

ABSTRAK

Wilayah pesisir dan laut merupakan tempat pembuangan akhir dari semua jenis limbah yang dihasilkan oleh aktivitas manusia. Pada pesisir perairan kamal terdapat kegiatan yang berpotensi menimbulkan pencemaran lingkungan, yaitu industri *docking* Kapal. Industri *docking* kapal tersebut dapat menyebabkan air laut berubah warna menjadi kecokelatan dan menyebabkan peningkatan kandungan logam berat pada perairan terutama logam berat timbal (Pb) dan tembaga (Cu). Tujuan penelitian ini untuk mengetahui kandungan logam berat timbal (Pb), tembaga (Cu) dan karakteristik perairan pada air dan sedimen di kawasan *docking* kapal perairan Kamal Bangkalan Madura serta mengetahui karakteristik perairan. Penelitian ini dilaksanakan pada bulan Oktober-November 2022. Metode pengambilan sampel dilakukan menggunakan metode *purposive sampling* dengan 4 titik pengambilan sampel. Parameter yang di analisis secara *in situ* meliputi suhu, kekeruhan, pH, salinitas dan DO (oksigen terlarut). Data hasil logam berat timbal (Pb) dan tembaga (Cu) diidentifikasi untuk mengetahui kandungan logam berat pada sedimen dan air serta pengaruhnya terhadap parameter perairan. Hasil penelitian ini adalah kadar logam berat timbal (Pb) dan tembaga (Cu) pada perairan dari 4 stasiun pengambilan sampel masih berada dalam kondisi aman dan belum tercemar secara berurutan berkisar antara 0,0008-0,0032 ppm dan 0,0024-0,0048 ppm, yang menunjukkan arti bahwa nilai tersebut masih di bawah ambang batas baku mutu kadar logam berat timbal (Pb) dan tembaga (Cu) pada air laut, sebesar 0,008 ppm. Kadar logam berat timbal (Pb) dan tembaga (Cu) pada sedimen dari 4 stasiun pengambilan sampel masih berada dalam kondisi aman dan belum tercemar secara berurutan berkisar antara 0,0283-0,0385 ppm dan 0,0356-0,0483 ppm, yang menunjukkan arti bahwa nilai tersebut masih di bawah ambang batas baku mutu logam berat timbal (Pb) dan tembaga (Cu) pada sedimen masing-masing sebesar 35 ppm dan 35,7 ppm. Karakteristik perairan yang diukur meliputi suhu, kekeruhan, salinitas, pH dan DO dengan masing-masing nilai secara berurutan sebesar 27-29,3 °C; 18-98 ntu; 25 ppt; 6,8-8; dan 3,2-8,2 mg/L. Semua karakteristik perairan yang diukur masih berada pada batas aman dan tidak melebihi baku mutu kualitas air laut, kecuali kekeruhan yang jauh melebihi batas baku mutu kualitas air laut.

Kata Kunci : *Timbal (Pb); Tembaga (Cu); Docking kapal*

FARIKHA SUKMAWATI NPM 190351100071 Analysis of heavy metals lead (Pb) and copper (Cu) in water and sediment in the ship docking area of Kamal Bangkalan Madura waters. Under the guidance of **Dr. Haryo Triajie, S.Pi., M.Si**

ABSTRACT

Coastal and marine areas are the final disposal sites for all types of waste generated by human activities. On the coast of Kamal waters there are activities that have the potential to cause environmental pollution, namely the ship docking industry. The ship docking industry can cause sea water to turn brown and cause an increase in heavy metal content in waters, especially the heavy metals lead (Pb) and copper (Cu). The purpose of this study was to determine the content of heavy metals lead (Pb), copper (Cu) and the characteristics of the waters in water and sediment in the ship docking area of Kamal Bangkalan Madura waters and to determine the characteristics of the waters. This research was conducted in October-November 2022. The sampling method was carried out using a purposive sampling method with 4 sampling points. Parameters analyzed in situ included temperature, turbidity, pH, salinity and DO (dissolved oxygen). Data on lead (Pb) and copper (Cu) heavy metals were identified to determine the content of heavy metals in sediment and water and their effect on water parameters. The results of this study were that the levels of heavy metals lead (Pb) and copper (Cu) in the waters from 4 sampling stations were still in safe condition and not polluted sequentially ranging from 0.0008-0.0032 ppm and 0.0024-0.0048 ppm, which means that this value is still below the quality standard for lead (Pb) and copper (Cu) content in seawater, which is 0.008 ppm. The levels of heavy metals lead (Pb) and copper (Cu) in sediments from 4 sampling stations were still in safe and unpolluted conditions ranged from 0.0283-0.0385 ppm and 0.0356-0.0483 ppm respectively, which shows the meaning that these values are still below the threshold for the quality standards of heavy metals lead (Pb) and copper (Cu) in sediments of 35 ppm and 35.7 ppm respectively. The characteristics of the waters measured included temperature, turbidity, salinity, pH and DO with each value of 27-29.3 oC respectively; 18-98 ntu; 25 ppt; 6,8-8; and 3.2-8.2 mg/L. All characteristics of the waters measured are still within safe limits and do not exceed seawater quality standards, except for turbidity which far exceeds seawater quality standards.

Keyword : *Lead (Pb); Copper (Cu); Ship docking*