Apr 4th, 3:45 PM - 4:00 PM

Persistent bioaccumulatives in freshwater fish of the Lake Washington watershed

Jenee Colton
*King County, United States*, jenee.colton@kingcounty.gov

Rory O'Rourke
*King County, United States*, orourkr@kc1.mail.onmicrosoft.com

Richard Jack
*King County, United States*, richard.jack@kingcounty.gov

Follow this and additional works at: [https://cedar.wwu.edu/ssec](https://cedar.wwu.edu/ssec)

Part of the **Fresh Water Studies Commons**, **Marine Biology Commons**, **Natural Resources and Conservation Commons**, and the **Terrestrial and Aquatic Ecology Commons**


This Event is brought to you for free and open access by the Conferences and Events at Western CEDAR. It has been accepted for inclusion in Salish Sea Ecosystem Conference by an authorized administrator of Western CEDAR. For more information, please contact westerncedar@wwu.edu.
PBTs in Freshwater Fish of the Lake Washington Watershed

By Jenée Colton, Rory O’Rourke, and Richard Jack

2018 Salish Sea Environmental Conference
April 4-8
Seattle, WA
King County Tissue Monitoring Program

OBJECTIVES
1) Track changes over time
2) Inform ecological and human health risk
3) Detect change from wastewater or stormwater management actions
4) Fill data gaps as needed
Freshwater Program Cycle

- Metals and mercury,
- PCBs,
- PBDEs,
- DDTs and chlorinated pesticides.
Lake WA Watershed
Species Collected

Photo: Chris Gregersen

Photo: USGS
Lake Washington Watershed Contaminants

Statewide mercury fish advisory

- Do Not Eat – N. pikeminnow
- 2 meals/month – Largemouth & smallmouth bass
Lake Washington Watershed Contaminants

L. Washington PCBs Fish Advisory

Added 1 meal/week - Large yellow perch (>270mm)
Lake Washington Watershed
Contaminants

CWA Impairments for Tissue

L. Washington
• PCBs,
• chlordane, DDE, DDD, dieldrin,
• TCDD,
• mercury.

L. Sammamish - PCBs

Policy revision underway for State 303(d) Listings (Policy 1-11)
Large Yellow Perch Fillet - Hg

Hg > General SL

- Union: n=2
- Washington: n=10
- Sammamish: n=4

DOH Screening Level (general pop’n)
DOH Screening Level (high consumer)
Large Yellow Perch Fillet - PCBs

PCBs < General SL

- Union: n=2
- Washington: n=5
- Sammamish: n=4

DOH Screening Level (general pop’n)
DOH Screening Level (high consumer)
Smallmouth Bass Fillet - PCBs

- PCBs > DOH General
  - n=2
- DOH Screening Level (general pop’n)
- DOH Screening Level (high consumer)

Total PCB Aroclors (µg/kg ww)
Smallmouth Bass Fillet - PBDEs

PBDEs < DOH SLs

- **n=2**
- **n=11**
- **n=4**

**DOH Screening Level**
- (general pop’n)
- (high consumer)
Smallmouth Bass Fillet - DDTs

303(d) Tissue Level Cancer Endpoint DDT

Sum DDTs (μg/kg ww)

- Union: n=2
- Washington: n=11
- Sammamish: n=4

303(d) Tissue Level Cancer Endpoint DDT
PCB Method Changes

Total PCB Aroclors in µg/Kg, ww

- 2010 individual
- 2014 composite (2010 quant)
- 2014 composite (2016 quant)

Smallmouth bass, whole body
Conclusion

- PBTs lowest in L. Sammamish fish
- Smallmouth bass and yellow perch reliable
- Mercury advisory justified
- Possible fish consumption risk – Lake Union for PCBs
- Advisory not needed for PBDEs
- Possible 303(d) listing – DDTs in L. Union
Acknowledgements

• Dan Lantz, Chris Gregersen, Colin Elliott (King County)

• Keith Seiders (WA Dept. of Ecology)