

# Contaminants in Fish Tissue from Vancouver Lake

April 20, 2005

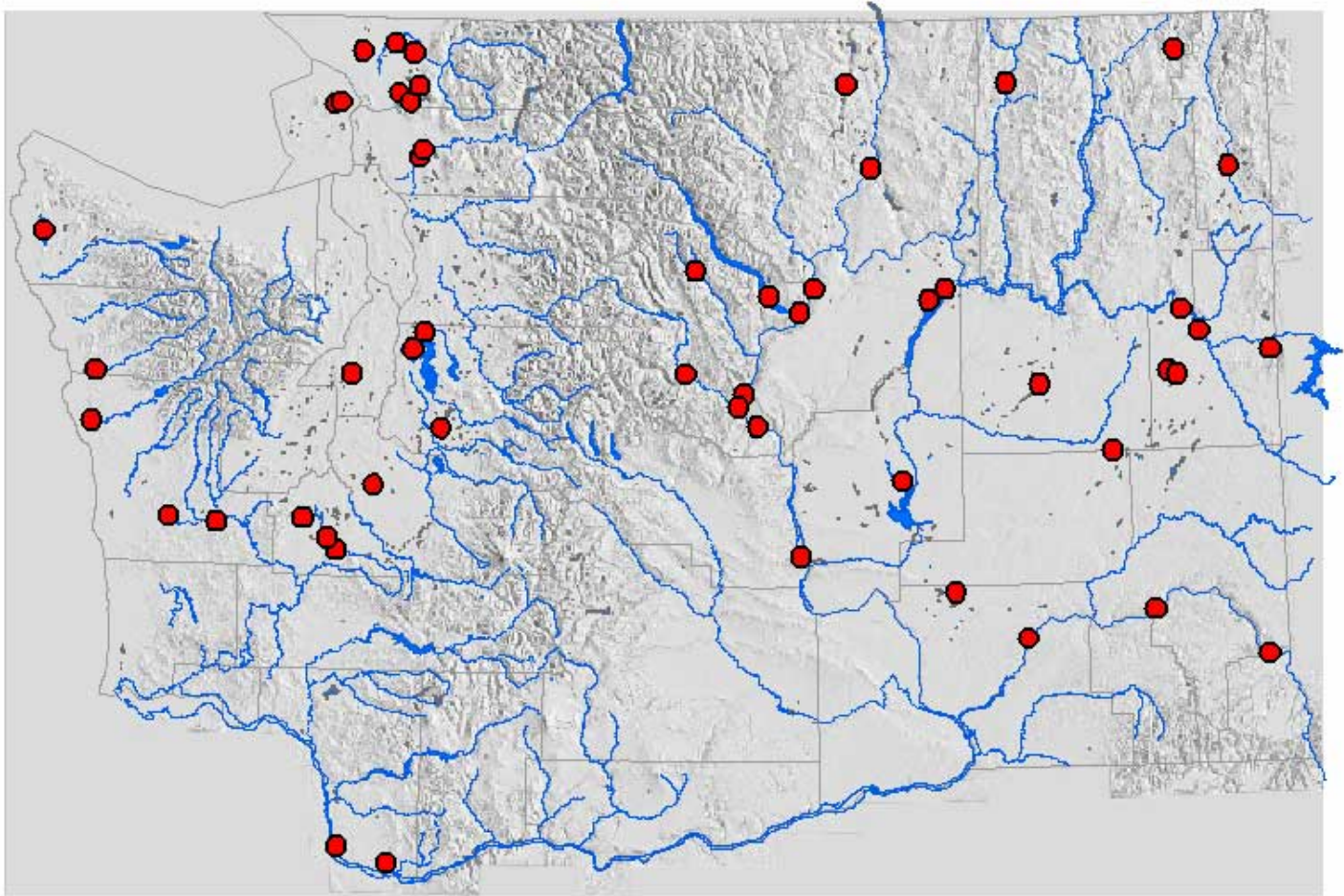
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# Vancouver Lake does not meet Washington's Water Quality Standards for toxic chemicals in fish tissue

- Monitoring efforts
- Results
- 303(d) Listing
- Next steps
- Questions

# Increasing concern about toxic chemicals in our environment

- No information for many areas in WA
- Ecology monitoring to learn extent of contamination in freshwater fish
  - Historic screening-level effort: 1992-1997
  - Current screening-level effort: 2001-present
  - 2002 statewide Mercury Study



**Fish Collection Sites In for the Washington State Toxics Monitoring Program: 2001-2004.**

# What chemicals are a concern?

- Persistent, bioaccumulative, toxic (PBTs)
- Mercury
- PCBs
- Pesticides
- Dioxins and furans (PCDD & PCDFs)
- Flame retardants (PBDEs)

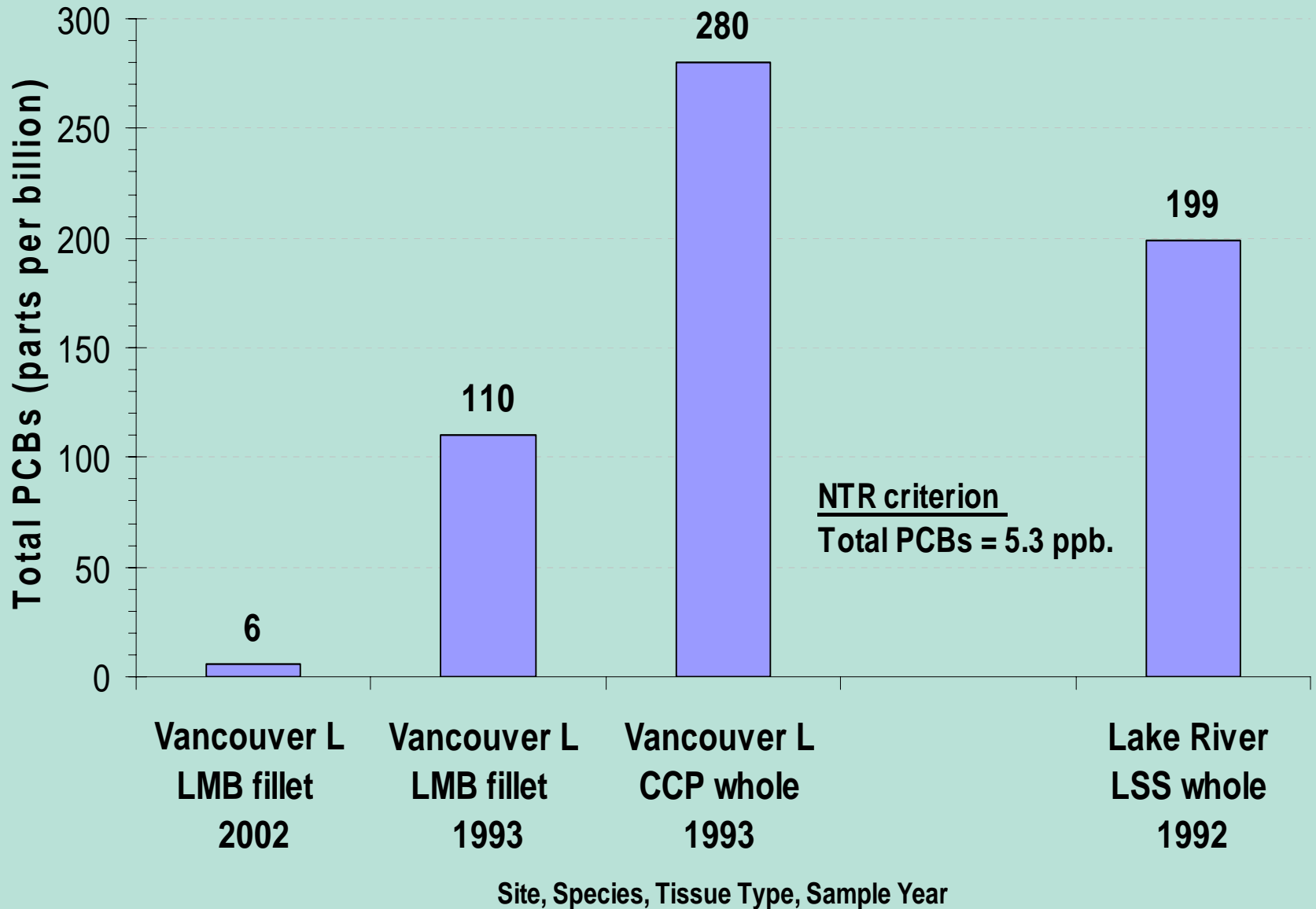
# What levels of chemicals may be harmful to humans?

- Varies - many factors involved
- Levels determined through research
- Values adopted as regulatory criteria
  - Washington's Water Quality Standards (WAC 173-201A)
  - National Toxics Rule (40 CFR 131.36)
  - Fish tissue criteria apply to fillets only

# What was found in fish from Vancouver Lake?

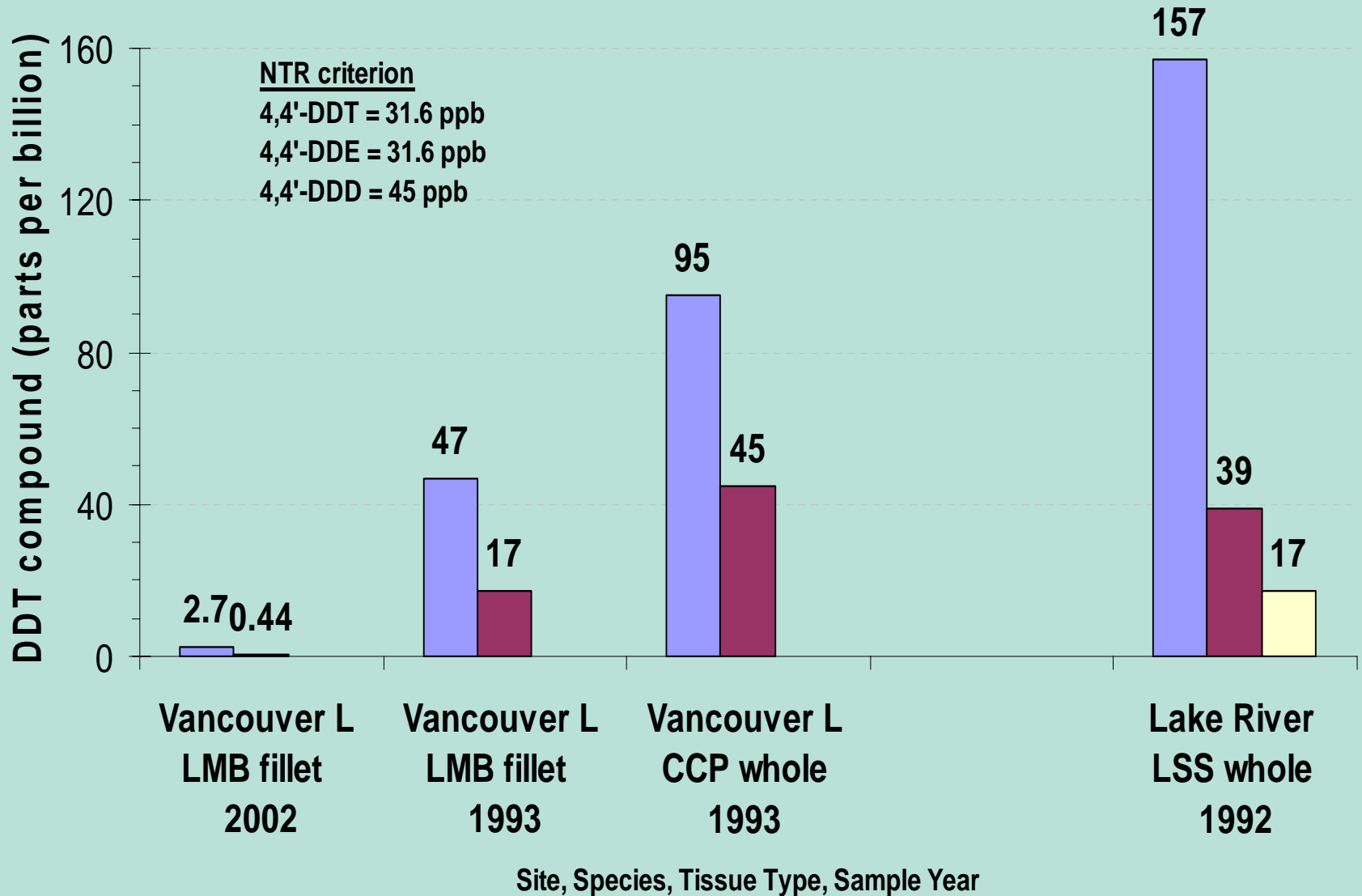
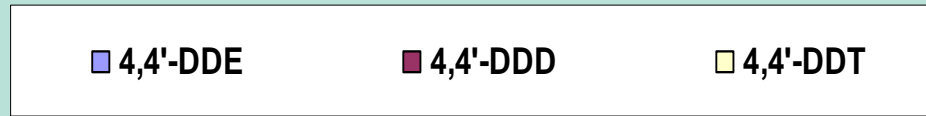
- PCBs, DDTs, chlordanes in largemouth bass and common carp in 1993
- PCBs, DDTs, Hg, PBDEs in largemouth bass in 2002

# PCBs in Fish from Vancouver Lake





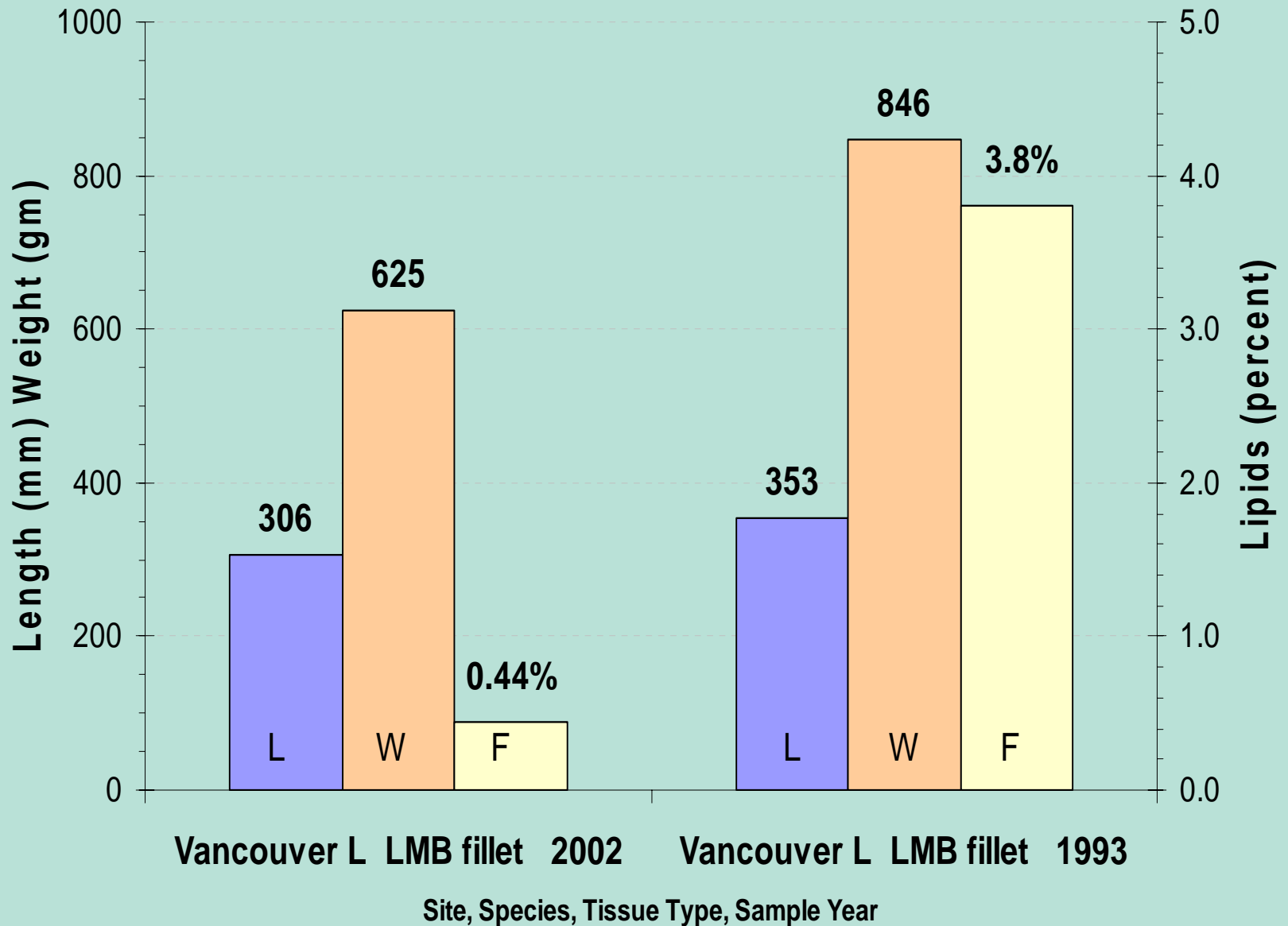
# DDTs in Fish from Vancouver Lake



# Why are PCB and DDT levels in LMB different between 1993 and 2002?

- Many factors
- Fish size, age, lipids
- Environmental conditions
- Contaminant availability
- Time

# Length, Weight, and Lipids of LMB Samples



# Levels of PCBs in LMB from Vancouver Lake do not meet Water Quality Standards

- Federal CWA Section 303(d) requires periodic assessment of state's waters
- Waters not meeting standards go on 303(d) "list"
- Listed waters need clean up actions
  - must meet CWA goals: "fishable and swimmable"

# What's Next?

- Evaluate information:
  - screening-level effort only, single species
  - PCB levels in 2002 barely exceed WQS
- Find 1993 & 2002 data inadequate for:
  - beginning work on clean up efforts
  - making decisions about fish advisory
- Conduct follow-up monitoring:
  - define extent of contamination
  - inform next decisions and actions

# Monitoring Proposal

- Fish and sediment from 4 locations
- 3 species of fish each site
- Analyze fish for: PCBs, OC Pest, PBDEs, lipids, one species only for PCDD/PCDFs
- Analyze sediment for: PCBs, OC Pest, PBDEs, TOC, grain size

# Timeframe

- Statewide proposals prioritized (May)
- Final project selection (June)
- Develop study plan (Jul-Aug)
- Collect samples (Sept)
- Report results (May 2006)

# Local Knowledge Needed to Help Develop Study Plan

- What species fished?
- Who is fishing?
- Recreational or subsistence?
- Sources and transport of pollutants?
- Other concerns?



# References

- Washington State Toxics Monitoring Program: Toxic Contaminants in Fish Tissue and Surface Water in Freshwater Environments, 2002. Ecology pub# 04-03-040.  
<http://www.ecy.wa.gov/biblio/0403040.html>
- Mercury in Edible Fish Tissue and Sediments from Selected Lakes and Rivers of Washington State. Ecology pub# 03-03-026.  
<http://www.ecy.wa.gov/biblio/0303026.html>
- Washington State Pesticide Monitoring Program: 1993 Fish Tissue Sampling Report. Ecology pub# 95-356.  
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- Washington Department of Health's Fish Information Website:  
<http://www.doh.wa.gov/fish/>