

Persebaran stok karbon hutan mangrove di Teluk Benoa, Bali = Carbon stocks distribution of mangrove forests in Benoa Bay, Bali

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Abstrak

Hutan mangrove memiliki peran penting dalam mengurangi dampak dari pemanasan global di wilayah perkotaan dan sekitarnya, salah satunya melalui penyerapan karbon. Penyerapan karbon tersebut diperlukan untuk mengurangi gas rumah kaca di atmosfer. Kapasitas penyerapan karbon atau stok karbon hutan mangrove dapat dilihat dari nilai biomassa yang dimilikinya. Penelitian ini bertujuan untuk menganalisis persebaran stok karbon hutan mangrove dan hubungannya dengan kondisi fisik wilayah hutan mangrove. Persebaran stok karbon di daerah studi dianalisis dengan menggunakan kombinasi pendekatan indeks vegetasi dan analisis statistik regresi. Indeks vegetasi yang digunakan yaitu ARVI, SAVI, dan EVI yang diperoleh dari pengolahan citra satelit Sentinel 2-A. Nilai biomassa hutan mangrove didapatkan dari persamaan alometrik. Hasil penelitian menunjukkan bahwa persebaran stok karbon hampir di seluruh wilayah hutan mangrove Teluk Benoa mengalami peningkatan stok karbon tiap tahun. Hubungan perubahan stok karbon dengan kondisi fisik wilayah mangrove cenderung positif. Hal tersebut dibuktikan pada 3 dari 4 parameter fisik wilayah yang memiliki hubungan positif, yaitu suhu, salinitas, dan banyaknya jenis vegetasi.Mangrove forests have an essential role in reducing the impact of global warming in urban and surrounding areas, one of which is through carbon sequestration. Carbon sequestration is needed to reduce greenhouse gases in the atmosphere. The capacity of carbon sequestration or carbon stocks of mangrove forests can be seen from its biomass value. This study aims to analyze the distribution of mangrove forest carbon stock and its relationship with the mangrove forest area's physical condition. The distribution of carbon stocks in the study area was analyzed using a vegetation index approach and statistical regression analysis. The vegetation indices used are ARVI, SAVI, and EVI obtained from processing Sentinel 2-A satellite imagery. The value of mangrove forest biomass is obtained from the allometric equation. The results showed that the distribution of carbon stocks in almost all the mangrove forests of Benoa Bay had increased carbon stocks every year. The relationship between carbon stock changes and mangrove areas' physical condition tends to be positive. The connection is evidenced by three of the four physical parameters of the site that have a positive relationship: temperature, salinity, and vegetation types.