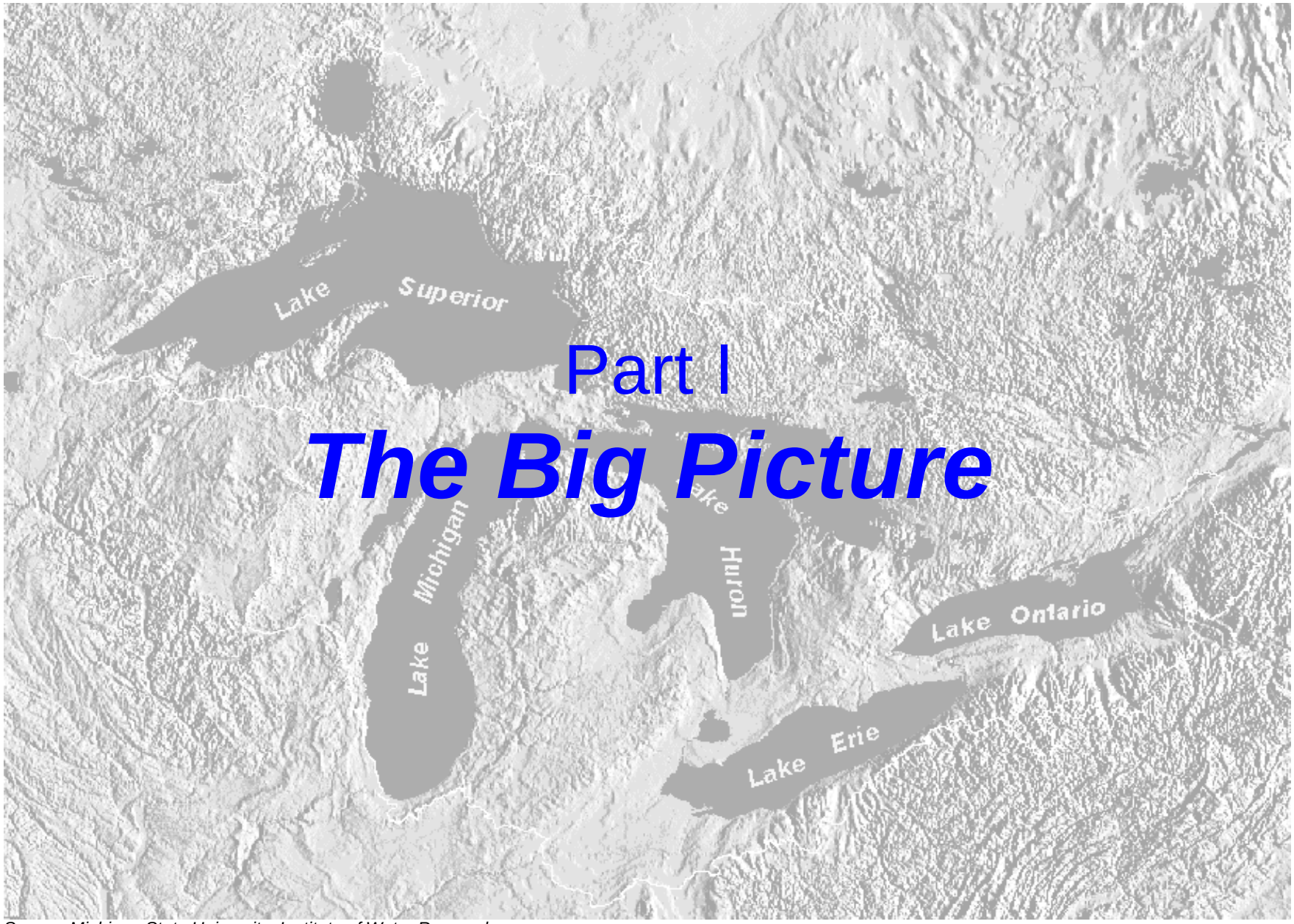


Part I
The Big Picture

Source: Michigan State University, Institute of Water Research.

"The time has come to protect the spectacular environment that beats with the heart of the Michigan spirit."
– Governor Jennifer M. Granholm

INTRODUCTION

We are proud of the strength and independence of our local governments in Michigan. Home rule is at the core of our political and regulatory framework. Yet when it comes to environmental protection and natural resources management, local governments share power with the state and federal governments. For example, environmental issues like industrial pollutant discharge, or natural resource issues such as wildlife and habitat management, have traditionally been the responsibility of the state and federal governments. In contrast, the conversion or protection of farm and forestlands, and a host of other land use decisions are made primarily by local governments. Power is shared because our environment stretches beyond jurisdiction borders, and its elements are completely interconnected. That is why it is important that decisions which affect the environment be coordinated and be based on a common regulatory approach.

How we use our land is the foundation of environmental quality because nearly every environmental problem has a land use origin. Additionally, most resource management decisions are tied to a series of existing or potential land use decisions. Without careful consideration, these land use decisions may unintentionally serve to undermine environmental protection objectives. Thus, governments at all levels must share common goals for a quality environment and equitable use and protection of dwindling natural resources, or all will suffer. The better local, state, and federal governments understand the shared responsibility for coordinated decisions affecting our common resources, the greater the likelihood each will do their part in protecting our environment.

However, the very nature of home rule makes consistent, effective environmental and natural resource protection difficult at best. Statewide there are more than 1800 units of local government with land use decision making authority. This fact alone makes it easy to see why protecting our land, air, and water in a consistent manner presents a monumental challenge. Under the status quo, the cumulative impacts of local land use decisions have the potential to negatively affect the overall quality of the environment and jeopardize the ecological health of our state.

Coastal areas in particular face some of the greatest ecological threats. With over 3,288 miles of Great Lakes

shoreline, fed by over 36,000 miles of rivers and streams and more than 11,000 inland lakes, the land abutting just the surface waters of this state is staggering. If the riparian lands are not wisely used, the quality of Michigan's water will worsen to the detriment of present and future generations.

Many local governments recognize the challenges of resource protection, and the limitations of state and federal regulations. They also appreciate the important ecological, aesthetic and economic benefits of wise resource management. Consequently, some have instituted strong local protection measures to maintain community character, grow sustainably, and safeguard environmental quality for future generations. Along the way, these local governments have sometimes asked for clarification about their roles in resource protection as well as information about how to address environmental issues locally.

Other local governments may not be aware of their options and the opportunity that exists when localities constructively partner with state and federal agencies, land conservancies, local conservation organizations, and others to protect Michigan's natural resources. This guidebook was written in response to those needs. It provides information about local options for environmental protection, the correlation between land use and ecological functions, and implementation tools. Although the guidebook focuses on coastal areas, the environmental management practices are applicable to shorelines throughout the state.

While it may be easy to point to inadequacies and gaps in the current environmental protection structure, by focusing on opportunities for improvement within the existing framework we are taking the first step towards improvement. We cannot afford to maintain an "us and them" mentality among state and local policy makers. The natural world does not recognize political boundaries. We know our jurisdictional confines and these should not be viewed as roadblocks. By knowing them, as well as knowing the responsibilities of others, and effectively utilizing the tools we have available within our scope of authority, we can make a positive difference now, and for future generations.

One does not have to be an environmentalist to appreciate a healthy environment. Having clean air, clean water, beautiful surroundings, and a healthy economy are subjects on which we all can agree, but they do not just happen on their own. Perhaps now more than ever before in our state's history we must work together to protect our shared resources, because it is clear that no level of government can achieve this alone. As the Michigan Environmental Protection Act states, it is the duty of officials at every level of government to help protect the air, water, and land from pollution, impairment or destruction.[1]

Local government is the first line of defense for our environment. By working cooperatively with state, and sometimes federal environmental protection officials, local officials can ensure that the right plans, regulations, and effective coordination mechanisms are in place to protect our environment.

The goal of this book is to equip you, the local official, with the right information to gather and examine when making local land use plans, adopting new environmentally focused regulations, or reviewing proposed development to make decisions that are right for your community now and in years to come. By working in cooperation with other local governments and state agencies, we can assure the lasting value of Michigan's environment.

Page 1 photos: left: Katherine Ardizone, DEQ; center and right: David Kenyon, DNR.

THE WHAT AND WHY OF ENVIRONMENTAL PROTECTION

How did we get here?

In the not so distant past, Michigan was one of the nation's conservation leaders.[2] Among the earliest inhabitants of what is now the Great Lakes state there was a sense that the land and waters offered an inexhaustible abundance of natural resources. When the European settlers arrived they coveted the land for its wealth of natural capital to be exploited and cashed in.[3] Like most colonized areas, it was this fundamental perception of limitless resources that is the crux of environmental history. But settlers soon realized that the forests, fish and wildlife, and land they depended upon were not inexhaustible. By the end of the 1800's, after years of deforestation and resource exploitation, sportsman began calling attention to the need for state conservation measures.[4]

State policy followed, and by the beginning of the 1920's the state was on its' way to ecological recovery. So successful were the efforts of several generations over the next 50 years, that their professional and volunteer excellence won Michigan a national reputation for nonpolitical resource conservation and management.[5] The late 1960's and 1970's signaled the implementation of comprehensive federal environmental protection policy, and Michigan paralleled this action with statutes that often greatly exceeded the scope of federal law. State environmental protection laws adopted during this time include:

- Michigan Environmental Protection Act, 1970
- Michigan Natural Rivers Act, 1970
- Shoreland Protection and Management Act, 1970
- Inland Lakes & Streams Act, 1972
- Soil Erosion & Sedimentation Control Act, 1972
- Wetland Protection Act, 1979

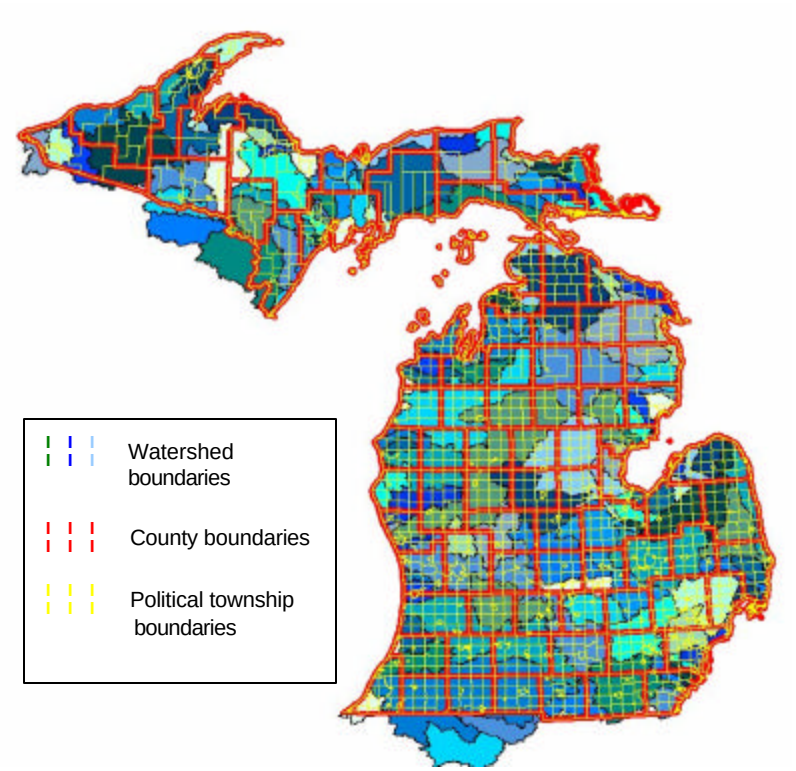
The early 1980's marked the end of an environmentally progressive era. It also marked Michigan's worst economic recession since the Great Depression.[6] Consequently, resource protection took a back seat in order for policy makers to focus on jumpstarting the economy.

Although Michigan and its residents made a remarkable recovery over the unsustainable practices of their ancestors, it is important to put "recovery" in context. Forested land cover of the state has decreased from 95% to 50% since settlement.[7] *Photo courtesy of: Michigan State Archives*.

Most of Michigan's environmental statutes were written during different legislative sessions. In 1994, state lawmakers codified nearly all statutes pertaining to natural resources and environmental protection under the umbrella of the Michigan Natural Resources and Environmental Protection Act (NREPA). The provisions of the individual Parts of NREPA were left largely unchanged from the original statutes.

The political will of the 1990's marked a shift away from state environmental enforcement toward voluntary compliance and self regulation. The Department of Natural Resources was divided into two agencies, and the new Department of Environmental Quality was created to act as the enforcement arm of environmental protection. While the state was adjusting to these enormous agency and policy changes, local

governments were left—often without any guidance– to do more on their own to protect resources. As a result, there has been some confusion over the past decade as to who is supposed to do what, when, and how in regards to protecting the state's resources. Additionally, consistent, multi-level governmental coordination has become more and more difficult.



Why coordination is key to environmental protection: This map illustrates the jurisdictional complexities facing Michigan's natural resources. Notice that within any given watershed boundary there are numerous political boundaries (more than 1,800 statewide)—and therefore numerous land use authorities. *Source: DEQ.*

Where are we now?

As conflicting demand for use and consumption of our natural resources has increased, so to has the need for regulatory intervention to preserve them. In keeping with Michigan's tradition of home rule, local governments are increasingly taking the reigns to fill in regulatory gaps on many natural resource and environmental protection issues.

There is a long-standing statutory basis for this authority. As early as the City and Village Zoning Act of 1921, local governments have had the authority to implement local regulations that will foster the health and well being of their communities. Language added to this statute in 1978 *requires* local officials to adopt zoning based on a plan which serves to "conserve natural resources and energy."[8] It also permits adoption of, "land development regulations and districts which apply only to land areas and activities which are involved in a special program to achieve land management objectives and avert or solve specific land use problems."[9]

It is clear that each level of government has an interest and legal responsibility to preserve Michigan's natural resources and protect its environment. However, it is equally clear, no single level of government can do it alone.

Where do we go from here?

Before describing specific ways in which local governments can improve the status quo, it is important to clarify why any level of government should expend efforts to protect resources and improve environmental quality. What is it exactly that we are trying to protect, and how do local governments fit in?

Natural Resources Management 101

An important point to keep in mind throughout this guidebook and throughout any land use deliberation is that our environment, our resources, are all interconnected. It is impossible to separate land use from water quality, or water quality from air quality, and so on. This is because they are all components of ecosystems that are interlinked and cyclical in

nature. A more detailed discussion of these relationships is provided later in this section. First, we need to define a few key terms that are essential to any discussion about resource management or environmental protection: *ecosystem, watershed,* and *natural features.*

What is an ecosystem?

An ecosystem is a fancy word for what we learned as children as "the web of life." The "eco" aspect of an ecosystem includes physical and chemical components, such as soils, water, and nutrients, as well as the organisms living there, such as bacteria, fish, and humans.[10] The "system" is the natural process, or way in which all of the components interact with one another; as food, as habitat, as flood control, etc.

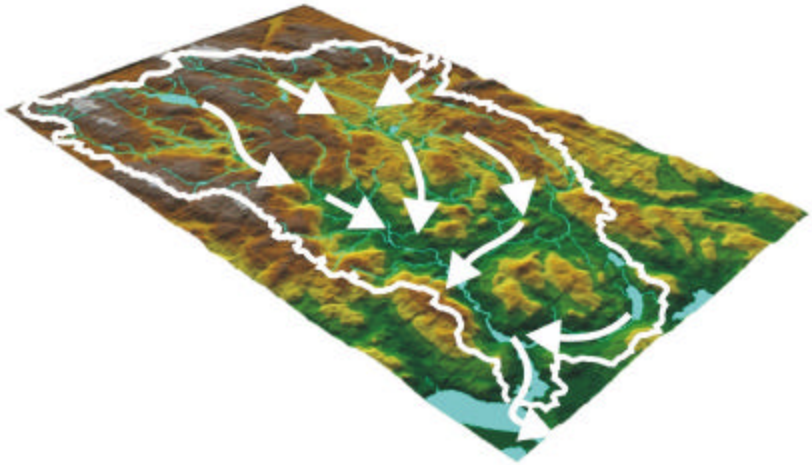
Ecosystems vary in scale. For example, the earth as a planet is an ecosystem in itself, but it is also comprised of many smaller levels of ecosystems such as the oceans, the Great Lakes, or a forest. Because all of the components in an ecosystem rely on the other components within the ecosystem to survive, disrupting the balance within the system can eventually lead to collapse—or an inability for it to sustain itself, such as the agricultural collapse of the 1930's known as the Dust Bowl, which was caused by poor agricultural practices and extreme weather conditions.

Why balance is so important.

Another example of ecosystem disruption leading to collapse that is closer to home is the "dead zone" appearing again in Lake Erie. In the 1960's and '70's a dead zone, or an area of a water body that does not contain enough oxygen to sustain life, appeared in Lake Erie. It was caused by an over abundance of nutrients. Excessive levels of phosphorus, a nutrient that used to be prevalent in household detergents, and nitrogen, a major component of lawn and crop fertilizers, contributed to an imbalance in the Lake's ecosystem. The imbalance lead to a collapse in the aquatic ecosystem, because oxygen levels became too low to support fish and vegetation. As a result, new policies to help reduce nutrient loading into the Great Lakes, such as a ban on phosphorus and sewage treatment upgrades, were adopted and Lake Erie began to recover. Today, a dead zone has reappeared in Erie, and scientists are trying to pinpoint the cause.[11]

What is a watershed?

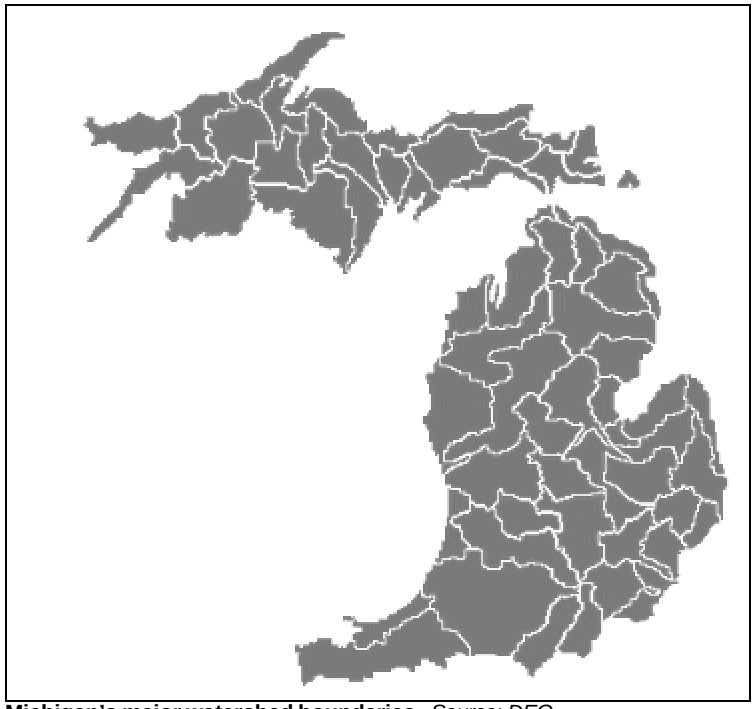
A watershed is an area of land in which all surface waters drain to a common outlet, similar to a household funnel. All of Michigan's watersheds drain into the Great Lakes surrounding the state. Watersheds vary in size, depending upon the scale from which you are working, similar to the concept of ecosystems. In other words: there are watersheds within watersheds.



A watershed is an area of land in which all surface waters drain to a common outlet. *Source: NEMO Project, University of Connecticut, 1993.*

Watershed planning and management has come into the spotlight in recent years as a way of paring down the sometimes overwhelming concept of large-scale ecosystems. Watershed management involves a more regional approach based on the movements of water and pollutants as defined by natural boundaries rather than political jurisdictions. Contrary to what it implies, watershed management focuses primarily on land use. This is because as water travels across the land

it picks up sediment and other pollutants. Preserving water quality thus requires careful land management.



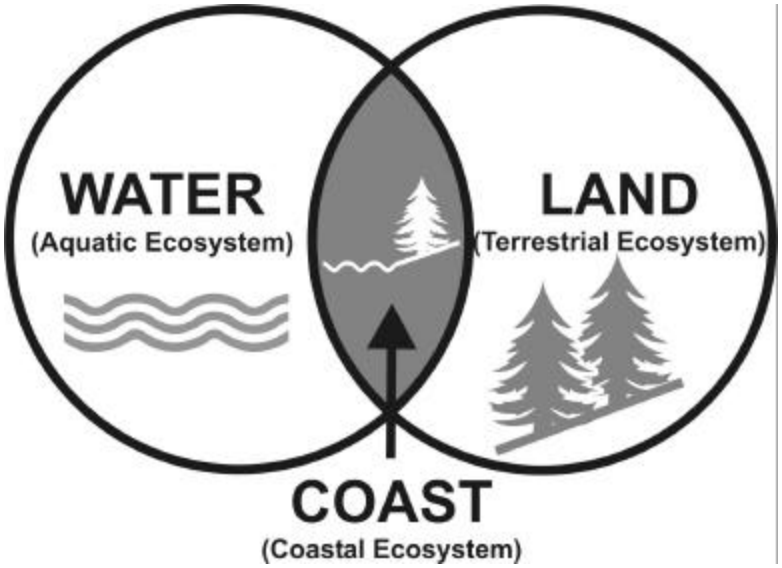
Michigan's major watershed boundaries. *Source: DEQ.*

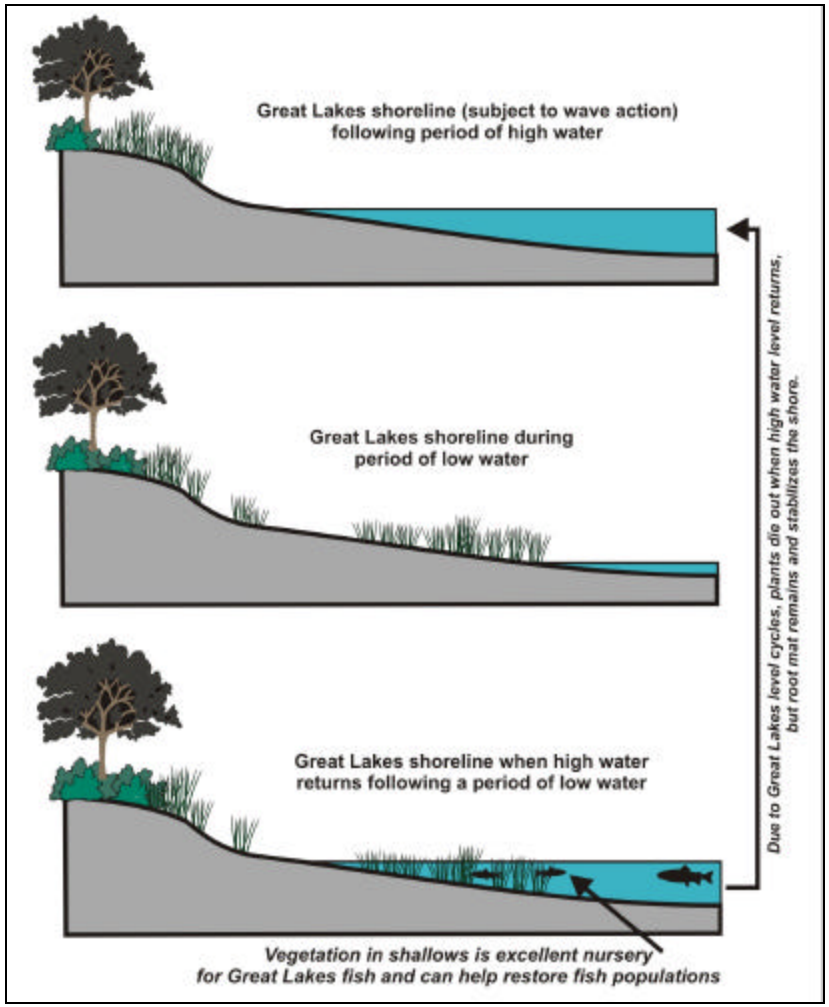
Why do coastal ecosystems and watersheds warrant extra attention?

Areas where one ecosystem type meets another, such as the water and land interface of our coasts, tend to be particularly fragile environments. They also provide critical habitat for a number of fish, waterfowl, plants, and other wildlife. As you can see from the watershed map above, coastal areas are the last stop for surface pollutants from an entire watershed. Consequently, they serve as the final filtration opportunity before reaching the Lakes.

Coastal ecosystems depend on the interaction between land and water ecosystems, and in so doing create their own unique set of requirements for sustainability. Below are two overlapping circles, one symbolizing the land-based ecosystem, the other symbolizing the water-based ecosystem. Where they overlap is the coastal ecosystem, which must rely on the health of the water *and* land systems for sustainability.

Michigan's 3,288 miles of freshwater Great Lakes shoreline are unique in many ways. The vastly different types of coastal environments around the state make any one prescribed management plan at best impractical and at worst ineffective. But these various landscapes do share some commonalities. All are subject to ever-changing Lake water levels, all are susceptible to adverse impacts of development, and most are comprised of delicate soils prone to movement, and/or erosion.





Great Lakes water level fluctuations create vastly different coastal landscapes. Some scientists consider low-level years a time of ecosystem "recovery," as it creates unique habitat that many fish and wildlife species rely on for survival.
Image source: John Warbach, Planning & Zoning Center, Inc.

Inappropriate development of coastal and near shore areas disrupts the natural process of beach creation and replenishment, and may expedite or exacerbate erosion and other hazards.[12] The proximity to open water also makes shoreline development more likely to contribute pollutants directly to the Great Lakes from stormwater runoff, agricultural and residential lawn nutrient loading, limited septic fields, outdated wastewater treatment facilities, and soil erosion. Essentially, good land use decisions can protect coastal ecosystems; bad land use decisions can damage coastal ecosystems.

What are natural features?

For the purposes of this guidebook, *natural features* refer to the type of landscape characteristics identified for state or local regulation. For example, a wetland could be considered a *natural resource* because of the services it provides, but it is also a natural feature because of its physical and scientific attributes. A coastal bluff or sand dune are other examples of natural features. Wetlands and sand dunes are examples of natural features regulated by the state, and/or by local units of government. Other natural features include flood plains, inland lakes and streams, and unique plant and animal habitat. A more detailed description of natural features for the purpose of a *natural features inventory* is provided in the Appendices.

Unique coastal natural features

Coastal ecosystems in particular, are home to a variety of fragile natural features that can easily be destroyed or significantly altered by surrounding land use activities. Predominant among these features are wetlands and sand dunes.

Many types of wetlands are found along the coast. Marshes, *fringing* wetlands, and *emergent* wetlands reduce erosion, prevent flooding, filter contaminants, trap sediment, and serve as breeding grounds for many species of animals, including game fish and waterfowl. The cycle of rising and falling water levels makes Great Lakes marshes some of the most important freshwater wetlands in North America because of their unique ability to provide so many crucial services to wildlife and society.[13]

It may be easier to think of these wetlands as the vital transition zone between the land and water ecosystems. Without them, there would be a harsh contrast from one type of system directly into another very different type of system—similar to the shock of going from a hot, steamy shower directly into an igloo, with no time for drying off or getting dressed. Eliminating these buffer zones by dredging or development can have devastating and long lasting effects on both the land and water systems they connect, as it exposes the adjoining ecosystems to extreme conditions without the needed, gradual physical transition.

Sand dunes are another coastal feature that are easily impacted by development. Formed by wind and constantly in motion, their physical instability makes dunes extremely susceptible to permanent damage from off-road vehicles, exotic plants and animals, residential development, pedestrian recreational overuse, sand mining and other industrial development.[14]

Why do we need to protect our natural resources?

Michigan residents enjoy the outdoors immensely, and rely on them heavily. Regardless of personal attitudes about environmental regulation, the facts surrounding natural resource management present an indisputable case for both the ecological *and* economic need to use our land wisely. In 1991, the estimated economic value of the state's natural resources—not including products made from them—was a hearty $10.7 billion.[15] Nearly half that figure is generated by our hunting and fishing industry alone.

But one might say we are loving our resources to death. Michigan has one of the highest land consumption rates in the country, has more boats on the water than any other state, and ranks second in the nation in the number of second homes.[16] Land use projections for Michigan indicate that a state population increase of as little as 12% could result in as much as an 87% increase in new developed land by 2020 under the current policies.[17] Simply put, our wild, scenic, and agricultural landscapes are quickly disappearing because more people are moving to these areas, and taking up a lot of space once they get there.

It is not just loss of habitat and open space that are the consequences of poor land use choices. In 1992, results of the Relative Risk Analysis Project ranked the absence of land use planning that considers resources and the integrity of ecosystems as the greatest relative environmental risk in Michigan.[18]

FEDERAL, STATE, & LOCAL ROLES IN ENVIRONMENTAL PROTECTION

What is the role of government in resource protection?

While it is true that protecting our environment and using our resources wisely is up to all of us, the reality is that if everyone did so, we would not need government regulation to protect the environment. Unfortunately, this is not the case, so the responsibilities of federal, state, and local governments are clearly defined within environmental laws.

Many community leaders believe that the federal or state government is responsible for all environmental protection and natural resource management. While each have regulatory authority over some resources and some sources of pollution, the authority to regulate land use decisions rests primarily with local governments. Michigan's environmental laws specifically provide for local environmental regulation. As far back as 1926, the U.S. Supreme Court cited public health protection as one of the basic responsibilities of local governments, thus upholding their legal mandate to restrict or control land use decisions in a community.[19]

However, this multi-level governance scheme often leaves vast portions of an ecosystem inadequately protected. By

looking at the role and responsibility of each level of government, the limitations of long-term natural resource and environmental protection under the current framework become clear.

Federal Role

The federal government set the stage for contemporary national environmental standards with the adoption of the National Environmental Policy Act (NEPA) of 1969. The Act was the first federal legislation to identify an environmental protocol to follow. The Environmental Protection Agency (EPA) was created as the regulatory authority to oversee the provisions of the Act. The purposes of NEPA are to:

- declare a national policy which will encourage productive and enjoyable harmony between humans and the environment;
- promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humans;
- enrich the understanding of the ecological systems and natural resources important to the Nation.

The National Environmental Policy Act of 1969, as amended. (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982)

Throughout the 1970's, more sweeping federal legislation was adopted that set standards for clean water, clean air, drinking water, industrial pollutants, and pesticide use. As a result, states were required to adopt language protecting air, water, and land resources that were at least as stringent as the federal standards.

Today, the federal government is linked to land use policy primarily through the development of quantifiable standards for protecting ecosystem health, such as water quality monitoring. Federal agencies also provide educational and technical assistance such as outreach programs and data sharing. Additionally, the federal government maintains grant programs, like those administered by the Michigan Coastal Management Program, which in turn provide funding opportunities for local initiatives. With the exception of management of federal lands and buildings, military bases and nuclear power plants, the federal government does not usually have jurisdiction over local land use planning, or zoning decisions. Table 1.1 "Federal Laws Relevant to Ecosystem Protection" provides a brief description of the most significant federal laws and opportunities for local action.

State Role

Prior to the National Environmental Protection Act of 1969, Michigan included environmental protection and natural resource management language in Article IV of the State Constitution. This provision serves as the basis for all of Michigan's subsequent environmental and natural resource management laws.

> **§ 52 Natural resources; conservation, pollution, impairment, destruction.**
> The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.
> Sec. 52. **History:** Const. 1963, Art. IV, § 52, Eff. Jan. 1, 1964 .

Michigan's primary environmental legislation is contained in the Michigan Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended. PA 451 addresses shared natural resources, like air and water, sets minimum standards for environmental protection, and details state responsibilities to protect the air, water, and land from pollution, impairment, or destruction. The Act also defines the role of local governments in resource management. For the most part, local roles are voluntary and opportunities are slightly different depending on the resource. The opportunities for local action will be discussed throughout the guidebook.

Table 1.1 Federal Laws Relevant to Ecosystem Protection		
Statute	**Description**	**Opportunities for Local Governments**
Clean Water Act (CWA) Section 402	The CWA covers a number of regulatory, funding, and education programs aimed at protecting and restoring the nation's surface waters. These include a permitting system that limits the amount and type of pollution that facilities and other individual sources can discharge. Dischargers must obey national discharge guidelines, as implemented to achieve state water quality standards.	Usually, the Office of Water within the U.S. Environmental Protection Agency delegates this pro- gram to the states. Communities can ask the State department of environmental protection for a review of how well local industries are complying with pollution discharge limits. Also, the CWA has a number of funding programs to help municipalities build wastewater facilities and control polluted runoff from farms, storm sewers, and other sources.
Coastal Zone Management Act of 1972	This statute helps coastal states manage and protect coastal resources from threats such as development, erosion, and pollution. States must develop programs to control polluted runoff from farms, storm sewers, and other sources that affect coastal waters.	Administered by the National Oceanic and Atmospheric Administration within the U.S. Department of Commerce, this program provides technical assistance arid grants to states in developing coastal management plans. Communities can ask their state for an evaluation of whether development in coastal areas is consistent with their state's plan, and can seek state funding for projects in the community.
Coastal Barrier Resources Act	This statute provides federal funding for protection of barrier islands.	Administered by the National Oceanic and Atmospheric Administration within the U.S. Department of Commerce.
National Environmental Policy Act (NEPA)	All federally funded projects and activities as well as projects built on federal property (including highways, ports, dams, power plants, airports, drinking water plants and pipes, and sewage treatment plants and pipes) must comply with NEPA, which requires the submission of an Environmental Impact Statement (EIS) describing the project's effect on the local ecosystem as com pared to other alternatives.	This program is administered by the U.S. Environmental Protection Agency. The community can examine previous EISs to determine the effects of similar projects on its ecosystems and can participate in public hearings on proposed development projects.
National Flood Insurance Program	This statute provides federally subsidized flood insurance for those communities that have adopted floodplain management regulations (e.g., wetlands protection) that will minimize future flood damage. Generally, flood insurance is required before federally guaranteed mortgages or loans can be issued.	This program is administered by the Federal Emergency Management Agency (FEMA). By incorporating floodplain management regulations into local zoning ordinances and building codes, communities can become eligible for floodplain insurance.
Endangered Species Act (ESA)	This statute provides for the protection of endangered wild plants and animals.	The U.S. Fish and Wildlife Service administer the ESA. As part of the process of determining which plants and animals should be considered endangered, the FWS conducts hearings to obtain public input. Communities also can participate in the development of Habitat Conservation Plans, which developers must design if their proposed development affects an endangered or threatened species.

Statute	Description	Opportunities for Local Governments
National Wild and Scenic Rivers Act (NWSRA)	This statute protects extraordinary rivers from damming and other forms of development.	The National Park Service, which administers the NWSRA, manages all rivers that are protected. Through its Rivers and Trails Assistance Program, the Park Service also provides technical assistance to states and localities in developing conservation plans for rivers and river segments.
North American Waterfowl Management Plan Conservation	This program was started in 1986 to enhance waterfowl populations and habitats. The plan stipulates the use of subsidies, financial incentives, and tax adjustments favorable to landowners to promote conservation.	Management of the plan is delegated to state and regional levels, which work with the U.S. Fish and Wildlife Service as well as over 40 conservation organizations. Communities can get involved by asking authorities to assess whether local habitat is eligible for protection under the plan.
Reserve Program/Wetlands Reserve Program	The Conservation Reserve Program uses financial incentives to encourage farmers to leave sensitive lands, such as riparian zones and steep slopes, out of agricultural production. The Wetland Reserve Program is similar, focusing on wetlands.	The programs are administered by the Natural Resource Conservation Service within the U.S. Department of Agriculture. Local farmers can enroll in the grant program, which involves signing 10-year agreements with the government for the receipt of grant funds.
Clean Water Act (CWA) Section 404	This section of the CWA regulates the discharge of dredged material (silt excavated from the bottom of a waterway) and fill into U.S. waters, including wetlands, and establishes a permit program to ensure compliance with environmental requirements.	This program is administered by the U.S. Environmental Protection Agency Office of Water and the U.S. Army Corps of Engineers. As a part of the permitting process, the Corps holds hearings on proposed dredge or fill discharge permits. Communities can use these hearings as a forum for expressing concerns about potential projects.
Swamp buster Program	This statute discourages the conversion of wetlands into farmland by making persons who raise crops on wetlands ineligible for most federal farm benefits.	This program is administered by the U.S. Department of Agriculture.
Resource Conservation and Recovery Act (RCRA)	RCRA regulates the design, location, operation, and monitoring of new and old municipal landfills and facilities that manage hazardous waste (e.g., landfills, recyclers, and incinerators). It also regulates the generation and transport of hazardous waste, requires cleanup of contaminated hazardous waste facilities, and requires inspection and cleanup of underground storage tanks at gas stations and other sites.	This program is administered by the Office of Solid Waste and Emergency Response within the U.S. Environmental Protection Agency, in conjunction with state waste management agencies. Permitting of hazardous waste management facilities includes provisions for public participation; communities may wish to take part in these forums.
Clean Air Act (CAA)	CAA regulations include permits to businesses and industries to limit the amount of pollution they emit to the air. Development that would increase air pollution is limited in areas that do not meet federal air quality standards.	The CAA requires that states develop plans for maintaining air quality and reducing air pollution. Emissions permitting include provisions for public participation; communities may wish to take part.

Statute	Description	Opportunities for Local Governments
Congestion Mitigation and Air Quality Program under the Intermodel Surface Transportation and Efficiency Act (ISTEA)	ISTEA promotes mass transit, rails-to-trails programs, and regional transportation land use planning. The Congestion Mitigation and Air Quality Program provides grants for projects aimed at reducing transportation-induced congestion, safety hazards, and pollution,	This program is administered by the Federal Highway Administration and Federal Transit Administration under the Department of Transportation. Communities can apply for grants for projects that reduce traffic congestion and improve air quality.
Cooperative Forestry Assistance Act	This Act provides technical and financial assistance for both urban and rural forest management and community development activities that protect and restore ecosystems.	This program is administered by the USDA Forest Service in cooperation with the state forester in each of the 50 states.
Emergency Preparedness and Community Right-To-Know Act (EPCRA)	EPCRA requires facilities using hazardous chemicals to notify the community of chemical spills or leaks. It also requires facilities to publish lists of the hazardous chemicals used or stored on site and to develop spill response plans.	At the local level, EPCRA is administered by a Local Emergency Planning Committee (LEPC). Through the LEPC, communities can find out what hazardous chemicals are present in the area and can participate in developing spill response plans.
Federal Insecticide, Fungicide, and Rodenticide Act (FJFRA)	This statute regulates the application of pesticides and other pest control substances to crops.	Through a system of review and permitting, FWRA provisions can ban the application of substances that may harm sensitive ecosystems. Communities can take part in this permitting process.

*Federal statutes not discussed here include a number of laws that regulate federal lands managed by the U.S. Forest Service, the Bureau of Land Management, the Fish and Wildlife Service, and the National Park Service.

Source: *Community-Based Environmental Protection: A Resource Book for Protecting Ecosystems and Communities, U.S. EPA (EPA 230-B-96-003), Washington, D.C. 1997*.

The Department of Environmental Quality is the state agency that regulates wetland, sand dune, soil erosion, inland lake, and shoreland uses defined in PA 451. Each category, also referred to as "section" or "part" of the Act, has a different legislative history. As a result, each part is written a bit differently, with different intended goals, and identifies different roles for local governments.

PA 451 creates significant opportunities for localities to implement supplemental natural resource management techniques, but does not oversee land use planning at the local level. It is left to the discretion of each of Michigan's 1800+ local units of government to determine how they will protect the environment through land use planning and local regulations. Therefore, each local government is responsible for helping protect Michigan's environment.

"Good environmental laws at the state level are not enough; they tend to blunt but not stop degradation of the shore, and do not protect entire ecosystems, only resources found on particular parcels."

–Dave Dempsey, Michigan Environmental Council

Figure 1.1 illustrates most of the land and water related laws in Michigan. Notice that although specific features in the ecosystem require state oversight for land cover alteration, many of the areas connecting them do not. This level of land use oversight is left to the discretion of individual communities. Is state regulation enough to sustain the ecosystem with so many gaps between these natural features?

Table 1.2 outlines the state laws relevant to ecosystem protection. As with the federal laws, many seem to overlap, but huge gaps in resource protection still exist. Even with multiple statutes, the challenge remains to protect ecosystems in their entirety. Local governments have the opportunity to serve as the mortar of the regulatory foundation—they can help fill in the missing gaps.

Local Role

For local officials dealing with permit applicants, heated zoning debates, and a multitude of state and federal agency staff–life is not always a picnic. However, the different levels of government in the context of environmental protection policy interact similarly to an organized picnic where everyone is supposed to bring something. In this instance, the federal government brings the blanket, serving as the regulatory foundation for state and local governments. The state adds to that foundation by providing the necessary utensils. But a critical component, the food, is provided by localities. They complete the scenario by deciding what everyone will eat. As is true for environmental policy, local governments determine how much effort they put into the end result. They can invest in making something really delicious for everyone, or do the required minimum by bringing a bag of chips. Although it may be possible to compensate for deficiencies initially, without coordination or contributions among all the participants in either scenario, the success of the event–or environmental protection–is threatened.

MEPA

There have been about a dozen zoning or related police power court cases in which the Michigan Environmental Protection Act (MEPA), formerly PA 127 of 1970, now Part 17 of the Michigan Natural Resources and Environmental Protection Act, PA 451 of 1994, has been a factor in the case. Appellate courts have ruled that MEPA applies to local planning and zoning decisions that have or are likely to have the effect of polluting, impairing or destroying the environment, unless there is no feasible or prudent alternative. Courts have also noted language in the zoning enabling acts that communities must not ignore the obligation to consider the impact of proposed zoning decisions on the "conservation of natural resources" (see for example Committee for Sensible Land Use v Garfield Township, 124 Mich App 559, 1983). Unfortunately, most local government officials are not aware that they have an obligation under MEPA to make decisions that prevent pollution, impairment or destruction of the environment unless there is no feasible or prudent alternative. Facts must be presented to demonstrate this. A simple provision in the local zoning ordinance that states this obligation serves to inform local officials and the public. See Appendices.

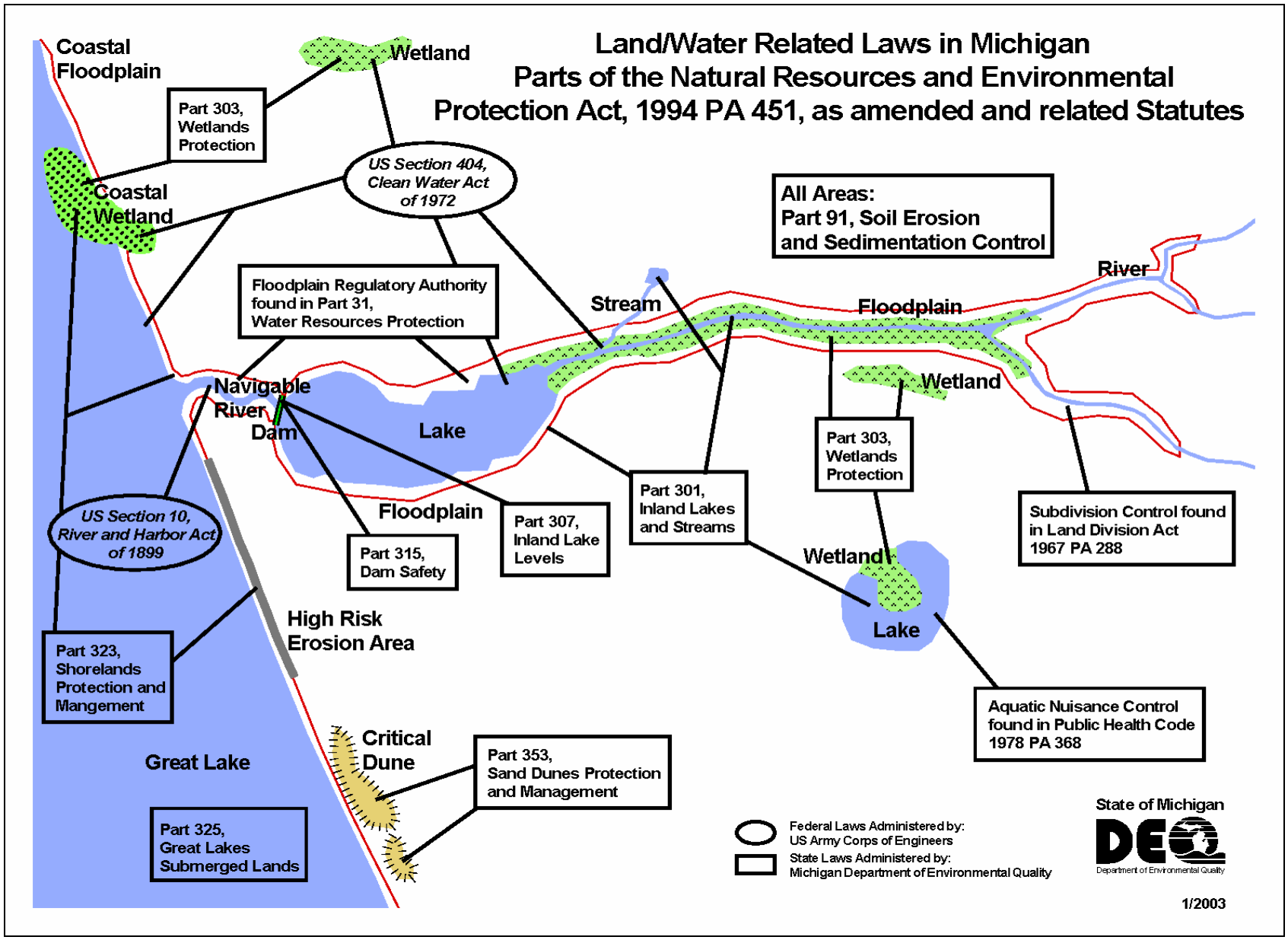

Land/Water Related Laws in Michigan
Parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended and related Statutes
Coastal Floodplain
Wetland
Part 303, Wetlands Protection
Coastal Wetland
US Section 404, Clean Water Act of 1972
All Areas: Part 91, Soil Erosion and Sedimentation Control
River
Floodplain Regulatory Authority found in Part 31, Water Resources Protection
Stream
Floodplain
Wetland
Navigable River
Dam
Lake
Part 303, Wetlands Protection
Part 301, Inland Lakes and Streams
Subdivision Control found in Land Division Act 1967 PA 288
US Section 10, River and Harbor Act of 1899
Floodplain
Part 307, Inland Lake Levels
Part 315, Dam Safety
Wetland
Lake
High Risk Erosion Area
Part 323, Shorelands Protection and Mangement
Aquatic Nuisance Control found in Public Health Code 1978 PA 368
Critical Dune
Great Lake
Part 353, Sand Dunes Protection and Management
Part 325, Great Lakes Submerged Lands
Federal Laws Administered by: US Army Corps of Engineers
State Laws Administered by: Michigan Department of Environmental Quality
State of Michigan
DEQ
Department of Environmental Quality
1/2003

Figure 1.1

Table 1.2
State Laws Relevant to Ecosystem Protection*

Statute or Constitutional Provision	Description	Opportunities for Local Action
1963 Const. Art 4, §52 (Constitutional Provision) Paramount Public Concern	**§ 52 Natural resources; conservation, pollution, impairment, destruction.** The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.	Constitutional responsibility for environmental protection which is applied by the legislature to laws directing both state and local action.
1963 Const. Art 9, §35 (Constitutional Provision) Natural Resources Trust Fund Part 19, PA 451 of 1994 Natural Resources Trust Fund	**§ 35 Michigan natural resources trust fund. (Excerpt)** The interest and earnings of the trust fund shall be expended for the acquisition of land or rights in land for recreational uses or protection of the land because of its environmental importance or its scenic beauty, for the development of public recreation facilities, and for the administration of the trust fund, which may include payments in lieu of taxes on state owned land purchased through the trust fund.	The trust fund provides grants to units of local government or public authorities to be used for the resource conservation purposes of the Trust Fund.
Natural Resources and Environmental Protection Act(NREPA), PA 451 of 1994	An act to protect the environment and natural resources of the state; to codify, revise, consolidate, and classify laws relating to the environment and natural resources of the state; to regulate the discharge of certain substances into the environment; to regulate the use of certain lands, waters, and other natural resources of the state; to prescribe the powers and duties of certain state and local agencies and officials;	Defines legal authority of state agencies and local governments for each Part of the Act to implement and/or administer sections contained in the Act.
Part 17, PA 451 of 1994 Michigan Environmental Protection Act	Creates legal action provisions and provides for equitable relief for any state agency, local government or Michigan citizen against any party that willfully causes pollution, impairment or destruction of land, air, or water resources.	Local governments may take legal action against any party that has polluted, impaired, or destroyed or is likely to pollute, impair, or destroy the air, water, or other natural resources or the public trust in these resources.
Part 31, PA 451 of 1994 Water Resources Protection	Part 31 establishes water quality standards, and prohibits the discharge of polluting materials or discharge without a permit. **§ 324.3103:** The department shall protect and conserve the water resources of the state and shall have control of the pollution of surface or underground waters of the state and the Great Lakes, which are or may be affected by waste disposal of any person.	A local unit may regulate the land application of sewage sludge and adopt regulations to protect groundwater.
Part 31, PA 451 of 1994 Floodplain Protection	Purpose of floodplain protection under Part 31 is to assure the flow carrying capacity of a watercourse is not obstructed, and not used for residential construction. Requires that a permit be obtained prior to any alteration or occupation of the 100-year floodplain (a flood which has a 1% chance of occurring any given year) of a river, stream or drain.	Closely tied to National Flood Insurance Program. Communities can regulate construction in floodplains through building codes and/or local ordinances.

Statute or Constitutional Provision	Description	Opportunities for Local Action
Part 55, PA 451 of 1994 Air Pollution Control	This Part of PA 451 seeks to maintain a safe ambient air quality for the state by regulating emissions of incinerators, industrial air-borne output, and pollutants from other sources.	Local ordinances may be enacted so long as requirements are as stringent or more so than Part 55. The DEQ is obligated to counsel and advise local units of government on the administration of this part. The DEQ is required to cooperate in the enforcement of this part with local officials upon request.
Part 91, PA 451 of 1994 Soil Erosion and Sedimentation Control	Regulates earth change activities that disturb one or more acres or within 500 feet of a lake or stream.	Local governments are permitted to adopt soil erosion and sedimentation control ordinances, but they must be approved by the administering state agency (DEQ), and must be at least as stringent as state minimums.
Part 111, PA 451 of 1994 Hazardous Waste Management	Provides standards and guidelines for the generation, disposal, storage, treatment, or transport of hazardous waste. Creates the state's pollution prevention fund.	Part 111 does not allow municipalities to prohibit the transportation of hazardous waste through the municipality or county or prevent the ingress and egress into a licensed treatment, storage, or disposal facility. Local governments cannot prohibit the construction of a treatment, storage, or disposal facility, except as otherwise provided in section 11122.
Part 115, PA 451 of 1994 Solid Waste Management	Identifies and encourages methods for the disposal of solid waste that are environmentally sound, that maximize the utilization of valuable resources, and that encourage resource conservation including source reduction and source separation.	Cities, counties, or health department districts must obtain certification from the administering agency (DEQ) for solid waste management.
Part 201, PA 451of 1994 Environmental Remediation	Brownfield redevelopment and cleanup criteria. Part 201 also addresses liability claims and funding coordination between the state and federal government on brownfield redevelopment.	Under the Brownfield Redevelopment Financing Act, PA 381 of 1996, local governments can create brownfield redevelopment authorities to cleanup and reuse contaminated sites.
Part 301, PA 451 of 1994 Inland Lakes and Streams	Regulates dredge, fill, construction, and any structural interference with the natural flow of a lake or stream. Regulates marina operation.	Local governments are provided notice and given the opportunity to review and comment on proposed projects prior to action.
Part 303, PA 451 of 1994 Wetland Protection	Establishes minimum wetland protection controls for regulated wetlands. Requires a permit to conduct dredge, fill, or construction activities in regulated wetlands.	Gives local governments explicit authority to regulate wetlands smaller than 5 acres in size. Administering state agency (DEQ) must be notified of local ordinance.
Part 305, PA 451 of 1994 Natural Rivers	Created to preserve and enhance a river or a portion of a river for water conservation, fish, wildlife, scenic, ecological, historic, and recreational values.	Part 305 is implemented through zoning provisions. Local governments have first refusal of zoning administration. The Department of Natural Resources will administer zoning regulations if local entity opts not to.

Statute or Constitutional Provision	Description	Opportunities for Local Action
Part 323, PA 451 of 1994 Shorelands Protection and Management: Environmental Areas	Part 323 provides for the designation of environmental areas up to 1000 feet landward of the ordinary high water mark of a Great Lake or 1000 feet landward of the ordinary high water mark of lands adjacent to waters affected by levels of the Great Lakes.	Local governments are provided with specific authority under Part 323 to enact shoreland zoning based on environmental factors.
Part 323, PA 451 of 1994 Shorelands Protection and Management: High Risk Erosion Areas	Requires setbacks and size parameters for development in areas eroding at an average rate of one foot or more per year.	Local governments can assume administration of Part 323 with DEQ approval, and may require greater setback distances from the erosion hazard line. The DEQ will administer regulations if local government doesn't.
Part 325, PA 451 of 1994 Submerged Lands	Regulates construction activities on Great Lakes bottomlands and authorizes leasing and deeding bottonmlands for specific uses.	Local governments can provide input to both the permitting and bottomland conveyance parts of this authority.
Part 353, PA 451 of 1994 Sand Dune Protection and Management	Designates Critical Dune Areas throughout the state and regulates activity within designated areas.	Local governments can assume administration of Part 353 with DEQ approval. The DEQ will administer regulations if local government doesn't.

*This table is intended to provide general information regarding land use related state statutes and local opportunities for action. It is not comprehensive, and does not include statutes pertaining to endangered species and other conservation-based policy.

Beyond a constitutional obligation that extends to the legislature, local officials receive their ability to protect the environment and manage natural resources from two primary sources in state law. The first is NREPA. The second can be found in several statutes known collectively as the *Planning and Zoning Enabling Acts*. These acts give townships, cities, villages, and to a lesser extent counties, the authority to oversee land use decisions and protect the "natural environment and conserve natural resources and energy."[20] As natural feature protection options are discussed in the next section, each will incorporate information about how these different authorization sources translate into differences in implementation options for local governments.

LOCAL AUTHORITY

NREPA

Clearly defines most regulatory constraints.

Like a sport that has rules administered by a referee.

PLANNING & ZONING ENABLING ACTS

Incorporates general enabling language, constraints not clearly defined. Many of these have been subsequently defined by the courts.

More subjective, like a sport where athletes are scored by judges.

Guidebook Overview

The following sections of this guidebook will discuss a variety of regulated natural features within our ecosystem. It will also describe planning tools available to assist local governments in implementing natural resource protection measures.

- Part II: Identifies gaps in existing natural resource and environmental protection policy and explains opportunities for local regulation.
- Part III: Provides information about planning and zoning tools available to local governments, and how each relates to natural resource management and environmental protection.
- Appendix: Contains example ordinances and related agency and organization contact information.

FOOTNOTES:

[1] Michigan Environmental Protection Act, 1970, now codified as Part 17 of NREPA, MCL 327.1702 et seq.
[2] Dempsey, Dave, *Ruin and Recovery: Michigan's rise as a conservation leader,* University of Michigan Press, Michigan Environmental Council, 2001, p.162.
[3] Ibid, p. 19.
[4] Ibid, p. 40.
[5] Ibid, p. 263.
[6] Ibid, p. 193.
[7] *Great Lakes Trends: Into the New Millennium,* Michigan Department of Environmental Quality, Office of the Great Lakes, May 2000.
[8] City and Village Zoning Act, Act 207, 1921.
[9] Section 3 of Township, City, and City-Village Zoning Enabling Acts. Public Acts 184, 285, and 207, as amended.
[10] U.S. Environmental Protection Agency. "Functions and Values of Wetlands," Office of Water/Office of Wetlands, Oceans and Watersheds, (EPA843-f-01-002c), March 2002.
[11] Hrovatin, Paul, U.S. Environmental Protection Agency—Great Lakes National Program Office, personal interview, 25 November 2002.
[12] Great Lakes Commission (GLC) and Environment Canada, "Impacts of Changing Land Use," November 1996.
[13] Albert, Dennis. "Protecting Wetlands Along the Great Lakes Shoreline," Michigan Natural Features Inventory, Michigan State University Extension (Bulletin e-2751), April 2001.
[14] Albert, Dennis. "Borne of the Wind: An Introduction to the Ecology of Michigan Sand Dunes," Michigan Natural Features Inventory, 2000.
[15] "Why We Need the Natural River Program," Fact Sheet 1, Michigan Land Use Institute, *www.mlui.org,* Benzonia, MI.
[16] *Protecting Inland Lakes: A Watershed Management Guidebook,* Planning and Zoning Center, Inc., February, 1990.
[17] *Great Lakes Trends: Into the New Millennium,* Michigan Department of Environmental Quality, Office of the Great Lakes, May 2000.
[18] *Michigan's Environment and Relative Risk,* Michigan Department of Natural Resources, July, 1992. Funded by the U.S. EPA, the project based environmental "relative risk" levels on the risks posed to human health and the ecosystem. Absence of land use planning that considers resources and the integrity of ecosystems received the highest ranking of "high-high."
[19] Jackson, R. and C. Kochtitzky in *Planning and Zoning News*, January 2002: Village of Euclid v. Ambler Realty Co**.** 272 U.S. 365 (1926) (USSC)
[20] City and Village Zoning Act, Act 207, 1921: Municipal Planning Act, Act 285, 1931; Township Zoning Act**,** Act 184, 1943; Township Planning Act, Act 168, 1959; County Zoning Act, Act 183, 1943; County Planning Act, Act 282, 1945.