

INTISARI

BIOMONITORING *Echinoidea* SEBAGAI BIOINDIKATOR PENURUNAN KUALITAS PERAIRAN DI PANTAI PASIR PANJANG CAGAR ALAM PULAU SEMPU

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Pulau Sempu merupakan salah satu kawasan cagar alam di Indonesia. Aktivitas manusia di dalam kawasan Pulau Sempu dapat menimbulkan terjadinya pemadatan tanah, kerusakan terumbu karang hingga penurunan kualitas perairan. Penelitian ini bertujuan untuk mengetahui pengaruh kualitas perairan terhadap kelimpahan *Echinoidea* di Pantai Pasir Panjang Cagar Alam Pulau Sempu. Pengambilan data kelimpahan *Echinoidea* menggunakan metode *belt transect* (transek sabuk) sejumlah 4 stasiun pengamatan, dengan masing-masing stasiun memiliki 10 kuadrat sampling berukuran 2,5 x 2,5 m. Kualitas air diketahui dengan menghitung nilai indeks pencemaran air berdasarkan parameter fisik-kimia perairan meliputi salinitas, pH, suhu, oksigen terlarut (*Dissolved Oxygen*) dan kecerahan perairan. Hubungan antara kelimpahan *Echinoidea* dengan parameter-parameter perairan tersebut diketahui dengan analisis regresi non linier model power. Hasil penelitian menunjukkan total *Echinoidea* yang tercuplik dari 4 stasiun pengamatan selama bulan Juni-Juli sejumlah 5885 individu dengan total kelimpahan 10 ind/m². Perhitungan indeks pencemaran menunjukkan bahwa seluruh stasiun pengamatan tergolong dalam kategori cemar ringan dengan skor rata-rata sebesar 1,687. Hasil analisis regresi non linier model power menunjukkan nilai kelimpahan *Echinoidea* memiliki hubungan yang sedang dengan variabel suhu dan pH, serta memiliki hubungan yang kuat dengan variabel oksigen terlarut (*Dissolved Oxygen*), salinitas, kejernihan air, dan indeks pencemaran.

Kata kunci: *Echinoidea*, indeks pencemaran, regresi non linier, Pulau Sempu

ABSTRACT

BIOMONITORING OF *Echinoidea* AS A BIOINDICATOR OF WATER QUALITY DECREASE AT PASIR PANJANG BEACH, SEMPU ISLAND NATURE RESERVE

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Sempu Island is a nature reserve area in Indonesia. Tourist activities at Sempu Island can cause soil compaction, coral damage, and water quality decrease. The aim of this study is to determine whether water quality affects the abundance of *Echinoidea* at Pasir Panjang Beach, Sempu Island Nature Reserve. The abundance of *Echinoidea* was determined using a belt transect method with four observation stations, each station containing 10 (ten) sampling squares measuring 2,5 x 2,5 m. Data on water quality can be calculated by calculating the pollution index based on environmental parameters. The relationship between the abundance of *Echinoidea* and the parameters of these waters is known by non-linear regression analysis of the power model. Based on the data collected from four observation stations during June and July, there were 5885 *Echinoidea* with an abundance of 10 individuals per square meter. According to the calculations of the pollution index, all observation stations were classified as slightly polluted with average pollution index score (IPj) of 1,687. The results of the non-linear regression analysis of the power model show that the abundance value of *Echinoidea* has a moderate relationship with temperature and pH variables, and has a strong relationship with dissolved oxygen, salinity, water clarity, and pollution index variables.

Keyword: *Echinoidea*, pollution index, nonlinear regression, Sempu Island