

ENVIRONMENTAL ASSESSMENT OF FISHPEN CULTURE IN
PASIPIT RIVER (BARANGAY POBLACION,
SAN NICOLAS, BATANGAS)

ROWENA ANDREA VALMONTE-SANTOS

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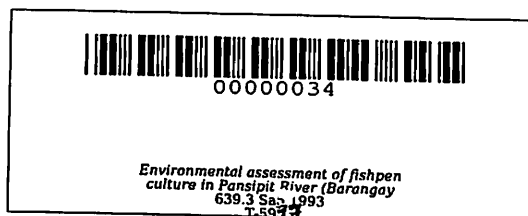
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**ENVIRONMENTAL ASSESSMENT OF FISHPEN CULTURE IN
PANSIPIT RIVER (BARANGAY POBLACION,
SAN NICOLAS, BATANGAS)**

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ABSTRACT

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Environmental Assessment of Fishpen Culture in Pansipit River (Barangay Poblacion, San Nicolas, Batangas). Major Adviser: Dr. Macrina T. Zafaralla

The study was undertaken to identify and assess the impacts produced from tilapia culture in Pansipit River (Barangay Poblacion, San Nicolas, Batangas). Three subsystems of the river: physico-chemical, biological and socioeconomic components were considered. Moreover, two phases of the aquaculture technology were taken into consideration: the site selection and construction, and the operation and maintenance. The general procedure of the Environmental Impact Assessment (EIA) was used in the study listing all possible impacts that can be identified. However, only significant impacts were selected and discussed.

Results of the investigation showed possible significant impacts to occur on the biological and socioeconomic subsystems of the river. On a short-term period, adverse impacts are seen for open fishermen who will not look for other fishing grounds. Disturbance of the benthic habitat is also foreseen. Water quality will also be altered because of the commercial feeds being supplied to the fingerlings. In the long-run, positive impacts will prove beneficial from the operators to the consumers who will be ensured of continuous fish supply. On the water quality level, potential improvement of primary productivity is possible because of the enrichment of the nutrient pool and when bamboo stakes or nets serve as medium for attachments of the phytoplankton. Continuous flushing of the river will ensure that eutrophication of the river is least likely. From here, it is also possible that an improvement on the fishery resources (diversity and population) will take place.

Considering the economic net benefits of the operators, this suggest that tilapia culture in the river, within certain limits, should be continued. However, along with this, monitoring on

the number of pens operating should be monitored since present number of these has already congested the river aside from obstructing the navigation.

Recommendations on the monitoring of a) water quality particularly sulfur content to prove that this causes fishkills in the river; b) fishery population - migration from Taal Lake into Balayan Bay and vice-versa to formulate solutions for the improvement of their population; and c) time-series data gathering of the fishery resources (pen and open) to determine maximum sustainable yield of Pansipit River. The abovementioned factors will contribute to a more effective management of the Pansipit River's resources.

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CHAPTER 1

INTRODUCTION

The Philippine population has soared to about 66 million. This has compelled the Filipino to encroach on his environment to earn a living -- leading to the conversion of crop lands into residential areas and industrial zones. As a result, the land resource has dwindled and man has turned to the seas for his food supply. As such, fisheries now play an increasingly important role in meeting the population's demand for food.

Because of man's activities, the physicochemical properties and the biotic components of the aquatic ecosystem have been affected. Such cause-and-effect relationship occurs when a common resource becomes nobody's property (Hardin, 1968). Everybody seeks to gain access on the resource, yet no one becomes solely responsible for its maintenance. Man has this conception that if he will not avail of the benefits obtained from the resource, others will; therefore, he might as well take advantage of all the bounties available until these are exhausted. This phenomenon leads to the overexploitation and subsequent degradation of the resource base.

To understand the fishery potential of any aquatic ecosystem, the limnological characteristics of the ecosystem must be studied. This kind of environment is affected by the atmospheric and geological processes in the vicinity and by the prevailing land usage in nearby watershed or catchment areas -- all of which play a role in the nutrient dynamics influencing the biological productivity within the water.

Aquaculture technology presents one way of increasing productivity of the lake resource. Aquaculture is a method of increasing fish production either through fish cages or fishpens. To differentiate the two, a cage is totally enclosed on all, or all but the top sides by mesh or netting, whereas in pen culture the bottom of the net enclosure is formed by the river, lake or sea bottom