

Toxic Contaminants in Outmigrant Juvenile Salmon from the Lower Columbia River and Estuary

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As part of the Lower Columbia Estuary Partnership's Ecosystem Monitoring Program, we measured concentrations of contaminants in the Lower Columbia River and Estuary (LCR&E) environment and in outmigrant juvenile salmon to evaluate the potential risks of toxics to the productivity of ESA-listed Columbia River salmon stocks. Contaminant levels were determined in juvenile Chinook salmon, water, and sediment samples from six sites in the LCR&E, from Bonneville dam to the estuary mouth. Salmon from upper, middle, and lower Columbia stocks were feeding and rearing in the LCR&E, and were exposed to PCBs, DDTs, PBDEs and PAHs via their diet, with especially high concentrations of contaminants in stomach contents of fish from the Portland/Vancouver area. Contaminant levels in bodies and stomach contents of some fish were above thresholds for effects on salmon health, such as delayed mortality, poor growth, and reduced disease resistance. Salmon from the Portland sites also showed signs of exposure to estrogenic compounds. Moreover, concentrations of copper and organophosphate pesticides in the water column were at levels that could interfere with olfaction in salmon at some sites. Field data are being used in bioaccumulation and population models to better understand pathways of exposure for salmon, and potential impacts on stock recovery.