

### EXPECTED IMPACT

1. Self-sufficiency/sustained supply of quality milkfish fry through the initial production of 208M fry.
2. Generate potential savings of about US \$1.2M from fry importation.
3. Generate 623 livelihood/job opportunities for Filipinos living in coastal areas.
4. Increase production of marketable-size milkfish fry by 26M tons equivalent to PhP 1.56B.
5. Reduce loss from aquaculture (due to fishkill and related problems) by 90% due to regular environmental monitoring, education and outreach program.



# National MILKFISH



# DEVELOPMENT PROGRAM



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**Published by the ASIAN FISHERIES ACADEMY**

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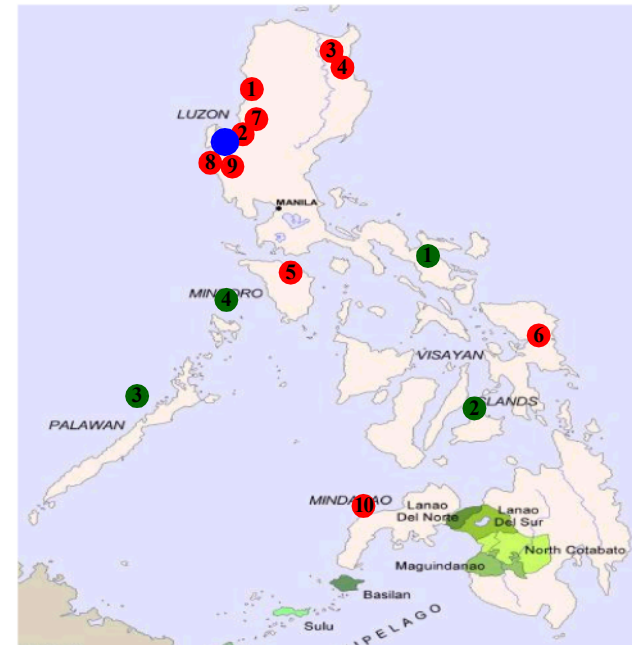
## INTRODUCTION

Milkfish is an important food fish in the Philippines, Indonesia and Taiwan. Although it has been cultured in brackishwater ponds, pens and cages, fish farmers are still entirely dependent on fry collected along coastlines during the breeding season. The main constraint of the Milkfish industry for its expansion and intensification is the inadequate supply of fry.

The Bureau of Fisheries and Aquatic Resources (BFAR) is producing milkfish fry in its technology development and research center in Dagupan City. The Center has state-of-the-art hatchery facilities and experienced technical staff.

Considering the high demand for milkfish fry, the government is embarking on expanding production by utilizing most of the available breeders. Satellite hatcheries shall be established in strategic locations in the country. Trainings on commercial production of milkfish fry will be conducted for government workers and interested private groups.

## LOCATION OF HATCHERIES



● **Phil-Bangus Center**  
**BFAR-NIFTDC**  
Bonuan-Binloc, Dagupan City

● **Central Hatcheries**

1. BFAR, Tiwi, Albay
2. BFAR, Calape, Bohol
3. BFAR, Sta. Lucia, Palawan
4. BFAR, Naujan, Oriental Mindoro

● **Satellite Hatcheries**

1. BFAR-UNP, Sta. Maria, Ilocos Sur
2. BFAR, Argao Cebu
3. BFAR Bais City, Negros Oriental
4. BFAR-LGU, Claveria, Cagayan
5. BFAR, Bongabon, Oriental Mindoro
6. BFAR-LGU San Felipe, Zambales
7. BFAR-Guian, Eastern Samar
8. Bolinao, Pangasinan (Private)
9. Cabangan, Zambales (Private)
10. Sto. Tomas, La Union (Private)
11. Dumangas Iloilo (Private)
12. Kalibo, Aklan (Private)

for environmental monitoring must be improved and upgraded. The services rendered to milkfish farmers must be expanded to include regular environmental monitoring to forecast or prevent problems related to massive fishkills or slow growth of fish.

### 3. Extensive Education and Outreach Program for Bangus Hatchery Cooperators and Fish Farmers

Fish farmers must be given thorough technical assistance and be convinced to adopt environmentally sustainable farming technologies. This will maximize and sustain the utilization of resources for aquaculture. Information materials such as pamphlets or leaflets shall be produced and database for the program shall be established.



## PROJECT DESCRIPTION

BFAR-NIFTDC has developed a simplified protocol of producing milkfish fry in commercial scale. At present, it has a facility that can produce a significant quantity of fry which could alleviate the scarcity of seeds in Pangasinan. When scaled up and institutionalized in strategic areas nationwide, the technology developed by the Center could help fill the shortage of fry currently experienced in the Philippines. The impact of the program can be realized in less than four years.



The program will utilize the existing Regional Outreach Stations of BFAR, selected academic institutions, local government units and organized fish farmers in the different regions. Available milkfish breeders of BFAR will be used. Existing BFAR and LGU personnel and interested private sectors will be given intensive training on hatchery production of milkfish fry by BFAR-NIFTDC, Dagupan City. Their facilities will be improved to suit the needs of a milkfish hatchery.

Initially, satellite hatcheries will be established in participating areas where facilities had been readied. Eggs and D1 larvae will be produced by the BFAR-NIFTDC Milkfish Hatchery – Dagupan City in massive scale. These will be distributed in the satellite hatcheries (Municipal Bangus



Hatcheries) on regular basis. MBH will pay for the eggs and D1 larvae at a very nominal cost. After 21 days, the MBH are expected to start producing and selling milkfish fry in commercial quantity. A modest Municipal Bangus Hatchery is expected to produce not less than 6.4M milkfish fry annually.

During the second half of the program, Satellite Central Bangus Hatcheries (SCBH) will be established where the demand of fry is significantly high. Participating groups will be trained by BFAR-NIFTDC on milkfish broodstock development and commercial production of eggs and D1 larvae, provided they agree in writing to sell 40% of their eggs and D1 larvae to backyard hatcheries in their immediate locality. Such a system will ensure equal distribution of wealth and generation of livelihood opportunities from the technology.

## OBJECTIVES

1. To sustain the requirements for milkfish fry of fish farmers in the Philippines.
2. To discourage the importation of milkfish fry from other countries like Indonesia and Taiwan.
3. To produce cheap supply of quality milkfish fry in strategic locations in the country.
4. To generate livelihood opportunities from milkfish breeding, fry production and marketing for Filipinos living in coastal areas.

## PROGRAM STRATEGIES

1. Expansion of Breeding and Hatchery Facilities



The present facility of NIFTDC will be expanded to support the needs for milkfish eggs and D1 larvae of 3 Central Satellite Hatcheries, 10 Municipal Satellite Hatcheries and private hatcheries to be established.

2. Environmental Monitoring of Aquaculture Areas



The current facilities and equipment of NIFTDC