

# THE MILKFISH SPAWNING AGGREGATION OF MACTAN ISLAND, CENTRAL PHILIPPINES

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(Key words: awa/sabalo – the adult milkfish;  
bangus – juvenile form of milkfish marketed heavily as fish product)

## INTRODUCTION

Milkfish, in its juvenile form, is a key marine product that is an integral part of most Philippine inhabitants' diet. The following basic description is from a paper written by Dr. Doreen Fernandez, Ph D.:

<b>Scientific Name:</b>	<i>Chanos chanos</i> (Forsskal, 1775)
<b>Common Names:</b>	Milkfish (English), Bangus (Philippines), Pua awa (Hawaii), sabahii (Japanese), Bandeng (Indonesia), Ca Mang (Vietnam), chanide (French), Pisang pisang (Malaysia), Pla dok mai (Thailand)
<b>Family:</b>	Chanidae
<b>Order:</b>	Gonorynchiformes
<b>Class:</b>	Actinopterygii (ray-finned fishes)
<b>Environment:</b>	benthopelagic, freshwater, brackish, marine
<b>Distribution:</b>	Indo-Pacific: along continental shelves and around islands where reefs are well developed. Eggs and larvae are pelagic up to 2-3 weeks. Older larvae migrate onshore and settle in coastal wetlands (mangroves, estuaries) during the juvenile stage, or occasionally enter freshwater lakes. Juveniles and subadults return to sea where they mature sexually. Spawns only in fully saline water. Larvae eat zooplankton; juveniles and adults eat cyanobacteria, soft algae, small benthic invertebrates, and even pelagic fish eggs and larvae. Larvae are collected from rivers and are grown in culture ponds into juveniles, which are marketed fresh, smoked, canned and frozen. Broodstocks can be raised and spawned in captivity to produce larvae in the hatchery. Can thrive and grow in water as hot as 32°C.

Nothing is written about the milkfish spawning aggregation around the island of Mactan. I here present some personal observations on: a) seasonal bangus fry gathering, which is a traditional occupation in specific barangays (villages) of Lapu-Lapu City in Mactan Island dating back to at least three generations; b) seasonal fishing expeditions which comprise multiple large fishing boats converging on the Engano Point area in Mactan Island to "ambush" the mature spawning milkfish; and, c) marketing of the awa - in conjunction with this "ambush", awa becomes a common, albeit hidden, commodity in the fish markets in Lapu-Lapu City and adjoining cities and municipalities.

## SEASONAL BANGUS FRY GATHERING

On February 19, 2003, the author had an informal discussion with some of the bangus fry gatherers of Barangay Subabasbas in Lapu-Lapu City. (These are the traditional bangus fry gatherers of the city.)

- *The Gatherers*

There are approximately four (4) households involved in the occupation of bangus fry gathering, comprising about six (6) persons per household – men, women and children. These constitute approximately 1.3% of the barangay population (1995 figures).

The gatherers who were interviewed could trace two (2) generations before them who had been involved in the same occupation – going back to the 1960s. The skill is pretty much passed on from generation to generation.

There has never been any regulation regarding bangus fry gathering. The first-level bangus fry buyer controls the activity from year to year. The gatherers wait for the buyer's word before they go gathering; this is usually when the lunar phase is either full moon or new moon, and during stormy nights when there is lots of thunder and lightning during which the spawning milkfish go "rubbing against the reef".

- *The Gathering Process*

There is one season for bangus fry gathering, and it runs from April through to October. The gatherers attribute this to tidal patterns, claiming that in these months the tide is high. The high water comes into the marshland area and carries with it the bangus fries. There is a very slow and steady increase in the catch up to the peak in July. The catch tapers down in reverse fashion to the season's end in October. If this were put in a line graph, it would show a typical bell curve.

The gathering process happens in brackish waters extending from the mouth of the *suba* (river) to the Marigondon Bridge. (Volume-wise, more gathering is done in the waterway running from Subapanas to Subamasulog and on to the wetlands of Babag and Kalawisan.)

Usually, they go to work around 5:00 AM, break around 11:00 AM when the tide has come in, then return in the early afternoon when the water is deep enough for wading. Quitting time is usually at sundown.

The fishing technique used is the *sabay*, a fine mesh net. This needs a team of two people, one holding each end of the net. Usually three teams follow each other in repeated runs of the net to catch the fries.

Sorting of the bangus fries happens in the water. The catch is put into a porcelain-like container where the millimeter-size fries are identified by their eyes contrasting against the white surface of the container. All other animals are separated out and dropped back into the water; these include larvae of common reef animals such as squid, eel, barracuda, *sugi* (trumpet fish), snappers, groupers, and tiny little 'itchy' animals (possibly coral and/or jellyfish larvae).

The fries are kept in the same container, fed daily with egg yolk and the water is changed after every feeding. With this careful attention, about 90% of the catch survive when they are sold to the buyer at day 3.

- *The Sale*

The buyer is from Barangay Babag – it is the same buyer that the current gatherers have known since childhood. They do not think that the buyer has a permit. They have not heard of the word “concessionaire”.

Buying is done by the piece. The catch is indeed counted piece by tiny little piece (a ten-day old catch is but a few millimeters long, and only identifiable by the pair of eyes). About 10 years ago, the buyer paid PhP50 a piece. Now, it is PhP15. The buyer decides on the price.

- *The Trend:*

According to the interviewed gatherers, the catch per unit effort (CPUE) of the group (of three teams) changed drastically in the last 15 years with most of the change noted around the mid 1980s. The group CPUE dropped (at the height of the season) from 10,000 fries to 3,000 fries. They attributed this to the construction of a nearby large resort and other dike structures that impede the free flow of life in the brackish water ecosystem. Back then, the household – approximately six (6) gatherers used to make Php4,000 a day. Now, they feel lucky if they break the PhP1,000 mark. Last year saw a similar decline in CPUE. The gatherers feel that there was definitely more catch in the past by the previous generation, and even more so in the generation before that. Two other possible causes of diminishing fry catch could be: a) the heavy illegal extraction of fresh water that normally emptied into the wetlands area and gave it its specific brackish characteristics; and, b) see ‘The Disconnect’ below.

## THE GREAT AWA AMBUSH OF MACTAN ISLAND

Around the middle of April of each year, multiple fishing outfits from the Visayas area show up in the waters off Engano Point in Mactan Island. In cooperation with a group of around thirty (30) local fishermen, awa fishing, in what basically is the north mouth of Gilutongan Channel, literally goes into a frenzy. These big fishing outfits corral the schools of adult milkfish using superlights lowered to depths of about 60 meters, then stun/slaughter them with super dynamite. This goes on for between one to two weeks depending upon the catch. These operations are reportedly difficult to apprehend because the outfits are heavily armed.

### REPUBLIC ACT 8550

The Philippine Fisheries Code of 1998 (Republic Act 8550) aims to rehabilitate and maintain environmental ecosystems within the component municipal waters, among other things. The following are specific provisions pertinent to the milkfish spawning aggregation:

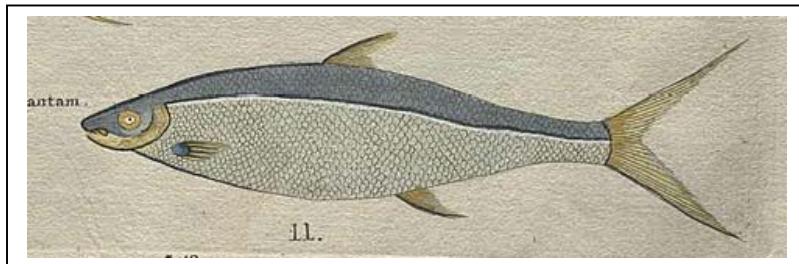
- Section 44: **Use of Superlight.** - The number and wattage of superlights used in commercial fishing vessels shall be regulated by the Department: Provided, that the use of superlights is banned within municipal waters and bays.
- Section 88: **Fishing Through Explosives, Noxious or Poisonous Substance, and/or Electricity.** - (1) It shall be unlawful for any person to catch, take or gather or cause to be caught, taken or gathered, fish or any fishery species in Philippine waters with the use of electricity, explosives...
- Section 98: **Capture of Sabalo and Other Breeders/Spawners.** - It shall be unlawful for any person to catch, gather, capture or possess mature milkfish or "sabalo" and such other breeders or spawners of other fishery species as may be determined by the Department.
- Section 106: **Obstruction of Fishery Law Enforcement Officer.** - The boat owner, master or operator or any person acting on his behalf, of any fishing vessel who evades, obstructs or hinders any fishery law enforcement officer of the Department such that he is not able to perform his duty, shall be fined Ten thousand pesos (P10,000). In addition, the registration, permit and/or license of the vessel including the license of the master fisherman shall be canceled.

## THE DISCONNECT

There has not been a connection made between the aggregation of big fishing boats off Engano Point and the height of bangus fry gathering at about the same time of the year. A prominent university nearby has a very active Marine Biology program with a station on the island of Mactan. Yet, there never has never been any written record of milkfish spawning aggregation in the coral reefs of Mactan island. To this day, we still have to rely on the fry gatherers' account of the milkfish "rubbing their body against the reefs, especially when there is no moon, and more so when there is thunder and lightning".

## CONCLUSION

There is strong evidence that a significant spawning aggregation of milkfish (*Chanos chanos*) occurs in and around the coral reefs of Mactan Island. Environmentally adverse human activities may be a very serious threat to this spawning aggregation. A formal scientific study is long overdue.



"Milkfish (*Chanos chanos*) from Louis Renard, 1754  
*Poisson, Ecrevisses et Crabes, de Diverses Couleurs et Figures Extraordinaires*