

ABSTRACT

Dihaven Abdullah Muchsinin Amran. 24020119170300. Estimates of Soil Carbon Stock On Land (Terrestrial) in *Marine Science Techno Park* (MSTP), Teluk Awur, Jepara. Under the guidance of Jumari and Sri Widodo Suedy.

Carbon stock refer to the carbon content stored within a system both below and above the soil surface. Soil serves as one of the storage places for carbon with high potential. Carbon stock originate from organic matter resulting from the decomposition of animal, plant, and other organism remains. The purpose of this research is to analyze and estimate organic carbon and soil carbon stock in the terrestrial area of MSTP. The method for determining soil sample collection locations uses purposive sampling in the terrestrial area of MSTP, covering 4,92 hectares, by dividing the area into three parts (front, middle, and back). Soil samples were taken using a soil corer to a depth of 40 cm vertically, then divided into sub-samples at 10 cm intervals. The variables of this study include soil density, organic carbon, estimated soil carbon stock, estimated area carbon stock, and estimated CO₂ absorption. The soil density values obtained range from 0.46 to 0.71 g/cm³, indicating that the soil is relatively loose and rich in organic material. The organic carbon values obtained range from 1.54% to 12.31%. The organic carbon values of MSTP terrestrial land exhibit wide variations in soil fertility and health. Lower values require intervention to increase organic matter, while higher values indicate very fertile and healthy soil. The estimated soil carbon stock at a soil depth interval of up to 40 cm is 113.8 tons/ha, while the estimated carbon stock of MSTP terrestrial land is 559.89 tons. The potential CO₂ absorption in the area is 2054.8 tons. MSTP terrestrial land has the potential to be an effective carbon sink, helping to reduce the amount of CO₂ in the atmosphere and contributing to climate change mitigation.

Keywords: estimates carbon stock, soils carbon, land, MSTP