

GRAVEL DEPOSITS ON LOWER MISSISSIPPI RIVER SANDBARS

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Abstract: The Mississippi River is known for its large sandbars that appear on the inside of bends during times of low stage. These sandbars on the lower Mississippi River are predominantly a medium to fine grained sand. The flood of 2011 and the drought of 2012 showed near record stages on both ends of the staff gage. Gravel deposits were observed on sandbars throughout the lower Mississippi during the low water inspections in the summer of 2012. These gravel deposits are not normally seen on the lower Mississippi River.

In the summer of 2012 gravel was identified on several sandbars during waterborne and aerial inspections. The distributions of gravel deposits were not consistent along the length or width of the river. Deposits also seemed randomly placed on each sandbar. A sampling plan was under development when the stage of the Mississippi River started to rise rapidly. Samples were taken from five sandbars with observed gravel near Vicksburg, MS before the deposits were covered with water; three above and two below the Yazoo River confluence. Several stations were sampled at each sandbar. Wolman pebble counts were done at sandbars with large gravel and grab samples were taken at multiple depths for lab analysis.

Gravel deposits on the lower Mississippi River are of interest for environmental and engineering reasons. If the gravel beds are an armoring layer and always part of the sandbar, then they could possibly be fish spawning spots. Gravel armoring a sandbar is an important process to know when calculating sediment transport rates and for calibration of sediment models. This paper will look at the location, distribution, and size of the gravel beds along the U.S. Army Corps of Engineers, Vicksburg District's section of the Mississippi River. A hypothesis of the transport mode (flood of 2011 or bar armoring) and the source of the gravel will be discussed.