

Florida Fish and Wildlife Conservation Commission

Fish and Wildlife Research Institute

Renowned by anglers for their wariness and fighting spirit, bonefish are stealthy and speedy residents of the shallow bays and backcountry of south Florida. Although they are not usually consumed by people, bonefish are a major target of sport anglers, especially in the Florida Keys, where bonefish are a pillar of the recreational fishing industry.

Description

These torpedo-shaped fish often resemble gray ghosts as they streak through the shallow backwaters and along the fringes of mangrove forests. Their silvery color often casts reflections of blue and green, and dark streaks punctuate the gaps between the scales on their upper body. Bonefish have a conical, scaleless head with a black-tipped snout and small mouth. They have a single, sail-shaped dorsal fin, a powerfully muscled body, and a deeply forked tail.

Bonefish are grouped with tarpon, eels, and ladyfish because all of these fish have a similar larval stage, but the only other characteristic they share is that most of them are not considered

BONEFISH

Gray Ghosts of the Flats

good to eat. Nevertheless, tarpon and bonefish are greatly prized by sport anglers for their wily nature and tenacious spirit.

Bonefish may live as long as 19 years. Females are slightly longer than males of the same age.

Range and Habitat

Bonefish reside in inshore marine waters. As adults, they frequent shallow flats, occupying seagrass beds, sandy bottoms, and, occasionally, hard bottoms. They are often found in quiet backwaters along mangrove-fringed areas. Bonefish prefer salty water, so they do not move into waters of the Everglades.

In mid-summer and in winter, bonefish may move out to deeper waters, but they typically do not migrate long distances. Bonefish are occasionally found as far north as the Indian River Lagoon on Florida's east coast.

Worldwide, bonefish occur in coastal and inland waters of tropical seas. Scientists have discovered at least eight species of bonefish, but more may exist. There is usually little difference between species in the way they look. Two Pacific bonefish

AT A GLANCE

Scientific name	<i>Albula vulpes</i>
Size	To 3 feet, 15 pounds
Range	Worldwide in tropical seas
Habitat	Shallow, inshore seagrass beds, mud flats, or sand flats
Status	Commercial sale prohibited; recreational harvest limited to one fish per day, with a minimum size of 18 inches



and three Atlantic bonefish remain as unnamed species. Separate bonefish species have been collected together in Australia, Hawaii, and Brazil. Indeed, in the Florida Keys, scientists have recently confirmed that two species occur, *Albula vulpes* and an unnamed species. At present, they can only be distinguished by genetic testing.

Life History

Where bonefish spawn is also a mystery. Researchers believe their spawning grounds are probably located outside their traditional shallow-water habitats, either offshore or in an area where currents are likely to carry the eggs offshore. Larvae in early stages of development have been captured in offshore waters, whereas larvae in later stages of development have been found in nearshore waters on the ocean side of the Florida Keys. Additionally, scientists have been unable to catch “ripe” females in inshore areas, but they note that another explanation for this might be that females do not feed or bite hooks right before or after spawning.

Bonefish spawn from November through May

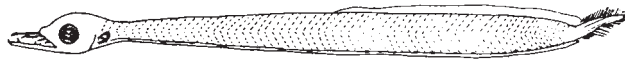
or June, producing from 400,000 to 1.7 million eggs. Scientists don’t know if they can spawn more than once in a season. The heavier and older the fish, the more eggs she will produce.

The eggs hatch into larvae called leptocephali, strange-looking, transparent creatures with large eyes and a ribbonlike body. Bonefish leptocephali look like tiny eels with forked tails. Although similar in appearance to tarpon larvae, bonefish leptocephali reach a larger maximum size of about 2.5 inches—although tarpon will far surpass bonefish in size as adults. The larval phase lasts from 41 to 71 days. When the larvae transform to juveniles, each individual looks like a tiny bona fide bonefish and will take up residence in the shallows, where it will spend most of its life.

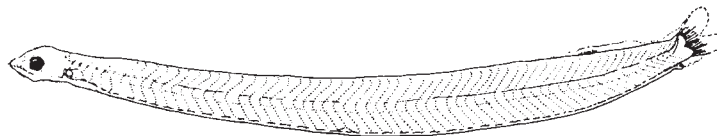
Bonefish grow rapidly for five to six years of their life, after which their growth rate slows considerably. Males reach sexual maturity at a younger age and smaller size than females. Males mature at an average of 3.6 years of age and 17.4 inches. Females reach maturity at about 4.2 years and 18.8 inches. Bonefish are typically found in groups, or schools, of a few to as many as 100 individuals.

HOW A BONEFISH LOOKS AS IT GROWS

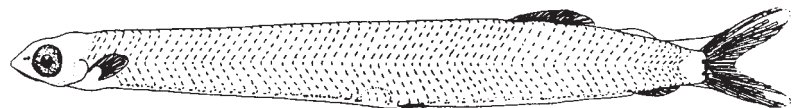
A Stage I larva,
leptocephalus
7.8 mm SL



B Stage I larva,
leptocephalus
33.5 mm SL



C Stage II larva
37.1 mm SL



E—D. Peebles

B—B. Eldred, 1967

A, C, D—E. Alexander, 1961. A contribution to the life history, biology and geographical distribution of the bonefish, *Albula vulpes* (Linnaeus). Dana-Rep. Carlsberg Found. 53.



Bonefish have a fairly nondiscriminating palate. They eat a variety of food, including small crabs, snails, worms, shrimp, and other crustaceans, as well as toadfish. They frequently feed along the bottom and, in the process of grubbing in silt and sand, may incidentally ingest plant matter.

FAST FACT

Examination of the stomach contents of bonefish has revealed that they eat at least 106 different types of food.

Bonefish are built for speed for good reason. They are often preyed upon by sharks and barracuda, and their only defense against these attacks is to flee, as quickly as possible. They are very wary and alert animals, and these characteristics make them a challenge to catch.

Economic Importance

Because they are not tasty to eat, bonefish were probably considered trash fish until fishing for leisure came into fashion. Since World War II,

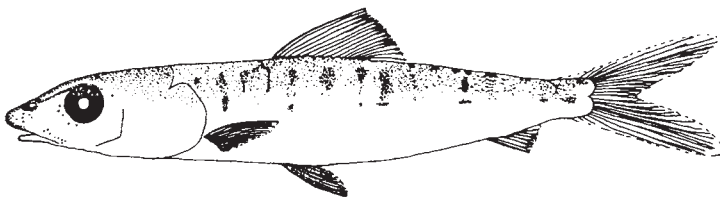
bonefishing in the flats of Biscayne Bay, Florida Bay, and the Upper Keys has become an extremely popular and profitable enterprise. Today, dedicated bonefishing enthusiasts can buy rods, reels, and even specially made flat-water skiffs named after their favorite quarry.

Bonefish are an economic lifeline for the many charter fishing guides in the Florida Keys, and the thrill of snaring these savvy backwater gladiators has infected celebrities, athletes, and even U.S. presidents. Baseball legend Ted Williams, a renowned outdoorsman, devoted a chapter to bonefish in his book of favorite fish and fishing spots.

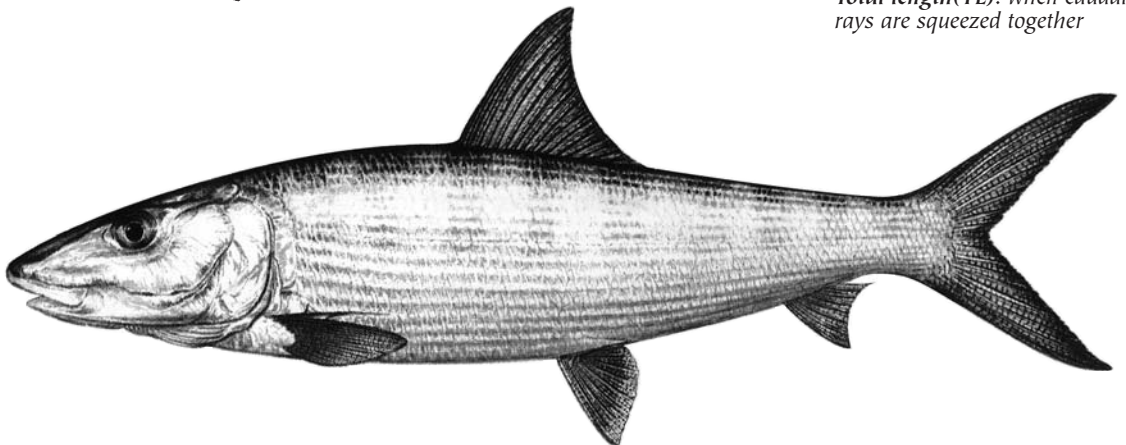
Because bonefishing is predominantly a catch-and-release fishery, neither the number of bonefish caught each year nor their associated economic value is known. However, it is estimated that at least half of the 400 or so charter fishing guides in the Keys offer their services for bonefishing, with a probable economic impact of several million dollars.

The Middle to Upper Keys, including Florida Bay, Islamorada, and Key Largo, are the focal

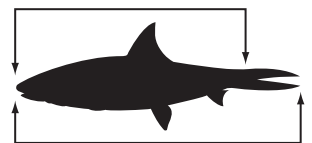
D Juvenile
51.2 mm SL



E Adult
ca. 584 mm TL



Standard length (SL): to end of vertebral column



Total length (TL): when caudal rays are squeezed together



points for bonefishing. However, young bonefish appear to be more prevalent in the lower Keys, and survey results indicate that the waters off Higgs Beach in Key West are an important habitat for juveniles.

FAST FACT

Biscayne Bay is an excellent bonefishing locale, and large specimens can be caught in sight of Miami's high-rise skyline.

Fishing Tips

Because they inhabit very shallow water and are easily spooked, catching a bonefish takes skill and experience. Most anglers hire fishing guides to lead them to the best spots—which are usually very shallow areas that can be entered only by cutting off the boat engine and using a pole to push the boat in. Poling also provides a good way to sneak up on these nervous fish, as does quietly wading in shallow flats. The more shallow the water, the more skittish the bonefish are likely to be.

Experienced guides sight-fish for bonefish by searching for their telltale silvery shapes in the shallows or watching for plumes of mud stirred up by these bottom-feeding fish. A bonefish feeds with its head down and its tail protruding from the water—a behavior known as “tailing”—and this activity provides another clue to its whereabouts.

FAST FACT

Bonefish are often caught in water only a foot deep.

Live shrimp and crabs make good bonefish bait, but bonefish also respond to flies and artificial lures. They also can be enticed to bite by anglers

chumming with chopped shrimp. Casting is another test of the angler's skill; casting too close to a fish will send it scurrying, whereas a line dropped too far away will never get its attention. Once hooked, a bonefish makes a mad dash for deeper water, often breaking the line on rocks or corals as it streaks across the bottom. Most anglers use 10-pound test line on bonefish.

Although bonefish can be caught any time of day, tailing fish are most likely to be spotted in the early morning or evening. In the winter, bonefish are not as numerous in the shallows, and deeper waters are a better choice for the angler.

Research on Bonefish

Many aspects of the life cycle and behavior of bonefish are poorly understood. However, researchers at the Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute in St. Petersburg are currently involved in a variety of studies to expand their knowledge of these flighty, fascinating fish. They are using DNA testing to identify bonefish and to map the distribution of *Albula vulpes* and the newly discovered species in Florida waters. They are also partnering with Mote Marine Laboratory in Sarasota, FL, in ecological studies of juvenile bonefish to help us better understand these “gray ghosts” of the south Florida flats. Fishing license

revenue and the federal Sport Fish Restoration Program are important sources of funding for sport fish research. The Sport Fish Restoration Program is a “user pays/user benefits” system funded by a tax on sales of recreational fishing equipment and boat fuel. The program supplies three dollars for every one dollar provided by the State for projects that improve fishing and boating opportunities.



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