

## ABSTRAK

**(Ria Novitasari. 26010122120014. Dinamika Populasi Ikan Tigawaja (*Johnius belangerii* Cuvier, 1830) di Perairan Pantai Semarang. Suradi Wijaya Saputra dan Wiwiet Teguh Taufani).**

Ikan tigawaja (*Johnius belangerii* Cuvier, 1830) merupakan salah satu ikan demersal yang memiliki nilai ekonomis dan banyak dimanfaatkan oleh nelayan di Perairan Pantai Semarang. Pemanfaatan yang dilakukan secara terus-menerus dapat mempengaruhi kondisi populasi ikan, sehingga diperlukan kajian mengenai dinamika populasi sebagai dasar pengelolaan sumber daya ikan secara berkelanjutan. Penelitian ini bertujuan untuk mengetahui struktur ukuran, hubungan panjang-berat, faktor kondisi, parameter pertumbuhan, ukuran pertama kali tertangkap ( $L_{C50\%}$ ), mortalitas, tingkat eksploitasi, dan pola rekrutmen ikan tigawaja di Perairan Pantai Semarang. Penelitian dilaksanakan selama 6 bulan pada Agustus 2025 hingga Januari 2026 di PPI Tambak Lorok, Kota Semarang. Pengambilan sampel dilakukan setiap bulan dengan metode *systematic sampling* dan total sampel sebanyak 500 ekor ikan tigawaja. Data yang digunakan meliputi panjang dan berat ikan. Analisis data dilakukan menggunakan *software* RStudio dengan *package* TropFishR. Hasil penelitian menunjukkan ukuran ikan tigawaja yang diperoleh berkisar antara 9-27 cm dengan pola pertumbuhan alometrik negatif. Hubungan panjang-berat diperoleh persamaan  $W = 0,0136L^{2,9306}$ . Faktor kondisi menunjukkan bentuk tubuh ikan cenderung *laterally compressed*. Parameter pertumbuhan diperoleh nilai  $L_{\infty}$  sebesar 34,45 cm dan  $K$  sebesar  $0,58 \text{ tahun}^{-1}$  dengan persamaan pertumbuhan von Bertalanffy  $L_t = 34,45 (1 - e^{-0,58(t+0,26)})$ . Nilai ( $L_{C50\%}$ ) sebesar 14,33 cm lebih kecil dibandingkan  $\frac{1}{2}L_{\infty}$  yaitu 17,23 cm, sehingga ikan belum layak tangkap. Ukuran Ikan yang sudah layak tangkap yaitu sebanyak 173 ekor, sedangkan yang belum layak tangkap sebanyak 327 ekor ikan tigawaja. Mortalitas total ( $Z$ ) sebesar  $1,69 \text{ tahun}^{-1}$ , mortalitas alami ( $M$ )  $1,224 \text{ tahun}^{-1}$ , dan mortalitas penangkapan sebesar  $0,47 \text{ tahun}^{-1}$ . Tingkat eksploitasi ( $E$ ) sebesar 0,28 menunjukkan bahwa pemanfaatan ikan tigawaja masih tergolong rendah dan belum mencapai tingkat eksploitasi optimum. Pola rekrutmen berlangsung sepanjang tahun dengan puncak rekrutmen tertinggi terjadi pada bulan Juni.

**Kata kunci:** Dinamika Populasi, Eksploitasi, Mortalitas, Pertumbuhan, PPI Tambak Lorok, Tigawaja.

## ABSTRACT

**(Ria Novitasari. 26010122120014. Population Dynamics of Tigawaja Fish (*Johnius belangerii* Cuvier, 1830) in the Coastal Waters of Semarang. Suradi Wijaya Saputra and Wiwiet Teguh Taufani)**

*White croaker (*Johnius belangerii* Cuvier, 1830) is a demersal fish species of economic importance that is widely utilized by fishermen in the coastal waters of Semarang. Continuous exploitation can affect the condition of the fish population; therefore, a study of population dynamics is needed as a basis for sustainable fish resource management. This study aimed to determine the size structure, length-weight relationship, condition factor, growth parameters, length at first capture ( $L_{c50\%}$ ), mortality, exploitation rate, and recruitment pattern of tigawaja fish in the coastal waters of Semarang. The research was conducted for six months, from August 2025 to January 2026, at the Tambak Lorok Fish Landing Center (PPI), Semarang City. Sampling was conducted monthly using a systematic sampling method, with a total of 500 tigawaja fish sampled. The data collected included fish length and weight. Data analysis was performed using RStudio software with the TropFishR package. The results showed that the length of tigawaja fish ranged from 9–27 cm, with a negative allometric growth pattern. The length-weight relationship was expressed by the equation  $W = 0.0136L^{2.9306}$ . The condition factor indicated that the fish body shape tended to be laterally compressed. The growth parameters obtained were an asymptotic length ( $L_{\infty}$ ) of 34.45 cm and a growth coefficient ( $K$ ) of  $0.58 \text{ year}^{-1}$ , with the von Bertalanffy growth equation  $L_t = 34.45(1 - e^{-0.58(t+0.26)})$ . The  $L_{c50\%}$  value of 14.33 cm was smaller than  $\frac{1}{2}L_{\infty}$  of 17.23 cm, indicating that the fish were caught before reaching the appropriate size for capture. A total of 173 white croaker were considered suitable for capture, while 327 were considered unsuitable for capture. Total mortality ( $Z$ ) was  $1.69 \text{ year}^{-1}$ , natural mortality ( $M$ ) was  $1.224 \text{ year}^{-1}$ , and fishing mortality ( $F$ ) was  $0.47 \text{ year}^{-1}$ . The exploitation rate ( $E$ ) of 0.28 indicated that the exploitation of tigawaja fish was still relatively low and had not reached the optimum exploitation level. Recruitment occurred throughout the year, with the highest recruitment peak occurring in June.*

**Keywords:** Exploitation, Growth, Mortality, Population Dynamics, Tambak Lorok Fish Landing Center, Tigawaja.