Brighton Tailwater Water Quality Monitoring Results 2025

(Patuxent River Catch and Release Area)

Potomac-Patuxent Trout Unlimited (PPTU) 11/6/2025

Presenter: Bob Bokulic

Background

- PPTU is monitoring the Patuxent River tailwater (below Brighton Dam) to assess water quality for trout
 - Class IV water, catch & release, artificial flies only
- Goal is to have a fishery capable of supporting stocked trout year-round
 - Tailwater is stocked regularly by DNR in fall and/or early spring

- Dam is operated by WSSC for regional water supply
 - Hydroelectric function no longer used
- MDE limits are: Dissolved Oxygen (DO) ≥5 mg/L and water temp ≤ 75° F
- Discharge is the only parameter monitored by USGS (must be <u>></u> 7.5 cfs)

Monitoring Equipment

- Sensor was immersed downstream of Haviland Mill Bridge
- Data was downloaded weekly via Bluetooth connection from logger on river bank
- Acknowledgements:
 - PPTU water monitoring group included Jay Sheppard, Bob Bokulic, Ron Briggs, Jim Irons, Ron Kerrick, and Alan Williams
 - DNR Adam and Neal Eschleman assisted with sensor deployment and measurement verification
 - USGS Todd Lester suggested the PME wiper module to address silt buildup on the sensor



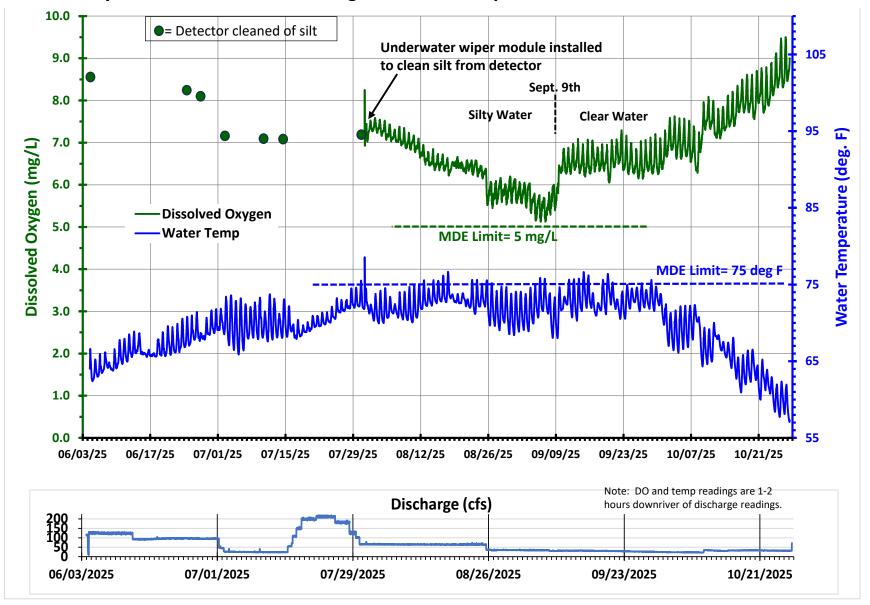
Onset/HOBO DO Sensor and Logger



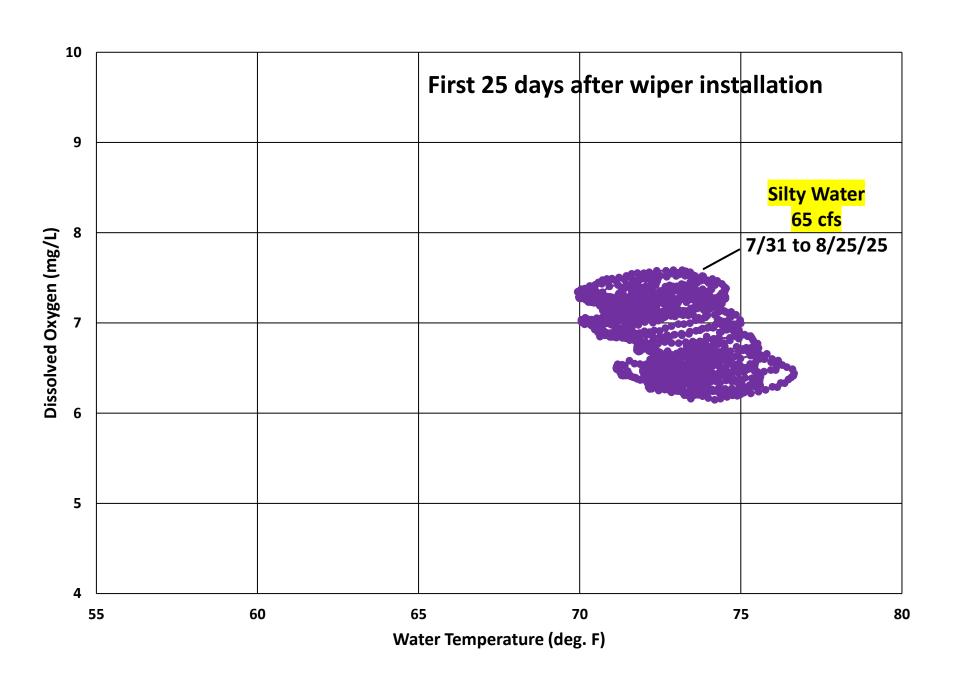
DO Sensor Integrated wi/ PME Wiper Module (cleaned off detector 4x/day)

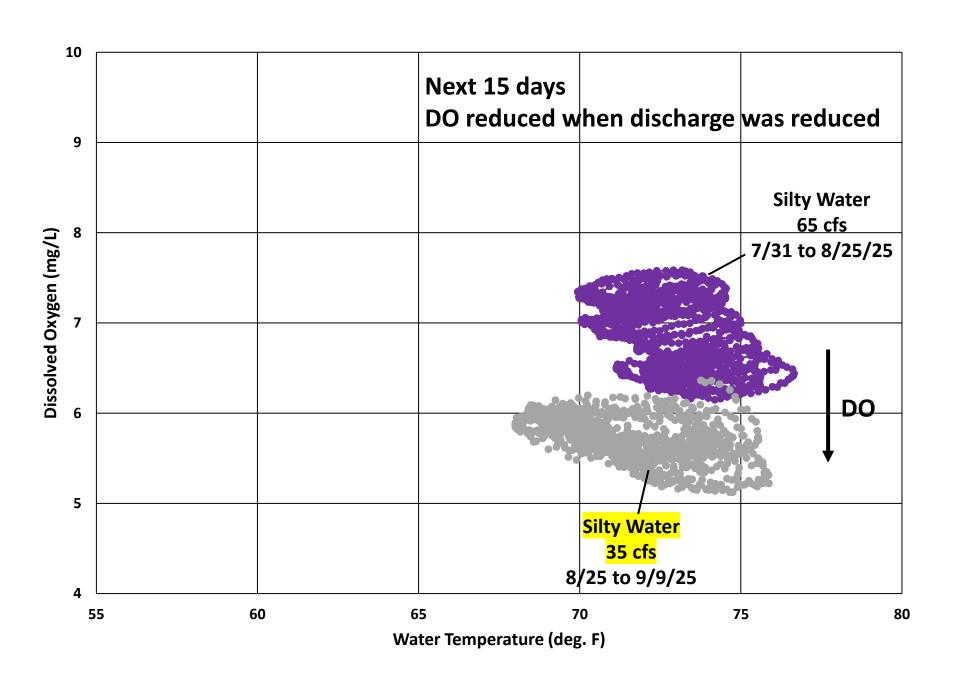
Monitoring Results- Jun to Oct 2025

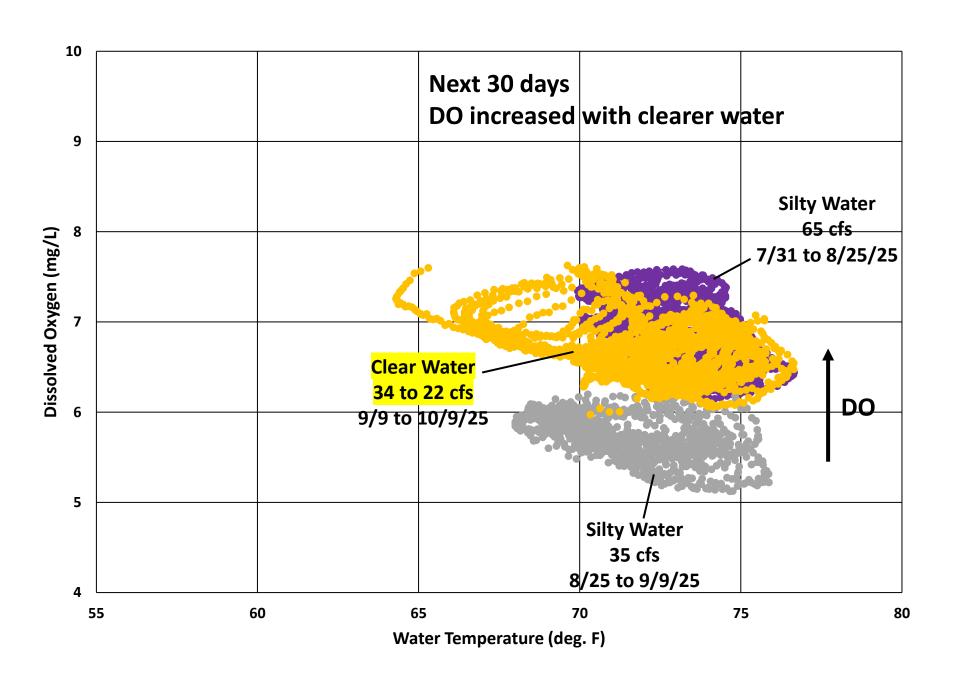
• Silt impeded DO measurements from mid-June until an underwater wiper was installed. Silt suddenly cleared in the water during the week of Sept. 9th.



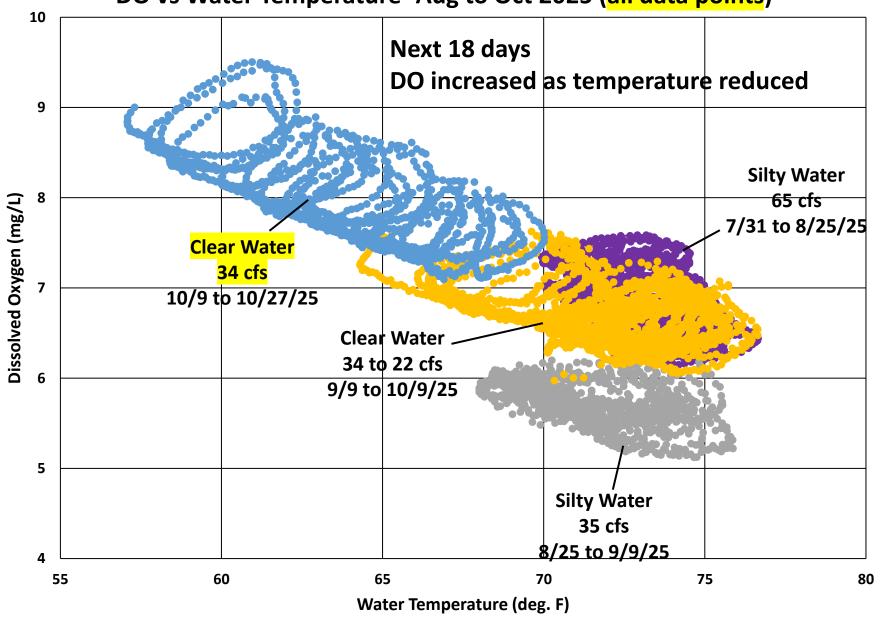
Insights



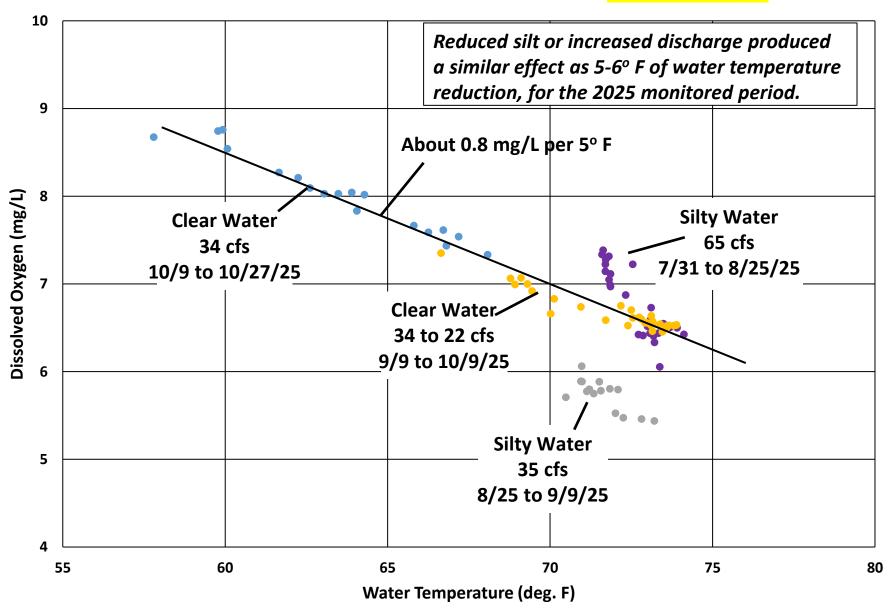


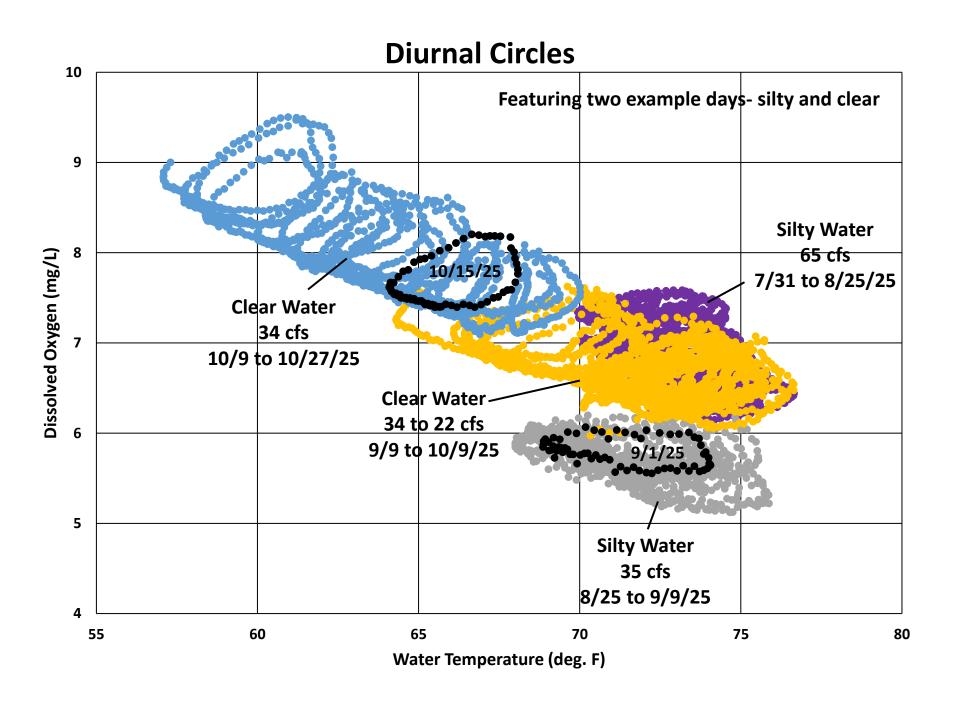


DO vs Water Temperature- Aug to Oct 2025 (all data points)

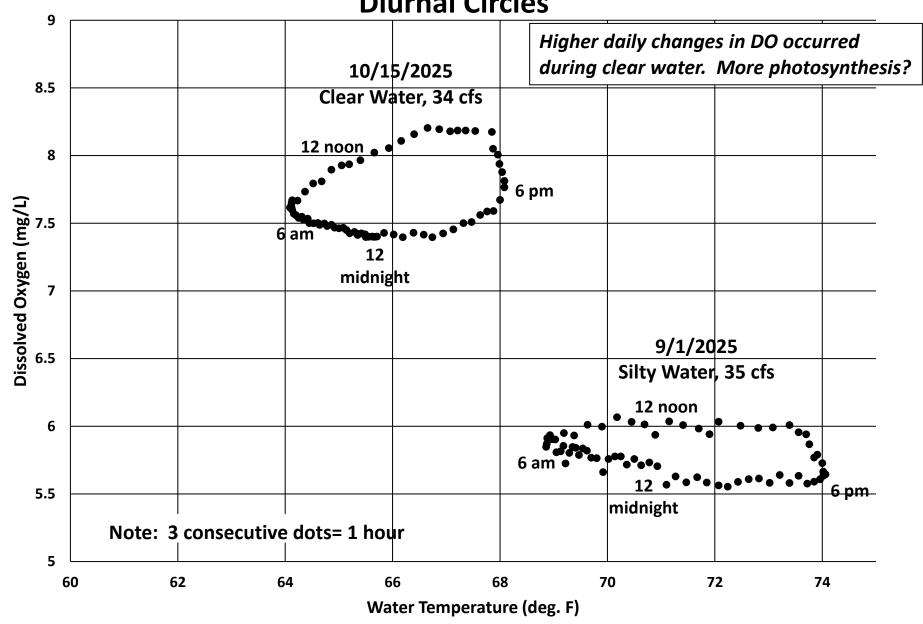


DO vs Water Temperature- Aug to Oct 2025 (Daily Averages)





Diurnal Circles



2025 Findings...and a Question

- Tailwater was in compliance with MDE requirements except short periods of >75° F water temperature
- Silt levels were high from mid-June to mid-Sept. Muddy looking water.
 - Visual observations indicated that silt came through the dam from the reservoir side
 - Excessive silt suppresses bug life, which the trout depend on
- Question: Can WSSC operate their intake gates and/or needle valves differently to reduce silt and extend colder water into early September?**
 - Reduced silt in tailwater
 - Operate intake gates to minimize water temperature in early Sept timeframe

Sensor Measurement Verification

	PPTU HOBO/Onset Sonde			DNR YSI Meter		
	DO	Water Temp.		DO	Water Temp.	
Date	(mg/L)	(deg F)	Time	(mg/L)	(deg F)	Time
6/4/2025	8.6	63.7	11 am	8.8	63.5	11 am
7/31/2025	7.2	72.9	11 am	7.2	73.1	10 am
10/23/2025	8.7	61.8	1 pm	8.9*	61.5*	1 pm
				* Made at Haviland Bridge		