

EVALUASI KINERJA PRODUKSI DAN DINAMIKA *Vibrio* sp. PADA IKAN KERAPU CANTANG (*Epinephelus Fuscogutatus* >< *Epinephelus Lanceolatus*) DENGAN PADAT TEBAR YANG BERBEDA PADA *Recirculating Aquaculture System* (RAS)

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ABSTRAK

Ikan Kerapu Cantang (*Epinephelus Fuscogutatus* >< *Epinephelus Lanceolatus*) merupakan komoditas hibrida unggulan yang dibudidayakan secara intensif dengan sistem *Recirculating Aquaculture System* (RAS). Penelitian ini mengevaluasi kinerja produksi dan dinamika populasi *Vibrio* sp. pada budidaya Ikan Kerapu Cantang (*Epinephelus Fuscogutatus* >< *Epinephelus Lanceolatus*) dalam *Recirculating Aquaculture System* (RAS). Pemeliharaan dilakukan selama 120 hari di Desa Penyabangan dengan tiga perlakuan padat tebar: 30 ekor/m³ (Bak 1), 50 ekor/m³ (Bak 2), dan 70 ekor/m³ (Bak 3). Hasil uji statistik menunjukkan padat tebar berpengaruh signifikan ($p < 0,05$) terhadap laju pertumbuhan spesifik (SGR) dan sintasan ikan. Performa tertinggi dicapai pada Bak 1 (SGR 0,48%/hari; sintasan 97,5%), sedangkan performa terendah terjadi pada Bak 3 (SGR 0,23%/hari; sintasan 89,3%). Kepadatan *Vibrio* sp. meningkat seiring tingginya padat tebar, yakni dari 0,85% (Bak 1) hingga 2,15% (Bak 3). Namun, analisis korelasi Pearson membuktikan tidak ada hubungan kausal yang signifikan antara peningkatan *Vibrio* sp. dengan penurunan SGR ($r = -0,185$; $p = 0,633$). Penurunan performa pada padat tebar tinggi dominan disebabkan oleh kompetisi ruang, stres fisiologis, dan akumulasi metabolit toksik. Kesimpulannya, padat tebar merupakan faktor penentu utama kinerja produksi, sementara peningkatan populasi *Vibrio* sp. hanyalah dampak sekunder dari memburuknya kualitas lingkungan.

Kata Kunci : ikan kerapu cantang, *Vibrio* sp., RAS, padat tebar, kinerja produksi

**EVALUATION OF PRODUCTION PERFORMANCE AND *Vibrio* sp.
POPULATION DYNAMICS IN CANTANG GROUPER (*Epinephelus
Fuscogutatus* $\times$ *Epinephelus Lanceolatus*) CULTURED AT DIFFERENT
STOCKING DENSITIES USING A *Recirculating Aquaculture System* (RAS)**

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ABSTRACT

Cantang Grouper (*Epinephelus Fuscogutatus* $\times$ *Epinephelus Lanceolatus*) is a superior hybrid commodity cultivated intensively using a *Recirculating Aquaculture System* (RAS). This study evaluated the production performance and population dynamics of *Vibrio* sp. in the cultivation of Cantang Grouper (*Epinephelus Fuscogutatus* $\times$ *Epinephelus Lanceolatus*) within a *Recirculating Aquaculture System* (RAS). The rearing period was conducted for 120 days in Penyabangan Village using three stocking density treatments: 30 fish/m³ (Tank 1), 50 fish/m³ (Tank 2), and 70 fish/m³ (Tank 3). Statistical tests indicated that stocking density had a significant effect ($p < 0.05$) on the specific growth rate (SGR) and survival rate of the fish. The highest performance was achieved in Tank 1 (SGR 0.48%/day; survival rate 97.5%), while the lowest performance was observed in Tank 3 (SGR 0.23%/day; survival rate 89.3%). The density of *Vibrio* sp. increased alongside higher stocking densities, ranging from 0.85% (Tank 1) to 2.15% (Tank 3). However, Pearson correlation analysis proved that there was no significant causal relationship between the increase in *Vibrio* sp. and the decrease in SGR ($r = -0.185$; $p = 0.633$). The decline in performance at high stocking densities was predominantly caused by spatial competition, physiological stress, and the accumulation of toxic metabolites. In conclusion, stocking density is the primary determining factor for production performance, whereas the increase in the *Vibrio* sp. population is merely a secondary impact of deteriorating environmental quality.

Keywords : cantang grouper, *Vibrio* sp., RAS, stocking density, production performance