



# Wyoming Hydrogram

February, 1989

Wyoming Water Research Center

Vol. 1, No. 1

## Wet Side Story

Steven P. Gloss

As Director of the Wyoming Water Research Center, I am pleased to welcome you to the readership of our newsletter, the *Wyoming Hydrogram*. This first issue is largely devoted to acquainting readers with the WWRC, its history and purpose. In future issues (six per year) we will provide timely information on many important water resource topics. You will notice we have incorporated several regular sections in our newsletter one of which is a feature article we will call MAINSTREAM. In this first issue that article is entitled simply

GETTING TO KNOW US. Other regular sections include this short contribution from the Director (WET SIDE STORY), a section on state, regional, and national water news called SPLASH, and beginning in our next issue we will provide a section on a faculty or staff member from the WWRC or the University of Wyoming which we will name WYOMING WET ONES. Finally, because we believe that communication is a two-way process, each issue will include an invited or contributed guest editorial called MY SEDIMENTS EXACTLY. We are particularly pleased that Governor Mike Sullivan has written our first guest editorial.

Several times a year you will also find inserted in the newsletter brief synopses of water research project results which were either conducted or funded by the WWRC. This series of bulletins will list specific contacts for additional information and will be entitled WATER WISDOM.

We hope you enjoy and learn from your *Wyoming Hydrogram*. The Wyoming Water Research Center as a part of the University is dedicated to serving present and future informational and research needs of Wyoming and its citizens in the important areas of water resources. Please feel free to contact the Center if you have questions or concerns about water in Wyoming.

## My Sediments Exactly

Governor Mike Sullivan

I am very honored to have this opportunity to help people get to know more about one of the important institutions in our state—The Wyoming Water Research Center at the University of Wyoming.

Water has played an important role in Wyoming's history since long before the state was settled, but since the arrival of the first white settlers, its role has been critical.

It is the lifeblood of this beautiful, but sometimes harsh and forbidding land we call Wyoming. It is the lifeblood of many of our industries and much of our lifestyle.

The advent of our state's Centennial provides an opportunity to reflect on our water development efforts and their place in our rich history. But it also is a time to look ahead, to the future of Wyoming in the 21st Century and to the role of water in that future.

Looking ahead is what the

Wyoming Water Research Center does, and does very well.

Created in 1982, the Center is an integral part of our long-range water development program and a recognition of the critical importance of water and water development in Wyoming today.

The WWRC sponsors and conducts its own multidisciplinary basic and applied research into the use, management and conservation of our water resources—from analysis of large water systems like the North Platte and Flaming Gorge Reservoir to research into the shrinking glaciers of the Wind River Range.

Equally important, it coordinates research activity at the University with related programs at other universities and within various state and federal agencies.

And it helps provide information on water issues to the

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## Mainstream

"Getting To Know Us."

### History

The Wyoming Water Research Center (WWRC) was established as a state-funded water research program in 1982 by the Governor's Office, the Wyoming Legislature, and the University of Wyoming. The Center was formerly known as the Wyoming Water Resources Research Institute (WRRRI) which was created in 1965 as part of the federal water research program pursuant to Section 303 of the Water Resources Research Act of 1964 (P.L. 88-379). The Center continues to administer this federal program as a portion of its activities.

### Purpose

The Wyoming Water Research Center sponsors and conducts multidisciplinary research related to the management and preservation of water resources of Wyoming. The Center, also, is designed

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people of Wyoming, as well as providing formal education through the water resources degree program at the University.

Our water resources are crucial to all of us in Wyoming as we move into our second century of statehood.

But as we know all too painfully, our water resources are finite resources. Water is sometimes too scarce to meet all of our current demands, be it for industrial or municipal use, agriculture, recreation or wildlife, and future demands will only intensify the problem.

And we know that water is a fragile resource, easily polluted, wasted or lost to downstream users.

So that makes it all the more important to use our precious water resource as wisely as possible.

The Wyoming Water Research Center is playing a major role in helping us determine how to wisely use, manage and conserve our water resources for our future and for future generations.

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For information please contact: Wyoming Water Research Center P. O. Box #3067 University Station University of Wyoming Laramie, Wyoming 82071 - 3067 (307) 766 - 2143

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to provide service to state agencies and the public; to offer extension programs to disseminate information to the general public, youth, and state and federal agencies through meetings, tours, seminars, publications, etc.; and to coordinate interdisciplinary graduate degree programs in water resources on campus.

#### Structure

The Director of the Center is responsible for implementing the programs of the WWRC. The Director reports to the UW Vice President for Research. Two associate directors assist the Director in the areas of research and information transfer.

The Research Review and Priorities Committee (RRPC) allows WWRC programs to achieve maximum effectiveness. The members of the RRPC are appointed by the Governor and the University of Wyoming President. The committee consists of state legislators, state agency representatives, and university faculty. The RRPC identifies water problems, classifies and assigns priorities to research needs, approves research projects for funding, recommends funding levels, assures appropriate balance between basic and applied research, and suggests information transfer programs.

The Citizens Water Issues Advisory Council (CWIAC) consists of citizens throughout the State who are jointly appointed by the Governor and the University of Wyoming President. The CWIAC identifies and transmits water-related concerns to the RRPC.

#### Research

Since 1982, funds received annually from the state allocation for interdisciplinary research on campus have been distributed to 73 different research projects. The Center has used its federal annual allotment to fund approximately 27 research projects. External grant funds have been generated from state agencies to assist in agency service requests and from federal

and private sources for both basic and applied research.

Research projects conducted through the WWRC have addressed problems in agriculture, water development, stream systems, water economics, water quality and quantity, industrial and municipal use, modeling and environmental topics. Basic research projects have included contaminant flow, satellite imagery (snow), geothermal potential, flushing flow requirements, and stream aquifer interactions. Applied research projects have included Salt River streamflow, the North Platte River management model, consumptive use (mountain meadows), Flaming Gorge Reservoir recreation, and furrow irrigation efficiency.

#### Service

Service to Wyoming state agencies is an integral part of the WWRC mission. The Center serves as a link to faculty expertise at the University of Wyoming. At the request of state agencies the Wyoming Water Research Center conducts special studies and reports back to the agencies.

The Water Resources Data System (WRDS) is a computerized data storage and analysis system housing the largest single repository of hydrologic and climatic data for the State of Wyoming. Data from more than eighty different collecting agencies are housed on the system and offer requesters a high degree of reliability and fast response time to user queries. The system is composed of six unique databases, including Surface Water Quantity, Well Level, Water Quality, Climate, Snow Course, and the Wyoming Water Bibliography which contains over 12,000 literature citations dealing with the development, management, and use of the water resources of Wyoming.

Associate Director of the WWRC, Victor Hasfurther, serves as State Climatologist for Wyoming. Wyoming is one of only five states in the nation which participate in two regional climate centers.

### Information Dissemination and Extension

It is important for the Wyoming Water Research Center to communicate with the people of the State so they might be better informed about water problems in Wyoming and the basic and applied research underway to solve these problems.

The WWRC uses several networks to inform the people of Wyoming, as well as neighboring states and regions, of what the Center is doing. These include:

- A seminar series sponsored by the WWRC provides a forum for discussion of water resources related studies and activities conducted by UW faculty, staff, and graduate students. "Water Talk" is held each Friday at noon in room 1046 of the Engineering Building on the UW campus. A schedule for spring semester 1989 is included with this newsletter. The "Water Talks" are open to the public.
- Motorized tours of some of the water resources and streamside zones of the State provide participants the opportunity to observe and discuss water and related resource issues of concern.
- Water Expertise Directory

which contains names and specialties of personnel from UW and state agencies related to water resources.

- The WWRC assists the UW College of Law in publishing the Land and Water Law Review. The Center also publishes periodic descriptions of results from its research in non-technical language through the series WATER WISDOM.

- Wyoming legislative water resources and law information meetings are co-sponsored by the WWRC and the Legislative Services Office and are attended by approximately 1/3 of the legislators annually.

- Public water information meetings, water management seminars and conferences, and State Water Forum monthly meetings are attended by the WWRC Director and Associate Directors.

- A University of Wyoming summer school course on water resources is offered annually for elementary and secondary school science teachers. It is held in cooperation with the UW Science and Math Teaching Center.

#### Education and Instruction.

The academic responsibility of the WWRC to education and in-

struction is to provide both graduate and undergraduate educational experience for students having career interests in water resources. The implementation of the M.S. or M.A. graduate degree program as a specialty option within sponsoring academic departments offers students the opportunity to obtain interdisciplinary breadth in their graduate program. The Center administers the program through an Academic Standards Committee.

The Willard C. and Elaine N. Rhoads Scholarship for Graduate Studies in Water Resources was established to honor Willard C. Rhoads, a member of the Research Review and Priorities Committee for the Wyoming Water Research Center and a long time member of the Wyoming Water Development Commission, who passed away in 1986. Funds for the Rhoads Scholarship were donated to the University of Wyoming by Mrs. Rhoads, her family, and friends with matching funds provided by the University. Students enrolled in the water resources degree program are invited to apply for the scholarship annually. An engraved register of the recipients is on display at the Wyoming Water Research Center.

### Wyoming Wet Ones

The management and administration of the WWRC are the responsibility of Center Director Steven P. Gloss. He is assisted by two Associate Directors, Victor Hasfurther, for Research, and Donald J. Brosz, for Extension and Information Transfer.

To provide new and amplified expertise in the water resource area and to provide a continuity of relationships with state agencies, faculty with joint academic appointments include Richard Marston, Associate Professor of Geography and Recreation, Yeou-Koung Tung, Associate Professor of Statistics, along with Victor Hasfurther, Professor of Civil

Engineering.

In cooperation with various participating faculty members on campus, water research projects are conducted by professional research personnel at the Center. Research Associates include Greg Kerr, K. J. Reddy, Frank Sanders, and Thomas Wesche. Technical and field research support is provided by Research Associates Larry Dolan, Chris M. Goertler, Scott Gustin, and a number of graduate students assigned specific water research projects for completion of their theses.

Computer programming and coordination of the Water Resources Data System are provided

by Barry B. Lawrence and Kenneth R. Carnes, Programmer Analysts, Connie Wiley, Research Data Assistant, and Sasha Anderson, Computer Programmer.

Assisting the Director with administrative and information transfer activities are Pamela Murdock, Administrative Assistant, Jill Bernaski and Ruth E. Daniels, Administrative Secretaries, Loree Hanson, Accounting Technician, Amy Rodriguez, Librarian, and Thomas G. Satterly, Communication Specialist.

More information on WWRC personnel will be forthcoming in future issues of the *Wyoming Hydrogram*.

## Splash

### State/Regional/Local News

● Beryl Churchill, Powell, Wyoming, was awarded the *Distinguished Service Award* by the Upper Missouri Water Users Association at their recent annual conference in Bismarck, North Dakota. Beryl, her husband Winston, and their sons operate an irrigated farm near Powell. She is a member and chairperson of the WWRM Citizens Water Issues Advisory Council and a member of the Wyoming Water Development Commission.

● The National Water Resource Association recognized Wyoming Senator Malcom Wallop as "*Water Statesman of the Year*" for his contributions and accomplishments in the water resources area.

● The United States Supreme Court has recently agreed to review *tribal water rights* on the Wind River Reservation in the Big Horn Basin of Wyoming. The Justices will study a 1987 Wyoming Supreme Court decision that gave the tribes (Shoshone and Arapahoe) 478,000 acre-feet of water with an 1868 priority date for agricultural use on the reservation. Wyoming officials sued the federal government and the Indian Tribes in 1977 contending that in

1905 Congress intended that the future water rights of the Reservation be obtained under Wyoming water law. The Supreme Court rejected the State's arguments on that point sparking the appeal by Wyoming.

● In 1987, Congress amended the *Clean Water Act* mandating that states are to address nonpoint source (NPS) pollution. Congress enacted a statute that requires states to assess their waters and to develop NPS management programs to control and reduce specific nonpoint sources of pollution; authorized federal Loan and Grant funds to help state and local governments, conservation districts, individuals, farmers, foresters, and business manage nonpoint sources of pollution.

The Department of Environmental Quality in Wyoming is taking the lead in developing a NPS management plan for the state. Best Management Plan (BMP) committees are developing a draft plan to be ready by April 15.

Contact Department of Environmental Quality, Herschler Building, Cheyenne, Wyoming 82002.

● The *Nevada Supreme Court*, in a ruling supporting the concept of

instream flow, has broadened the right of the federal government to hold water rights in the state.

In 1979, the U. S. Bureau of Land Management and the U. S. Forest Service announced that they would need thousands of water rights permits throughout the west. The Attorney General and State Engineer of Nevada selected a sample of these permit requests to test in court. In December, 1988 the Nevada Supreme Court ruled that federal agencies were entitled to hold water rights for stock watering, recreation, instream flow, and wildlife preservation.

● The U. S. Army Corps of Engineers is studying the feasibility of building a major dam on the Weiser River in Idaho to generate power and to help fish on the river. The Galloway Plan, as currently envisioned, would consist of a 300 foot high dam impounding 900,000 acre-feet of water. The reservoir would provide extra water to assist anadromous fish in their journeys to and from the sea while maintaining efficient and uniform power generation.

Contact: U. S. Army Corps of Engineers, Building 604, City/County Airport, Walla Walla, WA. 99362.

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# 'WATER TALK'

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Sponsored By The  
**WYOMING WATER RESEARCH CENTER**  
Schedule, Spring Semester 1989  
Fridays, 12:00 noon  
Room 1046 - Engineering Building

## **Schedule Change (\*)**

<b><u>Date</u></b>	<b><u>Speaker</u></b>
January 20	Dick Marston, Geography and Recreation Department <b>Water Related Hazards in Wyoming.</b>
January 27	Wayne Hubert, Wyoming Cooperative Research Unit <b>Brown Trout Population and Habitat Changes Associated With An Increase in Maximum Flows of Douglas Creek, Wyoming.</b>
February 3	Mike Parker, Zoology and Physiology Department <b>Streams, Water Quality and Riparian Zones.</b>
February 10	Craig Thompson, Water Quality Laboratory, Western Wyoming College <b>Trace Element Composition in Wind River Glacial Snow.</b>
February 17	Harold Bergman, Zoology and Physiology Department <b>Predicting the Effects of Acidification on Fish Populations: A Modeling Strategy.</b>
*February 24	Tim Drever, Geology and Geophysics Department <b>Weathering a Susceptibility of Acid Deposition.</b>
March 3	John Wetstein, Graduate Student, Civil Engineering <b>Surface Aquifer Return Flow, Pinedale, Wyoming.</b>
March 10	<b>SPRING BREAK</b>
March 17	Stephen Williams, Plant, Soil and Insect Sciences <b>Microbial Biocycling of Selenium.</b>

- March 24                   **HOLIDAY** (Good Friday)
- \*March 31                 Gordon Fassett, Wyoming State Engineer, Cheyenne  
                              **Allocation and Management of Water Resources**  
                              **in Wyoming.**
- April 7                     Jim Kircher, District Chief, Water Resources  
                              Division, U.S. Geological Survey  
                              **Overview of USGS Activities in Wyoming.**
- April 14                    Ursula Wiersma, Graduate Student, Geology  
                              **Evidence for Recharge to the Paleozoic**  
                              **Aquifer Along the East Flank of the**  
                              **Laramie Range.**
- April 21                    Nick Schmal, U.S. Forest Service, Laramie Ranger  
                              District, Laramie  
                              **Historical Impacts of Railroad Tie Drives**  
                              **on Stream and Riparian Habitats.**
- April 28                    Peter Huntoon and John Mills, Geology and Geophysics  
                              **Groundwater Storage and Recharge Mechanics.**
- May 5                      John Adams, Molecular Biology  
                              **Direct Viable Count: New Methodology**  
                              **for Determining Bacteria in Drinking**  
                              **Water.**