

RECLAMATION

Managing Water in the West

Bighorn Basin Operations and Water Supply Meeting

April 16, 2014

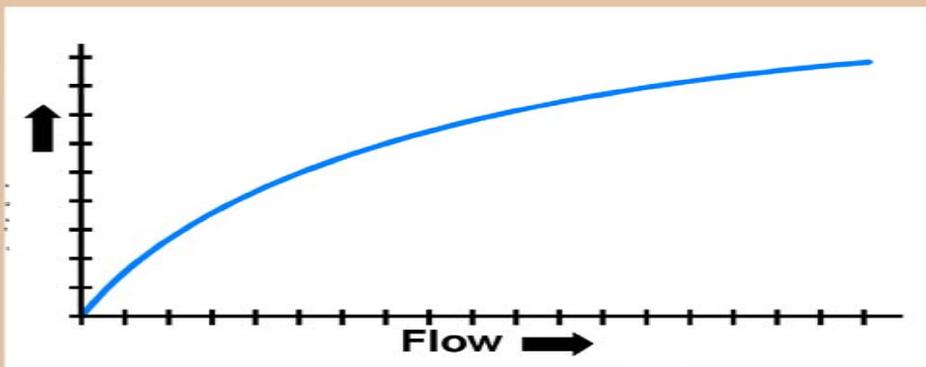
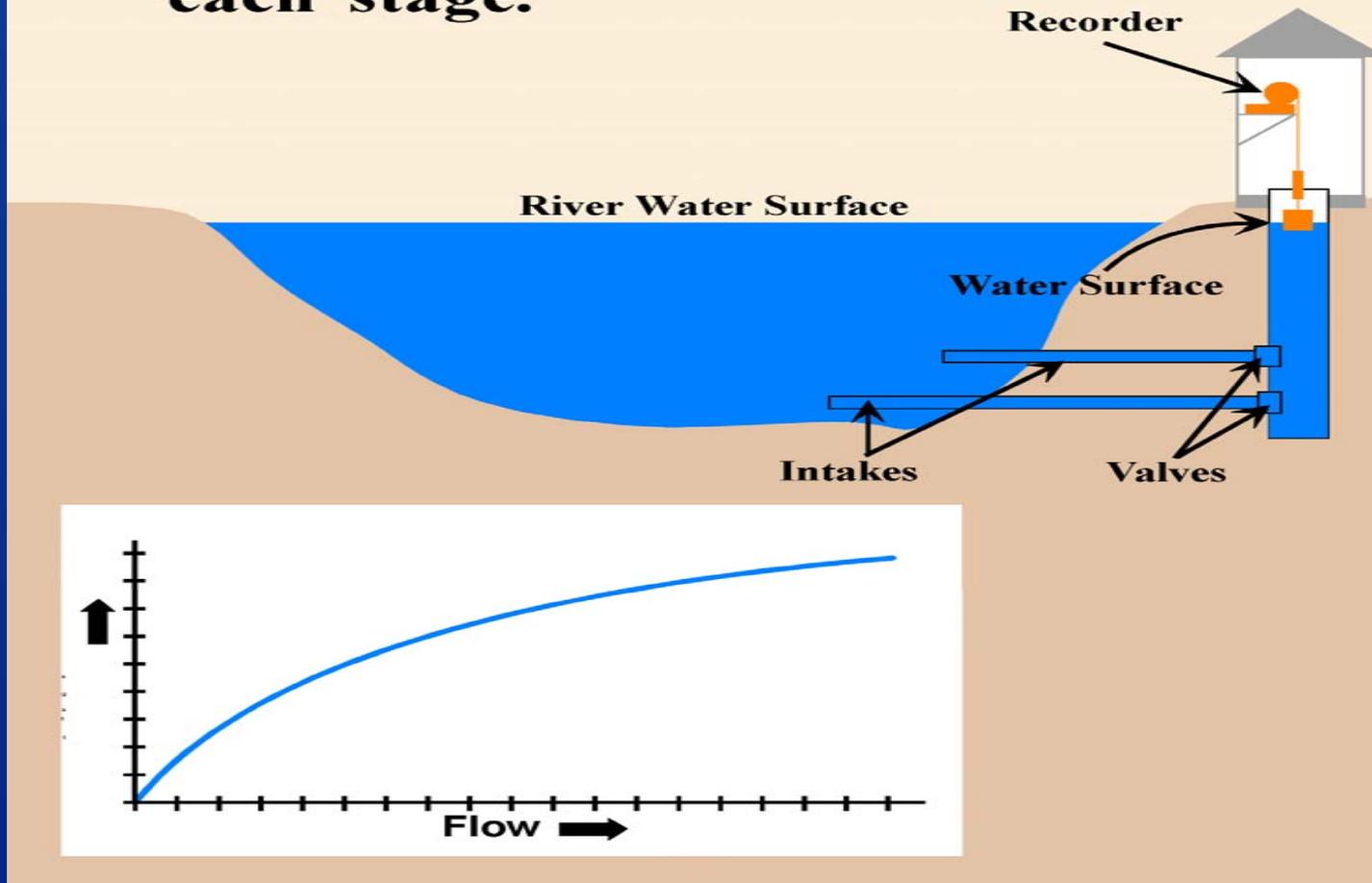


U.S. Department of the Interior
Bureau of Reclamation

River Stage and Shifts

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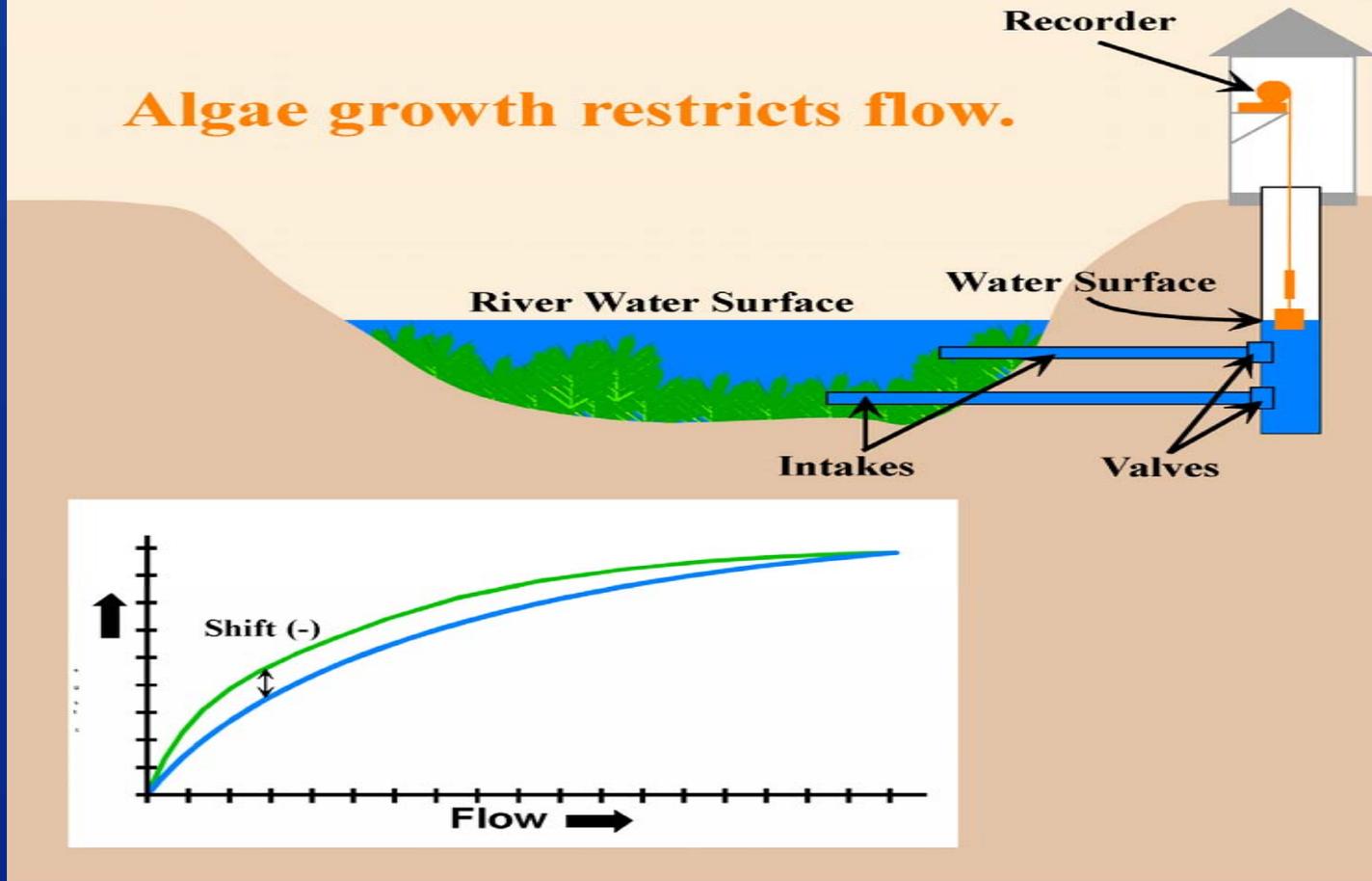
Afterbay Dam regulates river flow by stage (elevation of the river). Flows are derived from a USGS table defining rate of flow for each stage.



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**Recorder measures river stage,
but flows derived from USGS table
are in error because of variation
in river channel characteristics.**

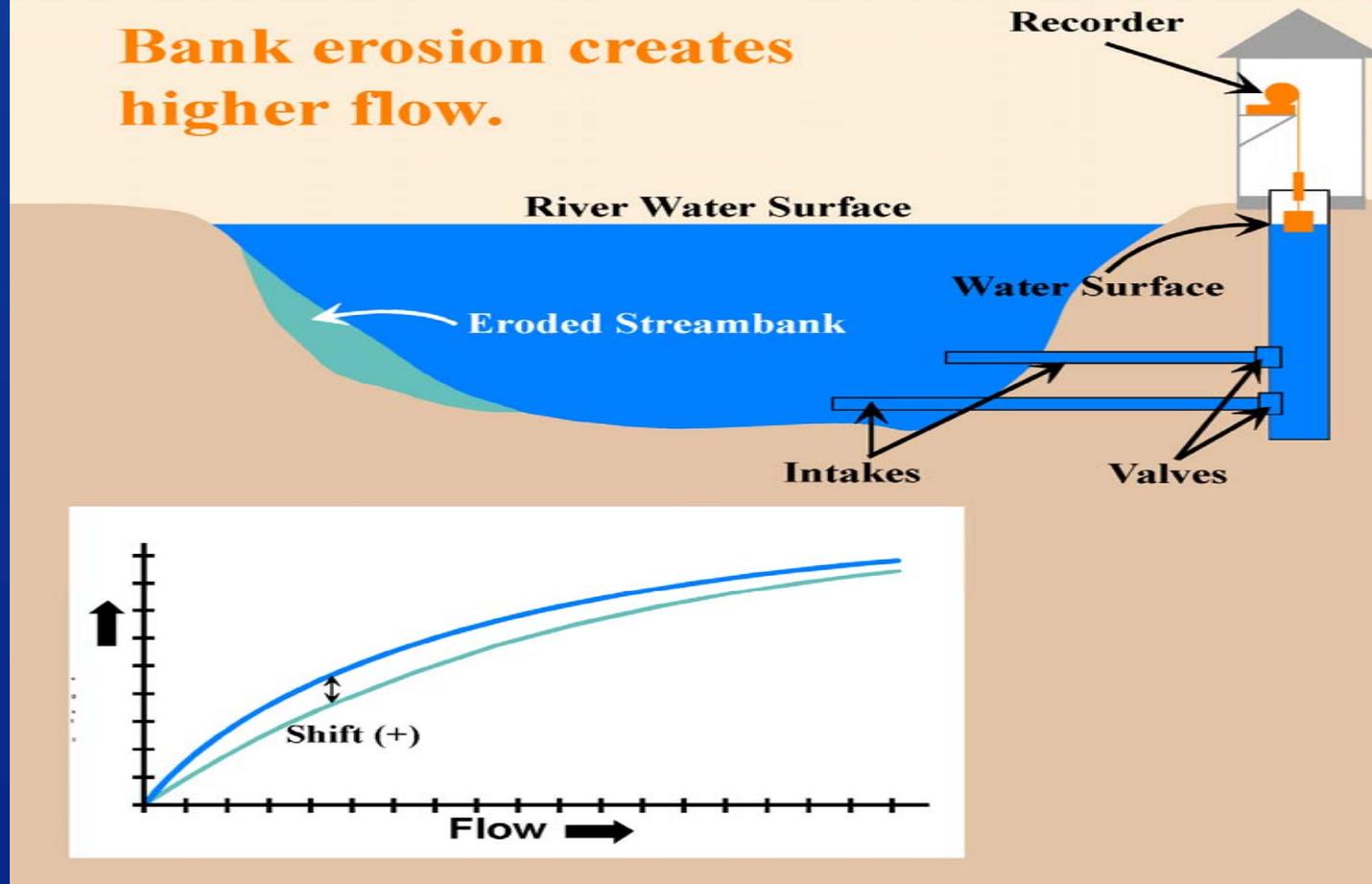
Algae growth restricts flow.



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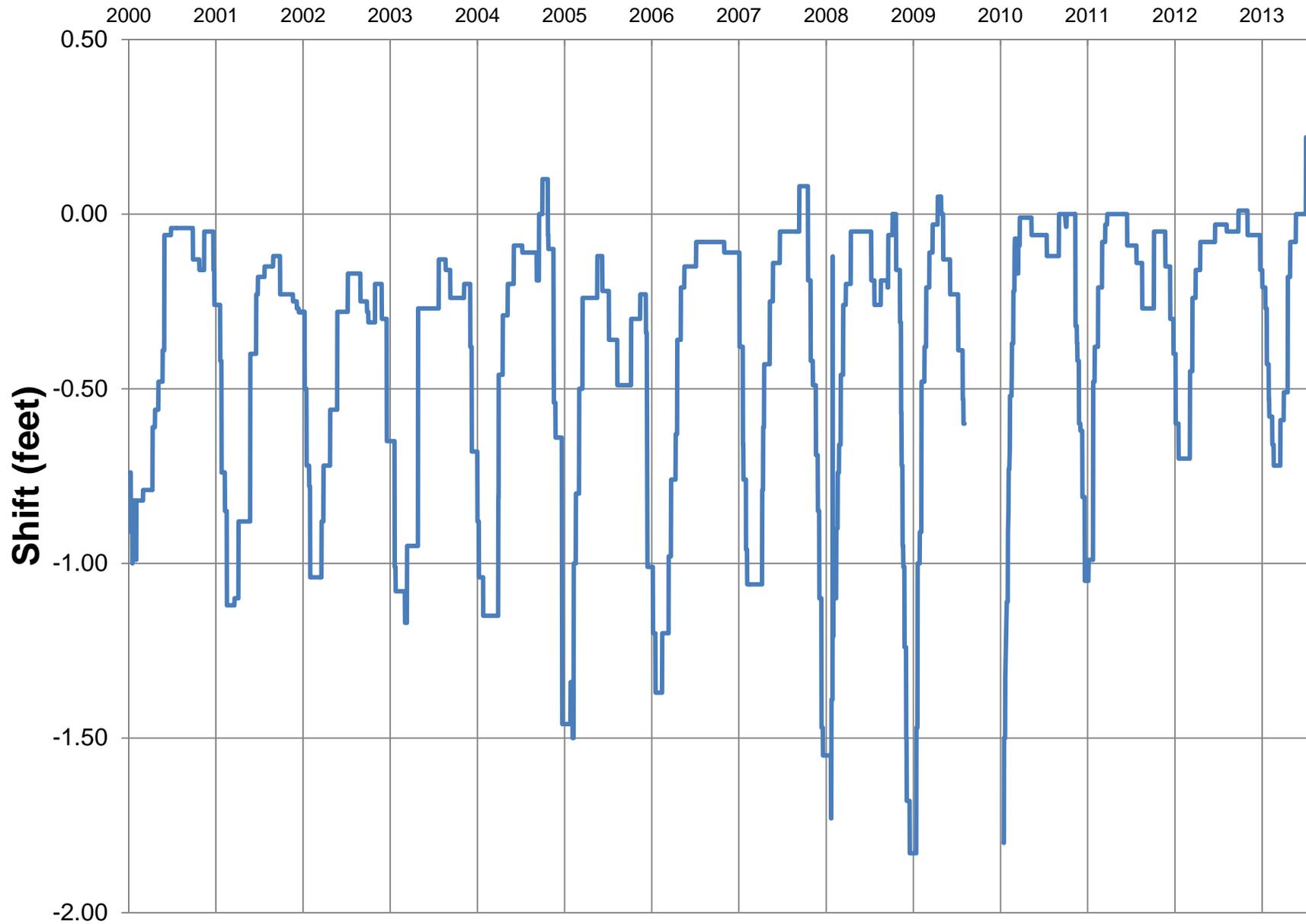
Recorder measures river stage, but flows derived from USGS table are in error because of variation in river channel characteristics.

Bank erosion creates higher flow.



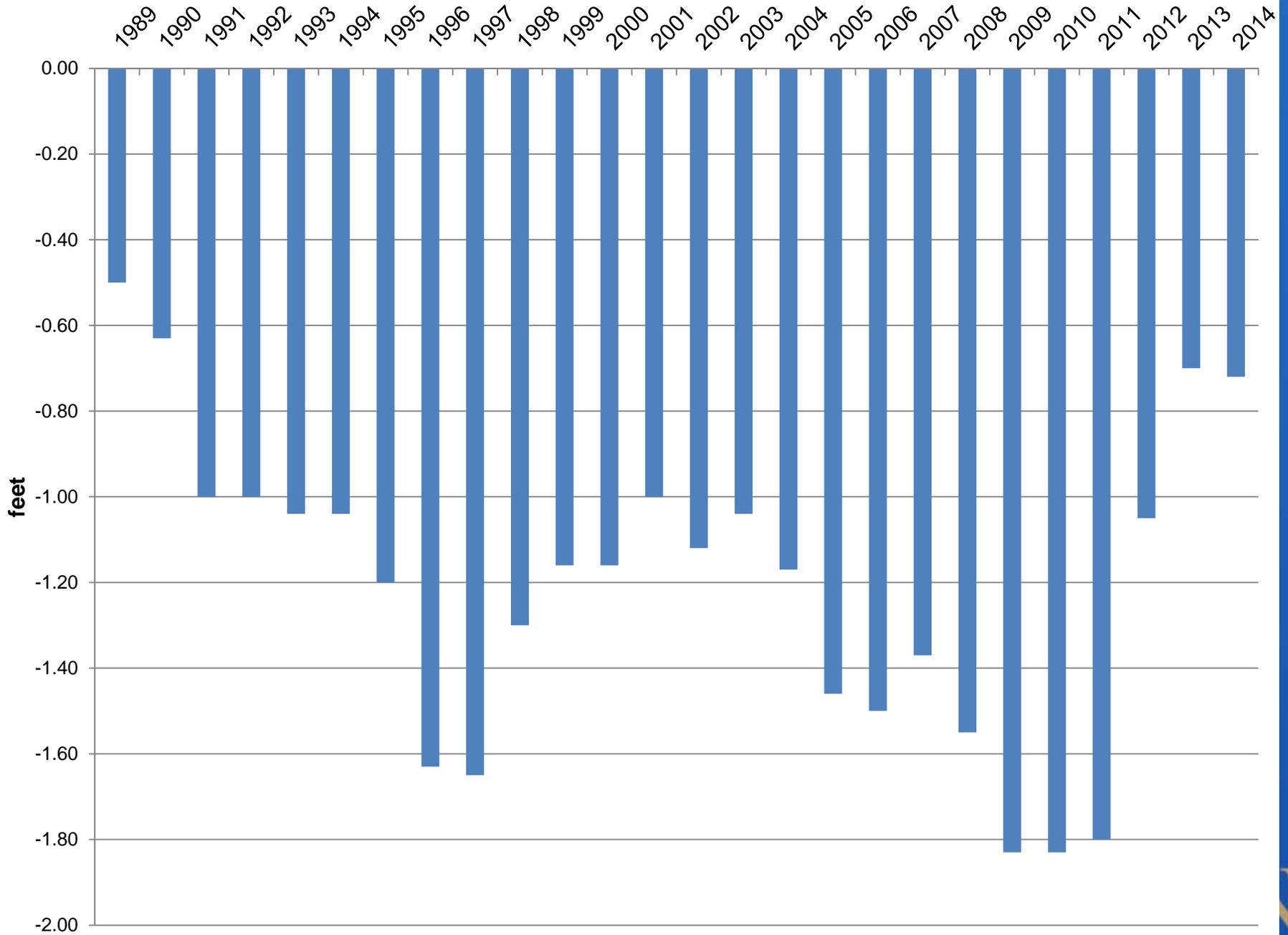
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River Gage Shift

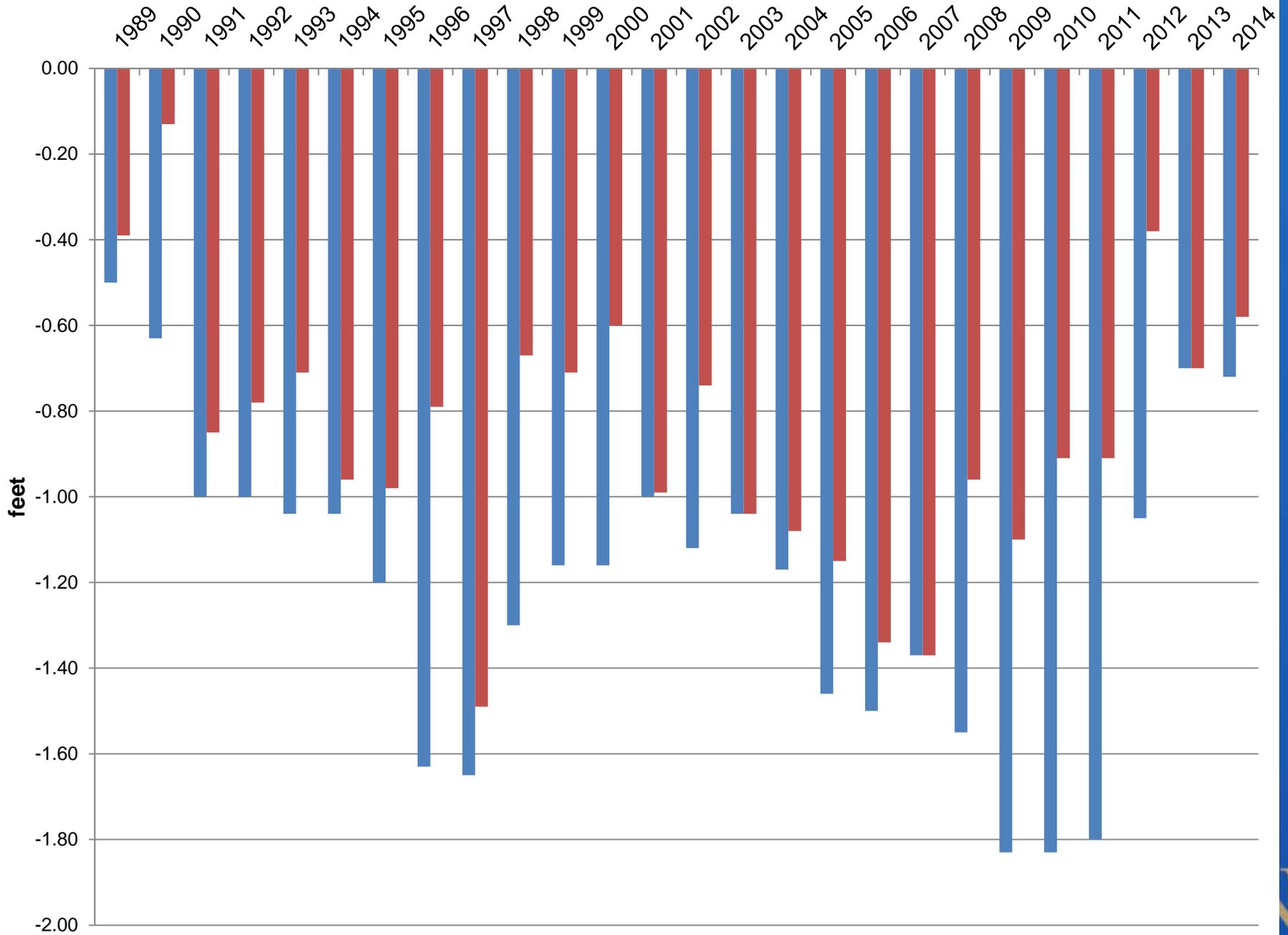


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Maximum Shift Each Year



Maximum Shift Each Year

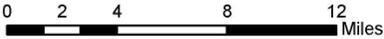




Bighorn Stage Measurement Sites



● Measurement Sites



Date	River Flow (cfs)	St Xavier Gage Shift (ft)	Approximate River Mile					
			1	3	6	11	15	20
August 6, 2009	3348	-0.16	2.32	2.29	1.53	1.30	1.70	1.29
September 16, 2009	3106	-1.68	3.68	2.80	1.82	1.50	1.70	1.39
September 24, 2009	2970	-1.83	3.64	2.80	1.80	1.55	1.75	1.38
Difference	378	-1.67	1.32	0.51	0.27	0.25	0.05	0.09

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Date	River Flow (cfs)	St Xavier Gage Shift (ft)	Approximate River Mile					
			1	3	6	13	15	20
August 20, 2010	2500	-1.19		2.55	1.39	1.81		1.47
Sept. 14, 2010	2500	-2.06		2.68	1.46	1.78		1.50
Sept. 23, 2010	2500	-2.10		2.69	1.46	1.76		1.43
Difference (Aug 20-Sep. 23)	0	-0.91		0.14	0.07	-0.05		-0.04

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Other Factors

- WAPA Power Marketing
- Gate Automation Project
- Crow Tribe Water Rights Settlement

Questions

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