Use of Geographic Information System (GIS) on Sungai Siput, Perak's Ornamental Fish Farmers Activities and Off-Farm Employment

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Abstract: Ornamental fish keeping is one of a popular hobby. Many person active in interest are attracted to the fishes colours, shapes and swimming behaviours that different kinds of fish display in an aquarium. Thus, this paper presents a new and fresh structure of research in ornamental fish farming activities among the ornamental fish farmers in Malaysia. The potential for further growth of the industry in Malaysia is huge. Yet, the importing activities are sporadic due to export restrictions made by the European Union (EU) since year 2015. The objective of this study is to map the 21 ornamental aquaculture farmers farm in Sungai Siput, Perak by creating the compartmentalization system as requested by EU in order to fulfill the Fisheries biosecurity requirements for the purpose of exporting ornamental fish using Geographic Information Systems (GIS), supported by the drone images and other relevant technologies. A total sample population comprised of 21 ornamental fish farmers in Sungai Siput, Perak. The non-spatial data (survey) and spatial data (GIS) were used in the study to capture farm location effect on the farm operational activities especially in fisheries biosecurity terms and regulations. Later, descriptive analysis used to describe the respondent's socio-economic profile. More, the relationship between fish farming activities and the independent variables were cross-tabulated. The chi-square analysis was used to test the null hypothesis. The assimilation of both vector and raster data was used to determine the spatial characteristics on farming and off-farm activities spatially. The descriptive analysis results shows that that majority of the farmers were male and married.   Aged between 45-55 years old (38.8%) and the results shows most of the farmers had secondary education level, SPM holders with 44.6%. Majority of the respondents with 9 (36.8%) had a farm scale more than 10ha of farm size. Average total production with more than 2 millions a year. The koi (80%) and other cyprinidae family (9%) are most favorable type of fish reared among the farmers. There was a very significant relationship between farming participation and age, education level, total of production and income of the respondents. The spatial analysis shows that most of the farmers live near the town, Sungai Siput, with less than ten (10) kilometres from house and farm, most probably because of the basic needs of life. By developing the

complete spatial database of the compartmentalized system, it meet the EU requirement that help farm monitoring by Department of Fisheries, particularly Fisheries Biosecurity Division, in the management of aquatic animal health for the country's export trade value for ornamental fish.