

IOWA'S WATER

Ambient Monitoring Program

Why Monitor Wetlands?

For several years now, many groups of people ranging from outdoor enthusiasts to scientists have voiced concerns about the quality of wetlands in Iowa. Although Iowa's streams, lakes, and rivers have been monitored for many years, wetlands have largely been ignored due to their lack of popularity for some types of recreational uses such as boating and swimming. Also, a wetland may not be wet year-round. In fact, some of the most important wetlands are only seasonally wet. Wetlands are the link between land and water. They represent transition zones where the flows of water, the cycling of nutrients, and energy from the sun meet to form a unique ecosystem characterized by hydrology, soils, and vegetation.

Long regarded as wastelands, wetlands are now recognized as important features on the landscape. In recent years, research has revealed that wetlands actually provide numerous benefits for not only wildlife and fish, but also for humans. For example, wetlands provide critical habitat for wildlife such as migrating waterbirds (waterfowl, shorebirds, etc.). Since Iowa is bordered on two sides by major rivers, Iowa's wetlands were once a major stopover area for migrating birds along these two flyways. When these wetlands function properly, it not only provides tremendous fish and wildlife habitat, but also improves groundwater quality and natural floodwater control. These unique characteristics are what make them so valuable. A degraded wetland is less able to effectively perform these functions. Degradation is a serious problem just as is wetland loss, however, it is more difficult to identify and quantify. Therefore, it is critical to be able to assess the status and quality of our remaining wetlands.

Why should wetlands be monitored?

A report to Congress estimated that between the 1790s and the 1980s, Iowa lost at least 89% of its wetlands – from 4 million to 421,900 acres (Dahl, 2000). Today, less than 10% of that original resource



Prairie marshes, which mainly occur in the glaciated areas of northern Iowa, are some of the most important types of wetland. Many of the major rivers in Iowa have their headwaters in this region and are supplied by water from these wetlands. (Bjorkboda Marsh, Hamilton County)

Monitoring is a tool used to determine wetland health

remains, and little to no information exists on the current status or health of these wetlands. Currently, monitoring of wetlands in Iowa is extremely limited. The monitoring activities that do take place (such as those required for research projects) do not always provide adequate information to assess the condition of wetlands. Information gathered from monitoring wetlands may help answer many of the basic questions or concerns landowners or land managers may have about the quality of their wetlands.

Beginning in 2004, the Iowa Department of Natural Resources (IDNR) Watershed Monitoring and Assessment Section added a wetland monitoring component. Since then, work has focused on the development of a standardized methodology for monitoring and assessing the biological or chemical condition of the state's remaining wetland resources.

What types of contaminants exist in wetlands?

Contaminants are considered to be any unnatural chemical compound, heavy metal, or other foreign material that may harm the natural qualities of the wetland. The IDNR has begun to collect water and sediment samples from wetlands to test for the presence of pesticides, PCBs, heavy metals, and nutrients. For the next few years, the IDNR plans to monitor a variety of wetlands across Iowa to check for these types of contaminants.

What are the sources of degradation?

In previous assessments, the most commonly cited causes of impairment were siltation, flow alterations, nutrients, exotic species, and pesticides. These assessments were based upon best professional judgment. Although these assessments were likely to be quite accurate, a standardized method for assessing these wetlands will provide documented information for determining the causes and sources of degradation.

What is the extent of degradation in Iowa?

It is both a state and federal goal to be able to report on the overall condition of all water bodies within Iowa and other states in relation to the Federal Clean Water Act. This includes wetlands, but for a long time they have not been recognized as their own type of water body within Iowa Law.

The Iowa Administrative Code does not distinguish between lakes and wetlands. This lack of distinction ignores the probable differences in water body form and function and most likely leads to an inaccurate assessment of wetlands, so we do not know for sure the extent of wetland degradation at this time.

Monitoring wetlands represents a unique challenge because they vary in the amount of time they hold water. Techniques such as those pictured will continue to be adapted and developed for use in Iowa.



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Drainage and development threaten remaining wetlands.



As the human population increases in our country, we will continue to be faced with drainage and development pressure in and around our existing wetlands.



It is important to protect our wetland resources to ensure they are preserved.



Bright green water is all too common in many of our permanent wetlands. The usual cause is excessive amounts of nutrients that enter a wetland from stormwater run-off or tile drainage. The end result is a wetland with turbid water, very little plant life, and undesirable fish such as carp and/or bullheads.

Healthy wetlands are those considered to be the least disturbed by humans. Monitoring is a useful measure of the overall health of a wetland because it measures physical and biological characteristics.

Healthy wetlands support a diversity of plant and animal life.



Wetlands support a rich diversity of life. In pre-settlement times, the wetlands of Iowa and elsewhere not only supported a huge breeding population of waterfowl, but also provided areas for rest, security, and food all in one convenient place. Wetlands also benefit humans because of their unique ability to filter

or purify water and reduce flood damage. If chemical contaminants wash into them it can upset their ecological balance. Unfortunately, the effects are often indirect and subtle, which could go unnoticed for years. That is why wetland monitoring is crucial.



Wetlands can be used as natural filters to improve water quality.



Scientific research has revealed that wetlands function as a natural filter, which can be used for such things as stormwater run-off (left) or wastewater treatment (above). Even though these functions benefit humans, not all wetlands should be used for such purposes. Healthy, natural wetlands offer their own unique value.



This restored wetland is the site of a former sand and gravel operation. Questions often arise about the quality and safety of such areas. Monitoring these sites is a good way to evaluate and document the quality of the restoration. (Bob Pyle Marsh, Story County)

Will these contaminants affect human health or aquatic life?

The crucial question is whether any of the contaminants found in our wetlands adversely affect human health and/or the aquatic life using wetlands. This is not an easy answer. The first step is to determine what, if any, contaminants are present in a wetland. After each year of monitoring, the IDNR will report these results and work with other experts to determine the impacts to human health or aquatic life based upon the best information available.

Can we improve decisions made that affect wetlands?

A wetland monitoring program will contribute immensely to understanding the quality of wetlands in Iowa. Measuring and then documenting the chemical, physical, and biological aspects of wetlands will provide a baseline of information from which to draw upon for decisions that affect wetland restoration, management, and protection.

Reference

Dahl, T. E. 2000. "Status and trends of wetlands in the conterminous United States 1986 to 1997." U.S. Fish and Wildlife Service, Washington, D.C. 82 p.

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