

摘要

一般對於魚道與河川生物相互關係的研究，大多著重於特定魚種利用魚道的情形，或是利用不同的水理狀態實驗魚類的溯游行為。對於河川中洄游生物利用魚道的情形，在國內外仍然少有相關研究。

本研究在 2006 年間，調查位於大甲溪最下游的壩體－石岡壩所附設之魚道內的生物，將每月採集所得的魚蝦類種類與數量，經由豐度、歧異度與均勻度之分析，探討有何種生物利用魚道進行洄游，與生物利用魚道的季節。

研究結果顯示大甲溪的水生生物主要利用魚道的季節為冬季至春季，次要季節為春季至夏初。台灣間爬岩鰍 (*Hemimyzon formosanus*) 由 9 月至隔年 4 月、埔里中華爬岩鰍 (*Sinogastromyzon puliensis*) 由 10 至 12 月、台灣鰍 (*Formosania lacustre*) 由 10 至 12 月、高身小鰮鰻 (*alticorpus*) 分別在 4 月至 6 月、與 10 月至 12 月之間，分別有密集利用魚道上溯的情形。其中台灣間爬岩鰍與埔里中華爬岩鰍可歸類為本區河川主要洄游性生物。

研究結果也顯示在長庚橋與埤豐橋樣站間，石岡壩對河川生物的阻隔作用最為嚴重，大部分的生物無法經由魚道上溯至上游河道中。而副壩與埤豐橋上游 100 公尺處的天然落差也對河川生物的洄游產生阻隔作用，建議應儘快改善長庚橋至埤豐橋間 3 個障礙對洄游生物的阻隔情形，以及對石岡壩魚道內的生物進行長期持續的監測。

Abstract

In general, most researches on the relationships between fishways and riverine creatures focuses mainly on specific fish that use a fishway, or the behavior of fish that swim upstream in different hydraulic conditions. However, few studies have discussed the circumstances in which migratory species use a fishway.

In this study the exploitation of the fishway of Shin-Kang Dam by migratory creatures was investigated. The methodology included the analysis of the abundance, richness, diversity, evenness and similarity coefficient of the fish and crustacea present, in order to understand what creatures use the fishway for migration and the times when they use it.

The findings here indicated that most creatures in Tachia River used the fishway from winter to spring, and from spring to summer. The major period that those creatures swam upstream was that *Hemimyzon formosanus* from August to April, *Sinogastromyzon puliensis* from October to December, and *Formosania lacustre* from October to December. *Microphysogobio alticorpus* showed two periods of upstream, from April to June and October to December. Among those creatures *Hemimyzon formosanus* and *Sinogastromyzon puliensis* could be classified as potamodromous fishes.

The results indicate that the Shin-Kang Dam has become a major obstacle to migratory creatures between the Chang-Geng Bridge and Bi-Feng Bridge, large portion of creatures could not swim upstream by the fishway. The study also indicates that a nearby auxiliary dam and waterfall also act as obstacles to migratory creatures. We suggest that modifications to these obstacles be carried out to allow successful passage of the migratory creatures. The further study of the exploitation of the fishway of Shin-Kang Dam by migratory creatures should be conducted over a longer period of time.