

The Role of Water Resources Institutes in Information Dissemination: Virginia Water Information and Technology Transfer Web Site

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ABSTRACT

The Virginia Water Resources Research Center (Water Center) is one of 54 water institutes established by the U.S. Congress in each state, District of Columbia and the U.S. territories in 1965. Water institutes are affiliated with a university and coordinate research, education, and outreach activities within their respective region. In recent years, the transfer of science-based water information to decision makers and citizens has become an essential outreach activity of water institutes by providing a link between universities, watershed managers and other interested groups. Furthermore, information transfer has become more efficient with advances in and increased availability of Internet technologies.

The goal of the Water Center's web site (www.vwrcc.vt.edu) is to facilitate rapid and cost-effective information transfer to decision-makers and other interest groups. In this paper, we would like to introduce the types of information transferred through the Water Center's web site. Some examples of its major features are given here. "Daily News Update" is a unique feature of the Water Center's web site where water-related news articles from regional newspapers with web-based sites are posted. The "Small Water Systems" web page provides online managerial, technical, and trouble shooting information for the managers and operators of small water systems and water agency personnel. The Virginia Water Monitoring Council web page facilitates communication for an organization that coordinates water monitoring activities (government and citizen) in Virginia. Other pages provide linkages to the web sites of federal and state agencies, professional and student organizations, and colleges/universities and other institutes.

INTRODUCTION

The timely transfer of science-based water information to individual and public policy decision makers is an essential outreach activity of water institutes as they attempt to open

The goal of the Virginia Water Resources Research Center's (Water Center's) web site (www.vwrcc.vt.edu) is to facilitate rapid and cost-effective information transfer to decision-makers and other interest groups. In this paper, the authors would like to introduce many facets of information transfer through the Water Center's web site. Examples of its major features are provided.

HISTORY and MISSION

The Water Center is one of the 54 water institutes established by the U.S. Congress through the 1965 Water Resources Research Act.* Water institutes were established in each of the 50 states, District of Columbia, U.S. Virgin Islands, Puerto Rico, and Guam (the Guam Institute also serves the Federated States of Micronesia). The rationale for establishing institutes at the state and local government level is to more efficiently conduct research, provide information, and solve local water problems. The water institutes uphold strong programs to transfer research information to the scientific community and educational and outreach materials to other interested parties.

Each water institute is associated with a university and coordinates research, education, and outreach activities within their respective region. The Water Center is located at the state's land-grant college, Virginia Polytechnic and State University (Virginia Tech, <http://www.vt.edu/>). Like the other water institutes, the Water Center is affiliated with the National Institutes for Water Resources (NIWR, <http://wrri.nmsu.edu/niwr>), which facilitates networking between the 54 water institutes.

Although the 54 NIWR institutes differ in their approach to meet the respective state and regional needs, a unified mission runs through the entire program, one that meets the responsibilities mandated by the Water Resources Research Act.* The mission of the Water Center at Virginia Tech is to “*advance the Commonwealth's and its universities' missions by facilitating the education of future water scientists, encouraging research on solutions to water resources problems and enhancing the transfer of water sciences information to public and private decision makers.*” This paper illustrates the use of the Internet to help transfer water science information to a diverse audience.

WATER CENTER'S WEB SITE

The web site focuses on the three components of the Water Center's mission: outreach.

Outreach

Part of the Water Center's mission is to provide water science, policy, and management information to public and private decision makers. The Water Center aims to disseminate timely and accurate information about water resource issues so informed decisions can be made. Four web pages that address the outreach component are described:

- 1) The "Daily News Update" (<http://www.vwrrc.vt.edu/news/daily.htm>) is a unique feature of the Water Center's web site. Each day, the Water Center staff review newspapers with web-based sites and post the water-related news for Virginia, Maryland, the Carolinas, and West Virginia. The title of the newspaper article is listed, and viewers can link directly to the article. On the Water Center's web site, the name of the newspaper is identified, the location of the story is shown on a map, and editorials and opinion articles are identified as such. Headline stories may be listed and linked for up to two weeks, while other articles, particularly those in small newspapers, may only appear for one day. The daily news feature appears to be very popular with local and state agency personnel.
- 2) The "Homeowner Advisor" (<http://www.vwrrc.vt.edu/advisor/water.htm>) provides general information about drinking water and septic systems. The Water Center staff receive frequent inquiries from citizens wanting to test their drinking water. The "Homeowner Advisor" page addresses their requests. Contact information for state certified water-testing laboratories is provided, along with a map of Virginia that is divided into regions so the public can easily locate facilities in their area. People who have water quality results from a laboratory can use the web page to help interpret the results. The information on the "Homeowner Advisor" page describes drinking water contaminants, the National Drinking Water Standards, and home water treatment systems. Differences between private and public drinking water supplies are described. The information can be used to determine what steps should be taken if someone suspects a problem with his or her drinking water.

The "Homeowner Advisor" page provides linkages to a series of web pages produced by Virginia Cooperative Extension about wastewater treatment. The web pages include information on how septic systems work, alternative wastewater treatment systems for individual homeowners, ways to maintain and prolong the life of septic systems, and ways to protect the drain field.

- 3) The "Small Water Systems" web page (www.vwrrc.vt.edu/sws) provides information that

Because plenty of information is already available from the Internet, the “Small Water Systems” web pages are designed to serve as a directory for online resources. Within each topic, there is a section for government web sites, non-government web sites, and other web sites. Under each agency, organization, or web site name, either the mission statement or a brief description is provided. Contact information is also provided in case the user cannot find the desired information or in the event the link does not take the user to the site.

- 4) Virginia, like several other U.S. states, has a water monitoring council that promotes and facilitates coordination of water monitoring programs throughout the state. The Virginia Water Monitoring Council is an umbrella organization made up of representatives of federal and state government agencies, local governments, universities, municipalities, industries, professional organizations, citizen groups, and individuals interested in water monitoring.

The Water Center staff provided leadership in forming the Council and offered to house the Council’s web page within the Water Center’s web site. The Council’s web page (<http://www.vwrrc.vt.edu/vwmc>) provides a way for the public to learn about the organization and facilitates communications among the 100+ members about upcoming events. Minutes from various committee meetings are made available on the web page. The web page provides easy access to contact information for the Council’s Steering Committee and the Council’s administrative assistant. Additionally, the page provides links to the web sites of over 60 organizations to which Council members belong. In the future, it will provide linkages to databases and other information relevant to the Council’s activities.

Education

Part of the mission of the Water Center is to facilitate the education of future water scientists and policy-makers. For example, the Water Center aims to advance undergraduate student participation in water sciences education by providing opportunities for students in research projects, internships, and service-learning programs.

Although the Water Center is based at Virginia Tech, its programs are available to all students attending Virginia’s colleges and universities. The Internet provides an easy way to communicate general and specific information to students at Virginia Tech and students at schools that may be 100’s of miles away. The Water Center’s web site page: “Student Opportunities in Water Sciences,” describes Water Center educational programs available to

Virginia community for about eight weeks during the summer to study a water-related environmental issue. The Water Center pays the student stipend, travel, and work-related expenses, and the host community provides room and board and local guidance. The “STEP” pages (<http://www.vwrrc.vt.edu/StudentOps/step/step.htm>) describe the program, provide information on the STEP staff, and give application guidelines. Report titles for all past projects and summaries for many of the past projects, including some that extend back to the first summer program in 1986, are provided.

The William R. Walker Graduate Research Fellow Award is another example of an educational program offered by the Water Center that is described on its web site. The award is given to individuals pursuing graduate work in a field different from his/her field of emphasis as an undergraduate or individuals with work experience who are returning to graduate school. A description of the award is presented on the web site, along with application procedures, a blank application form, and a list of past recipients.

Research

Part of the mission of the Water Center is to fund research that contributes to the improved management of water resources in Virginia and to the body of scientific literature. Similar to the educational programs, Water Center research support is provided to faculty and students at any Virginia college or university. The web site makes a convenient way to transfer information about research opportunities at the Water Center. General information, as exemplified by the following section, is provided on the web site.

The Water Center supports research in five main ways:

1. The Seed-grant Program supports exploratory work necessary to secure more substantial grants and contracts; for 1998, \$35,000 in the seed-grant program yielded over \$800,000 in project support;
2. The Challenge Grants Program promotes research partnerships between the private sector, local and state government agencies, and Virginia universities. The Water Center matches funds up to \$10,000 for new projects that have received support from the private sector or government agency;
3. The Competitive-Grants Program provides support for the faculty members, students, and expenses necessary to complete a full research study;
4. Fellowship projects support research conducted by rising college seniors with strong academic records and interest in water-resources careers:

water resources related research funds. The ten required steps for this program are outlined on the web site.

All recipients of Water Center funding are expected to prepare research documents for dissemination to the scientific and management communities in Virginia and other states. The web site records the guidelines for publishing and describes possible support from the Water Center for publishing the results of the research.

Publications and videos

The Water Center maintains many publications and educational videos on water resource issues. A complete list of these materials is available on the web site. The Water Center's publications dating back to the 1960s include research bulletins, special reports, and citizen education publications. A number of recent Water Center publications can be directly downloaded from the web site as a portable document format (PDF) file. The long-term goal is to make all Water Center publications available through the web site.

Examples of citizen and educational information available from the Water Center as a PDF file include:

1) *A Guide to Private Wells*

This booklet gives general information on the location, construction, and maintenance of domestic wells. It answers commonly asked questions about well water and wells, and it offers suggestions on ways to protect ground water.

2) *A Guide to National Drinking Water Standards and Private Water Systems*

This booklet provides information about the health effects, recommended treatment, and federal standards for 83 drinking water contaminants regulated by EPA. It presents general information about water testing, interpreting test results, decontaminating water, requirements of the Safe Drinking Water Act, and what to do if your water does not meet the standards.

3) *Effluent Allowance Trading: A New Approach to Watershed Management*

This 16-page report provides an overview of the opportunities, requirements, and challenges of expanding the trading concept to water quality management. It demonstrates how trading provides incentives for regulated sources to reduce discharges, and outlines what must be done to make effluent allowance trading work.

2. *Inland Recreational Fishing Rights in Virginia: Implications of the Virginia Supreme Court Case Kraft v. Burr, 1999*
3. *Evaluation of Rooftop Rainfall Collection-Cistern Storage Systems in Southwest Virginia, 1998.*

Research bulletins provide another way for researchers who have received funds from the Water Center to publish their findings. The work published in research bulletins has undergone an external peer review by experts in the field. The Water Center's web site lists all the research bulletins it has produced since 1965 and provides the title, author(s), and year of publication. The web site also indicates the availability of the bulletin and cost if appropriate. At this time, there are 185 research bulletins listed on the web site.

As a special publication, the Water Center publishes a quarterly newsletter, the *Virginia Water Central*. Recipients can receive the newsletter in hard copy or in electronic format. Past newsletters since June 1998, can be retrieved from the Water Center's web site as a PDF file. The newsletter is written for the general public so it is composed in a non-technical style. The feature article of the newsletter describes recent regulations or current water issues of interest to Virginians. The section "Science Behind the News" explains a specific scientific, water-related concept in terminology easily understood by the general public. The headline stories from the Water Center's web page "Daily News Update" are summarized in the newsletter. The newsletter also provides sources of educational material, notices of conferences and meetings, and Water Center announcements.

SUMMARY

Part of the mission of the 54 water institutes is to provide information about water resources and issues. There is a challenge to provide relevant information to people with very different levels of knowledge and interests in water. The Water Center can help meet the information needs of the people of Virginia and the region by using the Internet. The Internet allows for large amounts of material to be easily transferred to a large and geographically diverse audience. The pages of the Water Center's web site target different audiences, for example researchers or students. The topics of water information covered are broad. Viewers can find information about drinking water and wastewater treatment, protection of groundwater, surface water monitoring, wetlands, coastal issues, and much more. There is an essential need for readily available and reliable water information in Virginia, and the Water Center can use the Internet to disseminate information to individual and public policy decisions makers for use in water resources management. For details, browse the Water Center's web site (www.vwrrc.vt.edu).