transport of the sediment in that zone. Flow velocities in each zone act as the primary driving mechanism for sediment transport. By evaluating the sediment characteristics and flow velocities in each zone, hypotheses were made as to the causes of sediment deposition or erosion in each zone. Figure 3.13 shows a plot of sediment size versus velocity necessary to initiate transport (critical velocity), as based on Shield's diagram for turbulent flows (Section 6.3.2), that was used in part to base these hypotheses.

Zones 1, 2, 3 and 4: During a storm flood tide condition, water floods over and behind the rock protection just west of the south jetty (from zone 1 to zone 2). This water is channeled westward behind (south of) the rocks, continually increasing in velocity (Fig. 3.14) and results in the scouring of the sediment in zone 2. Velocities measured in the model indicated prototype values of 1.10 to 1.80 m/sec in this zone during storm conditions. These values are of sufficient magnitude to initiate scour in zone 2. The relatively large grain size of the remaining sediment in zone 2 suggests that primarily the finer grain sizes are scoured from this zone. No erosion was observed in zone 1 indicating that there is no net transport of sediment in this zone over time. Zone 1 was considered to be representative of the overall sediment characteristics of the inlet region along the south jetty both in mean diameter and sorting coefficient.

The channeled flow in zone 2 and the sediment that is scoured by this flow are diverted into the Dubois Park lagoon where the sediment would eventually settle out in zones 3 and 4. Velocities corresponding to 0.75 to 0.90 m/sec measured in zone 3 indicate that only the relatively larger grain sizes will remain in this zone. Analysis of the