The District of Columbia's Water Issues

Leadership changes in the city government have brought about renewed interest in the District's environmental programs, including water resources. The new leadership has decided to put more emphasis on the city's environmental programs by creating an independent Environmental Control Division in the regulatory department. A major effort will be directed towards the re-examination of all relevant programs, including water and soil resources programs.

Contents
The water quality of the Anacostia River and its tributaries remains poor. These water bodies are frequently characterized as neighborhood nuisances. In fact, the Anacostia Watershed suffers from chronic problems of dumping, sewage leaks, combined sewer overflow, erosion and sedimentation. The ecology of the Anacostia watershed and its tributaries show signs of extreme stress. Most of the wildlife communities are absent. These concerns about the Anacostia River water quality have lead policy makers and citizens interest groups to coordinate their efforts for the Anacostia River restoration and management. Although ground water is not used as a source of water supply in the District, the D.C. government has identified the need to protect this valuable resource. Under section 319 of the Clean Water Act, the District is required to assess the impact of non-point source pollution on ground water. Additionally, the D.C. Pesticides and Hazardous Wastes Management Program has required the determination of the fate of a number of commonly used pesticides in the groundwater. During the past two years investigations have been undertaken by the Center in cooperation with other agencies to acquire a better understanding of the...
District's ground water resources. These efforts will be pursued until a viable D.C. ground water policy is formulated and implemented.

The Clean Water Act has among its objectives the restoration and maintenance of the chemical, physical, and biological integrity of the nation's water. To achieve its objective, the Act embodies the concept that all discharges into the nation's waters are unlawful, unless specifically authorized by a permit. The National Pollutant Discharge Elimination System (NPDES) sets the effluent standards on what may be discharged by a source. Incorporated are guidelines on what levels of pollutants may be reasonable and safe and how to monitor their presence. Related to this is the need to quantify urban non-point pollution. Since local governments will be required to set water pollution discharge permits, the regulatory agencies will take more aggressive action against activities such as illegal dumping of substances e.g. used motor oil down the storm drain, excessive use of pesticides, and illegal connections to storm sewers. A number of technical and management questions will have to be answered in order to devise and implement adequate storm water regulations.

The District is in a constant state of renewal. Buildings are under construction or reconstruction roads are under repair, and a multitude of earth moving projects are continuously underway. These activities are potentially detrimental to the D.C. water resources. The District of Columbia's Environmental Policy Act of 1989 requires an environmental impact statement for all government and private projects and activities that cost over one million dollars and that may have a significant impact on the environment. These regulatory issues along with water quality monitoring and wetlands, are still important and need to be given high priority.

Public education remains a high priority for the Center. Due to the urban nature of the population, the significance of water and related environmental concerns have not been fully appreciated. However, there are signs of an increased awareness by urban dwellers about environmental matters. Local organizations in the District are increasing efforts to address such concerns as lead in drinking water, radon, asbestos and other issues relating to the under representation of minorities and women in environmental professions.

WRRC’s Goal

The basic goal of the Center is to conduct, stimulate and support water and water-related research in the District of Columbia. The Center's program undertakes research of both a basic and practical nature on water resources problems. The Center's broad focus includes research on water quality and quantity and institutional and management-related water resources problems. The Center has a long established precedence of consulting with government agency representatives concerning the need for and relevance of its research program. Both formal and informal meetings with representatives of federal, local and private agencies are frequently held to review the Center's current programs and to discuss potential research ideas. The Center also provides a forum for exchange of information between scientists, managers, experts and the general public on subjects pertinent to land and water resources. It engages in a broad range of activities, including publications, seminars, field trips and exhibits. Additionally, the Center assists management agencies and other experts in keeping abreast of the latest developments in water research. The third major goal of the Center is to provide for and/or participate in the training of future water resources scientists, technicians, and managers.

WRRC's Program

During FY90, DC WRRC institute research projects Priorities were selected to address both DC and MidAtlantic Region water problems.

Due to its unique geographic and political situation, the District of Columbia has a multitude of water quality and pollution management problems. The Center, with the assistance of its Research Advisory Committee, has identified the following as the priority areas for its research, technology transfer and information dissemination efforts:
1) The water quality of the Anacostia River must be improved.
2) Non-point source pollution, land use impact, submerged aquatic vegetation, and stream water quality require additional investigation.
3) The District requires a comprehensive ground water assessment.
4) Toxic and hazardous substances are threatening surface water quality.
5) There are many undesirable effects of urbanization/land use policies on downstream water quality.
6) Wetlands studies are required for the District.
7) Deterioration of water distribution lines and sewage transport lines threatens water quality, and restoration of these lines may be an expensive future public works project.
8) Institutional issues dealing with water resources management in the District need to be addressed.
9) There is a need to improve the methods of dredging and disposing of spoils.


Urban Land Use Activities and the Ground Water. A Background Survey by Dr. F. Chang, Dr. C. Wade, Dr. H. Watt and Prof. O'Connor, UDC

The project's primary objective is to provide a preliminary analysis which can be used by the District government to develop and/or update strategies to protect the ground water resources in the District of Columbia. Specifically, this research project will study the land use activities in the District that may adversely impact ground water quality and to correlate these activities with the surface water quality.

Development of New Techniques For Rapid Identification of Pollutants in Ground Water by Dr. A. Montasser, Dr. T. Perros, Dr. W. Schmidt and Dr. E Caress, GWU

No recent information is available on the identity and quantity of the inorganic and organic contaminants present in the ground water of the District of Columbia (DC). However, a comprehensive data base on the quality of DC ground water is needed to:

1) explore the prospects of extensive use of the DC ground water resources for emergency and non-emergency situations, and
2) assess the level of pollutants that might affect aquifers of the surrounding counties relying on ground water as a drinking water source.

To conduct the above studies efficiently, it is planned to develop new techniques for identification and quantification of the pollutants. The new techniques will improve sensitivity, reliability, ease of operation, and reduce the cost of analytical determinations.

Field Measurement of Ground Water and River Water Levels and Calibration and Verification of the Ground Water Numerical Models by Dr. H. P. Pao, CUA.

The primary objective of this project is to use the newly available technology to carry out automatic field measurements of ground water and river water elevations accurately, reliably, and at an affordable cost. This baseline information will be used as input to a ground water numerical model for calibration and verification. In addition, the data of the surface elevation of the Anacostia River will be useful for the study of the water quality and related problems of erosion and sedimentation along the river.

Identifying Sediment Toxicity in the Anacostia River by Dr. H. Phelps, UDC

A tiered bioassay/chemical study will determine the sources of sediment toxicity which must be controlled for the restoration of the Anacostia River.

Dry Weather Field Screening of Storm Water Outfalls in DC by Dr. C. Wade, Dr. F. Chang, Dr. H. Watt and Dr. J. Peere, UDC

This project was funded by the D.C. Department of Public Works. The scope of work included field screening required under the National Pollution Discharge Elimination System (NPDES). The tasks included identification and performance of the following: location and access for observation of 148 storm sewer outfalls; screening selected outfalls for any dry weather flows (minimum of 72 hours after 0.10 inch precipitation event). Results of the project would provide a data base for assessing the water quality of the District of Columbia's separate storm sewer system.

Assessment of the Ground Water in the District of Columbia

By Principal Investigators from UDC, HU, CUA and GWU
The ground water assessment will collect data of sufficient quality that will enable the District to achieve its goal for better protecting and managing the ground water resources of the District. The following objectives shall be met in order to achieve the District's goal of ground water protection and management:

1. Assess the current ground water status of the District;
2. Predict the impact of the District's ground waters on the surrounding counties of Maryland and Virginia and vice versa, if any;
3. Evaluate the hydrologic connection between ground waters and surface waters in the District;
4. Identify sensitive areas within the District with respect to ground water contamination; and
5. When necessary, predict the environmental impact on ground water from different sources of pollution using calibrated and verified modeling techniques.

The Center conducts its research through the D.C. area universities, including the American University, the George Washington University, Georgetown University, Howard University, the Catholic University of America and the University of the District of Columbia.

Information Management System
Adding to its existing inventory of computer hardware and software, the Center has acquired a CD-Drive to increase its capability of handling a large volume of data. The Center will be able to store and manage DC water resources information and to update and/or prepare computerized directories.

Upcoming events

* A Joint One-Day Symposium on the Status of the Anacostia Research. April 15, 1992 Bldg. 50 (Miner Bldg.) Room 208/209

Storm water field measurement
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Water Highlights

DC Water Resources Research Center

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