was found that there was no decline in the abundance of intertidal animals following the hurricane.

Culter and Mahadevan (1982) conducted studies in 1979-1980 to examine long-term effects of the 1976 nourishment. They concluded

> "No long-term adverse environmental effects as a result of beach nourishment could be detected within the nearshore zone of the Panama City beaches. There were also no adverse or stressful conditions present at the borrow sites."

Saloman, et al. (1982) carried out a study analyzing data collected between April 1976 and November 1977. The purpose of the study was to examine short-term effects of offshore dredging on the benthic community. It was concluded that there was an immediate decline in the benthic community; however, the populations recovered rapidly and were virtually at pre-construction levels within one year. It was noted that the borrow pits were relatively small and no more than 5 m of sand (vertically) was removed from each pit. The pits were located in water depths of 6 to 9 m. Initially the pits filled with material finer than on the adjacent bottom; however, these differences tended to diminish with further filling.

Summary Regarding Intertidal Biological Effects of Beach Nourishment

Based on a comprehensive review of published information, Nelson (1985) has concluded that the intertidal beach organisms are well adapted to this high energy environment including significant erosion and accretion events and fluctuations in turbidity. During and immediately following storms, massive erosion and deposition occur over segments of beaches long in comparison to nourishment projects. Thus any adverse effects of beach nourishment carried out with compatible sand tend to be short-lived as the animals can either survive the event or are adapted to rapid lateral recolonization. Nelson notes that although the available evidence indicates minimal and short-lived biological effects, the present level of understanding is such that biological monitoring