

IDENTIFYING FRESHWATER INFLOW NEEDS FOR ESTUARINE FISHES: A STATEWIDE PERSPECTIVE

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One of the most important challenges facing estuarine scientists and managers is to determine the necessary magnitude and timing of freshwater delivery to the estuary while maintaining sufficient supply for human populations. The Florida Fish and Wildlife Conservation Commission has been conducting research to aid the state's water management districts in the establishment of minimum flows and levels for Florida's rivers. Electrofishing, fisheries-independent monitoring (i.e., seining), acoustic telemetry, and biological metrics (e.g., condition, growth) are being used to determine how estuarine fishes respond to changes in freshwater inflow. Through this research, benchmarks have been provided on the duration of floodplain inundation needed to improve the condition of marine fish using large river systems (e.g., common snook), habitat requirements have been identified for species indicative of oligohaline conditions (e.g., opossum pipefish, fat snook, sleepers), and species distributions have been modeled along salinity gradients that reach the open estuary (e.g., red drum). Further, freshwater-inflow related research has helped to designate critical habitat for an endangered species (i.e., smalltooth sawfish), determine the area of thermal refuge needed to support overwintering subtropical species in northern Florida (e.g., common snook, gray snapper), and assess species responses to drought conditions and storm-induced inflow events in southern Florida (e.g., spotted seatrout, goliath grouper). In addition to providing information useful for establishing freshwater-inflow law, this work is also informing habitat conservation and restoration initiatives.

PRESENTER BIO: Dr. Stevens is an estuarine fish ecologist with more than 25 years of experience most of which has occurred at Florida's fish and wildlife agency. He specializes in fish biology, fisheries-independent monitoring, fish movements, and habitat restoration.