

Evaluation of contaminants in Oakland Bay Mason County, Washington

The Washington State Department of Health completed two health consultations that looked at contaminants found in Oakland Bay to see if they are a health threat to people. One health consultation looked at contaminants in sediments and the other focused on dioxins in shellfish.

Overview

Oakland Bay is located in south Puget Sound and includes Shelton Harbor. It is connected to Puget Sound via Hammersley Inlet. Oakland Bay is one of the most productive commercial and tribal shellfish growing areas in the country. It is known worldwide for Manila clams.

Many years of industrial use in the bay, especially in Shelton Harbor, has led to sediment contamination. In 2008, the Washington State Department of Ecology (Ecology) took sediment samples from Oakland Bay, Shelton Harbor, and Hammersley Inlet to see how much contamination is there. Ecology looked for several kinds of contaminants in the sediments, including organics, metals, dioxins, and wood waste. Most organic and all metal levels were below state standards for concern.

Ecology asked the Department of Health to evaluate the results to see if contaminant levels in sediments pose a health threat for the people who live, work, or recreate in and around the shorelines of Oakland Bay.

Contamination in shellfish was also evaluated. In 2009, samples of clams, oysters, and mussels were collected from multiple locations around Oakland Bay. Results were evaluated to see if dioxin levels are a potential health threat for people who eat shellfish harvested in the area.

Health assessments

The Department of Health looks at a variety of information when doing health assessments. To determine if there is a health threat from eating shellfish harvested from Oakland Bay, or from touching, breathing in, or accidentally swallowing sediments during work or recreation activities, the following is considered:

- The **type** of contaminant (example: dioxin).
- **How long** a person is exposed to the contaminant.
- **How much** of the contaminant a person is exposed to.
- **How a person is exposed** to the contaminant (breathing in, eating, or skin contact).
- **Site conditions** where the contaminant is found and how people use that site (example: surface sediment in a recreational area compared to sediments under water).

Sediment evaluation

After reviewing the 2008 sediment data, the Department of Health identified two contaminants of concern — dioxins and carcinogenic polycyclic aromatic hydrocarbons (cPAHs). After further evaluation, the health department found the levels of these contaminants were low, and did not represent a health concern for residents, workers, and visitors. The sediment evaluation concluded:

- Touching, breathing in, or accidentally eating sediment containing dioxins and total cPAHs from the Oakland Bay site is not likely to harm people's health.

Dioxins are a group of chemicals that can occur naturally in the environment at low levels, and can also be made during industrial processes, like burning, bleached kraft pulp mill processes, or chemical manufacturing. Exposure to high levels of dioxin can cause health effects in people, such as chloracne, a skin disease with acne like lesions. Other effects may include immune and reproductive system problems, and possibly mild liver damage. Exposure to high levels of dioxin may also increase the risk of certain cancers.

PAHs are created by the incomplete burning of organic material, including oil, wood, and coal. A main source of exposure to PAHs is through the food we eat; smoked or barbecued meats and fish contain relatively high levels of PAHs. Some PAHs have been classified as possibly causing cancer.

Shellfish evaluation

The 2009 shellfish samples included Manila clams, Pacific and Kumamoto oysters, and mussels. The purpose of sampling was to see if dioxins in shellfish pose a health threat for people who eat them. The Department of Health estimated how much of these shellfish people may eat over a lifetime and measured potential health risks from eating shellfish harvested from the area. The shellfish evaluation concluded:

- Eating shellfish from the Oakland Bay site is not likely to produce harmful health effects even for people who eat a lot of these products.

Ways to Minimize Exposure to Sediments at Oakland Bay

It's a good idea to avoid or reduce your potential exposure to contaminants, even if exposure to contaminants found in Oakland Bay are not likely to be a health hazard. Exposure can be reduced if people follow a few guidelines.

Shellfish

- Rinse sediment off all oysters, mussels and commercially produced clams with cold water before opening or cooking.
- Purge grit from clams harvested recreationally.

General advice

- Prevent children from eating dirt.
- Wash your hands and face after playing or working in sediments, especially before eating.
- Use a scrub brush with plenty of soap and water to clean dirt from under your nails.
- Rinse anything that has come into contact with sediment before entering your home.
- Wash heavily soiled clothing separately.
- Remove shoes before entering your home to avoid tracking sediment into your house.

Keep pets clean

- Wipe down pets before you let them inside.
- Keep your pets clean. Brush and bathe them regularly.

How to purge clams:

1. In Puget Sound, place clams in a mesh bag and hang in saltwater (off a dock or boat) for 24 hours.
2. At home, dissolve 1/3 cup sea salt per gallon of very cold water in a large bowl, bucket, or cooler.
3. Place the clams in the water and leave the set up in a cold place for about two hours.
4. Drain, rinse and cook the clams.

For more information

Information about human health, contact **Washington State Department of Health**
Toll Free 1-877-485-7316

The health consultation reports are posted on the Department of Health website
(<http://www.doh.wa.gov/ehp/oehas/consults.htm>).

Information about the sediment investigation, contact **Washington State Department of Ecology**
1-360-407-6260
(http://www.ecy.wa.gov/programs/tcp/sites/oaklandBay/oaklandBay_hp.htm)

People with disabilities may request this document in other formats. To make a request, call 1-800-525-0127 or 1-800-833-6388 (TTY/TDD).