Amphibian Exposure to Pesticides through Lake Sediment

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Introduction

- Pollutants from California's Central Valley are found in the Northern Cascade Mountain Range
- California's Central Valley is intensive crop production area, which uses a variety of pesticides
- These pollutants travel through atmospheric transport to high elevations areas and settle in the sediment affecting the amphibian life
- Purpose is to determine if there is a correlation between contaminants in the sediment samples and contaminants in the tadpole samples

Methods

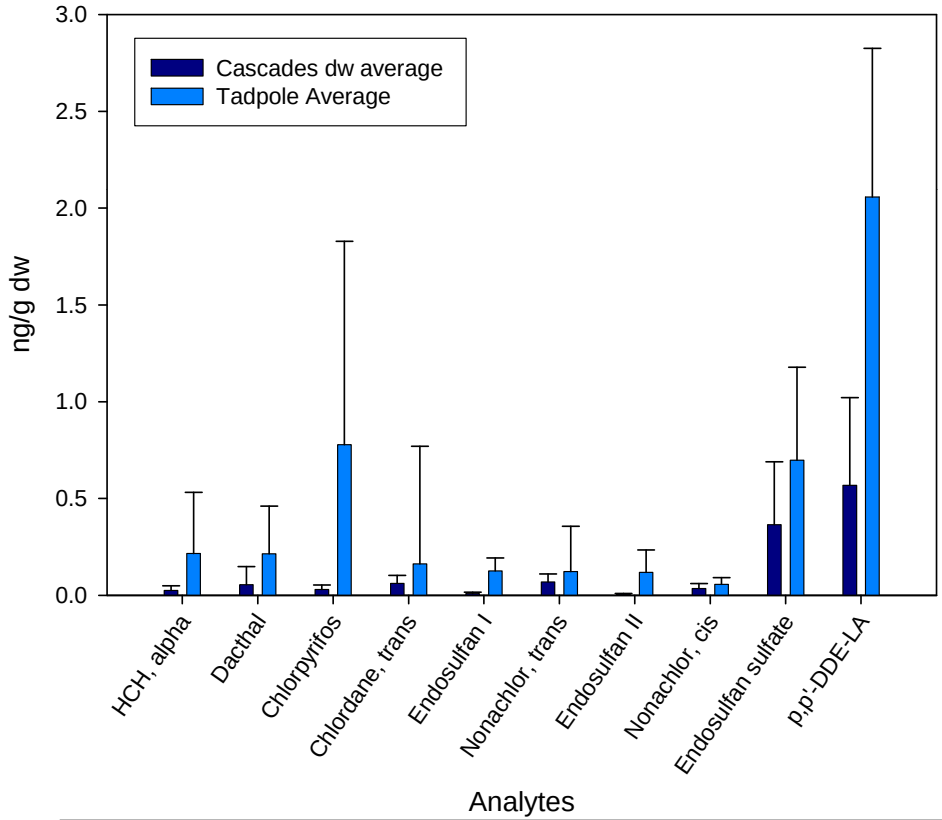
Sediment Method

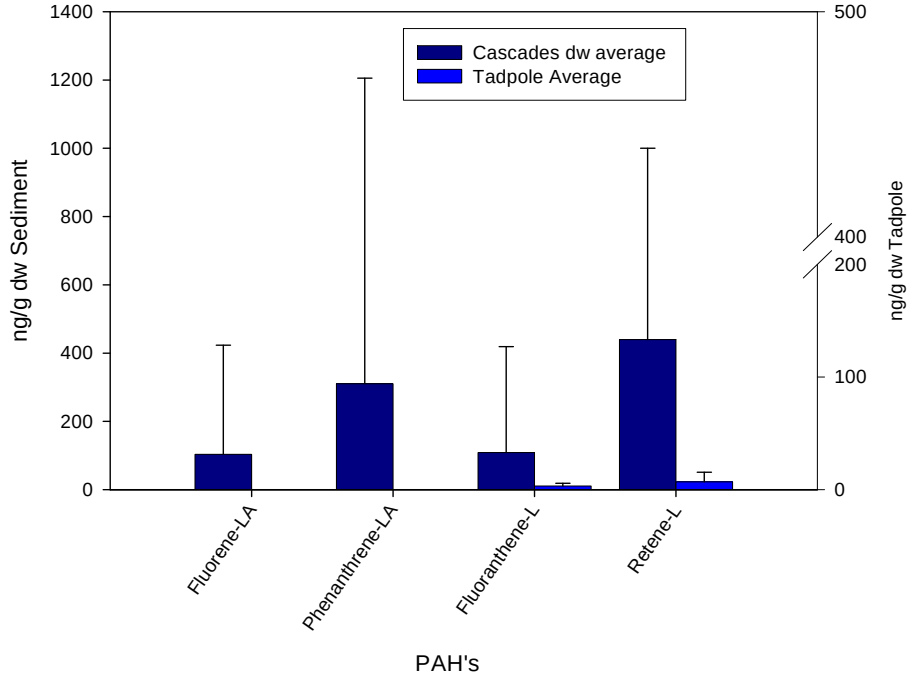
- ASE – accelerated solvent extraction with DCM
  - Surrogates were used to track target analytes through the entire process
- Clean up
  - Solid phase extraction (silica columns)
  - Gel permeation chromatography (GPC)
- Samples analyzed on the EI GC/MS and CI GC/MS
  - Before samples were run on instruments they were spiked with internal standards

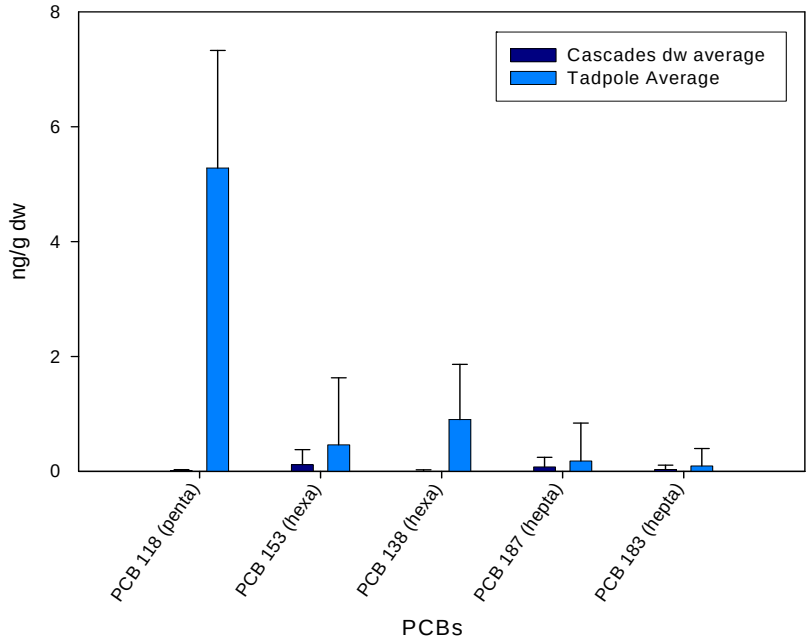
Tadpole Method

- Homogenized using liquid nitrogen
- Ground with C_{18} and Na_2SO_4
- Spiked with surrogates, then extracted on-column with acetonitrile (MeCN)
- Clean-up with silica column, reduced and spiked with internal standards
- Analyzed on the EI and CI GC/MS

Results







- Pesticides and PCBs are higher concentration in the tadpole samples, possibly due to bioconcentration
- PAHs are higher concentration in sediment samples, possibly due to tadpole enzyme metabolizing system, cytochrome-P450