

## **Outcrop Characterization of a Turbidite Deposit: The Pigeon Point Formation, California**

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### **ABSTRACT**

The Upper Cretaceous Pigeon Point Formation, outcrops along the Pacific Coast south of San Francisco, California, contains a full spectrum of coarse-grained deep-water deposits that are well exposed despite being heavily faulted and structurally deformed. Although the outcrops are widely visited by geologists, the stratigraphy, sedimentology and tectonic implications of the formation are still poorly resolved. The goal of this study is to develop a depositional model for the Pigeon Point Formation and infer the depositional processes of the depositing turbidity currents and debris flows. The lithofacies of low-density turbidity currents are generally thin-bedded sandstone interbedded with mudstone with occasional sandstone beds that are 1-2 meters thick. The thick massive sandstone deposited by high-density turbidity currents would be considered prime targets for petroleum exploration elsewhere. Although hydrocarbon is not present in the area, the findings from this study will contribute to petroleum exploration in deep-water deposits. The preparation of a detailed geologic map records features at the sedimentation unit scale, and stratigraphic measured sections are constructed in order to understand the stratigraphy. This study reconstructs the formation before faulting to determine the geometries of deposits and their dimensions in different environments. Major and trace element analysis and petrography are used to determine the composition and provenance of the rocks and the tectonic evolution of the formation.