

# Experimental Research effect of spur dike position on the depth of scoring in the rivers Bend 180 deg

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One of the methods of controlling erosion in the bend of rivers is using of groin next to the external bend. one of the most important subjects in spur dike design is investigation of scoring and determine the depth of scoring in the head land of spur dike. One of the influencing parameters on the depth of scoring around spur dikes is situation of spur dike in the bend. For examine effect of position of installation of spur dike in the bend on the process of scoring, tests in a laboratory flume with 180 deg bend with ratio  $R/B=4.7$  of Plax glass material is done. In this research with setting an spur dike in the laboratory flum with positions 30,60,90,120,150 and 160 degrees with discharges 24 Lit/s and fixed depth 13 cm phenomenon of scoring around spur dike in purity water was investigated for bed materials is used flume with gravel with harmonious granulated.

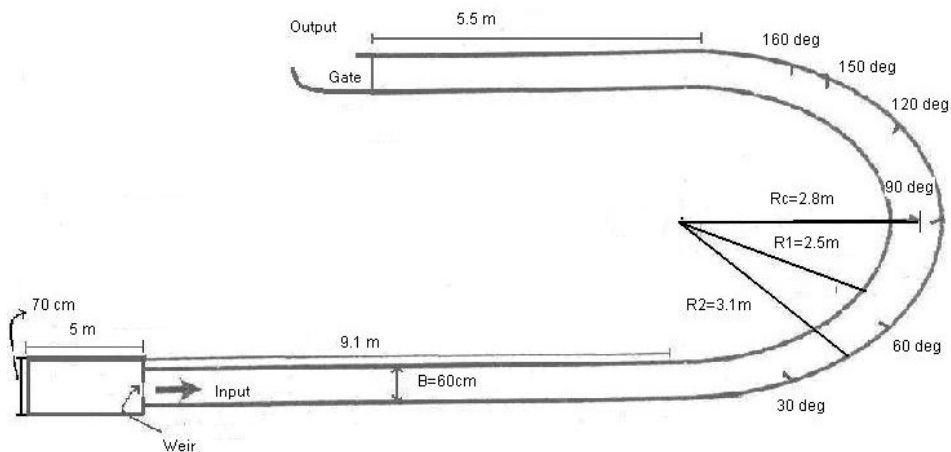
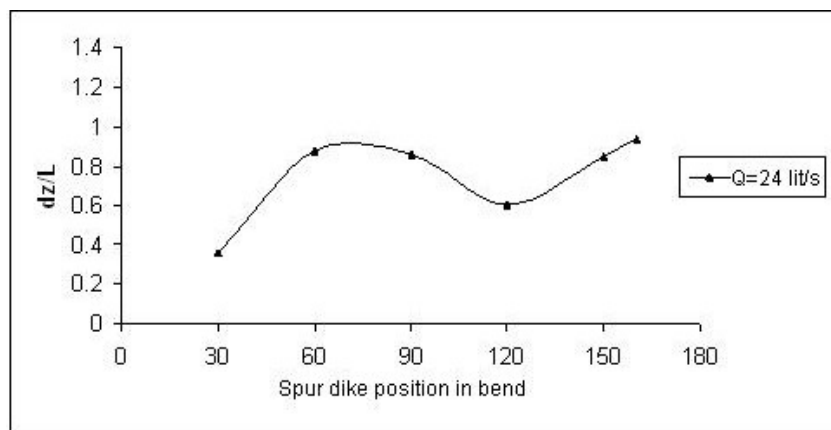


Fig. 1.Layout of flume for spur dike positions experiments



**Fig. 2. Scoring in Spur dike downstream**

For investigation of effect of discharge value and spur dike position on the scoring depth in the bending simultaneously, changes of  $dz/l$  versus spur dike position in the bend is plotted for three different discharge values. Figure 3 indicates that maximum scoring depth around the spur dike has the direct relation with spur dike position and discharge values and it increases by increasing resting angle of spur dike or increasing discharge values. Also by considering the figure 3 one can conclude that maximum and minimum depth of scoring can be seen in the positions  $30^\circ$  and  $160^\circ$  respectively and after position  $60^\circ$ , scoring depth in comparison with position  $60^\circ$  decrease till position  $120^\circ$ , then it increases and reaches to its maximum at position  $160^\circ$ .



**Fig.3. Variation of spur dike Position and scoring for different discharge**

## References

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