

the divining rod

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Future water rights values predicted in study

Forecasting Future Market Values of Water Rights in New Mexico by Dr. F. Lee Brown, Dr. Charles Dumar, and Rahman Khoshkakhlagh is the result of a year's research funded through the New Mexico Water Resources Research Institute to determine current market values for water rights in New Mexico and to estimate future market values.

The University of New Mexico researchers sent questionnaires to buyers and sellers of water rights (from 1962 to the present) in the major river basins of New Mexico. The returned questionnaires supplied historical and current data related to the

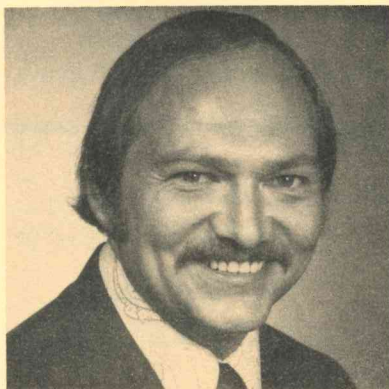
price of water rights in the major river basins. These data were used in a model to forecast future market values of water rights in the Rio Grande Basin (excluding the Santa Fe market) to the year 1990.

Current market values for water rights and their associated transaction costs are included in WRRRI Report No. 092 as well as the description and evaluation of the questionnaires and model.

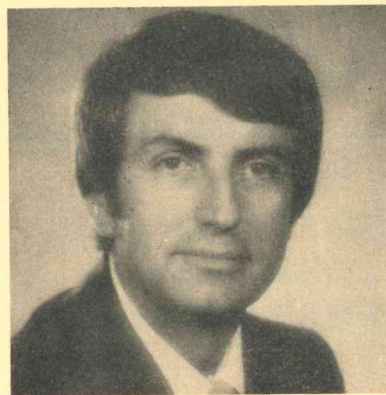
The projected prices of water rights per acre-foot in the Rio Grande basin (excluding the Santa Fe Market) are, in 1967 constant dollars \$563.31 in 1980, \$728.03 in 1985, and \$1191.75 in

1990. The authors caution, however, that the projections should be used only "as an indicator of the direction and magnitude in which market values for water will move in the Rio Grande and other basins of New Mexico in the future."

Currently the relative prices of water rights in the different basins do provide a good indicator of the supply and demand for water. As the prices of water rights increase there will be incentive to be more conserving. Consequently, the market mechanism could play an important role in future water use practices.



Dr. Thomas Bahr, left, has accepted the post of Director, New Mexico Water Resources Institute effective February 1, 1978. He replaces Dr. Garrey E. Carruthers, right, who has been Acting Director since mid-1976. See stories on page 2.



The new Director: the search ends!

An exhaustive search to find a permanent director for WRRRI culminated in late November with the announcement that Dr. Thomas J. Bahr of Michigan State University has accepted the post.

Dr. Bahr, who will assume his new duties on February 1, 1978, had headed the Institute of Water Research at Michi-

gan State for the past four years. He is a specialist in fisheries management and water quality, and his work includes studies on the effects of pesticides and toxic agents on fish, the dynamics of heavy metals in aquatic systems, and nutrient effects and control of eutrophication in surface waters.

From 1970 to 1973, Dr. Bahr was Assistant Director of the Water Institute in Michigan, and prior to that he held a faculty post in zoology at Colorado

State University. He holds an undergraduate degree from the University of Idaho. He got both his M.S. in limnology and biochemistry and his Ph.D. in limnology from Michigan State.

Dr. Bahr's most recent work has focused on evaluating and developing alternative management approaches for the treatment of municipal wastewaters. He is a native of LaCrosse, Wisconsin. He and his wife, Judy, have one daughter, Tricia.

Garrey Carruthers leaves institute

Dr. Garrey E. Carruthers who has been Acting Director of the New Mexico Water Resources Research Institute since July 1976 will resume fulltime his responsibilities as Associate Professor of Agricultural Economics and Agricultural Business at New Mexico State University.

WRRRI and the citizens of New Mexico have

benefited from Garrey Carruthers' excellent direction and administration of the Institute. Through his leadership, dedication, and talents:

- * The 22nd Annual New Mexico Water Conference on 208 Planning was one of the most successful and best attended conferences in recent years.

- * There is increased interest in research to develop New Mexico's large saline water reserves, an, as yet, untapped natural resource.

- * A professional writer was hired for the

Institute who has greatly increased information dissemination of water research through a quarterly newsletter and numerous newspaper articles.

- * A substantial Eisenhower Consortium grant was acquired in cooperation with Texas Tech, in addition to other federal, state and private research funds. And,

- * He has the love and respect of all the WRRRI staff and we consider it a privilege to have worked with you, Garrey.

Flood insurance studies in at NMSU library

Flood Insurance Studies, an HUD series, has started arriving at the NMSU Library, according to the Documents Librarian. The studies cover cities, towns, and hamlets in the United

States, and will be a "very extensive collection."

The call number for the documents is H H 10.9.

Effluent not bad problem, study says

A recently completed study of a Socorro drainage ditch has led two researchers at the New Mexico Institute of Mining and Technology to some not entirely expected conclusions about sewer and feedlot effluent. The effects of water pollution from these sources, they said, "do not appear to be severe." However, they did find cause for concern in the local practice of pumping the overflow from flooded cesspools and septic tanks into irrigation ditches or fields.

Drs. Donald K. Brandvold and James A. Brierley monitored water in the Luis Lopez drain east of Socorro. Funding for their two-year project came from the New Mexico Water Resources Research Institute. It enabled the team to set up about a dozen well instrumented checkpoints along the five and a half mile course of the Luis Lopez.

At its beginning, the drain gets most of its flow from groundwater seepage. On its way downstream it passes first a sewage plant, then a feedlot, and finally several acres of

irrigated fields. The ready identification of potentially troublesome pollution sources in an area of low rainfall, sparse population and virtually no industry provided close to ideal conditions for the kind of study Brandvold and Brierley did.

The Socorro sewage plant dumps about a million gallons of effluent a day into the Luis Lopez drain, and a breakdown caused considerable difficulties for both scientists and area residents early in the experiment. For a while the plant was discharging raw sewage. Later it tried to offset the dangers this posed by using chlorine in amounts far above normal.

Residual amounts of the chemical began appearing at a monitoring station below a treatment plant, effectively skewering measurements aimed at determining typical long-term patterns. These problems were overcome, however, and the researchers said, "over the last year or so, the Socorro plant appears to be doing an excellent job and has been most cooperative."

The scientists also suggested that a drop in the Luis Lopez's nitrogen levels during the project period was probably due to improved sewage treatment. Even so,

overall nitrogen levels remained higher than originally expected. Dissolved phosphate, nitrite and nitrate ions which showed up at some checkpoints also appeared to have come first from the sewage plant.

Findings from the Brandvold-Brierley project further indicated that pollution from feedlot runoff was not potentially harmful under ordinary conditions. Only after cloudbursts which dumped over half an inch of rain on the Socorro area did feedlot runoff pose a pollution threat. This led the researchers to conclude that "For any environmentally sound feedlot the runoff should be controlled or contained." They called for the grading of areas where manure is piled to assure draining into natural depressions or man-made lagoons large enough to hold a year's runoff.

Given the relatively low quality of water in the main canal which drains the Luis Lopez, sewage and feedlot effluent from the latter seemed less than a severe contamination threat. The most serious difficulty the researchers found came from an unexpected quarter. Some area farms and houses had cesspools and

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Effluent (cont.)

septic tanks prone to flooding during Socorro's summer rainy season.

The usual remedy was to pump overflow into the most convenient irrigation ditch or field. This results in high coliform counts

as well as elevated nitrogen.

The Brandvold-Brierley project appears to have a potential widespread application. In specifying the effects of common pollution sources in an easily followed sequence it has attracted a measure of attention among those

concerned with water contamination problems. Among those showing interest in the results of the Socorro researchers are some legislators, private environmental consultants and the New Mexico Environmental Improvement Agency.

Research grants: apply now!

WRRRI will accept applications from faculty members of state supported universities in

New Mexico for grants under the Office of Water Research and Technology Fiscal Year 1979 (October 1, 1978 through September 30, 1979) Annual Allotment Program. The deadline for submitting proposals to WRRRI is Feb-

ruary 1, 1978. For annual allotment proposal guidelines or further details write: New Mexico Water Resources Research Institute, P.O. Box 3167, Las Cruces, NM 88003.

Employment opportunities

Argonne National Laboratory has job openings for graduates in engineering and environmental studies. Posts are available immediately in the Integrated

Assessment and Policy Evaluation Program of the laboratory's Energy and Environmental Systems Division. Those accepted for work at Argonne will pursue studies in water resources, air quality and chemical/environmental engineering.

Send resumes including course lists

or transcripts and date of availability to: Ms. N. L. Kostyk (LJH/IAPE); Energy and Environmental Systems Division; Argonne National Laboratory; 9700 South Cass Avenue; Argonne, Illinois.

DR. GARREY CARRUTHERS, Acting Director, New Mexico Water Resources Research Institute; WINSTON L. COMER, Editor.

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