

**The influence of ocean physicochemical characteristics on cover dynamics and
flowering of *halophila stipulacea*, along Dar es Salaam coast**

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Halophila stipulacea and other seagrasses are valuable marine ecosystem engineers. In Tanzania limited seagrass research raises questions about the status of *H. stipulacea* particularly flowering patterns and cover dynamics along the coast of Dar es Salaam. The mangrove-seagrass-coral complex at Kunduchi intertidal mudflats were studied in order to establish flowering period and influence of ocean physicochemical characteristics on flowering and temporal dynamics in cover both *in situ* and *ex situ*. *H. stipulacea* percentage cover and water physicochemical characteristics (temperature, salinity, pH and nutrients (N and P) was measured monthly at five established permanent tidal pools for a year. *Ex situ* observations suggest that a synergy of temperature and salinity are primary factors influencing flowering in *H. stipulacea*; while *in situ* flowering is influenced more by salinity. Seasonal changes in cover were observed to correlate significantly with water salinity, and water column and sediment nutrients. Percentage cover exhibited a bimodal pattern with a low peak in February and the highest in September. The optimum percentage cover was observed during the short rainy season potentially due to the environmental conditions (temperature, salinity, pH and nutrients). These observations suggest that temperature and salinity are important factors controlling the flowering; while nutrients and salinity are responsible for cover dynamics of *H. stipulacea*. Elevations in temperature and salinity that exceed thresholds of the optimal ranges 23 - 32°C and 30 - 38 ‰ respectively may result in reduced efficiency for sexual reproduction. Temperature-salinity combinations above 30 - 34°C /40 - 44 ‰ are thus expected to cause some effects on seagrasses by affecting their reproductive ecology, physiology and abundance cover.