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頭汴坑溪水質與魚類評估指數之調查研究

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摘　　要　利用水質與生物調查資料，計算相關指數做爲環境優劣之評估方式，雖已在世界各國廣泛應用，但國內對此相關研究較少，加上不同區域之河溪環境差異甚大，指數應用實例上有所不足。因此，本研究選擇台中縣頭汴坑溪內之 4 個調查測站，測站河道長各約 50m，調查期間自民國 92 年 5 月至民國 94 年 10 月止，每季進行一次水質與魚類調查，累計長達 12 次之調查資料，嘗試建立此地區之評估指數。現場採集水質資料共 4 種，包含 pH、溶氧、導電度及濁度，魚類共計 19 種，其中原生種 10 種、外來種 4 種、雜交種 1 種，經計算之水質指數(WQI)及生物整合指數(IBI)研究分析結果發現，調查測站 WQI 水質評等由特優至中等，IBI 評等由中等至差的等級，顯示兩種指數評分具有差距，WQI 指數之評分結果較 IBI 正確，IBI 指數須經修正才能更適用於頭汴坑溪之水質評估。

關鍵詞：魚類、評估指數、水質指數、生物整合指數。

Survey and Analysis on the Assessment Index of Water Quality and Freshwater Fish in the Tou-Bien-Ken Creek

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ABSTRACT　While calculating the river-relative indexes by using water quality and biological data in the assessment of environmental quality has been extensively applied in many countries, the study is very rare in Taiwan. And further, since the discrepancy between river conditions are obvious in different areas, insufficient data become the critical problem in index application. In this study, four survey stations have been set within 50 meters of river course in Tou-Bien-Ken Creek in Tai-Chung County, and the survey duration has been set from may 2003 to October 2005, conducting water quality and freshwater fish survey in every season, and a total of 12 sets of data has been collected, to establish an assessment index of the survey area. Four items of water quality has been collected in field surveys, including PH value, dissolve oxygen, electric conductivity level and turbidity level. Furthermore, 19 species of freshwater fish have been found, of which 10 species are local strains, 4 species are foreign strains, and 1 species is a hybrid strain. The results of calculating and analyzing the water quality index (WQI) and Index of Biotic Integrity (IBI) indicate that WQI is estimated from

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excellent to fair, while IBI is estimated from fair to poor. It has been illustrated that two indexes show different assessment results. Of those WQI index is more reliable than the IBI. IBI index need further modification for the use of water quality assessment in the Tou-Bien-Ken Creek.

Key Words: Freshwater fish、Assessment Index、Water Quality Index、Index of Biotic Integrity.