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Salish Sea Ecosystem Conference

2014 Salish Sea Ecosystem Conference
(Seattle, Wash.)

May 1st, 8:30 AM - 10:00 AM

Mercury in the Puget Sound food web: factors influencing body burdens in multiple species.

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Mercury in the Puget Sound food web: factors influencing body burdens in multiple species.

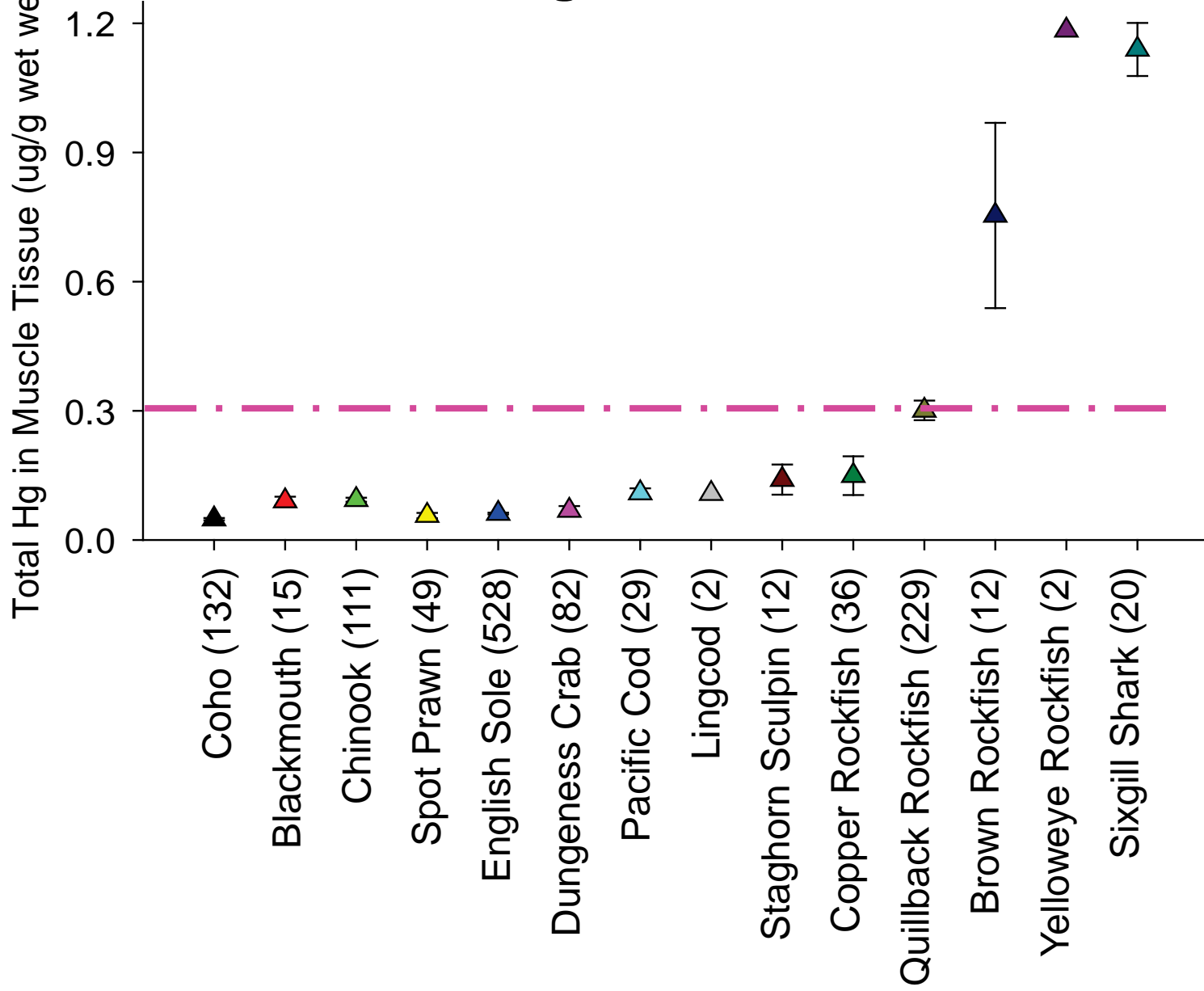
Laurie A. Niewolny, Sandra M. O'Neill,
Stephen R. Quinnell, and James E. West

Puget Sound Ecosystem Monitoring Program
Toxics in Biota Team

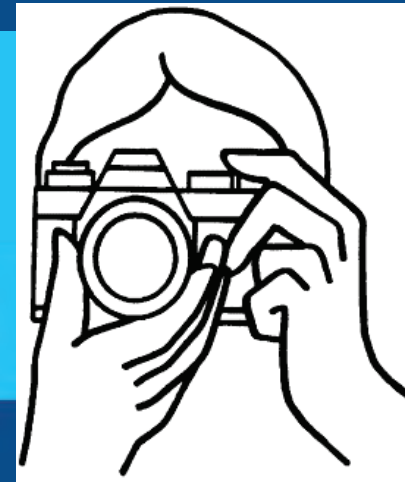


Washington
Department of
**FISH and
WILDLIFE**

Total Mercury in Species Collected in Puget Sound

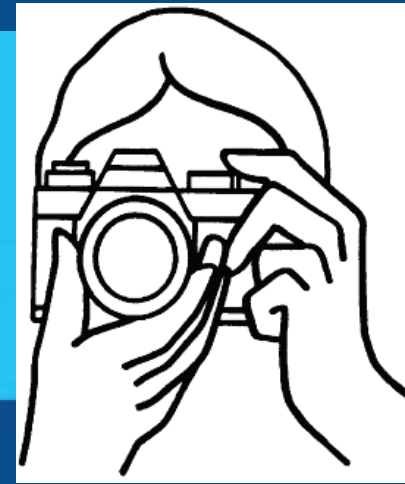


Contaminant tissue data is a snapshot of an individual animal taken at a specific moment in its life.



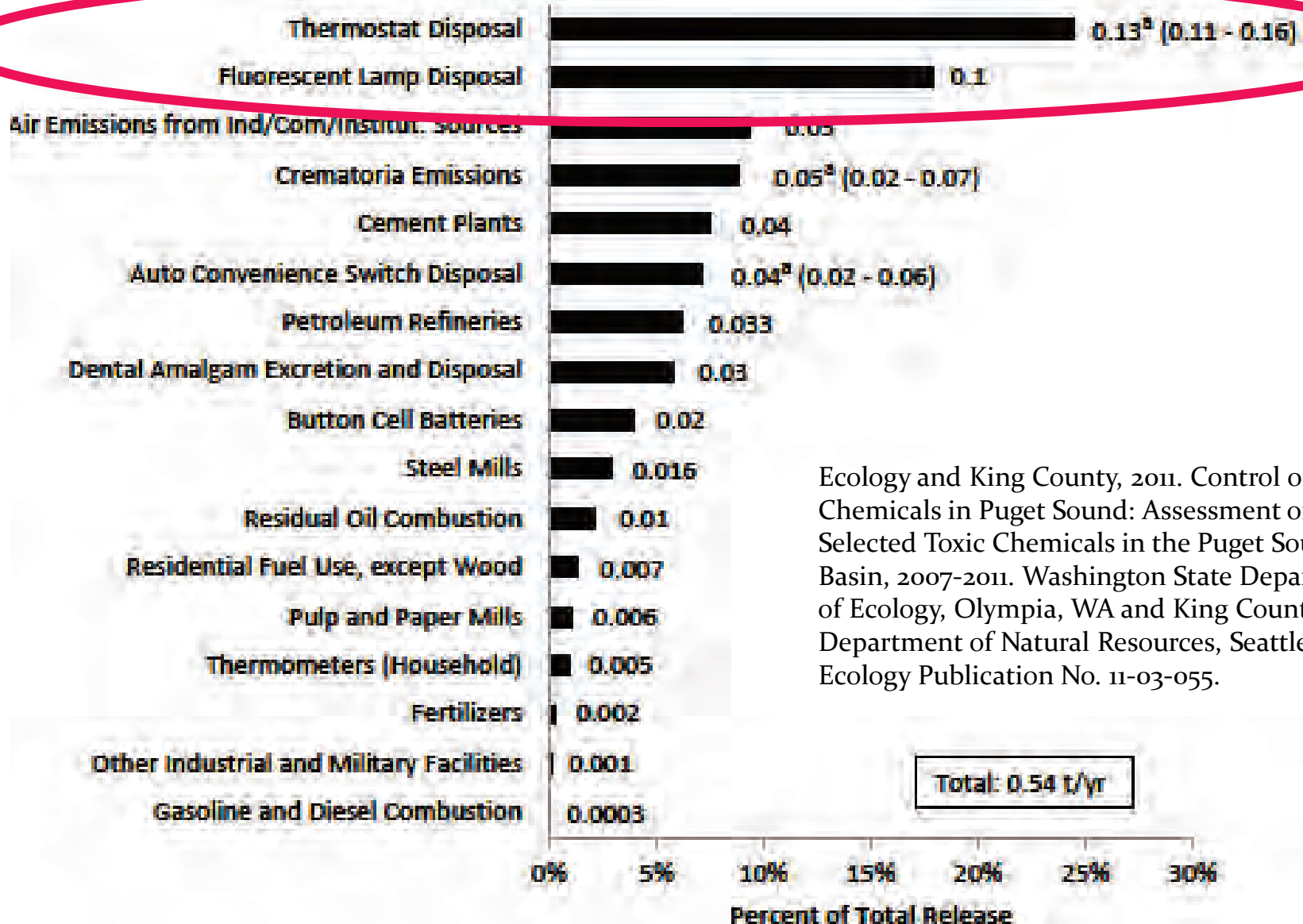
1. proximity to the contaminant
2. age
3. trophic level
4. movement patterns
5. life stage
6. lipid content of tissue
7. gender

Contaminant tissue data is a snapshot of an individual animal taken at a specific moment in its life.



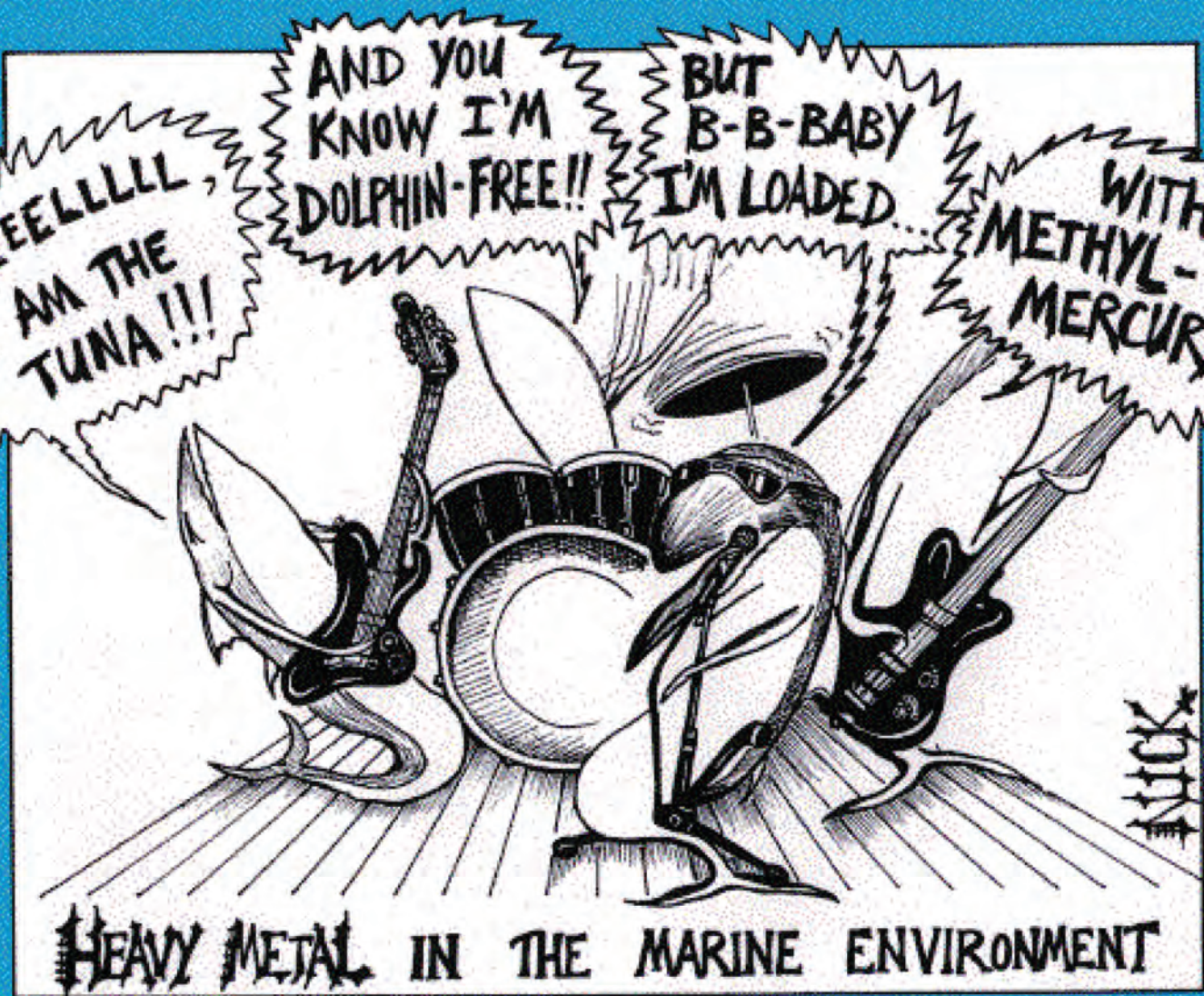
1. proximity to the contaminant
2. age
3. trophic level
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Mercury and the Puget Sound



Ecology and King County, 2011. Control of Toxic Chemicals in Puget Sound: Assessment of Selected Toxic Chemicals in the Puget Sound Basin, 2007-2011. Washington State Department of Ecology, Olympia, WA and King County Department of Natural Resources, Seattle, WA. Ecology Publication No. 11-03-055.

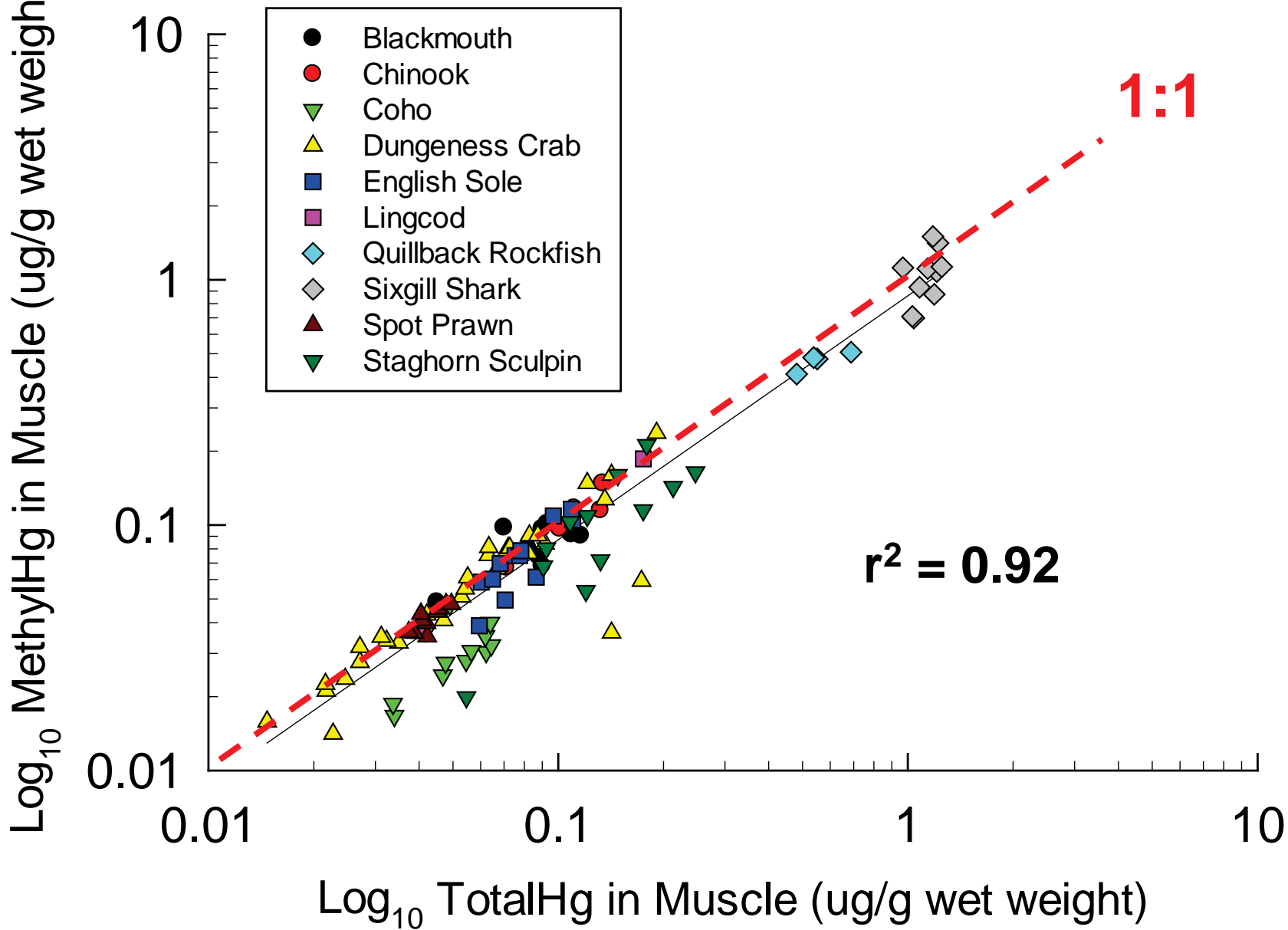
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HEAVY METAL IN THE MARINE ENVIRONMENT

Methylmercury vs. Total Mercury

Ten Puget Sound Fish and Macroinvertebrates

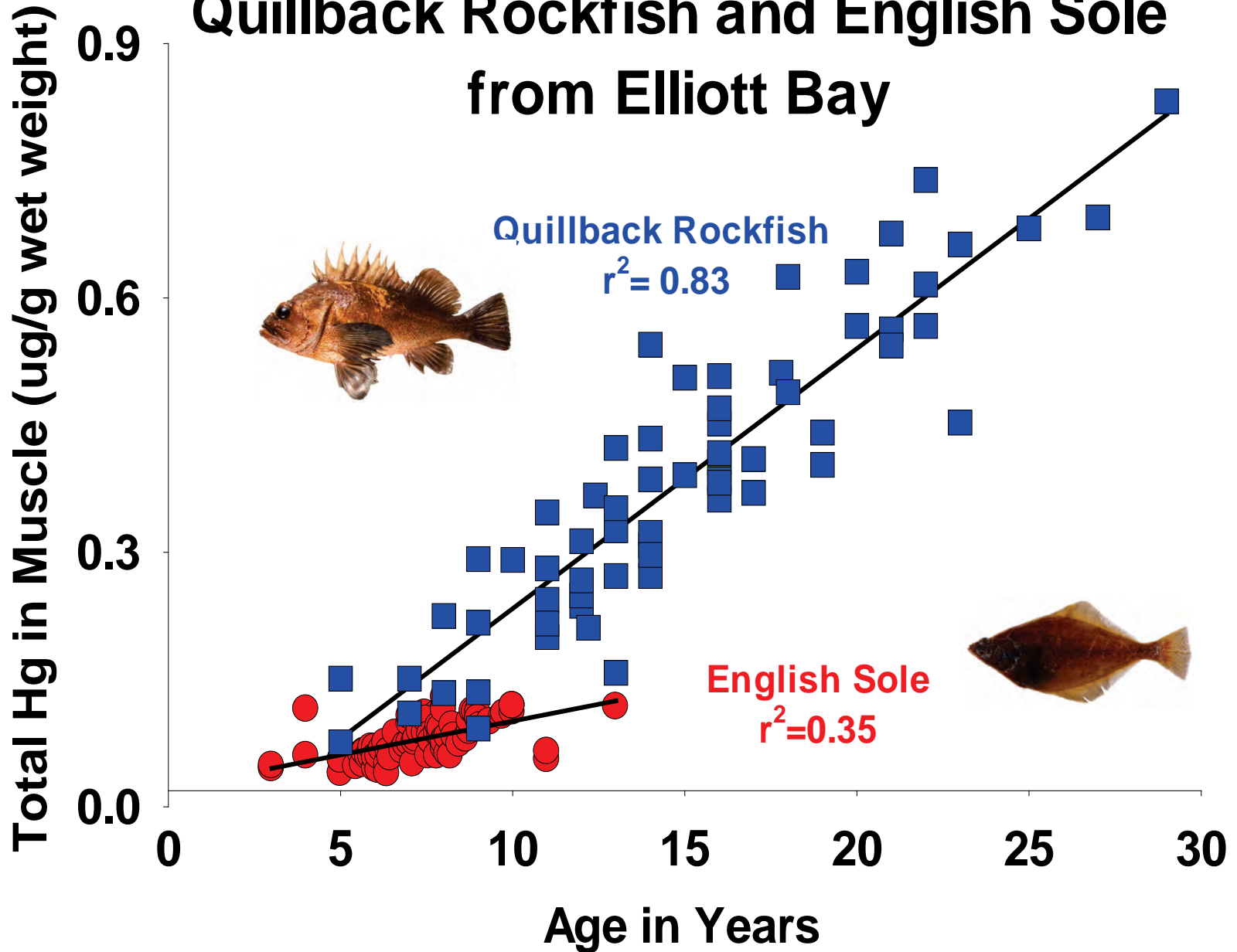


age
trophic level
proximity to the contaminant
movement patterns

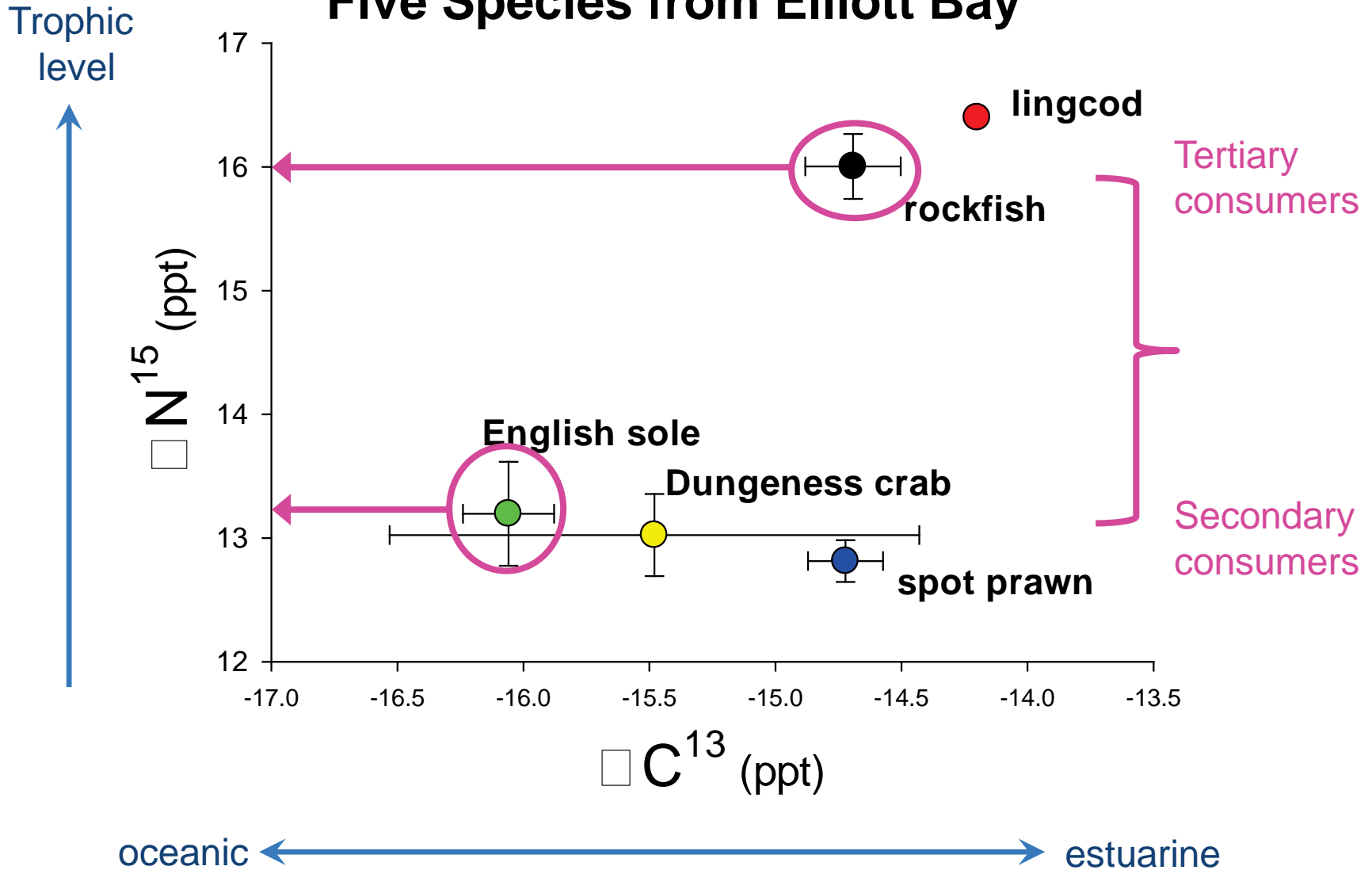


Elliott Bay

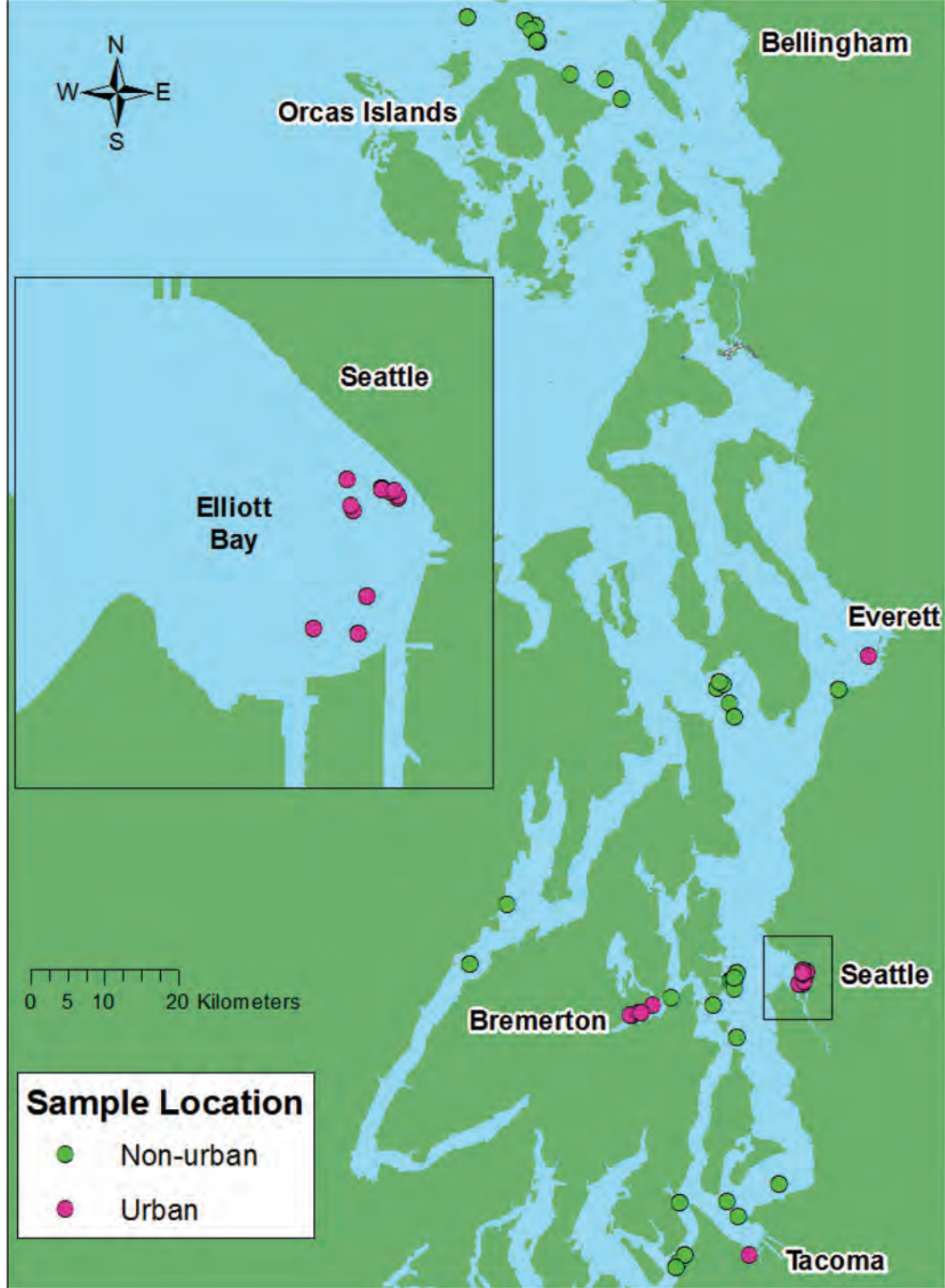
Total Mercury in Muscle - Quillback Rockfish and English Sole from Elliott Bay



Trophic Level Comparison Five Species from Elliott Bay

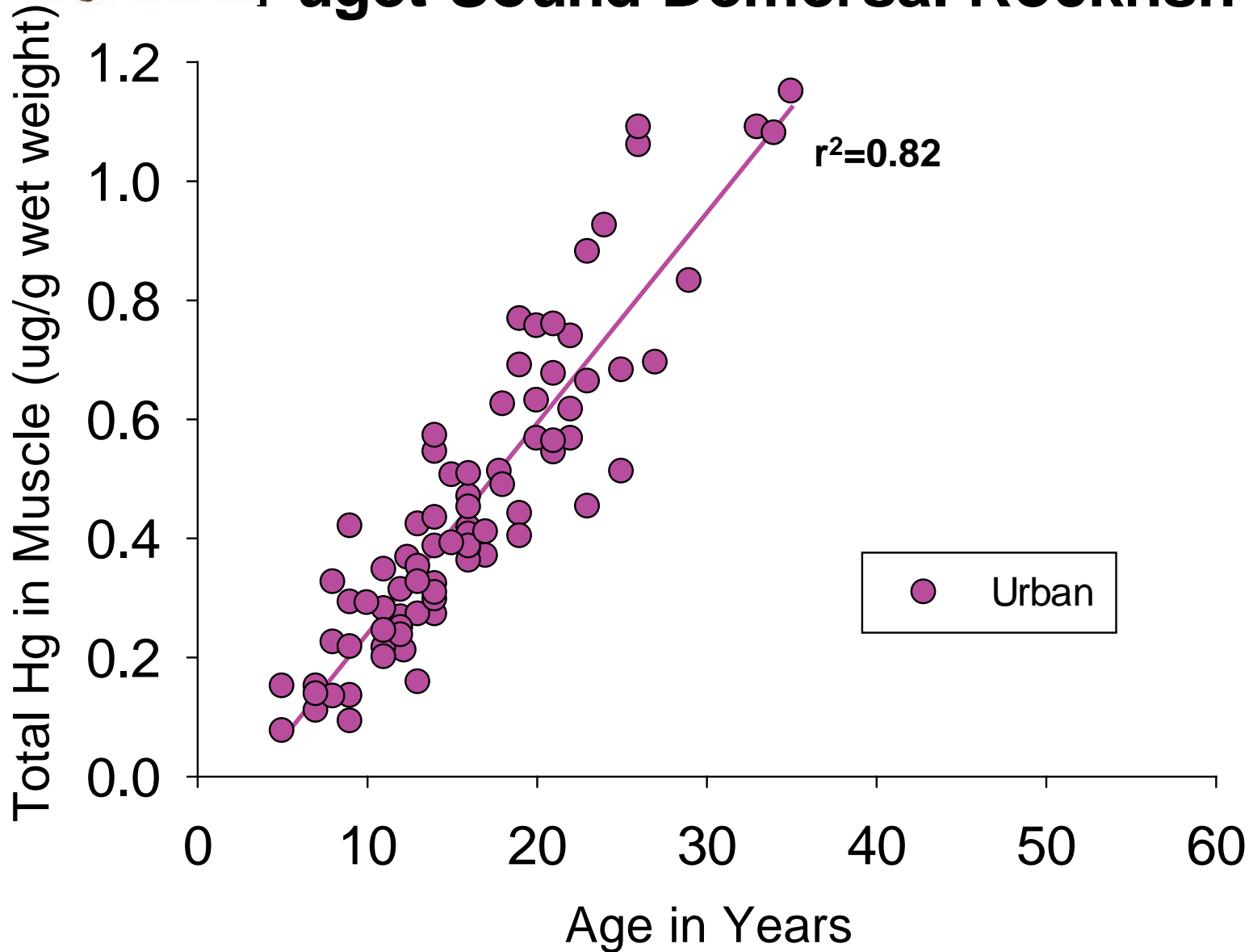


Rockfish sampling locations:



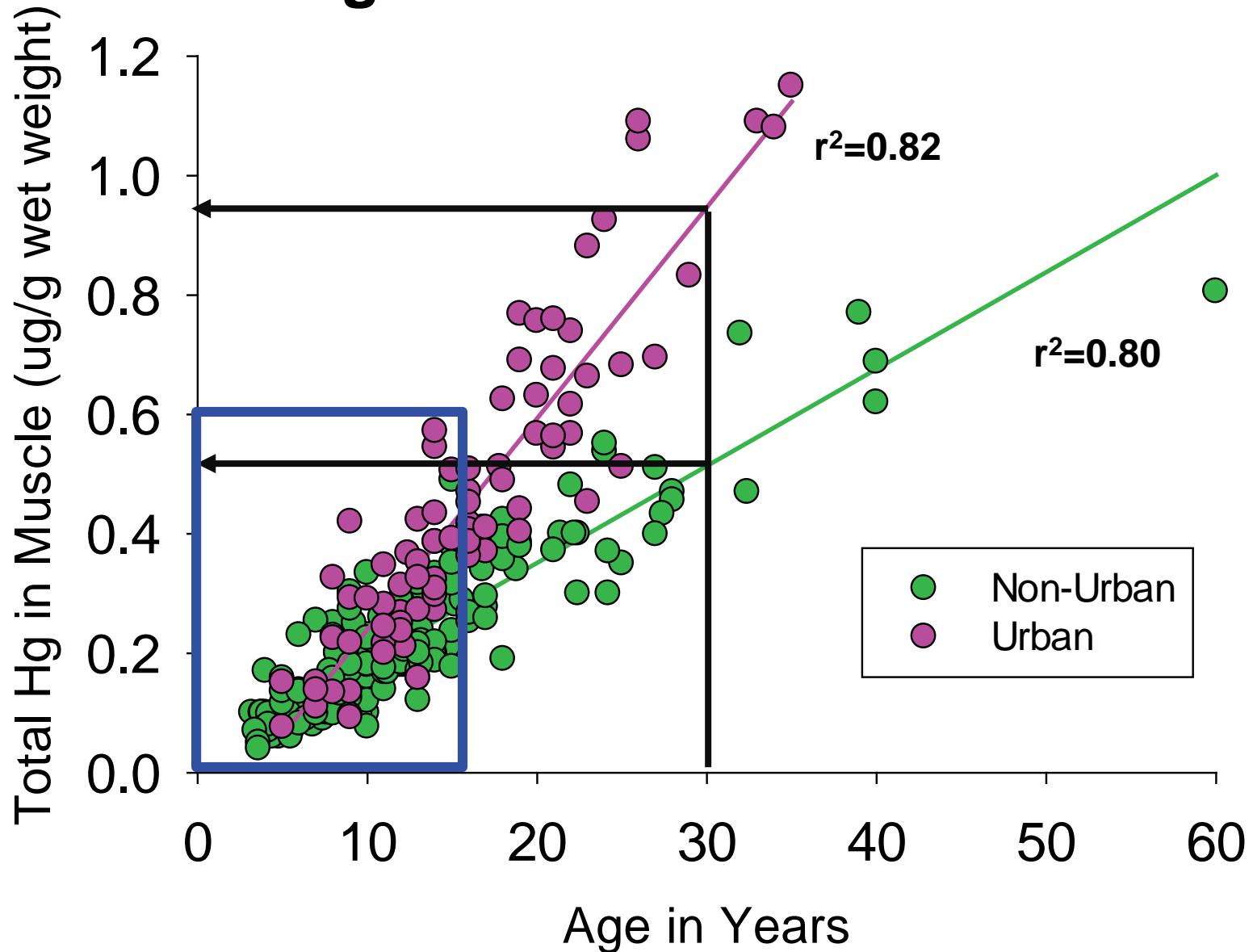


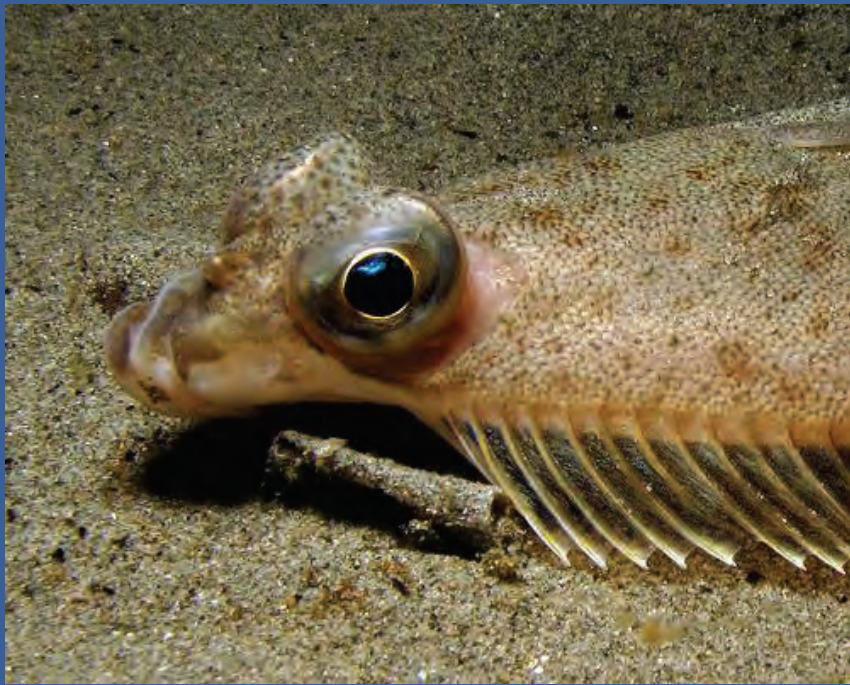
Total Mercury in Muscle - Puget Sound Demersal Rockfish





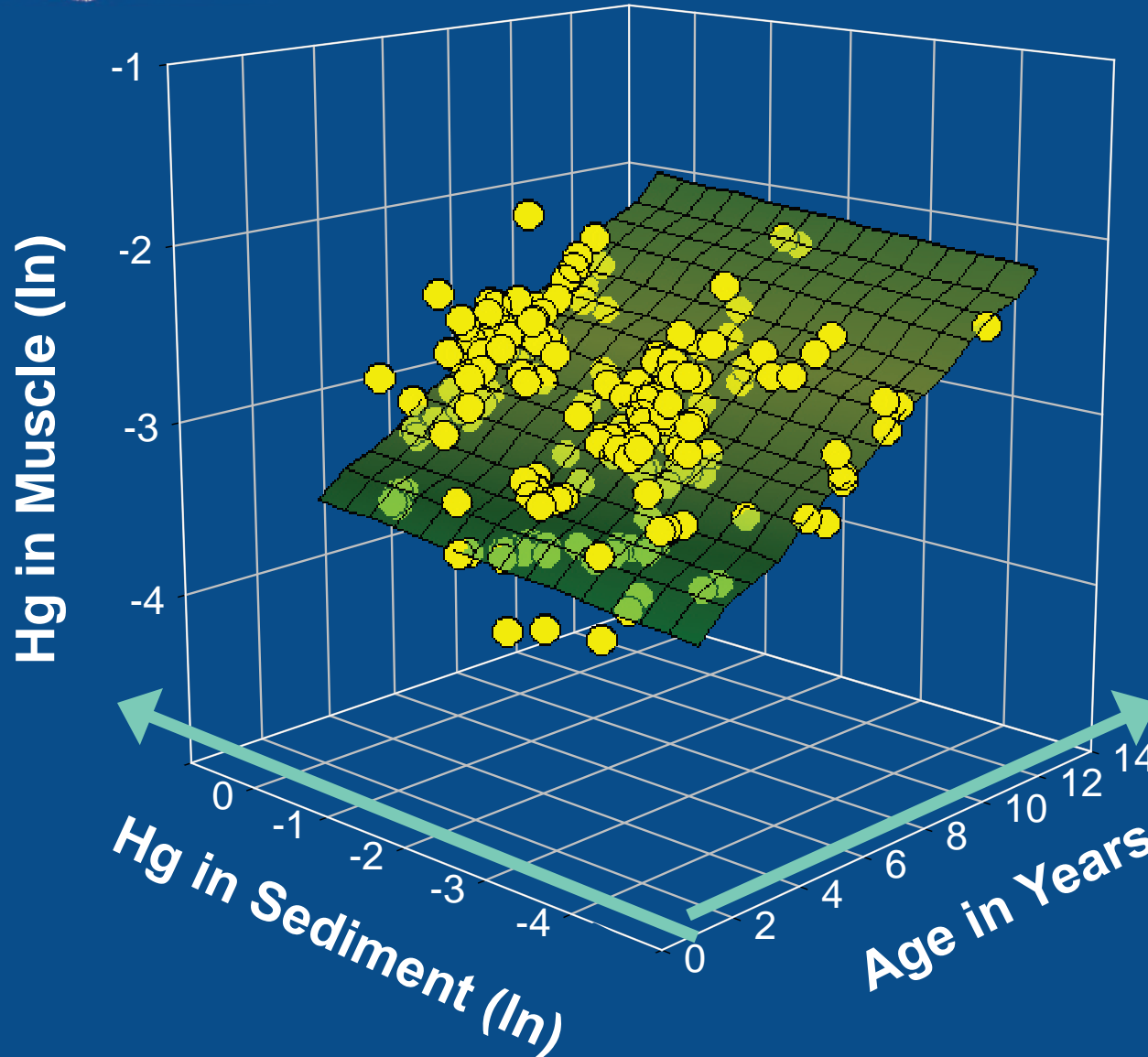
Total Mercury in Muscle - Puget Sound Demersal Rockfish







Sediment and Age Effects on Mercury in English Sole Across Puget Sound



$r^2 = 0.62$
sediment Hg
only accounts
for 2% of
variation

Conclusions:

- Total mercury can be used to predict methylmercury in muscle
- Age is a major factor in the accumulation of mercury
- Trophic level and movement patterns affect the uptake of mercury between species
- Puget Sound rockfish indicate two different trends relative to the proximity to the contaminant.



Puget Sound Ecosystem Monitoring Program Toxics in Biota Team

Acknowledgements

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