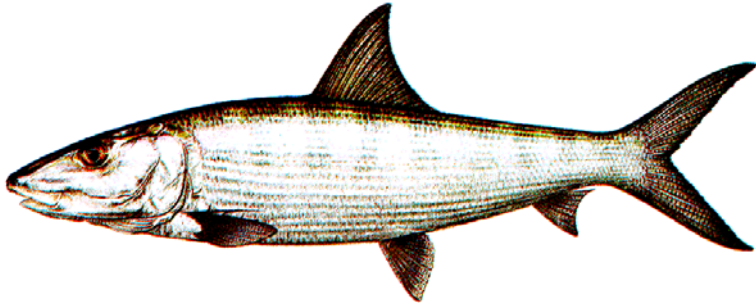


Bonefish, *Albula vulpes*



Bonefish occur in the coastal and inshore waters of tropical seas worldwide. In the western Atlantic, bonefish occur in the Florida Keys, the Bahamas, and throughout the Caribbean. Bonefish have leptocephalus larvae that develop in nearshore waters and recruit to inshore areas at about 40–70 days of age and just before transforming into juveniles (Mojica *et al.* 1995). Recruitment into bays and sounds occurs during winter and spring, especially during periods when flood tides coincide with dark, moonless nights (Mojica *et al.* 1995; Harnden *et al.* 1999). Growth is rapid through age 6 then slows considerably (Table 1, Crabtree *et al.* 1996). Predicted mean fork lengths (FL) at age for female bonefish are as follows: 11.2" at age 1, 15.0" at age 2, 17.9" at age 3, 20.0" at age 4, and 25.6" at age 10. Males are slightly smaller-at-age than females. The maximum observed age for bonefish is 19 years. Bonefish mature to spawn at age 3 or 4 with 50% of males mature at 16.5" FL and 50% of females mature at 19.2" (Crabtree *et al.* 1997). Spawning appears to occur during November–May, probably in deep water.

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

Inches FL = $L_{\infty}(1 - e^{-K(\text{age}-t_0)})$	K	L_{∞} (inches FL)	t_0 (years)	Source
Male	0.242	26.4	-1.318	Crabtree <i>et al.</i> (1996)
Female	0.279	26.8	-0.934	Crabtree <i>et al.</i> (1996)

Weight in lbs = $a(\text{inches FL})^b$	A	b	Source
Sexes Combined	0.000314	3.1871	Crabtree <i>et al.</i> (1996)

Bonefish diets consist of a variety of benthic and epibenthic organisms, including crustaceans, mollusks, and bony fishes. In south Florida, xanthid crabs, gulf toadfish *Opsanus beta*, portunid crabs, alphaeid shrimp, and penaeid shrimp made up most of the diets of bonefish of 228–702 mm fork length (Crabtree *et al.* 1998).

The Marine Recreational Fishery Statistics Survey provides the only estimates of bonefish landings made in Florida. This survey provides very imprecise estimates of catch rate because few bonefish anglers are interviewed each year. In 2005, no bonefish were observed landed in the Florida survey (Fig. 1). Total-catch-rate estimates pooled across both coasts of Florida fluctuated without trend (Fig. 2).

Empirical estimates of total mortality for bonefish collected during 1989–1995 were not different than theoretical estimates of natural mortality deduced from observed maximum age. This suggests that there is low fishing mortality on bonefish in Florida (Crabtree *et al.* 1996).

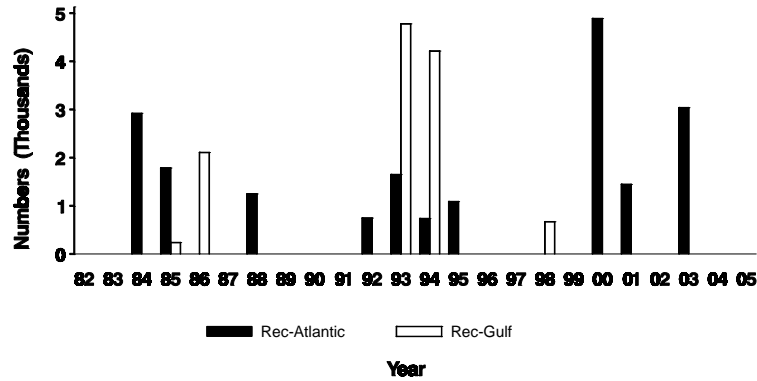


Figure 1. Total annual landings of bonefish on the Atlantic and gulf coasts of Florida, 1982-2005

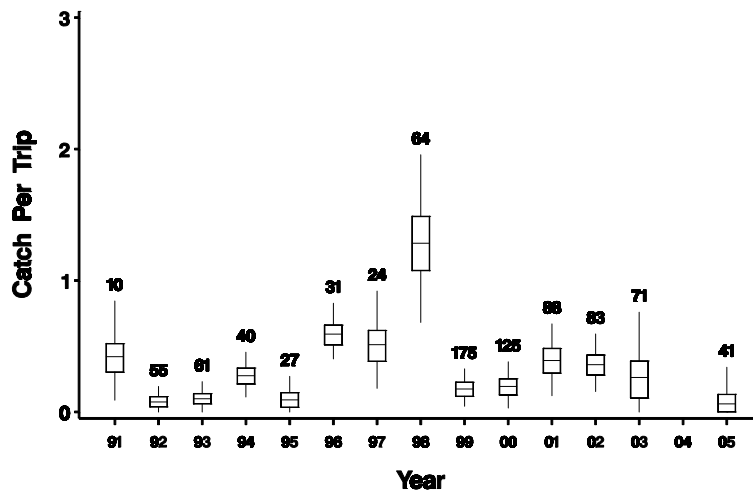


Figure 2. Annual standardized recreational total-catch rates (numbers) for bonefish on both coasts of Florida, 1991-2005