ABSTRAK

ANALISIS KANDUNGAN LOGAM BERAT KADMIUM (Cd), NIKEL (Ni), DAN SENG (Zn) PADA AIR LAUT SERTA *BIOCONCENTRATION FACTOR* (BCF) PADA ORGAN HATI DAN DAGING IKAN TONGKOL (*Euthynnus* sp.) DI PERAIRAN LAUT TELUK LAMPUNG

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Teluk Lampung merupakan perairan semi-tertutup yang rentan terhadap pencemaran akibat aktivitas antropogenik, seperti industri, pelabuhan, dan permukiman. Penelitian ini bertujuan untuk menganalisis kandungan logam berat Kadmium (Cd), Nikel (Ni), dan Seng (Zn) pada air laut, daging, dan organ hati ikan tongkol (*Euthynnus* sp.), serta mengevaluasi nilai *Bioconcentration Factor* (BCF). Pengambilan sampel air laut dan sampel ikan tongkol yang dihitung nilai Faktor Biokonsentrasi didapat pada 3 stasiun yaitu, stasiun 1 dilakukan di perairan pesisir pantai hutan mangrove perairan laut Sebalang, stasiun 2 di lokasi perairan laut Pantai Pasir Putih sebagai daerah industri, dan stasiun 3 di lokasi perairan laut Sukaraja sebagai daerah perkotaan. Metode Analisis logam berat dilakukan menggunakan *Inductively Coupled Plasma–Optical Emission Spectrometry* (ICP-OES). Hasil penelitian didapatkan kadar Cd pada air laut di tiga stasiun pengamatan sebesar <0,015 mg/L, Ni terlarut <0,066 mg/L, dan Zn terlarut <0,009 mg/L sedangkan, pada daging dan organ hati ikan tongkol kadar Cd di tiga stasiun pengamatan sebesar <0,59 mg/kg, Ni tertinggi 5,74 mg/kg dan Zn tertinggi 17,3 mg/kg dengan konsentrasi logam berat lebih tinggi pada organ hati dibandingkan daging ikan tongkol. Hal tersebut menunjukkan organ hati memiliki kemampuan tinggi dalam mengakumulasi logam berat. Nilai BCF menunjukkan logam berat Zn memiliki tingkat akumulasi tertinggi sebesar 1.922.22; diikuti Ni sebesar 86,96; dan Cd sebesar 39,33. Dengan adanya temuan ini diperlukan pengelolaan dan pemantauan kualitas perairan Teluk Lampung secara berkelanjutan.

Kata kunci: Ikan Tongkol, Air Laut, Logam Berat, *Bioconcentration Factor* (BCF), Teluk Lampung.

ABSTRACT

ANALYSIS OF HEAVY METAL CONTENT OF CADMIUM (Cd), NICKEL (Ni), AND ZINC (Zn) IN SEAWATER AND BIOCONCENTRATION FACTOR (BCF) IN LIVER AND MUSCLE TISSUE OF MACKEREL TUNA (*Euthynnus* sp.) IN LAMPUNG BAY WATERS

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Lampung Bay is a semi-enclosed body of water that is vulnerable to pollution from anthropogenic activities, such as industry, ports, and settlements. This study aims to analyze the content of heavy metals Cadmium (Cd), Nickel (Ni), and Zinc (Zn) in seawater, muscle tissue, and liver organs of mackerel tuna (*Euthynnus* sp.), as well as to evaluate the Bioconcentration Factor (BCF) value. Samples of seawater and mackerel tuna, which will be used to calculate the Bioconcentration Factor, were collected at three stations: Station 1 was located in the coastal waters of the Sebalang mangrove forest, Station 2 was located in the coastal waters of Pasir Putih Beach, an industrial area, and Station 3 at the Sukaraja coastal waters as an urban area. Heavy metal analysis was performed using Inductively Coupled Plasma–Optical Emission Spectrometry (ICP-OES). The results showed that the Cd content in seawater at the three observation stations was <0.015 mg/L, dissolved Ni was <0.066 mg/L, and dissolved Zn was <0.009 mg/L, while in the muscle tissue and liver of mackerel tuna, the Cd levels at the three observation stations were <0.59 mg/kg, the highest Ni level was 5.74 mg/kg, and the highest Zn level was 17.3 mg/kg, with higher heavy metal concentrations in the liver than in the muscle tissue of mackerel tuna. This indicates that the liver has a high capacity to accumulate heavy metals. The BCF values indicate that the heavy metal Zn has the highest accumulation rate at 1,922.22, followed by Ni at 86.96, and Cd at 39.33. Based on these findings, continuous management and monitoring of water quality in Lampung Bay are necessary to minimize the potential impacts of heavy metal contamination.

Keywords: Mackerel Tuna, Seawater, Heavy metals, *Bioconcentration Factor* (BCF), Lampung Bay.