

Monitoring the relationship between changes in sea surface temperature and Foraminifera

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Foraminifera (single celled protists with tests primarily of Calcium Carbonate) are directly influenced by ocean warming and hydrographic changes such as expansion of the low oxygen areas associated with anthropogenic climate change. Benthic and planktonic foraminifera communities are good indicators of hydrographic conditions at the sea-floor and sea surface, respectively. Though previous studies have demonstrated that there has been overall ocean surface warming in Southern California and that the oxygen minimum zone has expanded, the relationship between water temperature, dissolved oxygen and foraminifera abundance in the area offshore San Diego has not been extensively examined. Cored sediment samples along with hydrographic data collected during annual research cruises (2001-2012, 2018) on the *RV Sproul* at three stations (water depth 100 m, 200m 300 m) due west from San Diego, CA provide an opportunity to evaluate how benthic and planktonic foraminiferal communities have changed over the past 19 years. The objective of this research was to identify the foraminifera in these sediments and compare patterns between years to temperature and dissolved oxygen (DO). Sediment samples from the upper 1 cm of the seafloor using a multicore were sieved and the foraminifera were picked and examined under a Leica S9i microscope for identification to genus. Sea surface and bottom water temperature and DO concentrations were measured using a CTD. Analyses of the variation between sites and over time will indicate whether benthic and planktonic community changes track environmental changes in temperature and dissolved oxygen, providing valuable data to assess whether climate change is impacting marine communities.