

PENENTUAN KUALITAS BENIH BERDASARAKAN HUBUNGAN PANJANG DAN BERAT YUWANA IKAN KERAPU CANTANG DALAM FASE PENDEDERAN *RECIRCULATING AQUACULTURE SYSTEM (RAS)*

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis hubungan panjang dan berat yuwana ikan kerapu cantang pada fase pendederan dalam sistem Recirculating Aquaculture System (RAS) serta mengidentifikasi pola pertumbuhannya. Sampel diambil menggunakan teknik Slovin, menghasilkan 95 ekor yuwana berukuran 10 cm dan 95 ekor berukuran 11 cm. Pengukuran panjang total dilakukan dengan jangka sorong digital, sementara berat diukur menggunakan timbangan analitik. Data kualitas air lingkungan budidaya juga diukur, meliputi suhu, Dissolved Oxygen (DO), salinitas, pH, amoniak, nitrit, nitrat, dan Total Ammonia Nitrogen (TAN). Hasil penelitian menunjukkan bahwa yuwana ikan kerapu cantang ukuran 10 cm memiliki panjang rata-rata 107,10 mm (SD = 1,39) dan berat rata-rata 20,77 gram (SD = 1,63). Untuk ukuran 11 cm, panjang rata-rata 117,44 mm (SD = 1,40) dan berat rata-rata 30,31 gram (SD = 1,56). Analisis regresi linear menunjukkan pola pertumbuhan allometrik negatif untuk kedua kelompok ukuran, dengan persamaan untuk 10 cm dan 11 cm. Koefisien korelasi (R^2) masing-masing adalah 0,420 (ukuran 10 cm) dan 0,642 (ukuran 11 cm), menunjukkan bahwa 42% dan 64,2% perubahan bobot ikan disebabkan oleh pertambahan panjang standar, sedangkan sisanya oleh faktor lain. Pola allometrik negatif mengindikasikan bahwa pertambahan panjang lebih dominan dibandingkan pertambahan berat pada fase pendederan ini. Kondisi kualitas air dalam sistem RAS secara keseluruhan berada dalam rentang optimal sesuai SNI dan standar perusahaan. Penelitian ini menyimpulkan bahwa meskipun kedua kelompok ukuran menunjukkan pola pertumbuhan allometrik negatif, sistem RAS berhasil menjaga kondisi lingkungan yang mendukung pertumbuhan yuwana ikan kerapu cantang. Disarankan untuk melakukan penelitian lanjutan pada setiap fase perkembangan untuk mendapatkan gambaran pola pertumbuhan yang lebih komprehensif.

Kata Kunci: Ikan Kerapu Cantang, Hubungan Panjang-Berat, Allometrik Negatif, Recirculating Aquaculture System (RAS), Fase Pendederan

**DETERMINATION OF SEED QUALITY BASED ON THE RELATIONSHIP
BETWEEN LENGTH AND WEIGHT OF CANTANG GROUPER FISH
JUWANA IN THE NURSERY PHASE OF THE RECIRCULATING
AQUACULTURE SYSTEM (RAS)**

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ABSTRACT

*This study aims to analyze the length-weight relationship of juvenile hybrid grouper (*Epinephelus fuscoguttatus* × *Epinephelus lanceolatus*) during the nursery phase in a Recirculating Aquaculture System (RAS), as well as to identify its growth pattern. The research employed the Slovin formula for sample determination, resulting in 95 juveniles with a total length of 10 cm and 95 juveniles with a total length of 11 cm. Total length measurements were taken using a digital caliper, while body weight was measured using an analytical balance. Environmental water quality parameters including temperature, dissolved oxygen (DO), salinity, pH, ammonia, nitrite, nitrate, and total ammonia nitrogen (TAN) were also recorded to assess the suitability of the rearing environment. The 10 cm juvenile group exhibited a mean total length of 107.10 mm (SD = 1.39) and a mean weight of 20.77 g (SD = 1.63), whereas the 11 cm group had a mean total length of 117.44 mm (SD = 1.40) and a mean weight of 30.31 g (SD = 1.56). Linear regression analysis revealed a negative allometric growth pattern in both size groups, as represented by their respective regression equations. The coefficients of determination (R^2) were 0.420 for the 10 cm group and 0.642 for the 11 cm group, indicating that 42% and 64.2% of the variation in body weight, respectively, could be attributed to changes in body length, with the remaining variation explained by other contributing factors. The observed negative allometric growth pattern indicates that length growth was more dominant than weight gain during the nursery phase. Water quality parameters within the RAS remained within the optimal range based on the Indonesian National Standard (SNI) and the company's operational guidelines. In conclusion, although both juvenile groups demonstrated negative allometric growth, the RAS system was effective in maintaining a favorable environment for the growth of juvenile hybrid grouper. Further studies across different developmental stages are recommended to gain a more comprehensive understanding of the species' growth dynamics.*

Keywords: *Hybrid Grouper Length-Weight Relationship, Negative Allometric Growth, Recirculating Aquaculture System (RAS), Nursery Phase*