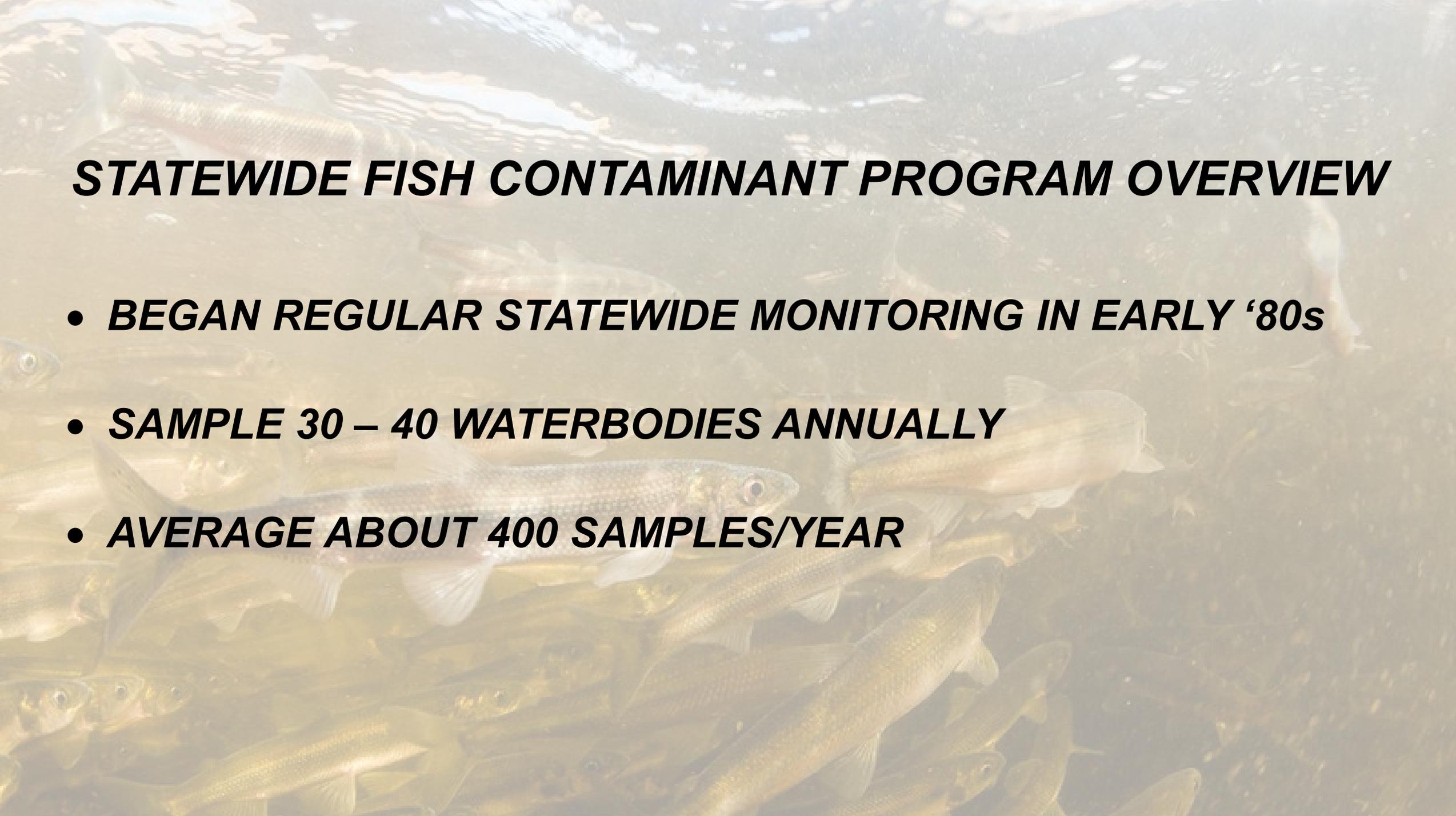


An aerial photograph of a river winding through a lush, green landscape. The river is dark blue and flows from the top left towards the bottom right. In the foreground, there is a large, bright green field, possibly a golf course or a park, with several white paths or roads. The surrounding area is densely forested with trees in various shades of green. The overall scene is bright and clear, suggesting a sunny day.

**PINE RIVER**

**STATUS OF  
CONTAMINANTS IN FISH**

**DECEMBER 2016**



# ***STATEWIDE FISH CONTAMINANT PROGRAM OVERVIEW***

- ***BEGAN REGULAR STATEWIDE MONITORING IN EARLY '80s***
- ***SAMPLE 30 – 40 WATERBODIES ANNUALLY***
- ***AVERAGE ABOUT 400 SAMPLES/YEAR***

# Fish Contaminant Monitoring Program Goals

- Are the fish safe to eat?
- Have concentrations changed over time?
- Are there differences across the state?
- Are cleanups and regulations working?

# Fish and Wildlife Contaminant Advisory Committee

**MDEQ:** Coordinates fish and wildlife contaminant monitoring.

**MDNR:** Cooperates with MDEQ in collection of fish samples, helps communicate consumption advisories and conducts some wildlife monitoring.

**MDARD:** Regulates the sale of commercially caught or reared fish and wildlife intended for human consumption.

**MDHHS:** Communicates to the public the risk associated with consumption of fish and wildlife. Develops protocols for establishing levels of acceptable risk.

# **Contaminants of Interest**

*"Natural"*

**Methyl Mercury**

*Industrial*

**PCBs / Dioxin**

**PFCs**

**PBB**

*Chlorinated Pesticides*

**DDT**

**Chlordane**

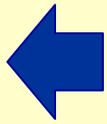
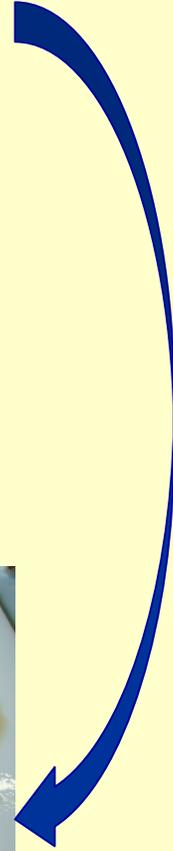
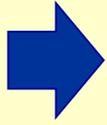
**Toxaphene**

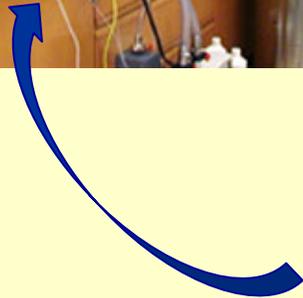
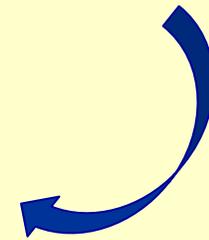
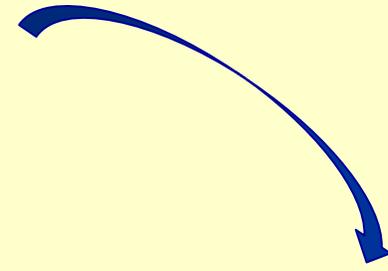
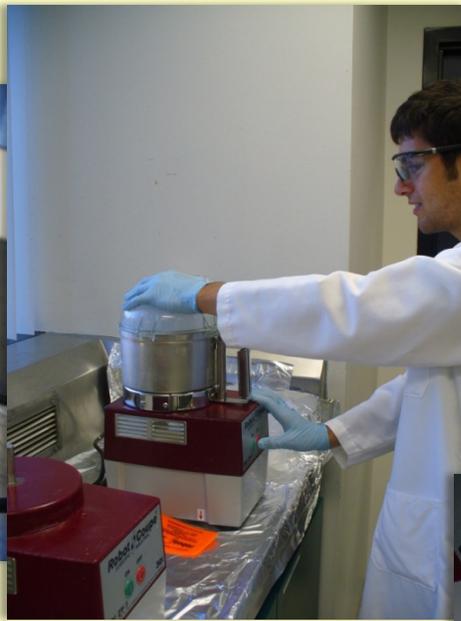
# Emerging Contaminants of Interest

- *"Natural"*
  - ✓ Selenium
  - Microcystins
- *Flame Retardants*
  - ✓ PFCs / PFOS
  - ✓ PBDE
- *Commercial / Industrial*
  - Synthetic Musks
  - Triclosan

# Sample Collection





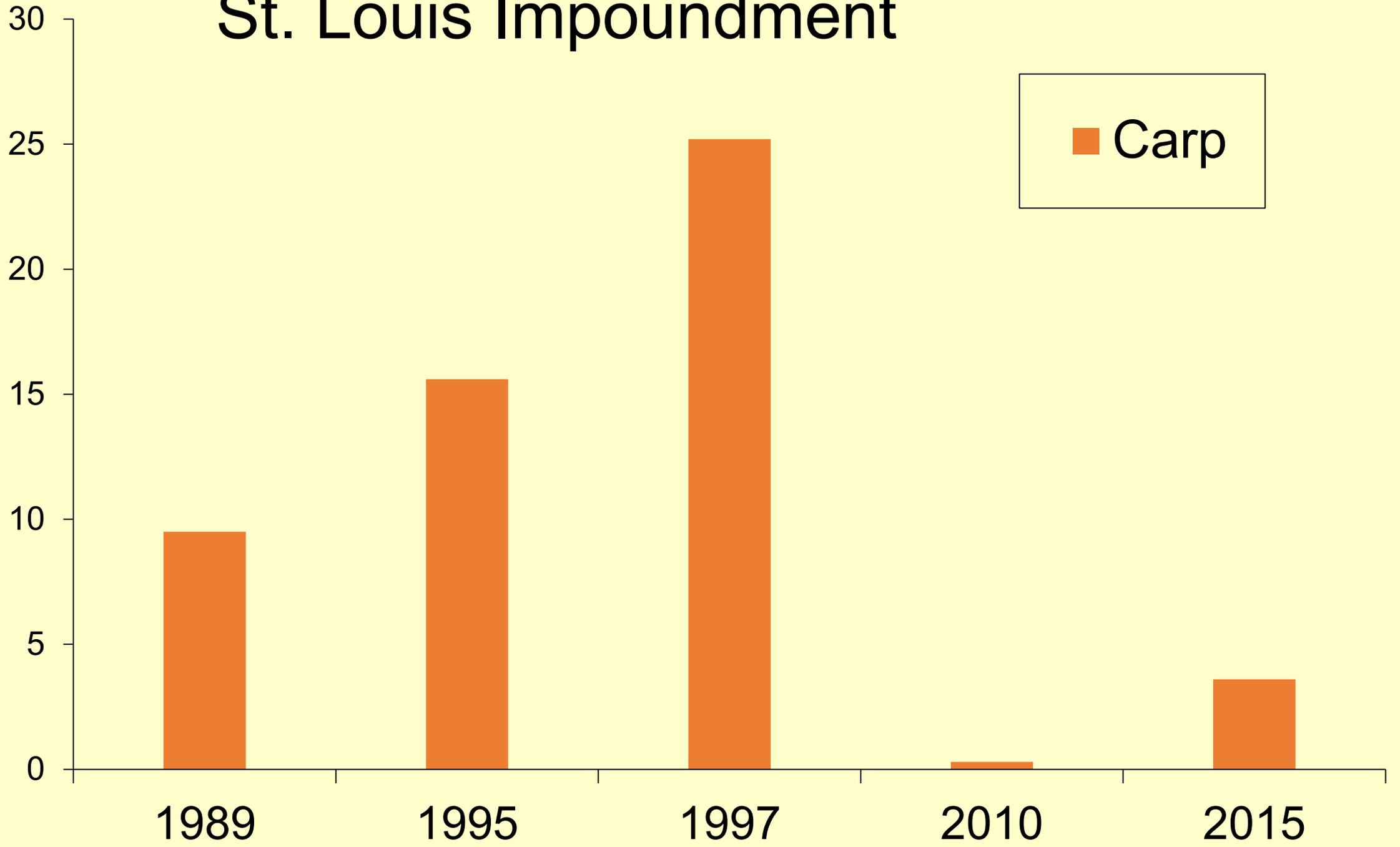


# ***CURRENT STATUS OF CONTAMINANTS IN FISH FROM THE PINE RIVER***

- **MERCURY – TYPICAL OF OTHER MICHIGAN WATERBODIES**
- **DDT – SIGNIFICANT DECLINES SINCE SEDIMENT REMOVAL**
- **PBB – HIGH IN MID-70s; NOW NEAR DETECTION LEVELS**
- **PCBs -**
- **DIOXINS – RECENTLY ASSAYED IN CARP**

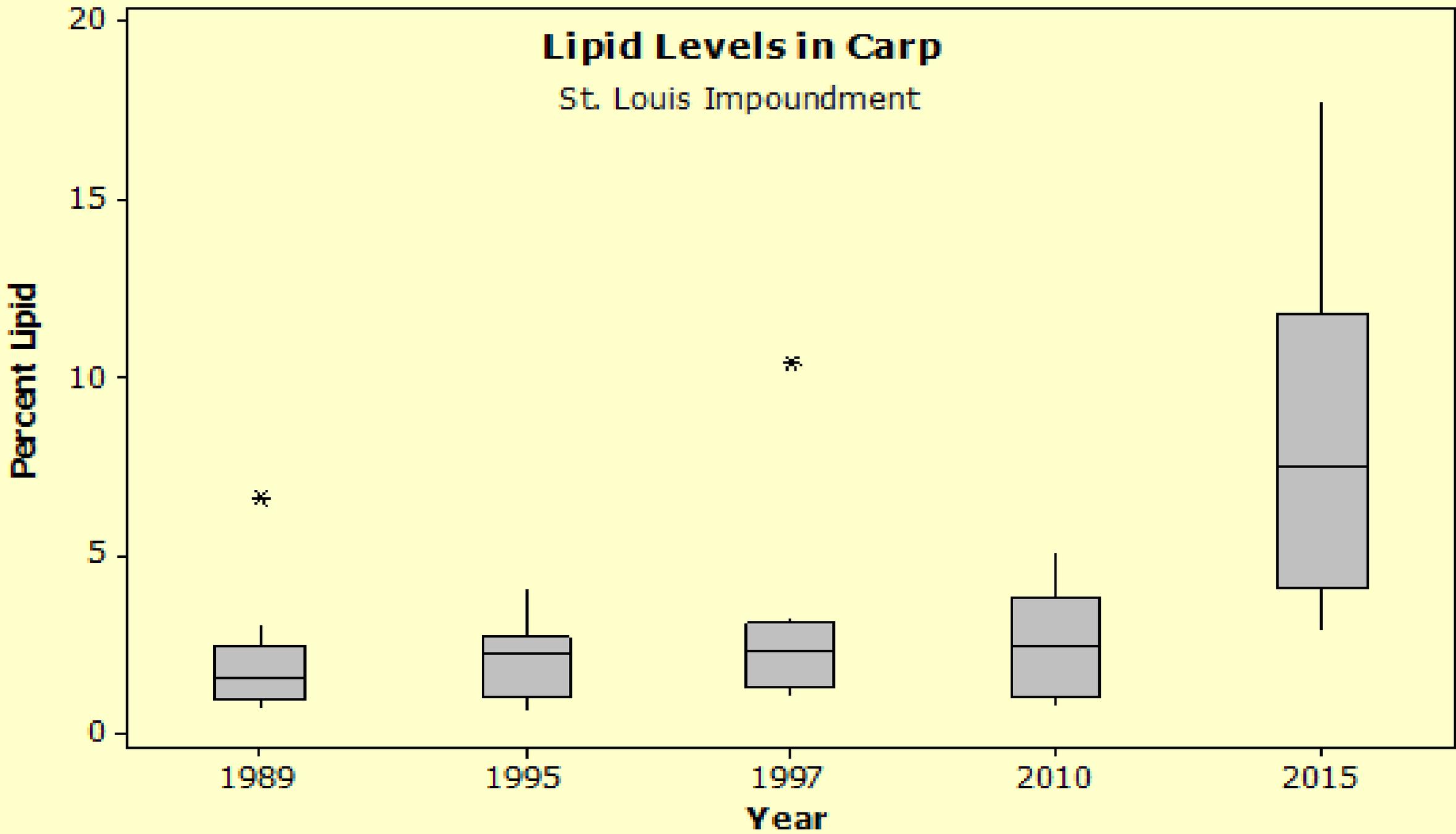
# St. Louis Impoundment

Mean Total DDT (ppm)



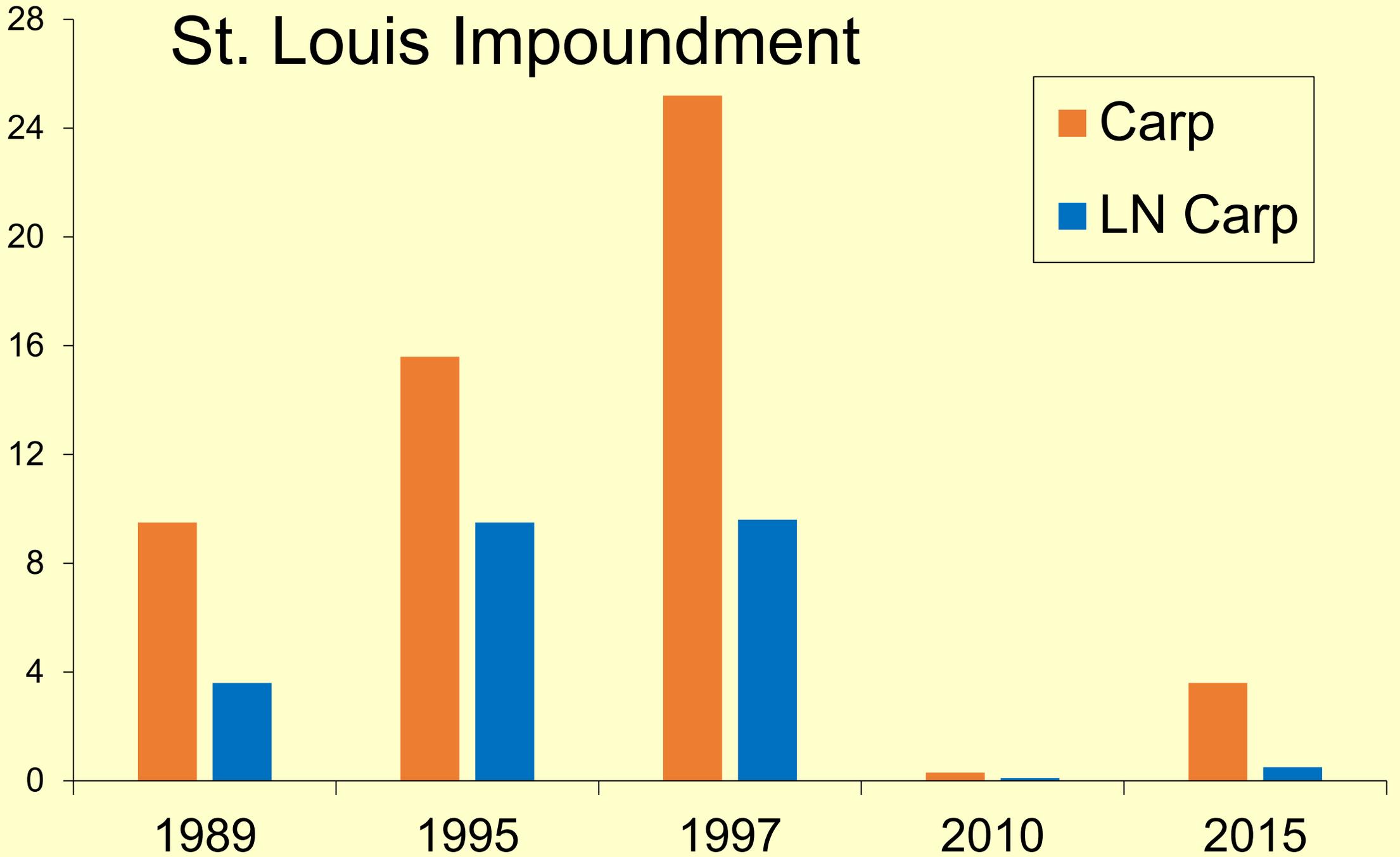
# Lipid Levels in Carp

St. Louis Impoundment



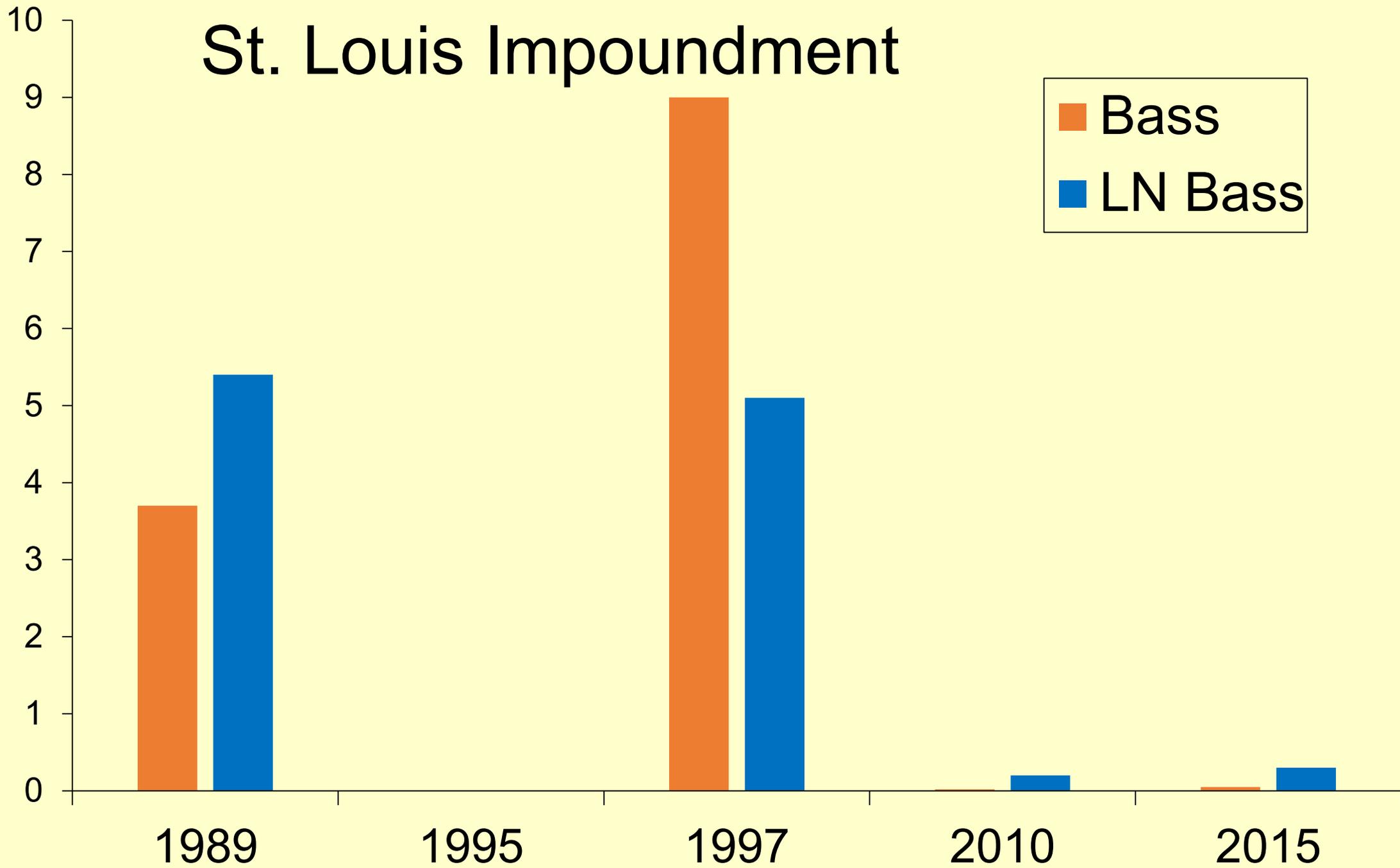
# St. Louis Impoundment

Mean Total DDT (ppm)

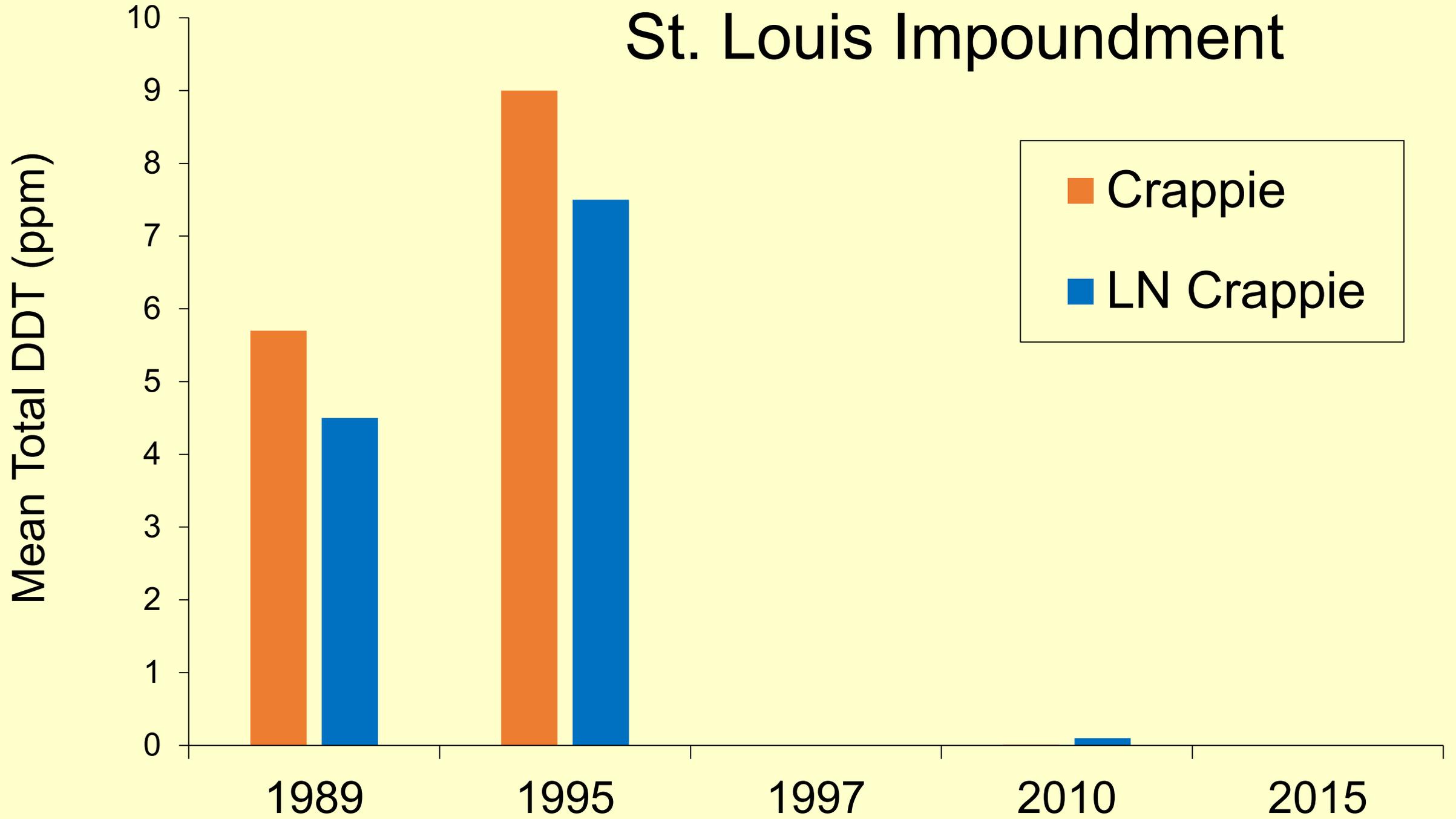


# St. Louis Impoundment

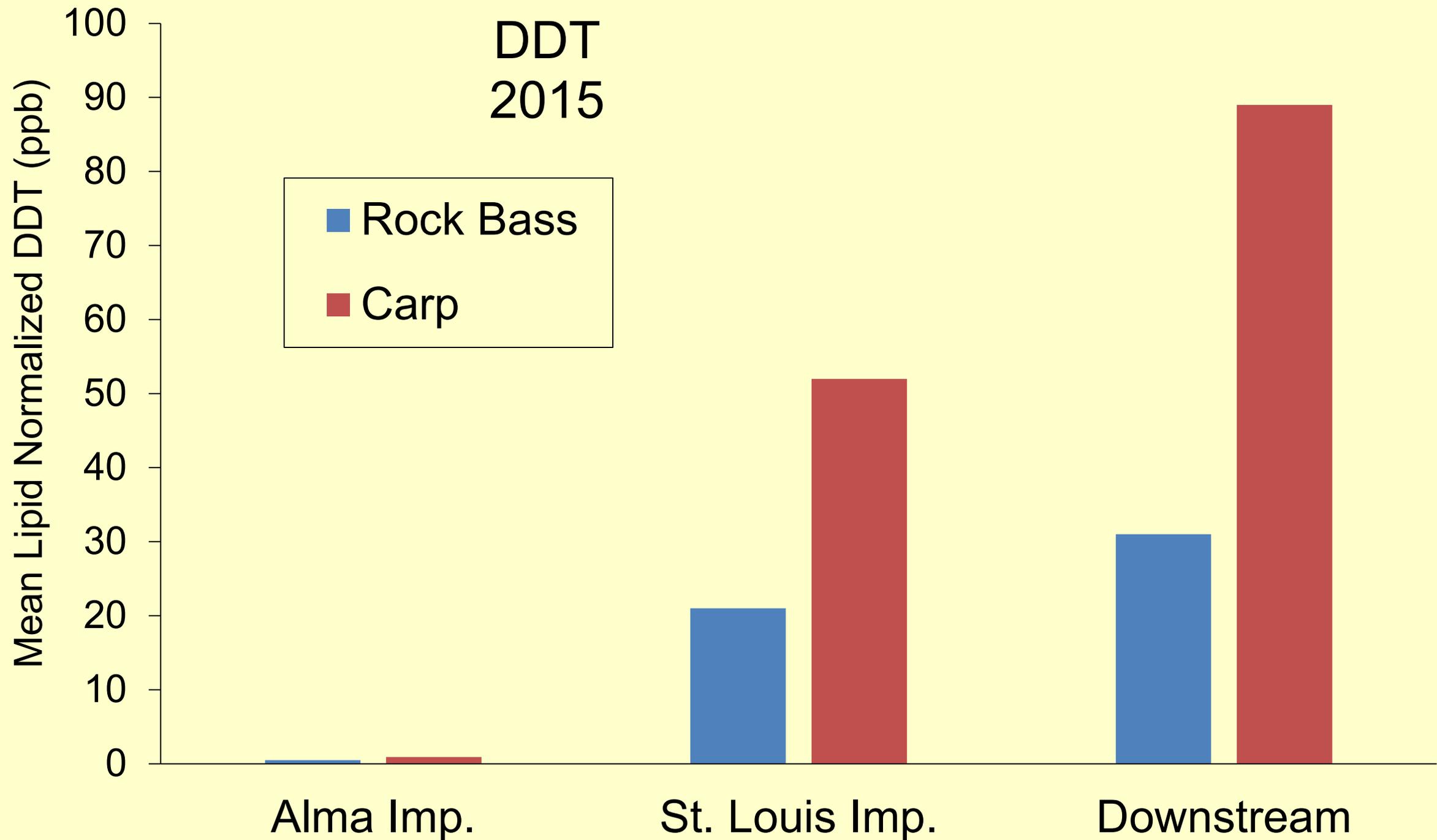
Mean Total DDT (ppm)



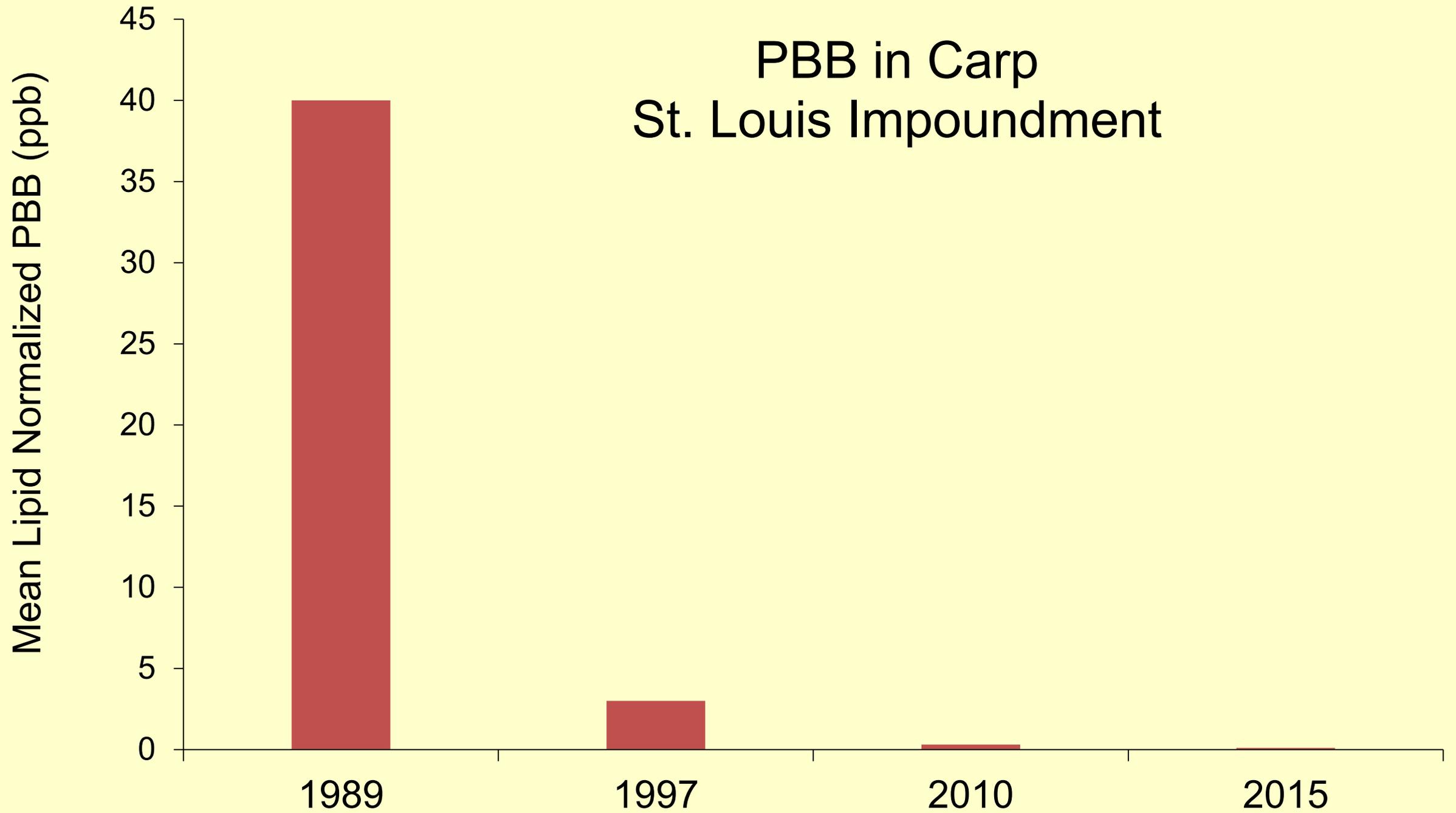
# St. Louis Impoundment



DDT  
2015



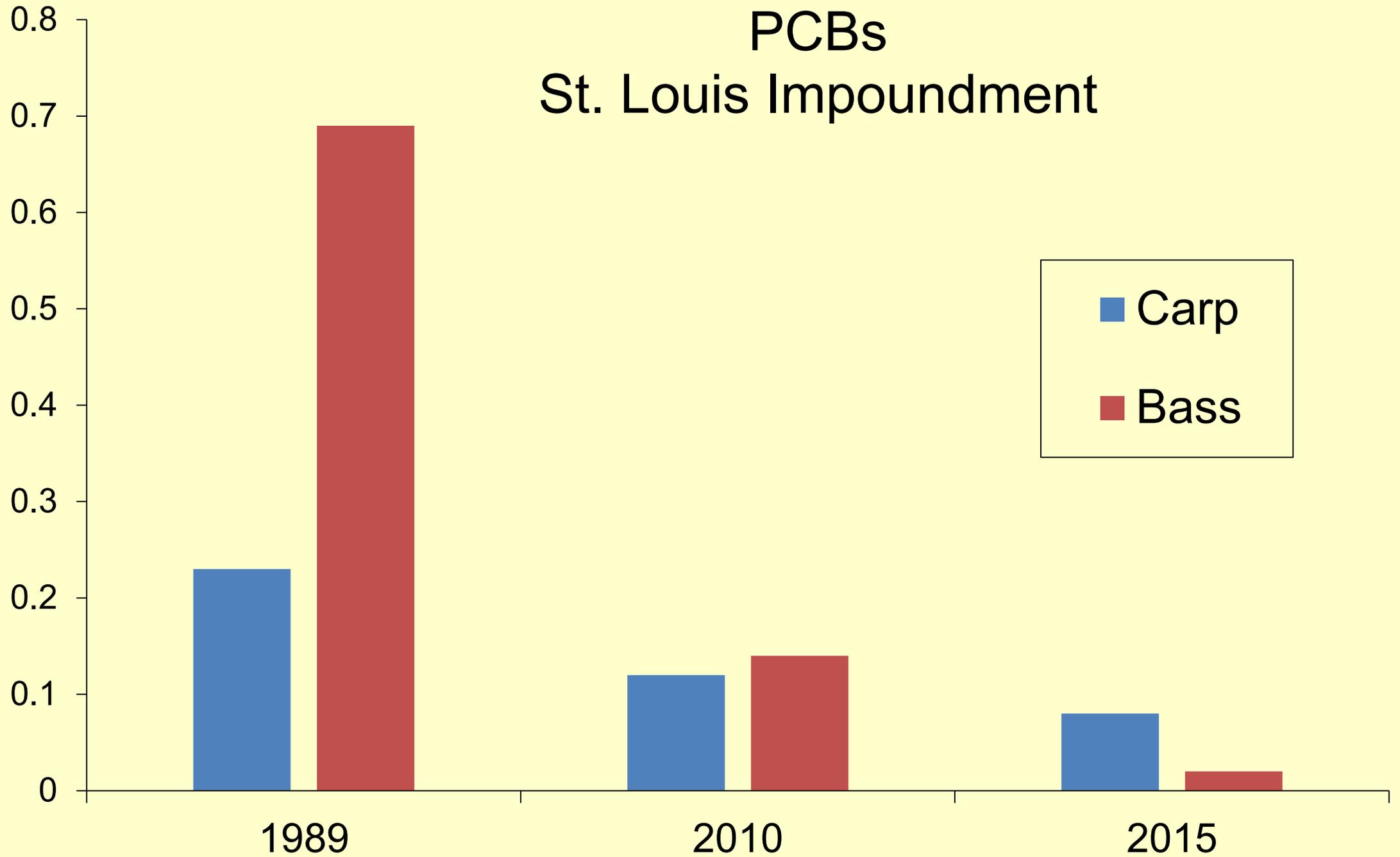
# PBB in Carp St. Louis Impoundment



# PCBs

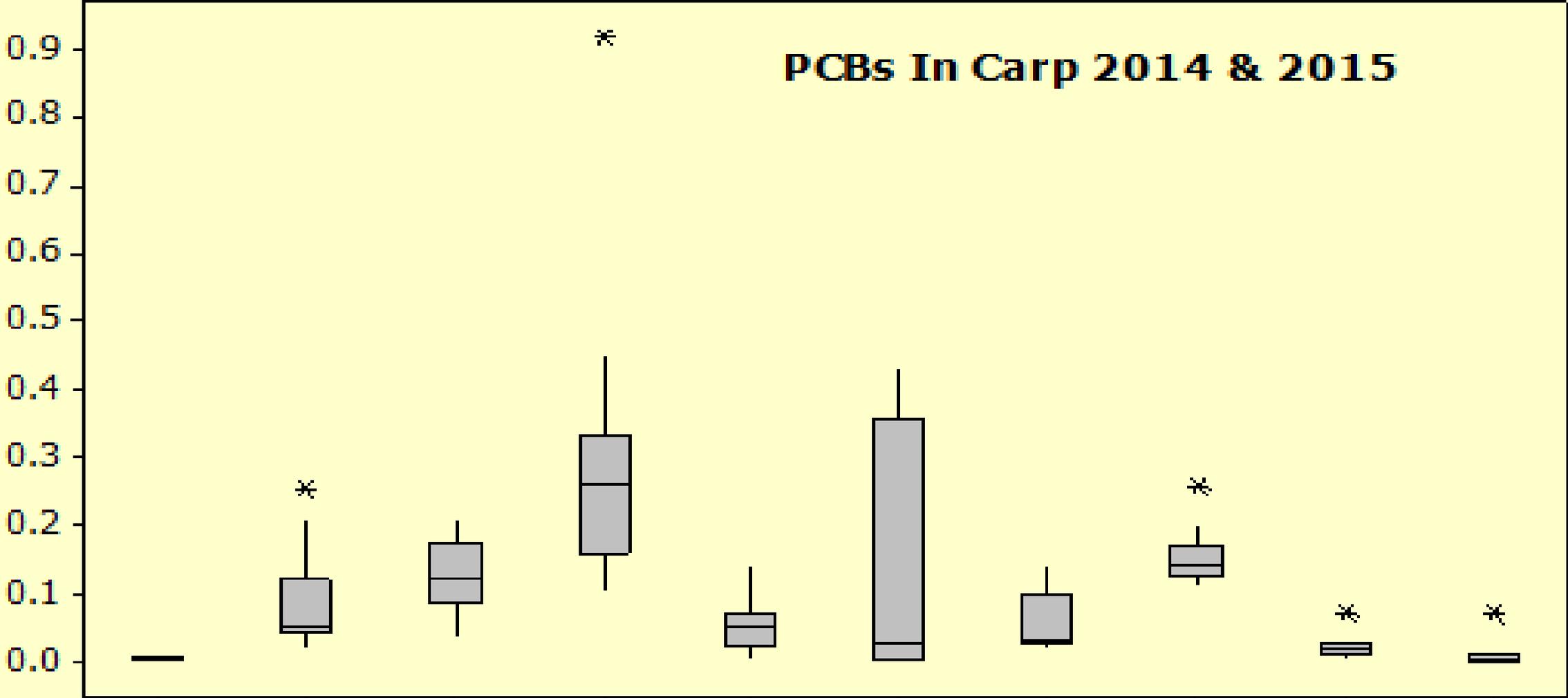
## St. Louis Impoundment

Lipid Normalized PCB (ppm)



# PCBs In Carp 2014 & 2015

Lipid Normalized PCB (ppm)



Alma Imp.

St. Louis Imp.

D/S St. Louis

Detroit R

Au Sable R

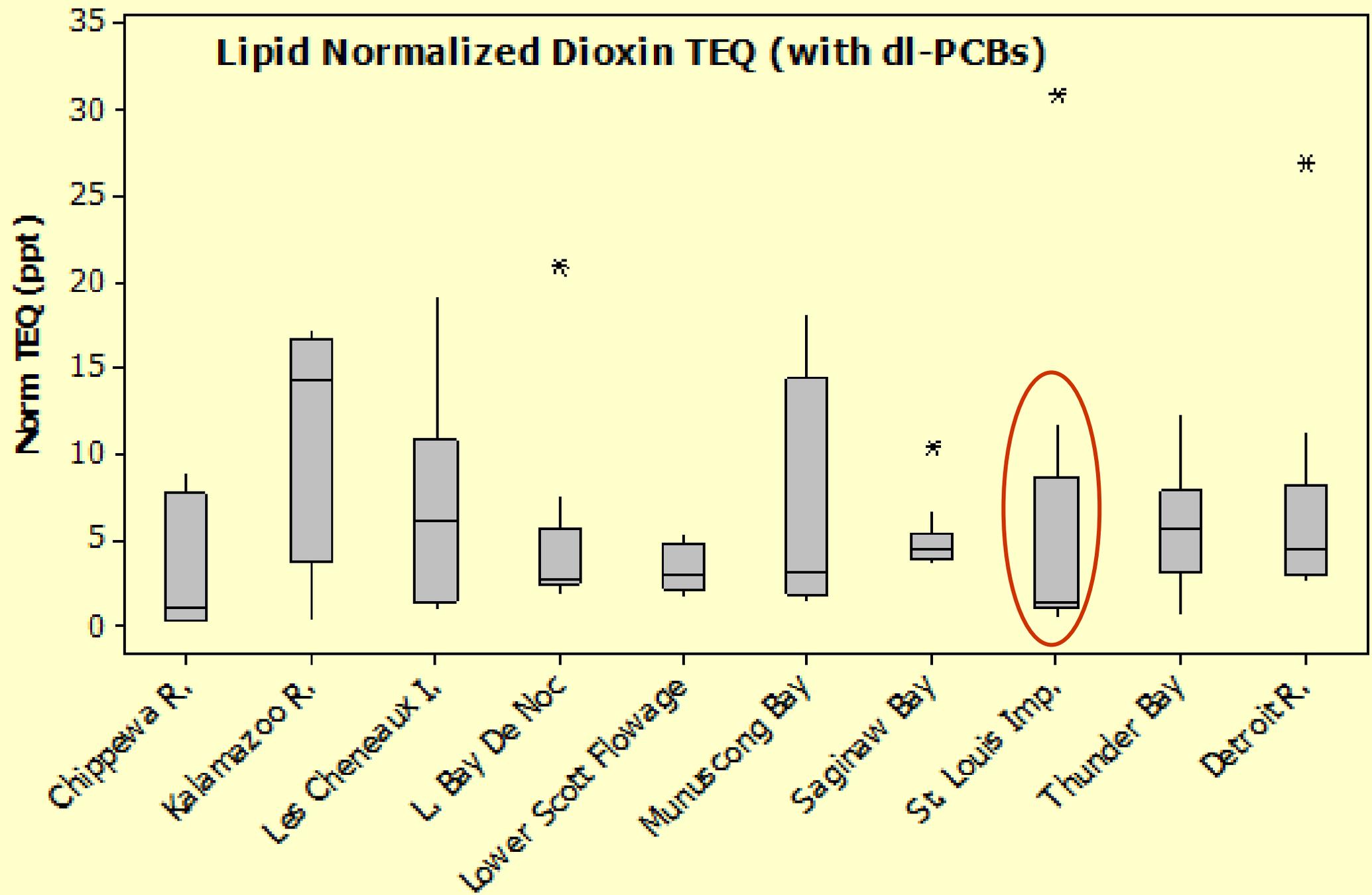
Chippewa R

Menominee R

Saginaw Bay

Stony Creek Lake

Tull Lake



## **Fish Contaminant Monitoring information available online:**

**[www.deq.state.mi.us/fcmp](http://www.deq.state.mi.us/fcmp)**

- **MDEQ FCMP online database**
- **link to Annual Fish Contaminant Monitoring Reports**
- **link to MDCH fish consumption advisories**

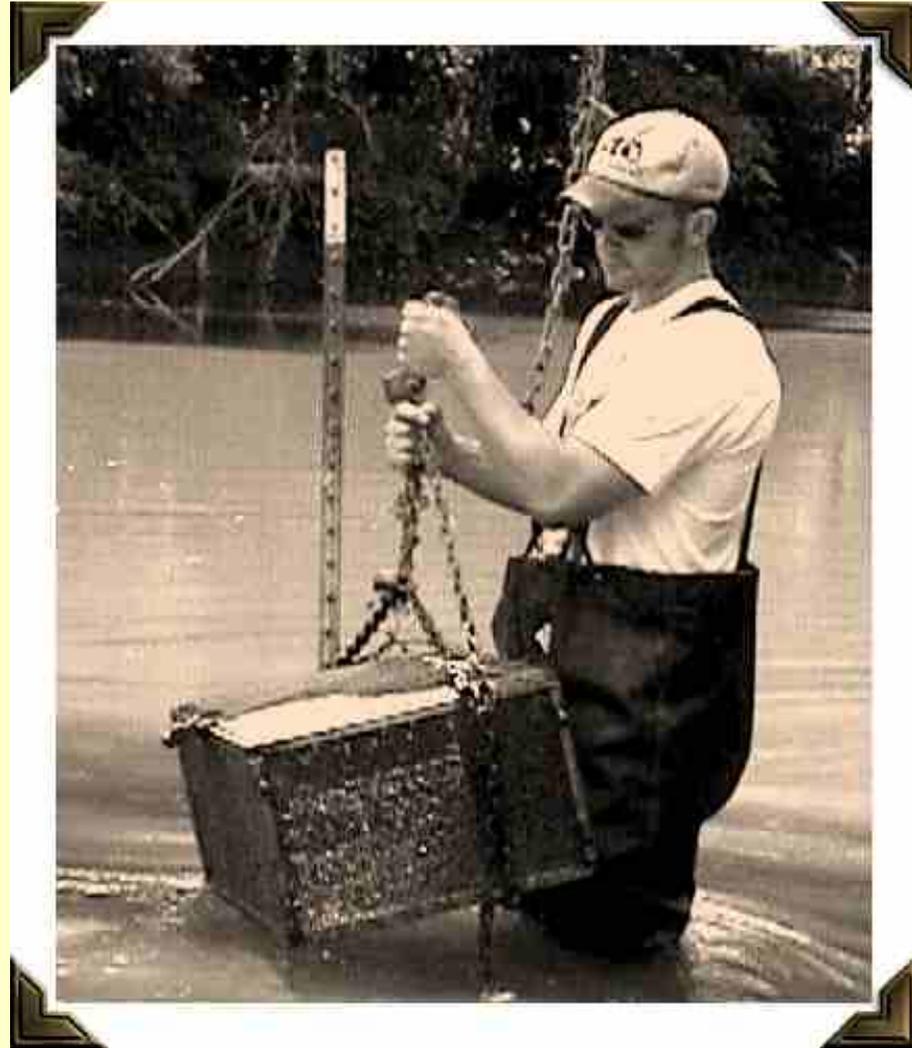
*Joe Bohr*

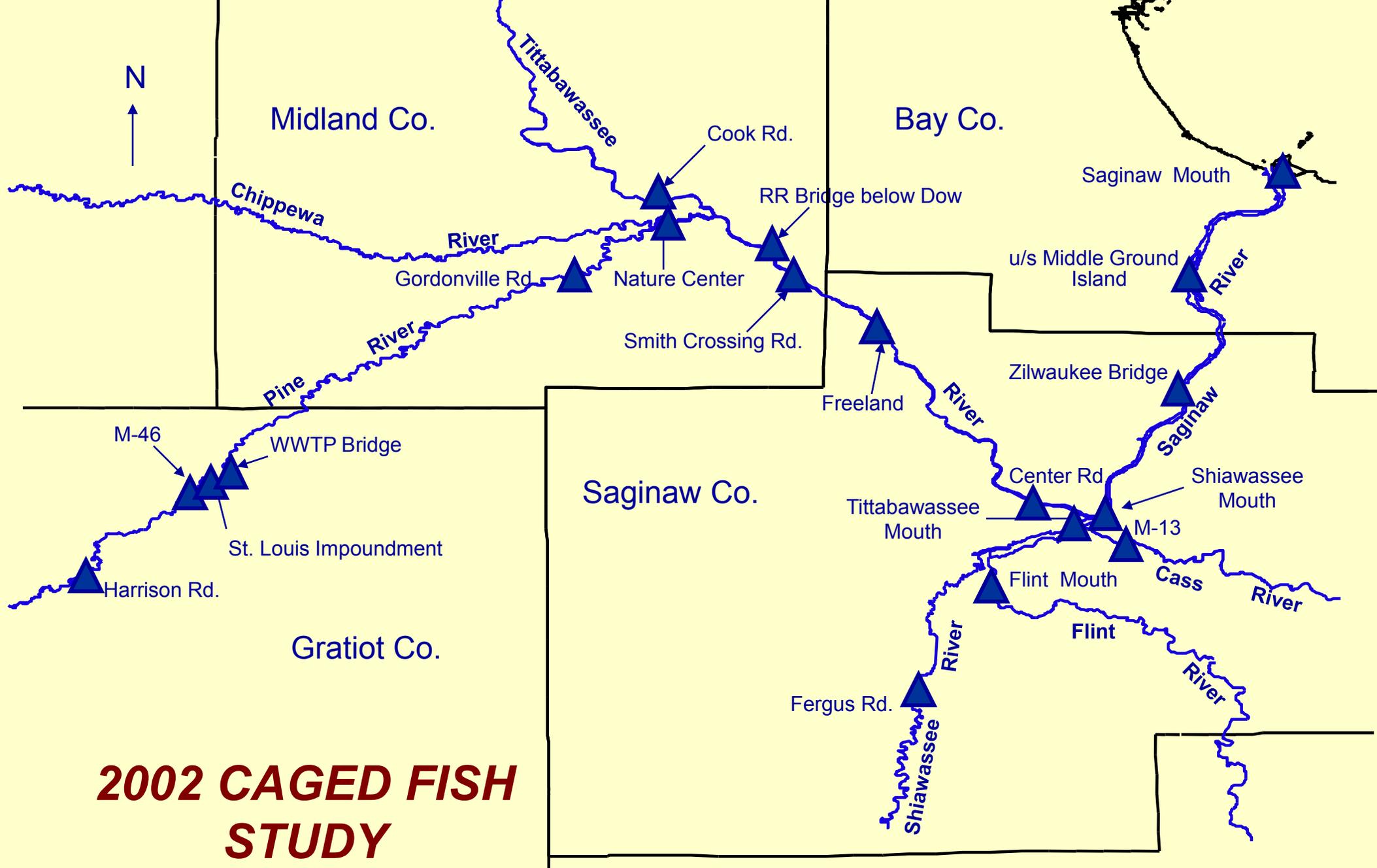
*MDEQ / Water Resources Division*

*517.284.5525*

*[bohrj@michigan.gov](mailto:bohrj@michigan.gov)*

***CAGED  
FISH  
MONITORING***





**2002 CAGED FISH STUDY**



