

# A guide to tilapia cichlid fishes in Tanzania

# Introduction

Tilapia are tropical freshwater fish (cichlids), which are increasingly used in aquaculture for human food production. Global tilapia production grew 280% over the 10 years to 2012, with a harvest of ~ 4.5 million tonnes, more than 5 times greater than the entire UK fishery and aquaculture industry; it is now a \$7.6 billion dollar industry. Tilapia show much promise for future sustainable fish production, as they can be fed largely on vegetable matter and agricultural waste.

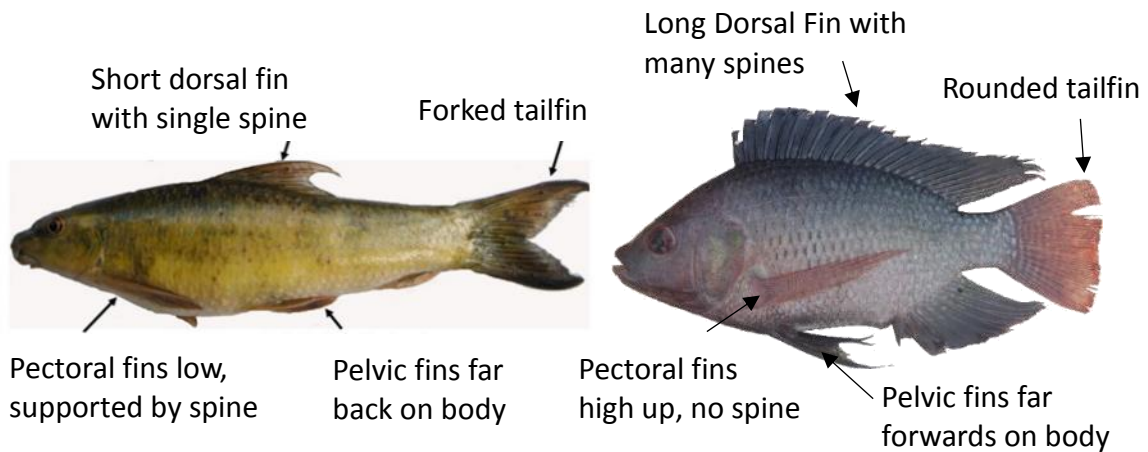
Most tilapia production is based on a handful of strains, but there are more than 50 wild species throughout Africa which could harbour valuable genes for growth, disease resistance, temperature and salt tolerance. Many tilapia will hybridise readily, which means natural beneficial genetic traits could easily be bred into farmed strains without the need for GM technology. However, this feature also makes natural populations vulnerable to genetic swamping when non-native species or farmed strains are introduced into natural water bodies. Unfortunately, stocking non-native strains into natural water bodies is a practice now widespread in Africa (and other parts of the world). Tilapia have global significance as a textbook case of evolutionary diversification, but the introduction of non-native species poses a threat to them, not only through direct competition with native species, but also through hybridisation and potential loss of genetic distinctiveness. This loss of genetic diversity potentially reduces the resilience of natural populations to changing environmental conditions, threatening their potential for food production in aquaculture. Hybridisation between species can also produce poorly adapted hybrid strains that do not grow well in pond conditions, and reduce harvest potential for aquaculture.

The purpose of this guide is to enable fishery scientists, conservationists, local aquaculture fishers, and fisheries officers to identify native and exotic cichlid fish species likely to be found in Tanzania. Each species has a restricted range, but it is often difficult to tell apart females and juveniles from different species, as their distinguishing characteristics are not as clear as with adult males. This makes it difficult to record whether exotic cichlid species have been introduced to areas where they are not naturally occurring. Identification of these fish will help to facilitate monitoring and appropriate interventions to be initiated by local fishery and conservation bodies.

**A note on genus and species names:** tilapia is a general common term to describe fish species of 21 different genera, most notably including *Oreochromis*, *Sarotherodon*, *Coptodon*, and *Tilapia*. Ongoing taxonomic studies and re-descriptions means that several species have been known by different genus and species names in the recent past. For the purposes of the current guide, we use the taxonomy of the Catalog of Fishes electronic version (updated 1 November 2016). A list of useful species references and guides is available in the bibliography at the end of this guide.

## Features of a cichlid

Cichlid fishes are percoids, while most other freshwater fishes belong to the Ostariophysi, including Cyprinids (*Barbus*, *Labeo* etc), Characins (*Brycinus*, *Hydrocynus*) and Catfishes.



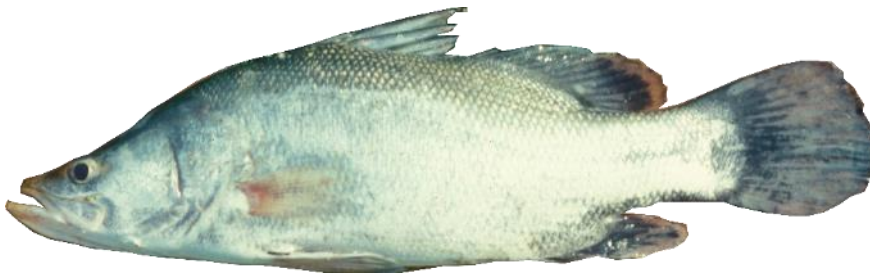
Typical Ostariophysian  
*Labeo cylindricus*  
Cyprinidae

Typical Percoid  
*Oreochromis niloticus*  
Cichlidae

Feature	Cichlids	Ostariophysians
Dorsal fin	Long with many spines	Short with 0-1 spines
Pectoral fins	Soft and high up on body	Low on body, sometimes 1 spine
Pelvic fins	Forward near head	Far back near anal fin
Tailfin	Usually rounded	Usually forked
Barbels round mouth	Never	Sometimes

## Non-cichlid fish with spiny dorsal fins

There are other fish that have lots of spines in the dorsal fin, shown below. **Nile perch** (Lake Victoria & Tanganyika), **glassfish** (estuaries & lowland rivers) and **gobies** (lowland rivers) have a short spiny dorsal fin that is separate (or peaks separately) from the soft dorsal fin behind. The **climbing perch** (*Ctenopoma*) has a very rounded head and lot of anal fin spines (9-11, compared to 3-4 in most cichlids). If you look closely, you can see that cichlids have 1 pair of nostrils, but climbing perch have two.



**Nile Perch**

*Lates niloticus*



**Glassfish**

*Ambassis sp.*



**Goby**

*Awaous aeneofuscus*



**Climbing Perch**

*Ctenopoma muriei*

# Quick Identification Sheets

## *Oreochromis* males

Big fish: >20cm TL, usually >25-30cm, in natural water bodies. Generally some darkening of fins or whole body. Major diagnostic features below:



### *Oreochromis shiranus*

- 4 anal spines
- Big jaws & concave head profile
- Black with red fin margins



### 'Chambo' group

- Extended genital tassel sometimes shown
- Dorsal fin margin white
- 3 anal spines
- Body black, or grey, sometimes with blue/white head



### *Oreochromis leucostictus*

- Mottled flanks: white on dark background
- 3 or 4 anal spines
- Genital papilla & jaws never enlarged



### *Oreochromis niloticus*

- Vertical stripes in tailfin
- 3 anal spines
- Genital papilla & jaws not enlarged
- Blue-grey flanks with dark/reddish fins and belly

## Oreochromis females



### *Oreochromis shiranus*

- 4 anal spines
- Generally golden
- Usually horizontal stripes
- Deep body, narrow head



### 'Chambo' group

- 3 anal spines
- Heavy, wide head
- Usually silvery-grey
- Vertical stripes usually prominent



### *Oreochromis leucostictus*

- Orange lower fins
- Pale beige flanks
- Stripes weak or absent
- Slender, small head
- 3-4 anal spines



### *Oreochromis niloticus*

- Vertical stripes in tailfin
- 3 anal spines
- Thin vertical bars
- Deep body, tall dorsal spines

## Tilapia / Coptodon species



### *Coptodon rendalli*

- Tilapia mark
- Distinctive red belly not always shown
- Thickset, rounded head profile



### *Tilapia sparrmanii*

- Tilapia mark
- Dark bars on bright golden background
- Small head
- Remains small (<20cmTL)



## *Haplochromis*

Haplochromine cichlids frequently occur sympatrically with tilapia cichlids. Males are easiest to differentiate from tilapia, based on the eggspots on their anal fin, and will tend to be smaller than tilapia. There are also differences in colouration and head shape. Female haplochromine cichlids are less brightly coloured and lack the distinctive eggspots of the male. They tend to be small and slender, and do not have a tilapia mark that is seen in several tilapia species, and tends to be more pronounced in female and juvenile tilapia.

### Haplochromine Males

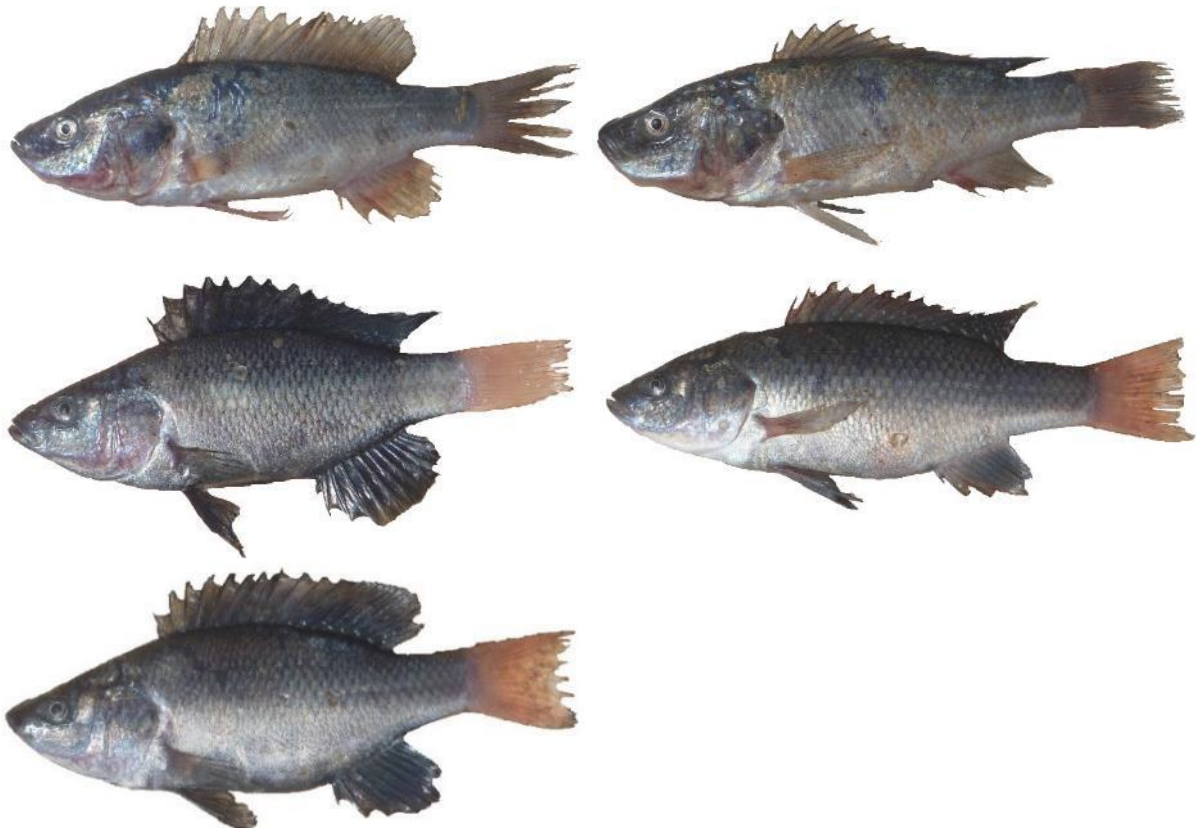


### Haplochromine Females



# Species descriptions

# *Oreochromis amphimelas*



Photograph credits: M. Genner, A. Smith.

**Body Size:** 11-35 cm

**Appearance:** Concave head, body is slender, but deep in front of dorsal fin body.

**Anal Spine Count:** 3.

**Females and juveniles:** Dark grey body. **Males:** Dark grey to bluish body, with light grey - cream belly, and reddish-orange tail.

**General Description:** Horizontal profile of upper head, concave in larger specimens. Long caudal peduncle, dorsal and anal fins do not reach its posterior end. Some specimens exhibit vertical bands. Colouration: dark grey/black, blue-pinkish sheen in some parts, with lighter belly, dorsal fin with white spots, orange caudal fin. No tilapia mark. Evidence of biparental brooding (Trewavas, 1983).

**Habitat:** Saline soda lakes: Manyara, Eyasi, Kitangiri and Singida. Also found in bordering rivers/springs, River Makuyuni.

**Distribution:** Internal drainage basin

# *Oreochromis chungruruensis*



Photograph credits: G. F. Turner, M. Genner.

**Body Size:** 11 - 20 cm

**Appearance:** Large head, body tapered from head to tail.

**Anal Spine Count:** 3.

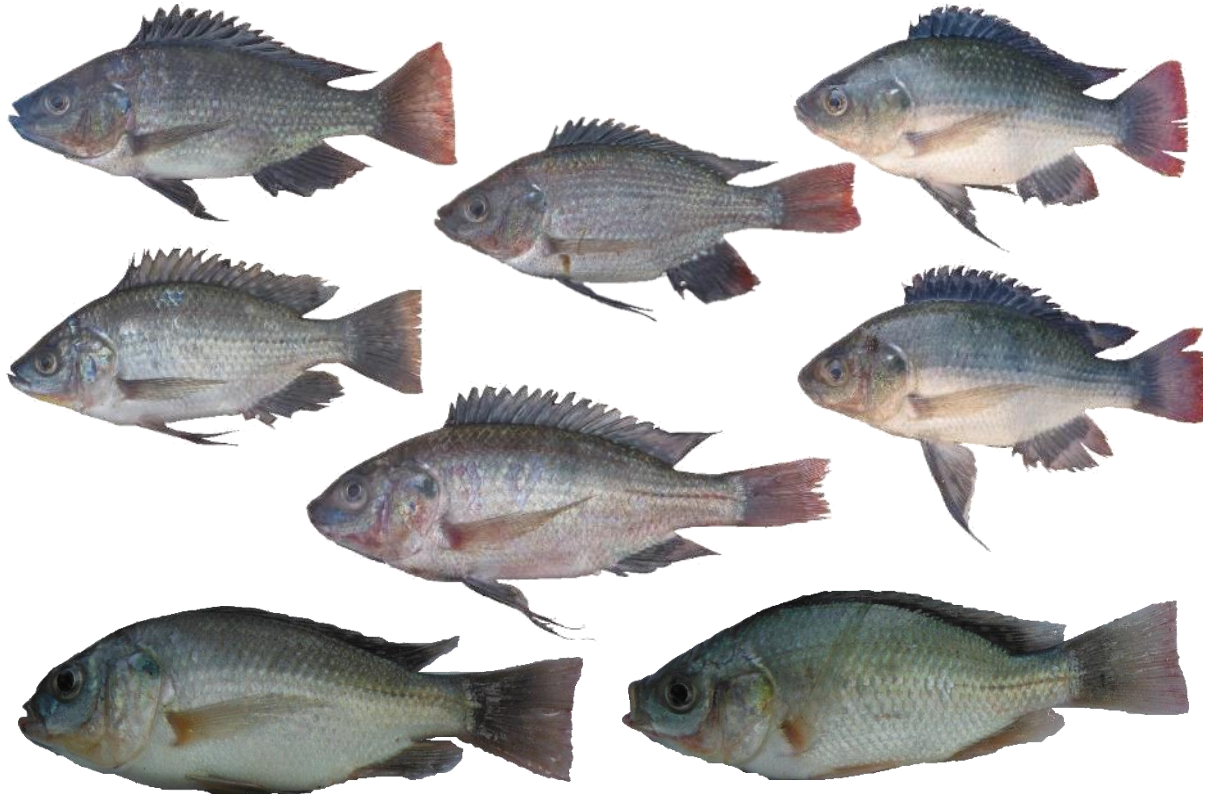
**Females and juveniles:** Dark grey body. **Males:** Black body, with black belly, and black tail.

**General Description:** Breeding males black, with short, branched genital papilla.

**Habitat:** Only found in Lake Kiungululu (Lake Chungruru)

**Distribution:** Lake Nyasa basin

# *Oreochromis esculentus*



Photograph credits: M. Genner, A. Smith.

**Body Size:** 16 - 35 cm

**Appearance:** Pointed head, relatively deep bodied, with narrow head and large eye.

**Anal Spine Count:** 3.

**Females and juveniles:** Olive-brown; green body. **Males:** Reddish with black ventral, grey belly, and pink/red tail.

**General Description:** Long caudal peduncle. Dark dorsal surfaces (black in mature males, green/brown in females and immature males) with cream or white ventral/belly. Males are largely black, with red edging on fins. Red/pinkish colouring infrequently extends across rest of body. White/green spots on dorsal and anal fins. Deep-bodied with small head and large eye. No genital tassel in males.

**Habitat:** Mainly found in lakes or open water bodies. Feed in open water, breed in shallow weedy areas.

**Distribution:** Internal drainage basin, Lake Rukwa basin, Lake Victoria Basin, Wami basin. Possibly now introduced in all basins.

# *Oreochromis hunteri*



Photograph credits: B. Ngatunga.

**Body Size:** 11 - 25 cm

**Appearance:** Straight head, with slender body.

**Anal Spine Count:** 3 or 4.

**Females and juveniles:** Green-bronze body. **Males:** Blue-black to green body, with grey or white belly, and dark green, orange margins tail.

**General Description:** Long caudal peduncle. Straight head profile. Small teeth. Blue-black dorsal colouration, with black-green on flanks and dark green and white speckled breast. Darker in colouration and more slender body than *O. jipe*. Immature fish generally lighter coloured. Young fish have dark vertical bars, with horizontally elongated tilapia mark.

**Habitat:** Only naturally found in Lake Chala - a deep, clear, volcanic crater lake.

**Distribution:** Pangani basin

# *Oreochromis jipe*



Photograph credits: M. Genner, A. Smith.

**Body Size:** 11 - 25 cm

**Appearance:** Straight head (concave in adult males).

**Anal Spine Count:** 3 or 4.

**Females and juveniles:** Green-grey body with black spots. **Males:** Green-purple sheen on body, with grey belly, dark, red margin tail, and concave head profile.

**General Description:** Steep, straight head profile, with a small mouth and slender teeth. Non-breeding fish are light grey-green with brown/black spots, vertical bars often formed by spotting pattern. Bars on posterior parts of dorsal fin and sometimes on anal fin. Mature males are darker with green/purple sheen on body, with yellow spots and dark mottlings, and bright orange/red margin to dorsal and caudal fins. *O. pangani* and *O. girigan* are probably the same species.

**Habitat:**

**Distribution:** Internal drainage basin, Pangani basin

# *Oreochromis karomo*



Photograph credits: M. Genner, A. Smith.

**Body Size:** 11 - 30 cm

**Appearance:** Elongated head.

**Anal Spine Count:** 3.

**Females and juveniles:** Olive green body. **Males:** Green/blue/purple body, with grey-cream belly, yellow-orange margin tail, and large genital tassel (10-15cm), blue lips.

**General Description:** Enlarged, elongated jaws, forming long snout. Females and non-breeding males olive green, 3 or 4 dark mid-lateral blotches. Striped dorsal fin with spots on caudal fin. Dark spots on head with lighter spots on body. Breeding males brightly coloured: olive green colouring with bright blue-green to purplish sheen, bright blue lips, dorsal and caudal fins have light blue spots and orange margins. Large genital tassel, nodulated filaments including bright orange tissue resembling eggs.

**Distribution:** Lake Tanganyika basin



# *Oreochromis karongae*



Photograph credits: G. F. Turner, M. Genner.

**Body Size:** 16 – 30 cm

**Appearance:** Broad head, with slender body.

**Anal Spine Count:** 3.

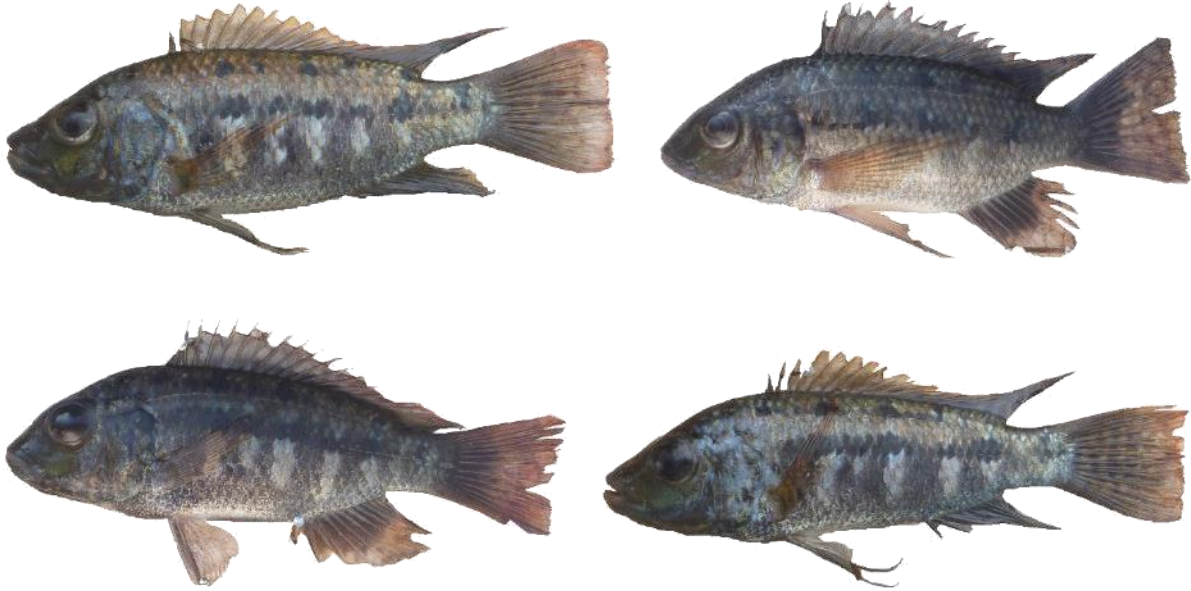
**Females and juveniles:** Silver-grey body. **Males:** Black body, with grey belly, white margin on tail, and elongated, branched genital papillae.

**General Description:** Slender body, broad head, 3 anal spines. Females and juveniles are very hard to distinguish from other 'chambo' species. Silvery-grey to brownish-gold females/juveniles, with widely-spaced dark vertical bars, broad dorsally but tapering below. Tilapia mark prominent on juveniles, but not on larger fish. Breeding males are black, sometimes with a bluish sheen on parts of the head, a broad white margin to dorsal fin, and sometimes the tail and anal fins too. Genital papilla can be >10cm long, with thin branches and thickened lobes, and is white, yellow or pinkish.

**Habitat:** Breeds from shallow water down to depths of at least 20m. Adults are found to depths of at least 50m. Juveniles are found in shallow lake margins, particularly in weedy areas.

**Distribution:** Lake Nyasa basin (mostly in main lake).

# *Oreochromis korogwe*



Photograph credits: M. Genner, A. Smith.

**Body Size:** 6 - 20 cm

**Appearance:**

**Anal Spine Count:** 3 or 4.

**Females and juveniles:** Grey body with dark bands. **Males:** Black/grey body, with dark grey belly, white margin on tail, and enlarged jaws.

**General Description:** Prominent horizontal and vertical banding in males and females, often appearing as dark blotches. Breeding males have dark throat and chest with dark vertical bars on lower half of body. Conspicuous dark blotches on caudal fin and operculum.

**Habitat:** Rivers and lakes

**Distribution:** Pangani basin

## *Oreochromis leucostictus*



Photograph credits: G.F. Turner, M. Genner, A. Smith.

**Body Size:** 6 - 25 cm

**Appearance:** Narrow head, with slender body.

**Anal Spine Count:** 3 or 4.

**Females and juveniles:** Silver; yellow body. **Males:** Dark body with white spots, grey belly, and dark tail.

**General Description:** Slender body, with a narrow head. 3-4 anal spines. Females/juveniles: pale beige colour with orange on the pelvic and anal fins and the lower half of the tailfin. Faint or no vertical bars / tilapia mark. Breeding males: dark blue-grey to black with prominent white spots on the flanks and fins.

**Habitat:** Typically shallow muddy areas with plenty of weed cover

**Distribution:** Lake Nyasa basin, Lake Victoria basin, Wami basin

# *Oreochromis lidole*



Photograph credits: G. F. Turner, M. Genner.

**Body Size:** 21 - 40 cm

**Appearance:** Large head, with slender body.

**Anal Spine Count:** 3.

**Females and juveniles:** Silver-grey body. **Males:** Black body with grey belly, white margin on tail, and large genital tassel.

**General Description:** Fairly slender, with a very wide, heavy head and 3 anal spines. Large specimens can be distinguished from the other chambo species by their large mouths, large opercula and jaw teeth in 3-4 well-spaced rows. Juveniles <17cm TL are indistinguishable from other 'chambo' species. Females and larger juveniles are generally darker grey than those of the other species. Males in full breeding condition can be told apart from *O. karongae* males by the head and jaw. Breeding males are black with white fin margins, and have extended branched genital tassels.

**Habitat:** Tends to live in deeper water than the other chambo species, and spends more time in midwater. Females may enter shallow weedy areas to release young. Breeds in deep water (>17m off steep shores).

**Distribution:** Lake Nyasa basin (main lake)

# *Oreochromis macrochir*



Photograph credits: R. Bills, D. Tweddle.

**Body Size:** 11 - 30 cm

**Appearance:** Steep head and blunt snout, with deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Olive -green body. **Males:** Dark green body, with pale green - cream belly, red margin on tail, and long (>25mm) double genital tassel.

**General Description:** Deep-bodied, with blunt snout, steep head profile, and a deep caudal peduncle. Long pectoral fins extending to anal fin base. Caudal fin truncate in adults. Young: silvery with dark vertical bars, and dark spots on caudal fin. Adults: green, with dark green head and blue-green snout, dark spots in temporal region (operculum and around eye), red fin margins. Breeding males very dark green to black, iridescent with bright red fin margins, and white genital papilla.

**Habitat:** Typically quiet waters along river margins and backwaters, floodplain habitats and impoundments

**Distribution:** possible present in Pangani basin (introduced from Zambia?).

# *Oreochromis niloticus*



Photograph credits: G. F. Turner, M. Genner, A. Smith.

**Body Size:** 11 - 40 cm

**Appearance:** Small head, with deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Silver body. **Males:** Blue-grey body, with grey belly, vertical stripes; reddish tail, and no genital tassel.

**General Description:** Deep-bodied with a small head. Dorsal fin spines are long, tailfin prominently marked with vertical stripes. 3 anal spines. Females/juveniles: silvery with grey vertical bars. Tilapia mark prominent in small specimens. Breeding males: creamy flanks, with a bluish sheen. Pelvic fins and belly dark grey and pinkish-red. Snout, throat and chest dark grey to pinkish.

**Habitat:** Deep pools, backwaters and lakes. Juveniles often in very shallow water

**Distribution:** Internal drainage basin, Lake Nyasa basin, Lake Rukwa basin, Lake Tanganyika basin, Lake Victoria basin, Pangani basin, Ruvuma basin, Rufiji basin, Wami basin

# *Oreochromis rukwaensis*



Photograph credits: G. F. Turner, M. Genner, A. Smith.

**Body Size:** 11 - 30 cm

**Appearance:** steep profile head, with deep body body.

**Anal Spine Count:** 3.

**Females and juveniles:** yellow-brown body. **Males:** black body, with cream to reddish belly, orange margins tail, and double tassel orange-yellow up to 50mm long.

**General Description:** Deep-bodied with deep caudal peduncle. Breeding males black or dark blue-green, dorsal and caudal fin margins orange, with orange-yellow genital tassel..

**Habitat:** Rivers and lakes in the Rukwa catchment and Rufiji Basin (upper reaches of Great Ruaha, including Mtera Dam)

**Distribution:** Lake Rukwa basin

# *Oreochromis shiranus*



Photograph credits: G. F. Turner, M. Genner.

**Body Size:** 16 - 30 cm

**Appearance:** Concave head, with deep body.

**Anal Spine Count:** 4.

**Females and juveniles:** Yellow; gold; silver; horizontal stripes on body. **Males:** Black body, with black belly, red tail, and concave head. Big jaws.

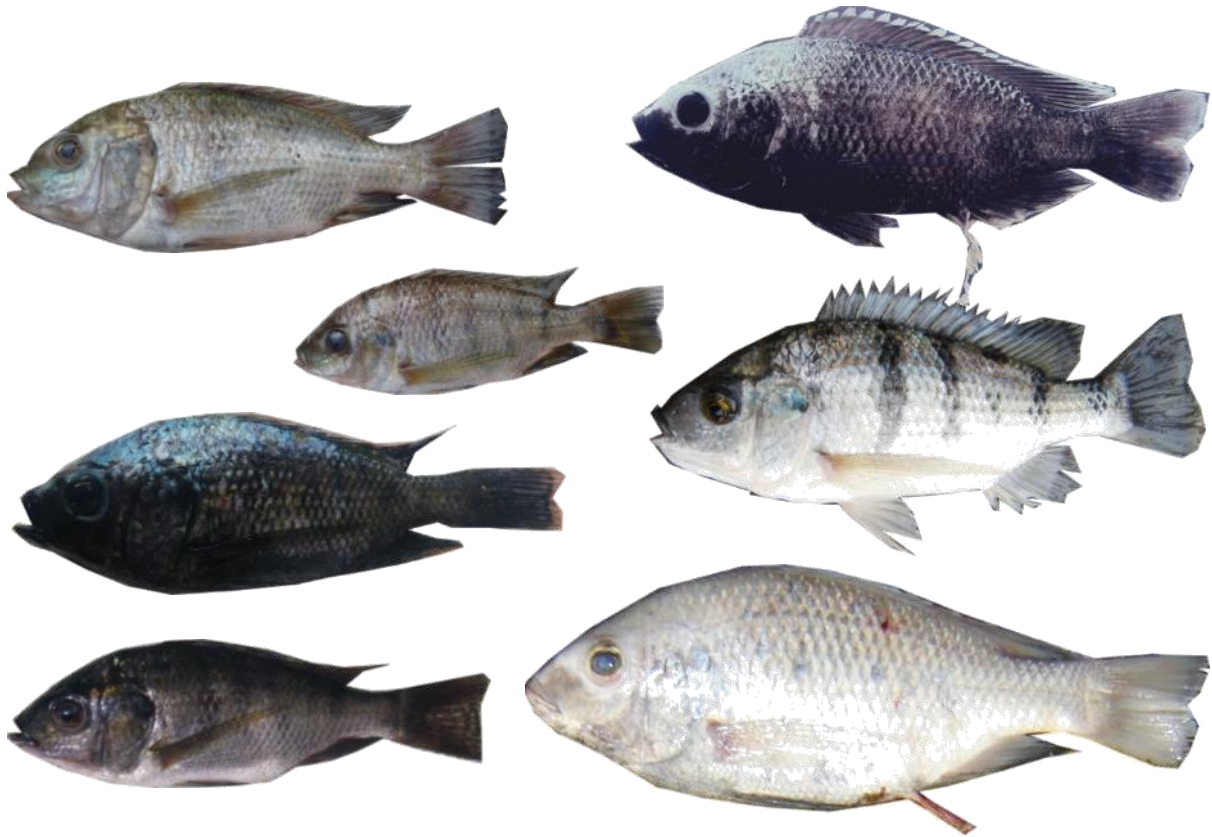
**General Description:** Deep-bodied. 4 anal spines. Females/juveniles golden brown (sometimes silvery-grey). Larger individuals show broad dark horizontal stripes, small juveniles may have faint vertical bars. Tilapia mark prominent in small specimens. Breeding males black with bright red margins to the dorsal and tail fins. Non-territorial males greyish with white flank scales. Large males develop enlarged jaws and concave head profile. *Oreochromis placidus ruvumae* from the Ruvuma system is now considered to be a population of *O. shiranus*.

**Habitat:** Deep pools, backwaters and shallow swampy areas of lakes. Juveniles often in very shallow water

**Distribution:** Lake Nyasa basin (shallow weedy areas of main lake, and inflowing rivers), Ruvuma system



# *Oreochromis squamipinnis*



Photograph credits: G. F. Turner, M. Genner.

**Body Size:** 16 - 25 cm

**Appearance:** Wide head, with slender body.

**Anal Spine Count:** 3.

**Females and juveniles:** Silver-grey body. **Males:** Black body, with grey belly, white tail margin, and elongated genital papilla.

**General Description:** Slender body, wide head. 3 anal spines. Females and juveniles are very hard to distinguish from other 'chambo' species. Silvery-grey to brownish-gold, with widely-spaced dark vertical bars. Tilapia mark prominent on juveniles, not on larger fish. Breeding males black, upper head and back are pale blue or white. Dorsal fin has broad white margin, and sometimes the tail and anal fins too. The genital papilla can be more than 10cm long, with thin branches and thickened lobes, and is white, yellow or pinkish. Non-territorial males are pale grey, with a whitish head.

**Habitat:** Breeds from shallow water down to depths of at least 15m. Adults are found to depths of at least 50m. Juveniles are found in shallow lake margins, particularly in weedy areas.

**Distribution:** Lake Nyasa basin (main lake)

# *Oreochromis tanganyicae*



Photograph credits: M. Genner, A. Smith, M.Oliver.

**Body Size:** 16 - 40 cm

**Appearance:** Straight profile head, with deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Green-gold body. **Males:** Green-blue iridescent body, with white belly, and red tail.

**General Description:** High dorsal fin. Dorsal, caudal and anal fins with dark and pale spots. Iridescent scales. Breeding males: green/blue to gold with red tail and red dorsal margins.

**Habitat:** Coastal areas around lake Tanganyika in shallow water (<10 m) over sand habitats, in river mouths and lagoons

**Distribution:** Lake Tanganyika basin

# *Oreochromis upembae*



Photograph credits: M. Genner, A. Smith, R. Bills, D. Tweddle.

**Body Size:** 11 - 20 cm

**Appearance:** Straight profile head, with deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Yellowish body. **Males:** Grey-green to yellowish body, yellow belly with black markings, red/orange tail margins, and cream-coloured genital tassel.

**General Description:** Adults have bifid and tuberculate genital papilla, cream-coloured tassel in breeding males. 2-4 mid-lateral blotches from operculum to caudal peduncle. Caudal fin with dark narrow stripes. Deep caudal peduncle. *O. malagarasi* (described as a new species, Trewavas 1983) is a subspecies/geographic variant of *O. upembae*.

**Habitat:** Shallow standing or slow-flowing waters, marginal vegetation and swamps.

**Distribution:** Lake Tanganyika basin (inflowing rivers)

# *Oreochromis urolepis*



Photograph credits: G. F. Turner, M. Genner, A. Shechonge.

**Body Size:** 11 - 35 cm

**Appearance:** Straight, concave head in mature males, with deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Silver-grey body. **Males:** Dark olive-green body, with dark green - black belly, bright red upper half of tail, and enlarged jaws.

**General Description:** Deep bodied with deep caudal peduncle (depth greater than length). Females and non-breeding males silver-grey with 2-4 mid-lateral blotches, and pink tinge on head and belly. Caudal with narrow vertical stripes in upper half. Breeding males dark green to black, red-orange dorsal and caudal fin margins, snout and head iridescent. Breeding males have enlarged jaws and concave head profile.

**Habitat:** Lakes, rivers and estuaries

**Distribution:** Wami basin, Rufiji basin, (Ruvu Basin, Zanzibar)

# *Oreochromis variabilis*



Photograph credits: M. Genner, A. Smith, A. Shechonge.

**Body Size:** 11 - 25 cm

**Appearance:** Convex head in front of orbit, with deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Green-brown body. **Males:** Blue-grey/black body, with grey belly, bright orange tail margin, and tasselled genital papilla.

**General Description:** Deep body seen in juveniles as well as adults. Caudal truncate. Transverse bars in juveniles. Green-brown body colouration in females and non-breeding males, with a narrow orange margin to the dorsal fin. Breeding males are dark, with green sheen to head, bright orange-red margins of dorsal and caudal fins, black pelvic fins and orange-yellow genital tassel. Maradadi (swahili="brightly coloured") individuals exhibit black dorsal blotches on an orange background or piebald (black/white) pattern, occur in both males and females.

**Habitat:** Shallow sandy habitats

**Distribution:** Lake Victoria basin

## ***Oreochromis "red hybrid"***



Photograph credits: Olanyini Olpade

**Body Size:** up to 35 cm

**Appearance:** Bright orange, often with irregular black blotches, males have enlarged jaws and a concave head profile.

**Anal Spine Count:** 3

**Females and juveniles:** **Males:**

**General Description:** Hybrid of either *O. mossambicus* x *O. urolepis* (Florida red tilapia) or *O. mossambicus* x *O. niloticus* (common in the Philippines and Malaysia)..

**Habitat:** Unclear: is an exotic strain.

**Distribution:** Not known.

# *Coptodon rendalli*



Photograph credits: G. F. Turner, R. Bills, D. Tweddle.

**Body Size:** 16 - 35 cm

**Appearance:** Deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Green body. **Males:** Dark olive green body, with red or white belly, and green-red tail.

**General Description:** Substrate spawners (no mouthbrooding). Deep bodied. Head and body mid to dark olive-green dorsally, with vertical bars. Dorsal fin olive-green with thin red margin and white to grey dark oblique spots on the soft rays; caudal fin spotted on upper half and red or yellow on lower half.

**Habitat:** Weedy areas

**Distribution:** Lake Tanganyika basin, Lake Nyasa basin, Pangani basin (probably now in all basins, via stocking)

**Note:** Previously described as *Tilapia rendalli*.

# *Coptodon zilli*



Photograph credits: Lawrence Kent

**Body Size:** 16 – 35 cm

**Appearance:**

**Anal Spine Count:** 3.

**Females and juveniles:** Yellow-grey body. **Males:** Brown-olive body with blue sheen, pink belly, tail green with orange margin tail.

**General Description:** Substrate spawners (no mouthbrooding). Yellow spots on vertical fins with orange margins, distinct dark bars along flanks. Olive-green to brown body.

**Habitat:**

**Distribution:** Lake Victoria basin



## *Tilapia sparrmanii*



Photograph credits: G. F. Turner, R. Bills, D. Tweddle.

**Body Size:** up to 23.5cm

**Appearance:** Deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** **Males:** Green body.

**General Description:** Not known to be mouthbrooders. Dark green dorsally, yellowish body with dark green vertical bands. Red fin margins to dorsal and caudal fins with yellow-blue spots.

**Habitat:** Shallow sheltered waters

**Distribution:** Lake Nyasa basin

## *Alcolapia alcalica*



Photograph credits: J. J. Day, L. Rüber.

**Body Size:** 4-10 cm

**Appearance:** Deep body.

**Anal Spine Count:** 2-3.

**Females and juveniles:** Grey to brown with vertical dark banding **Males:** Intense breeding colouration. Blue or yellow flanks, white to cream belly, red tails, with bright white lip in breeding males.

**General Description:** Head conical, mouth terminal and teeth not visible when mouth closed. Small fishes for tilapia, males very brightly coloured. Together with *A. latilabris* and *A. ndalalani*, the only fish found in the Lake Natron and surrounding springs.

**Habitat:** Volcanic springs and lagoon edges.

**Distribution:** Internal Drainage basin. Restricted to Lake Natron.

# *Alcolapia latilabris*



Photograph credits: J. J. Day, L. Rüber.

**Body Size:** 4-8 cm

**Appearance:** Deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Grey to brown with vertical dark banding **Males:** Intense breeding colouration. Blue or green/yellow flanks, white to cream belly, red tails, with bright white lip in breeding males.

**General Description:** Distinctive head morphology: Head and snout long and wide, with oarge fleshy lips. Mouth subterminal to inferior with broad jaws and short lower jaw, and pronounced concavity of chin region. Teeth densely set and visible when mouth closed. Small fishes for tilapia, males very brightly coloured. Together with *A. alcalica* and *A. ndalalani*, the only fish found in the Lake Natron and surrounding springs.

**Habitat:** Volcanic springs and lagoon edges.

**Distribution:** Internal Drainage basin. Restricted to Lake Natron.

# *Alcolapia ndalalani*



Photograph credits: J. J. Day, L. Rüber.

**Body Size:** 4-8 cm

**Appearance:** Deep body.

**Anal Spine Count:** 3.

**Females and juveniles:** Grey to brown with vertical dark banding **Males:** Intense breeding colouration. Yellow flanks, iridescent blue upper flanks, red lower head, white to cream belly, red tail, with bright white lip in breeding males.

**General Description:** Distinctive head morphology: Head short, with blunt snout and narrow subterminal mouth. Steep head profile with a large eye. Lower jaw shorter than *A. alcalica* but longer than in *A. latilabris*. More dorsal spines than *A. alcalica* and *A. latilabris* Small fishes for tilapia, males very brightly coloured. Together with *A. alcalica* and *A. latilabris*, the only fish found in the Lake Natron and surrounding springs.

**Habitat:** Volcanic springs and lagoon edges.

**Distribution:** Internal Drainage basin. Restricted to Lake Natron.

# Bibliography

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