

RINGKASAN

MERINDA SITANGGANG. Makrozoobentos sebagai Bioindikator Tingkat Pencemaran Perairan di Estuari Sei Carang Tanjungpinang. Dibimbing oleh TRI APRIADI dan ANDI ZULFIKAR.

Perairan Sei Carang di Kota Tanjungpinang merupakan wilayah estuari yang dipengaruhi oleh aktivitas pasang surut serta aktivitas manusia seperti limbah domestik, transportasi, dan pascatambang bauksit yang berpotensi menurunkan kualitas perairan. Tujuan penelitian ini untuk mengetahui kelimpahan dan indeks ekologi, mengetahui tingkat pencemaran perairan Sei Carang berdasarkan keberadaan makrozoobentos dan hubungan antara kelimpahan makrozoobentos dengan parameter fisika-kimia perairan. Penelitian dilakukan di Perairan Sei Carang pada bulan Februari 2026 dan pengolahan data dari bulan Februari hingga Maret 2026. Pengambilan sampel menggunakan Ekman grab 30x30 cm dengan metode *systematic random sampling* sebanyak 30 titik sampel. Berdasarkan hasil identifikasi jenis makrozoobentos dijumpai sebanyak 35 genera, terdiri dari kelas Gastropoda (13 genera), Bivalvia (9 genera), Polychaeta (3 genera), Clitellata (5 genera) dan Malacostraca (5 genera) dengan total kelimpahan makrozoobentos di perairan Sei Carang sebesar 47,78 ind/m². Nilai indeks ekologi makrozoobentos di perairan Sei Carang dengan nilai indeks keanekaragaman (2,90) kategori "sedang" menunjukkan menandakan ekosistem masih cukup seimbang, keseragaman (0,82) kategori "tinggi" menunjukkan jumlah individu tiap jenis relatif seimbang atau merata, dominansi (0,07) kategori "rendah" menunjukkan tidak ada spesies yang mendominasi komunitas makrozoobentos. Berdasarkan parameter lingkungan di Perairan Sei Carang, secara umum kualitas perairan masih memenuhi baku mutu air laut sesuai Peraturan Pemerintah Republik Indonesia No. 22 Tahun 2021 Lampiran VIII untuk peruntukan biota laut dan masih dapat mendukung kehidupan makrozoobentos. Berdasarkan hasil perhitungan kriteria AMBI dapat diketahui kualitas perairan di Perairan Sei Carang berkategori "sedikit tercemar" dengan nilai 2,57 yang menunjukkan bahan organik dan komunitas bentik yang tidak seimbang, namun sudah mulai mendapatkan tekanan lingkungan ringan hingga sedang. Berdasarkan hasil uji korelasi *Spearman*, fraksi *mud* dan *gravel* memiliki hubungan yang signifikan terhadap kelimpahan makrozoobentos di Perairan Sei Carang.

Kata kunci: Bioindikator, Kualitas Perairan, Makrozoobentos, Sei Carang

SUMMARY

MERINDA SITANGGANG. Macrozoobenthos as Bioindicators of Water Pollution Levels in Sei Carang Estuary Tanjungpinang. Supervised by TRI APRIADI and ANDI ZULFIKAR.

Sei Carang waters in Tanjungpinang City are estuary areas affected by tidal activity and human activities such as domestic waste, transportation, and post-bauxite mining which have the potential to reduce water quality. The purpose of this study was to determine the abundance and ecological index, determine the level of pollution of Sei Carang waters based on the presence of macrozoobenthos and the relationship between macrozoobenthos abundance and water physicochemical parameters. The study was conducted in Sei Carang waters in February 2026 and data processing from February to March 2026. Sampling used an Ekman grab 30x30 cm with a systematic random sampling method of 30 sample points. Based on the results of the identification of macrozoobenthos types, 35 genera were found, consisting of the classes Gastropoda (13 genera), Bivalvia (9 genera), Polychaeta (3 genera), Clitellata (5 genera) and Malacostraca (5 genera) with a total abundance of macrozoobenthos in Sei Carang waters of 47.78 ind/m². The value of the macrozoobenthos ecological index in Sei Carang waters with a diversity index value (2.90) in the "moderate" category indicates that the ecosystem is still quite balanced, Evenness index (0.82) in the "high" category indicates that the number of individuals of each genus is relatively balanced or even, dominance (0.07) in the "low" category indicates that there are no species that dominate the macrozoobenthos community. Based on environmental parameters in Sei Carang Waters, in general the water quality still meets the seawater quality standards according to Government Regulation of the Republic of Indonesia No. 22 of 2021 Appendix VIII for the designation of marine biota and can still support the life of macrozoobenthos. Based on the results of the AMBI criteria calculations it can be seen that the water quality in Sei Carang Waters is categorized as "slightly polluted" with a value of 2.57 which indicates unbalanced organic matter and benthic communities, but has begun to experience mild to moderate environmental pressure. Based on the results of the Spearman correlation test, the mud and gravel fractions have a significant relationship with the abundance of macrozoobenthos in Sei Carang Waters.

Keywords: Bioindicators, Macrozoobenthos, Sei Carang, Water Quality