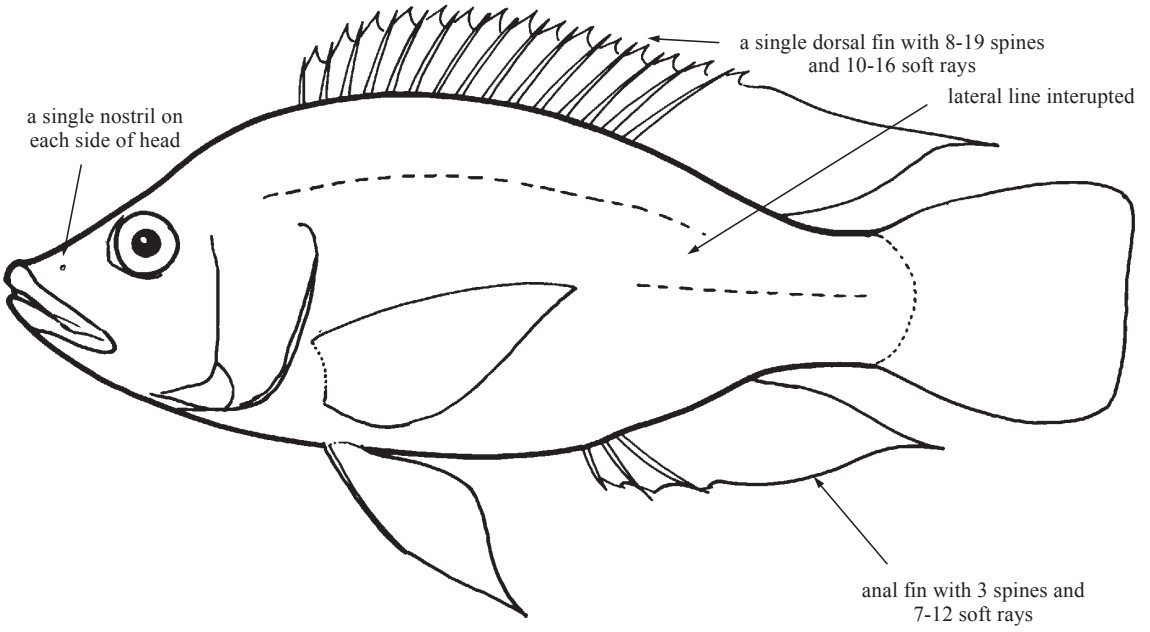
Suborder LABROIDEI

CICHLIDAE

Cichlids

by K.E. Carpenter, Old Dominion University, Virginia, USA

Diagnostic characters (for brackish-water tolerant species introduced into the area): Medium-sized (to about 74 cm) fishes with variable body shape, from deep bodied and compressed to perch-like. **Head with a single nostril on each side. A single dorsal fin with 8 to 19 spines and 10 to 16 soft rays**; anal fin with 3 spines and 7 to 12 soft rays; caudal fin typicaly rounded, truncate, or slightly emarginate. **Lateral line interrupted**, with 26 to 40 (except 83 to 102 in *Cichla ocellaris*) scales. **Colour:** highly variable body colour from blue-grey, grey-green, olive green, brownish, blackish, silvery grey, to pale dusky, often with bars or blotches on sides scales sometimes with individual dark markings; fins sometimes with spots, bars, blotches, and sometimes bordered with a band of red or pink; males often exhibit distinct breeding coloration.

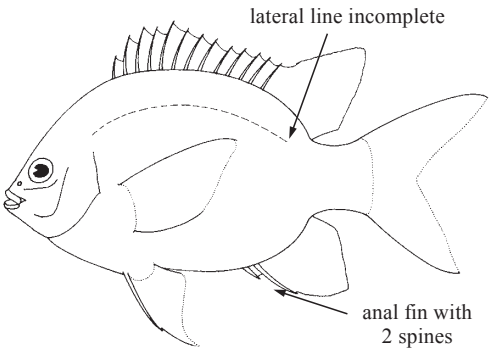


Habitat, biology, and fisheries: Primarily fresh-water fishes that tolerate but generally do not breed and become established in brackish water; an exception to this in the area is *Oreochromis mossambicus* which is primarily fresh water but can breed and live in brackish water. All cichlids in the area have been introduced and are native to Africa or south Asia. Many species have been introduced into the wild by accidental release of aquaculture or aquarium fish specimens. Of the many cichlids reported to have established wild populations in the area, only 8 spcies have tolerance to brackish water: *Cichla ocellaris* is native to South America; *Hemichromis bimaculatus* is native to West Africa; *Oreochromis aureus* is native to Africa and the Middle East; *O. mossambicus* is native to East Africa; *O. niloticus niloticus* is native to East Africa; *O. urolepis* is native to East Africa; *Tilapia rendalli* is native to southern and eastern Africa; *T. zillii* is native to Africa and the Middle East. *Cichla ocellaris* and *Hemichromis bimaculatus* are predators while the other species are plant and sediment feeders. Breeding in cichlids typically involves pair-formation, nest-building, mouthbrooding, and parental care of young. Cichlids include many very important aquarium and aquaculture species although mostly for fresh-water culture. However, there is limited culture under brackish water conditions.

Similar families occurring in the area

Cichlids are easily distinguished from all other families of fishes based on the normal perciform characteristics (e.g. spines in fins and pelvic-fin formula of 1 spine and 5 soft rays) and the fact that they have a single nostril on each side of the head and an interrupted lateral line. The only other perciforms with these characteristics are damselfishes (Pomacentridae).

Pomacentridae: differ from cichlids in almost always having 2 anal-fin spines (usually 3 in cichlids); lateral line most often incomplete, not extending onto caudal peduncle (interupted in cichlids); caudal fin typically forked (typically rounded, truncate, or emartinate in cichlids); pomacentrids are coastal marine fishes only rarely found in brackish water (2 species of over 200 are found in brackish water).



Pomacentridae

Key to the species of Cichlidae occurring in the area

Note: the following key is relevant only to those species of cichlids tolerant of brackish water and currently known to be introduced into the area.

1a. Moderately large conical teeth present in jaws; juveniles without black spot on soft dorsal fin . . . . . → *2*

1b. Teeth fine, close set; juveniles with black spot on soft dorsal fin . . . . . → *3*

2a. Dorsal fin deeply incised, nearly dividing spinous- and soft-rayed portions; a prominent black spot on caudal fin near upper base; around 83 to 102 lateral-line scales (Fig. 1) . ***Cichla ocellaris***

2b. Dorsal fin continuous, although middle dorsal-fin soft rays elongate; no black spot on caudal fin; 26 to 28 lateral-line scales (Fig. 2) . . . . . ***Hemichromis bimaculatus***

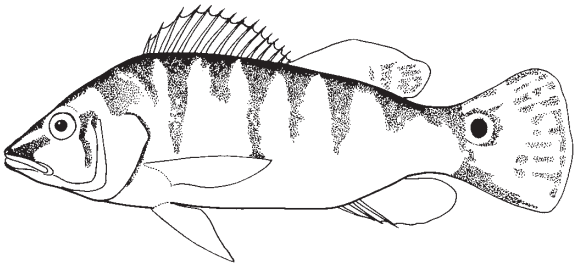


Fig. 1 ***Cichla ocellaris***

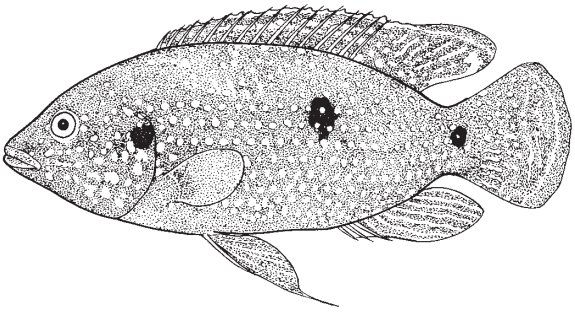


Fig. 2 ***Hemichromis bimaculatus***

3a. First gill arch with 8 to 12 gill rakers on lower limb; dark spot at base of soft doral fin in adults and juveniles . . . . . ***(Tilapia)*** → *4*

3b. First gill arch with 14 to 28 gill rakers on lower limb; dark spot at base of soft dorsal fin in juveniles only . . . . . ***(Oreochromis)*** → *5*

4a. Dorsal fin and upper half of caudal fin with small spots; no bands along flank; bases of scales on flanks dark (Fig. 3) . . . . . ***Tilapia rendalli***

4b. Dorsal fin and upper half of caudal fin without small spots; 1 or more indistinct broad bands along flank; bases of scales on flanks not darkened (Fig. 4) . . . . . ***Tilapia zillii***

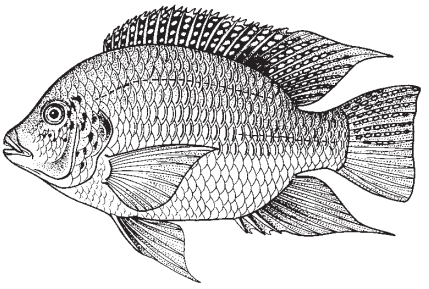


Fig. 3 ***Tilapia rendalli***

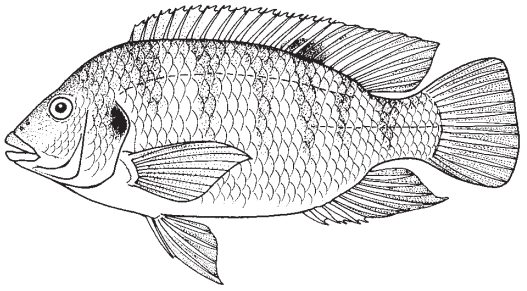


Fig. 4 ***Tilapia zillii***

5a. Lower limb of first gill arch with 14 to 20 (modally 17 or 18) gill rakers; caudal fin without distinct dark narrow bars (Fig. 5) . . . . . ***Oreochromis mossambicus***

5b. Lower limb of first gill arch with 18 to 28 (modally greater than 20) gill rakers; caudal fin with or without distinct narrow bars . . . . . → ***6***

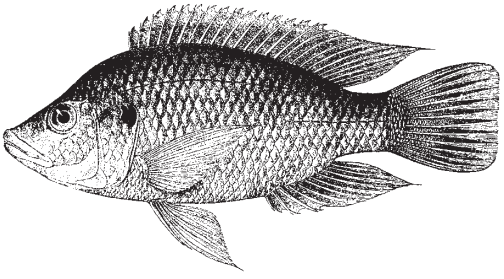


Fig. 5 ***Oreochromis mossambicus***

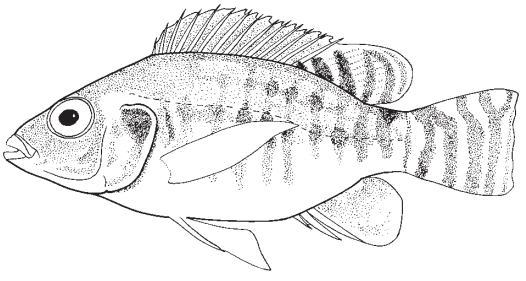


Fig. 6 ***Oreochromis aureus***

6a. Caudal fin without prominent narrow dark bars, with a broad pink distal margin (Fig. 6) . . . . . ***Oreochromis aureus***

6b. Caudal fin with distinct narrow dark bars, without a broad pink distal margin . . . . . → *7*

7a. Caudal fin mostly covered with narrow dark bars; sides without distinct marking or with dark bars (Fig. 7) . . . . . ***Oreochromis niloticus***

7b. Caudal fin with narrow dark bars on base and upper half; sides with 2 to 4 dark blotches (Fig. 8) . . . . . ***Oreochromis urolepis***

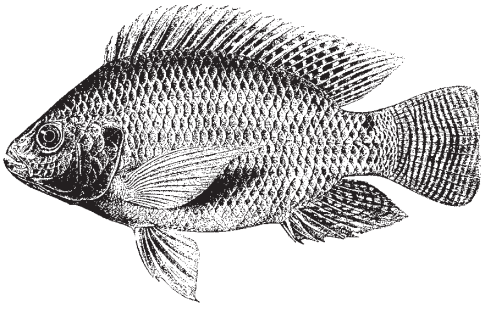


Fig. 7 ***Oreochromis niloticus***

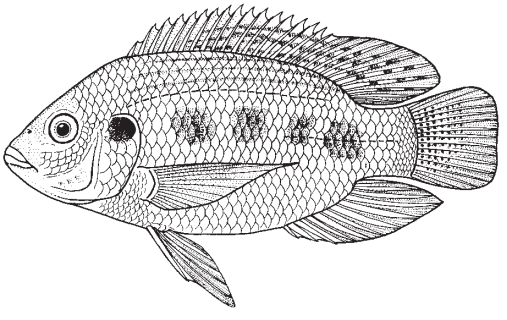


Fig. 8 ***Oreochromis urolepis***

List of species occurring in the area

All species tolerant of brackish water that have been introduced into and established in the area are listed below. Listing of a species in a country does not necessarily indicate that it is already established in brackish water.

Cichla ocellaris Bloch and Schneider, 1801. To 74 cm. USA (Florida), Panama, Puerto Rico, Dominican Republic.

Hemichromis bimaculatus Gill, 1862. To 13.6 cm standard length. USA (Florida).

Oreochromis aureus (Steindachner, 1864). To 46 cm. Widespread introductions throughout the area.
Oreochromis mossambicus (Peters, 1852). To 39 cm. Widespread introductions throughtout the area.
Oreochromis niloticus niloticus (Linnaeus, 1758). To 60 cm. Widespread introductions throughout the area.
Oreochromis urolepis (Norman, 1922). To 44 cm. Puerto Rico.

Tilapia rendalli (Boulenger, 1897). To 45 cm. Widespread introductions throughout the area.
Tilapia zillii (Gervais, 1848). To 40 cm standard length. Antigua, USA (Texas).

References

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