

Intisari

Dinamika Padatan Tersuspensi Pada Budidaya Ikan Nila Merah (*Oreochromis sp.*) Dengan Sistem Resirkulasi Menggunakan Filter Mekanik Jaring dan *Bead*

Sistem Akuakultur Resirkulasi (RAS) adalah teknologi perikanan yang menawarkan solusi hemat air. Namun, biaya investasi dan operasional yang tinggi menjadi kendala. Kunci keberhasilan RAS adalah efektivitas filter mekanisnya. Penelitian ini membandingkan kinerja dua filter mekanis yaitu jaring nelayan dan bead (Kaldnes K1) selama 80 hari di Teaching Farm Perikanan UGM dengan ikan nila merah (*Oreochromis sp.*). Parameter kualitas air yang diamati meliputi Total Padatan Tersuspensi (TSS), Total Padatan Terlarut (TDS), kekeruhan, dan bahan organik total (BOT). TSS, TDS, dan kekeruhan diukur setiap 10 hari, sedangkan BOT diukur setiap 20 hari. Hasil menunjukkan bahwa konsentrasi TSS dan kekeruhan pada filter jaring nelayan cenderung lebih rendah dibandingkan bead, meskipun TSS naik pada akhir pemeliharaan pada perlakuan jaring. Keduanya mengalami peningkatan TDS dan BOT sampai akhir pemeliharaan. Efisiensi purifikasi TSS awal adalah 25% (jaring) dan -108,33% (bead), kemudian meningkat menjadi 36,79% dan 21,20% di akhir. Untuk kekeruhan, efisiensi awal jaring 31,58%, turun menjadi 8,02% di akhir, sedangkan bead dari nol menjadi 4,05%. Secara keseluruhan, filter jaring nelayan lebih efektif berdasarkan penurunan parameter kualitas air dan efisiensi purifikasi.

KATA KUNCI : Kualitas air, Ikan nila merah, Filter mekanis, Sistem budidaya akuakultur sirkulasi ulang (RAS), Purifikasi TSS

Abstract

Dynamics of Suspended Solids in Red Tilapia (*Oreochromis sp.*) Culture Using Recirculating System with Net and Bead Mechanical Filters

Recirculating Aquaculture System (RAS) is a sustainable fisheries technology that conserves water but faces challenges due to high investment and operational costs. The success of RAS depends largely on the effectiveness of mechanical filters. This study compared two types of mechanical filters: fishing nets and Kaldnes K1 bead filters, over 80 days at UGM Fisheries Teaching Farm using red tilapia (*Oreochromis sp.*). The observed water quality parameters included Total Suspended Solids (TSS), Total Dissolved Solids (TDS), turbidity, and Total Organic Matter (TOM). TSS, TDS, and turbidity were measured every 10 days, while TOM was recorded every 20 days. Results showed fishing nets generally achieved lower TSS and turbidity concentrations than bead filters, although TSS increased at the end of the trial in the net treatment. Both treatments exhibited rising TDS and TOM levels throughout the rearing period. At the start, TSS purification efficiency was 25% for nets and -108.33% for beads, improving to 36.79% and 21.20% by the end. Turbidity purification began at 31.58% for nets (not applicable for beads), decreasing to 8.02% and 4.05%, respectively. Overall, fishing net filters outperformed bead filters, indicated by better water quality trends and higher purification efficiency.

KEYWORD : Water quality, Nile tilapia, Mechanical filter, Recirculating aquaculture system (RAS), Purifikasi TSS