Today is Pearl Harbor Day, the anniversary of the Japanese attack that launched the U.S. into World War II. Those of us who don't live in Hawaii may not think much about the harbor, but I started to wonder how things were going environmentally there.

The geography is more complex than I had expected. I think of a harbor as just an area where boats can park, maybe in a protected bay. (You can see I'm not very nautical, I guess.) There are actually three large water bodies at Pearl, separated by a peninsula and an island, which drain through the same opening.

I was hoping that I could say that the harbor was now pristine. But the reality is more complicated.

It turns out that there's been a big environmental issue lately. The Guardian reported in July 2022 that military families were suffering serious medical symptoms that they attributed to pollution. According to the *Guardian*, there were "thousands who reportedly sickened after 19,000 gallons of jet fuel from the US Navy's second world war-era underground fuel storage facility leaked into one of Oahu's main drinking water aquifers." Lawyers filed lawsuits claiming that the Navy was only treating immediate symptoms rather than doing toxicology screenings or considering possible long-term health issues.

In the meantime, even though civilian water supplies hadn't yet been contaminated, the city shut down a well serving 400,000 people for fear that it would become contaminated. In August 2023, efforts to remove about 104 million gallons of fuel were approved.

There have also been other problems, such as discharge of partially treated wastewater from a water treatment plant in October 2023. That was a year after another problem caused by a water main break.

What about the living creatures in the harbor? Apparently, there's quite a bit of fishing nearby, with people catching sharks, barracuda, and snappers, along with several varieties of trevally. I had to look up "trevally." They turn out to be members of the jack family, which includes the Pacific jack mackerel. That didn't really help me that much, but I gather that like tuna they're predators and good to eat.

In any event, there's actually a National Wildlife Refuge at Pearl Harbor, which includes a wetland and some other protected areas. I liked the Fish & Wildlife Service's discussion of biodiversity there, so I decided not to bother paraphrasing. Here's what it says about birds:

"Tucked amidst naval facilities and urban development, the Honouliuli and Waiawa

Units are managed to provide wetland habitat for four of Hawai'i's endangered waterbirds: ae'o, 'alae ke'oke'o, 'alae 'ula, and koloa maoli, as well as a variety of migratory shorebirds and waterfowl. All Hawaiian waterbirds are federally listed as endangered."

Plants are also important focuses of the Refuge:

"The Kalaeloa Unit was established to protect and enhance the habitat for the endangered plants 'Ewa hinahina and 'akoko. The largest population of 'akoko on O'ahu and the second largest population of endangered 'Ewa hinahina can be found within this unit."

There are also pretty cool underground caves:

"Also in the Kalaeloa Unit, exists a subterranean world few have ever seen. In these underground brackish and saline waters known as anchialine pools, translucent greens, yellows, and reds sparkle like precious gems in a treasure chest. These rare biological gems are known as anchialine pool shrimp."

In the meantime, there's a recent <u>incursion</u> of an invasive octocoral offshore. Octocoral? That sent me to the dictionary again, where I learned that octocoral have eight tentacles and eight mesenteries. What's a mesentery? Back to the dictionary! As far as I could figure out, a mesentery is something like the coral's intestines, though NOAA's diagram suggests that they also contain gonads, and apparently they have filaments that can be stretched out of the mouth to capture and digest food. The marvels of biology! Anyway, these particular octocoral are apparently a threat to native coral and were maybe dumped from someone's aquarium.

All of this is far removed from the violent events of December 7, 1941. But it's important to have a sense of place. In this case, the "place" isn't thriving guite as much as one might hope, but it still seems to have preserved quite a bit of its natural character.

PS. I would love to hear more from people on the island who are more knowledgeable. Or from zoologists, for that matter, who could me more about octocoral.