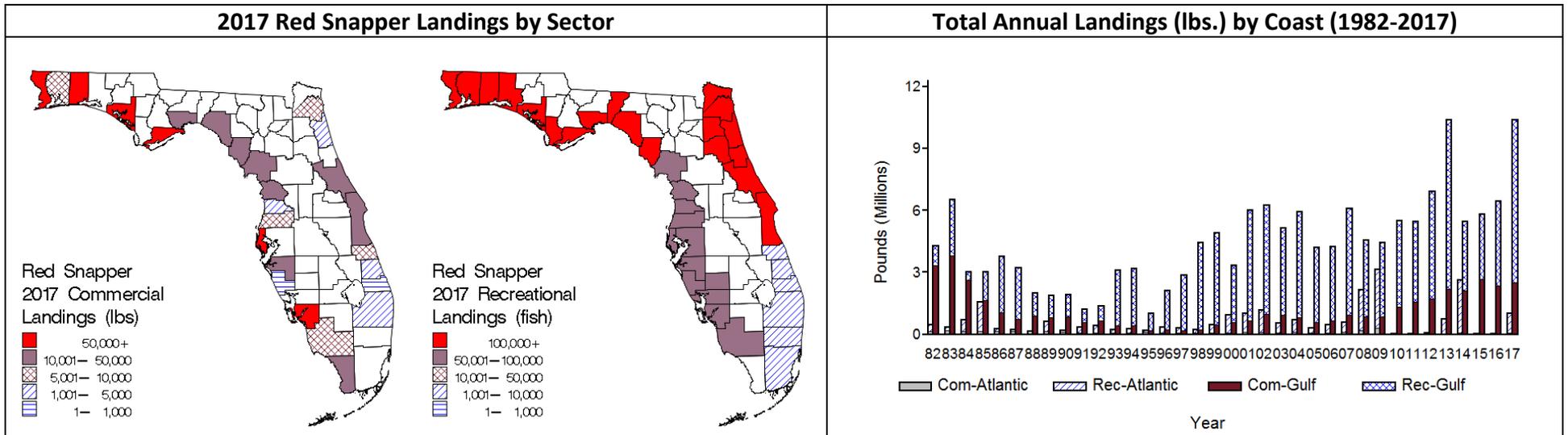


Red Snapper, *Lutjanus campechanus* (Poey, 1860)



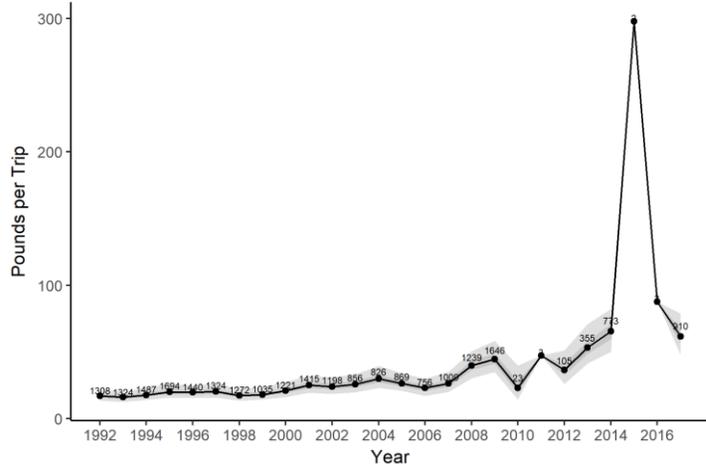
Life History

Red snapper are distributed throughout the Gulf of Mexico and up the U.S. Atlantic coast to North Carolina and, although rarely, to Massachusetts. Gold *et al.* (1997), Camper *et al.* (1993), and Heist and Gold (2000) provide genetic evidence that support the hypothesis of a single red snapper stock in the northern Gulf of Mexico. Spawning peaks in June and July over most of its range but occurs from April through January (Bradley and Bryan 1975). Red snapper appear to move away from reef structure when spawning. Wilson *et al.* (1994, cited by Goodyear 1995b) found that red snapper first matured between 10.2 inches and 13.8 inches total length (TL); of the fish in their sample, 50% matured by 11.8 inches. Goodyear (1995b) found little evidence for strong sexual dimorphism. Early growth of red snapper appears to be similar for both otolith-determined ages and scale-determined ages. Sizes at age were about 5.7–6.9 inches TL at age 1, 10.5–11.7 inches at age 2, reaching about 27.0 inches by age 7 (Nelson and Manooch 1982). An analysis of otolith-section-based ages gave smaller sizes at age after age 2 in the U.S. South Atlantic waters (Manooch and Potts 1997c). Maximum ages for Gulf of Mexico red snapper differed substantially between the two aging techniques: scale-determined maximum ages were about 16 years; whereas, the maximum otolith-determined age was 54 years (Wilson and Nieland 1997). Similarly, a recent study in the south Atlantic found that otolith methods using both observed lengths with fractional age and back-calculated lengths to the last annulus resulted in a maximum age of 54 years (McInerney 2007). The types of prey that contributed the greatest percentage by volume to the diet of juvenile red snappers were squid, octopuses, and shrimp (Bradley and Bryan 1975). The following fish species were among those most often found in the red snapper diet: Gulf pipefish, shoal flounder, puffer family, striped mullet, sea robin family, rough scad, butterfish family, sand perch, and clupeids.

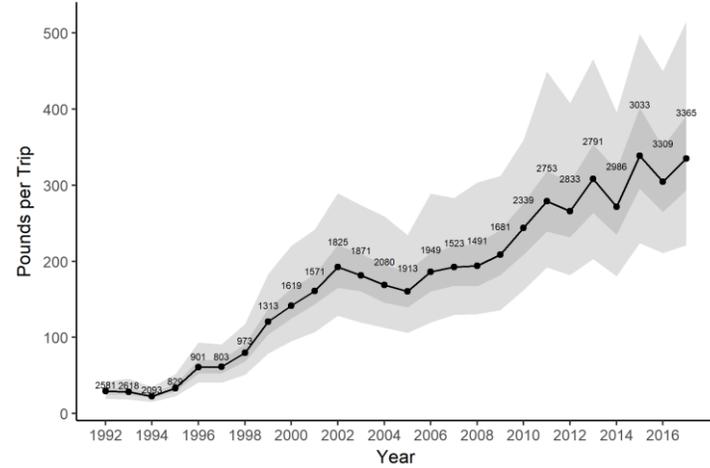


Fishers landed 11,420,199 pounds in 2017 which were 48.5% higher than the previous 5-year average (2012–2016). Coast wide, 91% of these were from the Gulf and 9% were from the Atlantic. Recreational landings constituted 77.3% of the total landings.

Atlantic Coast

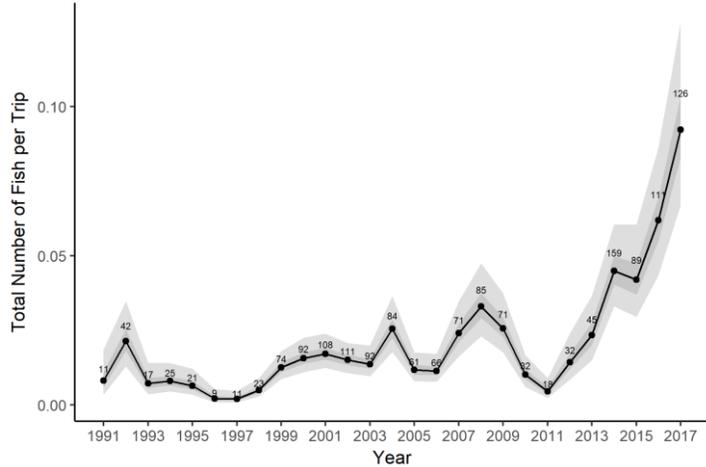


Gulf Coast

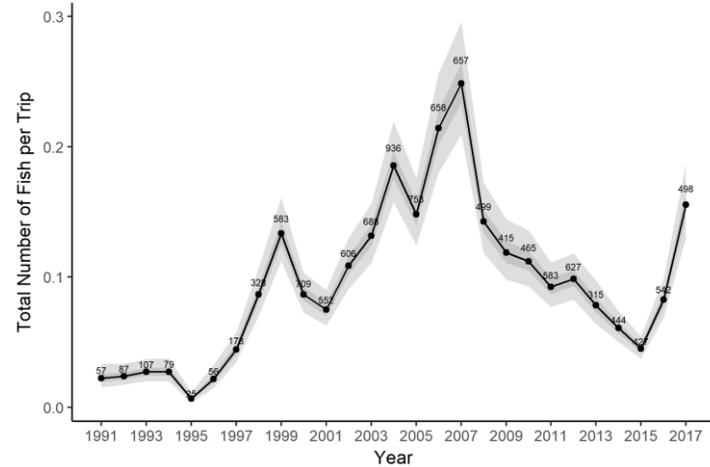


Standardized Commercial Catch Rates: Standardized commercial landings rates have generally increased since at least 1992 on the Atlantic coast until 2009, and show recent drops in 2010-2011 due to regulations followed by an exceptionally large peak in 2015. On the Gulf coast, landing rates have increased more dramatically from 1996-2002, slowly declined through 2005, and increased again in 2006-2017. Dark grey ribbons represent first and third quartiles while the light grey ribbons represent the 2.5% – 97.5% quantiles.

Atlantic Coast



Gulf Coast



Standardized Recreational Total Catch Rates: The total catch rates for the Atlantic coast recreational fishery show highs in 2000, 2008, and 2014-2017 and lows in 1991, 1997, 2005-2006, and 2010-2011. Gulf coast recreational catch rates were stable from 1991-1995 displayed steep increases from 1996-1999 remained high and fluctuated through 2007, decreased through 2015 but have recently increased. Dark grey ribbons represent first and third quartiles while the light grey ribbons represent the 2.5% – 97.5% quantiles.

Stock Status

Current Condition: Atlantic – overfished and undergoing overfishing; Gulf of Mexico – overfished but not experiencing overfishing

Management History: Along the U.S. South Atlantic coast, the red snapper stock was judged in a “transitional” stage (Manooch *et al.* 1998) during the period 1992–1995; static SPRs ranged from 0.11 to 0.32. These authors pointed out the need to increase minimum size limits or reduce fishing mortality to bring this species into compliance. The South Atlantic Fishery Management Council’s Snapper-Grouper Assessment Group supported the findings that the spawning biomass of red snapper was well below the spawning stock at MSY ($B_{2003}/B_{MSY} = 0.29$) in 2003. A 2008 benchmark assessment of South Atlantic red snapper concluded that the stock is overfished and is undergoing overfishing (SEDAR 15 2008a). The spawning biomass has decreased further below the spawning stock at MSY ($B_{2006}/B_{MSY} = 0.025$) and overfishing has been occurring through 2006 (SEDAR 15 2008a). In addition, the 2006 level of fishing mortality (F) was greater than seven times that at F_{MSY} ($F_{2006}/F_{MSY} = 7.513$). Estimates from another stock assessment indicate that the U.S. southeast stock of red snapper continued to be overfished and was undergoing overfishing in 2009 (SEDAR 24 2010). Stock status in 2009 was estimated to be $SSB_{2009}/MSST = 0.09$ and fishing mortality was estimated to be $F_{2007-2009}/F_{MSY} = 4.12$. Age structure estimated by the base run showed fewer older fish than the age structure expected at MSY (SEDAR 24 2010). To implement long-term management measures to end overfishing of the red snapper Atlantic stock, total prohibition of south Atlantic red snapper harvest began in December 2010 (SAFMC 2010). The most recent stock assessment of South Atlantic Red Snapper (SEDAR 41 2016) indicated that the stock has not yet recovered to $SSB_{F30\%}$ in 2012, and the estimated abundance at age showed fewer older fish through most of the assessment period, but with some signs of increase during the last decade. The estimated time series of $F/F_{30\%}$ suggests that overfishing has occurred throughout most of the assessment period, and that the stock is still currently experiencing overfishing (SEDAR 41 2017).

Past assessments conducted for the Gulf of Mexico stock, with regard to common biology-based benchmarks to overfishing, have concluded that red snapper in the Gulf of Mexico were grossly overfished through 2003 (Goodyear 1995b, Schirripa and Legault 1997, 1999, SEDAR 07 2005). In general, estimates of spawning potential ratio (SPR) were less than 5% (Goodyear 1995, Schirripa and Legault 1999, SEDAR 07 2005). In 2013, another stock assessment for the Gulf of Mexico Red Snapper stock used the Stock Synthesis (SS3) model (SEDAR 31 2013). The review panel determined it could neither accept nor reject the assessment findings and could not determine stock status in relation to reference points due to the absence of an acceptable quantitative stock assessment. However, base model and sensitivity results suggested the Gulf of Mexico red snapper stock remained overfished but not experiencing overfishing. The assessment was updated in 2014 with similar results showing a recovering, but still overfished stock, not experiencing overfishing (SEDAR 31 Update 2014). The most recent standard assessment was completed in 2018 (SEDAR 52 2018) and indicated that the Gulf of Mexico red snapper stock is recovering. Based on current definitions of MSST and MFMT, the stock is not overfished and there is no overfishing occurring ($SSB_{2016} / MSST_{NEW} = 1.41$; $F_{CURRENT} / MFMT = 0.823$). However, an important caveat to this result is that under the previous definition of MSST, the red snapper resource would still be considered overfished ($SSB_{2016} / MSST_{OLD} = 0.77$).