THE CARBON WORKBENCH

Blue Carbon Projects

Mangrove, seagrass and coastal wetland restoration under Verra VM0033

What is blue carbon?

Blue carbon refers to the carbon stored in coastal and marine ecosystems — primarily mangroves, seagrass beds and salt marshes. These habitats sequester carbon at rates 3-5 times higher than terrestrial forests per unit area, primarily in soil sediments rather than above-ground biomass.

Verra VM0033 is the primary methodology for blue carbon projects, covering tidal wetland restoration and conservation. It accounts for CO2, methane and nitrous oxide fluxes across all carbon pools.

Carbon storage potential

Mangrove ecosystems store 500-1,000 tCO2e/ha over their lifetime, with annual sequestration rates of 5-10 tCO2e/ha/yr in the first decade. Seagrass meadows store 300-500 tCO2e/ha and salt marshes 200-400 tCO2e/ha.

Unlike terrestrial forests, much of the blue carbon store is in deep soil sediments that are stable over centuries. This permanence is a key selling point for premium buyers.

Ecosystem type	Annual sequestration rate
Mangroves (tropical)	6-10 tCO2e/ha/yr
Mangroves (subtropical)	3-6 tCO2e/ha/yr
Seagrass meadows	2-4 tCO2e/ha/yr
Salt marshes	1.5-3 tCO2e/ha/yr

Market and pricing

Blue carbon credits typically sell at £15-40/t, with premium projects achieving £50+/t due to strong biodiversity and community co-benefits. Demand from CORSIA airlines, financial institutions and nature-positive corporate buyers is growing strongly.

Projects must demonstrate additionality — showing the restoration would not have occurred without carbon finance. Tenure and community consent requirements are stringent, particularly in developing countries where most suitable areas are located.

Development considerations

Restoration projects require hydrological restoration (unblocking drainage channels), propagule planting, and long-term monitoring of biomass, soil carbon and water levels. Monitoring costs are relatively high due to the complexity of wetland carbon accounting.

Successful projects typically involve local community partnerships, linking blue carbon revenue to fisheries protection, storm surge defence and coastal livelihoods.