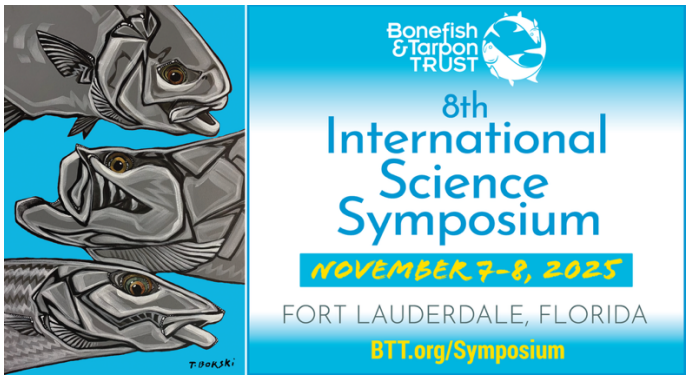


Mapping undiscovered bonefish spawning aggregation sites in the Florida Keys. Full life cycle-modeling, co-production and management actions.

Traditional approaches to manage fishing at Fish Spawning Aggregations (FSAs) generally focus on known FSAs that are experiencing overfishing or overfished. Protecting these fished FSAs can lead to conflicts between managers and fishers due to the loss of fishing access. And come with socially hard to accept decadal long lags between management actions and improvements to adjacent fishery resources. Instead, identifying and protecting unfished aggregations should not directly impact fishers through loss of access to productive areas thus enabling protection with less conflict. The Florida Keys Bonefish fishery is now experiencing a phenomenal recovery following an economic fishery collapse in 2010. The demography of the fishery now indicates that populations should be forming exploitable aggregations again. Here, our objective is to discover Florida Keys bonefish FSAs (otherwise referred to as Pre-spawning Aggregations) and assess needs for proactive conservation strategies to protect them. Using multiple methods that include local ecological knowledge, novel acoustic telemetry technology, and visual surveillance, we discovered one bonefish FSA in the Upper Keys. Through this discovery, we documented the time, depth and location of spawning, mapped the space use of the FSA across two spawning seasons, habitat characteristics at the FSA site, and modelled the larval local retention during one spawning event. Last, we contrast the Upper Keys FSA spatial temporal characteristics with another Florida Keys Bonefish FSA in Key West, and implications for prioritizing spatial management.