

Effect of Hosey Dam Tainter Gate Position on Fort Wayne River Levels

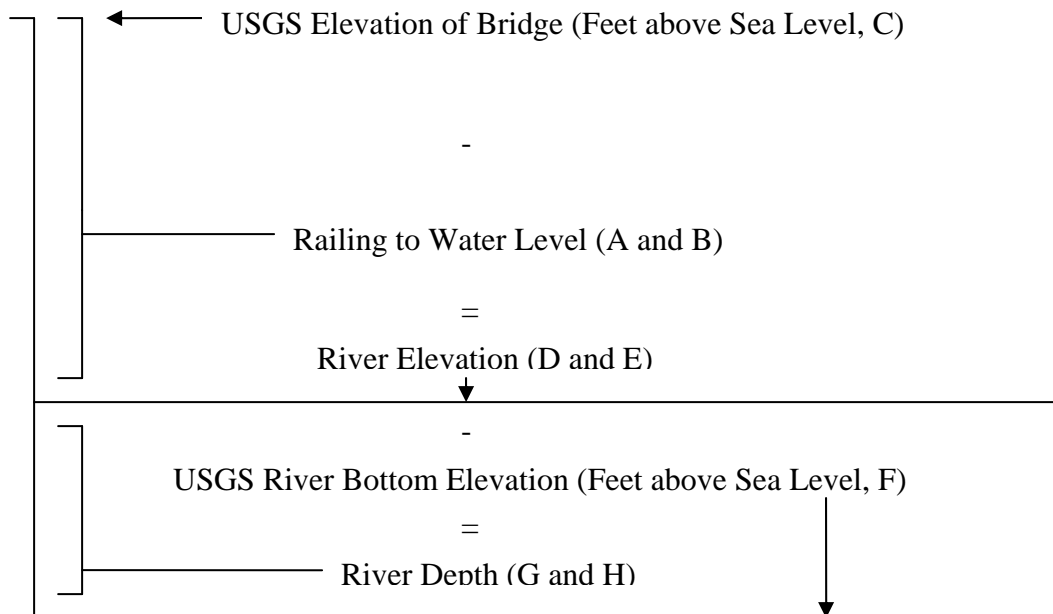
For many people, the distance between a bridge they walk or drive over and the distance to the water below is a way to gauge relative river depth. Fort Wayne City Utilities has investigated how the opening and closing of the tainter gate at the Hosey Dam affects water levels at several bridges on the St. Mary's, St. Joseph and Maumee Rivers in Fort Wayne. Click here see a summary. Measurements that have gone into this table were taken when very little rain had fallen for the week before measurements were taken. Distances from bridge railings to water surface have been used to estimate river depths.

Caution: River depths in the attached spreadsheet are based on measurements taken in March and April 2010. They represent a snapshot in time and should not be used to predict river levels or to estimate water depths for recreational or other activities on the rivers.

As you will notice by looking at the provided spreadsheet, there is almost no correlation between the tainter gate's position and the depth of the water at various points along the St. Joseph River. This is because the effects of the St. Joseph's Dam operations override the small pooling effect of the Hosey Dam when the tainter gate is down.

On the St. Mary's River, the impact of the tainter gate gets smaller as you get farther away from away from the confluence of the three rivers in downtown Fort Wayne. So while the depth of the river at the Spy Run Bridge on the St. Mary's River rose by about 1 foot when the tainter gate went from the open to the closed position, the calculated change in river depth at the Bluffton Road bridge was only about 0.6 feet.

Data for this spreadsheet was derived using various means. Columns A and B were recorded through field measurements. Column C was retrieved from Fort Wayne's Geographic Information System and Column F was taken from the Flood Insurance Study of July, 2008. To find Columns D and E, Columns A and B were subtracted from Column C, respectively. To find Columns G and H, Column F was subtracted from C and D. The preceding information can be summarized by this diagram:



BRIDGES on the St. Joe River, St. Mary's River, and the Maumee River¹

BRIDGE	Railing to Water Level with Tainter Gate (ft.)		USGS Elevation Railing on Bridge (ft.)	River Elevation with Tainter Gate (ft.)		USGS River Bottom Elevation ² (ft.)	River Depth with Tainter Gate (ft.)		
	UP	DOWN		UP	DOWN		UP	DOWN	
<u>ST. JOE RIVER</u>									
Tennessee Ave.	23.50	22.83	765.45	741.95	742.62	731.30	10.65	11.32	
E. State Blvd.	27.25	26.42	769.39	742.14	742.97	730.00	12.14	12.97	
Parnell Ave.	27.50	27.75	770.34	742.84	742.59	735.00	7.84	7.59	
<u>ST. MARY'S RIVER</u>									
Spy Run Ave.	23.58	22.50	765.26	741.68	742.76	732.30	9.38	10.46	
Ewing St.	29.42	28.50	771.01	741.59	742.51	731.20	10.39	11.31	
W. Main St.	27.17	25.83	769.87	742.70	744.04	734.30	8.40	9.74	
Taylor St.	26.58	25.08	767.80	741.22	742.72	735.70	5.52	7.02	
Bluffton Rd.	30.75	30.17	772.72	741.97	742.55	737.00	4.97	5.55	
<u>MAUMEE RIVER</u>									
Columbia St.	26.17	25.58	768.14	741.97	742.56	729.50	12.47	13.06	
Tecumseh St.	23.50	21.50	765.00	741.50	743.50	726.50	15.00	17.00	

Notes

- (1) Measurements taken from the confluence out along each river
 (2) As recorded in the Flood Insurance Study in July, 2008