ABSTRACT

The coastline is the boundary line between land and sea whose position is not fixed and can move according to changes in the coastline. Changes in the coastline are a common phenomenon, influenced by natural factors such as waves and currents, as well as various human activities including development along the coast. Changes in the coastline occur due to the erosion process called abrasion and the addition of land called accretion. Geographically, the coast of Kuala District, Bireuen Regency is directly opposite the Malacca Strait and as a place for marine tourism by the local community, there are also river estuaries that lead to the open sea and breakwaters that affect changes in the coastline, therefore a study is needed on changes in the coastline in Kuala District, Bireuen Regency using Landsat 8 imagery. The purpose of this study is to analyze changes in the coastline, determine the rate of abrasion and accretion and determine the extent of changes in the coastline of Kuala District, Bireuen Regency. This research was conducted in December 2024. The method used in this study is the Landsat 8 satellite image overlay method in 2009 - 2024. The research procedures carried out were data collection, coastline digitization, data overlay, DSAS (Digital Shoreline Analysis System) analysis, Layout. The results of the coastline changes obtained were that the highest abrasion was -162.11 meters and the highest accretion was 155.19 meters. The area of coastline changes in abrasion was 1.64 Ha and the area of accretion was 1.66 Ha.

Keywords: abrasion, accretion, changes coastline, DSAS, landsat 8 imagery