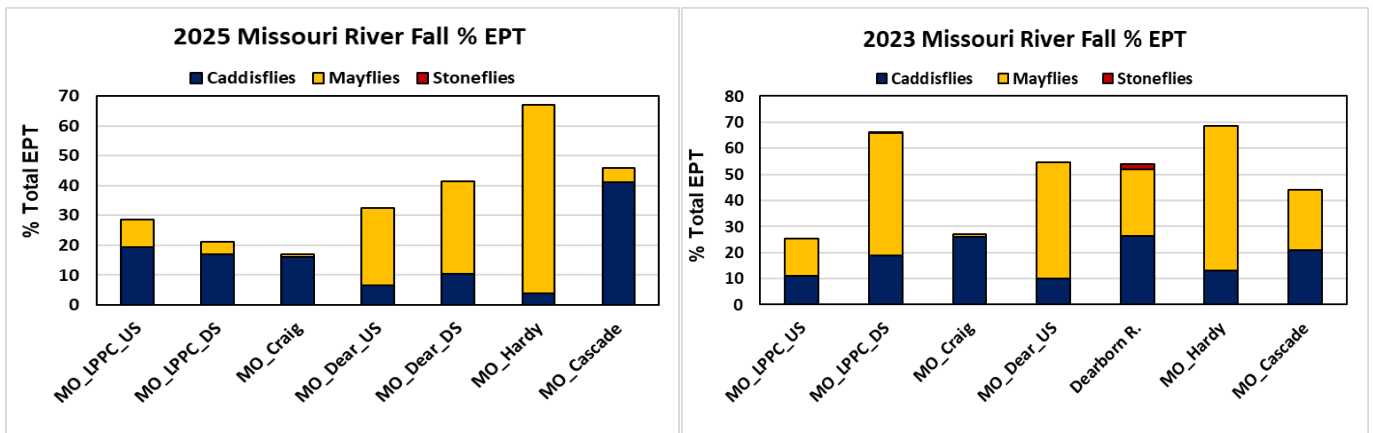


## Impact of Flushing Flows ‘or lack thereof’ on Macroinvertebrate Populations in the upper Missouri River Dave Stagliano, MT Biological Survey, Scientific Technical Advisor to UMOWA

After two consecutive years of unimpressive spring flushing flows on the Missouri River (averaging 6,300 cfs), we have documented a steady shift in the benthic macroinvertebrates (BMI) in the riffle habitats within 10 miles of Holter Dam. Between 2024 and 2025, the BMI community is beginning to shift back to a dominance of non-insects (aq. worms, snails, scuds and isopods) and midges. Even the introduced New Zealand Mudsnails (NZMS) are building up their densities in these habitats, averaging ~150 per square meter. As non-insects dominate space in the riffle cobbles, there is less habitat available for the mayflies, stoneflies and caddisflies (%EPT); insect hatches that most fisherman prefer. In terms of either total %EPT or mayflies, typically *Baetis tricaudatus* (Blue-Winged Olives, BWO’s), *Tricorythodes* (Tricos) or *Ephemereilla* (PMD’s), we can see that there are fewer in the upper 3 UMOWA monitoring sites in 2025 (avg. 22%) compared to 2023 (avg. 48%) (**Figure 1**).

**Figure 1.** Total %EPT of the BMI community in 2025 (left) and in 2023 (right). LPPC=Little Prickly Pear Creek, Dear=Dearborn River. Sites arranged US=upstream to DS=downstream



In contrast, substantial flushing flows in June of 2023 (~15,000 cfs) removed accumulated sediment and silt from the riverbed cobbles and provided more favorable conditions for the colonization and increased abundance of mayflies and caddisflies (**Figure 1**). Anglers experienced this in 2024 with more abundant PMD and Trico hatches. According to the Fall 2025 BMI data from the upper 3 sites, the outlook for Mayfly hatches for 2026 is not promising, Tricos, BWO’s and PMDs are very sparse in samples. There is potential for some notable hatches of BWOs, Tricos and PMDs from upstream of the Dearborn River downstream to Prewitt FAS. Tan Caddisfly hatches may be abundant in some of the lower reaches from Pelican Point to Cascade. With the current snowpack levels, it is unlikely that there’ll be a significant flushing flow in 2026, so this cycle continues.