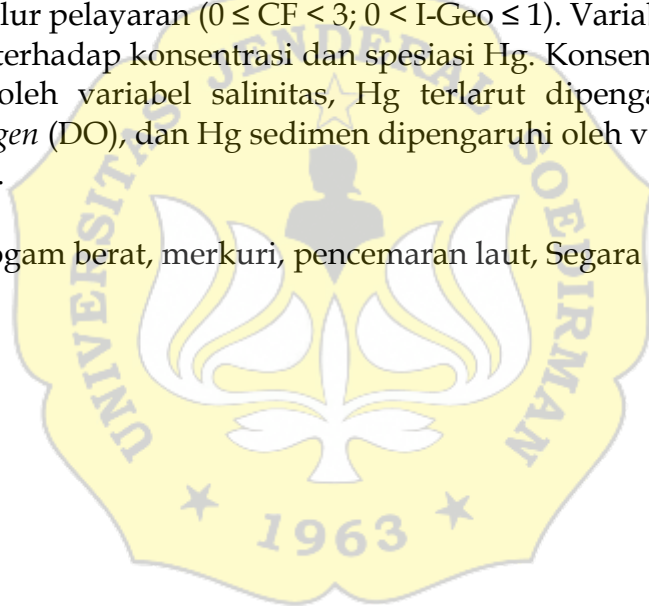


ABSTRAK

Industri di sepanjang Segara Anakan bagian timur seperti pengilangan minyak, industri semen dan pelabuhan diduga berdampak terhadap pencemaran di perairan. Penelitian ini bertujuan menganalisis distribusi dan tingkat pencemaran logam berat Hg di Segara Anakan bagian timur, Cilacap. Variabel penelitian meliputi konsentrasi Hg terlarut, tersuspensi dan Hg sedimen menggunakan alat *Mercury Analyzer*. Hasil penelitian menunjukkan konsentrasi Hg terlarut 0,02 – 0,57 $\mu\text{g.kg}^{-1}$, Hg tersuspensi 0,11 – 0,33 $\mu\text{g.kg}^{-1}$, dan Hg sedimen 7,04 – 134,51 $\mu\text{g.kg}^{-1}$. Sebagian besar nilai tersebut berada di bawah baku mutu nasional dan global. Nilai *Pollution Index* (PI) pada seluruh stasiun menunjukkan bahwa pada kolom perairan tergolong tidak tercemar ($\text{PI} \leq 1$). Kualitas sedimen terhadap kontaminasi Hg dapat dilihat berdasarkan nilai *Enrichment Factor* (EF) yang menunjukkan kategori pengkayaan minimal ($\text{EF} < 2$), sedangkan nilai *Contamination Factor* (CF) dan Indeks Geoakumulasi mengindikasikan adanya kontaminasi rendah hingga sedang pada daerah dekat industri dan alur pelayaran ($0 \leq \text{CF} < 3$; $0 < \text{I-Geo} \leq 1$). Variabel kualitas perairan berpengaruh terhadap konsentrasi dan spesiasi Hg. Konsentrasi Hg tersuspensi dipengaruhi oleh variabel salinitas, Hg terlarut dipengaruhi oleh variabel *Dissolved Oxygen* (DO), dan Hg sedimen dipengaruhi oleh variabel *Total Organic Matter* (TOM).

Kata kunci: logam berat, merkuri, pencemaran laut, Segara Anakan Cilacap



ABSTRACT

Industrial activities along the eastern region of Segara Anakan, including oil refineries, cement manufacturing, and port operations, are suspected to contribute to environmental pollution in aquatic ecosystem. This study aimed to analyze the distribution and pollution levels of the heavy metal mercury (Hg) in the eastern region of Segara Anakan, Cilacap. The research variables include the concentrations of dissolved Hg, suspended Hg, and sedimentary Hg, using a Mercury Analyzer. The results showed that dissolved Hg concentrations ranged 0.02-0.57 $\mu\text{g kg}^{-1}$, suspended Hg 0.11-0.33 $\mu\text{g kg}^{-1}$, and sedimentary Hg 7.04-134.51 $\mu\text{g kg}^{-1}$. Most of these values were below the national and international quality guideline. The Pollution Index (PI) indicated that all water column stations were classified as unpolluted ($\text{PI} \leq 1$). Sediment quality in relation to Hg contamination was assessed using the Enrichment Factor (EF), which indicated a minimal enrichment category ($\text{EF} < 2$). Meanwhile, the Contamination Factor (CF) and Geoaccumulation Index (I-Geo) suggested low to moderate near industrial sites and shipping lanes ($0 \leq \text{CF} < 3$; $0 < \text{I-Geo} \leq 1$). Water quality variables were found to influence Hg concentration and speciation: suspended Hg was affected by salinity, dissolved Hg by Dissolved Oxygen (DO), and sedimentary Hg by Total Organic Matter (TOM).

Keywords: heavy metals, marine contamination, mercury, Segara Anakan Cilacap,

