DDT & California’s Marine Environment

The state of the science on DDT impacts and recent discoveries in industrial waste dumpsites along the California coast

DDT is a legacy pollutant banned in 1972

- DDT, an insecticide developed during WWII, can persist for decades in the environment and is a complex mixture of at least 45 compounds; most of these compounds are understudied.1,2

- DDT-laden waste products were discharged into waterways across the US prior to the ban, but it’s high potential for accumulation in food webs leads to lasting impacts.2

- DDT is toxic to wildlife, especially to top predators like birds of prey, and significantly impacts reproduction.2

DDT is present in California’s marine environment and impacts species health

- DDT has measurable impacts on species health and reproductive capacity; for example, DDT leads to increased cancer rates in Northern California Sea Lions.1

- DDT levels in southern California bottlenose dolphins are the highest measured globally.2

- In 1989 an area nearshore to Palos Verdes, CA was classified as a Superfund Site due to Montrose Chemical Corporation dumping DDT contaminated sewage, which some scientists long suspected was the primary source of high DDT levels in the Southern CA marine ecosystem.3,4
DDT can impact human health but risk through ocean-based sources is not well understood

- DDT is an endocrine disruptor in humans, leading to low birth weights or premature birth; cancer development in humans may increase similarly with exposure to DDT.\(^5\)
- DDT in marine mammals implies there is potential exposure through seafood consumption, although much remains unknown.\(^1\)

New discoveries reveal scope of historical industrial waste dumpsite

- Records point to fourteen deep-water industrial waste dumping sites off the coast of Southern California. These are distinct areas from the Montrose Superfund site.\(^6\)
- The San Pedro Basin area dumping ground (called dumpsite #2) was recently mapped with new sonar technology, revealing a purported ~ 27,000 barrels of potentially DDT-laced industrial waste over 36,000 acres in federal waters.\(^3\)
- Minimal record keeping on what, where, when, and how the waste was dumped may make "clean up" challenging, if not impossible.\(^3\)
- Anecdotally, headlines covering dumpsite #2 have already negatively impacted commercial and recreational use near Catalina Island.\(^7\)
- Scientists have observed seals, sea lions, sharks and whales using some barrels at dumpsite #2 as habitat, potentially leading to further contamination and bioaccumulation.

Looking to science for best next steps

- Researchers are launching new studies exploring toxicity and barrel contents at dumpsite #2, including testing for possible DDT contents.\(^8\)
- Scientists recommend investing in a thorough environmental analysis to determine the total environmental and financial cost this dumping has caused. (pers. comm. Dr. Eunha Hoh)
- Further multidisciplinary investigation that leverages 21st century technology to determine the source of the waste, exact contaminants, and potential mitigation of impacts to marine life and human health is needed.\(^2,6\)