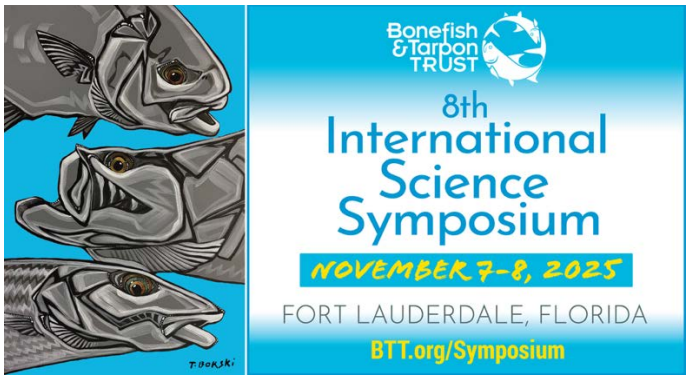


High-resolution identification of nutrient hot spots in large watersheds, using causal analysis methods

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Mitigating non-point sources of nutrient pollution is challenging because the pollution sources are spatially diffuse and because their effects on downstream ecosystems are complex, dynamic, and subject to time delays. This presentation introduces a novel empirical method for identifying nutrient hot spots in large watersheds at a high spatial resolution (2x2 km). Here, a hot spot is defined as an area of the watershed in which rainfall exerts a detectable causal influence on downstream water quality conditions over time. Identifying nutrient hot spots by quantifying their influence on downstream conditions can complement traditional approaches such as nutrient load estimation. For example, the causal analysis may identify hot spots that export small nutrient loads and yet exert a disproportionately large influence on downstream conditions, due to proximity/connectivity. Identification of hot spots can inform the development spatially targeted interventions to improve coastal water quality and, potentially, identify opportunities for synergies with other conservation goals such as wildlife corridors. Results from pilot studies in Florida will be presented.

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