MILKFISH REPRODUCTION: BROODSTOCK DEVELOPMENT

Flor Lacanilao

Relevant Research Areas and Available Information

Age determination at sexual maturity

There are indications that wild females are 4-5 years old (Tampi, 1957) or 5 years old (Liao, 1971). Tank-reared males matured in 6 years and females in 7-8 years (Liao and Chang, 1976); Liao, unpublished).

Determination of spawning migration pattern

No direct evidence, but there are some indications from milkfish egg collections (Senta et al, 1976; Kumagai, 1978) and sabalo capture.

Food requirement of sexually maturing milkfish

Most of the examined sabalo had plankton in stomach (Kuronuma, 1976; Kumagai, unpublished). Fish in the stomach had been encountered. Sabalo are attracted to fish bait and floating small fishes killed by dynamite as indicated by experiences of fishermen.

Environmental influence on migratory behavior, sexual maturation, and spawning

Downstream migration at Naujan (Mindoro Oriental) occurs in relation with typhoons and changing direction of the moonsoon with peak in November (Kumagai and Sitoy, unpublished). At certain environmental and lunar conditions, milkfish held in natural brackishwater ponds show sings of migrating to the open sea (Nash and Kuo, 1976). Gonadal development proceeds at salinities below seawater (Liao and Chang, 1976; Nash and Kuo, 1976) or begins in freshwater (Naujan Lake) or Laguna Lake water (Lacanilao, 1973). Appearance of milkfish eggs and fry indicates that spawning occurs 200-1000 meters from shore and has lunar periodicity, the first and last quarters (Kumagai, 1978) when the tidal fluctuation is lowest.

Hormonal control of sexual maturation, ovulation, and spawning

Acetone-dried salmon pituitary together with human chorionic gonadotropin induce spawning in captured milkfish spawners (Vanstone et al, 1977; Liao et al, 1978).

Development of an accurate method for monitoring ovarian maturation

Egg sampling technique developed for mullet offers anatomical difficulty when tried in milkfish (Chaudhuri and Juario, unpublished).

Preservation of sperm

Attempts in refrigeration and cryogenic preservation of milkfish sperm have not been successful (Chaudhuri and Juario, unpublished; Vanstone, unpublished).

References

Kumagai, S., Castillo, N.M. and Bañada, V.C. 1978. Spawning periodicity of milkfish, Chanos chanos. SEAFDEC Quart. Res. Rep. II(2):10-12.

Kuronuma, K. 1976. Reviews and recommendations on current and future research activities for the biological investigations on milkfish. Proceedings of the International Milkfish Workshop-Conference, Iloilo, Philippines, May 19-22.

Lacanilao, F. 1973. Hormonal induction of gonadal maturation in milkfish. Technical Report, UP-NSDB Integrated Research Program.

Liao, I.C. 1971. Note on some adult milkfish from the coast of Southern Taiwan. Aquaculture 1:1-10.

Liao, I.C. and Chang, Y.S. 1976. A preliminary report on the gonadal development of adult milkfish, Chanos chanos, reared in tank. Proceedings of the International Milkfish Workshop-Conference, Iloilo, Philippines, May 19-22.

Liao, I.C., Juario, J.G., Kumagai, S., Nakajuma, H., Natividad, M., and Buri, P. 1979. On the induced spawning and larval rearing of milkfish, Chanos chanos (Forskal). Manuscript.

Nash, C.E. and Kuo, C.M. 1976. Preliminary capture, husbandry and induced breeding results with the milkfish, Chanos chanos (Forskal). Proceedings of the International Milkfish Workshop-Conference, Iloilo, Philippines, May 19-22.

Senta, T., Kumagai, S. and Ver, L. 1976. Occurence of milkfish eggs in the waters around Panay Island, Philippines, in April and May, 1976. Proceedings of the International Milkfish Workshop-Conference, Iloilo, Philippines, May 19-22.

Tampi, P.R.S. 1957. Some observations on the reproduction of the milkfish, Chanos chanos (Forskal). Proceedings Indian Acad. Sci. B46:254-276.

Vanstone, W.E., Tiro, L.B., Villaluz, A.C., Ramsingh, D.C., Kumagai, S., Dulduco, P.J., Barnes, M.M.L., and Dueñas, C.E. 1977. Breeding and larval rearing of the milkfish, Chanos chanos (Pisces:Chanidae). SEAFDEC Tech. Rep. No. 3.