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Salish Sea Ecosystem Conference

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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



King County

Department of Natural Resources and Parks
Water and Land Resources Division

WLR

Protecting King County's water and lands for everyone to enjoy safely today, and for generations to come.



Monitoring Program Goals

Marine Tissue Monitoring – Sampling Events

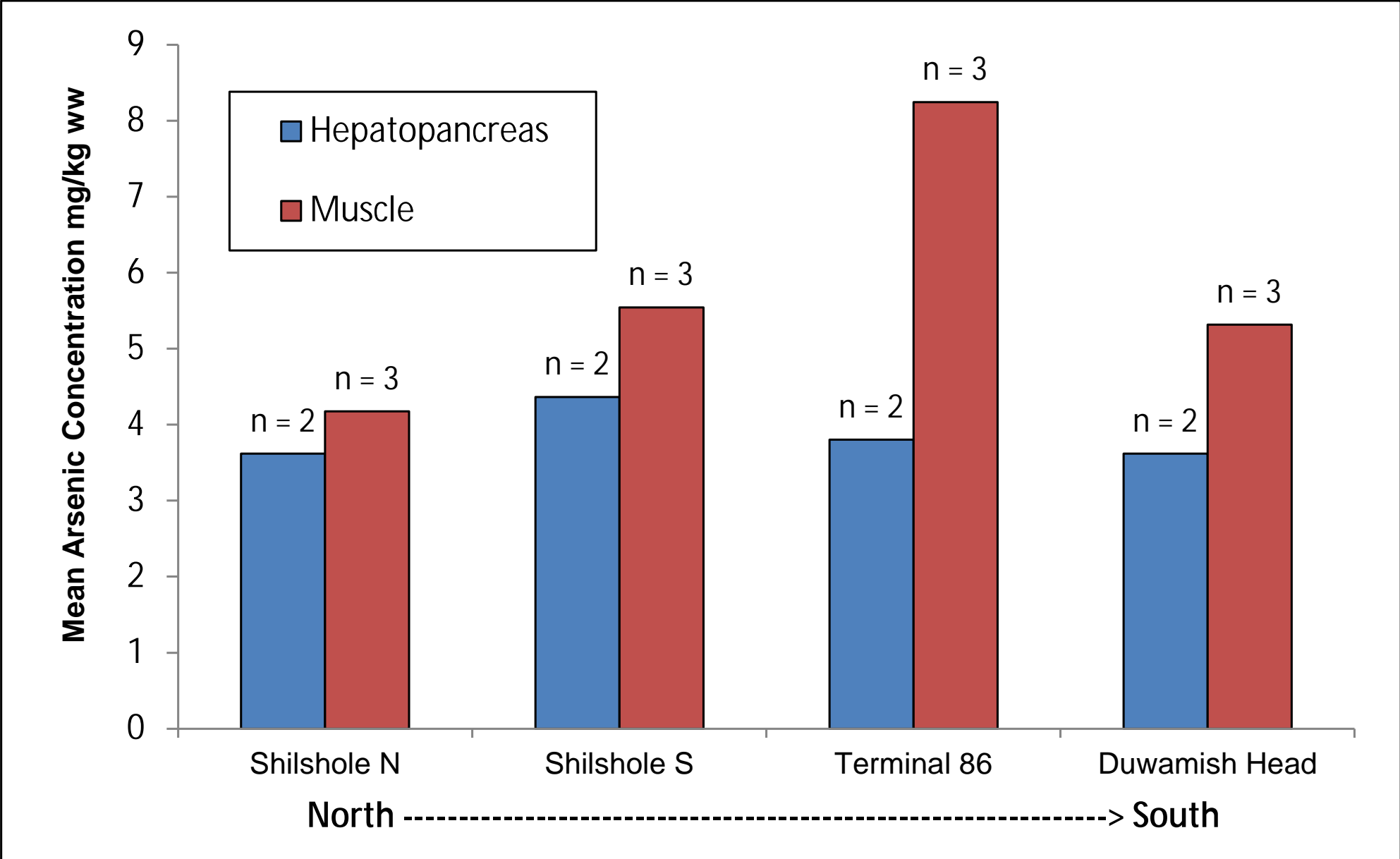
- Dungeness and Red rock crabs – 2014, 2018
- English sole and rockfish – 2015, 2017
- Market squid – 2016
- Forage fish - 2020



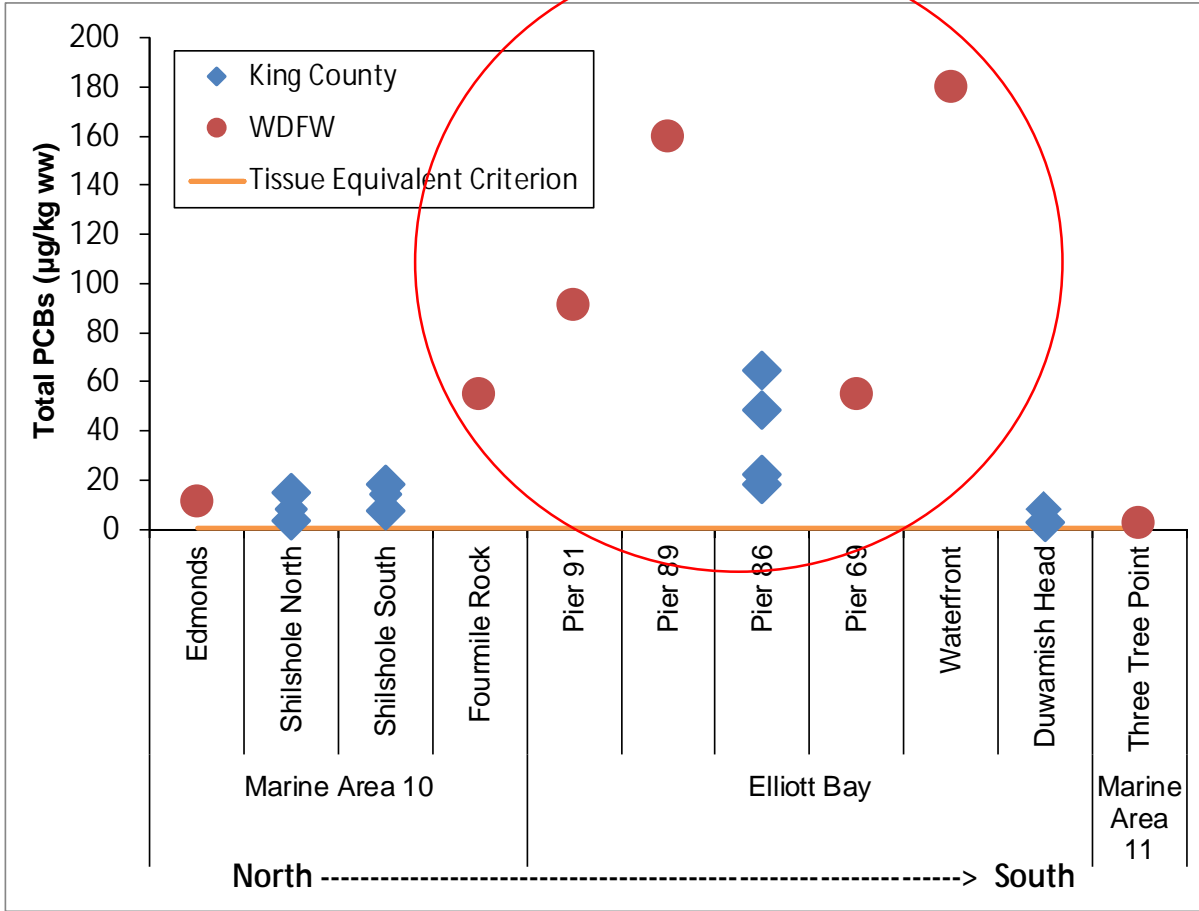
Sampling Locations- Dungeness and Red Rock Crab

- 6 sample locations
- Parameters
 - PCBs
 - Metals
- Composite Samples
 - Muscle
 - Hepatopancreas

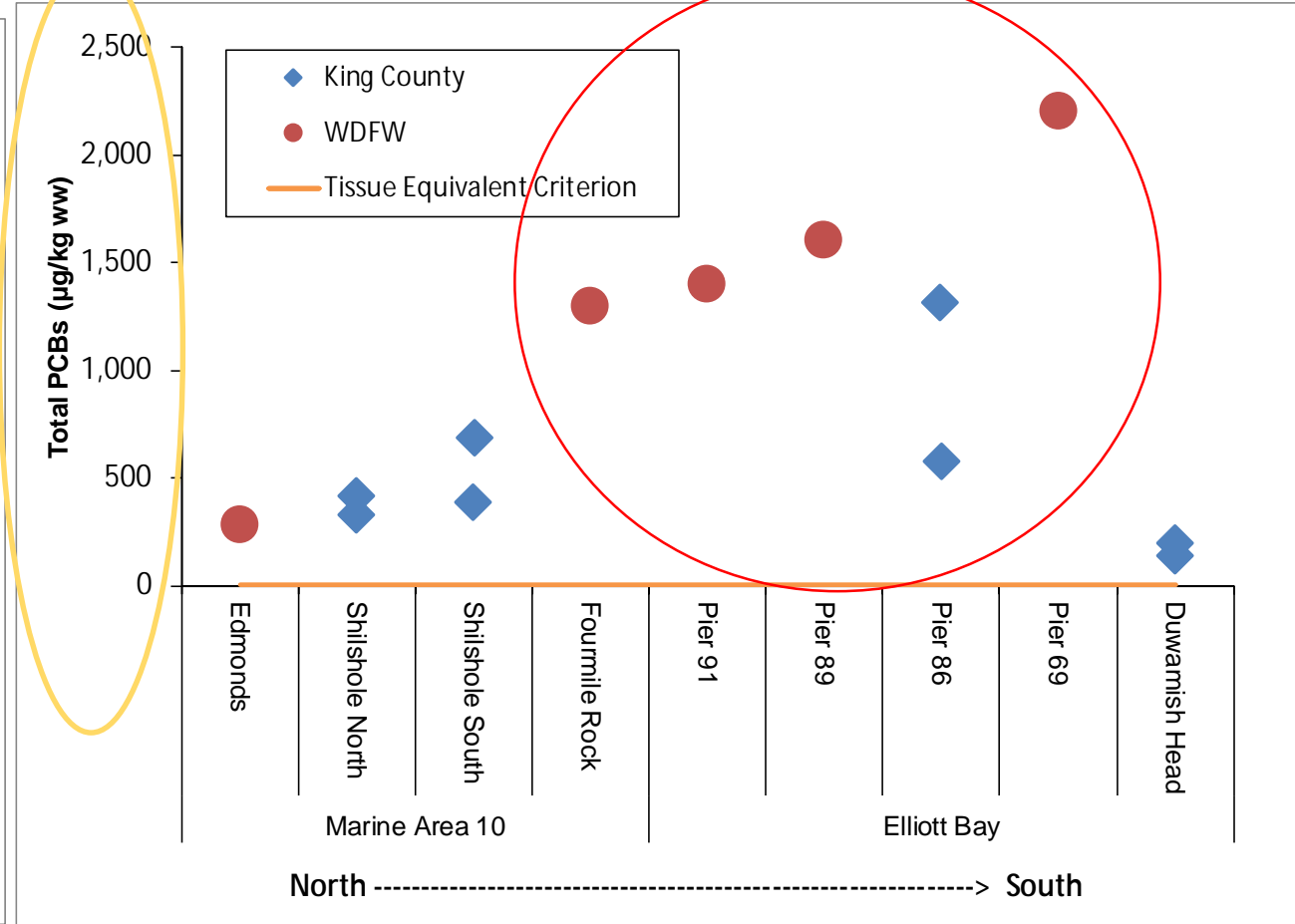
Dungeness Crab - Arsenic



Dungeness Crab - PCBs



Muscle



Hepatopancreas

English sole

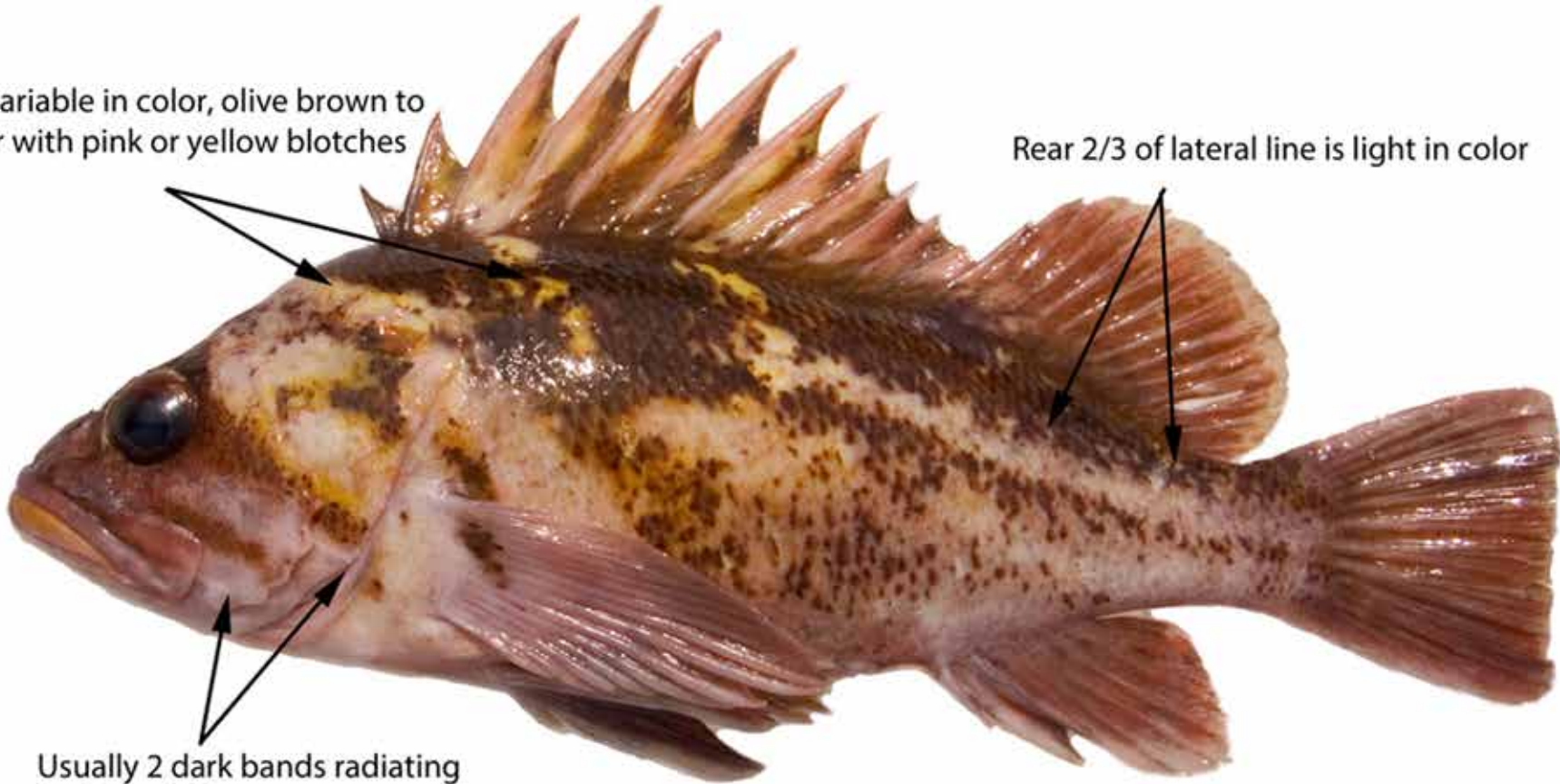


Source: WDFW

Rockfish (Copper pictured)

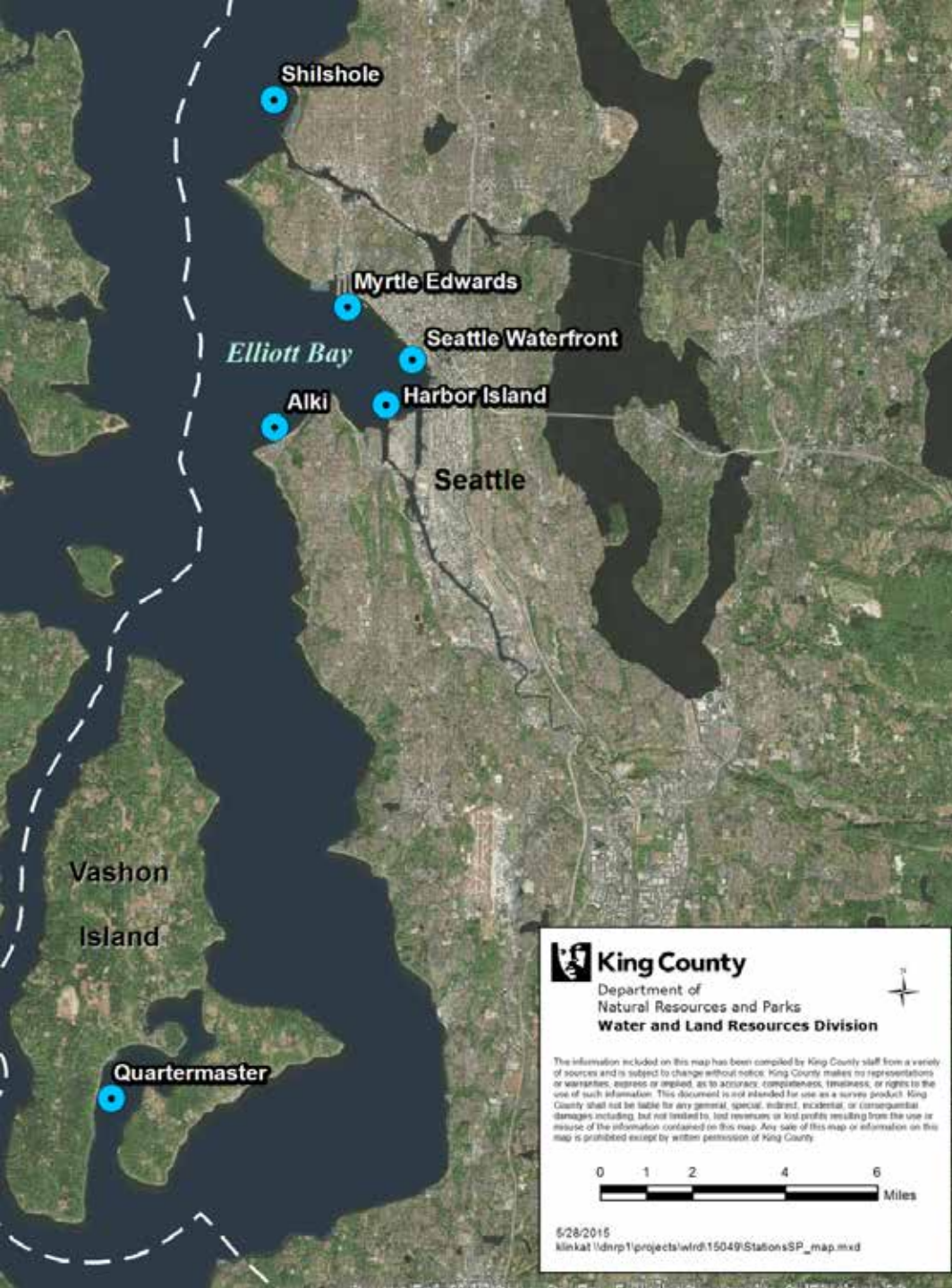
Body variable in color, olive brown to copper with pink or yellow blotches

Rear 2/3 of lateral line is light in color



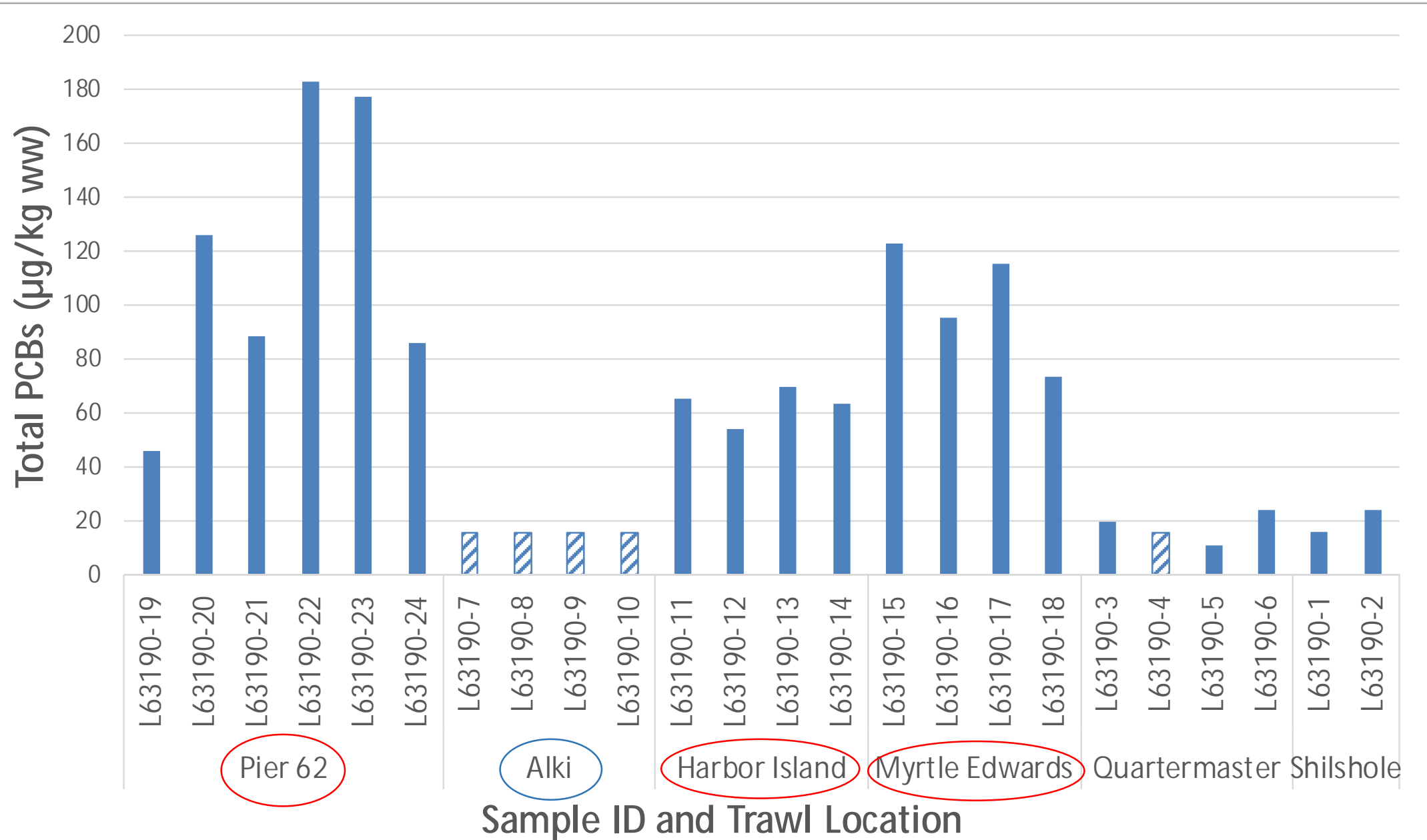
Usually 2 dark bands radiating backwards from eye

English Sole/ Rockfish Trawl Locations

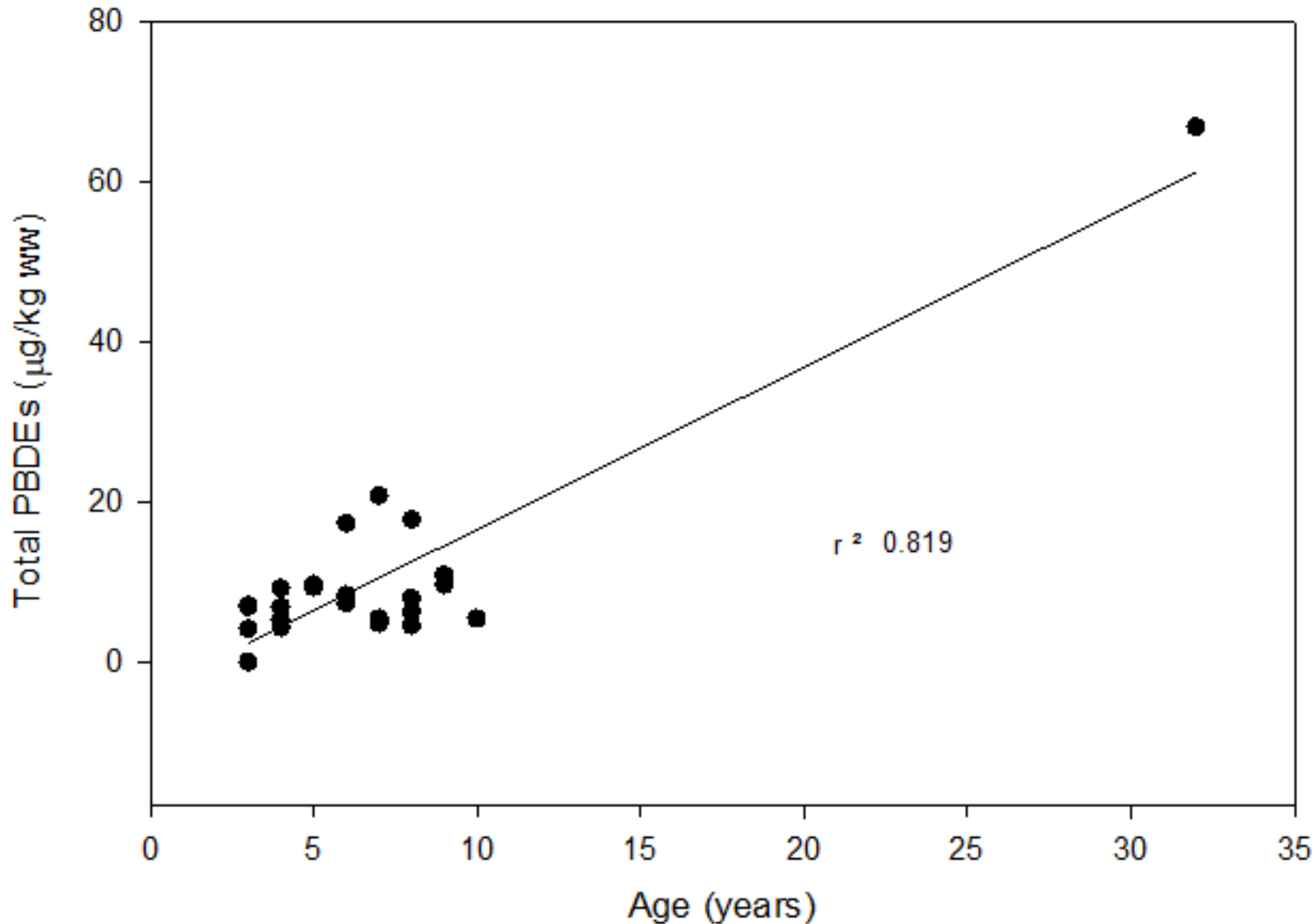


- 6 trawl locations
- Parameters
 - PCBs
 - PBDEs
 - Metals
- Composite Samples
 - Fillet (English sole)
 - Whole (Rockfish)

English Sole Fillet- PCBs



Rockfish Contaminants & Age



Similar trends observed with Hg and PCBs ($R^2 = 0.76 - 0.85$)

Market squid

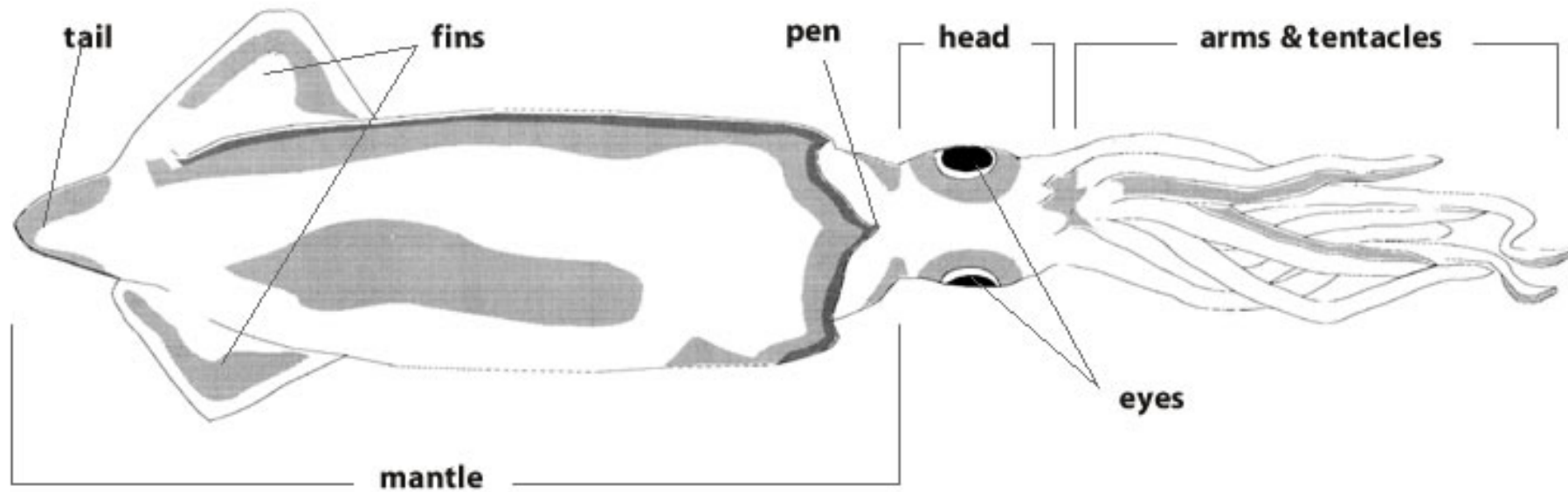


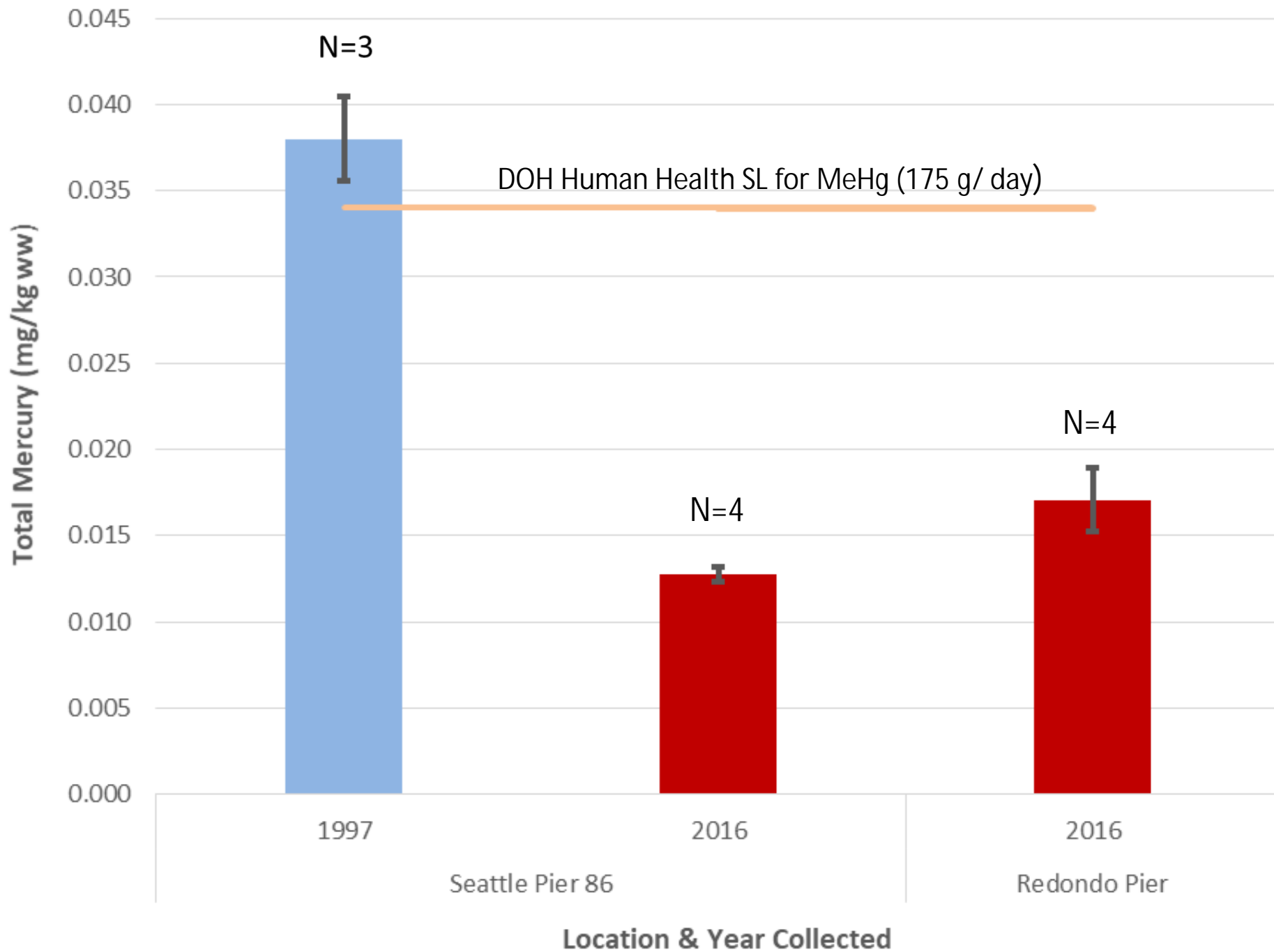
Image Courtesy WDFW

Market squid ocean-to-Sound migration



Terminal 86 Pier

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.

Acknowledgements

- King County Environmental Laboratory staff
- Water and Land Resources Fisheries Ecologists
- WDFW
 - TBIOS Program
 - Groundfish Trawl Survey
 - Aging Lab
- *F/V Chasina*: Kurt Dobzinsky and crew
- David McBride at Washington Dept. of Health

Questions?

