



Geographic Information System for Upscaling the Seaweed Industry Operation In Two Areas in Mindanao, Southern Philippines

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Abstract

This study used the geographic information system (GIS) in mapping cultured seaweed (*Kappaphycus* and *Eucheuma*) areas as production support system for sustainable farming and upscaling of seaweed industry operation. However, the current information on the aerial extent and spatial distribution of seaweeds farms in the Philippines has limited accuracy and reliability. To address this, the ArcGIS tool and spatial method was used in compiling bio-physical and socio-economic data, including the extent of seaweed production areas, the culture techniques and systems, and other relevant information on the various farming sites in the Davao Region and major production areas in Tawi-Tawi Province of Mindanao, Southern Philippines. The results show that major source of seaweeds in Davao Region comes from Davao del Sur while for Tawi-Tawi, the bulk of production is from Sitangkai. For seaweed extent, Davao Region reaches a total of 408.59 ha while Tawi-Tawi covers 47,802.18 ha. In terms of the salinity level, Davao Region ranges from 27 to 32 ppt and Tawi-Tawi from 31 to 32 ppt. Temperature level ranges from 26 to 27 °C in Davao Region and 27–30 °C in Tawi-Tawi. As to the socio-economic dimension, the most common farming method applied in both areas is the multiple floating long-line; however, several culture systems were recorded such as basket, monoline, and fix-off bottom methods. The product flow and value chain mapping suggest the absence of consolidators in some areas and the lack of coordination and complementation among seaweed industry enablers, which may have contributed setbacks to the industry on top of the prevailing problems on diseases and environment-related issues. The results of this study may assist decision making for seaweed farming operations and eventually upscale the seaweed industry in Mindanao and the whole country.