

Muhammad Rizqi Raharjo, NIM 210341100038. Analisis Perubahan Garis Pantai Akibat Pembangunan Struktur Jetty di Wilayah Pesisir Kecamatan Bancar Kabupaten Tuban Tahun 1997-2025. Dibawah bimbingan Ilham Cahaya, S.T., M.T.

ABSTRAK

Perubahan garis pantai menjadi isu penting karena berdampak langsung terhadap lingkungan dan kehidupan sosial ekonomi masyarakat pesisir. Penelitian ini bertujuan untuk menganalisis perubahan garis pantai akibat pembangunan struktur jetty di wilayah pesisir Kecamatan Bancar, Kabupaten Tuban, pada periode 1997–2025. Metode yang digunakan dalam penelitian ini mencakup penginderaan jauh dengan citra satelit Landsat, serta pemrosesan data menggunakan *Google Earth Engine* (GEE), *Digital Shoreline Analysis System* (DSAS), dan Sistem Informasi Geografis (SIG). Metode *Modified Normalized Difference Water Index* (MNDWI) digunakan untuk ekstraksi garis pantai, sedangkan parameter perubahan garis pantai seperti *Net Shoreline Movement* (NSM), *End Point Rate* (EPR), dan *Shoreline Change Envelope* (SCE) dihitung melalui DSAS. Hasil menunjukkan bahwa sebelum pembangunan jetty (1997–2009), terjadi abrasi signifikan, terutama di Desa Sukolilo dengan nilai NSM -34,95 meter dan EPR -2,50 m/tahun. Setelah jetty dibangun (2012–2025), terjadi akresi di sisi kanan struktur dan abrasi berlanjut di sisi kiri. Jetty berfungsi sebagai pelindung gelombang, namun juga menyebabkan *redistribusi* sedimen yang tidak merata. Studi ini memberikan informasi penting untuk mitigasi dan perencanaan wilayah pesisir secara berkelanjutan.

Kata kunci: garis pantai, jetty, abrasi, akresi, DSAS

Muhammad Rizqi Raharjo, NIM 210341100038. *Analysis of Shoreline Changes Due to the Construction of Jetty Structures in the Coastal Area of Bancar Subdistrict, Tuban Regency, 1997-2025. Supervised by Ilham Cahaya, S.T., M.T.*

ABSTRACT

Shoreline change is an important issue because it has a direct impact on the environment and socio-economic life of coastal communities. This study aims to analyze shoreline changes due to the construction of jetty structures in the coastal area of Bancar Subdistrict, Tuban Regency, in the period 1997-2025. The methods used in this research include remote sensing with Landsat satellite imagery, as well as data processing using Google Earth Engine (GEE), Digital Shoreline Analysis System (DSAS), and Geographic Information System (GIS). The Modified Normalized Difference Water Index (MNDWI) method was used for shoreline extraction, while shoreline change parameters such as Net Shoreline Movement (NSM), End Point Rate (EPR), and Shoreline Change Envelope (SCE) were calculated through DSAS. The results showed that before the construction of the jetty (1997-2009), significant abrasion occurred, especially in Sukolilo Village with NSM values of -34.95 meters and EPR -2.50 m/year. After the jetty was built (2012-2025), accretion occurred on the right side of the structure and abrasion continued on the left side. The jetty serves as wave protection, but also causes uneven sediment redistribution. This study provides important information for mitigation and sustainable planning of coastal areas.

Keywords: shoreline, jetty, abrasion, accretion, DSAS