

UNIVERSITI TEKNOLOGI MARA

**THE EFFECT OF FLOW AND
SEDIMENT MATRIX TO THE
FORMATION OF MID-CHANNEL BAR
IN RIVER**

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ABSTRACT

Mid-channel bar is one of the issues that are found in river. It contributes to flood occurrence along flood plain. The formation of mid-channel bars is related to various factors such as flow, sediment, vegetation and others. Previous researchers had carried out many studies but the understanding of mid-channel bar is still lacking because of lesser knowledge on the fundamental of their formation. Therefore, this study is conducted to determine the relationship of flow and sediment to the formation of mid-channel bar. It is based on the analysis of experimental works. The dimension of straight physical river model used was 200 cm length and 4 cm width. The river is produced in sand bed condition with the size of sand ($D_{50} = 0.8\text{mm}$). The findings proved that the flow and sediment has critically contributed to the formation of mid-channel bar. The erosion and deposition occurred along the channel. Mid-channel bar is only formed at transported and deposition zone. It is formed from mechanism which are cut-off point bar and deposition of sediment in the channel. Two different shapes of bars are formed which are lunar and ellipse shapes. The analysis is also based on the analysis of shear velocity profile. The bars are formed at minimum location and stable values of shear velocity. Lastly, the findings of the study are very significant to the issues of mid-channel bars with providing a basic knowledge on effect of flow and sediments.

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