Bypassing at Inlets

Jones, C.P. and A.J. Mehta (1977) "A Comparative Review of Sand Transfer Systems at Florida's Tidal Entrances", Proceedings, ASCE Specialty Conference on Coastal Sediments '77, pp. 48-66.

Sand bypassing at inlets modified for navigational purposes is essential to reinstate the natural longshore sand transport processes. This paper reviews the six types of sand transfer systems that have been used in Florida at eleven inlets. The categories of types of systems include: Hydraulic dredging from the inlet, navigational channel, shoal areas or sand trap; hydraulic dredging in the entrance vicinity from an impoundment basin adjacent to a weir jetty; fixed bypassing plants, movable bypassing plants; land-based transfer by dragline or truck; and jet-pump system. The historical quantities and costs at each of the entrances is reviewed and a sketch is presented showing the individual arrangements. The installations are ranked on the basis of: entrance characteristics, navigation; beach erosion and unit cost. The annual cost was found to be $1.09 per cubic yard.

Richardson, T.W. (1977) "Systems of Bypassing of Sand at Coastal Inlets" Proceedings, ASCE Specialty Conference on Coastal Sediment '77, pp. 67-84.

A planning framework is developed for the selection of bypassing system type and the system design. Factors affecting the system type and design include purpose, sand pickup location, discharge location, etc. Various types of bypassing systems and three actual installations are reviewed. Possible system types for bypassing include mobile systems such as a hopper dredge or pipeline dredging, pumping to the downdrift shoreline, jet pumps which in principle can operate unattended but in practice experience severe clogging problems, and fixed bypass systems. The particular systems reviewed are: Marina di Carrara, Italy, Santa Cruz, CA and Rudee Inlet, VA. A discussion is presented of possible future development.