



WASHINGTON STATE DEPARTMENT OF
Natural Resources
Doug Sutherland - Commissioner of Public Lands



Creosote Cleanup of Puget Sound and its Beaches

Pervasive and toxic to humans and other living things

Creosote has been used as a wood preservative for a century to treat telephone poles, railroad ties, piers, docks and floats. There are thousands of derelict creosote pilings in Puget Sound that eventually fall apart, drift around the Sound, and wash ashore, leaving tons of toxic wood debris on beaches throughout the Sound.

Creosote is composed of more than 300 chemicals that, together, are very effective at achieving their intended purpose: preventing decay and infestation. However, when these chemicals leach into the Sound they can harm other organisms as well. A piling that contains creosote can leach throughout its entire lifetime.

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. Recent studies have shown that PAHs are detrimental to salmon immune function and development. Other studies have shown that herring eggs exposed to creosote have a high mortality rate and English sole develop liver lesions. These and other affected species are important in the food chain for salmon, Orca whales, and birds.

The public can also be exposed to creosote on beaches. People can be exposed to creosote vapors on a hot day or through direct contact when playing, sitting on, or burning the treated wood.

Governor Gregoire launches new initiative, adds funding
Washington's Department of Natural Resources developed a restoration program in 2002, and partnered with many groups to inventory and remove creosote-treated wood debris from Puget Sound beaches. While launching cleanup efforts through the 'Puget Sound Initiative,' Governor Chris Gregoire identified creosote removal as a high priority, and in 2007 added \$4 million for DNR to continue its program to remove treated debris throughout Puget Sound. This additional funding allowed for expanding the program to include removal of treated pilings, the source of the drifting debris that end up on Puget Sound beaches.

Working together on cleanup

Over the past five years, more than 2,200 pilings and more than 4,200 tons of derelict pilings and beach debris have been removed from Puget Sound shorelines. DNR's goals include: reducing sources of PAHs in Puget Sound by removing structures and debris 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 new and replacement structures built with non-creosote-treated materials.

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Beach debris and piling removals—where projects will occur



Removal prioritization is based on the following criteria:

- Known high concentrations of creosote pilings or beach debris in an area; sites that are a high priority to the local community;
- Endangered Species Act (ESA) considerations for species or habitats at risk;
- Public health and safety, such as structures that obstruct navigation or public access sites;
- Habitat considerations, including areas of herring spawn, crab, shellfish.

Removing pilings from state-owned and private tidelands

DNR partners with local groups, governments, and private property owners to remove treated wood located on public and private property all across Puget Sound.

DNR worked with its partner agencies including Washington State Department of Fish and Wildlife and Ecology to develop ‘best management practices’ for removing both pilings and beach debris, and has general permit approvals for work throughout the Sound. Historical reviews of sites 50 years and older is required by the Department of Archaeological and Historic Preservation; and local shoreline permitting occurs for each site.

Techniques for removal of creosote-treated pilings and debris

Removal of treated pilings is done with a vibratory hammer, crane, and barge. Beach debris is removed by hand, crane, barge, and/or helicopter, depending on the site. Best management practices are in place for all removals to ensure they meet the standards of a clean and safe project.

Birds and other wildlife using pilings as habitat

Generally, the goal is to provide healthy—rather than contaminated—habitat. Often pilings act as a vertical habitat for a variety of species. This unnatural habitat may not appear to be toxic to these species because the toxins may not immediately affect the species colonizing the piling. Toxins can have a cumulative affect on some species. The removal of creosote from the environment is essential in order to prevent long-term impacts from the toxins existing within the environment and the food chain.



Pilings are frequently used by birds for perching and sometimes nesting. In some areas, 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 the Department of Fish and Wildlife and local Audubon groups to assist with determining appropriate methods and timing to reduce impact to birds.

Pilings used as recreational sites

Divers have frequently used old creosote-treated structures for dive sites. The diving community is working 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 a healthier alternative as piling removal projects continue throughout the Sound.

Washington State DNR — managing 5 million acres of aquatic lands and uplands

DNR is steward of the 2.4 million acres of state-owned aquatic (mostly submerged) lands as a public trust for all the people of Washington. Revenue generated from leases of state-owned aquatic lands for aquaculture and private use is used to protect the health of these aquatic resources and to improve public access.

DNR also manages 3 million acres of upland state trust lands to provide revenue for public benefit including construction of public schools, universities, other state educational institutions and prisons, services in many counties, and contribution to the state general fund. Natural Areas protect native ecosystems and provide access for education and low impact public use, where appropriate.