TECTONIC SETTING OF THE CONTINENTAL MARGIN OFF THE WESTERN UNITED STATES

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Compressional deformation related to oblique subduction of the Juan de Fuca plate characterizes the structure of the continental margin north of Cape Mendocino, California, and strike slip faulting dominates to the south. Subduction-related structures are folds and thrust faults, with west side up offsets (probably eastward directed thrusts) off central Washington and, more commonly, east side up offsets off northern California, Oregon, and northern Washington.

Numerous sedimentary basins are formed between fold and fault ridges in this region. Numerous large basins and faults are developed off central and southern California. Uplift of fault ridges often produced analogous basin forms with the compressional ridges to the north. Drilling results indicate that all basins off central California formed in the late Middle Miocene, a time of accelerated rates of movement both along the San Andreas fault system and between the Pacific and American plates. Possibly a minor change in direction of plate motion resulted in extensional strain along the continental margin at that time (about 12 m.y.a.). Miocene and younger strata on the central California margin are faulted but show only minor internal deformation. Older rocks are more highly deformed, possibly in part a result of Early Tertiary subduction in this region.

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