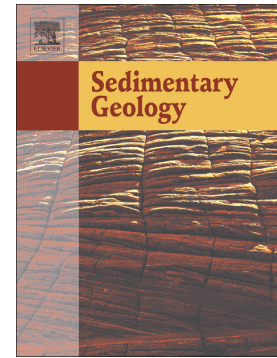


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### Bayhead Deltas and Shorelines: Insights from Modern and Ancient Examples

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**Bayhead Deltas and Shorelines: Insights from Modern and Ancient Examples**Alexander R. Simms<sup>1</sup>, Antonio B. Rodriguez<sup>2</sup>, John B. Anderson<sup>3</sup>

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**Abstract**

Bayhead deltas are important components of the rock record as well as modern estuaries, hosting important hydrocarbon reservoirs and many coastal cities, ports and large expanses of wetlands. Despite their significance, few studies have summarized their occurrence and sedimentary characteristics. In this paper we review the stratigraphic, sedimentary, and geomorphic characteristics of 68 modern and ancient bayhead deltas. Bayhead deltas are found in incised valleys, structural basins, fjords, interdistributary bays of larger open-ocean deltas, and other backbarrier environments. Except for within fjords, they generally prograde into shallower and more brackish waters than their open-ocean equivalents. As a result, 80% of modern, 68% of Quaternary, and 67% of ancient bayhead deltas have clinoform thicknesses of 10 m or less with 73% of modern bayhead deltas having clinoform thicknesses of 5 m or less. Additionally, 89% of modern, 81% of Quaternary, and 77% of ancient bayhead deltas examined are fluvial dominated. We distinguish true bayhead deltas from their genetically similar bayhead shorelines, which are not constructional features but sites of enhanced marsh or estuarine sedimentation near river mouths with inadequate rates of sediment delivery to form distributary channels and prograde into the estuary or lagoon. We also distinguish confined bayhead deltas found in incised valleys, structural basins, and fjords from unconfined bayhead deltas found as incipient lobes of larger delta complexes and other

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