

Eden R. Garcia. AGE AND GROWTH OF YELLOWTAIL SNAPPER, *Ocyurus chrysurus*, COLLECTED FROM THE SOUTHEASTERN UNITED STATES. (Under the direction of Roger A. Rulifson) Department of Biology, July 2000.

This study was conducted to provide an updated comprehensive set of life history information on yellowtail snapper (*Ocyurus chrysurus*) for Atlantic coastal waters of the South Florida region. This species is targeted by both commercial and recreational headboat fisheries. A total of 1,748 yellowtail snapper otoliths were collected by NMFS port agents from both fisheries: 1,500 from 1994 through 1999, and 248 in 2000 from Daytona Beach through Key West and the Dry Tortugas. The oldest yellowtail snapper caught was 11 years old and 516 mm FL. Marginal increment analysis revealed the rings to be true annuli. The weight-length relationship was described by the equation: $W = 1.68 \times 10^{-7}(L)^{2.625}$, where W = weight (kg) and L = fork length (mm). The length-otolith radius relationship was best described by the equation: $L = 20.28 + 2236.09(R_C)$, where L = fork length (mm) and R_C = otolith radius (mm). Theoretical growth was best described by the Von Bertalanffy growth equation: $L_t = 410(1 - e^{-0.210(t+2.37)})$, where L is FL (mm), and $L_t = 517(1 - e^{-0.211(t+2.07)})$, where L is TL (mm). The instantaneous total mortality rate (Z) for all years of collection (1994 – 1999) was 0.33 ($n = 1,473$) for yellowtail snapper of ages 2-11. Male yellowtail snappers have a lower instantaneous total mortality rate ($Z = 0.40$; $n = 290$) than female ($Z = 0.53$; $n = 224$) yellowtail snappers. Overall, the modal age at which yellowtail snapper appear to be recruited into the fishery was age 2. Age-class structures appear to be similar within fishery and area of collection. Yellowtail snapper from South Florida have a greater rate of growth than Caribbean populations. Recommendations for management include characterizing the operations of

both fisheries, implementing gear restrictions to reduce harvest of undersized fish, standardizing data collection among areas, and modeling the fisheries based on the results of this study.