

THE 2015 STOCK ASSESSMENT OF FLORIDA COMMON SNOOK

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Common Snook (*Centropomus undecimalis*) is one of Florida's most popular recreational fisheries. Populations from the Atlantic and gulf coasts have different life history patterns and are genetically isolated from one another. For example, nearly all Common Snook from the gulf coast inhabit a single estuary for their entire lives, while most Atlantic Common Snook stray or emigrate much greater distances. Due to these differences, the Atlantic and gulf coast populations of Common Snook are managed and assessed separately.

The snook species that occur in Florida are located at the northern extent of their geographical distribution and snook can experience thermal stress when water temperatures decline in the winter months. Prolonged cold conditions in January 2010 produced many reports of snook cold-kills. Responding to the fish kill, the Commission closed the fishery statewide in January 2010; they reopened the fishery on the Atlantic coast in September 2010 while keeping the fishery on the gulf coast closed until September 2013. The 2013 assessment primarily examined how snook on each coast responded after 2010 but only included data from the 2013 fall open season on the gulf coast. The new 2015 assessment includes another 12 months of data, i.e., through 2014.

Catch rates from monitoring programs across the state were useful for documenting the effects of the 2010 cold event and the recoveries of the populations. Data from the FWRI Fishery Independent Monitoring program (183-m haul seines), the federal Marine Recreational Information Program (angler survey), and the Everglades National Park creel survey agreed well. On the Atlantic coast, effects of the cold event on Common Snook were relatively minor, especially for larger size classes of fish (>24 inches) in the southern portion of the Indian River Lagoon where the population is centered. On the gulf coast, catch rates in each estuary declined sharply in 2010. Catch rates in the Gulf generally returned to pre-cold event levels by 2013. The relatively rapid recovery demonstrates that the high management targets appear to be sufficient for allowing population resilience to cold events or other environmental disturbances. This is especially important for species such as Common Snook that are at the northern limit of their range (high likelihood of cold events) and are also at risk for encountering red tide and the effects of tropical cyclones.

The Commission's management objective for Common Snook is to maintain the spawning potential ratio (SPR) at or above 40%. SPR is the spawning productivity of the stock compared to what it would be if there were no fishing. However, because SPR was devised to evaluate the effect of fishing mortality on a stock, natural mortality events, such as red tides or cold kills are not accounted for in SPR model results. Therefore, results of this assessment are being presented both in terms of SPR as well as the equivalent spawning stock biomass (SSB). For the 'base' model the transitional SPR (tSPR) values in 2014 approached the Commission's objective on the Atlantic coast (39%) and exceeded the objective on the gulf coast (61%). However, results from a model

that incorporates the impact of environmental events (red tides and cold kills) indicate that in 2014, SSB in the Gulf was 90% of the SSB expected at the Commission's management goal of 40% SPR. For the Atlantic stock, SSB in 2014 was at 60% of the SSB expected at the 40% SPR management goal. In other words, the adult stocks of snook on both coasts are rebuilding to achieve the management goal. The pace at which these stocks are rebuilt can be affected by fishing mortality, natural mortality (including cold kills and red tide kills), and recruitment which can be affected by habitat quality. The bottom line is that the current rates of fishing mortality, which are relatively low compared to other exploited fish species in Florida, should allow the stocks to continue to build.