

REPRODUCTIVE BIOLOGY OF SNOUT OTTER CLAM, *Lutraria philippinarum* (Deshayes, 1854) (Bivalvia: Mactridae) WITH NOTES ON ITS FISHERY IN THE PHILIPPINES

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to the Faculty of the Biology Department
College of Arts and Sciences
University of San Carlos, Cebu City, Philippines

In Partial Fulfillment of the Requirements
For the Degree of
Masters of Science in Biology

by

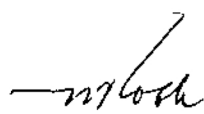
Venus Bantoto


April 2011

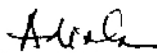
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This Thesis entitled “ **REPRODUCTIVE BIOLOGY OF SNOUT OTTER CLAM, *Lutraria philippinarum* (Deshayes, 1854) (*Bivalvia: Mactridae*) WITH NOTES ON ITS FISHERY IN THE PHILIPPINES**”, prepared and submitted by **VENUS BANTOTO**, in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE IN BIOLOGY**, has been examined and is recommended for acceptance and approval for oral examination

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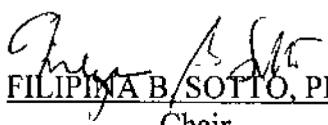

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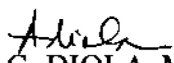
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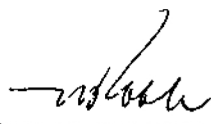
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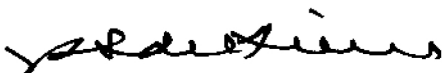

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ABSTRACT

The morphometry, size at sexual maturity, sex ratio, recovery stage of gonad development and spawning of snout otter clam, *Lutraria philippinarum* were studied for one year based on 1,377 clam samples collected from North Bais Bay, Manjuyod, Negros Oriental, Philippines. Water temperature, salinity, pH and dissolved oxygen were measured monthly. The notes on the fishery of *L. philippinarum* were based on interviews conducted in Manjuyod, Negros Oriental, Dauis, Bohol, Cordova, Cebu and Glan, Sarangani. Shell length showed moderate correlation to width ($r=0.56$), thickness ($r=0.66$), dry weight ($r=0.60$) and wet weight ($r=0.58$). Histological examination on gonad development indicated that gametogenesis, maturation and spawning season of *L. philippinarum* occurred throughout the year with two spawning peaks, January and June. Changes in water temperature in North Bais Bay influenced the spawning peaks of *L. philippinarum* but no effect with salinity, pH and dissolved oxygen. The Gonad Index ranged from 2.2 to 2.6 which suggested that most of the clams were mature throughout the year. A positive correlation between Gonad Index and Condition Index was observed ($r=0.77$). Males were observed to mature earlier at 4.3cm shell length than females at 4.6cm shell length. The sex ratio was 1:1.15 and showed no significant difference from 1:1 ratio. The calculated Catch Per Unit Effort of *L. philippinarum* from Manjuyod, Cordova, Dauis and Glan ranged from 0.2 kg/hr-man to 1.25kg/hr-man suggesting low shell catch. Thus, to have a sustainable supply of *L. philippinarum*, effective management strategies are needed.

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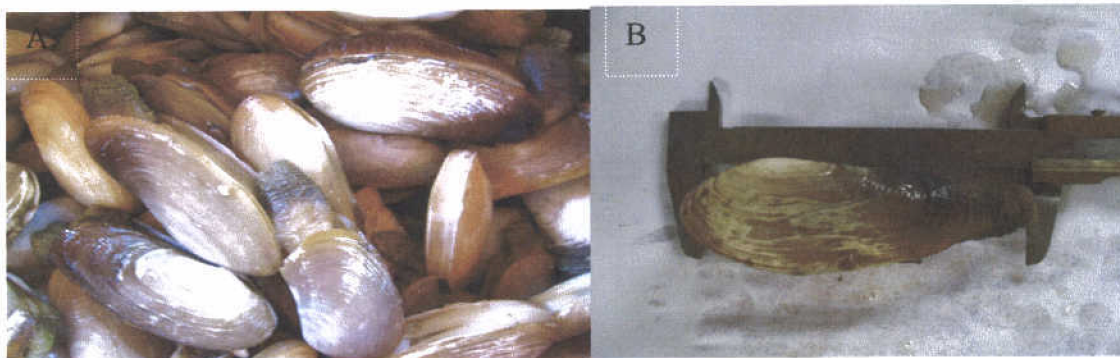
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CHAPTER I

INTRODUCTION

Shellfish is used as a substitute for fish and represents an important dietary component in many coastal populations of tropical areas (Boer et al., 2000). It is a good source of animal protein and other nutrients, including essential micronutrients such as calcium, Vitamin A and iodine (Williams, 1999). It is also a source of income to many fishermen and gleaners. The shells are used as raw materials in making jewelry and shell-based furniture (Ciasico et al., 2006) and the meat is sold for food. One of the bivalve species harvested for food and as a source of income in the Philippines is the snout otter clam, *Lutraria philippinarum* (Deshayes, 1854).

L. philippinarum locally known as “bilaog” in Manjuyod, Negros Oriental, Philippines, (Figs. 1A and 1B) is a bivalve that occurs in the warm waters of Philippines, Thailand, China, Australia and Vietnam. They inhabit in the shallow sandy sublittoral areas at 3-6m water depth. The shell is thin and elongated oval in shape. The periostracum is brown yellow in color and easily peeled off while the nacreous layer is white. When the two valves are closed, the anterior and the posterior are not tight (Ha Duc Dang et al., 2006).



Figures 1A and 1B. Snout otter clam, *Lutraria philippinarum* from North Bais Bay, Manjuyod, Negros Oriental, Philippines.