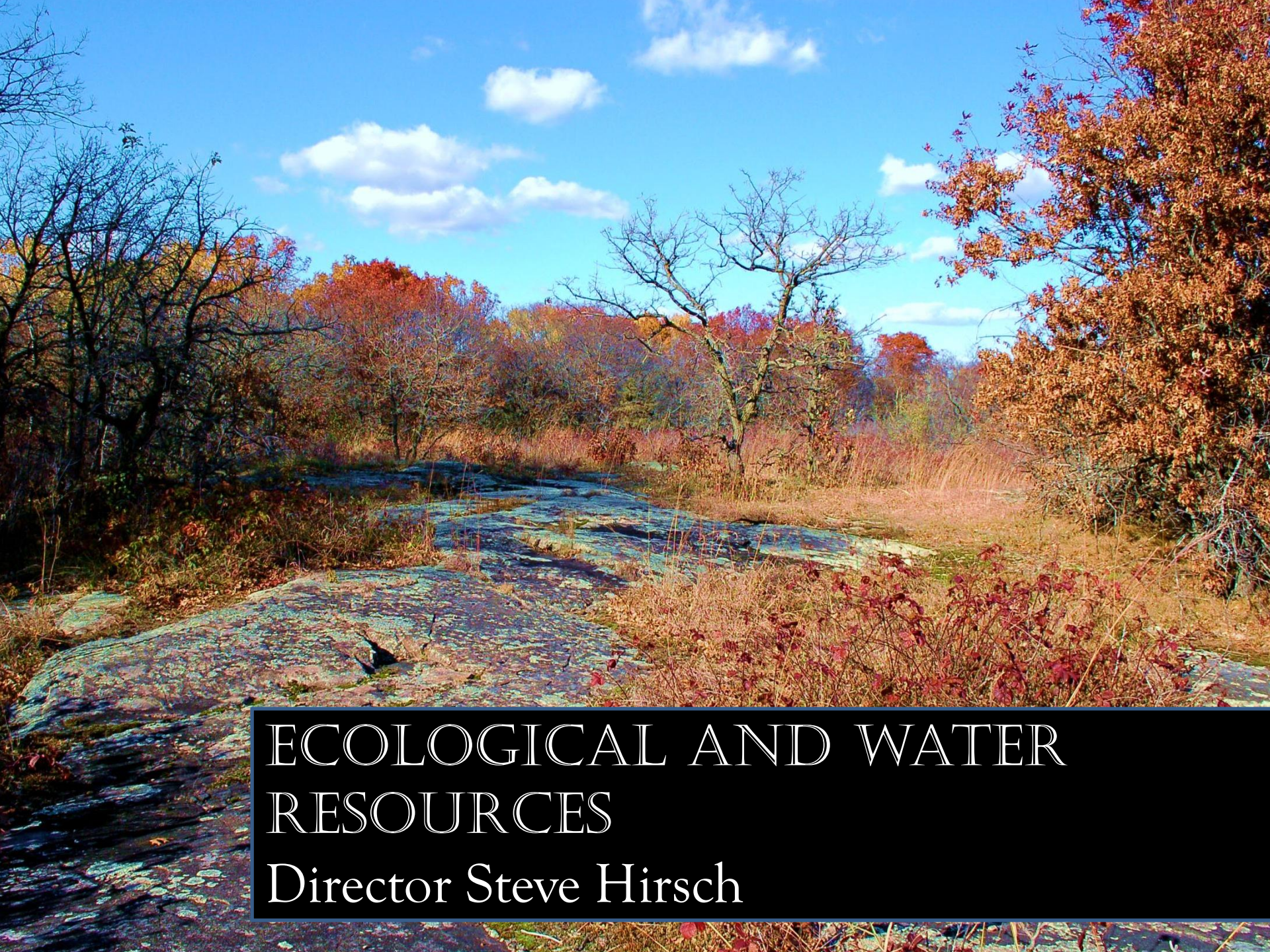
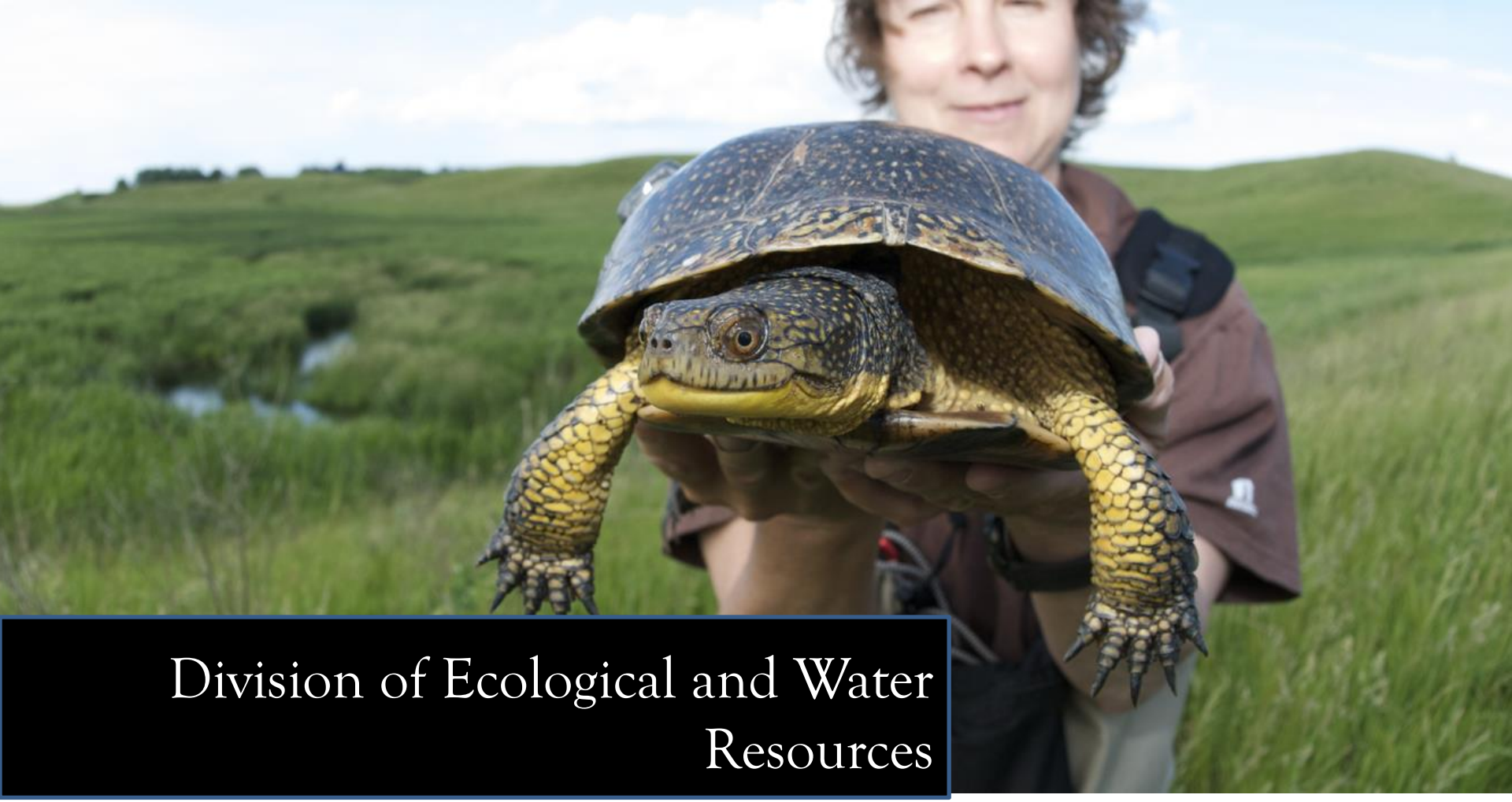


ECOLOGICAL AND WATER RESOURCES

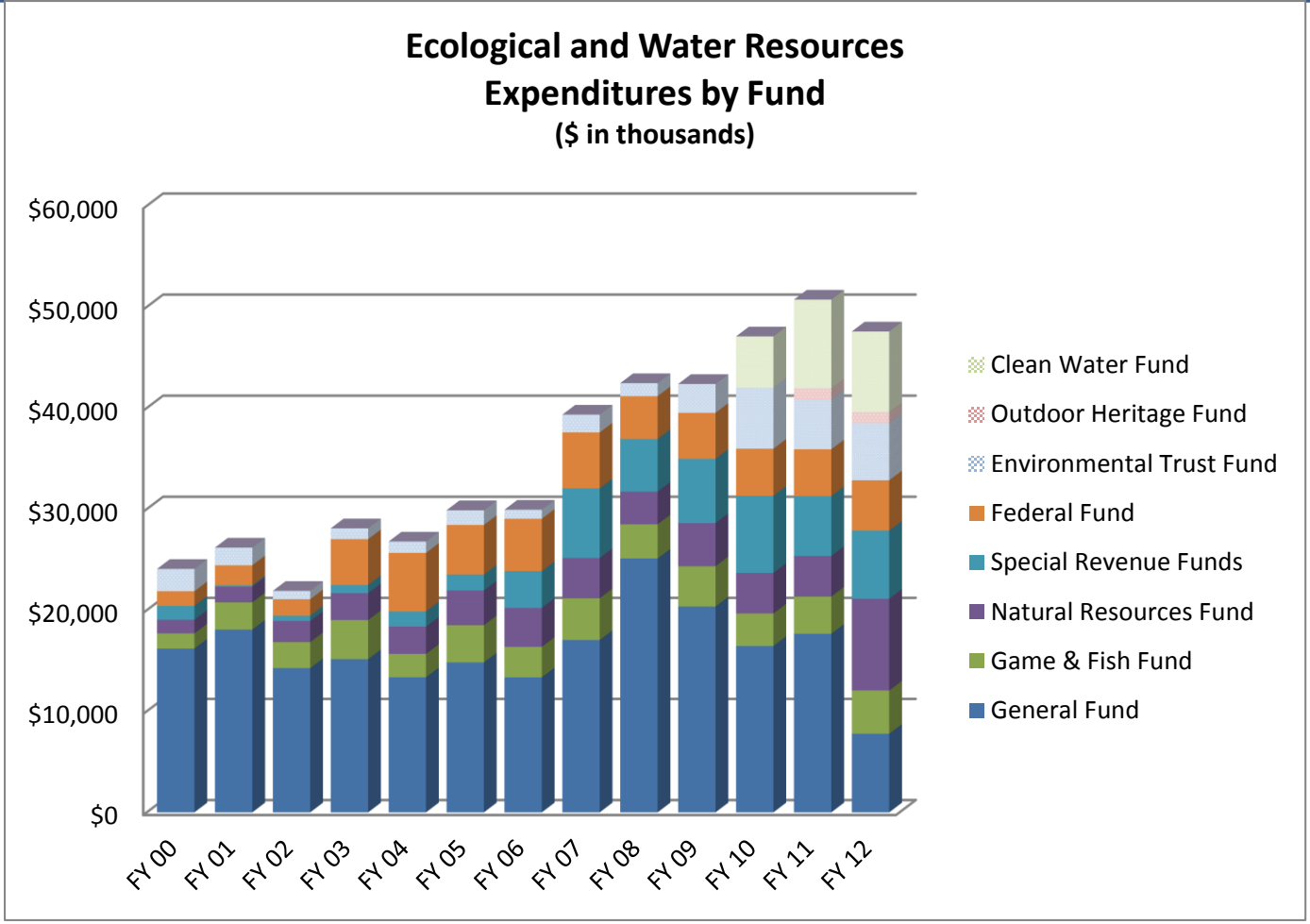
Director Steve Hirsch



Division of Ecological and Water Resources

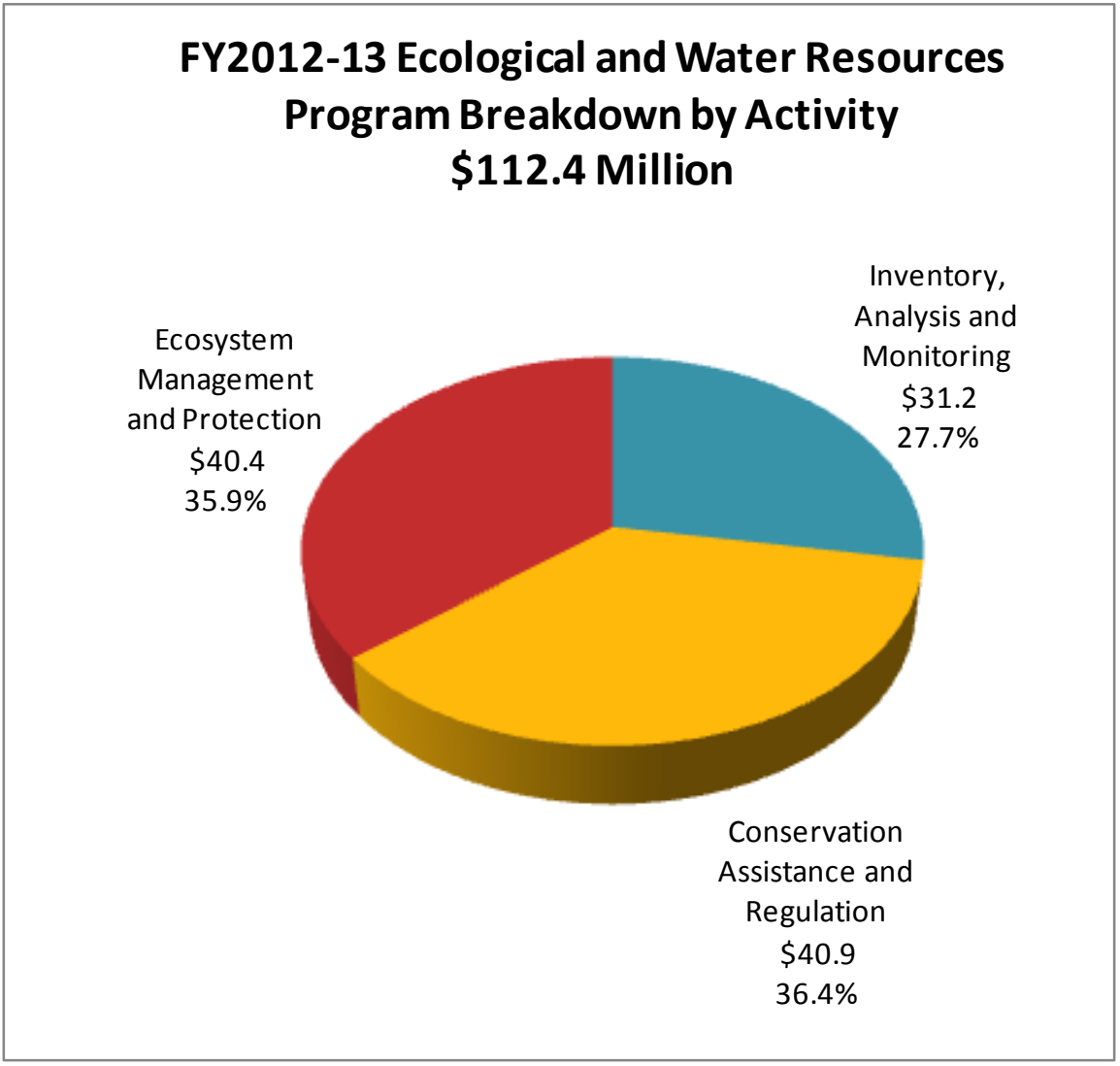
- Promotes and delivers integrated conservation of water resources, biological diversity, and ecosystem services to achieve healthy watersheds
- Provides critical information and regulatory oversight to state and local governments and landowners to foster natural resources stewardship
- Manages and prevents the spread of invasive species, manages nongame wildlife, and protects threatened and endangered species

Division of Ecological and Water Resources: History of Expenditures



- FY 08 General Fund: Aquatic invasive species work; one-time Clean Water Legacy appropriation, flood grants
- FY 12 Natural Resource Fund: $5.0 million from General Fund to Water Management Acct
- FY 12 Environment and Natural Resources Trust Fund: One-time funding for AIS work

Division of Ecological and Water Resources: Strategic Objectives and Performance Measures

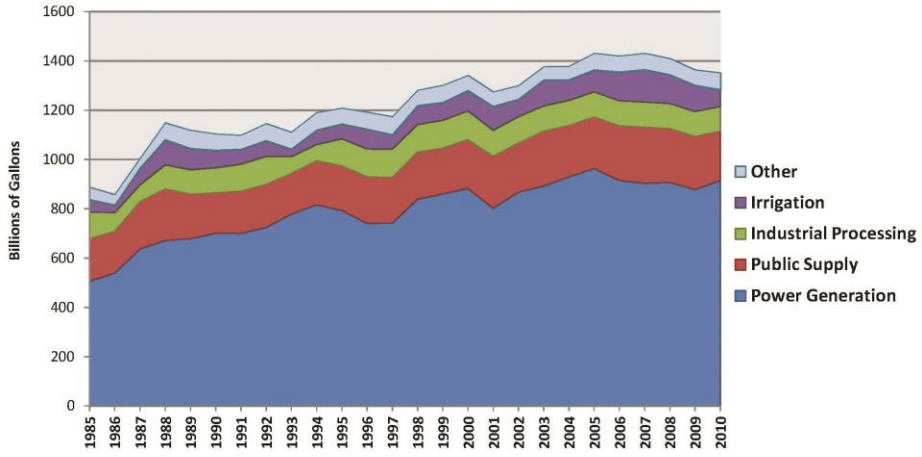


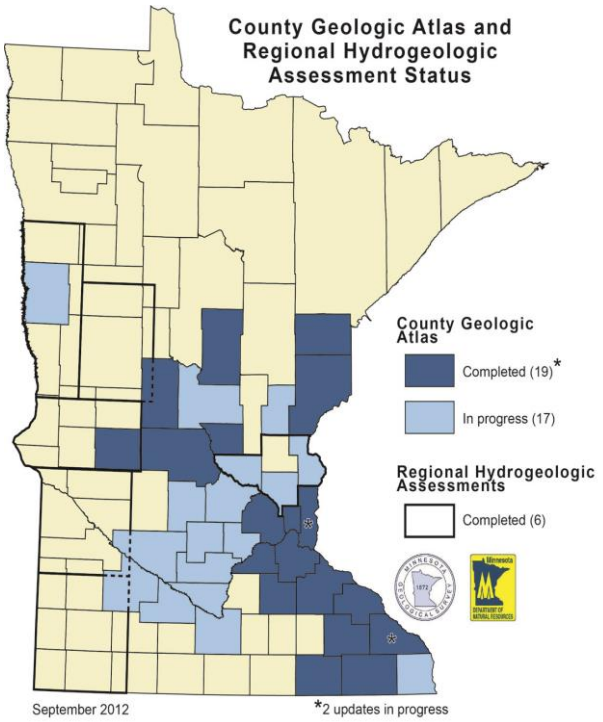
Strategic Objective 1: Inventory, Monitoring, and Analysis

Strategic Objective 2: Conservation Assistance and Regulation

Strategic Objective 3: Ecosystem Management and Protection

Division of Ecological and Water Resources:
Strategic Objective 1. Inventory, Monitoring, and Analysis





Public Result: A clean, healthy environment with sustainable uses of natural resources.

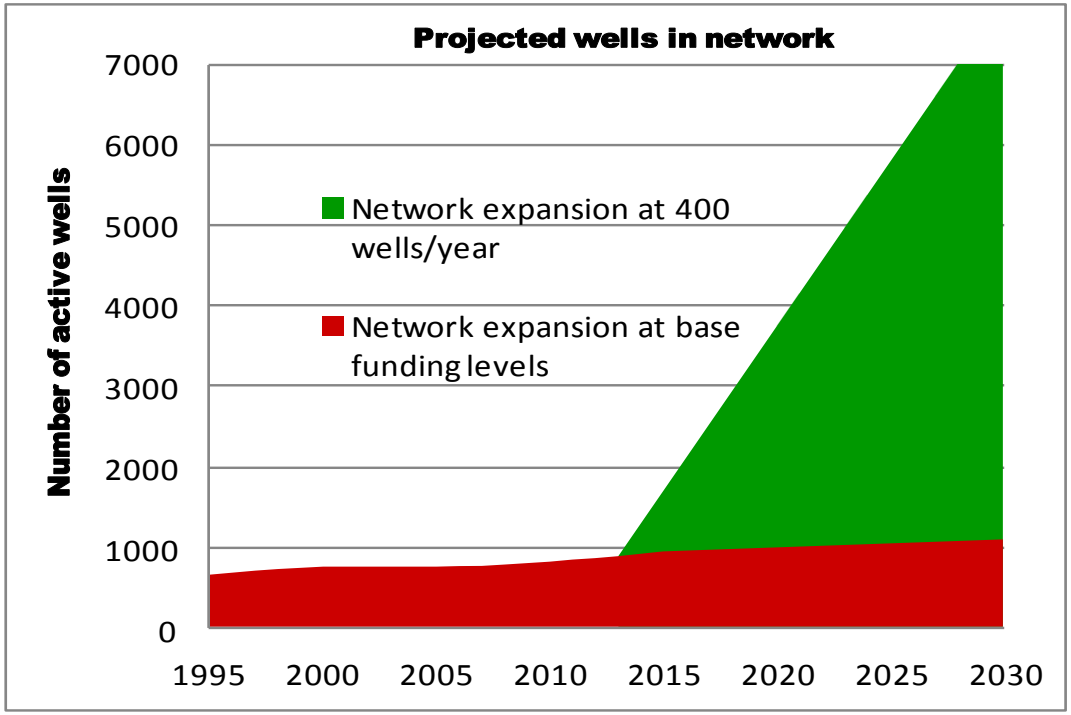
DNR Performance Measure: Number of County Geologic Atlases completed.

Why is this important? County Geologic Atlases provide information critical to ensuring long term sustainable water supplies by mapping where aquifers are and how groundwater moves and evaluating the sensitivity to pollution.

How are we doing? 36 County Geologic Atlases have been completed or started (41% of the atlases needed, covering 30% of state). About 79% of Minnesotans live in a county with an atlas completed or underway.

What is needed to make progress? To complete within 15 years, continue current progress of 3 atlases/year, with $2 million annual investment.

Division of Ecological and Water Resources:
Strategic Objective 1. Inventory, Monitoring, and Analysis



Public Result: A clean, healthy environment with sustainable uses of natural resources.

DNR Performance Measure: Number of ground water level monitoring wells and obsolete wells sealed.

Why is this important? Two-thirds of public water supply comes from ground water. Information on aquifer status and recharge is needed to manage water supplies.

How are we doing? DNR maintains a network of approximately 850 observation wells. In the past 5 years, 100 wells have been drilled and added to the network. DNR is in final stages of assessing the condition of 1,900 older wells. Over half of these wells have been found to be obsolete and need to be sealed or replaced.

What is needed to make progress? A monitoring network of 7,000 wells is needed to track aquifer health and ground and surface water interactions. To achieve this in 15 years, approximately 2,000 wells would need to be added every 5 years with an $5.6 million annual investment.

Division of Ecological and Water Resources:
Strategic Objective 2. Conservation Assistance & Regulation

Public Result: People in Minnesota are safe.

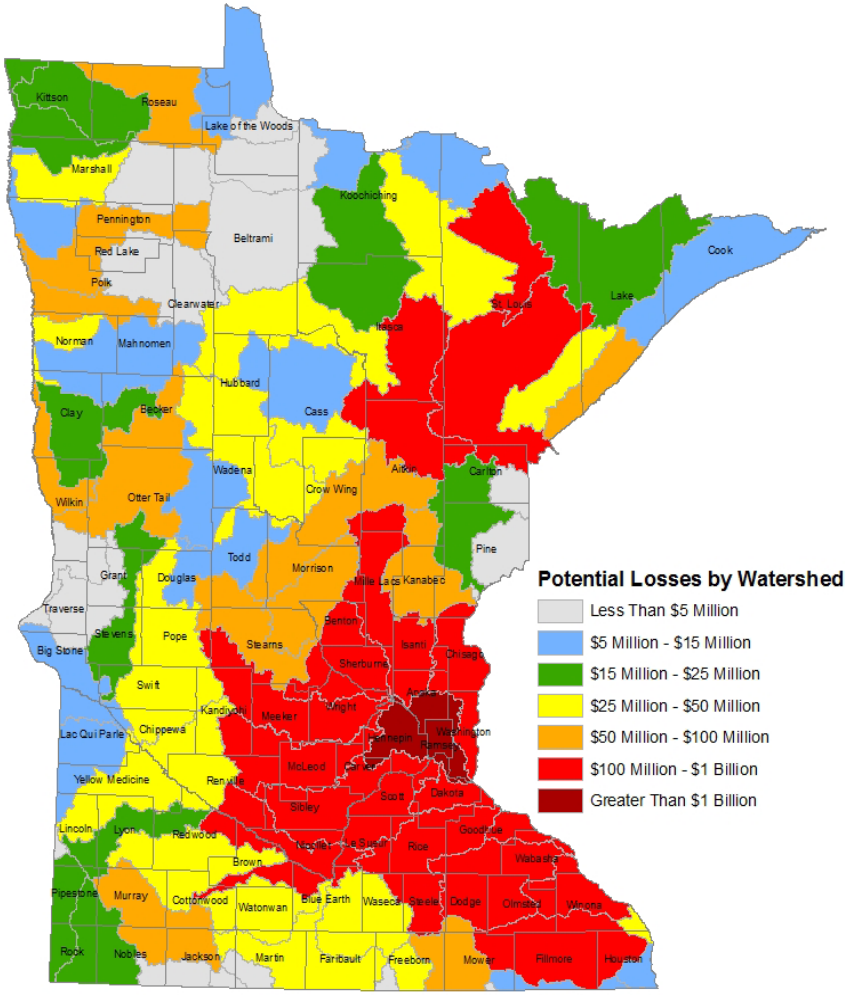
DNR Performance Measure: Number of communities at risk of economic losses from flooding.

Why is this important? Flooding is #1 natural hazard (frequency, total damages). Every dollar spent on mitigation saves an average $4.

How are we doing? Since 1987, over 3,300 structures acquired and removed from floodplain. Flood risk also reduced by levees, dikes, floodwalls, diversions, impoundments and other infrastructure improvements.

What is needed to make progress? Areas are still at risk of economic loss from flooding. Between $30-70 million has been invested annually in mitigation over past 5 years. Flood frequencies are increasing, so continued investment in flood hazard mitigation needed.

Potential Economic Losses by Watershed (Millions) Associated with the 100 Year Flood Risk

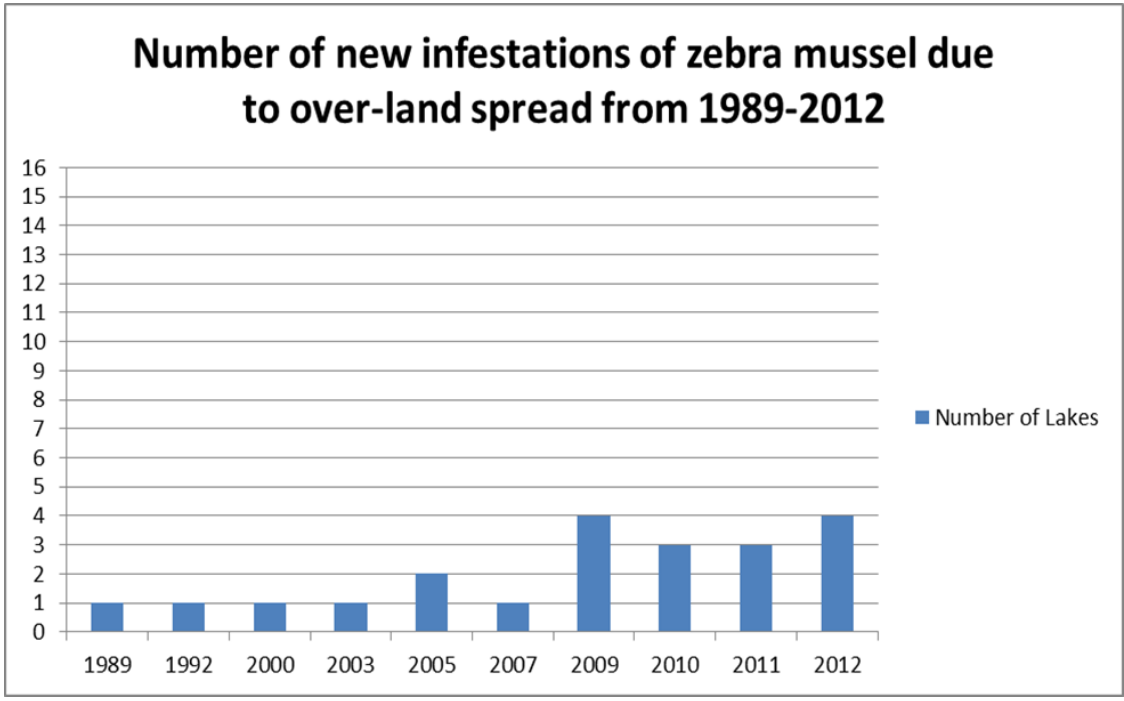


Division of Ecological and Water Resources:
Strategic Objective 3. Ecosystem Management & Protection

Public Result: A clean, healthy environment with sustainable uses of natural resources.

DNR Performance Measure: Number of water bodies with new zebra mussels infestations caused by over land spread to unconnected waterbodies.

Why is this important? The spread of aquatic invasive species (AIS) is one of state's top conservation challenges. AIS can degrade the quality of recreation on infested waters, disrupt economic activity, and harm aquatic ecosystems.

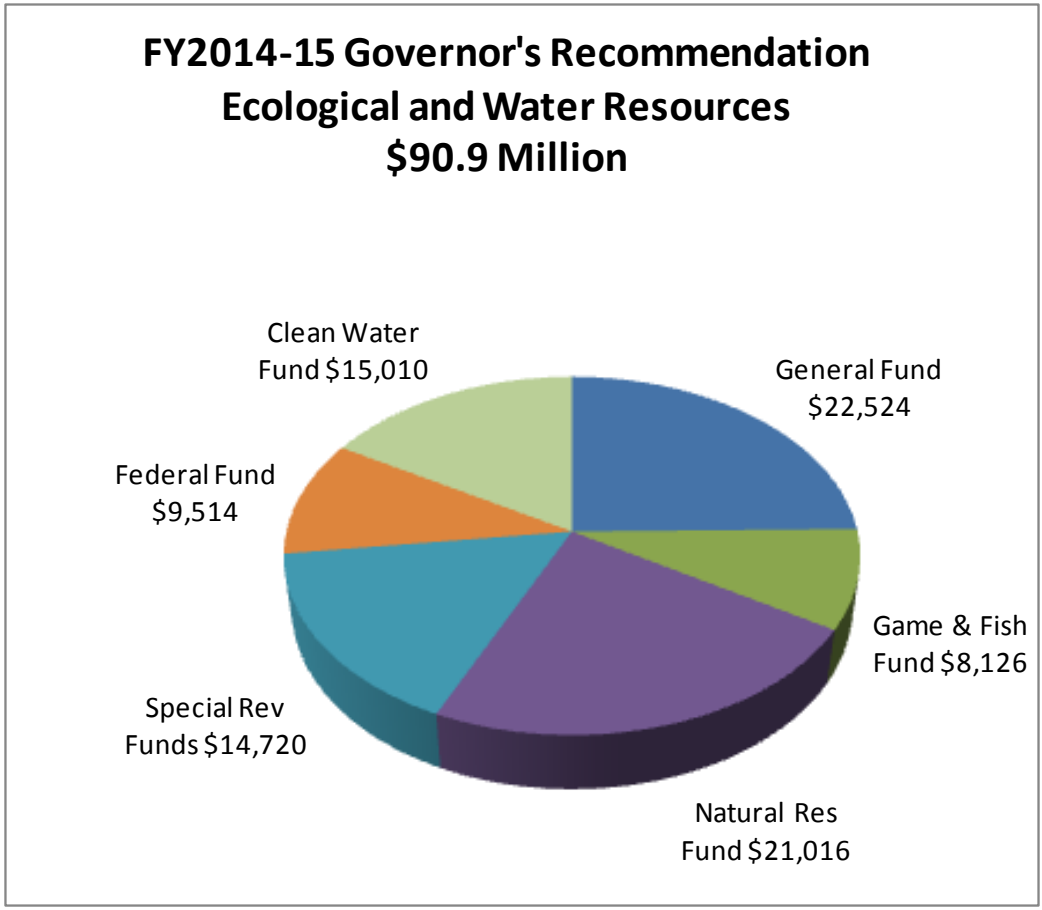


How are we doing? Recent changes in regulatory authority and increased emphasis on watercraft inspections and enforcement have been implemented to reduce rate of over-land spread.

What is needed to make progress? Maintain increased level of inspection enforcement that began in 2012 and to determine if higher levels of effort effective in reducing the over-land rate of spread.

Division of Ecological and Water Resources: FY14-15 Budget Overview by Fund

- FY14-15 budget includes General Fund increase of $6.3 million to replace one-time ENRTF funding for aquatic invasive species work
- FY12-13 one-time funding:
  - $4.7 million (Environment and Natural Resources Trust Fund)
  - $2.0 million (Heritage Enhancement Account)
  - $1.0 million (Invasive Species Account)
- Forecasted revenue also not supporting $1.0 million in appropriations from Water Recreation Account for water management activities



Change Item: Managing Aquatic Invasive Species

$3,750,000 FY14/$3,750,000 FY15
(General Fund)

Description: This investment allows DNR to continue accelerated efforts to prevent and curb the spread of aquatic invasive species (AIS).

Outcomes:

- 5,600 hours of AIS Enforcement efforts/year (equivalent to 2013).
- 67,000-70,000 hours of watercraft inspections/year (equivalent to 2013).
- 16,000 hours of authorized inspections by LGUs/year (equivalent to 2013)
- Statewide prevention and management efforts for service provider trainings, managing invasive species, and new infestations and response maintained (equivalent to 2013)
- Control invasive aquatic plants on 4,600 lake acres/year (2013 efforts supported 6,500 lake acres).
- 30 accesses upgraded with new BMPs/year (2013 efforts supported 100 accesses).

Change Item: Asian Carp Deterrent Barrier Insurance

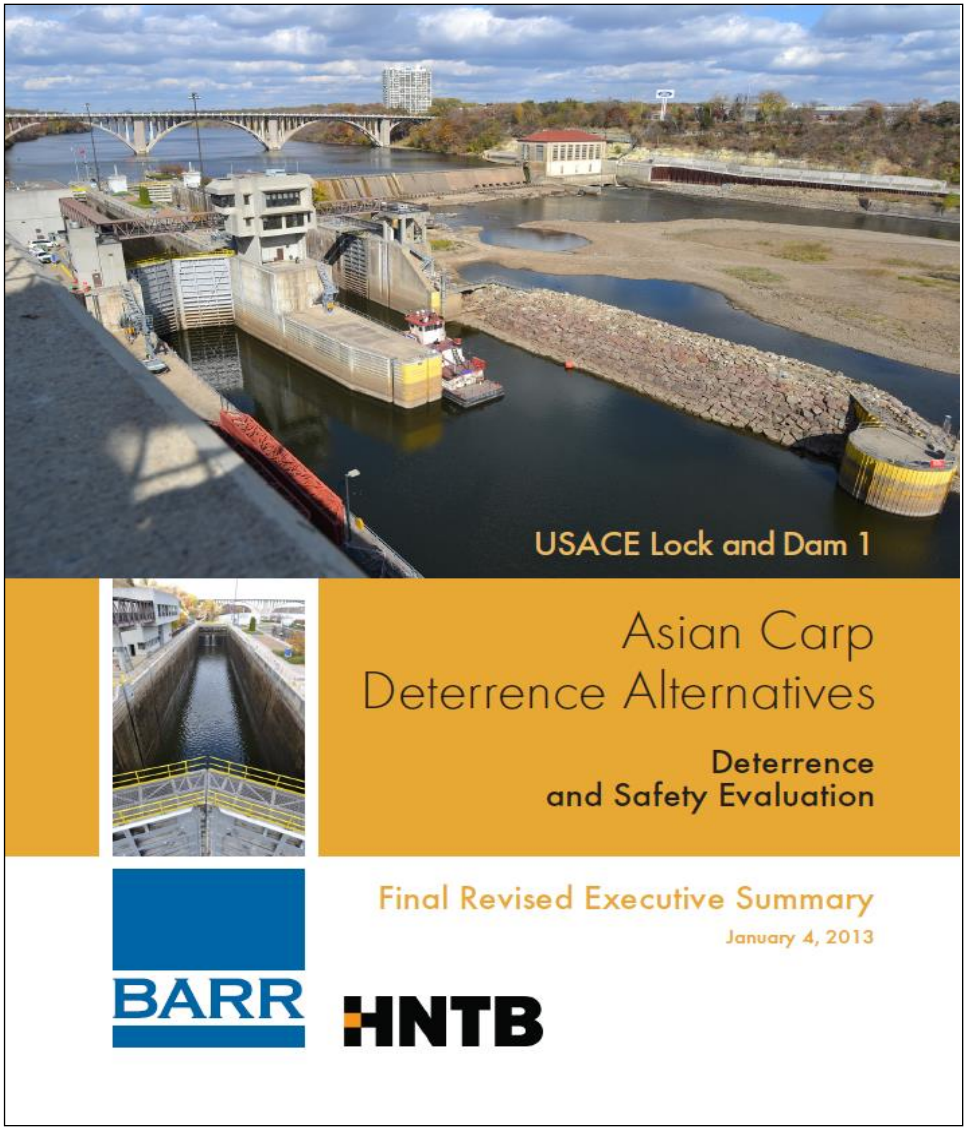
$200,000 FY14 / $200,000 FY15
(Invasive Species Account)

Description:

- Barrier insurance is required as part of agreements with the U.S. Army Corps of Engineers for the deterrent barrier to be located at Lock and Dam #1 (Ford Dam).
- Liability insurance costs $200,000/year for the deterrent barrier.

Outcomes:

- A deterrent barrier that limits the spread and impacts from Asian carp in the upper Mississippi River.
- Operation of a barrier that does not increase risk to public safety.




LEGACY

Change Item: Clean Water Legacy

$9,010,000 FY14/$9,010,000 FY15
(Clean Water Fund)

Description: The Clean Water Fund supports DNR's work to improve water quality and manage water sustainably in five main areas:

- Water Quality Monitoring and Assessment
- Watershed Restoration/Protection Strategies
- Groundwater/Drinking Water
- Nonpoint Source Implementation
- Applied Research and Tool Development

Outcomes:

- Measurements at 151 stream flow gages
- Sample 300 lakes statewide for developing an IBI for testing lake impairment in 5 major watersheds
- Test fish contaminants at 160 lake and river sites
- Develop restoration and protection strategies for 14 major watersheds; assist with 64 projects
- Complete 7 County Geologic Atlases
- Add 100 monitoring wells to ground water monitoring network

Clean Water Legacy: Overview

DNR provides information that leads to strategic investments for multiple benefits, highlighting hydrology as a major driver of water quality impairments.

- Monitoring and Assessment
- Watershed Restoration and Protection Strategies
- Drinking Water Protection
- Nonpoint Source Implementation
- Applied Research and Tool Development

	FY 07	FY08-09	FY10-11	FY12-13	FY14-15
Monitoring and Assessment	$ 280	$ 2,154	$ 3,700	$ 6,210	$ 6,870
Watershed Restoration and Protection Strategies	$ 650	**$ 1,265**	$ 2,100	$ 3,460	$ 3,700
Drinking Water Protection		$ -	$ 5,125	$ 4,900	$ 3,000
Nonpoint Source Implementation	$ 1,340	$ 115	$ 1,000	$ -	$ 2,000
Applied Research and Tool Development	$ -	$ 463	$ 6,600	$ 6,150	$ 2,450
Total	**$ 2,270**	**$ 3,997**	**$ 18,525**	**$ 20,720**	**$ 18,020**

Clean Water Legacy: Monitoring and Assessment

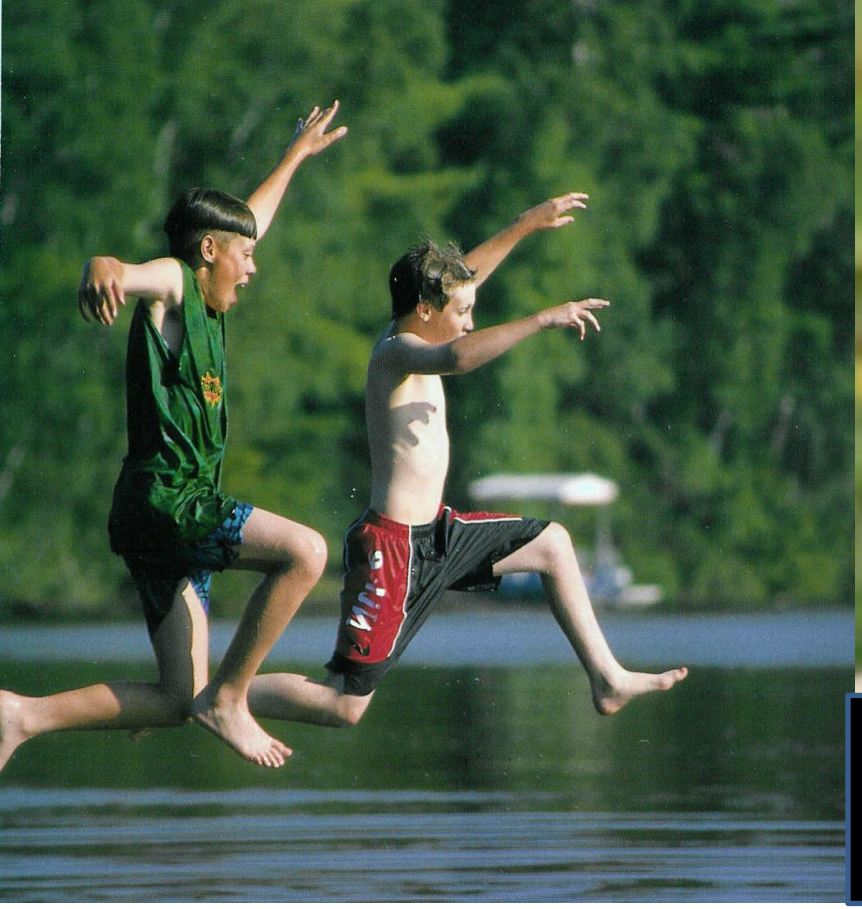
- Collect data about stream flow, lake biology, and fish mercury to help MPCA identify water quality problems.

	FY 07	FY08-09	FY10-11	FY12-13	FY14-15
Stream Flow Monitoring	$ 150	$ 1,425	$ 1,510	$ 3,650	$ 4,000
Lake IBI Assessment	$ 80	$ 465	$ 1,378	$ 2,300	$ 2,600
Fish Mercury Assessment	$ 50	$ 264	$ 262	$ 260	$ 270

Clean Water Legacy: Watershed Restoration and Protection Strategies

- Analyze land and water interactions to correctly diagnose what is causing water quality problems and locate pollution sources.
- Develop targeted, science-based watershed restoration and protection strategies that guide implementation decisions.

	FY 07	FY08-09	FY10-11	FY12-13	FY14-15
Regional technical assistance for TMDL plans	$ 650	$ 1,069	$ 1,872	$ 3,260	$ 3,500
Watershed assessment tool		$ 196	$ 229	$ 200	$ 200



Clean Water Legacy: Drinking Water Protection

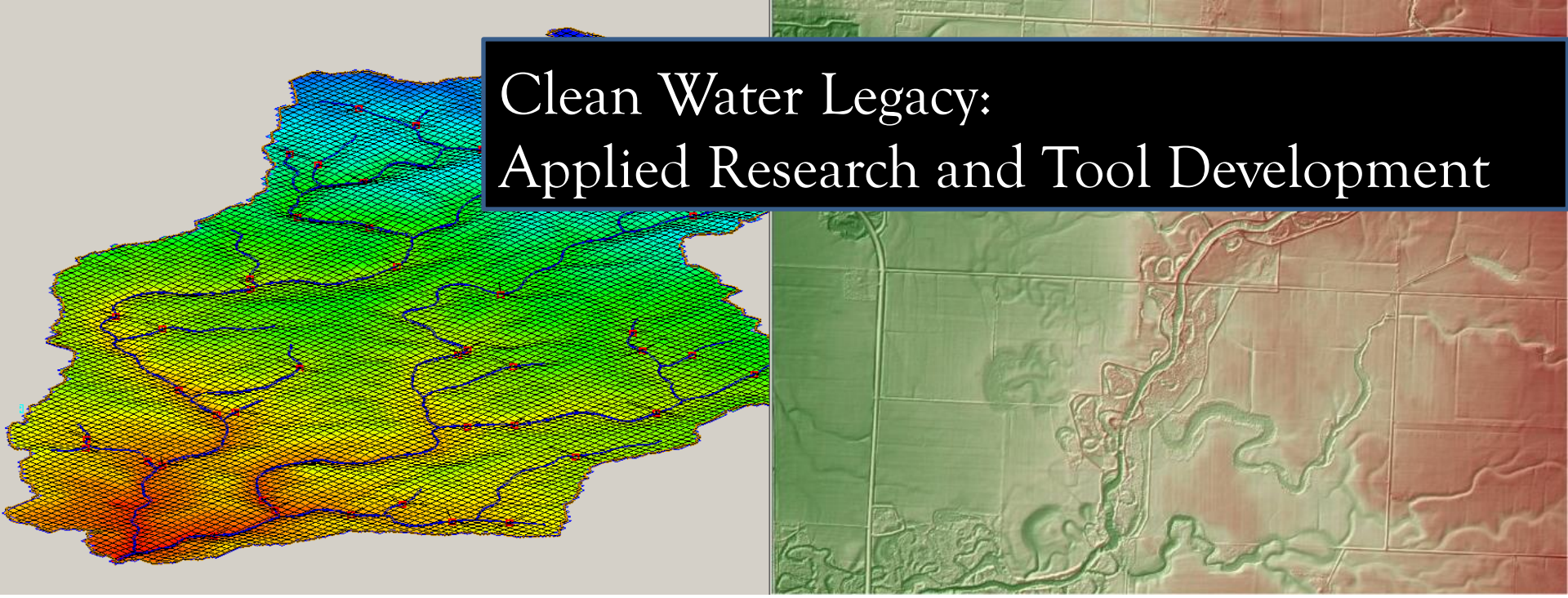
- Provide information and analysis about aquifer levels and ground water movement that communities need to protect their ground water from contamination and manage it sustainably.

	FY 07	FY08-09	FY10-11	FY12-13	FY14-15
Water supply planning, aquifer protection, and monitoring		$ -	$ 1,125	$ 3,000	$ 3,000
Water appropriation electronic permitting		$ -	$ -	$ 900	$ -
Eleven county groundwater monitoring		$ -	$ 4,000	$ 1,000	$ -

Clean Water Legacy: Nonpoint Source Implementation

- Help local governments and their clients further target, design, and implement restoration and protection projects for clean water.

	FY 07	FY08-09	FY10-11	FY12-13	FY14-15
MRCCA Rulemaking		$ -	$ 500	$ -	$ -
Shoreland stewardship	$ 1,340		$ 500	$ 2,440	$ 2,440



Clean Water Legacy: Applied Research and Tool Development

Develop maps, models, and targeting tools that enhance understanding of which types of clean water restoration and protection – and in what locations – yield the most benefits.

	FY 07	FY08-09	FY10-11	FY12-13	FY14-15
Forestry at risk watershed assessment		$ -	$ -	$ -	$ 500
Drainage Hydrology		$ 133	$ 180	$ 460	$ 370
Watershed Delineation - DEWR		$ 330	$ 370	$ 470	$ 380
Biomonitoring Database - F&W		$ -	$ -	$ 80	$ 100
LiDAR		$ -	$ 5,600	$ 2,700	$ -
County Geologic Atlas		$ -	$ 1,000	$ -	$ 1,100

Division of Ecological and Water Resources

Performance Measure	Target	Outcome
Number of active ground water level monitoring wells (currently 848)	7,000 wells by 2043	
Number of new and upgraded stream flow gages (266)	350 by 2016	
93% of Minnesota Biological Surveys completed, the rest are underway(6 counties)	Statewide baseline survey done by 2021	
Generate health scores for Minnesota's 81 major watersheds	Repeat every 5 years	
Reduction in number of significant river dams needing removal or modification. The current trend is to remove approximately one significant dam per year and modify two significant dams	Remove or modify three significant dams per year	
Training to build local capacity to administer floodplain, shore land, and river-related programs	Reach 100 communities each year	
Number of local governments with delegation agreements for AIS watercraft inspection programs	Increase the number of local governments with delegation agreements	
Number of conservation easement baseline property reports for Scientific and Natural Areas and Native Prairie Bank to document existing conditions	Complete 80 of 155 baseline property reports by the end of FY13 and 20 additional reports by FY14	