

Triggerfishes, Balistidae



Gray triggerfish, *Balistes capriscus*

Triggerfishes are open water or structure-associated fishes with an enlarged first dorsal spine that can be locked in the upright position. The gray triggerfish, *Balistes capriscus*, supports important fisheries in Florida, as, to a lesser extent, does the queen triggerfish, *Balistes vetula*. Gray triggerfish are found in tropical and temperate waters of the Atlantic Ocean. In the western Atlantic, they range from Massachusetts south to Brazil. Spawning occurs during the summer months. Females deposit demersal eggs and may guard their nests. Females get larger and live longer than males (Manooch 1984). Overall, growth is to 8.9–11.7 inches fork length (FL) at age 2; triggerfish grow as large as 17.6–22.0 inches by age 10 (Table 1; Johnson and Saloman 1984; Hood and Johnson 1997).

Table 1. Von Bertalanffy growth parameters and length-weight relations for triggerfish

Inches FL = $L_{\infty} (1 - e^{-K(\text{age} - t_0)})$	K	L_{∞} (inches FL)	t_0 (years)	Source
Males, northeast Gulf of Mexico	0.38	19.3	0.23	Johnson and Saloman (1984)
Females, northeast Gulf of Mexico	0.38	17.2	0.15	Johnson and Saloman (1984)
Sexes combined, eastern Gulf of Mexico	0.156	26.1	-1.8	Hood and Johnson (1997)

Weight in lbs = $a (\text{inches FL})^b$	a	b	Source
Males, northeast Gulf of Mexico	0.000288	3.187	Johnson and Saloman (1984)
Females, northeast Gulf of Mexico	0.000534	3.065	Johnson and Saloman (1984)

Total annual triggerfish landings in Florida were 686,520 pounds in 2005. Landings were greater on the gulf coast (60% of statewide total) and mostly by recreational fishers (77% of statewide landings by weight). Commercial landings were highest in Duval and St. Johns Counties on the Atlantic coast and in Escambia, Okaloosa, Bay, and Franklin Counties on the gulf coast (Fig. 1). Recreational landings in 2005 were highest in the western Panhandle region (Fig. 2). The 2005 total landings of triggerfish were 18% higher than the average landings in the previous five years (2000-2004) and were 26% lower than the 1982–2005 historical average landings (Fig. 3). Total annual landings of triggerfishes on the Atlantic coast decreased from about 306,000 pounds in 1989 to only about 87,000 pounds in 2000 (Fig. 3). Gulf coast landings have shown a more precipitous drop from 2.0 million pounds in 1991 to 0.2 million pounds in

2000. Landings on each coast have rebounded somewhat since 2000.

Commercial catch rates on both coasts showed that catch rates steadily declined between the early 1990s and 2000 before rebounding on the Atlantic and gulf coasts (Figs. 4, 5). Catch rates for anglers catching or fishing for triggerfishes is much more variable and did not show a discernable long-term trend on either coast during the period 1982–2001 (Figs. 6, 7). However, the short-term increase in recreational catch rates on the gulf coast since 2000 is similar to that seen for the commercial catch rates through 2003, since then catch rates have declined in 2004 and 2005.

SEDAR 9 (2006) conducted a recent assessment of gray triggerfish in the Gulf of Mexico, and using SPR and MSY benchmarks, concluding that the Gulf of Mexico gray triggerfish was overfished and experiencing overfishing. The F_{2004} greatly exceeded the maximum fishing mortality threshold ($F_{2004}/F_{MSY} = 2.05$) indicating the stock was experiencing overfishing. Similarly, the spawning stock biomass was well below the minimum spawning stock biomass threshold ($SSB_{2004}/SSB_{MSY} = 0.39$) indicating that the stock was overfished. The panel indicated that it would take major reductions (40-50%) in fishing mortality rates to rebuild the Gulf of Mexico gray triggerfish stock within ten years.

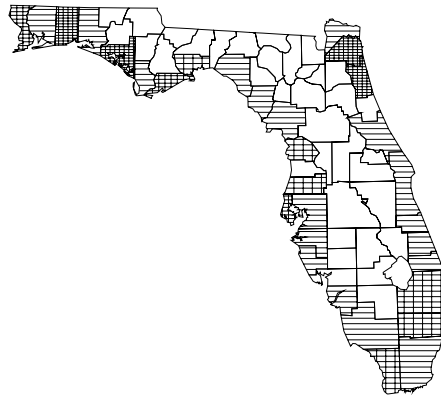


Figure 1. Geographic distribution of commercial landings of triggerfishes during 2005

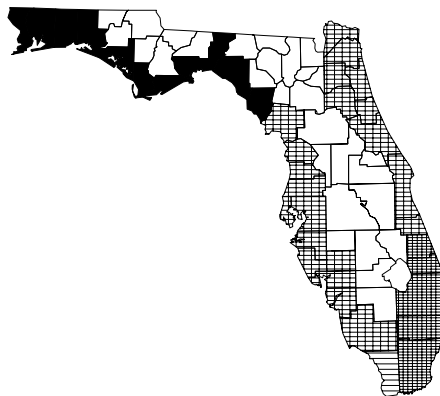


Figure 2. Geographic distribution of recreational landings of triggerfishes during 2005

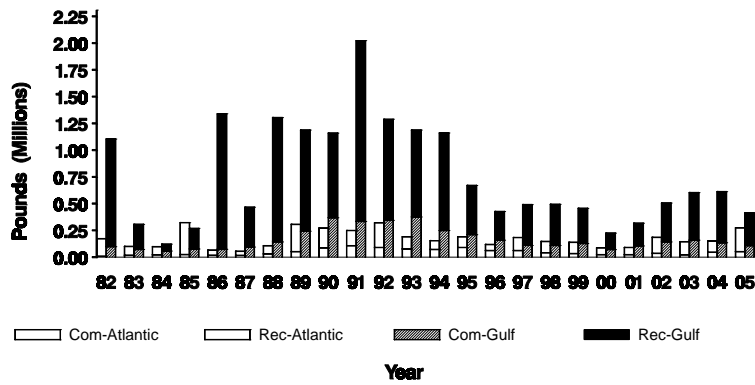


Figure 3. Total annual landings of triggerfishes on the Atlantic and gulf coasts of Florida, 1982–2005

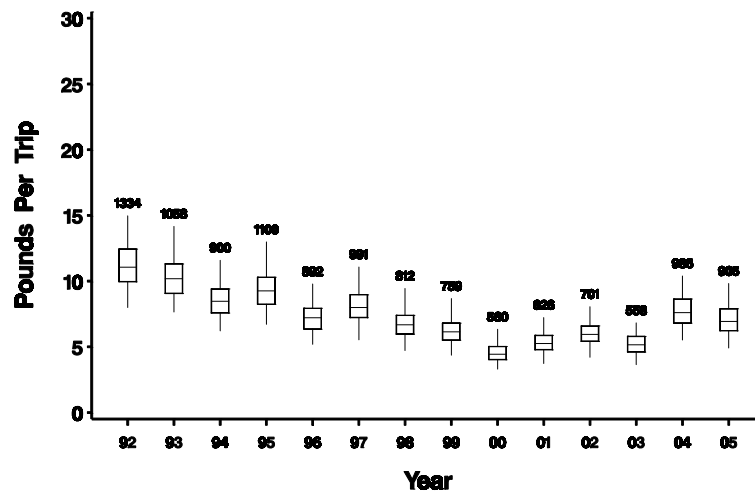


Figure 4. Annual standardized commercial catch rates (pounds) for triggerfishes on the Atlantic coast of Florida, 1992–2005

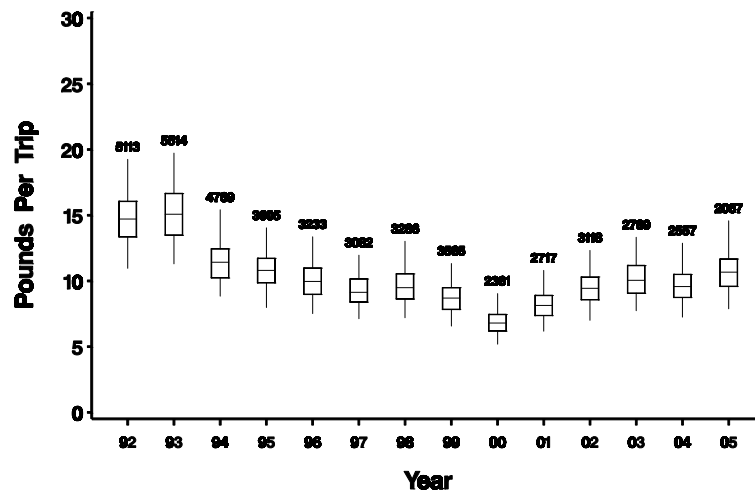


Figure 5. Annual standardized commercial catch rates (pounds) for triggerfishes on the Gulf coast of Florida, 1992–2005

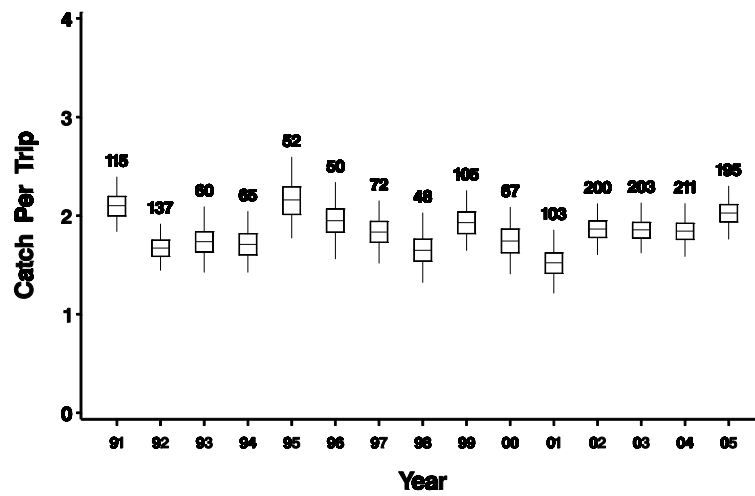


Figure 6. Annual standardized recreational total-catch rates (numbers) for gray triggerfish on the Atlantic coast of Florida, 1991–2005

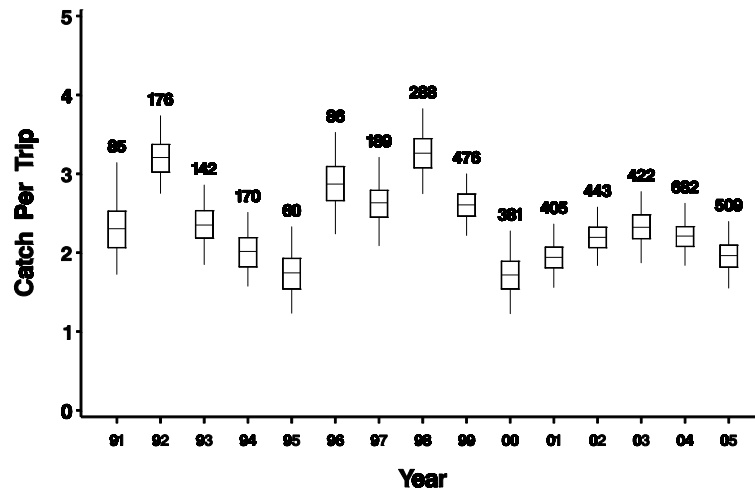


Figure 7. Annual standardized recreational total-catch rates (numbers) for gray triggerfish on the gulf coast of Florida, 1991–2005