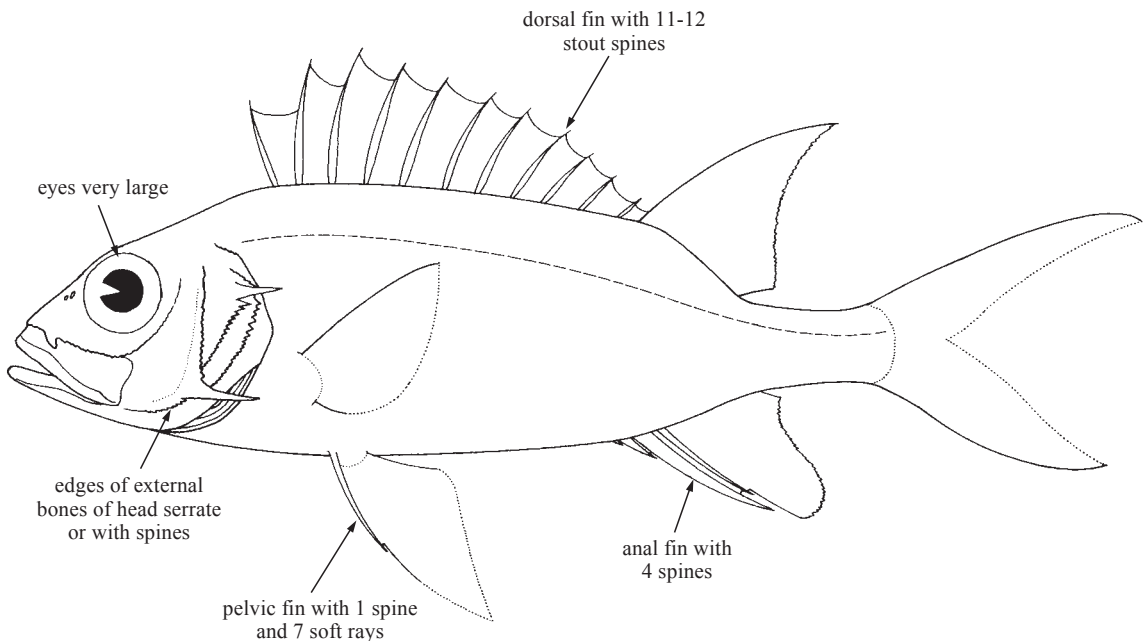


## HOLOCENTRIDAE

## Squirrelfishes (soldierfishes)

by D.W. Greenfield, University of Hawaii, USA

**Diagnostic characters:** Small to medium-sized (to 34.5 cm standard length in Atlantic, 36 cm worldwide); body ovate to moderately elongate; **body compressed**; **caudal peduncle slender**; head with upper profile rounded; **ridges and mucous channels dorsally on head**; **edges of external bones of head serrate or with spines**. **Eyes very large**. Mouth terminal or with lower jaw projecting; gape slightly to strongly oblique; mouth moderately large, the maxilla extending posteriorly at least to a vertical at front edge of pupil (often beyond middle of eye); upper jaw protractile; 2 supramaxillae present; small villiform teeth in bands in jaws and on roof of mouth (on vomer, palatines, and for some species, on ectopterygoids). Branchiostegal rays 8. Dorsal-fin base long, base of spinous portion 2 to 4 times that of soft portion; **dorsal fin with 11 or 12 (worldwide rarely 13) stout spines** (includes one in second part of dorsal fin if present) and 12 to 16 (to 17 worldwide) soft rays, deeply or completely notched between spinous and soft portions or between last 2 dorsal-fin spines; **anal fin with 4 spines, the third stoutest and often longest, and 8 to 13 (7 to 16 worldwide) soft rays**; **caudal fin forked with 17 branched rays**; **pelvic fins with 1 spine and 7 soft rays**. **Lateral line complete, the pored scales 28 to 57 (25 to 57 worldwide)**; **scales of body strongly spinoid**; surface of scales smooth or with ridges. **Colour: usually red or pink**, scale centres of body often lighter (may be silvery white), thus may form stripes; black pigment may be present on opercular membrane or as markings on fins. Fins may also have yellow or white markings.



**Habitat, biology, and fisheries:** Most of the squirrelfishes (subfamily Holocentrinae) and soldierfishes (subfamily Myripristinae) live in relatively shallow water on coral reefs or rocky bottoms, but a few (particularly the genus *Ostichthys*) occur in depths of 200 m or more. Their large eyes suit them well for their nocturnal habits. The family also is well known for sound production. Squirrelfishes feed mainly on crustaceans living on or near the bottom, whereas soldierfishes of the genus *Myripristis* feed on larger elements of night zooplankton. The preopercular spine of at least some species of *Sargocentron* in the Indo-Pacific region is venomous; it is not known if Atlantic species are venomous. Although wounds from these spines may be very painful, they are not as serious as those from the dorsal-fin spines of most scorpionfishes. Many of the holocentrids are too small to be of any commercial value; the largest are frequently seen in local markets, but rarely in abundance. They are sometimes used in the aquarium trade.

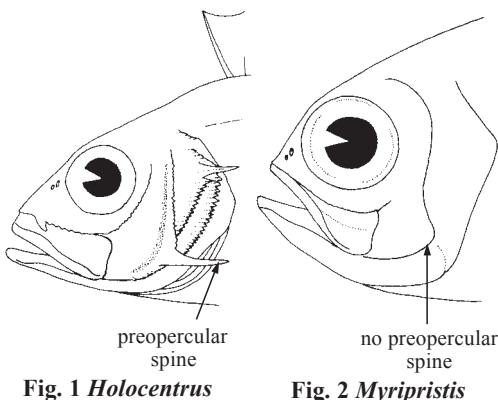
**Similar families occurring in the area**

None. The serrate bony edges and spines on the head, in combination with the large eyes, the very long spinous portion (as compared to soft portion) of the dorsal fin, the presence of 4 spines in the anal fin and of 7 soft rays in the pelvic fins, readily distinguishes squirrelfishes and soldierfishes from other fish families occurring in the area.

**Key to the species of Holocentridae occurring in the area**

1a. Preopercle with a sharp angle and a single strong spine much longer than broad (Fig. 1); 11 spines in anterior portion of dorsal fin, none in posterior portion (except in *Neoniphon* which has 10 spines in anterior portion and 1 in posterior); 7 to 10 segmented (soft) rays in anal fin  
 . . . . . (subfamily **Holocentrinae**) → 2

1b. Preopercle crescentric, usually without a single spine (Fig. 2) (*Ostichthys* has a short triangular projection, and *Corniger* has 1 or 2 strong spines); 10 or 11 spines in anterior portion of dorsal fin and always 1 spine in posterior portion; anal-fin rays more than 10 . . . (Subfamily **Myripristinae**) → 8



2a. Upper lobe of caudal fin notably longer than lower lobe; anterior segmented (soft) dorsal-fin rays elongate (Fig. 3); gill rakers on lower limb of first gill arch 15 to 18 (including rudiments and the raker at the angle of arch); white chevron band on body below posterior spinous dorsal fin . . . . . **Holocentrus** → 3

2b. Lobes of caudal fin nearly equal in length; anterior segmented dorsal-fin rays not elongate; gill rakers on lower limb of first gill arch 10 to 14 . . . . . → 4

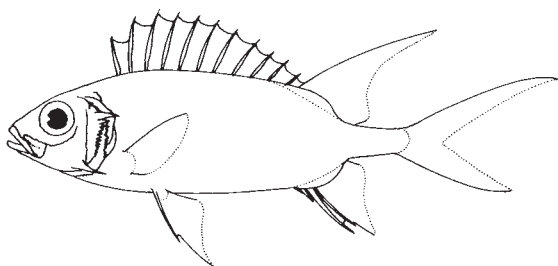


Fig. 3 *Holocentrus*

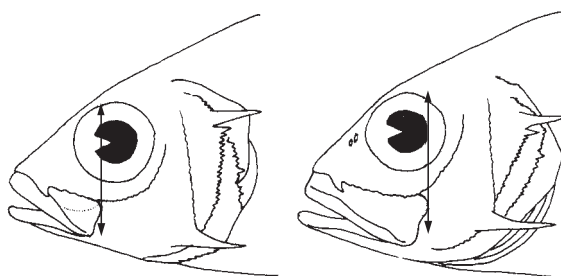
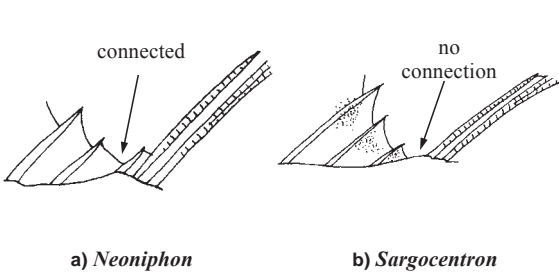


Fig. 4 lateral view of head

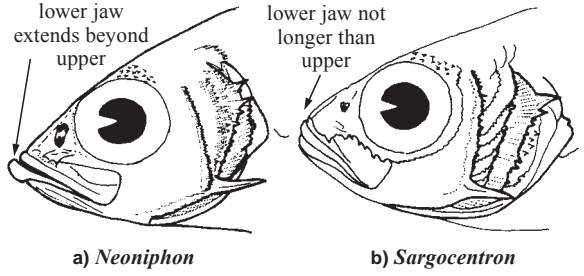
3a. Upper jaw short, extending posteriorly at most to centre of pupil (11.4 to 13.4% standard length) (Fig. 4a); pored lateral-line scales 50 to 57, usually 51 to 54; postorbital length (to tip of opercular spine) usually less than length from rear of orbit to tip of spine at angle of preopercle; dorsal fin with a distinct white spot behind the tip of each spine . . . . . **Holocentrus rufus**

3b. Upper jaw longer, extending beyond centre of eye (13.6 to 15.8% standard length) (Fig. 4b); pored lateral-line scales 45 to 51, usually 47 to 49; postorbital length usually greater than length from orbit to tip of spine at angle of preopercle; dorsal fin lacking white spots behind spine tips, usually yellowish anteriorly . . . . . **Holocentrus adscensionis**

- 4a. Last dorsal-fin spine much closer to first soft dorsal-fin ray than to penultimate spine and connected by a membrane (Fig. 5a); lower jaw extending beyond upper, entering dorsal profile (except in small juveniles) (Fig. 6a); in life, yellow stripes on body and broad yellow stripe in dorsal fin . . . . . *Neoniphon marianus*
- 4b. Last dorsal-fin spine about equidistant to first soft ray and penultimate spine, separated from first dorsal-fin ray (Fig. 5b); lower jaw equal or shorter than upper (Fig. 6b) . (*Sargocentron*) → 5

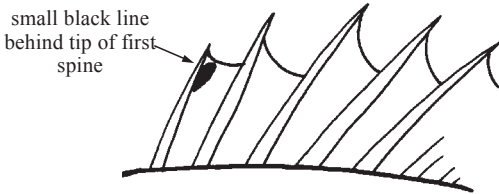


a) *Neoniphon*                      b) *Sargocentron*  
**Fig. 5 junction of spinous and soft dorsal fins**

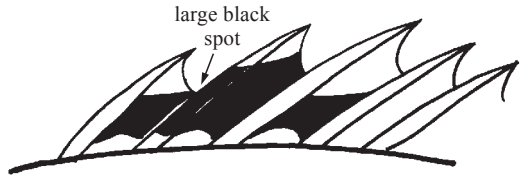


a) *Neoniphon*                      b) *Sargocentron*  
**Fig. 6 lateral view of head**

- 5a. Pectoral-fin axil jet black (in small specimens) to dusky brown (in large specimens) (dark red in life); dorsal-fin rays usually 13 (12 to 14); pectoral-fin rays usually 15 (14 to 16); anal-fin rays usually 9 (8 to 10); in life, first dorsal fin with broad red markings on membranes . . . . . *Sargocentron vexillarium*
- 5b. Pectoral-fin axil pale; in life, dorsal fin mostly red with white along spines; dorsal-fin rays 11 to 13 (usually 13 only in *Sargocentron poco* which has a dark blotch below second dorsal fin); pectoral-fin rays usually 14 or fewer; anal-fin rays usually 7 or 8, rarely 9 . . . . . → 6
- 6a. No large black spot on first membrane of dorsal fin; a small black line on membrane behind distal tip of first dorsal spine in smaller individuals (Fig. 7); no spines by nostril, snout spinules small, limited to rim of premaxillary groove; pectoral-fin rays usually 14 (13 to 15); dorsal-fin rays 11 or 12, usually 12 . . . . . *Sargocentron bullisi*
- 6b. A large black spot on anterior portion of spinous dorsal fin (Fig. 8); snout spinules either by nostril or between nostril and premaxillary groove; pectoral-fin rays 12 to 14; dorsal-fin rays 11 to 13 . . . . . → 7

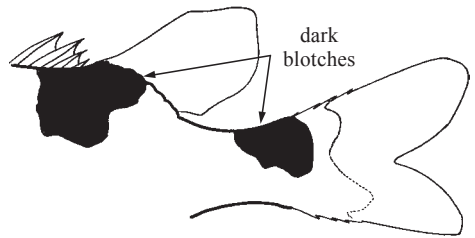


**Fig. 7 spinous dorsal fin (*Sargocentron bullisi*)**



**Fig. 8 spinous dorsal fin (*Sargocentron poco*)**

- 7a. A dark blotch below second dorsal fin and a second blotch on caudal peduncle (Fig. 9); pored lateral-line scales 37 to 40; dorsal-fin rays 13; pectoral-fin rays 13 or 14 (usually 14); a single spine between nostril and premaxillary groove and 1 spine on margin of premaxillary groove . . . . . *Sargocentron poco*
- 7b. No dark blotch below second dorsal fin or on caudal peduncle; pored lateral-line scales 41 to 45; dorsal-fin rays 11 to 13 (usually 12); pectoral-fin rays 12 or 13 (usually 13); snout spinules prominent, a single spine extending into posterior narial opening . . *Sargocentron coruscum*



**Fig. 9 *Sargocentron poco***

- 8a. Ten spines in anterior portion of dorsal fin, 1 in posterior portion; first gill arch with 20 to 22 gill rakers on lower limb (including 1 at angle), total gill rakers 27 to 32; a dark bar from upper edge of gill opening to pectoral-fin axil . . . . . *Myripristis jacobus*
- 8b. Eleven spines in anterior portion of dorsal fin, 1 in posterior portion; first gill arch with 7 to 17 gill rakers on lower limb (including 1 at angle), total gill rakers 18 to 27; no dark bar from upper gill opening to pectoral-fin axil . . . . . → 9
- 9a. No spines on suborbital bones (Fig. 10); premaxillary groove broadly V-shaped (Fig. 11a); body with alternating broad red and white bands running length of body in life . *Ostichthys trachypoma*
- 9b. Long spines present on suborbital bones (Fig. 12); premaxillary groove not broadly V-shaped (Fig. 11b, c); body bright red, no white bands in life . . . . . → 10

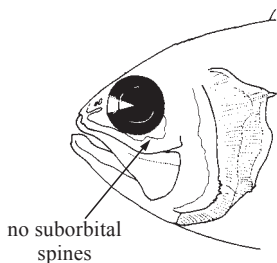


Fig. 10 *Ostichthys*

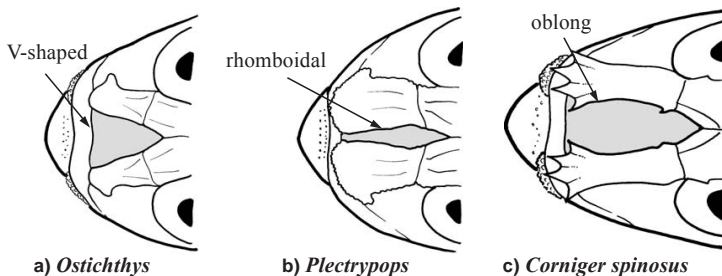
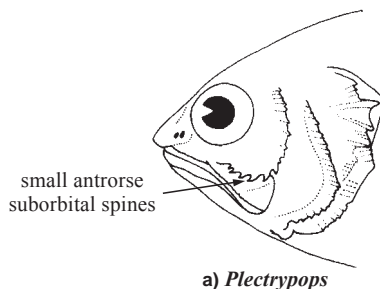
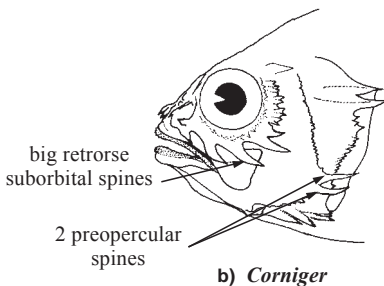


Fig. 11 dorsal detail of head showing premaxillary groove

- 10a. Suborbital spines slender, curved, partly antrorse (forward pointing, Fig. 12a); preopercular spines small; last dorsal-fin spine shorter than penultimate; lateral-line scales 32 to 42; premaxillary groove rhomboidal (Fig. 11b) . . . . . *Plectrypops retrospinis*
- 10b. Suborbital spines long, strong, retrorse (directed posteriorly, Fig. 12b); 2 enlarged preopercular spines present; last dorsal-fin spine equal to or longer than penultimate; lateral-line scales 28 to 30; premaxillary groove oblong (Fig. 11c) . . . . . *Corniger spinosus*



a) *Plectrypops*



b) *Corniger*

Fig. 12 lateral view of head

**List of species occurring in the area**

The symbol is given when species accounts are included.

**Subfamily Holocentrinae**

- Holocentrus adscensionis* (Osbeck, 1765).
- Holocentrus rufus* (Walbaum, 1792).
- Neoniphon marianus* (Cuvier, 1829).
- Sargocentron bullisi* (Woods, 1955).
- Sargocentron coruscum* (Poey, 1860).
- Sargocentron poco* (Woods, 1965).
- Sargocentron vexillarium* (Poey, 1860).

**Subfamily Myripristinae**

- Corniger spinosus* Agassiz 1831.
- Myripristis jacobus* Cuvier 1829.
- Ostichthys trachypoma* (Günther, 1859).
- Plectrypops retrospinis* (Guichenot, 1853).

## References

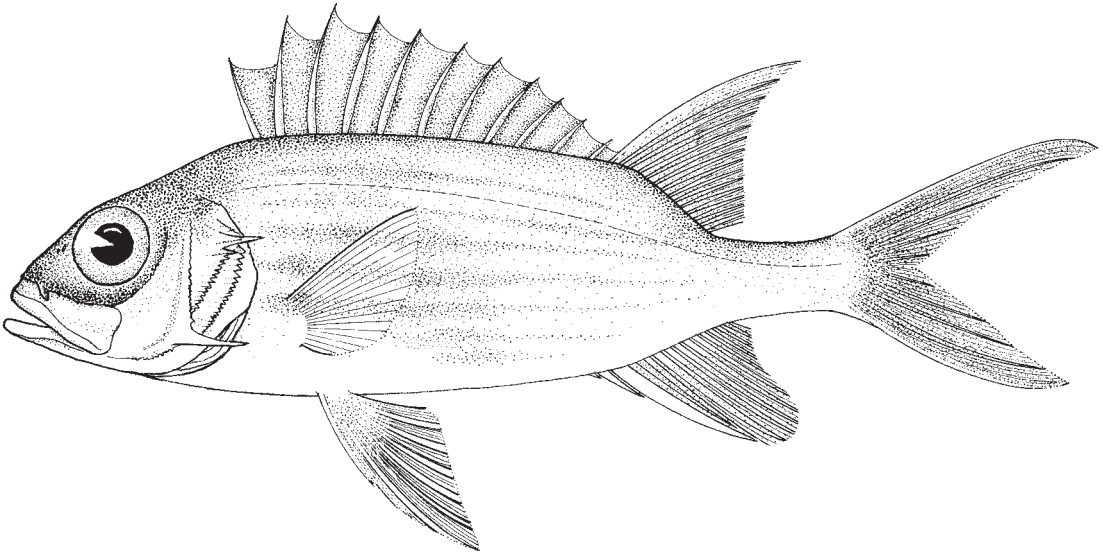
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***Holocentrus adscensionis*** (Osbeck, 1765)

HOO

**Frequent synonyms / misidentifications:** *Holocentrus ascensionis* (Osbeck, 1771).

**FAO names:** **En** - Squirrelfish; **Fr** - Marignon coq; **Sp** - Candil gallito.

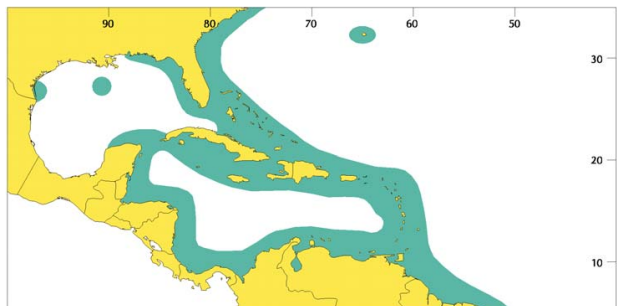


**Diagnostic characters:** A large species with a moderately compressed, relatively slender, oblong body; caudal peduncle slender and long. Edges of membrane bones of head serrate and spiny; a long strong spine present at angle of preopercle; **upper jaw long, extending to or beyond posterior margin of pupil; postorbital length usually greater than length from orbit to tip of spine at angle of preopercle**; total gill rakers on first gill arch 23 or 24. Anterior portion of dorsal fin with 11 spines, posterior portion of fin with 14 to 16 soft rays; anal fin with 4 spines followed by 10 soft rays; **anterior soft dorsal-fin rays and upper caudal-fin rays elongate. Pored lateral-line scales 45 to 51, usually 47 to 49. Colour:** back and upper sides reddish with gold reflections; silvery stripes following scale intersections on upper sides; stripes broader on lower scale rows; lower sides, belly, and breast white. Snout and top of head dark red; upper portion of maxilla white; a white streak diagonally across cheek, lower jaw white; iris bright red near pupil, distal margin blackish. Dorsal-fin spines yellowish or yellowish green; interspinal membranes yellowish green adjacent to spines and basally; margin of membrane red; soft dorsal-fin rays pink; outer caudal-fin rays white, the rest pink; first 3 anal-fin spines white, fourth spine and soft rays pink; pectoral fin pink, upper edge of first 2 rays darker red; pelvic-fin spine and anterior margin of first ray white, other pelvic-fin rays pink.

**Size:** Maximum to at least 34.5 cm standard length, reported to reach 60.8 cm total length in the literature.

**Habitat, biology, and fisheries:** Found from shallow coral reefs to offshore deeper waters up to more than 90 m, but more common at inshore reef zones. A nocturnal species, hiding by day in deep crevices or under coral ledges; at night usually feeding away from the reef over sand and grass beds, taking mainly crabs, shrimps, and other small crustaceans. Caught incidentally throughout its range, regularly taken in some artisanal fisheries on the Venezuelan coast (i.e. Los Roques, La Orchila, Los Frailes). Caught mainly in traps, occasionally with trammel nets. Marketed mostly fresh. Separate fisheries statistics are not reported for this species.

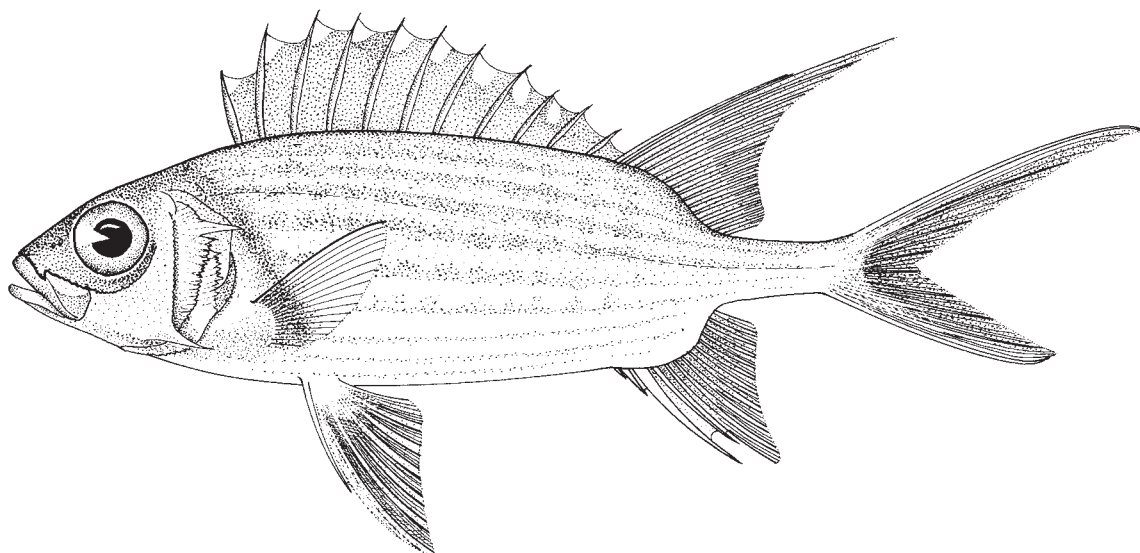
**Distribution:** Shore and shallow waters of Bermuda, Chesapeake Bay, Virginia south through Florida, northwestern, northeastern, and southern Gulf of Mexico, throughout the West Indies, and Caribbean shores south to Santos, Brazil. Also the islands of the tropical and subtropical Atlantic, south Trinidad, St. Helena, Ascension, and the African coast from Sao Tome Island and Gabon south to Angola.



***Holocentrus rufus*** (Walbaum, 1792)

**Frequent synonyms / misidentifications:** None / None.

**FAO names:** **En** - Longspine squirrelfish; **Fr** - Marignon soldat; **Sp** - Candil soldado.

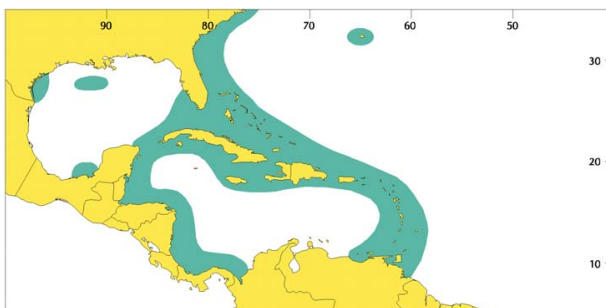


**Diagnostic characters:** A large species with a moderately compressed, relatively slender, oblong body; caudal peduncle slender and long. Edges of membrane bones of head serrate and spiny; a long, strong spine present at angle of preopercle; **upper jaw short extending at most to below centre of pupil; postorbital length usually less than length from orbit to tip of spine at angle of preopercle**; total gill rakers on first gill arch 24 to 26. Anterior portion of dorsal fin with 11 spines, posterior portion of fin with 14 to 16 soft rays; anal fin with 4 spines followed by 10 soft rays (rarely 9 or 11); **anterior soft dorsal-fin rays and upper caudal-fin rays elongate. Pored lateral-line scales 50 to 57, usually 51 to 54. Colour:** top of head and suborbital brick red; iris red; lips and branchiostegal membranes pink, cheeks and opercular bones shining white. Lines on sides above lateral line red, diffuse, about equal in width to light interspaces; lines very indistinct, pink below lateral line. Dorsal-fin spines and membranes red or pink basally, a white triangular or round spot distally just posterior to each spine tip; soft rays of dorsal, anal, caudal, and pelvic fins pink; third anal-fin and pelvic-fin spines white at least on anterior portion; pectoral fins pale, a faint red spot on basal portion of upper rays.

**Size:** Maximum to at least 32 cm standard length.

**Habitat, biology, and fisheries:** Inhabits shallow reefs, from the surface to 32 m in the Gulf of Mexico. A nocturnal species, hiding by day in deep crevices or under coral ledges; at night usually feeding away from the reef over sand and grass beds, taking mainly crabs, shrimps, gastropods, and brittle stars. Caught incidentally throughout its range. Caught mainly in traps, occasionally with trammel nets. Marketed mostly fresh. Separate fisheries statistics not reported for this species.

**Distribution:** Bermuda, Carolinas to Florida and Gulf of Mexico, and throughout the West Indies; Central American coast south to northern South America. More abundant in the northern part of its range.

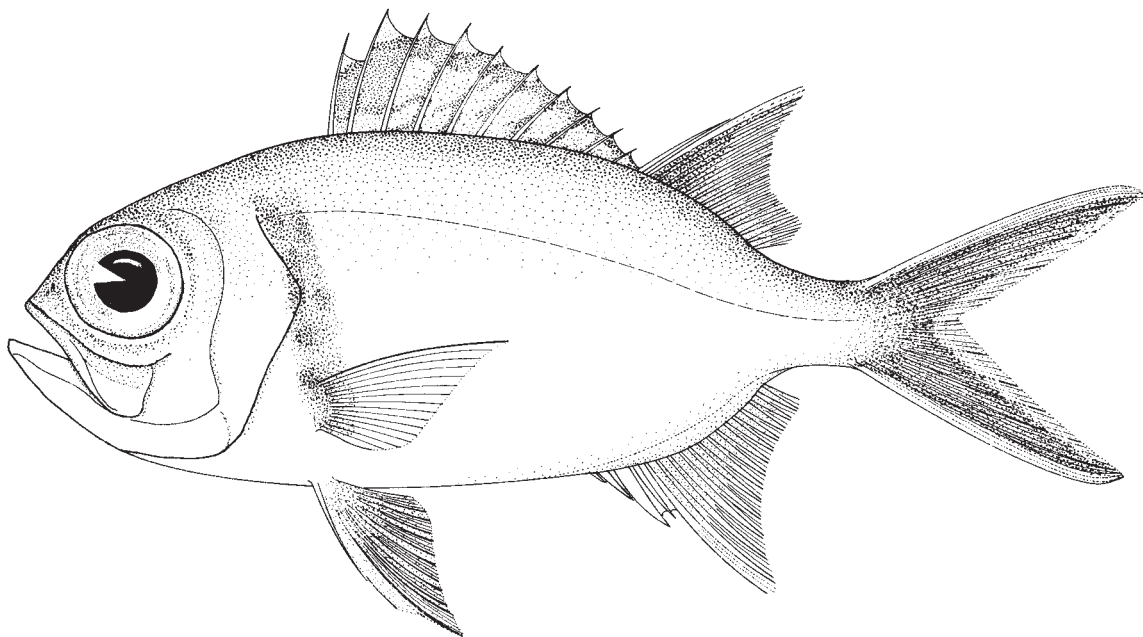


*Myripristis jacobus* Cuvier, 1829

MJA

**Frequent synonyms / misidentifications:** None / None.

**FAO names:** En - Blackbar soldierfish; Fr - Marignon mombin; Sp - Candil de piedra.

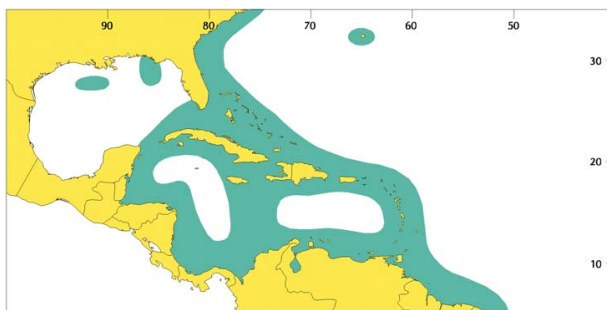


**Diagnostic characters:** A large species with a moderately compressed, relatively deep, oblong body. Anterior profile triangular; eyes very large; bones of head smooth except their margins usually finely serrate; **no spine on preopercle or on preorbital bone**; total gill rakers on first gill arch 29 to 33, usually 31. Anterior portion of dorsal fin with 10 spines, posterior portion of fin with 1 spine followed by 12 to 15 soft rays, usually 14; anal fin with 4 spines followed by 12 to 14 soft rays, usually 13. **Scales present on the membranes between rays of soft dorsal and anal fins, covering over 1/2 of the fin length**; pored lateral-line scales 33 to 37, usually 35. **Colour:** head and back reddish orange above, shading into a more reddish pink on flanks and silvery below; reddish black pigment on post-temporal, supracleithrum, cleithrum, posterior margin of opercle, and opercular flap, **giving the appearance of a broad rectangular bar running from the upper end of gill opening to pectoral-fin base**. Central portion of membranes between first 2 dorsal-fin spines reddish orange, with white on distal and basal portions; membranes of remaining dorsal-fin spines reddish orange only on distal portions; anterior border of pelvic fins, soft dorsal and anal fins, and caudal fin white, with a darker bank of reddish orange directly posterior to the white edge.

**Size:** Maximum to 21.6 cm standard length.

**Habitat, biology, and fisheries:** Found from shallow coral reefs to offshore deeper waters to depths of about 90 m. A nocturnal species aggregating around coral reefs and deeper rocky reefs. Feeds at night, predominantly on planktonic organisms. Caught incidentally throughout its range, more regularly taken in some local artisanal fisheries (i.e. Venezuela). Caught mainly in traps and marketed mostly fresh. Separate statistics not reported for this species.

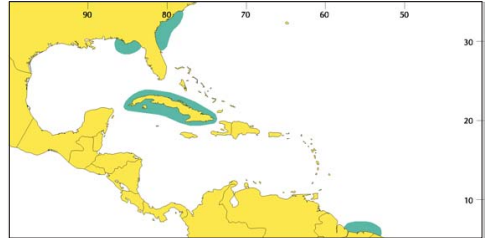
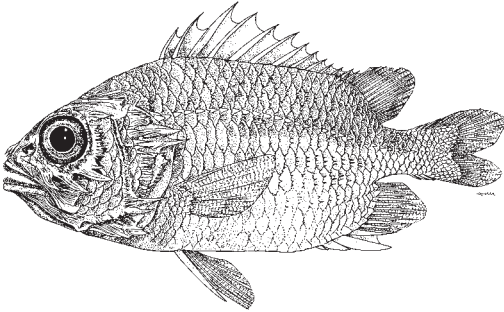
**Distribution:** North Carolina to Rio de Janeiro, Brazil, including Bermuda, the Gulf of Mexico, throughout the West Indies, Central American coast, Campeche Bank, Venezuela, and offshore Guyanas. Also occurs at Cape Verde Islands, Ascension Island, Principe, St. Helena Islands, and coast of Africa at Ghana, Benin, and Sao Tome Island.



***Corniger spinosus* Agassiz, 1831**

**En** - Spinycheek soldierfish.

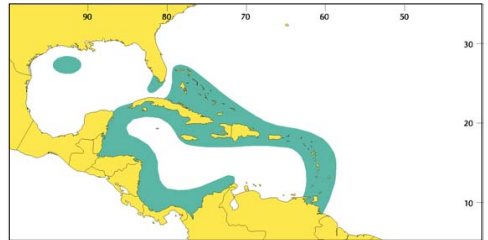
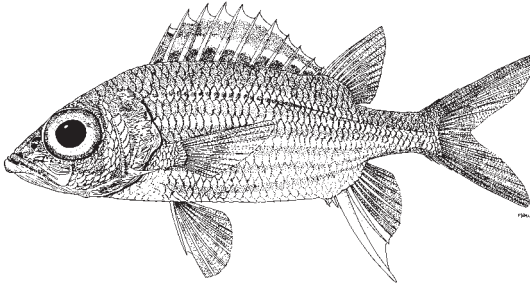
Maximum size to 19.5 cm standard length. Recorded only from South Carolina, Florida, Gulf of Mexico, Cuba, French Guiana, Suriname, and Rio de Janeiro, Brazil. This species usually found in deeper water (50 m or more) and certainly is more widespread in other areas than collections indicate. Also present in eastern Atlantic at St. Helena.



***Neoniphon marianus* (Cuvier, 1829)**

**En** - Longjaw squirrelfish.

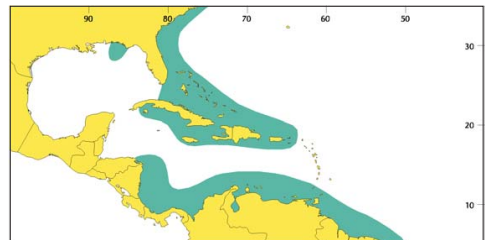
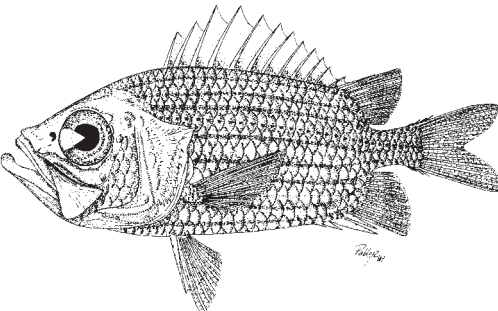
Maximum size to 17 cm standard length. Known from the Florida Keys, the Bahamas, Gulf of Mexico, Antilles south to Trinidad, and throughout the Caribbean. Rarely seen in water less than 13 m; feeds mainly on shrimps but also takes crabs. *Flammeo* is a junior synonym.



***Ostichthys trachypoma* (Günther, 1859)**

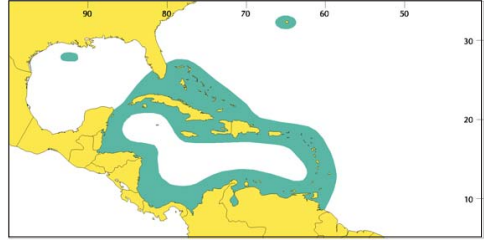
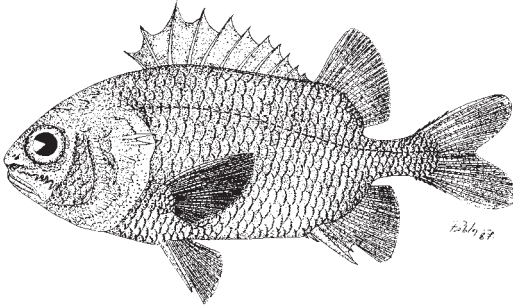
**En** - Bigeye soldierfish.

Maximum size to 19 cm standard length. This species usually lives on or near the bottom in waters 200 to 460 m, but has been taken as shallow as 37 m. Known from New York south to Florida and the Greater Antilles, Gulf of Mexico, and the Caribbean Sea to northern Brazil.

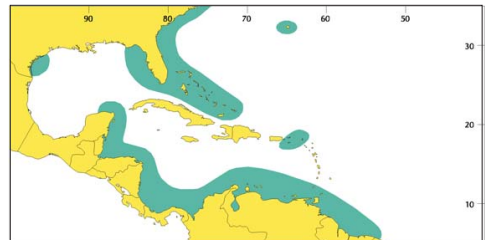
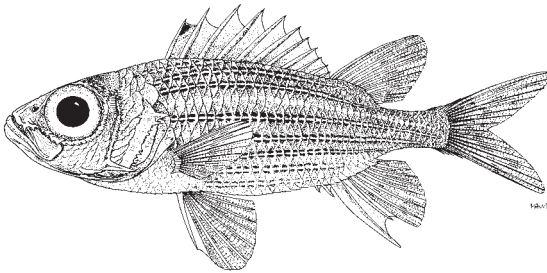


***Plectrypops retrospinis* (Guichenot, 1853)****En** - Cardinal soldierfish.

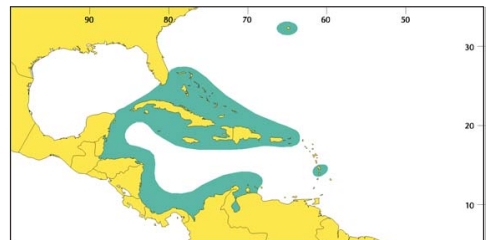
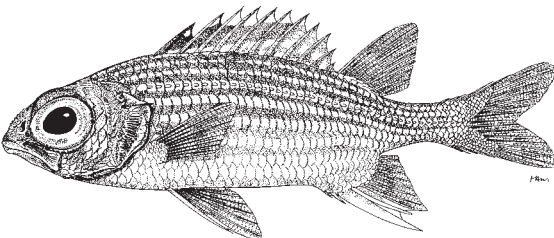
Maximum size to 11.8 cm standard length. Known from Bermuda, the Bahamas and Florida Keys, Cuba, Jamaica, Puerto Rico, northwestern Gulf of Mexico, western Caribbean, Panama, and southern Brazil. Although this species occurs in shallow water, it is more common in deeper water and thus certainly is more widespread than records indicate. Feeds mainly on shrimp, but also takes crabs and polychaetes. Lives well within the reef structure and seldom seen. More common at shelf edge.

***Sargocentron bullisi* (Woods, 1955)****En** - Deepwater squirrelfish.

Maximum size to 12.9 cm standard length. Recorded from Bermuda, the Bahamas, South Carolina south to the Dry Tortugas and the Gulf of Mexico, western Caribbean, Virgin Islands, and Suriname. Known mostly from offshore deeper waters 36 to 120 m. The few stomachs examined contained small cycloid scales. *Adioryx* is a junior synonym.

***Sargocentron coruscum* (Poey, 1860)****En** - Reef squirrelfish.

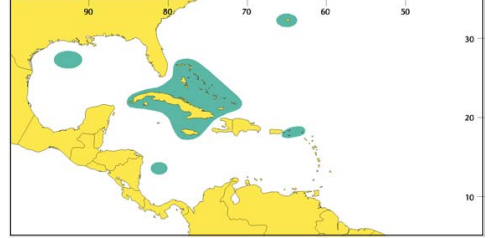
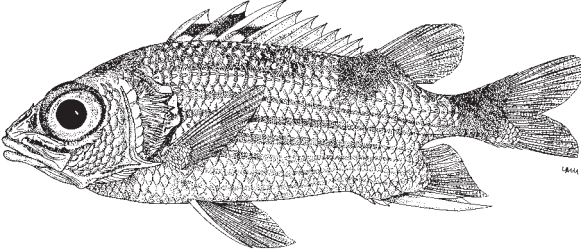
Maximum size to 10.4 cm standard length. Known from Bermuda, the Bahamas, Florida Keys, Greater Antilles, Virgin Islands, Campeche Bank south along the Central American coast to Panama and Curaçao. Feeds mainly on shrimp but also takes crabs. More often found in low profile sand or carbonate pavement habitats at night but in the reef by day. *Adioryx* is a junior synonym.



***Sargocentron poco* (Woods, 1965)**

**En** - Saddle squirrelfish.

Maximum size to 10.7 cm standard length. Reported from Bermuda, the Bahamas, Cuba, Grand Cayman, Virgin Islands, Gulf of Mexico, Providencia Island. Feeds mainly on shrimp but also takes crabs. *Adioryx* is a junior synonym.



***Sargocentron vexillarium* (Poey, 1860)**

**En** - Dusky squirrelfish.

Maximum size to 13.9 cm standard length. Known from Bermuda, the Bahamas, Florida south through the Lesser Antilles, Gulf of Mexico, Campeche Bank south along the Central American coast to Panama and Colombia. This is the most common inshore squirrelfish in the West Indies. It feeds mainly on crabs, but also takes shrimps and gastropods, and is widely distributed across most reef zones. *Adioryx* is a junior synonym.

