

Comparison of Demersal Fish and Macroinvertebrate Assemblages in Two Areas of a California Embayment

Melissa Otte¹, Donna Kline², James Lindholm²

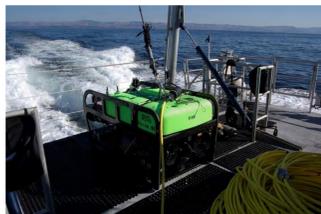
¹Monterey Academy of Oceanographic Sciences, ²Institute for Applied Marine Ecology, California State University, Monterey Bay



Introduction

Soft-sediment seafloor communities that provide important ecological services such as habitat for fisheries resources, recycling nutrients and detoxifying pollutants, can vary with both time and space. We compared community assemblages of fish and macroinvertebrates in two areas located in the northern and southern regions of a California embayment to evaluate possible spatial differences in that area based on observed differences in grain size and bottom currents. ROV footage was taken in both northern and southern regions and were then divided into three transects in each area. We used these clips to then compare the two regions of the bay.

Methods



ROV used to collect video records used for analyses.

Video was recorded by an ROV and three 20 min transects were selected from the video records for both the northern and the southern regions. Data were collected in one minute intervals in each of the six transects. Species richness, abundance, and diversity were then calculated for each of the transects in each area. We then compared these two regions using t-tests and analysis of variance to test for differences between the two regions.

Ho: No difference between the two regions in Species Richness.

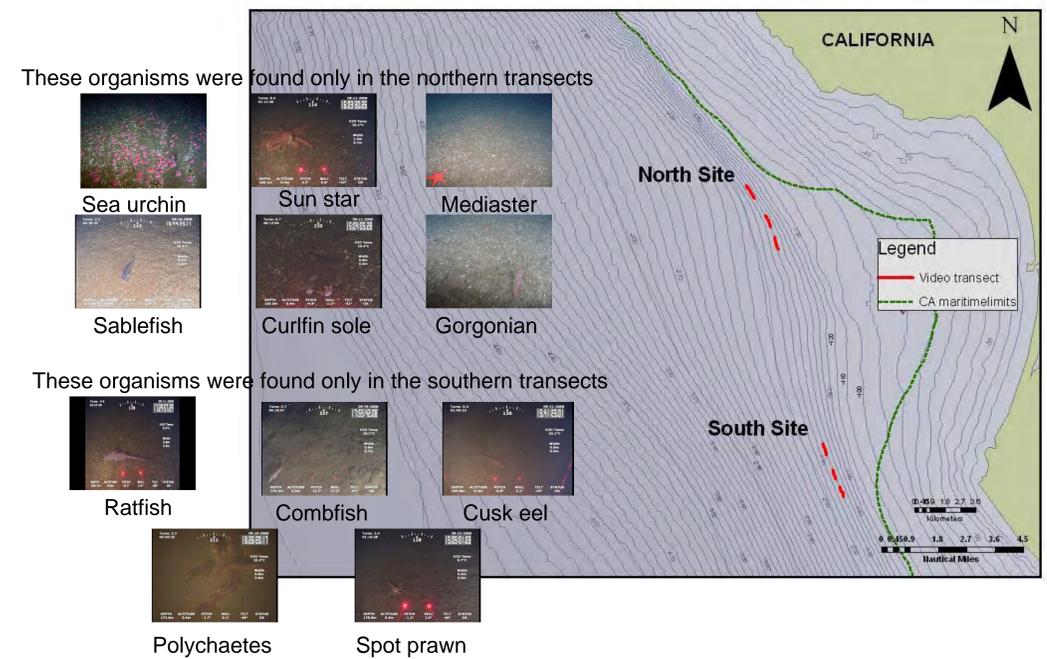
Ho: No difference between the two regions in Abundance.

Ho: No difference between the two regions in Diversity.

Conclusion

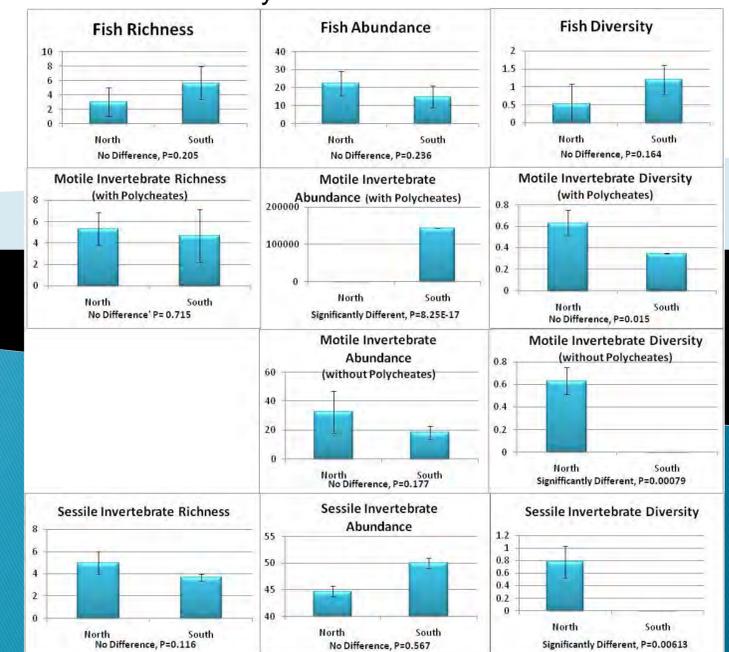
The data collected from both the northern and southern regions of the bay show that though there are many similarities between the two regions they are different.

Map

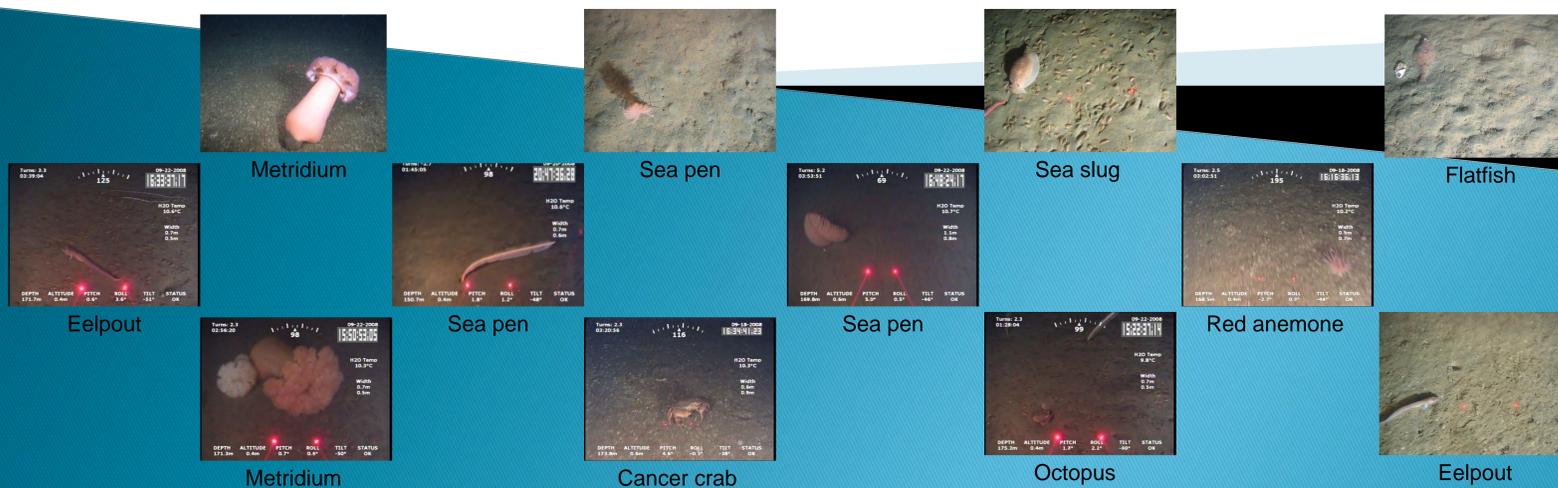


Results

We used t-tests and analysis of variance to test for differences between the two regions of the bay. In fish there was no significant difference in either species richness, abundance, or diversity. When the test was done on motile invertebrates they were divided into two sub groups, with polychaetes and without because the polychaete abundance was so high. With the polychaetes included we found that there was no difference in richness or diversity but there was a difference in abundance. When the polychaetes were taken out of the calculations we found that abundance had no difference while diversity did. Finally when we did the tests on sessile invertebrates we found that there was no difference in either richness or abundance but there was a difference in diversity.



These organisms were found in both regions.



We wish to thank the following members of the scientific and ship support teams for their invaluable field support: Nicolas Donlou (CSUMB), Capt. Dave Minard and Capt. Hans Bruning (MBNMS R/V Fulmar). Funding and/or technical support for this project provided by The Nature Conservancy, Marine Applied Research and Exploration, the Monterey Bay National Marine Sanctuary, and California State University, Monterey Bay.