

ARIZONA WATER RESOURCES NEWS BULLETIN

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RESEARCH PROPOSALS SOLICITED

Sol Resnick, Director of the University of Arizona Water Resources Research Center, wishes to announce that on January 2, 1976, he sent out the annual invitation for preliminary proposals for participation in the FY 1977 Allotment Grant of the U.S. Office of Water Research and Technology (OWRT). Funding for water resources research projects under the OWRT Allotment is available to anyone in the State University System (ASU, NAU, or UA).

A current statement of water research needs, prepared by State officials and members of the Arizona Water Resources Committee, accompanied the announcement. Copies of proposals will be due in the WRRC Director's office by approximately February 15, for inclusion and presentation to the OWRT in Washington, D.C.

EPA STRATEGY PAPER LISTS 1976 PRIORITIES

A recent draft strategy paper published by the Environmental Protection Agency (EPA) lists program priorities for fiscal year 1976. These include the construction grants program and areawide and state planning.

Emphasis in the permit program is expected to shift from issuance of permits to enforcement and compliance monitoring. New emphasis during FY 1976 will be given to areawide waste treatment and nonpoint source programs.

According to the EPA paper, new efforts will include the development of a strategy for controlling nonpoint pollution sources. Runoff problems will be examined, including storm and combined sewers, and emphasis will be placed on non-capital preventive methods. EPA also anticipates an effort to decentralize national water quality management responsibility to the states. States will also assume increased responsibility for the permit program, construction grants, enforcement, and monitoring.

Regarding the 1985 goal of zero discharge of pollutants in water, EPA feels this cannot be implemented under the existing act. In fact, EPA notes, full achievement of the 1985 requirements may not be feasible or environmentally desirable.

CLOUD-SEEDING IN UPPER COLORADO

Extensive cloud-seeding and conservation can counteract water shortages caused by oil shale development on the western slope of Colorado, according to a U.S. Bureau of

Reclamation report. Cloud-seeding could increase annual output of the Upper Colorado by six to nine per cent, the study "Critical Water Problems Facing the Eleven Western States" says, while nearly a million acre-feet of water would be saved annually by improving irrigation efficiency.

Future planning for the western states will shift from "project-oriented solutions" to "total water management," with river basin commissions described as "the best organizational structure now available under present laws and policies for broad-scale regional water and related planning." Major planning difficulties are foreseen for water for energy resource development, water for Indians, Colorado River water supply and salinity, and erosion and sedimentation.

CALL FOR PAPERS

The National Water Well Association is calling for papers for the Third National Ground-Water Quality Symposium, scheduled for Las Vegas, Nevada, September 15-17, 1976.

Between 20 and 25 papers will be selected dealing with field experience in solutions to groundwater pollution problems. The deadline for submission of all summaries is May 1, 1976. Final selection of papers shall be on June 1.

Individuals whose papers are selected and whose affiliate organizations are severely limited in available travel funds may receive travel grants directly from the symposium, which would cover round trip air fare to Las Vegas. A topic submission form may be obtained from the Association at the following address: 500 West Wilson Bridge Road, Worthington, Ohio 43085.

WATER RESEARCH AND EDUCATION ADVISORY COMMITTEE ESTABLISHED

The Secretary of the Interior and the President of the National Association of State Universities and Land Grant Colleges (NASULGC) recently signed an agreement to establish a joint Water Research and Education Advisory Committee. Formation of the new committee is expected to provide an important means to enhance cooperative state and federal planning of water resources research programs. The committee will provide continuing advice to the Secretary of the Interior and to the President of NASULGC, and will develop recommendations for policy with respect to planning, evaluating, coordinating, and supporting long-range water research programs; defining pressing water resource problem areas; establishing water research priorities; and delineating the appropriate areas of responsibility for federal and state agencies in carrying out water research and training programs.



The committee will be headed by cochairmen appointed by the Secretary of the Interior and the President of NASULGC, and will include an equal number of representatives of USDI and NASULGC.

STAMM URGES ACCELERATED USE OF HYDROELECTRIC POWER AS ALTERNATIVE ENERGY SOURCE

Hydroelectric power, one of the nation's cleanest and most proven energy sources, is being overlooked in the push to find alternative sources, according to Gilbert G. Stamm, Commissioner of the U.S. Bureau of Reclamation. In an article in *Electric Contractor* entitled, "Using Water to Save Oil," Stamm stated: "The use of hydropower both as a primary source of electricity and to meet peak demands for power in several areas throughout the country is already conserving a significant amount of costly oil, saving money for utilities and consumers while reducing the flow of petrodollars to the Middle East." He said that hydroelectric plants presently provide approximately 14 per cent of the nation's combined generating capacity, yet account for 30 per cent of the undeveloped hydroelectric capacity. And if only 50 per cent of the possible hydroelectric power were realized, the Administration's conservation goal—one million barrels of oil daily—would be met.

Stamm termed the usage of hydroelectric power increasingly advantageous: it uses water, a renewable resource; its productive lifespan is long; it does not pollute the air or waters; and it loses very little efficiency. Pumped storage facilities in particular are advantageous, providing power whenever needed and serving as a short-notice reserve. Water is stored for use in peak periods.

"Whether conventional or pumped storage, 'peaking with hydro' has and will continue to save large amounts of oil, and it is all based on a simple concept," said Stamm. "Most electric utilities generate their basic load requirements by burning fossil fuels (oil, gas, coal) or by using nuclear power. But to meet peak demands during certain times of the day (and year), the utility must either have additional generating capacity on hand—an expense which is reflected in the utility's rate structure—or it must be able to obtain large amounts of power in a hurry. That's where hydropower comes in, either from the power company's own facilities or by purchases from other suppliers of hydropower such as the Bureau of Reclamation."

This practice is reversible, as Stamm noted, "... when the demand goes down at night, the utility has a surplus of coal-fired or nuclear-generated power which the Bureau will buy back from the utility to meet its firm commitments to other customers while reservoir water is saved to generate more hydropower during the next peak demand period."

During 1974, 5.5 million barrels of oil were saved in the Missouri and Colorado River Basins, alone, due to USBR conservation efforts. In fact, said Stamm, "power produced and marketed by the Bureau of Reclamation . . . would meet the residential requirements for one year of New York City; Washington, D.C.; Dallas; Chicago; and San Francisco. And possible sites for hydropower projects in the North Atlantic, Ohio, Missouri, Colorado, North Pacific, and South Pacific total better than 240 billion kwh."

Yet, despite the advantages of hydroelectric power and despite its growth, its proportionate usage will decline in the future as the nation turns to coal, gas, oil, and nuclear sources.

Stamm conceded that hydropower does not provide an unlimited solution to the energy dilemma; economic and environmental factors will set controls. But it is his contention that this "... old and proven method of creating power can play a highly significant and beneficial role in reducing U.S. dependence on fossil fuels. The need for more energy which is both cleaner and less expensive demands that every possibility be explored."

PUBLICATIONS OF INTEREST

Arizona Watershed Report Available

The final copy of *Water Yield Improvement by Vegetation Management: Focus on Arizona*, by P.F. Ffolliott and D.B. Thorud (School of Renewable Natural Resources, University of Arizona), has just been released by NTIS. The 1,094-page document is the detailed report on which Arizona Agricultural Experiment Station Technical Bulletin 215 was based.

This assessment of the potentials for increasing water yield in Arizona by means of vegetation management is based on a review of the Arizona Watershed Program, which began in 1957. A separate, detailed summary of research is provided for alpine, mixed conifer, aspen, ponderosa pine, pinyon-juniper, chaparral, grassland, desert shrub, and riparian vegetation types. Some of the characteristics covered for each vegetation zone (where data are available) include silviculture, plant growth, overstory species composition, climate, hydrology, soil, physiography, recreation, and wildlife and fisheries. Treatment effects on water yield, water quality, and forage and timber production are also covered.

An estimate is made for water yield results if mixed conifer forests, ponderosa pine forests, and chaparral vegetation zones were treated at different intensities, for each of 15 basins in Arizona. These estimates have a hypothetical structure and are presented for demonstrating the upper potentials for water yield improvement, according to research results from experimental watersheds. Bibliographies follow each of the vegetation type chapters.

The publication has 116 tables, 176 figures, and some 1700+ references. It is available from the National Technical Information Service as PB 246 055/AS, for \$28.25 in paper cover and \$2.25 in microfiche.

1974 Edition of Public Land Statistics

The 1974 edition of *Public Land Statistics*, a 188-page publication containing much statistical information about the nation's public lands and resources, is now available, according to the U.S. Department of the Interior.

The publication, updated and issued annually by Interior's Bureau of Land Management, provides the latest available information on acreages of lands by State and by Federal ownership, income from sales of public land resources, such as timber, minerals, and forage for livestock, recreational use of the National Resource Lands administered by BLM, and other statistical data on Federally-owned lands.

The new edition shows that Federal mineral leases issued by the Bureau produced more than 571 million barrels of oil, more than 20 million tons of coal, and more than 4½ trillion cubic feet of natural gas during the previous recordkeeping year. More than 1¼ billion board feet of timber and forage plants for better than 5½ million head of livestock were

produced by the Natural Resource Lands. These lands also provided habitat for more than 2¼ million big game animals.

Public Land Statistics may be purchased for \$2.00 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Remote Sensing

Applications of Remote Sensing to Watershed Management, describes the usefulness of aircraft and satellite sensing systems such as the multispectral scanner subsystem on LANDSAT and the basic multispectral camera array on high altitude craft like the U-2. Major areas of investigation included are snow mapping, surface water inventories, flood management, hydrologic land-use monitoring, and watershed modeling. Report N75-24072/IWN is available for \$3.25 from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, Virginia 22161.

Colorado River

Salinity in Water Resources, describes salinity control efforts in the Colorado River and includes new concepts on irrigation efficiencies, a model for evaluating water quantity and quality of an integrated stream-aquifer system, damage to agriculture and urban water systems, water conservation and salinity reducing measures, and least-cost abatement programs. Report number PB-244 856/1WP is available for \$7.00 from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, Virginia 22161.

Flood Control

Urban Drainage and Flood Control Projects—Economic, Legal and Financial Aspects, describes the techniques for evaluating major and minor projects, the legal problems of implementation, the measurement of tangible benefits, some promising methods of quantifying intangibles, benefits, estimation of flood damages and selection of discount rates. Useful to engineers, public works managers, and attorneys, the report is available from the Environmental Resources Center, Colorado State University, Fort Collins, Colorado 80521.

Hydrological Decade

A Catalog of United States Contributions to the International Hydrological Decade 1965-1974 is a compilation of project summaries describing programs undertaken by federal, state and local agencies, universities, and private organizations in conjunction with the international program. Listed are project titles, investigators, objectives, significant results and availability of reports. The 255-page catalog may be obtained from the U.S. National Committee for the IHD, National Academy of Sciences, 2101 Constitution Ave., N.W., Washington, D.C. 20418.

Hydroscience

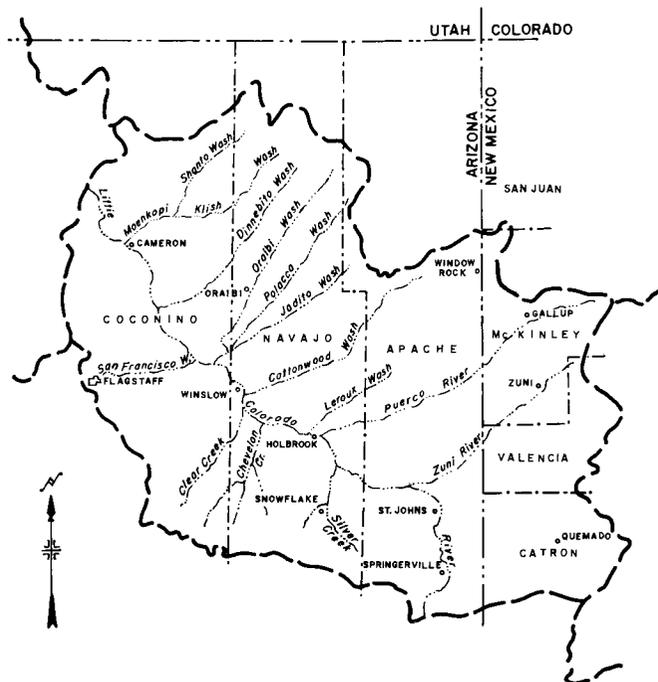
Advances in Hydroscience, Volume 10, Ven Te Chow, editor, includes papers on modeling techniques for ground-water evaluation, tidal theory and computations, hydrothermal convection in saturated porous media and the theory of Weirs. The volume is available for \$39.50 from the Academic Press, Inc., Publishers, 111 Fifth Ave., New York, N.Y. 10003.

Foreign Reports

Summaries of Foreign Government Environmental Reports, a monthly publication of the Environmental Protection Agency, lists foreign documents available through exchange agreements with agencies in other nations. Subscriptions are available through Dr. Melvin J. Josephs, Managing Editor, National Technical Information Service, 5285 Port Royal Rd., Springfield, Virginia 22161.

LITTLE COLORADO RIVER BASIN STUDY

A Little Colorado River Basin Type IV Study recently got under way to help improve the environmental and economic status of the Little Colorado River Basin. The study includes the drainage area of the Little Colorado River, consisting of 17,265,000 acres, of which 13,867,000 acres are in Arizona and 3,398,000 are in New Mexico. The following map outlines the study area.



A Type IV Study consists of three phases: (1) identifying resource problems and needs; (2) inventorying water and land resources related to problems and needs; and (3) developing practical solutions to solve these problems and needs.

The Arizona Water Commission received 22 letters of interest or support from various agencies and groups requesting that a study be conducted to deal with problems. Problems identified in the letters and at a meeting included erosion, flooding, land and forage loss, and inadequate water supplies. The states of Arizona and New Mexico then requested that the USDA cooperate with them in conducting a comprehensive water and land resource study of the Little Colorado River Watershed. The USDA authorized the U.S. Soil Conservation Service to be the lead agency and the U.S. Economic Research Service and the U.S. Forest Service to be support agencies in conducting this study. The Arizona Water Commission and the New Mexico State Engineer Office have responsibility for coordination with other state, local, and federal agencies.

The study will be based on the objectives selected by the requesting agencies and citizens. Several plans will be developed to solve or alleviate present and potential problems. They will be based on analysis of previously published information, supplemented by on-site investigations of the water and related land resources. Plans developed during the course of the study will emphasize national concern for economic development and public concern for the environment. Other plans will reflect interest in satisfying different levels of economic and environmental development. The public will help select the plan which is most acceptable.

This Type IV Study will be a useful tool in deciding what federal, state, and local projects should receive emphasis in the future within the study area. The study will recommend different courses of action to solve resource problems and needs. Such recommendations may include the construction of federal projects. However, more detailed planning of specific projects or measures will have to be conducted before construction funds can be requested.

The Arizona Water Commission, in cooperation with responsible USDA agencies, has meanwhile started a public participation program. The purpose of the program is to get interested persons and groups to identify resource problems in the study area. The problems selected will determine which direction the study will take. The program includes several phases: public meetings, brochures, newspaper supplements, and personal interviews. The first phase of the public participation program in Arizona included four public meetings held at Show Low, Window Rock, Holbrook, and Flagstaff.

In order to obtain a wider range of public participation, the second phase of the public participation program is being developed. This phase consists of mailing brochures to all known agencies, organizations, groups, or individuals which are thought to be interested in the study. In addition, similar information will be printed as a supplement in the newspapers within the study area in an effort to reach other interested parties, and in a special newsletter. The first newsletter was distributed to interested parties in October. This issue and future ones can be obtained by writing to the Little Colorado River Plateau, Resource Conservation and Development Project, Box 550, Holbrook, Arizona 86025.

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