

## **Extensive microbial mats discovered at seep in oxygen minimum zone off the CA coast by Redondo Knoll**

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A deep-water seep (~900 m) was discovered off the California coast, at Redondo Knoll just outside of the Los Angeles shipping lane, during a 2015 E/V Nautilus telepresence-enabled cruise. The seep was initially located using shipboard EM302 multibeam and then confirmed visually using ROV Hercules. Active methane bubbling occurred during some parts of the dive, and the site was particularly notable for several extensive bacterial mats, including one at least 135 m long. The seep was mapped extensively using laser bathymetry (1 cm resolution) and photographed to create a detailed mosaic. Additionally, the seep is near the core of a local oxygen minimum zone, averaging around 0.5  $\mu$ moles of oxygen, or effectively no measurable oxygen. As a result of these low oxygen levels, no megafauna was observed, with the lack of typical seep endemics especially noticeable. This site would be applicable for future studies of astrobiological interests, examining water-rock-microbe interactions without megafauna.