

Summary of Findings:  
**Contaminants in Chinook salmon from the Green/Duwamish River, Early Marine Survival, and Possible Sources of Upstream Contaminants**

DRAFT for discussion at the November 12, 2015 WRIA 9 Watershed Ecosystem Forum meeting  
November 5, 2015

**Overview:**

This is a summary of the issue of contaminants and early marine survival of Chinook salmon in WRIA 9, as well as a brief summary of King County's work on contaminant sources upstream – in the water column and air deposition. The WRIA 9 Implementation Technical Committee (ITC) is providing this interim summary of findings for the WRIA 9 Forum for information purposes. No decisions are needed at this time.

**Summary of Findings:**

- Based on work by Sandra O'Neill and other scientists, there is a strong likelihood that the amount of contaminants in juvenile Chinook from the Green/Duwamish is lowering their early marine survival more significantly than we thought in 2005.
- Contaminants that have been found in juvenile Chinook include PCBs, PAHs, and PBDEs. PCBs are found in paints, caulks, dyes, electrical equipment and many other materials. PAHs are derived from petroleum products like oil and gas, and exhaust. PBDEs are flame retardants, and are found in furniture, building materials, bedding, and clothing.
- We don't know where the juvenile Chinook are picking up the contaminants exactly, or even generally, since they were sampled only in the Lower Duwamish and Elliott Bay.
- There is some evidence of contamination in some of the tributaries upstream in the Lower Green (e.g., Springbrook Creek), but we need more information about other areas and sources.
- Recent water quality and air deposition sampling conducted to understand sources of contamination indicate that water concentrations and air deposition are highest in urbanized areas. A report on recent suspended solids sampling is expected in early 2016.

**Implications and Future Work:**

- The ITC will likely recommend that initially we elevate water and sediment quality to a higher importance in our upcoming recovery plan update
- The ITC recommends that we study contaminant levels in juvenile fish from throughout the Green/Duwamish river system over the next two to three years to determine where the fish are picking up contamination, so we can learn where the most important areas to do work are located.
- The ITC is reaching out to Department of Ecology and other source control experts to learn what types of land use should be considered for reducing ongoing sources of contamination.
- WRIA 9 and regional recovery proponents need to explore how to fund contamination removal, because salmon recovery funds don't generally pay for this.