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Predicting mangrove biomass patterns of Sunda Banda Seascape, Indonesia

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ABSTRACT:
Mangrove forests provide regulating services, provisioning services and habitat regeneration to the ecosystem and human beings. This study was conducted in the Sunda Banda Seascape (SBS), within the Coral Triangle, Indonesia, among the world's richest regions of mangrove biomass and marine biodiversity. Using GIS-enabled bioclimatic models, we estimated the spatial patterns of SBS mangrove biomass in the current climatic conditions (1950-2000) and four simulated representative concentration pathways in 2070. Using change detection analysis we established that with an increase of CO2 concentration, mangrove biomass increased, although a greater spatial variance was found. From current to future scenarios, these changes were highly fluctuated in longitudes; however, partly followed the trend in latitude. In addition, the predicted distributions of mangrove biomass presented here serve as a tool for developing conservation priorities and highlighting biomass hotspots for mangrove forest management initiatives in the SBS.