

ABSTRAK

Nama : Janu Kusuma
NIM : 22 2015 221
Program Studi : Program Studi Teknik Sipil
Judul : Analisis Hidrodinamika dan Sedimentasi di Pantai Utara Jawa
Pembimbing : Yessi Nirwana Kurniadi S.T., M.T., Ph.D

Pantai Utara Jawa mengalami permasalahan abrasi dan sedimentasi. Pergerakan abrasi dan sedimentasi dipengaruhi oleh kecepatan arus dan ukuran butiran sedimen. Analisis hidrodinamika perlu dilakukan untuk mengetahui dampak kecepatan arus dan arah sedimen terhadap abrasi dan sedimentasi. Besar kecepatan arus dan arah sedimen dapat diketahui dengan analisis pemodelan hidrodinamika. Pemodelan numerik dilakukan menggunakan perangkat lunak hidrodinamika 2DH dan sedimentasi. Daerah pesisir Serang, Karawang, Indramayu, Jepara dan Tuban mengalami erosi dari hasil pemodelan. Daerah pesisir Jakarta, Cirebon dan Brebes mengalami sedimentasi dari hasil pemodelan. Arah sebaran sedimen saat pasang purnama dominan bergerak ke arah tengah Pantai Utara Jawa dan saat surut terendah bergerak ke arah timur. Nilai angkutan sedimen yang dihasilkan dalam pemodelan maksimal $6,451 \times 10^{-6} \text{ m}^3/\text{s}/\text{m}$.

Kata Kunci: hidrodinamika, pemodelan, abrasi, arus, sedimentasi

ABSTRACT

Name : Janu Kusuma
Number Registry : 22 2015 221
Study Program : *Civil Engineering Study Program*
Title : *Hydrodynamic and Sedimentation Analysis in the North Coast of Java*
Counsellor : Yessi Nirwana Kurniadi S.T., M.T., Ph.D

North Coast of Java suffered from erosion and sedimentation problems. Erosion and sedimentation movement influenced by current speed and sediment grain size. Hydrodynamic analysis needs to be done to determine the impact of current speed and direction of sediment to erosion and sedimentation. Magnitude of current speed and direction sediment can be determined by analysis of hydrodynamic modeling. Numerical modeling was performed using the software 2DH hydrodynamic and sedimentation. The coastal area of Serang, Karawang, Indramayu, Jepara and Tuban experience erosion of the modeling results. The coastal area of Jakarta, Cirebon and Brebes undergo sedimentation of the modeling results. Total sediment load direction during high tides dominant moves towards the middle of the North Coast of Java and at the lowest tide moves eastward. The maximum total sediment load from modelling is $6,451 \times 10^{-6} \text{ m}^3/\text{s}/\text{m}$.

Keywords: hydrodynamic, modelling, erosion, current speed, sedimentation