



**US Army Corps
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Engineer Research and
Development Center

Davis Pond Freshwater Diversion Numerical Model Study

Description The Davis Pond freshwater diversion project is a salinity control structure located in St. Charles Parrish, on the west bank of the Mississippi River, two miles below Luling, Louisiana. The project was designed to divert up to 10,650 cfs of freshwater from the Mississippi River, through the structure via an outflow channel and 9,390 acre ponding area, out into Lake Cataouatche and finally out into the Barataria Basin.

Issue Once normal operations of the Davis Pond freshwater diversion were commenced several problems were identified in the ponding area. The first and most significant was that stages in the ponding area rose much higher than anticipated. This was caused by a previously unidentified ridge behind the gabion rock weir and also, because the weir did not experience settlement that was expected when it was designed. Another problem identified was the east and west guide levees subsided more than expected and are overtopped by the higher stages in the ponding area. Recent tests have determined that the ponding area can only pass about 2,500 cfs effectively.

The model study was developed to assist in the design of alternatives to lower the stages within the ponding area.

Products The model study provided estimates of the water surface profile throughout the ponding area for the design flows for varying degrees of channel and gap enlargement. The results showed that significant enlargement would be required to achieve the target water levels.

Supporting Technology Davis Pond was modeled using RMA2, the depth-averaged hydrodynamic model of the Corps' TAB-MD modeling system.

Benefits The study provided an efficient means to assess alternatives and leading to an economical design correction.

Sponsors Army Corps of Engineers, New Orleans (CEMVN)

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Partners All partners in order of: ERDC; Corps; DoD; other Federal and State agencies; signature partners; and contributing partners, as applicable.