



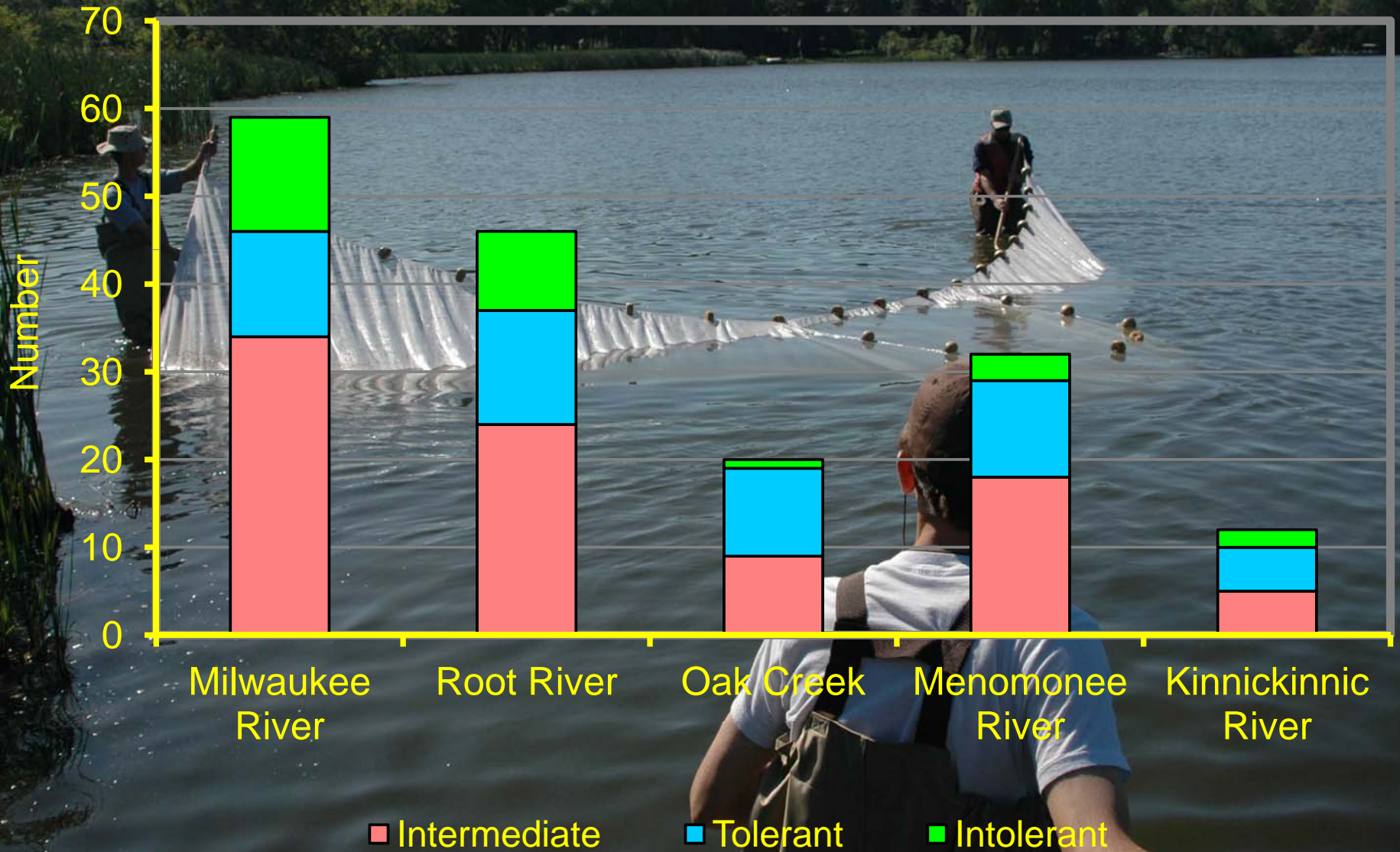
***Issues of Connectivity, Fragmentation, &
Riparian Lands Update
Root River Watershed
Restoration Plan Meeting
November 16, 2011***

Thomas M. Slawski, Principal Planner
Southeastern Wisconsin Regional Planning Commission

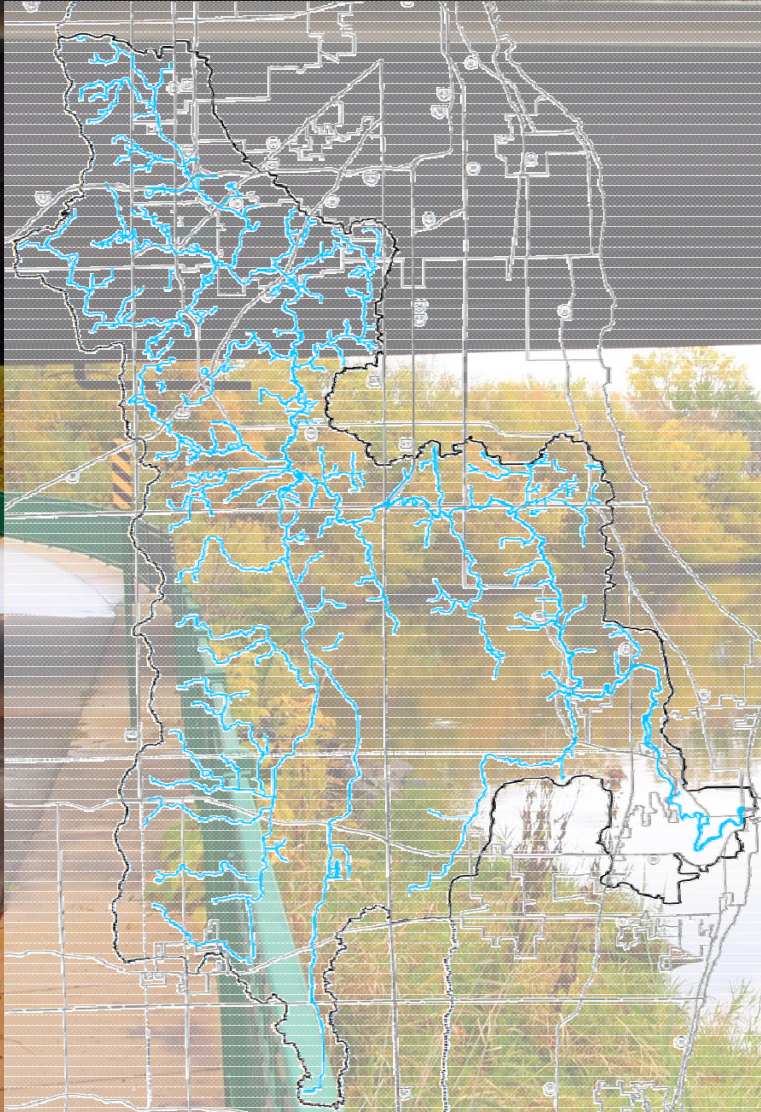


Where are we starting from?

Fishery comparison among watersheds: 1998-2004



**Study area is
large &
complex**



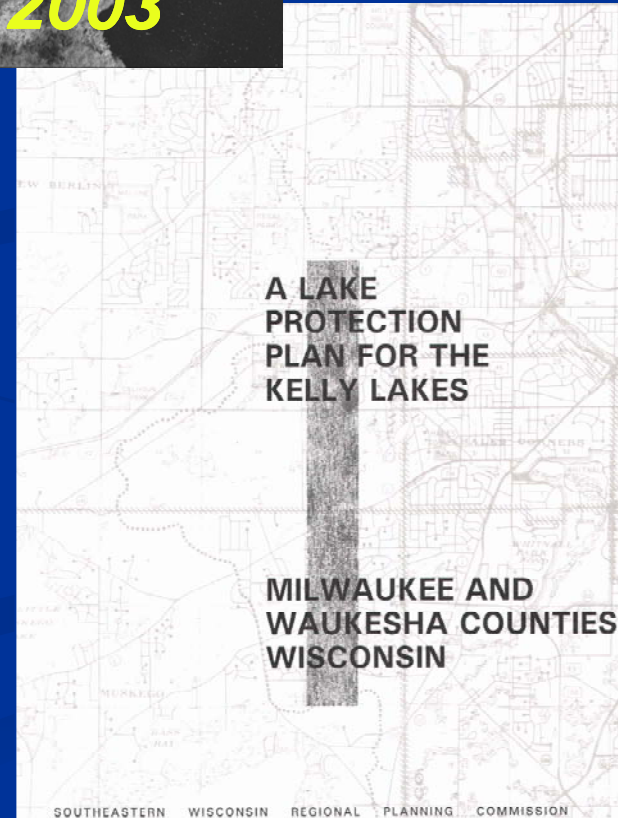
Stakeholder success in watershed partnerships



2003



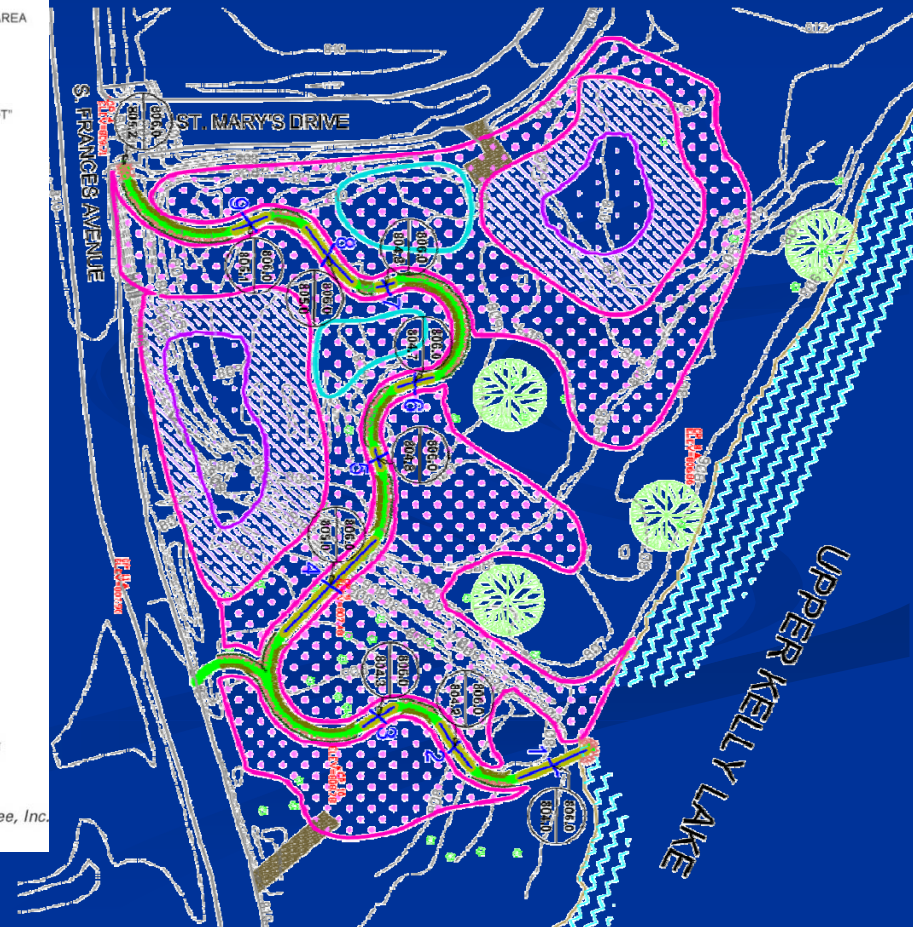
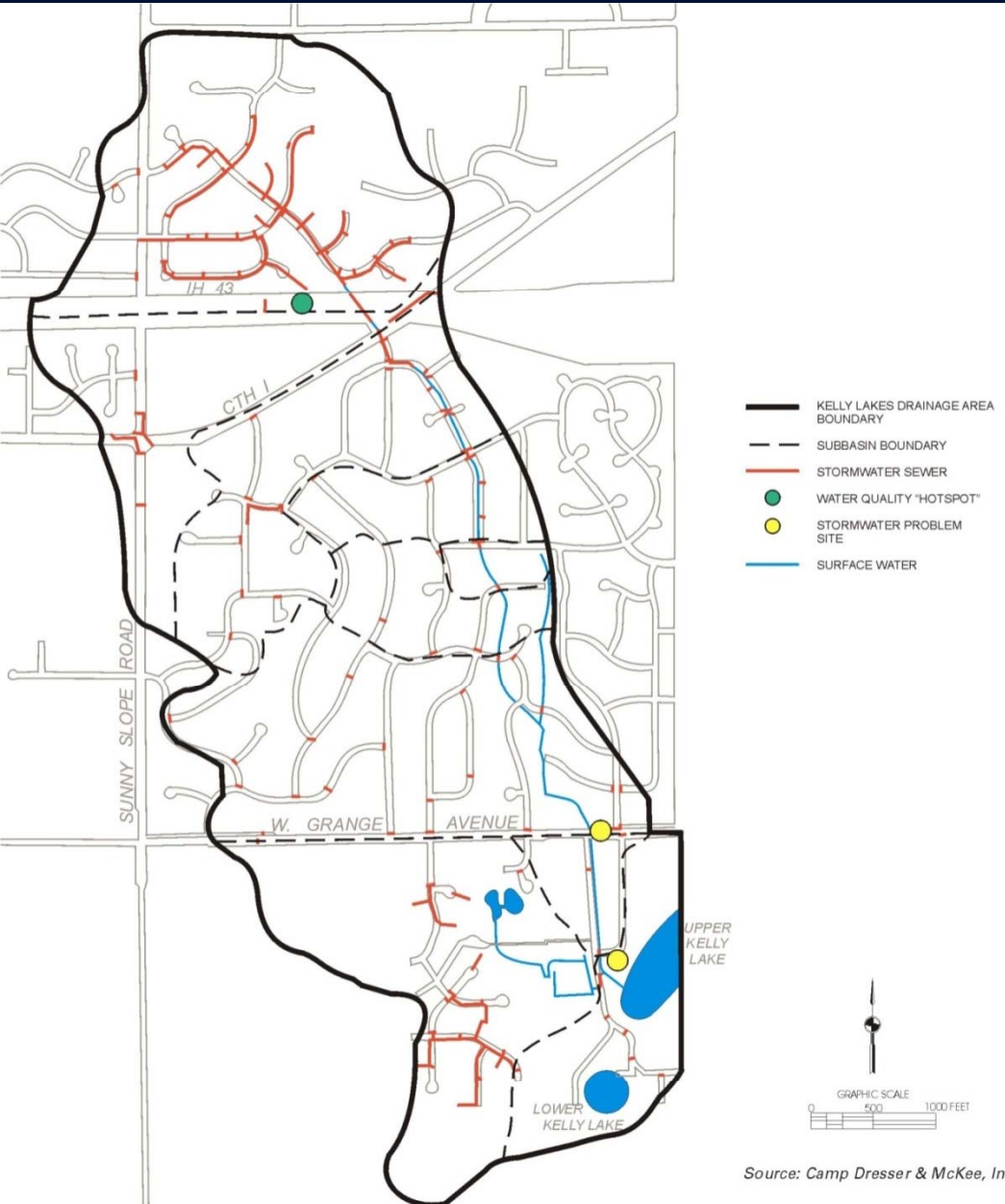
2004



2005

Kelly Lakes Watershed Project Goals: Recreate a naturally Meandering stream

Reconnect the stream and its floodplain

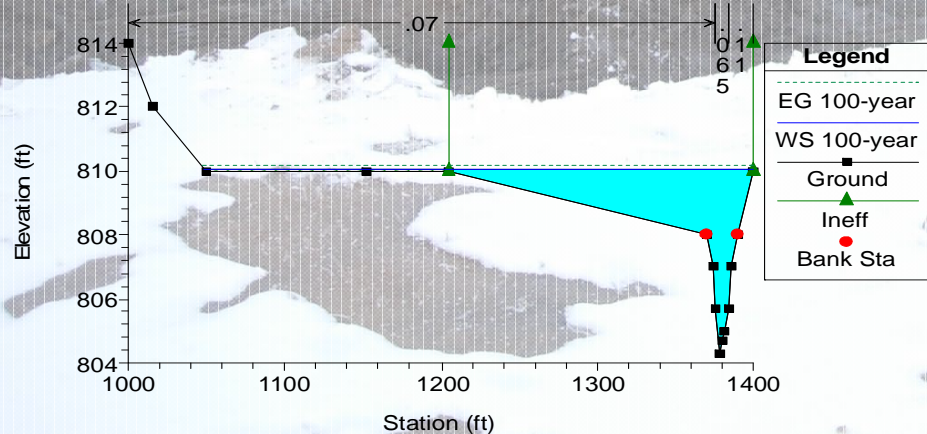


Historic fill was removed and floodplain reconnected



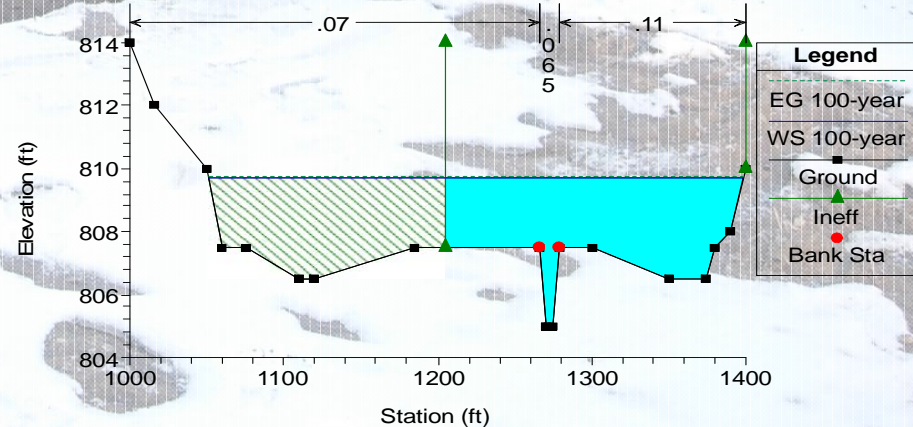
Existing Conditions

Upper Kelly Lakes Tributary Plan: Plan 22 4/2/2004
 UKL Tributary Cross Sec. Added From 2000 large-scale topo map

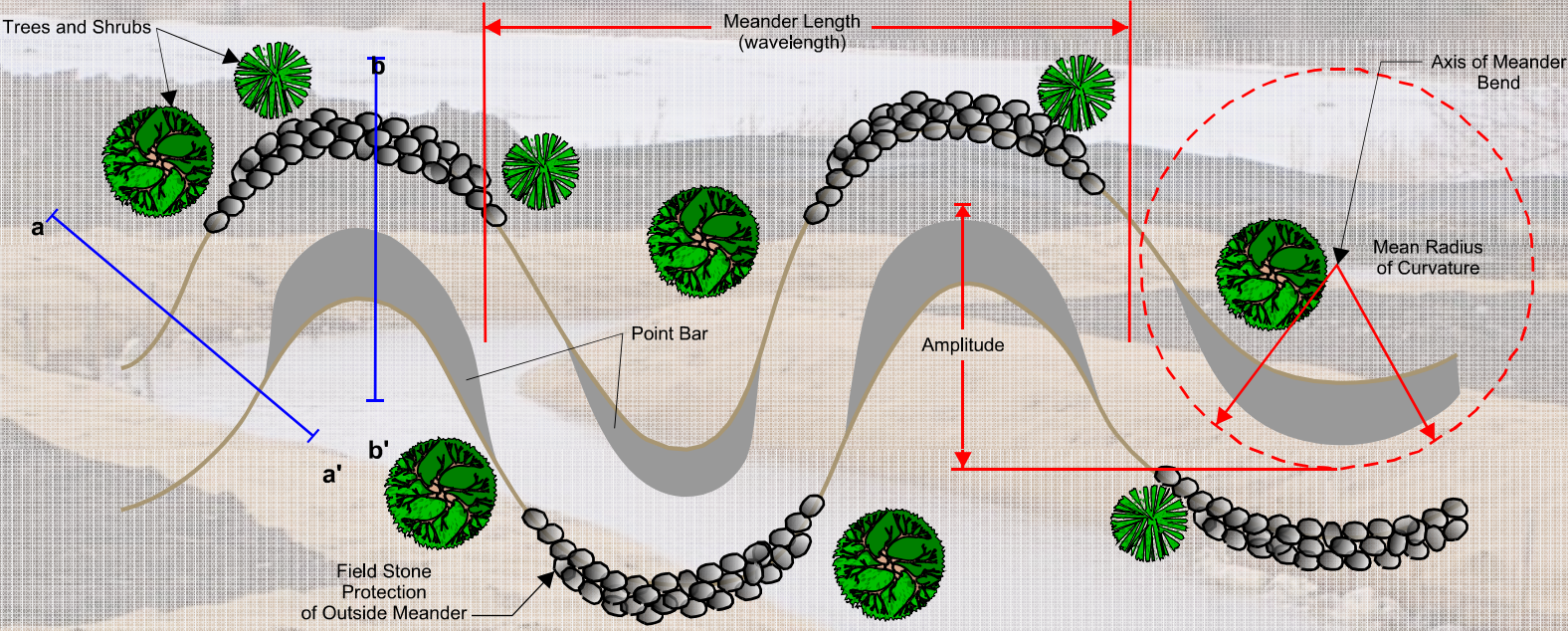


Proposed Conditions

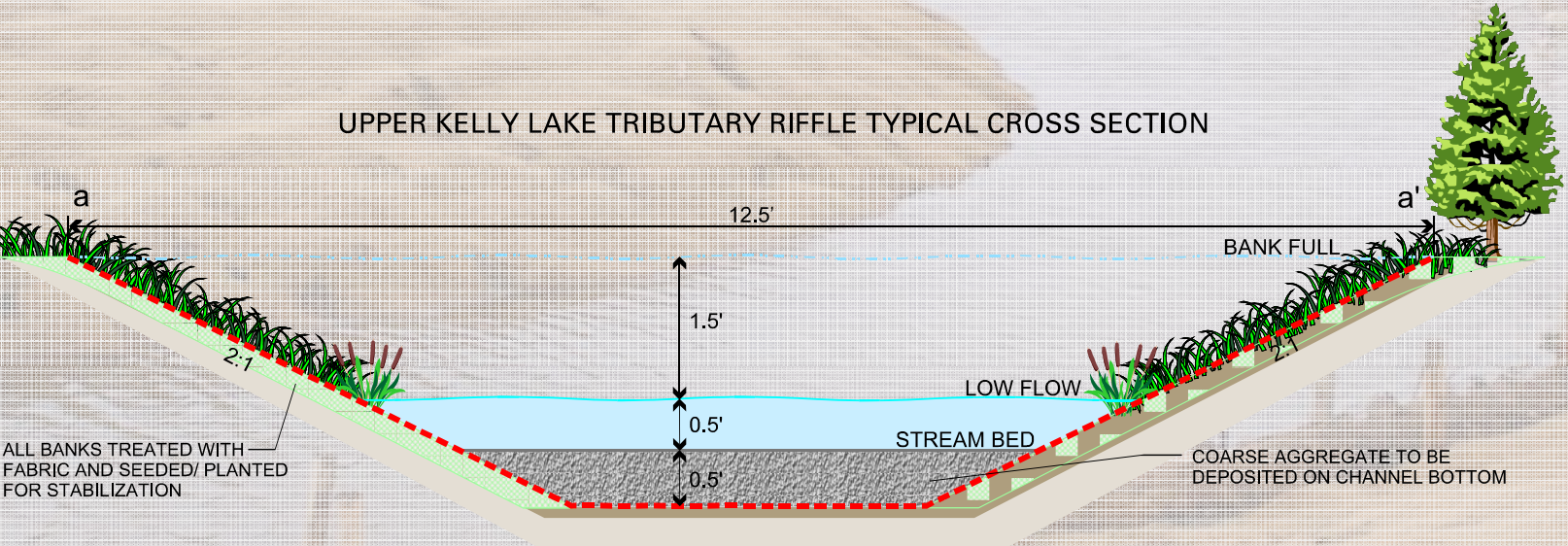
Upper Kelly Lakes Tributary Plan: Plan 21 4/2/2004
 UKL Tributary Cross Sec. Added From 2000 large-scale topo map



Desired instream design elements are introduced



UPPER KELLY LAKE TRIBUTARY RIFFLE TYPICAL CROSS SECTION



Fall 1997



From Plan...

...to Finished Project

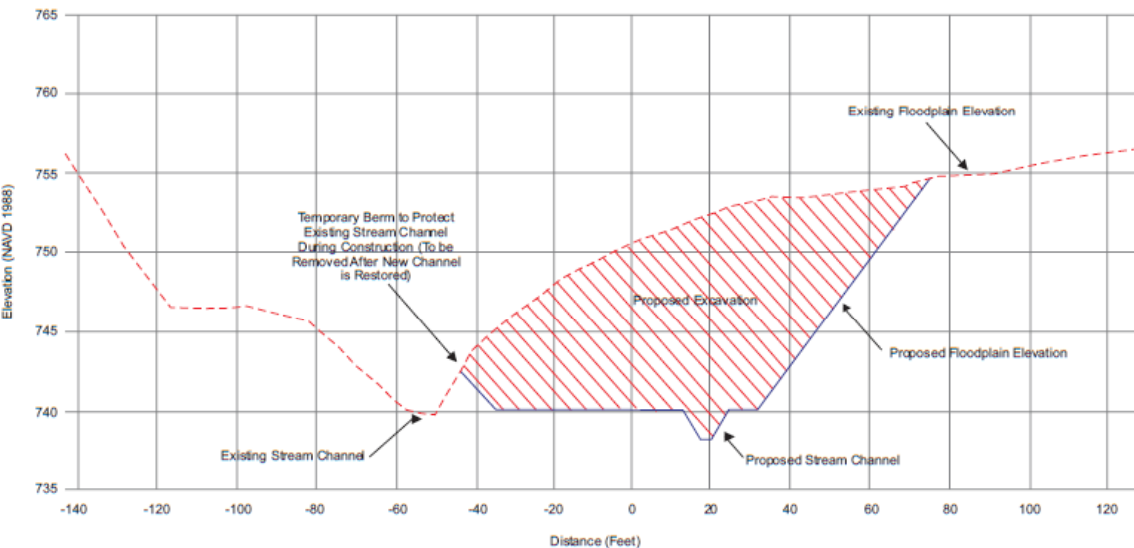
Summer 2006



I-94 AND CTH G INTERCHANGE PROJECT, RACINE COUNTY



UNNAMED TRIBUTARY TO THE EAST BRANCH ROOT RIVER CANAL TYPICAL EXISTING AND PROPOSED FLOODPLAIN CROSS-SECTION



NOTE: Floodplain is defined here as a relatively flat valley floor formed by floods that overtop the banks of the stream and not as the area inundated during the regulatory 100-year recurrence interval flood.

Source: Wisconsin Department of Transportation and SEWRPC.

- Approximate Floodplain
- Proposed Stream Alignment
- Existing Stream Alignment
- Riffle
- Riffle Number

NOTE: Floodplain is defined here as a relatively flat valley floor formed by floods that overtop the banks of the stream and not as the area inundated during the regulatory 100-year recurrence interval flood.

0 75 150 300 Feet



What is habitat?

(Effects of Urbanization on Stream Ecosystems)

This USGS study examines the response of a stream's biological communities, hydrology, habitat, and stream chemistry to urban development, and how these responses vary across the country.

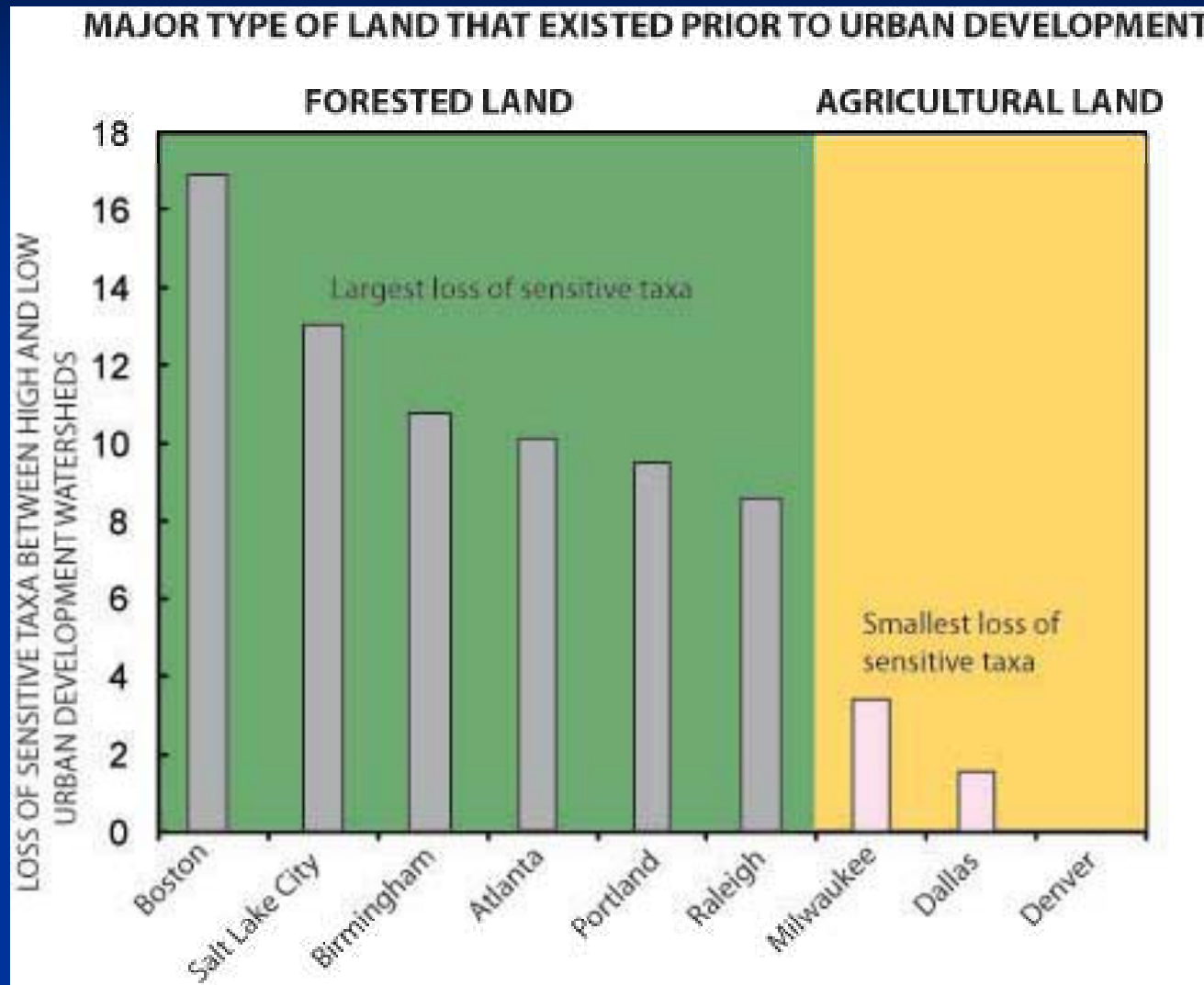
Key Findings

Featured Article

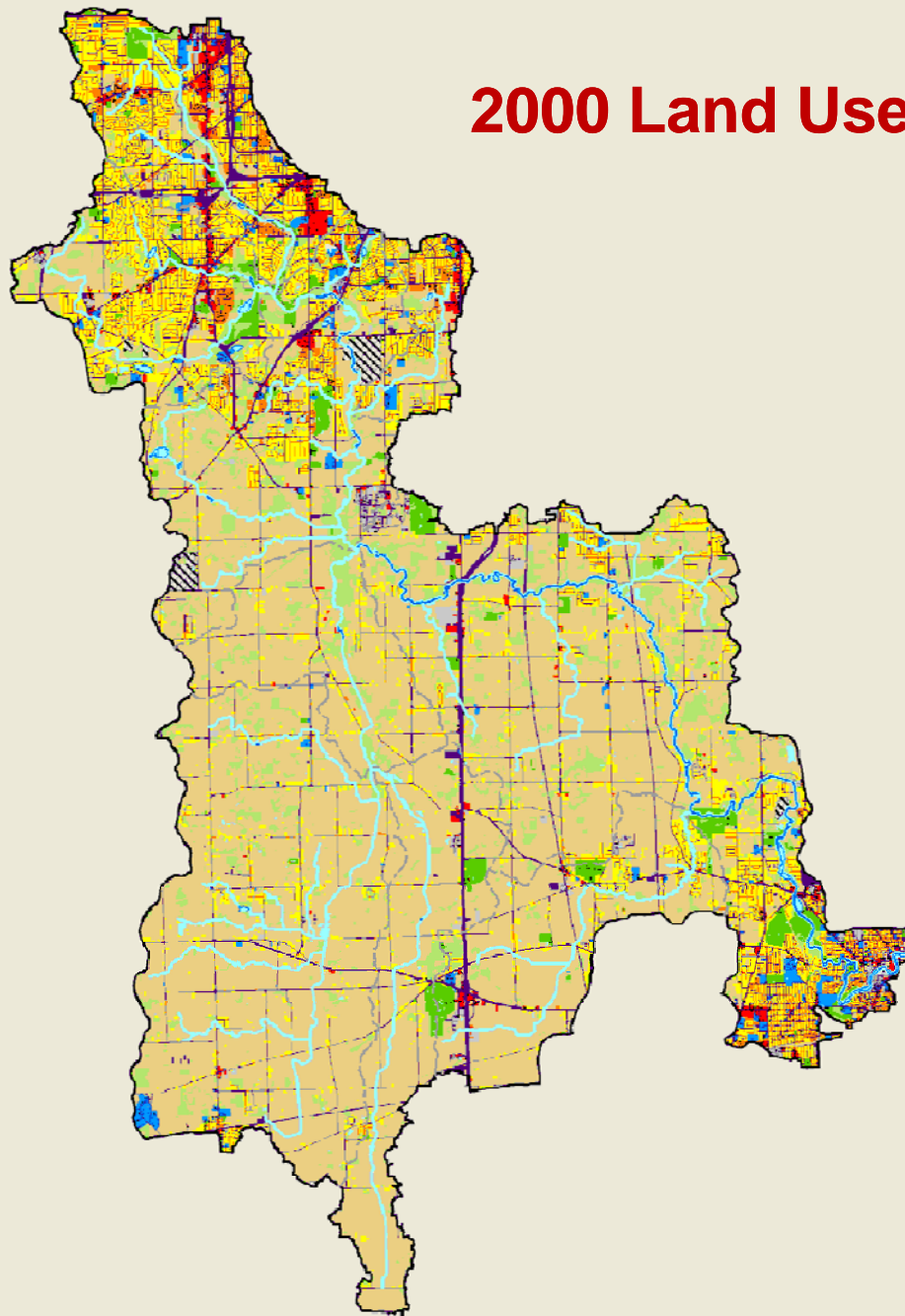
Podcasts



The Response of Biota Was Weaker Where Prior Land Use Activities Had Already Degraded Streams



2000 Land Use



Average and high flow magnitude, high flow frequency, and high flow duration have been associated with changes in aquatic communities.

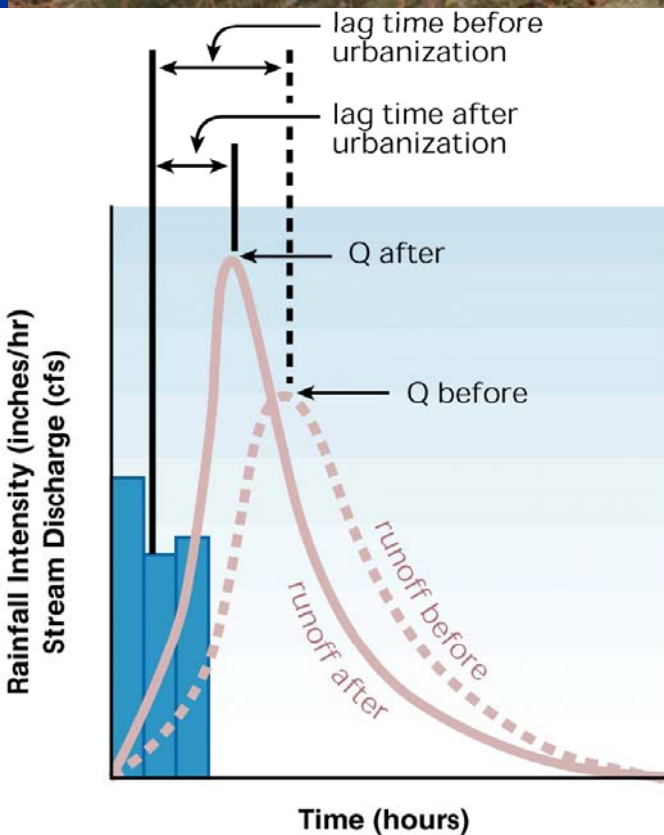
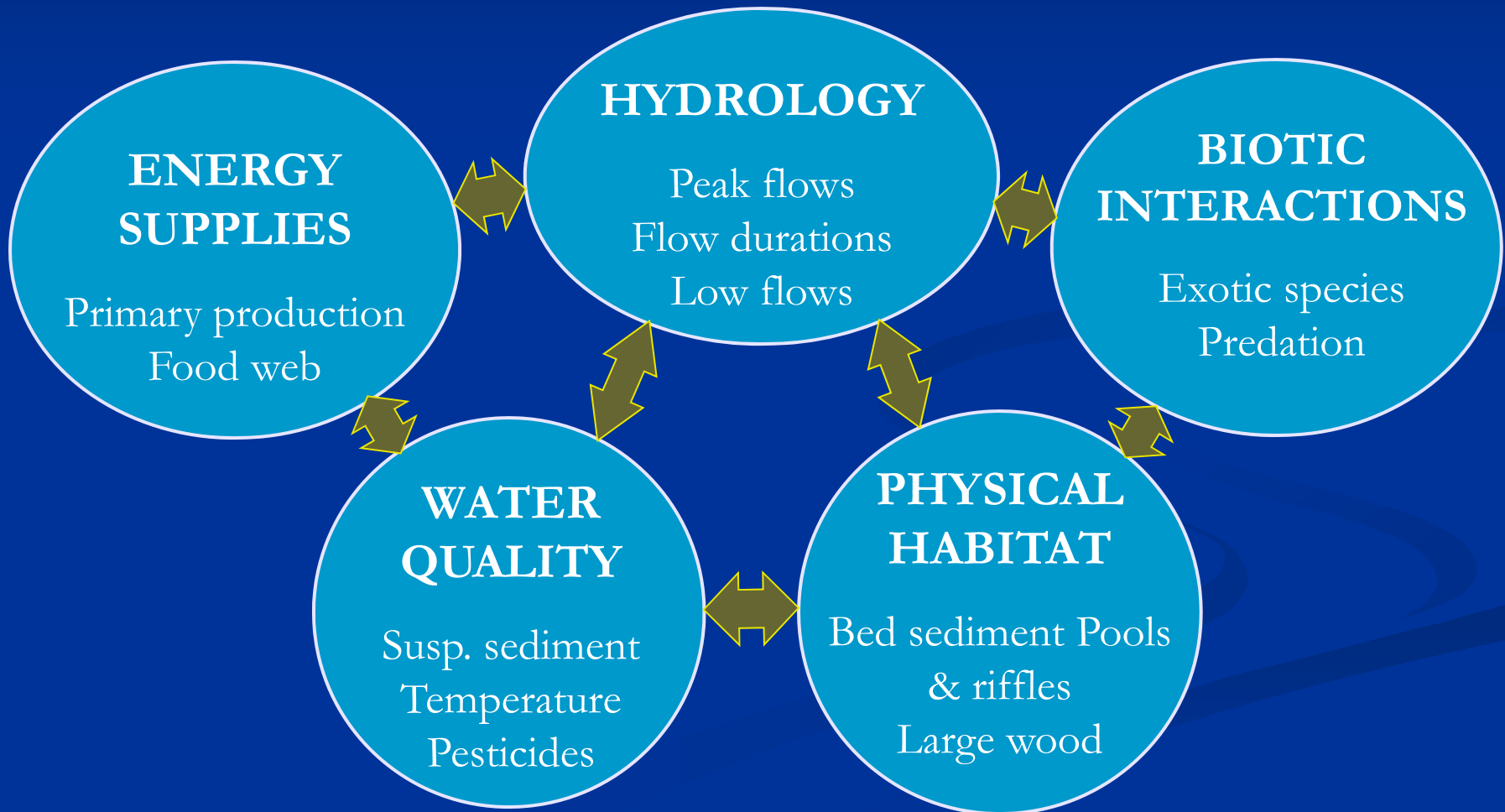


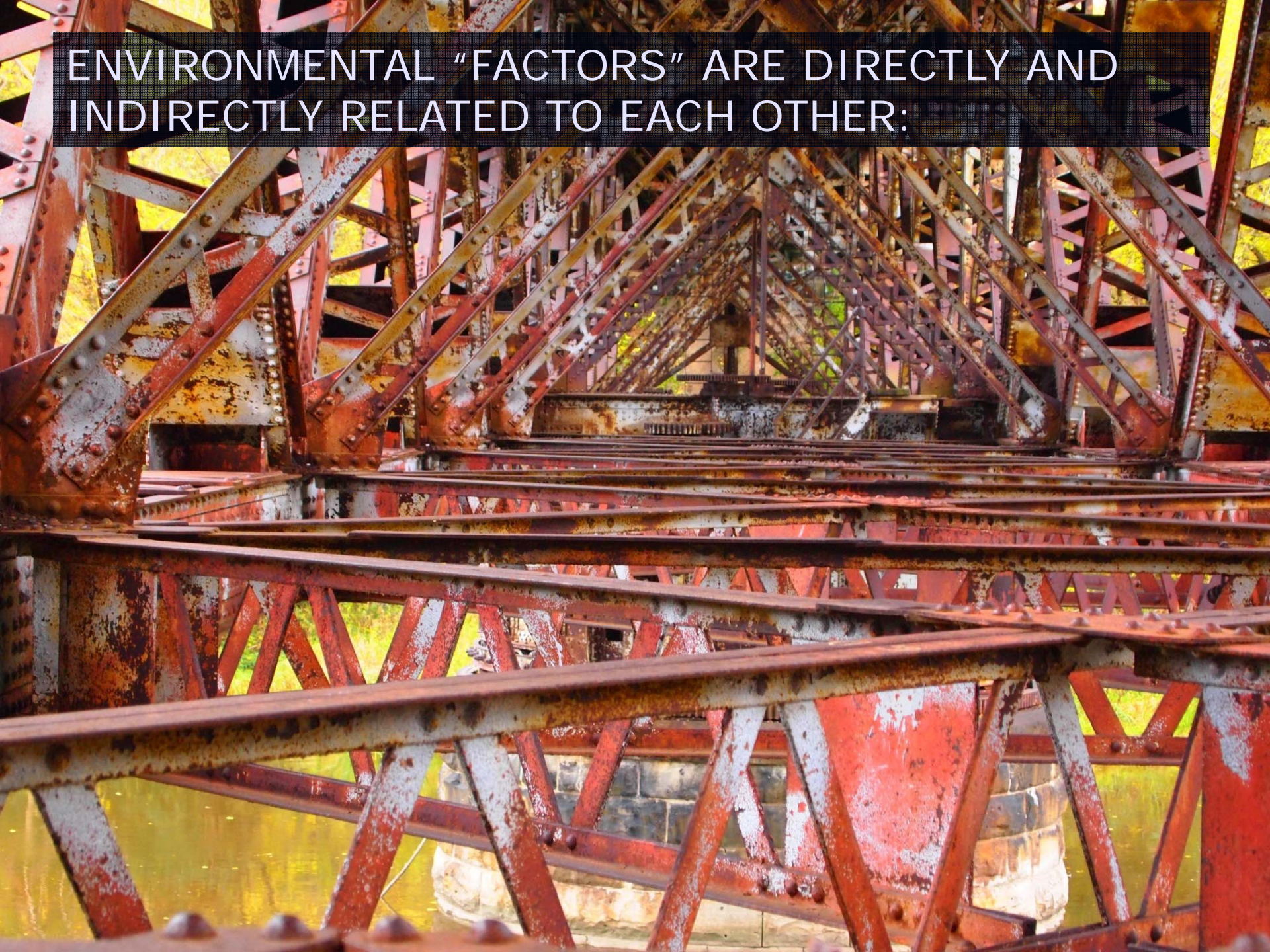
Photo: Alan Cressler, USGS

ENVIRONMENTAL “FACTORS” THAT:

- Influence biological health in aquatic ecosystems
- Are affected by human disturbance (from Karr, 1991)



ENVIRONMENTAL "FACTORS" ARE DIRECTLY AND INDIRECTLY RELATED TO EACH OTHER:



So what is “Habitat”?

Instream Measures

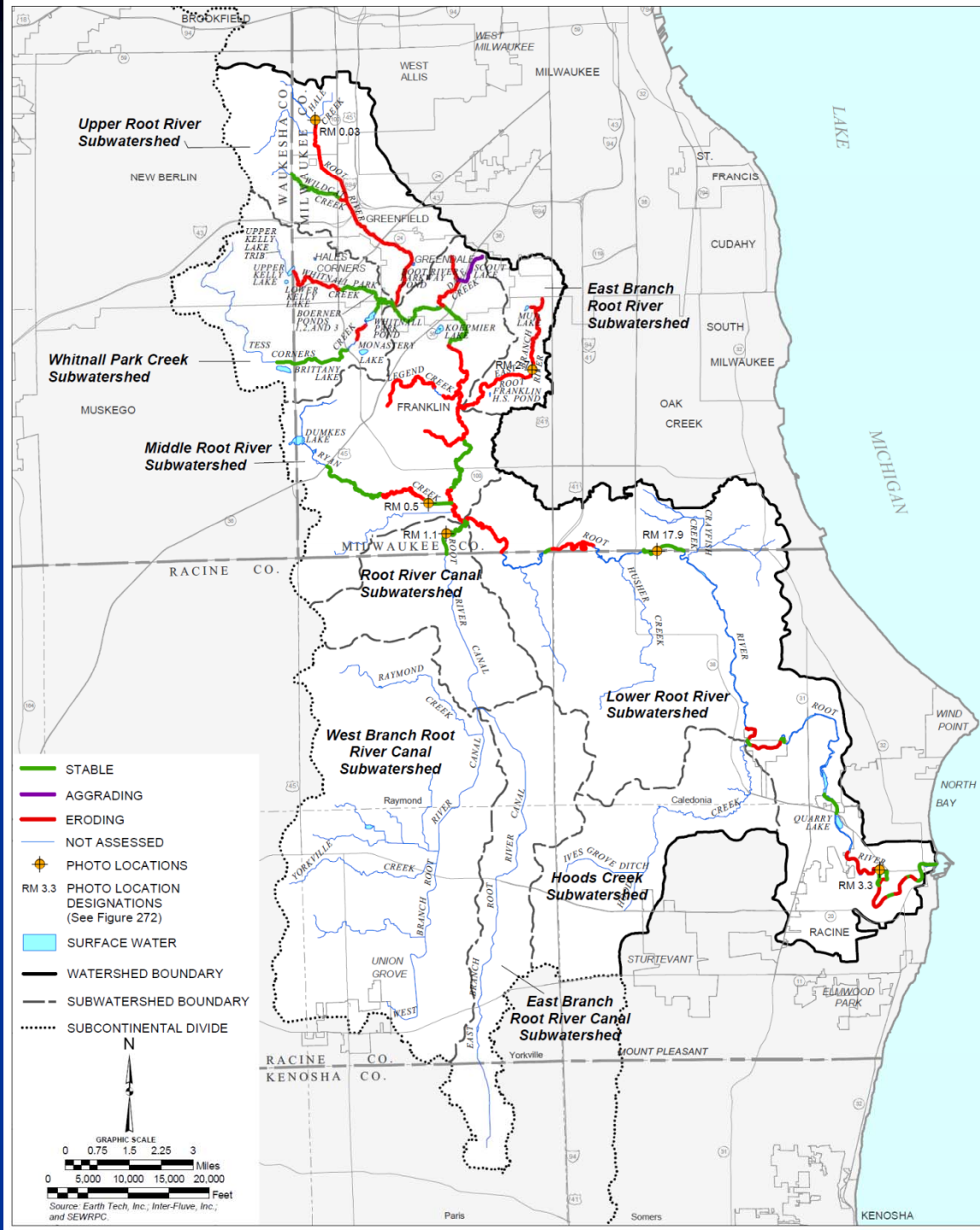
- Traditional
- Non-Traditional

Vs

Land Measures



Streambank Stability Conditions: 2000



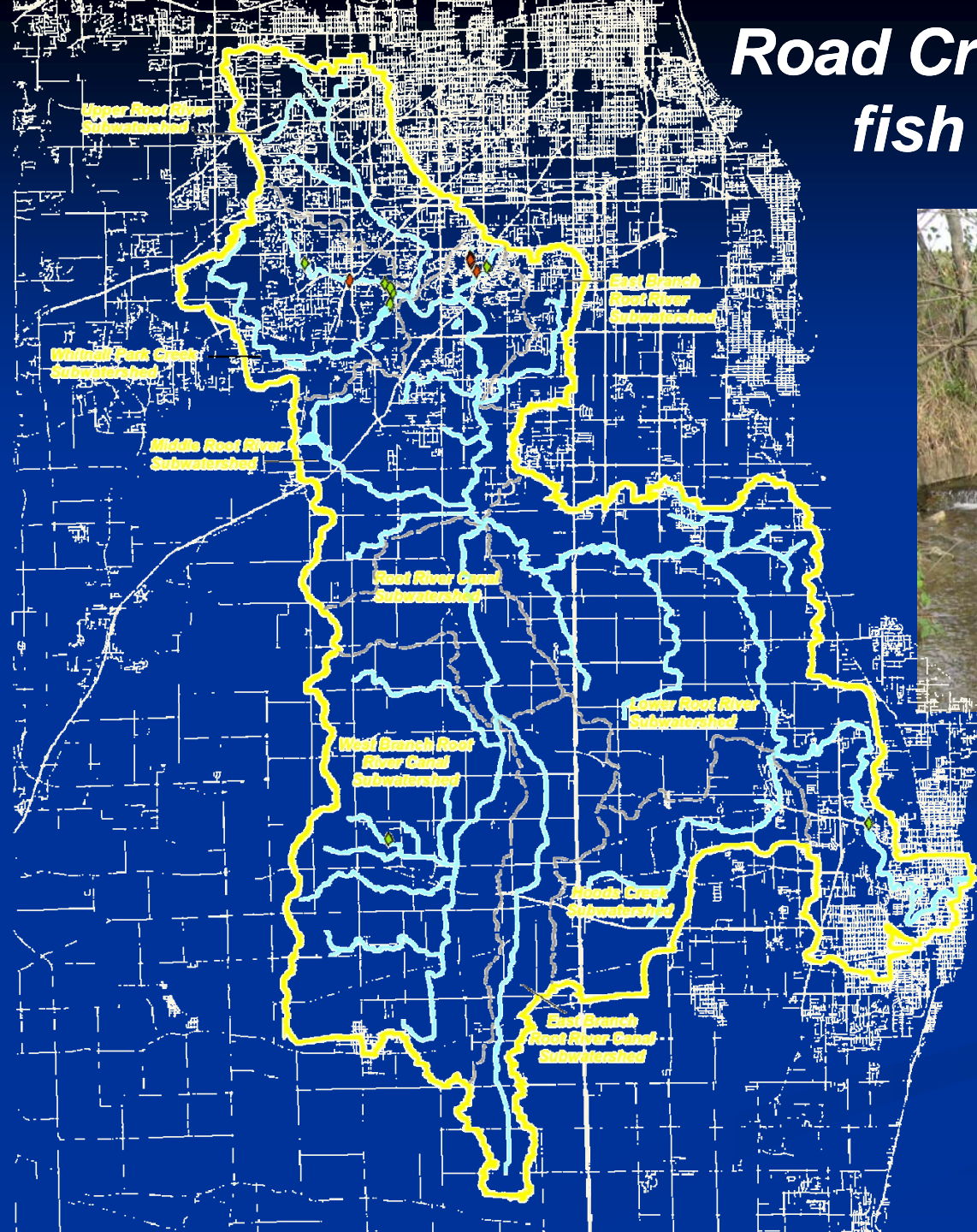
Dams & Drop Structures



Horlick Dam

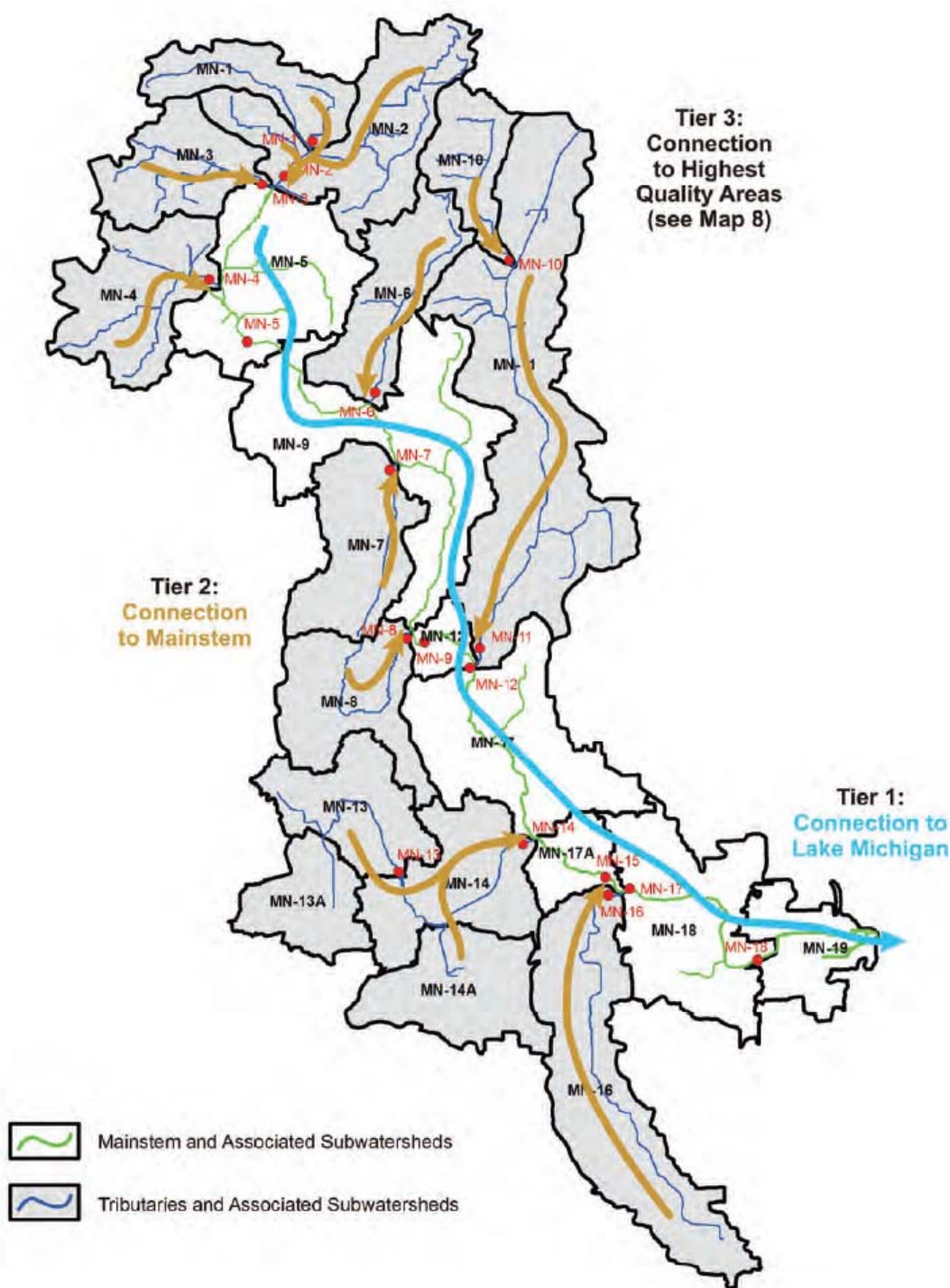


Road Crossings are potential fish passage barriers



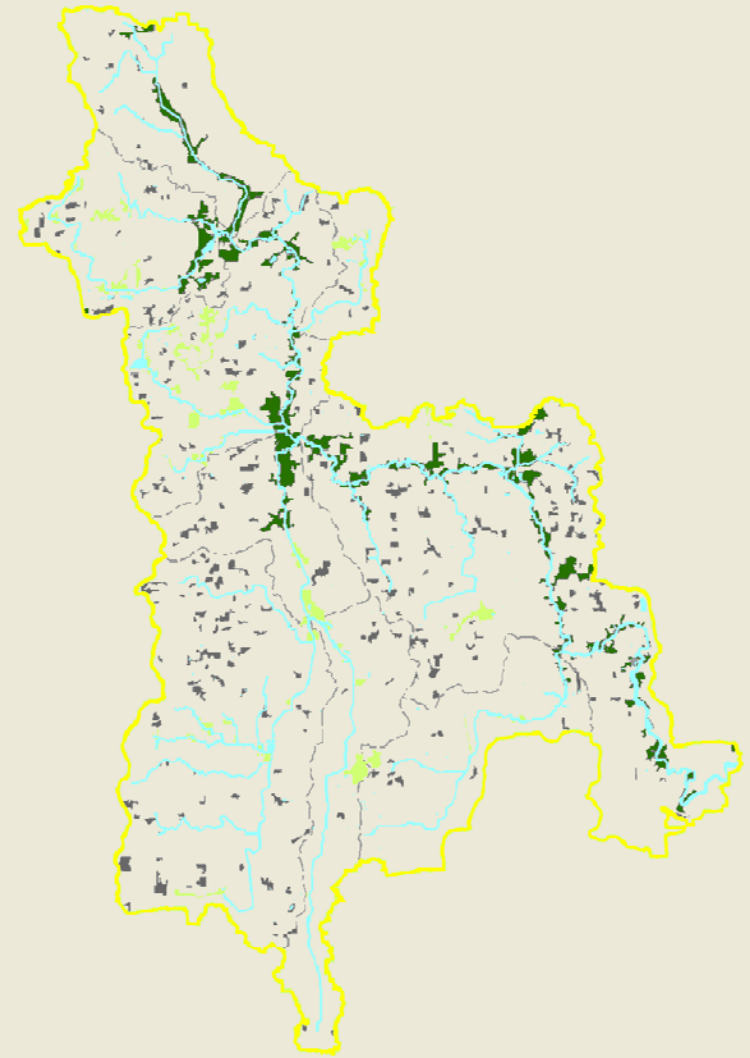
Reach	Structure I.D./ distance (mi)	Passage	Per-tribs	Int-tribs	Fish	Inverts	Habitat
MN-17	Golf Course Bridge	?					
MN-17	0.16		0	0	Fair	--	Fair
MN-17	W. Capital Drive	?					
MN-17	0.32		1	0	--	--	--
MN-17	W. Hampton Avenue	?					
MN-12	0.36		0	0	--	--	--
MN-12	USH 45	?					
MN-12	0.54		0	0	--	--	--
MN-12	Railroad	?					
MN-12	0.1		0	1	--	Good	--
MN-12	N. 124th Street	?					
MN-12	1.12		1	0	Fair	Good	Good
MN-12	W. Silver spring Drive	?					
MN-9	0.32		0	0	--	--	--
MN-9	Railroad	?					
MN-9	1.02		0	1	--	--	--
MN-9	W. Mill Road	?					
MN-9	0.57		0	1	--	--	--
MN-9	W. Appleton Avenue	?					
MN-9	0.75		0	0	--	--	--
MN-9	W. Good Hope Road	?					
MN-9	2.4		0	5	--	--	--
MN-9	Lilly Road	?					
MN-9	1.39		0	3	--	--	--
MN-9	Pilgrim Road	?					

Instream Three-Tier Prioritization Strategy



Environmental Corridor Criteria and Mapping has been an effective tool in the protection of buffers

- Primary environmental corridors:** 200 feet wide, 2 miles long, and 400 acres
- Secondary environmental corridors:** 1 mile long and 100 acres (no minimum width)
- Isolated natural resource areas:** 200 feet wide and 5 acres

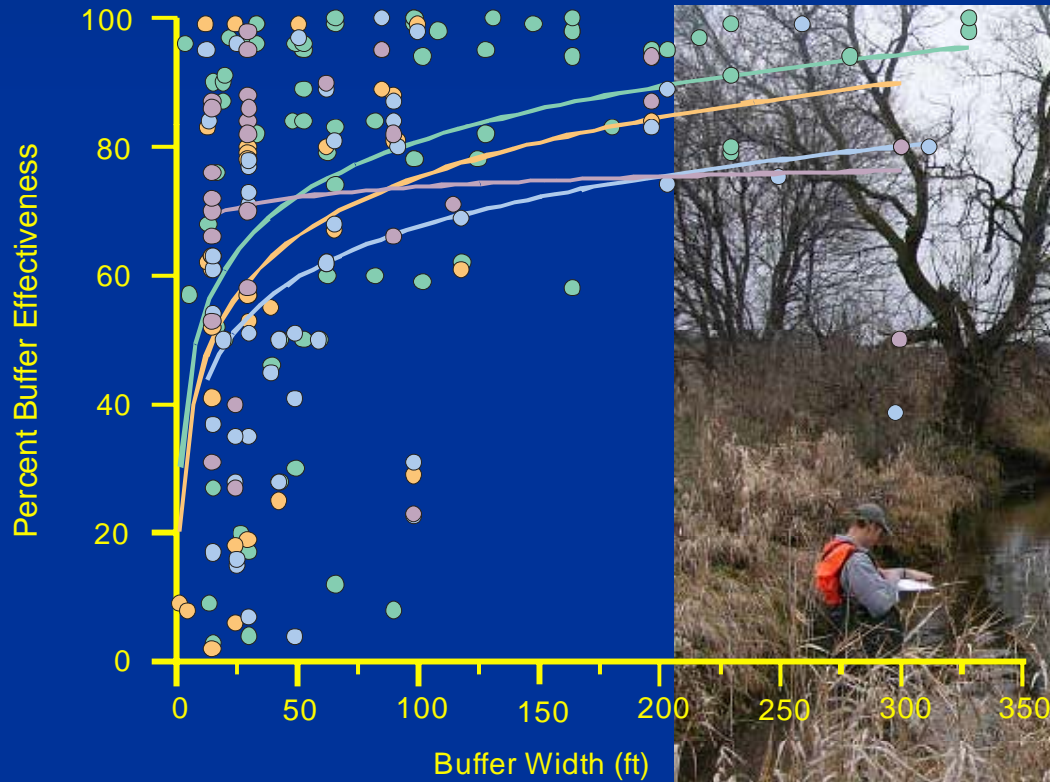


SEWRPC Technical Record Vol. 4, No. 2
*Refining the Delineation of
Environmental Corridors in
Southeastern Wisconsin, March 1981*

SEWRPC Planning Report No. 50

Appendix O

RIPARIAN BUFFER EFFECTIVENESS ANALYSIS

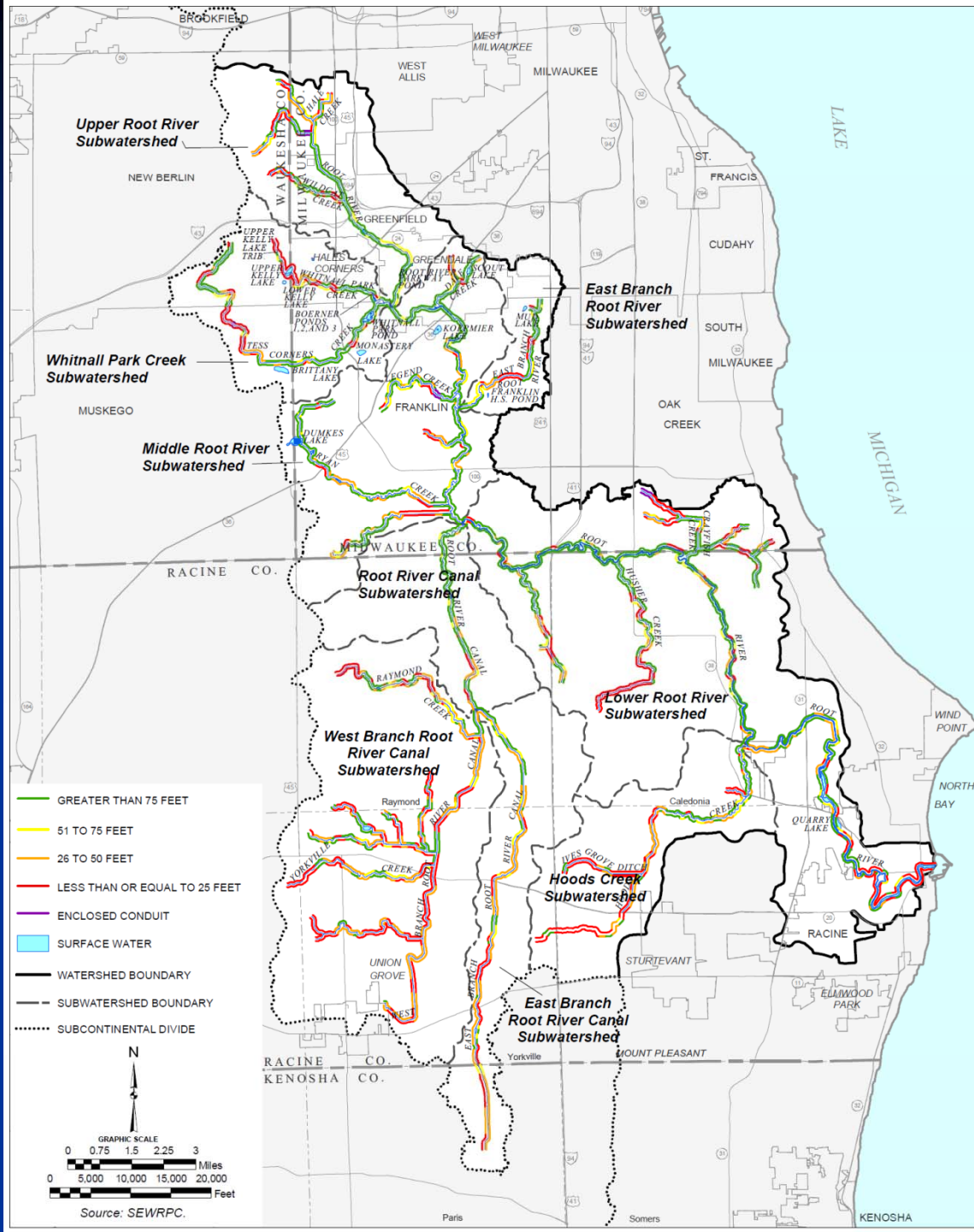


Riparian Buffer Planning Guide

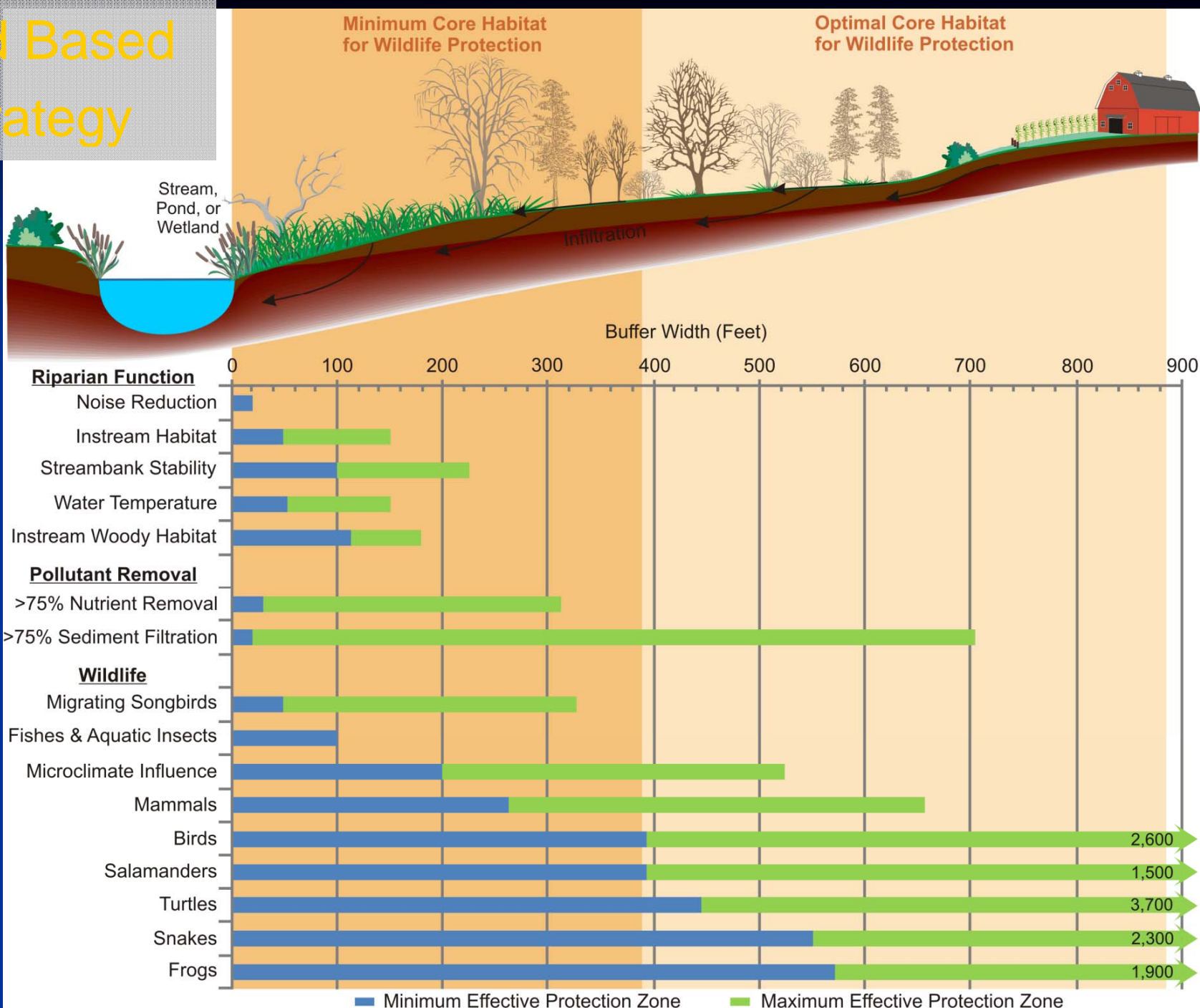
● Total Suspended Solids
● Nitrogen

● Nitrate
● Phosphorus

Riparian Buffers in the Root River Watershed: 2000

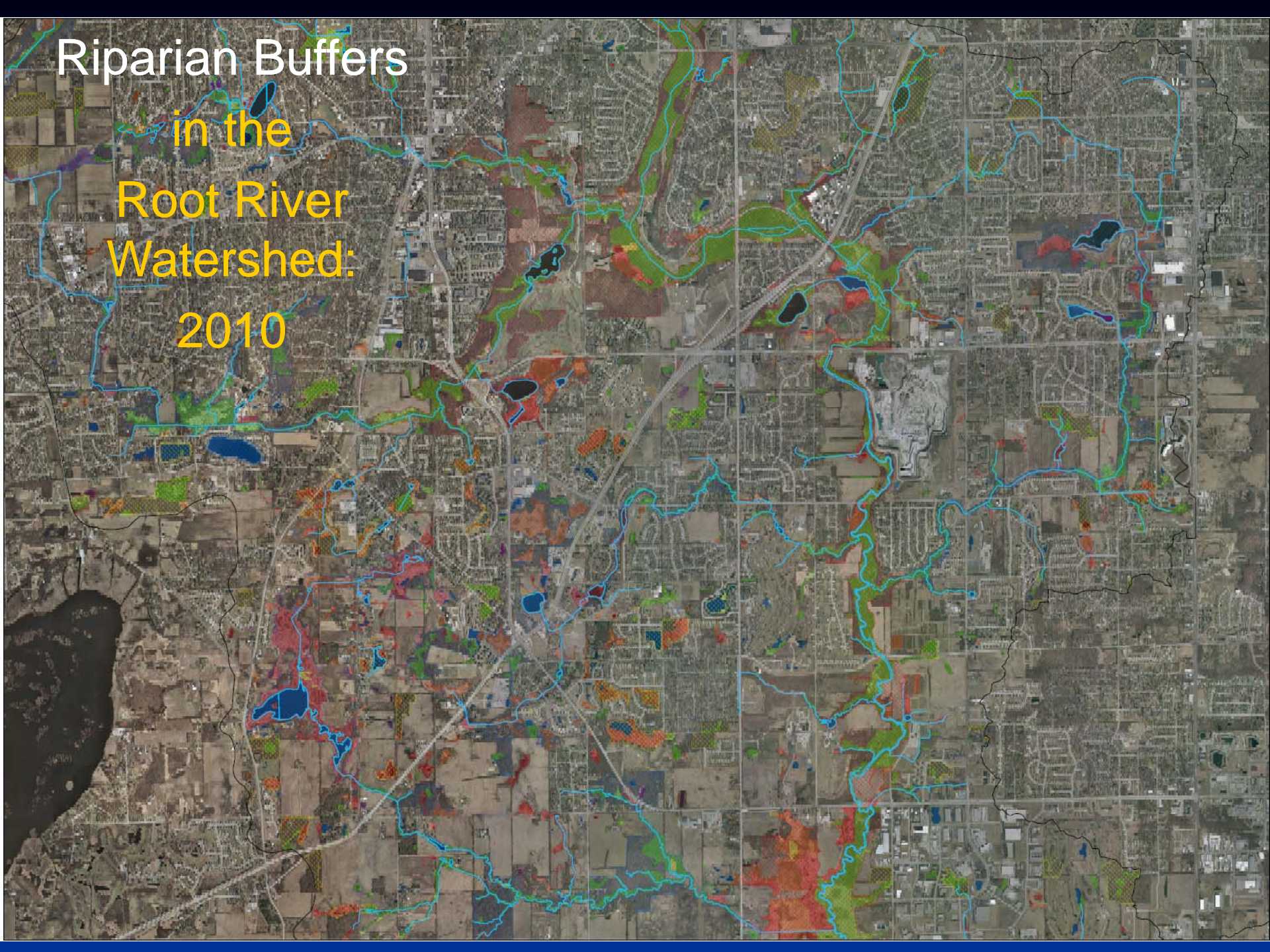


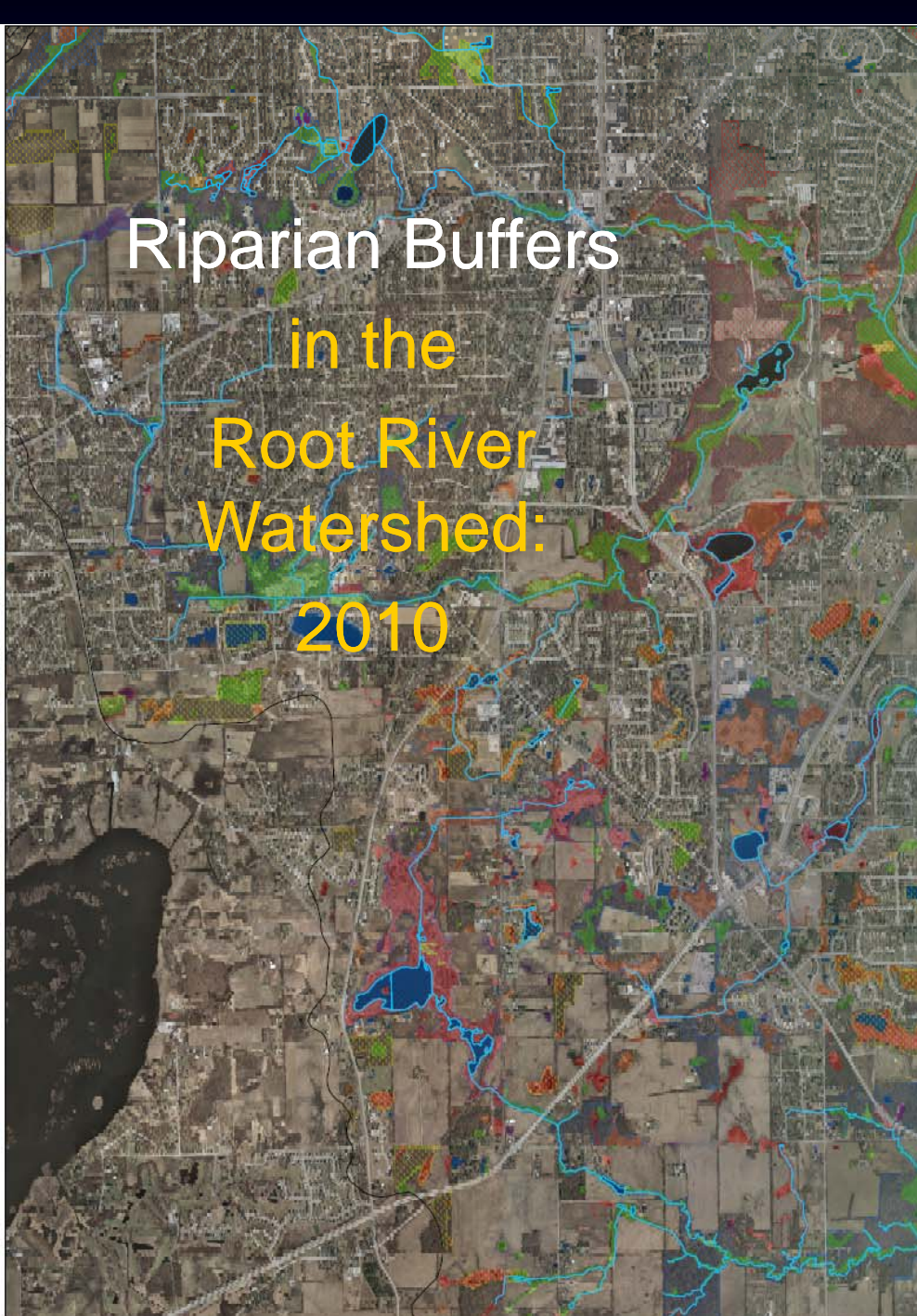
Land Based Strategy



Riparian Buffers

in the
Root River
Watershed:
2010





Riparian Buffers in the Root River Watershed: 2010



PRIMARY ENVIRONMENTAL CORRIDOR

SECONDARY ENVIRONMENTAL CORRIDOR

ISOLATED NATURAL RESOURCE AREA

**2005 WISCONSIN WETLAND
INVENTORY CATEGORIES:**

AQUATIC BED

DEEP WATER LAKE

EMERGENT/WET MEADOW

FILLED/DRAINED WETLAND

FLATS/UNVEGETATED WET SOIL

FORESTED

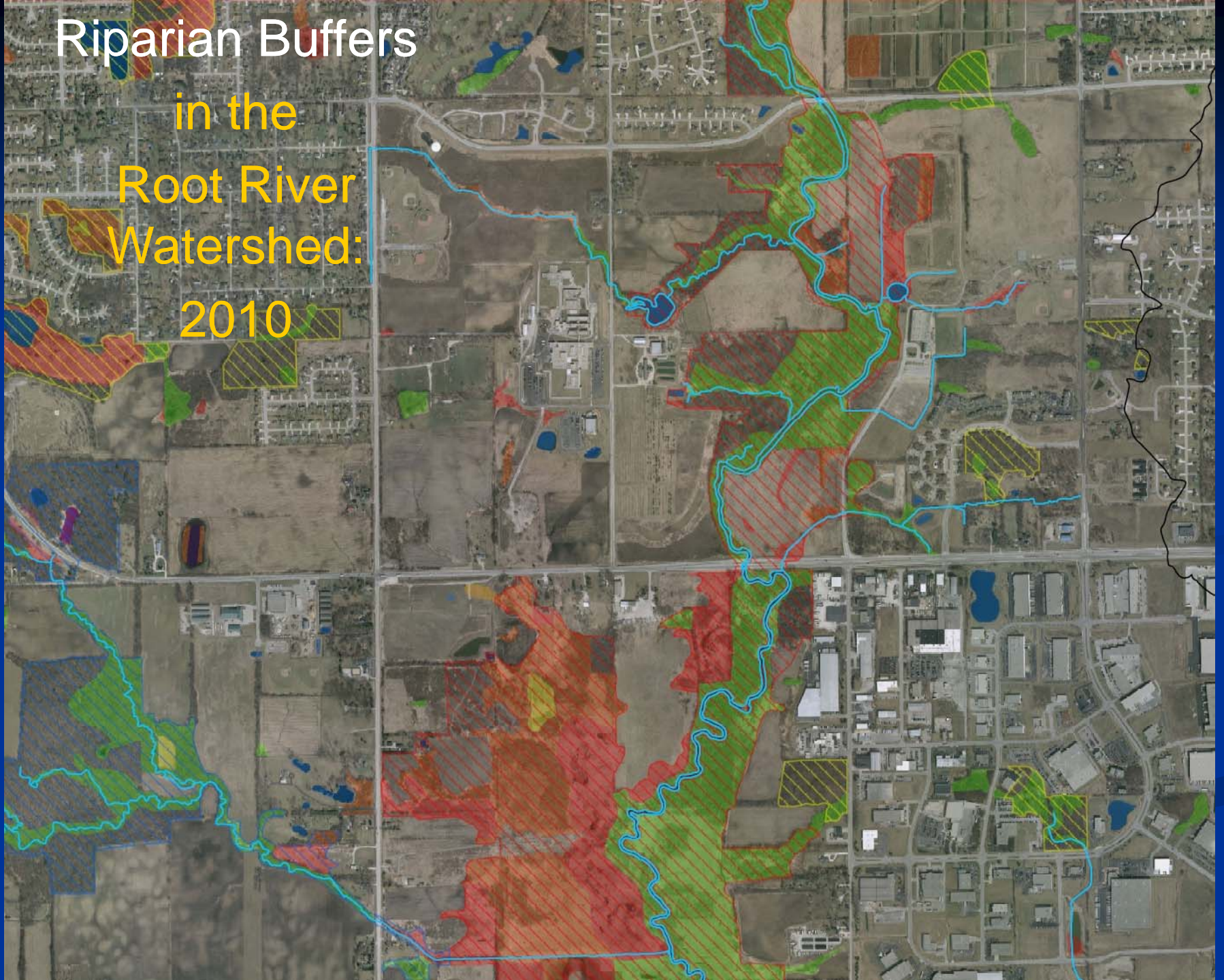
OPEN WATER

SCRUB/SHRUB

UPLAND

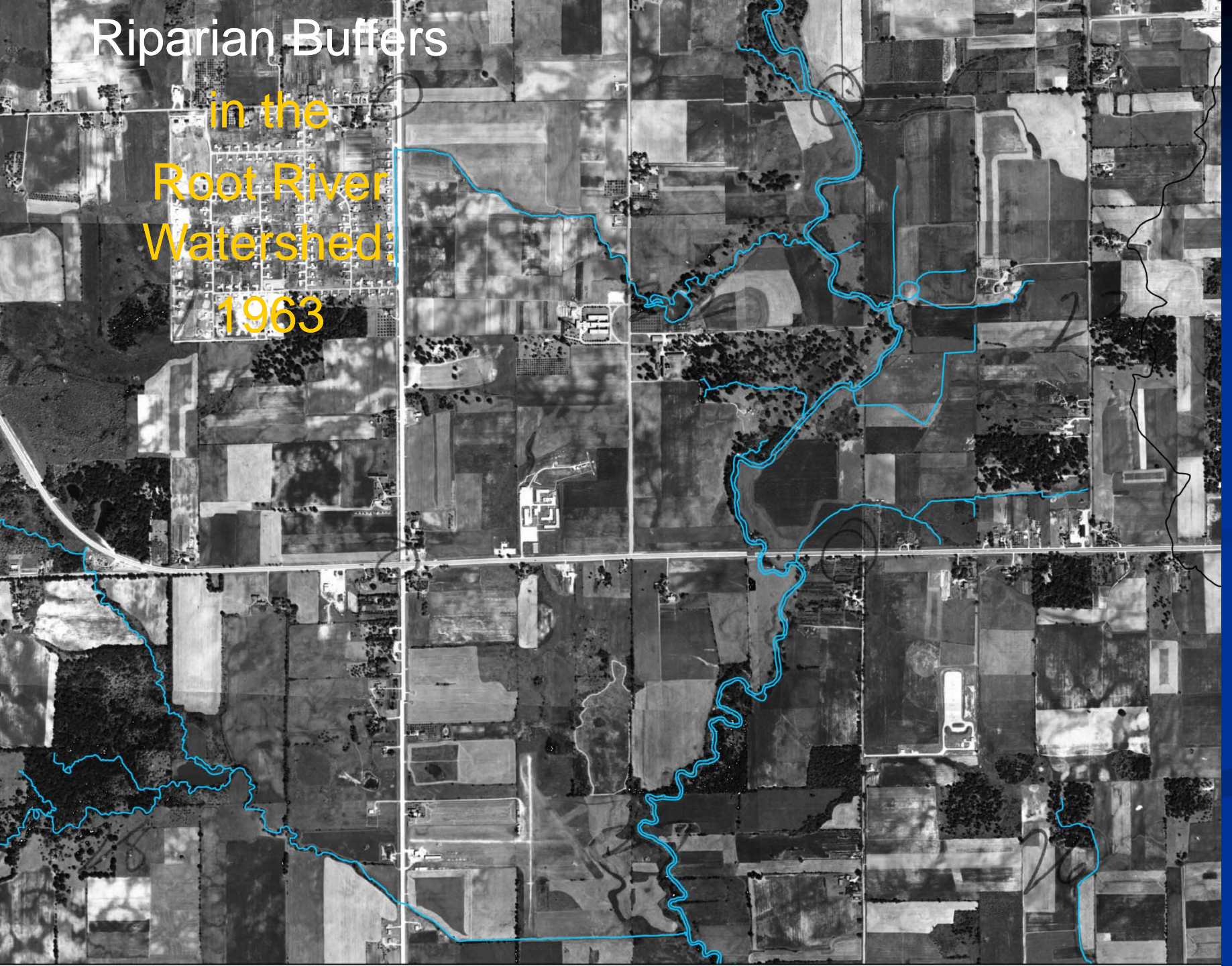
Riparian Buffers

in the
Root River
Watershed:
2010



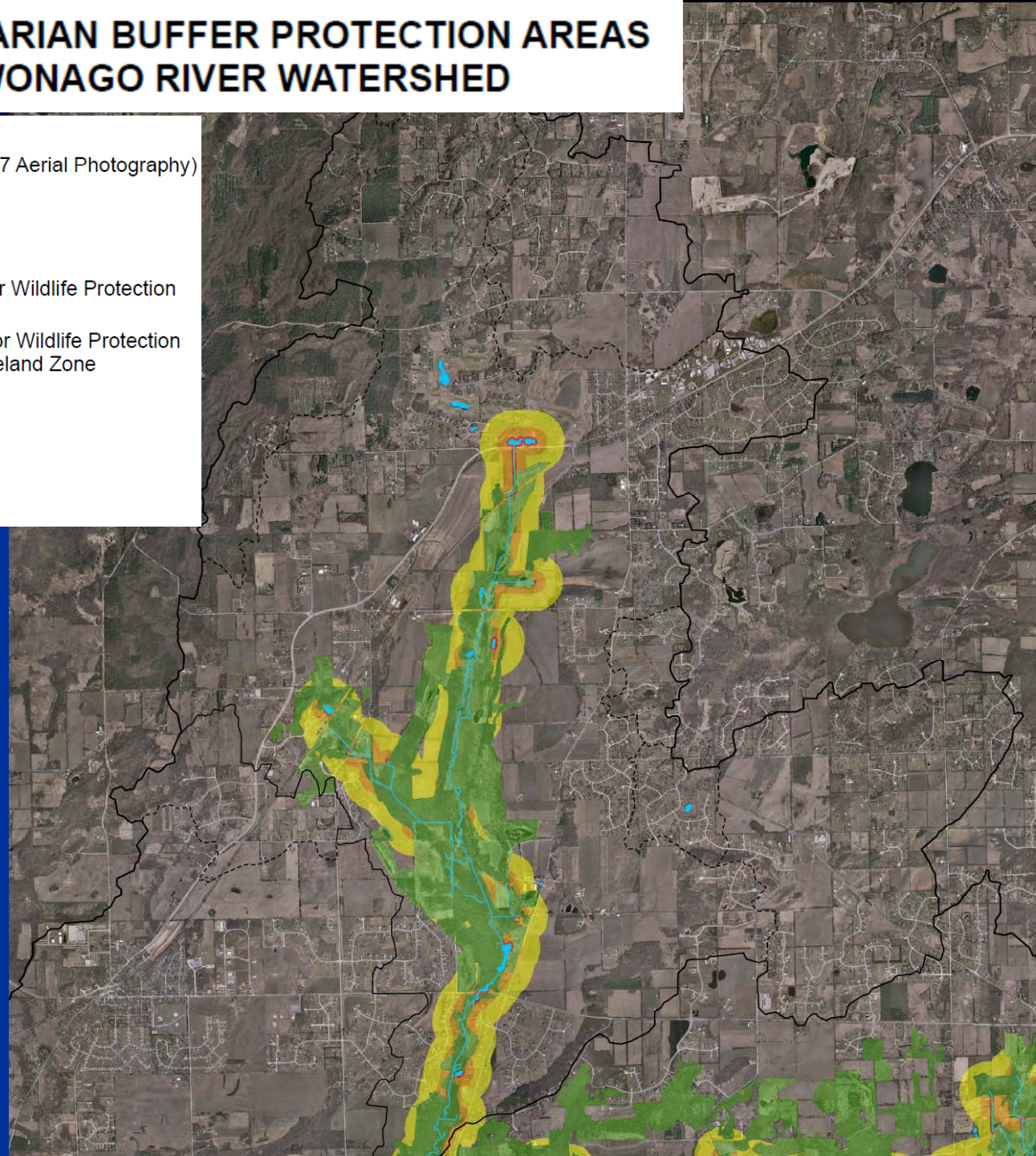
Riparian Buffers

in the
Root River
Watershed:
1963

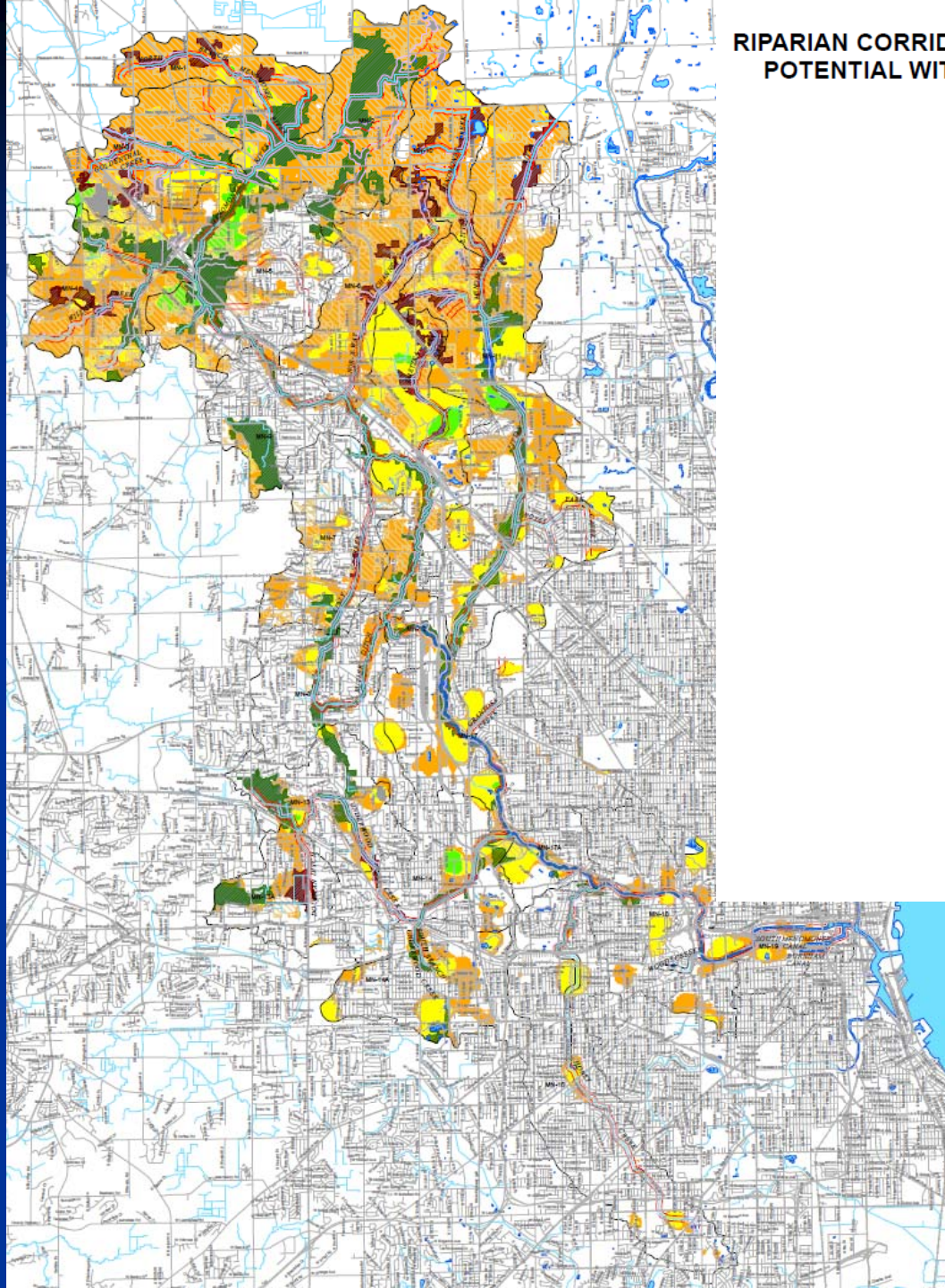


PROPOSED PRIORITY RIPARIAN BUFFER PROTECTION AREAS WITHIN THE MUKWONAGO RIVER WATERSHED

-  Existing Riparian Buffers
(Delineated by SEWRPC Staff Using 2007 Aerial Photography)
-  75-Foot Regulatory Buffer Width
-  400-Foot Minimum Core Habitat Width for Wildlife Protection
-  1,000-Foot Optimal Core Habitat Width for Wildlife Protection
and Consistent with the Regulatory Shoreland Zone
-  Watershed Boundary
-  Subwatershed Boundary
-  Internally Drained Area Boundary



RIPARIAN CORRIDOR CONDITIONS AND GROUNDWATER RECHARGE POTENTIAL WITHIN THE MEMOMONEE RIVER WATERSHED: 2009



Riparian Corridor Buffer Widths

- Greater than or equal to 75 Feet
- Less than 75 Feet
- Enclosed Channel

- Primary Environmental Corridor
- Secondary Environmental Corridor

- Agricultural Land

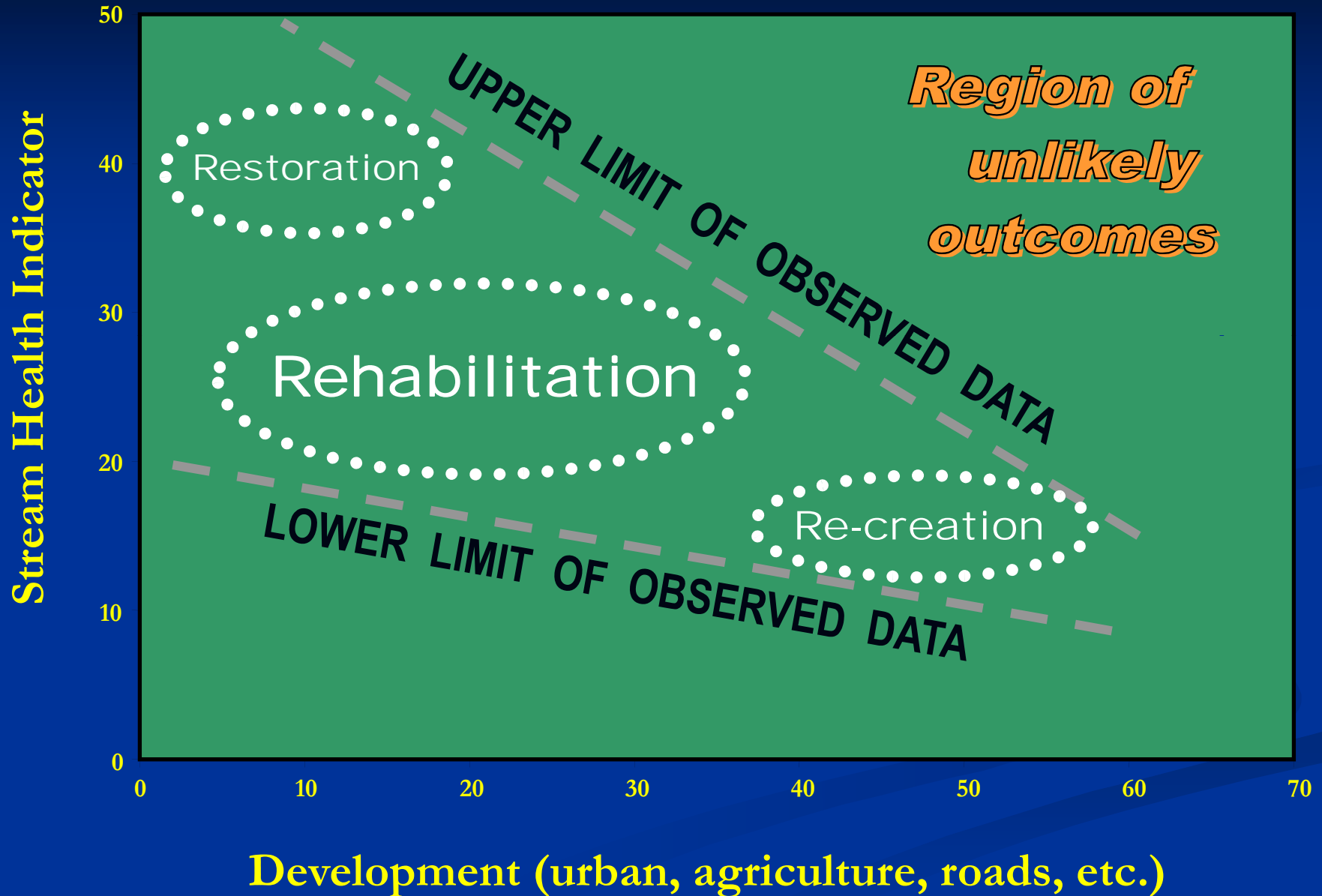
Groundwater Recharge Potential

- Low
- Moderate
- High
- Very High
- Undefined (Generally discharge areas)

NOTE: Groundwater recharge areas are generally delineated based on regional-scale data. Project design will require additional on-site assessments.

Land Based Strategy

Management Opportunities



Thank
You

