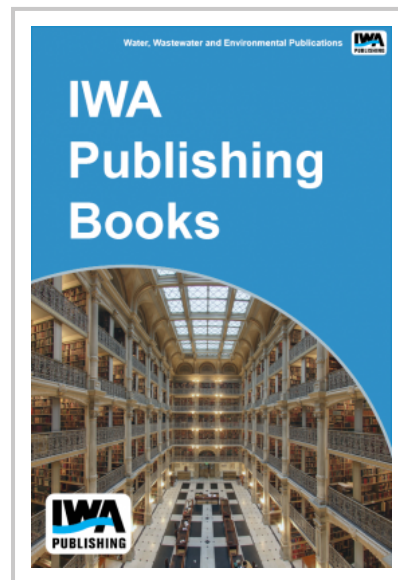


The Effect of Wet Weather Driven Dissolved Oxygen Sags on Fishes in Urban Systems

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Waters in urbanized areas often experience hypoxic events due to combined sewer overflows and urban runoff. Low dissolved oxygen is believed to negatively affect biota in the receiving waters, yet many urban areas have rich and diverse fish species assemblages. This study assesses the behavioral and physiological responses of urban fish to understand how they have adapted to hypoxia

Largemouth bass from the Chicago Area Waterway System (CAWS) were studied using field telemetry and laboratory experiments. Fish movement in relation to dissolved oxygen levels was tracked using acoustic transmitters and dissolved oxygen transmitters, pioneering a new technique with the latter. While there was a reduction in the number of largemouth bass during hypoxia, the fish did not depart the areas entirely. Some fish remained in hypoxic areas, while others maintained ranges at the periphery of hypoxic areas. Oxygen shock trials, field sampling and P_{crit} analyses of CAWS fish showed that the study fish were not in poor nutritional condition, they were not suffering from chronic stress, nor did they exhibit an enhanced (or reduced) tolerance to low dissolved oxygen when compared to fish in control populations. The study suggests a behavioral shift, reducing time in hypoxic zones, without apparent physiological costs/adjustments.



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