

**COMPARATIVE ANALYSES OF THE SPECIES DIVERSITY OF A WOOD FALL
AND WHALE FALLS ON THE DEEP-SEA FLOOR**

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**By
Danielle Ruplinger**

**Thesis Advisor:
Craig R. Smith**

Abstract

In 1987, Smith et al. found a chemoautotrophic community supported by the reduced compounds of a lipid-rich whale skeleton in the Santa Catalina Basin. The team has since sampled four similar skeletons at depths of 1000-2000 m, spread out at distances of 60-250 km along the California Slope. Research conducted on the sites from 1987 to 1995 has shown that the skeletons fueled the sulfide-based chemosynthesis of a diverse faunal assemblage, of which 97% of the macrofaunal individuals were species rare or absent in the surrounding environment. The chemosynthetic habitat was representative of one of the decompositional stages that was later appropriately termed the sulfophilic stage. Future research ventures by Smith et al. resulted in the implantation of three whales to sites off the western coast of California (San Clemente Basin, San Diego Trough, and Santa Cruz Basin). Since then two additional decompositional stages have been outlined: a mobile scavenger stage and an enrichment-opportunistic stage. Other treatment types were placed on the sea floor for comparison of the whale fall species community and structure and to make a conjecture about a possible evolutionary succession between the two substrates. This paper illustrates that through the collection, analyses, and comparison of whale fall (San Nicholas Slope, Santa Catalina Basin and San Clemente Basin) and wood fall (3-yr wood parcel of the Santa Cruz Basin) samples it was found that whale falls do possess higher species diversity than do wood falls. This conclusion was explained by the diverse energy sources found in the whale fall community.