

Measuring the Economic Impact of Weather Determinants on Aquaculture in the Davao Region, Philippines

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Keywords

aquaculture, humidity,
net income, Ricardian approach,
temperature, weather
determinants

Abstract

Aquaculture is an important determinant of economic growth in the Davao Region in the Southern Philippines because it contributes towards increasing employment and agribusiness development opportunities. However, the industry faces various issues that affect farm productivity. One of these challenges pertains to welfare effects emanating from changing patterns of weather variables. Hence, this research aimed to measure the impact of weather determinants on aquaculture production's net income based on surveyed farms in the Davao Region. Based on the Ricardian approach, our econometric model specifies the dependent variable as net income (PhP/ha) and this is a function of weather variables such as precipitation, humidity, and agro-climatic and socio-demographic variables. From the results, weather and agro-climatic variability have statistically significant effects on aquaculture's net income. More specifically, a unit increase in the standard deviation of rain value increases net income by PhP12,730. However, an increase in one standard deviation of average air humidity decreased net income by approximately PhP2,940. Finally, unit increases in the standard deviation of soil moisture and soil temperature translate to increases in net income by approximately PhP16,150 and PhP16,170. Thus, given the results, strategies that would enable aquaculture farmers to mitigate and adapt to changing weather conditions should be implemented. Also, weather stations should be updated and upgraded in order to provide accurate readings and forecasts so that aquaculture farmers' decision making will be improved with regards to their farm practices.