

TRANSPOR SEDIMEN DI MUARA SUNGAI SILUGONGGO JUWANA KABUPATEN PATI

Ika Nurmalita Sari, Puji Utomo
Program Studi Teknik Sipil, Fakultas Sains dan Teknologi
Universitas Teknologi Yogyakarta
^[1]ikamalita16@gmail.com, ^[2]mr.pujiutomo@gmail.com

ABSTRAK

Muara Sungai Silugonggo terletak sekitar lima kilometer dari Pelabuhan Juwana, tepatnya di Kecamatan Batangan. Aliran Sungai Silugonggo menjadi salah satu sumber sedimen di daerah muara yang tersebar dan mengendap, sehingga berpotensi menimbulkan pendangkalan pada alur pelayaran dan dapat mengganggu lalu lintas kapal saat air surut. Muara Sungai Silugonggo membujur dari timur laut ke barat daya. Arah gelombang datang dari arah utara. Arus, gelombang, dan pasang surut berpengaruh terhadap sebaran sedimen. Sedimentasi yang terus-menerus di daerah muara sungai dapat menyebabkan menutupnya mulut sungai dan dapat mengakibatkan banjir. Sedimentasi yang semakin tinggi dapat berpotensi mengurangi kapasitas tampung sungai. Penelitian ini bertujuan untuk mengetahui angkutan keseimbangan sedimen dasar di daerah sekitar muara Sungai Silugonggo dan ke laut.

Data primer pada penelitian ini dengan pengambilan sampel sedimen yang akan diuji diameter ukuran butir sedimen. Metode pengambilan sampel sedimen dengan metode *random sampling* sebanyak 5 titik pengambilan, dimana 3 titik sampel di muara dan 2 titik sampel di laut. Data sekunder yang dibutuhkan yaitu data angin, pasang surut, peta lokasi, dan bathimetri. Berdasarkan perhitungan gelombang diperoleh bahwa gelombang dominan berasal dari arah utara. Berdasarkan perhitungan analisis transpor sedimen total dengan metode *Engelund and Hansen* didapatkan nilai sebesar $3.31687 \text{ m}^3/\text{th}$. Perhitungan transpor sedimen sejajar pantai dihitung dengan rumus empiris metode CERC tiap arah datang gelombang. Volume angkutan sedimen diperoleh sebesar $24986.616551 \text{ m}^3/\text{th}$.

Kata kunci: *Engelund and Hansen*, Gelombang, Muara, Transpor Sedimen.

SEDIMENT TRANSPORTS IN THE SILUGONGGO RIVER JUWANA PATI DISTRICT

Ika Nurmalita Sari, Puji Utomo

*Civil Engineering Study Program, Faculty of Science and Technology
University of Technology Yogyakarta*

^[1] ikamalita16@gmail.com, ^[2] mr.pujiutomo@gmail.com

ABSTRACT

The Silugonggo River Estuary is located about five kilometers from Juwana Port, precisely in Batangan District. The Silugonggo River is one of the sources of sediment in the estuary area which is spread and settles, so that it has the potential to cause siltation in the shipping channel and can disrupt ship traffic during low tide. The estuary of the Silugonggo River stretches from the northeast to the southwest. The direction of the wave comes from the north. Currents, waves, and tides affect the distribution of sediments. Continuous sedimentation in the mouth of the river can cause the mouth of the river to close and can cause flooding. The higher sedimentation can potentially reduce the capacity of the river. This study aims to determine the transport of basic sediment balance in the area around the mouth of the Silugonggo River and to the sea.

Primary data in this study were taken with sediment sampling to be tested for grain size sediment diameter. The method of sediment sampling by random sampling method is 5 sampling points, where 3 sample points in the estuary and 2 sample points in the sea. Secondary data needed are data on wind, tides, location maps, and bathymetry. Based on the calculation of the wave obtained that the dominant wave comes from the north. Based on the calculation of the total sediment transport analysis using the Engelund and Hansen method, the value of 3.31687 m³ / year is obtained. The calculation of longshore sediment transport is calculated by the empirical formula of the CERC method for each direction of the wave. The volume of sediment transport is obtained at 24986,616551 m³ / yr.

Keywords: Engelund and Hansen, Waves, Estuary, Sediment Transport.

DAFTAR PUSTAKA

- Asdak, Chay, 2002. *Hidrologi dan Pengelolaan Daerah Aliran Sungai*. Gajah Mada University Press.
- Istianto, 2016, Transpor Sedimen Suspensi, Diakses tanggal 17 Mei 2019, dari www.istianto.staff.ugm.ac.id.
- Triatmodjo, Bambang, 1999, *Perencanaan Pelabuhan*, Beta Offset.
- Wahyudi, Puguh, dkk, 2015, Jurnal Teknik Pengairan, *Analisis Pengendalian Sedimentasi Muara Sungai Banjir Kanal Barat Kota Semarang*, Volume 6, No.1, Malang, Universitas Brawijaya.