

# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

## OVER VIEW OF SELECTED MDEQ ACTIONS WITHIN THE SAGINAW BAY WATERSHED

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## OVER LAST 19 YEARS, \$11 MILLION IN NPS GRANTS IN SAGINAW BAY WATERSHED

- PLANNING, IMPLEMENTATION, CONSERVATION GRANTS
- OBJECTIVES: TO CONTROL SOURCES OF NUTRIENTS, SEDIMENT,  
AND BACTERIA
- ACTIONS AT OVER 700 SITES IN THE WATERSHED
- EST 161,000 TONS OF SEDIMENT CONTROLLED
- EST 218 TONS OF NUTRIENTS CONTROLLED

## CONSERVATION RESERVE ENHANCEMENT PROGRAM

50,000 ACRES WITH CREP FUNDED BMPs IN THE WATERSHED

# Chesaning Site Before



B

# Chesaning Site Filter





# Carrow Creek

**Before** Fencing Cattle Out



**After** Fencing Cattle Out

# CEDAR RIVER GULLY EROSION – BEFORE



# CEDAR RIVER GULLY EROSION – AFTER



# ROAD CROSSING EXAMPLE - BEFORE



# ROAD CROSSING EXAMPLE - AFTER



# OTHER ACTIONS

→ FUND/SUPPORT MANY OTHER MONITORING EFFORTS

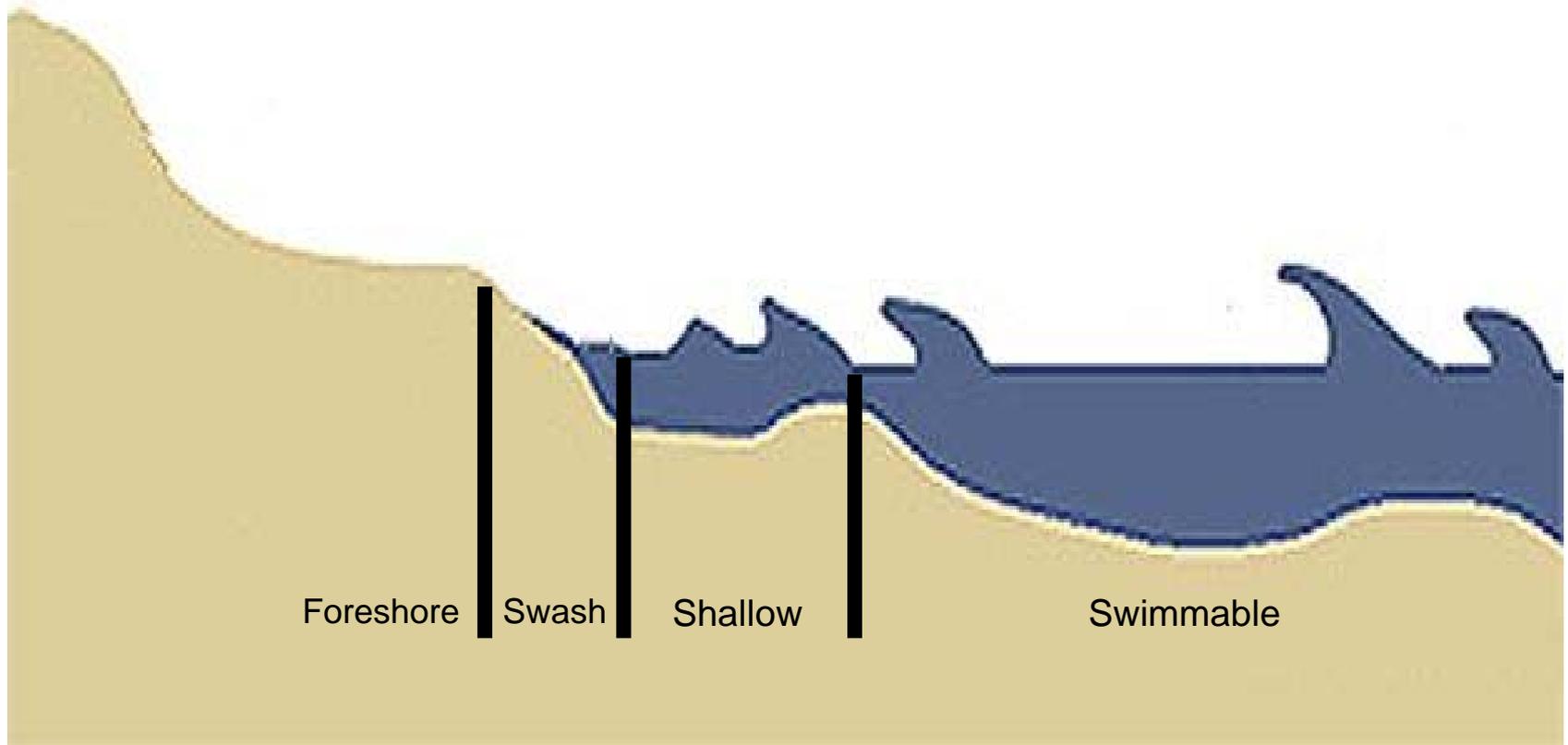
- BEACH MONITORING: VIA H.D., ACADEMIA, VOLUNTEER
- BACTERIA CHARACTERIZATION, ID STUDIES
- EMERGING ISSUES: PBDE, *MICROCYSTIS*

→ SAGINAW BAY COASTAL INITIATIVE: BROAD RANGE

→ ONGOING CONTROLS VIA NPDES PERMITS

- POINT SOURCE, CSO'S, STORMWATER, SSO'S

# BEACH ASSESSMENT 2008 - MSU



Courtesy of Marc Verhougstraete, MSU

# STREAM BIOLOGICAL MONITORING

## →WADEABLE STREAM ASSESSMENTS: PROCEDURE 51

- MACROINVERTEBRATE & FISH COMMUNITIES
- HABITAT EVALUATION
- WATER/SEDIMENT CHEMISTRY

## →NON-WADEABLE STREAM ASSESSMENTS:

- NON-WADEABLE PROCEDURE (DRAFT)
- MACROINVERTEBRATE COMMUNITY
- HABITAT EVALUATION

## →SITES ASSESSED: PROBABILISTIC AND TARGETED SELECTION

# FISH CONTAMINANT MONITORING PROGRAM

→FCMP STARTED 1983.

-800 TO 1,000 FISH SAMPLES/YR,

-COLLECTION COOPERATIVE WITH MDNR

→SUPPORT TREND MONITORING - WHOLE FISH, 1990

→23 SITES, INCLUDES SAGINAW BAY

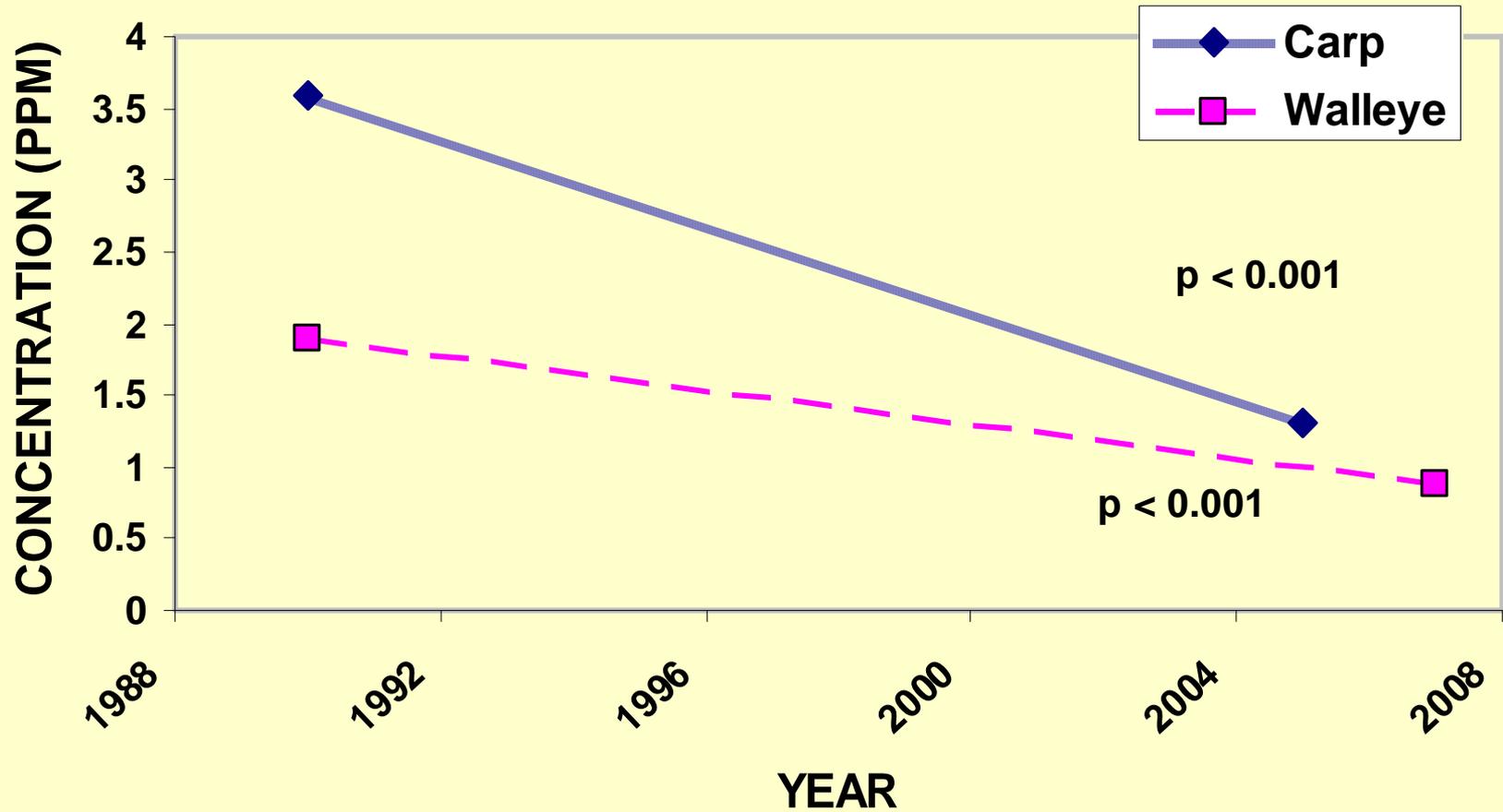
→SUPPORT FISH CONSUMPTION ADVISORIES (FCA) –FILLETS

-MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

→CAGED FISH STUDIES – TRENDS, SOURCE ID

→SUPPORT EMERGING ISSUES NEEDS

# SAGINAW BAY PCB TREND DATA



# WATER CHEMISTRY MONITORING PROGRAM

→WCMP STARTED IN 1998

→PART OF STRATEGIC PLAN FOR MONITORING WATER QUALITY

-INCLUDES 31 WATERSHEDS

→OBJECTIVES

-STATUS

-TRENDS

-EFFECTIVENESS

-EMERGING ISSUES

# WATER CHEMISTRY MONITORING PROGRAM

→FIXED STATIONS, DIFFERENT SAMPLING INTENSITIES

→PROBABILISTIC STATIONS: ROTATING BASIN SCHEDULE

→NUTRIENTS, IONS, METALS, ORGANICS

→IN SAGINAW BAY WATERSHED

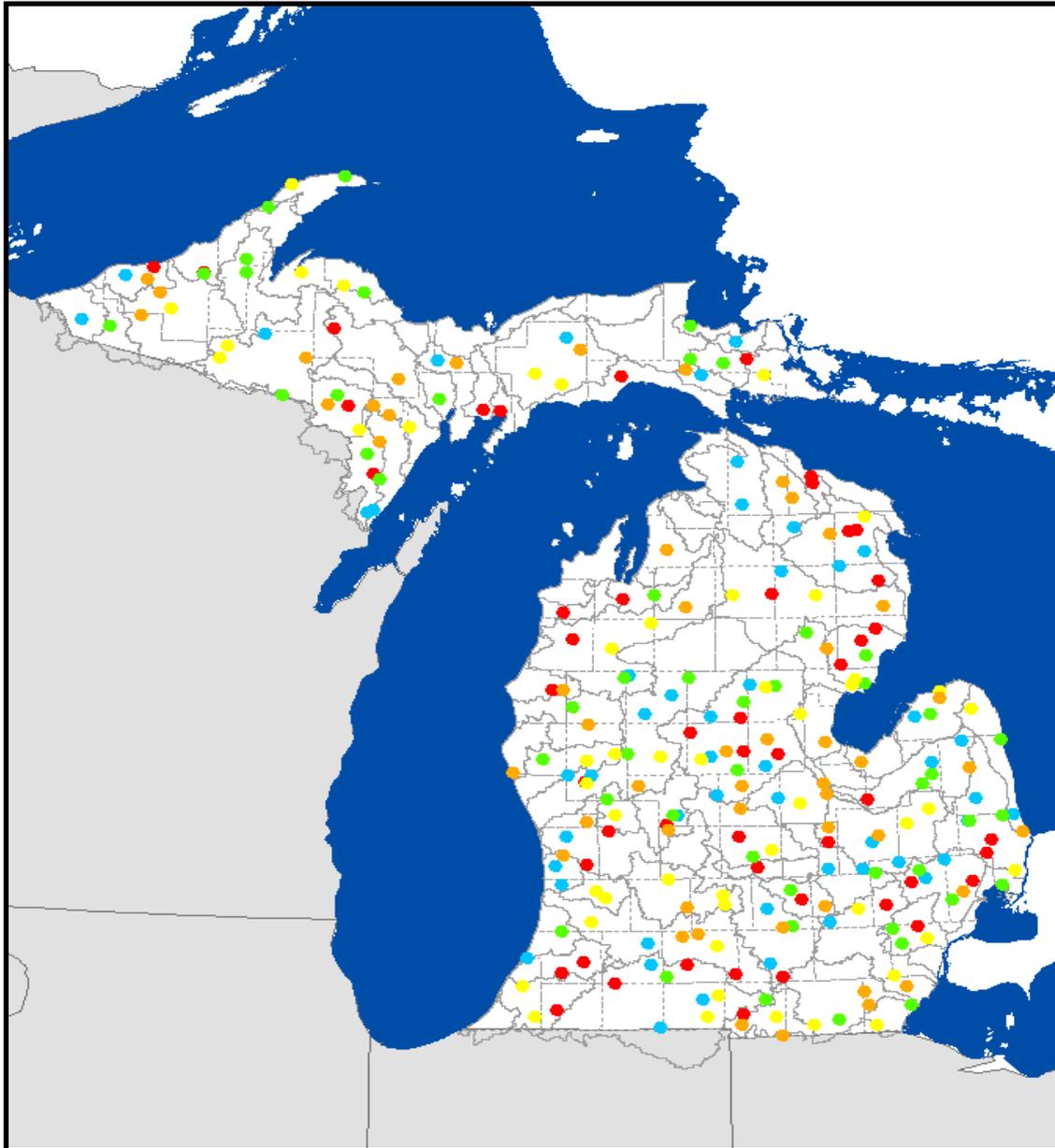
-7 INNER BAY STATIONS (8x/YR)

-SAGINAW RIVER MOUTH (12x/YR)

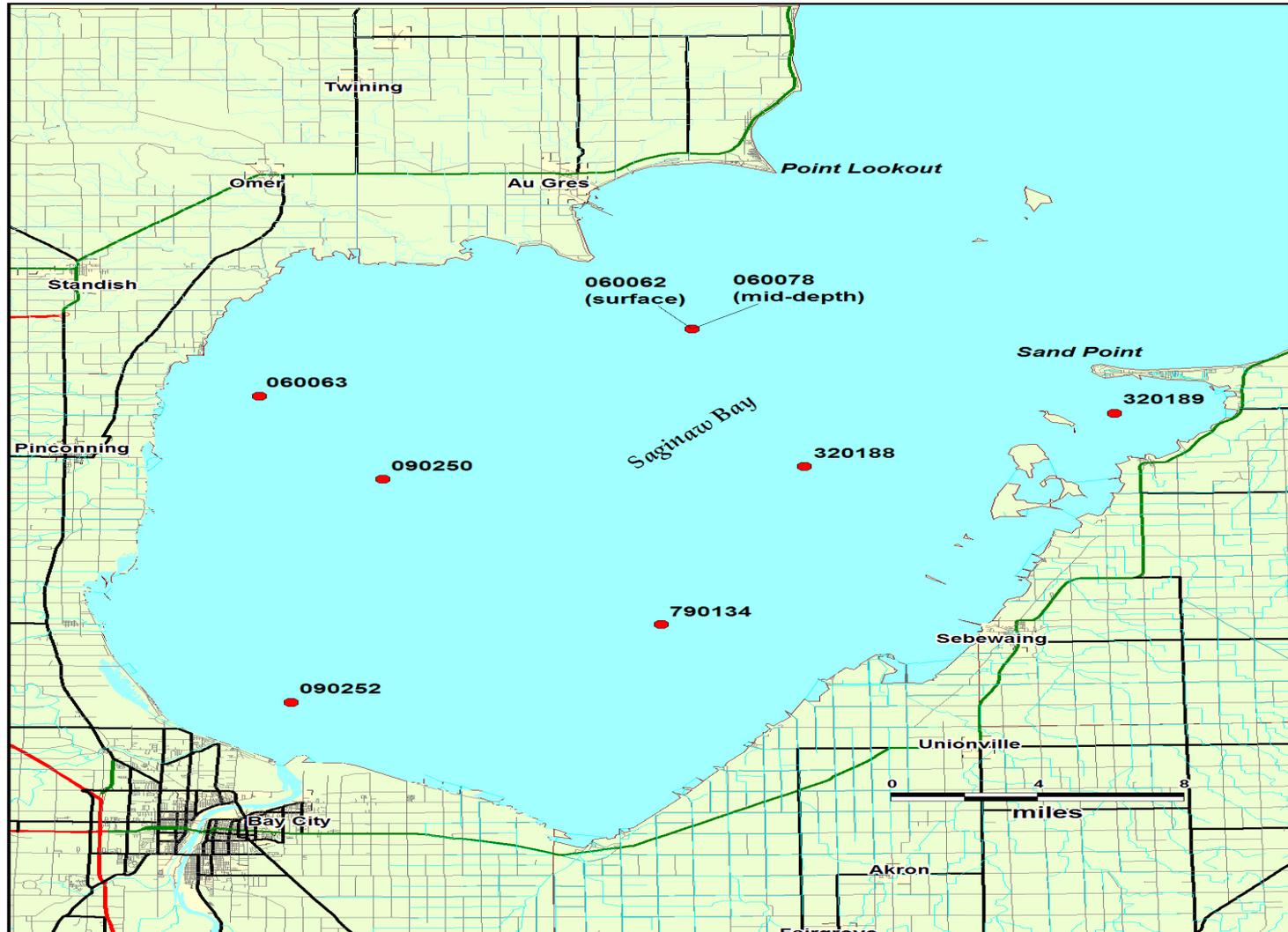
-SAGINAW RIVER 4 "TRIB" MOUTHS (4x/YR)

ROTATES - 12x/YR IN 5<sup>TH</sup> YEAR

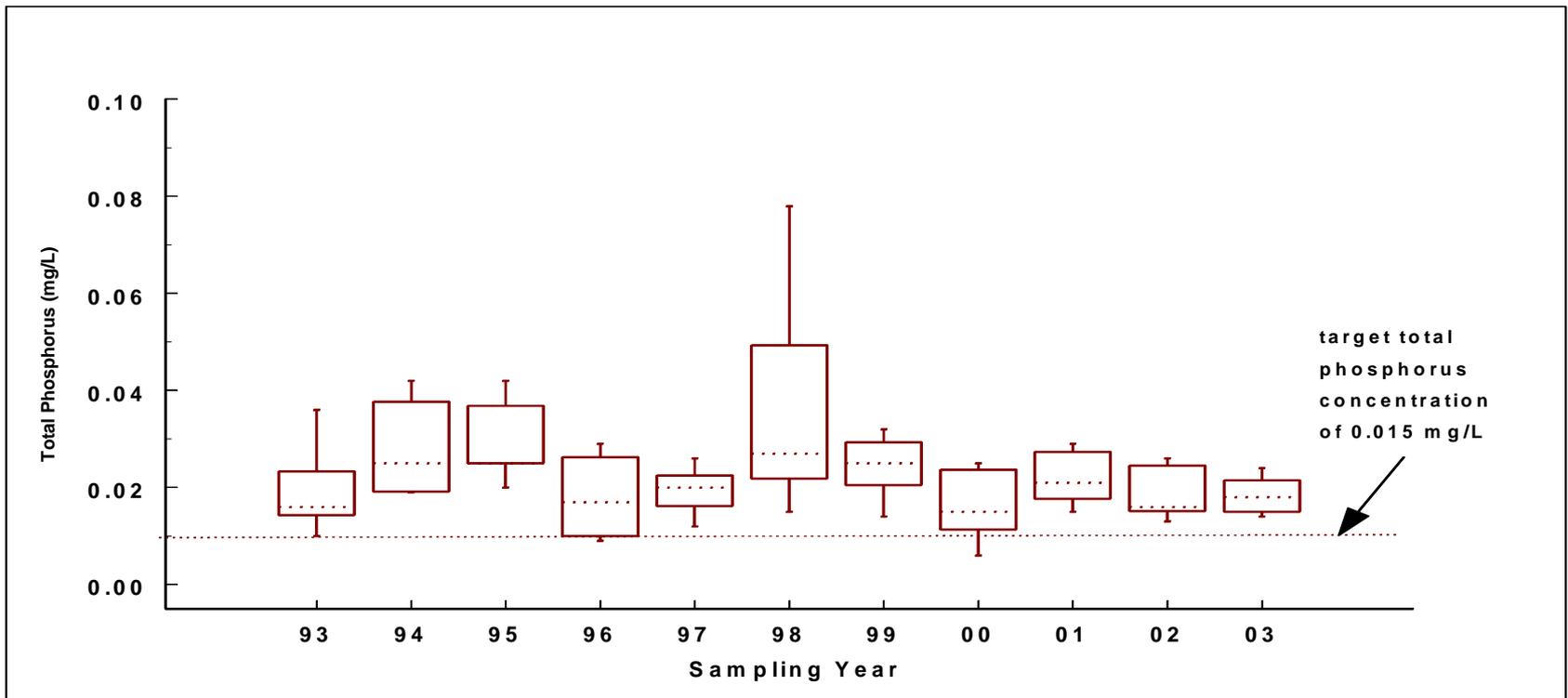
# WCMP PROBABILISTIC SAMPLING SITES



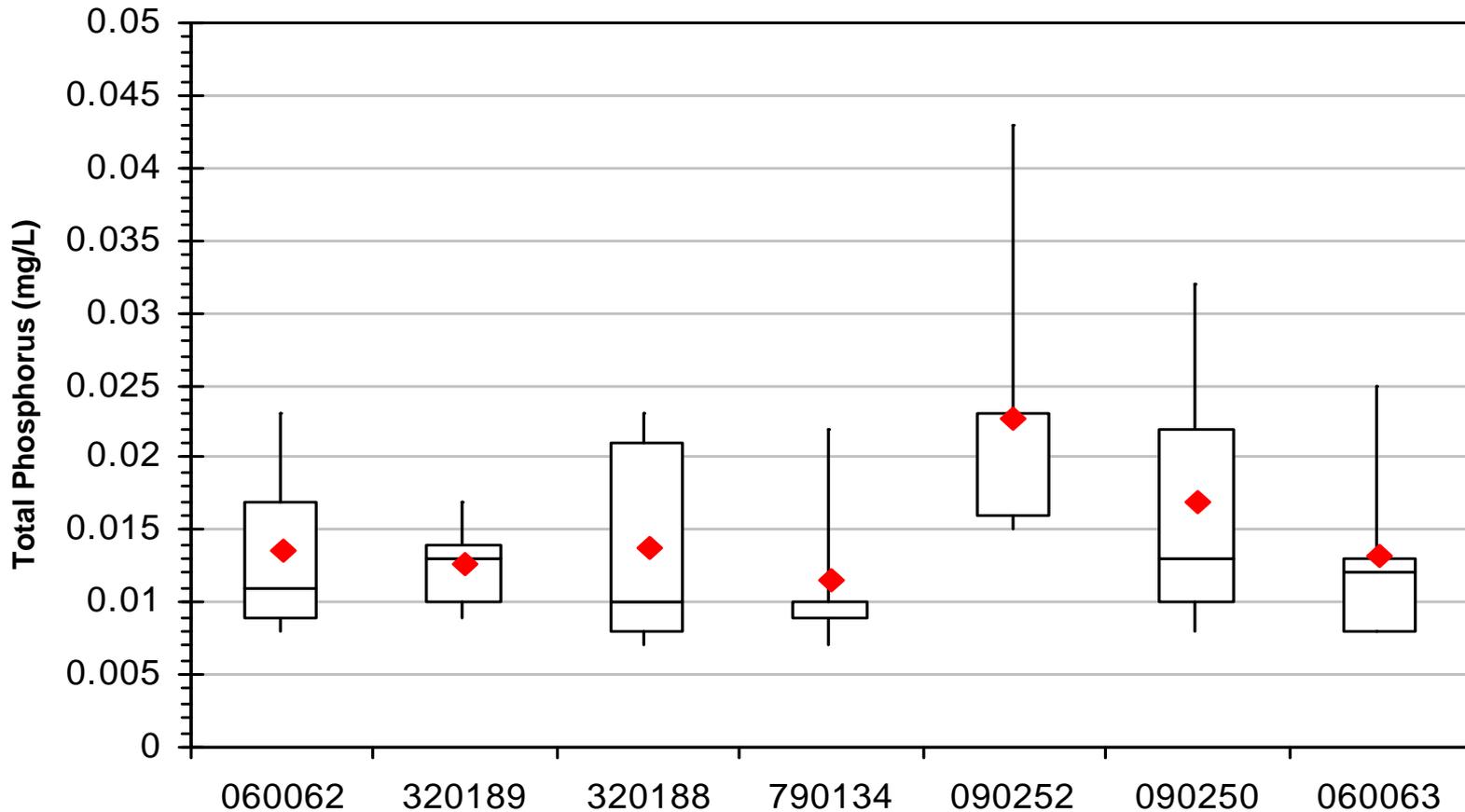
# WCMP SAGINAW BAY MONITORING STATIONS

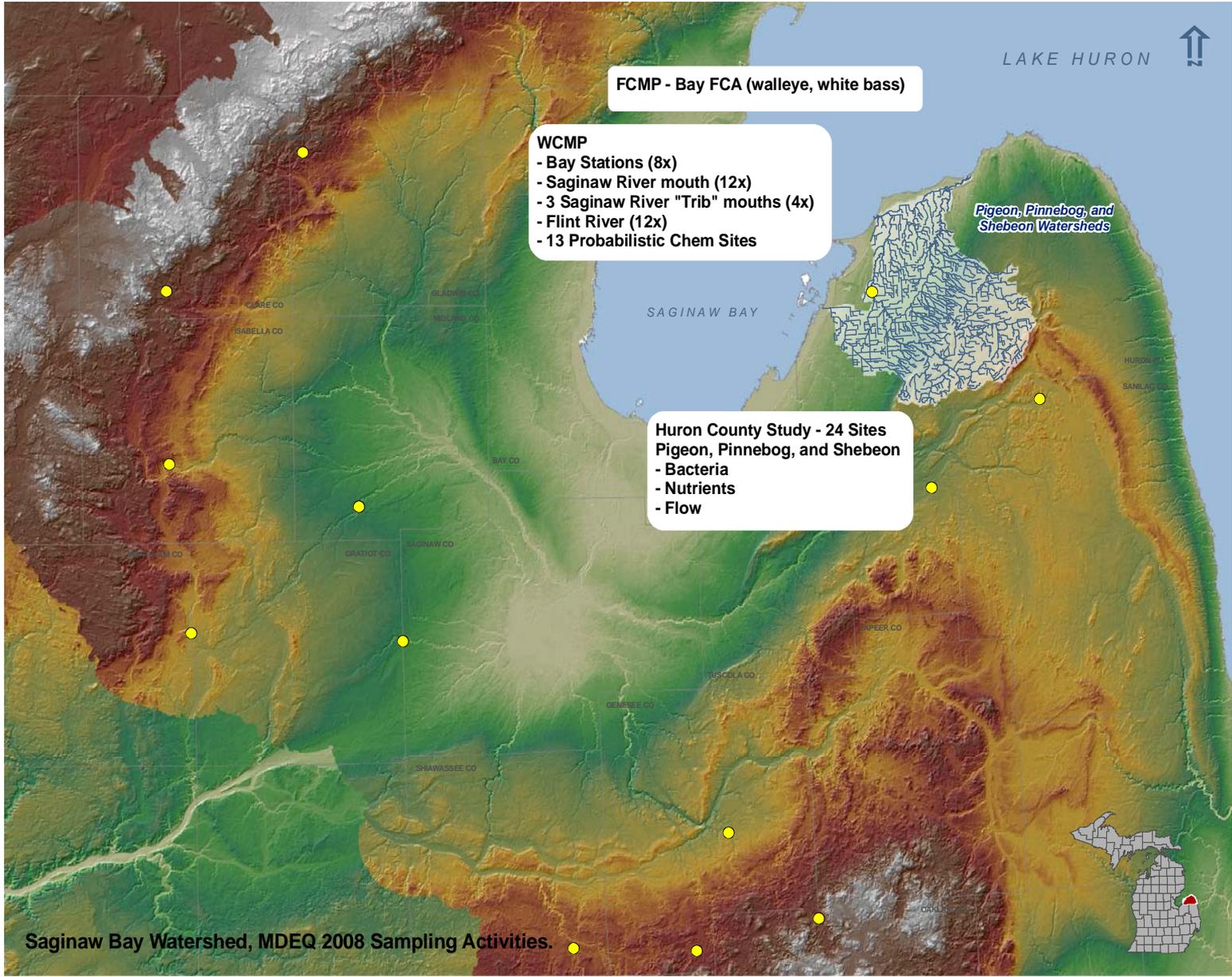


**SAGINAW BAY T. PHOSPHORUS, 1993-2003 AVERAGES. R2 = 0.09. QUARTILES OF DATA, DASHED IS MEDIAN, "WHISKERS" = 1.5 x INTERQUARTILE RANGE & INCLUDE HIGH AND LOW DATA.**

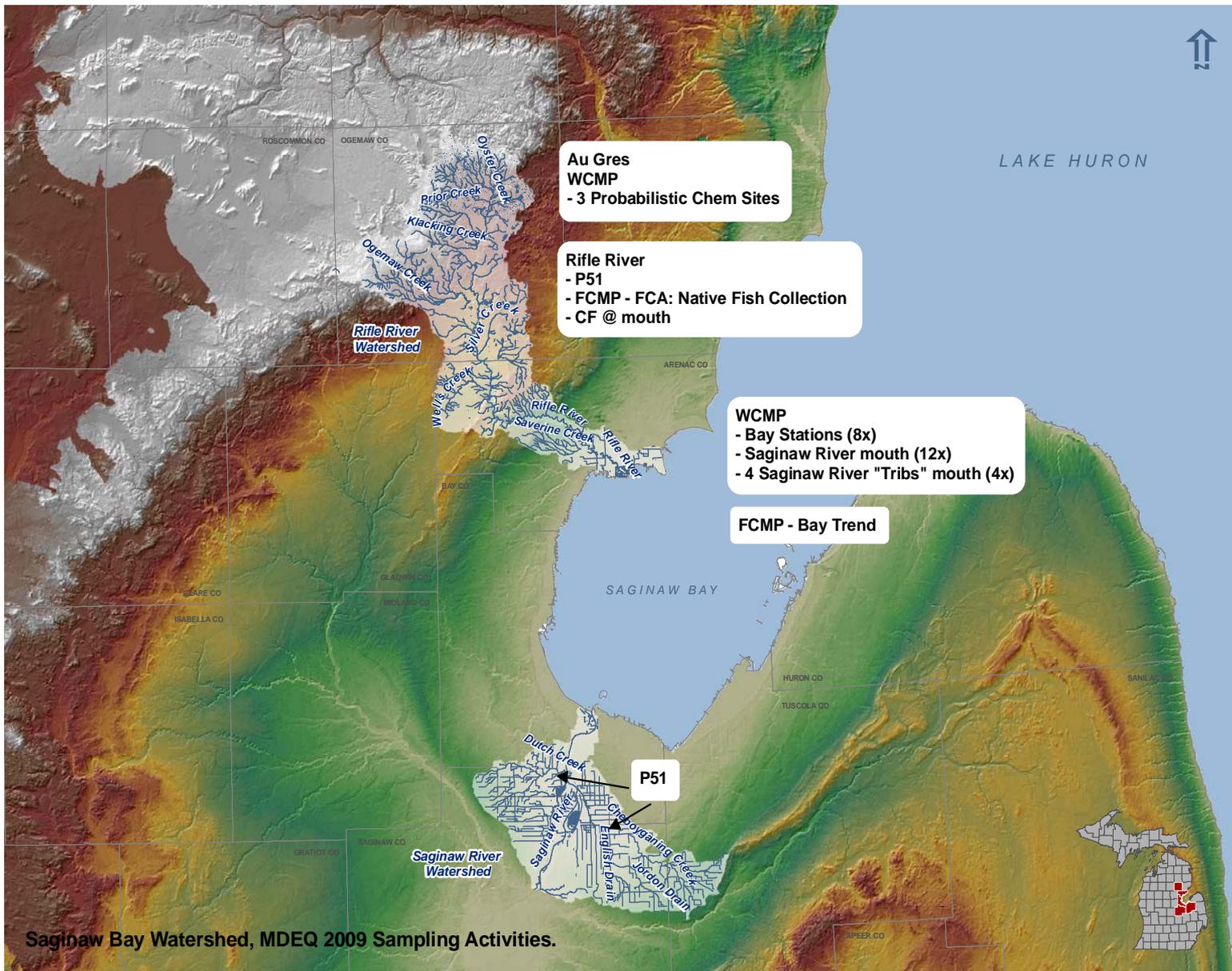


**TOTAL PHOSPHORUS AT 7 SAGINAW BAY STATIONS DURING 2005. SHOWS INNER QUARTILES; WHISKERS SHOW OUTER QUARTILES, MEDIAN IS SOLID LINE, MEAN IS DIAMOND.**









**Au Gres WCMP**  
- 3 Probabilistic Chem Sites

**Rifle River**  
- P51  
- FCMP - FCA: Native Fish Collection  
- CF @ mouth

**WCMP**  
- Bay Stations (8x)  
- Saginaw River mouth (12x)  
- 4 Saginaw River "Tribes" mouth (4x)

**FCMP - Bay Trend**

**P51**

**Saginaw Bay Watershed, MDEQ 2009 Sampling Activities.**

# SOME DESIRABLE OUTCOMES FROM THE NOAA SAGINAW BAY PROJECT

- Understanding status and flux of HABs.
- Understanding of what is happening in the nearshore zone (processes, drivers, etc).
- What is the relative importance of current TP loading to the bay compared with other factors contributing to the nearshore changes, and to presence of HABs?
- Understand relative magnitudes of TP sources to the Bay.
- Determine what TP target would help control nearshore issues; would this target starve rest of the bay?
- Will controlling TP loads to Bay, or use of other controls, be able to affect nearshore issues?