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Water Resources Review

GRAND VALLEY STATE UNIVERSITY WATER RESOURCES INSTITUTE

August, 1990 Volume 3, Number 2

WRI RECEIVES MICHIGAN YOUTH CORP BLUE RIBBON PROJECT AWARD

Local officials, area decision makers, and more than two dozen students from area high schools shared in the excitement and enthusiasm as Dr. Ron Ward, Director of the Water Resources Institute (WRI) accepted a \$53,664 grant award on behalf of Grand Valley State University (GVSU).

Word of the MYC Project came just two months following the announcement by The Grand Rapids Foundation of their support for a five year/one million dollar research initiative for the Grand River Watershed. The MYC Project is one of several "action oriented" projects which complement this larger WRI effort.

Elizabeth P. Howe, Director of the Department of Labor and the

Michigan Youth Corps (MYC) Program announced the award of a Michigan Youth Corps Blue Ribbon Opportunities Project Grant to the WRI on April 12, 1990. Dr. David Hales, Director of the Department

of Natural Resources, was also present and offered his support. The presentation by both Ms. Howe and Dr. Hales served to demonstrate the commitment and (See Page 1)

LOUIT FOUNDATION GIVES TO GVSU WATER RESOURCES INSTITUTE CAMPAIGN

GVSU's Water Resources Institute has received a \$60,000 gift from the Loutit Foundation of Grand Haven. It is the first gift from a lakeshore community in the fundraising campaign for the WRI. The campaign, conducted by an advisory council of business and community leaders under the chairmanship of Amway Corporation President Richard M. DeVos, is seeking \$5.1 million in private funding to

help underwrite the Institute's activities.

In accepting the gift, GVSU President Arend D. Lubbers said, "This gift will be critical to WRI's research, education and outreach programs on behalf of our water resources and will stimulate new support throughout the region for the Institute's fund-raising drive."

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FROM THE DIRECTOR

This issue of the Water Resources Review contains exciting updates on WRI programs and also some subtle changes.

Up front, you will read about two grants recently presented to the WRI. Updates on the Grand River Watershed Program, funded by The Grand Rapids Foundation are also included, with a list of Grand River watershed research projects currently underway. Watch for a Grand River research project to be highlighted in each of the forthcoming issues of the Review.

Inside, don't forget to look for the D. J. Angus Update. Our research

vessel is having another successful season, hosting over 2200 K-12 and GVSU students, senior citizens and teachers thus far.

As a final note, I draw your attention to WRI's new logo. The logo symbolizes the mission of WRI and GVSU. The graphic was designed to display WRI's holistic, applied approach to research and the dissemination of acquired knowledge to citizens, communities and government officials.

Ronald W. Ward, Ph.D.
Director
Water Resources Institute

Michigan Youth Corp...Continued from cover.

resolve generated by the State of Michigan regarding the protection and improvement of water resources in west Michigan.

The Blue Ribbon Opportunities Grants are made possible through the Department of Labor. Youths between the ages of 18-21 gain experience and training in a chosen area of interest. Participants are able to sharpen their skills and thus increase future employment opportunities.

The Blue Ribbon Projects are highly competitive. The GVSU proposal was one of 20 projects chosen out of approximately 200 applications received by the Department of Labor from across the State.

The MYC Blue Ribbon Project has allowed the Water Resources Institute to hire approximately 20 young people to work throughout the summer of 1990. Youth Corps participants collect environmental samples, conduct routine analysis, and create a data base used to report and organize sample results.

Other Youth Corps personnel are involved in the creation and expansion of Geographic Information Systems already under development at the Institute. These Geographic Information Systems (GIS) include a Groundwater Data Base which charts the location and movement of groundwater and estimates vulnerability to contamination. Other GIS applications include the identification and assessment of all permitted discharges to the Grand River system.

In addition to these duties, WRI has initiated a "Clean-up Campaign" which will remain active throughout the remainder of the summer. John Koches, MYC Program Manager for WRI, indicates that everyone has helped in the collection of trash and litter from the banks and islands along the Grand River and within its environs. "The Clean-up Campaign has led to a measured and visual improvement to the Grand River. It also focuses public attention on what is often a serious problem. The Campaign has as one of its main objectives to recommend a management program to control and where possible eliminate litter and illegal waste disposal."

Youth Corps participants were introduced to WRI and its programs during an all-day workshop on June 4, 1990. The workshop was organized by WRI and the Ottawa

(See Page 2)

WRI HOSTS NATIONAL CONSERVATION LEADER AT COMMUNITY LUNCHEON

Key state legislators, representatives from business and industry, and academics were among the 500 guests in attendance at a June 25 luncheon sponsored by the Water Resources Institute. Rich DeVos, president of Amway Corporation, served as host for the luncheon entitled "For Our Earth And Its Waters".

Jay D. Hair, president and chief executive of the National Wildlife Federation (NWF), presented the keynote address. NWF is the largest private environmental organization in the nation, with almost six million members and supporters.

Hair's address focused on the need for continued efforts to clean-up the environment. According to Hair, the present generation must not become complacent. Environmental battles have been won in the past but present problems call for new answers including a global perspective. "The present generation cannot take credit for past generations' accomplishments,"

said Hair. "Think globally, act locally," was the NWF's slogan for Earth Day '90.

A highlight of the luncheon was the presentation of the first annual WRI Environmental Achievement Award. Twelve area junior and senior high school "stream teams" were recognized for their work in collecting, testing and analyzing water quality in the Grand River Watershed.

"The stream teams serve as both a learning tool for more than 300 students and as data gathering groups for the WRI," said Ronald Ward, director of the WRI. "We want to recognize the tremendous efforts of these teachers and students in working to improve water quality in the Grand River Basin."

Immediately following the luncheon, several stream team teachers and students released hundreds of walleye fry into the Grand River. The fry, donated by the Michigan Department of Natural Resources, were used as centerpieces on the luncheon tables.

Loutit Foundation Gives to GVSU...Continued from cover.

"Clean water is part of a healthy environment," Lubbers added, "and is important to our part of the state, particularly to lakeshore communities such as Grand Haven. We feel the Institute will have an impact throughout west Michigan and beyond, and the Loutit Foundation's gift is an encouraging sign of the regional interest in WRI."

Support from the Loutit Foundation helped start Grand Valley in the early 1960s. The Loutit Hall of Science, where WRI is now headquartered, bears its name in recognition of early support for the sciences. The foundation also helped launch the public television station in 1972. Since then, it has provided funds for the outdoor athletic complex and stadium and supported the new television facilities at the Meijer Public Broadcasting Center.

The grant for the Water Resources Institute was presented to Grand Valley by Paul Johnson, president of the Loutit Foundation and the past chairman of the JSJ Corporation of Grand Haven.

Michigan Youth Corps...Continued from Page 1.

County Community Action Agency. Highlights included interviewing techniques, watershed management concepts, sample collection/analytic methods, and boating safety/first aid. An Employer Panel was available to discuss job opportunities and training needs for a variety of environmental professions. Employer Panel participants included representatives from the Ottawa County Health Department, Dell Engineering, DeWind Drilling, and WW Engineering.

Several Grand River Watershed Program research projects, funded by The Grand Rapids Foundation, are using MYC personnel. They include a preliminary analysis of toxic pollution in the lower Grand River, the analysis of walleye and fish nursery habitats in the Grand River, an evaluation of impacts to Lake Michigan from Grand River discharge, a wetlands assessment, an assessment of land use practices, the analysis of non-point source pollution potentials, and the application of geographic information systems. (See Insert)

The Grand River "Clean-up Campaign" has met with success and has generated considerable support. Local units of government were asked to nominate areas within their jurisdiction for clean-up activities. MYC participants have been able to glean more than three tons of debris from these and other sites along the shores of the Grand River and its many tributaries downstream from Grand Rapids.

WRI will on occasion organize special clean-up days for a given area in an attempt to generate interest and support by local communities for water quality protection programs. A special all-day clean-up of Harbor Island in Grand Haven, Michigan was organized for June 15, 1990. More than a dozen WRI employees and MYC participants joined volunteers from two citizen interest groups active in the Grand Haven area, Stop Overflow Sewage (SOS), and Interconnections.

Other individuals and groups assisting in the Harbor Island Clean-



up include Brenda Kling - Recycling Coordinator, Ottawa County; Louis Padnos Iron & Metal Company; and White Lake Landco Inc. The cooperation of the City of Grand Haven was invaluable during this clean-up event.

The Indian Mound area near Johnson Park in Grand Rapids was targeted for similar clean-up on July 20, 1990. In this case MYC participants and WRI staff members were able to collect more than two tons of litter and debris along the Grand River, filling a 40 yard con-

tainer donated by Fenske Enterprises.

Materials collected included demolition debris, foundry wastes, car parts, as well as household garbage. Clean-up crews were surprised to find a "mountain of tires" buried along Indian Mounds Parkway.

WRI is coordinating additional events with the West Michigan Environmental Action Council as they plan clean-up activities in the Plaster Creek vicinity during August.

GRAND RIVER WATERSHED PROGRAM RESEARCH PROJECTS - 1990

- **Toxic Screen of the Lower Grand River** - Principal Investigator: Pat Thorpe - WRI Research Associate, Assistant Professor of Biology
- **Walleye Recruitment in the Grand River** - Principal Investigator: Mark Luttenton - WRI Research Associate, Assistant Professor of Biology
- **Impact of Grand River Discharge on Lake Michigan Benthic Invertebrate Communities** - Principal Investigator: Mark Luttenton - WRI Research Associate, Assistant Professor of Biology
- **Wetland Assessment in the Lower Grand River** - Principal Investigator: Frederick Bevis - WRI Research Associate, Associate Professor/Chair of Biology Department
- **Assessment of Land Use Practices on Water Quality** - Principal Investigator: Frederick Bevis - WRI Research Associate, Associate Professor/Chair of Biology Department
- **Assessment of Urban Non-point Pollution Contributions to the Grand River** - Principal Investigator: Kathleen Lacey - WRI Research Associate, Visiting Assistant Professor of Biology
- **The Application of Geographic Information Systems in the Grand River Watershed** - Principal Investigator: John Koches - WRI Research Associate

"SECOND ANNUAL" WRI GROUNDWATER CONFERENCE SCHEDULED FOR OCTOBER 1990

WRI is happy to announce a second Groundwater Conference highlighting the Groundwater Education In Michigan (GEM) Program at GVSU. The conference is scheduled for Tuesday, October 9, 1990, at the GVSU L.V. Eberhard Center.

It has been a year since the WRI and the Michigan State University Cooperative Extension Service organized the area's first "Tri-County Groundwater Conference".

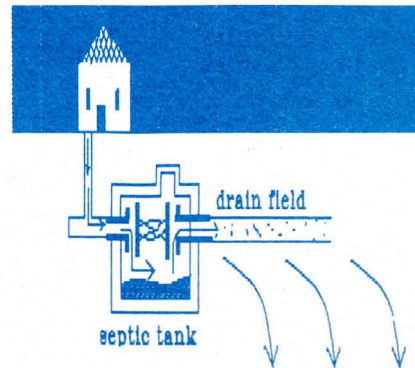
This first major conference for WRI involved elected and appointed officials from Kent, Muskegon, and Ottawa Counties. WRI activities have since expanded to include other municipalities within its nearby geographical area. For instance, WRI is currently preparing a Groundwater Data Base for Oceana and Newaygo Counties.

Hence, this second conference will expand in scope to include other municipalities and individuals which have expressed interest in WRI programs and activities.

While plans for this second conference have not yet been finalized, the agenda is already quite full. A panel of experts will discuss waste management and groundwater compliance programs suitable for local units of government. Other speakers will be available to share their knowledge and "hands-on experience" about the implementation of zoning ordinances and master planning concepts which lend themselves to the protection and preservation of groundwater quality. Conference participants will be asked to focus their attention on the use of computer data bases and Geographic Information Sys-

tems as tools to facilitate land management decision making.

Those readers interested in more information about the planned conference are encouraged to call WRI offices at (616)895-3749.



How can groundwater be contaminated?

GEM UPDATE



The Groundwater Education in Michigan (GEM) Program is proceeding on schedule. Michigan Youth Corps participants continue the development of an already extensive Groundwater Data Base.

Kevin Cole, WRI Research Associate and Assistant Professor of Geology, has been working for the last 10 months with Kurt Thompson, WRI Research Assistant, to develop innovative graphic tools and data base utilities. The purchase of additional hardware and software packages have lead to astonishing improvements in the display and manipulation of data base information.

Staff is now able to generate full county maps showing the location and distribution of wells and aquifer systems. Groundwater information can be overlaid with local

landmarks such as area roads and municipal boundaries. These advancements provide us greater capability in describing groundwater information and makes this information even more useful to local decision makers.

WRI has completed area maps describing Muskegon County aquifer systems and is now working to provide the same for northern Kent County. Similar maps are already available for the southern half of Kent County as a part of the "South Beltline Project".

The Institute has recently expanded its Groundwater Data Base to include Oceana and Newaygo Counties. The WRI is working with both the District 5 Health Department and the Geologic Survey Division of the Michigan Department of Natural Resources to complete this study area and add it to the larger state wide system.

WRI is in the process of compiling a data base which tracks the chemical composition of groundwater in both Kent and Muskegon Counties. Chemical Data Bases for Muskegon and Kent Counties should be completed by the end of fall.

WRI staff is exploring data exchange with the U.S. Environmental Protection Agency (USEPA) as part of their Data Storage and Retrieval system called STORET. Such a system would enable the WRI to link groundwater information with existing and future surface water data. Assuming the success of such a linkage, WRI would be able to evaluate groundwater vulnerability to known and suspected surface water contamination sources. This process will be discussed further in future issues of the Review.

GRAND RIVER EXPEDITION '90

As a part of the Grand River Watershed Program, funded by The Grand Rapids Foundation, WRI is participating in Grand River Expedition '90.

Grand River Expedition '90 is a journey by canoe that will travel the length of the Grand River from its headwaters near Jackson to the mouth in Grand Haven.

The convoy of approximately 40 canoes, led by Verlen and Valerie Kruger, will depart on August 13 and arrive at the mouth of the Grand River in Grand Haven on August 25.

The Krugers recently completed their Two Continent Canoe Expedition from the Arctic to the tip of South America. They are launching the Grand River Expedition to raise appreciation and awareness of responsibility for the Grand. The journey will explore the river, documenting its values, problems, and opportunities.

"All of the communities are linked together because of the Grand," Valerie Kruger said, "and the Expedition is an educational experience for all of us."

Teachers, scientists, technicians, historians, writers, leaders of government and industry, and interested individuals will share in this experience as they paddle canoes and make presentations to various communities located along the river. It is an opportunity for everyone involved to interact with the Grand and the people living along its banks.

WRI will be hosting two stops with displays along the journey. On August 23 at 10:00 a.m., the canoeists and exhibitors will stop at the GVSU's L.V. Eberhard Center in downtown Grand Rapids. The public may view exhibits in the Eberhard Center from 10:00 a.m. to 1:00 p.m. on the 23rd.

A celebration culminating the Expedition will begin at 1:00 p.m. on August 25 in Grand Haven with the arrival of the canoes at the Municipal Marina. WRI's research vessel, the D.J. Angus and the Ottawa County Sheriff's Department, will accompany the canoes on the last leg of the journey. The Musical Fountain located in Grand Haven

will be dedicated to the Expedition on the evening of the 25th.

WRI will be collecting water quality samples during the excursion. The results of the sample collection will be reported daily to the media as a "Report Card" of Grand River water quality.

Other participants include the West Michigan Environmental Action Council, Michigan Department of Natural Resources, Michigan State University's Institute of Water Research (MSU IWR), Soil Conservation Service, and many more. The public is welcome and encouraged to meet the Krugers and the rest of the canoeists along the journey (see insert for schedule).

SURFACE WATER QUALITY CONFERENCE

The Water Resources Institute (WRI) and the Michigan Chapter of the Soil and Water Conservation Society will co-sponsor an all day Surface Water Quality Conference on October 5, 1990, at the GVSU L.V. Eberhard Center in downtown Grand Rapids.

The conference will focus on surface water quality of urban and rural environments. Concurrent demonstrations of the Agricultural Nonpoint Source Pollution model (AGNPS), Geographic Information Systems (GIS), and Groundwater Education in Michigan (GEM) Surfer will be presented throughout the day.

Topics will focus on research efforts in surface water quality in the state of Michigan, highlighting WRI Grand River Watershed research. The conference will conclude with a panel discussion.

For more information, contact the WRI office at 616-895-3749.

CALENDAR OF EXHIBITS FOR EXPEDITION '90

August 13 1:30-4:30 p.m.

Ceremony in Liberty.

August 14 7:00 a.m. Begin

paddling at Michigan Center Control Dam.

August 15 5:00 p.m. - dusk

Evening stop at Eaton Rapids Campground.

August 17 4:00 p.m. - dusk

Evening stop at J.C. Park in Grand Ledge.

August 19 1:00 - 4:00 p.m.

Thompson field in Portland.

August 20 5:00 p.m. - dusk

Evening stop at Ionia Free Fair Campground.

August 23 10:00 a.m. -

1:00 p.m. GVSU L.V.

Eberhard Center in downtown Grand Rapids.

August 25 1:00 p.m.

Municipal Marina in Grand Haven. Culmination celebration all day.

Musical Fountain program dedication to Grand River Expedition '90 at dusk.

September 1 11:30 a.m. -

7:00 p.m. Riverfest '90, Lansing Riverfront Park.

EXCHANGE FACULTY TO ASSIST WRI

Kathleen Lacey, Associate Professor of Hydrology from Kingston Polytechnic in London, England has recently joined GVSU as a visiting faculty member.

During her one year stay, Lacey will be investigating the impact of urban non-point source pollution on the Grand River and its watershed for the WRI Grand River Watershed Program. She will also teach half-time for the Biology Department.

Lacey graduated with honors from Plymouth Polytechnic in 1979 where she received a Bachelor's Degree in Environmental Science, specializing in Pollution Studies, Hydrology and Ecological Management. She was awarded a full scholarship to undertake a Masters program in Environmental Technology at the Imperial College of Science and Technology, University of London, specializing in Pollution Studies. Her research activities included applied limnology

and reservoir management in the Thames River valley.

In 1981, Lacey returned to Plymouth Polytechnic as a research scientist and part-time lecturer. She spent four years undertaking and developing a research program which monitored and

modelled the nutrient budgets for a watershed in West Cornwall.

In 1985, she accepted an appointment as Associate Professor of Hydrology at Kingston Polytechnic where she is responsible for the development of a hydrology teaching program for both undergraduate and graduate students.

The Polytechnic is situated adjacent to the River Thames, just 10 miles upstream from the center of London. Lacey has been investigating the impact of storm water drainage and sewage effluent discharge on the water quality of the Thames since 1987.

In 1988, Lacey was elected to the Committee of the Southern Section of the British Hydrological Society. When the National Rivers Authority was created in 1989, she was elected to the Regional Rivers Committee of this Authority to advise on the implementation of water management policy on a watershed basis.



D. J. ANGUS UPDATE

Grand Valley State University's research vessel D. J. ANGUS is in the midst of another impressive season. To date an estimated 2200 K-12 and GVSU students, senior citizens, and teachers have boarded the now four year old vessel. This level of activity would not have been possible were it not for a generous gift from the Steelcase Foundation which provided partial funding for our Aquatic Resources Education Program.

The high point of the season thus far has been the opportunity for the Water Resources Institute to host Dr. Jay D. Hair, president of the Wildlife Federation, on a tour of the D. J. ANGUS during his recent trip to West Michigan. Dr. Hair was the keynote speaker at the WRI sponsored luncheon where he

presented a talk entitled "For Our Earth And Its Waters".

We are also pleased to report that we were able to bring the vessel to the Pentwater-Ludington area once again. Past participants from the area made the voyage possible through fund raising efforts which assisted us with additional expenses incurred during the visit.

Richard Behm, long time resident of Grand Haven, Michigan, serves as captain aboard the D. J. ANGUS. Behm shared his long years of experience of the Great Lakes at a June 4 orientation workshop for Michigan Youth Corp participants at GVSU, offering his advice and recommendations concerning small boat safety.



GVSU AND MDNR SIGN COOPERATIVE AGREEMENT

GVSU President, Arend Lubbers and MDNR Director David Hales have recently signed an agreement which could potentially influence how we protect and manage our water resources throughout Michigan.

The \$1,000,000 award made to the Water Resources Institute by The Grand Rapids Foundation for the study of the Grand River Watershed offers many opportunities to test and implement watershed management techniques and strategies. This fact has not gone unnoticed by the MDNR. As a result, WRI and MDNR staff have met to discuss their mutual interests and have decided to collaborate in several key areas.

First, the Department of Natural Resources and Grand Valley State University will coordinate efforts to implement watershed management initiatives. Staff from the MDNR's Fisheries Division, Land and Water Management Division, Office of Water Resources, Recrea-

tion Division, and Surface Water Quality Division will participate as technical advisors to the Grand River Watershed Program. In turn, staff from Grand Valley State University's Water Resources Institute will assist the MDNR in the further development and implementation of the Michigan Clean Water Strategy.

Secondly, both organizations will work together to emphasize the importance of watershed information and the need to increase public awareness of pollution prevention as it relates to the watershed management process.

And finally, the Department of Natural Resources and Grand Valley State University recognize that communities in the Grand River Watershed may want to establish watershed organizations at some point in the future. The WRI and MDNR will work together to evaluate watershed organizational alternatives and provide advisory assistance to local governments,

regional organizations, and environmental interest groups.

The GVSU/MDNR Cooperative Agreement is seen as a milestone and counted as an important accomplishment of the Grand River Watershed Program.

NATIONAL WETLANDS EXPERTS LEAD WRI WORKSHOP

To assist WRI staff in assessing research priorities for its Grand River Watershed Program, WRI conducted a wetlands workshop on July 26 and 27, 1990.

Wetlands are vital to the state of Michigan and the nation as important wildlife habitat, in storing and distributing floodwaters, and are the most effective natural systems we know of to reduce water pollution.

These wetlands issues and others were evaluated at the workshop which was lead by nationally acclaimed wetlands experts, Dr. Robert Kadlec of the University of Michigan and Dr. William Mitsch of The Ohio State University. Participants included representatives from the Michigan Department of Natural Resources, the Soil Conservation Service, Nature Conservancy, Michigan Wetlands Foundation and local consultant groups.

The workshop was a huge success, generating priority wetlands research for the Grand River basin. Watch for a full report of the Wetlands Workshop in the next issue of Water Resources Review.

WRI TO MOVE TO NEW LOCATION

The Water Resources Institute is moving to a temporary location in early 1991. A new building, Cedar Studios II, is being constructed for the Institute's use until the proposed Life Sciences Building is completed in 1994.

The move is necessitated by the Institute's increasing need for space. Since it's beginning in 1986, WRI has grown from a group of five faculty members into an organization involving over 35 people. This dramatic increase in personnel, together with added projects, has

caused WRI to outgrow its existing space in Loutit Hall.

The 5,100 square foot Cedar Studios II will include a cartography lab, a sediments lab, an analytical lab, a computer lab, an organism lab, a reference/conference room, and office space. These new facilities will allow the Institute to accommodate it's research and public outreach programs.

WRI will move into the Life Sciences Building when it is completed and Cedar Studios II will be converted for use by the Art Department.