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Changes in Condition and Composition of the Channel Islands' Macrobenthic Communities

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Abstract

Since 1998, the Southern California Bight Regional Monitoring Program has conducted surveys at five year intervals to monitor and assess the health of the soft-sediment macrobenthic fauna across the Southern California Bight, including the continental shelf of the Channel Islands. The Bight monitoring program uses a probabilistic sampling design providing unbiased estimates of condition for the Channel Islands, and the condition of other habitats within the region. Based upon the results of the 2013 survey, the continental shelf portions of the Channel Islands are relatively healthy (>70% in reference condition), but are in comparatively worse condition than similar habitat from the mainland continental shelf. Furthermore, trends in the data suggest that there may be a small, but steady decline in the condition of Channel Islands shelf habitat over the last 15 years. Concurrently with this change in habitat condition, there has also been a clear, steady change in macrobenthic community composition since 1998. The pattern at the Channel Islands mirrors similar changes in macrobenthic community composition that have been observed in almost every other macrobenthic habitat across the region. These changes may be reflective of changes in regional-scale stressor exposure (i.e., eutrophication or physical disturbance), well as basin-scale changes across the entire Northern Pacific Ocean (i.e., global warming and ocean acidification). Continued monitoring efforts designed to identify the stressors potentially affecting the region will be needed to determine if the changes in macrobenthic community condition and composition are an ongoing trend or short-term anomalies.