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Mercury concentrations in dated varved marine sediments collected off Southern California

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ABSTRACT

Announcements that mercury concentrations often exceed recommended limits in some oceanic fishes, such as swordfish and tuna, have suggested the possibility that man has polluted the ocean with mercury on a massive scale. Although there are examples of localized mercury pollution of certain fresh and coastal waters[2-4], there are few data on historical levels of this metal in the marine environment distant from specific inputs such as wastewater outfalls. Here we report the concentrations of mercury observed in dated varved sediment layers from the Santa Barbara Basin covering the past 150 yr, as well as in two layers estimated to have been deposited approximately 1,500 yr BP. This basin is approximately 100 miles northwest of Los Angeles, and is sufficiently removed from densely populated areas to be protected from the concentrated effects of localized pollutant inputs. The record investigated includes layers deposited before the beginning of the California mining activity in 1849. Thus, it has been possible to compare near surface sediment concentrations of mercury with those observed in layers deposited before man could have released significant amounts of mercury directly into the California Current.