

ABATEMENT OF WETLAND LOSS THROUGH DIVERSIONS OF MISSISSIPPI RIVER WATER USING SIPHONS

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Abstract

The long-term maintenance and renewal of Louisiana's wetlands cannot be accomplished without diversion of sediment-laden water from the Mississippi and Atchafalaya Rivers. Because of ramifications for flood control, navigation, and established estuarine resource uses, such diversions, at least initially, are likely to be limited to structures that permit flow to be taken from the upper part of the water column. To evaluate the potential benefits from such diversions in terms of sediment introduction into the wetlands, and the possibility of abatement of wetland loss through small structures that could be implemented at a local level, an existing diversion by means of a siphon was investigated.

The investigation focused on the White's Ditch Siphon, in Plaquemines Parish, Louisiana. Siphon operation was monitored for the 1989-1990 water year to determine water and sediment discharge characteristics and their relationship to those of the Mississippi River and to estuarine hydrology. To determine sedimentation benefits to the adjacent marsh and the need for outfall management, sediment dispersal was evaluated, and sediment deposition was compared for a site within the siphon outfall area and a control site.

Results of the siphon monitoring are extended to larger scale diversions. On the basis of suspended load characteristics of the Mississippi River and the operational characteristics of a major structure, as related to the estuarine salinity regime and resource constraints, the extent to which such diversions are likely to offset subsidence and related wetland loss is evaluated.

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