

GIS modeling for shrimp culture zonal planning of Batticaloa District, Sri Lanka

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Abstract

Shrimp farming dominates commercial coastal aquaculture activities in Sri Lanka and it remain as a coastal developing activity, which generates substantial employment and foreign income. The scale of production varies from large commercial to very small subsistence, in the North Western Province, although few shrimp farm are properly sited and managed, majority of them are established ad hoc manner, resulting in collapsing of aquaculture industry.

The adverse experience reemphasized the importance of zonal planning prior to the induction of aquaculture. GIS technology gives the planner and developer the capacity to evaluate the interaction of a wide range of environmental and social factors which affect the area for aquaculture development. This study presents suitable sites for shrimp farms and hatcheries of the coastal stretch (up to 5 m altitude) of the Batticaloa District using GIS and remote sensing. Primary data sources for this study are SPOT 5 satellite imageries and maps. In total, twelve basic production variables are identified for selecting suitable sites. The weighted Linear Combination (WLC) method is used for zoning.

The best farming sites are found on the western side of Batticalaoa Lagoon, Northern side of Valachenai Lagoon and Western side of the Upparu Lagoon. This study also identifies ecologically sensitive areas and geomorphological status of coastal zone for planning.

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