OYSTER CULTURE THROUGH HANGING METHOD: AN ALTERNATIVE SOURCE OF LIVELIHOOD

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Introduction

The Philippines is very rich in soft-bodied, hardshelled animals, known as mollusks. They occur in coastal-, fresh-, and estuarine waters and in local ponds and gardens. It has been estimated that there are at least 20,000 species of the animal in the country excluding those that are still unknown and unidentified (de los Santos, 1988).

One mollusk that is easily formed is the oyster or the commonly called "tirem" in Iloko or "talaba" in Filipino. These mollusks, *Crassostrea sp.* are found throughout the tropics and subtropics and are commonly harvested from the wild population.

The need for increasing aquaculture products is becoming a necessity as they are popular for food and profit. Oysters in particular were found out to be no ordinary food and they are even considered rare delicacy in Europe, Britain, and Ireland and they are good source of calcium, zinc, protein, and some vitamins required by the human body (Goltsoff, 1964).

In these years of rapid increasing population but more slowly increasing food resources, it is necessary that any existing or potential resources be appraised. From the study of Angell in 1986, the expansion of oyster culture has been hindered by limited awareness of its potential among fishery development promoters and the need for more widespread dissemination of information on the technology of culture processing and marketing. However many handbooks and manuals are published for the promotion of the positive aspects of oyster to tum more people into its farming and the economic importance of this industry (Fish Farming International, 1995). In the country, oyster culture and its commercial production is concentrated in Cavite, Malabon, Metro Manila, and in some municipalities of Pangasinan, to name some of the very few places **engaged** in such industry. And despite the presence of suitable habitats here in Ilocos Sur, commercial production of oyster is still insignificant.

In oyster culture, the hanging, stake, stone and broadcasting are the more commonly used methods to further increase production. According to Basa et al. (1991), the hanging method is one of the best and easiest ways of culturing oysters. Thus, this research was undertaken to find out which stocking density of the hanging or "bitin" method could yield better growth performance of oysters so that residents of nearby estuarine waters could use these mollusks as an additional or alternative source of income and to bolster its commercial production in the province.

Objectives

This study was conducted to determine the growth performance of oysters cultured in two different stocking densities in the brackish waters of Nalvo, Santa Maria, Ilocos Sur.

Specifically, it sought to answer the following questions:

1. What is the growth performance of oysters in tenns of final mean weights cultured in the following stocking densities:
   a. 5-inch, and
   b. 10-inch?

2. Is there a significant difference in the growth performance of oysters cultured in the above-mentioned stocking densities?

Methodology

The experimental site was set-up at the brackish estuarine waters of Nalvo, Santa Maria, Ilocos Sur for a period of five months from October 1996 to February 1997.

The researchers bought 200 strings of oyster spats from the Oyster Farm Office at Nalvo, Santa Maria, Ilocos Sur. Thirty (30) pieces of "bikal" were bought and to which the oyster spats were strung. The office provided 30 pieces of bamboo trunks or poles for setting up the culture.

One hundred (100) strings of oyster spats were prepared and initially weighed in grams for each stocking density (five- and ten-inch) and subsequently properly tied on the "bikal poles by the researchers with the

assistance of the Officer-in-Charge and Fishery Technologist of Nalvo, Santa Maria, Ilocos Sur and BS Biology students, after which, the bamboos were submerged in the brackish water.

For a period of five months, the researchers visited and monitored the cultures every Wednesdays and Saturdays of the **week.. A caretaker's** help was solicited to take care of the experimental cultures during times the researchers were not around and to adjust accordingly the set-up during low and high tides.

After five months, the researchers gathered the cultures and took their final weights in grams.

The t-test for significant differences was used to determine which stocking density gives significantly better growth performance in terms of weight.

Results and Discussion

Table 1 below presents the initial and final weights of oysters cultured in the five- and ten-inch stocking densities. Initial total and mean weights of the samples (N) cultured in the five-inch density are 4,900 grams and 49.00 grams respectively. While in the ten-inch stocking density, the samples' initial total weight is 5,165 grams and their mean weight is 51.7 grams. *As* for the final weights, the total weight of oysters cultured in the five-inch stocking is 40,575 grams with a mean weight of 405.75 grams, while those cultured in ten-inch stocking have a total weight of 61,905 grams with a mean weight of 619.05 grams.

Table 1

Initial and Final Weights of Oysters (N) Cultured in Five-inch and Ten-inch Stocking Densities

Stocking Density	N	Initial Weight in Grams		Final Weight InGrams	
		Total	Mean	Total	Mean
5-inch	100	4,900	49.00	40,575	405.75
10-inch	100	5,165	51.70	61,905	619.05

Data show that the final total weight of oysters cultured in the ten-inch stocking density is heavier than that weight of the cultures in the five-inch stocking density after five months.

The growth performance of the oysters cultured in the two different stocking densities was detennined by the oysters' final mean weights. In order that this could be a valid basis, the initial mean weights of the oyster spats were statistically analyzed and 0.5 level of significance (Table 2a).

Table2a

t-test Significant Difference of the Initial Mean Weights of Oysters Culture in Five- and Ten-Inch Stocking Densities

Stocking Density	Mean Weight	Mean Difference	t-value	t-sig
5-inch	49.00	2.700	1.41	.163
10-inch	51.70			

Since the significance of t (165) is greater than .05 probability level, the initial mean weights of the oyster spats were not significantly different. Thus, the final mean weights of the cultures were then statistically analyzed at .05 level of significance (Table 2b).

Table2b

t-test of Significant Difference of the Mean Final Weights of Oysters Cultured in Five- and Ten-inch Stocking Densities

Stocking Density	Mean Weight	Mean Difference	t-value	t-sig
5-inch	405.75	213.30	11.55*	.000
I0-inch	619.05			

The computed t-value (11.55) is significant based on the significance of t(.000), a value which is very much less than the set level of significance (.05). Since the t-sig is even less than .01, the difference in the final mean weights of the oysters is highly significant at .05 level.

The result implies that oysters have better perfonnance when cultured in ten-inch stocking density than in five-inch stocking.

Basa et al. (1991) have reported that the hanging method has several advantages like high productivity per unit area, no mortality from silt and no mortality from crawling predators. The better performance of oysters in the ten-inch stocking density confirms the report of Villaluz (1950) that greater distances or organisms like filter feeders, e.g., oysters, permit less competition among themselves and more water, nutrients, dinoflagellates, diatoms, and protozoans would flow around them. And as according to Angell (1986), estuarine waters like that in Nalvo, Santa Maria, Ilocos Sur is a good location for oyster culture for there is a steady flow of clear water to provide plankton and oxygen.

Cost-Benefit Analysis

I. Cost of Production		
A. Wage of the caretaker (five months)	**P** 800.00	
B. Materials		
1. 30 pcs. of "ikar"	40.00	
2. 200 strings of oyster spats at *P0.S0* each	100.00	
Total		**P** 940.00
II. Sale of Production		
1 string of cultured oysters=1 ganta		
1 ganta=P25.00 x 200	P5,000.00	P5,000.00
II. Return of Investment		
Sale of Production	5,000.00	
- Cost of Production	940.00	
Return of Investment		P4,060.00

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