

Fox River PCB cleanup Oshkosh Bird Club

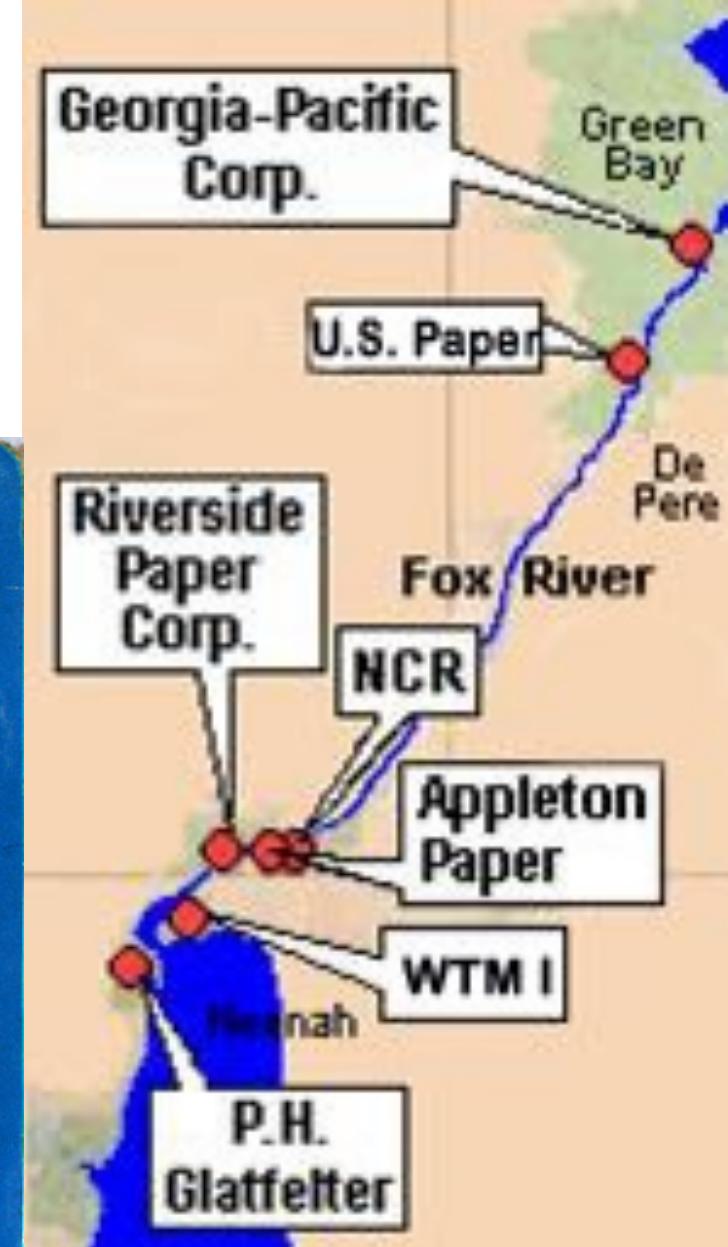
Jim Hahnenberg
U.S. EPA
May 4, 2010



The Fox River...

- 1. A billion dollar problem**
- 2. Fixing the Fox**

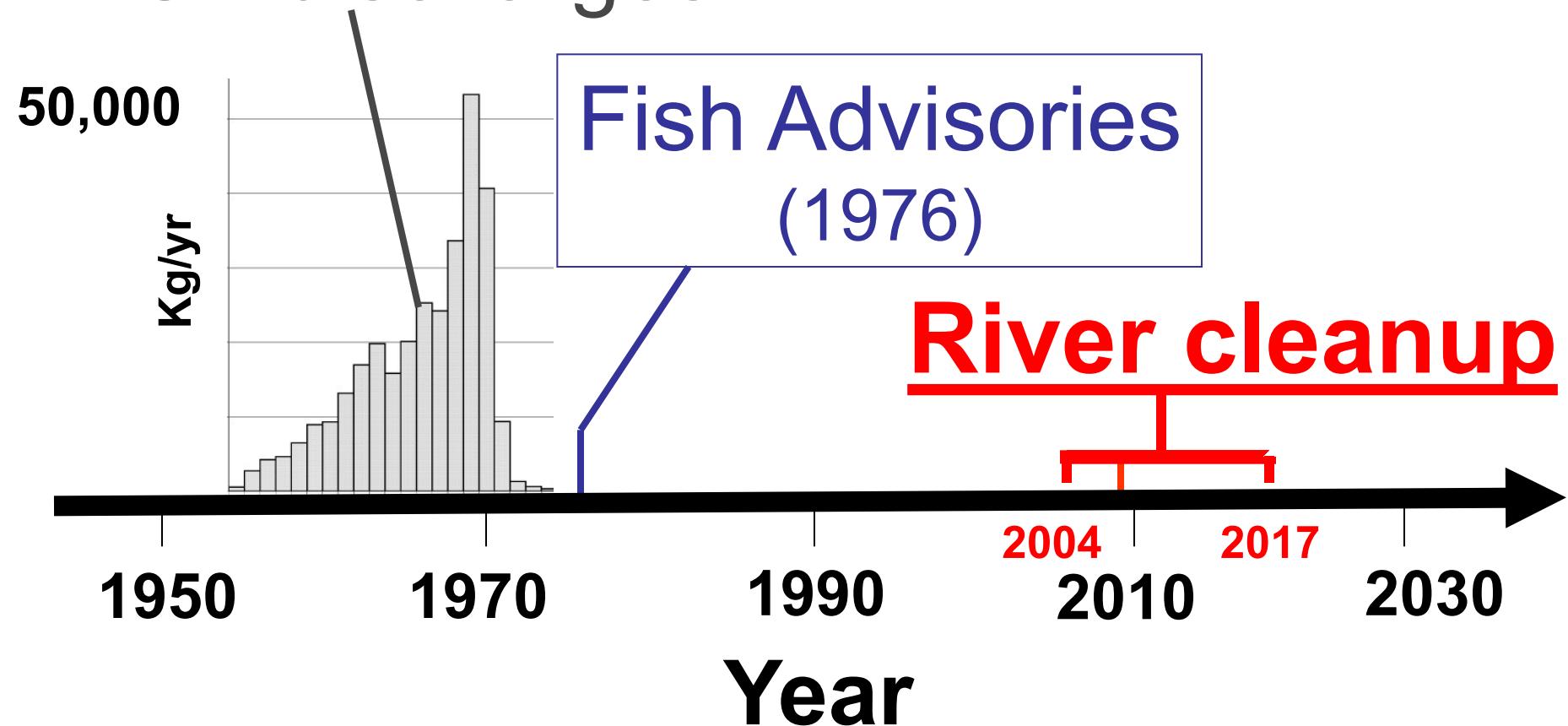
PCB sources (1954 – 1971)



Modified from Green
Bay Press Gazette

Timeline

PCB discharges*



* From: WDNR, 1999, Technical Memorandum 2d (Figure 9)

PCB costs

- Clean up: nearly a billion dollars
- Affects:
 1. Fishing
 2. Tourism
 3. Shipping
 4. Human health
 5. Ecosystem
 6. Lake Michigan

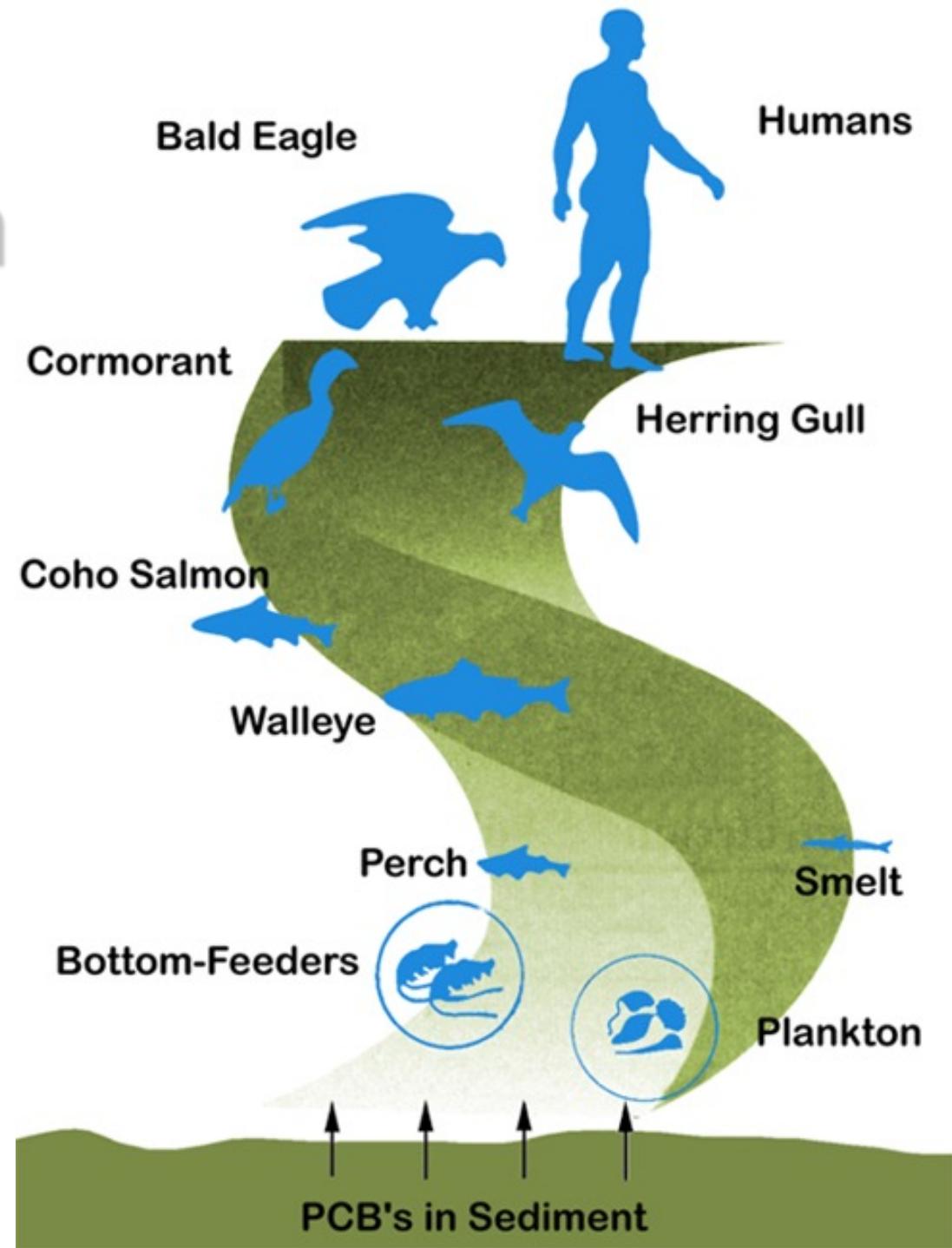


PCB dollar cost

- 1) Cleanup costs: ~\$800 million**
- 2) Resources “lost use”***
 - Past: \$65 million**
 - Future: \$100 to \$270 million**

*** Estimates by U.S. Fish and Wildlife Service.**

PCBs in foodchain

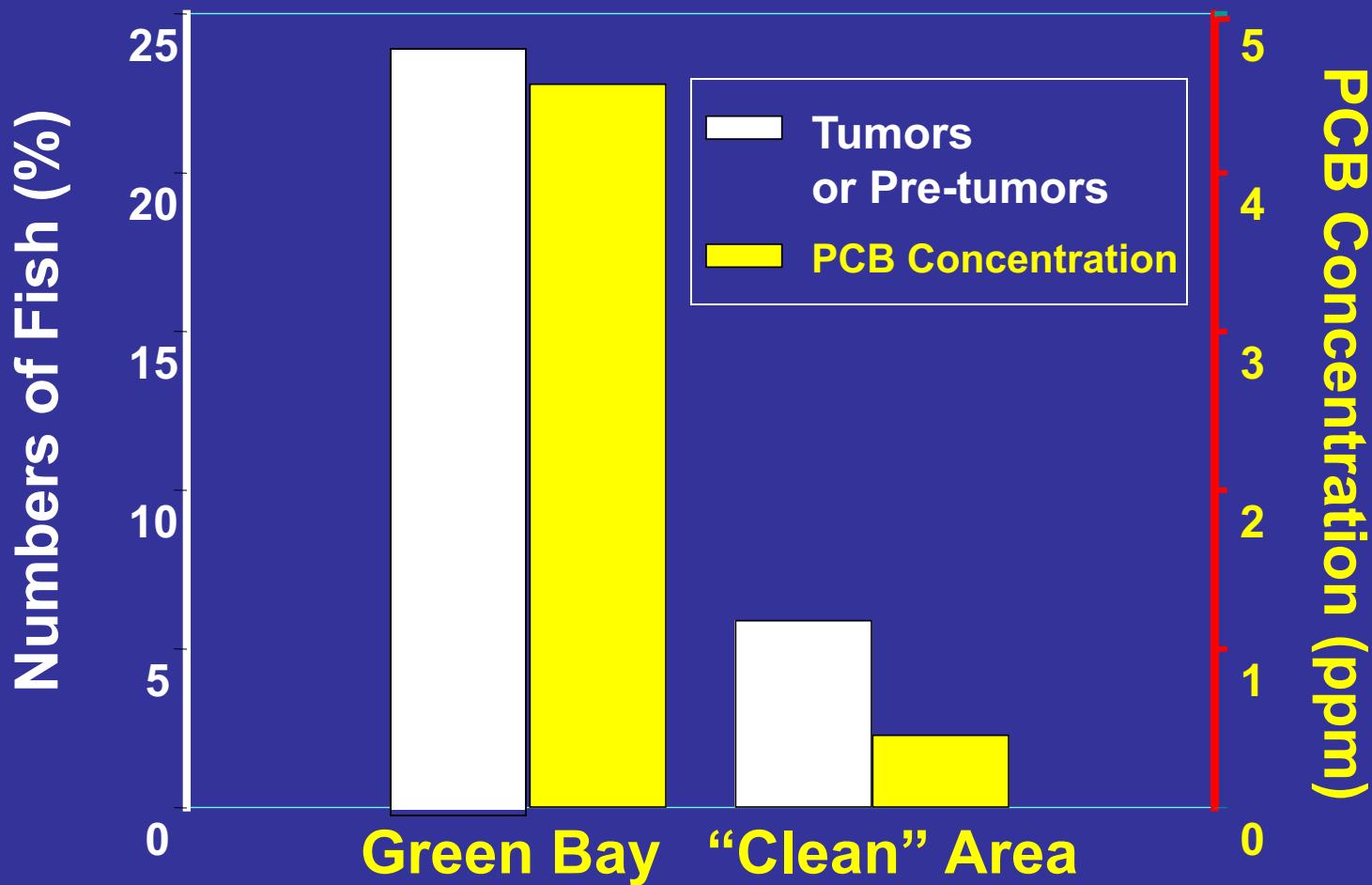


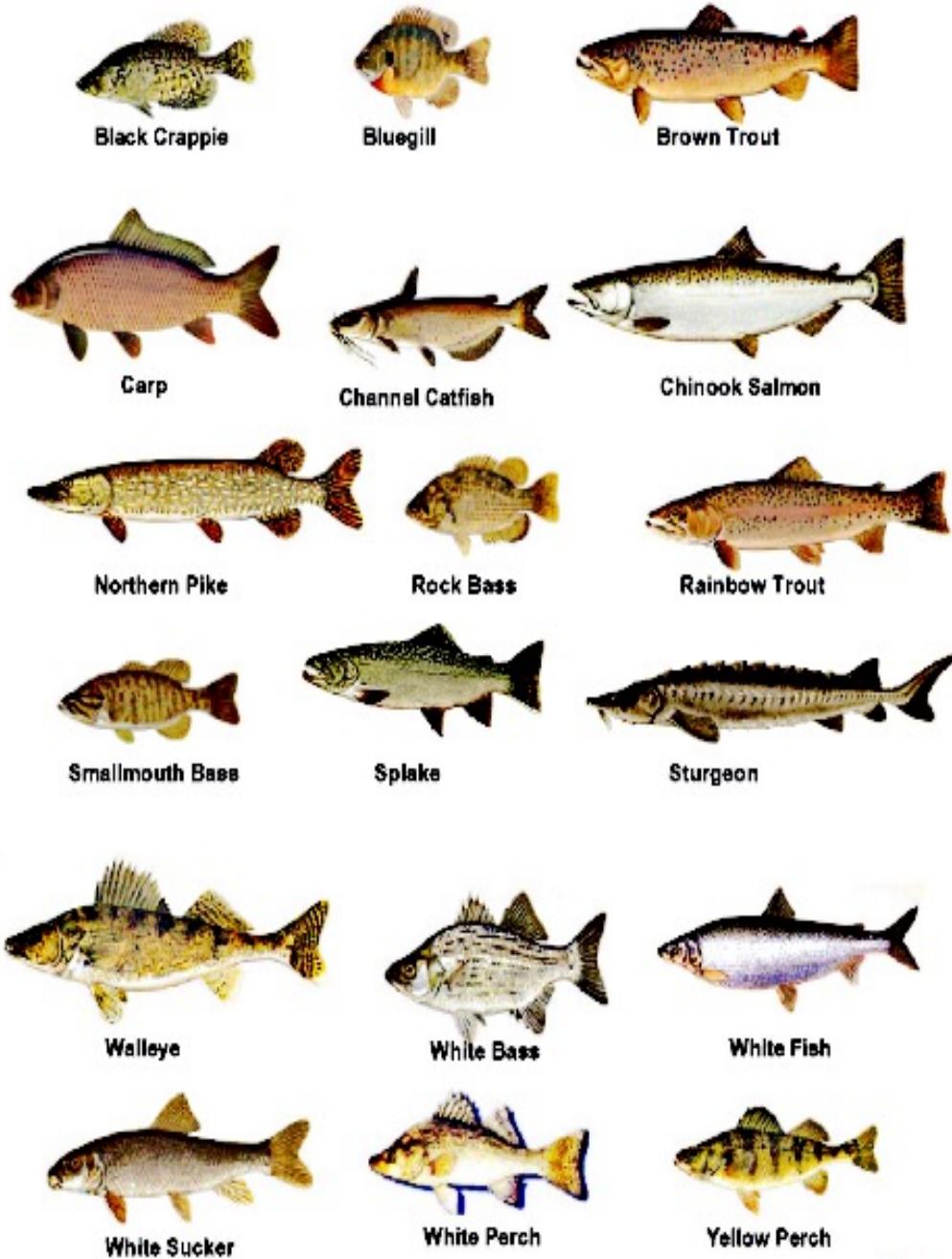
PCB effects: migratory birds

- Possible behavioral (considered in risk assessment) and immunological effects
- Studies indicate bird return rates may be less due to PCB effects
- Deformities

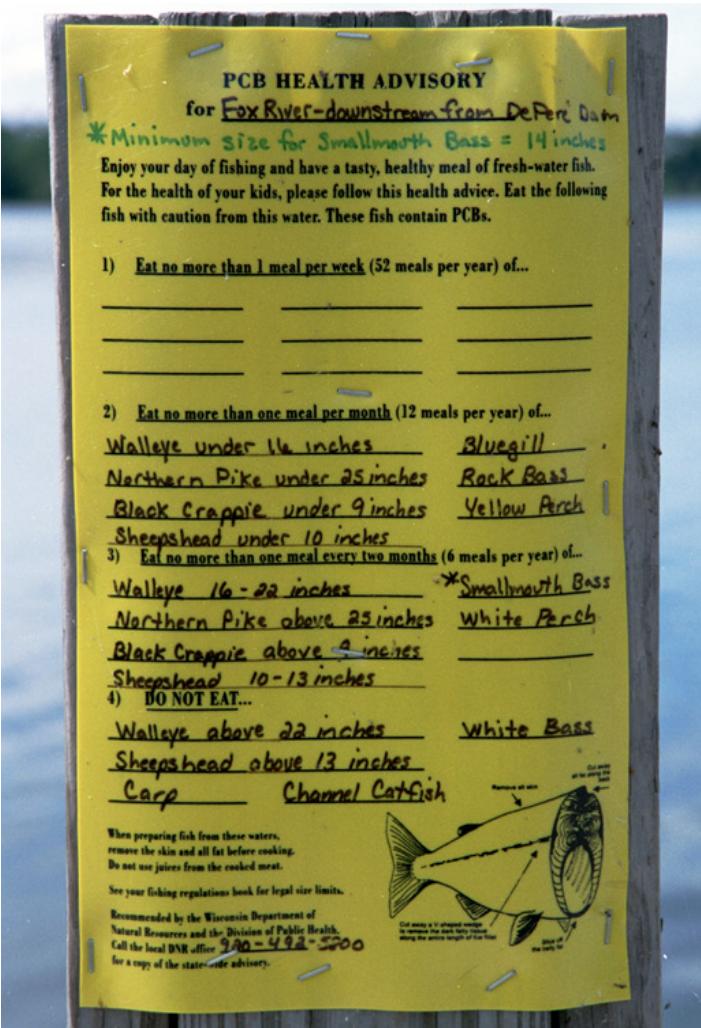
Walleye tumors

Green Bay





Fish advisories



Fox River Green Bay fishers

- ~50,000 fishers
- 2,000-5,000 eat Fox River & Green Bay fish

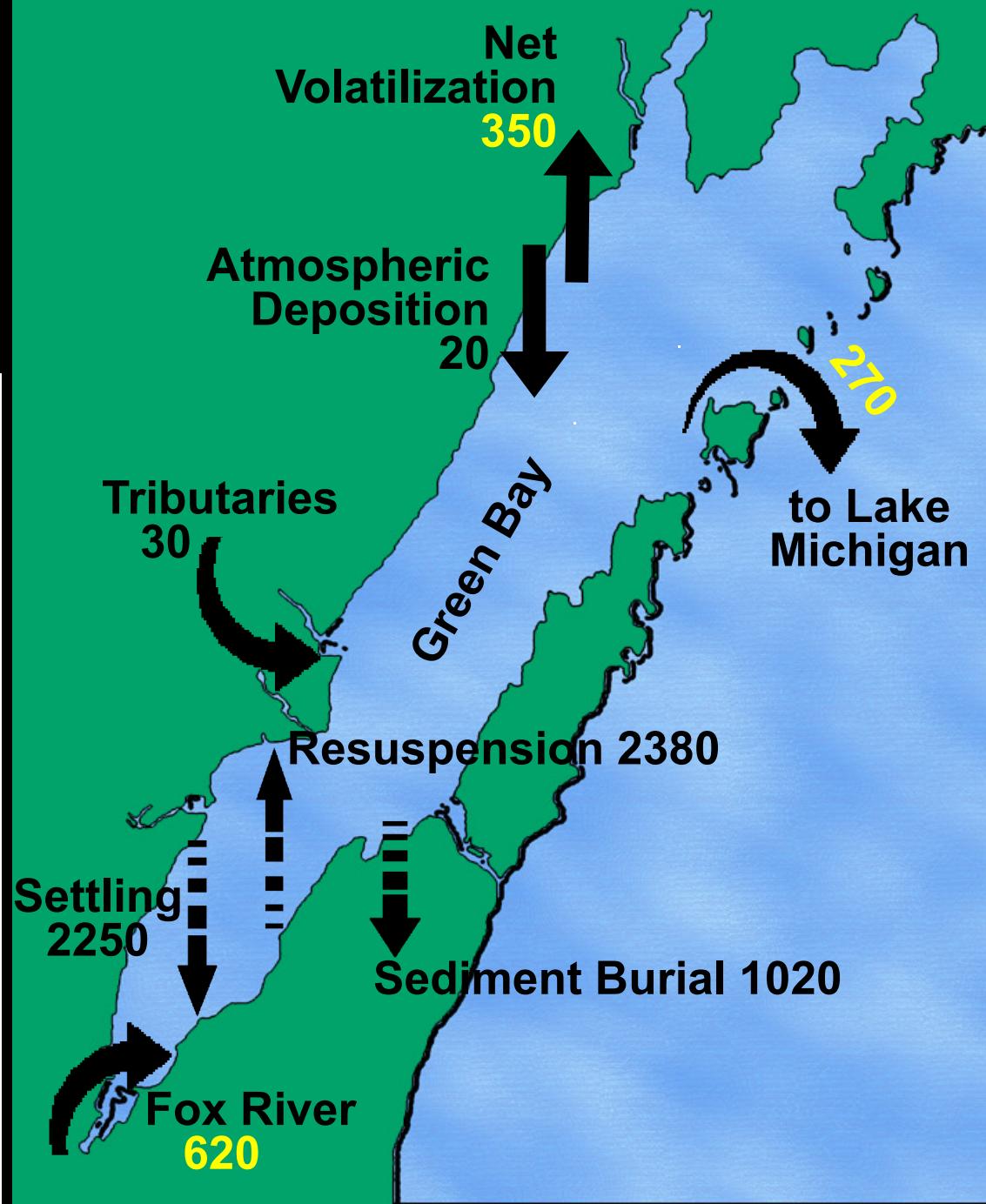


PCB movement (pounds)

Fox River:

71% of tributary
loadings to Lake
Michigan

After Raghunathan,
DePinto et al.; 1994

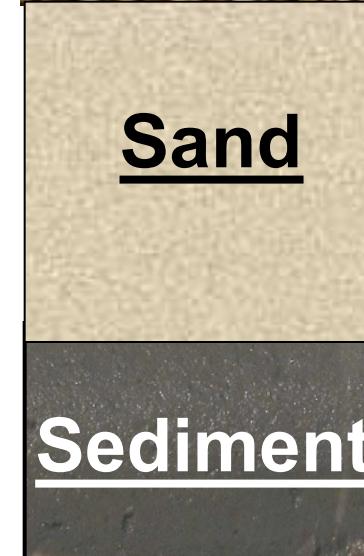


Fixing the problem...

1) Dredging & disposal



2) Capping & Covering



2004 – 2009
790,000 cy
\$100 million

2007 – 2017
7.2 million cy
\$700 million



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MN (3.2° W)

mi
0 2 4 6 8 10 12
Data Zoom 8-3

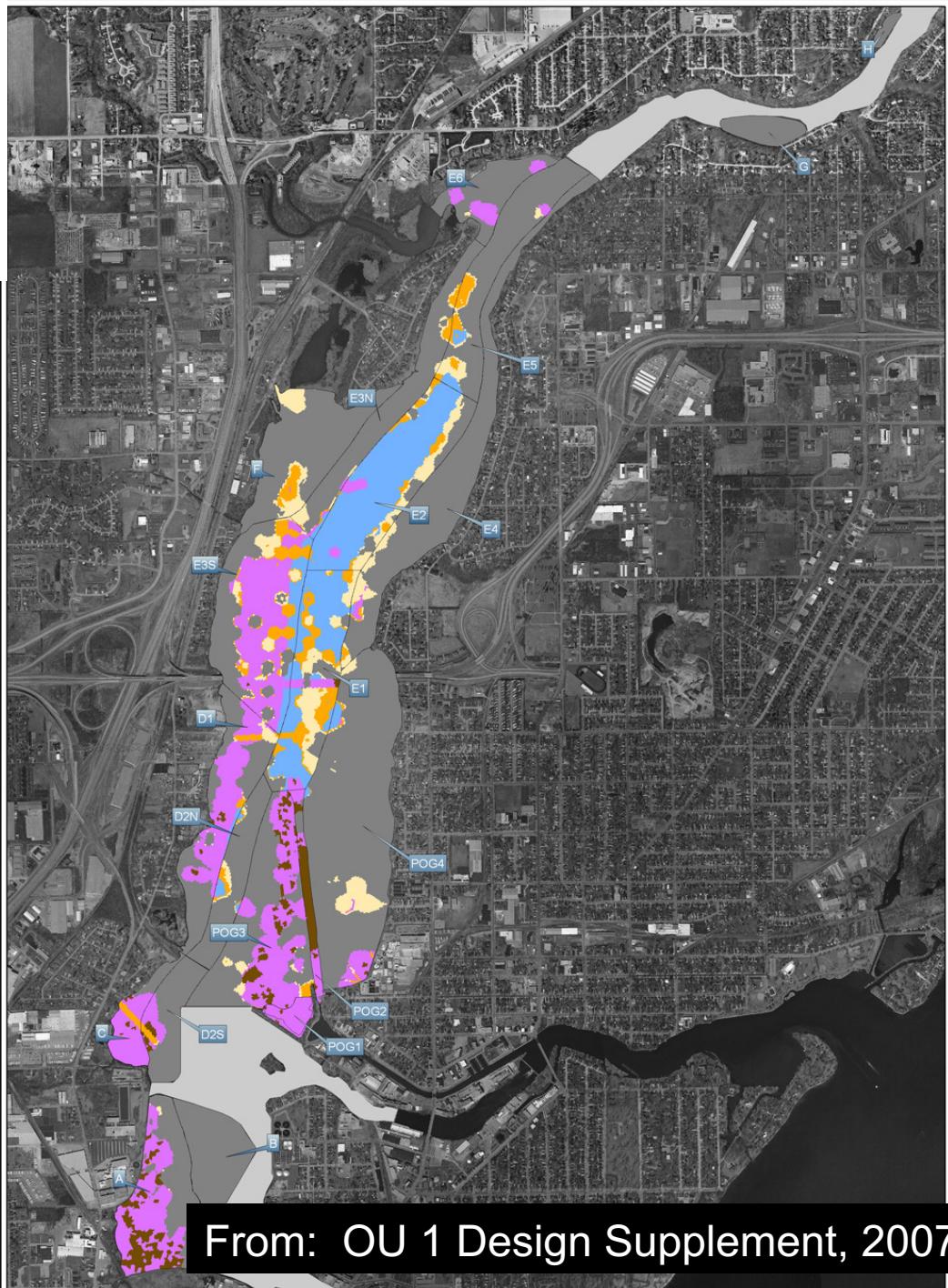
Little Lake Butte des Morts



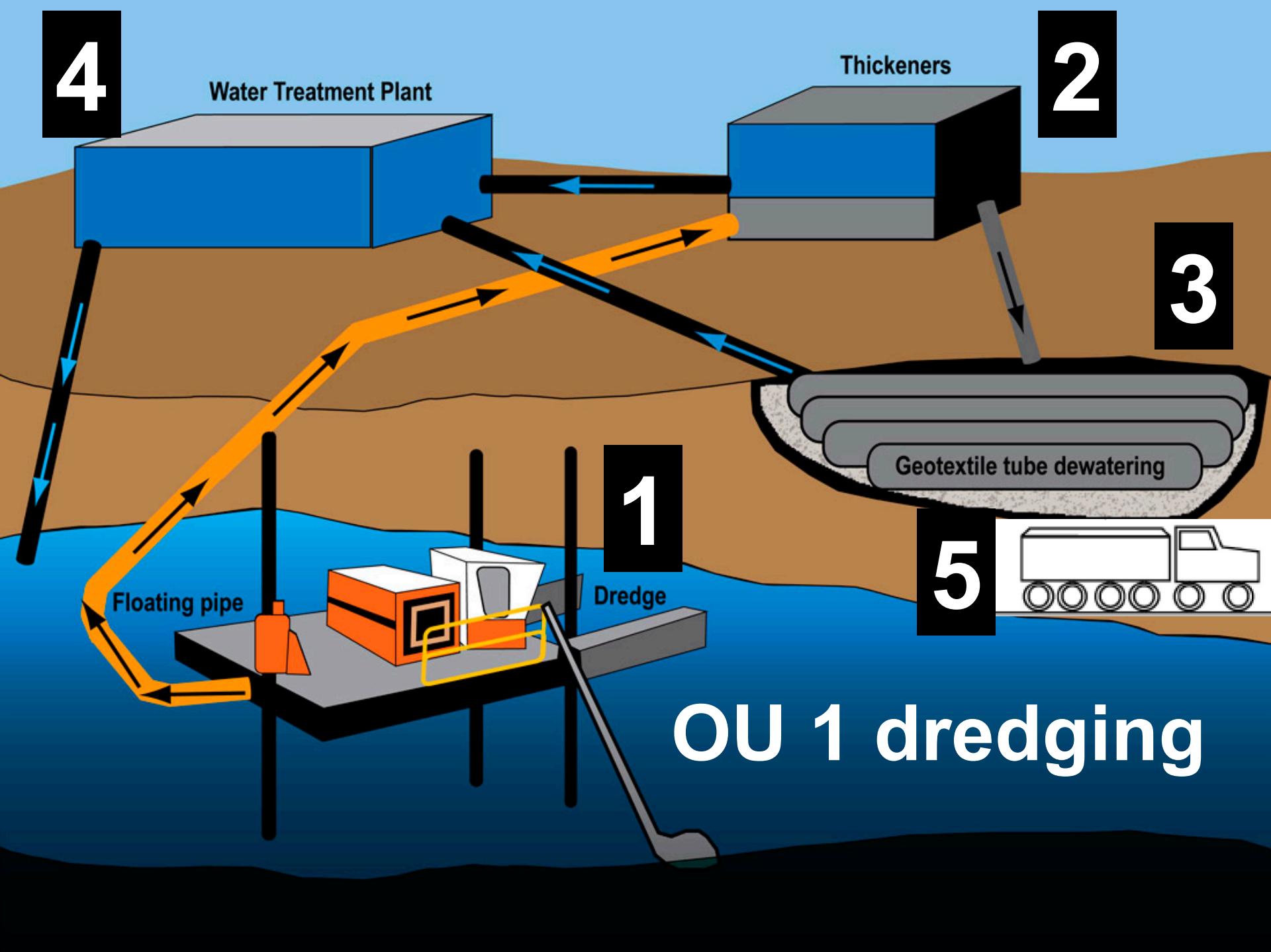
Photo from Ann Schell

Little Lake Butte des Morts cleanup actions

- █ Dredging
- █ Capping
- █ Covering



From: OU 1 Design Supplement, 2007



Hydraulic dredge

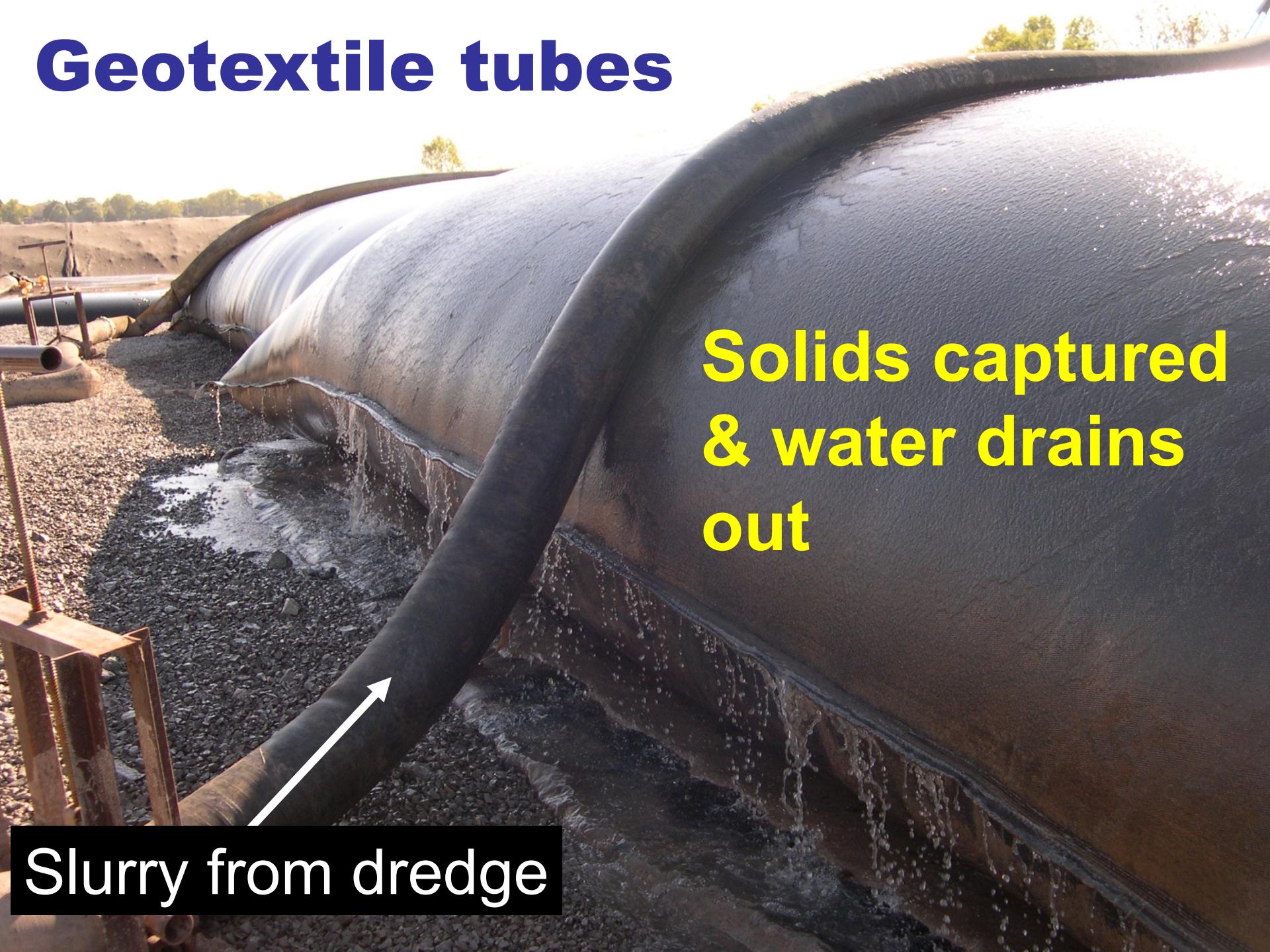


Photo courtesy of Boldt

In-water pipeline



Geotextile tubes



Slurry from dredge

Solids captured
& water drains
out

Geotextile tubes



- 200 feet long
- 60 foot circumference
- Contains ~1600 cubic yards

Stacked tubes



From: Little Lake Cleanup Team

11 12:37PM

The field of tubes



Loading sediment for disposal



Sediment disposal



Photo courtesy of Boldt

Capping: “throwing stone”



Photo courtesy of Boldt

2009* – 2017
7.2 million cy
\$700 million



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MN (3.2° W)

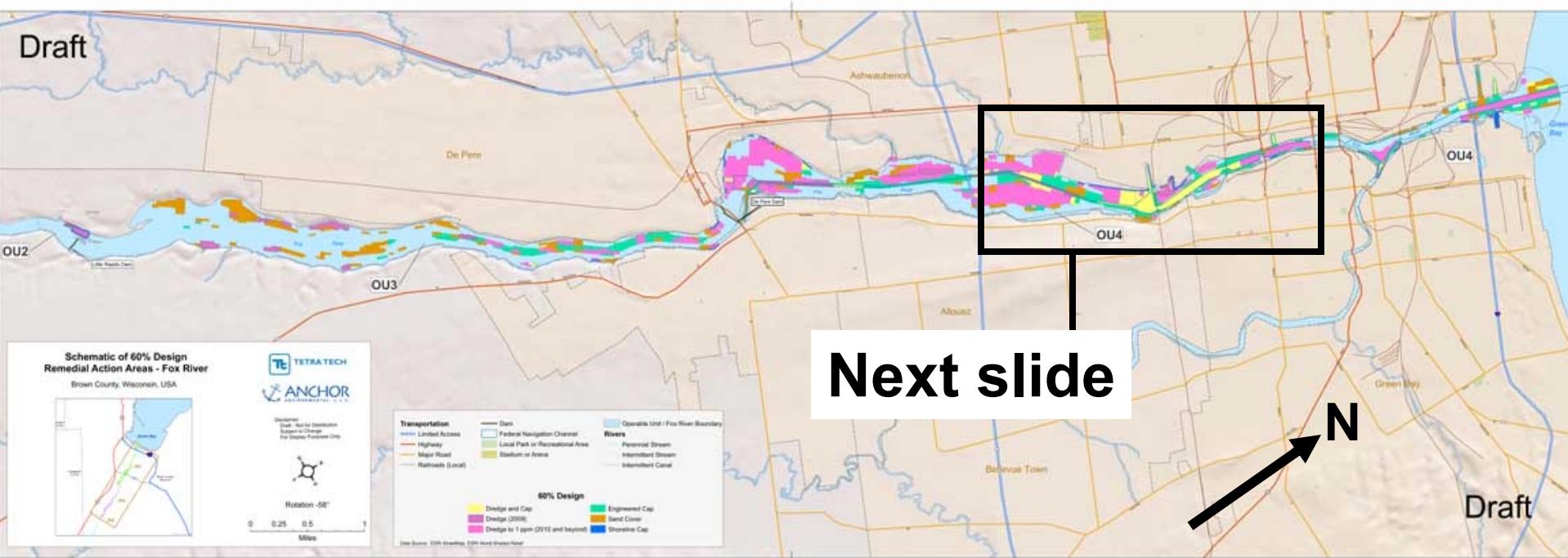


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Data Zoom 8-3

* Phase 1 in 2007

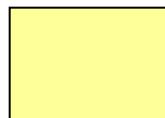
Downstream cleanup



Dredging



Cap (sand and gravel)



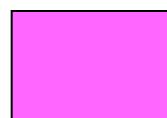
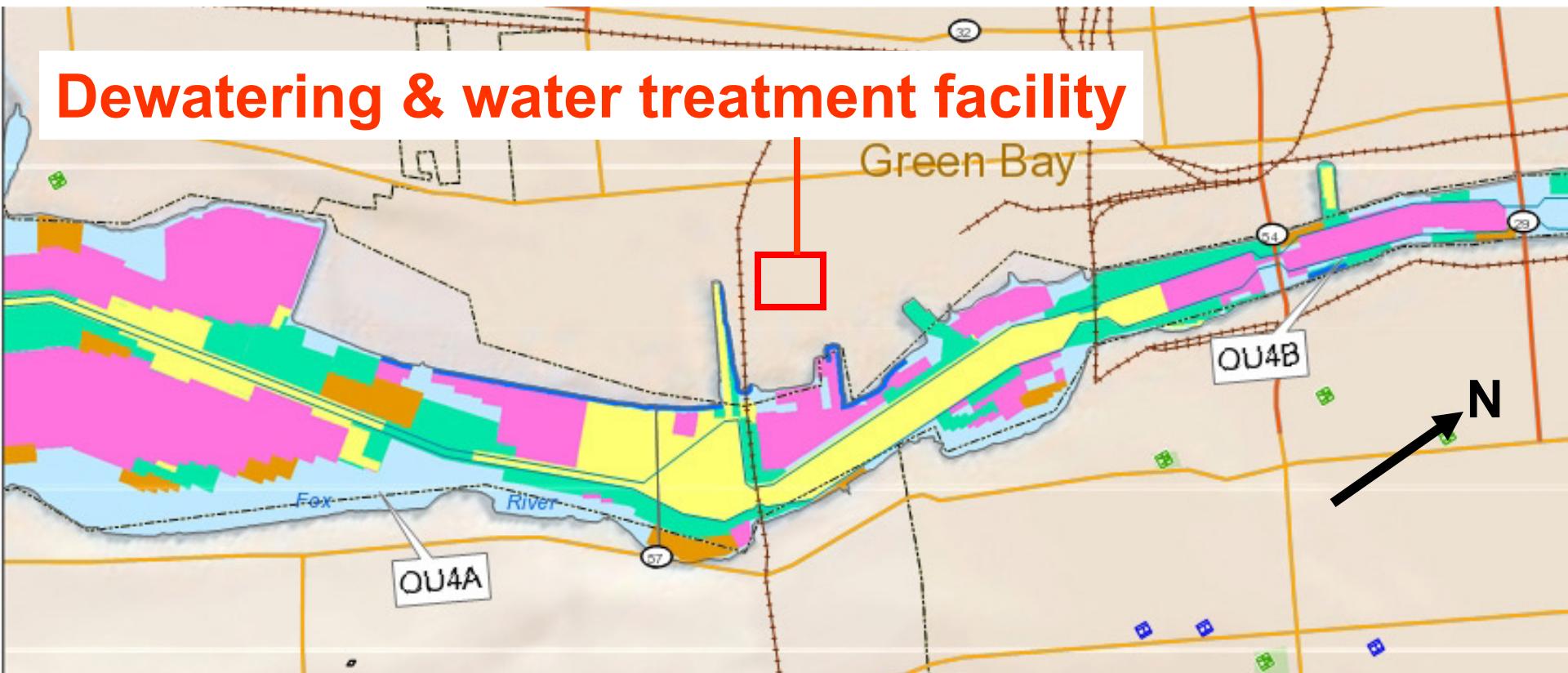
**Dredge
and Cap**



Cover (sand only)

Courtesy of Tetra Tech

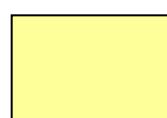
Downstream cleanup



Dredging



Cap (sand and gravel)



**Dredge
and cap**



Cover (sand only)

Courtesy of Tetra Tech

Dewatering facility construction



From: TetraTech weekly QC report

Dewatering and water treatment facility



Photo courtesy of TetraTech

Dredge cutterhead



Photo courtesy of Boldt

Pre-thickener



Photos courtesy of TetraTech

Plate and frame presses to dewater dredge slurry



Photo courtesy of Boldt

Sediment storage



Photo courtesy of Boldt

Loading sediment



Disposal

Photo courtesy of Boldt

Army Corps of Engineers navigation dredging



Interagency Agreement Between EPA and the USACE



United States Environmental
Protection Agency
Washington, DC 20460

Interagency Agreement/ Amendment Part 1 - General Information

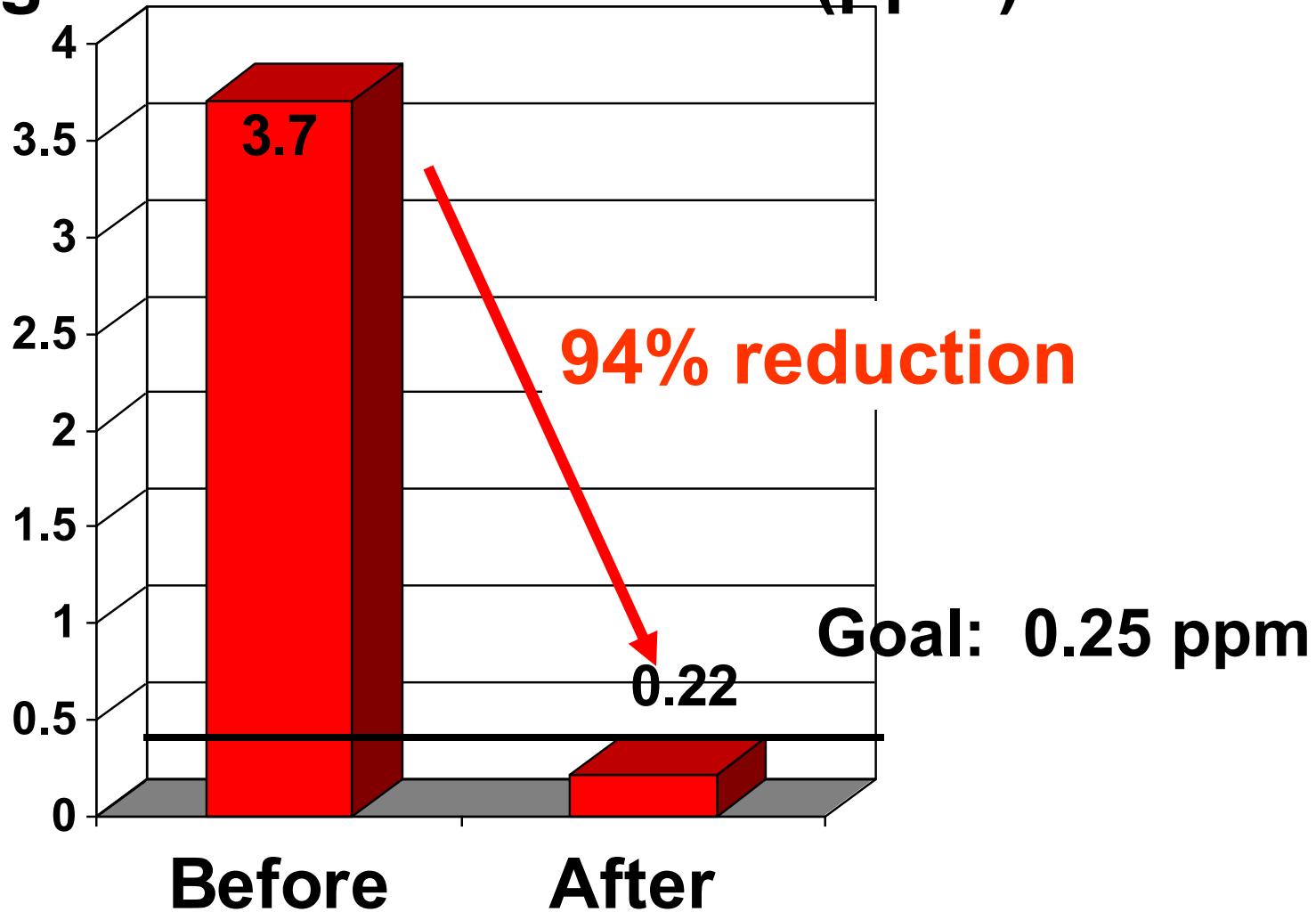
<p>6. Name and Address of EPA Organization US Environmental Protection Agency IASSC WEST 1200 6th Ave., Suite 900, OMP-145 Seattle, WA 98101</p>	<p>7. Name and Address of Other Agency U.S. Army Corps of Engineers EM CX 1618 Capitol Ave., Suite 9200 (CEHNC-CX-ES) Omaha, NE 68102-9200</p>	<p>1. EPA IA Identification Number DW-96-95777901 - 0</p>	<p>2. Funding Location by Region EPA R5</p>
<p>8. DUNS: 029128894 9. BETC: DISB</p>		<p>10. DUNS: DOD964126 11. BETC: COLL</p>	
<p>12. Project Title and Description Remedial action support for Units 4 and 5 at the Lower Fox River and Green Bay Superfund Site, WI</p>			
<p>The objective of this agreement is to provide funding for certain response action work which will be performed in conjunction with the U.S. Army Corps of Engineers navigational dredging at the site.</p>			
<p>13. EPA Project Officer (Name, Address, Telephone Number) JAMES HAHNENBERG 77 West Jackson Blvd. Chicago, IL 60604-3507 312-353-4213 E-Mail: hahnenberg.james@epa.gov FAX: 312-886-6069</p>		<p>14. Other Agency Project Officer (Name, Address, Telephone Number) Marvene Seaman 1616 Capitol Ave., Suite 9200 (CEHNC-CX-ES) Omaha, NE 68102-9200 402-697-2425 E-Mail: Marvene.L.Seaman@usace.army.mil FAX: 402-697-2613</p>	
<p>15. Project Period: 05/01/2010 to 01/31/2011</p>		<p>IA Specialist: Joanne Brendle 206-553-6385</p>	
<p>16. Scope of Work (See Attachment) See attached Scope of Work.</p>			
<p>17. Employee/Tax ID No. 520852695</p>		<p>18. CAGE No. 347A4</p>	
<p>19. ALC: 68-01-0707</p>			

Cleanup progress

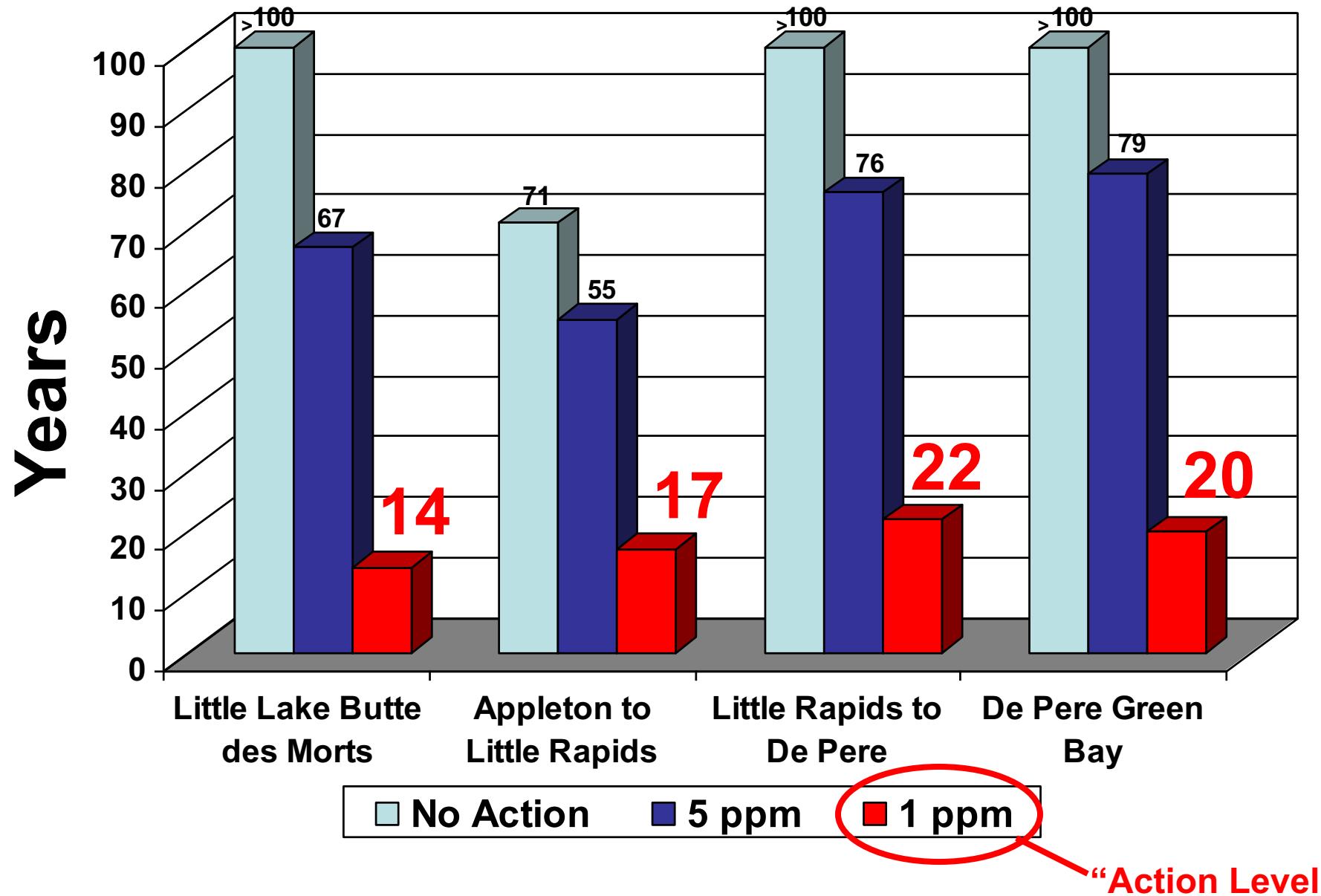
- Little Lake Butte des Morts completed 2009
- Downstream (Little Rapids to Green Bay)
 - 2009: dredged 541,000 cubic yards of sediment (~7 Walmarts)
 - 2010: dredging 550,000 cubic yards, capping 50 acres, & covering 82 acres
- 2017: 8 million cubic yards/1600 acres dredged, capped or covered

Little Lake Butte des Morts

Average PCB concentration (ppm)



Time after cleanup to safe levels for birds



Prognosis appears good for Fox River



From: Milwaukee Journal

Bergquist

Questions/discussion

