PCBs and Dioxin in the Galveston Bay System

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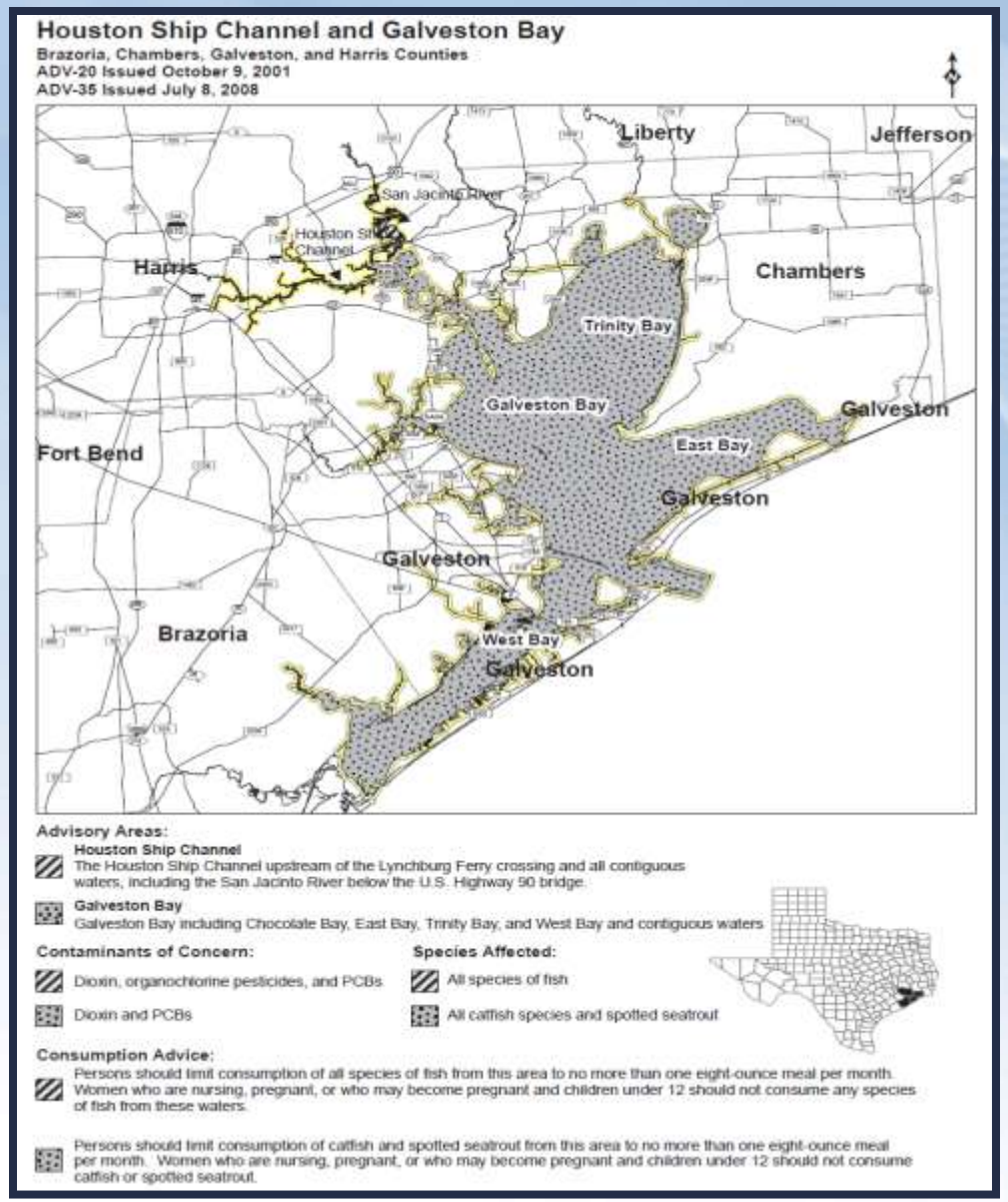
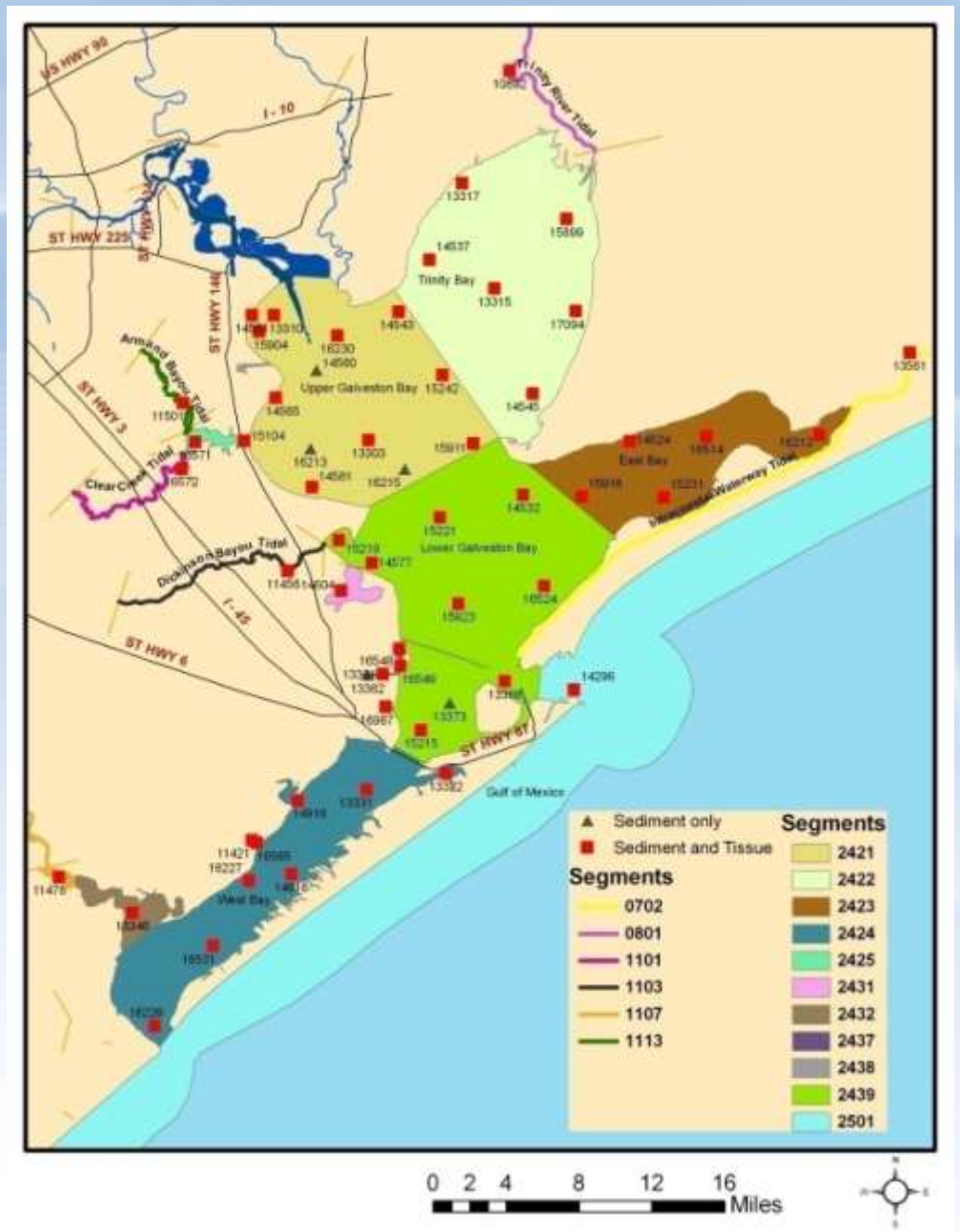
Advisories in HSC and Galveston Bay

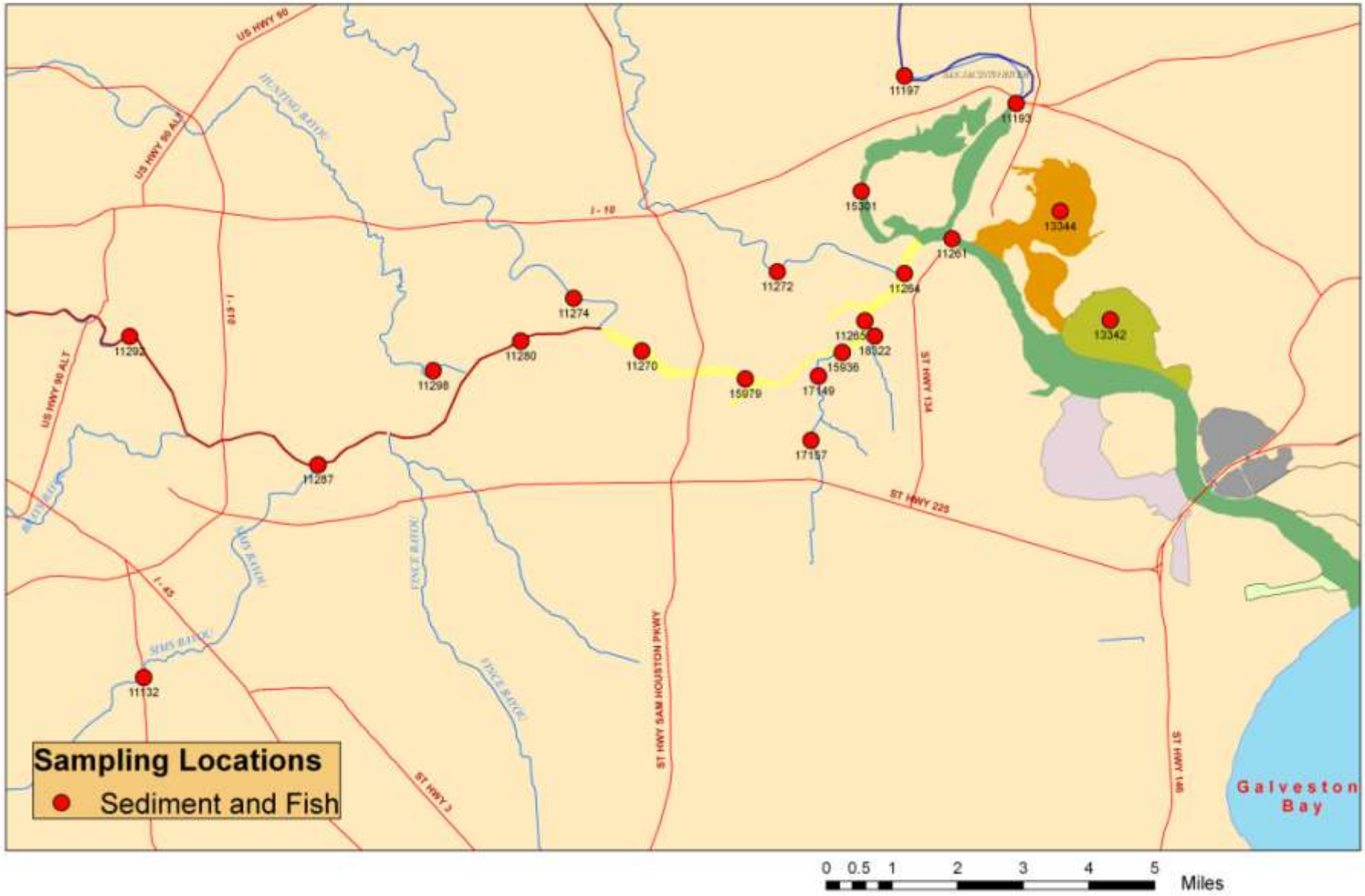


- Consumption limited to 1-8 oz meal per month but none for women who are nursing or pregnant or who plan to be pregnant and children under 12
- All fish species in HSC and catfish/spotted seatrout in the Bay

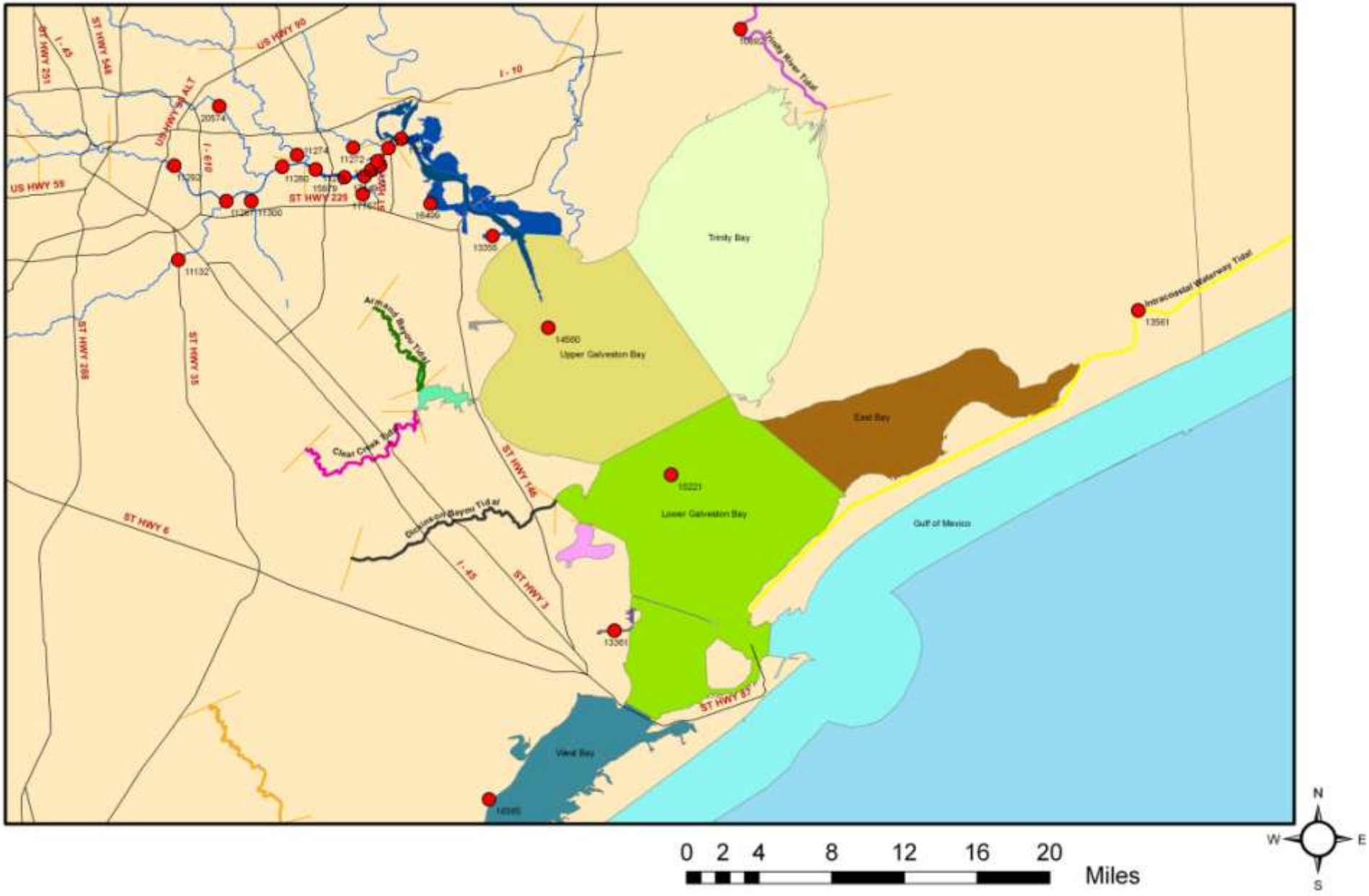
Proposed Sediment and Fish Sampling in GBS



Proposed Sediment and Fish Sampling in HSC

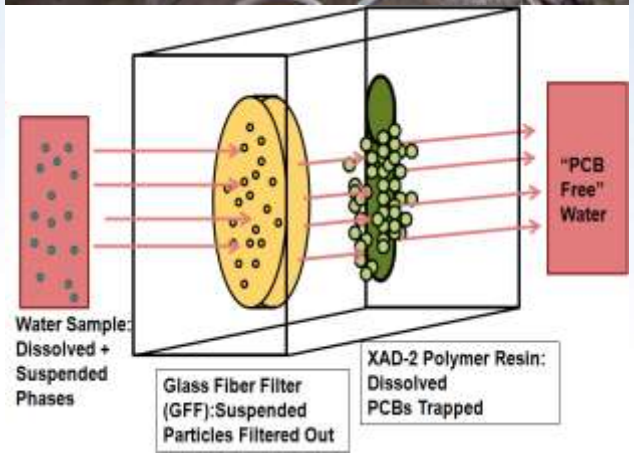


Proposed Water Sampling in HSC and GBS



Media Sampling Methods

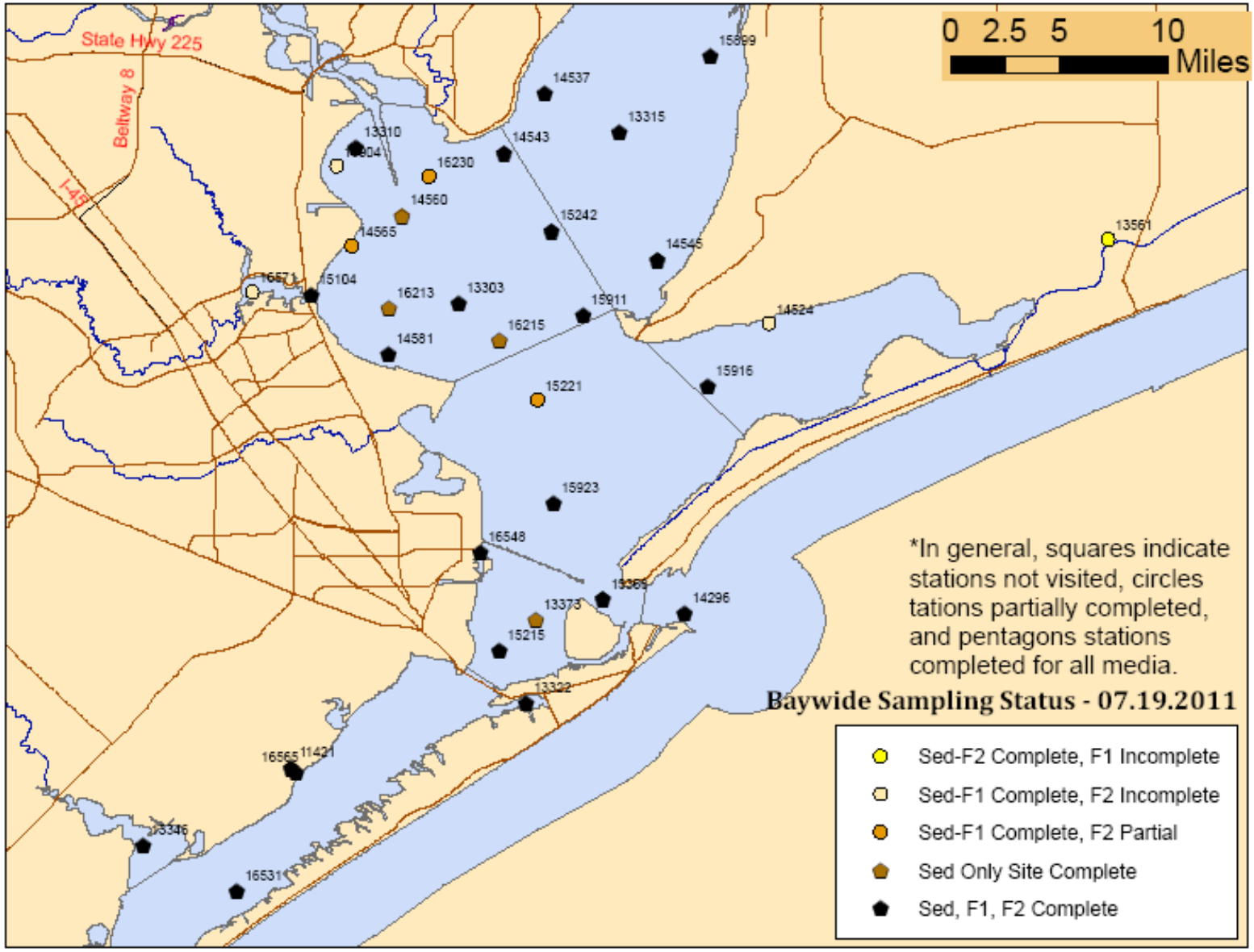
Water



Sediment

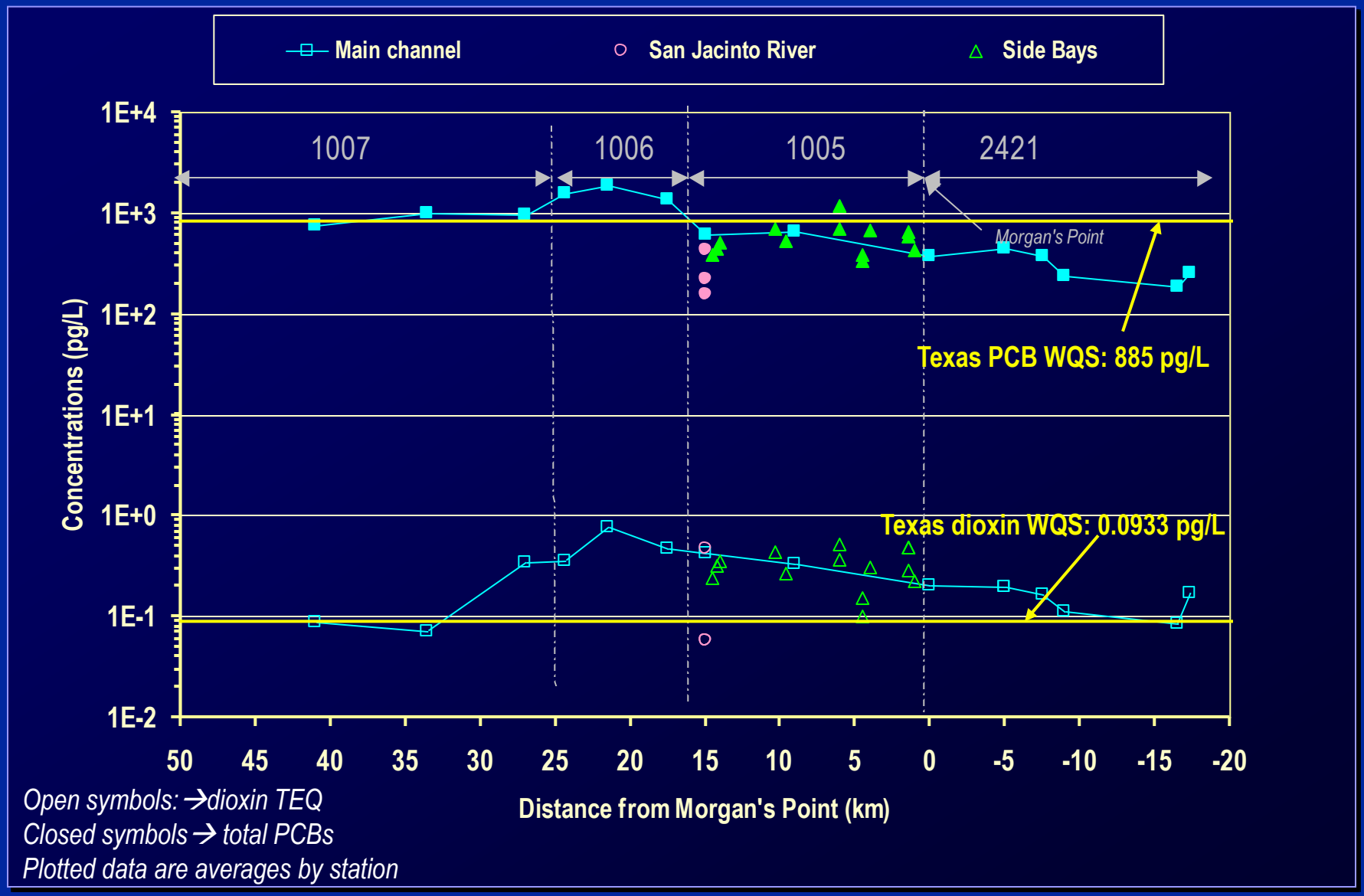
Tissue

Sampling as of July 31, 2011



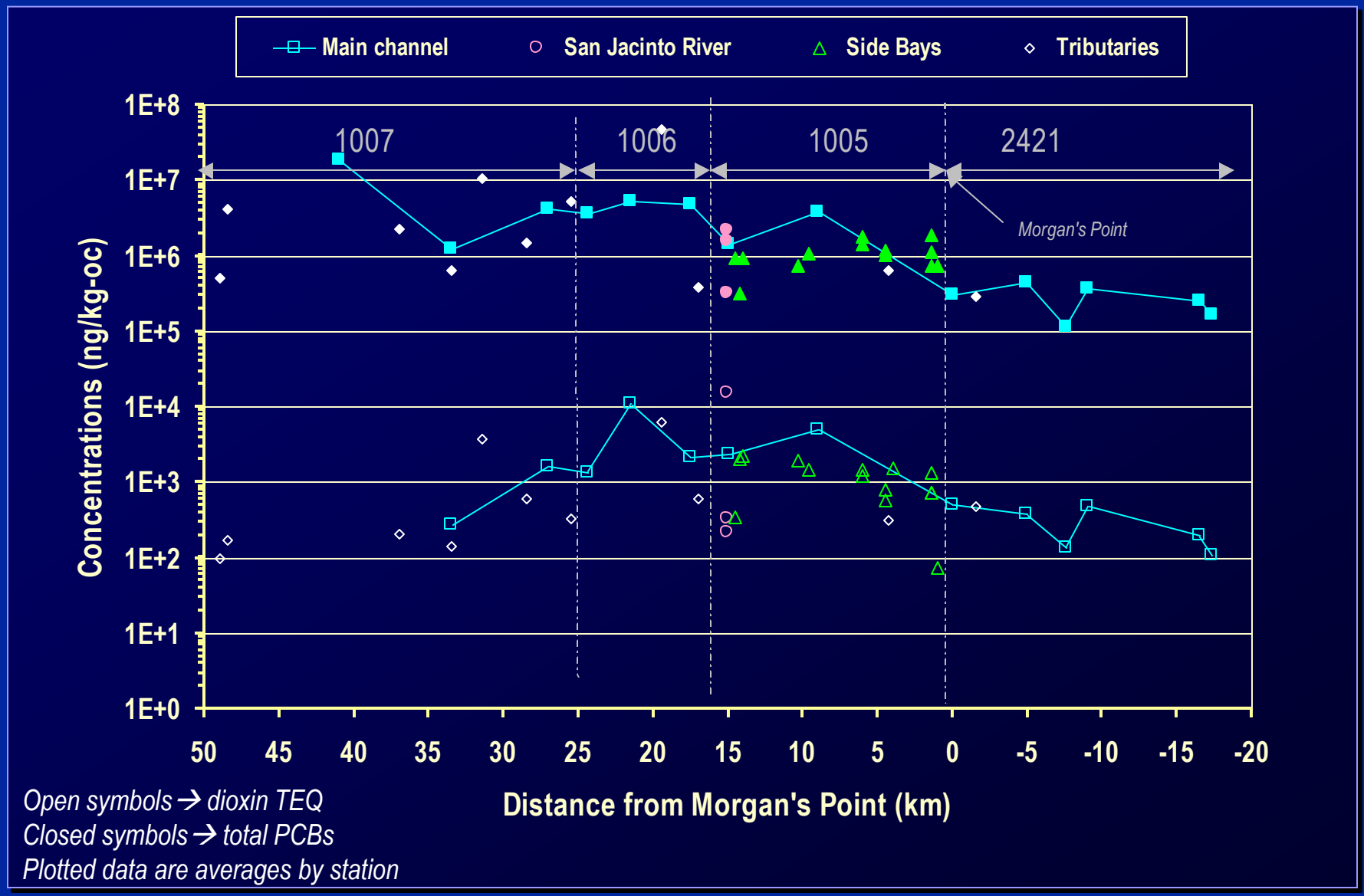
Dioxin and PCB Data 2002-2005

PCB and dioxin in water profiles



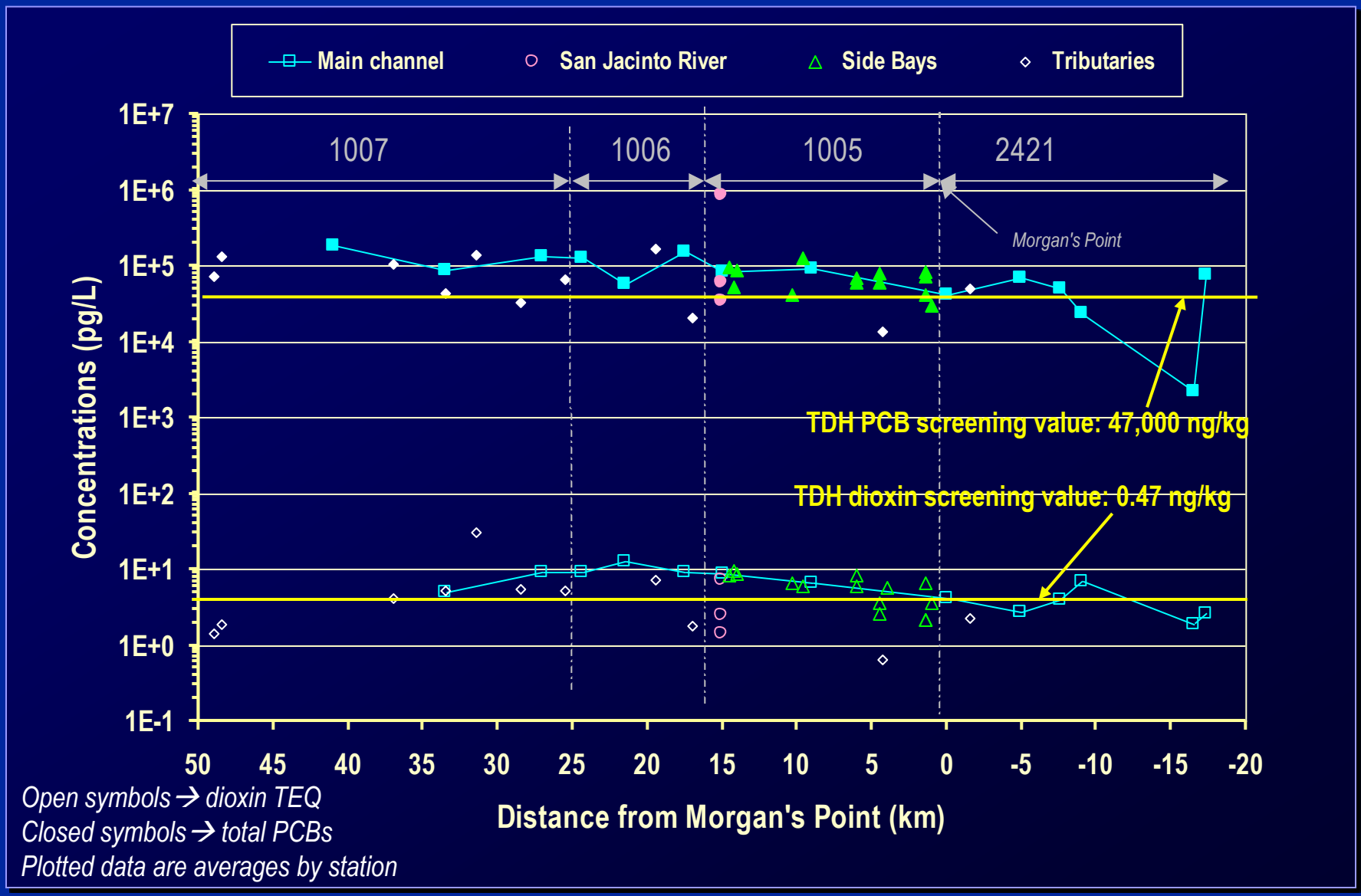
Open symbols: →dioxin TEQ
Closed symbols → total PCBs
Plotted data are averages by station

PCB and dioxin in sediment-oc profiles

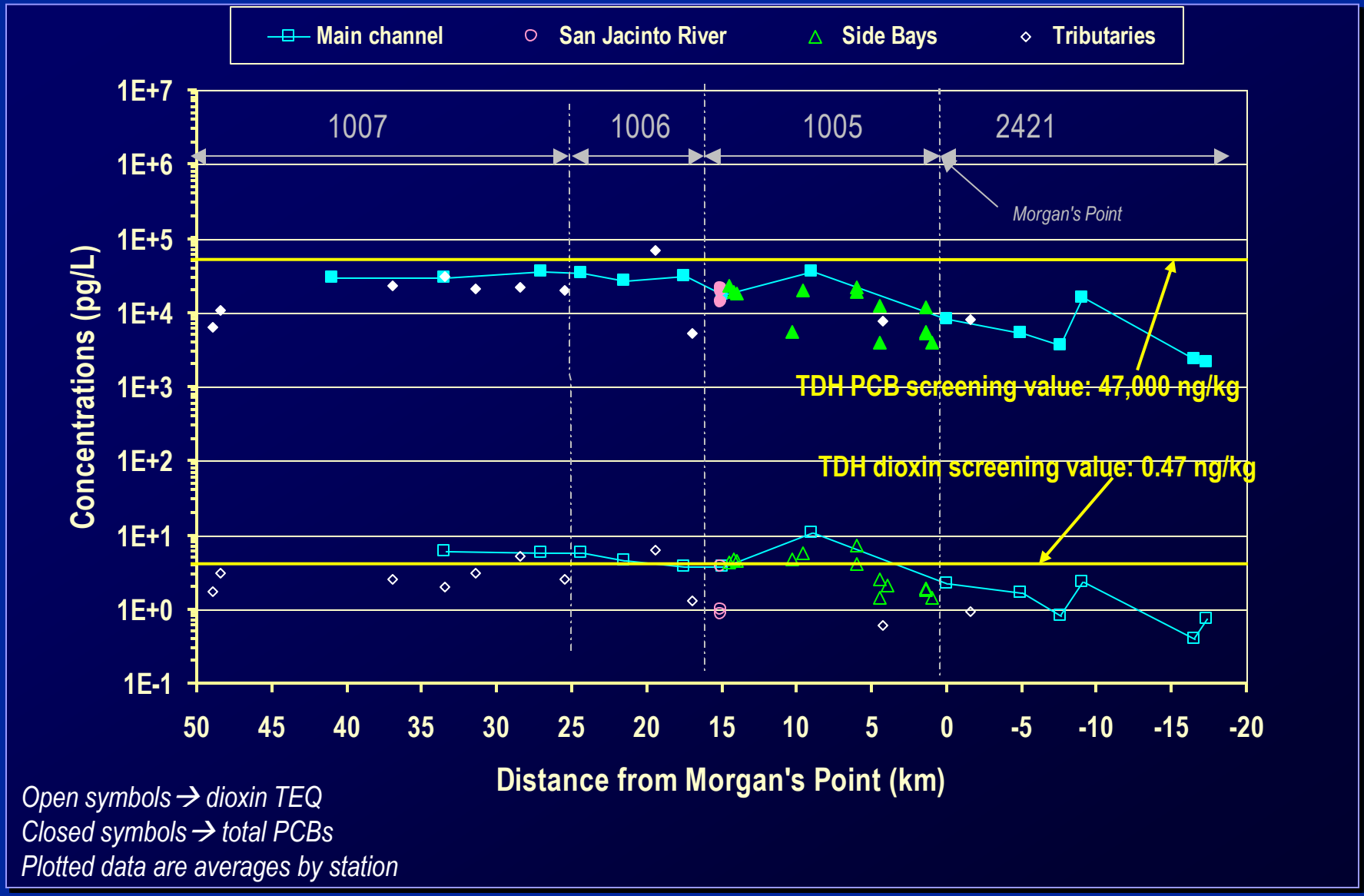


Open symbols → dioxin TEQ
Closed symbols → total PCBs
Plotted data are averages by station

PCB and dioxin in catfish profiles



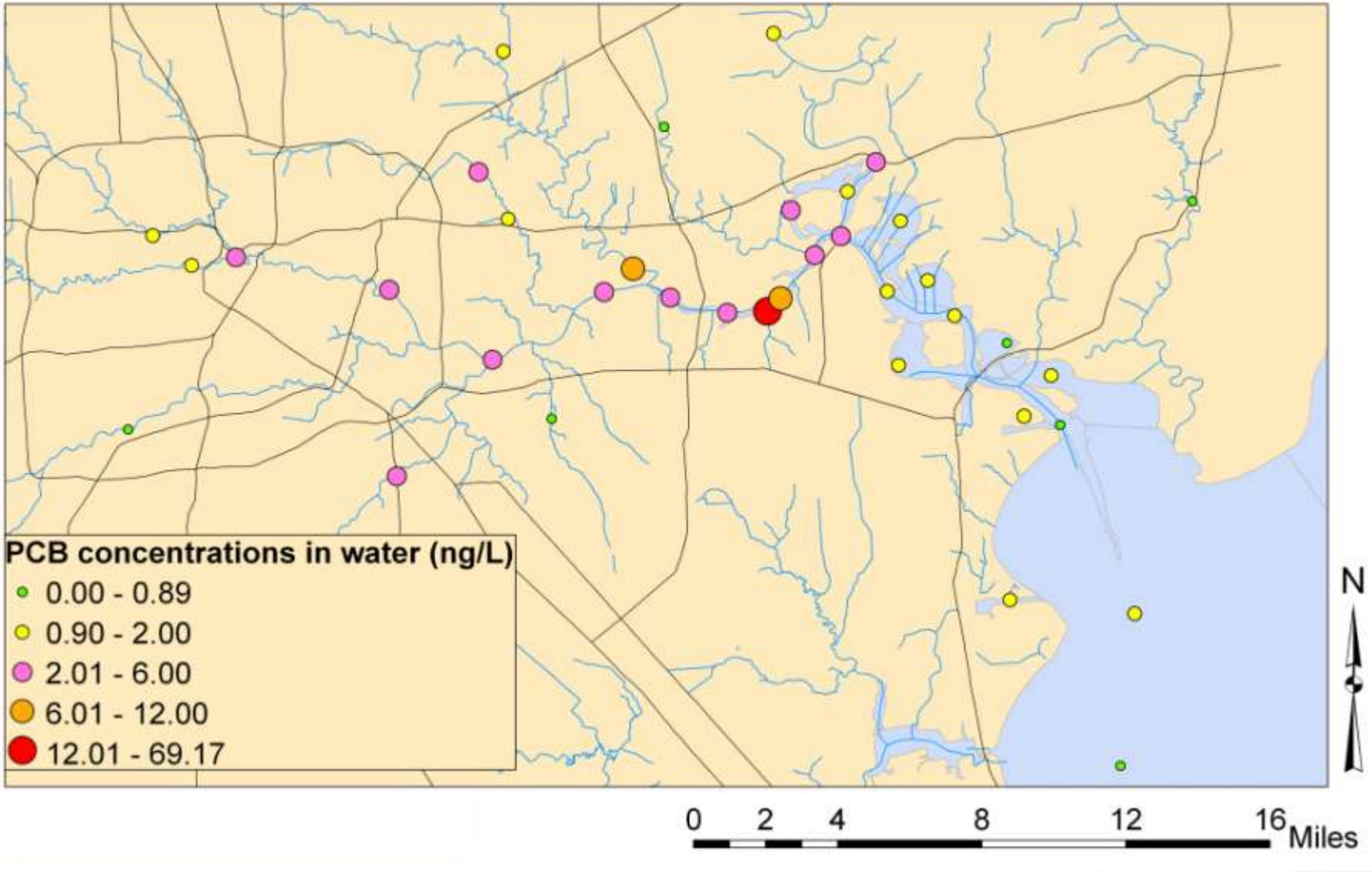
PCB and dioxin in crab profiles



Open symbols → dioxin TEQ
Closed symbols → total PCBs
Plotted data are averages by station

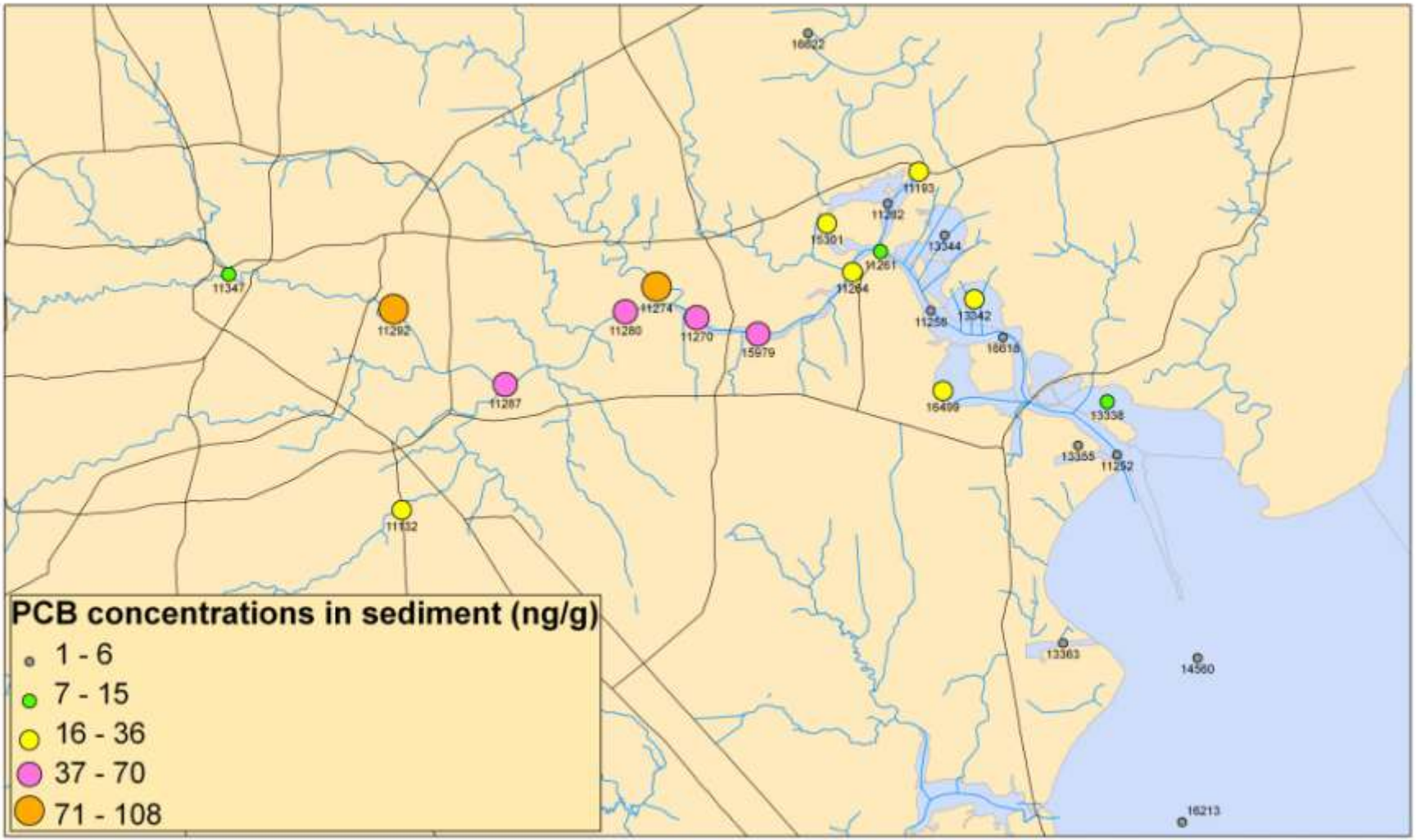
2008-2009 PCB Data

PCB Concentrations in Water (2008)



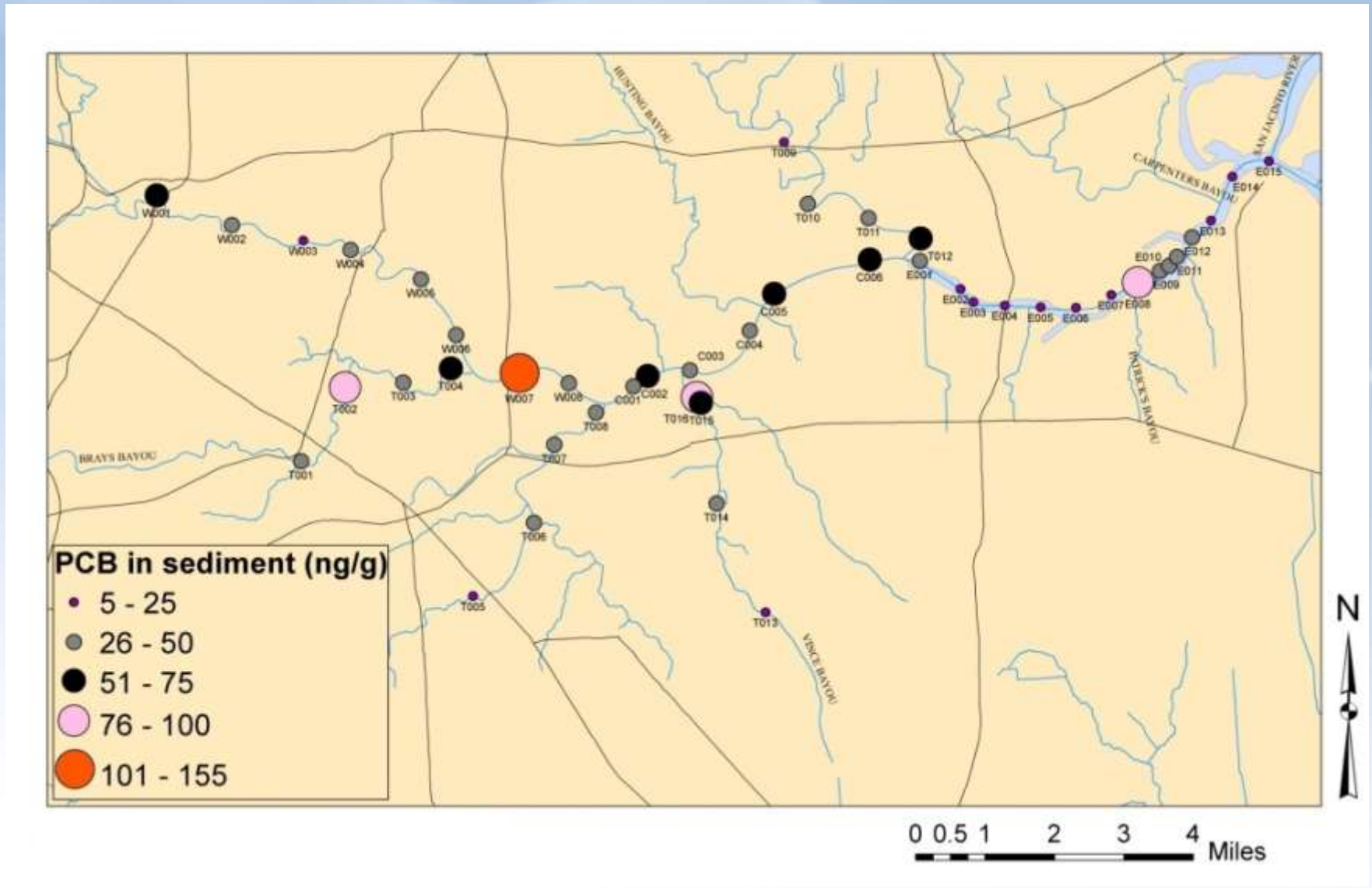
* PCB concentrations calculated as sum of 209 congeners; non-detects assumed as ½ MDL

PCB Concentrations in Sediment (2008)



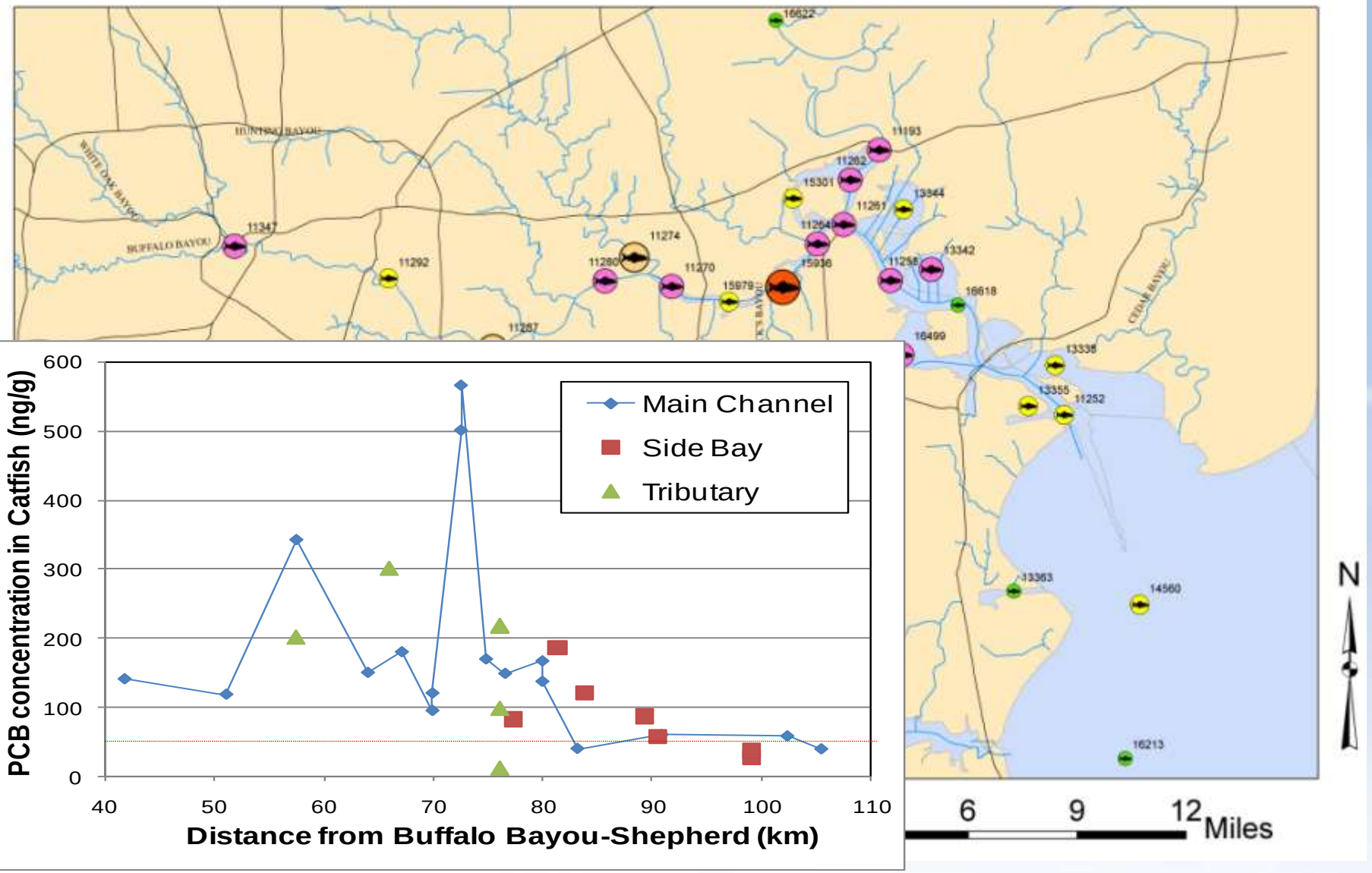
* PCB concentrations calculated as sum of 209 congeners; non-detects assumed as ½ MDL

PCB Concentrations in Sediment (Intensive Sediment Sampling 2008)



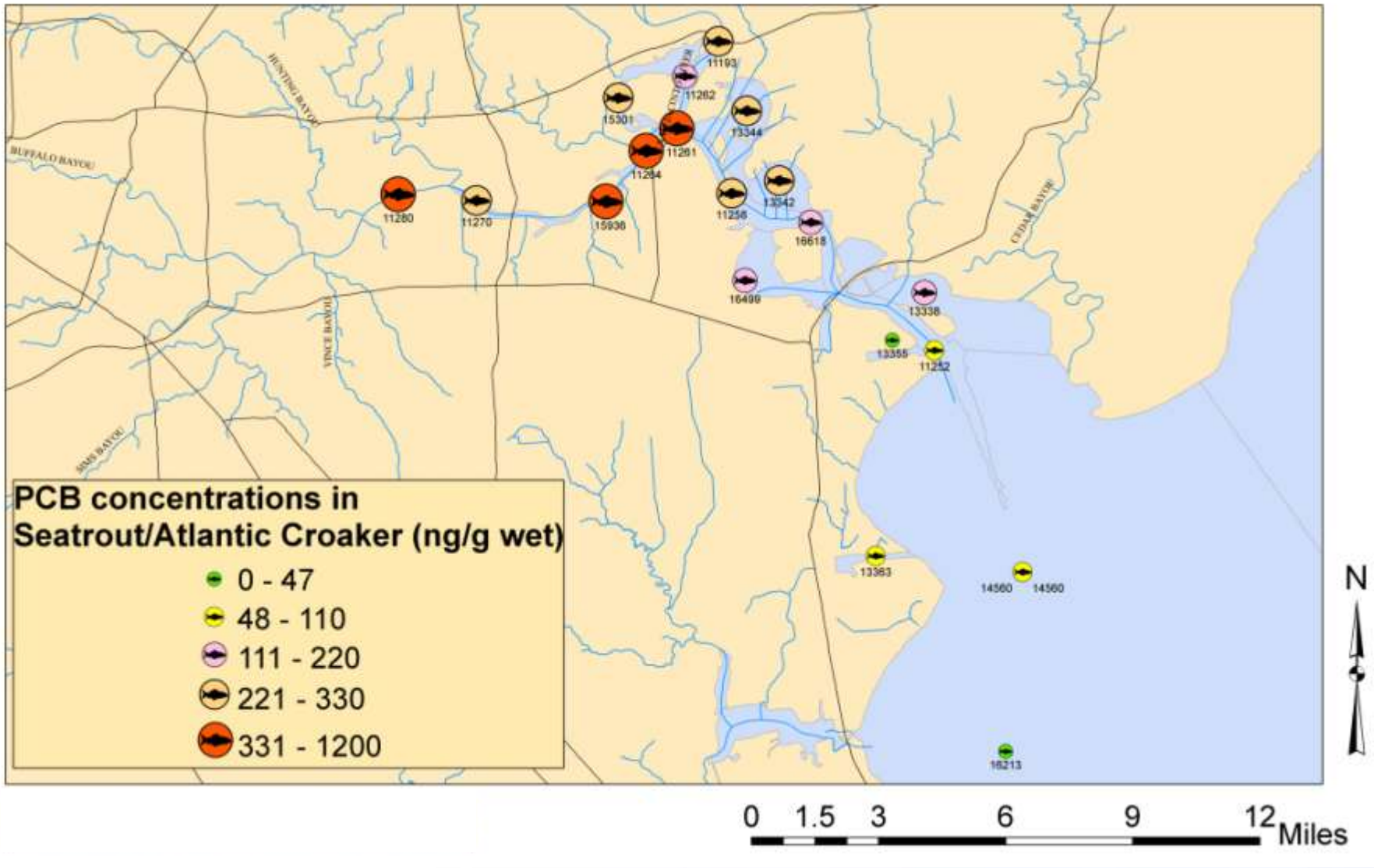
* PCB concentrations calculated as sum of 43 congeners (McFarland and Clarke, 1989); non-detects assumed as ½ MDL

PCB Concentrations in Catfish (2008)



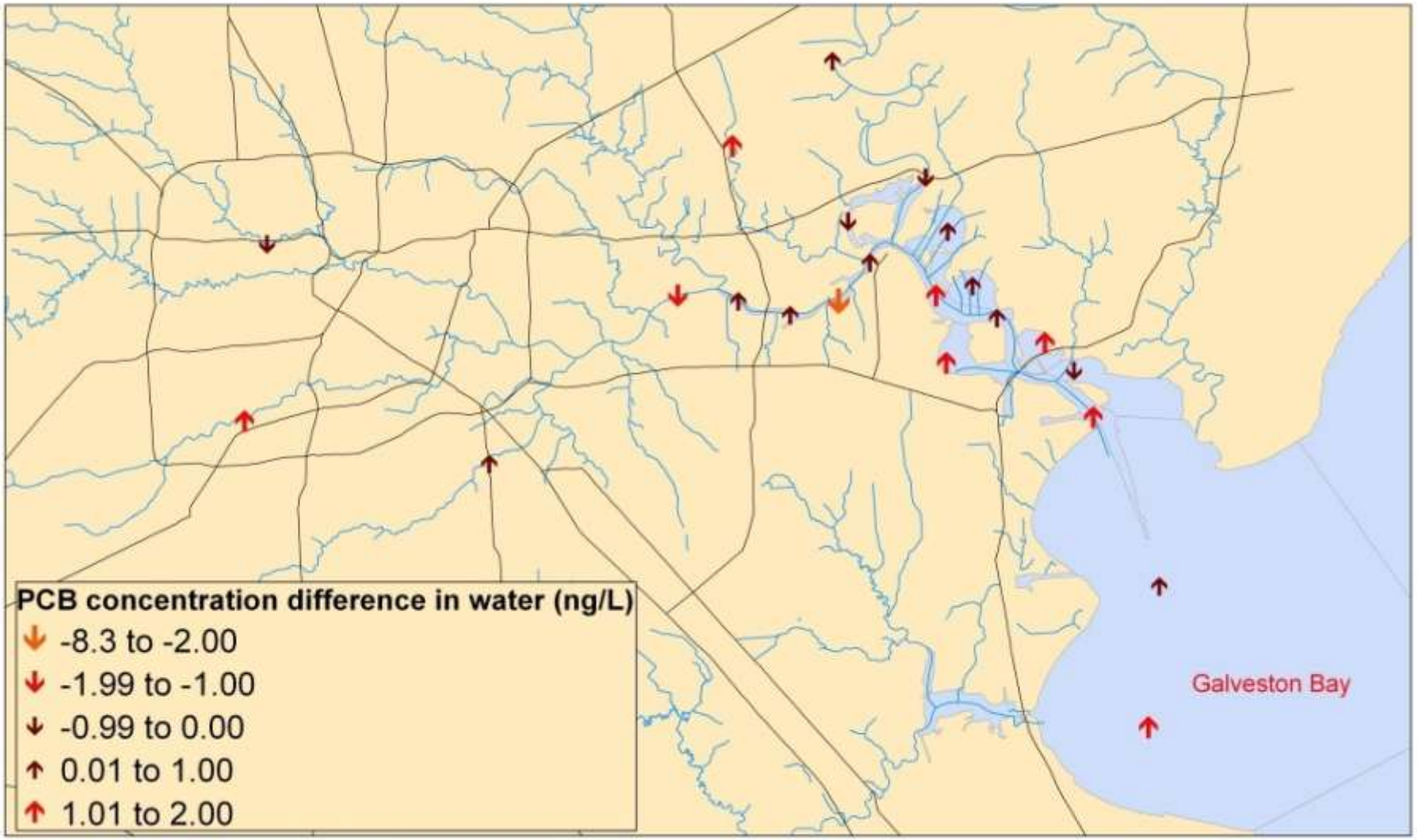
* PCB concentrations calculated as sum of 209 congeners; non-detects assumed as ½ MDL

PCB Concentrations in Seatrout/Atlantic Croaker (2008)



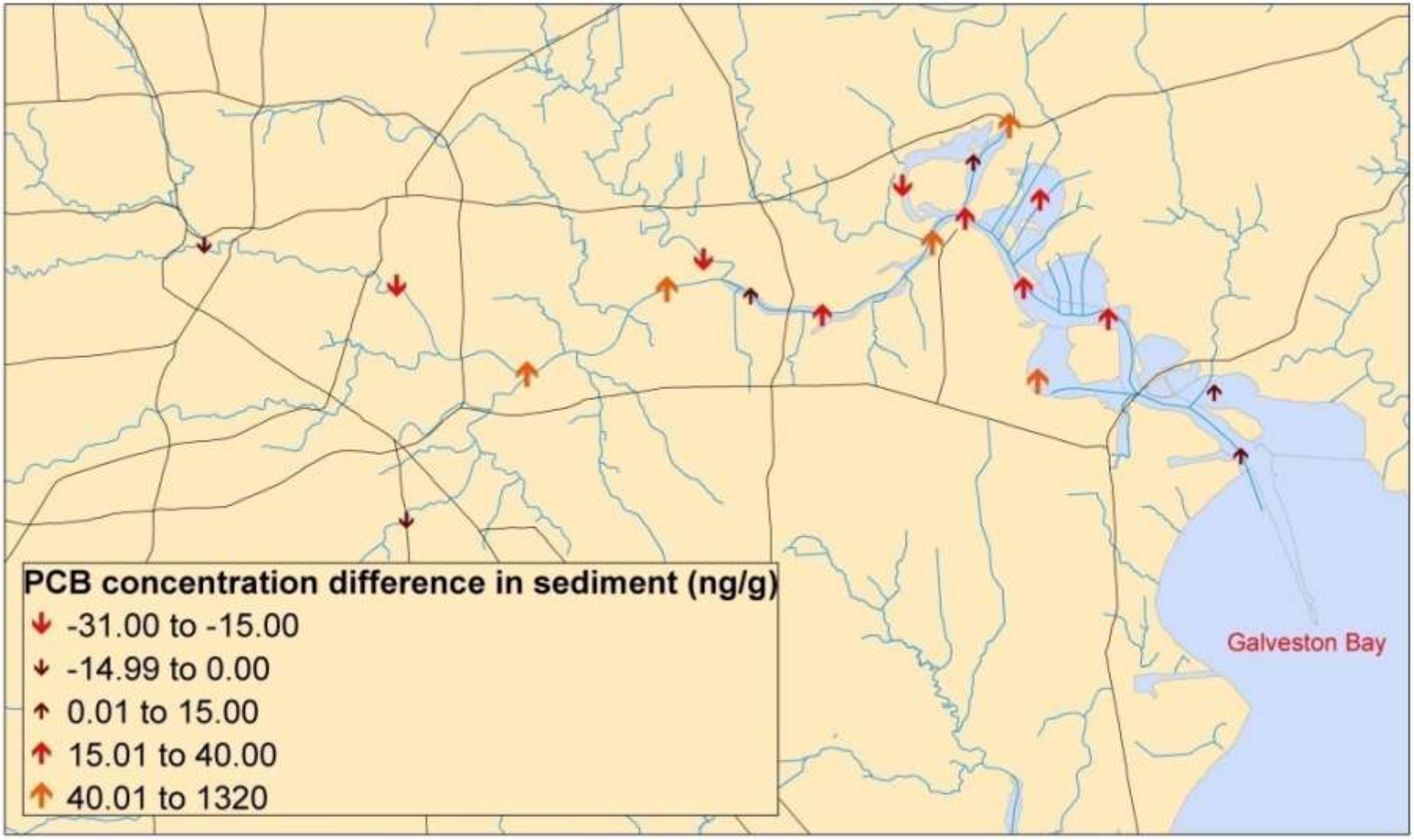
* PCB concentrations calculated as sum of 209 congeners; non-detects assumed as ½ MDL

PCB Water Concentration (2008 vs 2009)



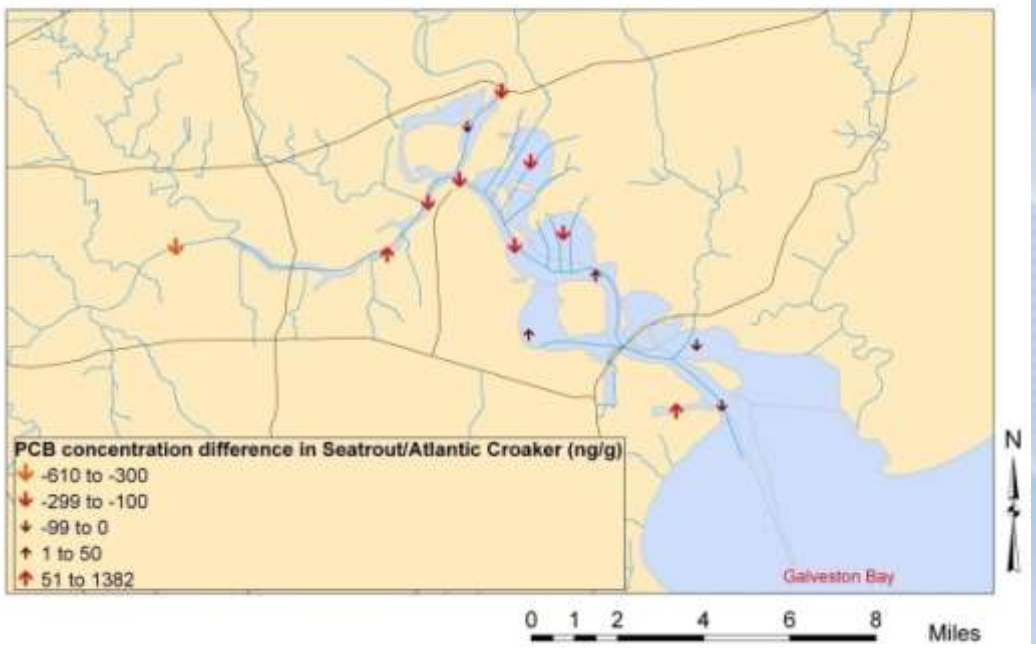
* All concentrations based on 1/2 detection limit for non-detects and ∑209 congeners.

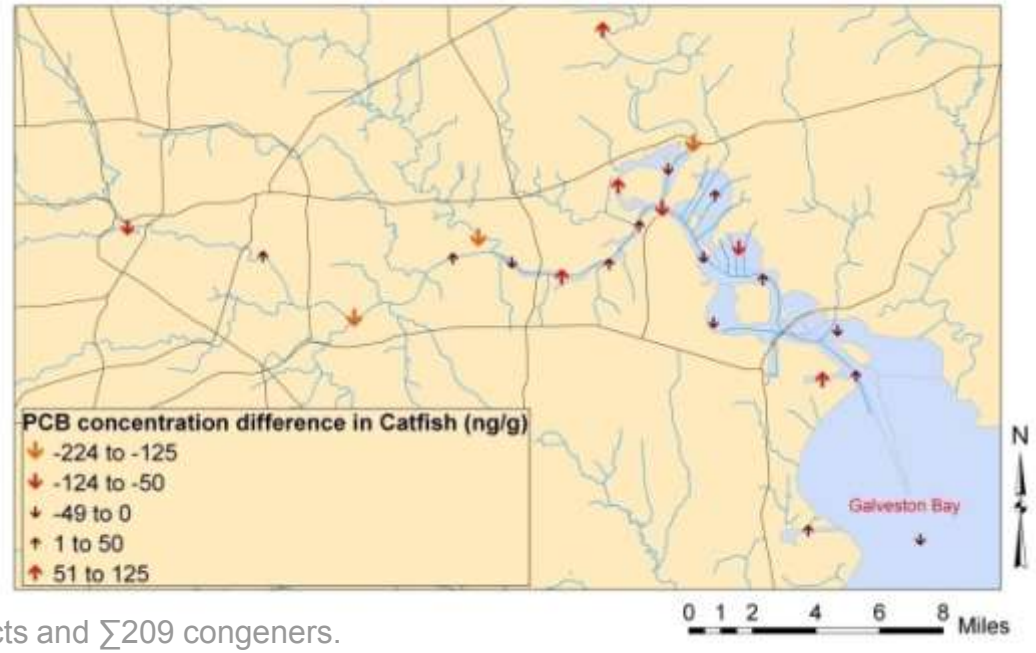
Sediment PCB Concentration (2008 vs 2009)



* All concentrations based on 1/2 detection limit for non-detects and ∑209 congeners.

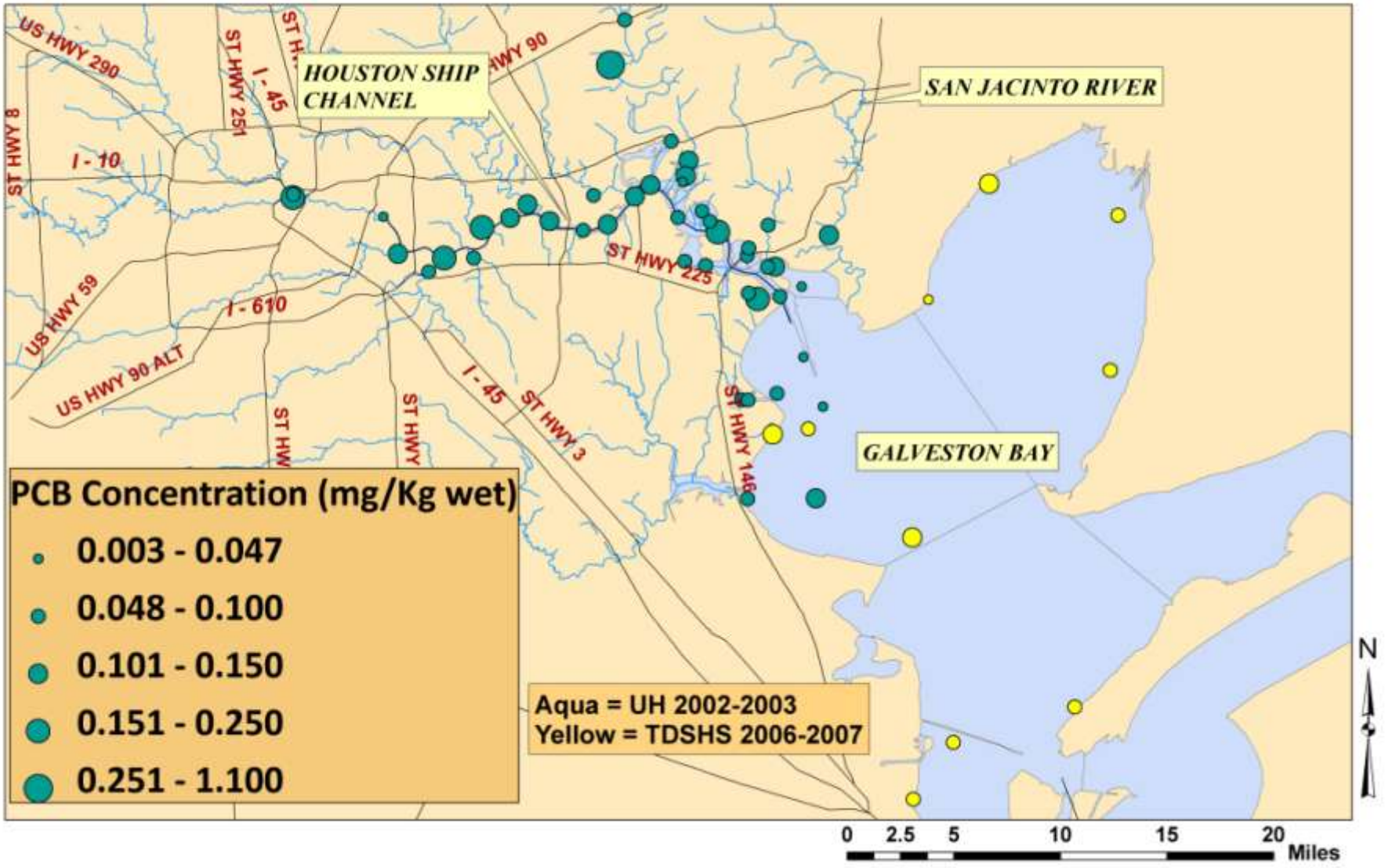
Tissue PCB Concentration (2008 vs 2009)





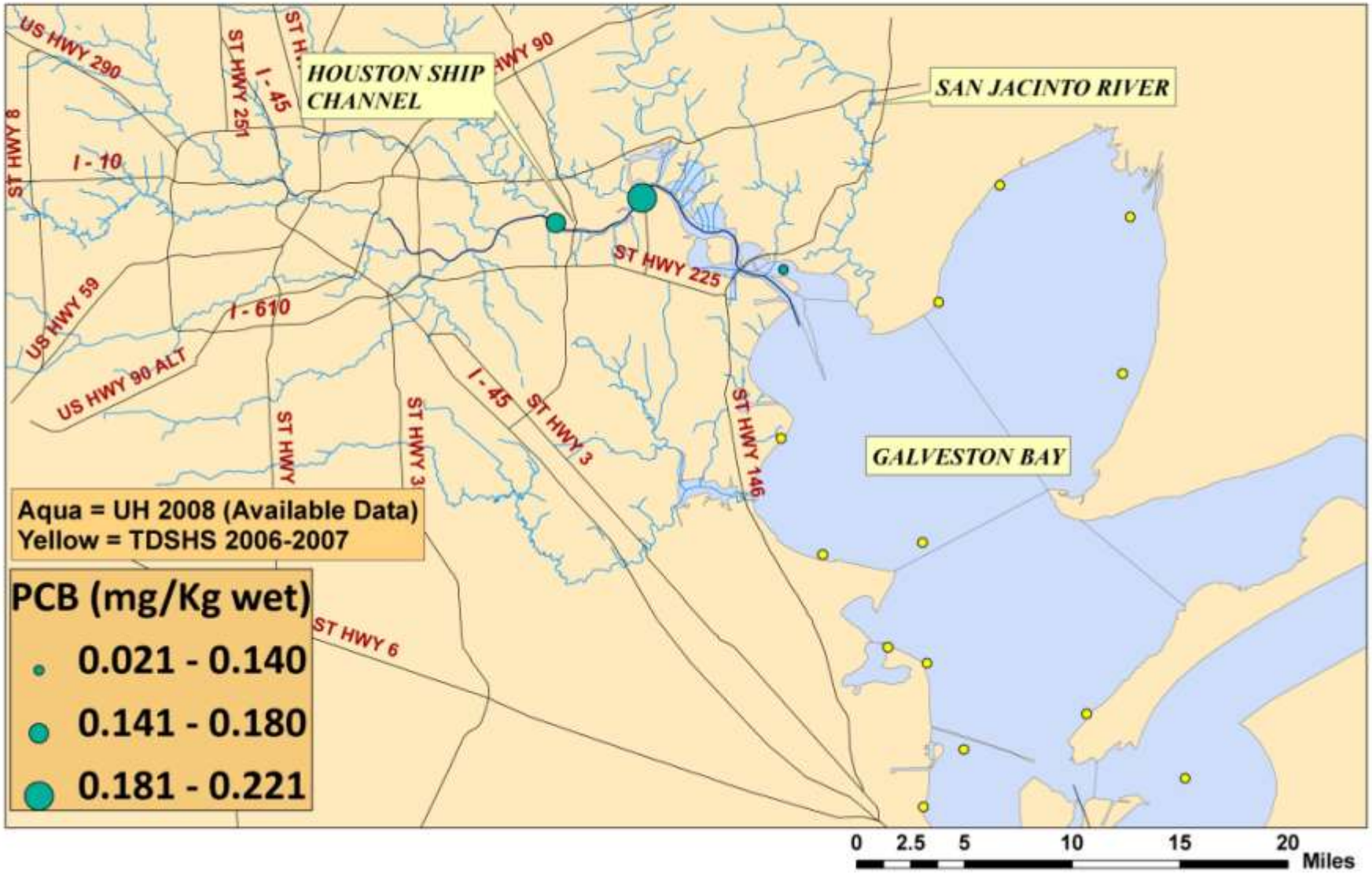
* All concentrations based on 1/2 detection limit for non-detects and ∑209 congeners.

UH 2008 Catfish PCB Comparison



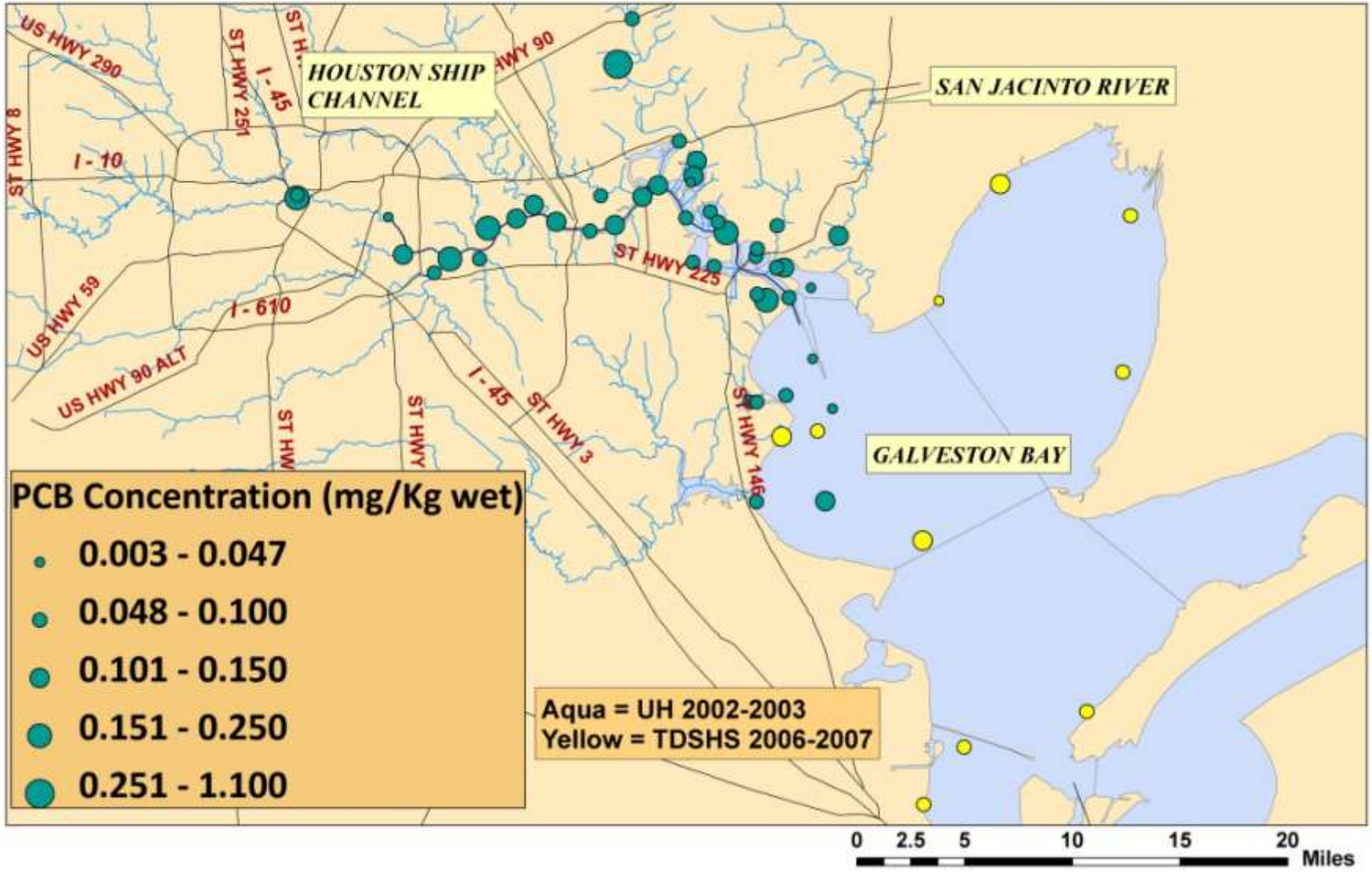
- UH catfish species collected in order of Hardhead> Blue> Gafftopsail> Channel
- PCB concentration = sum of 43 congeners in McFarland and Clarke (1989)

UH 2008 Speckled Trout PCB Comparison



- PCB concentration = sum of 43 congeners in McFarland and Clarke (1989)

UH 2002-2003 Catfish PCB Comparison



- UH catfish species collected in the order of Hardhead> Blue> Gafftopsail>Channel
- PCB concentration = sum of 43 congeners in McFarland and Clarke (1989)

TMDL for PCBs in HSC and Upper Galveston Bay

- Snapshot of current levels in sediment, tissue and water in 2012
- Model development and application
  - RMA2 + WASP used for dioxin TMDL
  - Calibration and validation with 02-03, 08, 09 and 2012 datasets

TMDL for Dioxins in HSC System

- Revise TMDL to address comments
- Calculate sediment cleanup targets by congener and segment to achieve water quality standard