



OVERVIEW: TOXICS IN THE COLUMBIA RIVER

The Columbia River Needs Attention to Sustain Economic Viability and Public Health

- **It is a shared waterway.** The states have limited resources and focus on waters within their borders.
- **The problems are long-term and result from thousands of cumulative activities over a long period.**
- **There is no sustained monitoring on the mainstem Columbia.** Sources of toxics, their movement, and the full impact on human health and species are unknown.
- **There are no funds for clean-up of known contaminated sites.**
- **The Columbia Basin is one of ten large aquatic ecosystems.** It is the *only significant one to receive NO funding pursuant to that designation.*

Economic Impact

Contaminated lands cannot be used until they undergo costly clean up.

Contaminated dredge materials in ports and marinas threaten operations.

- *Contaminants transported from throughout the basin settle in sediment in the lower river.*
- *Ports need to dredge harbors and marinas to remain viable; they bear the cost of disposing contaminated material they did not generate.*

Commercial salmon fishing provided \$41 million in personal income in 1976-1980; it dropped to just \$4 million by 1998.

The River is a navigation and commerce artery.

- It carried \$20 billion in cargo value in 2010.
- 40,000 jobs depend on this trade.
- 6,000,000 acres of agricultural land are irrigated by the Columbia River.

Human Health Impact

Mercury in water and soil cause neurological, developmental, and reproductive problems.

DDT causes cancer, liver disease, and disrupts hormones.

PCBs harm immune systems and increase cancer risks.

PBDEs increase cancer risk and disrupt hormones.

- *Human thyroid cancers increased 22% since 1990.*
- *Contaminants cause birth defects and learning disabilities in humans.*

Fish advisories issued for the middle basin now advise limited consumption of resident fish.

- *Native Americans consume 9-12 times more fish than the general public.*
- *Russian and Asian populations consume high levels of sturgeon, a bottom feeder, where large amounts of contaminants settle.*

8 million people inhabit the Basin.

Species Impact

Thirteen species of salmonids are listed as threatened or endangered and all Basin salmonids use the lower river twice during their life cycle.

- *Salmon decline symbolizes the consequences of habitat degradation and loss and they are not alone; many other species, other fish, native plants, birds, and mammals, also are threatened or endangered.*



Contaminants including mercury, ammonia, bacteria, DDE, DDT, dioxin, PCBs, and arsenic increase mortality and disease susceptibility, impair the

reproductive organs of male river otters, and thin eggshells of osprey and bald eagles—reducing reproduction in some areas by half.

- *PCB concentrations affect thyroid function and metabolism of juvenile salmonids and reproduction.*
- *Hormone disrupting compounds alter hormones in fish and other species: fish cannot avoid predators; male fish are growing female eggs; and reproduction is reduced.*

Heavy metals, bacteria, PAHs, fertilizers, pesticides, silts, and sediments come from a range of activities and sources including household chemicals, paints, motor oils, gasoline, lawn treatment, and construction.

- *They have far-reaching impacts on drinking water, salmon spawning, commercial fishing, recreation, wetlands, and private property.*

Estrogenic contaminants, which can be found in flame retardants (PBDEs), personal care products, and pharmaceuticals, can cause male fish to essentially morph to female within their life cycles.

- *This affects their ability to reproduce, avoid predators, and resist disease, inhibiting recovery of ESA-listed species.*

Temperature and dissolved gas levels exceed levels safe for species survival.

Investment in toxics reduction is going down. Yet, the more we learn, the more alarming the information.

Habitat Impact

Fish in the very areas we are restoring may not survive. *In Seattle's Longfellow Creek and Grover's Creek Hatchery in North Kitsap where millions of dollars were invested in habitat restoration, NOAA confirmed that toxics in runoff killed returning fish.*

Over 50% of the lower Columbia River's wetlands, 114,000 acres, have been lost since 1880 as a result of diking, agriculture, dams, and other uses. *Reconnecting tidal influence improves water quality, helps reduce flooding of property, restores a natural food web, and brings back the habitat for a variety of species.*



The Good News

We know what we need to do and some folks have made progress.

Oregon and Washington have shifted their \$20 million purchase of janitorial supplies to green products.

Growers in the Wasco watershed reduced use of one toxic pesticide (malathion) from 8 times the water quality criteria to less than half in two growing seasons.

Pesticide collection events held by both states have collected thousands of pounds of DDT, legacy pesticides, and other contaminants.

Pharmaceutical collection events take tons of drugs off the streets and out of the water systems.

The current pace with current resources is not enough.

References

Navigation data from Pacific Northwest Waterways Association.

Human health, species, and habitat impacts data from Estuary Partnership.