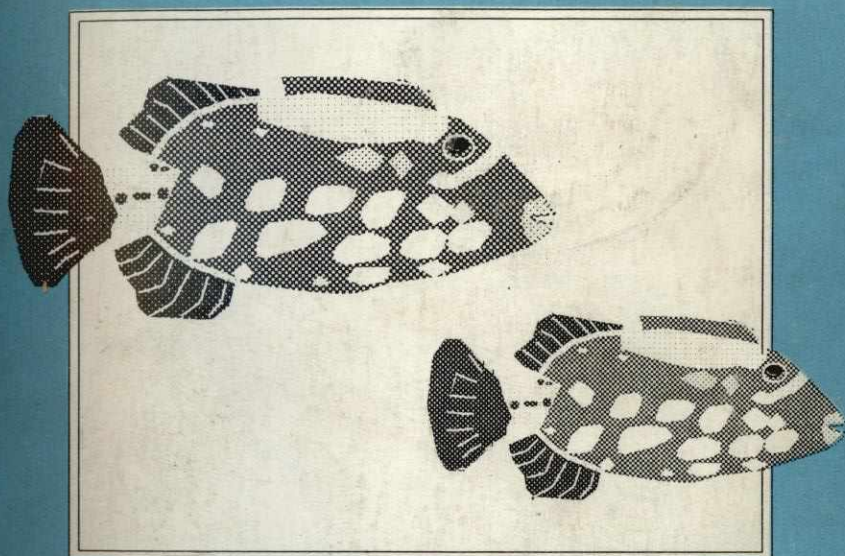


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# Survey of Migratory Fishes in Pansipit River and Taal Lake

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## ABSTRACT

A survey of migratory fishes in fish corrals in Taal lake and Pansipit River, which links the Lake with Balayan Bay of the China Sea, showed seven migratory species present namely, *Caranx marginatus* (Gill), *Caranx* sp., *C. ignobilis* (Forsk), *Lutianus argentimaculatus* (Forsk), *Mugil dussumieri* (Val), *M. ceramensis* (Val) and *Anguilla mauritiana* (Bennet). Total annual production of the Taal Lake fish corrals was 3, 148.1 kg and that of the Pansipit River fish corrals, 981.1 kg. The size composition and seasonal occurrence of the species are also noted.

**Keywords:** Pansipit River, Taal Lake, migratory fishes.

## INTRODUCTION

Taal Lake, with an area of 26,368 ha, is the third largest lake in the Philippines. It is a deep lake, with a minimum depth of 60 m and a maximum of 198 m. Although several streams enter the lake, Pansipit River, with a total length of 10 km, is the only outlet which links the lake with Balayan Bay of the China Sea. The catadromous or migratory fishes enter and leave the lake through the Pansipit River. These fishes form an important commercial fishery in Taal Lake and are considered to be highly priced species.

At least two factors cause the declining number of migratory species in the lake. First, the spawners are captured by the large permanent fish corral built in the Pansipit River. Second, fish larvae are caught on their lakeward migration by

the *bangus* fry gatherers. The continuous catching of both the spawners and fry fishes will certainly bring about the depletion of the fisheries.

This study aims to determine the quality and quantity of migratory fishes in Taal Lake and Pansipit River in order to contribute toward the conservation and development of Taal Lake fisheries.

## METHODOLOGY

The fish corral in the Pansipit River and three others in Taal Lake were monitored daily. Through a survey (See Appendix A), information on the following were gathered: fish species caught, volume of catch, size composition of the catch, and the number of individuals per kilo.

The other phase of the study involved the collection of fish larvae along Balayan Bay, near the mouth of the Pansipit River, 10 to 15 m away from the shoreline. Sampling was done daily at the time when the water level was relatively low, approximately knee-deep. Collection time was limited from 5 to 10 minutes. The collecting gears used were beach seine and/or fry seine. The beach seine was made of nylon nettings No. 200/16 200 meshes, 22 knots; while the fry seine, (about 10 m long and 2 m wide), was made of *sinamay*, a coarsely woven material made of abaca fiber. The collected samples were sorted into species and were counted.

## RESULTS AND DISCUSSION

### Seasonal Occurrence

At the time of the study the migratory habits of the following fishes were observed:

The *muslo* (*Caranx marginatus*) was present throughout the year. The height of migration was observed from July to November, with the latter month as the peak of their seaward migration.

The eels (*Anguilla mauritiana*) made their seaward journey throughout the year except during the months from March to May and September. The height of migration was reached in December.

The grey mullets (*Mugil ceramensis*) appeared in the corral catch from November to January. The species, however, is known to breed almost the year round as indicated by the presence of fry and fingerlings in the monthly samples of larval fishes taken at the mouth of Pansipit River.

The mullets (*Mugil* sp.) made their seaward migration only in December. The last migratory species caught in the corral was the grey snapper or *also* (*Lutianus argentimaculatus*), which was caught only in July and August.

## Fish Production

### 1. Pansipit Fish Corral

In the one-year catch survey of the Pansipit fish corral, eel had the highest production, reaching a total of 1,658.0 kg or 138 kg/month on the average (Table 1). Percentage wise, eel comprised about 53% of the total fish corral catch. The *muslo* ranked second in the production and constituted 42% of the total fish catch. Its total annual production is estimated to be 1,323.3 kg or a monthly average of 110.28 kg.

The grey snappers were caught only in July and August and gave an estimated total production of 107.6 kg. The catch record for mullet registered only in December, with a total of 14.8 kg. Grey mullets or *aguas* or *aligasin* gave an estimated total production of 44.3 kg or a monthly average catch of 3.69 kg.

### 2. Taal Lake Fish Corrals

There are about 10 fish corrals in Taal Lake, but only fish catches from three corrals (two from San Nicolas and one from Agoncillo, Batangas) were included in the data.

Five migratory fishes were caught in the Taal Lake fish corrals. Of these, three belong to the family *Carangidae*, one to the family *Anguillidae*, and one to the family *Lutianidae*. *Caranx ignobilis*, known as *maliputo*, comprised about 78% of the catch. *Caranx marginatus* or *muslo* comprised 15%; and the rest were *Caranx* sp. or *manipis*, *Anguilla mauritiana* or eel, and *Lutianus argentimaculatus* or grey snapper.

Total annual fish production was estimated at 981.1 kg (Table 2). Among the migratory fishes, *maliputo* is the most popular and highly priced. Its total estimated annual catch was 769.6 kg with highest production in March. On the average, monthly catch was 64.13 kg.

The annual production for *muslo* was 152.8 kg and the highest was recorded in February. Production for the other fishes was as follows: eel, 50.5 kg; grey snapper, 7 kg and *manipis* or *Caranx* sp. 1.2 kg. The latter two species appeared only for one month throughout the duration of the study.

The absence of milkfish in the catch record was also noted. It was also observed that *maliputo* was present only in the fish corrals in the lake but not in the Pansipit River fish corral.

### Size Composition

The study showed that the smallest fish that was trapped in the Pansipit fish corral was an 18-cm grey snapper and the largest size was a 138-cm eel. Fry and fingerlings of other fishes could easily pass through the fish corral.

The sizes of *muslo* varied from 18 to 27.5 cm. Those measuring within the range of 18 - 21.9 cm were usually caught from June to November. Bigger *muslo* measuring 25 - 27.9 cm tend to go seaward from December to May. The sizes of eels ranged from 92 - 138 cm. Seventy five percent of the total catch measured from 120 - 138 cm. Mulletts measured 26 - 30 cm. Grey mulletts were relatively bigger, with the smallest measuring 32 cm and the biggest 52 cm.

The *maliputo* catch from the corrals in the lake measured from 28 - 55 cm.

### Larvae and Fingerling Samples

Larvae and/or fingerlings of migratory fish species were observed to go back to the lake and stay there until they have grown to marketable size or sexual maturity. Larval fishes from Balayan Bay were caught on their way to the Lake using scoop net or beach seine. Sampling results showed that mullet fry with sizes varying from an average of 8.5 - 10 cm were found migrating upward almost throughout the year except in August, November and December. The sizes of spadefish were usually from 0.5 - 1.5 cm in length and these were captured in great numbers from May to August but very few in October. Milkfish fry abound in July. Very few of the Carangidae fingerlings were caught in February. Larvae or fingerlings of the other migratory species were not found. These findings confirm the observation regarding the rapid depletion of the migratory fish species in Taal Lake.

### CONCLUSION

From the economic point of view, the migratory fish species are the most valuable among the fisheries of Taal Lake. These fishes usually command higher prices than the endemic fishes. In terms of revenues, the municipalities of San Nicolas and Agoncillo enjoy the high taxes being paid by the fish corral concessioners. The estimated total annual production of the Pansipit fish corral, from July 1983 to June 1984, was 3,148 kg. This gives an average monthly

production of 262.35 kg or 8.46 kg/day. On the other hand, the three fish corrals from Taal Lake gave an annual production of 981.1 kg.

Rapid depletion of these migratory species is no longer an anticipation of the truth but a stark reality. An investigation on the diversity of migratory larval fishes in the lake showed very few species in relatively small quantities.

Appropriate fishery conservation measures should be formulated and enforced immediately to stop the over-exploitation of migratory fishes and to allow the mature ones to return to the sea to spawn and restock the lake with their young.

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Table 1. Total production (in kg) of Pansipit Fish Corral, July 1983 to June 1984

	EEL <i>Anguilla mauritiana</i>	MUSLO <i>Caranx marginatus</i>	MULLET <i>Mugil sp.</i>	GREY MULLET <i>Mugil ceramensis</i>	ALSO <i>Lutianus argentinaculatus</i>	TOTAL Prod. (kg)
<b>1983</b>						
July	551.0	219.7			89.7	860.4
August	87.1	123.4			17.9	228.4
September		40.0				40.0
October	196.1	102.0				298.1
November	216.3	230.4		2.0		448.7
December	377.8	69.3	14.8	37.6		499.5
<b>1984</b>						
January	158.7	153.2		4.7		316.6
February	61.3	54.4				115.7
March		182.5				182.5
April		116.0				116.0
May		14.9				14.9
June	9.8	17.5				27.3
<b>TOTAL AVE.</b>	<b>1,658.1 138.18</b>	<b>1,323.3 110.28</b>	<b>14.8 1.23</b>	<b>44.3 3.69</b>	<b>107.6 8.97</b>	<b>3,148.1 262.35</b>
<b>%</b>	<b>52.7</b>	<b>42.03</b>	<b>0.47</b>	<b>1.40</b>	<b>3.41</b>	

Table 2. Total production (in kg) of Taal Lake fish Corral, July 1983 to June 1984

	MALIPUTO <i>Caranx ignobilis</i>	MUSLO <i>Caranx marginatus</i>	MANIPIS <i>Caranx sp.</i>	EEL <i>Anguilla mauritiana</i>	ALSO <i>Lutianus argentinaculatus</i>	TOTAL Production
<b>1983</b>						
July	204.1		1.2	14.8		220.1
August	3.1			10.2		13.3
September	2.4	2.2		11.0		15.6
October	48.2	1.3		11.5		61.0
November	2.4	2.4				4.8
December		1.0				1.0
<b>1984</b>						
January		16.8				16.8
February	15.1	108.9				124.0
March	411.2					411.2
April	78.7	20.2				98.9
May	-	-				-
June	4.4			3.0	7.0	14.4
<b>TOTAL AVE.</b>	<b>769.6 64.13</b>	<b>152.8 12.73</b>	<b>1.2 0.1</b>	<b>50.5 4.21</b>	<b>7.0 0.58</b>	<b>981.1 81.75</b>
<b>%</b>	<b>78.44</b>	<b>15.57</b>	<b>0.12</b>	<b>5.15</b>	<b>0.7</b>	

APPENDIX A

FISH CORRAL SURVEY FORM (PANSIPIT RIVER)

Date	Time	Fish Species	Quantity	Size (cm)	No. of pcs. per kilo	Remarks