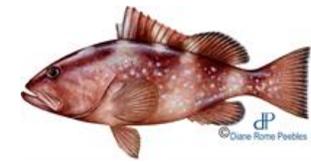
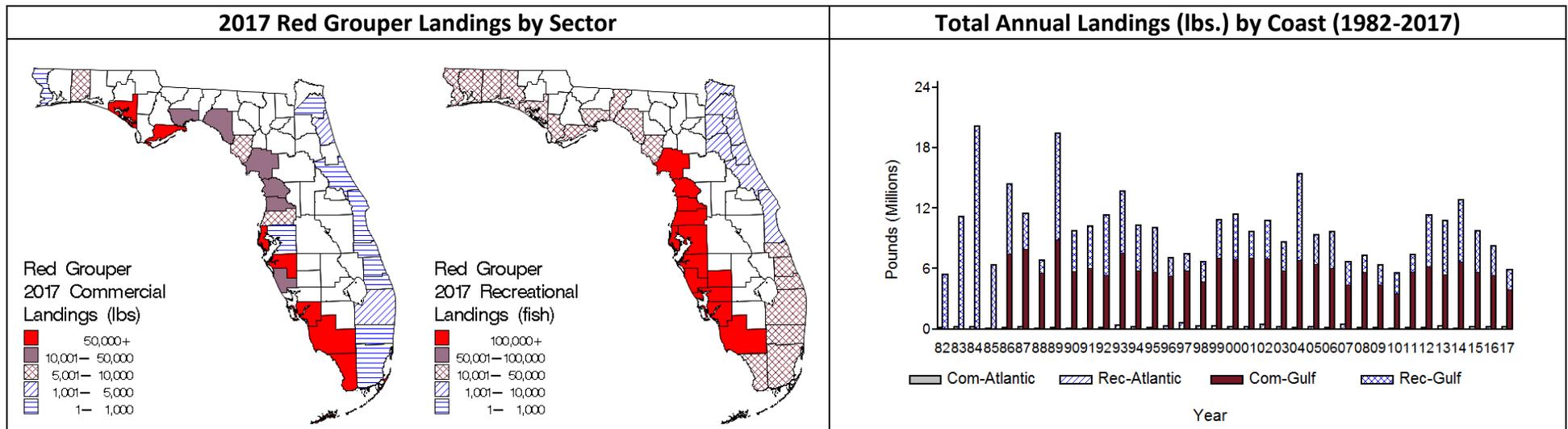


Red Grouper, *Epinephelus morio* (Valenciennes, 1828)



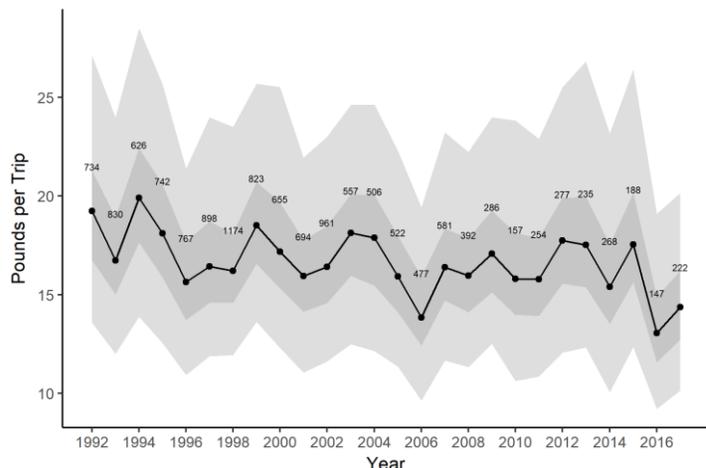
Life History

Red Grouper, which occur from Massachusetts to Brazil, are especially abundant in the Gulf of Mexico and on the Yucatan peninsula shelf (Bullock and Smith 1991). No population-level genetic differences have been found between eastern Gulf of Mexico and southern Gulf of Mexico Red Grouper; this may be due to historic bottlenecks in population abundance that have helped maintain the most common genotypes (Richardson and Gold 1997). In southwest Florida, smaller Red Grouper reside on shallow water reefs (10–59 feet deep) and move to depths greater than 118 feet after they mature. Red Grouper are mature at about 15.7 inches standard length (SL) and age 5 (Bullock and Smith 1991). Peak spawning occurs in late spring, during March and May, but spawning may occur during the period January–June (Johnson *et al.* 1998). Recent evidence suggests that Red Grouper are indeterminate batch spawners (Johnson *et al.* 1998; Collins *et al.* 2002). Red Grouper are monandric protogynous hermaphrodites; all fish begin life as females, mature at about 17–21 inches TL when ages 4–6, and then transition to males, between ages 7 and 14, after reaching at least 23 inches (Moe 1969; Brule *et al.* 1999). Maximum age has been indicated to be at least 20 years in the South Atlantic (McGovern *et al.* 2002). Red Grouper in the male stage are generally older and larger than Red Grouper in the female stage. A variety of shrimp and amphipods made up the diet of several juvenile Red Grouper (0.6–1.0 inches TL) collected from Tampa Bay (Bullock and Smith 1991). The diet of adult Red Grouper included many small fish species, crab, shrimp, octopus, squid, scyllarids, and panulirids (Moe 1969).

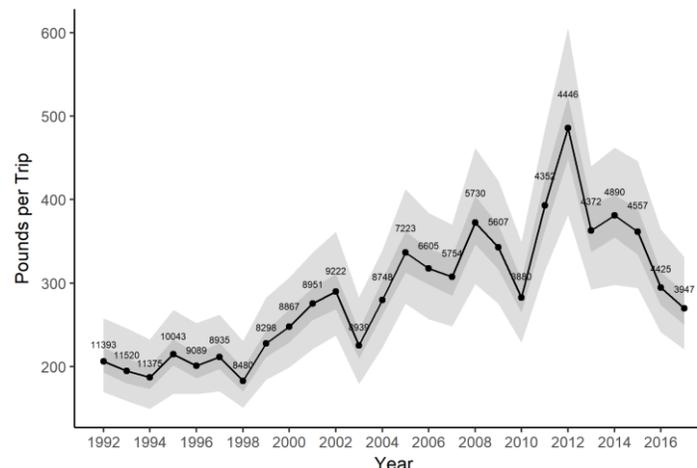


Fishers landed 6,058,066 pounds in 2017 which were 43.5% lower than the previous 5-year average (2012-2016). Coastwide, 96.6% of these were from the Gulf and 3.4% were from the Atlantic. Commercial landings constituted 64.8% of the total landings while recreational landings constituted 35.2%.

Atlantic Coast

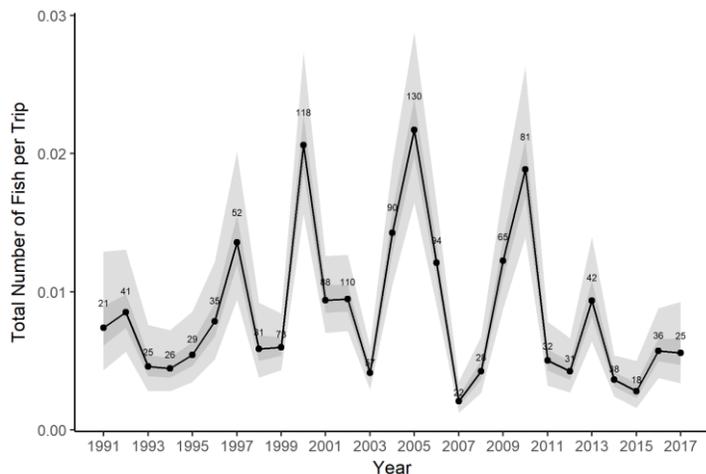


Gulf Coast

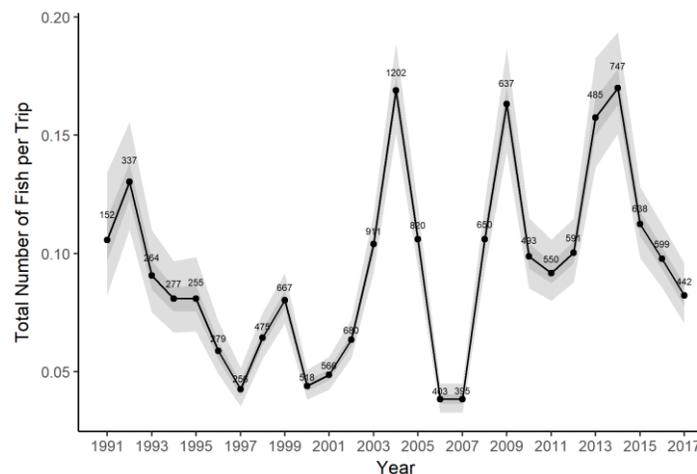


Standardized Commercial Catch Rates: Atlantic coast commercial catch rates have remained stable since 1992. Gulf coast commercial landings rates were steady through 1998, then increased through 2012, and have since decreased through 2017. Dark grey figure lines represent first and third quartiles while the light grey lines represent the 2.5% – 97.5% quantiles.

Atlantic Coast



Gulf Coast



Standardized Recreational Total Catch Rates: Total catch rates for recreational anglers on the Atlantic coast have fluctuated considerably with peaks in 1997, 2000, 2005, and 2010, and lows in 1993-1994, 2003, 2007, 2012, and 2014-2015. On the Gulf, total catch rates have shown decreases from 1992-1997, an increasing trend from 1998-2004, sharp decline from 2005-2007, and have increased to a greater level of variable catch from 2008-2017. Dark grey figure lines represent first and third quartiles while the light grey lines represent the 2.5% – 97.5% quantiles.

Stock Status

Current Condition: south Atlantic –overfished and undergoing overfishing; Gulf of Mexico – not overfished nor undergoing overfishing

Management History: The spawning biomass of South Atlantic Red Grouper has remained below MSST throughout the time series since the fishery was given an overfished status in 1976. The recent formal assessment of South Atlantic Red Grouper (SEDAR 53 2017) indicated that the spawning stock declined until the late 1980s, then increased until the mid-2000s, and has decreased since. The terminal (2015) base-run estimate of spawning stock was below the MSST ($SSB_{2015}/MSST = 0.38$), indicating that the stock is currently overfished. The estimated fishing rate has exceeded MFMT (represented by FMSY) for the entire assessment period. The terminal estimate, which is based on a three-year geometric mean, is above FMSY in the case of the base run ($F_{2013-2015}/FMSY = 1.54$). Thus, the assessment indicated that the stock is overfished and is experiencing overfishing.

The most recent Gulf of Mexico Red Grouper assessment determined that the stock was overfished between 1986 and 1996 and was not overfished between 1997 and 2013 (SEDAR 42 2015). This assessment also indicated that Red Grouper experienced overfishing between 1986 and 1995 and did not experience overfishing between 1996 and 2013, except for 2000 and 2005. A standard assessment for Gulf of Mexico Red Grouper is currently underway (SEDAR 61).

While abundance of Red Grouper has been substantially reduced by fishing pressure, particularly in the southeastern U.S., the sex ratio of the population has not changed significantly since 1975 (Coleman *et al.* 1996). Unlike Gag, Red Grouper do not form spawning aggregations and do not appear to be as vulnerable to fishery-induced changes in the population sex ratio. Goodyear (1996b) raised concerns about the use of a high minimum size limit (20" TL) on a fish that displays significant variation in growth, suggesting that the harvest of faster growing Red Grouper may select for the heritable trait for slow growth. Current regulations on anglers along both coasts of Florida and into federal waters include a 20" TL minimum-size limit and a bag limit (one fish on gulf coast) as part of the five grouper aggregate limit.

