

Reproduction of the Chinese Carps, *Ctenopharyngodon idellus* and *Hypophthalmichthys molitrix* in a Reservoir in Taiwan

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While carrying out a preliminary survey of impounding fish population in May, 1959, the staff of the Tainan Fish Culture Station of the Taiwan Fisheries Research Institute found that the Chinese carps of the species *Ctenopharyngodon idellus* (C. & V.) and *Hypophthalmichthys molitrix* (C. & V.) had reproduced in the Ah Kung Tian Reservoir in the southwestern part of the Island.

This reservoir has an area of 360 hectares during the rainy summer season when water is high. The catchment areas of rain water run-off totaling 3,320 hectares are among the hills at an elevation of from 100 to 300 meters (the base of the dam of this reservoir has an elevation of 26 meters above the level of the sea). The annual fluctuation of the water level is rather large, and has been about 7.5 meters in the past. The water of this impoundment has a surface temperature of from 12° to 34°C in annual range and is slightly turbid around the year. The dam of this reservoir was completed in 1952, when about 40 *C. idellus* and 900 *H. molitrix* fingerlings entered this body of confined water from a fish pond located near the site of the dam.

Both *C. idellus* and *H. molitrix* are the predominant species of fish in this impoundment. Based on the estimation made by a preliminary survey (TANG, 1959), the young-of-the-year *C. idellus* (in age-group 0) with total length ranging from 7.2 to 14.0 cm numbered approximately 170,000 and the *H. molitrix* measuring from 25.4 to 31.6 cm in total length numbered approximately 20,000 at the time of survey as mentioned.

Fisheries biologists are generally aware that the Chinese carps, except the species *Cyprinus carpio*, had not been reported to spawn elsewhere than in some rivers in the China Mainland. This, however, is no longer true, since it has been recently reported that three species, *C. idellus*, *H. molitrix* and *Aristichthys nobilis*, bred and became naturalized in the system of the River Tone in Japan (NAKAMURA, 1949; KURONUMA, 1954; INABA and NOMURA, 1956; INABA, NOMURA and NAKAMURA, 1957). The spawning of these fishes in confined waters, such as ponds, reservoirs or other types of impoundments, however, has never been reported, though they are the most

important species of cultivated fish in China and her neighbouring countries for several centuries. Our present knowledge of the breeding requirements of the Chinese carps is far from complete, and the factor or combination of factors that actually governs the development of their sexual products or spawning in rivers or in confined waters has not yet been determined with certainty; it has been recently reported that the secretion of a hormone-like repressive factor has prevented reproduction in *Cyprinus carpio*, *Carassius auratus*, *Megastomatobus cyrinella* and *Micropterus salmoides* populations in the fresh waters of the United States (SWINGLE, 1954, 1956a and 1956b). In order to add our knowledge to this line and in the attempt to supply these fry locally, the Tainan Fish Culture Station is now conducting an intensive study program for investigating the breeding habits of these fishes and the hydrological conditions of this impoundment.

References

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