,461	0
Response and Stability of Eelgrass Communities Subject to Variable Water Quality Regimes: Mesocosm Studies Wetzel, Richard 39 Virginia Graduate Marine Science Consortium	37,230	18,372	0

Nutrient Retention and Transformations in Tidal Wetlands as Influenced by Subsurface Hydrology and Internal Biogeochemical Recycling Mechanisms Odum, William E. 39 Virginia Graduate Marine Science Consortium	42,091	21,046	0
Nutrient Limitation and Nutrient Enrichment Impact on Microbial Food Webs in the Upper Estuarine Transition Zone Webb, K. L. 39 Virginia Graduate Marine Science Consortium	21,152	19,347	0
The Role of Light Attenuation Processes and Plant Sediment Interaction in Determining Seagrass Survival Orth, Robert 39 Virginia Graduate Marine Science Consortium	0	0	90,000
Enhancement of Coastal Productivity Associated with Processes in the Atchafalaya Bay Ecosystem: V. Stable Isotope Ratios and Primary Production Dynamics in High Growth Zones Day, J. W. Jr 39 Louisiana Sea Grant College Program	40,904	24,853	0
Enhancement of Coastal Productivity Associated with Processes in the Atchafalaya Bay Ecosystem: VI. The Relative Influence of Denitrification and Sedimentation on the Availability of Nutrients to Primary Producers Twilley, Robert R. 39 Louisiana Sea Grant College Program	46,070	13,430	0
Scales of Spatial and Temporal Variation of Nutrients and Pigments Within the Outflow of the Mississippi River Plume Shelf Ecosystem Whitledge, Terry E. 40 Texas A&M University Sea Grant College Program	0	0	91,740
NECOP: Benthic Metabolism Measured with the GOMEX Benthic Lander Rowe, Gilbert 40 Texas A&M University Sea Grant College Program	0	0	60,000

Light and Zooplankton Effects on Phytoplankton Production in Lower Green Bay Sager, Paul E. 40 Wisconsin Sea Grant Institute	65,520	28,688	0
Transfer of Riverine Organic Carbon to the Marine Environment: Dynamics of Dissolved Organic Matter in Estuaries Ertel, John R. 40 Georgia Sea Grant College Program	71,762	24,290	0
Lignocellulose-derived Organic Matter in the Georgia Nearshore: Diagenetic Changes and Relative Importance as a Carbon Source Hodson, Robert E. 40 Georgia Sea Grant College Program	70,467	35,992	0
Regulation of Estuarine Phytoplankton Dynamics: The Interaction of Reduced Salinity, Enhanced N:P Ratios and Pulsed Nutrient Inputs Vargo, G. A. 40 Florida Sea Grant College Program	44,800	28,700	0
O/R Processes in the Pycnocline of Stratified Coastal Waters Sieburth, John 40 Rhode Island Sea Grant College Program	68,431	34,313	0
Nutrient Flow from Seagrass Detritus to Food Webs in the Laguna Madre Estuary Benner, Ronald 40 Texas A&M University Sea Grant College Program	40,108	20,054	0
Loss of Seagrass Habitat and Its Management in Texas Estuaries: Photosynthesis Production Along an Estuarine Gradient Dunton, Kenneth 40 Texas A&M University Sea Grant College Program	32,350	16,800	0
The Dry Deposition of Nitrate to Narragansett Bay and its Watershed Huebert Barry 45 Rhode Island Sea Grant College Program	56,952	53,078	0

Estuarine Nutrient Dynamics and Water Quality Interactions: Relation to River Flow, Land Use and Wetland Exchanges McKellar, H. N. 46 South Carolina Sea Grant Consortium	34,800	18,400	0
Nutrient Cycling/Food Web Interactions: A Model for Lake Ontario Flint, R. Warren 47 New York Sea Grant Institute	39,143	33,647	0
Net Organic Production and Material Transport in a Model Estuary Smith, Stephen V. 47 University of Hawaii Sea Grant College Program	0	24,788	20,000
Significance of Dissolved Organic Phosphorus Compounds to Plankton Communities Developing in Sandusky Bay Heath, Robert 47 Ohio Sea Grant Program	31,425	23,205	0
Primary Production and Vertical Flux of Organic Carbon from Mississippi River Plume and Adjacent Shelf Waters Lohrenz, Steven E. 47 Mississippi-Alabama Sea Grant College Program	0	17,135	139,022
A Retrospective Analysis of Nutrient Enhanced Coastal Ocean Productivity in Sediments from the Louisiana Continental Shelf Trefry, J. H. 48 Florida Sea Grant College Program	0	0	36,200
The Sedimentary Sink Term for Biogeochemical Mass Balances in Lake Michigan Klump, J. Val 48 Wisconsin Sea Grant Institute	33,029	32,083	0
SUBTOTALS:	875,676	572,332	436,962

3. Trophic Dynamics

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Population Dynamics of Hatchery-Reared Juveniles of the Soft-Shell Clam (<i>Mya arenaria</i> L) in Maine: A Series of Manipulative Experiments Beal, Brian F. 03 UNH/UM Sea Grant Program	35,000	10,092	0
Abundance and Comparative Trophic Ecology of Schooling Pelagic Fishes in the Chesapeake Bay Houde, Edward D. 06 Maryland Sea Grant College Program	69,500	31,300	0
Ecological Energetics of Rainbow Smelt in the Laurentian Great Lakes Stewart, Donald J. 06 New York Sea Grant Institute	16,655	21,523	0
Immunological Identification of Larval Fish Prey Ohman, Mark D. 06 Univ of CA Sea Grant College Program	14,875	31,331	0
Influence of Temperature on Survival During the "Critical Period" of Larval Development in Winter Flounder Durbin, Ann 06 Rhode Island Sea Grant College Program	50,169	31,860	0
Recent Growth and Nutrition in Larval Lobsters: Assessment Using RNA:DNA Ratios in Laboratory and Field Cobb, J Stanley 06 Rhode Island Sea Grant College Program	53,695	16,223	0
Natural Production of Migratory Salmonids in Lake Ontario Tributaries Ringler, Neil H. 07 New York Sea Grant Institute	32,303	33,306	0
Trophic Dynamics in Chesapeake Bay: Ecological and Biochemical Approaches to the Study of Flows of Carbon from Phytoplankton to Bacterioplankton Ducklow, Hugh W. 07 Maryland Sea Grant College Program	0	20,245	36,623

Herbivore Deterrence as an Indicator of the Pharmacological Activities of Tropical Seaweeds Paul, Valerie J. 13 University of Hawaii Sea Grant College Program	26,131	20,852	0
Bacterial Community Changes and Polysaccharide Biogeochemistry in Lake Superior Hicks, Randall E. 39 University of Minnesota	26,200	10,510	0
Atchafalaya Subprogram Synthesis Carney, Robert 39 Louisiana Sea Grant College Program	0	29,265	0
Enhancement of Coastal Productivity Associated with Processes in the Atchafalaya Bay Ecosystem. VII. Zooplankton Feeding and Egg Production in Fourleague Bay Dagg, Michael 39 Louisiana Sea Grant College Program	23,104	24,124	0
Enhancement of Coastal Productivity Associated with Processes in the Atchafalaya Bay Ecosystem: VIII. Ichthyoplankton Abundance Along a Recruitment Corridor and the Role of an Estuarine Frontal Zone as an Ephemeral Nursery Zone Shaw, Richard F. 39 Louisiana Sea Grant College Program	47,411	29,371	0
Effects of Increased Nitrogen Loading on Estuarine Primary Productivity and Microbial Nitrogen Cycling Boyer, J. 40 University of North Carolina	23,556	12,080	0
Control of Production in Eelgrass Communities: Balance Nutrient Enrichment and Food Web Interactions Burkholder, J. 40 University of North Carolina	81,536	5,650	0
Trophic Dynamics in Chesapeake Bay: Ecological and Biochemical Approaches to the Study of Flows of Carbon from Phytoplankton to Bacterioplankton Fletcher, Madilyn 40 Maryland Sea Grant College Program	55,000	27,100	0

Plankton Trophic Dynamics in Chesapeake Bay: Top Down vs Bottom Up Control of Copepod Populations Purcell, Jennifer E. 40 Maryland Sea Grant College Program	35,000	30,500	0
The Role of the Benthic Food Web in Carbon and Contaminant Transfer in Western Lake Superior Hershey, Anne E. 40 University of Minnesota	28,550	7,640	0
Balance Between Oxygen Production and Consumption in Estuarine Waters Geider, Richard J. 40 Delaware Sea Grant College Program	7,750	24,285	0
The Fate and Effects of Riverine (and Shelf-derived) Dissolved Organic Matter on Mississippi River Plume/Gulf Shelf Processes Benner, Ronald 40 Texas A&M University Sea Grant College Program	0	0	61,991
Plankton Size Spectrum Shifts and Food Web "Bottlenecks" Accompanying the Invasion of Lake Michigan by the Predatory Cladoceran, Bythotrephes Sandren, Craig D. 40 Wisconsin Sea Grant Institute	48,649	31,275	0
Primary Production Dynamics and Trophic Importance of Epiphytic Algae in Mississippi Seagrass Beds Sullivan, Michael 40 Mississippi-Alabama Sea Grant College Program	5,673	36,400	0
Causes and Consequences of Cladoceran Dynamics in Lake Michigan: Implications for Recruitment Success of Forage Fish Species Lehman, John T. 40 Michigan Sea Grant College Program	28,212	66,258	0
Year Class Strength of Rainbow Smelt and Lake Whitefish as Influenced by Interspecific Interactions and Climate Taylor, William W. 40 Michigan Sea Grant College Program	57,588	33,144	0

Effect of Microbial Predators on Lake Erie Blue-Green Algae in Laboratory Tanks and Outdoor Pool Ecosystems Burnham, Jeffrey C. 40 Ohio Sea Grant Program	10,000	5,100	0
Modeling Predator-Prey Linkages in Great Lakes Food Webs Kitchell, James F. 47 Wisconsin Sea Grant Institute	50,935	39,118	0
Stable Carbon and Nitrogen Isotope Budgets for Sediments in Green Bay Klump, J. Val 48 Wisconsin Sea Grant Institute	24,104	12,505	0
SUBTOTALS:	851,596	641,057	98,614

H. Toxics

1. Effects

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Behavior and Vocalizations of Transient Killer Whales Kelley, J. J. 07 Alaska Sea Grant College Program	32,300	10,800	0
Effects of Environmental Contaminants on Cell-Mediated Immune Mechanisms of the Oyster Anderson, Robert S. 08 Maryland Sea Grant College Program	26,000	30,398	0
Distribution of Heavy Metal-Resistant Bacterial, Their Mechanisms(s) of Resistance and Use of Biosensors (Genetic Fusions) To Determine Biologically Available Heavy Metals Nealson, Kenneth H. 44 Wisconsin Sea Grant Institute	29,919	28,431	0
Technical Book on Tributyltin: Editorial and Preproduction Services Cato, J. C. 44 Florida Sea Grant College Program	0	0	32,000
Quick Enzymatic Test for Contamination of Marine Resources by Toxic Organics Stegeman, John J. 45 Woods Hole Oceanographic Institution	31,200	20,645	0

Toxic Halogenated Aromatic Hydrocarbons in Lake Trout Gametes as a Factor in Fry Survival Peterson, Richard E. 45 Wisconsin Sea Grant Institute	49,680	47,631	0
Assessment of Sublethal Toxic Effects in Marine Organisms by NMR Spectroscopy Tjeerdema, Ronald S. 45 Univ of CA Sea Grant College Program	27,742	42,408	0
Relationship of Pollutants to the Onset of Disease in the Eastern Oyster, Crassostrea virginica Chu, Fu-Lin E. 45 Virginia Graduate Marine Science Consortium	0	0	72,409
Use of Fish and Oyster Cell Cultures to Study Toxic Effects of Chemical Pollutants of the Chesapeake Bay Faisal, M. 45 Virginia Graduate Marine Science Consortium	0	0	35,800

SUBTOTALS:	196,841	180,313	140,209
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2. Transport, Cycling and Fate

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Pollutant Chronologies in New York Harbor, Raritan Bay and Jamaica Bay Bopp, Richard F. 45 New Jersey Marine Sciences Consortium	0	0	100,000
Evaluation of Marine Microbial Chemoorganotrophs/Chemolithoautotrophs for Contributions to Benthic Habitat Dynamics and Biotechnological Applications Portier, Ralph J. 11 Louisiana Sea Grant College Program	15,001	14,769	0
Experimental Studies on the Response of Cohesive Sediments to Wave Motion Hunt, James R. 22 Univ of CA Sea Grant College Program	16,631	12,791	0

Coastal Turbidity Associated with Natural and Man-Induced Phenomena Hanes, Daniel M. 25 Florida Sea Grant College Program	40,000	20,500	0
Field Experiment Evaluation of the Effects of Beach Restoration on Stony Corals of Southeast Florida Goldberg, Walter 28 Florida Sea Grant College Program	40,000	24,600	0
Bed-Water Exchange of Toxic Organic Compounds Gschwend, Philip M. 39 MIT Sea Grant College Program	50,000	20,010	0
The Influence of Organic Matter Dynamics on the Cycling of Toxic Organic Contaminants in Chesapeake Bay Baker, Joel E. 40 Maryland Sea Grant College Program	37,900	11,300	0
Seasonal Changes in Particle Residence Times and Scavenging Rates in Massachusetts Bay Wallace, Gordon T. 40 MIT Sea Grant College Program	50,000	35,430	0
Accumulation Rates, Heavy Metal Pollution, and Processes of Sedimentation in Organic-Rich Muds Wells, J. 44 University of North Carolina	8,235	21,925	0
Assessment of the Atmospheric Deposition of Trace Metals to Western Long Island Sound Cochran, J. Kirk 44 New York Sea Grant Institute	23,515	17,549	0
Bioaccumulation and Toxicity of Lead and Silver in Estuarine Microzooplankton Levandowsky, Michael 44 New York Sea Grant Institute	29,989	74,221	0
The Transfer of Toxic Metals from Contaminated Sediment to the Blue Crab: An Integrated Field and Laboratory Study Levinton, Jeffrey S. 44 New York Sea Grant Institute	54,771	41,036	0

Toxic Metal Sources and Fates in the Delaware Estuary Church, Thomas M. 44 Delaware Sea Grant College Program	33,900	61,425	0
Pollutant Metal Removal and Release via Reactions with Sedimentary Pyrite Morse, John 44 Texas A&M University Sea Grant College Program	44,891	23,604	0
Volatilizing Toxic Chemicals in the Estuarine Environmental: Surface Gas Transfer Experiments in a Tilting Wind-Water Tunnel Jirka, Gerhard H. 45 New York Sea Grant Institute	41,597	41,483	0
Disposition and Metabolism of Polychlorinated Dibenzofurans in Fish Sikka, Harish C. 45 New York Sea Grant Institute	52,083	27,431	0
Extraction of PCBs and PAHs from Coastal Waters Using Block Copolymer Micelles Hatton, T. Alan 45 MIT Sea Grant College Program	50,000	19,866	0
Biodegradation of Polycyclic Aromatic Hydrocarbons in Sediments of the Grand Calumet River Konopka, Allan 45 Illinois-Indiana Sea Grant Program	27,000	27,000	0
The Role of Benthic Infauna and Fluctuating Oxygen Concentrations in the Flux of Toxic Trace Elements from Chesapeake Bay Sediments Riedel, Gerhard 45 Maryland Sea Grant College Program	0	0	72,384
Role of Plankton in Controlling the Partitioning and Transport of Hydrophobic Organic Contaminants in Chesapeake Bay Baker, Joel E. 45 Maryland Sea Grant College Program	0	0	114,644
Resuspension and Transport of Sediment Associated Toxics in the Northern Chesapeake Bay Sanford, Thomas 45 Maryland Sea Grant College Program	0	0	45,989

The Role of Plankton in Controlling the Partitioning and Transport of Hydrophobic Organic Contaminants: Zooplankton Feeding and Excretion McManus, George 45 Maryland Sea Grant College Program	0	0	37,241
Recent Chronology of the Atmospheric Deposition of PCB's, PAH's, Pesticides, and Metals to Western Long Island Sound and Environs Cochran, J. Kirk 45 New York Sea Grant Institute	0	37,762	104,798
Partitioning of Organic Contaminants Between Air, Water and Sediment in a Freshwater Estuary Andren, Anders W. 45 Wisconsin Sea Grant Institute	43,861	39,325	0
Phenolic Compounds in Seawater, Rates and Mechanisms of Biodegradation Carlucci, Angelo F. 45 Univ of CA Sea Grant College Program	0	0	0
Air/Water Partitioning and Mass Transfer Properties of Toxic Organic Chemicals Dickhut, Rebecca M. 45 Virginia Graduate Marine Science Consortium	0	0	55,867
Particle-Reactive Radionuclides as Analogues of Particle-Reactive Pollutants in the Chesapeake Bay Wong, George T. F. 45 Virginia Graduate Marine Science Consortium	0	0	89,533
Particle-reactive Pollutants in Southern Chesapeake Bay: Accumulation, Resuspension and Flux into the Bottom Swift, Donald J. P. 45 Virginia Graduate Marine Science Consortium	0	0	54,078
Dynamics of Sediment Resuspension: Bay-Stem Plains of the Lower Chesapeake Bay Wright, L. D. 45 Virginia Graduate Marine Science Consortium	0	0	78,223

Sunlight Induced Photochemistry in Lake Erie: Formation of Reactive Species Cooper, William J. 45 Ohio Sea Grant Program	0	53,751	0
Environmental Factors Affecting the Accumulation of Sediment-Sorbed Carcinogens into Great Lakes Foodchains Fisher, Susan W. 45 Ohio Sea Grant Program	30,031	40,140	0
A Sand Budget for Maine's Sandy Embayments: Calculation of Sand Volumes and Transport Paths in the Nearshore and Littoral Regions of Saco Bay and the Kennebec River Mouth Kelley, Joseph T. 46 UNH/UM Sea Grant Program	40,000	51,307	0
Mobile Mapping of the Resuspension Potential of Toxic Sediment in Lake Erie Libicki, Charles 46 Ohio Sea Grant Program	30,491	16,326	0
A Model to Assess Impacts of Nonpoint Source Pollution to Marine Ecosystems in Hawaii Dollar, Steven J. 47 University of Hawaii Sea Grant College Program	20,023	54,444	0
Patterns of Contaminant Flux in Great Lakes Food Webs Carpenter, Stephen R. 47 Wisconsin Sea Grant Institute	28,588	25,775	0
Fluxes and Residence Times of Organic Matter and Organic Contaminants in Large Lakes Eisenreich, Steven J 48 University of Minnesota	33,950	13,700	0
Role of Phytoplankton in Contaminant Fate in Lakes Swackhamer, Deborah 48 University of Minnesota	32,790	7,570	0
Sequencing Sediment Traps for Estimating the Flux of Organic Particles and Contaminants in Lake Superior Hicks, Randall E. 48 University of Minnesota	20,000	0	0

Suspended Sediment on the Louisiana Continental Shelf: Concentrations, Composition, and Transport Pathways Trefry, J. H. 48 Florida Sea Grant College Program	0	0	41,800
Rates and Mechanisms of Contaminant Uptake and Release by Suspended Sediments in Lake Michigan Armstrong, David E. 48 Wisconsin Sea Grant Institute	40,918	38,552	0
The Dynamics of Horizontal Sediment Transport and Focusing in Large Lakes Edgington, David N. 48 Wisconsin Sea Grant Institute	44,518	39,646	0
Molecular Properties and Fate of Organic Chemicals in Aquatic Environments Andren, Anders W. 48 Wisconsin Sea Grant Institute	38,674	34,151	0
Chesapeake Bay Environmental Effects Research: New Project Initiatives Richards, William L. 81 Virginia Graduate Marine Science Consortium	0	0	11,234
SUBTOTALS:	1,019,357	947,389	805,791
GRANT TOTAL	6,815,003	5,840,239	5,827,333

COASTAL PROCESSES

1. Coastal Sediment Transport

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Modeling Beach and Nearshore Profile Response Wood, William L. Illinois-Indiana Sea Grant Program	0	0	30,951
Experimental Studies on the Response of Cohesive Sediments to Wave Motion Hunt, James R. 22 Univ of CA Sea Grant College Program	16,631	12,791	0
Surf Beat and Cross-Shore Sediment Transport in Surf Zone on Natural Beaches Kobayashi, Nobuhisa 25 Delaware Sea Grant College Program	2,220	52,201	0
Interaction of waves and currents over a moveable bed Madsen, Ole S. 25 MIT Sea Grant College Program	50,000	35,232	0
Numerical Modelling of Shoreline Evolution Meadows, Guy A. 46 Michigan Sea Grant College Program	26,807	6,347	0
Illinois Lake Michigan Sand Deposits Shabica, Charles W. 46 Illinois-Indiana Sea Grant Program	0	0	7,900
Contemporary and Historical Eolian Sand Transport in a Coastal Dune Environment: South Shore, Lake Michigan, Indiana Olyphant, Gregory A. 46 Illinois-Indiana Sea Grant Program	0	0	30,000
A Sand Budget for Maine's Sandy Embayments: Calculation of Sand Volumes and Transport Paths in the Nearshore and Littoral Regions of Saco Bay and the Kennebec River Mouth Kelley, Joseph T. 46 UNH/UM Sea Grant Program	40,000	51,307	0

Suspended Sediment on the Louisiana Continental Shelf: Concentrations, Composition, and Transport Pathways Trefry, J. H. 48 Florida Sea Grant College Program	0	0	41,800
The Dynamics of Horizontal Sediment Transport and Focusing in Large Lakes Edgington, David N. 48 Wisconsin Sea Grant Institute	44,518	39,646	0
Formation and Maintenance of Shore-Oblique Sand Ridges: Hydrodynamics and Sediment Transport Trowbridge, John H. 50 Woods Hole Oceanographic Institution	42,800	19,810	0
SUBTOTALS:	222,976	217,334	110,651

1. Inlets and Estuaries

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Bedform Formation and Migration Rates in Tidal Channels, Kings Bay, Georgia and Florida – EMOGSA Phase III Development Program Aubrey, D. G. 39 Woods Hole Oceanographic Institution	0	0	160,000
Tidal Processes, Morphology and Accretion, San Francisco Estuary Saltmarshes Stoddart, David R. 39 Univ of CA Sea Grant College Program	0	0	0
Dynamics of Sediment Resuspension: Bay-Stem Plains of the Lower Chesapeake Bay Wright, L. D. 45 Virginia Graduate Marine Science Consortium	0	0	78,223
Physical Processes and Inlets and Effect on the Transport of Immature Fishes Miller, J. 46 University of North Carolina	47,078	2,300	0
Modeling Tidal Circulation and Transport in Central Puget sound Chu, Wen-sen 46 Washington Sea Grant College Program	31,700	20,800	0

An Analysis of the Hydrodynamic Regime in Delaware's Inland Bays Wong, Kuo-Chuin 46 Delaware Sea Grant College Program	3,100	23,111	0
Studies in Estuarine Dynamics Mellor, George L. 46 New Jersey Marine Sciences Consortium	0	0	90,400
Assessment and Modeling of Flow and Transport Processes in Response to Changing Freshwater Discharge Kjerfve, Bjorn 46 South Carolina Sea Grant Consortium	50,000	31,600	0
Internal Hydraulic Control of Buoyant Inflows to California Estuaries Largier, John L. 46 Univ of CA Sea Grant College Program	0	0	0
Predictive Methods for Salinity Intrusion in Galveston Bay Ward, G. H. Jr. 46 Texas A&M University Sea Grant College Program	31,548	18,597	0
SUBTOTALS:	163,426	96,408	328,623

1. Coastal Oceanography

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Directional Wave Data Collection and Analysis - Kings Bay Georgia Wang, H. 25 Florida Sea Grant College Program	0	0	25,000
Surf Beat Dynamics: Long Wave Excitations Through the Refraction, Diffraction, and Breaking of Wave Groups Liu, Philip L. F. 25 New York Sea Grant Institute	32,612	37,168	0
Numerical Modeling of Nearshore Hydrodynamics Svendsen, I. A. 25 Delaware Sea Grant College Program	6,510	48,963	0
Siting of Marine Diffusers Hudspeth, Robert T. 25 Oregon Sea Grant College Program	45,000	23,200	0

Southern California Waves: Model Verification and Utilization Guza, Robert T. 25 Univ of CA Sea Grant College Program	69,138	18,742	0
The Dynamics of Large-Scale Vortices in the Ocean and Their Impact on Offshore Ogilvie, T. E. 28 MIT Sea Grant College Program	50,000	12,000	0
Late Hologene Sea-Level Fluctuations: Implications for Future Environmental Changes Along the Connecticut Coast Varekamp, J. C. 38 Connecticut Sea Grant College Program	10,700	17,400	0
Adaptive Response and Greenhouse-Induced Sea Level Rise Along the Mainland Shore of Long Island Sound Yohe, Gary W. 38 Connecticut Sea Grant College Program	25,200	21,700	0
Paleoclimatic Implications of Late Holocene Lake Level Fluctuations in the Lake Michigan Basin Stoermer, Eugene F. 39 Michigan Sea Grant College Program	16,065	39,850	0
Paleoclimatic Implications of Late Holocene Lake Level Fluctuations in the Lake Michigan Basin Stoermer, Eugene F. 39 Michigan Sea Grant College Program	1,339	3,320	0
Satellite Estimation of Surface Flow Fields, Mesoscale Variability and River Plume Evolution on the Texas-Louisiana Shelf Kelly, Frank 40 Texas A&M University Sea Grant College Program	0	0	45,001
Evolution of Wave Spectra in Bays - Calculations of Wave Conditions in Bays Panchang, Vijaykuman 46 UNH/UM Sea Grant Program	37,731	9,445	0
Air Mass-Based Climate Change Scenarios for the Great Lakes Basin Brinkmann, Waltraud 46 Wisconsin Sea Grant Institute	42,109	28,132	0

Long Range Forecasting of the Michigan-Huron Lake Levels using the Integrated Global Volcanic Activity of Prior Years Handler, Paul 48 Illinois-Indiana Sea Grant Program	23,999	30,906	0
Acoustic Global Ocean Warming Feasibility Experiment Spindel, Robert C. 48 Washington Sea Grant College Program	0	0	694,674
Coastal Upwelling in Cape Bay Geyer, Wayne R. 50 Woods Hole Oceanographic Institution	40,000	44,518	0
Numerical Analysis of Tides, Mixing and Three-Dimensional Flow-Structure in the Gulf of Maine Werner, Francisco E. 50 UNH/UM Sea Grant Program	10,201	0	0
Workshop on Adaptive Options and Policy Implications of Sea Level Rise and Other Impacts of Global Change Cato, James C. 74 Florida Sea Grant College Program	0	0	54,000

SUBTOTALS:	410,604	335,344	818,675
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1. Coasts and Shore Protection

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Benefits of Protection from Damage Caused by Fluctuating Water Levels in the Western Basin: Evidence from the Market in Shoreline Property Randall, Alan 14 Ohio Sea Grant Program	30,338	23,216	0
Reliability Based LRFD Criteria of Anchored Bulkhead Sandford, Thomas 24 UNH/UM Sea Grant Program	39,000	16,194	0
Offshore Breakwaters: Waves and Currents Dalrymple, Robert A. 25 Delaware Sea Grant College Program	12,690	36,217	0

Beach Stabilization Using Drains Weisman, Richard N. 25 New Jersey Marine Sciences Consortium	30,105	14,832	0
A Rational Analysis and Design Procedure for Rubble Mound Coastal Structures McDougal, William G. 25 Oregon Sea Grant College Program	95,400	79,300	0
The Relation of Waves and Storm Surges: Its Effect on Extreme-Value Statistics for Coastal Design in the Great Lakes Green, Theodore 25 Wisconsin Sea Grant Institute	30,554	16,561	0
Enhancing the Underlying Physics of Beach Erosion Modeling Dally, William R. 25 Florida Sea Grant College Program	29,300	34,500	0
Coastal Turbidity Associated with Natural and Man-Induced Phenomena Hanes, Daniel M. 25 Florida Sea Grant College Program	40,000	20,500	0
Field Experiment Evaluation of the Effects of Beach Restoration on Stony Corals of Southeast Florida Goldberg, Walter 28 Florida Sea Grant College Program	40,000	24,600	0
Predicting Lake Superior Shoreline Erosion from Coastal Characteristics and Historical Trends Johnston, Carol A. 39 University of Minnesota	31,750	7,370	0
Geology and Stratigraphy of the Lake Michigan Shore and Its Influence on Erosion and Bluff Stability Larson, Grahame J. 39 Michigan Sea Grant College Program	35,528	19,864	0
Problems and Processes of Sea Cliff Erosion on the Oregon Coast Komar, Paul D. 39 Oregon Sea Grant College Program	77,200	32,900	0
Use of Sediment Fences for Marsh Restoration and Creation Day, J. W. Jr. 39 Louisiana Sea Grant College Program	0	4,383	40,000
SUBTOTALS:	491,865	330,437	40,000

1. Technology

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
A Multi-Sensor, Autonomous Underwater Vehicle Search System Blidberg, Richard D. 12 UNH/UM Sea Grant Program	0	0	550,000
A High Resolution Multi-Sensor Acoustic Imaging System for Autonomous Underwater Vehicles Blidberg, Richard D. 12 UNH/UM Sea Grant Program	0	0	500,000
Advanced Development of a 3-D Ultrasonic Imaging System Jaffe, Jules S. 28 Univ of CA Sea Grant College Program	31,304	3,000	0
Salinity Powered Distillation of Freshwater from Seawater Using Plastic Sheet Heat Exchangers Lowrey, Preston 28 Univ of CA Sea Grant College Program	19,833	10,063	0
Satellite Analyses for Fishery Oceanography in the Gulf of Mexico Vastano, A. C. 50 Texas A&M University Sea Grant College Program	54,472	30,000	0
SUBTOTALS:	105,609	43,063	1,050,000
GRANT TOTAL	1,394,480	1,022,586	2,347,949

Non-Living Resources

Following is a listing of Sea Grant's Non-Living Resources Division
technical staff, their subject area(s), and their phone number.
They can be reached at the following address:

**National Oceanic and Atmospheric Administration
National Sea Grant College Program
1335 East-West Highway
SSMC1, 5th Floor
Silver Spring, MD 20910**

Non-Living Resources301/427-2427

Marine Geological Resources - Dr. David B. Duane

Diving Physiology & Technical Development - Dr. David B. Duane

MARINE GEOLOGICAL RESOURCES

1. Hawaii

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Microbiology and Chemistry of Active Hydrothermal Vents on Loihi Seamount Karl, David M. 48 University of Hawaii Sea Grant College Program	20,779	23,426	0
An investigation of Alternate Economic Deposits Associated with Manganese Crusts Wiltshire, John C. 10 University of Hawaii Sea Grant College Program	9,914	10,800	0
Conversion of Marine Ferromanganese Crusts into Useful Electrical and Magnetic Materials Andermann, George 10 University of Hawaii Sea Grant College Program	9,706	24,912	0
Chemical and Isotopic Stratigraphy of Co-Rich Ferromanganese Crusts from the Hawaiian Archipelago McMurtry, Gary M. 09 University of Hawaii Sea Grant College Program	36,866	29,880	0
The Geology of Hydrothermal Systems on Loihi Submarine Volcano Malahoff, Alexander 09 University of Hawaii Sea Grant College Program	0	14,999	25,000
Stratigraphic History and Processes of Formation of Cobalt-Rich Manganese Crusts on Pacific Seamounts Malahoff, Alexander 09 University of Hawaii Sea Grant College Program	25,237	12,877	0
The Combined Use of Chemical and Biostratigraphy to Date Ferromanganese Crusts and Estimate their Growth Rates De Carlo, Eric H. 09 University of Hawaii Sea Grant College Program	22,258	12,773	0

Microbial Geochemistry of Cobalt-Rich Ferromanganese Crusts Cowen, James P. 09 University of Hawaii Sea Grant College Program	24,648	19,351	0
Stable Isotope Studies of the Co-Rich Ferromanganese Deposits of the Hawaiian Archipelago Yeh, Hsueh-Wen 09 University of Hawaii Sea Grant College Program	18,264	11,260	0
Geochemistry of Loihi Seamount Hydrothermal Vent Fields McMurtry, Gary M. 09 University of Hawaii Sea Grant College Program	25,118	15,000	0
SUBTOTALS:	192,790	175,278	25,000

2. Illinois/Indiana

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Long Range Forecasting of the Michigan-Huron Lake Levels using the Integrated Global Volcanic Activity of Prior Years Handler, Paul 48 Illinois-Indiana Sea Grant Program	23,999	30,906	0
SUBTOTALS:	23,999	30,906	0

3. Woods Hole Oceanographic Institution

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Johnston Atoll Ocean Science Study Lobel, Phillip S. 07 Woods Hole Oceanographic Institution	0	0	80,000
Estimating the Value of Marine Mining for Strategic Minerals Supply Broadus, James M. 14 Woods Hole Oceanographic Institution	30,900	30,424	0
International Marine Science Cooperation Program Ross, David A. 20 Woods Hole Oceanographic Institution	129,000	0	0

Formation and Maintenance of Shore-Oblique Sand Ridges: Hydrodynamics and Sediment Transport Trowbridge, John H. 50 Woods Hole Oceanographic Institution	42,800	19,810	0
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SUBTOTALS:	202,700	50,234	80,000
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4. Michigan

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Paleoclimatic Implications of Late Holocene Lake Level Fluctuations in the Lake Michigan Basin Stoermer, Eugene F. 39 Michigan Sea Grant College Program	17,404	43,170	0

SUBTOTALS:	17,404	43,170	0
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5. Mississippi/Alabama

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Continental Shelf Hardbottom Environments: Distribution, Classification and Biology Schroeder, William W. 40 Mississippi-Alabama Sea Grant College Program	34,749	41,453	0

SUBTOTALS:	34,749	41,453	0
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6. New Jersey

TITLE/INVES./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Development of an In Situ Instrument to Determine Groundwater-Surface Water Exchange in Shallow Aqueous Environments Carson, Bob 28 New Jersey Marine Sciences Consortium	5,000	2,125	0

SUBTOTALS:	5,000	2,125	0
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7. North Carolina

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Prediction of Management Effects on Pollutant Loading from Poorly Drained Soils Adjacent to Coastal Waters Gilliam, J. 48 University of North Carolina	52,104	4,000	0
SUBTOTALS:	52,104	4,000	0

8. Oregon

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
An Investigation of Sources, Geometries and Compositions of Potential Titanium- and zirconium-bearing Placer Deposits on the Continental Shelf Peterson, Curt D. 09 Oregon Sea Grant College Program	31,500	44,600	0
SUBTOTALS:	31,500	44,600	0

9. Texas

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Studies of Hydrocarbon Seep Communities on the Texas/Louisiana Continental Slope Brooks, James M. 40 Texas A&M University Sea Grant College Program	49,598	26,002	0
SUBTOTALS:	49,598	26,002	0

10. Washington

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Co-Variation in Hydrothermal Output and Earthquakes Activity: A Ridge Crest Time-Series Experiment Delaney, John R. 09 Washington Sea Grant College Program	83,400	43,400	0

A Proposal to Develop a Deep Ocean Rock Coring Drill Johnson, H. Paul 09 Washington Sea Grant College Program	53,100	13,900	0
Acoustic Global Ocean Warming Feasibility Experiment Spindel, Robert C. 48 Washington Sea Grant College Program	0	0	694,674

SUBTOTALS:	136,500	57,300	694,674
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11. Wisconsin

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Development of a Hydrostratigraphical Model for the Interaction of Ground Water with Lake Michigan in Southeastern Wisconsin Cherkauer, Douglas S. 39 Wisconsin Sea Grant Institute	44,898	31,552	0
The Sedimentary Sink Term for Biogeochemical Mass Balances in Lake Michigan Klump, J. Val 48 Wisconsin Sea Grant Institute	33,029	32,083	0
SUBTOTALS:	77,927	63,635	0
GRANT TOTAL	824,271	538,703	799,674

DIVING PHYSIOLOGY AND TECHNICAL DEVELOPMENT

TITLE/INVEST./INST.	FEDERAL FUNDS	MATCHING FUNDS	PASS THROUGH
Applied Physiology of Diving Lin, Yu-Chong 32 University of Hawaii Sea Grant College Program	31,300	62,451	0
Decompression Sickness: Pharmacological Control of Inert Gas Elimination Lundgren, Claes E.G. 32 New York Sea Grant Institute	56,971	48,575	0
Physiological Reactions to Deep Breath-Hold Diving in Humans Lundgren, Claes E. G. 32 New York Sea Grant Institute	0	19,278	32,186
Decompression and Diver Safety Lanphier, Edward H. 32 Wisconsin Sea Grant Institute	118,164	60,862	0
Factors Governing Stress Responses in Scuba Divers Margan, William P. 32 Wisconsin Sea Grant Institute	45,396	22,311	0
GRANT TOTAL:	251,831	213,477	32,186

