

## ABSTRACT

Semarang City experience intensive coastal erosion since last decade, cause negative impact toward natural and social environment. This research has 3 aim, they are to assess coastal morphodynamics of Semarang coastal area, to assess impact of the coastal morphodynamics toward coastal ecosystem as well as to assess impact of the coastal morphodynamic toward social environment.

Coastal morphodynamic is analyzed spatially and multitemporally based on topographic maps and Landsat satellite images. Oceanographic and geomorphological condition of this coastal area are also analyzed to know  $G_0$  index. The impact of coastal morphodynamics towards coastal ecosystem and social environment are known by descriptive and qualitative analysis based on field observation, in-depth interview, governmental agency survey, and satellite image analysis.

Generally, coastal sedimentation is dominant process happened in Semarang coastal area between 1695 and 2015. The sedimentation rate is 2.6 until 6.9 meters per year. When a detailed analysis done in the same area, known that coastal erosion started happen in 1954 until now in the eastern and western part of Semarang coastal area. The eastern and western part experience severe coastal erosion since 1990. In the middle part is affected more by land reclamation and coastal structure building. Depend on  $G_0$  index, known that wave, current, and sediment character are not significant caused coastal erosion of Semarang coastal area. Land subsidence and sea level rise are other natural processes drive coastal erosion. Coastal erosion causes changes of spit and lagoon area as well as shape. The spit morphology is clearly seen in 1970s and 2015s, located in the western part of the coastal area. The spit were eroded and disappear since 1980s until 2007. Between 1990 and 2015, more than 200 ha fishpond in Tugu Subdistric and 100 ha fishpond in Genuk Subdistric are damaged. Furthermore, the damaged fishponds induce higher production cost of the aquaculture, especially for daily treatment as well as pond border and its structure. The high cost and treatment cause some of fishpond farmers should look for side jobs or even new jobs.

**Keywords:** Coastal, Morphodynamics, Semarang, Impact

## INTISARI

Kota Semarang mengalami erosi pantai yang intensif pada beberapa dekade terakhir sehingga memberikan dampak negatif bagi lingkungan alam dan sosial. Penelitian ini bertujuan untuk mengkaji morfodinamika pantai, dampaknya terhadap kondisi ekosistem, dan dampaknya terhadap lingkungan sosial.

Morfodinamika pantai dianalisis secara spasial multitemporal berdasarkan peta topografi dan citra Landsat serta analisis indeks  $G_0$  berdasarkan karakteristik oseanografi dan geomorfologi. Dampak morfodinamika terhadap kondisi ekosistem dan sosial diketahui melalui analisis deskriptif kualitatif berdasarkan observasi lapangan, wawancara mendalam, survei instansi, serta analisis citra satelit.

Proses dominan yang terjadi antara tahun 1695 sampai 2015 dengan interval analisis 60-120 tahun adalah sedimentasi dengan laju 2,6-6,9 m per tahun. Antara tahun 1954 sampai 2015 dengan interval analisis 9-18 tahun, erosi mulai intensif terjadi pada sisi Barat dan Timur pesisir Kota Semarang sejak 1990. Bagian tengah pesisir dipengaruhi oleh reklamasi dan pembangunan struktur pantai. Berdasarkan indeks  $G_0$ , gelombang, arus, serta profil dan sedimen pantai tidak signifikan menyebabkan erosi pantai. Amblesan tanah dan kenaikan muka air laut dimungkinkan sebagai faktor yang lebih signifikan menyebabkan erosi pantai Kota Semarang. Erosi pantai menyebabkan perubahan bentuk dan luasan spit dan laguna. Spit memisahkan perairan laut dan perairan laguna pada sekitar tahun 1972 dan 2015. Sekitar tahun 1980an sampai 2007, spit hilang sehingga tidak terbentuk laguna. Antara tahun 1990 sampai 2015, lebih dari 200 ha tambak di Kecamatan Tugu dan 100 ha tambak di Kecamatan Genuk rusak. Lebih lanjut, kerusakan tambak menyebabkan biaya budidaya perikanan tambak meningkat guna pembuatan struktur/bangunan/pembatas tambak dan perawatan harian. Kondisi ini menyebabkan sebagian petani tambak mencari pekerjaan lain atau berganti pekerjaan.

**Kata kunci:** Morfodinamika, Pantai, Kepesisiran, Kota Semarang, Dampak