



Dioxin Hot-Spot in Arcata Marsh To Be Assessed

Jen Kalt, Humboldt Baykeeper Director

On March 7, Humboldt Baykeeper, the City of Arcata, and the U.S. Environmental Protection Agency's Brownfields Program staff met for a tour of a contaminated site at the Arcata Marsh and Wildlife Sanctuary. This site has been on our radar since 2015, when a dioxin hotspot was identified in nearby Humboldt Bay sediments during a study of areas proposed for wetland restoration.

The field tour was the kickoff for an EPA-funded effort to identify the extent of contamination on the site. The funding was awarded for a proposal developed over the past year by Baykeeper and City staff. US EPA consultants will research the history of the site to develop sampling plans. They will then sample soil and groundwater, and will use the results to develop a cleanup plan.

The site was once used as a lumber mill – one of many that lined the banks of Butcher Slough, the tidal stretch of Jolly Giant Creek. After the mill closed, the City dug a new channel in the late 1980s to restore the slough to its original location, before the tidal wetlands were filled. Many of the lumber mills that operated from the 1940s to the 1980s used a wood preservative called pentachlorophenol (“penta”), which contained dioxins and furans. These extremely toxic, very long-lasting chemicals are known to cause reproductive damage and cancer. The use of penta for treating lumber was banned in 1987 due to its toxicity, but contaminated soil and groundwater persist at many of these mill sites.

Accidental spills and carelessness caused contamination around penta dip tanks, spray booths, and conical burners used to dispose of wood waste. In many instances, the contamination has never been cleaned up, and it continues to impact our environment. Humboldt Bay's sediment, fish and shellfish contain varying levels of these toxic compounds. Dioxins become more and more concentrated as they move up the food chain (known as “bioaccumulation”). Fish-eating birds such as eagles and osprey are at risk, along with marine mammals and people.

In 2018, Baykeeper sampled sediment from several parts of Butcher Slough and found high dioxin levels just downstream from the historic site of a conical burner, one

potential source of the dioxins. These large, cone-shaped metal structures were used to burn wood waste from lumber mills. Burning treated mill waste resulted in high concentrations of dioxins. But dioxin contamination is often found in other areas of mill sites, such as the “green chain” where fresh-cut lumber was dipped or sprayed with penta to prevent fungus from ruining the wood.

Dioxins are also produced from other types of combustion, including firewood in woodstoves, forest fires, and industrial processes. Even car exhaust generates some dioxins, which are then deposited in the atmosphere and in soil. But these processes typically result in much lower dioxin levels and a different chemical signature than are found at lumber mills that treated wood with penta.

Dozens of lumber mills once operated around Humboldt Bay, lining many tributaries like Jolly Giant Creek and Janes Creek in Arcata. The Little Lake Industries mill on South I Street was one of many mills that once operated along Butcher Slough.

In 2020, the City received a US EPA Brownfield Assessment grant for testing at Little Lake Industries to determine the extent of contamination and develop cleanup plans. In January, the US EPA also approved funding to assess several other contaminated sites in Arcata, including the Arcata Volunteer Fire Department property between Janes Creek and M Street.

Threatened and Impaired Designation

In 2006, Humboldt Baykeeper requested a formal designation of Humboldt Bay as Threatened and Impaired by dioxins. The State Water Resources Control Board agreed and scheduled a recovery plan for 2019. That plan was unfortunately delayed until 2025, but the Threatened and Impaired designation has enabled us to successfully advocate for dioxin sampling before dredging, redeveloping former industrial sites, and other projects where ground disturbance has the potential to remobilize contamination and pollute waterways. Several major sites have been partially cleaned up, including a former boat yard on Tuluwat Island, the former Simpson Plywood Mill in Eureka, and the former Sierra Pacific Industries Mill in Manila.

Rising Sea Level and Groundwater

As sea level rises, groundwater beneath these sites will also rise, potentially mobilizing contamination into the bay, nearby stream channels, or groundwater aquifers. Cleaning up these sites before that happens is critical to the health of the bay ecosystem and the people who rely on it.

According to the California Ocean Protection Council's

2018 projections, sea level in the Humboldt Bay area is expected to rise 1 foot by 2030, 2 feet by 2050, and 3 feet by 2060. But these projections may be outdated: in December, scientists at the American Geophysical Union Fall meeting reported that Antarctica's Thwaites Glacier is likely to collapse within 5 to 10 years, which could result in an additional 2 to 10.8 feet in sea level rise.

The primary impacts from sea level rise are increased flooding and erosion. Sea level rise will expand the area vulnerable to flooding during major storms, as well as in the rare but catastrophic event of a major tsunami. Sea level rise will also push groundwater closer to the surface, compound flooding and impede drainage, pollute wells with saltwater, and mobilize contaminated groundwater in low-lying areas.

People, infrastructure, and property are already located in areas vulnerable to flooding. Sea level rise will cause more frequent—and more damaging—floods to those already at risk and will increase the size of the coastal floodplain, making new areas vulnerable to flooding.

As sea levels and groundwater rise, flooding will become more and more of a nuisance, impacting road access, sewer and water lines, and other major infrastructure. We need to start planning now for what we know we'll be facing in the coming decades. We can debate the precise year Highway 101 will be flooded on a monthly basis, or we can plan for the inevitable before it becomes an emergency. We have the choice of planning relocation or waiting for a catastrophe that puts people, property, and the environment at risk. For more information, visit www.humboldtbykeeper.org

WHAT IS A BROWNFIELD?

Brownfields are contaminated properties that must be cleaned up before they can be redeveloped or restored. In many communities, vacant lots contaminated by past industries sit unused for years because the current owners lack the resources to clean them up to meet current standards. Buying property without investigating past uses and the potential for contamination can leave new owners liable, regardless of who is actually the responsible party. Private and public entities are eligible for Brownfield Assessment grants. Government agencies, tribes, and non-profit organizations are eligible for cleanup grants. Private landowners are eligible for low-interest loans for cleanup of contamination. For information about the US EPA Targeted Brownfield Program, visit www.epa.gov/brownfields.

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