



MICHIGAN STATE
UNIVERSITY
EXTENSION

Outcomes for Michigan's Future

Responsible Use of Michigan's Resources through Research and Education

In Brief

Today's Successes

- Virtually every load of raw wood moved on Michigan roads will have been produced by an individual who has participated in MSUE's Sustainable Forestry Education program. **Every industrial private landowner that MSUE reaches represents up to 600,000 acres of forestland.**
- Since 2001, **more than 2,000 citizens and elected officials** representing **76 Michigan counties** have learned about planning tools available to conserve land while allowing community growth and development through the Citizen Planner program. The Michigan Municipal Risk Management Association estimates that **\$15 million were spent in the past 10 years on legal fees and damages because of flawed planning and zoning decisions.**
- MSU Extension led efforts to secure the designation of the Detroit River as an American Heritage River. **The presidential designation has resulted in government and business investments of more than \$40 million.**

Tomorrow's Results

- MSUE, through the **Michigan Natural Features Inventory**, will provide **more than 300 Michigan DNR biologists and land managers, DEQ regulators, forest contractors and private citizens** with field-based training on managing plants, animals and natural communities in state forests, wildlife areas, parks and recreation areas.
- MSUE will provide more than **350 MSUE Citizen Planner program** participants with in-depth information that they can use to benefit Michigan communities. Participants, many of whom are planning and zoning board members, will learn to reduce land consumption by exploring conservation planning and development alternatives.
- Michigan Sea Grant will teach **500 Michigan charter fishing captains** and other anglers about how to maintain Michigan's Great Lakes fishery. Charter fishing clients contribute significantly to the economies of Michigan's coastal communities.
- Volunteers will learn to help manage ecosystems via MSUE's new Conservation Stewards program. About 60 people will complete the pilot training in 2005, and participants will **contribute about \$190,000 in volunteer time to assist the DNR and other conservation groups** in maintaining natural lands.

Michigan's Priorities for Responsible Resource Use

Land use planning: Michigan's use of natural resources is expanding at an unprecedented rate despite Michigan's modest population growth rate. If current land use patterns continue, between 1.5 million and 2 million more acres of land will be urbanized by 2020 (Michigan's Land, Michigan's Future: Final Report of the Michigan Land Use Leadership Council).

Development in concert with economic and environmental health: Development patterns encourage sprawl, which threatens the health of residents, reduces the diversity of the environment, and hampers economically important natural resource-based industries such as agriculture, forestry and tourism. Michigan has more households - 1.2 million--served by private wells than any other state, according to the Michigan Department of Environmental Quality (MDEQ), and about 25,000 domestic wells are drilled per year.

Water use, consumption and management: Water consumption per person is rising. More complex and often biologically active compounds are being released into watersheds, and access to Michigan's fresh water supply is increasingly contentious.

Threats from invasive species: Michigan's delicately balanced ecosystems are threatened by the arrival of exotics such as the zebra mussel, hydrilla (a new aquatic nuisance plant), Asian carp and goby (fish) and the emerald ash borer (EAB).

Protecting Michigan's natural features: The state's natural resources face intense pressure from habitat loss, fragmentation, degradation, invasive species and pollution. Statewide, more than 95 percent of all grasslands have been converted to other uses and some counties have lost as much as 75 percent of their original wetlands. As a result, more than 600 species of plants and animals are listed as endangered, threatened or of special concern.

MSU Capacity:

- **Reach:** MSU Extension (MSUE) provides best environmental practices and planning and zoning research-based education to citizens in all 83 Michigan counties.
- **Experience:** Many years of Michigan Agricultural Experiment Station (MAES) research have shown that education and prevention are more cost-effective than enforcement and regulation and reduce the regulatory burdens on both government agencies and businesses.
- **Expertise:** MAES and MSUE employ scientists at Michigan State University and have additional global connections in all areas pertaining to responsible resource use.
- **Track record:** Proven methods quickly move peer-reviewed research to recommendations, program development and implementation in cost-efficient ways to achieve documented results.
- **"Feet on the street":** MSUE's network can quickly develop grass-roots groups and volunteers to multiply the impacts of training. Examples include volunteer efforts to monitor natural resource systems for health risks such as *E. coli* or to plan projects to preserve land or protected species.
- **Trust:** MAES and MSUE provide unbiased research and education to the public to help ensure that Michigan citizens can make educated decisions at local, regional and state levels to improve Michigan's future.
- **Content:** MAES provides science-based research that gives credibility to educational curricula used by MSUE educators throughout the state to deliver programs that help prevent environmental problems and save tax dollars while achieving desirable environmental outcomes.

Sampler of Success:

MSUE and MAES have many successful initiatives that address environmental threats and improve environmental management practices in Michigan. Here are a few examples of MSU's success and capacity to produce desirable outcomes:

- Since 2001, more than 2,000 citizens and elected officials representing **76 Michigan counties** have learned about tools available to conserve land while allowing community growth and development through the Citizen Planner program. Nearly two-thirds (64 percent) of those participants are serving on local planning and zoning boards, and they indicated that they paid closer attention to legal issues after attending the program. The Michigan Municipal Risk Management Association spent **\$15 million in the past 10 years on legal fees and damages because of flawed planning and zoning decisions.**
- More than 3,000 people have participated in the Sustainable Forestry Education (SFE) program, which teaches forest ecology, silviculture techniques, forest water quality management and safety practices. Virtually every load of raw wood moved on Michigan roads will have been produced by an individual who has participated in the SFE program. **Every industrial private landowner that MSUE reaches represents up to 600,000 acres of forestland.**
- MSU's Sea Grant led efforts to get the Detroit River designated an American Heritage River and to implement practices to protect natural resources and environmental quality, advance economic revitalization, and enhance cultural and historical preservation. **The presidential designation has resulted in government and business investments of more than \$40 million.**
- Through a partnership with the Michigan Department of Agriculture, the Natural Resources Conservation Service, conservation districts and AmeriCorps, MSUE is training Michigan Groundwater Stewardship Program (MGSP) technicians across the state and developing educational materials related to pesticide and fertilizer use. These technicians worked with **more than 650 farmers to identify and minimize groundwater risks through the Farm*A*Syst program during FY 2004.** In the same year, the MGSP-sponsored Clean Sweep household and farm chemical disposal program **collected nearly 200,000 pounds of outdated pesticides and fertilizers.**
- The MSUE Volunteer Stream Monitoring program has trained residents of nine counties to take reliable, accurate surface water quality measurements. When asked to compare water sample collection skills before and after the program, participants reported a 50-percent increase in skill level. **The ability to design a stream study to monitor water quality increased by 61 percent.**
- Research on the economic impact of low Great Lakes water levels by Michigan Sea Grant led to legislation providing up to \$10 million in low-cost loans to private marinas and \$4 million in grants for dredging public waterways.
- MSUE, through the **Michigan Natural Features Inventory**, provided expert guidance to Oakland County officials to guide them in selecting conservation areas. Through the ecologically based multivariable analysis, areas were designated as having high, medium and low priority for conservation. This study provided information that was useful to land planners and local nature conservancies in directing conservation efforts.

Outcomes for Michigan's Future:

MAES and MSUE will continue to research and educate citizens on emerging environmental threats, natural resource degradation, and ways to reduce land consumption through in-fill and high-density development. In addition, MSUE will involve trained volunteers through community networks to monitor natural resources systems and help prevent health risks.

Responsible Use of Michigan's Resources through Research and Education

MAES research initiatives over the next year will focus on:

- Enhancing the protection of Michigan's water resources.
- Considering methods to increase water security in Michigan communities.
- Exploring options to increase sustainability of local food systems in a global environment.
- Studying land management tools consistent with multiple land uses, including natural resource-based recreation and tourism.
- Determining the local and regional economic impact of recreation and tourism.
- Identifying market impacts of trade restrictions on lumber industries.
- Developing tools to assist cities to develop sustainable urban forests while addressing issues such as emerald ash borer.
- Improving decision-making capacity of stakeholders in fisheries and wildlife management.
- Examining the genetic diversity of fisheries in the Great Lakes.
- Developing wildlife management recommendations based on responsible ecological restoration initiatives.

MSUE educational priorities and outcomes for 2005-06 will include:

- **MSU Sea Grant educators will teach 1,000 community leaders how to manage Michigan's ecologically sensitive coastal areas.** The goal is that at least one marina in each of Michigan's 40 coastal counties will be involved in the Clean Marinas program, through which they pledge to reduce and eliminate discharges of harmful pollutants, sediments, nutrients, general refuse and other materials that can damage aquatic environments. **This could save billions of public dollars** through cost or problem avoidance.
- Volunteers will learn to help manage ecosystems via MSUE's new Conservation Stewards program. About 60 people will complete the pilot training in 2005, and participants will **contribute about \$190,000 in volunteer time to assist the DNR and other conservation groups** in maintaining natural lands. In 2006, the program expects to **reach 250 people and create \$800,000 in donated time.**
- MSUE educators are working with Michigan farmers to help them understand **new water use reporting regulations. More than 1,200 producers have had the opportunity to learn about the new water use regulations** during 14 meetings and presentations. Nearly 5,000 copies of seven educational fact sheets are being distributed to help farmers accurately estimate water use and other information required in the new reporting process.
- **Nearly 8,000 young people and adults** will take part in school-based and out-of-school science education programs offered by Michigan Sea Grant in 2005. These activities include opportunities for hands-on learning about Great Lakes ecosystems, water management challenges and fisheries resources.
- MSUE will provide more than **350 MSUE Citizen Planner program** participants with in-depth information that they can use to benefit Michigan communities. Participants, many of whom are planning and zoning board members, will learn to reduce land consumption by exploring conservation planning and

Spotlight on Success

"We paid several thousands of dollars to a private consultant for information that was not as good as materials and information from Michigan Sea Grant."

Michigan Sea Grant survey respondent

MSU is an affirmative-action, equal-opportunity institution.

For more information:

Thomas Coon, director, MSU Extension (517-355-2308 or msuedir@msu.edu)

John Baker, acting director, Michigan Agricultural Experiment Station (517-355-0123 or maesdir@msu.edu).