Coastal and marine policy, science and policy integration

Horseshoe Crab Spawning Site Improvement By Sand Management

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Imazu tidal flat, located in the Hakata Bay coastal zone, is an important site for biodiversity conservation and as habitat for the horseshoe crab. In recent years, erosion has occurred here on sandy beaches the horseshoe crab uses as a spawning ground. In response, Fukuoka City has attempted beach replenishment, but the new sand supplied gradually washes away. Sand management encompassing the entire watershed is one method of improving the sandy beach environment. By analyzing sediment and sand at the spawning ground, we examine the effects of sediment collected at a check dam upstream of Zuibaiji Dam and deposited on the beach. We review the beach replenishment efforts of Fukuoka City by examining the ground elevation based on data from Fukuoka City and from our measurements. We found that watershed sand management methodologies using sand from the dam to deposit on the beach pose no particular problem in terms of the characteristics of the sand. Some of the sediment includes the silt containing organic matter, however, so when sand is deposited on the beach, the organic content should be removed. We also found that water from a drainage outlet erodes sand on the beach, so any deposits made during beach replenishment should avoid the proximity of outlet, and the force of effluent flow should be reduced by placing stones under the outlet. This operation is small-scale, but almost all basic sand management affairs are contained. Further studies are needed about the placement of sand in beach replenishment and the shape of structures placed in the water to prevent sand loss.