

# Biological Conditions of the Root River Watershed



River Redhorse-Threatened



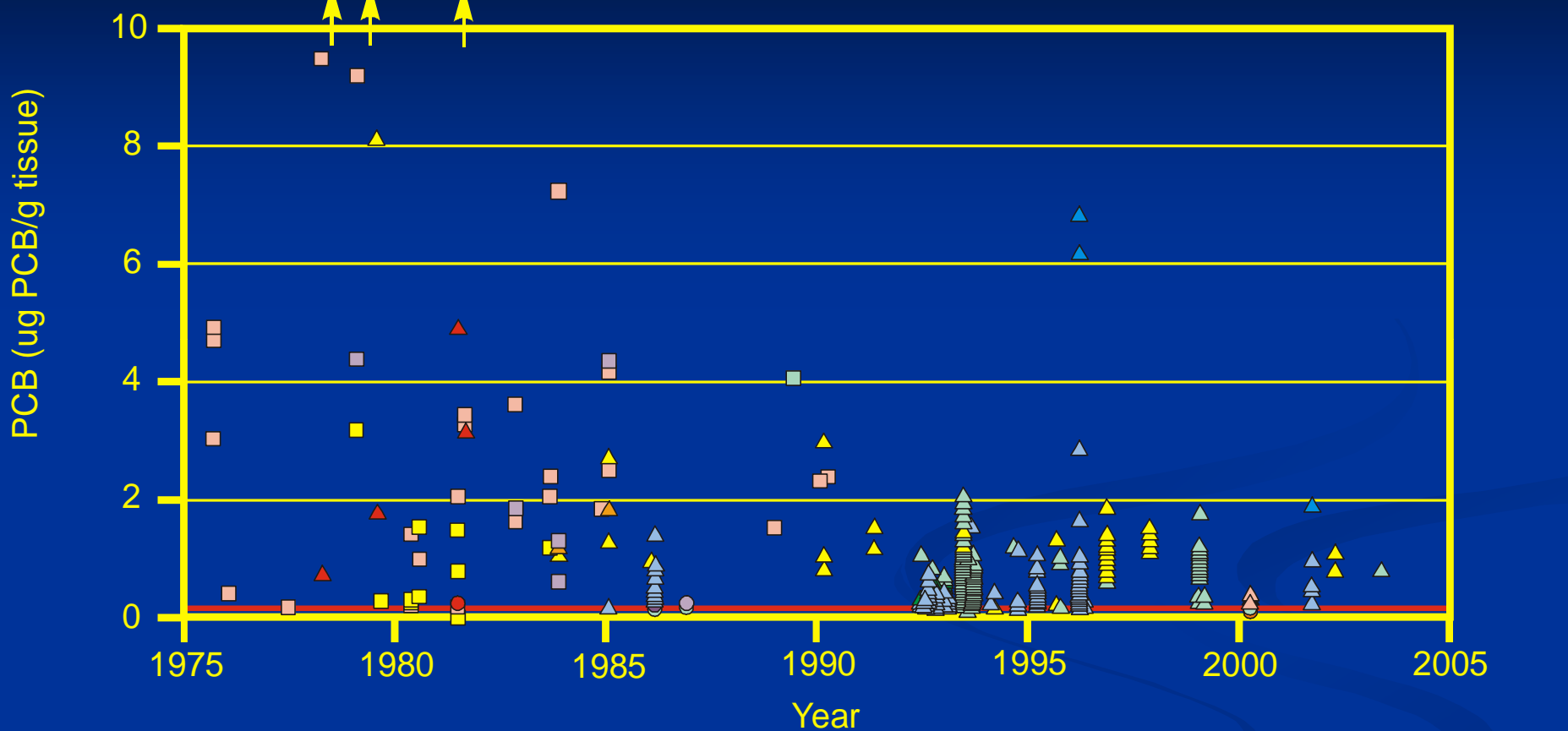
Iowa darter-intolerant species

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

# TR-39 Objectives

- How have water quality conditions changed since 1975?
- What are the sources of water pollution?
- How have toxicity conditions changed since 1975?
- What is the current condition of the fishery?
- To what extent are water use objectives and water quality standards being met?

# Contaminant Levels Among Fishes within the Root River Watershed



## Gamefish

- ▲ Largemouth Bass
- ▲ Northern Pike
- ▲ Rainbow Trout
- ▲ Coho Salmon
- ▲ Chinook Salmon
- ▲ Brown Trout

## Roughfish

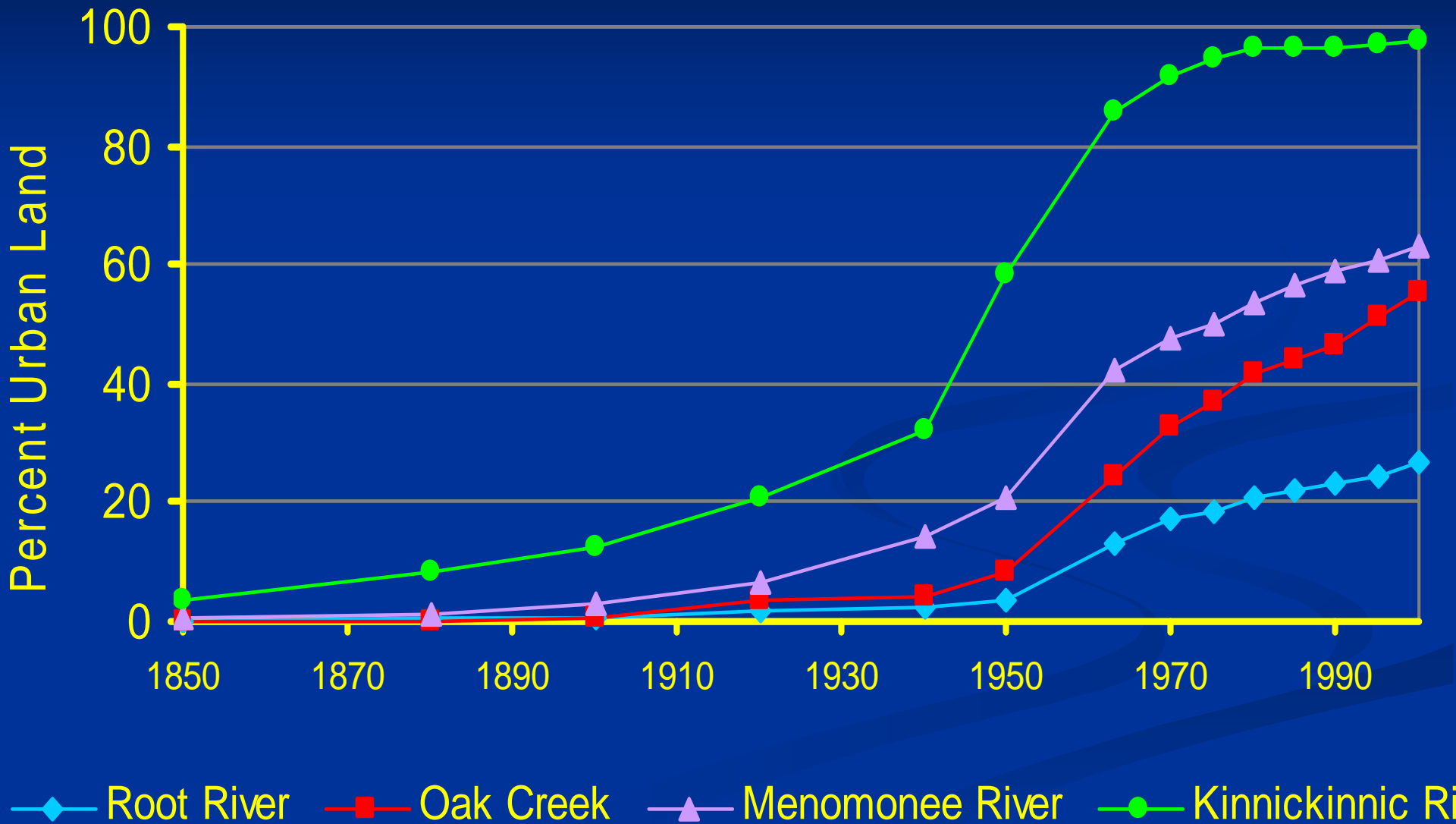
- Carp
- Flathead Catfish
- Gizzard Shad
- White Sucker
- Longnose Sucker
- Brown Bullhead

## Panfish

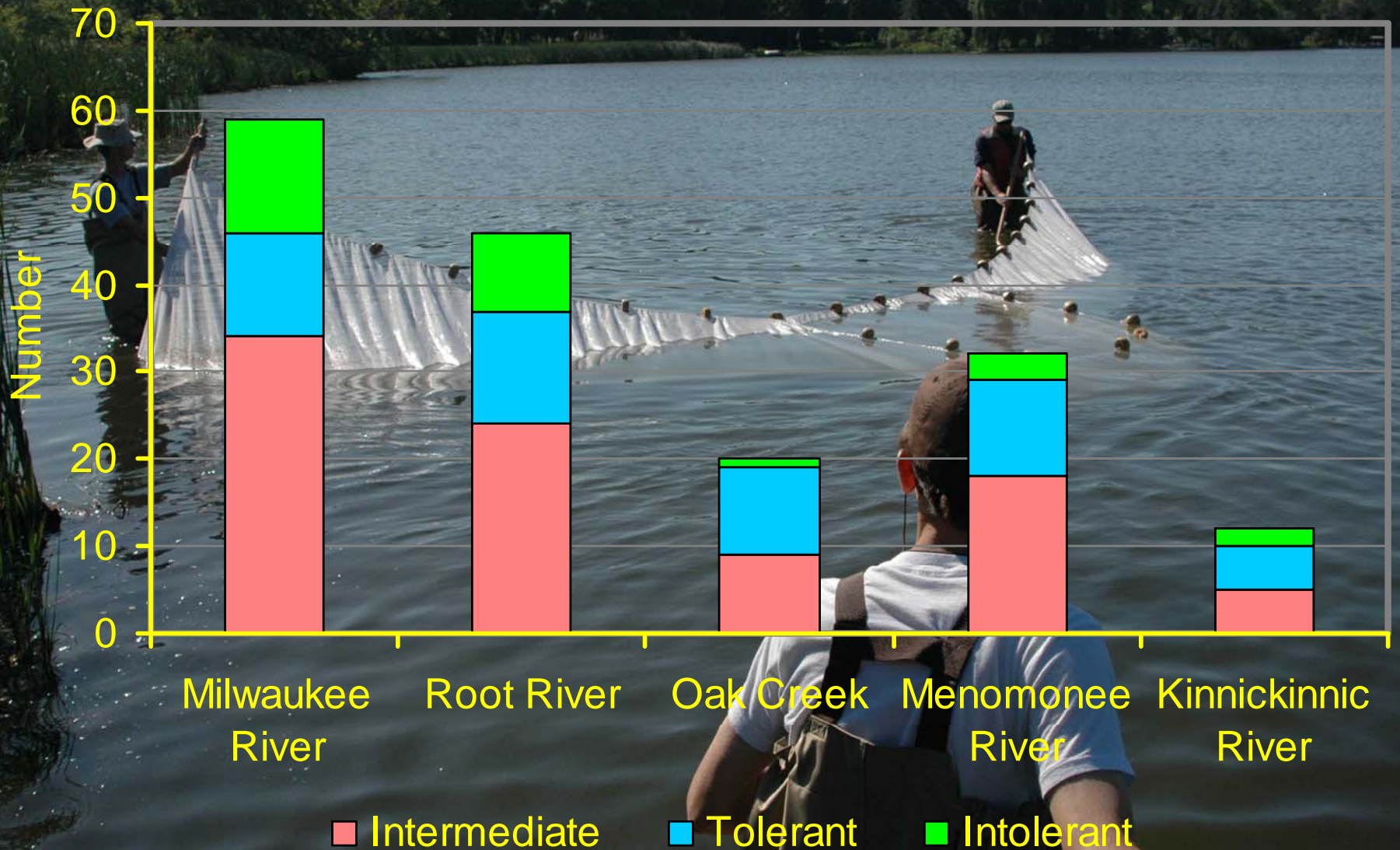
- Bluegill
- Green Sunfish
- Rock Bass
- White Crappie

— Threshold for issuing fish consumption advisories (0.05  $\mu\text{g/g}$ )

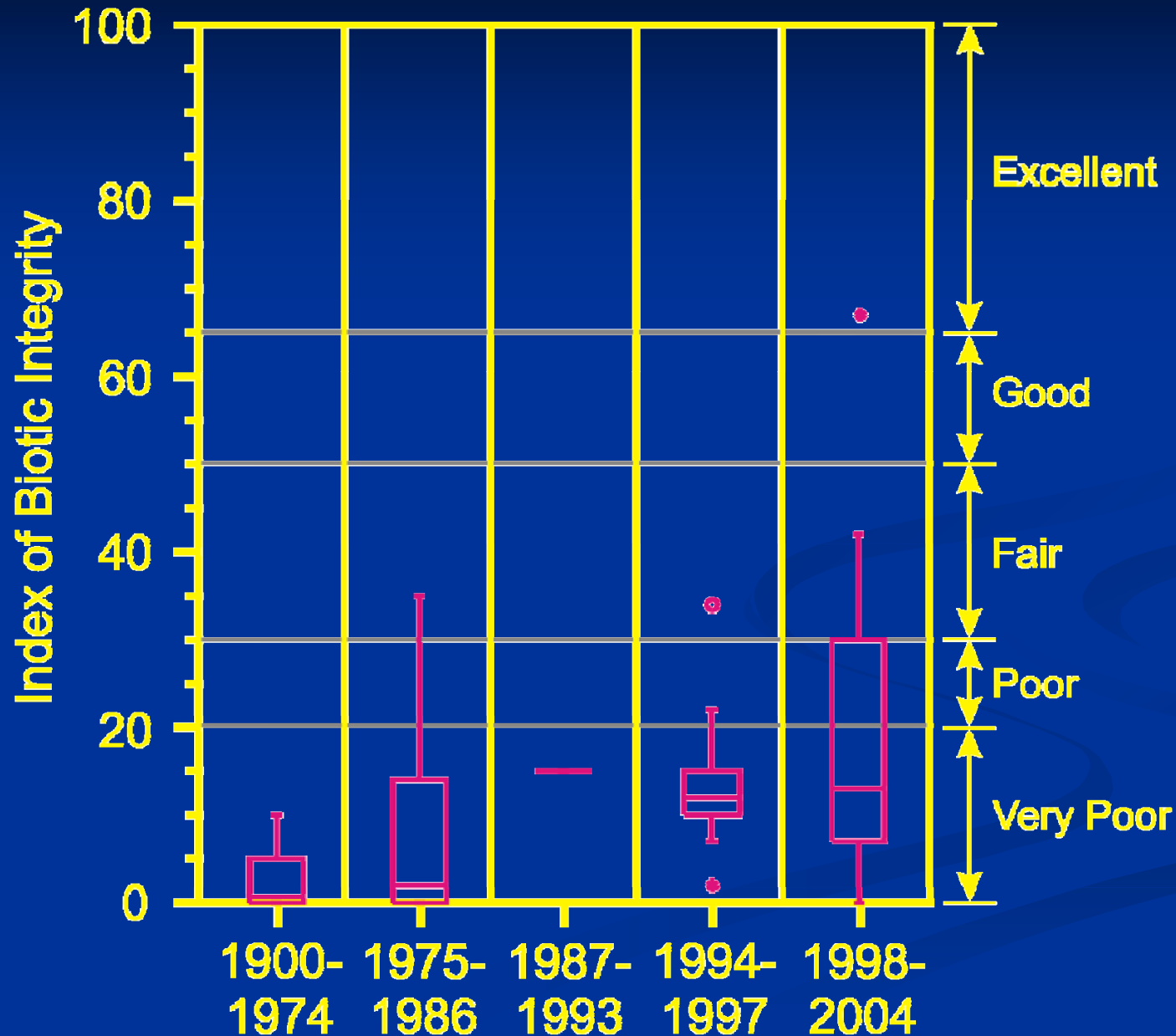
# Historic Urban Growth Among Watersheds: 1850-2000



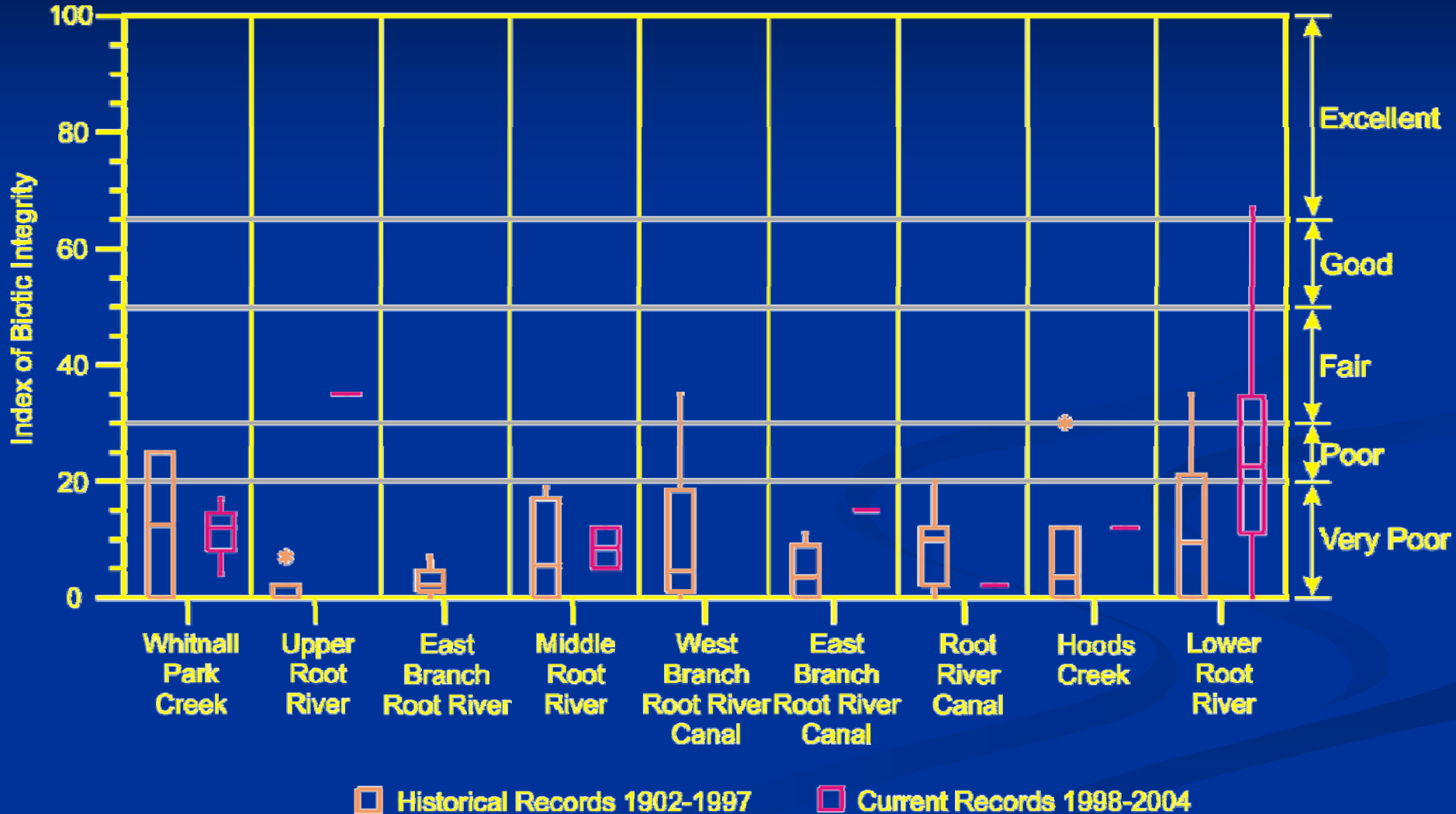
# Current Fish Species Composition Among Watersheds



# Fisheries IBI Scores in the Root River: 1900-2004



# Fish Species Quality in the Root River Watershed

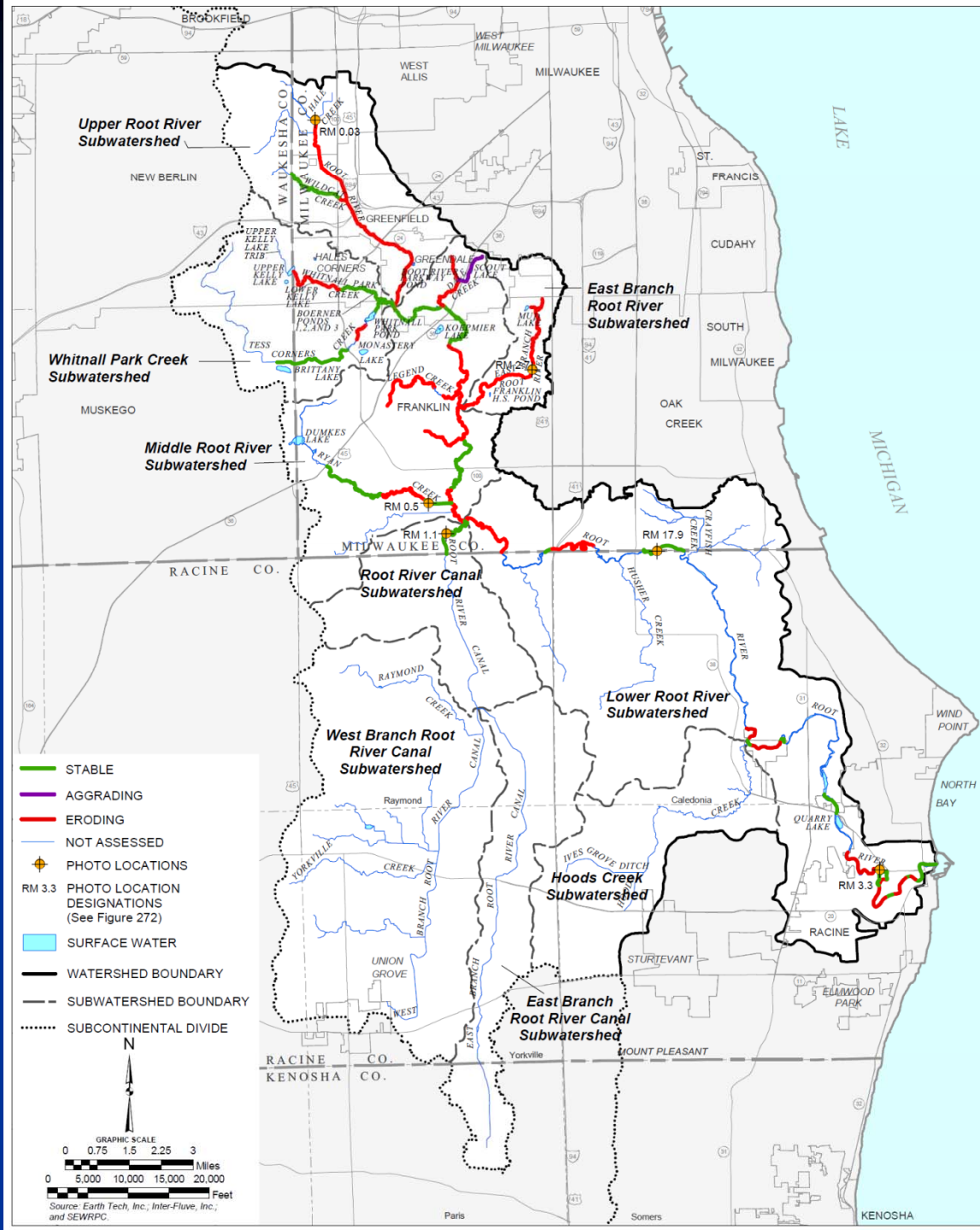


Fisheries  
Sample Locations  
&  
IBI Scores  
in the Root River:  
1998-2004





# Streambank Stability Conditions: 2000



# Root River Watershed

## Dams & Drop Structures



Horlick Dam

# Root River Watershed



**Above Horlick Dam**  
Pre-1975 = 37 spp.  
Post-1975 = 32 spp.  
= loss 5 spp.

**Horlick Dam**

**Below Horlick Dam**  
Pre-1975 = 26 spp.  
Post-1975 = 34 spp.  
= gain 8 spp.

# Road Crossings are potential fish passage barriers

Upper Root River Subwatershed

Western Root Canal Subwatershed

Middle Root River Subwatershed

Root River Canal Subwatershed

West Branch Root River Canal Subwatershed

North Creek Subwatershed

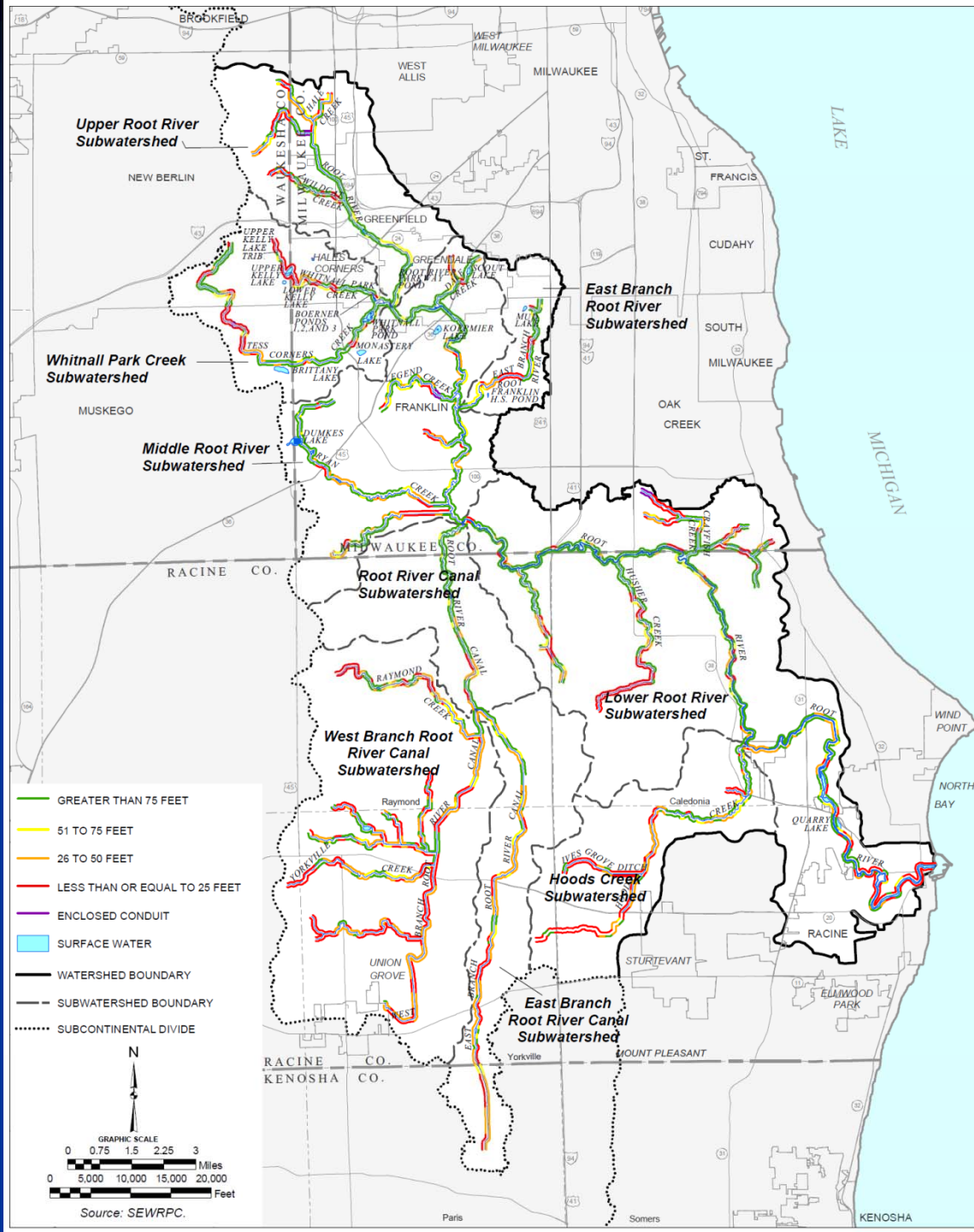
East Branch Root River Canal Subwatershed

East Branch Root River Subwatershed

Lower Root River Subwatershed



# Riparian Buffers in the Root River Watershed: 2000



# *Instream Water Quality Measures Plan Subelement*

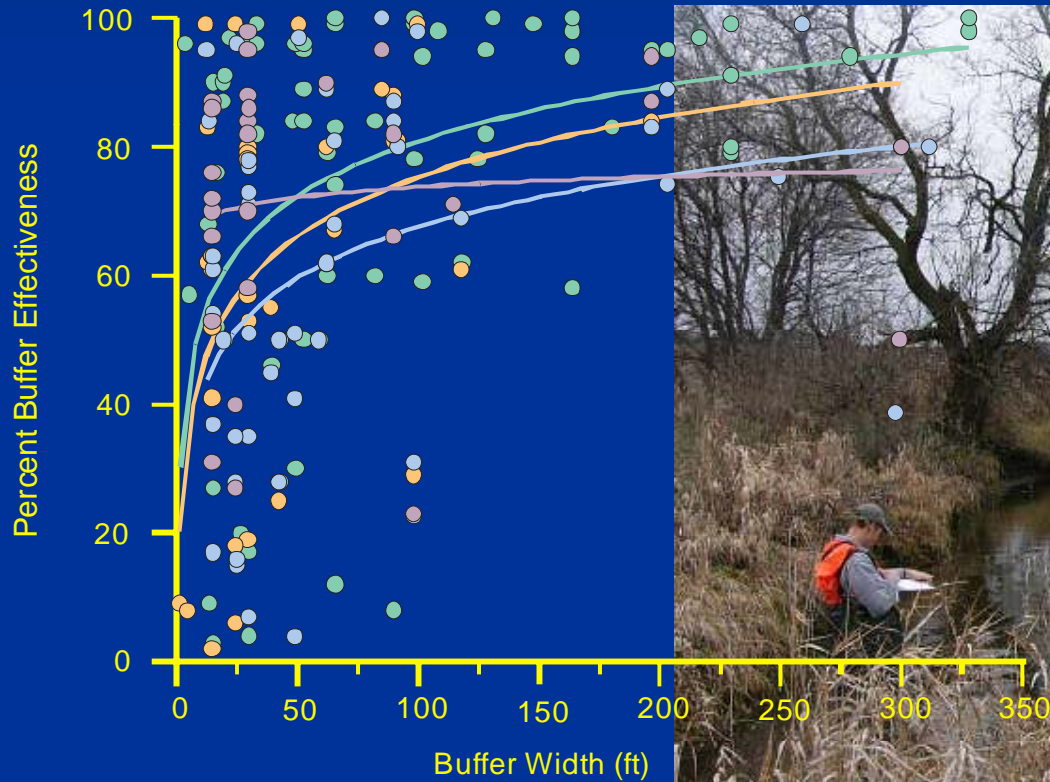
## ■ Fisheries Protection and Enhancement

- Protect remaining natural stream channels
- Restore wetlands, woodlands, and grasslands adjacent to the stream channel and establish minimum buffers 75 feet in width
- Restore, enhance, and/or rehabilitate stream channels to provide increased quality and quantity of available fisheries habitat
- Monitor fish and macroinvertebrate populations in order to evaluate the effectiveness of the water quality management program
- Consider more intensive fisheries manipulation measures

# SEWRPC Planning Report No. 50

## Appendix O

### RIPARIAN BUFFER EFFECTIVENESS ANALYSIS



*Riparian Buffer Planning Guide*

- Total Suspended Solids
- Nitrogen
- Nitrate
- Phosphorus

# *Instream Water Quality Measures Plan Subelement*

## ■ Fisheries Protection and Enhancement

- Restore, enhance, and/or rehabilitate stream channels to provide increased quality and quantity of available fisheries habitat
  - Minimize the number of stream crossings and other obstructions to limit fragmentation of stream reaches.
  - Stabilize stream banks to reduce erosion.
  - Limit instream sedimentation and selectively remove excessive silt accumulations.
  - Reestablish instream vegetation and bank cover
  - Realign channelized reaches of streams and remove concrete lining
  - Remove or retrofit obstructions such as culverts, dams, and drop structures that limit the maintenance of healthy fish and macroinvertebrate populations.



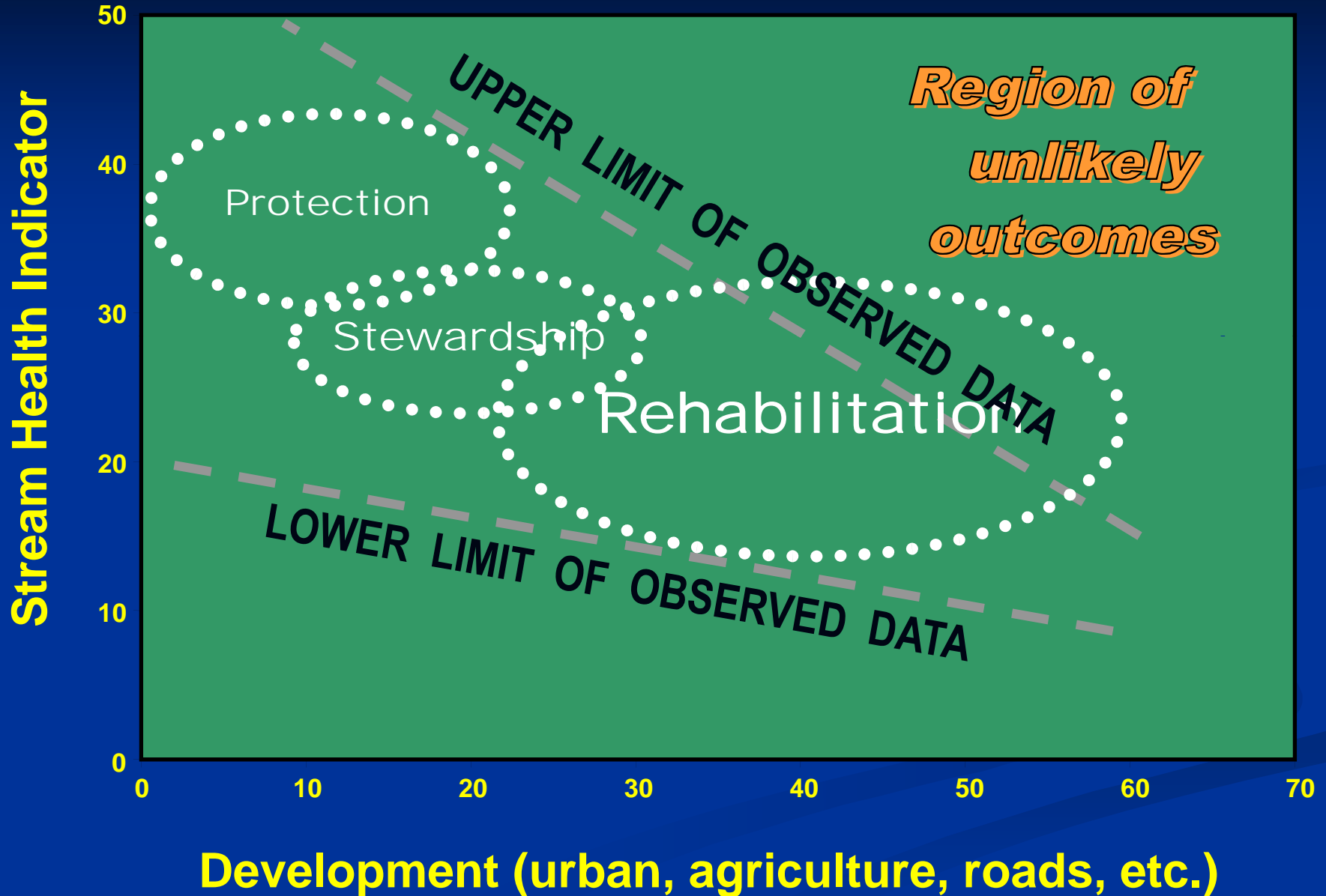
# ***SEWRPC Planning Report No. 50***

## ***Appendix N***

### ***CRITERIA AND GUIDELINES FOR STREAM CROSSINGS TO ALLOW FISH PASSAGE AND MAINTAIN STREAM STABILITY***



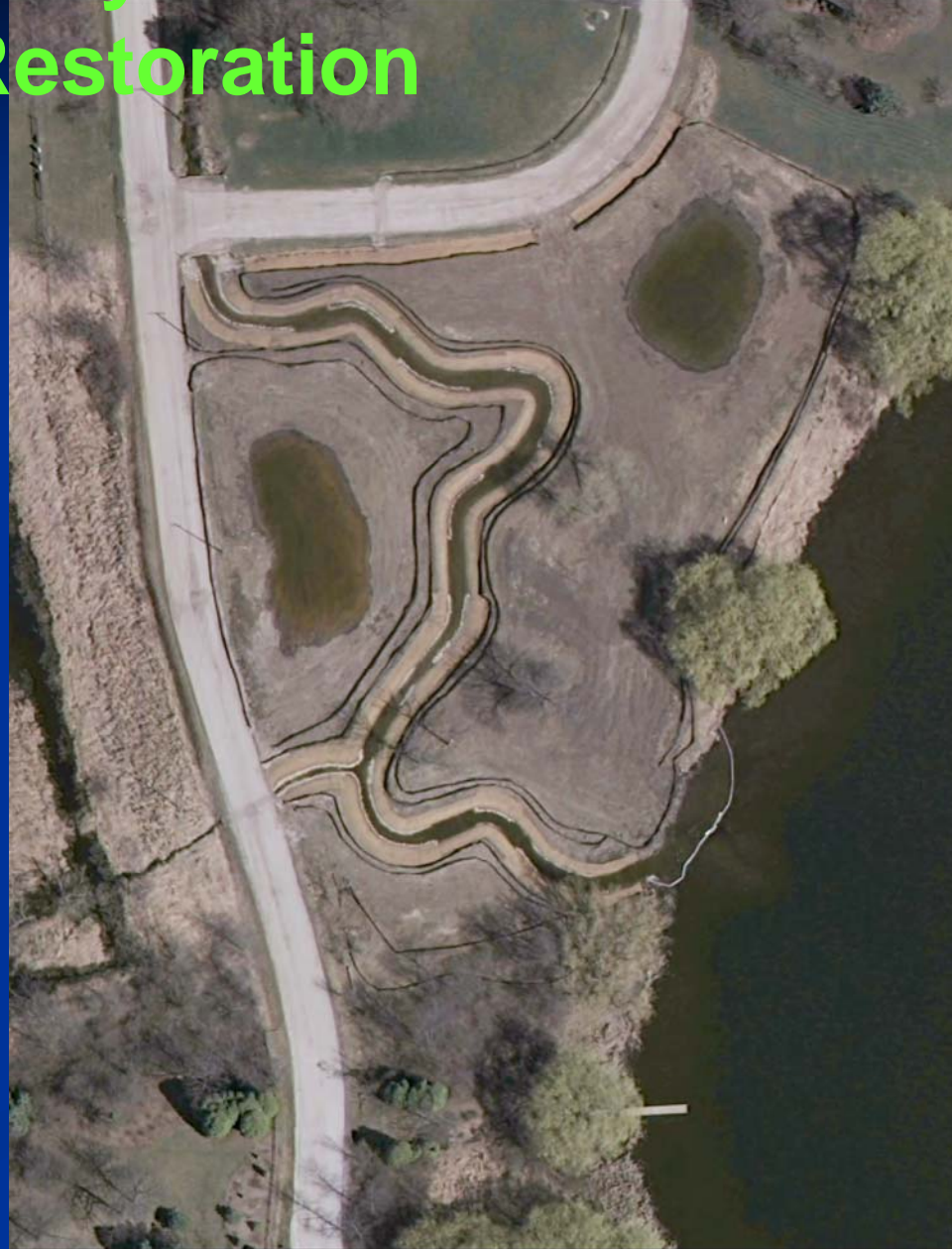
# Management Opportunities



**2003**

**Upper Kelly Lake  
Stream Restoration**

**2005**



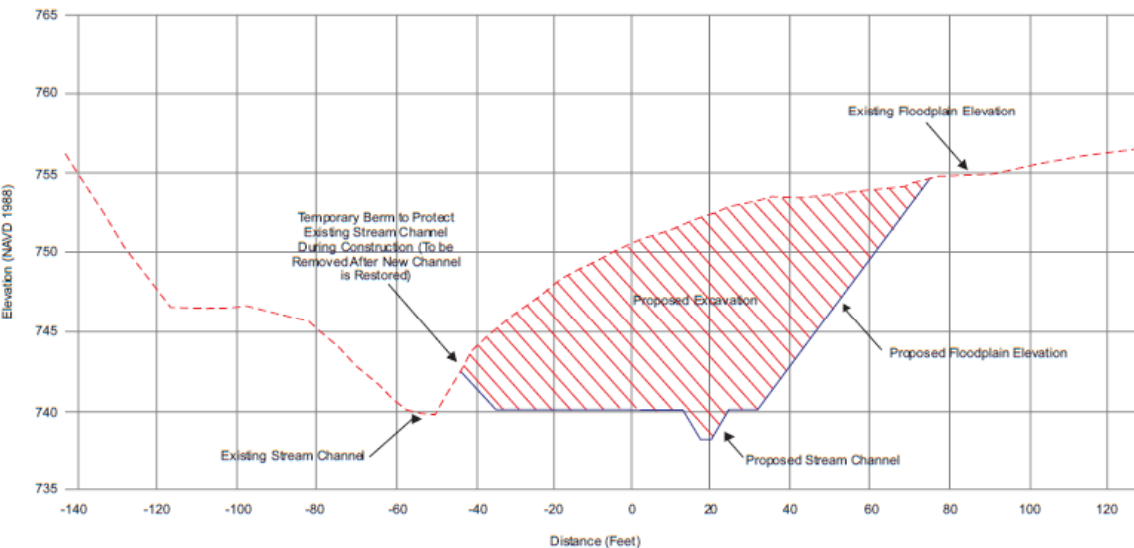
# Opportunities exist in Urban Areas



# 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

# Opportunities exist in Agricultural Areas

