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The milkfish fry shortage

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The milkfish fry shortage

In a collective effort to address the milkfish fry shortage and the resultant public outcry (see pages 23-25), an action plan tagged as Project Sabalo¹ was formulated in a Department of Agriculture-sponsored workshop last September 7-8, 1995 at SEAFDEC in Tigbauan, Iloilo.

The Department of Agriculture (DA) notes that 1 billion fry must be produced annually to meet the needs of the industry. As of September 1, 1995, data from DA regional offices showed a milkfish fry deficit of over 1.5 billion (table below).

Project Sabalo aims to evaluate existing hatcheries, assess broodstock conditions, and increase the number of broodstock. (About 10,000 milkfish broodstock are projected to be raised in the next five years. This figure is back-computed from the number of eggs a spawner can produce and the survival rate in hatcheries.) At present, there are about 2,000 sabalos distributed as follows:

¹Sabalo is the local term for milkfish spawner.

Owner	Number
Private hatcheries	- 752
DA research stations	80
Open for privatization	- 367
San Miguel Corporation	26
SEAFDEC/AQD	- 1,000
Total	- 2,225

Source: DA-BFAR Aquaculture Division

About 300,000 viable eggs per spawner per year can be produced out of the present stock (assumed 50% female). With a 50% hatching rate and 10% survival rate during larval rearing, the present stock can easily produce 30 million fry per year. Project Sabalo aims to improve this figure to 1 million viable eggs per spawner per year by supporting hatchery operators (mostly those who availed of the privatized milkfish broodstock under the NBBP; see table next page for an update). Facilities must be improved especially for live food; larval rearing and handling must be improved to reduce the number of defective fry; quality feeds must be available. Technical staff must also be trained in broodstock

Fry requirement for milkfish ponds in the Philippines (Source: DA Regional Offices)

Regions	Fishponds in operation (hectares)	Fry requirement (per year)	Fry production from the wild (per year)	Deficit (per year)
I	11,910	629,760,000	15,000,000	614,760,000
II	1,235	12,477,742	9,000,000	3,477,742
III	20,150	137,826,000	9,000,000	128,826,000
IV	12,316	189,000,000	19,771,000	169,229,000
V	5,101	153,030	100,000	53,030
VI	30,503	439,246,800	35,288,172	403,958,628
VII	2,615	85,000,000	30,703,648	54,296,352
VIII	3,306	13,200,000	2,000,000	11,200,000
IX	10,899	54,495,267	20,000,000	34,495,267
X	3,000	27,000,000	9,000,000	18,000,000
XI	5,704	57,000,000	3,600,000	53,400,000
XII	7,556	76,000,000	6,000,000	70,000,000
ARMM	500	5,000,000	1,200,000	3,800,000
TOTAL	114,795	1,726,158,839	160,662,820	1,565,496,019

management and larval rearing. Budget for this will be cost-shared by DA, SEAFDEC/AQD, the Philippine Council for Aquatic and Marine Research and Development, and the private sector. The participating hatcheries are Aquasur, Davao; Pacific Farms, Pangasinan; MINARCO; Good Fry; Dobe International, Cebu; Greenwater Aquaculture Development; 3H Enterprises; and Jamandre Industries, Iloilo.

Project Sabalo does not end there. Policy and institutional changes are recommended:

- The private sector are encouraged to produce broodstock; joint ventures with the government are welcome. The government must take the initiative in areas not undertaken by

the private sector.

- The government must allow the importation of broodstock as long as quarantine is observed.
- The conservation of our marine resources is an urgent need. The private sector will inform DA on pollution, dynamite fishing. DA must regulate illegal fishing. Dispersal of 300 g milkfish to reseed wild stock may have to be done.
- The private sector must organize into an accredited association to avail of incentives like tax credits and soft loans. DA will request the Department of Trade and Industry to list fry production as a pioneering industry.
- DA must make an environmental assessment of milkfish fry grounds; collect data on fry

Status of the privatization of the National Bangus Breeding Program (NBBP) stock as of August 1995. An issue of Aqua Farm News (Vol. IX, No. 2, March-April 1992) was devoted to milkfish breeding including a description of the NBBP.

Location	No. of stocks available (no. privatized)	Age (year/month)	Average body weight (kg)	Drafted or approved MOAs	Remarks
Alaminos, Pangasinan	- (100)	12/9	4.8	Pacific Farms Inc. as of 4 Nov. 1993	production ongoing
Masinloc, Zambales	- (44)	12/9	4.5	Good Fry Hatchery as of 9 Sept. 1994	production ongoing
Puerto Princesa, Palawan	- (318?)	6/0?	3?	MINARCO (MOA in progress)	—
Bacacay, Albay	138 (200)	5/6-6/6	4.5	Greenwater Corp. as of 23 Sept. 1993; MINARCO as of 28 June 1995; 3H Corp. (MOA in progress)	production ongoing
Calape, Bohol	16 (30)	13/1	5.0	Dobe International as of 6 July 1994	production ongoing
Sangali, Zamboanga	115	8/0-8/8	4.0	-	no takers
Baliangao, Misamis Occidental	98	9/0-11/10	4.5	-	status to be confirmed
Sta. Cruz, Davao Sur	- (60)	9/11	4.5	AquaSur Dev. Corp. as of 16 June 1994	production ongoing
TOTAL	367 (752)				

The NBBP stations in Iloilo, Leyte, and Maguindanao have been terminated. (Source: DA-BFAR)

production from natural fry grounds, from hatcheries, and imported fry; collect data on the extent of milkfish grow-out, stocking densities for ponds and pens. DA must also regulate illegal fishing along with appropriate government agencies.

- The government must strengthen its policy on environmental education, conduct awareness and advocacy campaigns in schools, and make funds available for these ventures.

In the workshop, SEAFDEC/AQD had an opportunity to present the results of its collaboration on milkfish larval rearing with its private cooperators (tables below). **AQD scientists notes that its technology is comparable in results, if not in scale, with Taiwanese hatcheries.** Because Taiwan has been over-producing milkfish (see pages 21-22), it has often been mentioned as a model worthy of emulation.

Milkfish hatchery operations in five of SEAFDEC/AQD's private cooperators in west central Philippines from 1991 to July 1992.

Hatchery	Commodity		*Average hatching rate, % (range)	Fry produced	Age of fry (days)	Survival rate (%)	Price (P/pc)
Iloilo I	7,886	3,221	48 (0-75)	1,347	21 (16-26)	38 (4-86)	0.36 (0.30-0.40)
Iloilo II	6,787	732	68 (59-74)	1,487	23 (22-24)	31 (25-34)	0.44 (0.42-0.46)
Iloilo III	1,500	-	35	32	30	2	0.40
Aklan	4,200	-	75 (67-83)	374	24 (22-25)	20 (14-26)	0.35
Capiz	1,956	-	47	62	24	11	-
Total/average	22,329	3,953		3,302		22	

*Based on viable or good egg count.

Costs and returns (in pesos) of milkfish hatchery operations in four of SEAFDEC/AQD's private cooperators in west central Philippines from April-July 1992.

Item	Iloilo I	Iloilo II	Iloilo III	Aklan	% production cost
Fry production (thousand pcs)	802	1,487	32	374	
1. Production cost (cost of operation only)					
a. Feeds	15,655	51,851	3,634	5,123	22
b. Power	48,400	18,138	3,091	4,437	22
c. Transportation and Communication	6,640	1,148	480	7,020	7
d. Personal Services	41,360	84,931	1,500	16,450	36
e. Materials and Miscellaneous' Expenses	10,759	6,873	3,338	4,238	13
Total	122,814	162,941	12,043	37,268	
2. Sales	301,260	699,749	12,800	133,350	
3. Net Income	178,446	536,809	757	96,082	