

ABSTRACT

Sedimentation is an event of deposition or accumulation of rock material that is transported by water or wind power in a place. Sediment is rock fragments that vary in size and shape which are formed from physical and chemical processes in the rock. The sedimentation rate is the amount of sediment mass that is lifted through a unit area in each unit of time. Sedimentation can result in shallowing which disrupts the comfort and safety of ship transportation routes. To maintain sedimentation in the port area, accurate sedimentation rate data is needed to carry out regular dredging. To find out the comparison of sedimentation rate values and sediment characteristics in the Krueng Mane Fish Landing Base (PPI) Water Area, North Aceh, analysis needs to be carried out to find out the sedimentation rate values including Sediment characteristics and oceanographic factors for sedimentation processes. This research uses a survey method with purposive sampling points. This research was conducted for 7 days from 1 July – 7 July 2024 at four stations. The tool used in field sampling is the Sediment Trap to measure the amount of sediment deposition, while to analyze the characteristics of the sediment using dry sieving analysis. Data on currents and tides is taken every day. The research results obtained were that the sedimentation rate value in the Krueng Mane Fish Landing Base (PPI) Water Area, North Aceh for 7 days was 6.61-9.31gr/m³/day. The highest sedimentation rate was at Station 1 at 9.31 gr/cm³/day and the lowest at Station 4 at 6.61 gr/cm³/day. The type of sediment that dominates at the four locations is very fine sand with a value of 69% at Station 4 and silt with a value of 31% at Station 2. The results of the oceanographic parameter study obtained an average current velocity value ranging from 0.12-0.19 m/s. Station 1 has the highest average current value of 0.19 m/s and the lowest value is at station 4 at 0.12 m/s. The results of the study showed that the highest tide occurred on the fifth day at 08.00 WIB with a sea level reaching 153 cm while the lowest ebb occurred on the sixth day at 16.00 WIB with a sea level of 45 cm.

Keywords: Currents, Sedimentation, Sediment Characteristics, Sedimentation Rate, Tides