ABSTRACT


The objective of study is to build a sustainable development model for brackish water shrimp pond. Mangrove ecosystem has an ecology and economic function in coastal area of Randangan, it has been used for brackish water shrimp pond. The development of shrimp pond grows rapidly and tends to endanger the sustainability of the mangrove ecosystem. The shrimp pond aquaculture is also giving an ecological impact to coastal area through pond effluent. Therefore, it is important to model the development of brackish water pond considering the carrying capacity, economics value of mangrove ecosystem and profit ability of shrimp pond aquaculture. The result shows that : (1) based on spatial analysis 1.917.01 ha is suitable for shrimp pond in Imbodo, Duhidaa, and Manawa (coastal village), but using carrying capacity model only 759,1 ha can be developed in sustainable way; (2) simulation of the model showed that intensive shrimp pond technology give the highest profit (Rp 95 million per ha per crop) with the concentration of NO₃-N of 10.807 ppm/ha/crop (120 days) or 0.29/ha/day; and (2) ecology-economics model indicated only 30 % of the mangrove area can be developed for intensive shrimp pond.

KEYWORDS : mangrove, ecology-economics, shrimp pond, carrying capacity, model and simulation