

### Tribal Members Get Details About Fish Toxicity and Tribal Health

by Ryan French, Tom Downey, and Sherri Groh

The Siletz Tribal Natural Resources Department recently received a grant from the Oregon Department of Human Services (ODHS) under Oregon's SHINE Program (Superfund Health Investigation and Education) to conduct two staff trainings on the impact of fish toxicity on tribal health. The training sessions took place on March 15 at Chemawa Indian School in Salem, Ore.

Tom Downey, environmental protection specialist, facilitated and Sherri Groh, environmental planner, helped organize the meeting.

The majority of the Siletz Tribes' distribution fish (Chinook) comes from the Clackamas, Santiam, and McKenzie River fish hatcheries, all major tributaries to the Willamette River. They spend at least some portion of their life-history in the Portland Harbor as out-migrating juveniles and returning adults.

Chip Humphrey of the Environmental Protection Agency (EPA) and remedial project manager for the Portland Harbor Superfund site gave a presentation on contaminant levels found in fish tissue from the Willamette River. He discussed current actions to clean up the Portland Harbor and outlined future studies to document health concerns associated with consumption of sturgeon, lamprey, and salmon from the Willamette River.

Fish that tend to exhibit higher levels of contaminants include larger older fish that are high in fat and live year-round in polluted waters and fish at the top of the food chain (bioaccumulation).

The way bioaccumulation works is that pollutants get into the sediment, where they're ingested by small organisms, such as plankton and bacteria, who are then eaten by small juvenile fish. Larger predatory fish, in turn, eat the smaller fish and begin to accumulate large amounts of these toxins in fatty tissue.

Fish species in the Portland Harbor that have the greatest concentrations of contaminants are resident fish such as carp, bass, and northern pikeminnow. Sturgeon are somewhat migratory and can have contamination levels that range from low to high depending on size, age, and the amount of time spent in polluted waters.

Salmon and steelhead usually have lower contamination levels because of

the relatively short time they spend in fresh water on their way to and from the ocean. Lamprey haven't been sufficiently studied and little is known about the amount of time they may spend in the Portland Harbor during the larval and juvenile life-stages.

Dr. Pamela Bridgen and Valerie Lee, with Environmental International Ltd. (EI), provided an overview of tribal fish consumption and the associated health risks from fish contamination in the Columbia Basin. EI is consulting for six tribes that make up the trustee group for the Portland Harbor Superfund Site.

Their presentation included a brief overview of the risk assessment; the relationship between fish consumption and risk; recent studies in the Columbia River basin, specifically the tribal risk associated with these studies; and how the Portland Harbor work relates to contamination in fish. In the Willamette Portland Harbor Superfund Site study, the Lower Willamette Group (LWG), which are the potential responsible parties, have collected limited fish tissue samples. To date, not enough fish tissue information exists to conduct a comprehensive risk assessment in the Willamette Basin.

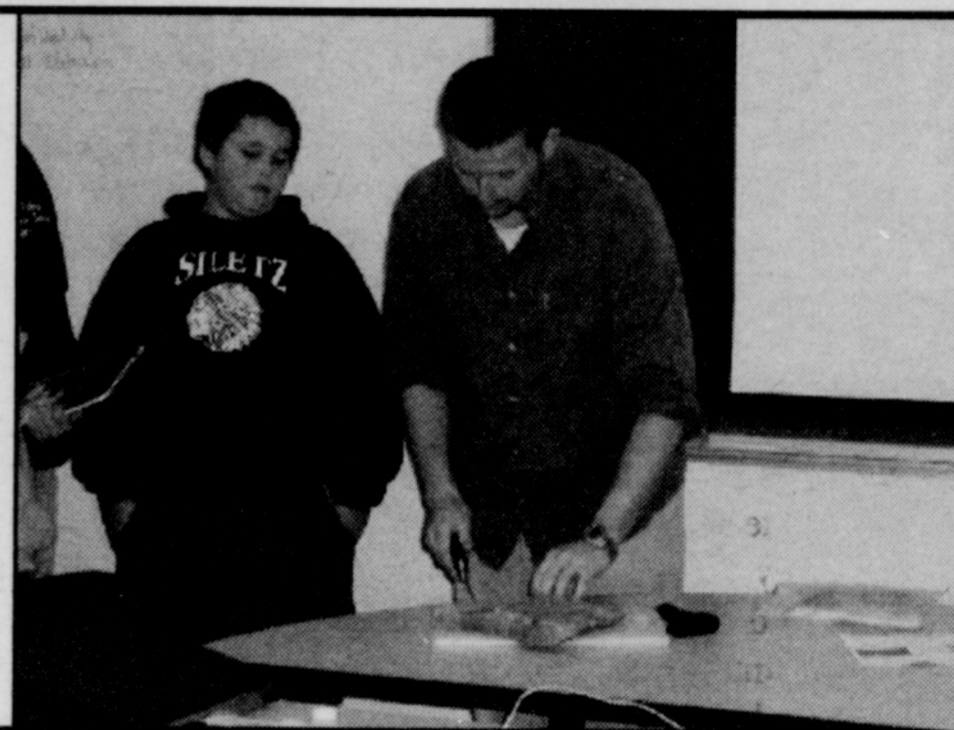
Government agencies use thresholds to determine how much contaminated fish is safe to consume. Without tribal-specific information, the government is currently proposing to base the fish consumption rate on the amount of fish consumed by the "average American," which may result in the wrong estimation of risk to tribal members.

According to EPA, the "average American" consumes only 7.5 grams of fish per day, which is only a 1/2-ounce portion or roughly the size of your pinky fingernail per day.

The Columbia Basin study indicated that the average tribal child there consumed 24.8 grams per day and the average adult consumed 63.2 grams per day. Those who ate the most fish consumed 162 grams per day for children and 389 grams per day for adults.

Dr. Dave Stone, public health toxicologist for ODHS, discussed the health benefits of consuming fish, the risks associated with consuming fish from polluted water, what fish tend to have the highest concentration of

Ryan French, fisheries biologist with the Siletz Tribe, shows Sage Hatch the proper technique to remove the skin and fat from a salmon fillet prior to cooking to reduce exposure to toxins.



chemicals, and ways to reduce exposure to these chemicals by properly cleaning and cooking your catch.

The contaminants of concern include mercury, PCBs, pesticides, and dioxins, which at high doses have been shown to affect mental, physical, and reproductive developmental capacity as well as cause cancer and other illnesses.

One way to reduce exposure to pesticides, PCBs, and dioxin in fish is to remove the skin before cooking; trim off the fatty areas along the side, back, and belly; and cook the fish by broiling, baking, grilling, or smoking so the fats and oils can drip off it.

EPA studies have shown that just removing the skin can reduce toxin levels by 50 percent and following these cooking methods can dramatically reduce contaminant levels. At the meeting, Ryan French, Siletz Tribal fisheries biologist, demonstrated the proper technique for removing the skin and fat off a salmon fillet prior to cooking to reduce exposure to toxins.

Mercury, however, cannot be removed from fish through proper cleaning and cooking because it binds to muscle tissue (fillet.) According to ODHS, mercury in Oregon's waterways is believed to come from a combination of natural volcanic sources in the headwater streams and from a number of man-made sources along the river.

Some of the PCBs, dioxins, and chlorinated pesticide residues may come from widely distributed natural sources and some are from human activities that occur throughout the Willamette River and the Columbia River watersheds. In recent years, the U.S. government has

imposed new restrictions on the uses, storage, and disposal of these compounds.

State agencies and the federal government continue to evaluate and clean up known contaminated sites.

Mercury concentrations also are a major concern in many Oregon lakes and advisories have been posted in certain lakes, primarily throughout Douglas County and in Eastern Oregon. These advisories can be found in the Oregon Department of Fish and Wildlife 2004 Angling Regulations (page 10), by calling ODHS at 503-731-4012, or by visiting [www.healthoregon.org/fishadv](http://www.healthoregon.org/fishadv). The Web site also contains guidelines on fish cleaning and consumption.

Currently, ODHS has placed an advisory on the consumption of resident fish species from the Willamette River and Coast Fork Willamette to Cottage Grove Reservoir for high mercury and PCB levels. Children under age 6 should eat no more than one 4-ounce meal every two months.

Women of childbearing age should eat no more than one 8-ounce meal every month. Healthy adults should eat no more than one 8-ounce meal every two weeks.

All persons should reduce or avoid eating fatty parts of fish. Removing the skin and all fat, eggs, and internal organs can reduce exposure. The Lower Columbia River, the mainstem of the Willamette River, the Columbia Slough, and areas above Bonneville Dam have advisories that include consumption of freshwater clams and crayfish.

It should be noted that fish not from the Columbia or Willamette basins also

See Fish Toxicity on page 11.