

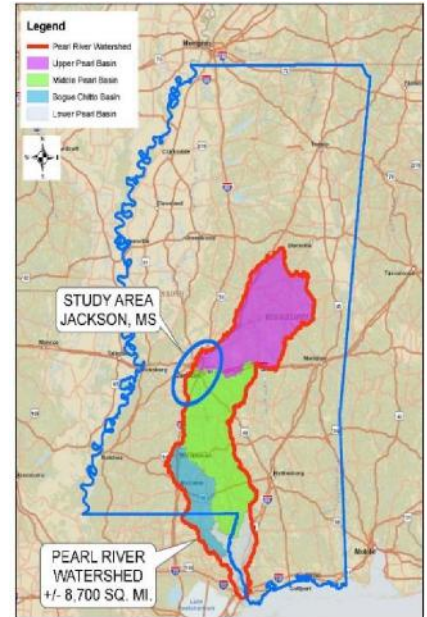
# Downstream Impacts Analysis Fact Sheet

During the feasibility and environmental impact study for flood risk management of the Pearl River in the Jackson, Mississippi, great care was taken to consider potential downstream impacts of any proposed project and the concerns of residents within the Pearl River Watershed.

The majority of the Pearl River Watershed is actually south of the project site under consideration. However, the design team has held public meetings and site visits with organizations and in communities along the Middle and Lower Pearl River to further appreciate these downstream concerns and to understand points of misperception.

## *How would a Flood Control Project impact the water quantity of the Pearl River? What about the effects of the Ross Barnett Reservoir on the Pearl River?*

Public comments made it clear a common belief was that the Ross Barnett Reservoir was affecting flow downstream; therefore, the history of flow in Pearl River and the impact of that reservoir were studied. Prior to the Ross Barnett Reservoir, the daily unregulated flow of the Pearl River had **dropped below 80 cfs**.

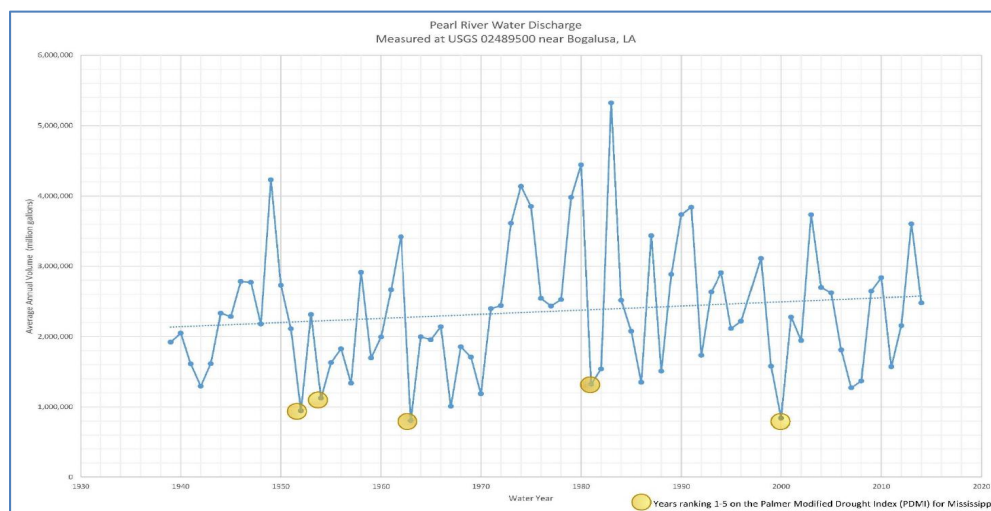


To ensure that additional flow is available for downstream use, the Ross Barnett Reservoir requires a minimum flow of water of approximately 170 cfs. Those same minimum flow requirements will apply to the project once constructed.

A detailed analysis of average daily flows and evaporation at the proposed project site indicates the potential for 2.5 - 10.1 cubic feet per second (cfs) to be lost to evaporation. Put in context, the historic average annual flow in Jackson is 4,187 cfs. This evaporation estimate does not include the increases in water levels that will occur as a result of rainfall in the project area becoming direct surface water as opposed to the current conditions where it falls upon soil and vegetation and is absorbed. Therefore, there will be no discernible variance in the amount of water flowing in from the Ross Barnett Reservoir to the amount flowing out of the project area to the downstream channel.

Furthermore, approximately two-thirds of the Pearl River Watershed is runoff from south of the project location so the Jackson area is not the only driver of water levels in the southern parts of the watershed.

## **Bogalusa, LA: Mean Annual Water Volume (In Million Gallons)**



***How would a Flood Control Project impact salinity in the Lower Pearl River?***

There will be no discernible difference in the amount of water flowing in from the Ross Barnett Reservoir to the amount flowing out of the project area to the downstream channel. The project will be required to meet minimum outflow levels required by permits and regulations. Emergency gates have been added to the weir to ensure that minimum levels are always achieved even in extreme draught conditions. With no perceptible decrease in water flowing downstream from Jackson, and with two-thirds of the Pearl River Watershed actually south of Jackson, the project should have no impact on salinity levels in the Gulf.

Furthermore, the proposed channel improvement project would result in long-term, beneficial cumulative impacts on water quality with other past, present, and future projects and historical sites for several reasons. For example, the construction of this flood risk management project would eliminate the Floodway Clearing Project and any potential adverse impacts on water quality from chemical sprays used to remove vegetation during maintenance work. In addition, the proposed project includes removal of existing historical unpermitted solid waste units in the floodplain and removal and capping of an existing hazardous waste site, which should reduce the risk of future contamination from these existing sources.

The lower Pearl River assessments, water quantity estimates, and evaporation rate impacts demonstrate that the proposed project will not have a negative impact to the quantity of water in the lower Pearl, and therefore, should not have a negative impact on oyster and other shellfish.

***How would evaporation associated with an upstream Flood Control impact downstream water quantity?***

The footprint of the proposed channel improvement increases the water footprint by 1,400 acres, which is less than 5% of the size of the Ross Barnett Reservoir and less than 7% of the lakes in the watershed. Furthermore, approximately two-thirds of the Pearl River Watershed is runoff from south of the project location. A detailed analysis of average daily flows and evaporation at the proposed project site indicates that approximately 0.06% of the estimated total volume at Bogalusa, Louisiana, would be lost due to evaporation as a result of this proposed flood risk reduction measure, and less than 0.05% would be lost at the mouth of the Pearl River System. This was a highly conservative estimate assuming that all water present in the Pearl River in Jackson would reach the mouth downstream.

**Estimated Monthly Evaporation to Overall Volume**

	TSP Average Estimated Daily Evaporation (in)	Estimated Average Flowrate Lost To TSP Evaporation (cfs)	Average Monthly Discharge @ Jackson, MS (cfs)	Average Monthly Discharge at Bogalusa, LA (cfs)	Percentage of Daily Discharge in Bogalusa, LA, Lost to TSP Evaporation <sup>1,2</sup>	Net Change to Discharge at Bogalusa, LA <sup>3</sup>
January	0.04	2.5	7,296	15,343	0.02%	0%
February	0.06	3.4	9,140	20,117	0.02%	0%
March	0.09	5.3	9,077	20,479	0.03%	0%
April	0.13	7.7	8,303	18,500	0.04%	0%
May	0.16	9.2	4,234	11,324	0.08%	0%
June	0.17	10.1	1,521	5,485	0.18%	0%
July	0.17	9.9	1,386	4,546	0.22%	0%
August	0.15	9.1	974	3,752	0.24%	0%
September	0.13	7.5	914	3,501	0.21%	0%
October	0.09	5.2	1,045	3,320	0.16%	0%
November	0.06	3.6	1,710	4,282	0.08%	0%
December	0.04	2.6	4,652	10,038	0.03%	0%
				Approximate Total per year	0.06%	
<sup>1</sup> assuming no rain or other inflows during monthly time frame						
<sup>2</sup> assuming all water discharged at the gage reaches Bogalusa, LA						
<sup>3</sup> low flow gate operations will rectify any losses incurred if the water elevation of the TSP falls below the elevation of the relocated weir						