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Spawning periodicity of milkfish, *Chanos Chanos*

S. Kumagai, N. M. Castillo and V. C. Bañada

Milkfish eggs were first reported to occur in the Java Sea by Delsman (1926, 1929). Jacob and Krishnamurthi (1948) and Chacko (1950) also reported collection of the eggs from Indian waters. In the Philippines, the eggs have been collected from the waters off Batbatan Island since April, 1976 (Senta, *et al.*, 1976). The search has since then been extended all around Panay Island. In their report, Senta, *et. al.* (1976) suggested the existence of periodicity in the spawning activity of milkfish.

Fishermen lores indicate that milkfish fry are more abundant during the new-and full-moon periods. The findings of Kumagai *et. al.* (1976) and several other authors also show the same apparent periodicity in milkfish fry occurrence. The contention now is: if fry occur periodically, then it must be because spawning also occurs periodically.

It was vital for the spawning ground survey team to ascertain whether or not spawning activity does occur periodically; so, daily samplings were conducted in the waters off Batbatan Island from April 17 to June 11, 1977 for the sole purpose of finding milkfish eggs.

All the dates for the samplings were converted into lunar dates. The number of eggs collected is shown in Table 1. In the 1976 surveys, more tows were made during the new-and full-moon periods (than during the first-and last-quarters); inspite of this, no milkfish eggs could be collected at all during these periods. In 1977, 2 cruises around Panay Island, and a cruise to Cagayancillo in the Sulu Sea were conducted. The tows made during these cruises yielded eggs only during the first-and last-quarter periods. The results of the daily samplings off Batbatan Island show clear periodicity in the occurrence of eggs. Egg collections during the first-and last-quarter periods show a mean of 1.10 egg/tow, with only 0.15 egg/tow for the new-and full-moon periods. Delsman was successful in collecting milkfish eggs only on September 24, 25, and 27, 1928 – days which also fall within the periods of first and last quarter.

Table 1. Milkfish egg collection in connection with lunar dates.

	L U N A R D A T E S																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	New moon			First quarter						Full moon						Last quarter						New moon									
<i>Number of tows</i>																															
1976	1	10	0	6	8	2	4	7	0	3	0	0	6	0	1	5	0	6	0	0	0	3	2	0	2	0	3	3	4	13	
Daily samplings in Batbatan waters	10	9	10	10	10	10	9	10	10	10	10	10	10	6	5	5	5	5	5	5	5	5	9	10	5	5	5	5	5	10	
<i>Number of eggs collected</i>																															
1976	0	0	0	9	38	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1977	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	20	0	5	0	0	0	0	0	0	
Delsman (126, 1929) Daily samplings in Batbatan waters	0	0	0	0	0	0	0	0	2	12	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
	6	0	0	9	33	39	8	0	0	14	0	0	0	0	0	9	0	0	0	0	0	0	21	17	0	0	0	0	0	0	

It is now an established fact that milkfish fry are more abundant during the new-and full-moon periods. These fry, however, are not born at the beach. Milkfish eggs are pelagic; the larvae, planktonic. The fry that appear on shore have been drifted there. Considering the age of shore-caught milkfish fry to be about 3 weeks (Kumagai, *et al.*, in preparation; Liao, *et. al.*, in preparation), it is easy to see that the eggs were laid three weeks before, that is, during the first-or last-quarter periods. The evidence is very convincing: periodicity in milkfish spawning activity does exist, and this is during the first-and last-quarter periods.

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