

Repeat Seabed surveys in Torres Strait – mapping rates of sandwave migration and implications for the marine environment.

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Two high-resolution bathymetric surveys were undertaken using a shallow-water multibeam sonar at two locations of ~1.5 km² near Turnagain Island, Torres Strait. The purpose of the repeat surveys was to calculate the rate and volume of sand transport and migration direction of bedforms (sandwaves) in the two study areas. The initial survey revealed that the sandwaves were up to 3-4 m in height and spaced up to 200 m apart. In both survey areas the sandwaves were initially asymmetric and oriented towards the east with a full to starved, 3-dimensional morphology. This initial morphology is consistent with the sandwaves being shaped by water movements during the monsoon season. The second survey revealed that the sandwaves had begun to reverse their asymmetry and move towards the west. Significant volumes of sediment were moved at both sites between the two surveys, with maximum volumes attaining up to ~0.09m/day. Over the 17 days, the sand-wave crests moved a net distance of between 6-10 m to the west. Although the sandwaves did not completely reverse their asymmetry, the change in morphology was associated with a change to SE winds and waves. It is likely that during the SE trade wind season the residual westerly water movements would further alter the morphology of the sandwaves. The high-resolution multibeam sonar surveys will be repeated in October 2004 to calculate sediment transport rates and examine the degree to which the sandwaves are affected by the change in residual water movements between Monsoon and SE trade wind seasons. These measurements will provide crucial data for estimating the effects of sediment transport on seagrass survival, dieback and recovery in Torres Strait.

Presentation type: Oral