

THE QUATERNARY GEOLOGY  
OF UPPER SPENCER  
GULF

by  
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## ABSTRACT

Using seismic reflection profiles and core data a thin sequence of Holocene and Pleistocene sediment was studied in Spencer Gulf, between Whyalla and Port Pirie, and again near Port Augusta. Six seismic sequences were recognized and these were related to stratigraphic units deposited with changing Pleistocene sea levels in the Gulf. Facies recognized within the Pleistocene sediments include aeolian, supratidal, beach and subtidal sediments. The marine Holocene sediments within the cores consist of basically one facies: the subtidal facies generally coarsening upwards. Detailed sediment particle analyses were carried out on the top 2 cm. of the Holocene. It was noted that a reciprocal relationship exists between the proportion of quartz and bivalves, quartz and foraminifera, and between quartz and total calcium carbonate. A positive relationship is noted between bivalves, foraminifera and total carbonate. It was also observed that the sedimentary assemblage, both organic and non-organic, differed within the two regions studied, with the northern Gulf being richer in quartz and poorer in biota than the southern Gulf. Studies of the foraminifera indicated that different assemblages lived in different depths of water. It would seem, therefore, that water depth, and the factors associated with water depth, have a great influence on the distribution of fauna within Spencer Gulf.