

ABSTRACT

Mlonggo Subdistrict in Jepara Regency is one of the areas prone to coastal erosion, this erosion caused the coastline in Mlonggo to shift by 177,5 m between 2010 and 2020. This change in the coastline may contribute to seawater intrusion issues, specifically along Blebak Beach in Mlonggo, indications of seawater intrusion have been observed, characterized by residents' shallow wells having a brackish taste and a rise in well water levels of 0,50 – 1 m over the past 20 years. Therefore, it is necessary to identify the intrusion zone and its depth in this area using VES method with 7 sounding points, the shortest span is 50 m and the longest 280 m, supported by DHL data from 10 water samples with values ranging from 532 to 16.005 $\mu\text{S}/\text{cm}$. The results of the study indicate that the study area consists of 6 rock lithologies. The first lithology is soil with resistivity values of 1,01 – 41,2 Ωm at depths of 0 – 2,37 m. The Second lithology is silty sand saturated with brackish water, with resistivity values of 0,43 – 1,10 Ωm at depths of 0,60 – 27,40 m. The third lithology is clay with resistivity values of 1,16 – 9,62 Ωm at depths of 1,84 – 69,90 m. The fourth lithology is silt with resistivity values of 10,60 – 28,30 Ωm at depths of 2,68 – 43,80 m. The fifth lithology is sand with a resistivity of 62,10 – 91 Ωm at a depth of 35,10 – 80,20 m. The sixth lithology is gravel with a resistivity of 121 – 162 Ωm at a depth of 61,10 – 80,2 m. The layer believed to have been intruded by seawater is a layer of silty sand filled with brackish water found at sounding points L1, L2, L3, L4, L5, and L7, with the farthest point being L7, located 740.58 m from the sea.

Keywords: *seawater intrusion, resistivity method, schlumberger, Blebak Beach*