



University of Zabol

Graduate school

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Department of Water Engineering

The Thesis Submitted for the Degree of M.Sc

(in the field of Water Resources Engineering)

Effect of Sistan and Zahak diversion dams on Sistan river floodplain determination using HEC-RAS and GIS

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Abstract:

Flood plains of rivers, fertile land that human has always wanted to develop the area. The conservation and management of floodplains is essential. Information floodplain determination is widely used in studies of flood management. Sistan River is the main source of water for agriculture in the north of the province of Sistan and Baluchestan due to flow across the flat plain of Sistan is always exposed to flood inundation. In the study effect of structure Sistan and Zahak diversion dams on Sistan river floodplain determination using the HEC-RAS software that can simulate the behavior of excellent river, and the water surface profile. In this regard, first was prepared Plan and cross sections of the Sistan River in software HEC-GeoRAS in GIS, and then were carried to HEC-RAS to perform hydraulic calculations. after calibration models gradually varied flow simulations were done at steady using the standard step. Finally, to study the flood plain area, HEC-RAS model output was transferred to HEC-GeoRAS. The results showed that maximum flow of river Sistan, in the Conditions Presence and off Sistan and Zahk diversion dams is 500 m³/s. In condition flood control flood by Zahak diversion in on Zahk Nyatk and more deviation flood, Maximum River discharge flow of 810 m³/s. According to these results, despite the positive effect floods on streams Nyatk Zahk structure, but with poor performance in providing the required level of average discharge of Sistan River(810 m³/s) in the flow channels Taheri and Shahr. So simulate the operation of diversion dams Sistan and Zahak can be an effective role in flood control and flow allocation appropriate.

Keywords: Floodplain determination, Siatan dam, Zahak dam, Sistan river, HEC-RAS, ARC-GIS