The Climate Crisis on the North Coast

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In November, world leaders met in Glasgow for the 26th time since 1992 to grapple with ways to reduce greenhouse gas emissions. Taking action to slow climate change has become more urgent in recent years, as catastrophic storms, fires, drought, and heat waves are becoming more and more common. This is no longer some abstract future scenario, and the North Coast is facing many challenges as a result of the unfolding climate crisis.

Cascading Effects from Rising Ocean Temperatures

Several years ago, a marine heat wave caused a Sea Star Wasting Disease, followed by an explosion of purple urchins and a massive decline in bull kelp beds, particularly off the coast of Sonoma and Mendocino Counties. Red abalone, which subsist on bull kelp, suffered tremendously, and harvesting them has been off-limits since 2018. Recently, scientists have observed slight increases in kelp beds in areas less accessible to purple urchins, providing a glimmer of hope that some will eventually recover.

To assist in that recovery, bull kelp is being cultivated in Humboldt Bay. As part of a larger network of "regenerative ocean farmers," HSU Fisheries Professor Rafael Cuevas Uribe and a non-profit called GreenWave started the first seaweed farm in California right here in Humboldt Bay. In addition to growing native edible seaweed like dulse, they recently began growing bull kelp to help restore this foundational species.

Warming ocean waters have also wreaked havoc on the commercial Dungeness crab fishery in recent years. In 2014, high levels of domoic acid from toxic algae delayed the commercial crabbing season until March, just as whales began their annual migration. This tragically resulted in record numbers of whale entanglements in fishing gear. This unfortunate series of events led to complex changes in regulations to protect whales, posing many challenges for crab fishermen. Ocean acidification will also bring many changes to the marine ecosystem, although Humboldt Bay may be somewhat buffered from increasing acidity by eelgrass.

"Ground Zero" for Sea Level Rise on the West Coast

Sea level is rising faster in the Humboldt Bay area than anywhere on the West Coast because the ground beneath us is sinking due to tectonic activity. Many places

Storm waves overtop the riprap (stone barrier) at the base of the bluff below PG&E's nuclear waste storage site at King Salmon. Photo by Aldaron Laird.

and structures around the bay are vulnerable. The stretch of U.S. Highway 101 just north of Eureka is expected to flood once a month by 2030. CalTrans is building new bridges between Arcata and Eureka to withstand 75 years of sea level rise. Next year, construction will start on an overpass at Indianola Cutoff, which will eventually become an island if plans aren't made soon for elevating the highway on either side of it. CalTrans recently held the first of several public meetings to hear people's concerns and ideas on a range of solutions, including an elevated viaduct, wetland restoration to absorb wave energy and prevent erosion, and building higher levees.

Flooding from Below as Groundwater Rises

Rising groundwater can't be stopped by levees and seawalls. As sea level rises, groundwater will rise, eventually emerging at the surface. And increases in storm intensity – such as Arcata's 2019 flash flood after two inches of rain in a single hour – will increase flooding.

Rising groundwater will flood low-lying contaminated sites, mobilizing dioxins, heavy metals, and other toxins into the bay. Unfortunately, agencies responsible for monitoring contaminated sites do not consider sea level rise when closing the books on sites that have been cleaned up.

Bluff Erosion at PG&E's Nuclear Waste Site

Sea level rise along the eroding bluff at King Salmon will impact PG&E's nuclear waste storage site in the not-so-distant future. Casks containing 37 tons of nuclear waste are buried 115 feet from the edge of the bluff just 44 feet above the bay. While this is considered a temporary arrangement, a permanent storage facility is unlikely to present itself anytime soon, if ever. For more info on the waste storage site and the nuclear power plant, see HSU Professor Jennifer Marlow's website, 44feetabovesealevel.com.

The World's Reliance on Coal Must End

Until the global appetite for burning coal for energy is curtailed, these problems will only get worse. And coal-fired power plants are not just CO_2 emitters – they also spew mercury into the atmosphere, which is then deposited in rain and fog all over the world. That mercury is then concentrated in some of the fish we eat (see our Humboldt Bay Mercury Assessment on our website to learn which fish are safe to eat, and which ones should be avoided).

The North Coast is also being directly threatened by a shadowy proposal to export coal from Humboldt Bay to Asia via the long-defunct railroad through the Eel River Canyon (see page 5). Air and water pollution from coal dust, diesel emissions, environmental damage from building a new railroad through a landscape that geologists describe as "melting ice cream," and the potential derailments, spills, and fires, would be devastating.

What Can We Do?

We need to prepare for rising seas, longer droughts and fire seasons, and more severe storms. At the same time, we need to act locally to reduce emissions. Humboldt Bay is the leading candidate for the first offshore wind energy project on the West Coast. We need to work to ensure that offshore wind is planned with the fewest impacts to people and the environment possible so that our region can expand renewable energy sources. The longer we wait, the more emergencies we'll have to face due to our inability to reduce fossil fuel dependency.

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