

Mukwonago River Watershed Protection Planning Program



Meeting Agenda

- Welcome and Introductions of Project Partners
- Brief description of field inventory work completed to date
- Review of proposed outline and content
- Identification of issues and concerns
- Creation of working group(s)
- Timeline for completion

Partners

A Joint Effort of the:
Eagle Spring Lake Management District,
Phantom Lakes Management District,
The Nature Conservancy,
Friends of the Mukwonago River,
Wisconsin Lutheran College,
Carroll University,
Wisconsin Department of Natural Resources,
and SEWRPC

Funded in part through a Chapter NR 195 River Protection Grant

Planning Goals

To provide both for the ongoing human use of the lake and stream systems of the Mukwonago River and protect the character and integrity of these exceptional and outstanding resource waters.

To promote the essential hydrological structure and function of the Mukwonago River.

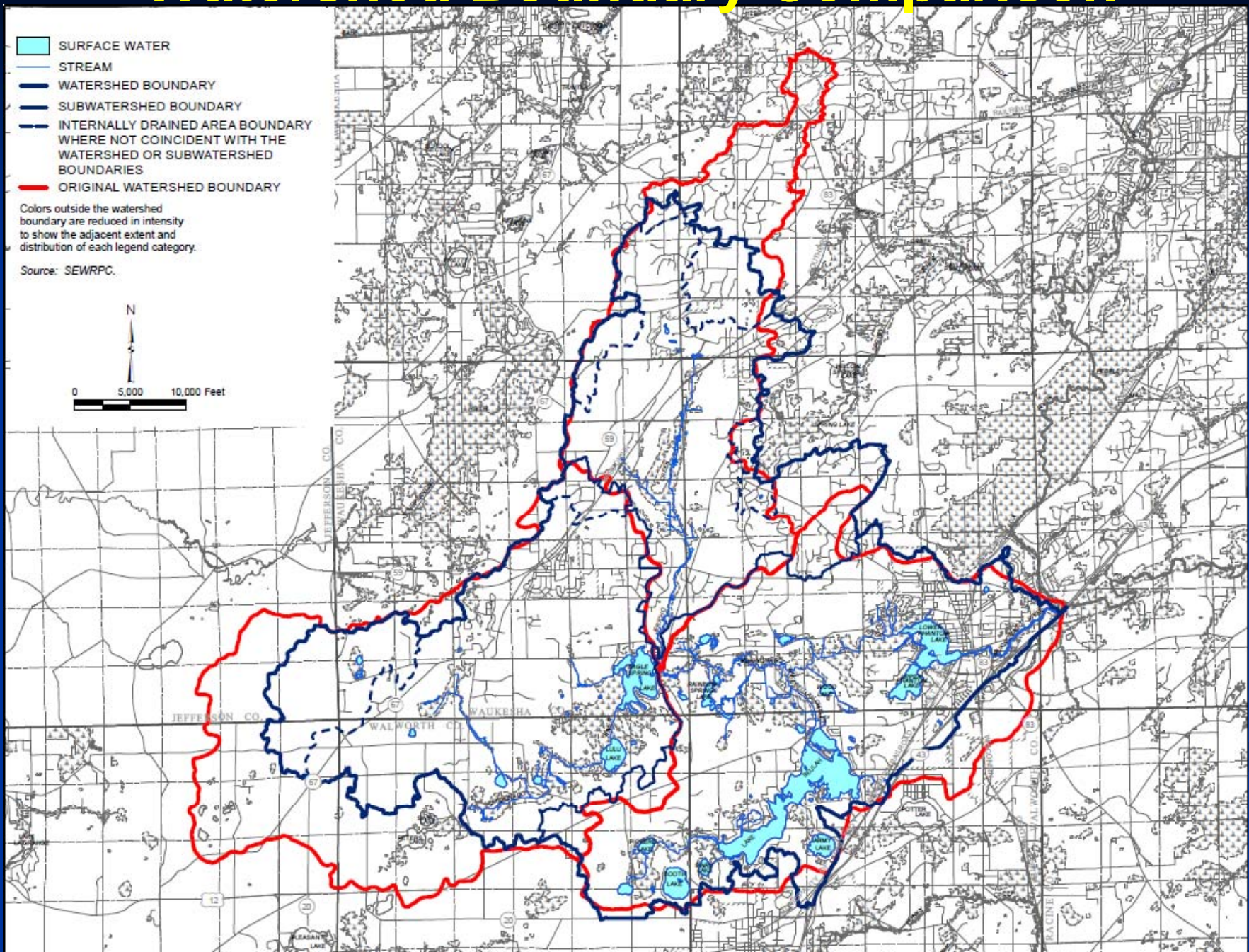
To facilitate the maintenance of wetland and wildlife habitat within the designated environmental corridors riparian to the Mukwonago River and its associated Lakes.

To encourage public knowledge and understanding of the River's component ecosystems.

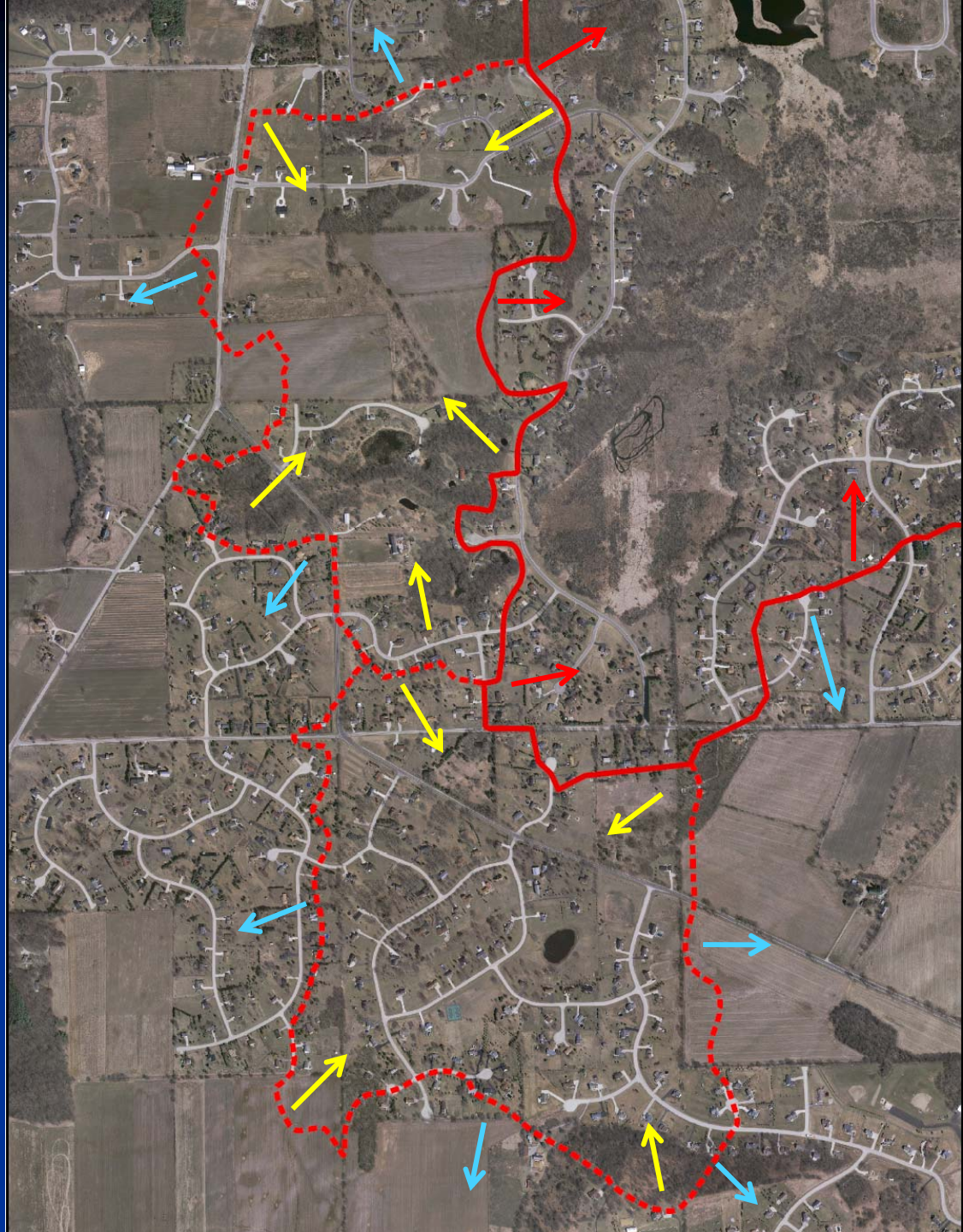
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Watershed Boundary Comparison



Internally Drained Areas



2000 Land Use

- SINGLE-FAMILY RESIDENTIAL
- MULTI-FAMILY RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- TRANSPORTATION, COMMUNICATIONS,
AND UTILITIES
- GOVERNMENT AND INSTITUTIONAL
- RECREATION
- WETLANDS
- WOODLANDS
- SURFACE WATER
- AGRICULTURAL, UNUSED, AND
OTHER OPEN LANDS
- EXTRACTIVE AND LANDFILL
- WATERSHED BOUNDARY
- SUBWATERSHED BOUNDARY
- INTERNALLY DRAINED AREA BOUNDARY
WHERE NOT COINCIDENT WITH THE
WATERSHED OR SUBWATERSHED
BOUNDARIES

Colors outside the watershed boundary are reduced in intensity to show the adjacent extent and distribution of each legend category.

Source: SEWRPC.

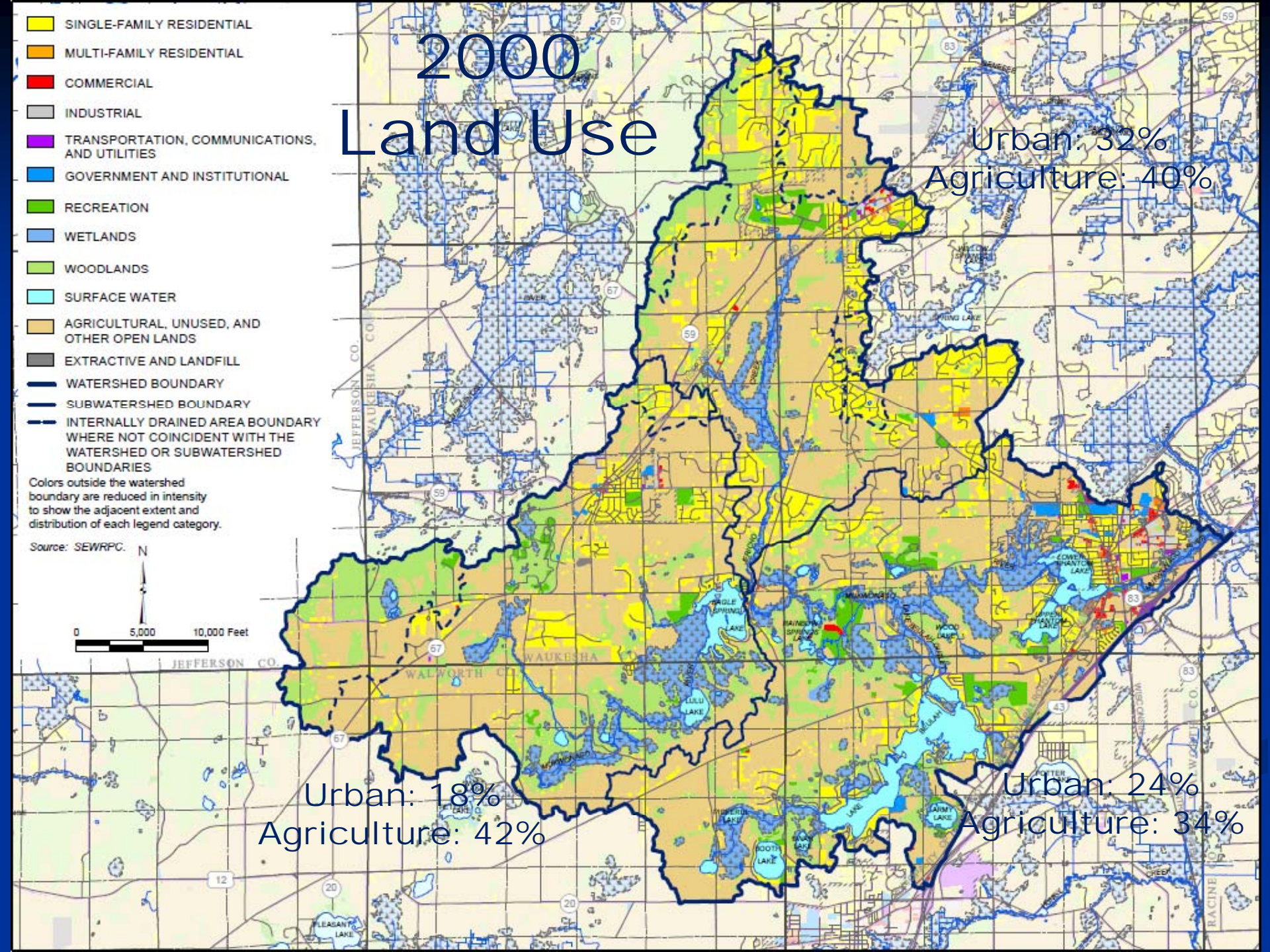


0 5,000 10,000 Feet

Urban: 32%
Agriculture: 40%

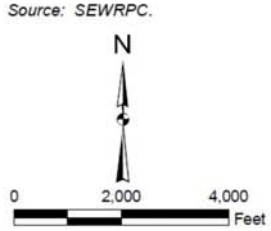
Urban: 18%
Agriculture: 42%

Urban: 24%
Agriculture: 34%

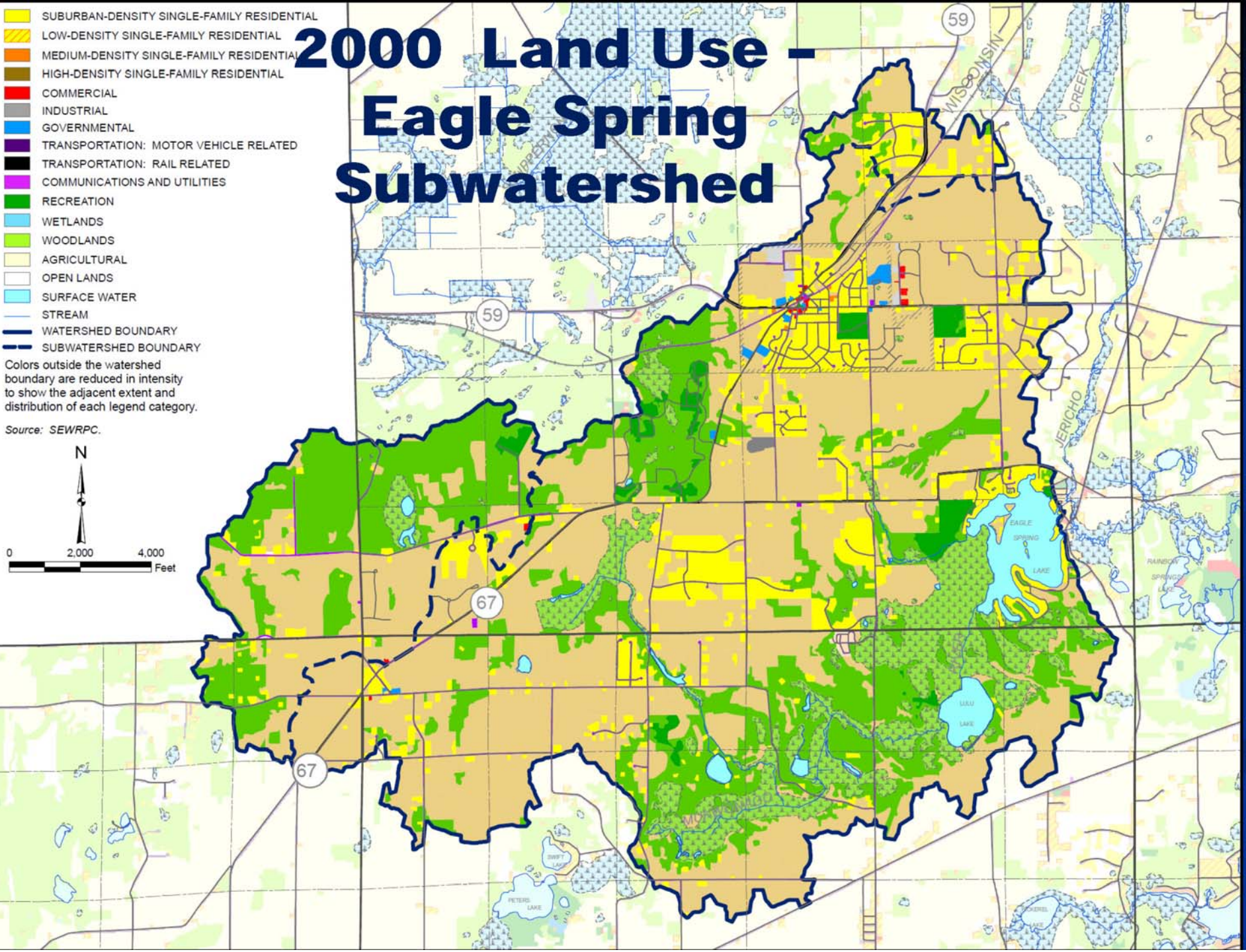


- SUBURBAN-DENSITY SINGLE-FAMILY RESIDENTIAL
- LOW-DENSITY SINGLE-FAMILY RESIDENTIAL
- MEDIUM-DENSITY SINGLE-FAMILY RESIDENTIAL
- HIGH-DENSITY SINGLE-FAMILY RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- GOVERNMENTAL
- TRANSPORTATION: MOTOR VEHICLE RELATED
- TRANSPORTATION: RAIL RELATED
- COMMUNICATIONS AND UTILITIES
- RECREATION
- WETLANDS
- WOODLANDS
- AGRICULTURAL
- OPEN LANDS
- SURFACE WATER
- STREAM
- WATERSHED BOUNDARY
- SUBWATERSHED BOUNDARY

Colors outside the watershed boundary are reduced in intensity to show the adjacent extent and distribution of each legend category.



2000 Land Use - Eagle Spring Subwatershed

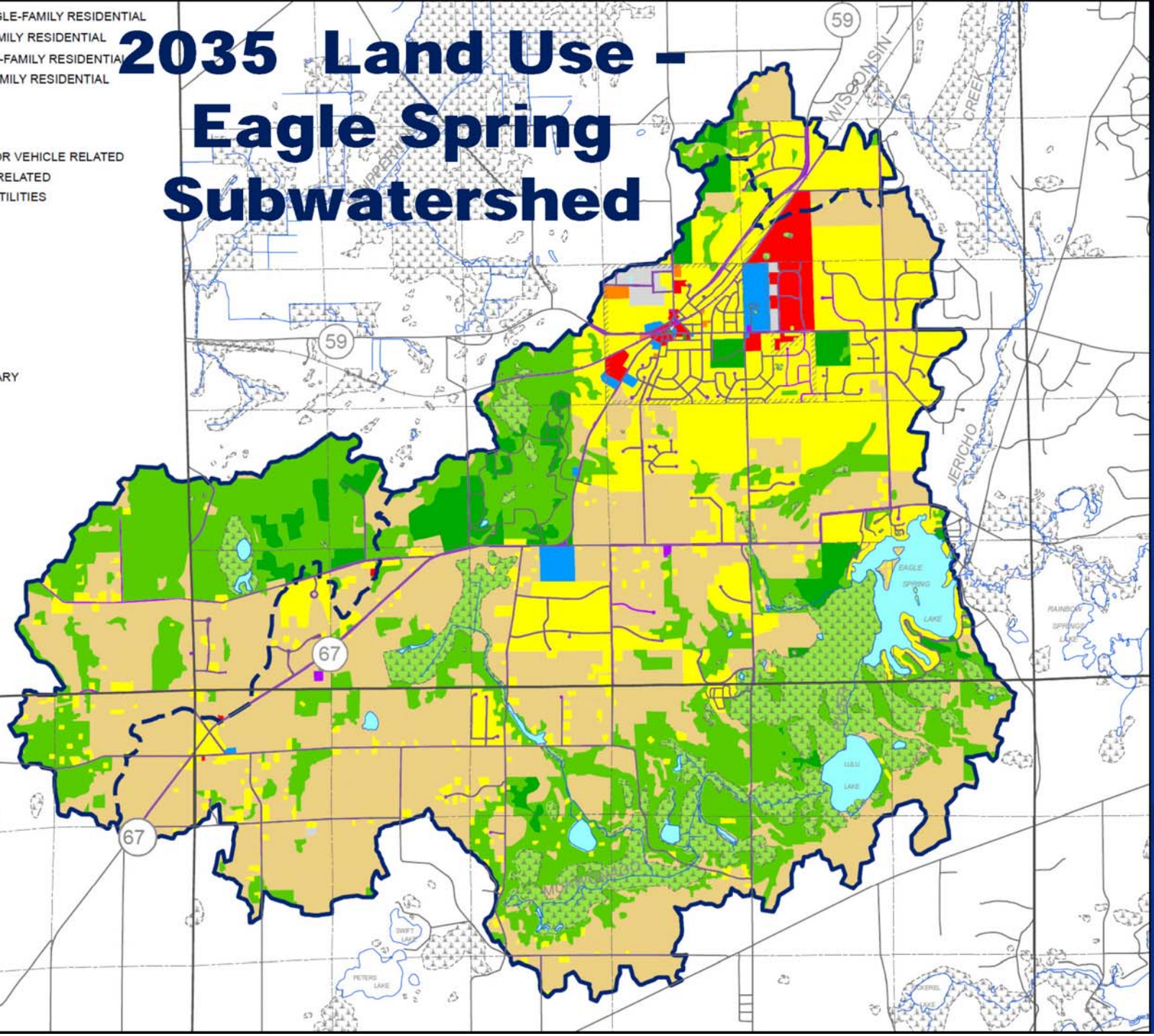
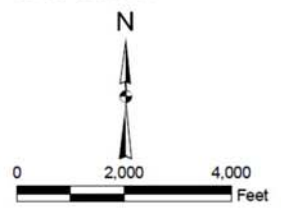


Source: SEWRPC.

- SUBURBAN-DENSITY SINGLE-FAMILY RESIDENTIAL
- LOW-DENSITY SINGLE-FAMILY RESIDENTIAL
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2035 Land Use - Eagle Spring Subwatershed

Source: SEWRPC.



Watershed Urbanization and Changes in Fish Communities in Southeastern Wisconsin Streams

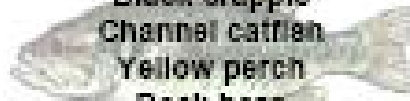
Increasing impervious surface in the watershed
Decreasing number of fish & fish species

Fish found in streams when impervious surface in the watershed was:

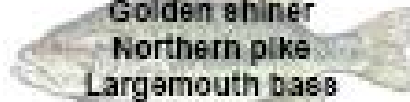
Less than 8%

8 - 12%

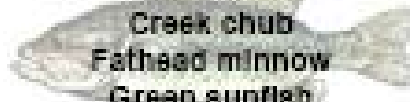
Greater than 12%



Iowa darter
Black crapple
Channel catfish
Yellow perch
Rock bass
Hornyhead chub
Sand shiner
Southern redbelly dace



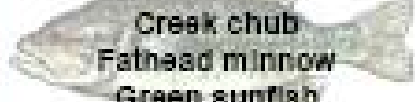
Golden shiner
Northern pike
Largemouth bass
Bluntnose minnow
Johnny darter
Common shiner



Creek chub
Fathead minnow
Green sunfish
White sucker
Brook stickleback



Golden shiner
Northern pike
Largemouth bass
Bluntnose minnow
Johnny darter
Common shiner



Creek chub
Fathead minnow
Green sunfish
White sucker
Brook stickleback

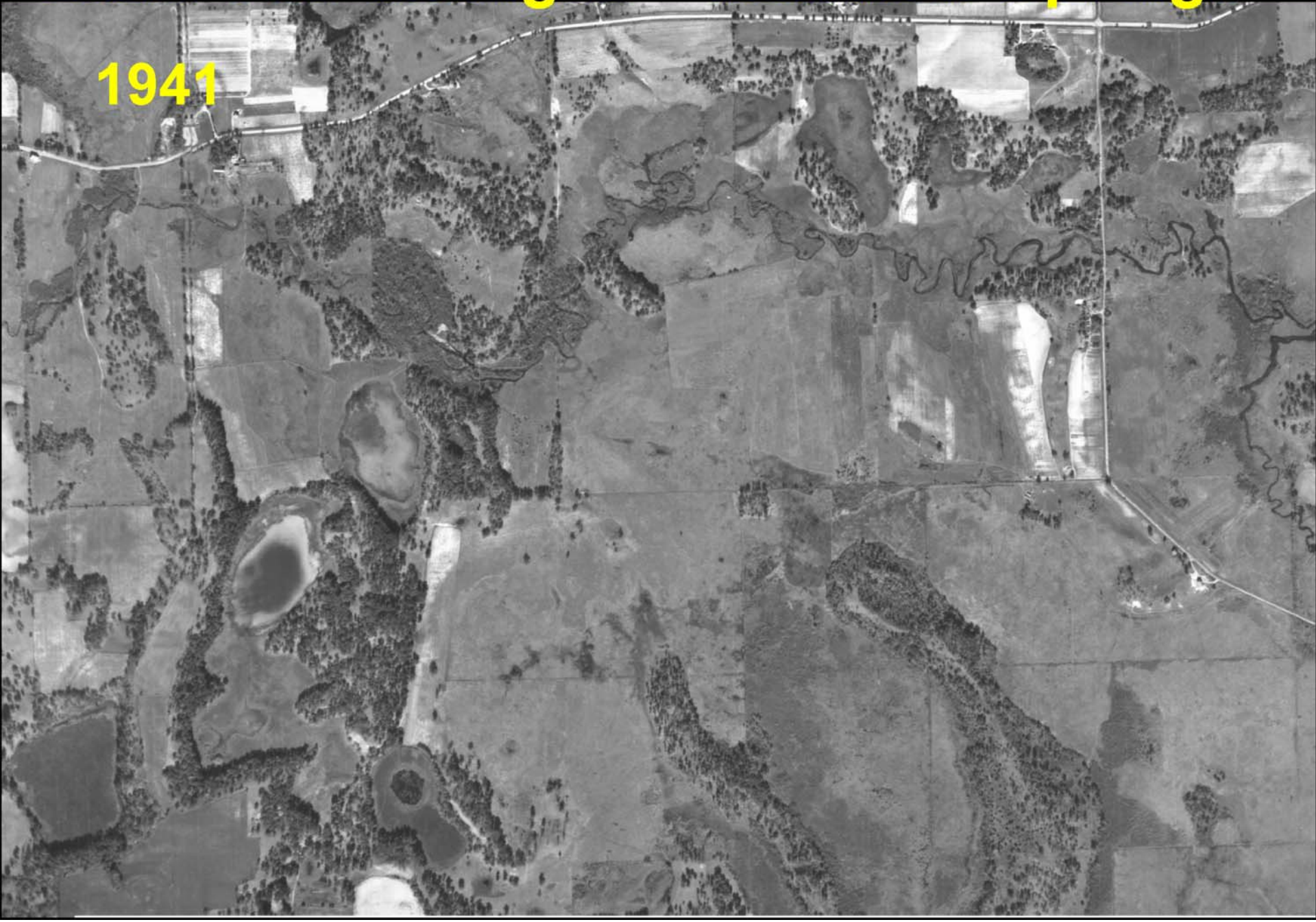


Creek chub
Fathead minnow
Green sunfish
White sucker
Brook stickleback

Source: Wang and others, 2000, Journal of the American Water Resources Association, No. 36, Vol 5

Land Use Changes – Rainbow Springs

1941



Land Use Changes – Rainbow Springs

1963



Land Use Changes – Rainbow Springs

2005



Cross Section Survey





WS 2199

GUIDE 147



WS

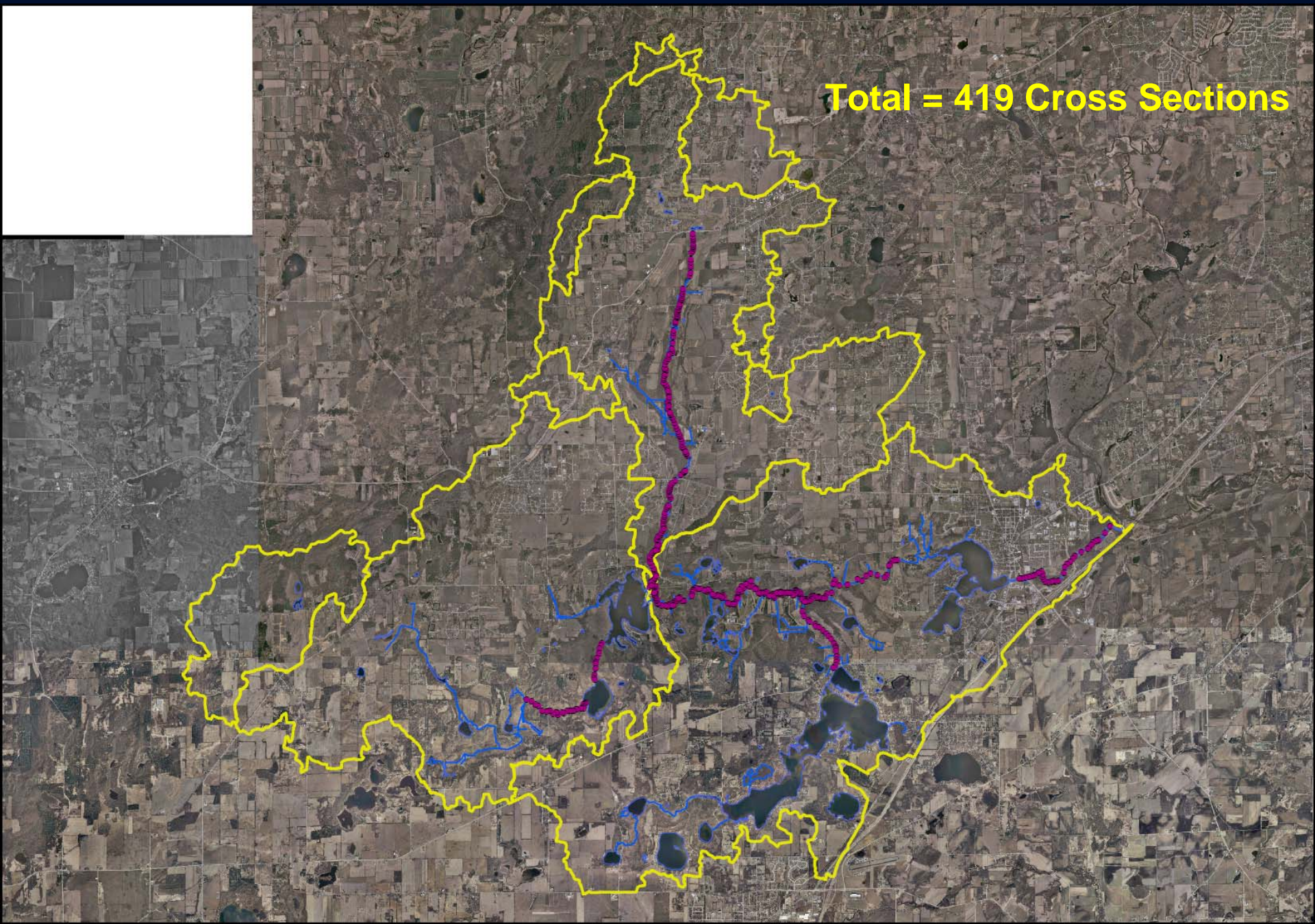
Field Hazards



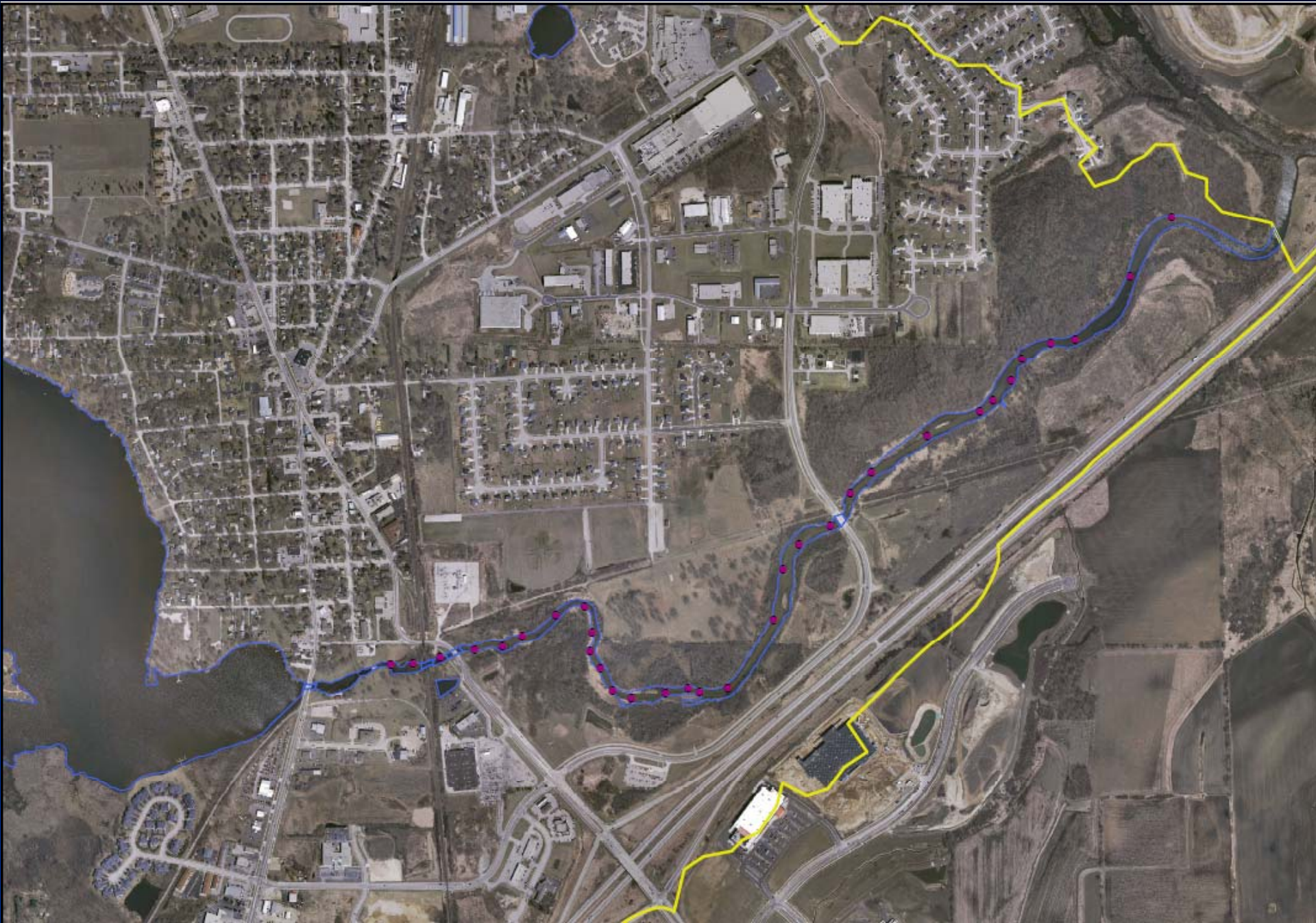
Spiders



Cross Section Locations



Cross Section Locations



Reptiles and Amphibians



Insects



Beaver Activity



River Crossings



River Crossings



Fish Sampling



Banded Darter



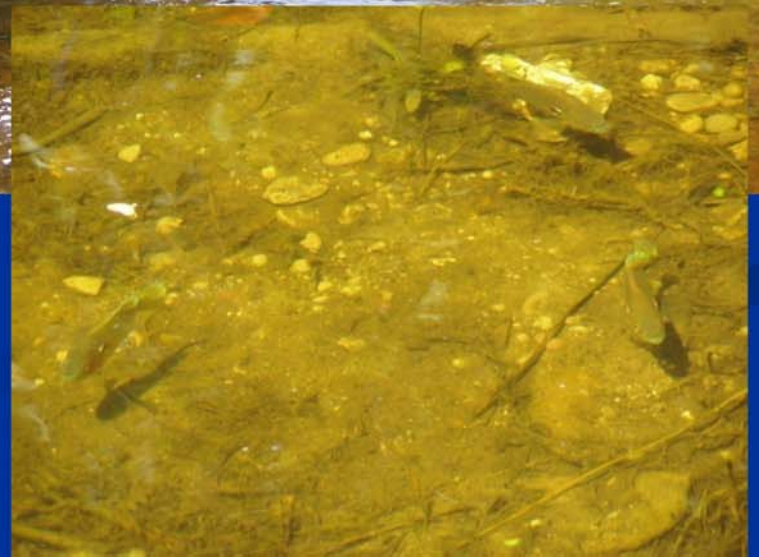
Starhead Topminnow





Mussels

Mukwonago River Confluence to Phantom Lake Dam

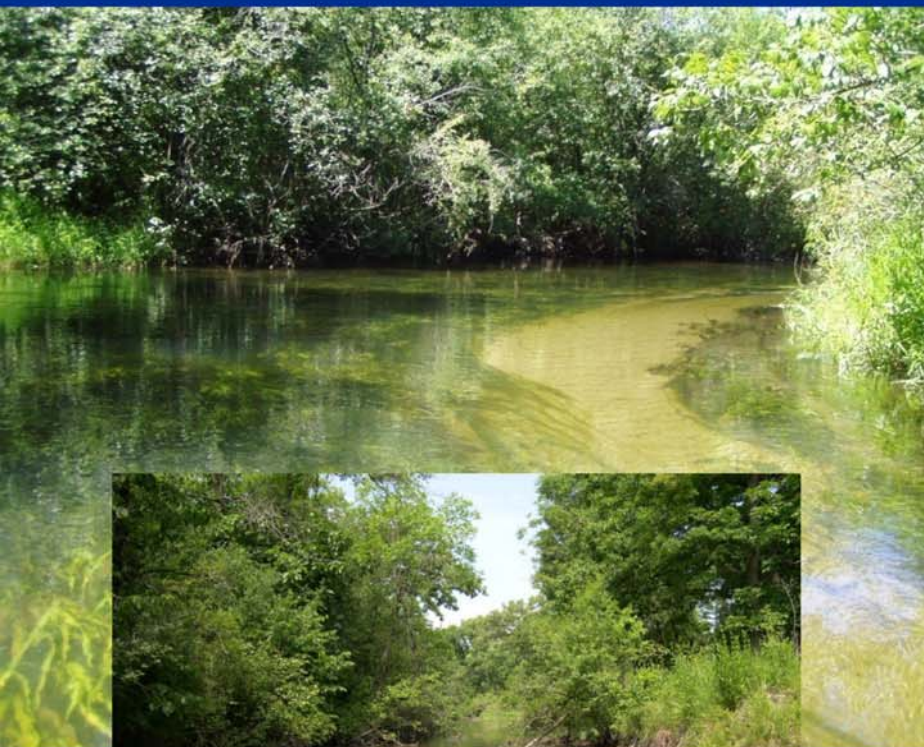


Mukwonago River CTH I to Beulah Road





Mukwonago River Beulah Road to Golf Course entrance



Mukwonago River Golf Course Entrance to CTH E



Mukwonago River CTH E to Eagle Spring Lake Dam



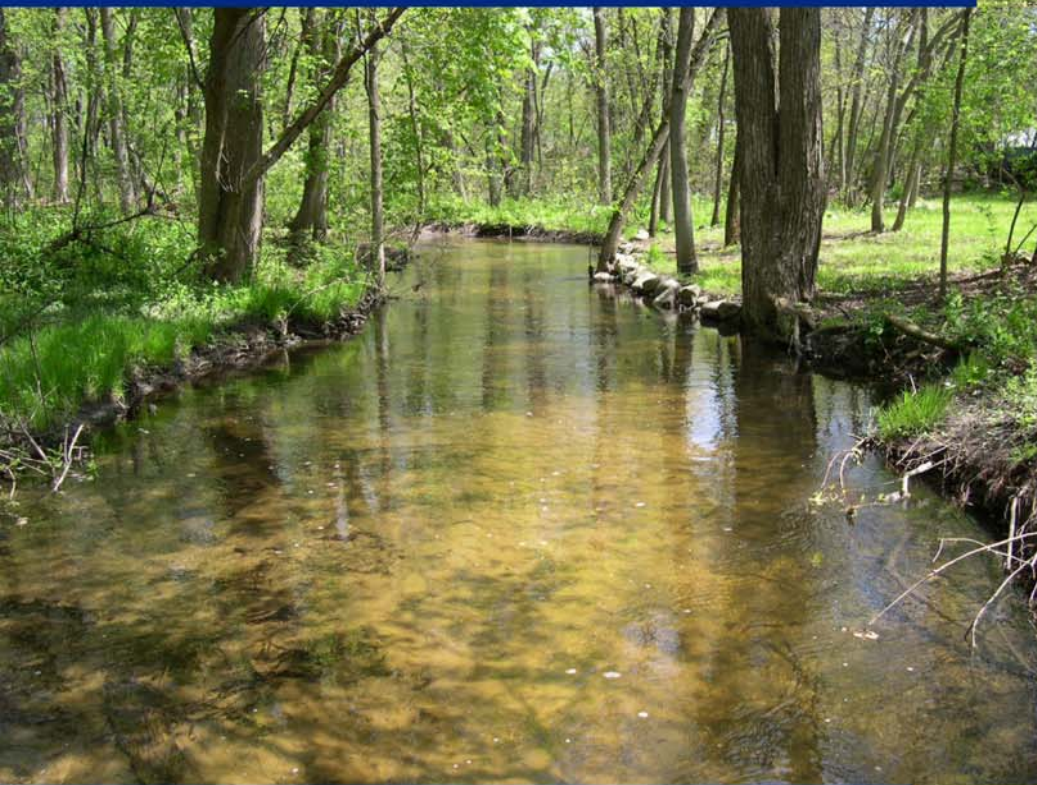
Mukwonago River Eagle Spring Lake to Lulu Lake



Mukwonago River Upstream Lulu Lake

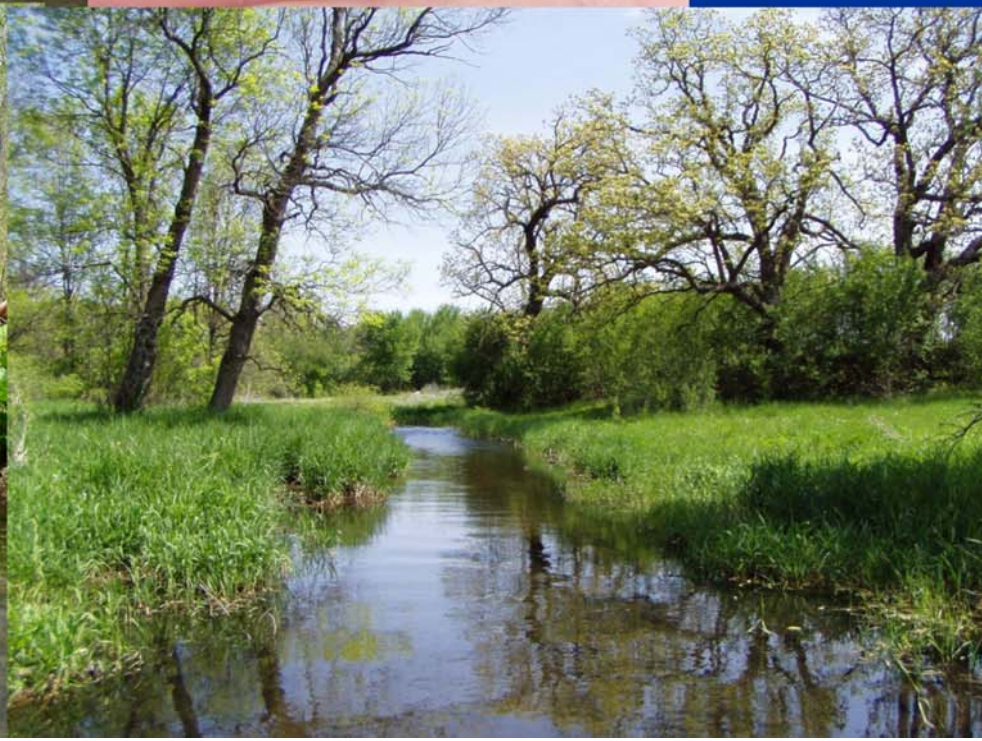


Jericho Creek confluence to CTH LO



Jericho Creek

CTH LO to CTH NN



Jericho Creek CTH NN to Road X



Jericho Creek Road X to STH 59



Lake Beulah Outlet



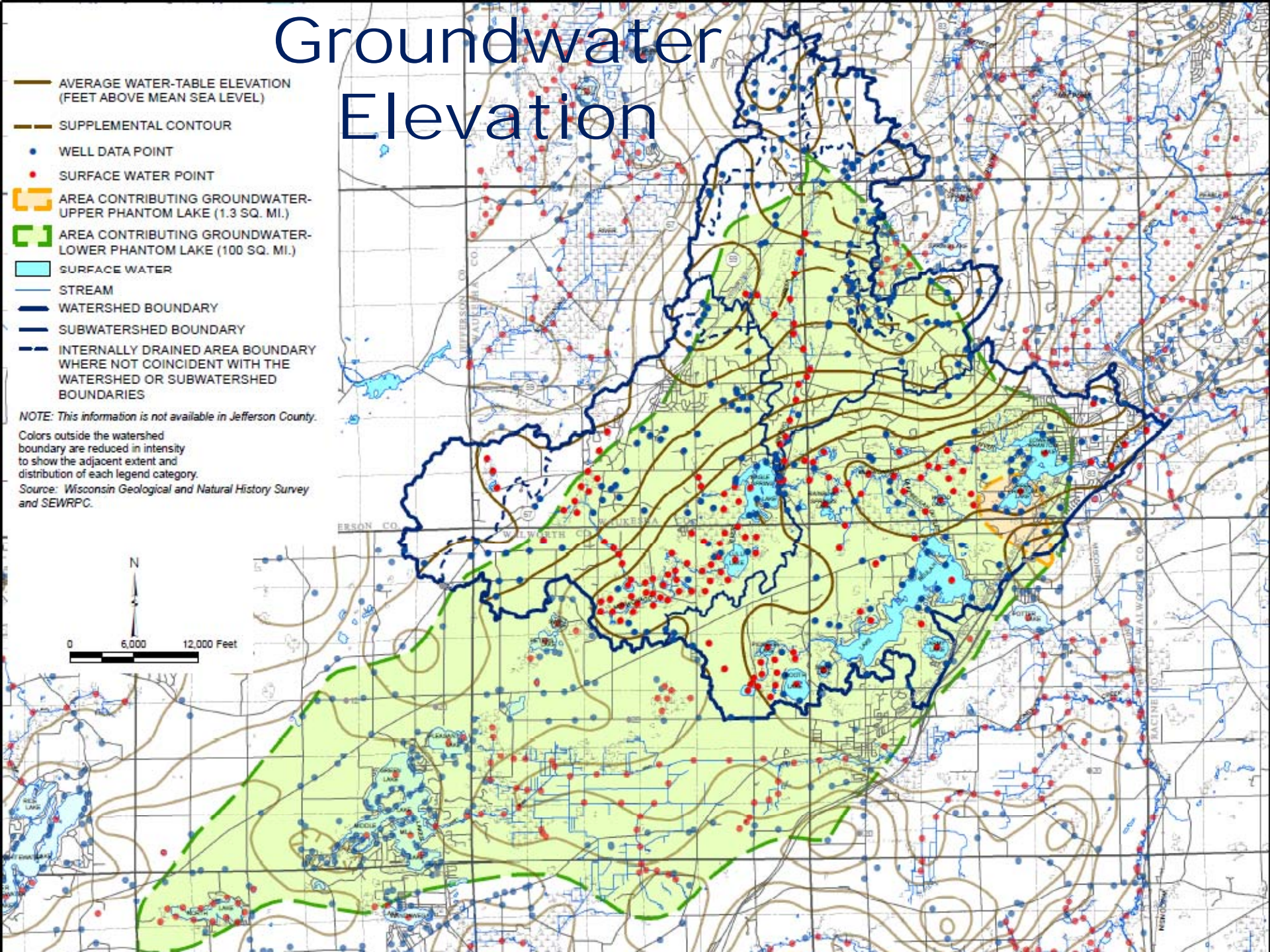
Groundwater Elevation

- AVERAGE WATER-TABLE ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- - - SUPPLEMENTAL CONTOUR
- WELL DATA POINT
- SURFACE WATER POINT
- AREA CONTRIBUTING GROUNDWATER-UPPER PHANTOM LAKE (1.3 SQ. MI.)
- AREA CONTRIBUTING GROUNDWATER-LOWER PHANTOM LAKE (100 SQ. MI.)
- SURFACE WATER
- STREAM
- WATERSHED BOUNDARY
- SUBWATERSHED BOUNDARY
- - - INTERNALLY DRAINED AREA BOUNDARY WHERE NOT COINCIDENT WITH THE WATERSHED OR SUBWATERSHED BOUNDARIES

NOTE: This information is not available in Jefferson County.

Colors outside the watershed boundary are reduced in intensity to show the adjacent extent and distribution of each legend category.

Source: Wisconsin Geological and Natural History Survey and SEWRPC.



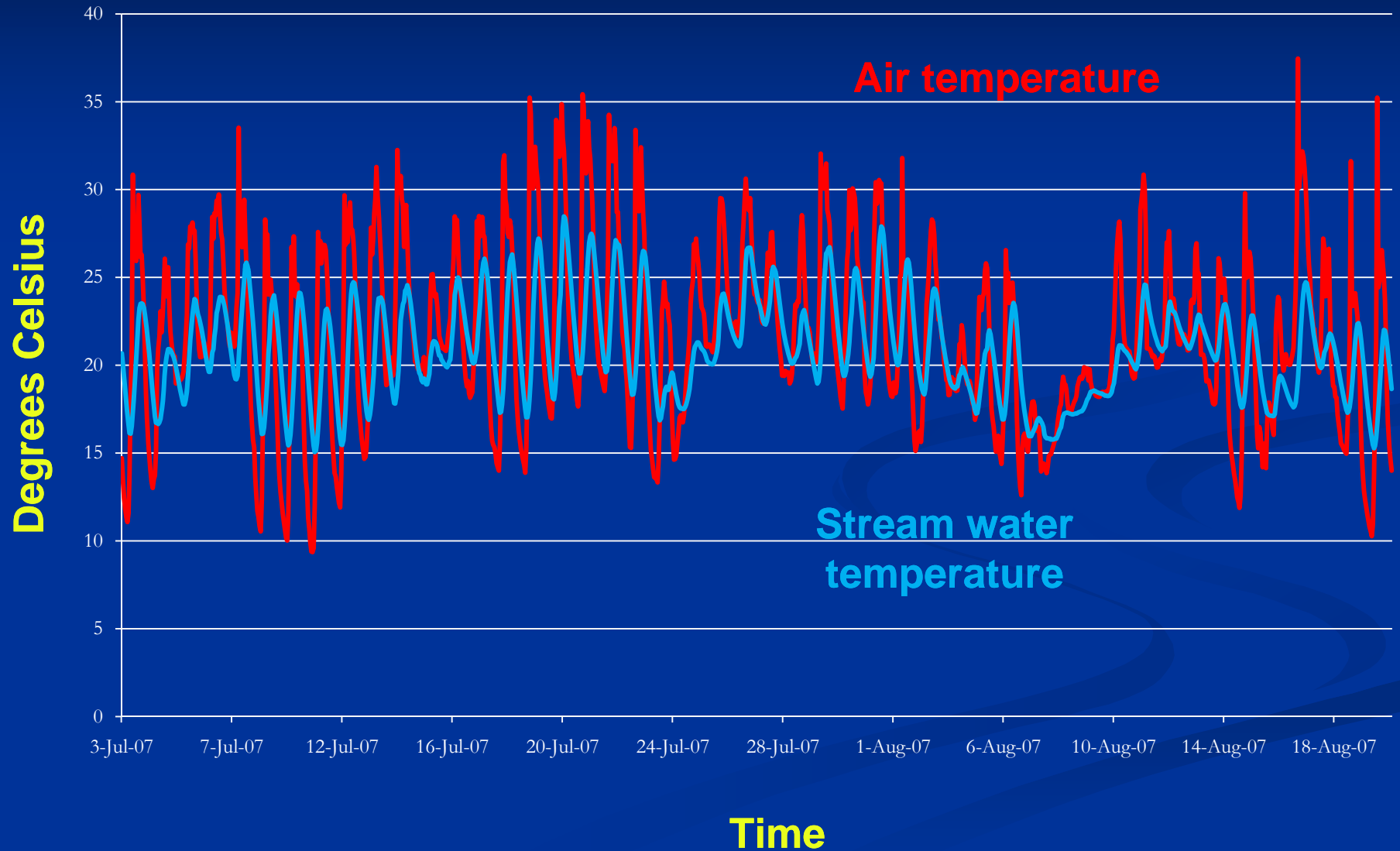
Groundwater Seepage Areas



Groundwater Seepage Areas



Temperature Data



Temperature Data

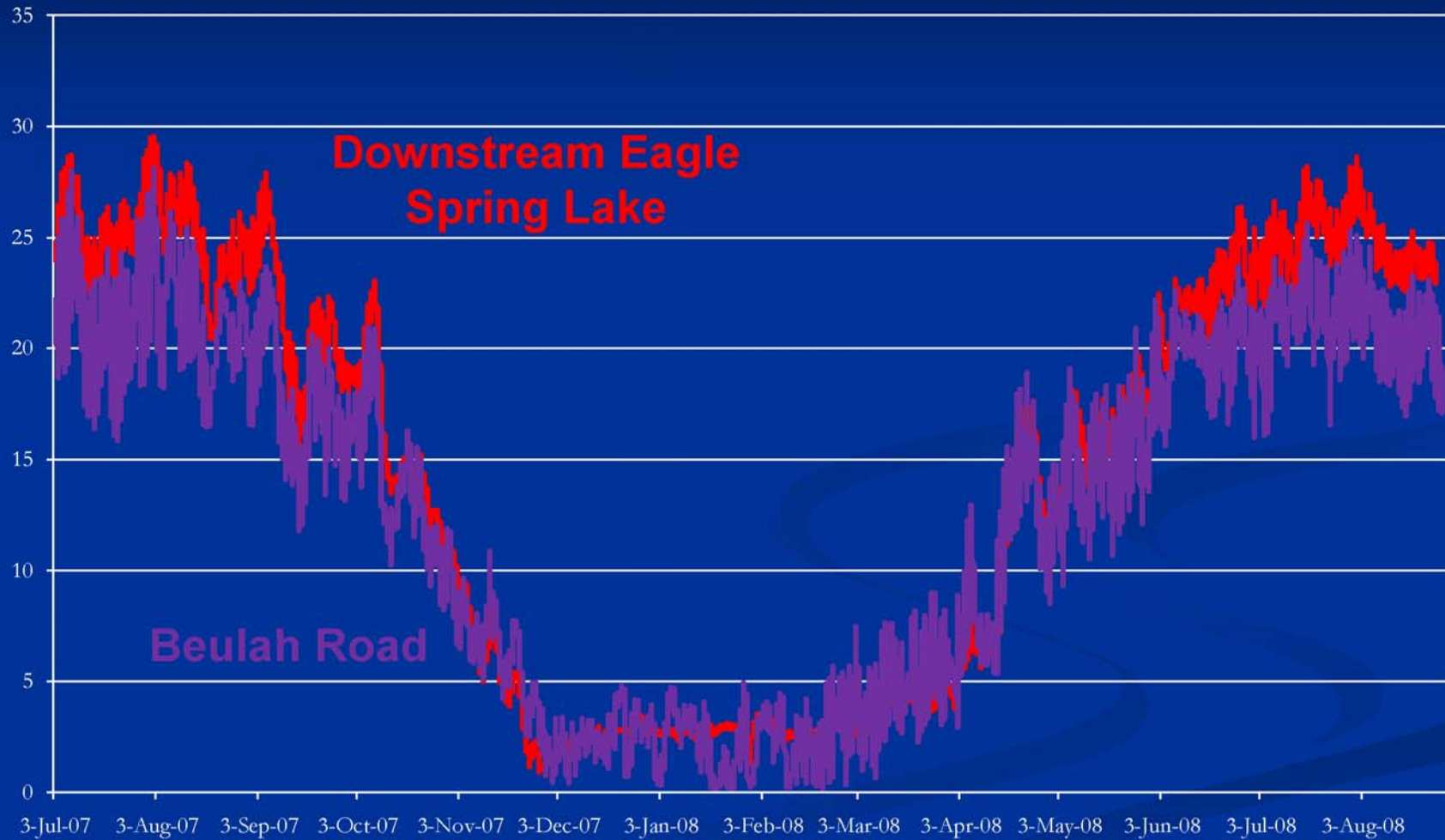
Degrees Celsius



Time

Temperature Data

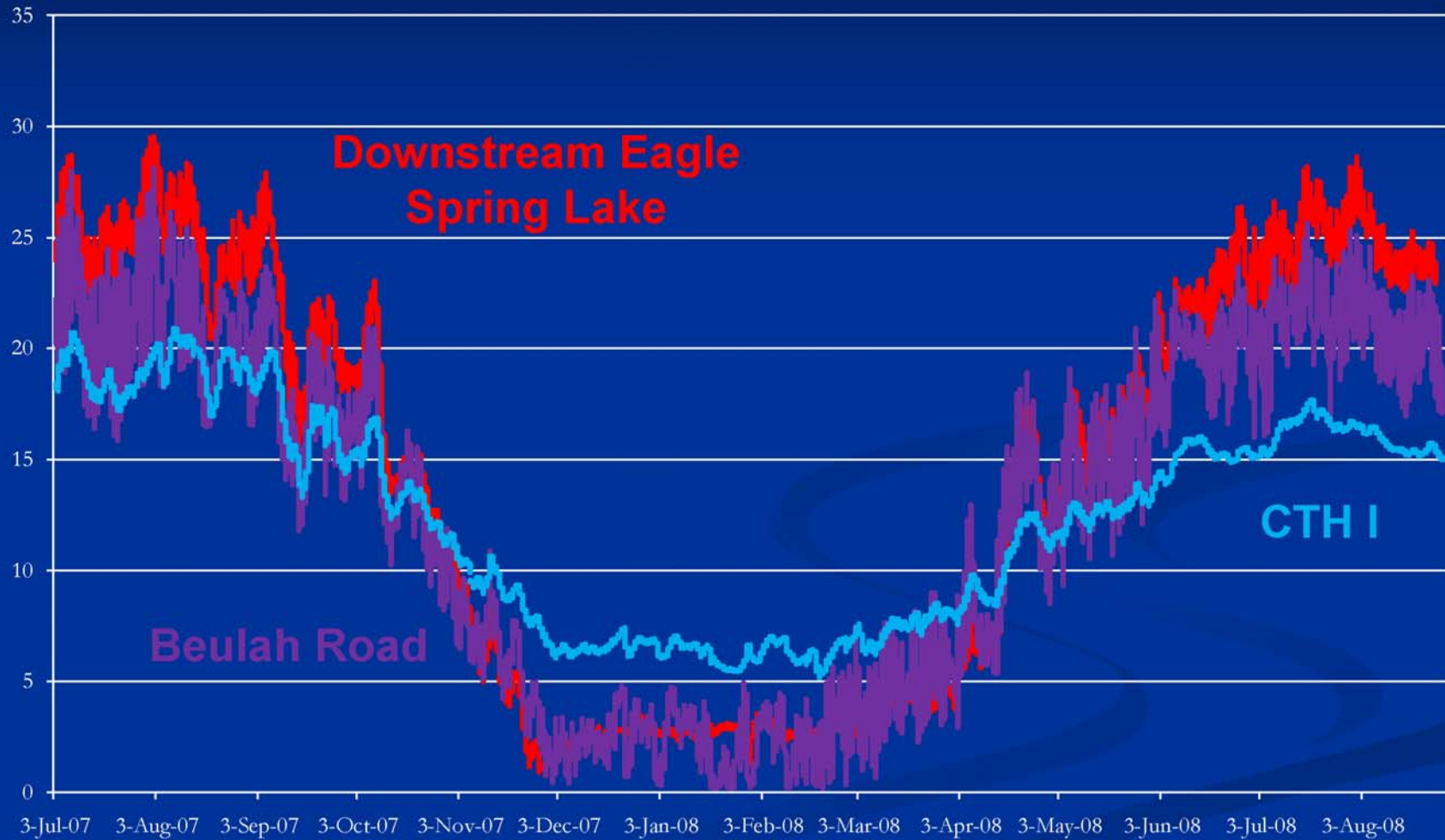
Degrees Celsius



Time

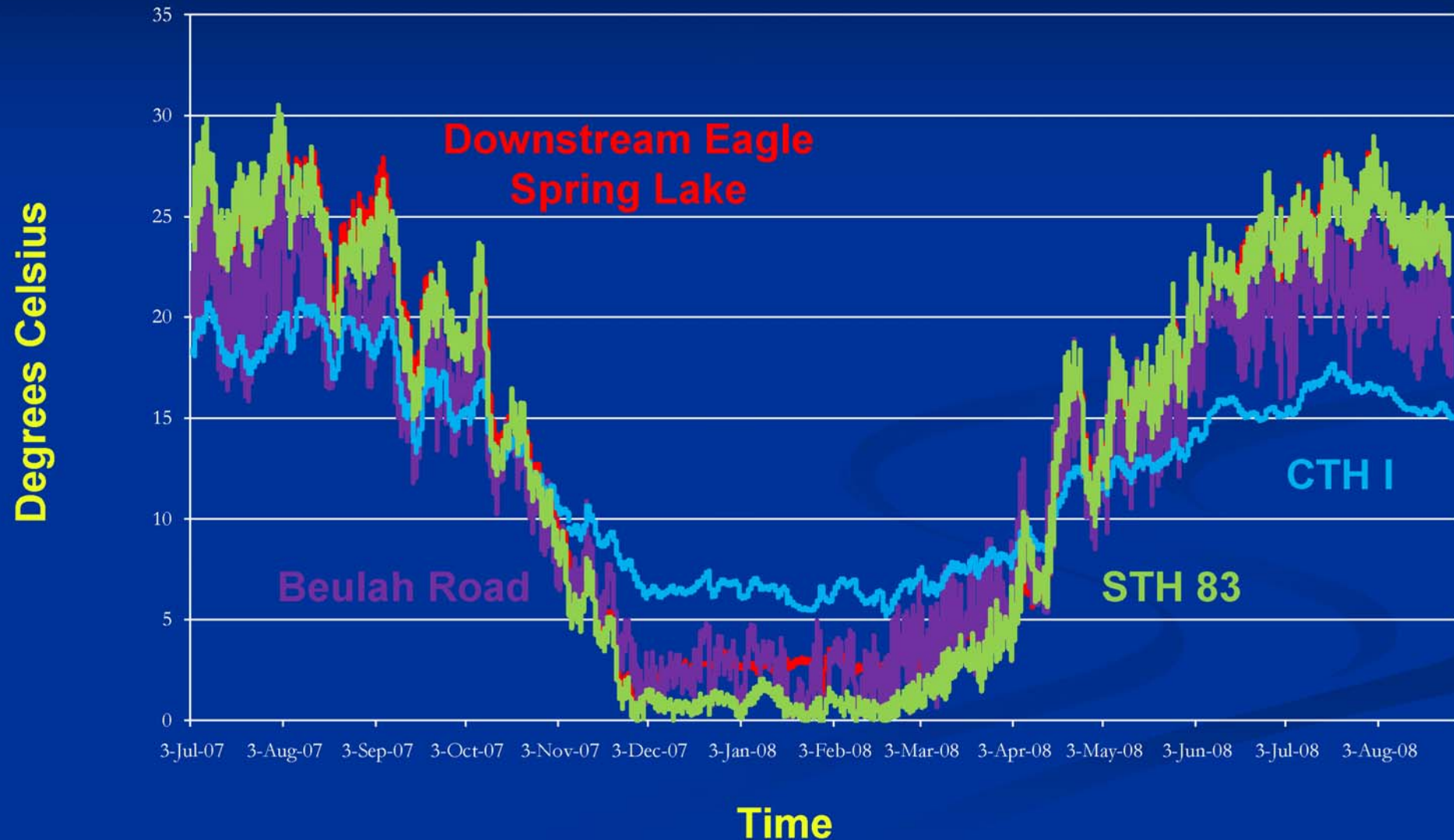
Temperature Data

Degrees Celsius



Time

Temperature Data



Fish Species



Brook Trout

American Brook Lamprey



Stonecat



Mottled Sculpin



Longear Sunfish



Grass Pickerel

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Proposed Outline

1. Introduction
2. Natural and Human Features of the Watershed
3. Related Plan, Regulations, and Programs
4. Background and Summary of Inventory Findings
5. Watershed Goals, Objectives, and Recommended Actions
6. Plan Implementation

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Walworth & Waukesha County Land and Water Resource Management Plans

To protect and improve (restore) land and water resources

Goals in common:

- Minimize impacts of land development on water resources
- Protection of groundwater quality and abundance
- Control urban runoff pollution and flooding
- Protect farmland
- Control agriculture runoff pollution
- Build partnerships and educate public to promote protection of natural resources

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Proposed Timeline

Chapters	2008								
	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1									
2									
3									
4									
5									
6									



refined list of issues



prioritization of issues



develop alternative recommendations

Thanks to our Helpers!



Thank you

