

河道寬窄變化對辮狀河川演變之影響

The influence of river width change on the evolution of braided rivers

國立中興大學水土保持學系

碩士班研究生

王偉任

Wei-Ren Wang

博士班研究生

安軒霏

Shiuan-Pei An

教授

陳樹群

Su-Chin Chen

摘要

台灣地區河川中下游河段大多以辮狀河川為主，辮狀型河川河寬較寬且河身順直，水流多分岔，通常有兩股或兩股以上的流路。在縱向上，河谷的比降較陡，挾帶泥砂量較多，粒徑較大；在橫向上，主深槽有左右擺盪的特性，寬深比較大，沙洲面積小且數量多，河川型態容易改變，導致河川整體外形十分散亂。早期在對辮狀河川的整治多以兩岸的堤防為主，目的在於對主流流路的束縮以達到控制並減少災害發生的效果。

有鑑於河寬的變化會造成下游河川型態的改變，本研究即針對河道寬窄的變化進行室內渠槽實驗，透過改變河道的寬窄，觀察在下游的河道會有怎樣的變化。本實驗設計一漸寬渠道，渠道開口處河寬分別為 0.5m~0.8m，下游尾端處河寬為 1.2m、流量為 1.76×10^{-4} cms、中值粒徑為 0.28 mm、坡度為 0.05、實驗歷時 2 hr 之實驗條件，將實驗結果整理分析討論出由於沒有來砂補充，為了平衡，主深槽即不斷下切，形成較深的主深槽，主深槽越刷越深，形成不容易擺盪的情況。

關鍵詞：辮狀河川，渠槽實驗

Abstract

Midstream and downstream is mainly to braided rivers in Taiwan, these are always with large width and straight shape, waterway is bifurcation, usually have two or more than two-ways. In vertical section, the valley has a steep slope, and carry a lot of silt with large size, in cross section, the mainstream of braided river has swing character and larger width-depth ratio, the area of sand bar is small but numerous, the shape is easily been changed. These all make the shape of river look sprawl. In the past, dredge in the braided rivers is always on two sides of the dike, mainly aimed at the mainstream flow direction of the beam to shrink to control and reduce the effects of disasters.

In the light of the width changes will cause the changes of the river kind of downstream, this study is taking an indoor flume test for the river width changes. Through the width of river changes, observed the downstream of the river will be how to change. We made some conditions in our experiment: a channel which is gradually wide and the opening channel width 0.5 m to 0.8 m, and channel width at the end of downstream 1.2m, quantity of water 1.76×10^{-4} cms, median size 0.28 mm, slope 0.05, and experiment time for 2 hours. The results will be discussed and analyzed, to the absence of sand add, in order to balance, the mainstream trough brush the channel more and more deeper constantly, so that the mainstream has the situation of difficult to swing.

Key words: braided rivers, flume experiments