May 1st, 1:30 PM - 3:00 PM

The Lake Washington PCB/PBDE Study: Estimates of loading from major pathways

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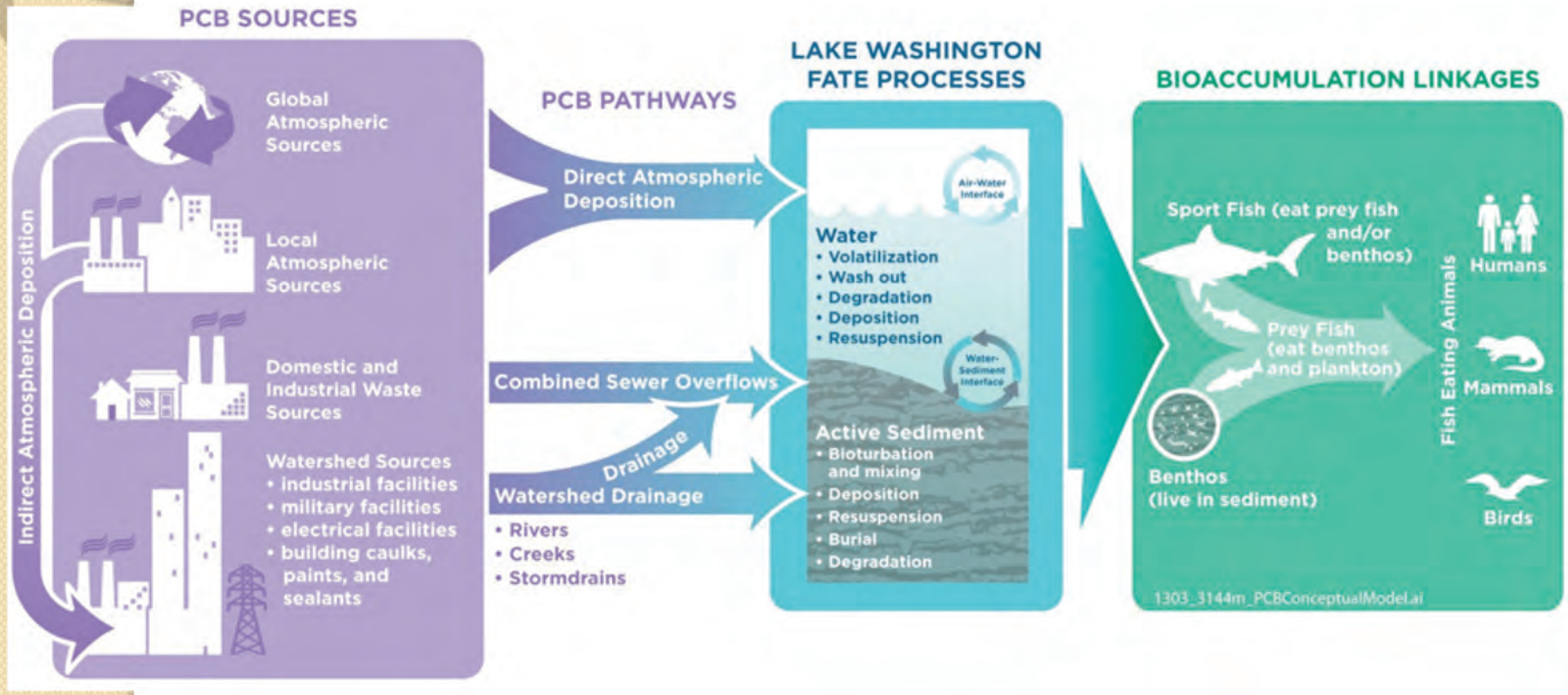
King County

Conceptual Model for PCBs



Major Pathways

- Rivers (Cedar and Sammamish)
- Local Drainages
  - Monitored tributaries
    - Thornton Creek
    - Juanita Creek
    - May Creek
  - Remaining unmonitored lake drainage
- CSOs
- Floating bridges (stormwater runoff)
- Direct atmospheric deposition

Loadings Estimates

Concentration X Flow = Loading

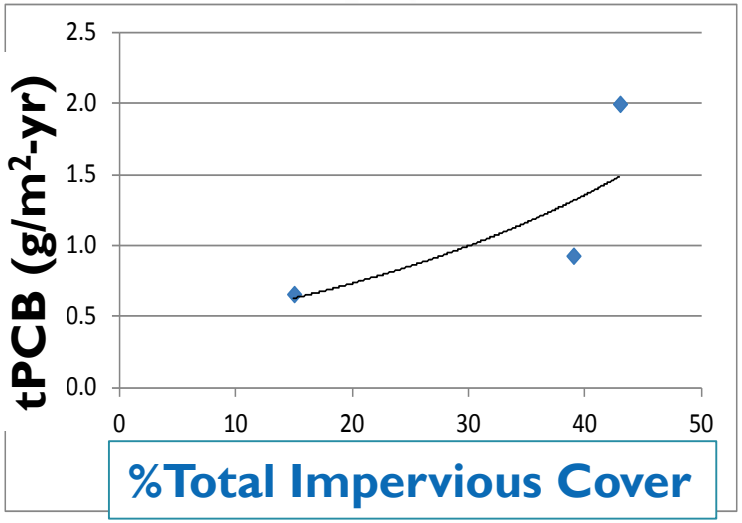
Field study mean concentration used, except

- Extrapolation approach for unmonitored tributaries
- Enhanced CSO data with historical data

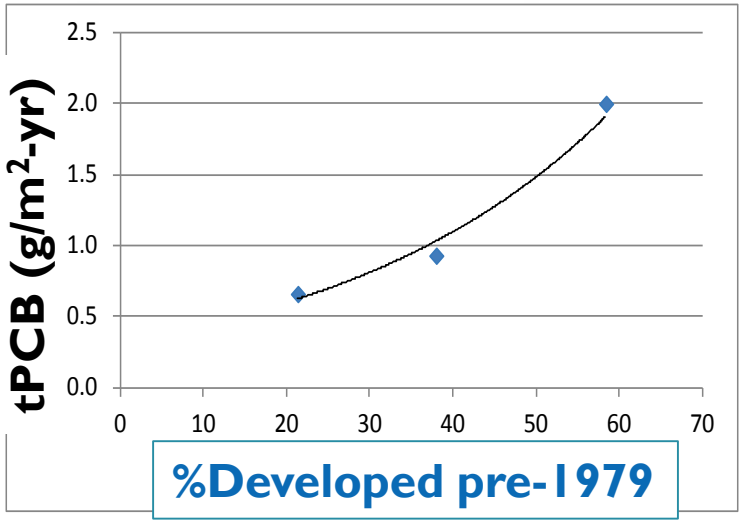
Flow

- Gauged flow data OR
- Estimated

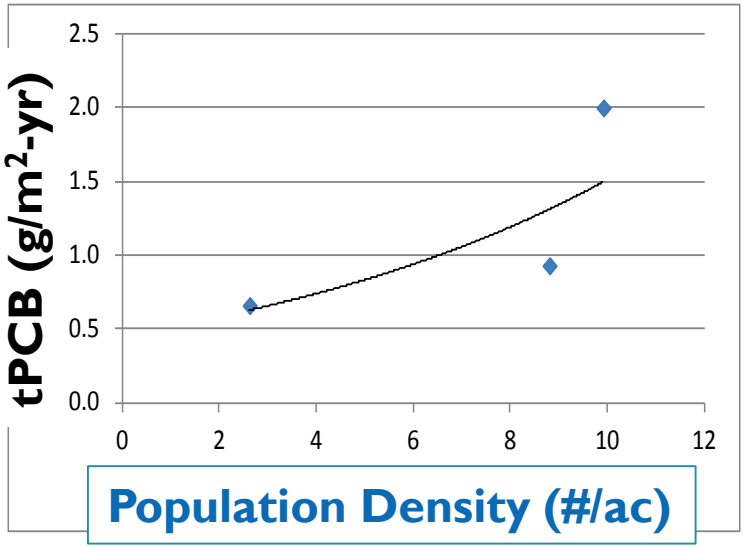
Correlations with Land Use/Population



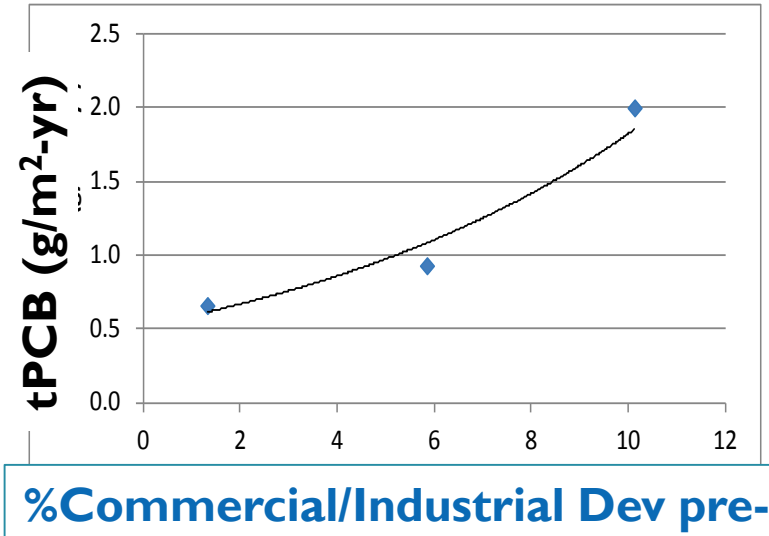
%Total Impervious Cover



%Developed pre-1979

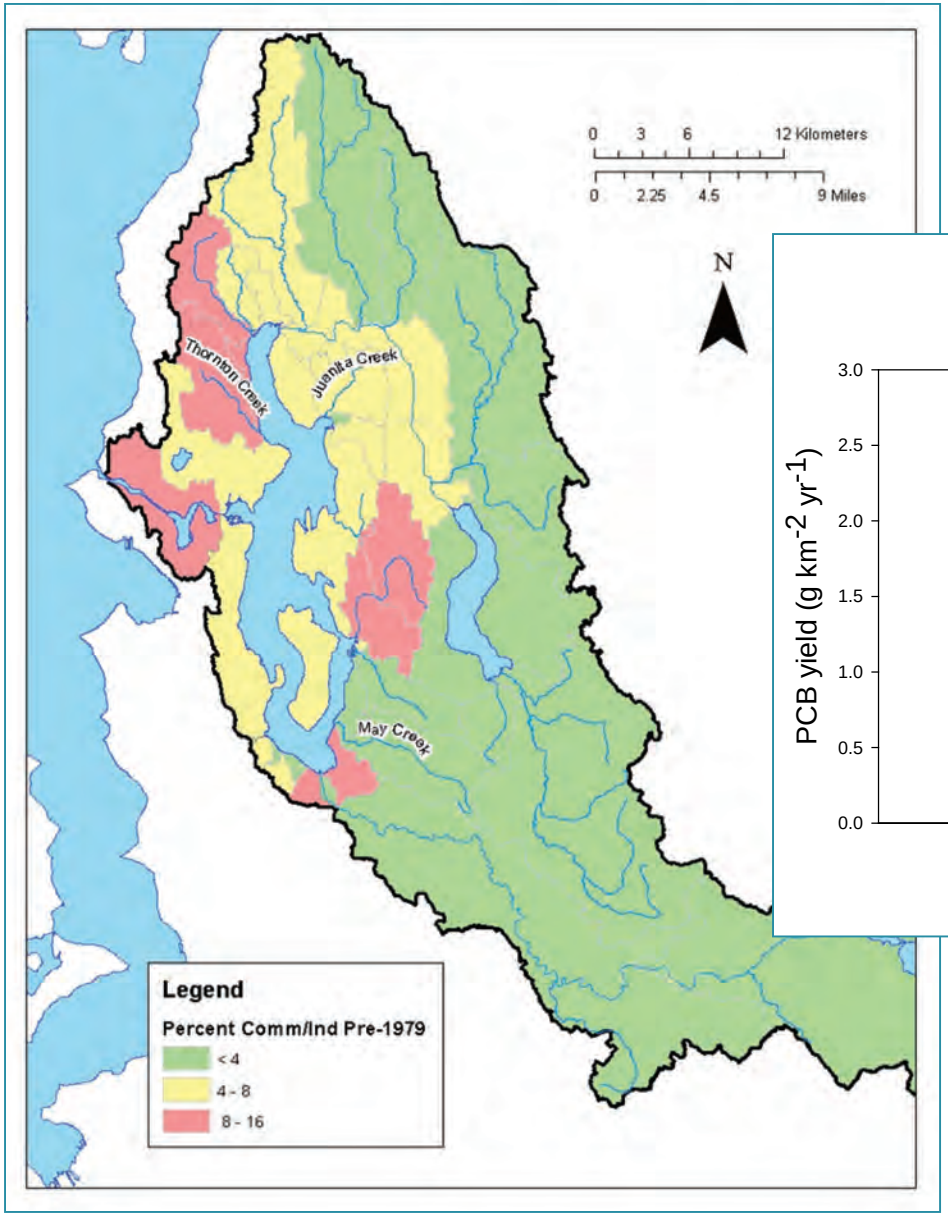


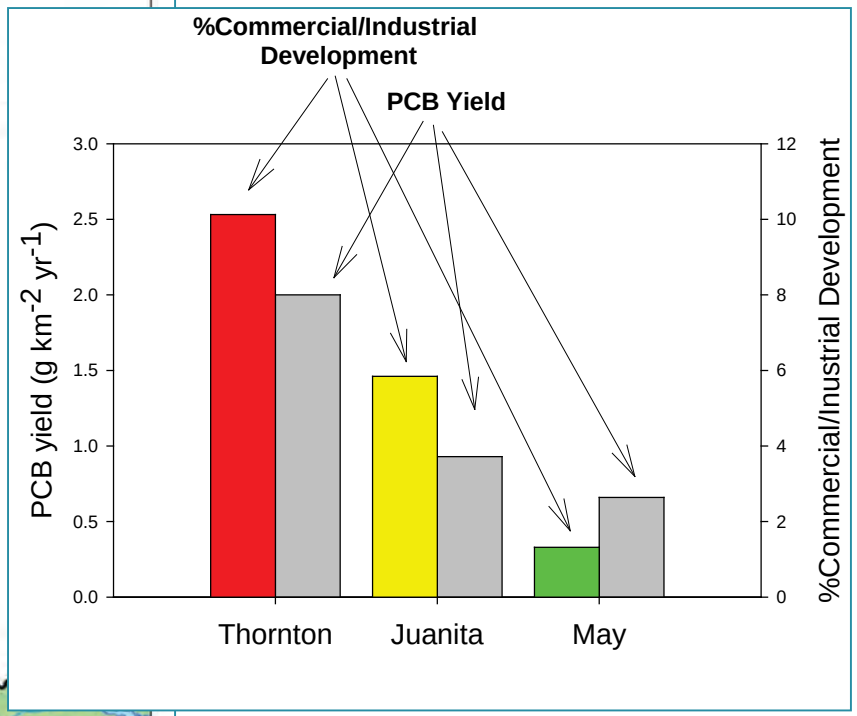
Population Density (#/ac)



%Commercial/Industrial Dev pre-1979

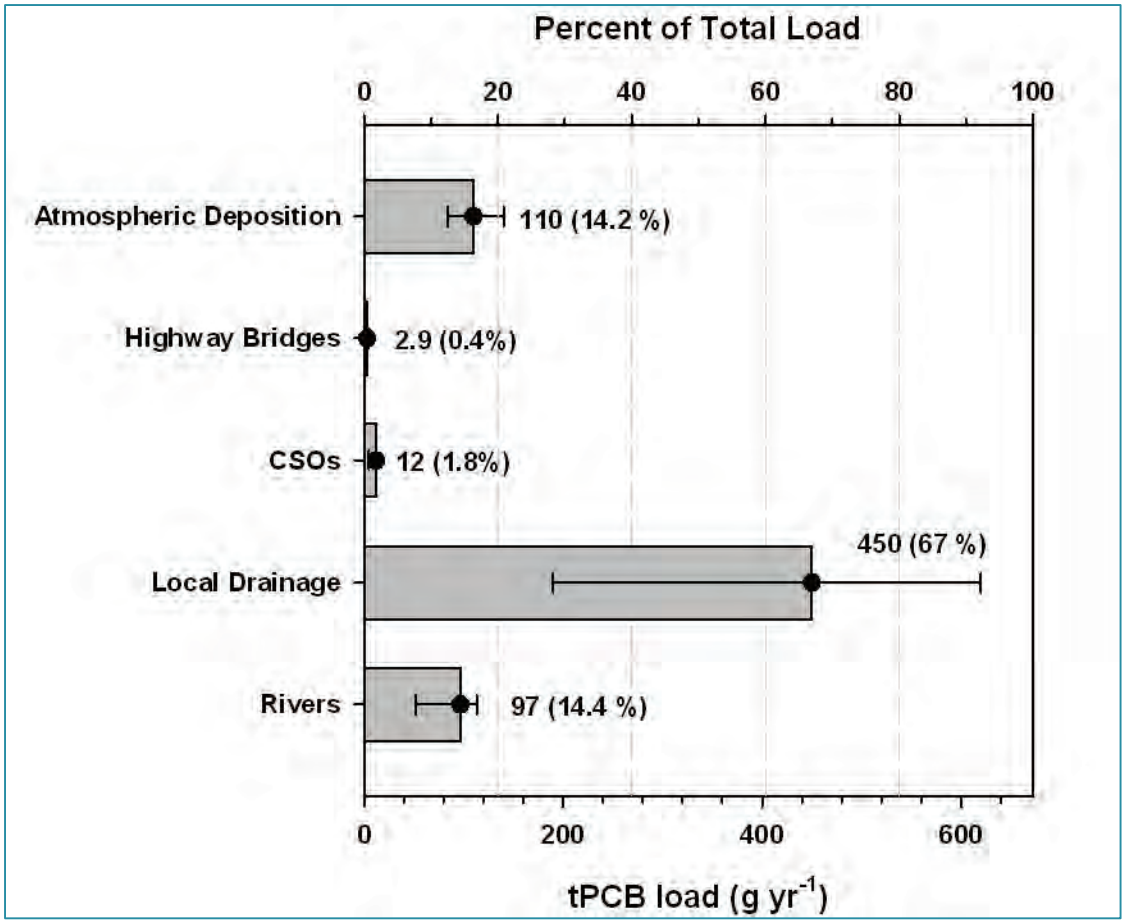
Relationship with Historical LandUse?



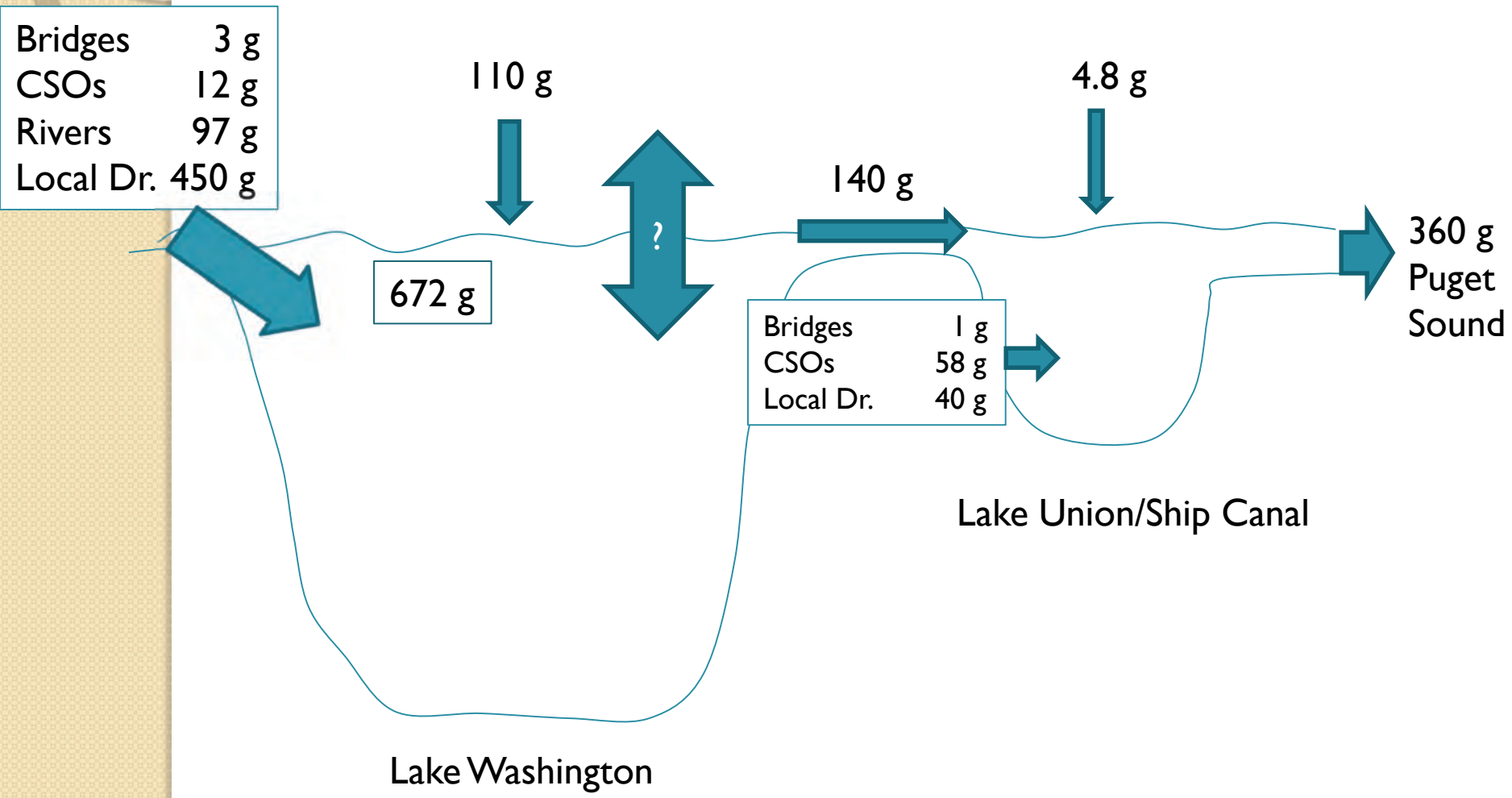


Current PCB Loading Estimates

672 g yr^{-1} to Lake Washington
140 g yr^{-1} exits Lake Washington
360 g yr^{-1} to Puget Sound

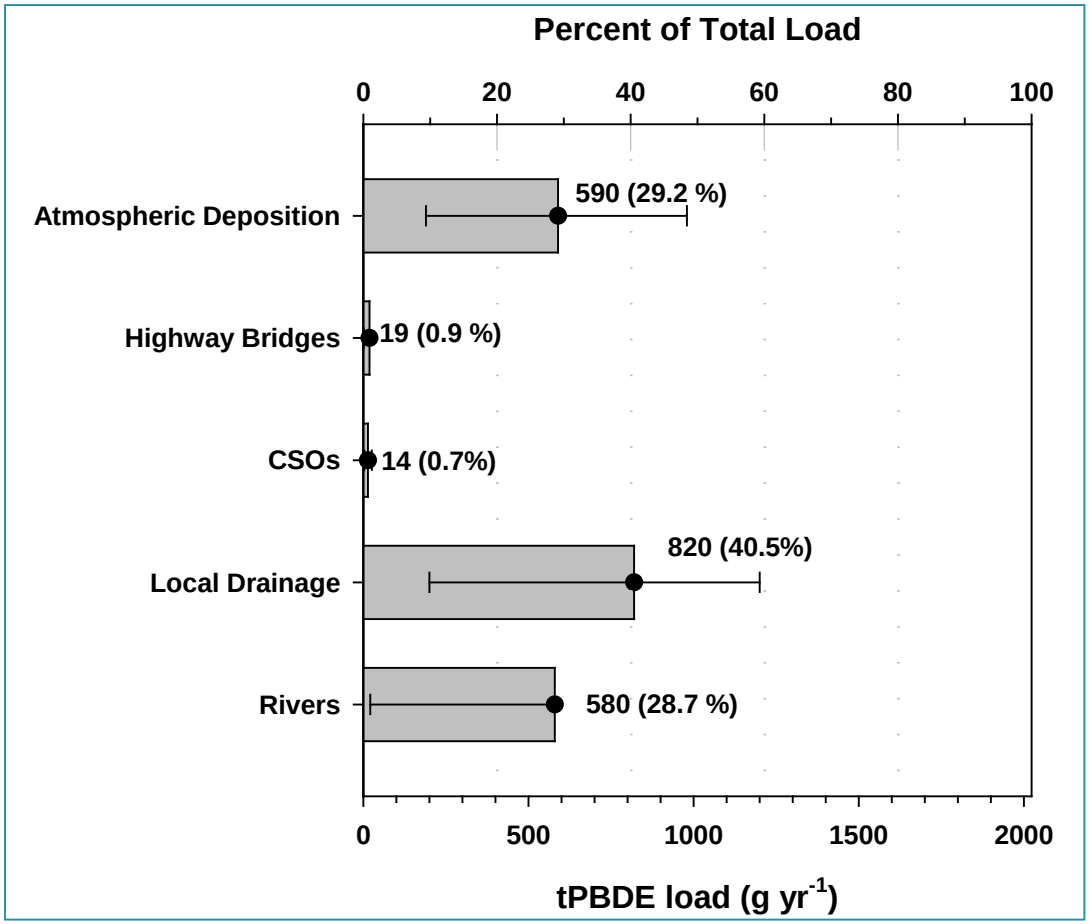


PCB Loading Summary



Current PBDE Loading Estimates

2,023 g yr^{-1} to Lake Washington
968 g yr^{-1} exits Lake Washington
990 g yr^{-1} to Puget Sound



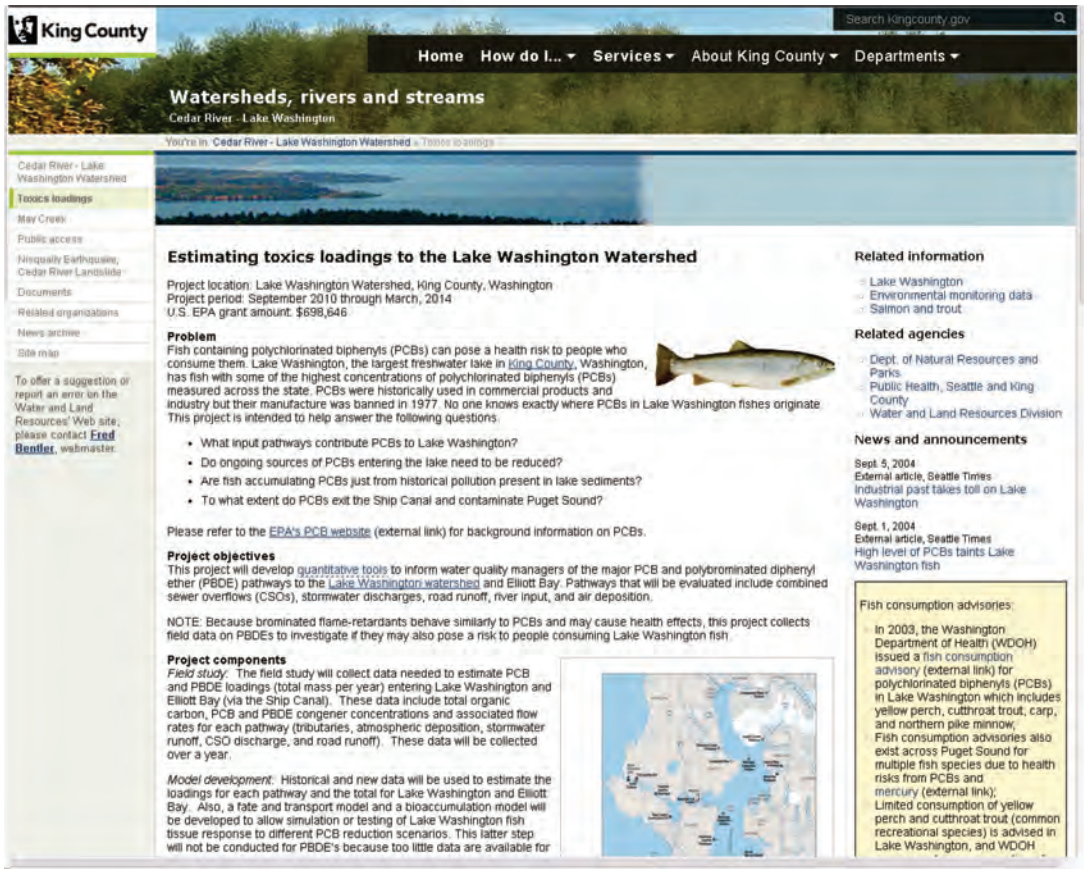
Load from Local Drainage Driven by Stormwater

- Stormwater is <30% of annual flow in streams BUT
- Accounts for 80-90% of annual PCB load from local drainage

Loadings Conclusions

- Appears to be relationship between local tributary PCB areal loading and age and/or type of development
- As much as 70% of lake PCB load comes from local tributaries
- As much as 80% of local tributary PCB load delivered in stormwater
- Lake Washington is a sink for PCB and PBDE

QUESTIONS?



Search: lake washington pcb study

http://www.kingcounty.gov/environment/watersheds/cedar-river-lake-wa/pcb-pbde-loadings.aspx