

Fish Consumption & Portland Harbor



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Role of SHINE in Portland Harbor:



- Assess community needs
- Assess risks to the public from Portland Harbor (including the issuing of fish advisories)
- Review of technical documents to address human health questions
- Creation/delivery of educational materials
- Outreach to communities
- Work with the ATSDR to identify data gaps/conduct studies

Human Health Risk Assessment (HHRA):

Who, where and how much exposure is occurring within Portland Harbor?

Potential exposure pathways in Portland Harbor:

- incidental ingestion of sediment and water
- dermal contact with sediment and water
- ingestion of fish* and other organisms

*In my opinion, the most significant exposure pathway.

Fish Consumers:

- Native American fishers
- Recreational Anglers
- Families consuming fish
- Subsistence fishers
- Ethnic fishing communities

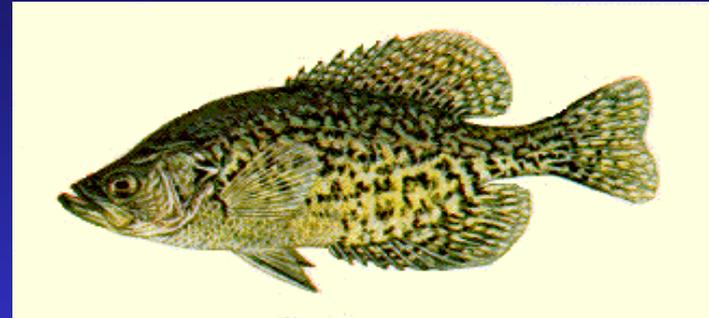


-Differences in fish preparation & consumption patterns

-Differences in fishing locations & species preferred



Small mouth bass



Black crappie

**What fish are being examined by the
LWG for human health?**



Common carp



Bullhead catfish

What fish are not being assessed:

- walleye
- adult salmon
- adult lamprey
- sturgeon
- and others....

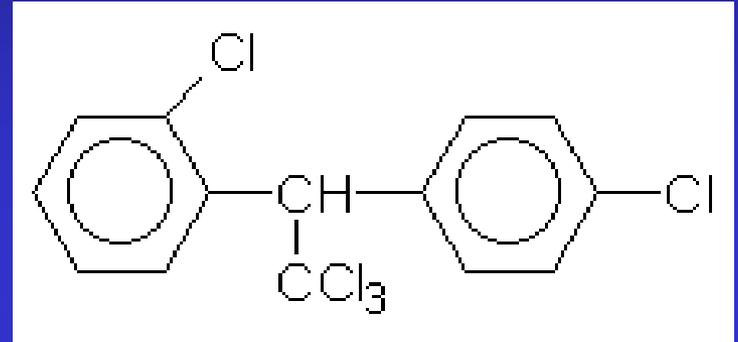


SHINE/ATSDR proposal:

To collect limited tissue samples of lamprey and salmon to characterize the levels of contamination and assess the risk to fish consumers.

Contaminants of Concern (COCs) in fish tissue:

- Dioxins/Furans
- PCBs
- Heavy Metals (esp. Hg)
- TBTs
- Organochlorine pesticides
- & others



Health effects of concern (at significant doses):

Mercury: neurotoxicity including impaired vision, sensory abnormalities, tremors, impairment in speech/hearing, incoordination, mental disturbances

PCBs: some human studies indicated PCBs may cause adverse effects in children and developing fetuses (reduced IQ, birth weight, behavior), carcinogenicity

Organochlorine pesticides: reproductive effects, carcinogenicity, organ and neurological effects

Dioxins: adverse developmental effects, carcinogenicity, dermal effects

The wrong message:

“People should not eat any fish caught in or near Portland Harbor.”

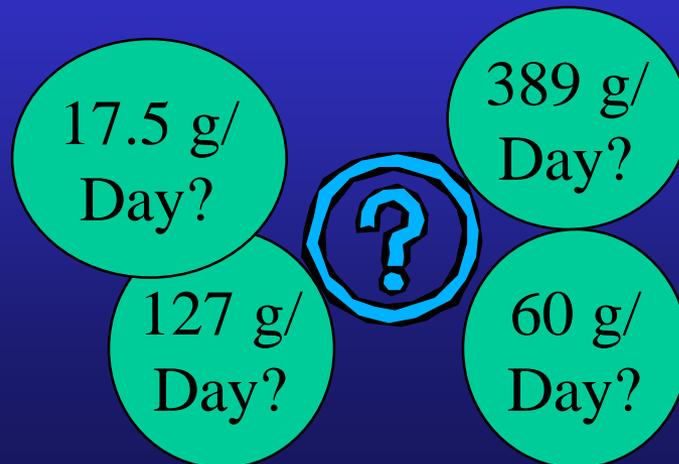


“Don’t worry about a thing, the fish are completely safe to eat.”

Both messages are incorrect and not based on science. Worse, the public becomes confused, credibility is lost and the right message is not conveyed.

How is risk assessed for human health:

- Acceptable risk levels (ex. 10^{-6})
- Body weight (default assumption)
- Years of consumption (assumption)
- Concentration of contaminant (measured)
- Toxicology of contaminant (research)
- Consumption rate???



Known health benefits of fish consumption:

- reduction in cardiovascular disease
- reduction in hypertension
- reduced risk of colon & breast cancer
- many benefits to diabetic patients
- decreased incidence of asthma induced attacks
- reduction in pain for arthritic patients
- potential reduction of risk for Alzheimers



What will replace the fish?

- foods high in saturated fats?
- cholesterol laden food?
- no omega-3 fatty acids



Other sources of dietary exposure to contaminants~

- beef & dairy products
- canned tuna/store bought seafood
- BBQ grills, etc...

Other factors:

Cultural Impacts:

- traditional activities
- spiritual/ceremonial practices of Native Americans

Economic Impacts of Fish Advisories:

- costs associated with loss of fishing revenue
- costs associated with property value

Recreation & Tourism

The existing fish advisory for the mainstem of the Willamette River~

- **Children 6 years of age** or younger should not eat more than one **4 ounce fish meal every 7 weeks**;
- **Women of childbearing age**, especially those who are **pregnant** or planning to become pregnant and breastfeeding mothers, should **not eat more than one 8-ounce fish meal per month**;
- Women past the age of childbearing, children older than 6 years and all other healthy adults may **safely consume up to one 8-ounce fish meal per week**.

Back fat, belly fat, skin and internal organs should be trimmed and discarded. Fillets should be cooked by methods that allow fats and oils to drip off the meat, so the drippings can be discarded. Eating of internal organs or eggs from Willamette River fish should be avoided.