

## Biology of Southern Flounder By Mark Fisher

Southern flounder (*Paralichthys lethostigma*) are one of 27 species of lefteye flounder (Family Bothidae—flatfishes with eyes and coloration on the left side) found in the Gulf of Mexico. Southern flounder are the largest and most abundant lefteye flounders in the Gulf, and are easily distinguished by their lack of ocellated spots (lethostigma means “forgotten spots”). Other lefteye flounder generally possess spots, including the closely related Gulf flounder (*P. albigutta*) with three large ocellated spots.

Southern flounder are found from North Carolina to northern Mexico, although their range is apparently not continuous around the southern tip of Florida. It is particularly abundant in the western Gulf and is targeted by both commercial and recreational fishers. Flounder are one of the “big three” recreationally important species among saltwater anglers, and catching flounder, red drum and spotted seatrout on the same day is a “Texas Grand Slam”.

They are found in a variety of habitats, but are most commonly found in areas where the substrate is soft and muddy. Also, they seem to prefer salinities between 5-20‰. In contrast, Gulf flounder are most commonly found on hard, sandy substrates and in salinities over 20‰.

Adults emigrate from the estuaries during fall and winter (peaking in mid-November) to spawn in deeper offshore waters, with migrations coinciding with falling water temperatures (about a 10°F drop). Males usually leave earlier than females, and only gravid females emigrate. Some adults overwinter in deeper holes and channels of bays and estuaries. Severe “northers” will result in mass emigrations, while moderate to warm winters will result in flounder dispersing over longer periods of time. After spawning, adults then migrate back into bays and estuaries throughout spring and early summer, although older males tend to remain offshore for the duration of their lives.

Spawning occurs at the surface at night, with a female accompanied by an attending male. Females swim to the surface to release their eggs, which are immediately fertilized by the male. Females are serial spawners and spawn several times per season (November-January). Eggs are buoyant, about 1 mm in diameter, and hatch within 48-72 hours. Larvae are initially symmetrical and free swimming, with eyes on both sides, until the right eye begins to “migrate” to the left side. This begins at about 4 mm total length, and by 16 mm both eyes are present on the left side and these settled fish look more like an adult in appearance. By 25 mm, they have acquired most of their adult characteristics. Juveniles begin immigrating back to the estuaries in February.

Females grow faster, live longer, and attain larger sizes than males, with a maximum lifespan of 7 years and attaining an average of 10 inches their first year, and 14, 17, 19, 22, 23 and 24 inches in successive years. Sexual maturity occurs at age 2. Males have a maximum lifespan of 4 years, and attain an average of 8 inches at the end of their first year, and 11, 13 and 14 inches in successive years. Males become sexually mature at age 1.

Southern flounder are ambush predators with the ability to change coloration so that they blend in with the substrate. Flounder generally remain motionless on the bottom and wait for prey to come within striking distance before attacking. They are frequently found in shallow water near oyster reefs or the mouths of small tidal creeks draining the high marsh as the tide ebbs. Fish are a major component of their diet, particularly anchovies, mullet and menhaden, but mullet are the most important prey item for larger specimens. Shrimp, when seasonally abundant, are another important component to their diet, and flounder are the dominant predator on brown shrimp during the spring.

The Texas state record was 13 pounds and 28 inches, caught on February 18, 1976 from Sabine Lake. The state fly rod record was 5 pounds and 24 inches, caught on November 26, 1999 from Galveston Bay on a Clouser minnow.