



REMOVING CREOSOTE-TREATED WOOD FROM PUGET SOUND AND ITS BEACHES

Creosote has been used as a wood preservative for more than a century to treat telephone poles, railroad ties, piers, docks and floats. Thousands of derelict creosote pilings remain in Puget Sound. Many eventually break up and distribute tons of debris onto beaches throughout the Sound.

Creosote comprises more than 300 chemicals that, together, are very effective at achieving their intended purpose of preventing decay or insect infestation. But chemicals in treated wood—such as those on beaches or old dock pilings—can be harmful and even toxic to marine species. Polycyclic aromatic hydrocarbons (PAHs) are the chemicals of most concern.

When exposed to ultraviolet light or sunshine, the chemicals in creosote become more toxic and are more likely to leach from the wood. A piling that contains creosote can leach throughout its lifetime.

Studies show that herring eggs exposed to creosote have a high mortality rate. PAHs are known to increase disease and alter growth and reproductive function in English sole. These chemicals affect juvenile salmonids that migrate through contaminated estuaries by reducing their growth and altering immune function. Herring and other affected species are important parts of the food web for salmon, Orca whales, and birds.

Creosote can also pose a threat to human health through exposure to creosote vapors on a hot day or through direct contact when playing around, sitting on, or burning the treated wood.

Working together on cleanup

The Washington State Department of Natural Resources (DNR) partners with local groups, governments, and private property owners to remove treated wood located on public and private property throughout Puget Sound. In 2004, DNR created the Creosote Removal Program to help fund public and private community restoration projects that remove creosote-treated debris and pilings on or adjacent to state-owned aquatic lands.

In 2007, Governor Gregoire launched the Puget Sound Initiative to clean up Puget Sound by 2020 and identified creosote removal as a high priority. Funding provided through this initiative allowed DNR and its partners to expand the program to include the removal of creosote-treated pilings and overwater structures, the source of the beach debris.



Harmful chemicals from creosote-treated wood continue to leach from pilings long after they have served their function.
Photo: Monica Shoemaker/DNR

DNR's Creosote Removal Program Accomplishments

From 2004 to 2018, the program has removed:

- ✓ More than **21,300 tons of piles** (= 14,400+ piles).
- ✓ More than **182,000 sq. ft. of overwater structures**.
- ✓ More than **6,670 tons of beach debris**.

Over the past fourteen years, more than 27,980 tons of pilings and derelict beach debris have been removed from Puget Sound shorelines with funding support from the Puget Sound Initiative, the Washington Department of Ecology, National Oceanographic and Atmospheric Administration (NOAA), and others. DNR's goals include: reducing sources of PAHs in Puget Sound by removing structures and debris that are treated with creosote; reducing human exposure to creosote on beaches; and improving the quality of the nearshore habitats for forage fish and other key species. DNR also promotes the use of non-creosote-treated materials in the building of new structures and replacement structures.

Removing beach debris and pilings by priority

DNR uses a combination of the following criteria to determine where to focus removal efforts:

- High concentrations of pilings or debris in an area (determined through inventories).
- Habitat considerations, including areas of herring spawn, salmon migration, and/or shellfish.
- Endangered Species Act considerations for species or habitats at risk.
- High-priority areas for local community and local restoration plans.
- Public health and safety, such as structures that create a nuisance at public access sites or obstruct navigation.

Protecting our environment and cultural resources

DNR worked with its partner agencies, including Washington Department of Fish and Wildlife (WDFW) and Ecology to develop 'best management practices' (BMPs) for removing both pilings and beach debris. These BMPs guide how to minimize disturbing the environment during the removal of the derelict piles and debris.

DNR's policy is to identify and protect significant historic and archaeological sites, and to communicate and promote collaboration with tribes and interested stakeholders to address culturally significant areas. Sites that are older than 50 years go through a cultural resource review prior to removing pilings. This includes consultation with affected tribes and review with the State Department of Archaeology and Historic Preservation and taking reasonable action to avoid, reduce, or mitigate adverse effects to the resources.

Birds and other wildlife using pilings as habitat

One goal of removing creosote-treating pilings is to provide healthy—rather than contaminated—habitat. Pilings often act as habitat for a variety of species, such as birds—for nesting and perching. The toxic materials in this unnatural habitat may not have immediate effects, but they can have a cumulative effect on some species. The removal of creosote from the environment is essential to prevent long-term impacts from these materials persisting within the environment and the food web.

In some areas, especially with willing partners, DNR may opt to replace pilings and other vertical structures with non-treated structures such as steel or concrete. DNR also may move nest boxes to nearby structures, working closely with WDFW and local Audubon groups to determine appropriate methods and timing to reduce the impact to birds.

Pilings used as recreational sites

Divers frequently used old creosote-treated structures for dive sites. The diving community has worked with state and local officials to establish a long-term plan for developing safe and accessible dive locations around Puget Sound. As manager of these state-owned aquatic lands, DNR is committed to working with the diving community to find healthier alternatives as piling removal projects continue throughout the Sound.

State DNR—managing 2.6 million acres of aquatic lands

DNR manages Washington's 2.6 million acres of state-owned aquatic lands—including the bedlands under Puget Sound and the coast, many beaches, and navigable natural lakes and rivers as a **public trust** for the people of the state. Creosote debris removal is part of the DNR Aquatics Program's work to protect the environment, provide opportunities for recreation, support water-dependent businesses, and promote sustainable use of natural resources.

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FOR MORE INFO: <https://www.dnr.wa.gov/programs-and-services/aquatics/restoration/creosote-removal>

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