



PBDES & PUGET SOUND KILLER WHALES: TECHNICAL WORKGROUPS & POLICY FORUM

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PBDE Technical Workgroup Objectives

- Seek opportunities to fill data gaps and refine uncertainties about the effects of PBDEs on Southern Resident killer whales and ***wastewater treatment technologies to minimize those effects.***

- 3 sub-workgroups will focus on:
 - 1) PBDE monitoring & removal effectiveness from WWTPs
 - 2) Modeling of fate, transport, & bioaccumulation
 - 3) PBDE toxicological threshold levels in marine mammals and threshold levels for mixtures containing PBDEs and other persistent pollutants



PBDE Technical Workgroup Objectives

- Identify opportunities, project ideas, and available funding sources to address objectives
- Support agencies/entities to carry out work efforts, or develop proposals to address objectives
- Provide a summary of recommendations and efforts to a policy forum



Policy Forum Objectives

- Address PBDE discharges from the major Puget Sound municipal treatment plants
- Convene senior management from EPA, NMFS, and Ecology
- Workgroup will present information on:
 - Risk that PBDE municipal plant discharges have on killer whales
 - Opportunities to require PBDE monitoring in NPDES permits
 - Strategies to reduce Puget Sound PBDE loadings from municipal treatment plants



Behavior of PBDEs in the Environment

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- Used as flame retardants since the 1970s
 - Textiles, plastics, wire insulation, and automobiles
- PBDEs are a complex mixture of 209 congeners
 - Vary by the number of bromine atoms and location of the molecule
- Certain PBDE congeners are persistent, bioaccumulative, and toxic to both humans and the environment
- The critical endpoint of concern for human health is neurobehavioral effects
- Endocrine disruptors



Behavior of PBDEs in the Environment

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- Not chemically bound to plastics, foam, fabrics
→ more likely to leach out
- Released from indoor consumer and office products
- Attach to dust particles
- Delivered to the sanitary sewer through washing machine rinse water during the washing of fabrics with the attached PBDE-enriched dust
- PBDEs deposited on land will be mobilized during storm events and delivered to surface waters



PBDE Phase Outs

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- Manufacturers of Penta and Octa voluntarily ceased production beginning in 2004
- Deca manufacturers have agreed to discontinue the manufacture, import, and sales of Deca at the end of 2012
- In Washington State, Deca has been banned from mattresses since 2008
- Deca was banned from televisions, computers, and residential upholstered furniture beginning January 1, 2011