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REPLY

Reply to: The Smith Paper (This issue, pp. 1041–1045)

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Smith's discussion provides a refreshing insight to beach replenishment in another coastal system. Clearly, Smith views the principles of beach design that have been so long ingrained in our literature with appropriate skepticism. He and his co-workers are learning by careful observation what works and what doesn't work for their particular study area—the Gold Coast of Australia. Monitoring is the rule, not the exception. Smith believes that current understanding of the principles of beach design is rudimentary. This approach and attitude is long overdue in beach design efforts for U.S. East Coast barrier island beaches.

Smith's most important observation is that we can not predict the behavior of replenished beaches. His most startling observation is the complete or nearly complete recovery of Gold Coast replenished beaches after storms. This indeed is different from the U.S. East Coast experience (LEONARD *et. al.* 1990). Although virtually no hard data are available on this point, it appears that a maximum of 10 or 20% recovery is more typical of U.S. East coast beaches. One U.S. East Coast beach, the 1982 Ocean City, New Jersey project, has been widely reported to have recovered by a factor of 80% (STAUBLE, 1986). FARRELL and INGLIN (1988), however, with more extensive profiling report little, if any, recovery of the 1982 Ocean City beach. Clearly this is an area of needed research.

Other points:

- Smith and Per Bruun seem to agree with regard to the viability of profile nourishment, but their respective approaches to offshore sand emplacement may be different.
- Smith's observations on grain size are interesting and point out an area of much needed research for all costs.
- Smith's belief that the equilibrium beach profile may not exist may have major ramifications in beach design.
- Smith's questioning of profile adjustment and his observation that the beach has a "continuing cascade of temporary regime profiles" may well be the general case on the U.S. East Coast as well.
- Smith notes; "We cannot tell what the native beach will do tomorrow, let alone an artificially nourished beach that many years ahead." To understand the ramifi-

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cations of that statement, one must recall that American beach replenishment design involves, in effect, the prediction of the rate of loss of the beach.

Smith (*personal communication*) notes that the Gold Coast system is strongly dominated by longshore transport and that offshore fill losses are relatively unimportant. He also notes that the offshore slope is unusually gentle (in part due to rock outcrops) indicating the shoreface is nto in equilibrium with wave conditions. As Smith points out in his discussion, the U.S. East Coast and Australian Gold Coast have "very different circumstances and design and placement practices."

LITERATURE CITED

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STAUBLE, D.K. and HOEL, J., 1986. *Guidelines for Beach Restoration Projects: Part III—Engineering.* Report #77. Gainesville: Florida Sea Grant, 100p.