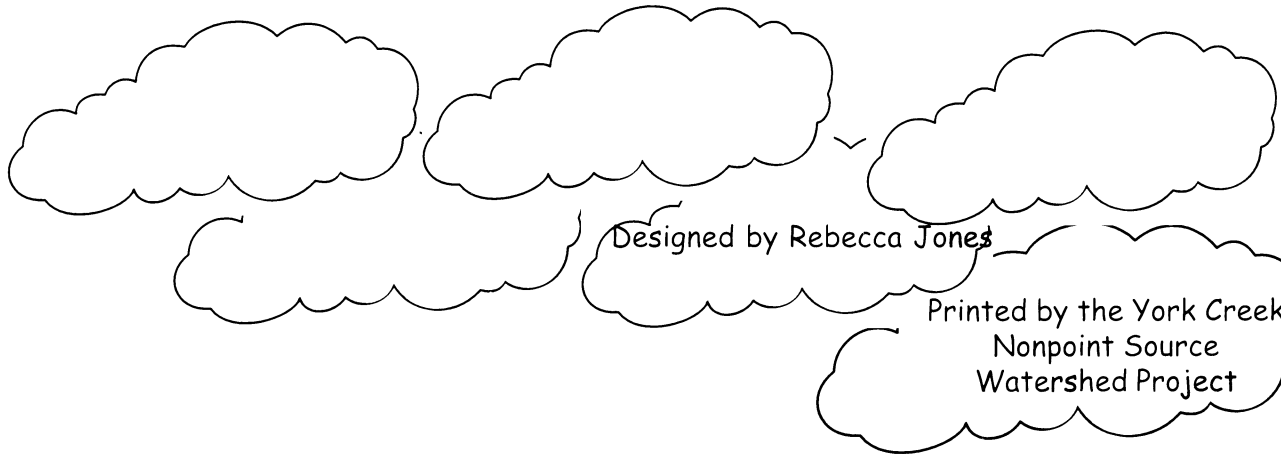




*The Art of
Watershed Management*



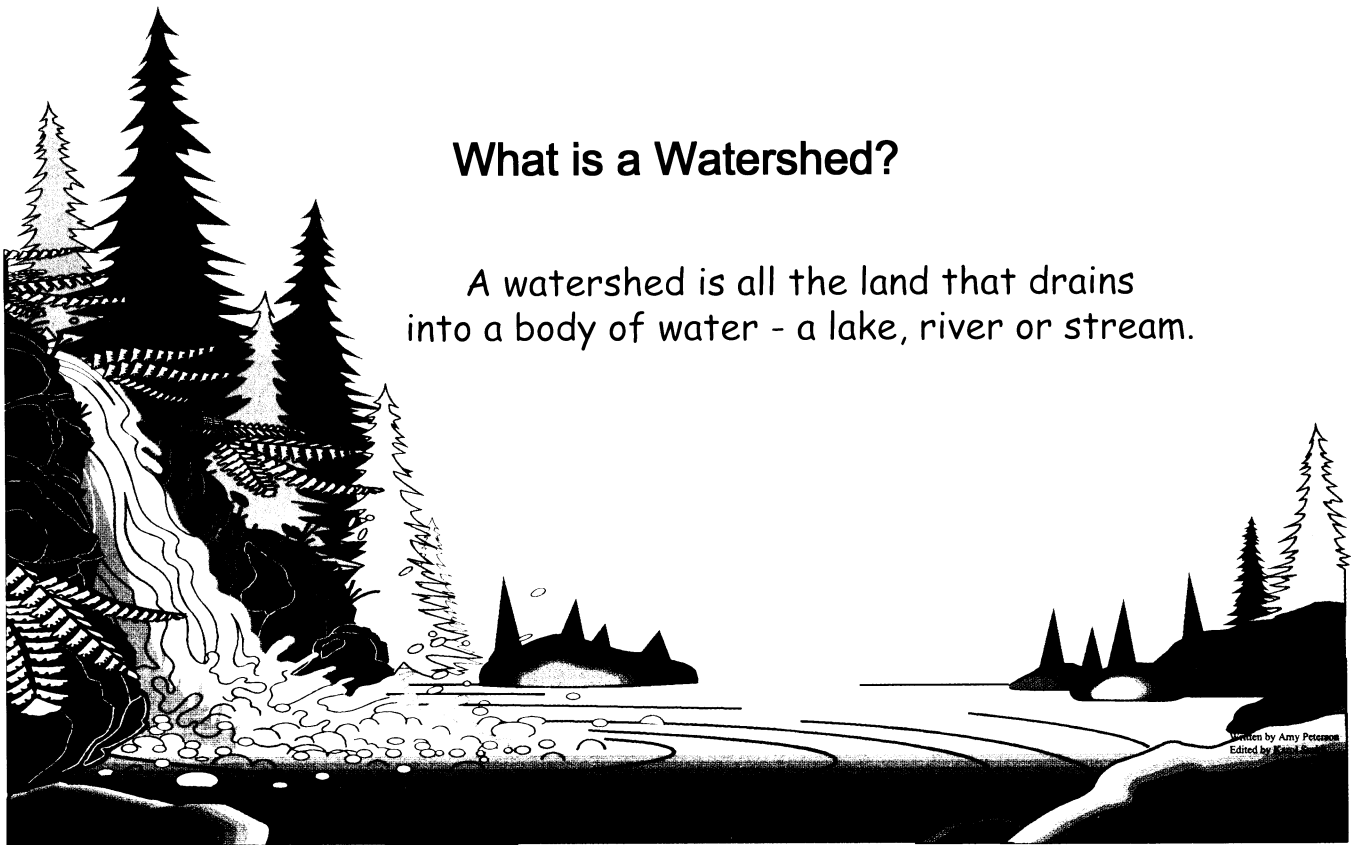
Designed by Rebecca Jones

Printed by the York Creek
Nonpoint Source
Watershed Project



What is a Watershed?

A watershed is all the land that drains
into a body of water - a lake, river or stream.



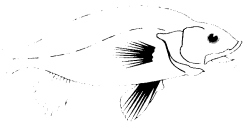
Written by Amy Peterson
Edited by Kim...

How Big is a Watershed?

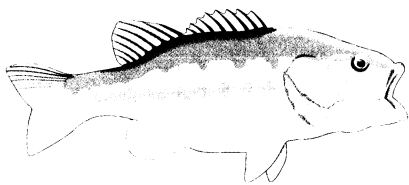
Watersheds can vary in size. The size of a watershed addressed can depend on the number and type of pollutants threatening or impacting water quality and other watershed characteristics, such as land use. In Michigan's Nonpoint Source Program, watershed projects have been as small as two square miles and as large as over 100,000 acres.



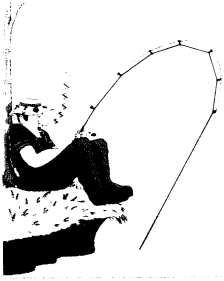
An example of a small scale watershed project was **Gallagher Creek**, a trout stream in Oakland County that drains into Paint Creek, then into the Clinton River. Gallagher Creek itself is only a few miles long but the rapid development in the watershed prompted the Clinton River Watershed Council to work on ways to reduce the impact on the creek. The Council worked with developers to design a low area on each home lot that allowed storm water to soak into the ground, rather than having a large-scale, community storm water basin. This solution helps recharge the groundwater and avoids the maintenance concerns often associated with large storm water basins.



A "mid-size" watershed project is the **Davis Creek**, a tributary of the Kalamazoo River. It is about 10,000 acres in size, and while the upper portion of the watershed is still agricultural, the lower portion runs through the cities of Portage and Kalamazoo. Pollutants such as sediment, nutrients, oil, and grease are currently degrading Davis Creek. There are also several sites of environmental contamination, including an oil refinery which is currently being cleaned up. To improve Davis Creek, the Kalamazoo Conservation District, in partnership with the River Partners Program of the Forum for Kalamazoo County, is leading efforts to educate the public, improve urban storm water management practices, and promote wise land use planning for the undeveloped portion of the watershed.



A larger watershed project is the **Huron River**, which is about 375,000 acres, draining both agricultural and urban areas. The Washtenaw County Drain Commissioner and Huron River Watershed Council, have brought together dozens of local communities and businesses to improve water quality in the Huron River. The Drain Commissioner's Community Partners for Clean Streams program offers technical assistance to business owners on ways to manage their businesses to protect the environment. The Council's Adopt-a-Stream Program has over 300 people collecting biological data at 45 sites on 20 tributaries of the Huron River. The data collected is shared with the community in newsletters, stream reports, at the annual Creek Fair, and other events. Wise land use planning is also a key activity in this watershed.

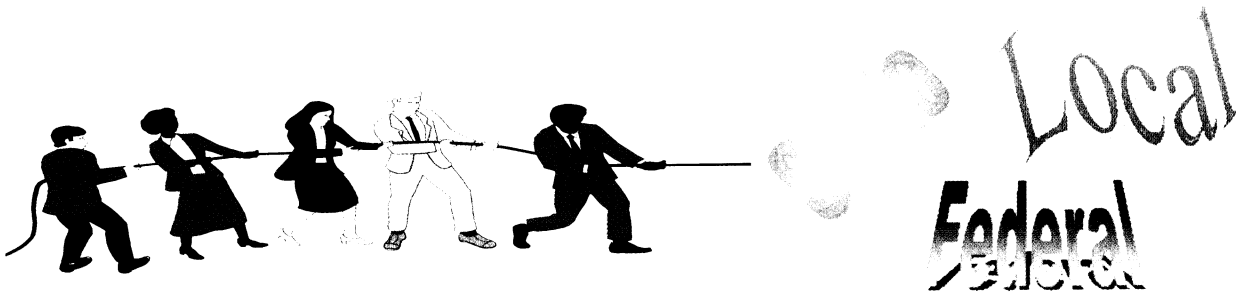


What is Watershed Management?

Watershed management is addressing water related issues within a watershed. This requires working across county, township, and other jurisdictional boundaries, because water crosses these boundaries.

Why Do People Do Watershed Management?

Watershed management brings together numerous federal, state, and local agencies and the public for the good of our lakes and streams. With watershed management, the people living throughout the watershed work together for solutions. Working together saves time and money, and can improve interactions between agencies and their programs. Also, the solutions are more acceptable because they were developed by the people living in the watershed.

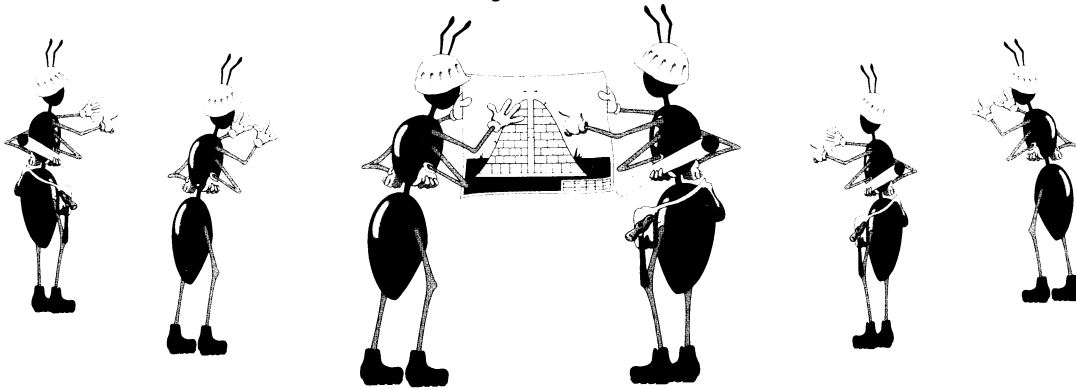


How Does Watershed Management Work in Michigan?

Watershed management in Michigan is typically initiated by communities (such as a township or municipality) or by local agencies (such as county drain commissioners or soil conservation districts). It usually starts because one or more of these communities or agencies has become aware of a local water quality problem. One agency contacts another and people begin coming together to talk about water quality. As agencies and people start to talk about their concerns, the need for a well thought-out action plan to improve and protect their local waters generally arises. This action plan is a watershed management plan.



How Does a Community Develop a Watershed Plan?



First, communities seldom work alone in developing watershed plans! All watershed planning projects include a public participation process that involves local agencies and citizens. The Department of Environmental Quality (DEQ), Nonpoint Source staff located throughout the state in eight district (field) offices, are also available to help communities develop watershed plans. District Nonpoint Source staff walk communities through the planning process. Nonpoint Source staff located in Lansing develop technical documents and informational materials communities can use when developing their plan. The community is assisted by the DEQ throughout the planning phase of their project.

What is the Role of the Department of Environmental Quality in Watershed Management?

The role of the DEQ is to protect and improve the state's resources, including water quality. Protecting and improving *water quality* is the role of DEQ's Surface Water Quality Division (SWQD). The SWQD does this by issuing permits for regulated "point source" facilities and providing technical and financial assistance to reduce nonpoint source pollution.

Staff in DEQ's Nonpoint Source program can help communities with watershed management by:

- Coordinating Nonpoint Source reductions with other state and federal agencies.
- Coordinating Nonpoint Source reduction efforts at the local level.
- Providing assistance in selecting the best alternatives to control nonpoint sources.
- Developing informational materials.
 - Providing assistance with developing and implementing watershed plans.
 - Administering nonpoint source grants.

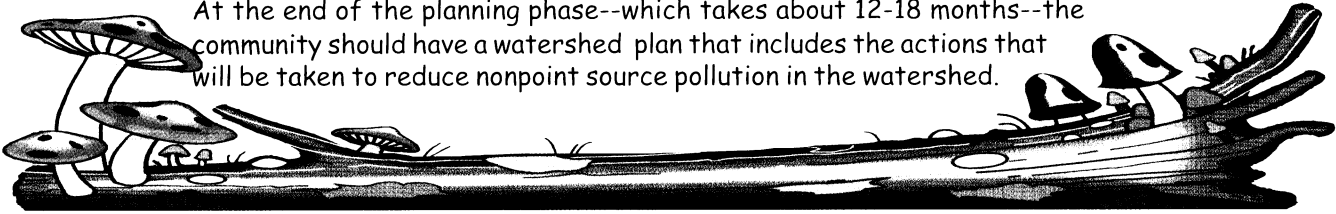


What are the Steps to Develop a Watershed Plan?

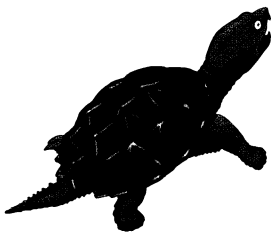
The following steps are drawn from the experience of local watershed projects involved in Michigan's Nonpoint Source Program.

1. Identify and network with local agencies and citizens.
2. Identify current or potential water quality problems.
 - Identify the water quality impairment or threat.
 - Identify the nonpoint pollutants impairing or threatening water quality.
 - Identify the sources of the pollutants.
 - Identify the cause of the pollution sources.
3. Inventory existing local programs.
4. Define a critical area (an area in the watershed to focus efforts).
5. Inventory the critical area.
6. Prioritize the pollutant sources in the watershed.
7. Identify the systems of best management practices (BMPs) needed in the watershed to address the sources.
8. Determine watershed goals.
9. Develop ways to educate and inform the public.
10. Write the plan.

At the end of the planning phase--which takes about 12-18 months--the community should have a watershed plan that includes the actions that will be taken to reduce nonpoint source pollution in the watershed.



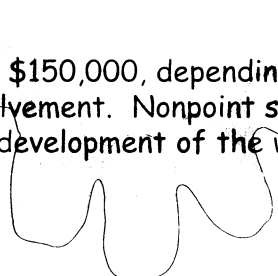
How Long Does it Take to Develop a Watershed Plan?



Most grant-funded watershed plans are completed in one year. Watersheds with numerous pollutants and sources may take up to 18 months to complete their plan.

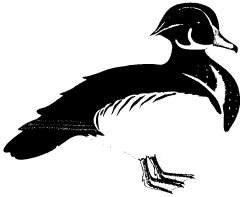
How Much Does it Cost to Develop a Watershed Plan?

Costs range from about \$50,000 to \$150,000, depending on the complexity of the watershed and the amount of detail and public involvement. Nonpoint source program planning grants are generally awarded for two years for the development of the watershed plan, as well as to begin educating and informing the public.



Who Pays for a Watershed Plan?

The "seed money" for many watershed plans developed in Michigan has been federal nonpoint source dollars, primarily under Section 319 of the Clean Water Act. These funds are awarded to the DEQ, which passes them through to local communities and agencies as nonpoint source grants. Local communities and agencies also contribute significantly to the effort.



How Can A Community Get a Nonpoint Source Grant?

The DEQ Nonpoint Source Program sends a Request For Proposals annually to local communities interested in developing and implementing watershed plans. Proposals are submitted to the DEQ. They are evaluated by DEQ staff, with input from several other agencies. A list of proposals is submitted to the Environmental Protection Agency (EPA), who makes the final selection. Upon approval from EPA, DEQ staff work with successful applicants to develop project contracts.

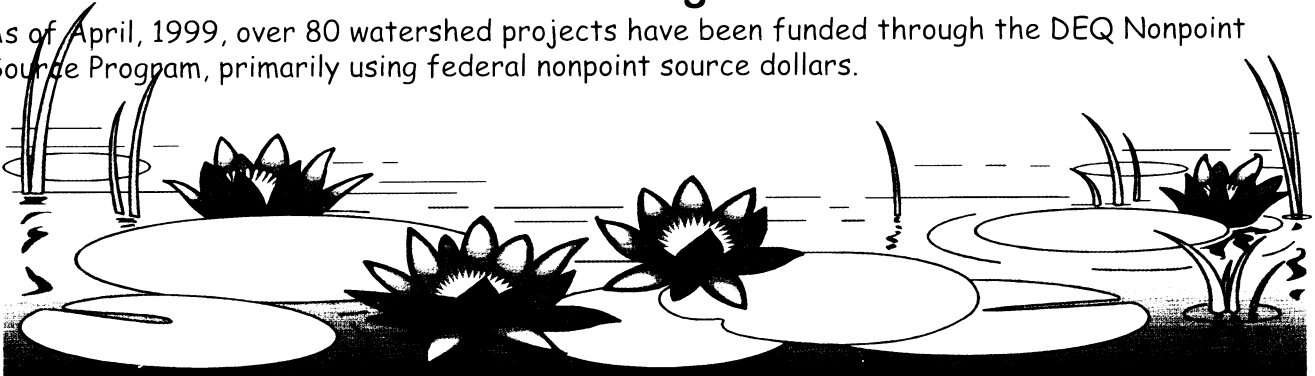
What Does a Completed Watershed Plan Look Like?

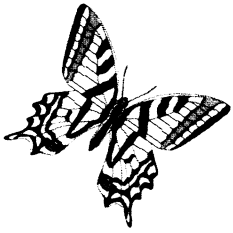
The completed watershed plan will focus on water quality. It should include:

- Information gathered from the watershed planning process.
- All the activities needed to meet the goals of the plan.
- The roles of local stakeholders.
- A list of prioritized practices and sites for implementation.
- An information/education plan that targets the people that can make a difference in the watershed.
- Ordinances or other means to ensure long-term changes in the watershed.

How Many Watershed Plans Have Been Developed in Michigan?

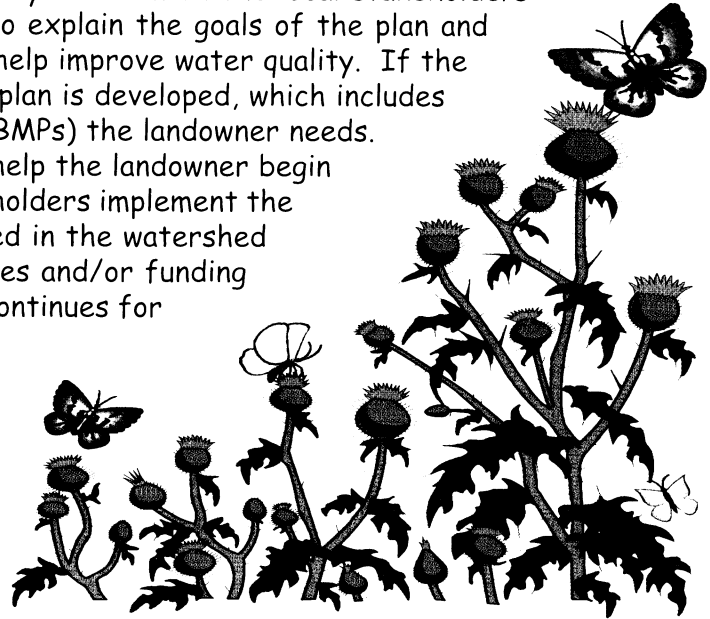
As of April, 1999, over 80 watershed projects have been funded through the DEQ Nonpoint Source Program, primarily using federal nonpoint source dollars.





How is a Watershed Plan Implemented?

The implementation of a watershed plan usually starts with the local stakeholders making individual contacts with landowners to explain the goals of the plan and offer suggestions on how the landowner can help improve water quality. If the landowner is interested, a water quality site plan is developed, which includes the systems of best management practices (BMPs) the landowner needs. Once plans are developed, the stakeholders help the landowner begin implementing BMPs. At the same time, stakeholders implement the information and education activities identified in the watershed plan and begin developing long-term ordinances and/or funding mechanisms. This ensures that the project continues for years to come.



How Much Does it Cost to Implement a Watershed Plan?

Costs can range from several hundred thousand dollars to over a million dollars, depending on the size of the watershed and complexity of the pollutants and sources in the watershed.

What Happens When Grant Money Runs Out?

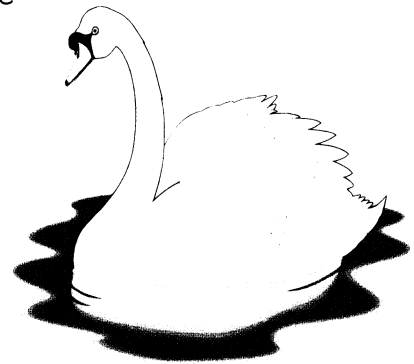
First, remember that grant money is just part of what "runs" a watershed project. Local communities and agencies contribute time, money, and labor for their watershed. Since nonpoint source dollars can only provide seed money to the projects, the overall goal of the DEQ Nonpoint Source Program is to give communities and agencies the technical knowledge they need to keep a project going. Communities and agencies who can institutionalize long-term funding and long-term changes for water quality, by using tools such as growth management ordinances, setting up endowment funds to continue funding watershed protection efforts, and establishing storm water utility fees, will have a self-sufficient watershed project.





How Soon Can I Expect to See Improvements in Water Quality After BMPs are Installed?

Improvements in water quality depend on the severity of the pollutants in the watershed, the types of BMPs installed, and several other conditions. In the North Branch of the Chippewa River, a farmer noticed improvements in the River within a year after implementing BMPs, by the presence of a rainbow darter that he had not seen prior to the start of the project. In the Doe-Furlong Creek Watershed in the Upper Peninsula, improvements in stream habitat were noted by a DEQ biologist within one year after livestock were excluded from a stream. In the Carp River, also in the Upper Peninsula, dozens of stream banks were stabilized. Fisheries biologists tracked the movement of sediment and documented improvements in habitat over the course of ten years.



When is a Watershed Project Complete?

Watershed management is a continuous process: a watershed plan is developed, portions of the plan are implemented and evaluated. The plan is then modified, as needed, and often, additional work is done in the watershed, followed by another evaluation. Using this process, the project is "complete" in high quality watersheds when the threats to the watershed are controlled; projects are "complete" in degraded watersheds when all the sources degrading water quality have been controlled.



To learn more about watersheds and what can be done to protect our water resources, contact DEQ Nonpoint Source staff at one of the following locations:



Cadillac District
Office
616-775-3960



Grand Rapids District
Office
616-356-0500



Jackson District
Office
517-780-7690

Lansing Nonpoint Source
Unit
517-373-2867

Marquette District
Office
906-228-6568



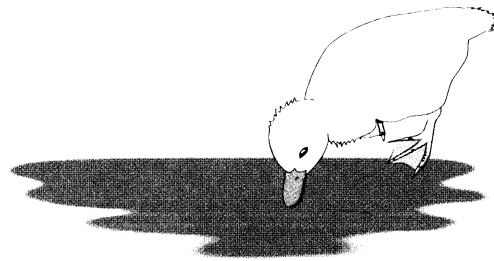
Plainwell District
Office
616-692-2120

Saginaw Bay District
Office
517-686-8025
Ext. 8264 or 8261



S.E. Michigan District
Office
734-953-8905

Shiawassee District
Office
517-625-5515



The York Creek
Watershed

