

IOWA'S WATER

Ambient Monitoring Program

Year One Accomplishments

State Commitment to Water Monitoring

The 1999 Legislative Session marked a turning point in Iowa's history. For the first time, the state set aside a significant amount of money – one million dollars – toward the development of a water-monitoring program. This appropriation displayed a shift in state funding philosophy. In the past, nearly 100 percent of the money used to assess Iowa's streams (roughly \$150,000 per year) came from the U.S. Environmental Protection Agency (EPA). By investing state dollars, Iowa emphasized the value and importance of a water-monitoring program.



Planning for the Future

Program planning is often overlooked in the desire to get a program started. However, lack of planning can harm long-term goals, and therefore the likelihood that a monitoring program will succeed. To ensure that Iowa's new ambient water-monitoring program was constructed on a solid foundation, representatives from 47 different organizations, including government, academic, municipal and private institutions, were gathered at the end of 1999 to discuss and develop a strategic plan. Additionally, 13 technical experts reviewed the scientific value of the proposed monitoring activities. From the meetings, "The Water Monitoring Plan 2000" emerged. The plan detailed the mission, goals, development principles, and an assessment of the budget necessary to meet the stated objectives. "The Water Monitoring Plan 2000" provides a blueprint for future activities of the ambient monitoring program and sets priorities for surface water, groundwater, precipitation, wetland and biological monitoring. The group also determined that in coming years, this water-monitoring program would provide the basis for decisions regarding Iowa's water resources. To obtain a copy of the plan, visit the ambient water monitoring program's Web page at www.igsb.uiowa.edu/water.

Figure 1. Limnologists from the University of Iowa Hygienic Lab (UHL) collect stream samples on a monthly basis from more than 80 sites across the state.

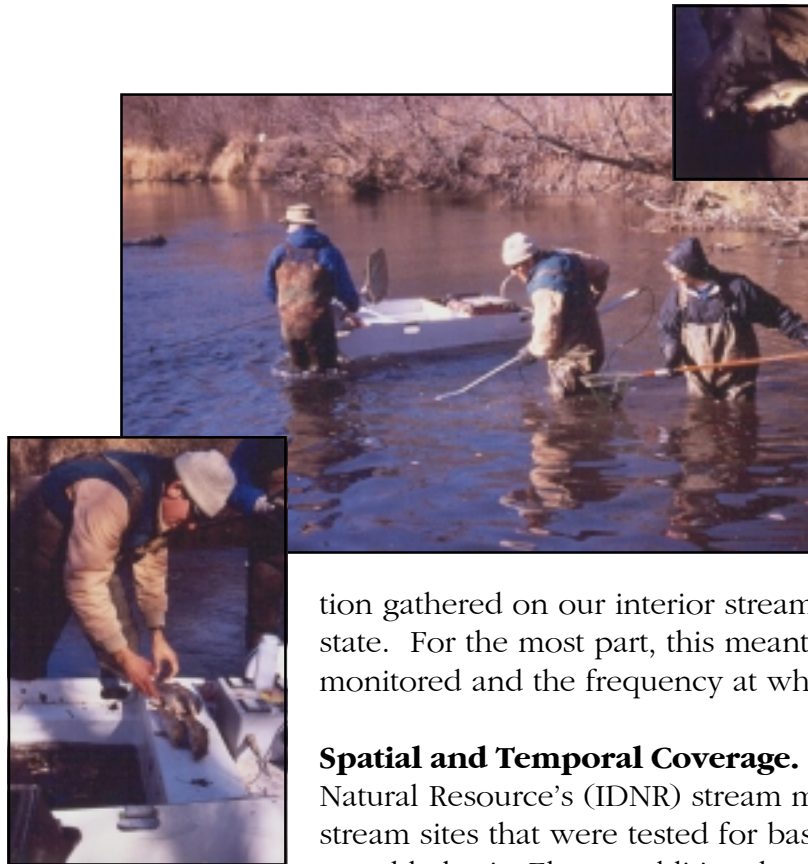


Figure 2. Iowa DNR and UHL scientists conduct fish shocking in an Iowa stream. The types and numbers of fish that are found help to determine the health of a stream. After they are assessed, fish are returned to the stream unharmed.

Stream Monitoring

The first priority for enhancing Iowa's water quality monitoring network was to increase the informa-

tion gathered on our interior streams – streams within the borders of the state. For the most part, this meant increasing the number of streams monitored and the frequency at which samples were taken.

Spatial and Temporal Coverage. Prior to 1999, the Iowa Department of Natural Resource's (IDNR) stream monitoring program was limited to 16 stream sites that were tested for basic water chemistry and nutrients on a monthly basis. Eleven additional stations, from a set of 44, were rotated into the network biannually and monitored once every four months. With

the new state funding, the number of stream stations monitored on a monthly basis was increased from 16 to 60. This greatly increased the geographic coverage of the state and provided better coverage over time by removing the rotational framework.

Expanded Testing Methods. In previous years, lack of funding restricted the numbers of and types of compounds that could be tested. Many of the chemicals that are considered of main concern for testing by the U.S. EPA were simply too expensive to be included in the historical monitoring program. This changed in 1999 with the creation of the ambient water-monitoring program. For the first time, priority pollutants (including insecticides, industrial by-products, and common herbicides) were tested at all 60 stream sites. Also for the first time, testing of bacteria was expanded to include the "off-swimming" months (November through March).

City Sampling. While Iowa is primarily an agricultural state, input from stakeholder groups suggested that a comprehensive monitoring program should also take into consideration the influence of urban or suburban areas on our streams. To accomplish this, 23 sampling sites were established upstream and downstream of 10 Iowa cities to measure the impacts of urban areas on stream quality. Between October 1999 through September 2000, samples were taken twice: once during high stream flows during the spring and once again during a low stream flow period in the fall. Testing focused on compounds

that could reasonably be expected to originate from urban areas such as gasoline by-products, metals and insecticides used for termite control.

Volunteer Monitoring

At about the same time the ambient water-monitoring program was expanding, a new program – IOWATER – aimed at training and coordinating citizens to test Iowa’s water, was forming. Because of the obvious similarities in the two programs, IOWATER was pulled under the umbrella of the ambient program, providing it with a consistent funding source and assistance from trained water-resource professionals. The first IOWATER training session was held at Springbrook State Park in August of 1999 and was followed by 18 introductory or “Level 1” training sessions during the spring and summer of 2000. During that time, more than 500 citizens were trained as volunteer water monitors. As the program quickly grew, the question of how to collect and store volunteer data arose. To minimize the staff time needed to manage the data, IOWATER developed a password-protected online database. Only certified volunteers are allowed to enter data, while providing access to all citizens who wish to view the data.



Figure 3. IOWATER trained more than 500 citizen monitors in its first summer of workshops in 2000.

Biological Monitoring

Through time, scientists have worked to integrate different monitoring techniques for a more complete picture of water quality. Part of this strategy involves measuring the numbers and types of aquatic insects and fish to evaluate the health of Iowa streams. Since 1994, biologists have monitored some of Iowa’s best quality streams – called reference sites – to establish standards for biological health in the state. In these early years of biological monitoring, roughly 20 sites were visited per year. With the increased funding for monitoring activities, the regular biological monitoring was expanded to include the 16 long-term surface-water sites.

Beach Monitoring

Prior to 1999, state-owned swimming beaches were not monitored on a regular basis and little was known about the occurrence of bacteria at Iowa beaches. As a result of the enhanced water-monitoring program across Iowa, ten state-owned beaches were sampled on Mondays and Tuesdays during the summer months of 1999 – the first steps to assess the risk of these beaches to bacterial contamination.



Figure 4. *The beach at Pine Lake in Hardin County is one of the state-owned swimming beaches monitored across Iowa.*

Public Information

Data gathered by the ambient monitoring program is meant to improve our understanding of Iowa's water quality and to assist decision-making at the local, state and national levels. These goals can only be accomplished if the information is made freely available to the public and decision-makers. To accomplish this goal, the Ambient Water Monitoring Program Web site went online in June of 2000 and provides detailed information on the various program activities, including stream, groundwater, biological and volunteer monitoring.

The first year of the enhanced water-monitoring program was filled with many milestones on the road to building a new and comprehensive system to collect and deliver information on Iowa's water resources. However, much work remains in the effort to continue filling gaps in knowledge and improving our assessment of the state's water quality. Plans are already underway to begin work on upgrading groundwater monitoring and providing water-quality data to the public using the latest technology. Stay tuned to see how this exciting program continues to develop in the coming years.

Acknowledgements

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Water Monitoring Program Web Site – www.igsb.uiowa.edu/water



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