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Faunal and stable isotopic analyses of benthic foraminifera from the Southeast Seep on Kimki Ridge offshore southern California, USA

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ABSTRACT

We investigated the benthic foraminiferal faunal and stable carbon and oxygen isotopic composition of a 15-cm push core (NA075-092b) obtained on a Telepresence-Enabled cruise to the Southeast Seep on Kimki Ridge offshore southern California. The seep core was taken at a depth of 973 m in the vicinity of a *Beggiatoa* bacterial mat and vesicomid clams (*Calyplogena*) and compared to previously published data of living assemblages from ~714 m, four reference cores obtained at ~1030 m, and another one at 739 m. All of the reference sites are also from the Inner Continental Borderland but with no evidence of methane seepage.

No endemic species were found at the seep site and most of the taxa recovered there have been reported previously from other seep or low oxygen environments. Q- and R-mode cluster analyses clearly illustrated differences in the faunal assemblages of the seep and non-seep sites. The living assemblage at Southeast Seep was characterized by abundant *Takayanagia delicata*, *Cassidulina translucens*, and *Spiroplectammina biformis*, whereas the non-seep San Pedro Basin reference assemblage was comprised primarily of *Chilostomella oolina* and *Globobulimina pacifica*. Density and species richness were lower at the seep site compared to the non-seep site, reflecting the harsher

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