



Figure 9 - How Long Point - Erie Ridge and Clear Creek Ridge may have evolved in postglacial time. The *first* of these schematic sections simulates possible conditions during the early Holocene, with rising water levels 21m below present lake level, filling the Eastern Basin but only beginning to spill over into the Central Basin. Long Point - Erie Ridge is surrounded by land area to the west. The *second* section simulates possible conditions a little later, when water levels rose in the Central Basin so that the shoreline approached Long Point - Erie Ridge from the west. At this time an offshore bar coinciding with Clear Creek Ridge may have formed in the zone of breaking wave energy. Alternatively, Clear Creek Ridge may have been underlain by a pre-existing moraine. The *third* section simulates possible conditions later in the early Holocene, when water levels fluctuated but remained low, simulated at 16 to 17 m below present lake level. During this time Clear Creek and Long Point - Erie Ridges formed peninsulas, were modified by wave action, and the two ridges became the site of longshore movement of large volumes of sand southward from the Ontario shore. Sand probably accumulated along the shorelines of the two ridges, especially toward the southern end, where wave energy was not sufficient to transport the entire sediment load. Longshore sand movement probably ceased first on the Clear Creek Ridge, the crestline of which is about 2 m deeper than that of the Long Point-Erie Ridge. The *fourth* section simulates conditions following the Nipissing Rise, when the ridges were flooded to depths which protected them from further shore zone modifications. With peninsulas associated with Clear Creek and Long Point - Erie Ridges no longer constraining water circulation in Lake Erie, the main features of water circulation and longshore sediment drift were altered. At this time Long Point spit began to form.