

6-2018

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Recommended Citation

Panich, Lee M., Tsim D. Schneider, and Paul Engel (2018). The Marine Radiocarbon Reservoir Effect in Tomales Bay, California. *Radiocarbon*, 60(3):963-974. <https://doi.org/10.1017/RDC.2018.26>

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The Marine Radiocarbon Reservoir Effect in Tomales Bay, California

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Radiocarbon, 2018, p. 1–12

Version of record:

<https://doi.org/10.1017/RDC.2018.26>

Abstract: This paper examines the marine reservoir effect for Tomales Bay, a 25.5-km-long tidal estuary along the northern coast of California. We determined the regional ΔR through radiocarbon (^{14}C) measurements of pre-1950 shells from a museum collection as well as archaeologically recovered shell samples from a historical railroad grade of known construction date. These results are compared against four sets of paired shell and bone samples from two local archaeological sites. Our results indicate little spatial variation along the inner bay, but the proposed ΔR value is lower than those previously reported for nearby areas along the Pacific Coast. We also note potential variability in regional ΔR of approximately 200 ^{14}C years for the late Holocene, and comparison with an older paired bone and shell sample points toward more significant temporal variation earlier in time.

Keywords: California, coastal, marine radiocarbon reservoir effect, radiocarbon, Tomales Bay

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