



FACTS & FIGURES: PHARMACEUTICALS, PERSONAL CARE PRODUCTS AND COMPOUNDS IN OTHER CONSUMER PRODUCTS

PRODUCTS OVERVIEW

- Widespread in the estuary
- Commonly used consumer products
- Directly relate to human activities and choice
- Designed to be bioactive – have an effect on biological systems.
- Released or transported
- Suspected hormone disruptors for fish and humans
- Prescribed and over-the-counter pharmaceuticals

WHAT ARE PHARMACEUTICALS, PERSONAL CARE PRODUCTS AND COMPOUNDS IN OTHER CONSUMER PRODUCTS?

Pharmaceuticals include antibiotics for animals and people, oral contraceptives, other prescription medication, over-the-counter pain killers, and antihistamines.

Personal care products include deodorant, soap, sunscreen, insect repellent, synthetic musk, perfume, cosmetics, and hair care products.

Compounds in other consumer products include caffeine, laundry detergent, musks, disinfectants, surfactants, and plasticizers, such as bisphenol A.

Pharmaceuticals, personal care products (PPCPs), and similar compounds are being found with increasing frequency in freshwater systems throughout the country. These compounds wash off or are excreted by our bodies and can then make their way to rivers and streams.

PPCPs, and similar substances are of concern in the environment because some bioaccumulate in fish and people, and they can have a biological effect (intentionally, in the case of pharmaceuticals). For example, the synthetic musk HHCB bioaccumulates and is a suspected hormone disruptor. Bisphenol A, which was originally produced for use as a synthetic hormone, also is a suspected hormone disruptor.

IMPACTS ON FISH & WILDLIFE & THE ENVIRONMENT

Pharmaceuticals, personal care products, and compounds in other consumer products can be toxic to salmon or affect their development. Some compounds mimic estrogens or other hormones, thus disrupting the endocrine system and possibly interfering with reproduction, growth, and development. These endocrine (hormone) disrupting compounds (EDCs) can cause sub-lethal effects that alter the ability to reproduce, avoid predators, and resist disease, all inhibiting recovery of ESA-listed species. Additionally, egg yolk protein induction has been measured in male and juvenile salmon – fish that should NOT be developing eggs – indicating exposure to estrogen-mimicking compounds.

IMPACTS ON HUMAN HEALTH

Long-term exposure to these products can impact human health by:

- Disrupting endocrine balance
- Shortening attention span and impaired social interactions in children.

SOURCES OF EXPOSURE

Pharmaceuticals and personal care products enter the waterways through septic tanks, treated or untreated wastewater, runoff from livestock and aquaculture facilities, and recreational activities such as swimming.

In the Columbia River estuary, juvenile salmon are exposed to pharmaceuticals, personal care products, and similar wastewater compounds through river water.

PHARMACEUTICALS, PERSONAL CARE PRODUCTS AND COMPOUNDS IN OTHER CONSUMER PRODUCTS IN THE ESTUARY

Pharmaceuticals, personal care products, and similar compounds have been found at sites throughout the Columbia River estuary. In a recent study, the plasticizer bisphenol A, the musk galaxolide, the antibiotic trimethoprim, and a breakdown product of erythromycin were detected as well as the pain reliever acetaminophen, the insect repellent DEET, and a veterinary antibiotic tylosin.

References

Lower Columbia River Estuary Partnership. 2007. *Lower Columbia River and Estuary Ecosystem Monitoring: Water Quality and Salmon Sampling Report*.