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Research Paper

Mangrove clams *Anodontia edentula* in the coastal areas of Danao City and Carmen, Cebu, Philippines: Gender roles

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ABSTRACT

The quality of fresh mangrove clams, *Anodontia edentula,* locally known as "imbao" based on sizes and bacterial analysis was conducted in the coastal areas of Danao City and Luyang, Carmen, Cebu, as research sites. The body-length frequency measurement and body-weight in catch per unit of effort of mangrove clams was assessed from September, 2012 to February, 2013. The sampling was done every other sunday until ten (10) samplings were conducted. The socio-economic profile of shell gatherers and gender roles from the two research sites were likewise investigated. The body-length frequency measurements of mangrove clams from the two research sites was 5.0 to 5.5 cm with negative detection of *Echerichia coli* samples taken from Danao coastal areas and its body-length of 4.0 cm were also gathered by the gleaners of Carmen coastal areas with positive detection of *E. coli*. The body-weight in terms of catch per unit of effort (kg/h) were analyzed and found to be significantly abundant in the two research sites based on t-test at 5% level of significance. The shell gleaners were mostly women who belong to the below poverty-lined community and depended on fishing as means of livelihood with gross income ranging from PhP3,500 to 5,000.00. Hence, livelihood intervention should be extended to this group to alleviate its income.

Keywords: Mangrove clams, body length, body-weight, assessment.

INTRODUCTION

Mangrove clams belongs to a shell family (Order: *Veneroida*; Family: *Lucinidae*) that harbors symbiotic bacteria. It is a fact that brackish water pond sediments contain plenty of sulfides, particularly, where the cultured animals are fed protein-rich diets.

Mangrove clams can very well answer to this problem and make aquaculture more environment-friendly (http://www.seafdec.org.ph/archives/study). With the destruction and over-exploitation of mangroves that serve as its home, the mangrove clam (*Anodontia edentula) or imbao* declined in numbers (Dela and Junelyn, 2004).

Mangrove clam is distributed in Danao and Carmen coastal waters where it serves as food and source of livelihood for many gleaners. Today, the scientist are looking into the potential of the mangrove clam as a sediment cleaner, thus, they are optimistic that in the near future, the mangrove clam will not only continue to delight many a Filipino palate but can be used as an effective helper in cleaning coastal waters (Dela and Junelyn, 2004). However, Danao and Carmen waters were already threatened with the water pollution that are detrimental to shellfish and molluscs eaters, thus, bacterial analysis of clams was investigated as well as, gender roles in the mangrove clam conservation.

There were significant gender differences in attitudes towards future land use with women showing lower scores than men for hiking, camping, fishing, hunting, nuclear production, factories, building houses and storage of

Figure 1: Danao City gleaning sites of "Imbao".

nuclear waste (http://eab.sagepub.com/content/30/4/472.short).

Objectives

This study assessed the quality of mangrove clam in the coastal areas of Danao City and Luyang, Cebu based on its sizes, body length frequency measurement and percentage body-weight in catch per unit effort, bacteriological analysis and the gender roles in river clean-up and mangrove clam conservation in Danao and Carmen coastal waters gleaners, mangrove clam abundance and conservation.

MATERIALS AND METHODS

The experimental method of research was used in conducting the sizes of mangrove clams based on body length-frequencies and catch per unit effort from the two identified research gleaning sites particularly, Danao City and Carmen, Cebu particularly weekend from September, 2012 to February, 2013 (Figure 1). The mangrove clam was

Table 1: The mean frequency body length measurements of mangrove clams, *Anodontia edentula* taken from the two research sites after conducting 10 samplings.

Length (cm)	Carmen gleaning site		Danao gleaning site	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
3.0	2	2.45	2	2.02
3.5	8	9.88	4	4.04
4.0	25	30.87	16	16.16
4.5	10	12.35	15	15.16
5.0	16	19.75	25	25.25
5.5	14	17.29	24	24.24
6.0	6	7.41	12	12.12
6.5	-	-	1	1.01
Total	81	100	99	100

Table 2: Weekly catch per unit effort in kg/h of mangrove clams taken from Danao City and Carmen gleaning sites.

Sampling	Carmen gleaning site		Danao gleaning site	
	Kg	CPUE	Frequency (f)	Percentage (%)
1	0.572	0.57	0.527	0.53
2	0.198	0.20	0.549	0.55
3	0.588	0.59	0.410	0.41
4	0.302	0.30	0.481	0.48
5	0.517	0.52	0.449	0.45
6	0.301	0.30	0.427	0.43
7	0.279	0.28	0.377	0.38
8	0.138	0.14	0.384	0.38
9	0.377	0.38	0.347	0.35
10	0.133	0.13	0.348	0.35
Total	-	3.41	-	4.31
Mean	-	0.34	-	0.43

subjected to bacterial analysis and the mangrove clam conservation was likewise determined based on gleaners' interview.

RESULTS AND DISCUSSION

The facts of this study were made to ascertain the sizes of mangrove clams, *A. edentula* gathered from Luyang, Carmen, Cebu and Dunguan, Danao City based on the body length-frequency measurement and catch per unit effort (CPUE) and its quality based on bacterial analysis.

Body-length frequency measurement of mangrove clams

In this study, the body-frequency measurement of mangrove clams from the two gleaning sites after conducting ten (10) samplings was within 4.0 to 5.5 cm (Table 1). Table 1 shows the highest percentage (30.87%) of the most frequent size (4.0 cm) was observed in Carmen, Cebu gleaning site and found out that the stock was considered "over-exploited since the excessively young (2.0 to 4.0 cm) and excessively old (9.0 cm) were also gathered by the Carmen, Cebu gleaners. Thus, the stock of mangrove clams, *A. edentula* found in Carmen gleaning sites are still considered "over-exploited".

Percentage body-weight of mangrove clams

In this study, Table 2 shows the weekly catch per unit effort (CPUE) of mangrove clams from the two gleaning sites. The catch per unit of effort for mangrove clams gathered from Danao City has the highest mean of 0.43 kg/h as compared to Carmen gleaning sites, which has only 0.34 kg/h. Thus, mangrove clams are abundant in Danao City compared to Luyang, Carmen, Cebu gleaning site. The Cebu Technological University students and staffs had a regular mangrove reforestation (semi-annual) and the *imbao* gleaners were requested to monitor the propagules, particularly in Danao gleaners.

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