

Micropogonias furnieri (Whitemouth Croaker)

Family: Sciaenidae (Croakers)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Whitemouth croaker, *Micropogonias furnieri*.

[<http://www.hiwtc.com/photo/products/14/00/31/3192.jpg>, downloaded 31 March 2015]

TRAITS. The whitemouth croaker (*Micropogonias furnieri*) reaches maturity at 30cm, gaining a maximum length of 60cm. Its compressed, slightly elongated body has 11 dorsal spines, 26-30 dorsal soft rays, 2 anal spines, 79 anal soft rays and an inferior mouth containing villiform teeth (numerous and bristle-like, giving the appearance of a brush) in both jaws. Dorsal profile arched, ventral profile straight; total length 3.5-4 times the length of head (Fig. 1). Lateral line curved at the front, straight after the second dorsal fin. Lower jaw with a row of barbels and with five pores at chin (Isaac, 1988). The whitemouth croaker has a silver body, grey back, dark streaks along its scale rows extending to below lateral line (Fishbase, 2015).

DISTRIBUTION. The whitemouth croaker lives in the western Atlantic, ranging from the Greater Antilles throughout the southern Caribbean to the coast of South America (Fig. 2). Extending from

Venezuela to Uruguay, the fishing grounds for this economically important species include Trinidad, where it is caught mainly by trawling (Manickchand-Heileman and Kenny, 1990)

HABITAT AND ACTIVITY. Observed swimming over muddy estuarine bottoms in coastal estuary waters at depths to 60m, and estuaries where the nursery and feeding grounds are located (FAO, 2015). Being estuarine fish they actively swim over the sea floor constantly on the move searching for benthic organisms such as worms and copepods to consume. Forming small groups or discontinuous schools, smaller in the later parts of the year while swimming at greater depths in the summer months, they congregate into larger gatherings most probably to facilitate reproduction. In the Guyana stock, whitemouth croakers is more abundant inshore during the June-July rainy season, and offshore during the windy season from January to March (Lowe-McConnell, 1966). Populations off the Brazilian coast migrate southward during summer and northward in the winter.

FOOD AND FEEDING. As newly hatched larvae they feed on the copepods *Acartia lillieborgii* and *Pseudodiaptomus acutus*, when they get larger they begin to feed increasingly on benthic migratory crustaceans, such as *Peissos petrunkievittchi* and *Artemesia longinaris*, and also on sedentary and sessile benthic boring molluscs (Oliver et al., 1968) which are found in the muddy bottom of the estuaries. The whitemouth croaker will take small crustaceans and fish when its preferred prey is scarce, mysidaceans and polychaetes were also reported in the stomach contents (Lopez and Castelo, 1968). The whitemouth croaker is considered a generalist-opportunistic benthic feeder since benthic organisms generally dominate its diet, however due to the continuously shifting conditions of the benthic community and differences in availability of prey items, they will adjust their feeding habits from rooting around in sediment to uncover prey to actively preying upon small fishes, molluscs and crustaceans.

POPULATION ECOLOGY. They form schools of individuals, usually smaller groups in the autumn and winter months where they continually scour the estuarine sea beds searching for food, however they congregate into larger gatherings to facilitate reproduction. *Micropogonias furnieri* occur in schools with a sex ratio of approximately 1:1 with an abundance in females occurring in some samples that were taken. The age of a fish can be determined by the rings that develop in its scales, with rings increasing with age until it becomes opaque in the older fishes. Studies of 20 croaker species found that 85% of the fish populations were made up of adults with 2 or 3 growth rings (Isaac, 1988), this occurred mainly in the summer months, where a higher percentage of younger fish can be found. Juvenile fish seem to have a preference for shallow muddy, murky inshore areas as opposed to the clear open water of coral reefs. This could be to avoid predation, however during mating the croaking sound can be a disadvantage since the “croaking” of schools of fish attract predators such as the bottlenose dolphin (*Tursiops truncatus*). In the area of Brazil it has been noted that the age for first capture of fish was between 0-1 years while in the Rio de la Plata area it was noted that the individuals landed were approximately 2.5 years old. The maximum biomass for the whitemouth croaker off the coast of Brazil was estimated to be between 40,000 to 58,000 tonnes at a depth of 50-100m in the autumn of 1973; with the rise in demand for fish however this number has more than likely dropped.

REPRODUCTION. The whitemouth croaker has separate sexes and exists in schools with a 1:1 ratio of males: females. The whitemouth croaker comes from a family of fish called Sciaenidae, which make a croaking sound. This croaking sound is caused by vibrating its abdominal walls against the swim bladder, sonic muscle fibres run horizontally around the swim bladder along the

fish's body, when these muscles are contracted against the swim bladder it produces a croaking sound. This sound is used to attract a mate with which spawning can occur. A higher frequency of reproductively active fish was found in the summer months, indicating a higher level of reproduction during this time (Manickchand-Heileman and Kenny, 1990). After spawning eggs are buoyant, transparent containing oil globules allowing them to float in the water column. Recently hatched larvae measure 1.3 mm and have a large oil drop in the yolk sac (Isaac, 1988). The larvae of *M. furnieri* differ from its relative the Atlantic croaker (*Micropogonias undulatus*) by their dorsal margin; whereas the white mouth croaker has a straight dorsal margin the Atlantic croaker has a convex dorsal margin. The whitemouth larvae also lack pigmented spots on the dorsal flanks. As adolescent fish the whitemouth croaker first reaches sexual maturity between 4 months and 2 years, depending greatly on the area where the population resides.

APPLIED ECOLOGY. The whitemouth croaker is a prized fish species for food that is sold either fresh or salted with annual catches of the species reported at 78, 698 tonnes, mostly in Uruguay and Argentina.

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Fig. 2. *Micropogonias furnieri* geographic distribution.

[<http://www.fao.org/fishery/species/2351/en>, downloaded 31 March 2015]