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Navigation

RESEARCH ARTICLE | JANUARY 01 2009

# ASSOCIATION OF AN UNUSUAL MARINE MAMMAL MORTALITY EVENT WITH *PSEUDO-NITZSCHIA* SPP. BLOOMS ALONG THE SOUTHERN CALIFORNIA COASTLINE

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*J Wildl Dis*(2009) 45 (1): 109–121.






Article navigation  
**Volume 45, Issue 1**  
1 January 2009



< Previous Article Next Article >

<https://doi.org/10.7589/0090-3558-45.1.109>

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During 2002, 2,239 marine mammals stranded in southern California. This unusual marine mammal stranding event was clustered from April to June and consisted primarily of California sea lions (*Zalophus californianus*) and long-beaked common dolphins (*Delphinus capensis*) with severe neurologic signs. Intoxication with domoic acid (DA), a marine neurotoxin produced during seasonal blooms of *Pseudo-nitzschia* spp., was suspected. Definitively linking harmful algal blooms to large-scale marine mammal mortalities presents a substantial challenge, as does determining the geographic extent, species composition, and potential population impacts of marine mammal die-offs. For this reason, time series cross-correlation analysis was performed to test the temporal correlations of *Pseudo-nitzschia* blooms with strandings occurring along the southern California coastline. Temporal correlations were identified between strandings and blooms for California sea lions, long-beaked common dolphins, and short-beaked common dolphins (*Delphinus delphis*). Similar correlations were identified for bottlenose dolphins (*Tursiops truncatus*) and gray whales (*Eschrichtius robustus*), but small sample sizes for these species made associations more speculative. The timing of the blooms and strandings of marine mammals suggested that both inshore and offshore foraging species were affected and that marine biotoxin programs should include offshore monitoring sites. In addition, California sea lion-strandings appear to be a very sensitive indicator of DA in the marine environment, and their monitoring should be included in public health surveillance plans.

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Association of an unusual marine mammal mortality event with *Pseudo-nitzschia* spp. blooms along the southern California coastline. *Journal of wildlife diseases*, 45(1), pp. 109-121. EL-SHEHAWY, R., GOROKHOVA, E., FERNÁNDEZ-PIÑAS, F. and DEL CAMPO, F.F., 2012. Harmful algal blooms along the North American west coast region: History, trends, causes, and impacts. *Harmful algae*, Michalak, a.M., anderson, e.j., beletsky, D., boland, s., bosch, n.s., bridgeman, t.b., chaffin, j.D., cho, k., confesor, r. and daloğlu, I., 2013. Many marine species, from otters to seabirds and whales, saw unusually high mortality rates along North America's West Coast in 2015. Near Petersburg, Alaska, a worker examines the dorsal fin of an orca. A giant Pacific octopus moves along the coast of British Columbia. Recent changes in the Pacific temporarily altered migration patterns and food for many creatures, but it will take years for scientists to fully understand how marine life was affected. The Pacific Marine Mammal Center in Laguna Beach, California, took in hundreds of emaciated sea lion pups in 2015. As anchovies and sardines dwindled, thousands of sea lions had to rely on less nutritious food or search harder for prey driven away by warm waters, leading many to starve. AP Photo. A California crab ban reveals trouble in the Pacific Ocean. Crab fishing is delayed, and poisoned sea lions are washing ashore, with a toxic algae to blame. November 6, 2015 12:22PM ET. by Azure Gilman @azuregilman. Commercial crabbing of Dungeness and rock crab along the California coast will be delayed as well, leaving people like Bitts to wonder how drastically their harvest will be affected. Dismiss Share Overlay. Share on Social. The NOAA has deemed this threat serious enough to declare it an "unusual mortality event." On Friday, the federal agency co-sponsored a congressional hearing in Washington, D.C., on the toxic algae bloom. Participants at the event described the impact on West Coast ecosystems and fisheries.