Deadly Waters: A Survey of Pre-Spawn Mortality in Coho Salmon

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Salmon are a widely known species throughout the Pacific Northwest, once recognized for their vast populations. But they have experienced significant declines in abundance for several reasons, including pre-spawn mortality (PSM). PSM occurs when adult salmon die before they are able to spawn. Coho salmon within highly developed watersheds usually experience increased rates of PSM and are hit even harder due to their relatively high sensitivity of 6PPD-quinone. Yet little is known about this phenomenon within the Puyallup River watershed. Our research focused on determining how local Coho salmon were impacted by PSM within Swan Creek (Puyallup, WA). Weekly sampling started in early October and ended in mid-December and surveys were repeated annually from 2017-2025. This study included both carcass counts and live salmon counts in order to estimate escapement. It also involved dissecting carcasses to determine whether there were signs of PSM. 4.3% of female carcasses displayed signs of PSM in 2025, yielding an overall PSM rate of 12.3% (2017-2025). Annual escapement trends were highly variable, ranging from 0 to 151. Some mitigation strategies include the implementation of green stormwater infrastructure within urban settings, finding sustainable alternatives to 6PPD-quinone, and implementing education and awareness within public sectors about the impacts of stormwater runoff.