

ABSTRAK

Julfan Safar (05181611011). Neraca Harian Transport Sedimen Tersuspensi Saat Fase Bulan Kuartil Di Perairan Pantai Tobohoko, dibawah bimbingan Salnuddin dan Zulhan Arifin Harahap.

Dinamika pantai dan perubahan garis pantai menjadi persoalan penting untuk wilayah kepulauan, sebagaimana Kota Ternate. Perubahan garis pantai adalah selisih dari kadar material padat terlarut yang terjadi di suatu perairan pantai dengan sistem keseimbangan (neraca), jika selisih yang terangkut lebih besar maka potensi terjadinya abrasi sangat besar, demikian pula jika selisih material yang mengendap lebih besar maka potensi akresi memungkinkan terjadi. Transport sedimen dalam skala luas yang dipicu oleh bangkitan energi akan menghasilkan sistem keseimbangan alami. Fenomena tersebut juga diikuti oleh sistem berperiodik dalam satu siklus waktu tertentu. Memperhatikan bahwa perubahan garis pantai diawali oleh dinamika material dalam skala kecil dari pergerakan pasang surut dan secara terus menerus terakumulasi dalam jangka waktu tertentu (siklus). Hal itu membutuhkan kajian untuk mendeteksi dinamika material skala harian (jangka pendek). Pengambilan sampel suspensi serta pengambilan data lapangan dilakukan dengan pengukuran parameter lingkungan berupa suhu, salinitas, pergerakan pasang surut dan kecepatan arus. Sampling suspensi dilakukan secara berjenjang untuk pemasangan alat selama 2, 4 dan 6 jam dengan variasi kedalaman pemasangan arrug sampler pada 3 lapisan kedalaman. Hasil penelitian diketahui bahwa kadar suspensi total yang diperoleh untuk kondisi ABP lebih besar ($0,113 \text{ kg/m}^3$) dibandingkan saat kondisi ABS ($0,099 \text{ kg/m}^3$) yang mengindikasikan bahwa transport sedimen suspensi disaat fase bulan kuartil lebih banyak terangkut menuju pantai (akresi) sebesar 13%. Variasi kadar suspensi saat kondisi ABS dari ketiga lapisan, menunjukkan bahwa pada lapisan permukaan relatif sama ($0,033 \text{ kg/m}^3$), dengan jumlah material suspensi yang terperangkap saat pemasangan alat selama 2 jam dan lebih tinggi ($0,041 \text{ kg/m}^3$) dibandingkan dengan pemasangan alat selama 4 jam ($0,039 \text{ kg/m}^3$) dan rata-rata persentase selisih transport sedimen saat ABP dan ABS pada lapisan permukaan (DP) sebesar 5,86% yang lebih rendah dibandingkan pada lapisan pertengahan (7,06 %) dan lapisan dekat dasar (5,90 %). Rata-rata selisih material suspensi yang terangkut sebesar 6,28 % dan relatif kecil dibandingkan dengan dengan persentase material tersuspensi yang tersampling saat fase bulan baru sebesar 10%.

Kata Kunci: neraca harian, kuartil, transport Sedimen, suspensi, siklus, barangka,

ABSTRACT

Julfan Safar (05181611011). Daily Balance of Suspended Sediment Transport during the Quartile Moon Phase in Tobohoko Coastal Waters, under the guidance of Salnuddin and Zulhan Arifin Harahap.

Coastal dynamics and shoreline change are important issues for island regions, such as Ternate City. Shoreline change is the difference between the level of dissolved solid material that occurs in a coastal water with a balance system (balance), if the difference that is transported is greater then the potential for abrasion is very large, likewise if the difference in material that settles is greater then the potential for accretion is possible. Sediment transport on a large scale triggered by energy generation will produce a natural balance system. The phenomenon is also followed by a periodic system in a certain time cycle, noting that shoreline changes are initiated by small-scale material dynamics from tidal movements and continuously accumulate over a period of time (cycle). This requires studies to detect daily-scale (short-term) material dynamics. Suspension sampling and field data collection were carried out by measuring environmental parameters such as temperature, salinity, tidal movement and current speed. Suspension sampling was carried out in stages for installation of the tool for, 2, 4 and 6 hours with variations in the depth of installation of the arrug sampler at 3 layers of depth. The results showed that the total suspension content obtained for the ABP condition was greater (0.113 kg/m³) than during the ABS condition (0.099 kg/m³) indicating that the suspension sediment transport during the strong moon phase was more transported towards the coast (accretion) by 13%. The variation of suspension content during ABS condition of the three layers, showed that the surface layer was relatively similar (0.033 kg/m³), with the amount of suspension material trapped during the installation of the device for 2 hours and higher (0.041 kg/m³) compared to the installation of the device for 4 hours (0.039 kg/m³) and the average percentage difference of sediment transport during ABP and ABS in the surface layer (DP) was 5.86% which was lower than in the mid-layer (7.06%) and near-bottom layer (5.90%). The average difference in transported suspended material was 6.28% and relatively small compared to the percentage of suspended material sampled during the new moon phase of 10%.

Keywords: *daily balance, quartile, sediment transport, suspension, cycle, barangka*