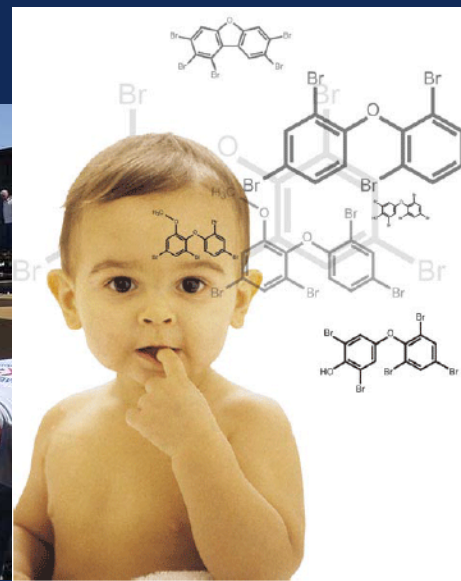


Two Current USGS Projects to Assess PBDEs and other Endocrine Disrupting Compounds in Fish Tissues

Elena Nilsen



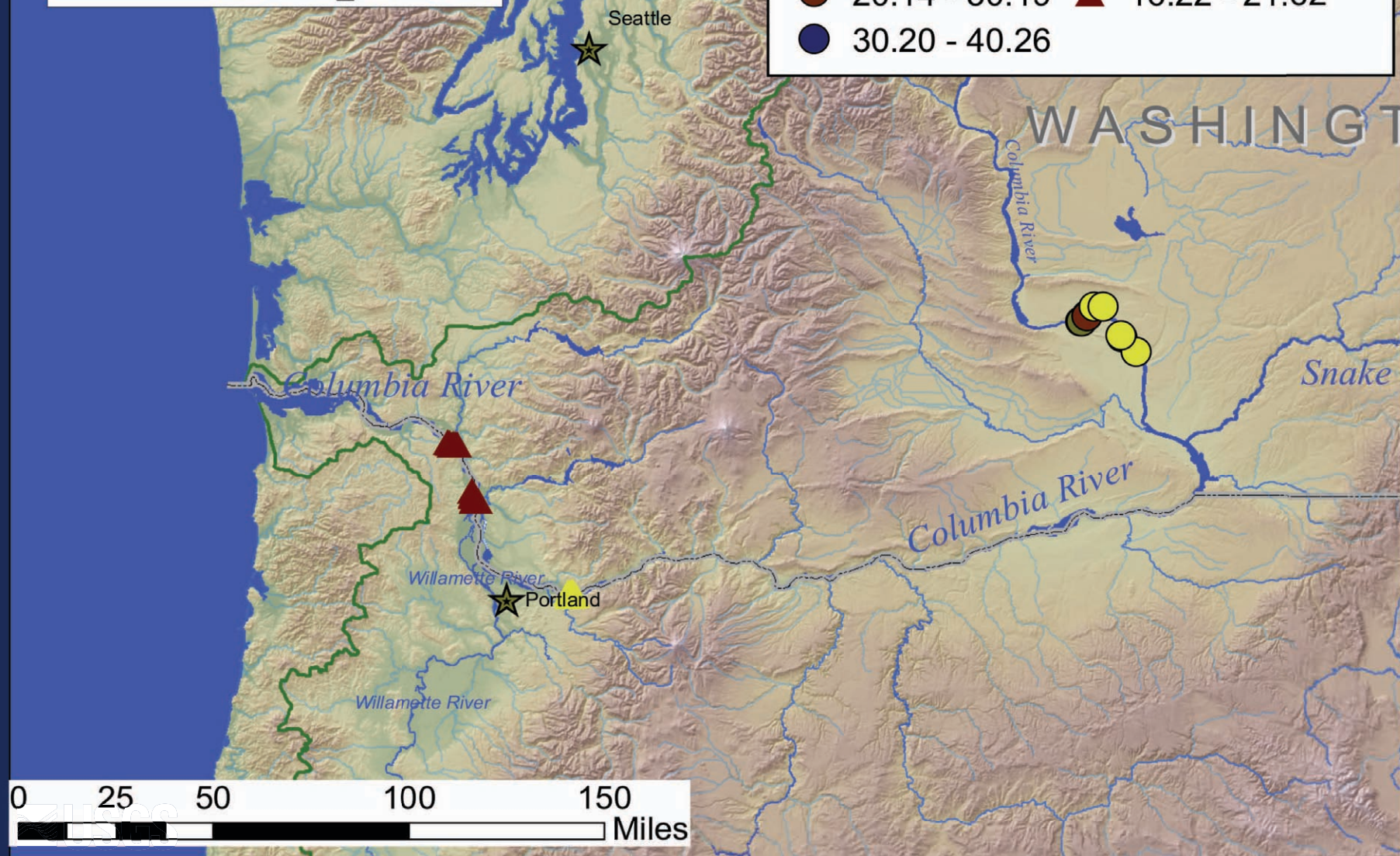
Columbia River Fillet Samples

Sturgeon

- 8.8 - 10.06
- 10.07 - 20.13
- 20.14 - 30.19
- 30.20 - 40.26

Large Scale Sucker

- .43 - 5.4
- 5.5 - 16.21
- 16.22 - 21.62



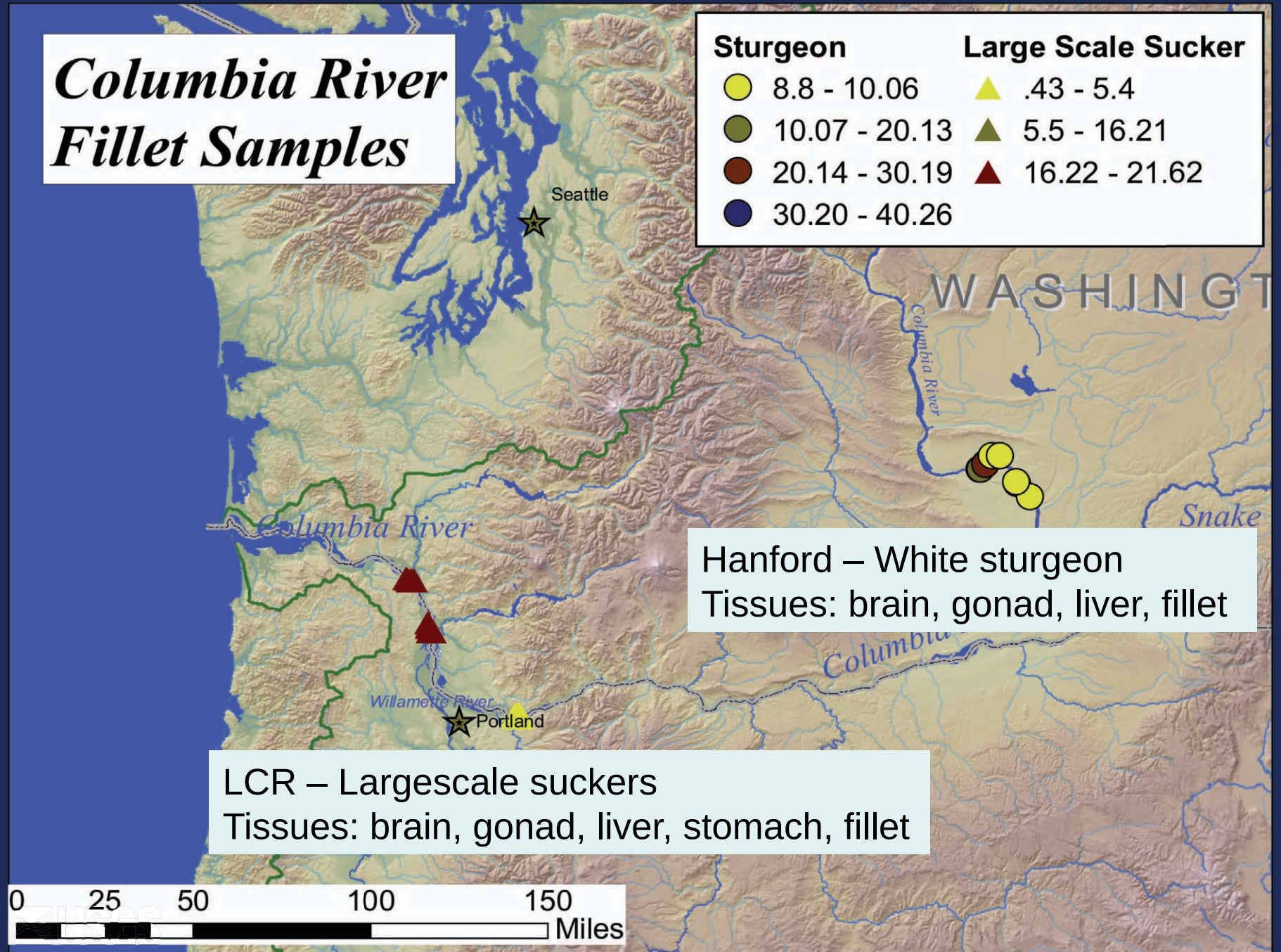
Columbia River Fillet Samples

Sturgeon

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- 20.14 - 30.19
- 30.20 - 40.26

Large Scale Sucker

- ▲ .43 - 5.4
- ▲ 5.5 - 16.21
- ▲ 16.22 - 21.62



Hanford – White sturgeon
Tissues: brain, gonad, liver, fillet

LCR – Largescale suckers
Tissues: brain, gonad, liver, stomach, fillet

USGS Columbia River Contaminants and Habitat Characterization (ConHab):

**Occurrence & Effects of Polybrominated Flame
Retardants and Endocrine Disrupting Compounds**

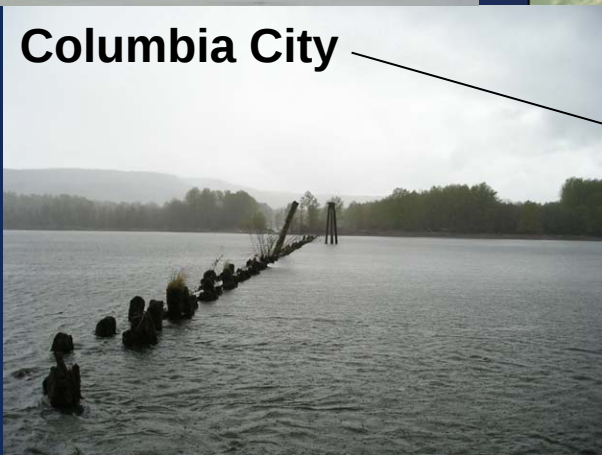
Elena Nilsen and Jennifer Morace



Longview

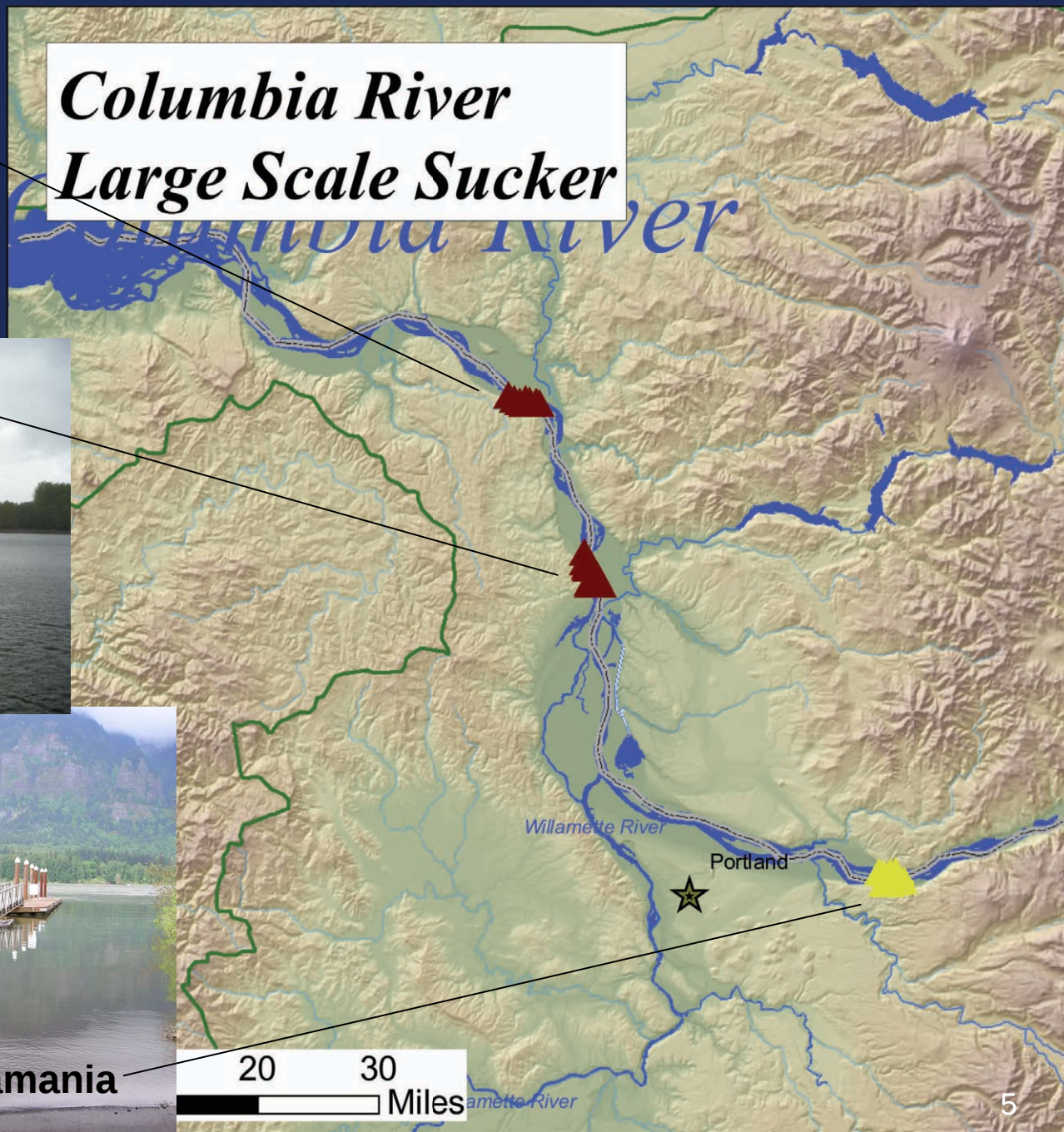


Columbia City



Skamania

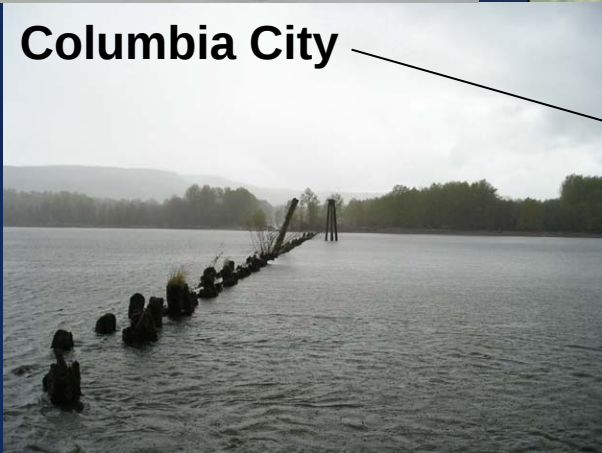
Columbia River Large Scale Sucker



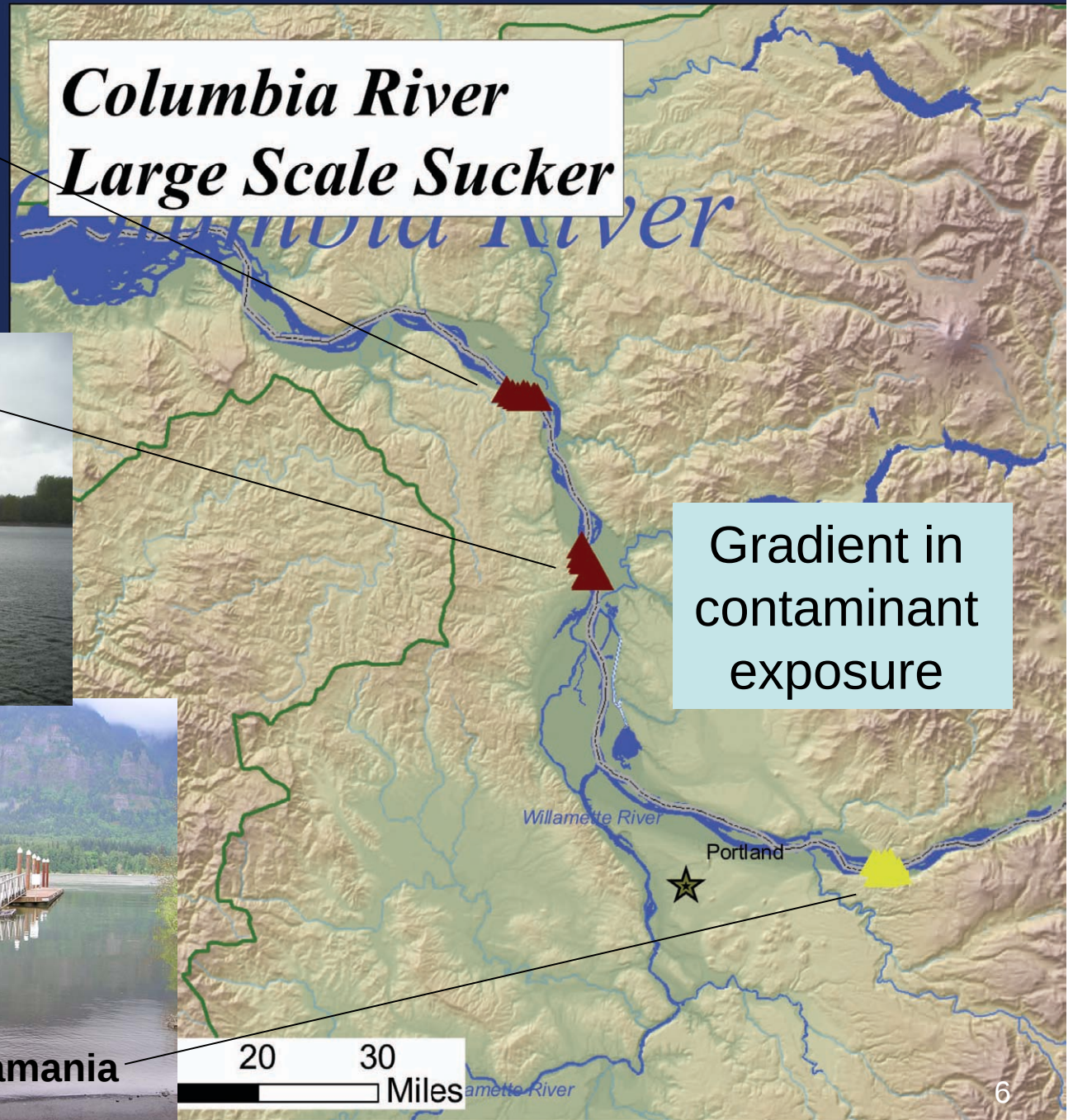
Longview



Columbia City



Columbia River Large Scale Sucker



Gradient in
contaminant
exposure

Portland

Willamette River

20 30
Miles

Skamania



Foodweb Sampling

Passive samplers



- contaminant analyses
- estrogen screen

Sediments



- contaminant analyses
- sediment transport modeling

Invertebrates



- contaminant analyses
- community assessment

Largescale Suckers



- contaminant analyses
- biomarkers

Osprey



- contaminant analyses
- productivity assessment
- well bird blood analyses

Foodweb Sampling

Passive samplers



- contaminant analyses
- estrogen screen

Sediments



- contaminant analyses
- sediment transport modeling

Invertebrates



- contaminant analyses
- community assessment

Largescale Suckers



Multiple Contaminant Classes

- PBDEs
- PCBs
- OC Pesticides
- Pharmaceuticals
- Wastewater compounds

- contaminant analyses
- biomarkers

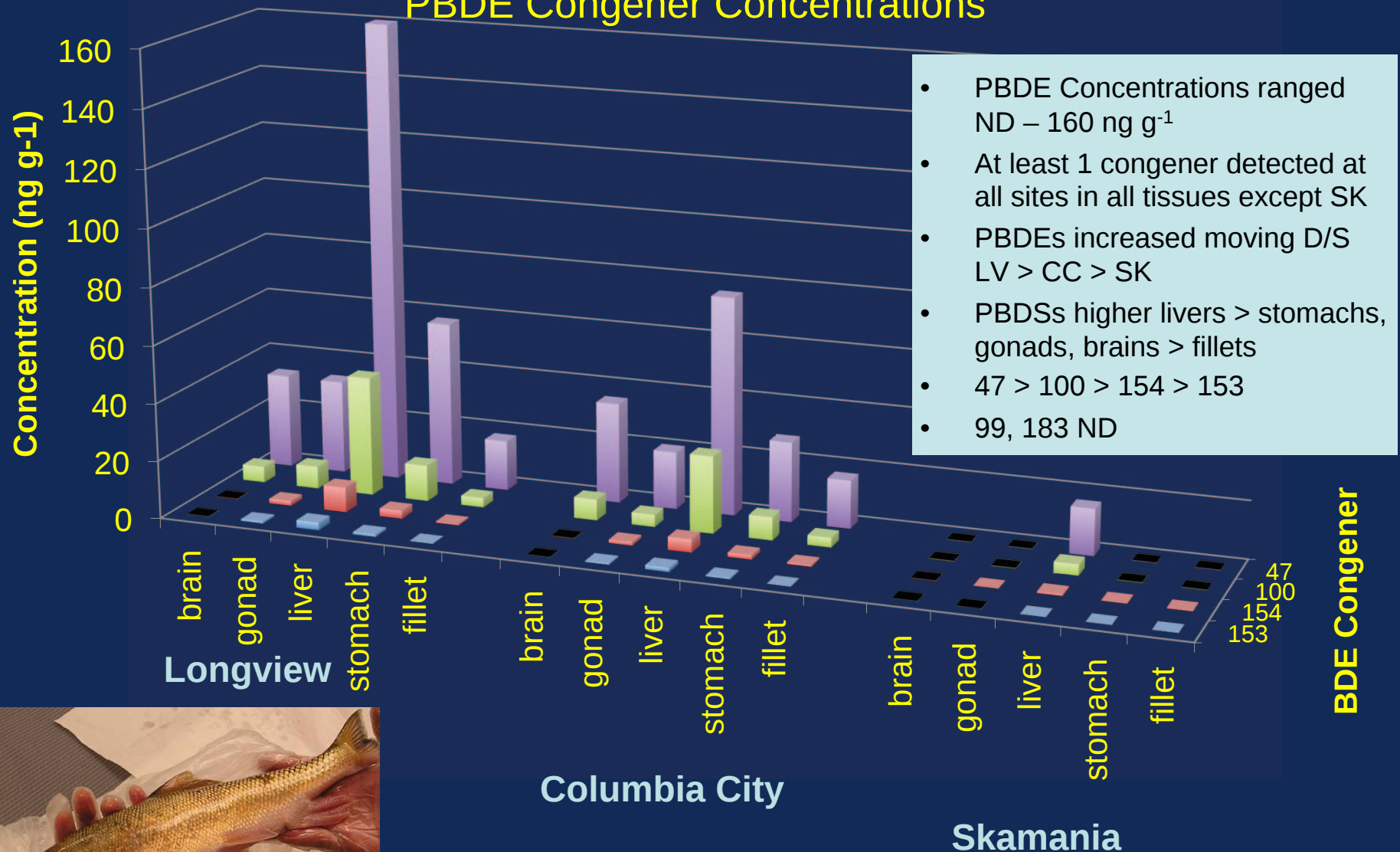
Osprey



- contaminant analyses
- productivity assessment
- well bird blood analyses

Largescale Suckers

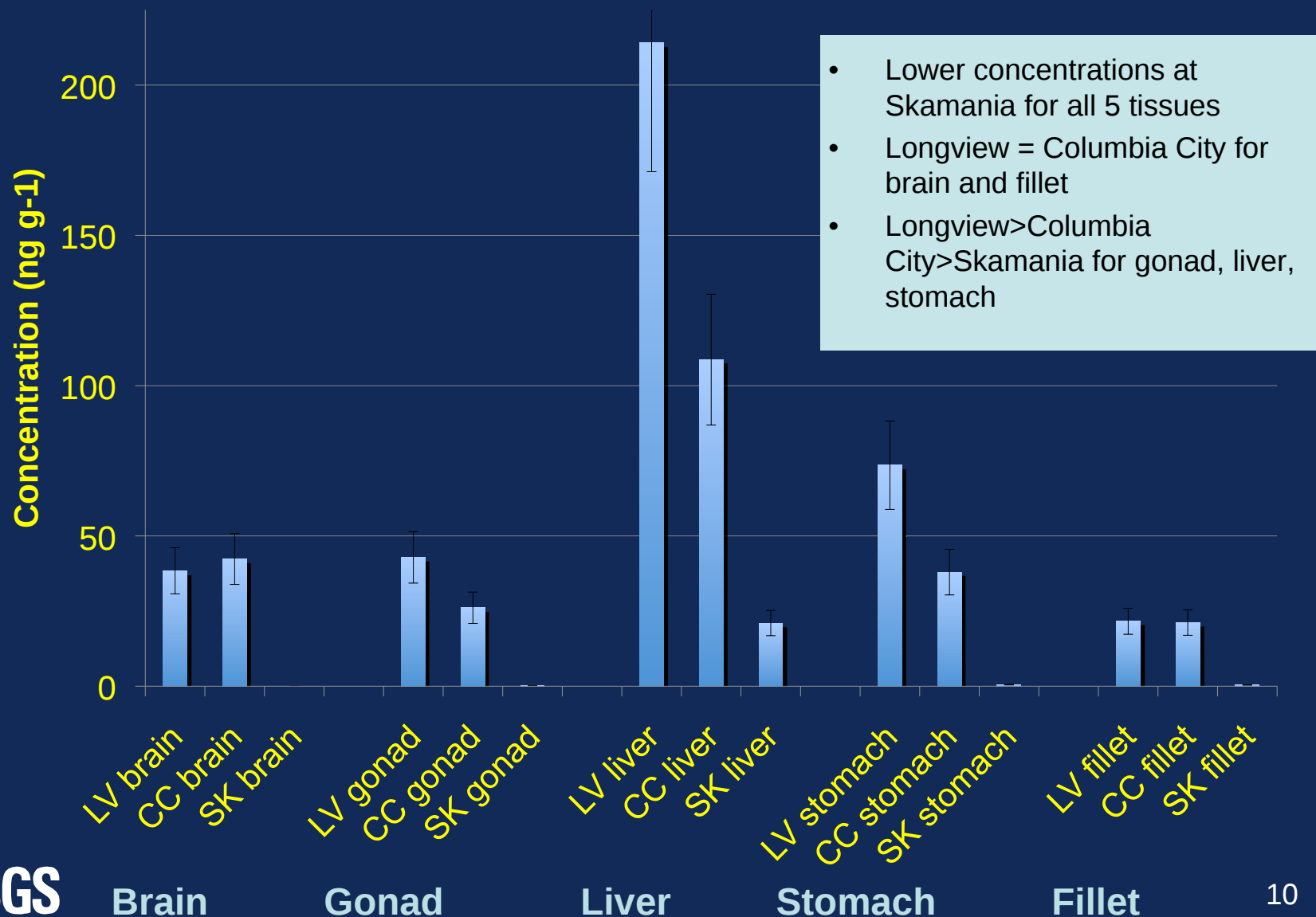
PBDE Congener Concentrations





Sum of PBDE Congeners

($\Sigma 47, 100, 154, 153$)

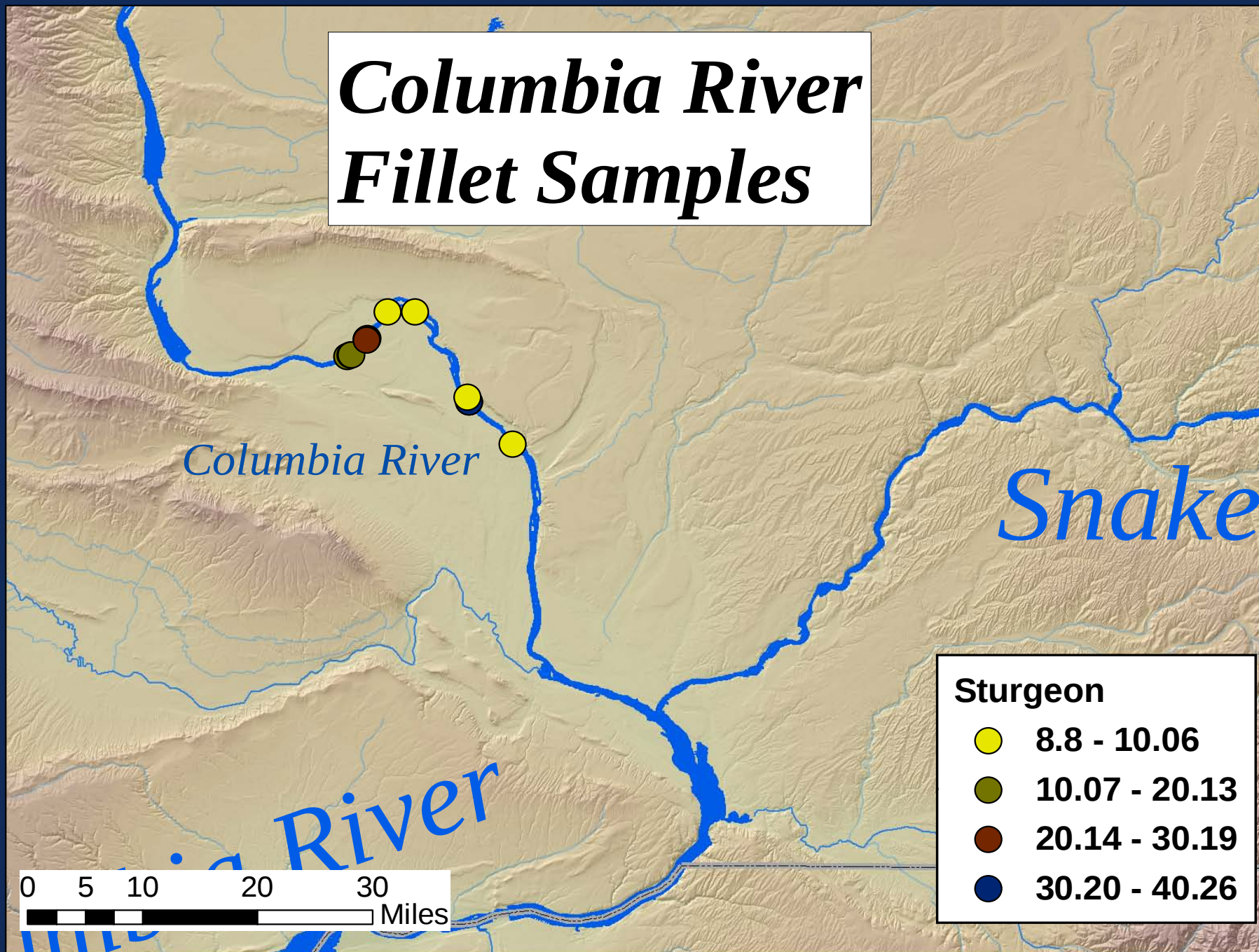


PBDEs and other EDCs in White Sturgeon near Hanford, WA

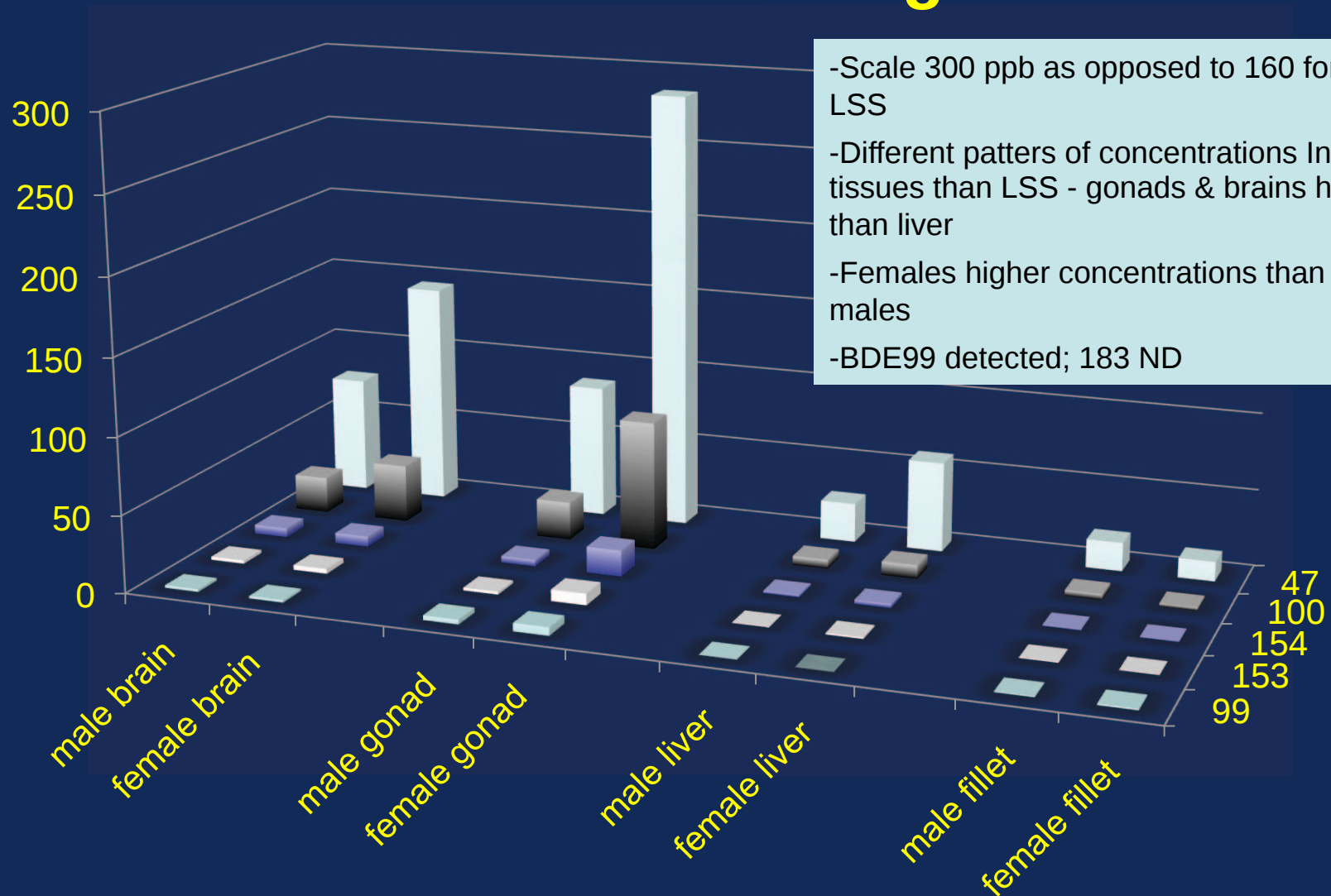
**USGS-FWS Science Support Partnership
Project**

Elena Nilsen

Columbia River Fillet Samples



PBDEs in White Sturgeon



Male length = 141 ± 12 cm
 Female length = 128 ± 9 cm

Summary

- At least 1 congener detected at all sites in all tissues
 - Except Skamania LSS Brains
- PBDEs increased moving downstream
- 47 > 100 > 154 > 153 > 99 (ND in LSS)
- Females higher concentrations than males in some tissues
 - especially sturgeon gonads
- Higher in sturgeon than LSS
 - Difference smaller than other compound classes (PCBs 10x)
- Different patterns of concentrations in tissues
 - LSS: liver highest
 - Sturgeon: gonads & brains highest

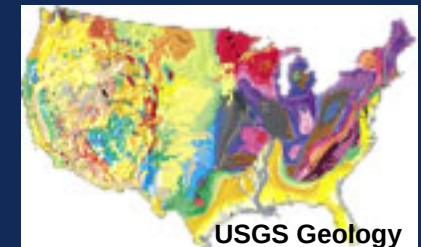
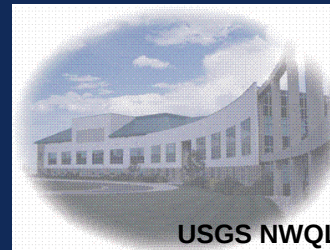
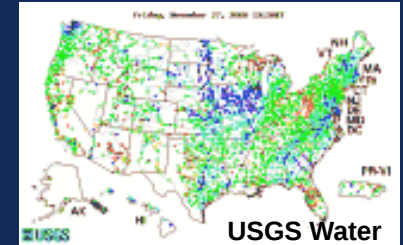
Funding and/or Partners



**US Army Corps
of Engineers.**



Lower Columbia
Solutions Group



EAS



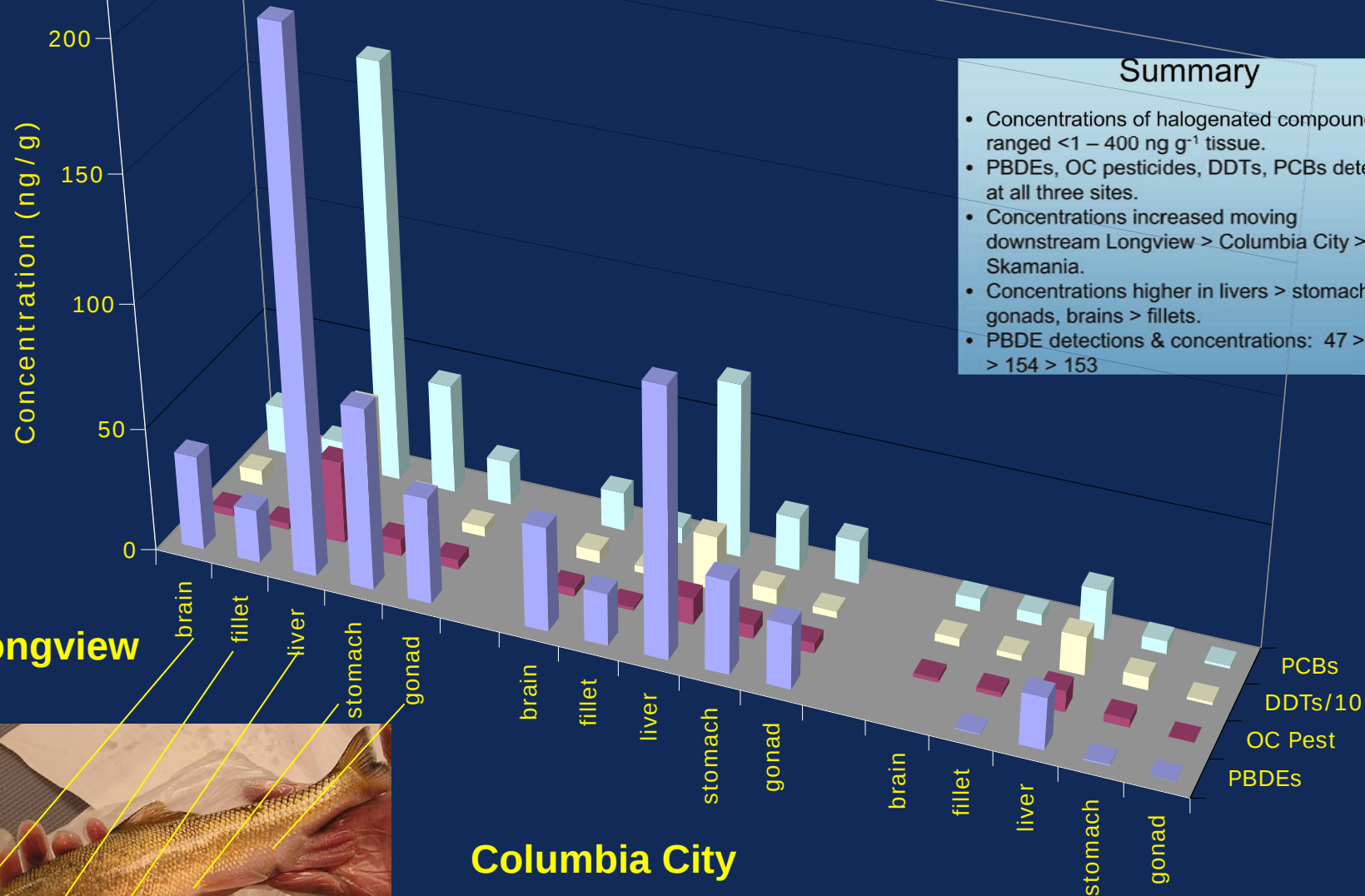
*American Fisheries Society
Louisiana Chapter*



Extra Slides Follow

Contaminant Results

Halogenated Compounds in Largescale Suckers



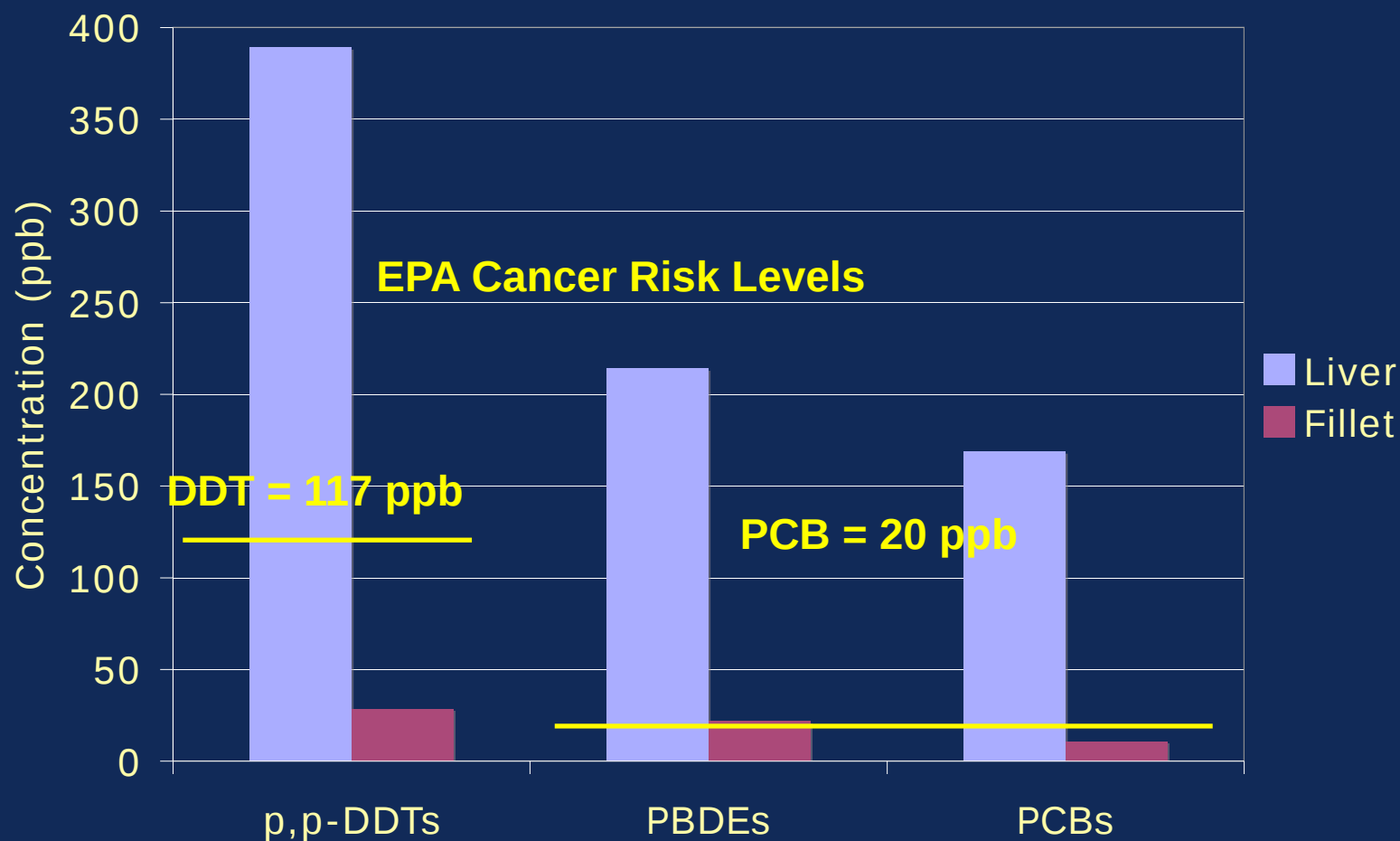
Contaminant Results

Halogenated Compounds in Fish Tissues

FDA Action Levels

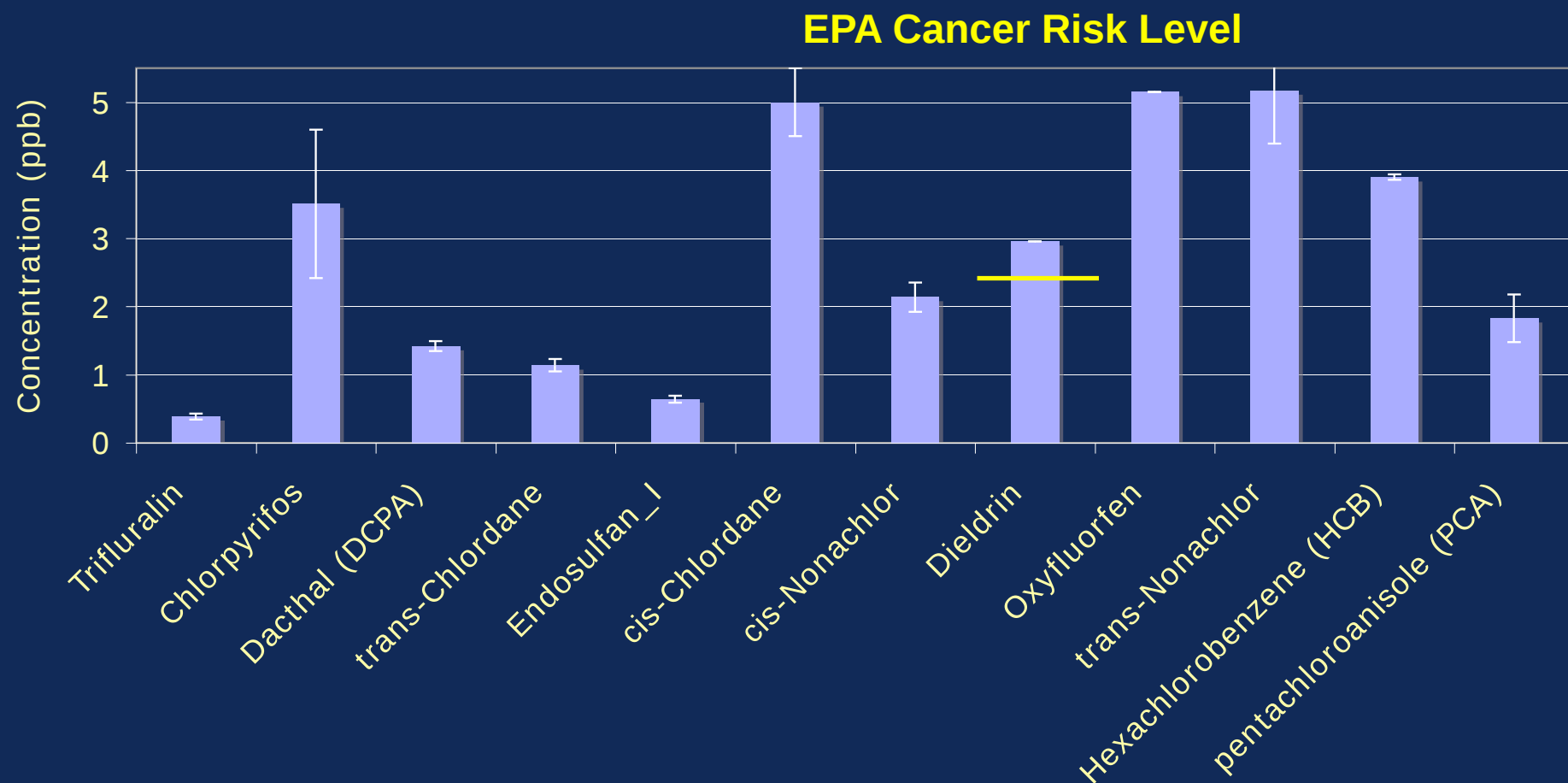
DDT = 5,000 ppb

PCBs = 2,000 ppb



Contaminant Results

Halogenated Compounds in Fish Tissues



Sturgeon Site Map



Contaminant Results

Halogenated Compounds in White Sturgeon

