



IMPACT of an EEPSEA Research on *Aquaculture Operation in the Philippines*

◆ Background

- The fisheries sector has always been a vital component of the Philippine Economy. In 2008, the value of total fisheries production amounting to PHP143.4 B contributes 2.2% to the country's GDP.
- Aquaculture, with total volume of production of 2.2 million metric tons valued at PhP 61,597 M contributes 47% to the total volume of fish produced .
- Milkfish (*Chanos chanos*) is one of the most important aquaculture species in the Philippines. It contributes the largest share of 36% to the total value of aquaculture production.
- Milkfish is commonly grown in ponds, fishpens, fishcages, and thrives best in brackish-water environment.
- The prohibition of converting mangroves into fishponds in the mid 90s resulted in mariculture or the growing of aquaculture species into coastal water.
- Mariculture of milkfish started in the Lingayen Gulf in the province of Pangasinan in Northern Philippines which is also the major producers of milkfish in the country.
- The intensity of mariculture operation driven by short sighted profit motive of the operators, caused water quality deterioration that resulted in fish kills occurrences in the area, with largest damage amounting to PhP M 600 in February 2002. This was considered as the worst fish kill event that happened in the country.
- While the municipal government has passed ordinance to regulate the aquaculture industry, its implementation has not been effective. It was reported that contrary to the provisions of the ordinance, permits to operate mariculture were granted without regard for the carrying capacity of the area.

◆ The EEPSEA Funded Research on Aquaculture Pollution

Realizing the problems confronting the milkfish industry in Lingayen Gulf, Dr. Hermi Francisco, in 2002, encouraged me to do the study on the effects of excessive aquaculture structures and overstocking on production of milk

fish in one of the municipalities with intense operation and excessive aquaculture structures. With research grant from EEPSEA the study was conducted in seven mariculture barangays in the municipality of Bolinao, Pangasinan province.



* Major Findings of the Study

- Milkfish mariculture operation is a lucrative business.
- The number of fishcages or mariculture structures were more than twice the carrying capacity of the area.
- The stocking density of mariculture operators was higher than the recommended density of 1,250—1,500 fries per 100 m² area
- The DO values in water bodies within and 200 meters away from the mariculture structures were below the 5mg/l critical limit for fish growth.
- It was also established that stocking density beyond the recommended density would result in decrease yield.

◆ Impact of the Research Results on the Regulation of Aquaculture Operation

Results of the study were presented to the LGU of Bolinao and they realized that there is really a need for strict implementation of the municipal fisheries ordinance that limits the number of fishcages/fishpens up to the carrying capacity of the area.

- Since 2002 to date, there are no reported fishkills in the area. This may imply that the results of the study opened the eyes of the local officials to seriously enforce the municipal ordinance related to the milkfish operation.
- Another impact of the research was it's contribution to the regulation of aquaculture operation (milkfish and tilapia) in Taal Lake, Batangas province.
- Traditionally, Taal Lake is famous for tilapia fish

cage production but the devastating flood that caused havoc to the milkfish fishponds in Central Luzon in 2003, brought milkfish fishcage operation to Taal Lake.

- Again, the short sighted profit motive enticed the operators to practice intensive milkfish fishcage operation in the Lake that causes water quality deterioration and fish kills in the area.

Through a study funded by FAO, I became part of the Team that assessed the operation of aquaculture in a municipality in Taal Lake in 2009.

- Relating the results of the Bolinao study during dialogues with the local officials of the municipality resulted in the passing or a resolution that would limit the number of fishcages from more than 2,000 units to only 1,200 units.



◆ Impact on Career and Opportunities

- Not only did the research results contributed to the regulation of aquaculture industry but to my personal career and opportunities.
- The results of the study was presented in the 3rd Coastal Zone Asian Pacific (CZAP) Conference in Batam, Indonesia on August 28, 2006 and were also published as chapters of two books.
- In addition, I was asked by Food and Agriculture Organization to be part of the team who conducted the study on "Assessment of the Contribution of Small Scale Aquaculture on Sustainable Rural Development".
- I believe that the experiences I gained from the conduct of the study provided me with the tools necessary in the assessment of the performance of other aquaculture species.

Zenaida M. Sumalde
University of the Philippines Los Baños
zcm.sumalde@gmail.com