

# Water Pollution Control Research and Training Grants

## 1967 Grant Awards

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RESEARCH GRANTS  
DEMONSTRATION GRANTS  
TRAINING GRANTS  
RESEARCH FELLOWSHIPS

U.S. DEPARTMENT OF THE INTERIOR  
Federal Water Pollution Control Administration

# Water Pollution Control Research and Training Grants

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## 1967 Grant Awards

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RESEARCH GRANTS

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DEMONSTRATION GRANTS

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TRAINING GRANTS

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RESEARCH FELLOWSHIPS

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FEDERAL WATER POLLUTION CONTROL ADMINISTRATION  
Office of Research and Development  
Division of Grants Management  
Washington, D. C. 20242

## FOREWORD

**AUTHORITY:** Grants for research, demonstration, and training projects and for research fellowship awards are authorized in Section 5 of the Federal Water Pollution Control Act, Public Law 660, as amended.

**PURPOSES:** The purposes of these grants are to encourage, cooperate with, and assist appropriate agencies, institutions, and individuals in the conduct of studies and training relating to the causes, control and prevention of water pollution.

**APPLICATION:** To obtain details concerning the various awards and to request forms for the submission of applications, write to:

Division of Grants Management  
Office of Research and Development  
Federal Water Pollution Control Administration  
633 Indiana Avenue, N. W.  
Washington, D. C. 20242

**DISCRIMINATION PROHIBITED:** Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance." Therefore, the Division of Grants Management of the Federal Water Pollution Control Administration, like every program or activity receiving financial assistance from the Department of the Interior, must be operated in compliance with this law.

WATER POLLUTION CONTROL  
RESEARCH AND TRAINING GRANTS  
LIST OF 1967 AWARDS

C O N T E N T S

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FOREWORD .....	iii
SUMMARY OF AWARDS .....	I
RESEARCH GRANTS	
Summary of Grants by States .....	3
Complete List of Research Grants .....	4
DEMONSTRATION GRANTS	
Summary of Grants by States .....	37
Complete List of Demonstration Grants .....	38
TRAINING GRANTS	
Summary of Grants by States .....	51
Complete List of Training Grants .....	52
RESEARCH FELLOWSHIPS	
Summary of Awards by States .....	63
Complete List of Research Fellowships .....	64

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WATER POLLUTION CONTROL  
RESEARCH AND TRAINING GRANT PROGRAM

SUMMARY OF AWARDS

FISCAL YEAR 1967

Grants	Number States	Number Institutions	Grants Awarded	Amount Awarded
Research Grants	41	117	243	\$ 6,455,110
Demonstration Grants	32	64	70	3,028,252
Training Grants	37	58	71	2,908,842
Research Fellowships	24	46	103	622,411
ALL GRANTS	47	167	487	\$13,014,615

WATER POLLUTION CONTROL  
RESEARCH GRANTS FISCAL YEAR 1967  
SUMMARY OF GRANT AWARDS BY STATES

State	Institutions and Agencies	Number Awarded	Amount Awarded
Alabama	1	1	\$ 26,588
Alaska	1	2	54,750
Arizona	1	2	30,122
Arkansas	1	1	18,130
California	11	26	857,137
Colorado	2	3	69,189
Connecticut	1	2	27,110
District of Columbia	2	2	89,439
Florida	3	9	235,436
Georgia	2	3	50,114
Illinois	4	11	321,056
Indiana	3	4	60,056
Iowa	2	2	31,363
Kansas	4	6	99,061
Louisiana	1	0	7,870
Maine	2	3	52,286
Maryland	2	1	19,642
Massachusetts	4	11	309,723
Michigan	2	13	542,820
Minnesota	2	7	177,434
Mississippi	1	1	16,336
Missouri	2	4	94,556
Montana	2	4	99,415
New Hampshire	1	1	38,778
New Jersey	2	4	55,123
New Mexico	2	3	60,069
New York	11	29	650,738
North Carolina	3	2	106,444
Ohio	6	8	142,004
Oklahoma	2	4	101,618
Oregon	1	11	302,739
Pennsylvania	7	7	303,018
Rhode Island	1	3	64,622
South Carolina	2	4	129,218
Tennessee	2	3	69,449
Texas	8	14	263,520
Utah	2	3	32,769
Virginia	1	1	18,160
Washington	2	18	617,248
West Virginia	1	0	3,000
Wisconsin	2	5	120,453
Foreign	5	5	86,507
41 States	117	243	\$6,455,110

Active Research Grants 1967

43 States 4 Foreign Countries  
130 Institutions and Agencies  
341 Research Grants

WATER POLLUTION CONTROL  
RESEARCH GRANTS  
 FISCAL YEAR 1967

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>ALABAMA</u>			
<u>Auburn University</u> <u>Auburn</u>			
Funderburk, H. Hanly, Jr., Ph.D. Dept. of Botany and Plant Pathology	Effect of Herbicides on an Aquatic Environment	WP-00636-03S1 WP-00636-04	\$ 1,104 25,484
<u>University of Alabama</u> <u>University</u>			
Walters, James V., Ph.D. Dept. of Civil Engineering	Nematodes in Sewage and Sewage Treatment Facilities	WP-00055-03	_____*
<u>ALASKA</u>			
<u>University of Alaska</u> <u>College</u>			
Birkholz, Norman J., Ph.D. Dept. of Chemistry and Chemical Engineering	Organic Compounds in Alaska Permafrost Groundwaters	WP-01018-01	23,855
Dugdale, Richard C., Ph.D. Institute of Marine Science	Dynamics of the Nitrogen Cycle in Lakes	WP-00422-05	30,895
<u>ARIZONA</u>			
<u>University of Arizona</u> <u>Tucson</u>			
Bier, Milan, Ph.D. Dept. of Agricultural Biochemistry	Water Purification by Large Scale Electrophoresis	WP-00783-03	16,980
Croft, A. Russell, M.S. Dept. of Watershed Management	Rainstorm Debris Floods and Their Relation to the Public Health	WP-00953-01	_____*
McConnell, William J., Ph.D. Cooperative Fishery Unit	Limnological Effects of Organic Watershed Litter	WP-01015-01	13,142

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>ARIZONA</u>			
<u>University of Arizona</u> <u>Tucson</u>			
McIntosh, Thomas H., Ph.D. Dept. of Agricultural Chemistry and Soils	Biological Effects of Waste Water on Soil Surfaces	WP-00672-03	_____*
<u>ARKANSAS</u>			
<u>University of Arkansas</u> <u>Fayetteville</u>			
Testerman, Maurice K., Ph.D. Dept. of Electronics and Instrumentation	A Continuous Multiparameter Water Quality Monitor	WP-00044-06	18,130
<u>CALIFORNIA</u>			
<u>California Institute of Technology</u> <u>Pasadena</u>			
Brooks, Norman H., Ph.D. W. M. Keck Laboratory	Dispersion in Hydrologic and Coastal Environments	WP-01256-01	69,415
Brooks, Norman H., Ph.D. W. M. Keck Laboratory	Dynamics of Density- Stratified Ground Water Flow	WP-00680-03S1	6,543
McKee, Jack E., Ph.D. Dept. of Environmental Health	Mycological Phenomena in Sewage Spreading Basins	WP-00988-02	18,342
Morgan, James J., Ph.D. Division of Engineering and Applied Science	The Chemistry of Manganese in Natural Waters	WP-00941-02	40,465
Morgan, James J., Ph.D. Division of Engineering and Applied Science	Flocculation Behavior of Dilute Clay-Polymer Systems	WP-00942-02	_____*
North, Wheeler J., Ph.D. Division of Engineering and Applied Science	Marine Waste Disposal and Sea Urchin Ecology	WP-00697-03	20,574
<u>Long Beach State College Foundation</u> <u>Long Beach</u>			
Reish, Donald J., Ph.D. Dept. of Biology	Studies on Indicator Species of Marine Pollution	WP-00531-03	_____*

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>CALIFORNIA</u>			
<u>Los Angeles State College Foundation</u> <u>Los Angeles</u>			
Anderson, Dean A., Ph.D. Dept. of Microbiology and Public Health	Bacteriology of Biodegradable Surfactants	WP-00961-02	9,500
<u>Ludwig Engineering and Science</u> <u>Research Foundation</u> <u>Arcadia</u>			
Ludwig, Harvey F., M.S. Dept. of Sanitary Engineering	Floc Strength and Filterability of Pretreated Water	WP-00813-02	11,819
<u>Sacramento State College Foundation</u> <u>Sacramento</u>			
Kerri, Kenneth D., Ph.D. School of Engineering	Complementary-Competitive Aspects of Water Storage	WP-01008-02	24,347
<u>San Diego County</u> <u>San Diego</u>			
England, Beatrice L., A.B. San Diego Public Health Laboratory	Quantitative Virologic Studies of Sewage	WP-01198-01	28,115
<u>Sewage Treatment Laboratory</u> <u>Concord, City of</u>			
Aitken, Thomas W., B.S. Sewage Treatment Laboratory	Systematic Phycology of an Oxidation Pond	WP-00638-03	_____*
<u>Stanford University</u> <u>Stanford</u>			
Franzini, Joseph B., Ph.D. Dept. of Civil Engineering	Further Studies of Infiltration	WP-00246-06	27,578
Linsley, Ray K., B.S. Dept. of Civil Engineering	Effects of Water Pollution in San Francisco Bay	WP-01194-01	31,651
McCarty, Perry L., Sc.D. Dept. of Civil Engineering	Algae Degradation in Waterways	WP-01037-01	27,433
McCarty, Perry L., Sc.D. Dept. of Civil Engineering	Anaerobic Waste Treatment Kinetics	WP-00584-03	_____*
McCarty, Perry L., Sc.D. Dept. of Civil Engineering	Pesticide Distribution and Degradation in Waterways	WP-00715-03	20,694

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>CALIFORNIA</u>			
<u>University of California</u> <u>Berkeley</u>			
Fuerstenau, Douglas W., Sc.D. Dept. of Mineral Technology	Adsorption of Alkylaryl Surfactants on Polar Solids	WP-00692-03	26,505
Goren, Simon L. Dept. of Chemical Engineering	Preparation of Monodisperse Emulsions	WP-01068-01	24,785
Jenkins, David I., Ph.D. Division of Hydraulics and Sanitary Engineering	Transient Loading Effects in the Activated Sludge Process	WP-00787-03	32,974
Kaufman, Warren J. Division of Hydraulic Engineering	Orthokinetic Flocculation of Heterodispersed Systems	WP-00658-03	_____*
McGauhey, Percy H., M.S. Sanitary Engineering Research Laboratory	Economic Evaluation of Water Quality	WP-00597-04	24,059
McGauhey, Percy H., M.S. Sanitary Engineering Research Laboratory	Partial Demineralization of Saline Sewage by Ion Exchange	WP-00544-03	_____*
McGauhey, Percy H., M.S. Sanitary Engineering Research Laboratory	Soil Mantle as a Waste Water Treatment System	WP-00764-02S1 WP-00764-02S2	1,632 4,200
McGauhey, Percy H., M.S. Sanitary Engineering Research Laboratory	Travel of Synthetic Detergents With Percolating Water	WP-00207-06	_____*
Oswald, William J., Ph.D. Institute of Engineering Research	Kinetics of Algal Systems in Waste Treatment	WP-00975-01	40,144
Oswald, William J., Ph.D. Institute of Engineering Research	Nutritional and Disease Transmitting Potential of Sewage Grown Algae	WP-00026-05S1	3,000
Pearson, Erman A., Sc.D. Division of Hydraulic and Sanitary Engineering	Reaction Kinetics of Anaerobic Fermentation Systems	WP-00830-03	33,120
Selleck, Robert E., Ph.D. Division of Hydraulic and Sanitary Engineering	Estuarine Water Quality Interrelationships	WP-00649-02	_____*

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>CALIFORNIA</u>			
<u>University of California</u> <u>Davis</u>			
Biggar, James W., Ph.D. Dept. of Irrigation	Sorption and Movement of Polluted Water in Soil	WP-00081-06	24,872
Goldman, Charles R., Ph.D. Dept. of Zoology	Limnology of Lake Tahoe Emphasizing Water Quality	WP-01188-01	116,911
Smith, Joe M., Sc.D. Dept. of Chemical Engineering	Photochemical Reaction in Water and Air Pollution	WP-00952-02	17,043
Watt, Kenneth E. F., Ph.D. Dept. of Zoology	Effects of Cover in Aquatic Predator-Prey Systems	WP-00929-02	11,733
<u>University of California</u> <u>Los Angeles</u>			
Graves, Glenn W., Ph.D. Graduate School of Business	A Mathematical Model for Regional Treatment	WP-01210-01	33,069
<u>University of California</u> <u>Riverside</u>			
Bradford, Gordon R., M.S. Dept. of Soils and Plant Nutrition	Effect of Trace Elements on Reuse of Water	WP-00484-03	_____*
<u>University of the Pacific</u> <u>Stockton</u>			
Smith, Edmund H., Ph.D. Pacific Marine Station	Environmental Biology of Tomales Bay	WP-01061-01s1 WP-01061-02	4,750 31,230
<u>University of Southern California</u> <u>Los Angeles</u>			
Bandy, Orville L., Ph.D. Dept. of Geology	Benthonic Foraminifera Relationship to Ocean Pollution	WP-00158-06	_____*
Foxworthy, James E., Ph.D. Allan Hancock Foundation	Eddy Diffusion and Bacterial Reduction in Waste Fields	WP-00931-02	48,198
Tibby, Richard B., Ph.D. Allan Hancock Foundation	Ultraviolet Absorption in Coastal Waters	WP-00762-03	42,436

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>COLORADO</u>			
<u>Colorado State University</u> <u>Fort Collins</u>			
Hanan, Joe J., Ph.D. Dept. of Horticulture	Irrigation Regimes for Water Conservation	WP-00780-03	20,373
Morrison, S. M., Ph.D. Dept. of Pathology and Microbiology	Watershed Environment and Microbial Dynamics	WP-00679-03	_____*
Simons, Daryl B., Ph.D. Engineering Research Center	XIIth IAHR Congress and International Hydrologic Symposium	WP-01123-01	25,000
Ward, John C., Ph.D. Dept. of Civil Engineering	Turbulent Flow in Porous Media	WP-00914-01	_____*
<u>University of Colorado</u> <u>Boulder</u>			
West, Ronald E., Ph.D. Dept. of Chemical Engineering	The Effect of Porous Structure on Carbon Activation	WP-00853-03	23,816
<u>CONNECTICUT</u>			
<u>University of Connecticut</u> <u>Storrs</u>			
Collins, Ralph P., Ph.D. Dept. of Botany	Study of Microorganisms Inducing Tastes and Odors in Water	WP-00005-06	17,780
Trainor, Francis R., Ph.D. Dept. of Botany	A Study of <u>Scenedesmus</u> Species in Culture	WP-00850-03	9,330
<u>DISTRICT OF COLUMBIA</u>			
<u>Individual</u>			
Levine, Benjamin S., Ph.D. Washington	U.S.S.R. Literature on Water Supply and Pollution Control	WP-00305-07S1 WP-00305-08	1,500 20,619
Water Pollution Control Federation Washington			
Eckenfelder, W. W., M. S. Chairman, Finance Committee	3rd International Conference on Water Pollution Research	WP-00945-01	_____*
Fuhrman, Ralph E., D. Eng. Executive Secretary	Research Supplement - Journal Water Pollution Control Federation	WP-01125-01A1	67,320

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>FLORIDA</u>			
<u>Florida State Board of Health</u> <u>Jacksonville</u>			
Patterson, Richard S., Ph.D. Midge Research Laboratory	Causes and Relief of Hypereutrophication of Lakes	WP-00216-06	_____*
<u>Lackey, James B., Ph.D.</u> <u>Individual</u>	Taxonomy and Ecology of Inshore Marine Microbiota	WP-00901-03	12,329
<u>University of Florida</u> <u>Gainesville</u>			
Calaway, Wilson T., B.S. Dept. of Entomology	Nematodes in Sewage Treatment and Their Significance	WP-00508-05	33,872
Nordlie, Frank G., Ph.D. Dept. of Zoology	Chemical and Biological Dynamics in Two Solution Lakes	WP-00530-03	_____*
Putnam, Hugh D., Ph.D. Dept. of Civil Engineering	Primary Production and Decomposition in Estuarine Water	WP-00678-03	22,634
Pyatt, Edwin E., Ph.D. Dept. of Civil Engineering	A Model for Quantifying Flow Augmentation Benefits	WP-01050-01	34,587
Singley, John E., Ph.D. Dept. of Bioenvironmental Engineering	Stoichiometry and Mechanisms of Coagulation	WP-01261-01	9,200
Smith, Paul H., Ph.D. Dept. of Bacteriology	Studies on the Methanogenic Bacteria in Sludge	WP-00198-07	27,782
Thornton, Edward B., Sc.D. Coastal Engineering Laboratory	Transversal Drifts in Bottom Profile	WP-00889-02	26,098
<u>University of Miami</u> <u>Coral Gables</u>			
Greenfield, Leonard J. Institute of Marine Science	Contribution of Microbial Calcification to Sediments	WP-00902-02	_____*
Idyll, C. P., Ph.D. Institute of Marine Science	Estuarine Ecology in Relation to Water Use	WP-00400-03	_____*
Moore, Hilary B., Ph.D. Institute of Marine Science	Biology of the Infauna Tropical Soft Bottom Area	WP-00573-04 WP-00573-04S1	36,159 3,563
Wood, Edward J. F., Sc.D. Institute of Marine Science	Periphyton of the Everglades; an Unpolluted System	WP-00709-03	29,212

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>GEORGIA</u>			
<u>Georgia Institute of Technology</u> <u>Atlanta</u>			
Carstens, Marion R., Ph.D. Hydraulics Laboratory	Diffusivity of Particles in a Turbulent Field	WP-00912-02	12,374
Gates, William E., Ph.D. School of Civil Engineering	Relative Merits of Activated Sludge Design Models	WP-01133-01	30,642
Ingols, Robert S., Ph.D. Engineering Experiment Station	Biodegradation of Halogenated Phenolics	WP-00188-06	_____*
O'Melia, Charles R., Ph.D. Engineering Science Laboratory	The Role of Zeta Potential in Sand Filtration	WP-00382-04	_____*
<u>Georgia State College</u> <u>Atlanta</u>			
Singley, John E. Dept. of Chemistry	Stoichiometry and Mechanisms of Coagulation	WP-00717-03	7,098
<u>ILLINOIS</u>			
<u>Eastern Illinois University</u> <u>Charleston</u>			
Durham, Leonard, Ph.D. Dept. of Zoology	Biological Survey of Streams of Coles County, Illinois	WP-01114-01	20,080
Durham, Leonard, Ph.D. Dept. of Zoology	Recovery of a Stream System from Cyanide Poisoning	WP-00792-02	_____*
Whitley, L. Stephen, Ph.D. Dept. of Zoology	The Systematics of the Tubificids of Illinois	WP-00937-02	11,931
<u>Illinois Institute of Technology</u> <u>Chicago</u>			
Grieves, Robert B., Ph.D. Dept. of Civil Engineering	Foam Separation Flotation of Colloid Organic Systems	WP-00702-03	34,512
Kintner, Robert C., Ph.D. Dept. of Chemical Engineering	Coalescence of Drops in Fibrous Beds	WP-00366-04	_____*
Kintner, Robert C., Ph.D. Dept. of Chemical Engineering	Effects of Surfactants on Fibrous Bed Coalescing	WP-01021-01	28,972
Martell, Arthur E., Ph.D. Dept. of Chemistry	Permanganate Oxidation of Phenols and Aromatic Amines	WP-00744-03	9,803

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>ILLINOIS</u>			
<u>Northwestern University</u> <u>Evanston</u>			
Pipes, Wesley O., Ph.D. Dept. of Civil Engineering	Ecology of Sphaerotilus in Activated Sludge	WP-00588-03	44,027
<u>University of Illinois</u> <u>Urbana</u>			
Austin, John H., Ph.D. Dept. of Civil Engineering	Oxygen Relationships in Small Streams	WP-01020-01	57,024
Dick, Richard I., Ph.D. Dept. of Civil Engineering	Mechanisms of Sludge Thickening	WP-01011-01	33,308
Engelbrecht, Richard S., Sc.D. Dept. of Civil Engineering	Contact Removal of Organic Matter by Microorganisms	WP-00640-03	_____*
Engelbrecht, Richard S., Sc.D. Dept. of Civil Engineering	Factors Influencing Free- Living Nematodes in Water	WP-00047-06	46,298
Evans, Ralph L. Illinois State Water Survey	Effect of Coarse Filter Media on Artificial Recharge	WP-00447-03	_____*
Ewing, Ben B., Ph.D. Dept. of Civil Engineering	Organo-Clay Absorptive Reaction and Water Coagulation	WP-00801-02	_____*
Larson, Thurston E., Ph.D. Illinois State Water Survey	Chromatographic Analysis for Organic Acids in Water	WP-00270-06	_____*
Larson, Thurston E., Ph.D. Illinois State Water Survey	Corrosion and Tuberculation in Distribution Systems	WP-00132-11	15,215
McPherson, Murray B. Dept. of Civil Engineering	Criteria for Analysis of Water Distribution Systems	WP-00526-02	_____*
Quinn, John A., Ph.D. Dept. of Chemistry and Chemical Engineering	Mass Transfer Through Interfaces	WP-00601-04	19,386
Speece, Richard E., Ph.D. Dept. of Civil Engineering	Controlling Factors in Methane Fermentation	WP-00394-04S1	500
<u>INDIANA</u>			
<u>DePauw University</u> <u>Greencastle</u>			
Gannon, James R., Ph.D. Dept. of Zoology	The Effect of Inorganic Sediment on Stream Ecosystems	WP-01044-01	7,217

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>INDIANA</u>			
<u>Purdue Research Foundation</u> <u>West Lafayette</u>			
Greenkorn, Robert A., Ph.D. School of Chemical Engineering	Dispersion During Flow in Heterogeneous Porous Media	WP-01048-01	21,841
Kirsch, Edwin J., Ph.D. Dept. of Sanitary Engineering	Microbial Interactions in Waste Treatment Systems	WP-00760-03	20,238
<u>Purdue University</u> <u>Lafayette</u>			
Bloodgood, Don E. Dept. of Civil Engineering	Foreign Engineers and Scientists to Purdue Industrial Waste Conference	WP-00861-02	10,760
<u>IOWA</u>			
<u>Iowa State University</u> <u>Ames</u>			
Dodd, John D., Ph.D. Dept. of Botany and Plant Pathology	Ecology of Diatoms in Hardwater Habitats	WP-00221-07	8,844
Kirkham, Don, Ph.D. Dept. of Agronomy and Physics	Movement of Water from Waste Recharge Installations	WP-00070-05	_____*
Morgan, Paul E., M.S. Dept. of Civil Engineering	Design Requirements for Municipal Diatomite Filters	WP-00196-07	22,519
<u>University of Iowa</u> <u>Iowa City</u>			
McDonald, Donald B., Ph.D. Dept. of Civil Engineering	Factors Affecting Actinomycete (Fungi) Populations in Water	WP-00740-02	_____*
Smith, H. Sidwell, Ph.D. Dept. of Civil Engineering	Oxygen Use Rate in Activated Sludge Systems	WP-00695-02	_____*
<u>KANSAS</u>			
<u>Kansas State Teachers College</u> <u>Emporia</u>			
Prophet, Carl W., Ph.D. Dept. of Biology	Limnology of the John Redmond Reservoir, Kansas	WP-00615-04	14,960

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>KANSAS</u>			
<u>Kansas State University</u> <u>Manhattan</u>			
Fan, Liang-Tseng, Ph.D. Dept. of Chemical Engineering	Optimal Design of Waste Treatment Systems	WP-01141-01	30,587
Lambert, Jack L., Ph.D. Dept. of Chemistry	Determination of Ammonia	WP-00235-06	5,831
Lambert, Jack L., Ph.D. Dept. of Chemistry	Ligand Exchange Reagents	WP-00326-06	10,074
<u>University of Kansas</u> <u>Center for Research, Inc.</u> <u>Lawrence</u>			
Loehr, Raymond C., Ph.D. Dept. of Civil Engineering	Aerobic Microbial Degradation of Lipids	WP-00341-05	16,780
Pfeffer, John T., Ph.D. Dept. of Civil Engineering	Trace Element Needs of Filamentous Microorganisms	WP-00646-03	_____*
<u>University of Kansas</u> <u>Lawrence</u>			
O'Brien, Walter J., Sc.D. Environmental Health Laboratory	Oxygen Consumption in Continuous Biological Culture	WP-01023-01	20,829
<u>KENTUCKY</u>			
<u>Kentucky Research Foundation</u> <u>University of Kentucky</u> <u>Lexington</u>			
Lauderdale, Robert A., Ph.D. Dept. of Civil Engineering	Removal of Pesticides from Water	WP-00467-02	_____*
<u>LOUISIANA</u>			
<u>Louisiana State University</u> <u>Baton Rouge</u>			
Colmer, Arthur R., Ph.D. Dept. of Bacteriology	Autotrophic Iron Oxidizers from Acid Waste Waters	WP-00549-03	_____*
West, Philip W., Ph.D. Dept. of Chemistry	Sampling and Determining Traces of Silver in Waters	WP-00788-02S1 WP-00788-02S2	3,540 4,330

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MAINE</u>			
<u>Department of Inland Fisheries and Game Augusta</u>			
Everhart, W. Harry, Ph.D. Dept. of Zoology	Effects of Chemical Variations in Aquatic Environments	WP-01145-01	12,761***
Everhart, W. Harry, Ph.D. Dept. of Zoology	Evolution of Allopatric Populations	WP-00888-02	2,233
<u>University of Maine Orono</u>			
Sproul, Otis J., Sc.D. Dept. of Civil Engineering	Effects of Chemical Ions on Virus Inactivation	WP-00387-04	35,169
Zieminski, Stefan A., D.Sc. Dept. of Chemical Engineering	Use of Chemical Additives to Improve Aeration Rates	WP-00562-04	14,884
<u>MARYLAND</u>			
<u>The Johns Hopkins University Baltimore</u>			
Geyer, John C., Ph.D. Dept. of Sanitary Engineering and Water Resources	Ground Water Storage Project	WP-00444-04S1	3,318
Renn, Charles E., Ph.D. Dept. of Environmental Science	Reducing Secondary Effluent Phosphorus Concentration	WP-00099-05	_____*
<u>University of Maryland College Park</u>			
Cookson, John T., Jr., Ph.D. Dept. of Civil Engineering	Virus Removal in Packed Beds by Mass Transfer	WP-00981-02	16,324
Marchello, Joseph M., Ph.D. Dept. of Civil Engineering	Role of Ripples and Molecular Films on Mass Transfer	WP-00323-05	_____*
<u>MASSACHUSETTS</u>			
<u>Boston University Boston</u>			
Jones, Galen E., Ph.D. Dept. of Biology	Effect of Organic Substances from Sea on Bacteria	WP-00650-03	_____*

\*Active 1967 - Supported by funds awarded in previous years

\*\*\* Subsequently Withdrawn

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MASSACHUSETTS</u>			
<u>Harvard University</u> <u>Cambridge</u>			
Dorfman, Robert, Ph.D. Dept. of Economics	The Economics of Water Supply and Quality	WP-00919-02	30,054
Mitchell, Ralph, Ph.D. Dept. of Water Resources and Sanitary Engineering	Degradation of Sewage and Soil Microorganisms	WP-00967-01	18,306
Stumm, Werner, Ph.D. Division of Engineering and Applied Physics	Chemical Aspects of Coagulation	WP-00098-06	19,379
Stumm, Werner, Ph.D. Division of Engineering and Applied Physics	Inhibition and Repression in Substrate Utilization	WP-00621-03A1	15,619
Stumm, Werner, Ph.D. Division of Engineering and Applied Physics	Modes of Corrosion Inhibition in Natural Waters	WP-00043-05	_____*
Stumm, Werner, Ph.D. Division of Engineering and Applied Physics	Oxygenation of Ferrous Iron in Natural Waters	WP-00013-07	_____*
Stumm, Werner, Ph.D. Division of Engineering and Applied Physics	Symposium on Concepts in Water Analysis	WP-00899-01	_____*
Thomas, Harold A., Jr., Sc.D. Dept. of Sanitary Engineering	Operations Research in Water Quality Management	WP-00111-05	83,173
Thomas, Harold A., Jr., Sc.D. Dept. of Sanitary Engineering	Transport and Fate of Pollutants in Soils	WP-00626-03	45,485
<u>Massachusetts Institute of Technology</u> <u>Cambridge</u>			
Harleman, Donald R., Sc.D. Dept. of Civil Engineering	Movement and Mixing of Water Injected into Aquifers	WP-01039-01	28,241
Harleman, Donald R., Sc.D. Dept. of Civil Engineering	Pollutants in Heterogeneous and Anisotropic Aquifers	WP-00711-02	_____*
McLaughlin, Ronald T., Ph.D. Dept. of Civil Engineering	Optimal Design of Sewer and Drainage Systems	WP-00812-02	_____*

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MASSACHUSETTS</u>			
<u>Northeastern University</u> <u>Boston</u>			
Goodman, Alvin S., Ph.D. College of Engineering	Data Collection Economics for Water Pollution Studies	WP-01090-01	14,148
Karger, Barry L., Ph.D. Dept. of Chemistry	Studies in Foam Separation and Related Techniques	WP-01129-01	16,906
<u>University of Massachusetts</u> <u>Amherst</u>			
Adrian, Donald D., Ph.D. Dept. of Civil Engineering	Source Control of Water Treatment Waste Solids	WP-01239-01	29,170
Cole, Charles F., Ph.D. Dept. of Forestry and Wildlife Management	Pesticide Residue Effects on Larval Marine Fishes	WP-01204-01	9,242
<u>MICHIGAN</u>			
<u>Michigan State University</u> <u>East Lansing</u>			
Ball, Robert C., Ph.D. Dept. of Fisheries and Wildlife	Serum Stress Patterns as Related to Stream Ecology	WP-00369-03	_____*
Fromm, Paul O., Ph.D. Dept. of Physiology	Toxic Action of Soluble Pollutants on Freshwater Fish	WP-00807-07	11,694
Knight, Allen W., Ph.D. W. K. Kellogg Biological Station	The Biology and Physiology of Aquatic Insects	WP-01178-01	33,388
<u>University of Michigan</u> <u>Ann Arbor</u>			
Ayers, John C., Ph.D. Great Lakes Research Division	A Coherent-Area Study of Southern Lake Michigan	WP-00311-04	268,370
Borchardt, J. A., Ph.D. Dept. of Civil Engineering	Organic Decomposition at Poised O-R Potential Levels	WP-00333-05	64,748
Borchardt, J. A., Ph.D. Dept. of Civil Engineering	Sand Filtration of Discrete Suspensions	WP-00329-05	1,557
Borchardt, J. A., Ph.D. Dept. of Civil Engineering	The Use of Algae in the Treatment of Sewage Effluents	WP-00155-08	_____*
Brater, Ernest F. Dept. of Civil Engineering	Rainfall-Runoff Relations on Urban and Rural Areas	WP-00834-03	13,044

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MICHIGAN</u>			
<u>University of Michigan</u> <u>Ann Arbor</u>			
Deininger, Rolf A. Dept. of Environmental Health	Investigation of Pumped Storage for Flow Augmentation	WP-00689-03	_____*
Gannon, John J. Dept. of Environmental Health	Biological Extraction and Accumulation in Streams	WP-00091-05	_____*
Mancy, Khalil H., Ph.D. School of Public Health	Oxygen Determination in Natural Waters and Wastes	WP-00886-02	17,196
Noble, Vincent E., Ph.D. Great Lakes Research Division	Vertical Current Structure in the Great Lakes	WP-00794-01	_____*
Noble, Vincent E., Ph.D. Great Lakes Research Division	Vertical Current Structure in the Great Lakes	WP-01067-01	22,908
Schultz, Jerome S., Ph.D. Dept. of Chemical and Metallurgical Engineering	Electrical Stimulation of Microbial Waste Treatment	WP-01257-01	43,464
Stoermer, Eugene F., Ph.D. Great Lakes Research Division	A Detailed Study of Lake Michigan Plankton Diatoms	WP-01005-01	25,483
Weber, Walter J., Jr., Ph.D. Dept. of Civil Engineering	Adsorption from Aqueous Solution	WP-00706-03	22,140
Weber, Walter J., Jr., Ph.D. Dept. of Civil Engineering	Interactions of Silica with Iron and Aluminum	WP-00674-02	15,828
Weber, Walter J., Jr., Ph.D. Dept. of Civil Engineering	Research Symposium on Adsorption from Aqueous Solution	WP-01132-01	3,000
<u>MINNESOTA</u>			
<u>University of Minnesota</u> <u>Minneapolis</u>			
Anderson, Alvin G. St. Anthony Falls Hydraulic Laboratory	Flow Conditions in Soils and Filters	WP-00796-01	_____*
Johnson, Walter K., Ph.D. Dept. of Civil Engineering	Nitrification and Denitrification of Waste Water	WP-01028-01	34,789
Olson, Theodore A., Ph.D. School of Public Health	Benthonic Invertebrates as an Index of Water Quality	WP-00320-05	28,547
Olson, Theodore A., Ph.D. School of Public Health	Lake Superior Periphyton in Relation to Water Quality	WP-00828-03	36,909

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MINNESOTA</u>			
<u>University of Minnesota</u> <u>Minneapolis</u>			
Shapiro, Joseph, Ph.D. Dept. of Geology and Geophysics	Inorganic-Organic Interactions in Natural Waters	WP-00771-03	31,728
Silberman, Edward, M.S. St. Anthony Falls Hydraulic Laboratory	The Role of Mixing in Maintaining Stratified Flow	WP-00913-02	18,705
Smith, Lloyd L., Jr., Ph.D. Dept. of Entomology, Wildlife and Fisheries	Effect of Paper Fiber Wastes on Fish Eggs and Juveniles	WP-00223-07	12,580
		WP-00223-07S1	6,866
<u>Winona State College</u> <u>Winona</u>			
Fremling, Calvin R., Ph.D. Dept. of Biology	Mayfly Distribution as a Water Quality Index	WP-00987-02	7,310
<u>MISSISSIPPI</u>			
<u>Gulf Coast Research Laboratory</u> <u>Ocean Springs</u>			
Abbott, Walter, Ph.D. Marine Biology	Nutrient Assimilation Rates - Field Studies	WP-01030-01	16,336
<u>MISSOURI</u>			
<u>Southwest Missouri State College</u> <u>Springfield</u>			
Irgens, Roar Leif Dept. of Science	Microbiology of Sludge: DNA Analyses and N <sub>2</sub> Removal	WP-01110-01	19,120
<u>University of Missouri</u> <u>Columbia</u>			
Campbell, Robert S., Ph.D. Dept. of Zoology	Recovery from Acid Pollution in Four Strip Mine Lakes	WP-00379-05	32,745
Enns, Wilbur R., Ph.D. Dept. of Entomology	Insects Associated with Midwestern Oxidation Lagoons	WP-00718-03	15,886
Smith, George E., Ph.D. Dept. of Soils	Nitrates in Water Supplies	WP-00533-04	26,805

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MISSOURI</u>			
<u>Washington University</u> <u>St. Louis</u>			
Ryckman, D. W. Dept. of Civil and Environmental Engineering	Pesticide Detection and Bioassay Response in Water	WP-00946-01	_____*
Skrinde, Rolf T., Ph.D. Dept. of Environmental and Sanitary Engineering	Chemical Oxidation of Trace Organics in Water	WP-00346-03	_____*
<u>MONTANA</u>			
<u>Montana State University</u> <u>Bozeman</u>			
Berg, Lloyd, Ph.D. Dept. of Chemical Engineering	Terpenes from Sulfate Pulp Mill Waste Liquor	WP-00510-05	17,680
Brown, C. J. D., Ph.D. Dept. of Zoology and Entomology	Effects of Pollutants on Fish Blood Serum Patterns	WP-00438-02	_____*
Wright, John C., Ph.D. Dept. of Botany and Microbiology	The Hydrobiology of the Madison River and Its Headwaters	WP-00125-05	29,080
Wright, John C., Ph.D. Dept. of Botany and Microbiology	The Limnology of Yellowtail Reservoir and the Big Horn River	WP-01172-01	37,358
<u>University of Montana</u> <u>Missoula</u>			
Nakamura, Mitsuru, Ph.D. Dept. of Microbiology	Detection and Significance of Water Pollution by Animal Feces	WP-00824-02	15,297
<u>NEW HAMPSHIRE</u>			
<u>University of New Hampshire</u> <u>Durham</u>			
Slanetz, Lawrence W., Ph.D. Dept. of Microbiology	Enteric Bacteria and Viruses in Sewage, Water and Shellfish	WP-00009-11	38,778
<u>NEW JERSEY</u>			
<u>Newark College of Engineering</u> <u>Newark</u>			
Metzger, Ivan, Eng.Sc.D. Dept. of Civil Engineering	Effects of Fluid Properties on Stream Aeration	WP-01099-01	11,624

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>NEW JERSEY</u>			
<u>Princeton University</u> <u>Princeton</u>			
Brush, Lucien M., Jr., Ph.D. Dept. of Civil Engineering	Inertial Effects in Turbulent Suspensions	WP-00772-02	_____*
<u>Rutgers, The State University</u> <u>New Brunswick</u>			
Faust, Samuel D., Ph.D. Dept. of Environmental Science	Organic Pesticides and Herbicides from Water	WP-00206-06	_____*
Finstein, Melvin S., Ph.D. Dept. of Environmental Sciences	Continuous Flow and Batch Cultures of Sphaerotilus	WP-00212-07	18,834
Moul, Edwin T., Ph.D. Dept. of Botany	Diatom Communities of the Raritan River System	WP-00949-02 WP-00949-02S1	15,399 994
Trama, Francesco B. Dept. of Zoology	Impoundment Studies on the Raritan River, New Jersey	WP-00059-06	8,272
<u>NEW MEXICO</u>			
<u>Eastern New Mexico University</u> <u>Portales</u>			
Sublette, James E., Ph.D. Dept. of Biological Sciences	Cytotaxonomy and Related Studies of Holarctic Midges	WP-00468-04 WP-00468-04S1	20,120 5,400
<u>New Mexico State University</u> <u>University Park</u>			
Clark, John W. Dept. of Civil Engineering	Continuous Monitoring of Some Organic Wastes	WP-00631-03	13,721
Speece, Richard E., Ph.D. Dept. of Civil Engineering	Controlling Factors in Methane Fermentation	WP-01001-02	20,828
<u>NEW YORK</u>			
<u>Boyce Thompson Institute for</u> <u>Plant Research</u> <u>Yonkers</u>			
Torgeson, Dewayne C., Ph.D. Bioregulant Chemicals	Interaction of Herbicides and Soil Microorganisms	WP-00750-03	28,173

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<b>NEW YORK</b>			
<u>City College Research Foundation</u> <u>New York</u>			
Haines, Thomas H., Ph.D. Dept. of Chemistry	Structure and Function of a New Sulfolipid	WP-00675-04	22,600
<u>Clarkson College of Technology</u> <u>Potsdam</u>			
Goodrich, Frank C., Ph.D. Dept. of Chemistry	The Surface Shear Viscosity of Monomolecular Films	WP-00960-02	20,450
Jellinek, Hans H. G., Ph.D. Dept. of Chemistry	Photodegradation of Polymers in Aqueous Solutions	WP-00791-03	25,680
Matijevic, Egon, Ph.D. Dept. of Chemistry	Flocculation of Colloids Suspended in Water	WP-00815-03	21,960
Matijevic, Egon, Ph.D. Dept. of Chemistry	Second Workshop Seminar on Coagulation and Flocculation	WP-01131-01	2,500
<u>Columbia University</u> <u>New York</u>			
Linford, Henry B., Ph.D. Dept. of Chemical Engineering	Cationic Polymers as Flocculant Aids in Water	WP-00240-06	19,489
Littauer, Sebastian B. Dept. of Industrial and Management Engineering	Statistical Theory of Extreme Values and Their Application in Hydrology	WP-00457-05	13,993
<u>Cornell University</u> <u>Ithaca</u>			
Barlow, John P., Ph.D. Division of Biological Sciences	Eutrophication of Tidal Waters	WP-00176-08S1 WP-00176-09	3,396 23,220
Behn, Vaughn C., Ph.D. Dept. of Sanitary Engineering	Application of Second Order Reaction	WP-00234-05	_____*
Dondero, Norman C., Ph.D. Dept. of Dairy and Food Science	Adaptation by Microbial Populations	WP-01034-01	19,383
Graf, Walter H., Ph.D. School of Civil Engineering	The Transport of Solid Suspension in Conduits	WP-00838-02	22,143
Liggett, James A., Ph.D. School of Civil Engineering	Mathematical Models of Hydrologic Systems	WP-00948-02	40,349
Liggett, James A., Ph.D. School of Civil Engineering	Settling Velocities in a Turbulent Environment	WP-00605-03	_____*

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>NEW YORK</u>			
<u>Manhattan College</u> <u>Bronx</u>			
Farrell, Joseph B., Ph.D. Dept. of Chemical Engineering	Prevention of Chromate Pollution by Electrodialysis	WP-00742-02	_____*
Jeris, John S., Sc.D. Dept. of Civil Engineering	The Biochemistry of Anaerobic Digestion	WP-00577-04	26,968
O'Connor, Donald J., Sc.D. Dept. of Civil Engineering	Estuarine Water Quality and Pollution	WP-00677-02	_____*
<u>New York University</u> <u>Bronx</u>			
Mehr, Emanuel, M.A. Dept. of Meteorology and Oceanography	Computer Simulation of Dye Dump Studies	WP-00662-03	16,319
Molof, Alan, Ph.D. Dept. of Civil Engineering	Cation Effects in Anaerobic Waste Treatment	WP-00690-03	_____*
<u>Polytechnic Institute of Brooklyn</u> <u>Brooklyn</u>			
Bruins, Paul F., Ph.D. Dept. of Chemistry	Advance Waste Treatment by Ultrafiltration	WP-00620-03	31,468
<u>Rensselaer Polytechnic Institute</u> <u>Troy</u>			
Washington, Donald R., Ph.D. Dept. of Civil Engineering	Oxygen Utilization in Concentrated Microbial Systems	WP-00876-02	27,000
<u>Research Foundation of State</u> <u>University of New York</u> <u>Albany</u>			
Dence, Carlton W. Dept. of Pulp and Paper Technology	Composition of Residues from Pulp Bleaching Treatments	WP-01038-01	17,411
Rumer, Ralph R., Jr., Sc.D. Dept. of Civil Engineering	Dynamic Model Study of Lake Erie	WP-00837-02	53,226
Storr, John F., Ph.D. Dept. of Biology	Ecology of Polluted and Nonpolluted Lake Communities	WP-01065-02	19,138

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>NEW YORK</u>			
<u>Syracuse University</u>			
<u>Syracuse</u>			
Jackson, Daniel F., Ph.D. Dept. of Civil Engineering	Investigation of Bloom- Producing Algae	WP-00782-03	15,733
Kramer, James R., Ph.D. Dept. of Geology	Mineral-Water Chemistry, Great Lakes	WP-00868-02	24,230
Li, Wen-Hsiung, Ph.D. Dept. of Civil Engineering	Transverse Dispersion of Contaminant in Groundwater	WP-00575-04	19,499
Lundgren, Donald G. Dept. of Bacteriology and Botany	Physiology and Culture of Iron Oxidizing Bacteria	WP-00548-05	21,617
		WP-00548-05S1-A1	1,560
Nemerow, Nelson L., Ph.D. Dept. of Civil Engineering	Allocation of Stream Pollution Carrying Capacity	WP-01089-01	22,598
Tien, Chi, Ph.D. Dept. of Chemical Engineering and Metallurgy	A Study of the Aeration Process in Non-Newtonian Media	WP-00719-03	13,980
Tien, Chi, Ph.D. Dept. of Chemical Engineering and Metallurgy	Atomization and Drop Size of Non-Newtonian Fluid	WP-00867-02	15,908
Tien, Chi, Ph.D. Dept. of Chemical Engineering and Metallurgy	Mass Transfer Analysis in Reverse Osmosis Operation	WP-00968-01A1	17,475
Tien, Chi, Ph.D. Dept. of Chemical Engineering and Metallurgy	The Effect of Gas Bubble Motion on Fluid Mixing in Aeration Process	WP-00922-02	16,698
Turian, Raffi M., Ph.D. Dept. of Chemical Engineering and Metallurgy	Pipeline Flow of Solids- Liquid Suspensions	WP-01122-01	26,574
<u>NORTH CAROLINA</u>			
<u>Duke University</u>			
<u>Durham</u>			
Bryan, Edward H., Ph.D. Dept. of Civil Engineering	Biochemical Utilization of Chemically Combined Oxygen	WP-00316-05	_____*
Menzies, Robert J., Ph.D. Dept. of Zoology	A Comparative Study of Marine Life at Varying Depths	WP-00936-01S1	23,906

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>NORTH CAROLINA</u>			
<u>North Carolina State University</u> <u>Raleigh</u>			
Horton, Donald B., Ph.D. Resident Director, Dept. of Zoology	Phosphate Mining Effluent in Estuarine Ecology	WP-00958-02	63,989
<u>University of North Carolina</u> <u>Chapel Hill</u>			
Lamb, James C., III, Sc.D. Dept. of Environmental Science and Engineering	Design Criteria for Final Tank and Sludge Thickeners	WP-00569-03	_____*
Mah, Robert A., Ph.D. Dept. of Environmental Science and Engineering	Microbiology of Anaerobic Sludge	WP-00921-02	18,549
Okun, Daniel A., Sc.D. Dept. of Environmental Science and Engineering	Oxygen in Waste Treatment	WP-00131-10	_____*
Weiss, Charles M., Ph.D. Dept. of Environmental Science and Engineering	Direct Gas Chromatography of Organics in Water	WP-00563-02	_____*
<u>OHIO</u>			
<u>Case Institute of Technology</u> <u>Cleveland</u>			
Sparks, Robert E., Ph.D. Division of Engineering	Emulsion Braking by Coalescence on Adsorbed Films	WP-00854-03	24,918
<u>Kenyon College</u> <u>Gambier</u>			
Pappenhagen, James M., Ph.D. Dept. of Chemistry	Determination of Ions in Wastes and Waters	WP-00137-12	10,128
<u>Ohio State University</u> <u>Columbus</u>			
Dugan, Patrick R., Ph.D. Dept. of Microbiology	Concentration of Chemicals by Floc Forming Organisms	WP-00713-02	19,280
<u>Ohio State University Research</u> <u>Foundation</u> <u>Columbus</u>			
Smith, Edwin E., Ph.D. Dept. of Chemical Engineering	Study of the Sulfide-to- Sulfate Reaction Mechanism	WP-00340-06	24,674

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<b><u>OHIO</u></b>			
<b><u>Ohio State University Research Foundation</u></b> <b><u>Columbus</u></b>			
Taft, Clarence E., Ph.D. Dept. of Botany and Plant Pathology	The Diatoms of the West End of Lake Erie	WP-00317-05	_____*
<b><u>University of Cincinnati</u></b> <b><u>Cincinnati</u></b>			
Eye, J. David Dept. of Civil Engineering	Field Evaluation of Extended Aeration Plants	WP-00693-03	22,836
Lemlich, Robert, Ph.D. Dept. of Chemical Engineering	Foam Fractionation with Reflux	WP-00161-08	9,440
Lemlich, Robert, Ph.D. Dept. of Chemical Engineering	Non-Foaming Bubble Fractionation	WP-00814-02	_____*
Scarpino, Pasquale V., Ph.D. Dept. of Civil Engineering	Factors Influencing the Survival of Bacteria in Sea Water	WP-00844-03	18,788
<b><u>University of Toledo Research Foundation</u></b> <b><u>Toledo</u></b>			
Bennett, Gary F., Ph.D. Dept. of Chemical Engineering	Oxygen Transfer Rates Through Biological Slimes	WP-00822-02	11,940
<b><u>OKLAHOMA</u></b>			
<b><u>Oklahoma State University</u></b> <b><u>Stillwater</u></b>			
Gaudy, Anthony F., Jr., Ph.D. School of Civil Engineering	Kinetics and Mechanism in Activated Sludge Processes	WP-00325-05	28,042
Gaudy, Anthony F., Jr., Ph.D. School of Civil Engineering	Metabolic Control Mechanisms in Biological Treatment	WP-00786-03	25,908
Gaudy, Anthony F., Jr., Ph.D. School of Civil Engineering	Response of Activated Sludge to Organic Shock Loads	WP-00075-06	24,636
<b><u>University of Oklahoma</u></b> <b><u>Norman</u></b>			
Klehr, Edwin H., Ph.D. Dept. of Civil Engineering and Environmental Sciences	Mixed Resin Sampler Kit for Analysis of Polluted Waters	WP-00373-03	_____*
Reid, George W., M.S. School of Civil Engineering	Evaluation of Dispersed Pollutional Load	WP-01193-01	23,032

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>OREGON</u>			
<u>Oregon State University</u>			
<u>Corvallis</u>			
Bond, Carl E., Ph.D. Dept. of Fisheries and Wildlife	Relation of Nuisance Algae to Fishes in Klamath Lake	WP-00625-03	_____*
Burgess, Fred J., M.S. Engineering Experiment Station	Pulp Mill Effluent Disposal	WP-00524-04	26,522
Castle, Emery N., Ph.D. Dept. of Agricultural Economics	An Economic Evaluation of Water Pollution Control	WP-00107-04	_____*
Freed, Virgil H., Ph.D. Dept. of Agricultural Chemistry	Chemical Brush Control: Biochemistry and Toxic Hazard	WP-00477-05	25,038
Goulding, Robert L., Ph.D. Dept. of Entomology	Macro-Fauna in Waste Stabilization Lagoons	WP-00923-02	12,756
Hall, James D., Ph.D. Dept. of Fisheries and Wildlife	Studies on Effects of Watershed Practices on Streams	WP-00423-05	33,042
Marvell, Elliot N., Ph.D. Dept. of Chemistry	Components of Kraft Mill Wastes and Their Toxicities	WP-00079-09	_____*
Pacha, Robert E., Ph.D. Dept. of Microbiology	Studies on Aquatic Myxobacteria	WP-00925-02	11,610
Phinney, Harry K., Ph.D. Dept. of Botany	The Autecology of Some Blue-Green Plankton Algae	WP-00666-03	17,644
Pritchard, Austin W., Ph.D. Dept. of Zoology	Acclimation of Fish to Pollution-Related Low Oxygen	WP-00493-03	_____*
Schroeder, Herbert A., D.Sc. Forest Research Laboratory	Lignin Sulfonates in Pulp Mill Effluents	WP-00823-03	25,494
Seaders, John, M.S. Dept. of Civil Engineering	Factors Influencing Temperature and Stream Quality	WP-00684-04	16,520
Slotta, Larry S., Ph.D. Dept. of Civil Engineering	Stratified Reservoir Currents	WP-00983-02	28,688
		WP-00983-02S1	5,600
		WP-00983-02S2	54,037
Warren, Charles E., Ph.D. Dept. of Fisheries and Wildlife	Dissolved Oxygen Requirements of Freshwater Fish	WP-00135-12	22,882
Warren, Charles E., Ph.D. Dept. of Fisheries and Wildlife	Ecological Studies of an Experimental Stream	WP-00157-09	22,906

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>PENNSYLVANIA</u>			
<u>Academy of Natural Science</u> <u>Philadelphia</u>			
Patrick, Ruth, Ph.D. Dept. of Limnology	The Effect of Specific Chemicals on Diatom Populations	WP-00475-04	102,914
<u>Carnegie Institute of Technology</u> <u>Pittsburgh</u>			
Bugliarello, George, Sc.D. Dept. of Civil Engineering	A Synthetic Computer Language for Sanitary Engineering	WP-00415-05 WP-00415-05S1	26,583 8,684
<u>Drexel Institute of Technology</u> <u>Philadelphia</u>			
Remson, Irwin, Ph.D. Dept. of Civil Engineering and Mechanics	Radial Flow of Soil Moisture	WP-00820-02	31,363
<u>Lehigh University</u> <u>Bethlehem</u>			
Coughlin, Robert W., Ph.D. Dept. of Chemical Engineering	Effect of Surface Groups on Adsorption of Pollutants	WP-00969-02	23,068
Parker, Basil W., Ph.D. Dept. of Biology	Thermal and Industrial Pollution: Delaware River	WP-00885-02	21,598
<u>Mellon Institute</u> <u>Pittsburgh</u>			
Baker, Robert A. Dept. of Environmental Science	Detection of Phenolics in Water	WP-00957-01	_____*
<u>Pennsylvania Military College</u> <u>Chester</u>			
Wise, Donald L., Ph.D. Dept. of Engineering	Diffusion Coefficients of Gases in Liquids	WP-00671-02S1	3,838
<u>Regional Science Research Institute</u> <u>Philadelphia</u>			
Isard, Walter, Ph.D. President	Economics of Water Quality for a Regional System	WP-00938-02	61,560

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>PENNSYLVANIA</u>			
<u>University of Pittsburgh</u> <u>Pittsburgh</u>			
Cummins, Kenneth K., Ph.D. Dept. of Biology	The Microdistribution of Stream Benthos	WP-00525-04	23,410
Shapiro, Maurice A., Ph.D. Dept. of Public Health Practices	Determination of Organic Matter in Water	WP-00473-03	_____*
<u>RHODE ISLAND</u>			
<u>University of Rhode Island</u> <u>Kingston</u>			
Conover, John T., Ph.D. Narragansett Marine Laboratory	Production of Pro- and Anti- Bacterials by Marine Algae	WP-00100-05	_____*
Conover, John T., Ph.D. Graduate School of Oceanography	The Effects of Pollution on Benthic Marine Plant Communities	WP-00755-03	21,625
Jeffries, Harry P., Ph.D. Dept. of Oceanography	Chemical Responses by Marine Organisms to Stress	WP-00858-02	24,022
Marshall, Nelson Graduate School of Oceanography	Sensitivity of Benthic Microflora to Pollution Gradients	WP-01220-01	18,975
<u>SOUTH CAROLINA</u>			
<u>Clemson University</u> <u>Clemson</u>			
Andrews, John F., Ph.D. Dept. of Civil Engineering	Growth Characteristics of the Methane Bacteria	WP-00622-03	_____*
Andrews, John F., Ph.D. Dept. of Civil Engineering	Kinetics of Biological Filters	WP-01181-01	26,190
Barlage, William B., Jr., Ph.D. Dept. of Chemical Engineering	The Effect of Surface-Active Agents on Gas Absorption	WP-00911-02	20,386
<u>University of South Carolina</u> <u>Columbia</u>			
Davis, Milton W., Jr., Ph.D. Dept. of Chemical Engineering	Purification of Industrial Wastes by Ion Exchange	WP-00595-03	29,020
Nelson, Bruce W., Ph.D. Dept. of Geology	Chemical Exchanges Across Sediment-Water Interfaces	WP-00651-04	53,622

\* Active 1967 - Supported by funds awarded in previous years



LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>SOUTH DAKOTA</u>			
<u>South Dakota School of Mines and Technology</u> <u>Rapid City</u>			
Smith, Ross W. Dept. of Metallurgy	Adsorption of Surfactants on Selected Minerals	WP-00611-02	_____*
<u>TENNESSEE</u>			
<u>University of Tennessee</u> <u>Knoxville</u>			
Bunting, Dewey L., Ph.D. Dept. of Zoology and Entomology	Effects of Water Pollution on Zooplankton	WP-00927-02	11,617
<u>Vanderbilt University</u> <u>Nashville</u>			
Fisher, Gerald T., Ph.D. Dept. of Chemical Engineering	Oxygen Absorption in Organic Aqueous Mixtures	WP-00871-02	_____*
Krenkel, Peter A., Ph.D. Dept. of Civil Engineering	Turbulent Diffusion and River Waste Assimilative Capacity	WP-00328-05	_____*
Malaney, George W., Ph.D. Dept. of Civil Engineering	Activated Sludge as an Ecological System	WP-00816-02 WP-00816-02S1	17,748 7,200
Schnelle, Karl B., Ph.D. Dept. of Civil Engineering	Dewatering and Drying of Sewage Sludge on Porous Media	WP-01053-01	32,884
Webb, M. Roger Dept. of Civil Engineering	Determination of Transition Zones in Settling Basins	WP-00039-04	_____*
<u>TEXAS</u>			
<u>Baylor University</u> <u>Waco</u>			
Davidson, Floyd F., Ph.D. Dept. of Biology	Toxic Properties of the Blue-Green Algae	WP-00002-12	4,630
<u>North Texas State University</u> <u>Denton</u>			
Schlichting, Harold E., Jr., Ph.D. Dept. of Biology	Effects of Domestic Pollution upon Periphyton	WP-00604-03	_____*

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>TEXAS</u>			
<u>North Texas State University</u> <u>Denton</u>			
Silvey, Joseph K., Ph.D. Dept. of Biology	An Investigation of Aquatic Actinomycetes (Fungi)	WP-00805-03	16,683
Silvey, Joseph K., Ph.D. Dept. of Biology	Naturally Occurring Tastes and Odors in Water Supplies	WP-00785-03	15,860
Stewart, Kenneth W., Ph.D. Dept. of Biology	Dispersal of Viable Algae and Protozoa	WP-00855-02	8,858
<u>Texas A &amp; M Research Foundation</u> <u>College Station</u>			
Martell, Arthur E., Ph.D. Dept. of Chemistry	Permanganate Oxidation of Phenols and Aromatic Amines	WP-01197-01	21,172
Ray, Sammy M., Ph.D. Dept. of Oceanography and Meteorology	Conference on Pollution and Marine Ecology	WP-00900-01	_____*
<u>Texas A &amp; M University</u> <u>College Station</u>			
Smerdon, Ernest T., Ph.D. Water Resources Institute	Water Pollution From Eroded Sediments	WP-00757-03	23,052
<u>Texas Research Foundation</u> <u>Renner</u>			
Correll, Donovan S., Ph.D. Botanical Laboratory	Aquatic Plants of Polluted Waters in the Southwest United States	WP-00685-03 WP-00685-03S1	37,237 4,597
<u>Texas Technological College</u> <u>Lubbock</u>			
Grubb, Herbert W., Ph.D. Dept. of Agricultural Economics	Economics of Multipurpose Playa Lake Modification	WP-00775-02	5,321
<u>University of Texas</u> <u>Austin</u>			
Beightler, Charles S., Ph.D. Dept. of Mechanical Engineering	Use of New Analytical Methods for Water Resources Development	WP-01186-01	17,201

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>TEXAS</u>			
<u>University of Texas</u> <u>Austin</u>			
Bold, Harold C., Ph.D. Dept. of Botany	An Investigation of Texas Soil Algae	WP-01057-07	20,631
Copeland, B. J., Ph.D. Institute of Marine Science	Effects of Rivers on the Metabolism of Texas Bays	WP-00811-02 WP-00811-02S1	23,328 1,800
Gloyna, Ernest F., Dr.Engr. Dept. of Civil Engineering	Effect of Toxic Organics on Waste Stabilization	WP-00688-03	11,877
Himmelblau, David M., Ph.D. Dept. of Chemical Engineering	Gas Transport Through Monolayers on Reservoirs	WP-00652-03	_____*
Masch, Frank D., Ph.D. Dept. of Civil Engineering	Mixing and Dispersion of Contaminants in Reservoirs	WP-00705-02	25,226
<u>University of Texas Medical Branch</u> <u>Galveston</u>			
Smith, Leland L., Ph.D. Dept. of Biochemistry	Sterols and Lipids in Water Pollution	WP-01003-01	26,047
<u>UTAH</u>			
<u>University of Utah</u> <u>Salt Lake City</u>			
Gauvin, Arden R., Ph.D. Dept. of Zoology and Entomology	Bio-Assays of the Toxicity of Pesticides to Aquatic Invertebrates	WP-00003-12	10,668
Gauvin, Arden R., Ph.D. Dept. of Zoology and Entomology	Production of Taste and Odor Producing Algae in Reservoirs	WP-00334-06	6,792
<u>Utah State University</u> <u>Logan</u>			
Neuhold, John M., Ph.D. Dept. of Wildlife Resources	Halide Water Quality Toxicity Effects on Fish	WP-00768-03	15,309
<u>VIRGINIA</u>			
<u>Virginia Institute of Marine Science</u> <u>Gloucester Point</u>			
Brehmer, Morris L., Ph.D. Dept. of Ecology-Pollution	Toxicity of Industrial Wastes to Marine Organisms	WP-00035-04	_____*

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>VIRGINIA</u>			
<u>Virginia Polytechnic Institute</u> <u>Blacksburg</u>			
Walker, William R., L.L.B. Water Resources Research Center	Water Rights Related to Water Quality Storage	WP-01087-01	18,160
<u>WASHINGTON</u>			
<u>University of Washington</u> <u>Seattle</u>			
Allan, G. Graham, Ph.D. College of Forestry	Pollution Abatement by Fiber Modification	WP-01166-01	35,508
Anderson, George C., Ph.D. Dept. of Oceanography	Annual Phytoplankton Production in Puget Sound Waters	WP-00633-04	41,416
Bevan, Donald E., Ph.D. College of Fisheries	Estuarine Ecology	WP-00642-03	75,222
Carlson, Dale A., Ph.D. Dept. of Civil Engineering	Waste Water Odor Reduction Mechanisms in Soil Filters	WP-00883-02	29,675
Christman, Russell F., Ph.D. Dept. of Civil Engineering	Chemical Characteristics of Organic Color in Water	WP-01031-01	26,184
English, Thomas S., Ph.D. Dept. of Oceanography	Distribution of Demersal Fishes in Inshore Waters	WP-00803-02S1	2,581
		WP-00803-03	33,095
Gessel, Stanley P., Ph.D. College of Forestry	Influence of Forest Ecosystems on Water Quality	WP-00743-03	21,823
Katz, Max, Ph.D. College of Fisheries	Sublethal Amounts of Organic Insecticides and Fish	WP-00956-02	22,834
McCarthy, Joseph L., Ph.D. Dept. of Chemical Engineering	Studies of Low Molecular Weight Lignin Sulfonates	WP-00628-03	22,897
McCarthy, Joseph L., Ph.D. Dept. of Chemical Engineering	Unique Determination of Lignin Sulfonates in Water	WP-00627-03	_____*
Nece, Ronald E., Sc.D. Dept. of Civil Engineering	Salt Water Entrainment for Dilution of Sewer Outfalls	WP-00512-04	12,960
Scott, David R., Ph.D. College of Forestry	Water Relationships in High Altitude Forests	WP-00720-03	12,205
Smith, Lynwood S., Ph.D. Fisheries Research Institute	Responses of Fish to Environmental Stress	WP-01056-01S1	64,217
		WP-01056-02	49,408
		WP-01056-02S1	29,800

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LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>WASHINGTON</u>			
<u>University of Washington</u> <u>Seattle</u>			
Taub, Frieda B., Ph.D. College of Fisheries	Biological Models of Freshwater Communities	WP-00982-02	25,768
<u>Washington State University</u> <u>Pullman</u>			
Bennett, Paul J., B.S. Sanitary Engineering Section	Water Reclamation by Reverse Osmosis	WP-00624-04	18,070
Dunstan, Gilbert H., M.S. Sanitary Engineering Section	Occurrence of Pesticides in Aquatic Environments	WP-00676-04	35,102
Kittrick, James A., Ph.D. Dept. of Agronomy	Clay Mineral Stability and Water Composition	WP-01016-01	17,480
May, Donald S., M.S. College of Engineering	The Ecology of Chromatium in Sewage Ponds	WP-00727-02	_____*
Parker, Richard A., Ph.D. Dept. of Zoology	Some Aspects of Microcrusta- cean Phosphate Metabolism	WP-00903-06	17,040
Stahl, John B., Ph.D. Division of Industrial Research	The Effects of the Benthos on Decomposition	WP-00668-02	_____*
Stokes, Jacob L., Ph.D. Dept. of Bacteriology and Public Health	The Biology and Chemistry of Sphaerotilus	WP-00239-06	23,963
<u>WEST VIRGINIA</u>			
<u>West Virginia University</u> <u>Morgantown</u>			
Gerencser, Vincent F., Ph.D. Dept. of Microbiology	Studies on Aquatic Stalked Bacteria	WP-00616-03S1	3,000
Wen, C. Y., Ph.D. Dept. of Chemical Engineering	Mass Transfer and Chemical Reaction in Water Pollution	WP-00699-02	_____*
<u>WISCONSIN</u>			
<u>Marquette University</u> <u>Milwaukee</u>			
Zanoni, Alphonse E., Ph.D. Dept. of Civil Engineering	Effluent Deoxygenation at Different Temperatures	WP-00829-02	16,347

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>WISCONSIN</u>			
<u>University of Wisconsin</u> <u>Madison</u>			
Blum, John L., Ph.D. Dept. of Botany	Response of Tolerant Organisms to Specific Pollutants	WP-00857-02	_____*
Chesters, Gordon, Ph.D. Dept. of Soils	Herbicide Removal Processes in Soil	WP-00751-03	28,487
Fitzgerald, George P., Ph.D. Dept. of Civil Engineering	Detection of Limiting and Surplus Nutrients in Algae	WP-00297-06	25,222
Lee, G. Fred, Ph.D. Dept. of Civil Engineering	Concentration of Organic Solutes in Water	WP-00371-02S1 WP-00371-03	1,045 24,259
Rohlich, Gerard A., Ph.D. Dept. of Civil Engineering	Investigation of Zoogeleal Flocs	WP-00905-02	25,093
Villemonte, James R., Ph.D. Dept. of Civil Engineering	Hydraulic Characteristics of Circular Sedimentation Basins	WP-00183-06	_____*
Weckel, Kenneth G., Ph.D. Dept. of Dairy and Food Industries	Cannery In-Plant Waste Losses and Their Control	WP-00535-03	_____*

FOREIGNAUSTRALIAMelbourne Water Science Institute  
Melbourne

Parker, Cecil D. Director	Function of Solids in Lagoon Treatment of Sewage	WP-00321-05	15,923
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University of Sydney  
Sydney

Hawke, John G., Ph.D. Dept. of Pharmacy	Effect of Surface Films on Gases Dissolved in Water	WP-00877-02	10,350
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CANADABritish Columbia Research Council  
Vancouver, British Columbia

Walden, Cecil C., Ph.D. Dept. of Applied Biology	Studies on Acidophilic Chemautotrophic Bacteria	WP-00550-01	_____*
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\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND INVESTIGATOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>FOREIGN</u>			
<u>CANADA</u>			
<u>University of Toronto</u> <u>Toronto</u>			
Brinkhurst, Ralph O., Ph.D. Dept. of Zoology	Taxonomy and Biology of Tubificidae (Sludge Worms)	WP-00940-02	19,090
<u>University of Waterloo</u> <u>Waterloo, Ontario</u>			
Csanady, Gabriel T., Ph.D. Dept. of Mechanical Engineering	Big Eddies and Mixing Processes in the Great Lakes	WP-01139-01	38,415
<u>ENGLAND</u>			
<u>University College</u> <u>London</u>			
Ives, Kenneth J., Ph.D. Dept. of Civil Engineering	Multilayer Filtration	WP-00832-02	2,729
<u>JAPAN</u>			
<u>Okayama University</u> <u>Tsushima, Okayama City</u>			
Kobayashi, Jun, Dr.Sc. Ohara Institute for Agricultural Biology	Strange Osteomalacia by Pollution from Cadmium Mining	WP-00359-04	_____*

\* Active 1967 - Supported by funds awarded in previous years

WATER POLLUTION CONTROL  
 DEMONSTRATION GRANTS FISCAL YEAR 1967  
 SUMMARY OF GRANT AWARDS BY STATES

State	Institutions and Agencies	Number Awarded	Amount Awarded
Alaska	1	1	\$ 11,630
Arizona	2	2	160,712
California	9	9	488,672
Colorado	1	1	35,300
Connecticut	1	1	40,419
District of Columbia	3	4	187,723
Florida	3	3	237,356
Illinois	1	1	38,625
Indiana	2	2	37,994
Iowa	1	1	22,712
Kansas	1	1	19,366
Louisiana	1	1	25,838
Maryland	1	2	40,059
Massachusetts	1	1	20,000
Michigan	4	5	212,232
Minnesota	3	3	131,185
Missouri	1	1	48,257
New Jersey	3	4	291,772
New Mexico	1	1	15,500
New York	5	5	275,887
North Dakota	1	2	32,750
Ohio	4	4	144,150
Oklahoma	1	1	12,340
Oregon	1	1	28,985
Pennsylvania	2	2	97,188
Tennessee	1	1	25,020
Texas	2	2	28,380
Utah	1	3	103,158
Virginia	2	1	34,371
Washington	2	2	52,585
Wisconsin	1	1	95,578
Wyoming	1	1	32,508
32 States	64	70	\$3,028,252

Active Demonstration Grants 1967

33 States  
 68 Institutions and Agencies  
 76 Demonstration Grants



## WATER POLLUTION CONTROL

38

DEMONSTRATION GRANTS

FISCAL YEAR 1967

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>ALASKA</u>			
<u>University of Alaska College</u>			
Murphy, R. Sage Assoc. Prof. of Environmental Health Engineering	Evaluation of an Oxidation- Ditch Waste Water Treatment Plant in Sub-Arctic Alaska	WPD 207-01-67	11,630
<u>ARIZONA</u>			
<u>City of Tucson Tucson</u>			
Beermann, Paul Director, Dept. of Water and Sewers	Tucson Wastewater Reclamation Project	WPD 108-03-67	115,812
<u>Salt River Project Phoenix</u>			
Shipley, Henry Assistant General Manager	Spreading Treated Sewage for Groundwater Recharge	WPD 140-01-67	44,900
<u>CALIFORNIA</u>			
<u>City and County of San Francisco San Francisco</u>			
Geertz, Clifford City Engineer	Feasibility of Control Measures for Treatment of Overflows from Combined Sewers	WPD 112-01-66	_____*
<u>City of San Diego San Diego</u>			
Cook, Leland, Jr. Superintendent, Utilities Dept.	Sewage Odor Control by Liquid-Gas Extraction	WPD 135-01-67	33,952

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LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>CALIFORNIA</u>			
<u>City of San Jose</u> <u>San Jose</u>			
Belick, Frank M. Engineer-Superintendent	Reducing Waste Activated Sludge Volume by Anaerobiosis	WPD 129-02-67	25,500
<u>County of Sonoma</u> <u>Santa Rosa</u>			
Head, Donald B. Sanitation Engineer	Evaluation of External Sealing Method to Reduce Infiltration in Sewage Systems	WPD 111-01-66	_____*
<u>Eastern Municipal Water District</u> <u>Hemet</u>			
Boen, Doyle F. General Manager and Chief Engineer	Reutilization of Wastewater Recycled through Ground Water	WPD 81-03-67	32,665
<u>Lake Tahoe Area Council</u> <u>South Lake Tahoe</u>			
McGauhey, P. H. Chairman, Board of Consultants	Demonstration Project on Eutrophication of Surface Waters - Lake Tahoe	WPD 48-02-67	74,000
<u>Los Angeles County</u> <u>Los Angeles</u>			
Lambie, John A. County Engineer	Wastewater Reclamation Project for Antelope Valley	WPD 50-04-67	65,400
<u>Orange County Water District</u> <u>Santa Ana</u>			
Owen, Langdon W. District Engineer	Reclamation of Wastewaters for Injection Underground	WPD 110-02-67	78,700
<u>Sacramento County</u> <u>Dept. of Public Works</u> <u>Sacramento</u>			
Wanderer, W. C., Jr. Chief, Utilities Division	Primary Treatment and Sludge Dewatering by Vibrating Screens	WPD 177-01-67	66,755

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LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<b><u>CALIFORNIA</u></b>			
<b><u>South Tahoe Public Utility District</u></b>			
<b><u>Bijou</u></b>			
Friday, W. F. Manager	Coagulant Recovery, Nitrogen Removal, and Carbon Regeneration in Wastewater Reclamation	WPD 85-02-66	_____*
<b><u>Stanford University</u></b>			
<b><u>Stanford</u></b>			
Eliassen, Rolf Prof. of Civil Engineering	Reclamation of Reusable Water From Sewage	WPD 21-05-67	45,000
<b><u>State of California Water Resources</u></b>			
<b><u>Sacramento</u></b>			
Beck, Louis A. Sanitary Engineer	Nutrient Removal From Agricultural Waste Waters	WPD 143-01(R2)-67	66,700
<b><u>COLORADO</u></b>			
<b><u>Beet Sugar Development Foundation</u></b>			
<b><u>Fort Collins</u></b>			
Fischer, James H. Manager	Treatment of Beet Sugar Wastes in Facultative and Algae Ponds	WPD 93-03-67	35,300
<b><u>CONNECTICUT</u></b>			
<b><u>University of Connecticut</u></b>			
<b><u>Storrs</u></b>			
Klei, Herbert E. Asst. Prof., Dept. of Chemical Engineering	Automatic Control of a Completely Mixed Activated Sludge Reactor	WPD 175-01-67	40,419
<b><u>DISTRICT OF COLUMBIA</u></b>			
<b><u>League of Women Voters</u></b>			
<b><u>Education Fund</u></b>			
Whittemore, Arthur E., (Mrs.) Trustee, Chairman of Water Resources Projects	Schools for Citizens on the Use of Water for Tomorrow's Living	WPD 62-04-67	48,300

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>DISTRICT OF COLUMBIA</u>			
<u>National Association of Counties Research Foundation</u>			
Hillenbrand, Bernard F. Executive Director	Public Officials Water Pollution Control Demonstration Project	WPD 55-04-67	100,000
<u>Water Pollution Control Federation</u>			
Burke, George W., Jr. Manager of Technical Services	Aids for Wastewater Systems Personnel Safety and Advancement	WPD 159-01-67	25,000
Burke, George W., Jr. Manager of Technical Services	Development of Lecture Guides for Wastewater Treatment Plant Operators	WPD 45-02-67	14,423
<u>FLORIDA</u>			
<u>City of Gainesville Gainesville</u>			
Black, A. P. Research Professor Emeritus	Disinfectant and Physiological Effects of Iodine for Treatment of Polluted Water Supplies	WPD 19-05-67	73,000
<u>Florida Atlantic Ocean Sciences Institute, Inc. Boca Raton</u>			
McAllister, Raymond F. Prof. of Oceanography	Demonstration of the Limitations and Effects of Waste Disposal on an Ocean Shelf	WPD 165-01(R1)-67	116,932
<u>University of Florida Gainesville</u>			
Putnam, Hugh D. Assoc. Prof. of Bioenvironmental Sciences	Eutrophication Factors in North-Central Florida Lakes	WPD 158-01(R1)-67	47,424
<u>ILLINOIS</u>			
<u>Izaak Walton League of America, Inc. Glenview</u>			
Penfold, Joseph W. Conservation Director	Citizen Workshops on Clean Waters for America	WPD 128-02-67	38,625

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>INDIANA</u>			
<u>Rose Polytechnic Institute</u> <u>Terre Haute</u>			
Arthur, Robert M. Assoc. Prof. of Bioengineering	Automatic Recording of Short Term B.O.D.	WPD 141-01-67	13,300
<u>University of Notre Dame</u> <u>Notre Dame</u>			
Tenney, Mark W. Asst. Prof. of Environmental Health	Effect of Domestic Pollution Abatement on a Eutrophic Lake	WPD 126-02-67	24,694
<u>IOWA</u>			
<u>University of Iowa</u> <u>Iowa City</u>			
Smith, H. Sidwell Prof. and Chairman, Dept. of Civil Engineering	Homogeneous (Totally Mixed) Activated Sludge Applications	WPD 138-01-67	22,712
<u>KANSAS</u>			
<u>University of Kansas</u> <u>Lawrence</u>			
Loehr, Raymond C. Prof. of Civil Engineering	Treatment of Cattle Feedlot Wastes in Oxidation Ponds	WPD 123-02-67	19,366
<u>LOUISIANA</u>			
<u>Tulane University</u> <u>New Orleans</u>			
Macdonald, Frank W. Prof. of Civil Engineering	Bedding and Infiltration Studies of Sanitary Sewers of Gulf Coast Area	WPD 80-03-67	25,838
<u>MARYLAND</u>			
<u>The Johns Hopkins University</u> <u>Baltimore</u>			
Liebman, Jon C. Asst. Prof. of Environmental Engineering Science	Optimization of Regional Waste Treatment Facilities	WPD 125-02-67	6,900
Renn, Charles E. Prof. of Environmental Engineering Science	Reuse of Industrial Wastewater by Management of Recycling Ponds	WPD 117-02-67	33,159

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MASSACHUSETTS</u>			
<u>Massachusetts Health Research Institute, Inc. Boston</u>			
Tompkins, William A. Chief Aquatic Biologist	Massachusetts Pesticide Monitoring Demonstration	WPD 88-03-67	17,802
<u>MICHIGAN</u>			
Board of Wayne County Road Commissioners Detroit			
Bingham, George R. Sanitary Engineer	Phosphate Removal and Improved Settling in Primary Treatment	WPD 145-01-67	19,540
<u>City of Jackson Jackson</u>			
Greene, Robert A. Superintendent of Sewage Treatment	Supplementary Aeration Demonstration for Secondary Effluent	WPD 157-01-67	11,919
<u>City of Trenton Trenton</u>			
Hennessey, Timothy L. City Engineer	Phosphate Removal by Biological Process	WPD 173-01-67	69,000
<u>University of Michigan Ann Arbor</u>			
Brown, Robert M. President, National Sanitation Foundation	Development of Criteria for Packaged Compact Sewage Treatment Plants	WPD 74-03-67	89,325
Mancy, Khalil H. Asst. Prof. of Environmental Chemistry	The Application of Programmed Learning Techniques to Water Chemistry	WPD 139-01-67	22,448
<u>MINNESOTA</u>			
<u>Minnesota State Department of Health Minneapolis</u>			
Bauer, Henry Director, Division of Laboratories	Demonstration of the "Channel Aeration Process" in Treatment of Sewage	WPD 33-02(S1)-67 WPD 33-03-67	26,000 20,394

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>MINNESOTA</u>			
<u>St. Mary's College</u> <u>Winona</u>			
McNabb, C. D. Assoc. Prof. of Biology	Demonstration Project for Undergraduate Training of Hydrobiologists in Water Pollution Control	WPD 144-02-67	15,840
<u>State of Minnesota</u> <u>Dept. of Iron Range Resources</u> <u>and Rehabilitation</u> <u>St. Paul</u>			
DeYoannes, A. M. Commissioner, Dept. of Iron Range Resources and Rehabilitation	Peat Bog Waste Stabilization	WPD 164-01(R1)-67	60,635
<u>MISSOURI</u>			
<u>Water and Sewage Technical School</u> <u>Neosho</u>			
Caughran, Lloyd Director	Demonstration School for Training Water and Sewerage System Operators	WPD 2-06-67	48,257
<u>NEW JERSEY</u>			
<u>Delaware River Basin Commission</u> <u>Trenton</u>			
Wright, James F. Executive Director	Delaware Estuary and Bay Water Quality Sampling and Mathematical Modeling Project	WPD 210-01-67	80,000
Wright, James F. Executive Director	Interstate Regional Planning for Water Supply and Waste Disposal	WPD 136-02-67	88,858
<u>Division of Fish and Game</u> <u>Bureau of Fisheries Management</u> <u>Trenton</u>			
Pyle, A. Bruce Principal Fisheries Biologist	Fish and Aquatic Life Consideration in New Jersey's Water Pollution Abatement Program	WPD 4-06-67	20,000
<u>Rutgers, - The State University</u> <u>New Brunswick</u>			
Whipple, William, Jr. Director, Water Resources Research Institute	Oxygen Regeneration of Polluted Rivers	WPD 131-01(R1)-67	102,914

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>NEW MEXICO</u>			
<u>New Mexico State University</u> <u>Las Cruces</u>			
Speece, R. E. Assoc. Prof. of Civil Engineering	Diffused Air U-Tube Oxygenation in an Oxidation Pond	WPD 202-01-67	15,500
<u>NEW YORK</u>			
<u>American Society of Civil Engineers</u> <u>New York City</u>			
Taylor, Donald C. Research Manager	Separation of Sanitary Sewage from Combined Systems of Sewerage	WPD 104-01-66	_____*
<u>County of Nassau</u> <u>Mineola</u>			
Simins, Herbert J. Commissioner of Public Works	Water Conservation by Waste Water Reclamation and Injection for Recharge	WPD 71-03-67	30,000
<u>Health Research Incorporated</u> <u>New York State Dept. of Health</u> <u>Albany</u>			
O'Brien, James E. Sanitary Chemist Division of Laboratories Research	To Evaluate the Utility of Existing Automatic Chemical Analysis Equipment for Water Quality Surveillance Under Computer Control	WPD 119-01(R1)-67	44,331
<u>New York State Dept. of Health</u> <u>Albany</u>			
Stevens, Donald B. Chief, Research and Development Bureau Water Resources Services	Treatment Required by Sewage for Injection-Well Recharge	WPD 83-03-67	134,183
<u>Rensselaer Polytechnic Institute</u> <u>Troy</u>			
Aulenbach, Donald B. Assoc. Prof. of Environmental Engineering	Removal of Syndets and Reclamation of Laundry Wastes	WPD 99-01-67	29,630
<u>State University College at</u> <u>Brockport</u> <u>Brockport</u>			
Damann, Kenneth E. Chairman, Dept. of Biological Sciences	Renovation of a Dystrophic Lake into a Eutrophic Lake	WPD 180-01-67	37,643

\* Active 1967 - Supported by funds awarded in previous years



LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>NORTH DAKOTA</u>			
<u>North Dakota State Dept. of Health</u> <u>Bismark</u>			
Van Heuvelen, Willis Chief, Environmental Health and Engineering Services	Anaerobic Fermentation - Aerobic Stabilization Process for Treating Waste Whey with Domestic Waste	WPD 155-01-67	16,750
Van Heuvelen, Willis Chief, Environmental Health and Engineering Services	Treatment of Waste from the Manufacture of Potato Starch by Anaerobic Fermentation - Aerobic Stabilization	WPD 94-03-67	16,000
<u>OHIO</u>			
<u>City of Cincinnati</u> <u>Cincinnati</u>			
Caster, Arthur D. Superintendent, Division of Water Pollution Control	Nitrogen Removal in Municipal Waste Treatment	WPD 151-01-67	36,250
<u>City of Dayton</u> <u>Dayton</u>			
Tossey, DeFro Superintendent of Sewage Treatment	Tertiary Treatment by Flocculation and Rapid-Sand Filtration	WPD 114-02-67	9,562
<u>Ohio State University</u> <u>Athens</u>			
Kaneshige, Harry M. Asst. Prof. of Civil Engineering	Operational Demonstration of Oxidation Ditch Method of Waste Treatment	WPD 100-02-67	39,213
<u>University of Cincinnati</u> <u>Cincinnati</u>			
Eye, J. David Prof. of Environmental Health Engineering	Treatment of Beam House Wastes From a Vegetable Tannery	WPD 185-01-67	59,125
<u>OKLAHOMA</u>			
<u>University of Oklahoma</u> <u>Research Institute</u> <u>Norman</u>			
Reid, George W. Prof. of Civil Engineering	Demonstrating the Effect of Nutrients from Oxidation Ponds in Receiving Streams	WPD 98-02-67	12,340

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>OREGON</u>			
<u>Oregon State University</u> <u>Corvallis</u>			
Burgess, Fredrick J. Prof. of Civil Engineering	Water Reuse Quantity- Quality Effect on Treatment Process	WPD 90-03-67	28,985
<u>PENNSYLVANIA</u>			
<u>Pennsylvania State University</u> <u>University Park</u>			
Farrell, Michael A. Director, Agricultural Experiment Station	Renovation of Sewage Effluent for Reuse as a Water Resource	WPD 95-03-67	63,295
<u>Villanova University</u> <u>Villanova</u>			
Clarke, Edgar W. Prof. of Chemical Engineering	Elimination of Water Pollution by Used Oil Re-Refining Plants	WPD 174-01-67	33,796
<u>TENNESSEE</u>			
<u>Vanderbilt University</u> <u>Nashville</u>			
Krenkel, Peter A. Prof. and Director, Sanitary and Water Resources Engineering	Turbulent Diffusion and Reaeration in Natural Rivers	WPD 168-01-67	25,020
<u>TEXAS</u>			
<u>North Texas State University</u> <u>Denton</u>			
Guthrie, Rufus K. Prof. of Biology	Rapid Identification of Microbial Populations in Water	WPD 146-01-67	17,250
<u>San Antonio River Authority</u> <u>Water Quality and Supply Division</u> <u>San Antonio</u>			
Koch, C. Thomas Engineering Assistant	Drying Characteristics of Aerobically Digested Sludge	WPD 182-01-67	11,130

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>UTAH</u>			
<u>Utah State University</u> <u>Logan</u>			
Chadwick, Duane G. Assoc. Prof., Utah Water Research Laboratory	Electronic Analog Simulation of the Salinity Flow System Within the Upper Colorado River Basin	WPD 178-01-67	27,312
Hendricks, David W. Asst. Prof., Utah Water Research Laboratory	Application of Sequential Water Use Theory Within a Hydrologic Complex	WPD 17-02-67	37,390
Woffinden, Duard S. Asst. Research Engineer, Utah Water Research Laboratory	Water Quality Telemetry	WPD 179-01-67	38,456
<u>VIRGINIA</u>			
<u>Strandberg, Carl H., Individual</u> <u>Fairfax</u>			
	Aerial Water Quality Reconnaissance Demonstration	WPD 20-03-65 WPD 20-03(S1)-67	* 4,088
<u>University of Virginia</u> <u>Charlottesville</u>			
Parker, Clinton E. Asst. Prof. of Civil Engineering	An Anaerobic-Aerobic Lagoon for Treating Vegetable Tannins	WPD 199-01-67	30,283
<u>WASHINGTON</u>			
<u>University of Washington</u> <u>Seattle</u>			
Oglesby, Ray T. Asst. Prof. of Civil Engineering	Dilution Effects on Nutrients and Productivity in Receiving Waters	WPD 38-03-67	11,834
<u>Washington State University</u> <u>Pullman</u>			
Proctor, Donald E. Assoc. Prof. of Sanitary Engineering	Anaerobic-Aerobic Lagoon Treatment of Dairy Manure Wastes	WPD 184-01-67	40,124
<u>WEST VIRGINIA</u>			
<u>West Virginia University</u> <u>Morgantown</u>			
Burchinal, J. C. Dept. of Civil Engineering	A Study of the Oxidation Ditch Method of Waste Treatment	WPD 36-02-66	*

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND PROJECT DIRECTOR	PROJECT TITLE	GRANT NO.	AMOUNT
<u>WISCONSIN</u>			
<u>Sewerage Commission of the City</u> <u>of Milwaukee</u> <u>Milwaukee</u>			
Ernest, Lawrence A. Laboratory Director	Sewage Phosphorus Removal by an Activated Sludge Plant	WPD 188-01-67	95,578
<u>WYOMING</u>			
<u>University of Wyoming</u> <u>Laramie</u>			
Davis, Eric Asst. Prof. of Civil Engineering	Supplementary Aeration of Lagoons in Rigorous Climate Areas	WPD 133-01(R1)-67	32,508

WATER POLLUTION CONTROL  
 TRAINING GRANTS FISCAL YEAR 1967  
 SUMMARY OF GRANTS AWARDED BY STATES

State	Institutions and Agencies	Number Awarded	Amount Awarded
Arizona	1	1	\$ 24,489
Arkansas	1	1	12,444
California	3	4	185,818
Colorado	2	2	99,367
Florida	1	1	59,080
Georgia	1	1	46,421
Hawaii	1	1	27,536
Illinois	2	2	118,270
Indiana	1	1	19,185
Iowa	1	1	17,072
Kansas	1	1	58,409
Kentucky	1	1	27,518
Maine	1	1	36,632
Maryland	1	1	34,935
Massachusetts	4	4	129,682
Michigan	3	5	200,074
Minnesota	1	2	33,874
Mississippi	1	1	45,922
Missouri	2	2	69,454
Montana	1	1	50,830
New Jersey	1	1	21,708
New Mexico	1	1	18,159
New York	3	4	206,329
North Carolina	2	2	52,248
Ohio	3	3	96,147
Oklahoma	2	3	122,949
Oregon	1	4	231,094
Pennsylvania	1	2	73,350
South Carolina	1	1	69,111
South Dakota	1	1	42,223
Tennessee	1	1	47,119
Texas	4	4	196,927
Utah	1	1	29,953
Virginia	1	1	40,154
Washington	2	2	65,717
West Virginia	1	1	46,651
Wisconsin	2	5	251,991
37 States	58	71	\$2,908,842

Active Training Grants 1967

37 States  
 58 Institutions and Agencies  
 71 Training Grants

## WATER POLLUTION CONTROL

TRAINING GRANTS

FISCAL YEAR 1967

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>ARIZONA</u>			
<u>University of Arizona</u> <u>Tucson</u>			
Mees, Quentin M. Dept. of Civil Engineering	Training in Water Management, Development and Reuse	5T1-WP-92-02	\$ 24,489
<u>ARKANSAS</u>			
<u>University of Arkansas</u> <u>Fayetteville</u>			
Heiple, Loren R., Ph.D. Dept. of Civil Engineering	Water Supply and Water Pollution Control Specialist Training	5T1-WP-85-03	12,444
<u>CALIFORNIA</u>			
<u>San Jose State College</u> <u>San Jose</u>			
Agardy, Franklin J., Ph.D. Dept. of Civil Engineering	Graduate Training in Water Quality Control	5T1-WP-66-04	23,163
<u>Stanford University</u> <u>Stanford</u>			
Eliassen, Rolf, Ph.D. Dept. of Civil Engineering	Interdisciplinary Management of Water Resources and Water Quality	2T1-WP-38-05	105,689
		3T1-WP-38-05S1	2,160
Kruger, Paul, Ph.D. Dept. of Civil Engineering	Use of Radioisotope Techniques in Water Pollution Control	2T1-WP-9-06	28,678
<u>University of California</u> <u>Davis</u>			
Scott, Verne H., Ph.D. Dept. of Water Science and Engineering	Irrigation Effects on Control of Water Pollution	2T1-WP-7-06	23,757
		3T1-WP-7-05S1	2,371

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>COLORADO</u>			
<u>Colorado State University</u> <u>Fort Collins</u>			
Morrison, S. M., Ph.D. Dept. of Microbiology	Graduate Training in Water Microbiology	5T1-WP-127-02	58,293
<u>University of Colorado</u> <u>Boulder</u>			
Flack, J. Ernest, Ph.D. Dept. of Civil Engineering	Interdisciplinary Education of Water Quality Management Engineers	5T1-WP-105-02	41,074
<u>FLORIDA</u>			
<u>University of Florida</u> <u>Gainesville</u>			
Kiker, John E., Jr., Professor Dept. of Bioenvironmental Engineering	Water Pollution Control Training for Engineers	1T1-WP-119-01	59,080
<u>GEORGIA</u>			
<u>Georgia Institute of Technology</u> <u>Atlanta</u>			
Kindsvater, Carl E., Ph.D. Water Resources Center	Water Quality and Resources Engineering	5T1-WP-62-04	46,421
<u>HAWAII</u>			
<u>University of Hawaii</u> <u>Honolulu</u>			
Burbank, Nathan C., Sc.D. Dept. of Civil Engineering	Pacific Island Sanitary Engineering	5T1-WP-69-04	27,536
<u>ILLINOIS</u>			
<u>Northwestern University</u> <u>Evanston</u>			
Gotaas, H. D., Sc.D. Dept. of Civil Engineering	Water Resources and Pollution Control Engineering	1T1-WP-135-01	60,101
<u>University of Illinois</u> <u>Urbana</u>			
Engelbrecht, R. S., Ph.D. Dept. of Civil Engineering	Training in Water Quality and Pollution Control	5T1-WP-128-02	58,169

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>INDIANA</u>			
<u>Purdue University</u> <u>Lafayette</u>			
Etzel, James E., Ph.D. Dept. of Civil Engineering	Engineering and Design of Water Pollution Control Facilities	2T1-WP-13-06	19,185
<u>IOWA</u>			
<u>Iowa State University of</u> <u>Science and Technology</u> <u>Ames</u>			
Baumann, Robert E., Ph.D. Dept. of Civil Engineering	Chemistry of Waste Treatment Including Nuclear Wastes	2T1-WP-45-05	17,072
<u>KANSAS</u>			
<u>University of Kansas</u> <u>Lawrence</u>			
McKinney, Ross E., Sc.D. Dept. of Civil Engineering	Water Research and Training	5T1-WP-50-04	58,409
<u>KENTUCKY</u>			
<u>University of Kentucky</u> <u>Lexington</u>			
Lauderdale, Robert A., Ph.D. Dept. of Civil Engineering	Water Resources and Sanitary Engineering	5T1-WP-64-04	27,518
<u>MAINE</u>			
<u>University of Maine</u> <u>Orono</u>			
Sproul, Otis J., Sc.D. Dept. of Civil Engineering	Training Program in Water Pollution Microbiology	2T1-WP-17-06	36,632
<u>MARYLAND</u>			
<u>The Johns Hopkins University</u> <u>Baltimore</u>			
Wolman, M. Gordon, Ph.D. Dept. of Environmental Engineering Science	Water Science and Management	2T1-WP-51-05	34,935



LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>MASSACHUSETTS</u>			
<u>Harvard University</u> <u>Cambridge</u>			
Morris, J. Carrell, Ph.D. Division of Engineering and Applied Physics	Summer Institute in Advanced Sanitary Chemistry	1T1-WP-133-01	12,885
<u>Northeastern University</u> <u>Boston</u>			
Cochrane, John J., Ph.D. Dept. of Civil Engineering	Water Pollution Control and Water Resource Training	1T1-WP-136-01	39,801
<u>Tufts University</u> <u>Medford</u>			
Hanes, N. Bruce, Ph.D. Dept. of Civil Engineering	Water Pollution Control and Public Health Engineering	5T1-WP-40-05	38,576
<u>University of Massachusetts</u> <u>Amherst</u>			
Feng, Tsuan Hua, Ph.D. Dept. of Civil Engineering	Water Quality and Quantity Engineering	5T1-WP-77-03 3T1-WP-77-03S1	37,788 632
<u>MICHIGAN</u>			
<u>Michigan State University</u> <u>East Lansing</u>			
Roelofs, Eugene W., Ph.D. Dept. of Fisheries and Wildlife	Graduate Training of Pollution Biologists	5T1-WP-109-02	45,334
<u>University of Michigan</u> <u>Ann Arbor</u>			
Borchardt, Jack A., Professor Dept. of Civil Engineering	Training Grant in Sanitary Engineering	1T1-WP-157-01	34,729
Gannon, John J., M.P.H. Dept. of Environmental Health	Training in Water Pollution Control and Public Health	2T1-WP-15-06	67,716
Leonard, Justin W., Ph.D. Dept. of Wildlife and Fisheries	Physiological Action of Water Pollutants	2T1-WP-16-06	18,799
<u>Wayne State University</u> <u>Detroit</u>			
Dirasian, Henry A., Ph.D. Dept. of Civil Engineering	Sanitary Engineering and Water Pollution	1T1-WP-101-01A1	33,496

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>MINNESOTA</u>			
<u>University of Minnesota</u> <u>Minneapolis</u>			
Olson, Theodore A., Ph.D. School of Public Health	Training in Water Quality Field Investigation Techniques	5T1-WP-95-02	19,546
Schroepfer, George J., Ph.D. Dept. of Civil Engineering	Sanitary Engineering and Water Resources Program	5T1-WP-33-05	14,328
<u>MISSISSIPPI</u>			
<u>Mississippi State University</u> <u>State College</u>			
Williford, Howard K. Dept. of Civil Engineering	Waste Water Disposal Engineering Training Program	5T1-WP-108-02	45,922
<u>MISSOURI</u>			
<u>University of Missouri</u> <u>Columbia</u>			
Ray, Arliss D., Ph.D. Dept. of Civil Engineering	Water Quality Engineering	5T1-WP-30-04	54,065
<u>University of Missouri</u> <u>Rolla</u>			
Grigoropoulos, S. G., Sc.D. Dept. of Civil Engineering	Water and Waste Water Engineering	5T1-WP-86-02	15,389
<u>MONTANA</u>			
<u>Montana State College</u> <u>Bozeman</u>			
Wright, John C., Ph.D. Dept. of Botany and Bacteriology	Physical and Chemical Aspects of Water Pollution	2T1-WP-1-06	50,830
<u>NEW JERSEY</u>			
<u>Rutgers, The State University</u> <u>New Brunswick</u>			
Kaplovsky, A. Joel, Ph.D. Dept. of Environmental Science	Water Sanitation	5T1-WP-43-05	21,708

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>NEW MEXICO</u>			
<u>New Mexico State University</u> <u>University Park</u>			
Clark, John W., Professor Dept. of Civil Engineering	Water Resources Planning and Conservation	5T1-WP-48-05	18,159
<u>NEW YORK</u>			
<u>Cornell University</u> <u>Ithaca</u>			
Gates, Charles D., Professor School of Civil Engineering	Sanitary Engineering and Water Resources Program	2T1-WP-3-06	51,622
<u>Manhattan College</u> <u>New York</u>			
McGabe, Joseph, Brother, M.C.E. Dept. of Civil Engineering	Training of Professional Specialists in Water Pollution Control	2T1-WP-26-06	78,973
O'Connor, Donald J., Sc.D. Dept. of Civil Engineering	Summer Institute in Water Supply and Pollution Control	5T1-WP-32-05	17,894
<u>New York University</u> <u>New York</u>			
Dobbins, William E., Ph.D. Dept. of Civil Engineering	Water Supply and Water Pollution Control Engineering	2T1-WP-24-06	57,840
<u>NORTH CAROLINA</u>			
<u>North Carolina State University</u> <u>Raleigh</u>			
Smallwood, Charles, Jr., Professor Dept. of Civil Engineering	Graduate Training of Water and Waste Treatment Engineers	5T1-WP-68-04	16,881
<u>University of North Carolina</u> <u>Chapel Hill</u>			
Weiss, Charles M., Ph.D. Dept. of Environmental Science and Engineering	Training Program in Water Pollution Control Engineering	2T1-WP-6-06	35,367
<u>OHIO</u>			
<u>Ohio State University</u> <u>Columbus</u>			
Dambach, Charles A., Ph.D. National Resources Institute	Interdisciplinary Water Resources Training	5T1-WP-39-04	31,598

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>OHIO</u>			
<u>University of Cincinnati</u> <u>Cincinnati</u>			
Eye, J. David, Sc.D. Dept. of Civil Engineering	Research Training and the Aquatic Environment	5T1-WP-46-04 3T1-WP-46-04S1	22,507 22,280
<u>University of Toledo</u> <u>Toledo</u>			
Bennett, Gary F., Ph.D. Dept. of Chemical Engineering	Bioengineering Training in Water Pollution Control	5T1-WP-94-02	19,762
<u>OKLAHOMA</u>			
<u>Oklahoma State University</u> <u>Stillwater</u>			
Dorris, Troy C., Ph.D. Dept. of Zoology	Program for Aquatic Biology Specialists in Water Pollution	2T1-WP-23-06	46,288
Gaudy, Anthony F., Jr., Ph.D. School of Civil Engineering	Bioengineering Training in Water Pollution Control	2T1-WP-19-06	43,386
<u>University of Oklahoma</u> <u>Norman</u>			
Reid, George W., Professor Dept. of Civil Engineering	Water Resource Development Training Program	5T1-WP-29-05 3T1-WP-29-05S1	17,997 15,278
<u>OREGON</u>			
<u>Oregon State University</u> <u>Corvallis</u>			
Burgess, Fred K., Ph.D. Dept. of Civil Engineering	Engineering Control of Waste Water Disposal Training Program	2T1-WP-25-06	71,038
Curl, Herbert, Jr., Ph.D. Dept. of Oceanography	Training of Estuarine Specialists in Water Quality	5T1-WP-111-02	103,598
Stoevener, Herbert H., Ph.D. Dept. of Agriculture Economics	Water Pollution Economics	2T1-WP-71-04	16,794
Warren, Charles E., Ph.D. Dept. of Fish and Game Management	Freshwater and Marine Pollution Biology Program	5T1-WP-52-05	39,664

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>PENNSYLVANIA</u>			
<u>University of Pittsburgh</u> <u>Pittsburgh</u>			
Miller, James P., Jr., Ph.D. Dept. of Civil Engineering	Water Resources and Water Pollution Control Engineering	5T1-WP-41-05	43,368
Tryon, C. A., Ph.D. Pymatuning Laboratory of Field Biology	Graduate Training in Aquatic Ecology	5T1-WP-83-02	29,982
<u>SOUTH CAROLINA</u>			
<u>Clemson University</u> <u>Clemson</u>			
Rich, Linvil G., Ph.D. College of Engineering	Graduate Program in Process Engineering of Waste Water Treatment	2T1-WP-8-06	69,111
<u>SOUTH DAKOTA</u>			
<u>South Dakota State University</u> <u>Brookings</u>			
Dornbush, James N., Sc.D. Dept. of Civil Engineering	Water Resources and Sanitary Engineering	5T1-WP-93-03	42,223
<u>TENNESSEE</u>			
<u>Vanderbilt University</u> <u>Nashville</u>			
Krenkel, Peter A., Ph.D. Dept. of Civil Engineering	Sanitary Engineering Training Program	5T1-WP-34-05	47,119
<u>TEXAS</u>			
<u>North Texas State University</u> <u>Denton</u>			
Silvey, J. K. G., Ph.D. Dept. of Biology	Training of Water Quality Microbiologists	5T1-WP-107-02	22,902
<u>Texas A &amp; M University</u> <u>College Station</u>			
Hann, Roy W., Ph.D. Dept. of Sanitary Engineering	Petro-Chemical Waste Abatement	5T1-WP-74-04 3T1-WP-74-03S1	53,435 16,698

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<b><u>TEXAS</u></b>			
<u>University of Texas</u> <u>Austin</u>			
Gloyna, Ernest F., Ph.D. Dept. of Civil Engineering	Water Resources and Water Pollution Control Training Program	2T1-WP-20-06	27,514
<u>William Marsh Rice University</u> <u>Houston</u>			
Busch, Arthur W., Professor Dept. of Chemical Engineering	Chemical Engineering Training in Water Pollution Control Processes	5T1-WP-44-05	76,378
<b><u>UTAH</u></b>			
<u>University of Utah</u> <u>Salt Lake City</u>			
Gauvin, Arden R., Ph.D. Dept. of Zoology and Entomology	Limnology and Sanitary Biology Aspects of Water Pollution	5T1-WP-54-05	29,953
<b><u>VIRGINIA</u></b>			
<u>Virginia Polytechnic Institute</u> <u>Blacksburg</u>			
Parsons, William A., Ph.D. Dept. of Civil Engineering	Graduate Training in Water Pollution Technology	5T1-WP-31-05	40,154
<b><u>WASHINGTON</u></b>			
<u>University of Washington</u> <u>Seattle</u>			
Sylvester, Robert O., Professor Dept. of Civil Engineering	Graduate Training of Water Quality Engineers	5T1-WP-122-02	42,523
<u>Washington State University</u> <u>Pullman</u>			
Dunstan, Gilbert H., Professor Dept. of Civil Engineering	Water Pollution Control and Waste Water Disposal Engineering	2T1-WP-11-06	23,194
<b><u>WEST VIRGINIA</u></b>			
<u>West Virginia University</u> <u>Morgantown</u>			
Burchinal, Jerry C., Ph.D. Dept. of Civil Engineering	Water Supply and Waste Control	5T1-WP-72-04 3T1-WP-72-04S1	39,811 6,840

LOCATION AND PROGRAM DIRECTOR	PROGRAM TITLE	GRANT NO.	AMOUNT
<u>WISCONSIN</u>			
<u>Marquette University</u> <u>Milwaukee</u>			
Kipp, Raymond J., Ph.D. Dept. of Civil Engineering	Water Pollution Control Engineering Training	1T1-WP-129-01	22,879
<u>University of Wisconsin</u> <u>Madison</u>			
Clarenbach, Fred A., Ph.D. Dept. of Civil Engineering	Water Resources Management	5T1-WP-60-04	65,181
Hasler, Arthur D., Ph.D. Dept. of Zoology	Training Program for Aquatic Scientist in Hydrobiology	2T1-WP-2-06	49,274
Lee, G. Fred, Ph.D. Dept. of Civil Engineering	Training Program in Water and Water Pollution Chemistry	2T1-WP-22-06	86,484
Polkowski, Lawrence B., Ph.D. Dept. of Civil Engineering	Water and Waste Water Control Engineering	5T1-WP-132-02	28,173

WATER POLLUTION CONTROL  
RESEARCH FELLOWSHIPS FISCAL YEAR 1967  
SUMMARY OF AWARDS BY STATES

State	Institutions and Agencies	Number Awarded	Amount Awarded
Arkansas	1	1	\$ 4,900
California	3	8	45,268
Colorado	2	3	16,083
Georgia	2	2	12,100
Indiana	1	1	7,530
Iowa	2	8	42,383
Kansas	2	2	10,433
Louisiana	1	1	5,400
Maryland	2	2	14,600
Massachusetts	3	2	11,900
Michigan	3	18	106,691
Missouri	2	2	11,200
New Hampshire	1	1	6,800
New Mexico	1	1	6,100
New York	2	6	30,689
Ohio	1	1	953
Oklahoma	2	2	10,200
Oregon	1	4	20,950
Pennsylvania	1	1	6,675
South Carolina	1	6	39,407
Texas	2	2	10,200
Utah	2	6	40,600
Washington	1	4	27,949
Wisconsin	2	16	98,154
Foreign	5	4	35,246
24 States	46	103	\$622,411

Active Research Fellowships 1967

31 States      2 Foreign Countries  
55 Institutions and Agencies  
147 Research Fellowships



WATER POLLUTION CONTROL  
RESEARCH FELLOWSHIPS  
 FISCAL YEAR 1967

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>ARKANSAS</u>			
<u>University of Arkansas</u> <u>Fayetteville</u>			
Owen, Ray Dept. of Civil Engineering	Waste Treatment Prediction Using Computers	1-F1-WP-35,936-01	\$ 4,900
<u>CALIFORNIA</u>			
<u>Stanford University</u> <u>Stanford</u>			
Atkins, Patrick R. Dept. of Civil Engineering	Rain-Out Washout Processes Applied to Lead Aerosols	5-F1-WP-33,496-02	5,800
Barber, Richard T. Dept. of Biological Sciences	The Dissolved Organic Carbon Cycle in Seawater	1-F1-WP-31,099-01A1	_____*
Foree, Edward G. Dept. of Civil Engineering	Decomposition of Algae in Natural Anaerobic Waters	5-F1-WP-26,177-02	5,800
Haskell, Broderick P. Dept. of Civil Engineering	Secondary Benefits Evaluation Derived from Water Pollution Abatement	2-F3-WP-26,102-02	_____*
Huff, Dale D. Dept. of Civil Engineering	Rainfall Deposition of Radioactive Fallout in Water Supplies	5-F1-WP-26,022-02	_____*
Jewell, William Dept. of Civil Engineering	Algal Degradation in Waterways	1-F1-WP-33,693-01	_____*
Linstedt, Kermit D. Dept. of Civil Engineering	Vanadium Removal in Water Treatment Coagulation	5-F1-WP-22,084-04	5,800
O'Rourke, James T. Dept. of Civil Engineering	Effects of Temperature Variation on Anaerobic Digestion	5-F1-WP-26,010-03	3,989

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>CALIFORNIA</u>			
<u>Stanford University</u> <u>Stanford</u>			
Stratton, Frank E. Dept. of Civil Engineering	Nitrogen Effects on Oxygen Resources in Streams	5-F1-WP-20,354-03	_____*
Tchobanoglous, George Dept. of Civil Engineering	The Use of Granular Filters in Tertiary Treatment	5-F1-WP-22,439-04	2,850
Young, James C. Dept. of Civil Engineering	The Anaerobic Filter for Waste Treatment	5-F1-WP-28,715-02	6,800
<u>University of California</u> <u>Berkeley</u>			
Middlebrooks, Eddie Dept. of Civil Engineering	Kinetics of Biological Systems	1-F3-WP-26,205-01	12,654
<u>University of California</u> <u>Davis</u>			
Carlson, John S. Dept. of Zoology	Effects of Micro-Nutrients on Primary Production Organisms	4-F1-WP-21,612-05	1,325
Carlson, John S. Dept. of Zoology	Primary Productivity and Zooplankton Population Dynamics in Castle Lake, California	4-F1-WP-21,612-04	250**
<u>COLORADO</u>			
<u>Colorado State University</u> <u>Fort Collins</u>			
Hendricks, Charles W. Dept. of Pathology and Microbiology	Growth of Selected Enteric Bacteria in River Water	5-F1-WP-22,545-03	_____*
Wendt, Theodore M. Dept. of Pathology and Microbiology	Urease Positive Bacteria	1-F1-WP-26,114-01A1	408**
	and Their Relation to Water Pollution	5-F1-WP-26,114-02	6,300
<u>University of Colorado</u> <u>Boulder</u>			
LaVelle, James W. Dept. of Biology	Primary Productivity of the Arkansas River in the Vicinity of Pueblo, Colorado	5-F1-WP-26,101-03	2,575

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\*\* Supply, travel or dependent allowance

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>COLORADO</u>			
<u>University of Colorado</u> <u>Boulder</u>			
Young, Willard C. Dept. of Biology	The Hydracarina of Colorado and Their Distribution as Related to Altitude and Water Chemistry	5-F1-WP-26,062-02	6,800
<u>GEORGIA</u>			
<u>Emory University</u> <u>Atlanta</u>			
Mozley, Samuel Dept. of Biology	Ecology of Chironomid Species in a Small Lake	1-F1-WP-37,227-01	6,300
<u>University of Georgia</u> <u>Athens</u>			
Cooke, George D. Dept. of Zoology	A Study of Eco-Energetics on a Pond Ecosystem Utilizing a Pesticide Tracer	1-F2-WP-29,492-01	_____*
Mayberry, William R. Dept. of Bacteriology	Gas-Liquid Chromatographic Studies of Biodegradation of Detergents	5-F1-WP-21,658-03	_____*
Todd, Russell L. Dept. of Bacteriology	Bacterial Decomposition of Detergents in Sewage	5-F1-WP-21,402-03	5,800
<u>IDAHO</u>			
<u>University of Idaho</u> <u>Moscow</u>			
Smith, Stamford D. Dept. of Entomology	Faunal and Ecological Studies in the Trichoptera of Idaho	5-F1-WP-26,026-03	_____*
<u>ILLINOIS</u>			
<u>Northwestern University</u> <u>Evanston</u>			
Smith, Frank A. Dept. of Economics	Economic Aspects of Water Pollution Abatement in the Pulp and Paper Industry	1-F1-WP-26,109-01	_____*

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>ILLINOIS</u>			
<u>University of Illinois</u> <u>Urbana</u>			
Hall, Millard W. Dept. of Civil Engineering	Inorganic Phosphorus Removal by the Activated Sludge Process	5-F1-WP-21,616-03	_____*
<u>INDIANA</u>			
<u>Indiana University</u> <u>Bloomington</u>			
Gorden, Robert W. Dept. of Microbiology	Aquatic Microbiology of a Freshwater Reservoir	1-F2-WP-22,138-01	7,530
<u>IOWA</u>			
<u>Iowa State University</u> <u>Ames</u>			
Bridges, Harold R. Dept. of Civil Engineering	Diatomite Filter Cake Resistance for Surface Waters	5-F1-WP-26,104-02	5,100
Burns, Donald E. Dept. of Civil Engineering	Removal of Particulate Matter on Coated Filter Media	5-F1-WP-26,003-03	6,800
Hermanson, Ronald E. Dept. of Agricultural Engineering	Activated-Sludge Stabilization of Swine Waste	5-F1-WP-23,671-03	2,683
Merideth, Kenneth C. Dept. of Civil Engineering	Statistical Analysis Relevant to Water Pollution Control	5-F1-WP-24,554-02	_____*
Raschke, Ronald L. Dept. of Botany and Plant Pathology	Algal Productivity and Waste Reclamation in a Sewage Stabilization Pond	5-F1-WP-26,064-02	6,600
Sedgwick, Stephen R. Dept. of Civil Engineering	Biological Treatment of Adsorbed Refractories	1-F1-WP-26,242-01	5,400
Wildman, Ruth B. Dept. of Cell Biology	The Biochemistry of the Blue-Green Algae	1-F1-WP-37,930-01	5,100
<u>University of Iowa</u> <u>Iowa City</u>			
Bright, David F. Dept. of Civil Engineering	Water or Wastewater Treatment Process Analysis	1-F1-WP-37,089-01	5,400
Lampe, Wallace D. Dept. of Civil Engineering	Biological Flocculation in Activated Sludge	5-F1-WP-33,656-02	5,300

\* Active 1967 - Supported by funds awarded in previous years

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>IOWA</u>			
<u>University of Iowa</u> <u>Iowa City</u>			
Teasdale, John D. Dept. of Civil Engineering	Virus Movement Through Porous Media	5-F1-WP-22,430-02	_____*
<u>KANSAS</u>			
<u>Kansas State University</u> <u>Manhattan</u>			
Foxx, Charles L. Dept. of Chemistry	Properties and Structures of Metal EDTA Complexes	1-F1-WP-26,202-01	6,300
<u>University of Kansas</u> <u>Lawrence</u>			
Burkhead, Carl E. Dept. of Civil Engineering	Energy Relationships in Aerobic Metabolism	5-F1-WP-21,611-03	_____*
Stukenberg, John R. Dept. of Civil Engineering	Radiotracer Studies of Endogenous Metabolism	5-F1-WP-24,278-03	4,133
<u>KENTUCKY</u>			
<u>University of Louisville</u> <u>Louisville</u>			
Greeson, Phillip E. Dept. of Biology	The Major Sources of Dissolved Oxygen in the Aquatic Environment	5-F1-WP-26,056,02	_____*
<u>LOUISIANA</u>			
<u>Northwestern State</u> <u>Natchitoches</u>			
Brown, Ellison E. Dept. of Biological Sciences	Effects of Pollution on Benthic Macroinvertebrates	1-F1-WP-26,216-01	5,400
<u>MARYLAND</u>			
<u>Johns Hopkins University</u> <u>Baltimore</u>			
Gillespie, William J. Dept. of Environmental Engineering Science	Water Reuse in Industrial Applications	1-F1-WP-26,236-01	6,100***
Meyers, Caldwell D. Dept. of Environmental Engineering Science	Responses of the White Perch to Temperature and O <sub>2</sub>	1-F1-WP-26,198-01A1	7,800

\*Active 1967 - Supported by funds awarded in previous years

\*\*\*Not Activated

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>MARYLAND</u>			
<u>Johns Hopkins University</u> <u>Baltimore</u>			
Schubel, Jerry R. Dept. of Oceanography	Sedimentation and Mineral Assemblages in Estuaries	5-F1-WP-23,785-03	6,800
<u>University of Maryland</u> <u>College Park</u>			
McErlean, Andrew J. Dept. of Zoology	Heat Stress and Thyroidal Relationships in <u>Roccus</u> <u>americanus</u>	2-F3-WP-24,146-02	_____*
<u>MASSACHUSETTS</u>			
<u>Harvard University</u> <u>Cambridge</u>			
Schaake, John C. Dept. of Environmental Sciences and Engineering	Economic Aspects of Water Management	1-F2-WP-26,108-01	_____*
<u>Massachusetts Institute of</u> <u>Technology</u> <u>Cambridge</u>			
Matson, Wayne R. Dept. of Chemistry	Lead Geochemistry in an Urban Environment	5-F1-WP-31,180-02	5,800
<u>University of Massachusetts</u> <u>Amherst</u>			
Saines, Marvin Dept. of Geology	Hydrology Induced Infiltration	1-F1-WP-26,229-01	6,100
<u>MICHIGAN</u>			
<u>Michigan State University</u> <u>East Lansing</u>			
Bahr, Thomas G. Dept. of Fisheries and Wildlife	Effects of Sublethal Pesticide Stress Upon Fish	4-F1-WP-26,004-04	2,900
Garton, Ronald R. Dept. of Fisheries and Wildlife	Metallic Ion Pollution in a Warm-Water Stream	5-F1-WP-26,008-04	5,800
Haines, Terry A. Dept. of Fisheries and Wildlife	Some Effects of Water Pollution on Fish Populations	1-F1-WP-26,225-01	5,130

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<b><u>MICHIGAN</u></b>			
<b><u>Michigan State University</u></b> <b><u>East Lansing</u></b>			
Jackson, Dennis Dept. of Botany and Plant Pathology	The Taxonomy and Ecological Distribution of the Desmidiaceae in Montana	1-F1-WP-26,081-01A1	_____*
Jensen, Alvin L. Dept. of Fisheries and Wildlife	Effects of Pollution on the Energy Transfer in a Stream Ecosystem	5-F1-WP-26,154-02	5,800
Lenon, Herbert L. Dept. of Fisheries and Wildlife	Transfer of the Insecticide Dieldrin Through Trophic Levels	5-F1-WP-29,109-03	6,300
Sohacki, Leonard P. Dept. of Fisheries and Wildlife	Movement of Sodium Arsenite in a Pond Ecosystem	5-F1-WP-25,711-03	7,800
<b><u>Michigan State University</u></b> <b><u>Hickory Corners</u></b>			
Miller, Michael C. Dept. of Botany	Biota Dynamics in an Aquatic Ecosystem	1-F1-WP-37,449-01	5,100
<b><u>University of Michigan</u></b> <b><u>Ann Arbor</u></b>			
Atkins, Peter F. Dept. of Civil Engineering	Kinetics and Uptake of Nitrogen and Phosphates by Ion Exchange	1-F1-WP-26,174-01A1	6,300
Brockway, Donald L. Dept. of Fisheries and Wildlife	Release Effects of Tissue- Stored Dieldrin in Fishes	2-F1-WP-34,286-02	5,367
DiGiano, Francis Dept. of Civil Engineering	Activated Carbon Adsorption in Heterogeneous Systems	1-F1-WP-26,176-01A1	6,300
Foess, Gerald W. Dept. of Civil Engineering	The Sand Filtration of Algae Suspensions	5-F1-WP-26,036-03	5,600
Hirota, Dennis I. Dept. of Civil Engineering	Chemical Oxidation of Domestic Wastes	5-F1-WP-26,095-02	_____*
Keinath, Thomas M. Dept. of Civil Engineering	Kinetics of Adsorption in Columns of Fluidized Media	5-F1-WP-24,505-03 5-F1-WP-24,505-04	5,800 2,350
Leland, Harry V. Dept. of Fisheries and Wildlife	Structure-Toxicity of M. Parathion Analogs to Fishes	1-F1-WP-26,240-01	6,800

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>MICHIGAN</u>			
<u>University of Michigan</u> <u>Ann Arbor</u>			
Midkiff, William Dept. of Civil Engineering	Fluidized-Ion Exchange Column	1-F1-WP-26,227-01	5,100
Pohland, Frederick G. Dept. of Environmental Health	Study and Research in Water Resources Sciences	1-F3-WP-37,035-01	12,544
Schenk, John E. Dept. of Civil Engineering	Silica Interaction with Trace Metals	5-F1-WP-26,034-03	6,600
Winklehaus, Charles Dept. of Civil Engineering	Sludge and Slurry Deposition and Dewatering	1-F1-WP-26,231-01	5,100
<u>MISSOURI</u>			
<u>University of Missouri</u> <u>Columbia</u>			
Hemphill, Louis Dept. of Civil Engineering	Application of Thermal Technique for Detecting Organic Pollution	5-F1-WP-26,007-02	_____*
Hoehn, Robert C. Dept. of Civil Engineering	Biodegradation of Organic Materials Adsorbed on Carbon	5-F1-WP-26,150-02	6,100
<u>Washington University</u> <u>St. Louis</u>			
Smith, James E. Dept. of Civil and Environmental Engineering	Control of Activated Sludge Bulking with Heavy Metals	1-F1-WP-26,249-01	5,100
Young, Reginald H. F. Dept. of Environmental and Sanitary Engineering	Degradation of Trace Organic Pollutants	5-F1-WP-26,027-02	_____*
<u>NEW HAMPSHIRE</u>			
<u>University of New Hampshire</u> <u>Durham</u>			
Gallup, Donald N. Dept. of Zoology	Zoo-Nannoplankton Relation- ships in a Mesotrophic Lake	1-F1-WP-26,218-01	6,800

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>NEW MEXICO</u>			
<u>New Mexico State University</u> <u>University Park</u>			
Kramer, Gary R. Dept. of Civil Engineering	Mathematical Model of the Transition State	1-F1-WP-26,220-01	6,100
<u>NEW YORK</u>			
<u>Cornell University</u> <u>Ithaca</u>			
Arnold, Dean E. Dept. of Ecology and Systematics	Effects of the Blue-Green Algae on Zooplankton	1-F1-WP-36,214-01	5,600
Kirby, William H. Dept. of Sanitary Engineering	Systems Theory Use in Design of Water Resource Engineering	5-F1-WP-24,561-03	5,522
Skelly, Michael Dept. of Sanitary Engineering	Optimal Process Design for Multiple Waste Components	1-F1-WP-33,749-01A1	6,300
Wanielista, Martin P. Dept. of Water Resources Engineering	Optimal Location and Evaluation of Surveillance Nets	1-F1-WP-33,751-01A1	5,800
Ward, Charles R. Dept. of Entomology and Limnology	Ecological Changes in Modified Playas	5-F1-WP-15,212-05	3,042
<u>New York University</u> <u>University Heights</u>			
Bella, David A. Dept. of Civil Engineering	Distribution of Pollutants in Rivers and Estuaries	5-F1-WP-26,038-03	4,425
Metzger, Ivan Dept. of Civil Engineering	Mathematical Methods for Sanitary Engineering Applications	1-F3-WP-26,053-01	_____*
<u>NORTH CAROLINA</u>			
<u>University of North Carolina</u> <u>Chapel Hill</u>			
Gakstatter, Jack H. Dept. of Environmental Science and Engineering	The Accumulation and Excretion of DDT and Dieldrin by Fish	5-F1-WP-21,673-03	_____*
Henderson, Oliver Dept. of Environmental Science and Engineering	Microflotation of Algae	2-F1-WP-21,608-03	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>OHIO</u>			
<u>Ohio State University</u> <u>Columbus</u>			
Kucha, Michael J. Dept. of Law	Legal Problems Encompassed Within Water Pollution Abatement	5-F3-WP-26,033-03	953
<u>OKLAHOMA</u>			
<u>Oklahoma State University</u> <u>Stillwater</u>			
Grady, Leslie C. P. Dept. of Civil Engineering	Metabolic Control in Multicomponent Systems	5-F1-WP-16,744-03	5,100
Harrel, Richard C. Dept. of Zoology	Stream Order and Distribution of Benthic Invertebrates	5-F1-WP-23,074-02	_____*
Knudson, Vernie A. Dept. of Zoology	Dehydrogenase Concentration to Estimate a Functioning Biomass	5-F1-WP-26,087-02	_____*
<u>Oklahoma University</u> <u>Norman</u>			
Engelken, Walter E. Dept. of Civil Engineering and Environmental Science	Ionic Buffer Capacity of High Surface Area Materials	1-F1-WP-26,233-01	5,100
<u>OREGON</u>			
<u>Oregon State University</u> <u>Corvallis</u>			
Haertel, Lois J. Dept. of Oceanography	Relationships Between Columbia River Estuary Plankton, Radionuclides and Wood Fibers	5-F1-WP-31,471-02	5,300
Holton, Robert L. Dept. of Oceanography	Radiosensitivity of Marine Organisms	5-F1-WP-30,166-03	2,450
McCain, Bruce B. Dept. of Microbiology	Characterization of Virus Infections for Salmonid Cell Cultures	5-F1-WP-26,157-02	5,600
Robertson, James M. Dept. of Microbiology	A Physiological Ecological Study of Sphaerotilus Natans in an Experimental Stream	5-F1-WP-26,040-02	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>OREGON</u>			
<u>Oregon State University</u> <u>Corvallis</u>			
Seabloom, Robert W. Dept. of Civil Engineering	Influence of Impoundments on Water Quality	1-F3-WP-25,459-01A1	_____*
Williams, Harvey D. Dept. of Botany and Plant Pathology	Kraft Pulp Effluent Effects on Algae in Streams	1-F1-WP-26,159-01A1	7,600
<u>PENNSYLVANIA</u>			
<u>Pennsylvania State University</u> <u>University Park</u>			
Eberhardt, William A. Dept. of Civil Engineering	Anaerobic Biological Waste Treatment	5-F1-WP-26,021-03	6,675
<u>RHODE ISLAND</u>			
<u>University of Rhode Island</u> <u>Kingston</u>			
Busser, John H. Dept. of Oceanography	Physiological Indices of Pollution in Marine or Estuarine Waters	2-F3-WP-17,280-04	_____*
<u>SOUTH CAROLINA</u>			
<u>Clemson University</u> <u>Clemson</u>			
Bryant, James O. Dept. of Environmental Systems Engineering	Stochastic Model of Bacteria in Continuous Culture	1-F1-WP-26,175-01A1	5,100 ***
Cannella, Albert A. Dept. of Environmental Systems Engineering	Chemical Aspects of Waste Treatment	5-F1-WP-30,617-02	9,600
Click, Clifford N. Dept. of Chemical Engineering	Growth Kinetics of Algae	5-F1-WP-29,884-02	7,100
Holland, Lyman L. Dept. of Chemical Engineering	Growth Kinetics of Algae in a Photosynthetic Reactor	5-F1-WP-26,173-02	5,300
Kornegay, Billy H. Dept. of Civil Engineering	A Rational Mathematical Model for Trickling Filters	5-F1-WP-24,560-03	_____*

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\*\*\* Withdrawn

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>SOUTH CAROLINA</u>			
<u>Clemson University</u> <u>Clemson</u>			
Weers, Walter A. Dept. of Environmental Systems Engineering	Mathematical Model of the Step Aeration Process	1-F1-WP-26,243-01	6,707
Wrenn, John David Dept. of Chemical Engineering	Effect of Light Source on Chlorophyll in Algae	5-F1-WP-26,181-02	5,600
<u>TENNESSEE</u>			
<u>University of Tennessee</u> <u>Knoxville</u>			
Bergquist, Eugene T. Dept. of Botany	Ecological and Morphogenetic Studies of Myriophyllum	5-F1-WP-21,877-03	_____*
<u>Vanderbilt University</u> <u>Nashville</u>			
Tomlinson, Henry D. Dept. of Civil and Water Resources Engineering	Effect of Trace Organic Compounds on the Kinetics of Manganese Formation in Reservoirs	1-F1-WP-26,148-01	_____*
<u>TEXAS</u>			
<u>Texas A &amp; M University</u> <u>College Station</u>			
Evelt, Jack B. Dept. of Civil Engineering	Waste Assimilation Capacity in Non-Steady Rivers	5-F1-WP-23,068-03	5,100
<u>University of Texas</u> <u>Port Aransas</u>			
Steed, David L. Institute of Marine Science	Carbon Balance of an Estuarine Ecosystem	1-F1-WP-26,209-01	5,100
<u>UTAH</u>			
<u>University of Utah</u> <u>Salt Lake City</u>			
Gauvin, Richard F. Dept. of Zoology and Entomology	Uptake of Radioactively Tagged Insecticides by Aquatic Invertebrates	5-F1-WP-26,051-02	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>UTAH</u>			
<u>University of Utah</u> <u>Salt Lake City</u>			
Hales, Donald C. Dept. of Zoology	Effects of Insecticides on a Stream Environment	5-F1-WP-26,025-03	7,800
Merkley, Wayne B. Dept. of Zoology	Evaluation of Nematodes in Water Treatment Plant	5-F1-WP-26,016-03	6,600
Morgan, Garth Ray Dept. of Zoology and Entomology	Plankton Productivity of Pine View Reservoir	1-F1-WP-26,212-01	6,400
Prows, Bernard L. Dept. of Zoology and Entomology	Bioassays to Determine the Toxicity of Pesticides to Aquatic Insects	5-F1-WP-26,130-02	8,100
<u>Utah State University</u> <u>Logan</u>			
Beers, Gary D. Dept. of Wildlife Resources	Algal and Sphaerotilus Production in a Polluted River	1-F1-WP-33,276-01A1	5,100 500**
Hilden, Donald A. Dept. of Wildlife Resources	Toxicity and Interactions of Mg, Ca and Halides on Trout	5-F1-WP-22,891-03	_____*
Mayer, Foster Lee Dept. of Wildlife Resources	Insecticide Interaction Effects on Fish Metabolism	1-F1-WP-31,575-01A1	6,100
Nyquist, David Dept. of Wildlife Resources	Eutrophication Trends of Bear Lake (Idaho-Utah) and Effect on the Distribution and Biological Productivity of Zooplankton	5-F1-WP-23,240-03	_____*
<u>VIRGINIA</u>			
<u>Virginia Polytechnic Institute</u> <u>Blacksburg</u>			
Harrison, John Dept. of Civil Engineering	Dewatering of Sewage Sludge by Syneresis	5-F1-WP-21,999-03	_____*
Judkins, Joseph F. Dept. of Civil Engineering	Crystal Seeding for Control of Sludge Properties	5-F1-WP-23,213-03	_____*

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\*\* Supply, travel or dependent allowance

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>WASHINGTON</u>			
<u>University of Washington</u> <u>Seattle</u>			
Abernathy, Atwell R. Dept. of Zoology	Limnological Study of Recovery of Lake Washington	1-F3-WP-26,213-01	12,007
Gotelli, David M. Dept. of Botany	Fungal Parasites of the Phytoplankton	1-F1-WP-26,248-01	6,100
Stockner, John G. Dept. of Zoology	Ecology of Thermal Springs	5-F1-WP-26,042-03	3,042
Woelke, Charles E. Dept. of Fisheries	Bioassay Study of Fertilized Oyster Eggs in Puget Sound	5-F1-WP-26,014-03	6,800
<u>WISCONSIN</u>			
<u>Marquette University</u> <u>Milwaukee</u>			
Heinen, John M. Dept. of Biology	Factors Influencing the Uniformly Labelled C <sup>14</sup> Glucose Uptake by Fish	1-F1-WP-35,673-01	4,900
<u>University of Wisconsin</u> <u>Madison</u>			
Baillod, Charles Dept. of Civil Engineering	Mass Transfer of Nutrients Through Bacterial Floc	5-F1-WP-24,612-02	6,800
Bentley, Eugene M. Dept. of Civil Engineering	Effect of Marshes on Water Quality	1-F1-WP-26,189-01A1	6,600
Biggar, James W. Dept. of Soils	Mixing Processes in Soil in Relation to Waste Control	1-F1-WP-28,715-01	_____*
Boucher, Francis R. Dept. of Civil Engineering	Chlorinated Pesticides in Natural Water	5-F1-WP-26,137-02	6,800
Brezonik, Patrick L. Dept. of Civil Engineering	Chemistry of Nitrogen in Natural Waters	5-F1-WP-26,103-02	_____*
Cole, Jon A. Dept. of Civil Engineering	General Area of Physical Thickening of Sludges from Biological Waste Treatment	5-F1-WP-28,270-03	7,800
Cowen, William F. Dept. of Water Chemistry	Effect of Organics on Growth of Algae	1-F1-WP-26,207-01	5,400

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>WISCONSIN</u>			
<u>University of Wisconsin</u> <u>Madison</u>			
Delfino, Joseph J. Dept. of Civil Engineering	Aqueous Environmental Chemistry of Manganese	1-F1-WP-26,217-01	5,300
Doll, Frederick L. Dept. of Civil Engineering	Chemistry of Boron in Natural Waters	5-F1-WP-26,009-03	2,850
Gardner, Wayne S. Dept. of Civil Engineering	Isolation of Organic Compounds from Natural Water	1-F1-WP-26,224-01	6,100
Hughes, Robert A. Dept. of Civil Engineering	Persistence of Toxaphene in Natural Waters	1-F1-WP-26,196-01A1	6,600
Karr, Malcolm H. Dept. of Urban and Regional Planning	Water Resources Management	1-F3-WP-26,167-01	804** 500**
Peterson, James O. Dept. of Civil Engineering	Concentration of Organics	5-F1-WP-26,183-02	6,300 458**
Radke, Rodney O. Dept. of Soils	Adsorption of S-Triazine Herbicides at Soil Colloidal Surfaces	5-F1-WP-24,110-03	_____*
Rees, Colin P. Dept. of Zoology	Two Factors Influencing the Distribution of Gammarus Pseudolimnaeus	1-F1-WP-36,364-01	5,100
Shannon, James E. Dept. of Civil Engineering	Chemistry of Metals in Natural Waters	2-F1-WP-26,012-03	6,667
Smith, Sharon G. Dept. of Zoology	Energy Flow through a Population of Ciliate Protozoans in a Lake Community	1-F2-WP-8676-01	_____*
Spear, Richard D. Dept. of Chemistry	Chemistry of Glycollic Acid in Natural Waters	5-F1-WP-26,020-03	6,800
Uttormark, Paul D. Dept. of Civil Engineering	Langmuir Circulation in Lakes	5-F1-WP-24,470-03	_____*
Voelkel, Karl G. Dept. of Civil Engineering	Hydraulic Analysis of Aerated Grit Chambers	5-F1-WP-26,088-02	5,575

\* Active 1967 - Supported by funds awarded in previous years

\*\* Supply, travel or dependent allowance

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
<u>WISCONSIN</u>			
<u>University of Wisconsin</u> <u>Madison</u>			
Walesh, Stuart G. Dept. of Civil Engineering	Subsurface Water Movement	5-F1-WP-26,072-03	6,800
<u>FOREIGN</u>			
<u>ENGLAND</u>			
<u>Freshwater Biological Association</u> <u>Ambleside</u>			
Potash, Milton Dept. of Chemistry	Identification of Dissolved Organic Substances in Lake Water	1-F1-WP-26,206-01	7,358 250**
Stockner, John G Dept. of Chemistry	Lake Sediments Study	1-F2-WP-26,042-01	7,249 184** 450**
<u>University College</u> <u>London</u>			
Okun, Daniel A. Dept. of Civil Engineering	Implementation of Water Research into Works Design	1-F3-WP-26,147-01	_____*
<u>University of Leeds</u> <u>Leeds</u>			
Markham, James J. Dept. of Chemistry	Synergistic Effects of Complexing Agents in Water Purification by Solvent Extraction	1-F3-WP-26,091-01	_____*
<u>University of London</u> <u>London</u>			
Jewell, William J. Dept. of Botany	Algae and Sessile Plant Degradation in Waterways	1-F2-WP-33,693-01	6,631
<u>SWITZERLAND</u>			
<u>Swiss Federal Institute of</u> <u>Technology</u> <u>Zurich</u>			
Washington, Donald R. Biological Section	Effects of Algae on Stream Oxygen Balance	1-F3-WP-7935-01	13,124

\* Active 1967 - Supported by funds awarded in previous years

\*\* Supply, travel or dependent allowance