WATER RESOURCES EXPERTISE Wyoming Water Research Center and University of Wyoming

Issue No. 1

WWRC-85-13 Sept. 1985

Edited by Pamelia A. Murdock and Linda Osterman

WYOMING WATER RESEARCH CENTER UNIVERSITY OF WYOMING LARAMIE, WYOMING The 1982 Wyoming Legislature provided funds to establish a new water research program at the University of Wyoming; the Wyoming Water Research Center began operations on July 1, 1982. The WWRC has as its principal charge the conduct of a comprehensive water research program that specifically addresses the preservation and management of Wyoming's water resources. The Center is designed to effectively coordinate, conduct, and sponsor water research; to provide service to State agencies; and to offer extension and graduate instruction -- all in an interdisciplinary context. The Wyoming Water Research Center can call on a diverse set of disciplinary expertise necessary to address key issues for the state and the region.

The following publication outlines the research capabilities available on the University of Wyoming campus. It is our hope that this information will be a valuable tool for the public, legislators, state and federal agencies, water researchers, and industry personnel in identifying the appropriate source for water-related information.

If you have any comments concerning this publication or would like more information about the Wyoming Water Research Center and its function, please feel free to contact me.

Robert W. Brocksen, Director

## TABLE OF CONTENTS

|                  |           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | Page |
|------------------|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|
| Water Resources  | Expertise | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | 1    |
| Research Topics  | Index     | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | 27   |
| Department/Colle | ege Index | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | 41   |

### WATER RESOURCES EXPERTISE

ROLLIN H. ABERNETHY, Associate Professor (307) 766-3356 of Plant Science (307) 766-3103 Plant Science Department P.O. Box 3354 University Station Room 4005 Laramie, Wyoming 82071 Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Plant physiologist with special emphasis on seed production and seed physiology. Special interest in water requirements for germination and the basis for ability of seed to germinate and grow under osmotic stress. Also interested in native shrub water use with particular reference to seed production and how irrigation affects seed quality. Research includes use of seed pretreatments to enhance germination and establishment of planting on arid sites.

| JOHN C. ADAMS, Associate Professor of     | (307) 766-3218   |
|-------------------------------------------|------------------|
| Microbiology                              | (307) 766-2170   |
| Department of Microbiology & Biochemistry |                  |
| P.O. Box 3354                             |                  |
| University Station                        | Room 6005        |
| Laramie, Wyoming 82071                    | Agriculture Bldg |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Bacteriology of mountain watersheds with emphasis upon streams, sediments and riparian systems. Bacteriology of waters associated with coal strip mines. Taste and odor causing microorganisms in drinking water supplies. Bacteriology of drinking water treatment and distribution systems. Toxicity of synfuel process waters to bacteria and bacterial treatment of these process waters.

DOUGLAS E. AGEE, Professor of Agricultural Economics (307) 766-4268 and Extension Farm Management Specialist Department of Agricultural Economics P.O. Box 3354 University Station Room 212 Laramie, Wyoming 82071

Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Costs of producing irrigated crops, farming practices and management.

MYRON B. ALLEN, Assistant Professor of<br/>Mathematics(307) 766-3292<br/>(307) 766-4221Department of Mathematics(307) 766-4221P.O. Box 3036Room 213<br/>Ross Hall

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Mathematical modeling of contaminant flows in aquifers, numerical simulation of multiphase flows in porous media.

| VERNON S. ARCHER, Associate Professor | (307) 766-4376    |
|---------------------------------------|-------------------|
| of Chemistry                          | (307) 766-4363    |
| Department of Chemistry               |                   |
| P.O. Box 3838                         |                   |
| University Station                    | Room 311          |
| Laramie, Wyoming 82071                | Physical Sciences |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Development of analytical methods for the determination of trace metals in natural waters and fossil fuel wastewaters using high performance liquid chromatography, differential pulse polarography, differential pulse anodic stripping voltammetry, and atomic absorption and emission techniques.

SCOTT E. ATKINSON, Associate Professor(307) 766-5141of EconomicsInstitute for Policy ResearchP.O. Box 3925Iniversity StationUniversity StationRoom 227Laramie, Wyoming 82071Ross Hall

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Economist and Director of the Institute for Policy Research with expertise in analysis of the demand for water, alternative systems of use and their impact on efficiency, the implications of alternative cost and pricing schemes for water, and the impact of alternative water development and use patterns on aquatic ecosystems. Also, a strong interest in developing interdisciplinary approaches to the study of these problems.

τ.

| AUGUST H. AUER, JR., Professor of Atmospheric | (307) 766-5163   |
|-----------------------------------------------|------------------|
| Science                                       | (307) 766-3245   |
| Department of Atmospheric Science             |                  |
| P.O. Box 3038                                 |                  |
| University Station                            | Room 6075        |
| Laramie, Wyoming 82071                        | Engineering Bldg |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Weather analysis and forecasting with emphasis on satelite imagery interpretation regarding heavy snowfall episodes and flash flooding.

| (307) 766-5367    |
|-------------------|
| (307) 766-4363    |
|                   |
| Room 407          |
| Physical Sciences |
|                   |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Isolation and characterization of organic material in ground waters, particularly size and shape analysis of macromolecular components.

KEITH J. BARTON, Associate Professor of Mechanical Engineering Department of Mechanical Engineering P.O. Box 3295 University Station Laramie, Wyoming 82071

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Corrosion (aqueous) materials and materials selection. Current research interests in stress corrosion cracking and passivity studies.

| JACKSON B. BATTLE, Professor of Law | (307) 766-6107 |
|-------------------------------------|----------------|
| College of Law                      | (307) 766-6416 |
| P.O. Box 3035                       |                |
| University Station                  | Room 208       |
| Laramie, WY 82071                   | Law College    |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

State and federal legislation, regulation, and administrative procedures related to water rights, water pollution, and disposal of hazardous wastes. HAROLD L. BERGMAN, Professor of Zoology & Physiology
Department of Zoology & Physiology
P.O. Box 3166
University Station
Laramie, Wyoming 82071

(307) 766-4330
(307) 766-4207

Room 411 Biological Sciences

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Fate and effects of organic and inorganic pollutants in the aquatic environment. Special interest in toxicology testing methods, contaminant bioaccumulation, and physiological effects of contaminants on fish.

| ROBERT C. BERGSTROM, Professor of Parasitology<br>Department of Microbiology & | (307) 766-6271<br>(307) 766-2170 |
|--------------------------------------------------------------------------------|----------------------------------|
| Veterinary Medicine<br>P.O. Box 3354                                           | (307) 742-6638                   |
| University Station                                                             | Room 5015                        |
| Laramie, Wyoming 82071                                                         | Agriculture Bldg.                |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Work with parasitic problems in cattle and sheep that are moved from dry range to areas that are flood- or sprinkler-irrigated. The impact of these irrigated areas is important because from 3-7 times the usual number of animal units/acre are managed on irrigated areas in Wyoming. Parasitic helminths increase by 5-10 times the number found on dry ranges in Wyoming.

| HANS BLEIKER, Director of Graduate Program in | (307) 766-6386 |
|-----------------------------------------------|----------------|
| Community & Regional Planning                 | (307) 766-3311 |
| Department of Geography/Recreation            |                |
| P.O. Box 3371                                 |                |
| University Station                            | Room 204       |
| Laramie, Wyoming 82071                        | A & S Bldg.    |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Research focuses on do's and don'ts of effective public-sector problemsolving and decision making. Research conducted in cooperation with several governmental agencies involved in major public-sector controversies, including: U.S. EPA, U.S. Forest Service, U.S. Fish & Wildlife Service, State of Iowa, Dept. of Natural Resources (Ground Water Division) of Michigan, New York Department of Environmental Conservation and the Wisconsin Department of Natural Resources. MARK S. BOYCE, Associate Professor of<br/>Zoology and Physiology(307) 766-5373<br/>(307) 766-4207Department of Zoology & PhysiologyP.0. Box 3166University StationRoom 404<br/>Biological Sciences

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Population dynamics and life history evolution with particular interest in wetland habitats and organisms. Active research program on ecology of muskrats and mink. Mathematical models of populations.

EDWARD B. BRADLEY, Assistant Professor of (307) 766-2166 Agricultural Economics (307) 766-2386 Department of Agricultural Economics P.O. Box 3354 University Station Room 216D Laramie, Wyoming 82071 Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Identification and evaluation of the net benefits and fiscal impacts associated with alternative water development projects. Economic analysis of point and non-point water pollution control projects to control salinity and other pollutants of surface waters. Quantification of water demand and supply schedules for areas with increasing water demand in Wyoming.

ROBERT W. BROCKSEN, Director of WWRC and<br/>Professor of Zoology and Physiology(307) 766-2143Wyoming Water Research CenterP.O. Box 3067University StationRoom 152, VA Bldg.Laramie, Wyoming 8207113th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Director of the Wyoming Water Research Center: administer the coordination, development and implementation of a broad spectrum of research projects addressing water at state and national levels. Advisor to the Congressional Office of Technology Assessment for its study of atmospheric alteration impacts and Chairman of review panels for the Environmental Effects portion of the National Acid Precipitation Assessment Program. Appointed by Secretary of Energy to the National Coal Council. Research interests in water quality, water management, and water policy. DONALD J. BROSZ, Associate Director for Information<br/>& Extension Specialist - Irrigation Engineering(307) 766-4398<br/>(307) 766-2089<br/>(307) 766-2089<br/>(307) 766-2143Department of Agricultural Engineering & WWRC<br/>P.O. Box 3295<br/>University Station<br/>Laramie, Wyoming 82071Room 2089<br/>Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Conduct water resource extension programs relating to the wise development, management and use for multiple use purposes in Wyoming. Water resources information dissemination programs include seminars, workshops, public information meetings, field tours, publications and news media (print, radio, TV).

TOM BUCHANAN, Associate Professor of<br/>Geography and Recreation(307) 766-6253<br/>(307) 766-3311Department of Geography and Recreation9.0. Box 3371University StationRoom 305<br/>A&S College

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Planning and evaluation of water based outdoor recreation including, recreation demand estimation, site planning and design, relationships between water based recreation use and physical site parameters and human behavior aspects of water recreation.

ROBERT D. BURMAN, Professor of<br/>Agricultural Engineering(307) 766-2295<br/>(307) 766-4395Department of Agricultural Engineering9.0. Box 3295University StationRoom 2088<br/>Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Project manager or principal investigator on several major projects dealing with vegetative water use. Extensive data set concerning water use under high altitude conditions being developed and several major publications are expected. The research involves the states of Wyoming, Colorado, Utah and Idaho. First author or a major contributor to a volume published by ASCE and chapters dealing with evapotranspiration published by ASAE and Academic Press. These publications are in use on a world wide basis. ROBERT L. CHAMPLIN, Professor of<br/>Civil Engineering(307) 766-4116<br/>(307) 766-5255Department of Civil Engineering9.0. Box 3295University StationRoom 3098<br/>Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Research on water quality parameters, methods of water treatment for meeting various uses (municipal drinking water, industrial process water, etc.). Educational consultant for management, design and operations in the drinking water field and industrial process water area.

KEN P. CHONG, Professor of Civil Engineering Department of Civil Engineering P.O. Box 3295 University Station Laramie, Wyoming 82071

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Finite element modeling, mechanical characterization of ice, fracture mechanics, mechanics of layered media (e.g. ice covered lakes) and hydrodynamics.

| THOMAS D. CROCKER, Professor of Economics | (307) 766-6424 |
|-------------------------------------------|----------------|
| Department of Economics                   | (307) 766-2178 |
| P.O. Box 3985                             |                |
| University Station                        | Room 130       |
| Laramie, Wyoming 82071                    | Ross Hall      |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Environmental and resource economics; benefit-cost analysis; interactions of ecosystems and economics.

| RALPH C. d'ARGE, Bugas Distinguished Professor | (307) 766-6424 |
|------------------------------------------------|----------------|
| of Economics                                   | (307) 766-2178 |
| Department of Economics                        |                |
| P.O. Box 3985                                  |                |
| University Station                             | Room 140       |
| Laramie, Wyoming 82071                         | Ross Hall      |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Developed large scale water resource planning models including "Tech Comm" model for the 13 western states and the Pecos Basin model linking ground and surface water management systems. Conducted research on water quality management, institutions, and legal rights for the U.S. and Europe (selected locations).

CHARLES DAVIS, Associate Professor of (307) 766-2307 Political Science (307) 766-6484 Department of Political Science P.O. Box 3197 University Station Room 143 Laramie, Wyoming 82071 A & S Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Contributed to, "State-Federal Relations in Water Resource Planning: The Case of Wyoming," in <u>The Politics of Wyoming</u>, Kenyon Griffin, ed. (Laramie: Bureau of Governmental Research & Service). Federal-state issues in the development and implementation of water resource policies are of interest.

| DAVID H. DAVIS, Associate Professor of | (307) 766-3396 |
|----------------------------------------|----------------|
| Political Science                      | (307) 766–6484 |
| Department of Political Science        |                |
| P.O. Box 3197                          |                |
| University Station                     | Room 142       |
| Laramie, Wyoming 82071                 | A & S Bldg.    |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Surface mining program (OSM) and EPA programs.

RONALD H. DELANEY, Professor of Crop Physiology(307) 766-3238Department of Plant Science(307) 766-3103P.O. Box 3354Room 4006University StationRoom 4006Laramie, Wyoming 82071Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Water application conservation for irrigation of cultivated crops. Genetic improvement of the water use-efficiency of alfalfa through reduced transpiration and improved water stress tolerance. Development of more efficient genetic lines for irrigated and dryland production.

JAMES I. DREVER, Professor of (307) 766-6434 Geology/Geophysics (307) 766-3386 Department of Geology/Geophysics P.O. Box 3006 University Station Room 314A Laramie, Wyoming 82071 Geology Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Mechanism controlling the chemistry of ground and surface waters. Weathering processes, including organic-inorganic interactions. Effect of acid deposition on weathering processes and surface water chemistry. Adsorption processes and contaminant migration.

DAVID P. EGOLF, Assistant Professor of (307) 766-6181 Electrical Engineering (307) 766-2240 Department of Electrical Engineering P.O. Box 3295 University Station Room 5060 Laramie, Wyoming 82071 Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Capability for monitoring all types of underwater phenomena via sonar using piezo-electric and/or magnetastrictive sound sources and hydrophone receivers. Also analysis of underwater echo-ranging and echolocation via mathematical models on the computer. Math modeling of sonar wave propagation through water-saturated porous media such as bottom sediments and hydrologic formations. Complete acoustics laboratory located in the Engineering College which includes a "moderate" amount of sonar equipment and will soon include an underwater anechoic chamber for calibrating equipment and making experiments in a water medium. WALTER H. EIFERT, Research Associate(307) 766-2143Wyoming Water Research CenterP.O. Box 3067University StationRoom 162, VA Bldg.Laramie, Wyoming 8207113th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Watershed hydrologic model applications, including calibration and modification. Watershed processes including streamflow and runoff characteristics, surface water/ground water interactions, and erosion and sedimentation effects. Special interest in information management systems including data acquisition, management and retrieval.

RICHARD E. EWING, J.E. Warren Distinguished (307) 766-4933 Professor of Energy & Environment & Professor (307) 766-4221 of Mathematics and Petroleum Engineering Department of Mathematics & Petroleum Engineering P.O. Box 3036 University Station Room 310 Laramie, Wyoming 82071 Ross Hall

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Specialization in mathematical modeling of various aspects of fluid flow in porous media: drainage patterns and water resources, modeling of contaminant transport, techniques for contaminant clean-up, modeling of wells and anisotrophies in flow problems. Interest in parameter determination techniques to estimate transmissivities on other rock and soil properties via history matching. Determination of accurate fluid velocities in various flow problems.

 K. JAMES FORNSTROM, Professor of Agricultural (307) 766-3328 Engineering (307) 766-4395
 Department of Agricultural Engineering
 P.O. Box 3295
 University Station Room 2095
 Laramie, Wyoming 82071 Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Irrigation scheduling, crop water use, soil loss from furrow irrigation, methods of controlling soil loss, reduced tillage, cultural practices for agricultural crops, pesticide application, tillage and irrigation equipment. DAVID H. FOSTER, Associate Professor of (307) 766-4242 Civil Engineering (307) 766-5255 Department of Civil Engineering P.O. Box 3295 University Station Room 1019 Laramie, Wyoming 82071 Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Water pollution transport in surface and groundwaters pollution control processes including adsorption, ion exchange and biological treatment. Fate and transport of microorganisms including viruses in surface and groundwaters.

JEFFREY R. FOSTER, Postdoctoral Research (307) 766-4963 Associate in Botany (307) 766-2380 Department of Botany P.O. Box 3165 University Station Room 120 Laramie, Wyoming 82071 Aven Nelson Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Plant ecophysiology, including carbon and water relations. Microclimate of plant communities. Computer modeling of carbon and water flux in vegetation canopies. Remote, field data acquisition. Transpiration by riparian vegetation in southeast Wyoming.

CHRIS M. GOERTLER, Research Associate (307) 766-2143 Wyoming Water Research Center P.O. Box 3067 University Station Room 153E, VA Bldg. Laramie, Wyoming 82071 13th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Acquisition, organization and processing of precipitation, streamflow, temperature, humidity, wind speed and wind direction data from WWRC's Snowy Range Observatory. Validation of a brown trout habitat model. Primary research interest involves the identification of impacts to water, wildlife and vegetation due to industrial development and consequently the derivation of mitigation methods which help alleviate these impacts.

| KEN GRIFFIN, Professor of Political Science | (307) 766-3168 |
|---------------------------------------------|----------------|
| Department of Political Science             | (307) 766-6484 |
| P.O. Box 3106                               |                |
| University Station                          | Room 136       |
| Laramie, Wyoming 82071                      | A & S Bldg.    |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Research interests in public perceptions of water-related issues, particularly where those issues become salient public policy questions. Previous research has focused upon the in-stream issue, water quality, coal slurry pipeline project and energy-related tax questions. Most research has utilized public opinion data collected from personal interviews, telephone polls and mailed questionnaires.

VICTOR R. HASFURTHER, Professor of Civil Engineering (307) 766-6330 & Associate Director of WWRC (307) 766-2143 Department of Civil Engineering & WWRC P.O. Box 3067 University Station Room 166, VA Bldg. Laramie, Wyoming 82071 13 & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Associate Director of Wyoming Water Research Center, review and coordinate research activities of the Center on state, regional and national projects, interact on many interdisciplinary research projects in the water resources area. Primary interests lie in the general areas of hydraulics and hydrology with main interests in surface watershed hydrology and open channel flow. Expertise in groundwater hydrology, pipe flow, earth dam analysis, ground and surface water modeling, data acquisition, evaporation and evapotranspiration, mine land reclamation, and stream channel maintenance.

| HENRY P. HEASLER, Research Associate | (307) 766–3278    |
|--------------------------------------|-------------------|
| Department of Geology/Geophysics     | (307) 766–3386    |
| P.O. Box 3006                        |                   |
| University Station                   | Room 12           |
| Laramie, Wyoming 82071               | S.H. Knight Bldg. |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Convective transport of heat by groundwater. Thermal and hydrologic data analyzed for Wyoming have defined groundwater flow directions and areas of potential hydrothermal (geothermal) resources.  WAYNE A. HUBERT, Assistant Professor of (307) 766-5415 Zoology and Physiology
 Department of Zoology and Physiology
 P.O. Box 3166
 University Station
 Laramie, Wyoming 82071
 Room 421 Biological Sciences

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Assistant leader of the Wyoming Cooperative Fisheries and Wildlife Research Unit and Assistant Professor in the Department of Zoology and Physiology. Perform research on a variety of fishery management problems with emphasis on fish-habitat relations. Experience in population dynamics, population assessment, habitat evaluation, and aquaculture.

MICHAEL J. HUMENICK, Professor of Civil (307) 766-3201 Engineering (307) 766-5255 Department of Civil Engineering P.O. Box 3295 University Station Room 1018 Laramie, Wyoming 82071 Engineering Building

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Recent research has direct application to industrial development in Wyoming. Environmental Engineer whose research projects deal with water pollution problems arising from uranium solution, mining, underground coal gasification, tar sand and shale oil processing. Research includes physical, chemical, and biological treatment studies on the wastewaters produced by the above processes. Also involved with quantification and prediction of the impact and migration of pollutants generated in the subsurface aquifers by the in-situ processes mentioned above.

| PETER W. HUNTOON, Professor of Geology/Geophysics | (307) 766-5316    |
|---------------------------------------------------|-------------------|
| Department of Geology/Geophysics                  | (307) 766-3386    |
| P.O. Box 3006                                     |                   |
| University Station                                | Room 214          |
| Laramie, Wyoming 82071                            | S.H. Knight Bldg. |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Ground water prospecting, geohydrology of nuclear waste disposal, basin aquifer system mechanics, digital modeling of ground water systems, structural geologic controls for ground water circulation systems, springs, tectonics. Consultant to Federal, state, and local governments.

| PETER IVERSON, Professor of History | (307) 766-6259   |
|-------------------------------------|------------------|
| Department of History               | (307) 766-5101   |
| P.O. Box 3198                       |                  |
| University Station                  | Room 258         |
| Laramie, Wyoming 82071              | American Studies |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Research on the appropriation and use of water in the arid west, including Wyoming. Interested in the issue of Indian water rights as well as the impact of irrigation within Western states. Three year fellowship from the W.K. Kellogg Foundation to study water law, the use of water in different regions of the United States and in other countries, including Australia, China, and Brazil. Interests include both historical as well as contemporary topics, with a primary focus upon rural areas.

JAMES J. JACOBS, Professor of Agricultural (307) 766-5246 Economics (307) 766-2386 Department of Agricultural Economics P.O. Box 3354 University Station Room 221 Laramie, Wyoming 82071 Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Teaching, research and extension responsibilities in the area of water resource economics. Teach water resource economics and advanced natural research economics. Research interests in the areas of economic analysis of water development projects, economics of irrigation practices, water recreation, and water quality. Extension education programs in the areas of economics of irrigation practices, Wyoming water law and water quality regulations.

| WILLIAM R. JOLLEY, Associate Professor of                           | (307) 766-6143    |
|---------------------------------------------------------------------|-------------------|
| Protozoology                                                        | (307) 766-2170    |
| Department of Microbiology and Veterinary Medicine<br>P.O. Box 3354 | ,                 |
| University Station                                                  | Room 5013         |
| Laramie, Wyoming 82071                                              | Agriculture Bldg. |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Isolating and identifying protozoon cysts and helminth eggs from anaerobically digested sewage sludge generated by the Metropolitan Sanitary District of Chicago. The sludge was applied to strip mine spoil in Fulton County in a land reclamation attempt. Much of the reclaimed land was utilized as pasture, and there was concern that infective parasitic materials was surviving the sewage digestion and was being made available to animals (cattle, sheep, hogs, buffalo), thereby putting them at risk to infection. In this intermountain area, identification of Giardia cysts in water supplies would be pertinent. Interested in using free living protozoa as indicators of polluting in surface waters.

GREG L. KERR, Research Associate Wyoming Water Research Center P.O. Box 3067 University Station Laramie, Wyoming 82071 (307) 766-2143

Room 165, VA Bldg. 13th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Field hydrology-instrumentation of ground water-surface water and climatological parameters. Watershed research-physical parameters involving climatology, hydrology and their interrelationships. Evapotranspiration determination under field conditions.

BELAYET H. KHAN, Assistant Professor (307) 766-3311 of Geography and Recreation Department of Geography and Recreation P.O. Box 3371 University Station Room 203 Laramie, Wyoming 82071 A & S Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Fluvial geomorphology, fluvial erosion, suspended sediment, sediment yield, delivery ratio, drainage basin form and process, applied geomorphology, data analysis techniques, drainage basin morphometry, prediction models of soil loss and sediment yield, spatial and temporal variation of runoff, sediment yield, erosion and denudation in the watershed.

| R. LYNN KIRLIN, Professor of Electrical | (307) 766-6137   |
|-----------------------------------------|------------------|
| Engineering                             | (307) 766-2240   |
| Department of Electrical Engineering    |                  |
| P.O. Box 3295                           |                  |
| University Station                      | Room 5028        |
| Laramie, Wyoming 82071                  | Engineering Bldg |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Image processing of remote-sensed data and system modeling are pertinent areas of expertise. Interested in analyzing the relationship between prairie lake surface areas and underground water levels. More general specialities are random processes and statistics. More specific are signal and image processing.

DENNIS H. KNIGHT, Professor of Botany(307) 766-3291Department of Botany(307) 766-2380P.O. Box 3165Iniversity StationUniversity StationRoom 135Laramie, Wyoming 82071Aven Nelson Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

A variety of field and laboratory methods have been used to study the various factors affecting water and nutrient outflow from the coniferous forests of the Rocky Mountain region. Research is currently underway to evaluate the effect on water yield of disturbances such as timber harvest and bark beetle epidemics. Evapotranspiration and outflow are estimated with a computer simulation model developed for lodgepole pine forest. In addition, large numbers of water samples have been analyzed for chemical composition. The samples have included rainfall, snow, throughfall, and shallow and deep soil water. Publications are available summarizing this research. In general, interests center on the analysis of terrestrial ecosystems in the Rocky Mountain region and the application of ecological concepts to natural resource management.

| RONALD W. MARRS, Professor of Geology/Geophysics | (307) 766-2330    |
|--------------------------------------------------|-------------------|
| Department of Geology/Geophysics                 | (307) 766-3386    |
| P.O. Box 3006                                    |                   |
| University Station                               | Room 224C         |
| Laramie, Wyoming 82071                           | S.H. Knight Bldg. |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Area of specialization is "earth resources applications of remote sensing techniques." Research in the area of water supply has dealt with the use of Landsat imagery as a tool for estimating snowpack and predicting runoff patterns that relate to spring snowmelt in Wyoming. The imagery is used to measure the depletion of snowcover as each successive snowmelt period proceeds. Correlation of the snowmelt with measured increases in streamflow allow an empirical relationship to be defined that relate snowcover to runoff. This relationship may then be used to predict expected runoff from image-derived measurements of snowcover. Satellite imagery acquired early in the snowmelt cycle can be used to derive an estimate of expected runoff and the timing of peak runoff from snowmelt.

BROOKS E. MARTNER, Research Associate Department of Atmospheric Science P.O. Box 3038 University Station Laramie, Wyoming 82071 (307) 766-4946 (307) 766-3245

Room 6018 Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

All aspects of climatology, including precipitation, with special knowledge of Wyoming's climate, climate data availability and applications, weather modification, cloud physics and storm processes. Author of <u>Wyoming Climate Atlas</u> and participant in weather modification, wind energy and regional climate research projects.

JOHN MARWITZ, Professor of Atmospheric Science(307) 766-4947Department of Atmospheric Science(307) 766-3247P.O. Box 3038PiloteneeUniversity StationRoom 6019Laramie, Wyoming 82071Engineering Building

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Field research on severe thunderstorms, airflow studies in mountainous regions and winter orographic storms. Weather modification research on both summer and winter storms. Experience using and analyzing data from state-of-the-art instrumental aircraft and remote sensors including Doppler radar and satellites. PETER C. MAXFIELD, Professor of Law (3 College of Law P. O. Box 3035 University Station Rc

(307) 766-6416

Room 105 Law College

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Laramie, Wyoming 82071

Indian water rights, related real property questions involving easements, etc., and federal income taxation of ground water production and use.

LYMAN MCDONALD, Professor of Zoology &<br/>Statistics(307) 766-4229<br/>(307) 766-4203Departments of Zoology & StatisticsP.O. Box 3332Unversity StationRoom 333<br/>Ross Hall

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Professor of Zoology and Statistics specializing in statistical ecology and biological sampling. Interested in fisheries and wildlife problems connected with water resources and development.

E. GERALD MEYER, Professor Science and Math Teaching Center P.O. Box 3825 University Station Laramie, Wyoming 82071 (307) 766-5445

Room 214 A & S Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Knowledgeable about coal slurry systems of all types including those composed of water, alcohol, CO<sub>2</sub>, oil and coal-derived hydrocarbons as the liquid and coal and char as the solid.

JOSEPH S. MEYER Department of Zoology and Physiology P.O. Box 3166 University Station Laramie, Wyoming 82071

(307) 766-5680 (307) 766-4207

Room 415 Biological Sciences

### AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Toxicity of chemicals to fish and aquatic invertebrates. Bioaccumulation and biodegradation of chemicals in aquatic systems. Effects of contaminants on populations, communities and ecosystems.

RUSS MIDDAUGH, Associate Professor of Biochemistry(307) 766-2273Department of Biochemistry(307) 766-3300P.O. Box 3944Room 309University StationRoom 309Laramie, Wyoming 82071Biochemistry Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Previous studies have focused on the nature of the interaction of water with biological materials, especially membranes and proteins. In particular, the structure of water near biological interfaces and the role of water in macromolecular processes have been investigated. Most of this work involves the use of spectroscopic techniques (fluorescence, FTIR, photoacoustic, C.O. etc.).

STEVE A. MIZELL, Hydrogeologist & Assistant(307) 766-2143Professor of Ground WaterDepartment of Geology/Geophysics & WWRCP.O. Box 3067University StationUniversity StationRoom 168, VA Bldg.Laramie, Wyoming 8207113th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Investigation of ground-water contamination problems including techniques and protocol for water quality sampling. Characterization of contamination problems and evaluation of impacts of waste disposal activities on ground-water quality. Modeling of ground water and contaminant transport using analytical, numerical, and stochastic techniques. Investigation of surface water and ground water interrelationships especially as a source of natural recharge to aquifers.

| DAVID A. NELSON, Professor of Chemistry | (307) 766–3134    |
|-----------------------------------------|-------------------|
| Department of Chemistry                 | (307) 766-4363    |
| P.O. Box 3838                           |                   |
| University Station                      | Room 415/441      |
| Laramie, Wyoming 82071                  | Physical Sciences |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Expertise in the areas of organic synthesis and high performance liquid chromatography (HPLC). Research involves the synthesis of fluorescent compounds which have been used as water tracers. These compounds are also used in trace analysis methods for organic compounds and metal ions. Involved in the design and synthesis of new stationary phases for HPLC. Experience in structure determination of organic compounds using NMR, mass spectrometry, and other spectroscopic methods. General knowledge of the reactions of organic compounds in aqueous solution, and particular expertise in the photochemistry of organic compounds in aqueous solution. Laboratory with facilities for synthetic and photochemical studies, synthesis of HPLC stationary phases, HPLC analytical and preparative work, and fluorescence spectroscopy. The department has NMR and other spectrometers.

MICHAEL PARKER, Associate Professor of (307) 766-5182 Zoology and Physiology (307) 766-4207 Department of Zoology and Physiology P.O. Box 3166 University Station Room 422 Laramie, Wyoming 82071 Biological Sciences

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Effect of beaver on nonpoint source pollution and riparian ecosystems, nutrients and eutrophication, alpine limnology, algal bioassays, nutrient uptake and algal competition, analysis and application of electronically accessible data.

CLYNN PHILLIPS, Professor of Water(307) 766-4808Resources Economics(307) 766-2178Department of Economics2000P.O. Box 39852000University StationRoom 138Laramie, Wyoming 82071Ross Hall

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Research interests in water resources planning, economic impact studies, economic evaluation studies and demand analysis for water based economic activities. LARRY O. POCHOP, Professor of (3) Agricultural Engineering (3) Department of Agricultural Engineering P.O. Box 3295 University Station Roo Laramie, Wyoming 82071 Eng

(307) 766-3326 (307) 766-4395

Room 2098 Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Crop water use and management, evaporation applications and design analyses, climatic data acquisition and evaluation, municipal and agricultural water conservation and management, probability and risk analysis, microclimatology, hydrology.

JEFF POWELL, Professor of Range Science(307) 766-5164Department of Range Management(307) 766-5263P.O. Box 3354Iniversity StationRoom 2008Laramie, Wyoming 82071Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Rangeland watershed water budget and grazing cattle waste nutrient cycling.

FRANK J. RAHEL, Assistant Professor Zoology & Physiology Department P.O. Box 3166 University Station Laramie, Wyoming 82071

(307) 766-4212
(307) 766-4207

Room 405 Biosciences Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Aquatic ecology, fisheries management, and fish ecology. The effect of man's perturbations (species introductions, pollution, habitat modification) on aquatic ecosystems. Acid deposition effects on aquatic organisms.

| BIBEK RAY, Professor of Animal Science | (307) 766-3140    |
|----------------------------------------|-------------------|
| Department of Animal Science           | (307) 766-2226    |
| P.O. Box 3354                          |                   |
| University Station                     | Room 244          |
| Laramie, Wyoming 82071                 | Agriculture Bldg. |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Conducted studies in the following areas in projects supported by SEA Grant Administration for over 6 to 8 years (marine and estuary water): 1) influence of rainfall and runoff on the occurrance of marine and non-marine origin human pathogenic bacteria; 2) relationship between the occurrance of indicator and feral and non-feral pathogenic bacteria in water, sediments and marine life; 3) frequency of occurance of pathogenic bacteria and viruses in fish, shrimp and shellfish harvested from the estuaries; 4) survival of fecal pathogenic bacteria in the marine environment, and 5) depuration frequency of shellfish from pathogenic bacteria in the marine environment.

| (307) 766–2235   |
|------------------|
| (307) 766–2380   |
|                  |
| Room 114A        |
| Aven Nelson Bldg |
|                  |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Micrometeorological and vegetational structure determinants of cloud droplet deposition on cloud-immersed vegetation. Cloud droplet sampling and chemical analysis. Soil-water interactions -- chemical and biological reactions in soils, chemical fluxes, particularly in arid soil environments. Ion uptake by plants, especially conversion of nitrogen species in xylem sap. Chemical processing of throughfall/ stemflow by forest canopies.

| ROBERT W. RIGHTER, Associate Professor of | (307) 766-5311   |
|-------------------------------------------|------------------|
| History                                   | (307) 766-5101   |
| Department of History                     |                  |
| P.O. Box 3198                             |                  |
| University Station                        | Room 360         |
| Laramie, Wyoming 82071                    | American Studies |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Under contract with the National Park Service to do an overview history of the Uinta Basin and Bonneville Irrigation Projects in Utah. FRANK S. SANDERS, Research Associate(307) 766-2143Wyoming Water Research CenterP.O. Box 3067University StationRoom 163, VA Bldg.Laramie, Wyoming 8207113th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Primary and secondary production of freshwater ecosystems, including production and utilization of food resources for fish. Special interest in effects of toxicants on food-web dynamics leading to changes in fish production. Subalpine lake ecology especially sediment-water and littoral-pelagic nutrient interactions as affecting system productivity.

VINCENT SINDT, Associate Professor(307) 766-4384Science & Math Teaching Center(307) 766-6381P.O. Box 3992University StationRoom 449Laramie, Wyoming 82071Wyo Hall

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Curriculum workshops for elementary and secondary teachers. Special interest in showing teachers how water concepts can be taught as a part of what they are doing now in science, math, reading, social studies, etc.

QUENTIN D. SKINNER, Associate Professor of<br/>Range Management(307) 766-4139Department of Range ManagementP.O. Box 3354University StationRoom 2028Laramie, Wyoming 82071Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Water-related research emphasis based on the establishment of a new wildland watershed laboratory designed to model: 1) stream-aquifer relationships of riparian zones, 2) stability and geotechnical aspects of waste disposal management problems placed under different hydrologic and climatic conditions, 3) biological relationships affiliated with instream flow requirements for vegetation, and 4) ground water migration of nutrients and pollutants through riparian zones to streams.

(307) 766-4395

JAMES L. SMITH, Professor and Head of Agricultural Engineering Department of Agricultural Engineering P.O. Box 3295 University Station Laramie, Wyoming 82071

Room 2094 Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Administer and direct departmental research and educational program focusing in the area of on-farm water use. Specific departmental research areas include crop water use, irrigation, sediment and erosion, micro-climatology, hydrology, agricultural tillage practices related to soil water relations, and water use efficiency. Personal research interests include instrumentation development, irrigation efficiency, crop water use and revegetation of surface mined lands.

MICHAEL A. SMITH, Associate Professor of (307) 766-2337 Range Management (307) 766-2263 Department of Range Management P.O. Box 3354 University Station Room 2009 Laramie, Wyoming 82071 Agriculture Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Major activities in water related research are the studies of cattle season of use and stocking rate effects on stream and riparian vegetation. These include determination of livestock habitat selection activity, and utilization levels of forage plants in riparian zones and adjacent uplands. Other studies recently implemented relate seasonal cattle grazing and wildlife use to the effect of instream structures and beaver on riparian vegetation and channel morphology. Area of specialty categorized as large animal grazing effects and livestock grazing management. WILLIAM K. SMITH, Associate Professor of Botany (307) 766-6377 (307) 766-2380 Department of Botany P.O. Box 3165 University Station Room 127 Laramie, Wyoming 82071 Aven Nelson Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Influence of streamside vegetation on stream flow. Field measurements and water consumption models predicting total water transpired by streamside plant communities. Estimates of streamflow reduction and water table levels as influenced by phreatophyte plant species (roots that extend below the water table). Influence of stream branching and channelization on seasonal water consumption by streamside vegetation.

YEOU-KOUNG TUNG, Statistical Hydrologist and Assistant Professor of Statistics Department of Statistics & WWRC P.O. Box 3067 University Station Laramie, Wyoming 82071 (307) 766-2143

Room 167, VA Bldg. 13th & Lewis

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Urban hydrology, open-channel flow, application of operations research, probability and statistical analysis to water resources engineering, risk and reliability analysis, and surface water hydrology, conjunctive use management, stochastic water quality management, groundwater management and reservoir management.

GABOR VALI, Professor and Department Head of<br/>Atmospheric Science(307) 766-3225<br/>(307) 766-3245Department of Atmospheric Science9.0. Box 3038University StationRoom 6034<br/>Engineering Bldg.

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

The atmospheric cycle of water. Precipitation process rates and pollution in precipitation.

(307) 766-2143

THOMAS A. WESCHE, Research Biologist and Watershed Specialist Wyoming Water Research Center P.O. Box 3067 University Station Laramie, Wyoming 82071

Room 165, VA Bldg. 13th & Lewis

#### AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Involved with instream flow analysis, aquatic habitat evaluation and surface water hydrology. Authored numerous publications in these fields, including research and management papers involving the recommmendation of maintenance and flushing flow levels for water development projects in Wyoming, the critical review of instream flow methodologies and habitat evaluation techniques, the development of models to quantify instream cover in relation to streamflow alteration, the hydraulic requirements of salmonid spawning and benthic invertebrate habitat, the effects of watershed and flow regime characteristics on fish production, the characteristics of salmonid winter habitat requirements, the development of models to predict habitat exclusion by ice cover, and, the design of stream channels to maximize habitat under reduced flow conditions. Coordinator for the Wyoming Water Bibliography, a 12,500 citation, computer based storage and retrieval system dealing with all aspects of Wyoming's water resources and the Water Center's Snowy Range Observatory, a heavily instrumented environmental research watershed located west of Laramie.

| STEPHEN E. WILLIAMS, Associate Professor of | (307) 766-2179   |
|---------------------------------------------|------------------|
| Plant Science                               | (307) 766-3103   |
| Department of Plant Science                 |                  |
| P.O. Box 3354                               |                  |
| University Station                          | Room 1009        |
| Laramie, Wyoming 82071                      | Agriculture Bldg |

AREAS OF PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS:

Influence of water soluble pollutants or water sourced pollutants on functioning of soil biotic systems. This includes denitrification of pollutants by soil microbiota as well as secondary effects of microbiota on pollutant toxicity (e.g. microbially reduced charges which may modify pollutant toxicity). Influence of water on nutrient cycling, particularly nitrogen cycling. This induced denitrification process, often restricted to wet soils; nitrogen fixation; and nitrogen mobilization/ immobilization from organic sources.

#### RESEARCH TOPICS INDEX

### NATURE OF WATER

Properties of Water

Archer, Vernon S. - Chemistry Champlin, Robert L. - Civil Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Middaugh, Russ - Biochemistry Vali, Gabor - Atmospheric Science

Aqueous Solutions and Suspensions

Archer, Vernon S. - Chemistry Barden, Roland E. - Chemistry Champlin, Robert L. - Civil Engineering Drever, James I. - Geology/Geophysics Humenick, Michael J. - Civil Engineering Knight, Dennis H. - Botany Middaugh, Russ - Biochemistry Nelson, David A. - Chemistry Sanders, Frank S. - Wyoming Water Research Center Vali, Gabor - Atmospheric Science Williams, Stephen E. - Plant Science

### WATER CYCLE

#### General

Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Eifert, Walter H. - Wyoming Water Research Center Hasfurther, Victor R. - Civil Engineering and WWRC Kerr, Greg L. - Wyoming Water Research Center Knight, Dennis H. - Botany Pochop, Larry O. - Agricultural Engineering Skinner, Quentin D. - Range Management Wesche, Thomas A. - Wyoming Water Research Center

### Precipitation

Auer, August H. - Atmospheric Science Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Eifert, Walter H. - Wyoming Water Research Center Goertler, Chris M. - Wyoming Water Research Center Hasfurther, Victor R. - Civil Engineering and WWRC Kerr, Greg L. - Wyoming Water Research Center Knight, Dennis H. - Botany

#### WATER CYCLE (continued)

Precipitation (continued)

Martner, Brooks E. - Atmospheric Science Marwitz, John - Atmospheric Science Reiners, William A. - Botany Sanders, Frank S. - Wyoming Water Research Center Smith, William K. - Botany Vali, Gabor - Atmospheric Science Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

Snow, Ice, and Frost

Burman, Robert D. - Agricultural Engineering
Champlin, Robert L. - Civil Engineering
Hasfurther, Victor R. - Civil Engineering and WWRC
Heasler, Henry P. - Geology
Kerr, Greg L. - Wyoming Water Research Center
Knight, Dennis H. - Botany
Marrs, Ronald W. - Geology/Geophysics
Martner, Brooks E. - Atmospheric Science
Marwitz, John - Atmospheric Science
Sanders, Frank S. - Wyoming Water Research Center
Vali, Gabor - Atmospheric Science
Wesche, Thomas A. - Wyoming Water Research Center
Williams, Stephen E. - Plant Science

Evaporation and Transpiration

Brosz, Donald J. - Agricultural Engineering & WWRC
Burman, Robert D. - Agricultural Engineering
Champlin, Robert L. - Civil Engineering
Delaney, Ronald H. - Plant Science
Fornstrom, K. James - Agricultural Engineering
Foster, David H. - Civil Engineering
Foster, Jeffrey R. - Botany
Hasfurther, Victor R. - Civil Engineering and WWRC
Kerr, Greg L. - Wyoming Water Research Center
Knight, Dennis H. - Botany
Pochop, Larry O. - Agricultural Engineering
Smith, William K. - Botany

Streamflow and Runoff

Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Eifert, Walter H. - Wyoming Water Research Center Goertler, Chris M. - Wyoming Water Research Center Hasfurther, Victor R. - Civil Engineering and WWRC Kerr, Greg L. - Wyoming Water Research Center Khan, Belayet H. - Geography/Recreation and WWRC Knight, Dennis H. - Botany

### WATER CYCLE (continued)

Streamflow and Runoff (continued)

Smith, William K. - Botany Tung, Yeou-Koung - Wyoming Water Research Center & Statistics Wesche, Thomas A. - Wyoming Water Research Center

Ground Water

Allen, Myron B. - Mathematics Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Eifert, Walter H. - Wyoming Water Research Center Ewing, Richard E. - Mathematics and Petroleum Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Heasler, Henry P. - Geology Huntoon, Peter W. - Geology/Geophysics Kerr, Greg L. - Wyoming Water Research Center Mizell, Steve A. - Wyoming Water Research Center and Geology/Geophysics Williams, Stephen E. - Plant Science

Water in Soils

Brosz, Donald J. - Agricultural Engineering & WWRC
Burman, Robert D. - Agricultural Engineering
Champlin, Robert L. - Civil Engineering
Ewing, Richard E. - Mathematics and Petroleum Engineering
Fornstrom, K. James - Agricultural Engineering
Hasfurther, Victor R. - Civil Engineering and WWRC
Kerr, Greg L. - Wyoming Water Research Center
Knight, Dennis H. - Botany
Mizell, Steve A. - Wyoming Water Research Center and
Pochop, Larry O. - Agricultural Engineering
Powell, Jeff - Range Management
Reiners, William A. - Botany
Skinner, Quentin D. - Range Management
Smith, James L. - Agricultural Engineering

Lakes

Brocksen, Robert W. - Wyoming Water Research Center Champlin, Robert L. - Civil Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Pochop, Larry O. - Agricultural Engineering Rahel, Frank J. - Zoology/Physiology Sanders, Frank S. - Wyoming Water Research Center Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

### WATER CYCLE (continued)

Water in Plants

Abernethy, Rollin H. - Plant Science Brosz, Donald J. - Agricultural Engineering & WWRC Burman, Robert D. - Agricultural Engineering Delaney, Ronald H. - Plant Science Fornstrom, K. James - Agricultural Engineering Foster, Jeffrey R. - Botany Hasfurther, Victor R. - Civil Engineering and WWRC Knight, Dennis H. - Botany Pochop, Larry O. - Agricultural Engineering Reiners, William A. - Botany Smith, William K. - Botany Williams, Stephen E. - Plant Science

Erosion and Sedimentation

Eifert, Walter H. - Wyoming Water Research Center Fornstrom, K. James - Agricultural Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Khan, Belayet H. - Geography/Recreation and WWRC Skinner, Quentin D. - Range Management Wesche, Thomas A. - Wyoming Water Research Center

Chemical Processes

Brocksen, Robert W. - Wyoming Water Research Center Champlin, Robert L. - Civil Engineering Drever, James I. - Geology/Geophysics Foster, David H. - Civil Engineering Humenick, Michael J. - Civil Engineering Knight, Dennis H. - Botany Nelson, David A. - Chemistry Sanders, Frank S. - Wyoming Water Research Center

Estuaries

Brocksen, Robert W. - Wyoming Water Research Center

### WATER SUPPLY AUGMENTATION AND CONSERVATION

Saline Water Conversion

Champlin, Robert L. - Civil Engineering

# WATER SUPPLY AUGMENTATION AND CONSERVATION (continued)

Water Yield Improvement

Burman, Robert D. - Agricultural Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Knight, Dennis H. - Botany Martner, Brooks E. - Atmospheric Science Skinner, Quentin D. - Range Management Wesche, Thomas A. - Wyoming Water Research Center

Use of Water of Impaired Quality

Champlin, Robert L. - Civil Engineering Humenick, Michael J. - Civil Engineering Meyer, E. Gerald - Science & Math Teaching Center

Conservation in Domestic and Municipal Use

Beiswenger, Ronald E. - Geography/Recreation
Buchanan, Tom - Geography/Recreation
Champlin, Robert L. - Civil Engineering
d'Arge, Ralph C. - Economics
Hasfurther, Victor R. - Civil Engineering and WWRC
Humenick, Michael J. - Civil Engineering
Khan, Belayet H. - Geography/Recreation and WWRC
Pochop, Larry O. - Agricultural Engineering

Conservation in Industrial Use

Atkinson, Scott E. - Economics Champlin, Robert L. - Civil Engineering Humenick, Michael J. - Civil Engineering Meyer, E. Gerald - Science & Math Teaching Center

Conservation in Agricultural Use

Abernethy, Rollin H. - Plant Science Agee, Douglas E. - Agricultural Economics Atkinson, Scott E. - Economics Burman, Robert D. - Agricultural Engineering d'Arge, Ralph C. - Economics Delaney, Ronald H. - Plant Science Fornstrom, K. James - Agricultural Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Jacobs, James J. - Agricultural Economics Pochop, Larry O. - Agricultural Engineering Skinner, Quentin D. - Range Management Smith, James L. - Agricultural Engineering Smith, Michael A. - Range Management Williams, Stephen E. - Plant Science

#### WATER QUANTITY MANAGEMENT AND CONTROL

Control of Water on the Surface

Brosz, Donald J. - Agricultural Engineering & WWRC
Buchanan, Tom - Geography/Recreation
Burman, Robert D. - Agricultural Engineering
Champlin, Robert L. - Civil Engineering
Crocker, Thomas D. - Economics
Eifert, Walter H. - Wyoming Water Research Center
Fornstrom, K. James - Agricultural Engineering
Hasfurther, Victor R. - Civil Engineering and WWRC
Pochop, Larry O. - Agricultural Engineering
Skinner, Quentin D. - Range Management
Smith, James L. - Agricultural Engineering
Tung, Yeou-Koung - Wyoming Water Research Center

Ground Water Management

Brosz, Donald J. - Agricultural Engineering & WWRC Champlin, Robert L. - Civil Engineering Crocker, Thomas D. - Economics d'Arge, Ralph C. - Economics Ewing, Richard E. - Mathematics and Petroleum Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Huntoon, Peter W. - Geology/Geophysics Mizell, Steve A. - Wyoming Water Research Center and Geology/Geophysics Tung, Yeou-Koung - Wyoming Water Research Center & Statistics

Effects of Water on Man's Non-Water Activities

Champlin, Robert L. - Civil Engineering Crocker, Thomas D. - Economics Eifert, Walter H. - Wyoming Water Research Center Pochop, Larry O. - Agricultural Engineering Skinner, Quentin D. - Range Management

Watershed Protection

Adams, John C. - Microbiology and Veterinary Medicine Brocksen, Robert W. - Wyoming Water Research Center Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Crocker, Thomas D. - Economics Eifert, Walter H. - Wyoming Water Research Center Hasfurther, Victor R. - Civil Engineering and WWRC Khan, Belayet H. - Geography/Recreation and WWRC Khan, Belayet H. - Botany Powell, Jeff - Range Management Skinner, Quentin D. - Range Management Smith, Michael A. - Range Management Smith, William K. - Botany Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

#### WATER QUALITY MANAGEMENT & PROTECTION

Identification of Pollutants

Adams, John C. - Microbiology and Veterinary Medicine Archer, Vernon S. - Chemistry Bergman, Harold L. - Zoology & Physiology Champlin, Robert L. - Civil Engineering Humenick, Michael J. - Civil Engineering Jolley, William R. - Microbiology and Veterinary Medicine Meyer, Joseph S. - Zoology and Physiology Nelson, David A. - Chemistry Ray, Bibek - Animal Sciences Sanders, Frank S. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

Sources and Fate of Pollution

Adams, John C. - Microbiology and Veterinary Medicine Archer, Vernon S. - Chemistry Bergman, Harold L. - Zoology & Physiology Brocksen, Robert W. - Wyoming Water Research Center Champlin, Robert L. - Civil Engineering Drever, James I. - Geology/Geophysics Ewing, Richard E. - Mathematics and Petroleum Engineering Foster, David H. - Civil Engineering Humenick, Michael J. - Civil Engineering Jolley, William R. - Microbiology and Veterinary Medicine Mizell, Steve A. - Wyoming Water Research Center and Meyer, Joseph S. - Zoology and Physiology Nelson, David A. - Chemistry Powell, Jeff - Range Management Ray, Bibek - Animal Sciences Sanders, Frank S. - Wyoming Water Research Center Skinner, Quentin D. - Range Management Vali, Gabor - Atmospheric Science Williams, Stephen E. - Plant Science

Effects of Pollution

Adams, John C. - Microbiology and Veterinary Medicine Allen, Myron B. - Mathematics Bergman, Harold L. - Zoology & Physiology Brocksen, Robert W. - Wyoming Water Research Center Champlin, Robert L. - Civil Engineering Ewing, Richard E. - Mathematics and Petroleum Engineering Foster, David H. - Civil Engineering Humenick, Michael J. - Civil Engineering Middaugh, Russ - Biochemistry Meyer, Joseph S. - Zoology and Physiology Rahel, Frank J. - Zoology and Physiology Skinner, Quentin D. - Range Management Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

### WATER QUALITY MANAGEMENT & PROTECTION - (continued)

Waste Treatment Processes

Adams, John C. - Microbiology and Veterinary Medicine Bradley, Edward B. - Agricultural Economics Foster, David H. - Civil Engineering Humenick, Michael J. - Civil Engineering Pochop, Larry O. - Agricultural Engineering Williams, Stephen E. - Plant Science

Ultimate Disposal of Wastes

Ewing, Richard E. - Mathematics and Petroleum Engineering Foster, David H. - Civil Engineering Humenick, Michael J. - Civil Engineering Huntoon, Peter W. - Geology/Geophysics Pochop, Larry O. - Agricultural Engineering Smith, James L. - Agricultural Engineering Williams, Stephen E. - Plant Science

Water Treatment and Distribution

Adams, John C. - Microbiology and Veterinary Medicine Champlin, Robert L. - Civil Engineering Foster, David H. - Civil Engineering Humenick, Michael J. - Civil Engineering Pochop, Larry O. - Agricultural Engineering Williams, Stephen E. - Plant Science

Water Quality Control

Adams, John C. - Microbiology and Veterinary Medicine Battle, Jackson B. - Law Bergstrom, Robert C. - Microbiology and Veterinary Medicine Champlin, Robert L. - Civil Engineering d'Arge, Ralph C. - Economics Foster, David H. - Civil Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Humenick, Michael J. \_ Civil Engineering Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

WATER RESOURCES PLANNING

Techniques of Planning

Beiswenger, Ronald E. - Geography/Recreation Bleiker, Hans - Geography/Recreation Bradley, Edward B. - Agricultural Economics Brocksen, Robert W. - Wyoming Water Research Center Buchanan, Tom - Geography/Recreation

#### WATER RECOURSES PLANNING (continued)

Techniques of Planning (continued)

Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Crocker, Thomas D. - Economics d'Arge, Ralph C. - Economics McDonald, Lyman - Zoology and Statistics Phillips, Clynn - Economics Skinner, Quentin D. - Range Management Tung, Yeou-Koung - Wyoming Water Research Center & Statistics

Evaluation Process

Agee, Douglas E. - Agricultural Economics Bradley, Edward B. - Agricultural Economics Buchanan, Tom - Geography/Recreation Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Crocker, Thomas D. - Economics d'Arge, Ralph C. - Economics Jacobs, James J. - Agricultural Economics McDonald, Lyman - Zoology and Statistics Phillips, Clynn - Economics Skinner, Quentin D. - Range Management

Cost Allocation, Cost Sharing, Pricing/Repayment

Agee, Douglas E. - Agricultural Economics Atkinson, Scott E. - Economics Crocker, Thomas D. - Economics d'Arge, Ralph C. - Economics Jacobs, James J. - Agricultural Economics Phillips, Clynn - Economics

Water Demand

Atkinson, Scott E. - Economics Bradley, Edward B. - Agricultural Economics Brosz, Donald J. - Agricultural Engineering & WWRC Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Crocker, Thomas D. - Economics d'Arge, Ralph C. - Economics Jacobs, James J. - Agricultural Economics Meyer, E. Gerald - Science & Math Teaching Center Phillips, Clynn - Economics

Water Law and Institutions

Battle, Jackson B. - Law Bradley, Edward B. - Agricultural Economics Brosz, Donald J. - Agricultural Engineering & WWRC

# WATER RESOURCES PLANNING - (continued)

Water Law and Institutions (continued)

Burman, Robert D. - Agricultural Engineering Crocker, Thomas D. - Economics d'Arge, Ralph C. - Economics Davis, Charles - Political Science Davis, David H. - Political Science Griffen, Ken - Political Science Iverson, Peter - History Jacobs, James J. - Agricultural Economics Maxfield, Peter C. - Law Phillips, Clynn - Economics Righter, Robert W. - History

Nonstructural Alternatives

Beiswenger, Ronald E. - Geography/Recreation Bleiker, Hans - Geography/Recreation Burman, Robert D. - Agricultural Engineering Crocker, Thomas D. - Economics Wesche, Thomas A. - Wyoming Water Research Center

Ecologic Impact of Water Development

Atkinson, Scott E. - Economics Beiswenger, Ronald E. - Geography/Recreation Bergstrom, Robert C. - Microbiology and Veterinary Medicine Boyce, Mark S. - Zoology & Physiology Brocksen, Robert W. - Wyoming Water Research Center Burman, Robert D. - Agricultural Engineering Goertler, Chris M. - Wyoming Water Research Center Hubert, Wayne A. - Zoology Knight, Dennis H. - Botany McDonald, Lyman - Zoology and Statistics Sanders, Frank S. - Wyoming Water Research Center Skinner, Quentin D. - Range Management Smith, William K. - Botany Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

### RESOURCES DATA

Network Data

Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Egolf, David P. - Electrical Engineering Eifert, Walter H. - Wyoming Water Research Center Hasfurther, Victor R. - Civil Engineering and WWRC

#### RESOURCES DATA - (continued)

Network Data (continued)

Kerr, Greg L. - Wyoming Water Research Center Pochop, Larry O. - Agricultural Engineering Wesche, Thomas A. - Wyoming Water Research Center

Data Acquisition

Burman, Robert D. - Agricultural Engineering Egolf, David P. - Electrical Engineering Eifert, Walter H. - Wyoming Water Research Center Foster, Jeffrey R. - Botany Hasfurther, Victor R. - Civil Engineering and WWRC Kerr, Greg L. - Wyoming Water Research Center McDonald, Lyman - Zoology and Statistics Pochop, Larry O. - Agricultural Engineering Smith, James L. - Agricultural Engineering Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

Evaluation, Processing and Publication

Burman, Robert D. - Agricultural Engineering Eifert, Walter H. - Wyoming Water Research Center Hasfurther, Victor R. - Civil Engineering and WWRC Kerr, Greg L. - Wyoming Water Research Center McDonald, Lyman - Zoology and Statistics Pochop, Larry O. - Agricultural Engineering Tung, Yeou-Koung - Wyoming Water Research Center & Statistics Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

ENGINEERING WORKS

Structure

Brosz, Donald J. - Agricultural Engineering & WWRC Champlin, Robert L. - Civil Engineering Chong, Ken P. - Civil Engineering Fornstrom, K. James - Agricultural Engineering Pochop, Larry O. - Agricultural Engineering Smith, James L. - Agricultural Engineering

Hydraulics

Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Ewing, Richard E. - Mathematics and Petroleum Engineering Hasfurther, Victor R. - Civil Engineering and WWRC

#### ENGINEERING WORKS - (continued)

Hydraulics (continued)

Mizell, Steve A. - Wyoming Water Research Center and Geology/Geophysics Smith, James L. - Agricultural Engineering Tung, Yeou-Koung - Wyoming Water Research Center & Statistics Wesche, Thomas A. - Wyoming Water Research Center

Hydraulic Machinery

Brosz, Donald J. - Agricultural Engineering & WWRC Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Smith, James L. - Agricultural Engineering

Soil Mechanics

Ewing, Richard E. - Mathematics and Petroleum Engineering Smith, James L. - Agricultural Engineering

Rock Mechanics and Geology

Chong, Ken P. - Civil Engineering Smith, James L. - Agricultural Engineering

Concrete

Chong, Ken P. - Civil Engineering

Materials

Barton, Keith J. - Mechanical Engineering Chong, Ken P. - Civil Engineering Smith, James L. - Agricultural Engineering

Rapid Excavation

Fisheries Engineering

Hasfurther, Victor R. - Civil Engineering and WWRC Hubert, Wayne A. - Zoology Wesche, Thomas A. - Wyoming Water Research Center

#### MANPOWER, GRANTS AND FACILITIES

Education - Extramural

Beiswenger, Ronald E. - Geography/Recreation
Bergstrom, Robert C. - Microbiology and Veterinary Medicine
Brosz, Donald J. - Agricultural Engineering & WWRC
Champlin, Robert L. - Civil Engineering
Humenick, Michael J. - Civil Engineering
Kerr, Greg L. - Wyoming Water Research Center
Meyer, E. Gerald - Science & Math Teaching Center
Sindt, Vincent - Science & Math Teaching Center
Skinner, Quentin D. - Range Management
Smith, James L. - Agricultural Engineering

Education - In-house

Abernethy, Rollin H. - Plant Science Bergman, Harold L. - Zoology & Physiology Champlin, Robert L. - Civil Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Humenick, Michael J. - Civil Engineering Kerr, Greg L. - Wyoming Water Research Center Meyer, E. Gerald - Science & Math Teaching Center Nelson, David A. - Chemistry Sindt, Vincent - Science & Math Teaching Center Skinner, Quentin D. - Range Management Smith, James L. - Agricultural Engineering

Research Facilities

Adams, John C. - Microbiology and Veterinary Medicine Bergman, Harold L. - Zoology & Physiology Champlin, Robert L. - Civil Engineering Egolf, David P. - Electrical Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Humenick, Michael J. - Civil Engineering Nelson, David A. - Chemistry Skinner, Quentin D. - Range Management Smith, James L. - Agricultural Engineering Wesche, Thomas A. - Wyoming Water Research Center

Grants, Contracts, Research Allotments

Champlin, Robert L. - Civil Engineering d'Arge, Ralph C. - Economics Egolf, David P. - Electrical Engineering Hasfurther, Victor R. - Civil Engineering and WWRC Humenick, Michael J. - Civil Engineering Meyer, E. Gerald - Science & Math Teaching Center Sanders, Frank S. - Wyoming Water Research Center Skinner, Quentin D. - Range Management Smith, James L. - Agricultural Engineering Tung, Yeou-Koung - Wyoming Water Research Center & Statistics Williams, Stephen E. - Plant Science

# SCIENTIFIC AND TECHNICAL INFORMATION

Acquisition and Processing

Burman, Robert D. - Agricultural Engineering Champlin, Robert L. - Civil Engineering Eifert, Walter H. - Wyoming Water Research Center Goertler, Chris M. - Wyoming Water Research Center Heasler, Henry P. - Geology Kirlin, R. Lynn - Electric Engineering Mizell, Steve A. - Wyoming Water Research Center and Geology/Geophysics

Reference and Retrieval

Champlin, Robert L. - Civil Engineering Eifert, Walter H. - Wyoming Water Research Center Goertler, Chris M. - Wyoming Water Research Center Kerr, Greg L. - Wyoming Water Research Center Wesche, Thomas A. - Wyoming Water Research Center

Secondary Publication and Distribution

Brosz, Donald J. - Agricultural Engineering & WWRC Champlin, Robert L. - Civil Engineering

Specialized Information Center Services

Eifert, Walter H. - Wyoming Water Research Center Brosz, Donald J. - Agricultural Engineering & WWRC

Translations

Preparation of Reviews

Champlin, Robert L. - Civil Engineering d'Arge, Ralph C. - Economics Hasfurther, Victor R. - Civil Engineering and WWRC Rahel, Frank J. - Zoology and Physiology Sanders, Frank S. - Wyoming Water Research Center Tung, Yeou-Koung - Wyoming Water Research Center & Statistics Wesche, Thomas A. - Wyoming Water Research Center Williams, Stephen E. - Plant Science

#### DEPARTMENT/COLLEGE INDEX

COLLEGE OF AGRICULTURE

Animal Science Department

Ray, Bibek

Agricultural Economics Department

Agee, Douglas E. Bradley, Edward B. Jacobs, James J.

Microbiology & Biochemistry

Adams, John C. Middaugh, Russ

Plant Science Department

Abernethy, Rollin H. Delaney, Ronald H. Williams, Steve E.

Range Management Department

Powell, Jeff Skinner, Quentin D. Smith, Michael A.

Veterinary Medicine Department

Bergstrom, Robert C. Jolley, William P.

COLLEGE OF ARTS & SCIENCES

Botany Department

Foster, Jeffrey R. Knight, Dennis H Reiners, William A. Smith, William K.

Chemistry Department

Archer, Vernon S. Barden, Roland E. Nelson, David A. COLLEGE OF ARTS & SCIENCE (cont.)

Geography/Recreation Department

Bleiker, Hans Buchanan, Tom Khan, Belayet H.

Geology/Geophysics Department

Drever, James T. Heasler, Henry P. Huntoon, Peter W. Marrs, Ronald W. Mizell, Steve A.

History Department

Iverson, Peter Righter, Robert W.

Mathematics Department

Allen, Myron B. Ewing, Richard E.

Political Science Department

Davis, Charles Davis, David H. Griffin, Kenyon N.

Science-Math Teaching Center

Meyer, E. Gerald Sindt, Vincent

Zoology/Physiology Department

Bergman, Harold L. Boyce, Mark S. Hubert, Wayne A. Meyer, Joseph L. Parker, Michael Rahel, Frank J.

#### COLLEGE OF COMMERCE & INDUSTRY

### Economics Department

d'Arge, Ralph C. Crocker, Thomas D. Phillips, Clynn

Statistics Department

McDonald, Lyman Tung, Yeou-Koung

### COLLEGE OF ENGINEERING

Agricultural Engineering Dept.

Brosz, Donald J. Burman, Robert D. Fornstrom, K. James Pochop, Larry O. Smith, James L.

Atmospheric Science Dept.

Auer, August Martner, Brooks E. Marwitz, John D. Vali, Gabor

Civil Engineering Dept.

Champlin, Robert L. Chong, Ken P. Foster, David H. Hasfurther, Victor R. Humenick, Michael J. COLLEGE OF ENGINEERING (continued)

Electrical Engineering

Egolf, Favid P. Kirlin, R. Lynn

#### Mechanical Engineering

Barton, Keith J.

## INSTITUTE FOR POLICY RESEARCH

Atkinson, Scott E.

COLLEGE OF LAW

Battle, Jackson B. Maxfield, Peter

## WYOMING WATER RESEARCH CENTER

Brocksen, Robert W. Hasfurther, Victor R. Brosz, Donald J. Eifert, Walter H. Goertler, Chris Kerr, Greg L. Khan, Belayet H. Mizell, Steve A. Sanders, Frank S. Tung, Yeou-Koung Wesche, Thomas A.