

**EKA NADIA APRILLINA** NPM 200351100065 Keterkaitan TOM (*Total Organic Matter*) dan Kandungan Nitrogen Terhadap Nilai Indeks Pencemar di Sungai Desa Pejagan, Bangkalan. Dibawah bimbingan **Dr. Indah Wahyuni Abida, S.Pi., M.Si**

---

#### **ABSTRAK**

Penelitian ini bertujuan untuk mengetahui antara TOM (*Total Organic Matter*) dengan kandungan nitrogen di sungai Desa Pejagan Bangkalan. Penelitian ini dilakukan dengan metode purposive sampling pada 3 stasiun di perairan Sungai Pejagan, Kabupaten Bangkalan, Jawa Timur. Parameter yang diukur adalah parameter fisika (suhu, kecerahan, Total padatan tersuspensi, kecerahan, dan kedalaman) dan parameter kimia (DO, pH, TOM, COD, BOD, NH<sub>3</sub>, NO<sub>2</sub>, NO<sub>3</sub> dan PO<sub>4</sub>). Penelitian ini menggunakan metode deskriptif kuantitatif. Hasil pengukuran parameter fisika dan kimia di perairan sungai Desa Pejagan, Bangkalan menunjukkan hasil melebihi ambang batas baku mutu yang telah ditetapkan. Hubungan atau korelasi antara TOM (*Total Organic Matter*) dengan kandungan nitrogen di Sungai Desa Pejagan, Bangkalan sangat erat kaitannya. Semakin tinggi nilai TOM (*Total Organic Matter*) maka semakin rendah kadar nitrit dan amonia di suatu perairan. Sedangkan semakin tinggi nilai TOM (*Total Organic Matter*) semakin tinggi juga kadar nitrat di suatu perairan. Ketidakseimbangan kandungan nitrit, nitrat dan ammonia ini diakibatkan proses dekomposisi yang mempunyai kecepatan yang berbeda antara proses amonifikasi, nitrifikasi dan denitrifikasi. Nilai IP (Indeks Pencemar) di Sungai Desa Pejagan, Bangkalan memiliki rentang nilai IP berkisar 15,331 – 17,899 menunjukkan bahwa kualitas air sungai masuk dalam kategori tercemar berat. Keterkaitan TOM (*Total Organic Matter*) dengan kandungan nitrogen seperti nitrat, nitrit dan amonia saling mempengaruhi. Pengukuran nitrogen yang melebihi ambang baku mutu, mengakibatkan hasil analisa Indeks Pencemaran juga semakin tinggi.

Kata kunci: TOM (*Total Organic Matter*), kandungan nitrogen, sungai Pejagan

**EKA NADIA APRILLINA** NPM 200351100065 The Relationship Between TOM (*Total Organic Matter*) and Nitrogen Content on the Pollutant Index Value in the River, Pejagan Village, Bangkalan. Under the guidance of **Dr. Indah Wahyuni Abida, S.Pi., M.Si**

---

---

### **ABSTRACT**

This research aims to determine the relationship between TOM (Total Organic Matter) and the nitrogen content in the river in Pejagan Bangkalan Village. This research was conducted in the waters of the Pejagan River, Bangkalan Regency, East Java. This research uses quantitative descriptive methods. The results of measuring physical and chemical parameters in the river waters of Pejagan Village, Bangkalan show that the results exceed the predetermined quality standard thresholds. The relationship or correlation between TOM (Total Organic Matter) and the nitrogen content in the Pejagan Village River, Bangkalan is very closely related. The higher the TOM (Total Organic Matter) value, the lower the nitrite and ammonia levels in a body of water. Meanwhile, the higher the TOM (Total Organic Matter) value, the higher the nitrate level in a body of water. This imbalance in nitrite, nitrate and ammonia content is caused by the decomposition process which has different speeds between the ammonification, nitrification and denitrification processes. The IP value (Pollutant Index) in the Pejagan Village River, Bangkalan has an IP value range of 15,331 – 17,899, indicating that the river water quality is in the heavily polluted category. The relationship between TOM (Total Organic Matter) and nitrogen content such as nitrate, nitrite and ammonia influence each other. Nitrogen measurements that exceed the quality standard threshold result in higher Pollution Index analysis results.

Key words: TOM (Total Organic Matter), nitrogen content, Pejagan river