



The experiment for the influence of water-sand combination to sediment carrying capacity in lower Yellow River

J. YAN (1), J. Wang (2), H. C. Li (1), N. Q. Jiang (3), D. P. Sun (1)

(1) North China University of Water Conservancy and Electric Power, 36 Beihuan Road, Zhengzhou, Henan, 450011, China

(2) Yellow River Conservancy Technical Institute, 115, Ximen Road, Kaifeng, Henan, 475001, China

(3) Yellow River Institute of Hydraulic Research, E-mail: nqjiang@yrihr.com.cn, 45 Shunhe Road, Zhengzhou, 4500031, China

The physical sediment model was set up to reveal the influence of water-sand combination to sediment carrying capacity in the lower Yellow River according to the prototype. Through analyzing the mechanism of sediment-carrying and the processes of water-sediment transport in the lower Yellow River, the relationship between the sediment-carrying capacity and the influencing factors, such as discharge, sediment concentration, water volume, sediment volume, erosion volume, deposition volume, etc., has been put forward. The water-sand combinations for efficient sediment transportation have been successfully verified by the mathematic sediment model, the physical sediment model and the practice of water-sand diversion in the lower Yellow River.

Key words: physical model, the lower Yellow River, the sediment-carrying water volume, the unit sediment-carrying water volume, the efficient sediment-carrying water volume

Acknowledgments: Project supported by the National Natural Science Foundation of China (Grant No. : 50509008 & 50279009)

Biography: Jun YAN (1971-), Male, Ph. D.