## 319 NPS Program Project # 2015 Sponsor: Bucks County Conservation District

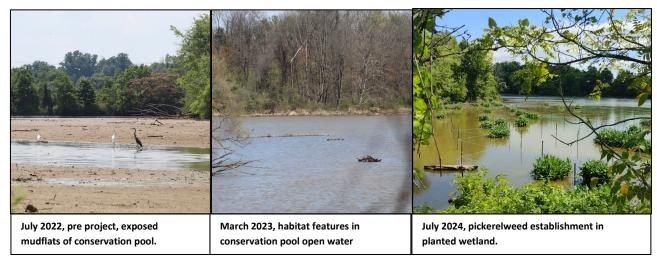
## Lake Luxembourg Regional Wetland Best Management Practice

Parameter	TMDL Target	Remaining Load Reduction PRE Project (2017)	Remaining Load Reduction POST Project
Annual Phosphorus Load (TP)	1,686 lbs./yr	688 lbs./yr	521 lbs./yr (31%)
Annual Total Suspended Solids Load (TSS)	427 tons/yr	372.3 tons/year	148.9 tons/yr (34.8%)

<u>PROJECT DESCRIPTION</u> The Core Creek - Lake Luxembourg sub-watershed restoration project was a significant environmental initiative focused on improving water quality and habitat. By removing 19,000 cubic yards of sediment from a 5.5-acre area, the project increased water depth by 1-4 feet and made progress towards the creation of a 7-acre emergent freshwater wetland. Approximately 36,000 wetland plant plugs were planted and protected from predation, and natural habitat structures were added to enhance ecological conditions. Project timeframe: 12/2021 – 03/2025.

<u>PROJECT GOALS</u> In hindsight, the projected environmental impact was too high expecting an annual reduction of 1,719 pounds of total phosphorus and 166 tons of total suspended solids. These estimates were based on a concept of a wetland-pool complex that was hydraulically incompatible and financially out of reach. In practice, over years of refinement, the project would create 7-acres of emergent wetland and enhance 5.5-acre of open water habitat.

<u>PROJECT RESULTS</u> Improvements bring the watershed closer to meeting Total Maximum Daily Load (TMDL) requirements, a meaningful step towards ecosystem restoration and water quality management. The project's 167 lbs./yr total phosphorus (TP) removal reduces the remaining reduction to reach the TMDL to 521 lbs./yr (31%). Given a post project reduction estimated at 223.4 tons/yr total suspended solids (TSS), future load reductions of 148.9 lbs./yr (34.8%) will satisfy the TMDL for TSS.



PROJECT COSTS \$575,838.95 (73%) spent of \$790,914.00 awarded, one of four sources funding \$1.65 million total project cost.

<u>LESSONS LEARNED</u> Climate variability and non-native invasive species present challenges difficult to plan for or mitigate.

**PARTNERS** Bucks County Parks and Recreation

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