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## **Patterns and potential drivers of declining oxygen content along the Southern California coast**

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### **ABSTRACT**

Here we examine a 50+ yr data set from a regionally coordinated southern California water quality monitoring program to assess temporal trends and determine whether nearshore waters are exhibiting changes in dissolved oxygen (DO) content similar to those reported offshore. DO in sub-mixed layer nearshore waters (, 10 km from shore) have declined up to four times faster than reported for offshore waters over the last 15 yr. These trends were evident over depth, and along isopycnals. They have no precedent over the past 50 yr and do not appear to be attributable primarily to large-scale climate variability in ocean DO. Coastal biophysical processes, including increased phytoplankton biomass in surface waters, are likely contributing to the recent elevated rate of DO decline in nearshore waters, as evidenced by higher rates of increase in apparent oxygen utilization. It is unclear whether these processes result from upwelling-derived or anthropogenic nutrient inputs.

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