Analysis of cadmium (CD) and Lead (PB) Content in Losari Beach Waters and Its Relationship to Water Quality Patang Lecturer, Universitas Negeri Makassar, Indonesia Harifuddin Lecturer, Universitas Negeri Makassar, Indonesia Andi Heryanti Rukka Lecturer, Universitas Tadulako, Palu, Indonesia Abstract: The research aim was to analyze the content of Cadmium (Cd) and Lead (Pb) in Losari Beach Waters and their relationship to Water Quality starting from the Jeneberang upstream of Gowa Regency to Losari Beach, Makassar.

The observation station consists of 5 stations, namely Station 1 is Jeneberang upstream, Station 2 is Bili-Bili Dam, Station 3 is Sungguminasa of Jembatan Kembar, Station 4 is Jeneberang of estuary, and Station 5 around Tanjung Bayang, Losari Beach, Makassar. The results showed that cadmium (Cd) content in fish samples was still high because it was in the range of 0.01 ppm, while sediment and water are still good.

The content of lead (Pb) in water is still low except at station 4, which is around the river mouth Furthermore, water quality such as temperature, pH and oxygen are still optimal. Keywords: Cadmium, lead, Losari beach, water quality 1. Introduction The coastal area is very range with various problems especially environmental pollution.

Environmental pollution cannot be separated from the food chain, and if the components at the beginning of the food chain contain heavy metals. Yunarti (2003) stated that the polluted aquatic environment will affect the nutrients contained in the waters which are substances needed in plant life. The estuary region is very susceptible to natural or artificial damage and changes.

Waste disposal, use of water as a means of transportation, and changes in the

watershed system, are part of the causes of degradation of the economic quality of estuaries (Sudding et al. (2012). The perceived environmental pressures include the decline in environmental water quality because the waste produced will all enter the coastal waters of Makassar City. Various wastes that can appear include organic trash, household discharge, industry and heavy metals.

Of these types of waste, heavy metals are wastes that need important attention. This is caused by waste containing heavy metals is a material that is very dangerous, toxic to animals, plants and humans and are persistent in the environment (Darmono, 2001). Increased concentration of heavy metals in seawater which continues continuously, will end with the onset of pollution (Putri et al. (2014).

Among the various heavy metals, which are classified as dangerous are the Kadmiun (Cd) and Lead (Pb) types. Heavy metals Pb and Cd, if in large quantities can affect various aspects of the waters, including biological and ecological aspects. This pollutant if it is above the threshold in a water, there will be an imbalance in the aquatic environment which ultimately disrupts aquatic life.

Naturally, metal Pb can enter water areas through crystallizing Pb metal in the air with the help of rainwater. Besides that, Corrosizing process in mineral rocks as a result of waves and wind blows, also is one of the Pb metal source lines that will enter into the water area (Palar, 1994). 2.

Research Purposes The research aim was to analyze the content of Cadmium (Cd) and Lead (Pb) in Losari Beach Waters and their relationship to Water Quality starting from the Jeneberang upstream of Gowa Regency to Losari Beach, Makassar. 3. Method This research has been done for three months, namely May to July 2018. The observation station consists of 5 stations, namely Station 1 is Jeneberang upstream, Station 2 is Bili-Bili Dam, Station 3 is Sungguminasa of Jembatan Kembar, Station 4 is Jeneberang of estuary, and Station 5 around Tanjung Bayang, Losari Beach, Makassar.

The research activities carried out include equipment preparation, sampling, sample analysis in the laboratory and analysis of research data. For analysis of heavy metal cadmium and lead associated with fish samples carried out in the laboratory. Whereas for water quality will be carried out at the observation site. Data obtained and collected are then analyzed by descriptive analysis. 4.

Results and Discussion 4.1. Cadmium 4.1.1. Content of Cadmium Fish Samples Kadmiun content in sample fish is shown in Figure 1. n Figure 1 shows that the highest cadmium content in fish was obtained at station 1 at 0.01305 ppm, following Station 2 was

0.01175 ppm, Station 3 was 0.00885 ppm, Station 0.00395 ppm and station 5 was not found cadmium in fish.

Therefore, the condition of metal cadmium at stations 1 still relatively high according to the Decree of the State Minister of Environment Republic of Indonesia No. 51 in 2004 which requi res cadmium content for sea water quality standards is a maximum of 0.01 ppm. Figure 1: 4.1.2. Cadmium (CD) Soil and Water Cadmium content in soil sediments for all stations shows numbers below 0.10 mg/kg. Whereas in the wate sample, cadmium was not found.

Therefore, Cadmium pollution in soil and water sediments at the study site is still relatively low. 4.2. Lead Content 4.2.1. Lead Water Samples The content of lead in water at each observation station can be seen in Figure 2. Figure 2 shows that the highest lead content in sample water found at station 4 at the Jeneberang river estuary is the Tanjung Bayang area of Losari beach that is 0.0221 ppm, and lowest station 1, station and station 3 with a value that is 0.002 ppm. Aryawan et al.

(2017) which research the total Pb and Cu metal content in water, fish, and sediment in Seranga n Beach area and bioavailability found 0.038933 lead metal in Serangan Beach area. Therefore, water around Losari Beach is still better than Serangan Beach. Figure 2: 4.2.2. Sediment of Lead The presence of heavy metals greatly affects the level binding properties and settle in the bottom of the sediment is higher than in water (Harahap, 1991).

The content of lead in soil sediment can be seen in soil sediment at station 3 which is the location of is 30,0144 mg / kg, station 2 is 29,249 mg / kg, st Jeneberang upstream of Gowa regency. The content of the findings of Putri et al. (2014) who did lead research on Man lead content in fish shows values below <0.10 ppm. Figure 3: The Content 4.2.3.

Temperature (0 C) Temperature is one of the water physics factors tha Water temperature will affect the solubility proces aquatic, the higher the solubility of heavy metals such as Pb. The solubility of heavy metals such as Pb will also be Figure 4: Average Water Temperature of all Stations Water temperatures at each observation station can parameter values for all stations show a good value with a range of obtained at station 5 is 29.2 0 C, following station 3 is 29 station 1 is 26 0 C.The low temperature at station 1 is thought to be c 1 and starts in the morning. 4.2.4. pH of Water The pH value of water at each station can be seen in Figure 5.

In Figure 5 shows that the pH value for each station is not much different with the highest water pH value obtained at station 2 is 7.6, following station 5 is 7.58, station 4

is 7.4, st ation 1 is 6.96 and lowest station 3 is 6.32. Figure 5: 4.2.5. Dissolved Oxygen (PPM) Dissolved oxygen values for all observation stations can be seen in Figure 6.

In Figure 6 shows the dissolved oxygen value is still at the optimum value for the survival of the organism, namely the highest dissolved oxygen ==was obtained at station 2== is 7. 42 ppm, following station 5 is 7.34 ppm, station 4 is 7.16 ppm, station 3 is 6.92 ppm and lowest station 1 is 6.02 ppm. Figure 6: Average Dissolved Oxygen 5. Conclusion The results showed the cadmium content in the sample fish was still high because it is in the range of 0.01 ppm, the content of lead in water is still low except at station 4, which is around the estuary.

Furthermore, water quality such a temperature, pH and oxygen are still good for the needs of organisms in these waters.

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