REPRODUCTIVE BIOLOGY OF FRIGATE TUNA (*Auxis thazard* Lacepède, 1800) CAUGHT BY FISHERMEN IN WEST SUMATRA WATERS

BIOLOGY UNDERGRADUATE THESIS

By:

Andhini Nur Bintari

NIM: 2010421020

Supervisor I : Dr. Nofrita

Supervisor II : Dr. Jabang Nurdin

BIOLOGY DEPARTMENT

FACULTY OF MATHEMATICS AND NATURAL SCIENCES

UNIVERSITAS ANDALAS

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ABSTRACT

Frigate tuna (*Auxis thazard*) plays an important role in the fishing industry in West Sumatra. The increasing demand for frigate tuna makes this fish continue to be exploited. Exploitation carried out continuously can reduce frigate tuna production, so research needs to be done. The research was conducted to: (1) Know the growth pattern and factor condition of frigate tuna (*A. thazard*) in West Sumatra waters; (2) Know the reproductive biology of frigate tuna (*A. thazard*) which includes Sex Ratio, Gonad Maturity Level (GML), Gonad Maturity Index (GMI), and Fecundity in West Sumatra waters. Sampling was conducted at the Air Bangis Fish Landing Base (PPI) in West Pasaman Regency and the Gaung Fish Landing Site (TPI) in Padang City in July 2023. The research and data analysis was conducted from February to August 2024. Samples were obtained from the catch of fishermen in West Sumatra waters. Sampling was done randomly, samples were measured in length and weight, dissected to determine sex ratio, gonad maturity level, gonad maturity index, and fecundity. The results showed the length of fish ranged from 350 – 475 mm, with an average of 401.48 mm and a weight of 408 – 1,339 grams with an average of 755.8 grams. The growth pattern is positive allometric ($b>3$) which means that weight gain is faster than the increase in length. The condition factor is in stable condition with an average of 1.24. The sex ratio is in an unbalanced condition with a ratio of males and females of 0.9: 1. The level of gonad maturity obtained is GML III and GML IV. The gonad maturity index of male fish ranged from 1.71 – 3.04 and female fish 1.28 – 2.50. Estimated fecundity ranged from 261,468 – 775,590 grains. From several reproductive biology parameters used in this study, it can be concluded that the reproductive biology of frigate tuna in West Sumatra Waters is still in good condition.

Keywords: *Auxis thazard*, reproductive biology, growth pattern, gonad maturity level, fecundity, frigate tuna

ABSTRAK

Ikan tongkol krai (*Auxis thazard*) berperan penting bagi industri perikanan di Sumatera Barat. Meningkatnya permintaan terhadap ikan tongkol krai membuat ikan ini terus dieksploitasi. Eksploitasi yang dilakukan secara terus menerus dapat menurunkan produksi ikan tongkol krai sehingga perlu dilakukan penelitian. Penelitian dilakukan bertujuan untuk: (1) Mengetahui pola pertumbuhan dan faktor kondisi ikan tongkol krai (*A. thazard*) di perairan Sumatera Barat; (2) Mengetahui biologi reproduksi ikan tongkol krai (*A. thazard*) yang meliputi Rasio Seks, Tingkat Kematangan Gonad (TKG), Indeks Kematangan Gonad (IKG), dan Fekunditas di perairan Sumatera Barat. Pengambilan sampel dilakukan di Pangkalan Pendaratan Ikan (PPI) Air Bangis Kabupaten Pasaman Barat dan Tempat Pendaratan Ikan (TPI) Gaung Kota Padang pada bulan Juli 2023. Penelitian dan analisis data dilaksanakan pada bulan Februari hingga Agustus 2024. Sampel didapatkan dari hasil tangkapan nelayan di perairan Sumatera Barat. Pengambilan sampel dilakukan secara acak, sampel diukur panjang dan beratnya, dibedah untuk mengetahui rasio sex, tingkat kematangan gonad, indeks kematangan gonad, dan fekunditas. Hasil penelitian menunjukkan panjang ikan berkisar 350 – 475 mm, dengan rata-rata 401,48 mm dan berat 408 – 1.339 gram dengan rata-rata 755,8 gram. Pola pertumbuhan bersifat alometrik positif ($b>3$) yang berarti pertambahan berat lebih cepat daripada pertambahan panjangnya. Faktor kondisi berada pada kondisi stabil dengan rata-rata 1,24. Rasio sex dalam kondisi tidak seimbang dengan perbandingan jantan dan betina yaitu 0,9:1. Tingkat kematangan gonad yang diperoleh yaitu TKG III dan TKG IV. Indeks kematangan gonad ikan jantan berkisar 1,71 – 3,04 dan ikan betina 1,28 – 2,50. Fekunditas yang terestimasi berkisar 261.468 – 775.590 butir. Dari beberapa parameter biologi reproduksi yang digunakan dalam penelitian ini dapat disimpulkan bahwa kondisi biologi reproduksi frigate tuna di Perairan Sumatra Barat masih berada dalam kondisi yang baik.

Kata kunci: *Auxis thazard*, biologi reproduksi, pola pertumbuhan, tingkat kematangan gonad, fekunditas, tongkol krai