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Late Pleistocene to Holocene shallow marine – coastal changing environments and human interaction in the South Bay of Dor, Israel

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The Tel-Dor embayment located along the Carmel coast provides a valuable opportunity to study environmental and human interaction due to its protecting geomorphic properties that are unique for the generally linear Israeli coast. Interpretations of seismic profiles collected from transects across the bay show five seismic units that have been correlated to dated and well-analyzed sediment units in coastal cores, enabling a detailed deep time reconstruction of the coastal system over the last ~77 ka. The earliest borehole deposits are low-stand aeolian followed by terrestrial sediments including wetland remains that were subsequently flooded by the mid-Holocene transgression. Evidence of the earliest human settlement submerged Pottery-Neolithic (8.25-7 ka) remains, found immediately above the wetland deposits landward of a submerged aeolianite ridge at the mouth of the bay. The wetland deposits and Pottery-Neolithic settlement remains are at present buried by coastal sand recording middle Holocene sea-level rise and thus, suggesting that these coastal communities were displaced by sea-level transgression ca. 7.6–6.5 ka. The sedimentological and archaeological evidence identified in the stratigraphical sequence of the sheltered bay is a good example of better understanding the essential environmental changes on the shallow shelf and the coastline migration especially in bays and the human settlement adaptations to these changes. This high-resolution reconstruction based on seismic methods in the shallow water and core analysis on land combined with detailed archaeological data from the studied area provides an important addition to the puzzle of the Mediterranean story, the cradle of Western Civilizations.