

There has been considerable debate concerning the allowable percentage of silt and clay and understandably in some project areas, the allowable limit will be less than in others. A biological study conducted after the Miami Beach, FL nourishment project (1976-1981) concluded that silt and clay percentages greater than 10% could cause substantial damage to offshore coral reefs. (The silt and clay portion of a sediment sample is that fraction with diameters less than 0.0625 mm). The Department of Environmental Regulation of the State of Florida is currently attempting to quantify acceptable levels of silt and clay for placement on the beach. It appears that if a value is adopted, it will be less than or equal to 10% with 5% being a value which has been discussed considerably. Turbidity concerns are both short-term and long-term. During placement, a small percentage of silt and clay will generate quite visible turbidity. In some cases, this turbidity remains confined primarily within the active surf zone, spreading out in the longshore direction. Apart from the surf zone, the initial turbidity is spread offshore over a wide region with generally low concentrations. If silt and clay concentrations are high, the turbidity considerations are likewise high and can present potential problems to both sessile animals (those which cannot move) and motile animals (those which can move). Generally fish will move away from turbidity avoiding the potential effects.

Nelson (1985) has presented an excellent review of the effects of beach nourishment on the nearshore biota. The primary focus was on four common nearshore organisms: (1) Emerita talpoida (mole crabs), (2) Donax (coquina clams), (3) Ocypode (ghost crabs), and (4) Sea Turtles.

Emerita Talpoida (Mole Crabs)

This organism is a filter feeder that burrows in the lower foreshore of the beach and can be very abundant, although the densities tend to be quite irregular. The highly energetic swash zone appears to be the preferred environment for E. Talpoida probably enhancing the food supply. Densities in excess of 3,700 animals per square meter have been reported (Bowman, 1981). The animals tend to be in greatest abundances in Florida in December to January.

E. Talpoida are very mobile and apparently have the capability to avoid being buried by beach nourishment by leaving an area. In a project in which 956,000 m³ sand was placed on Cape Hatteras beach, Hayden and Dolan (1974) found