

On-going Lake and Watershed Management Activities at Highland Silver Lake



Presented by: Meghan Oh
2011 Illinois Lake Management Conference

Highland Silver Lake Watershed

Highland Silver Lake (550 acres)

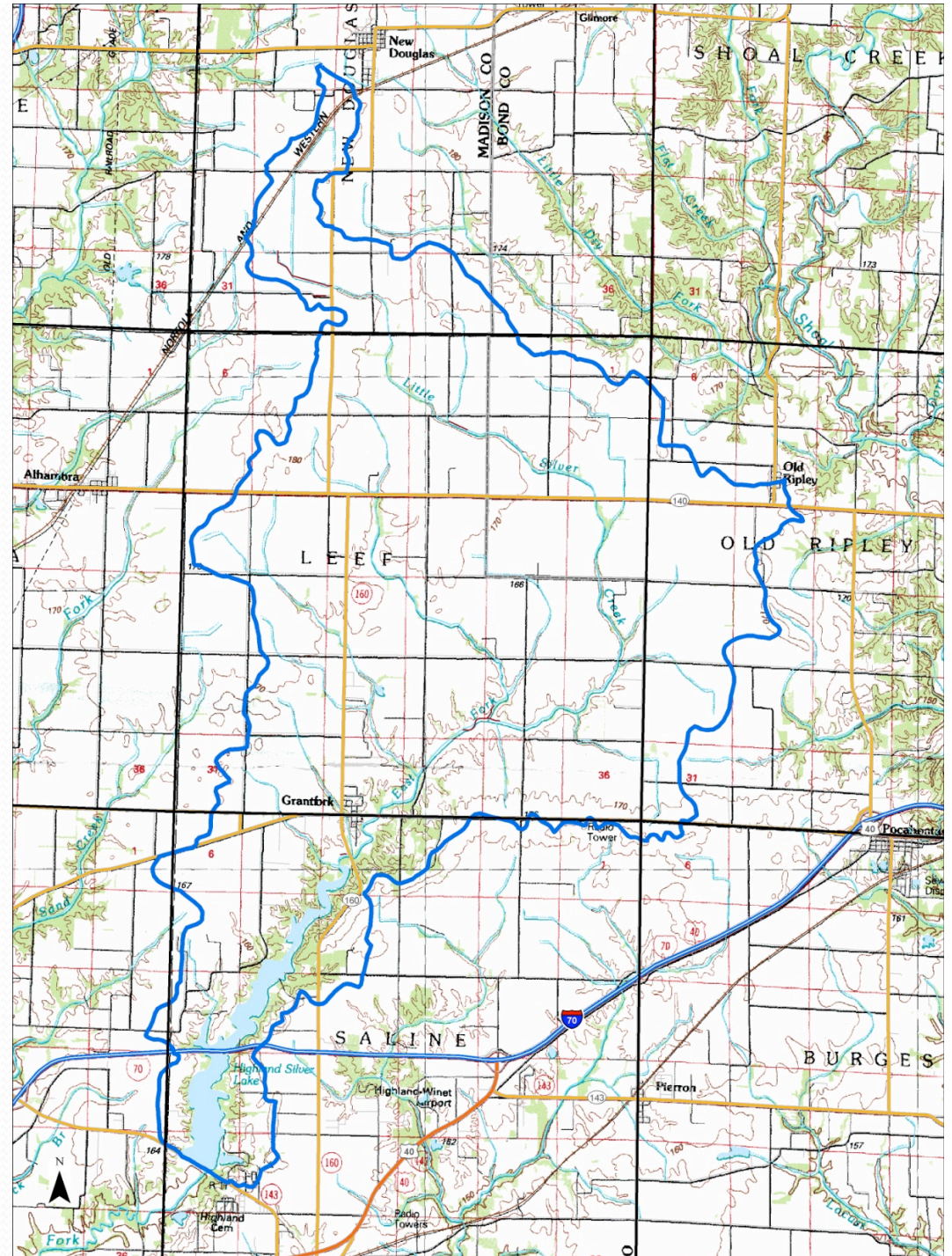
48 square miles

Madison and Bond Counties

Tributaries

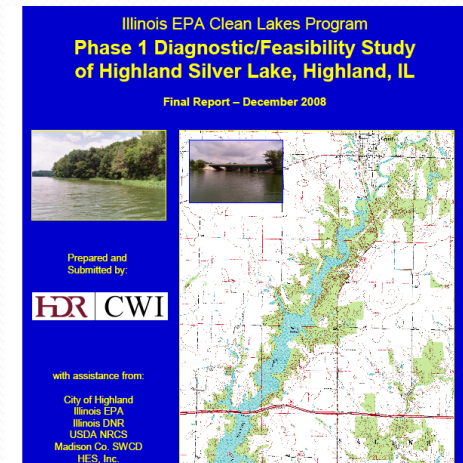
Little Silver Creek

East Fork Silver Creek



Previous Studies

- Aerial Assessment Report- Highland Silver Lake & East Fork Silver Creek
 - 2005 (Wayne Kinney)
- TMDL (Total Maximum Daily Load)
 - 2004-2006 (Limno-Tech)
- Phase I Diagnostic/Feasibility Study
 - 2004-2006 (HDR)
- City of Highland, Illinois Resource Plan
 - 2009 (SWIRCD)



Project Implementation

- Solar Bee Installation (2008)
- Livestock Exclusion (2010 & 2011)
- Shoreline Stabilization (2009 & 2011)
- Watershed Plan (2011)
- Informational Brochure (2011)



Funding for these projects was partially provided by
USEPA Section 319 and Illinois EPA Clean Lakes Program

Solar Bee Installation



- Completed 2008
- 4 units installed
- Low maintenance



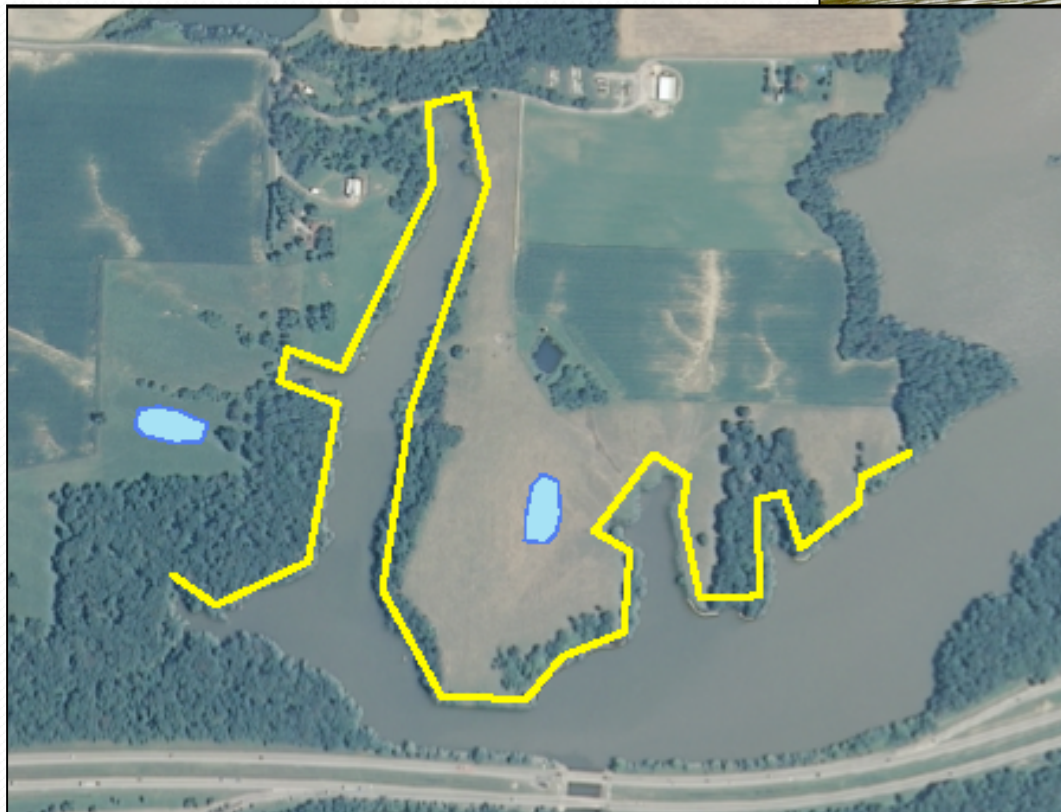
Livestock Exclusion



- Illinois EPA requirement
- Pond installation (2010)
- Fencing (2008-2011)



Livestock Fencing



- Estimated 10,000 feet
- Existing fencing set back
- Additional fencing installed

Shoreline Stabilization



Surveyed
4,200 feet
(August 2009)

Obtained
USACE Permit
(Sept 2009)

Stabilized
3,730 feet
(Nov/Dec 2009)

Stabilization Type



Break water



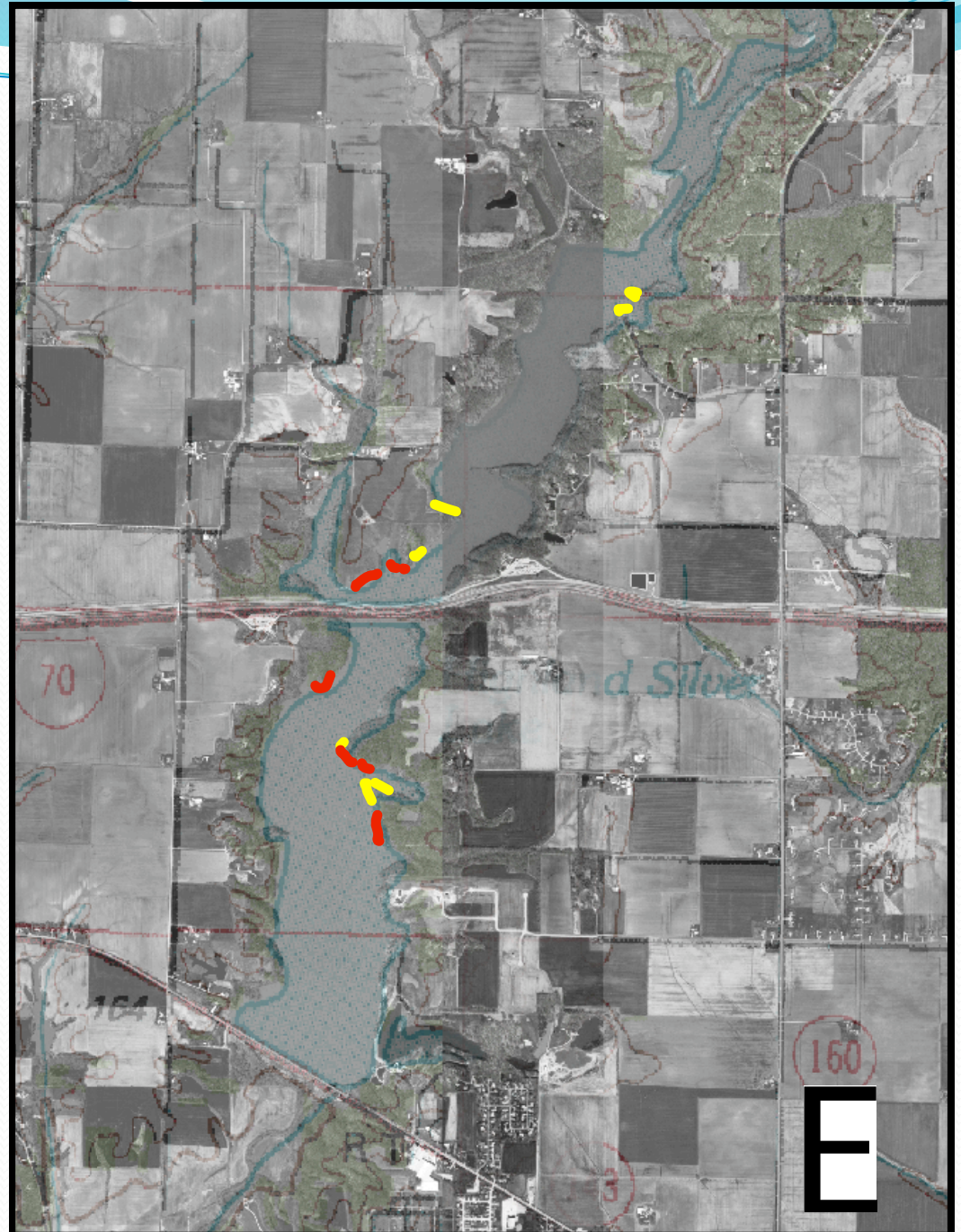
Revetment



Work Completed 2009

Area	Length (Ft)	Type
A	305	BW
B	170	BW
C	350	R
D	255	R
E	175	BW
F	165	BW
G	225	R
H	420	BW
I	450	BW
J	125	BW
K	55	BW
L	185	R
M	370	R
O	205	R
P	275	R
Total	3730	BW/R

TYPE: BW- Breakwater R- Revetment



Watershed Plan



Where to Start:

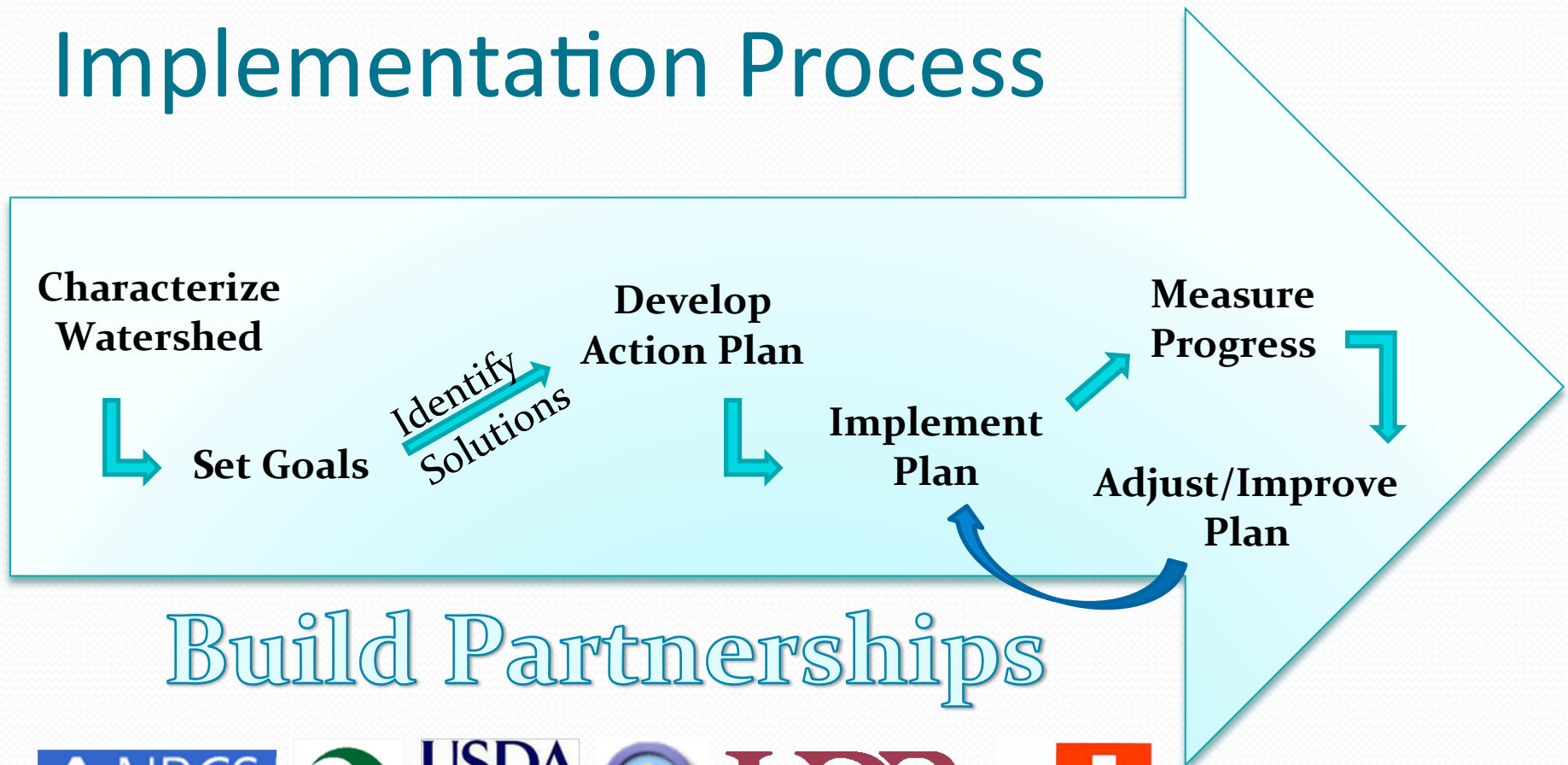
- Previous Studies
- Guidance for Developing Watershed Action Plans in Illinois ([Chicago Metropolitan Agency](#))
- Handbook for Developing Watershed Plans to Restore and Protect Our Waters ([US EPA](#))
- US EPA Nine Elements

US EPA Nine Elements



1. Identify nonpoint source pollution
2. Estimate expected load reductions
3. Describe BMPs and identify critical areas
4. Describe financial and technical assistance
5. Include information/education component
6. Develop implementation schedule
7. Develop schedule of measurable milestones
8. Develop criteria to evaluate progress
9. Develop monitoring component to measure efforts

Watershed Planning and Implementation Process



Build Partnerships



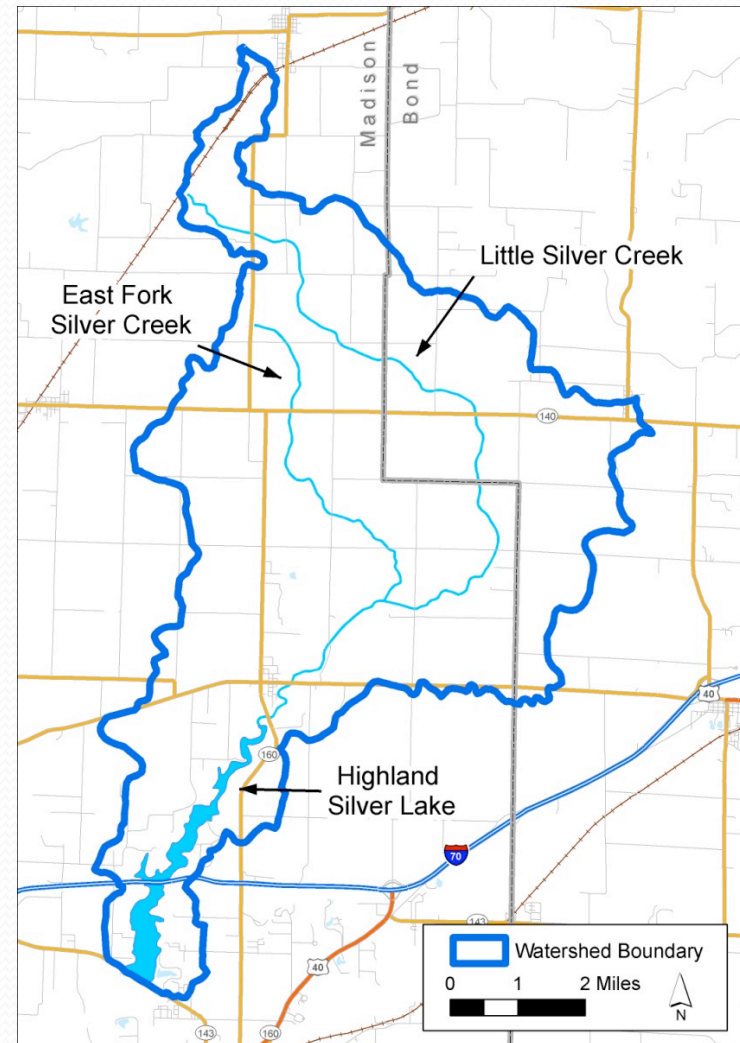
Goals

- Improve water quality by controlling nonpoint source pollution
 - Remove Highland Silver Lake from Illinois impaired waters list
 - Improve public drinking water
- Improve environmental awareness
- Improve recreational opportunities
- Improve land management practices throughout watershed



Objectives

- Promote and coordinate watershed protection and restoration activities
- Implement soil and nutrient conservation practices
- Implement stream protection and restoration activities
- Implement lake protection and restoration activities



Protection and Restoration Activities

Watershed

- Field borders
- WASCBs

Streams

- Stream bank stabilization
- Stream buffers

Lake

- Shoreline stabilization
- Lake dredging
- In-lake sediment basin



Develop Action Plan

Highland Silver Lake Watershed Plan

Responsibility

Funding Sources



Implementation Schedule



Measurable Milestones

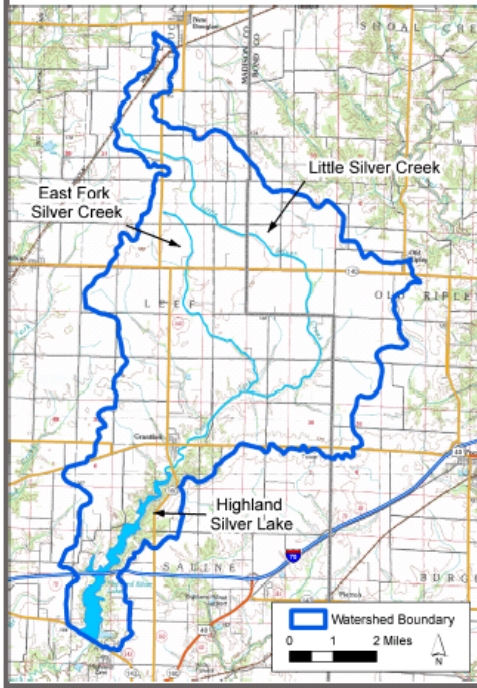
Monitoring Program



Informational Brochure

Lake and Watershed Management

Is your property within the Highland Silver Lake Watershed Boundary?



Take a look inside

- Lake and Watershed Management
- Shoreline Stabilization, Livestock Exclusion, and Watershed Plan
- New Funding Opportunities



Highland Silver Lake is a 550 acre public access lake that was constructed in 1962. The City of Highland owns the lake and maintains it for use as a drinking water supply and recreational resource for Highland and the surrounding communities.



The **Highland Silver Lake Watershed** consists of approximately 48 square miles of land drained by the *East Fork Silver Creek* and *Little Silver Creek* within Madison and Bond Counties.

A properly managed lake provides ecological, social, and economic benefits such as recreational opportunities, habitat for game fish and wildlife, increased property values and local tax base, and reductions in water treatment costs. Properly managed land within the watershed can improve water quality, reduce agricultural operational costs and preserve the natural landscape, including prime farmland.



Join the effort to *improve water quality* by reducing sediment and nutrients transferred to waterways.

- Maintain a buffer zone of natural vegetation along lake shoreline, streams and roadside ditches
- Minimize the use of pesticides, herbicides, and fertilizers within 100 feet of all waterways
- Consider installation of grassed waterways, field borders, stream buffers, or stream bank stabilization
- Inspect and maintain septic systems

Project Descriptions

Preserving Valuable Natural Resources: Highland Silver Lake, East Fork Silver Creek, Little Silver Creek

With the goal of *improving water quality*, the City of Highland, the Illinois EPA and USEPA have collectively funded projects to stabilize shoreline, exclude livestock from the lake, and develop a watershed plan.

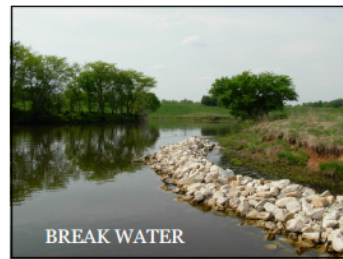
Shoreline Stabilization

Shoreline stabilization will prevent erosion, maintain water depths, and reduce sediment and nutrient loadings to the lake. The long-term benefit will be better water quality for the public water supply and cleaner water for recreational purposes.



- 3,700 feet stabilized in 2009
- prevented 640 tons of sediment and 640 lbs of phosphorus and nitrogen from entering the lake

While some riprap was placed directly next to the shore (revetment), some riprap was placed away (10 to 30 feet) from the shoreline (break water) to enhance aquatic habitat. An additional 400 feet of stabilization will be completed in 2011.



Livestock Exclusion

Livestock have historically had access to the lake but the City of Highland has recently joined with local landowners to provide an alternate watering source and prevent livestock from accessing the lake.

- two ponds constructed
- new fencing installed
- existing fencing set back to create a larger buffer
- prevented 7 tons of sediment and 289 lbs of phosphorus and nitrogen from entering the lake



Watershed Plan

The watershed plan will prioritize measures to reduce sediment and nutrient loadings, identify areas for installation of best management practices (BMPs), and generate landowner interest.



Soil conservation practices have been and continue to be implemented throughout the Highland Silver Lake Watershed. The photos above are examples of existing areas in the watershed that would benefit from BMP installation. Both examples were observed in multiple locations within the watershed.

Funding Opportunities

Local agencies work together on a continuous basis to provide financial and technical assistance for construction of BMPs such as grassed waterways and field borders. Funding has just been approved for the conservation reserve enhancement program (CREP) within the Highland Silver Lake Watershed.

Join us at Highland City Hall
(1115 Broadway, Highland, IL)

March 10th, 2011 at 1:30 pm

to learn about new funding for BMP installation on private land in the Highland Silver Lake Watershed.

- Natural Resources Conservation Service (Madison and Bond County NRCS)
- Soil and Water Conservation Districts (Madison and Bond County SWCDs)
- US Department of Agriculture (FSA)
- US Environmental Protection Agency



Funding for this project provided, in part, by the Governor of Illinois and the Illinois Environmental Protection Agency through Section 319 of the Clean Water Act and the Partners for Conservation Fund.



Public Water Supply



Prime Farmland



Recreation

Protecting Highland's Natural Resources

Highland Silver Lake



Wildlife



Streams

