Spatial comparison of PBTs in marine fish and invertebrates from King County waters

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Spatial Comparison of PBTs in Marine Fish and Invertebrates from King County Waters

Rory O’Rourke, Jenée Colton, Debra Williston, Deb Lester

Salish Sea Ecosystem Conference: April 2018
Monitoring Program Goals
Marine Tissue Monitoring – Sampling Events

• Dungeness and Red rock crabs – 2014, 2018
• English sole and rockfish – 2015, 2017
• Market squid – 2016
• Forage fish - 2020
Sampling Locations - Dungeness and Red Rock Crab

- 6 sample locations
- Parameters
  - PCBs
  - Metals
- Composite Samples
  - Muscle
  - Hepatopancreas
Dungeness Crab - Arsenic

Mean Arsenic Concentration mg/kg ww

- **Hepatopancreas**
- **Muscle**

North

- Shilshole N
- Shilshole S
- Terminal 86
- Duwamish Head

South
English sole

Source: WDFW
Rockfish (Copper pictured)

- Body variable in color, olive brown to copper with pink or yellow blotches
- Usually 2 dark bands radiating backwards from eye
- Rear 2/3 of lateral line is light in color

Source: WDFW
English Sole/ Rockfish Trawl Locations

- 6 trawl locations
- Parameters
  - PCBs
  - PBDEs
  - Metals
- Composite Samples
  - Fillet (English sole)
  - Whole (Rockfish)
Rockfish Contaminants & Age

Similar trends observed with Hg and PCBs ($R^2 = 0.76 - 0.85$)
Market squid
Market squid ocean-to-Sound migration

Image courtesy WDFW
DOH Human Health SL for MeHg (175 g/day)

Total Mercury (mg/kg ww)

- 1997: N=3
- 2016: N=4

Location & Year Collected
- Seattle Pier 86
- Redondo Pier
Conclusions

- Observed small spatial scale differences.
- PCBs higher in inner Elliott Bay for crab, English sole, and rockfish.
- Confirms findings from WDFW’s TBiOS crab report.
- Decrease in mercury observed in squid between 1997 and 2016.
Future Work

• Evaluate changes in contaminants in biota over time.
• Continue sharing information with partners.
• Compare to WDFW’s historic rockfish data to evaluate bioaccumulation trends.
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Questions?