



St. Clair River-Lake St. Clair- Detroit River Corridor

**State of the Lake Ecosystem Conference
October 19, 2000
Hamilton, Ontario**

**Presented by
Gary Johnson**

**Ontario Ministry of the Environment
on behalf of Environment Canada, U.S. Environmental
Protection Agency, Michigan Dept. of Environmental
Quality, and Ontario Ministry of the Environment**



Presentation Overview

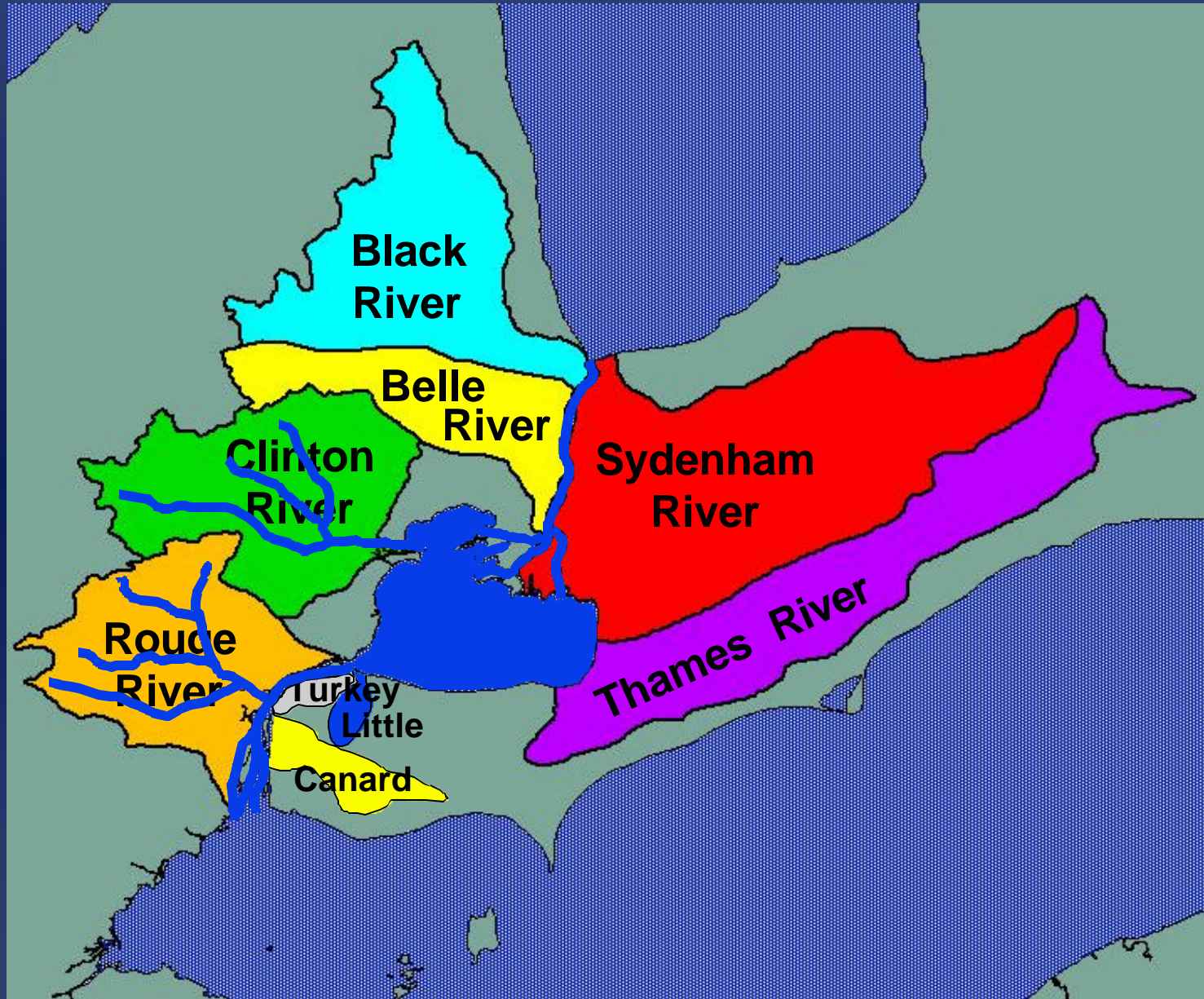
- **Overview of Corridor**
- **Four Agency Agreement**
- **Beneficial Use Impairments and indicators of water quality**
- **Pressures on the System and Activities to Mitigate Them**



Huron-Erie Corridor



U.S. Army Corps of Engineers, Detroit District



**Black
River**

**Belle
River**

**Clinton
River**

**Sydenham
River**

Thames River

**Rouge
River**

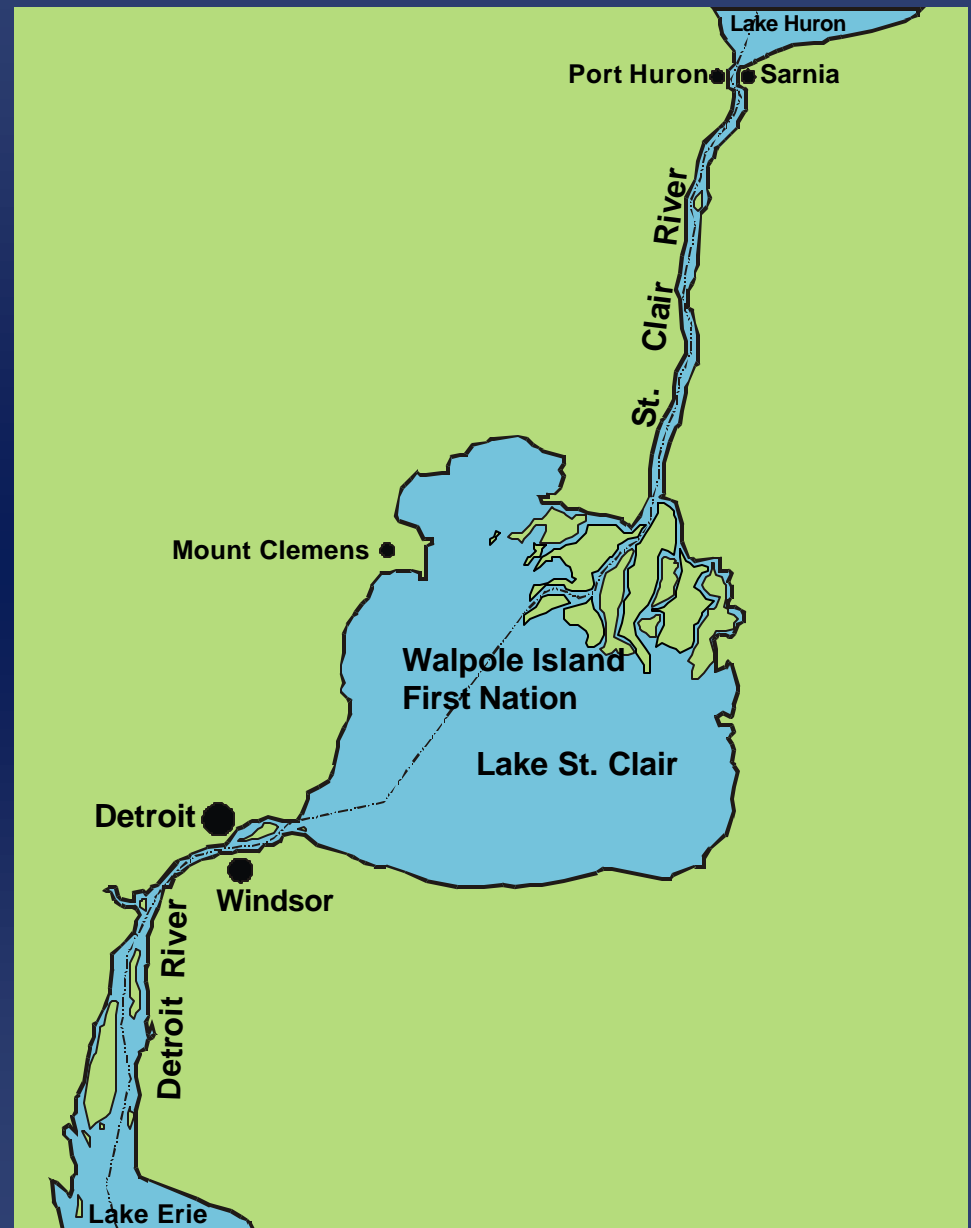
**Turkey
Little**

Canard



Characteristics of the Corridor

- Connecting channels
- Lake St. Clair
- Population centers
- Land use
- Resource uses
- Fish and wildlife





Beneficial Use Impairments in the Corridor

- **Corridor-wide issues/indicators:**
 - Fish consumption advisories
 - Wetland losses (historical and current)
 - Degraded benthos
 - Contaminated sediments
 - Water Quality exceedances
 - Beach Closures
 - Drinking water

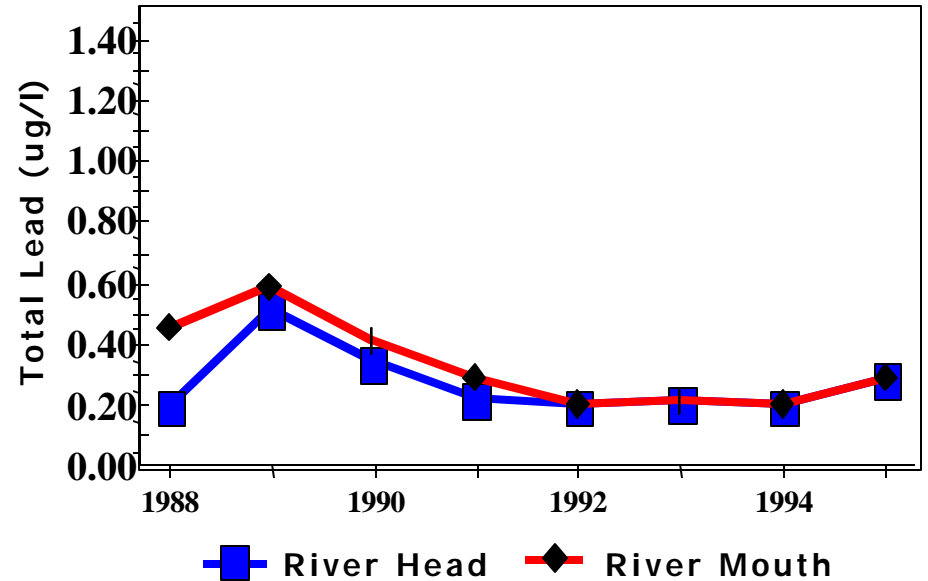


Water Quality Trends

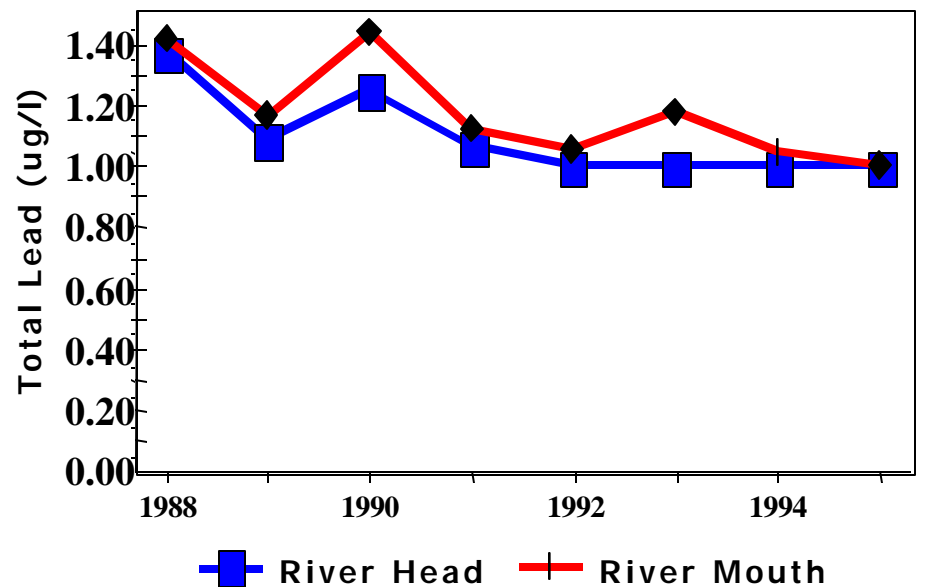


MI Human Health Std. = 14 ug/l
GLWQA Specific Obj. = 25 ug/l

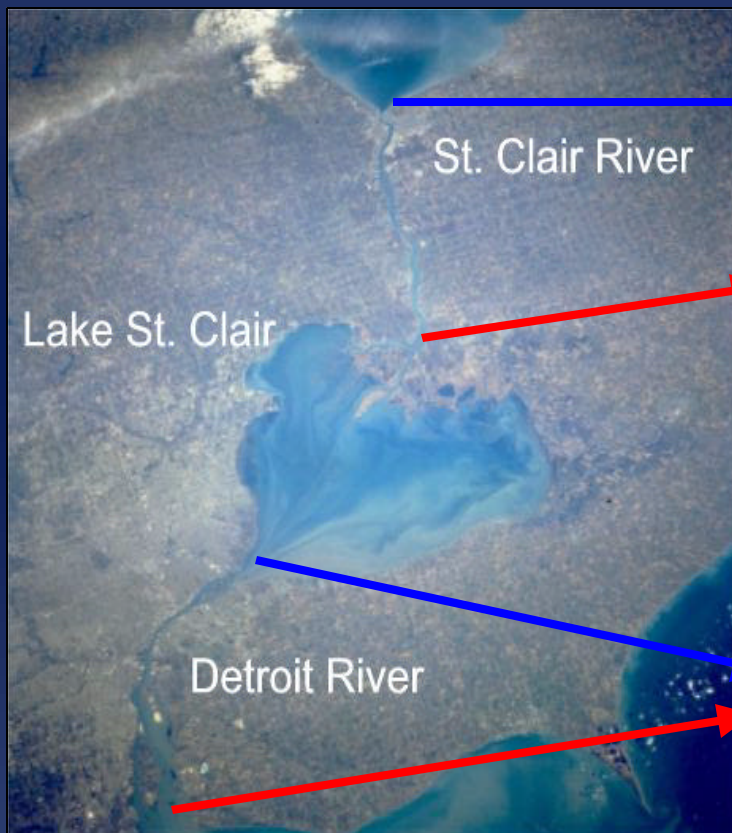
St. Clair River - Lead



Detroit River - Lead

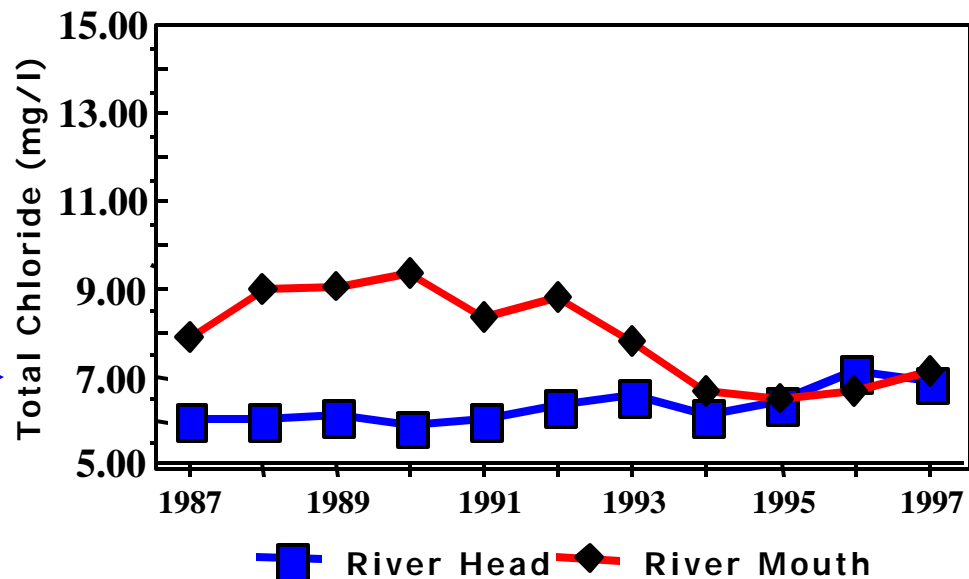


Water Quality Trends

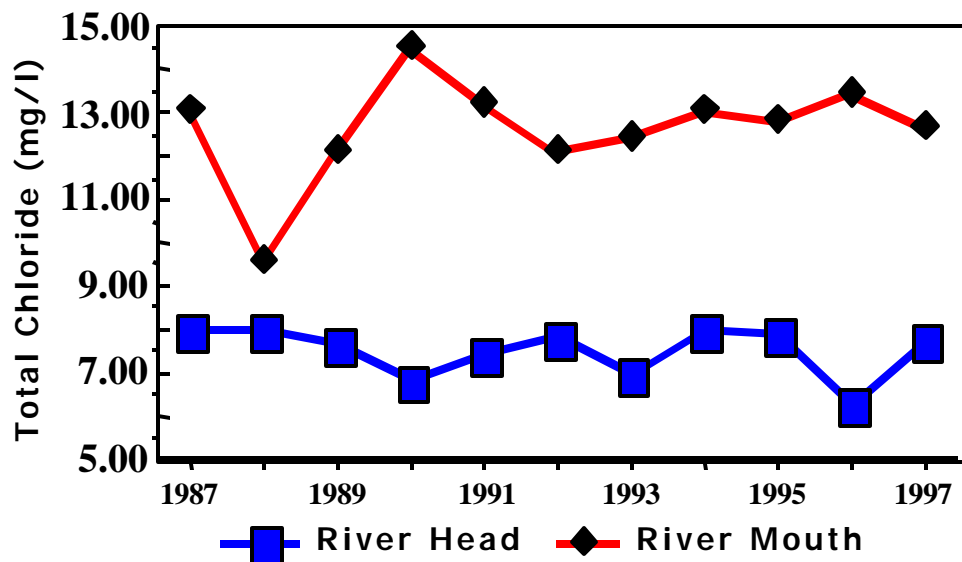


St. Clair RAP Yardstick = 50 mg/l

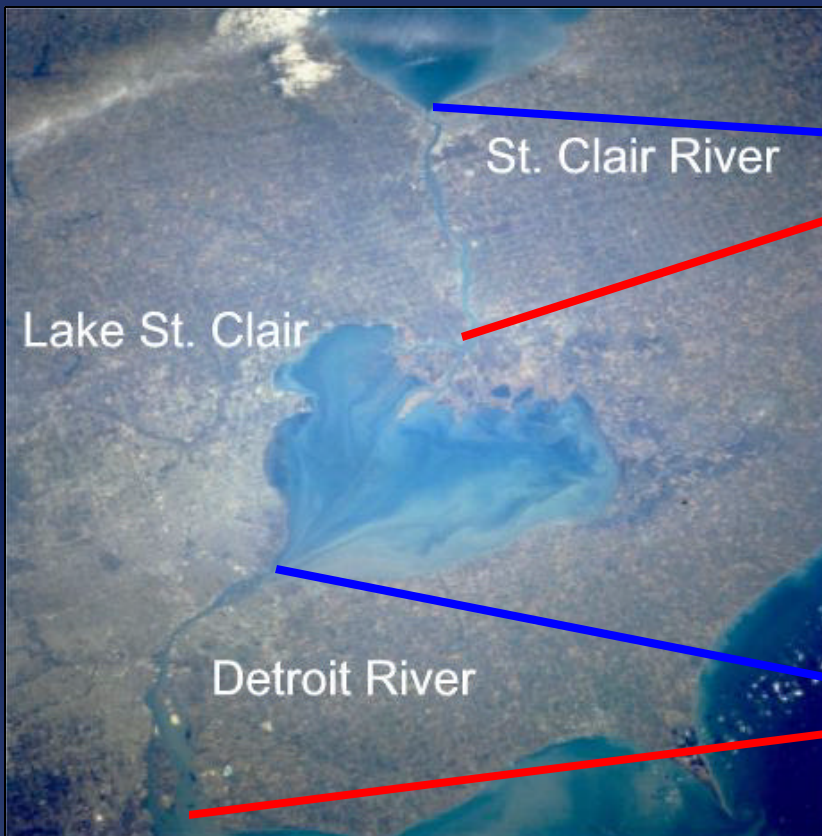
St. Clair River - Chloride



Detroit River - Chloride

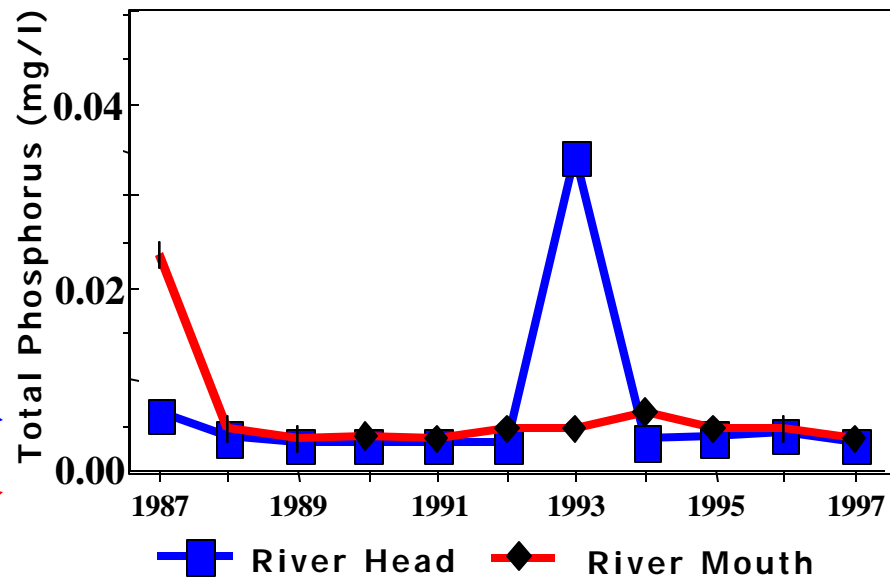


Water Quality Trends

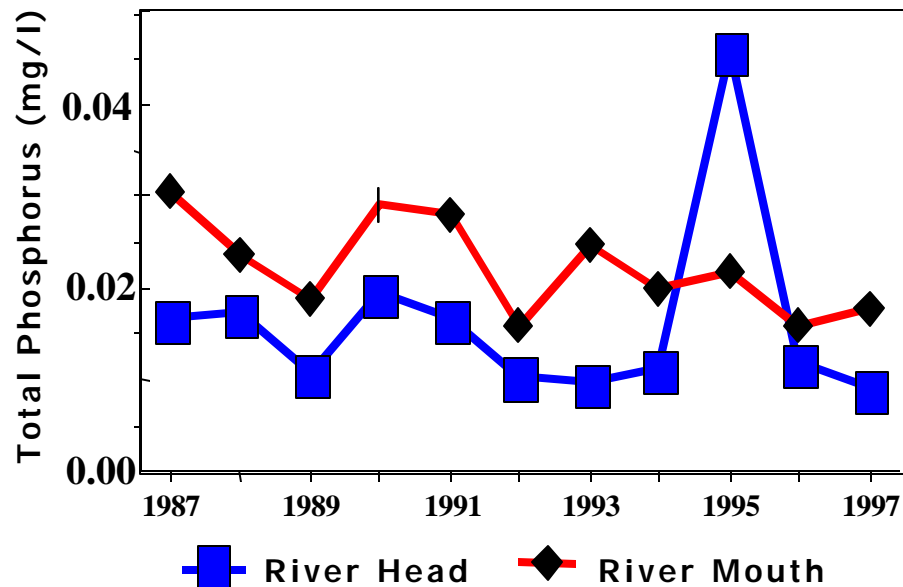


St. Clair RAP Yardstick = 20 mg/l

St. Clair River - Phosphorus



Detroit River - Phosphorus

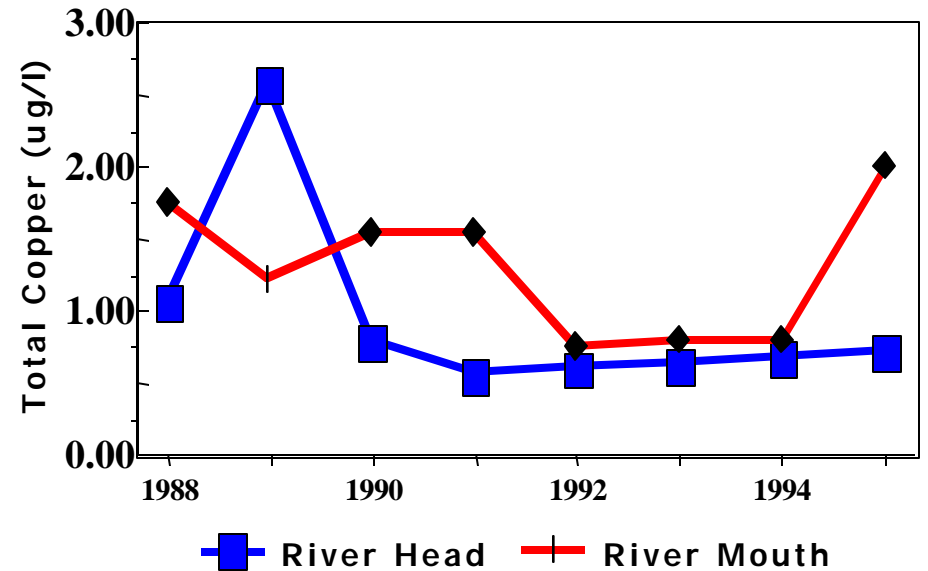


Water Quality Trends

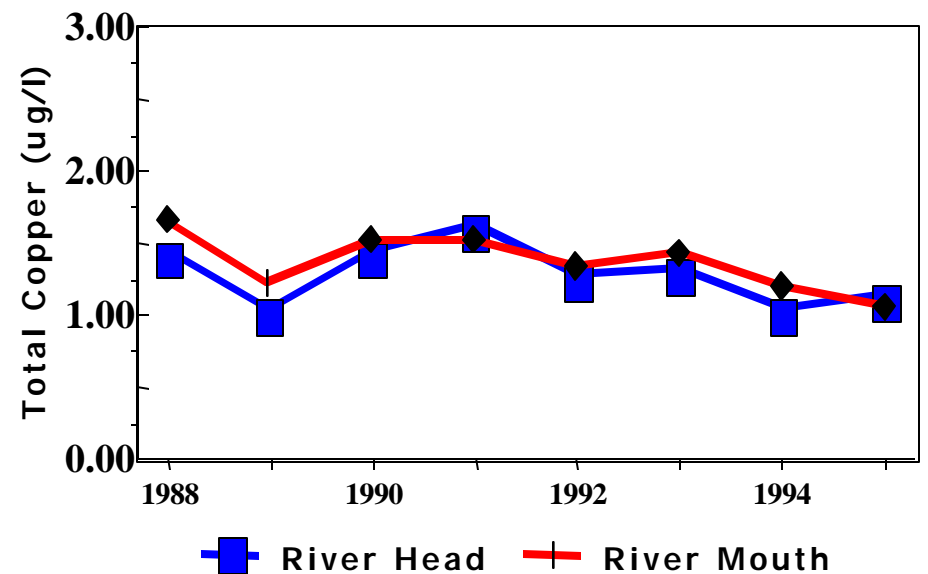


Ont. Water Quality Obj. = 5 ug/l
USEPA MCL = 1300 ug/l

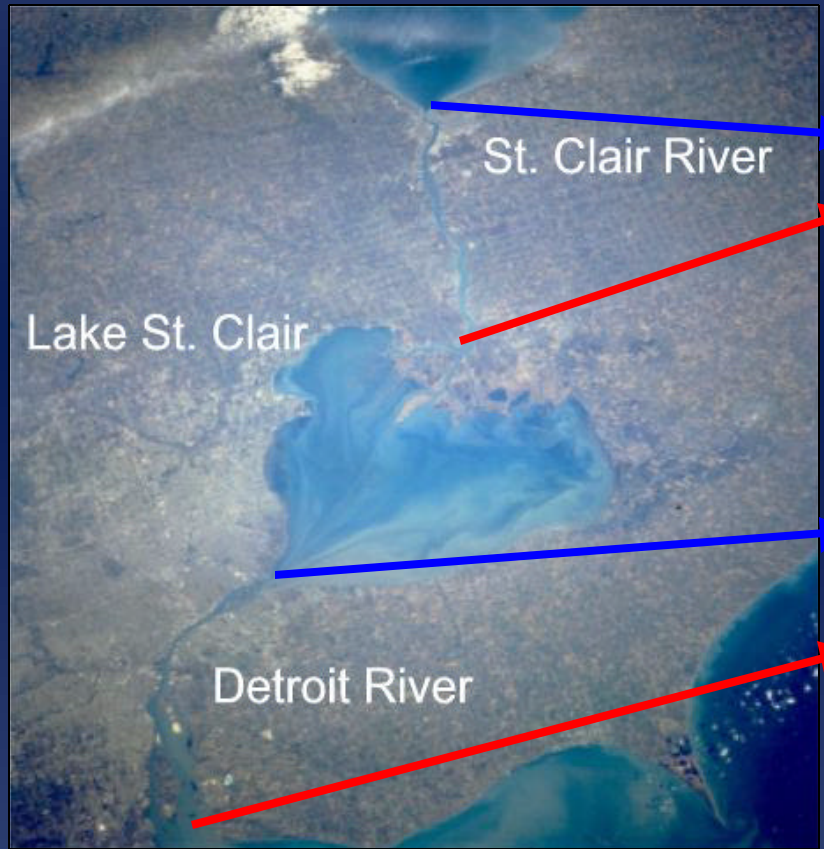
St. Clair River - Copper



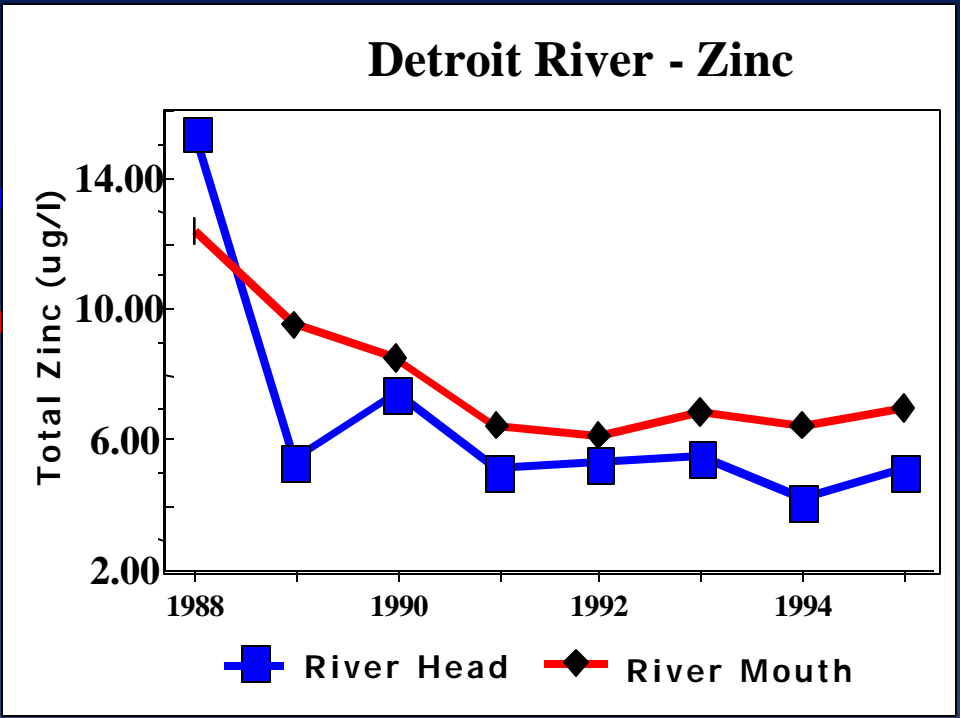
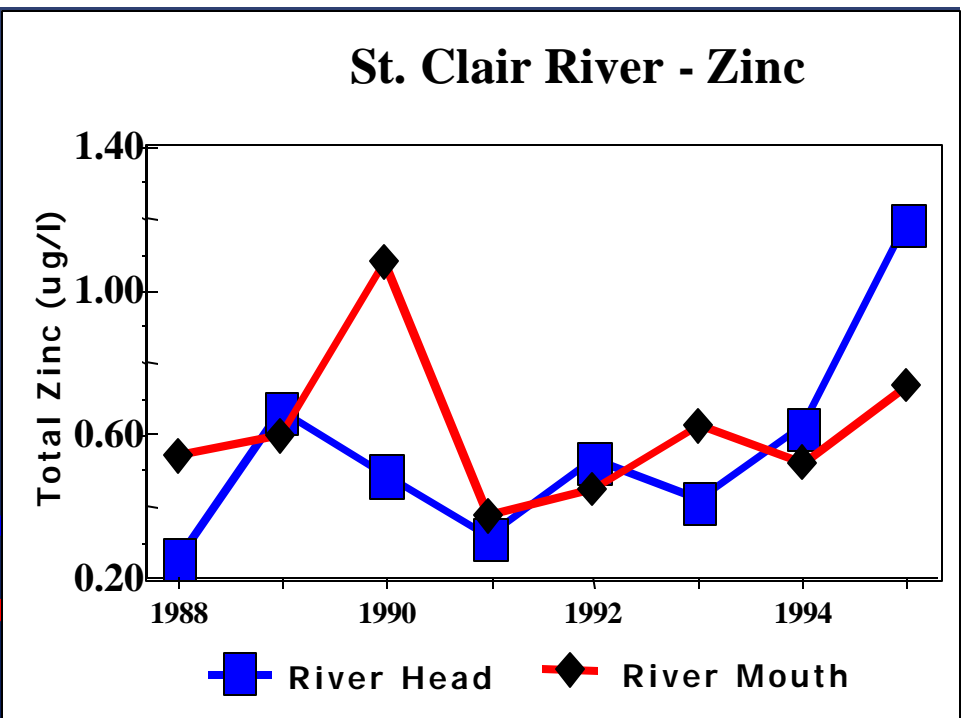
Detroit River - Copper



Water Quality Trends

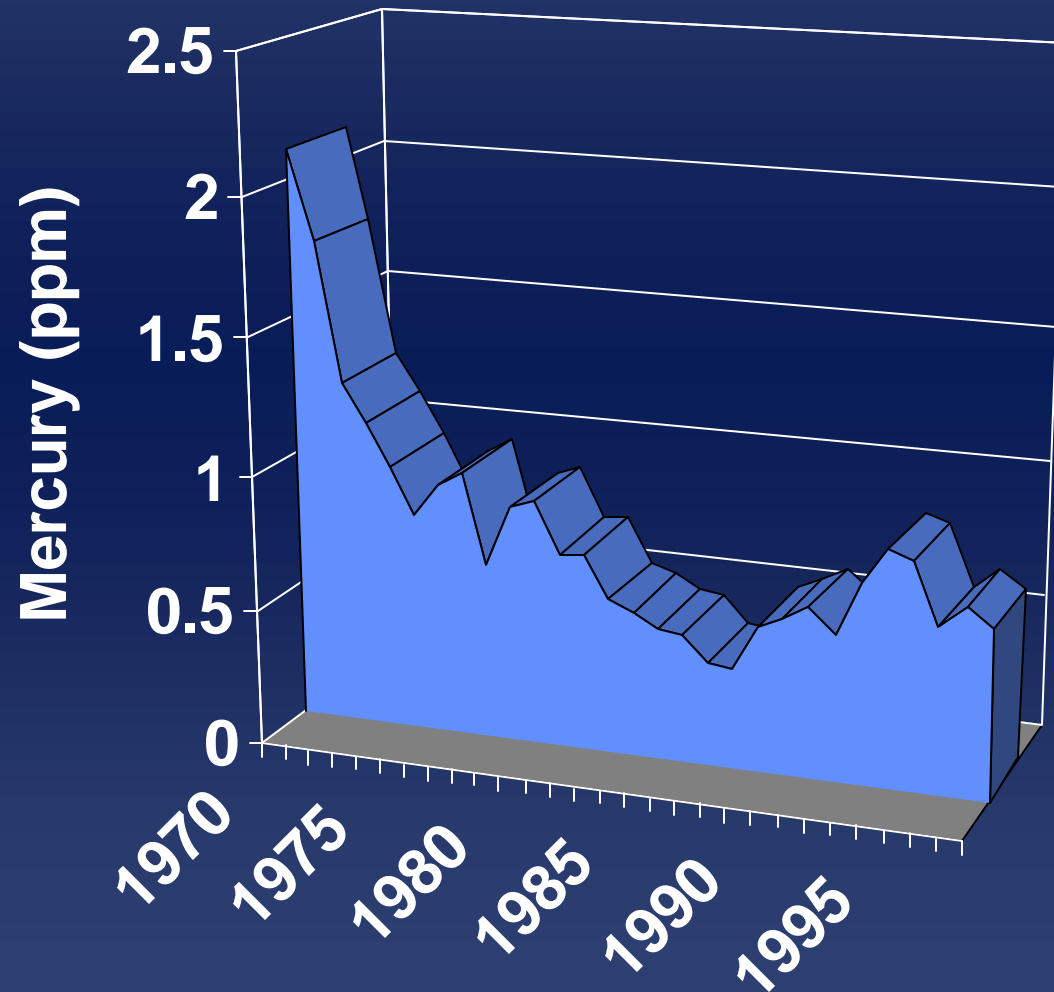


MI Water Quality Std. = 49 ug/l
 Ontaro Water Quality Obj. = 30 ug/l



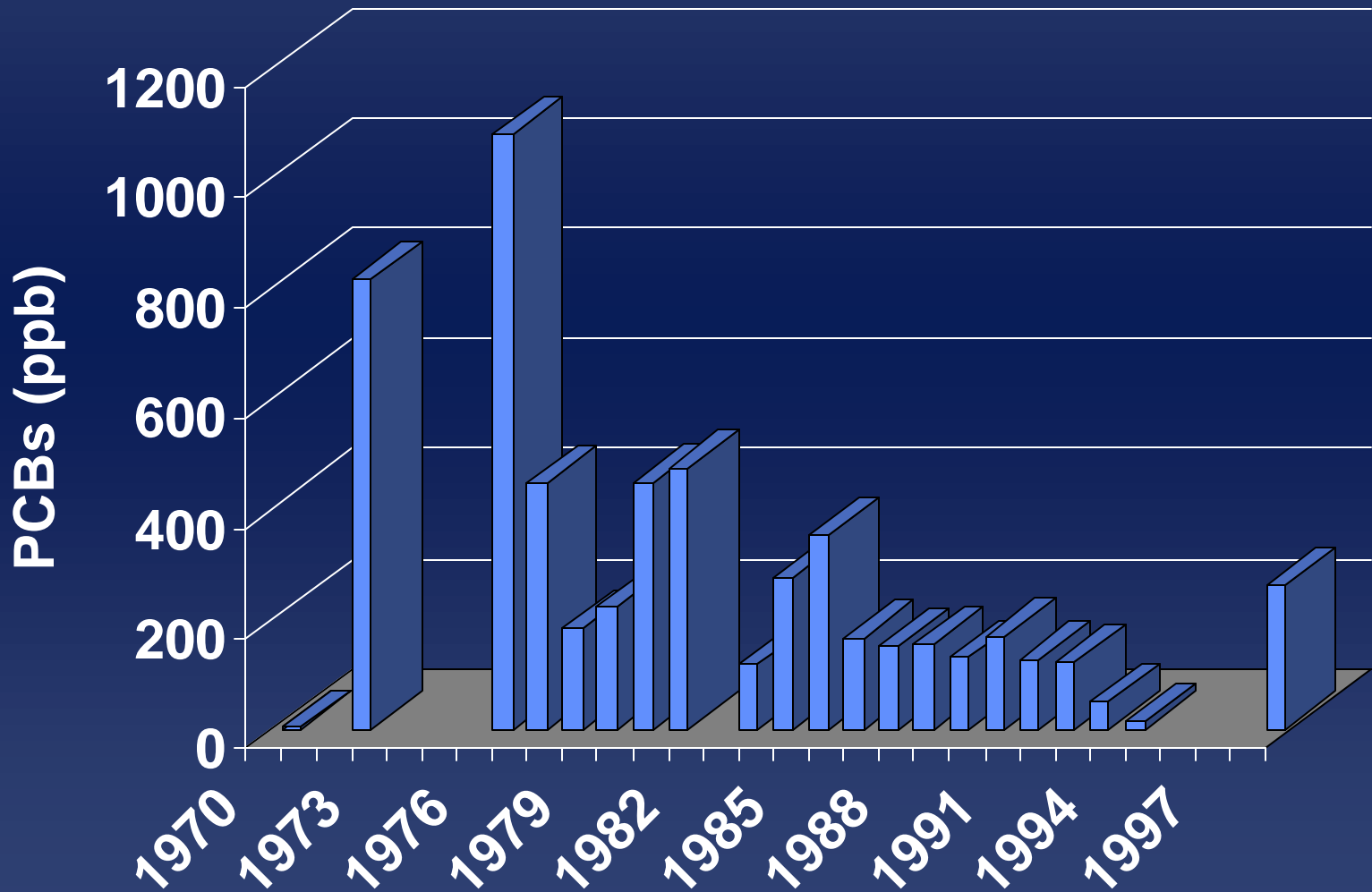


Mercury in Lake St. Clair Walleye (ppm) - edible portion



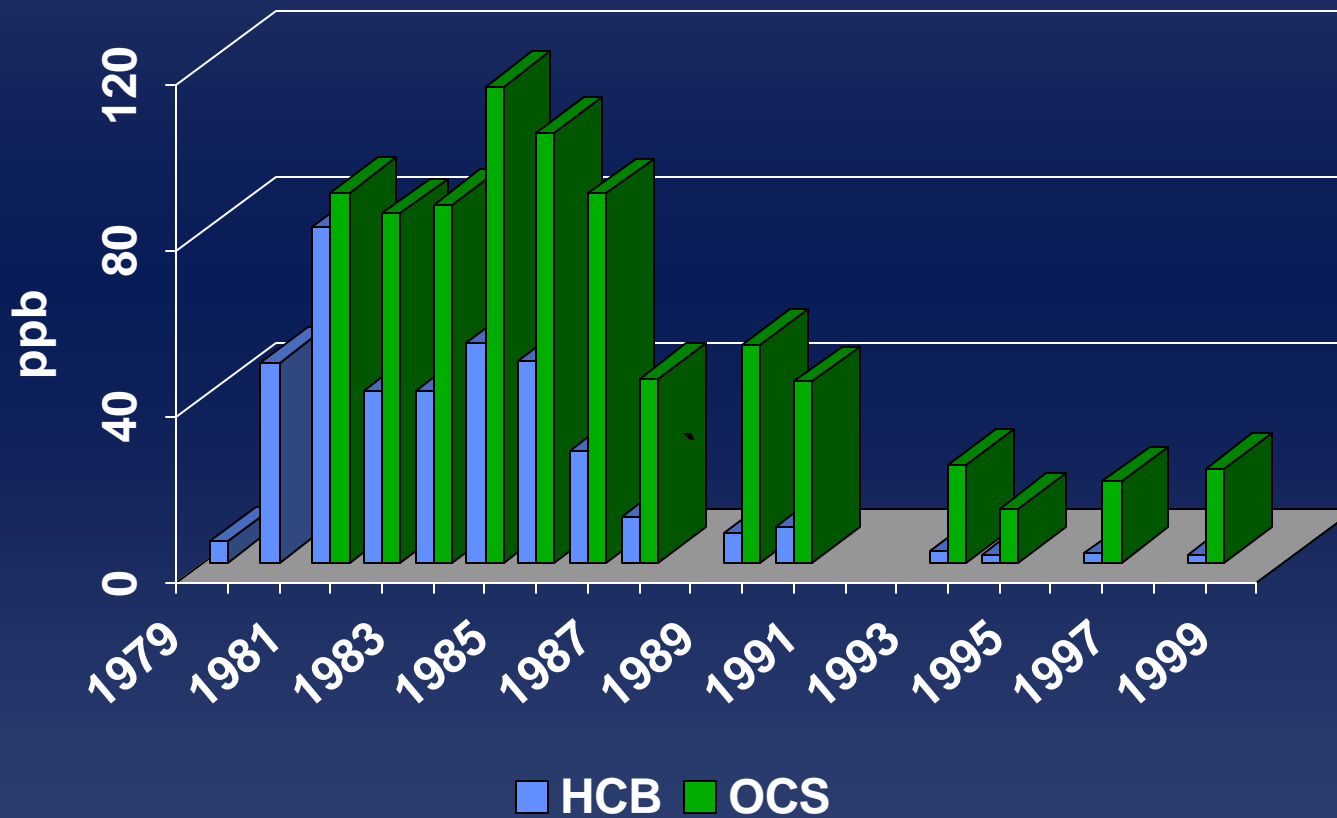


PCBs in Lake St. Clair Walleye (ppb) - edible portion





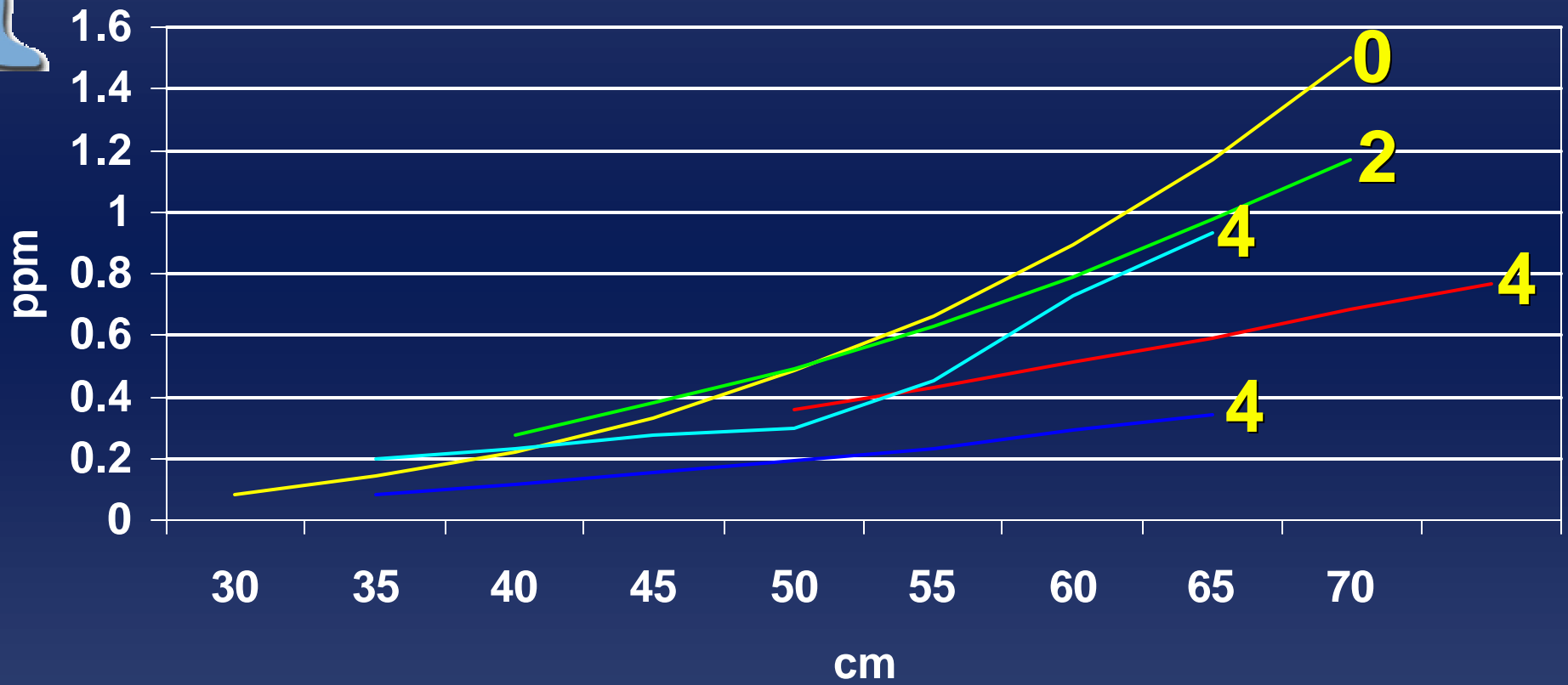
HCB and OCS in Lake St. Clair Channel Catfish





Mercury vs. Walleye length 1998

Indicator 4083: Contaminants in Edible Fish Tissue



— S. Lake Huron — St. Clair River — Lake St. Clair
— Detroit River — W. Lake Erie



Importance of Sportfishing in Corridor

- **200 marinas and 150,000 Mi. boats adjacent to Lake St. Clair; Annual value of ~\$260M**
- **1.5M fish taken from Lake St. Clair annually;**
- **LSC accounts for nearly half of entire Great Lakes sport fishing effort.**
- **Majority of anglers eat their catch**



State of Coastal wetlands

Indicators # 4510 and 4511: *Gain in restored Coastal Wetland area by type*



An indicator of periodic changes and the success of conservation and rehabilitation efforts

Wetland losses 1800 - 1990



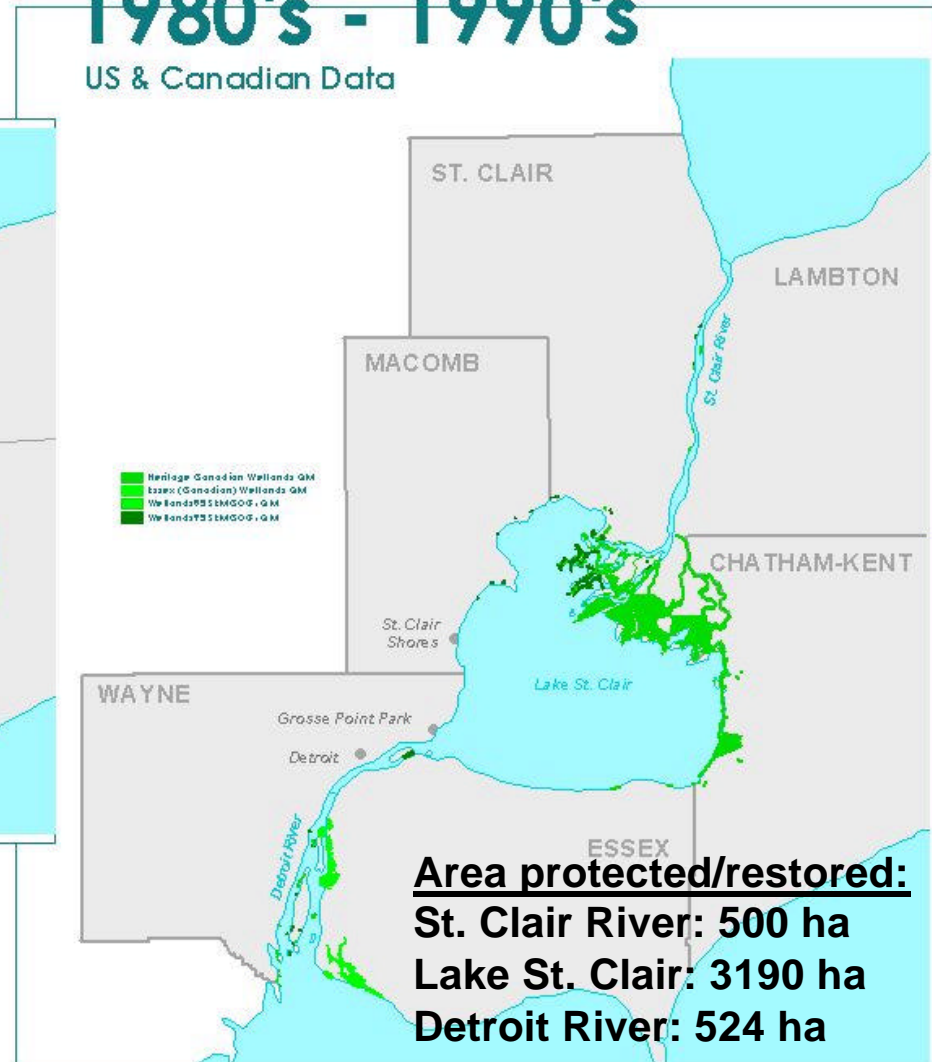
Huron-Erie Corridor Near-Shore Wetlands

1800
U.S. Data



1980's - 1990's

US & Canadian Data



Map Project for:
UTM, NAD 27, Zone 17, meter units
2 October 2000, Maureen Goff



Pressures on the system

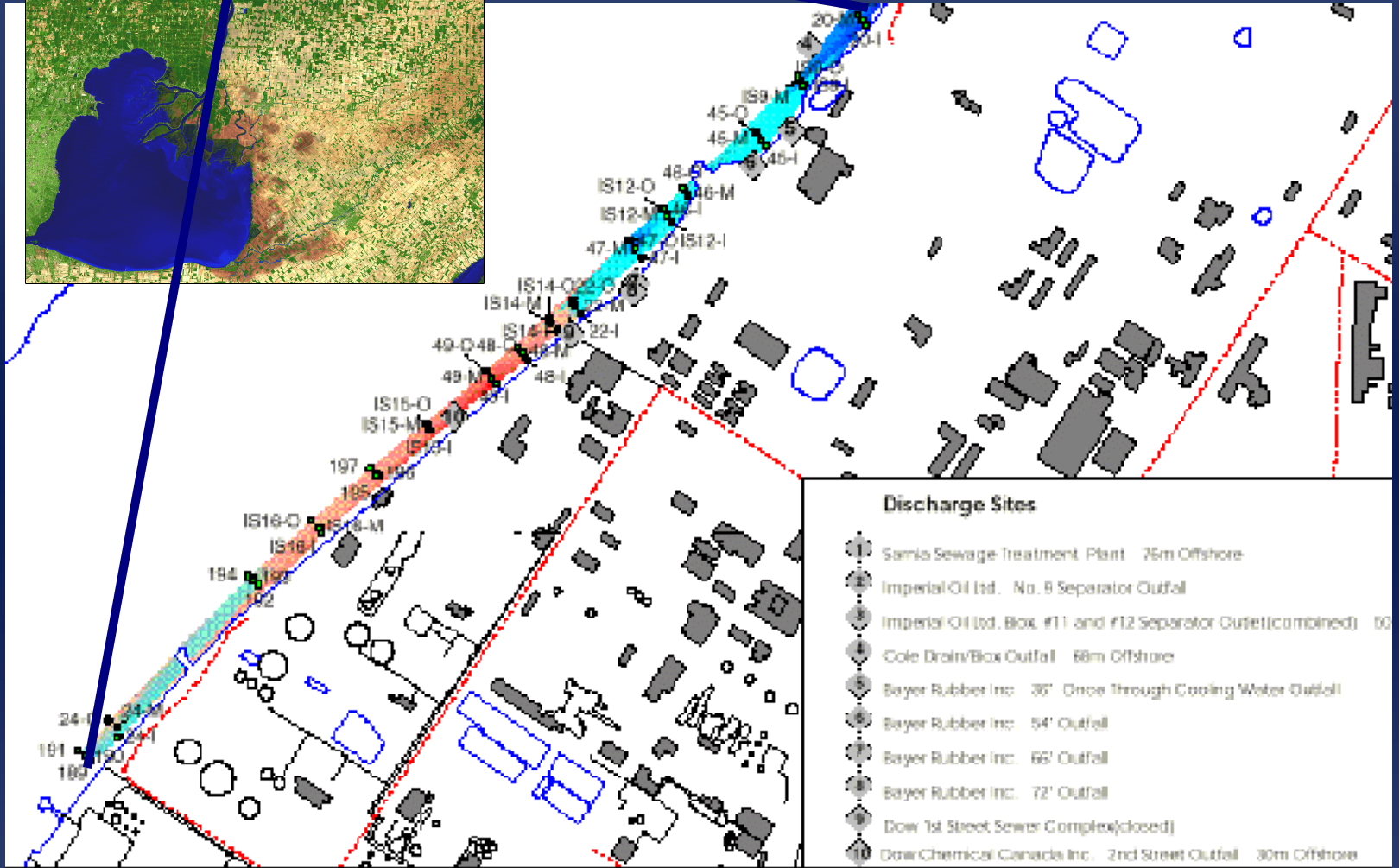
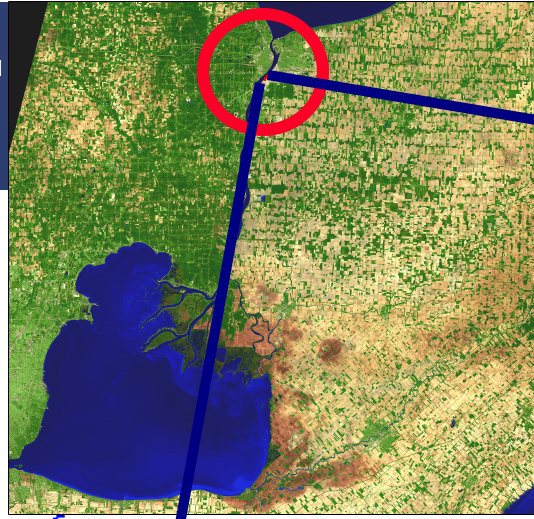
- Loss of fish and wildlife habitat is a primary and consistent concern throughout the Corridor





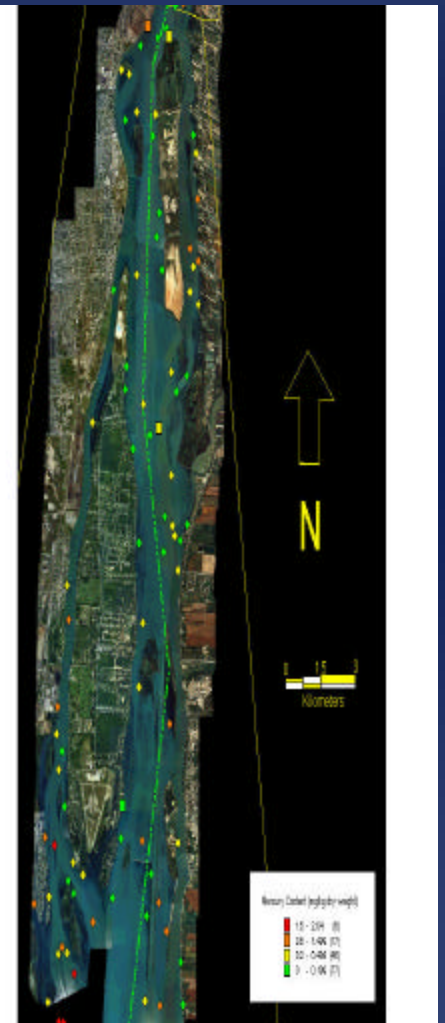
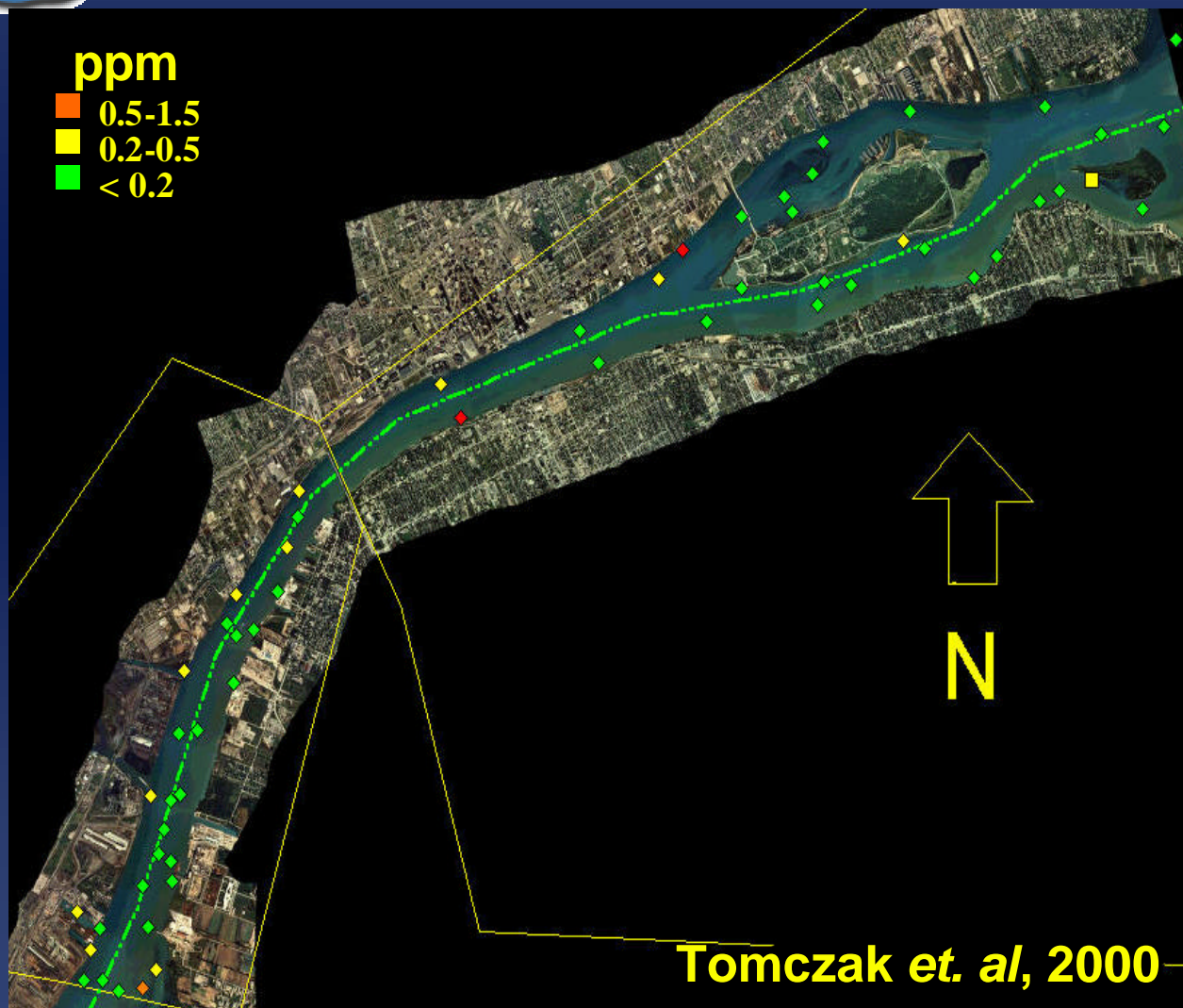
Activities to mitigate pressures

- Ongoing efforts to acquire critical habitat;
- Shoreline enhancement projects;
- Biodiversity conservation strategy and atlas;
- CWS conservation targets
- Candidate sites;
- Protection of designated wetlands






Spatial Distribution of Mercury in Sediments in the Upper St.Clair River - 1994/95

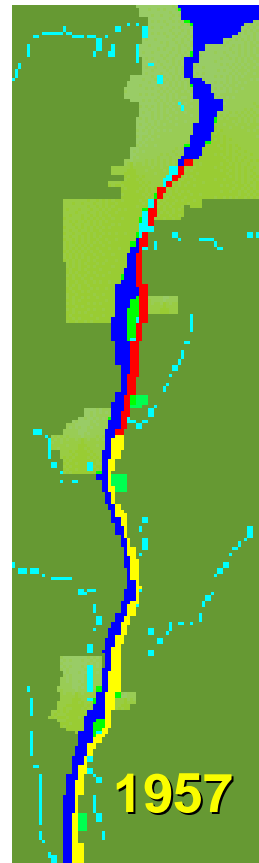
Mercury in Detroit River Sediments



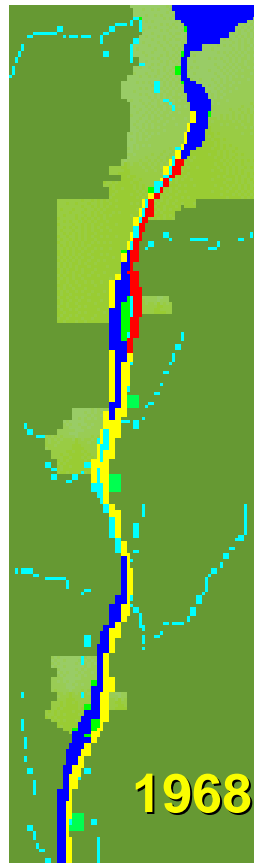
Indicator 4501: Coastal wetland Invertebrate community Health



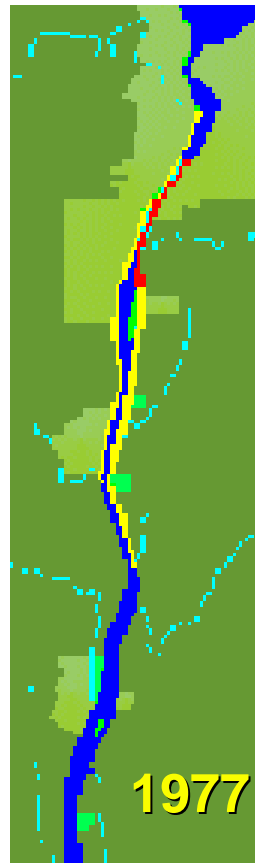
-  Severely Impaired
-  Impaired
-  Unimpaired



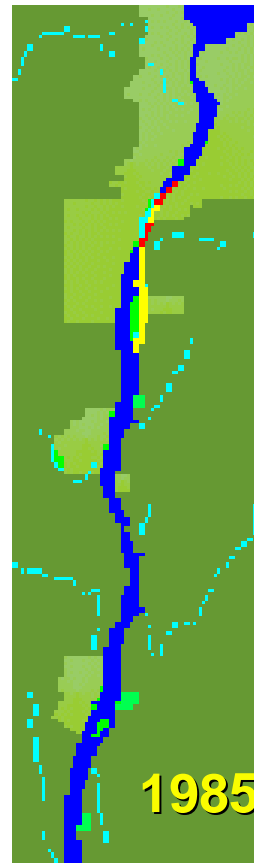
1957



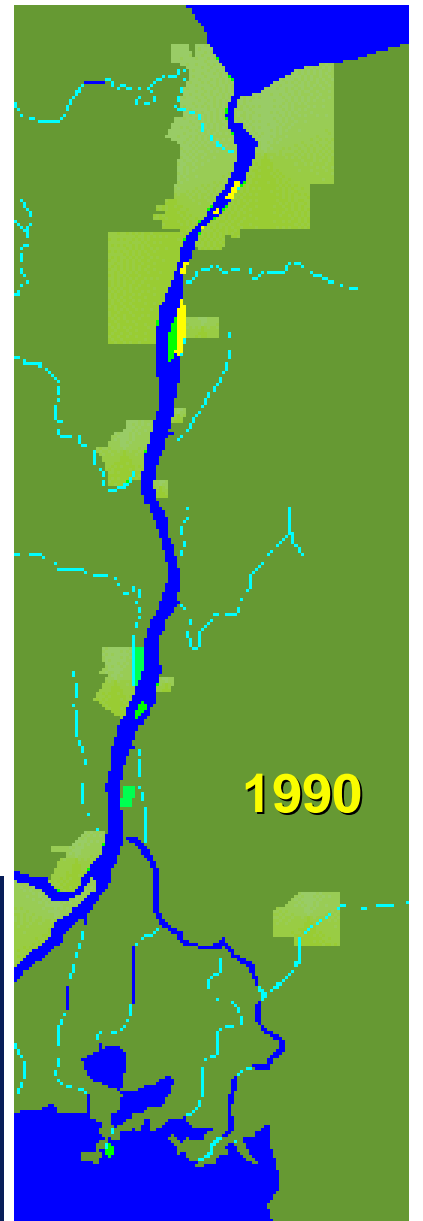
1968



1977



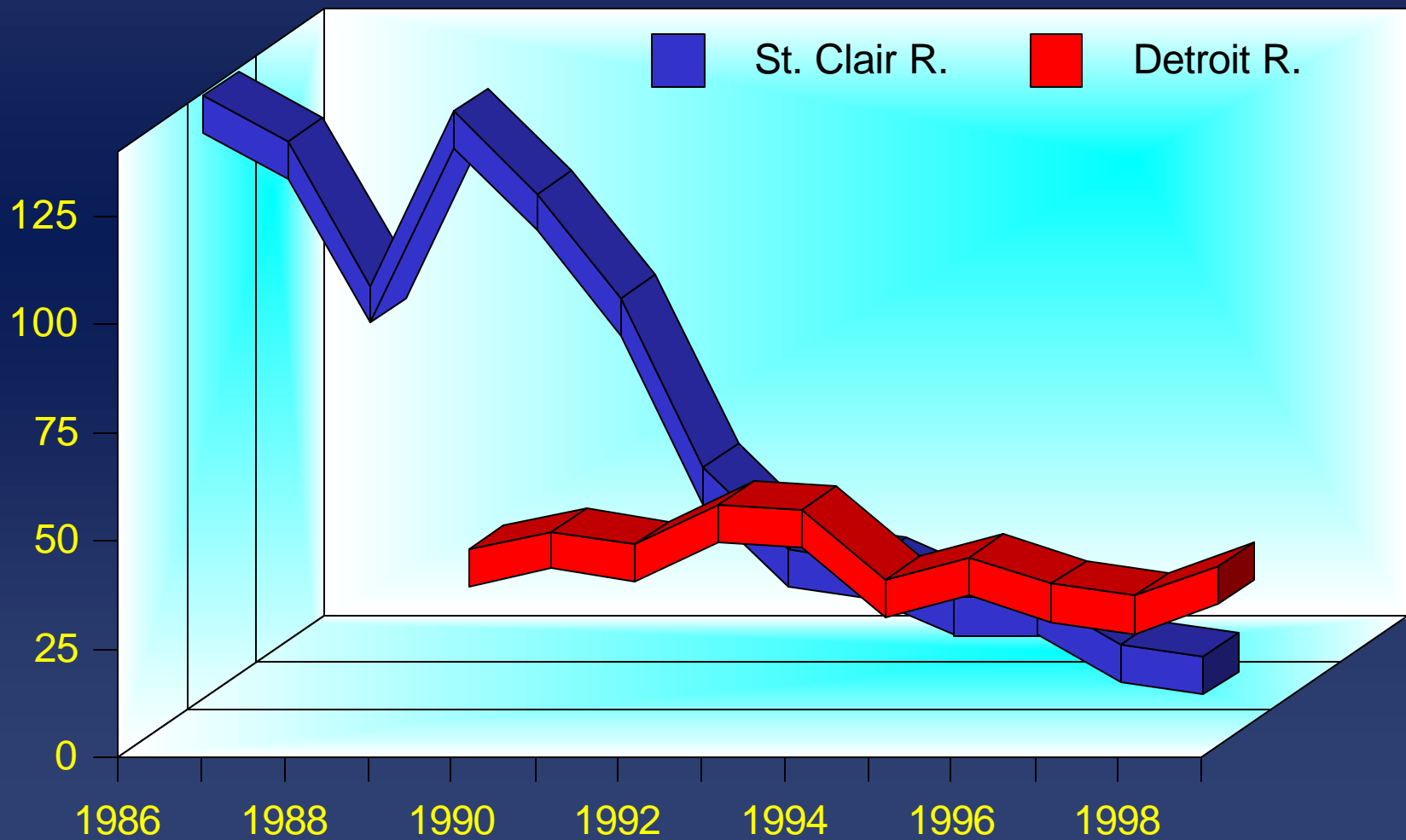
1985



1990

St. Clair River Benthic Community Health - 1957 to 1990

Spills to the St. Clair and Detroit Rivers





Conclusions and Emerging Issues

- Area is important ecologically and commercially;
- Effective source controls, need to manage historical contamination;
- Habitat protection/restoration - focus on incremental gains;
- Need ongoing monitoring to ensure continuous improvement