

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 its 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



Figure 1. Map of the Palos Verdes superfund site and San Pedro Basin DDT barrel dumpsite in green. Credit: Sean Greene & LA Times. (8)

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;⁵ cancer development in humans may increase similarly with exposure to DDT.¹
- 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.

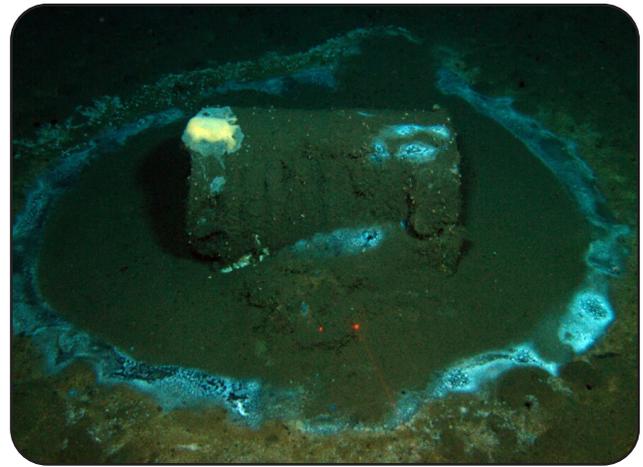


Figure 2. Example of barrel found near Catalina Island (David Valentine/U.C. Santa Barbara/RV Jason, via NYTimes) (8).

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}

