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Environmental impact of coastal aquaculture in the areas of Thoothukudi District: Using contingent and hedonic pricing method

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Coastal aquaculture production is increasingly becoming popular in Thoothukudi district as a means to make the ends meet in daily lives of the coastal communities who mostly depend on marine ecosystem for subsistence and income. Besides, coastal aquaculture is one of the major activities in the coastal environment. Therefore, its operation has direct and indirect effects on the marine ecosystem and other resources based economic sector operations in the area. Aquaculture is a human activity and there is an obvious relationship between human ecology and aquaculture development. The focus of this research is to assess environmental impact of coastal aquaculture with other economic factors and specifically with the question of externalities – the side effect of actions by individuals and firms that impact on the well-being of others. Continuous pumping of seawater or saline water into vast confined pond areas would lead to salination of agricultural land. Similarly, continuous withdrawal of ground water might lead to drying up of shallow wells or salt-water intrusion. Transformation of multi-ownership coastal aquaculture resource into private owned single ownership would lead to social displacement of local fishermen. The research reveals that the land price of shrimp culture has been analysed based on the data from various stretches pooled together. Out of 251 household respondents who were engaged in aqua cultural activities about the land price is differed due to so many factors which are highly attributed due to environmental impacts. These results have several noteworthy features. First, the model has a good fit. The chi-square value is 67.13, which is highly significant at 1%. Pseudo R2 value is 0.83, which means that about 83.2% of the variations in the land price are explained by the included independent variables. Almost all the independent variables have a positive influence on the land price except the variables of other external factors that too institutional failure is more significant factor which has positive relation towards land price. Similarly, the Contingent Valuation model is re-estimated based on the multiple linear estimation method after eliminating the non-significant variable X1. It implies that the age variable is positively correlated with the dependent variables, which means that the respondents WTP will increase when the age raises; the residence time variable is negatively correlated with the dependent variables, which means that the respondents WTP will decrease when the residence time raises; the monthly income variable is positively correlated with dependent variables, which means that the respondents WTP will increase when the monthly income raises; the occupation variable will not be analyzed due to its discontinuity; the degree variable is positively correlated with the dependent variables, which means that the respondents WTP will increase when the degree raises. The main factors that influence the respondents WTP are age, monthly income and degree, out of which age and degree have a negative effect, while the monthly income has a positive effect. The main factors influencing the respondents WTA are age, residence time, monthly income and degree, the occupation variable being neglected due to its non-significant effect. The age, monthly income and degree have a positive effect, while the residence time has a negative effect. The willingness to pay analysis result indicates that the respondents are mainly influenced by age, monthly income and degree. These three factors have a significant effect on the WTA towards coastal environment.

Biography

Sacratees had 13 years research experience and 10 years in teaching field for Environmental Economics/Resource Economics/ Agriculture/Health Economics. Published 4 international papers and 18 national papers. Currently working as a Assistant Professor & Head-in-Charge for Department of Economics, Manonmaniam Sundaranar University, India

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