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應用 FLO-2D 模式評估山地溪流整治前後對魚類棲地影響之研究

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摘　　要　本文以台北縣石碇鄉之玉桂嶺南勢坑野溪爲研究區域，收集該溪流之環境背景資料包括：整治前後地形圖、流速、水深、河床底質分布與魚種分布等資料。利用二維水理演算模式 FLO-2D 進行水理模擬，計算各種不同流量下之流速及水深，再根據流速、水深及底質之魚類棲地適宜度曲線，以幾何平均法計算溪流整治前後之棲地適宜度指數及加權可用面積，進而探討溪流整治前後對山地溪流魚類棲地環境之影響。研究結果顯示，在本研究區域渠化段之魚類棲地品質較整治前明顯降低，溪流整治後之可用棲地面積較整治前之棲地面積減少 30% ~ 40%。

關鍵詞：FLO-2D 模式、幾何平均法、棲地適宜度指數、加權可用面積。

Influence of Remediation Work of Mountainous Stream on Fish Habitat Using FLO-2D

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ABSTRACT　The Nan-Shi-Keng mountainous stream located in Shidin township, Taipei county is selected to study the influence of remediation work on the stream in this study. Data including the Digital Terrain Model (DTM), flow depth, flow velocity, substrate and fish distribution, etc., in the mountainous stream were collected. A two-dimensional model FLO-2D is applied to evaluate the flow depth and flow velocity at various discharges. Three fish habitat suitable curves, including the flow velocity, flow depth and substrate, in the study area are used. Then, the Habitat Suitability Index HSI and Weighted Usable Area WUA can be determined by geometric method based on the fish habitat suitable curves. The results show decreased habitat suitability for the stream after remediation than before remediation in the channelized section. The value of WUA is decreased by 30%~40% after the stream remediation.

Key Words: FLO-2D, geometric method, habitat suitability index, weighted usable area.

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