

# PENILAIAN KERENTANAN PANTAI MENGGUNAKAN METODE INTEGRASI CVI-MCA STUDI KASUS PANTAI INDRAMAYU

## *Coastal Vulnerability Assessment Using Integrated-Method of CVI-MCA A Case Study on the Coastline of Indramayu*

Faizal Kasim <sup>1)</sup> dan Vincentius P. Siregar <sup>2)</sup>

<sup>1)</sup> Program Studi Manajemen Sumberdaya Perairan, Fakultas Pertanian UNG

<sup>2)</sup> Departemen Ilmu dan Teknologi Kelautan, Fakultas Perikanan dan Ilmu Kelautan IPB

Email: kasim.faizal@gmail.com

### ABSTRACT

The increasing of sea level due to climate change has been focused many research activities in order to know the coastal response to the change, and determine the important variables which have contribution to the coastal change. This paper presents a method for integrating Coastal Vulnerability Index (CVI), Multi Criteria Analysis (MCA) method and Geographic Information-System (GIS) technology to map the coastal vulnerability. The index is calculated based-on six variabls: coastal erosion, geomorphology, slope, significant wave height, sea level change and tidal range. Emphasize has been made to the methodological aspect, essentially which is linked to: (i) the use of GIS tehcnique for constructing, interpolation, filtering and resampling the data for shoreline grid, (ii) the standardization each rank of variables (0 – 1) and the use of several percentile (20%, 40%, 60%, and 80%) for each rank score, and (iii) the use of variable's rank to map the relative (local) and standart (global) vulnerability of the coastline. The result show that for local, the index consist of four categories: very high (19.61%), high (68.63%), moderate (1,96%), and low (9.80%). Meanwhile, for global level, the index is constantly in low category.

**Keywords:** Coastal vulnerability, integrated approach, CVI-MCA, index relative, global

### ABSTRAK

Peningkatan paras laut akibat perubahan iklim telah menjadi fokus banyak kegiatan penelitian dalam rangka mengetahui respon pantai terhadap perubahan, serta menentukan variabel-variabel penting penyumbang perubahan pantai tersebut. Tulisan ini menyajikan gabungan metode Coastal vulnerability Index (CVI), metode Multi Criteria Analysis (MCA), dan teknologi Sistem Informasi Geografi (SIG) untuk memetakan kerentanan pantai. Indeks dihitung berdasarkan atas enam variabel: erosi pantai, geomorfologi, kemiringan pantai, tinggi gelombang signifikan, perubahan paras laut dan kisaran pasang surut. Penekanan dibuat terhadap aspek metodologi, terutama berkaitan dengan: (i) penggunaan teknik SIG untuk membangun, interpolasi, penapisan, dan me-resample data pada grid garis pantai, (ii) penstandarisasian tiap ranking variabel (0 – 1) dan penggunaan beberapa persentil (20%, 40%, 60% dan 80%) bagi tiap skor ranking, serta (iii) penggunaan ranking variabel untuk memetakan kerentanan pantai yang relatif (lokal) dan baku (global). Hasil yang diperoleh menunjukkan bahwa indek kerentanan lokal terdiri atas empat kategori: sangat tinggi (19,61%), tinggi (68,63%), moderat (1,96%), dan rendah (9,80%). Sementara pada tingkat global, indeks kerentanan ini berkategori rendah secara konstan.

**Kata kunci:** kerentanan pantai, pendekatan gabungan, CVI-MCA, relatif indeks, global