

## THESIS ABSTRACT

Title : CHARACTERIZATION OF THE PROPERTIES OF THE PASONG BUAYA LAKE IN SAN MIGUEL I, MOLINO IV, BACOR, CAVITE

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### Statement of the Problem

The study is concerned with the determination of the morphometry and the analysis of the physico-chemical and microbiological characteristics of the Pasong Buaya Lake in comparison with the standard set by the Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB) for class C water classification.

Specifically, the study answered the following questions:

1. What is the morphometry of the Pasong Buaya Lake with regards to the following:
  - 1.1 Maximum effective length
  - 1.2 Maximum width
  - 1.3 Maximum depth
  - 1.4 Surface area

2. What are the properties of the Pasong Buaya Lake in four sampling sites with regards to the following:
  - 2.1 Physical properties
    - 2.1.1 Air temperature
    - 2.1.2 Water temperature
    - 2.1.3 Turbidity
    - 2.1.4 Color
    - 2.1.5 pH
  - 2.2 Chemical properties
    - 2.2.1 Dissolved Oxygen
    - 2.2.2 Biological Oxygen Demand
    - 2.2.3 Chlorides
    - 2.2.4 Total Dissolved Solids
      - 2.2.4.1 Phosphates
      - 2.2.4.2 Nitrates
  - 2.3 Microbiological properties
    - 2.3.1 Total coliform
3. Is there a difference in the quality of water of the Pasong Buaya Lake in comparison with the Environmental Management Bureau for ideal management specifically for fish breeding in terms of the parameters mentioned in Question No. 2?
3. What measures can be recommended on the quality of water of the Pasong Buaya Lake to make it economically of value?

## Experimental Procedure

This study was conducted primarily to determine the Morphometry and the physico-chemical and microbiological characteristics of the Pasong Buaya Lake and to compare it to the standard set by the Department of Environment and Natural Resources – Environmental Management Bureau (DENR – EMB) for Class C water classification.

The Morphometry of the lake was done by a qualified surveyor for accurate results.

Samples were collected at four sampling sites at three different sampling dates. The analysis of each sample were the determination of air and water temperatures, Turbidity, color, pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), chlorides, total, dissolved solids (TDS), Phosphates-P, Nitrates-N, and total coliforms. Analysis of water samples was based on the approved methods and analysis of DENR – EMB.

## Findings

The result of the study revealed the following:

1. Pasong Buaya Lake has a maximum effective length of 226 m., a maximum width of 96 m., a maximum depth of 1.84 m., and a surface area of 15,670 sq. m.
2. There is no significant difference between the four sampling sites as to air and water temperatures, pH, dissolved oxygen (DO), total dissolved solids (TDS), and total coliforms. As regard to turbidity, color, biochemical oxygen demand (BOD), chlorides, Phosphates-P, and Nitrates-N, there is a significant difference between the four sampling sites.

3. The result of the experiment with regards to air temperature, water temperature, pH, chlorides, and Nitrate-N, are within the standard limit set by DENR – EMB for Class C water classification, while the results for turbidity, color, dissolved oxygen (DO), biochemical oxygen demand (BOD), Phosphates-P, and total coliforms are not within the standard limit.
4. The water of Pasong Buaya Lake has turbidity and color values that affect the passage of sunlight needed by aquatic life for their food manufacture.
5. The water of Pasong Buaya Lake has a high content of phosphorus and low DO and high BOD values that contribute to make the lake highly eutrophic.
6. The result of microbiological test showed that the water of Pasong Buaya Lake is very much polluted with microorganisms.
7. Based on the obtained results from the analysis, the quality of water in the Pasong Buaya Lake does not conform to the acceptance level set by the DENR – EMB for Class C water classification.

### Conclusions

Based on the data obtained and analysis done in this study, the following conclusions were made:

1. Pasong Buaya Lake is feasible for aquaculture in terms of its depth and surface area. Also, it is not so deep that it will be safe for swimming and boating.
2. The quality of water from the four sampling sites differs in terms of turbidity, color, biochemical oxygen demand (BOD), chlorides, and Phosphates-P.

3. The results of the analysis show that the water of Pasong Buaya Lake is polluted and is not suited for the propagation and growth of fish and other aquatic resources and neither for swimming.

### Recommendations

Based on the above findings and conclusions, the following recommendations are hereby made:

1. An information dissemination must be conducted to inform those people who go to the lake that it is not suited for fishing and swimming.
2. An information campaign must be done to inform residents/ people near the lake not to dump their waste or let their animals astray in the lake to minimize its pollution.
3. For people interested in having the lake for aqua culture, a study must be conducted on improving the quality of its water to make it suitable for fish propagation and growth.
4. The lake is aesthetically beautiful, instead of developing it for aqua culture, it can be developed for picnic area and for boating purposes.