

Hamilatul Muizzah NIM 220341100023. Karakteristik dan Kelimpahan Mikroplastik pada Juvenil Karang di Perairan Prancak, Sepulu dan Perairan Bringsang, Giligenting. Pembimbing **Prof. Wahyu Andy Nugraha, S.T., M.Sc., Ph.D.**

ABSTRAK

Pencemaran mikroplastik di lingkungan laut menjadi ancaman serius bagi ekosistem terumbu karang, terutama terhadap pertumbuhan dan kelangsungan hidup juvenil karang. Penelitian ini bertujuan untuk menganalisis karakteristik dan kelimpahan mikroplastik pada juvenil karang di perairan Prancak, Sepulu dan perairan Bringsang, Giligenting yang memiliki karakteristik perairan berbeda, serta membandingkannya dengan mikroplastik yang terdapat pada sedimen dan air laut. Sampel juvenil karang dari genus *Acropora*, *Favites*, dan *Porites* dikumpulkan menggunakan metode *purposive sampling*. Karakterisasi mikroplastik dilakukan berdasarkan bentuk, ukuran, dan warna. Analisis statistik menggunakan uji *Two-way ANOVA*, dilanjutkan uji *Post-hoc Tukey's HSD*, serta uji *Independent t-test*. Hasil penelitian menunjukkan bahwa karakteristik mikroplastik bervariasi antar kompartemen. Bentuk fiber mendominasi pada juvenil karang dan air laut, sedangkan fragmen dominan pada sedimen. Mikroplastik pada sedimen dan air laut didominasi oleh ukuran $<50\ \mu\text{m}$, sementara pada juvenil karang didominasi oleh ukuran $>250\ \mu\text{m}$. Warna hitam merupakan warna dominan pada seluruh kompartemen. Kelimpahan mikroplastik menunjukkan perbedaan signifikan antar genus juvenil karang ($p < 0,05$), dimana *Acropora* berbeda nyata dengan *Favites* dan *Porites*, sedangkan *Favites* dan *Porites* tidak berbeda nyata. Kelimpahan mikroplastik pada sedimen dan air laut tidak berbeda signifikan antar lokasi penelitian ($p > 0,05$). Temuan ini menunjukkan bahwa mikroplastik telah terdistribusi pada berbagai kompartemen perairan dan telah berasosiasi dengan juvenil karang di wilayah pesisir Madura.

Kata Kunci: mikroplastik, juvenil karang, karakteristik, kelimpahan, pesisir Madura

Hamilatul Muizzah NIM 220341100023. *Characteristics and Abundance of Microplastics in Juvenile Corals in the Waters of Prancak, Sepulu and Bringsang, Giligenting*. Thesis Supervisor **Prof. Wahyu Andy Nugraha, S.T., M.Sc., Ph.D.**

ABSTRACT

Microplastic pollution in marine environments has become a serious threat to coral reef ecosystems, particularly affecting the growth and survival of juvenile corals. This study aimed to analyze the characteristics and abundance of microplastics associated with juvenile corals in the waters of Prancak, Sepulu and Bringsang, Giligenting, which exhibit different environmental characteristics, and to compare them with microplastics found in sediment and seawater. Juvenile coral samples from the genera Acropora, Favites, and Porites were collected using purposive sampling. Microplastics were characterized based on shape, size, and color. Statistical analyses were conducted using Two-way ANOVA, followed by Tukey's HSD post-hoc test and an Independent t-test. The results showed that microplastic characteristics varied among environmental compartments. Fiber-shaped microplastics predominated in juvenile corals and seawater, whereas fragments were dominant in sediment. Microplastics in sediment and seawater were primarily composed of particles <50 µm, while those associated with juvenile corals were dominated by particles >250 µm. Black was the predominant color across all compartments. Microplastic abundance differed significantly among juvenile coral genera ($p < 0.05$), with Acropora showing significant differences from Favites and Porites, whereas no significant difference was observed between Favites and Porites. The abundance of microplastics in sediment and seawater did not differ significantly between study locations ($p > 0.05$). These findings indicate that microplastics are widely distributed across various marine compartments and have become associated with juvenile corals in the coastal waters of Madura.

Keywords: *microplastics, juvenile corals, characteristics, abundance, Madura coastal waters*