



# **SUMMARY OF SUSTAINABLE FORESTRY RESEARCH FY 2012**

## **MICHIGAN DEPARTMENT OF NATURAL RESOURCES MISSION STATEMENT**

*"The Michigan Department of Natural Resources is committed to the conservation, protection, management, use and enjoyment of the state's natural and cultural resources for current and future generations."*

## **NATURAL RESOURCES COMMISSION STATEMENT**

The Natural Resources Commission, as the governing body for the Michigan Department of Natural Resources, provides a strategic framework for the DNR to effectively manage your resources. The NRC holds monthly, public meetings throughout Michigan, working closely with its constituencies in establishing and improving Natural Resources and Environment management policy.

The Michigan Department of Natural Resources (DNR) provides equal opportunities for employment and access to Michigan's Natural Resources. Both state and federal laws prohibit discrimination on the basis of race, color, national origin, religion, disability, age, sex, height, weight or marital status under the U.S. Civil Rights Acts of 1964 as amended, 1976 MI PA 453, 1976 MI PA 220, Title V of the Rehabilitation Act of 1973 as amended, and the 1990 Americans with Disabilities Act, as amended.

If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information, please write: Human Resources, Michigan Department of Natural Resources, PO Box 30028, Lansing MI 48909-7528, or Michigan Department of Civil Rights, Cadillac Place, 3054 West Grand Blvd, Suite 3-600, Detroit, MI 48202, or Division of Federal Assistance, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Mail Stop MBSP-4020, Arlington, VA 22203.

For information or assistance on this publication, contact Forest Planning & Operations Section, Forest Resources Division, Michigan Department of Natural Resources, PO Box 30452, Lansing MI 48909-7952. This publication is available in alternative formats upon request.

## TABLE OF CONTENTS

|   |    |
|---|----|
| PURPOSE AND USE OF THIS REPORT .....            | 1  |
| RESEARCH SUMMARIES .....                        | 1  |
| INTEGRATION AND USE OF RESEARCH IN THE DNR..... | 1  |
| TABLE 1 - FOREST RESOURCES DIVISION .....       | 2  |
| TABLE 2 -PARKS AND RECREATION DIVISION .....    | 4  |
| TABLE 3 – WILDLIFE DIVISION.....                | 8  |
| TABLE 4 - FISHERIES DIVISION .....              | 10 |

## Purpose and Use of this Report

The State of Michigan, under the Michigan Department of Natural Resources (DNR) supports research projects to ensure sustainable management of Michigan's forest lands. This document summarizes those projects in place during fiscal year 2012 (October 1, 2011 - September 30, 2012). This document also fulfills the requirement of Forest Certification Work Instruction 5.1 "Coordinated Natural Resource Management Research" for an annual summary of research activities within forested landscapes. This report should be used to document Michigan's commitment to sustainable forestry research and to inform discussion on research needs and collaboration opportunities in the DNR.

## Research Summaries

Research is administered and supported differently in each department and DNR division. The Wildlife Division (WD) and Fisheries Division (FI) administer all research activities through their respective research sections. These divisions also have a significant portion of their research efforts funded by a variety of federal grants that have annual reporting requirements. Forest Resources Division (FRD) does not have a dedicated research section; administration and support of research occurs through each program area.

The summary of research projects are organized into tables by department and applicable DNR divisions. Each table is then organized by group based upon the objectives of the study. The group names provide a logical link to the themes of sustainable forestry and allow the reader to assess the breadth and depth of the DNR research programs. One study could potentially fit into multiple groups. For purposes of simplicity, studies are listed in only one group. The group names are:

|                      |                      |                          |
|----------------------|----------------------|--------------------------|
| Ecological Processes | Fisheries Management | Environmental Protection |
| Human Dimensions     | Forest Management    | Biological Diversity     |
| Chemical Use         | Wildlife Management  | Social and Economic      |

## Integration and Use of Research in the DNR

Research that supports sustainable forestry in the DNR occurs through a variety of mechanisms. The DNR supports a large number of research projects contracted through multiple universities within the state. The DNR supports university faculty positions through their Partnership for Ecosystem Research and Management (PERM) program. The DNR also employs its own research and monitoring staff in FRD, WD, and FI.

Michigan DNR research programs cover the entire breadth and depth of sustainable forestry. While each division uses a different array of means to communicate research findings, the research programs are well integrated with the operations of the DNR and are providing useful information to support improvements in business practices. Division in-service trainings, specialist meetings, and ongoing field and program communications are examples of the means used to convey research information to DNR personnel. For more information about specific research projects listed in the tables, interested parties should contact the research coordinator for that division. The research coordinator for each division is listed as the contact at the beginning of each division's section.

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
RESEARCH PROJECTS – 2012**

**Table 1 - Forest Resources Division**

**FY 2012 Research Funded by DNR-FRD**

Primary Contact for all projects:  
Ronald Murray, Research Coordinator  
DNR, FRD  
517-335-3353, [murrayr@michigan.gov](mailto:murrayr@michigan.gov)

**Forest Management**

- Conduct the Re-Measurement of the FIA Plots for Michigan  
*Contact: Scott A Pugh, USDA-Forest Service, FIA, [spugh@fs.fed.us](mailto:spugh@fs.fed.us)*  
USDA Forest Service, Forest Inventory Analysis - \$ 112,752.00
- Design, Develop, and Build Prototype and Operational Equipment Units for Mechanized Forest Fire Fighting  
*Contact: Kirk Bradley, Assistant Unit Leader, DNR, FRD, [bradleyk@michigan.gov](mailto:bradleyk@michigan.gov)*  
Forest Fire Experiment Station - \$656,948.00
- Design and Develop Specialized Equipment for Forest Fire Fighting  
*Contact: Kirk Bradley, Assistant Unit Leader, DNR, FRD, [bradleyk@michigan.gov](mailto:bradleyk@michigan.gov)*  
Roscommon Equipment Center - \$132,366.00
- Tree Improvement Studies and Implementation of Nursery Practices to Improve Quality of Tree Seedlings Produced in Michigan State Forest Nurseries  
*Contact: Richard Mergener, DNR, FRD, [mergenerr@michigan.gov](mailto:mergenerr@michigan.gov)*  
Michigan Tree Improvement Center - \$51,363.00
- Improvement of Production of Nursery Stock and Seedlings  
*Contact: Richard Mergener, DNR, FRD, [mergenerr@michigan.gov](mailto:mergenerr@michigan.gov)*  
Wyman Nursery Improvement - \$446,939.00
- Development of a GIS-based Inventory System for the Michigan State Forests –Integrated Forest Monitoring Assessment and Prescription (IFMAP)  
*Contact: Jason Stephens, DNR, FRD, [stephensj@michigan.gov](mailto:stephensj@michigan.gov)*  
Michigan Department of Information Technology - \$698,223.00
- Support of Projects Conducted by the PERM Research Forester and Forest-based Projects that Relate to Wildlife Habitat Improvements - \$50,000.00  
*Contact: Michael Walters, PERM Research Forester, [mwalters@msu.edu](mailto:mwalters@msu.edu)*
- Support for Research on Seedling, Nursery, & Tree Improvement Projects  
*Contact: David Neumann, Silviculturist, DNR, FRD, [neumannd@michigan.gov](mailto:neumannd@michigan.gov)*  
MICHCOTIP - \$6,000.00

- Develop and Implement a Computerized Timber Sale Treatment Tracking System  
*Contact: Douglas Heym, Timber Sales Specialist, DNR, FRD, [heymd@michigan.gov](mailto:heymd@michigan.gov)*  
Michigan Department of Information Technology - \$61,332.00
- Bark Beetle Survey  
*Contact: Dr. Anthony Cognato, Professor, Michigan State University, [acognato@msu.edu](mailto:acognato@msu.edu)*  
Michigan State University - \$25,000.00

### **FY 2012 Research Permitted on FRD-Administered Lands But Not Directly Sponsored**

#### **Forest Management**

- Development of a Statewide Beech Bark Disease Monitoring and Impact Analysis Plot Network  
*Contact: Dr. Andrew Storer, Professor, Michigan Technological University, [storer@mtu.edu](mailto:storer@mtu.edu)*  
Michigan Technological University, direct grant to MTU from USDA-FS
- Oak Wilt Sample Analysis for Delimitation of Infected Areas  
*Contact: Dr. Ray Hammerschmidt, Chair, Department of Plant Pathology, Michigan State University, [hammers1@msu.edu](mailto:hammers1@msu.edu); Cooperator: Dr. Dana Richter, Professor of Forest Pathology, Michigan Technological University, [dlrichte@mtu.edu](mailto:dlrichte@mtu.edu), direct grant to MSU from USDA-FS*
- Michigan Technological University Maple Decline Study - The geographic extent and rate of spread of the current sugar maple dieback is being examined, along with potential contributing factors associated with historical dieback. Relationships between management activities, climatic events, insect or pathogen activity, soil chemistry or other factors associated with the current dieback should be clarified. These relationships will help with recommendations for management to prevent, anticipate, reduce, or salvage stands with dieback in the future.  
*Contact: Dr. Andrew Storer, Professor, Michigan Technological University, [storer@mtu.edu](mailto:storer@mtu.edu), direct grant to MTU from USDA-FS*
- MSU Knapweed Weevil Research – Releases and Studies of Population Dynamics and Impacts  
*Contact: Doug Landis, Professor, Michigan State University*
- USDA-FS NRS Growth & Yield Research – Sampling of 3 stands in an UP FMU that are: Northern Hardwood Cover-type, were harvested in the past 3-4 years, and are over 20 acres in size  
*Contact: Lauren Lemannin, Researcher, Michigan Technological University, [lemannin@mtu.edu](mailto:lemannin@mtu.edu).*

#### **Ecological Processes**

- Natural Features Inventory of Michigan State Forests & Other Studies of Natural Features  
*Contact: Joshua Cohen, DNR, WI, [cohenj@michigan.gov](mailto:cohenj@michigan.gov)*
- A Project to Study the Biology and Methods of Reducing the Rate of Spread of the Emerald Ash Borer in Newly Established or Low Density Sites on Forested Sites  
Michigan State University funded by APHIS PPQ CPHST  
*Contact: Dr. Deb McCullough, Professor of Entomology and Forestry, Michigan State University, [mccullo6@msu.edu](mailto:mccullo6@msu.edu)*

- Development of a Statewide Beech Bark Disease Monitoring and Impact Analysis Plot Network  
*Contact: Dr. Deb McCullough, Professor of Entomology and Forestry, Michigan State University, [mccullo6@msu.edu](mailto:mccullo6@msu.edu)*
- Michigan Gradient Study on Nitrogen Gradients to Understand the Mechanisms Controlling Carbon and Nitrogen (N) Cycling in the Face of Chronic N Deposition and the Long-term Consequences of N Saturation  
*Contact: Dr. Andrew Storer, Professor, Michigan Technological University, [storer@mtu.edu](mailto:storer@mtu.edu)*  
Michigan Technological University with support from the National Science Foundation
- Emerald Ash Borer Parasite Releases on State Forest Lands  
*Contact: Dr. Leah Bauer, Research Entomologist, USDA-FS Northern Research Station, [lbauer@fs.fed.us](mailto:lbauer@fs.fed.us)*
- National Wetlands Condition Assessment  
*Contact: Michelle Moore, Research Scientist, Great Lakes Environmental Center [mmoore@glec.com](mailto:mmoore@glec.com)*
- Gray Jay Caching Behavior Study  
*Contact: Sayako Iwanaga, Graduate Student, Northern Michigan University, [siwanaga@nmu.edu](mailto:siwanaga@nmu.edu)*
- Siting & Permission for the Oregon State University Earthscope Magnetotelluric Transportable Array  
Mid Continent Rift  
*Contact: Louise Pellerin, Manager Geophysical Services, Green Engineering, Inc., 8471 Foxlair Circle, Anchorage, AK 99507-3668, [pellerin@ak.net](mailto:pellerin@ak.net) - subcontractor for Oregon State University*
- Emerald Ash Borer Parasitoid Rearing  
*Contact: Derek Lamarand, USDA-APHIS, [Derek.Lamarand@aphis.usda.gov](mailto:Derek.Lamarand@aphis.usda.gov)*
- The Effects of Density on the Distance Separating Tubers from Parental Plants in *Trientalis borealis* (starflower); Northern Michigan University, Biology Department.  
*Contact: Thomas Beddows, [tbeddows@nmu.edu](mailto:tbeddows@nmu.edu),*

## **Table 2 -Parks and Recreation Division**

### **FY 2012 Ongoing Research Funded by DNR-PRD**

Primary Contact for all projects: Alicia Selden, Research Coordinator,  
Parks and Recreation Division, 517-335-0883, [seldena@michigan.gov](mailto:seldena@michigan.gov)

#### **Ecological Processes**

- Natural community threat assessments within State Park and Recreation Area lands  
*Michigan Natural Features Inventory - \$53,752*

#### **Wildlife Management**

- Evaluation of Eastern box turtle population status and response to prescribed fire at Fort Custer Recreation Area  
*Michigan Department of Natural Resources, PRD - \$8,714*

## FY 2012 Ongoing Research Permitted on PRD-Administered Lands But Not Directly Sponsored

### **Biological Diversity**

- Characterize microbial contents and genetic diversity within pitcher plants  
Contact: *Dr. Margaret Hanes, Eastern Michigan University, [mkoopma2@emich.edu](mailto:mkoopma2@emich.edu)*
- Entomology course: survey and collection of insect diversity  
Contact: *Dr. Brian Scholtens, University of Michigan Biological Station*
- Phylogeny of North American plums (*Prunus* spp.)  
Contact: *Dr. Dario Chavez, University of Florida*
- Population biology of Pitcher's thistle  
Contact: *Dr. Claudia Jolls, East Carolina University*
- Vascular plant survey of Ludington State Park  
Contact: *David Dister, [david.dister@gmail.com](mailto:david.dister@gmail.com)*
- Class inventory of wetland macrophytes and aquatic insects  
Contact: *Eric Snyder, Grand Valley State University*
- Understanding Rose Pink populations in Michigan (investigating re-colonization with restoration efforts)  
Contact: *Sheila Lyons-Sobaski, Albion College*

### **Chemical Use**

- Japanese knotweed life cycle vulnerability to management techniques including herbicide  
Contact: *Joseph Dauer, Michigan State University, [jdauer@msu.edu](mailto:jdauer@msu.edu)*

### **Ecological Processes**

- Can microbial symbiots mediate effects of climate changes or the functioning of an ecosystem engineer?  
Contact: *Dr. Sarah Emery, University of Louisville, [sarah.emery@louisville.edu](mailto:sarah.emery@louisville.edu)*
- Ecological impacts of emerald ash borer on Michigan state lands  
Contact: *Dr. Daniel Herms, Ohio State University, [herms.2@osu.edu](mailto:herms.2@osu.edu)*
- Establishment of a diverse assemblage of native grasses & forbs on a degraded, knapweed infested site in Bass River Recreation Area  
Contact: *Dr. Neil MacDonald, Grand Valley State University, [macdonan@gvsu.edu](mailto:macdonan@gvsu.edu)*
- Micro-meteorological monitoring of lake effect temperature inversion  
Contact: *Dr. Kenneth Hinkel, University of Cincinnati, [Kenneth.hinkel@uc.edu](mailto:Kenneth.hinkel@uc.edu)*

- Photographic measurement of sand dune erosion at P.J. Hoffmaster and Saugatuck Dunes State Parks  
Contact: *Dr. Brian Bodenbender, Geology Department, Hope College*
- Study of beach-coastal dune processes from January – December 2011 in Hoffmaster State Park  
Contact: *Dr. Deanna Van Dijk, Calvin College, [dvandijk@calvin.edu](mailto:dvandijk@calvin.edu)*
- Use of Warren Woods old growth forest as a control/base for restoration and preservation of University of Notre Dame woodlots  
Contact: *Dr. Dominic Chaloner, University of Notre Dame, [dchalone@nd.edu](mailto:dchalone@nd.edu)*
- A morphological indicator of sperm competition in spiders  
Contact: *Anne Danielson-Francois, University of Michigan - Dearborn*
- Effects of biological and physical factors influencing beach muck deposition  
Contact: *Steven Francoeur, Eastern Michigan University*
- Prairie fen plant biodiversity: the influence of landscape and local factors on plant community assemblages  
Contact: *Rachel Hackett, Central Michigan University*
- How plant diversity and soil microbes influence soil development  
Contact: *Ms. Kerri Crawford, Washington University*
- Aquatic plant growth experiment with Elodea and Stuckenia  
Contact: *James Montante, University of Detroit Mercy*
- Characterizing patterns of biodiversity across successional gradients  
Contact: *Dr. Sarah Emery, University of Louisville, [sarah.emery@louisville.edu](mailto:sarah.emery@louisville.edu)*
- Impacts of EAB ash mortality on amphibian community diversity in Southeast Michigan  
Contact: *Dan Kashian and Victoria Schneider, Wayne State University*
- Surficial geological mapping  
Contact: *Alan Kehew, Michigan Geological Survey/Western Michigan University*
- Predicting the invasion of invasive plants  
Contact: *Nicole Kupisz, Grand Valley State University*

### **Environmental Protection**

- Birds as indicators of contaminant exposure on Great Lakes  
Contact: *Christine Custer, USGS, Upper Midwest Environmental Sciences Center, [ccuster@usgs.gov](mailto:ccuster@usgs.gov)*

## **Forest Management**

- Assessment of beach bark disease in Michigan: Rate of spread and impacts on stand composition and down woody material  
Contact: *James Wieferich, Michigan State University, [wiefer10@msu.edu](mailto:wiefer10@msu.edu)*
- Emerald Ash Borer research on DNR lands  
Contact: *Dr. Deb McCullough, Michigan State University, [mccullo6@msu.edu](mailto:mccullo6@msu.edu)*
- Restoration of native pine species in Great Lakes coastal environments  
Contact: *Dr. Robert Fahey, Morton Arboretum, [rfahey@mortonarb.org](mailto:rfahey@mortonarb.org)*
- Asian defoliating moth surveys  
Contact: *John Bedford, Michigan Department of Agriculture and Rural Development (MDARD)*
- Assaying landscape-level genetic variation in Northern red oak  
Contact: *Oliver Gailing and Alexis Sullivan, Michigan Technological University*
- Beech bark disease monitoring  
Contact: *Andrew Storer, Michigan Tech University*
- Raising EAB parasitoids  
Contact: *Josh Warlick, USDA APHIS PPQ*
- Updating Presque Isle River Tree Ring Chronology  
Contact: *Evan Larson, University of Wisconsin - Platteville*

## **Human Dimensions**

- Tick invasion and Lyme disease research in Michigan's Lower Peninsula  
Contact: *Jean Tsao, Michigan State University, [tsao@msu.edu](mailto:tsao@msu.edu)*
- Anthropogenic habitat disturbance effects on pathogen immunological defenses in Blanchard's cricket frogs  
Contact: *Katherine Krynak, Case Western Reserve University*
- The effect of habitat fragmentation on population genetics and phenotypic variation within bog conehead katydids  
Contact: *Gideon Ney, University of Missouri*

## **Social Economic**

- Restoring Recreational use of Great Lakes Beaches by Intensified Beach Monitoring for Public Health, Cladophora and Botulism  
Contact: *Stephen Riley and Taaja Tucker, USGS Great Lakes Science Center*

## **Wildlife Management**

- Cerulean warbler survey and banding  
Contact: *John Brenneman, Kalamazoo Nature Center, [jbrenneman@naturecenter.org](mailto:jbrenneman@naturecenter.org)*
- Determination of bird and bat migration corridors and stopover sites along shores of the Great Lakes  
Contact: *Anna Peterson, University of Minnesota, [pete1112@d.umn.edu](mailto:pete1112@d.umn.edu)*
- Assessing behavior, health and fitness of migratory birds along an urban-rural gradient  
Alarm calling and risks of brood parasitism and predation in yellow warblers. The influence of anthropogenic noise on acoustic mating signal effectiveness in Hylid Frogs  
Contact: *Dr. Sharon Gill, Western Michigan University, [Sharon.gill@wmich.edu](mailto:Sharon.gill@wmich.edu)*
- Northern saw-whet owl banding at Muskegon State Park  
Contact: *Brian Johnson, [baidaj@yahoo.com](mailto:baidaj@yahoo.com)*
- Owl banding at Cheboygan State Park  
Contact: *Dr. Kathleen Colby, North Central Michigan College, [kcolby@ncmich.edu](mailto:kcolby@ncmich.edu)*
- Seasonal deer migration affects the distribution of nutrients in forest ecosystem  
Contact: *Bryan Murray, Michigan Technological University, [bdmurray@mtu.edu](mailto:bdmurray@mtu.edu)*
- Habitat use by spring migrating landbirds within the Great Lakes basin with special emphasis on shoreline habitats  
Contact: *Jen Owen, Michigan State University*
- How coyotes adapt and respond to urbanization  
Contact: *William Dodge, Wayne State University*
- Migrant songbird use of dune forests in West Michigan during migration  
Contact: *Jonathan Lautenbach, Grand Valley State University*
- Bird and bat use of island and coastal areas of Northern Lake Michigan  
Contact: *Nancy Seefelt, Central Michigan University*

### **Table 3 – Wildlife Division**

#### **FY 2012 Research Funded by DNR-WD**

Primary Contact for all projects:  
Steve Beyer, Research Coordinator  
DNR-Wildlife Division (WD)  
517-241-0533, [beyers1@michigan.gov](mailto:beyers1@michigan.gov)

## **Ecological Process**

- Role of Predators, Winter Weather, and Habitat on White-tailed Deer Fawn Survival in Michigan  
Contact: *Dr. Dean Beyer, DNR-WD, [BEYERD@michigan.gov](mailto:BEYERD@michigan.gov)*  
Mississippi State University - \$202,600

- Estimating Coyote and Wolf Abundance and Consumption Rates of White-tailed Deer  
*Contact: Dr. Dean Beyer, DNR-WD, [BEYERD@michigan.gov](mailto:BEYERD@michigan.gov)*  
Mississippi State University - \$28,000
- Downscaling climate predictions for Michigan & the Great Lakes  
*Contact: Christopher Hoving, DNR-WD, [HOVINGC@michigan.gov](mailto:HOVINGC@michigan.gov)*  
Board of Regents of the University of WI System - \$140,882

### **Human Dimensions**

- Partners in Ecosystem Research and Management: Human Dimensions of Wildlife Health; Human-Wildlife Interactions; Developing Capacity for Living With Wildlife  
*Contact: Steve Beyer, DNR-WD, [beyers1@michigan.gov](mailto:beyers1@michigan.gov)*  
Michigan State University - \$448,172
- Assessing Effects of Social Capital among Michigan Deer Management Cooperatives  
*Contact: Dr. Brent Rudolph, DNR-WD, [RUDOLPHB@michigan.gov](mailto:RUDOLPHB@michigan.gov)*  
Michigan State University - \$64,000

### **Biological Diversity**

- Effectiveness of Residual Structure Retention in Clear-cut Harvest Units for Conserving Biodiversity and Wildlife Habitat  
*Contact: Mike Donovan, DNR-WD, [DONOVANM@michigan.gov](mailto:DONOVANM@michigan.gov)*  
Michigan State University - \$29,264
- Landscape Genetic Analysis of Harvest Intensity, Land-cover and Land-use Features Affecting Black Bear Movements, Abundance, and Source-sink Dynamics in Michigan's Lower Peninsula.  
*Contact: Dr. Dwayne Etter, DNR-WD, [ETTERD@michigan.gov](mailto:ETTERD@michigan.gov)*  
Michigan State University - \$16,600

### **Wildlife Management**

- Adaptive Management of Sharp-Tailed Grouse in the Eastern Upper Peninsula of Michigan  
*Contact: Dr. Dave Luukkonen, DNR-WD, [LuukkonenD@michigan.gov](mailto:LuukkonenD@michigan.gov)*  
Michigan State University - \$35,500
- Factors Influencing Snowshoe Hare Occupancy and Abundance  
*Contact: Dr. Dwayne Etter, DNR-WD, [ETTERD@michigan.gov](mailto:ETTERD@michigan.gov)*  
Michigan State University - \$92,422
- Improving the Effectiveness of Wolf Management Approaches in Michigan  
*Contact: Dr. Pat Lederle, DNR-WD, [lederlep@michigan.gov](mailto:lederlep@michigan.gov)*  
Michigan State University - \$40,741

- Statistical Catch-at-age Assessment of Michigan Black Bear Population Dynamics  
*Contact: Sarah Mayhew, DNR-WD, [MAYHEWS@michigan.gov](mailto:MAYHEWS@michigan.gov)*  
 Michigan State University - \$37,733

### **Social and Economic**

- An Evaluation of Moving to a Learning Organization in the Wildlife Division: Measuring Collaboration, Trust, Performance and Effectiveness of Decisions  
*Contact: Dr. Pat Lederle, DNR-WD, [lederlep@michigan.gov](mailto:lederlep@michigan.gov)*  
 Michigan State University - \$58,595

### **Table 4 - Fisheries Division FY 2012 Research Funded by DNR - FD**

Primary Contact for all projects: David F. Clapp, Acting Research Program Manager, Fisheries Division, 231-547-2914, Ext. 237, [ClappD@michigan.gov](mailto:ClappD@michigan.gov)

### **Ecological Processes**

- Influence of Lotic and Nearshore Habitats on Fish Populations in Great Lakes and Inland Lake Ecosystems, with Emphasis on Walleye (F-80, 230521)  
*Contact: T. Zorn ([ZornT@michigan.gov](mailto:ZornT@michigan.gov))*  
 Fisheries Division - \$117,424
- Effects of Sediment Traps on Michigan River Channels (F-80, 230702)  
*Contact: T. Wills ([WillsT@michigan.gov](mailto:WillsT@michigan.gov))*  
 Fisheries Division - \$23,207
- Evaluation of the Relative Growth and Survival of Wild Rose and Sturgeon River Brown Trout Stocked into Michigan Lakes and Reservoir Tailwaters (F-80, 230746)  
*Contact: T. Wills ([WillsT@michigan.gov](mailto:WillsT@michigan.gov))*  
 Fisheries Division - \$17,278
- Development of Management Scenarios for Lake and Stream Habitat and Fisheries Under Current and Future Land-use and Climate Conditions (F-80, 230756)  
*Contact: K. Wehrly ([WehrlyK@michigan.gov](mailto:WehrlyK@michigan.gov))*  
 Fisheries Division - \$158,022
- Walleye Dynamics in Michigan's Inland Waterway: the Burt-Mullett-Pickerel-Crooked Lake System (F-80, 230761)  
*Contact: D. Hayes ([HayesDan@msu.edu](mailto:HayesDan@msu.edu))*  
 Michigan State University - \$98,313
- Fish Community Status in Saginaw Bay, Lake Huron (F-81, 230466)  
*Contact: D. Fielder ([FielderD@michigan.gov](mailto:FielderD@michigan.gov))*  
 Fisheries Division - \$133,596

- Northern Lake Huron, Coolwater Fish Community Assessment (F-81, 230695)  
Contact: D. Fielder ([FielderD@michigan.gov](mailto:FielderD@michigan.gov))  
Fisheries Division - \$36,659
- Evaluation of Lake Sturgeon Populations in the St Clair River and Lake St Clair, Michigan (F-81, 230491)  
Contact: M. Thomas ([ThomasM4@michigan.gov](mailto:ThomasM4@michigan.gov))  
Fisheries Division - \$66,066
- Strengthening Habitat Elements of Michigan's Statewide River Segment GIS in Support of Aquatic Ecosystem Management (SWG T-10-T-3, 230748)  
Contact: T. Zorn ([ZornT@michigan.gov](mailto:ZornT@michigan.gov))  
Fisheries Division - \$186,929
- Development of a GIS for Inventory, Classification, and Management of Non-game Wildlife in Great Lakes Waters (SWG T-10-T-3, 237000)  
Contact: E. Rutherford ([Ed.Rutherford@noaa.gov](mailto:Ed.Rutherford@noaa.gov))  
University of Michigan - \$124,422
- Development of Lake Spatial Information and Tools for Aquatic Life Conservation (SWG T-10-T-3, 237001)  
Contact: J. Breck ([BreckJ@michigan.gov](mailto:BreckJ@michigan.gov))  
Fisheries Division - \$124,422

### **Human Dimensions**

- Comprehensive Analysis and Improvement of Michigan Statewide Angler Survey Data (F-80, 230557)  
Contact: Z. Su ([SuZ@michigan.gov](mailto:SuZ@michigan.gov))  
Fisheries Division - \$38,609
- Michigan Statewide Angler Survey Program (F-81, 230499)  
Contact: T. Kolb ([KolbT@michigan.gov](mailto:KolbT@michigan.gov))  
Fisheries Division - \$1,780,515
- A Statewide Survey of Michigan's Licensed Anglers (F-81, 230548)  
Contact: F. Lupi ([Lupi@msu.edu](mailto:Lupi@msu.edu))  
Michigan State University - \$65,963

### **Fisheries Management**

- Assessment of Predator - Prey Balance for Lake Huron Fishery Management (F-80, 230522)  
Contact: J. He ([HeJ@michigan.gov](mailto:HeJ@michigan.gov))  
Fisheries Division - \$41,829
- Energetics Approach to Predicting Growth, Maturation, and Fecundity of Largemouth Bass, Bluegill, and Walleye (F-80, 230550)  
Contact: J. Breck ([BreckJ@michigan.gov](mailto:BreckJ@michigan.gov))  
Fisheries Division - \$26,247

- Effects of Restrictive Minimum Size Limits and Gear Restrictions on Brook Trout Populations in the Black River, Michigan (F-80, 230556)  
Contact: T. Wills ([WillsT@michigan.gov](mailto:WillsT@michigan.gov))  
Fisheries Division - \$8,186
- Hooking Mortality of Lake Trout in the Upper Great Lakes (F-80, 230564)  
Contact: S. Sitar ([SitarS@michigan.gov](mailto:SitarS@michigan.gov))  
Fisheries Division - \$38,081
- Development of Databases, Classification Systems, and Fisheries Management Tools for Inland Lakes of Michigan (F-80, 230567)  
Contact: K. Wehrly ([WehrlyK@michigan.gov](mailto:WehrlyK@michigan.gov))  
Fisheries Division - \$21,977
- Compare and Improve Lake Trout Abundance Indices and Evaluate Optimal Allocation of Creel Survey Resource for Lake Huron (F-80, 230568)  
Contact: Z. Su ([SuZ@michigan.gov](mailto:SuZ@michigan.gov))  
Fisheries Division - \$10,907
- Influence of Total Length and Condition at Stocking on Chinook Salmon Survival and Time at Large (F-80, 230692)  
Contact: J. Jonas ([JonasJ@michigan.gov](mailto:JonasJ@michigan.gov))  
Fisheries Division - \$19,294
- Investigation of Stocking Methods for Expanding the Steelhead Fishery in Lake Huron (F-80, 230763)  
Contact: J. Johnson ([JohnsonJ2@michigan.gov](mailto:JohnsonJ2@michigan.gov))  
Fisheries Division – \$6,228
- Vital Statistics of Walleye in Saginaw Bay (F-81, 230436)  
Contact: D. Fielder ([FielderD@michigan.gov](mailto:FielderD@michigan.gov))  
Fisheries Division - \$22,017
- Evaluation of Lake Trout Stocks in Lake Huron (F-81, 230451)  
Contact: J. He ([HeJ@michigan.gov](mailto:HeJ@michigan.gov))  
Fisheries Division - \$97,664
- Dynamics of the Lake Erie Walleye and Yellow Perch Populations and Fisheries (F-81, 230460)  
Contact: M. Thomas ([ThomasM4@michigan.gov](mailto:ThomasM4@michigan.gov))  
Fisheries Division - \$58,641
- Charter Boat Catch and Effort From the Michigan Waters of the Great Lakes (F-81, 230462)  
Contact: D. Wesander ([WesanderD@michigan.gov](mailto:WesanderD@michigan.gov))  
Fisheries Division - \$61,054
- Statewide Coded-wire Tagging and Tag Recovery Program (F-81, 230464)  
Contact: D. Clapp ([ClappD@michigan.gov](mailto:ClappD@michigan.gov))  
Fisheries Division - \$167,664

- Population Dynamics of Yellow Perch Stocks in Michigan Waters of Lake Michigan (F-81, 230484)  
*Contact: D. Clapp ([ClappD@michigan.gov](mailto:ClappD@michigan.gov))*  
Fisheries Division - \$86,183
- Assessment of Chinook Salmon and Coho Salmon Populations and their Prey in Eastern Lake Michigan (F-81, 230485)  
*Contact: R. Claramunt ([ClaramuntR@michigan.gov](mailto:ClaramuntR@michigan.gov))*  
Fisheries Division - \$114,452
- Assessment of Lake Trout Populations in Michigan's Waters of Lake Michigan (F-81, 230486)  
*Contact: J. Jonas ([JonasJ@michigan.gov](mailto:JonasJ@michigan.gov))*  
Fisheries Division - \$123,655
- Status of Lake St. Clair Fish Community and Sport Fishery (F-81, 230488)  
*Contact: M. Thomas ([ThomasM4@michigan.gov](mailto:ThomasM4@michigan.gov))*  
Fisheries Division - \$66,901
- Assessment of Lake Trout Populations in Michigan Waters of Lake Superior (F-81, 230495)  
*Contact: S. Sitar ([SitarS@michigan.gov](mailto:SitarS@michigan.gov))*  
Fisheries Division - \$218,998
- Evaluation of Returns of Salmonids to Weirs in Michigan's Waters of the Great Lakes (F-81, 230513)  
*Contact: R. Claramunt ([ClaramuntR@michigan.gov](mailto:ClaramuntR@michigan.gov))*  
Fisheries Division - \$24,174
- Fisheries Assessments in Large Inland Lakes of Michigan (F-81, 230725)  
*Contact: P. Hanchin ([HanchinP@michigan.gov](mailto:HanchinP@michigan.gov))*  
Fisheries Division - \$73,594
- Assessment of Nearshore Fish Communities in Northern Lake Michigan (F-81, 230747)  
*Contact: T. Zorn ([ZornT@michigan.gov](mailto:ZornT@michigan.gov))*  
Fisheries Division - \$65,223
- Refinement of the Aquatic Portion of Michigan's Wildlife Action Plan and Development of Tools to Support the Plan (SWG T-10-T-3, 237016)  
*Contact: K. Wehrly ([WehrlyK@michigan.gov](mailto:WehrlyK@michigan.gov))*  
Fisheries Division - \$156,530

### **Biological Diversity**

- Lake Sturgeon Population Status in the Cheboygan River Watershed Lakes, Michigan (F-81, 230563)  
*Contact: E. Baker ([BakerE1@michigan.gov](mailto:BakerE1@michigan.gov))*  
Fisheries Division - \$146,543
- Status and Trends of Inland Lakes: Methods Development, Program Oversight, and Ecological Assessment (F-81, 230712)  
*Contact: K. Wehrly ([WehrlyK@michigan.gov](mailto:WehrlyK@michigan.gov))*  
Fisheries Division - \$78,571

- Status and Trends of Fish Populations and Community Structure in Michigan Streams (F-81, 230737)  
*Contact: T. Wills ([WillsT@michigan.gov](mailto:WillsT@michigan.gov))*  
Fisheries Division - \$51,643
- Review of Inland Fisheries Cooperative Grants Funded Projects for Efficacy and Biological Benefit (SWG T-10-T-3, 237018)  
*Contact: C. LeSage ([LesageC@michigan.gov](mailto:LesageC@michigan.gov))*  
Fisheries Division - \$10,001