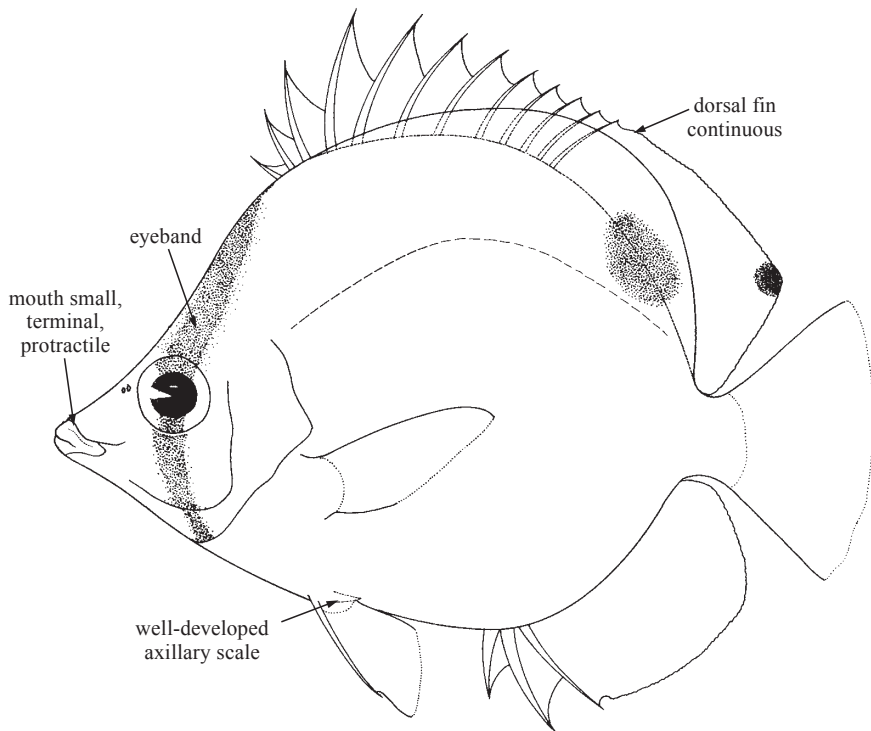


CHAETODONTIDAE

Butterflyfishes

by W.E. Burgess, Red Bank, New Jersey, USA

Diagnostic characters: Small to medium-sized (to 19 or 20 cm) fishes with body deep and strongly compressed, oval to orbicular in shape. Head about as high as long; **preopercle never with a strong spine at angle**; mouth very small, terminal, protractile, the gape not extending to anterior rim of orbit; **teeth setiform, usually arranged in brush-like bands in jaws**; no teeth present on roof of mouth. Snout slightly to greatly prolonged in some species. Gill membranes narrowly attached to isthmus. Dorsal fin with 6 to 16 spines (12 to 14 in western Atlantic species), and 15 to 30 soft rays (18 to 23 in western Atlantic species); continuous or sometimes with a slight notch between soft and spinous portions; no procumbent (forward pointing) spine in front of dorsal fin. Anal fin with 3 to 5 spines (3 in western Atlantic species) and 14 to 23 soft rays (14 to 18 in western Atlantic species). Caudal fin emarginate to rounded, with 17 principal rays, 15 of which are branched. Lateral line extending to base of caudal fin or ending near base of soft portion of dorsal fin (ending near base of soft dorsal-fin rays in western Atlantic species). Scales ctenoid, small to medium-sized, rounded to angular in shape, extending onto soft portions of vertical fins. **Well-developed axillary scaly process present at base of pelvic-fin spine**. Twenty-four vertebrae (11 + 13). **Pelagic larvae with bony plates in head region present, called the 'tholichthys'**. **Colour:** in the area white or silvery with yellow and various markings of dark brown or black; an eyeband usually present. Some species have an "eye spot" posteriorly, assumedly to confuse predators as they can also swim backwards under stressful conditions.

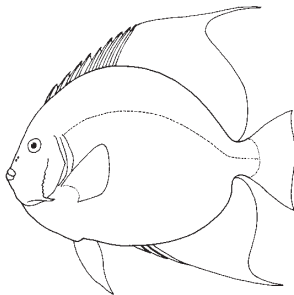


Habitat, biology, and fisheries: The butterflyfishes are predominately coral reef or rocky bottom fishes, usually occurring in tropical and warm-temperate waters at depths of less than 20 m. Several species are more deep-water forms. In the area *Prognathodes aculeatus*, *P. aya*, *P. guyanensis*, and *Chaetodon sedentarius* are known to occur at depths of 100 to 200 m or more. Some Indo-Pacific species penetrate into brackish water. Butterflyfishes normally are solitary or occur in pairs, (juveniles are mostly solitary), though some Indo-Pacific forms form large schools. They feed diurnally on coral polyps, colonial sea anemones (zoantharians), tentacles of tube worms, as well as other invertebrates and algae. Many show a nocturnal colour pattern, usually darkening and sometimes with bars. Because of their relatively small size (no species in the western Atlantic exceeds 15 cm), they have little value as foodfishes. Those that do appear in markets are taken mainly with traps. They do have commercial value as aquarium fishes as almost every species has turned up in the aquarium trade.

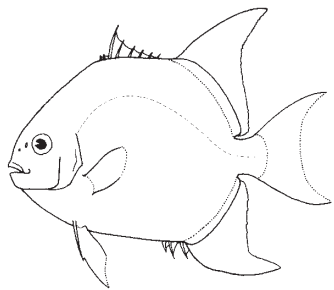
Similar families occurring in the area

Pomacanthidae: strong spine at angle of preopercle; no tholichthys larva; some species with prolonged dorsal and anal-fin rays; no notch in dorsal fin; no scaly axillary process at pelvic-fin base.

Ehippidae: no strong spine at angle of preopercle; no tholichthys larvae; dorsal fin notched, anterior soft dorsal and anal fins with elongated rays.



Pomacanthidae



Ehippidae

Key to the species of Chaetodontidae occurring in the area

- 1a. Snout moderately long, 2.1 to 2.3 in head length; eyeband orange in life, bordered with dark lines, passing forward below eye, ending on upper portion of snout; body without dark bars or spots *Prognathodes aculeatus*
- 1b. Snout shorter, more than 2.4 in head length; eyeband blackish, not extending forward and ending on upper portion of snout; body variously provided with bars or spots → 2
- 2a. Strong, dark blackish eyebands edged in light yellow extending from first 2 dorsal-fin spines to eye, bands continue as weak stripes downward and forward below eye toward isthmus; interorbital stripe present → 3
- 2b. Eyeband extending from nape or shortly before dorsal-fin spines to eye as strong dark bands, continuing as dark bands below eye downward and backward; interorbital stripe absent → 4
- 3a. Dark band extending from middle dorsal-fin spines backward across body to base of posterior half of soft anal-fin rays, but not extending much onto fin. *Prognathodes aya*
- 3b. Dark band extending from middle dorsal-fin spines backward across body to posterior anal-fin rays, extending onto fin to tips of rays; second dark stripe extending through dorsal fin from posterior spines to upper portion of caudal peduncle *Prognathodes guyanensis*
- 4a. Body with black lines converging at midline forming anteriorly directed angles → 5
- 4b. Body without black lines converging at midline to form anteriorly directed angles → 6
- 5a. Dorsal spines normally 8; a large black ocellated spot present on posterior body below second half of soft dorsal-fin rays *Chaetodon capistratus*
- 5b. Dorsal spines normally 7; no ocellated spot on posterior body, but body crossed by 2 broad dark bars, first from anterior dorsal-fin spines to abdomen, second from last dorsal-fin spines to middle of anal fin. *Chaetodon striatus*
- 6a. Soft dorsal and anal fins with acute angle, extending backward to provide almost continuous line with posterior edge of caudal fin; black spot present on base of soft dorsal-fin rays (can fade); small black spot at angle of soft rays; dorsal fin with 7 or 8 spines and 18 to 20 soft rays *Chaetodon ocellatus*
- 6b. Soft dorsal and anal fins short, rounded, not extending past caudal-fin base; dark band extending across posterior fins and body, more persistent and stronger on caudal peduncle and into anal fin. *Chaetodon sedentarius*

List of species occurring in the area

The symbol  is given when species accounts are included.

 *Chaetodon capistratus* Linnaeus, 1758.

 *Chaetodon ocellatus* Bloch, 1787.

 *Chaetodon sedentarius* Poey, 1860.

 *Chaetodon striatus* Linnaeus, 1758.

 *Prognathodes aculeatus* (Poey, 1860).

 *Prognathodes aya* (Jordan, 1886).

Prognathodes brasiliensis Burgess, 2001. W Atlantic along coastal Brazil.

 *Prognathodes guyanensis* (Durand, 1960).

References

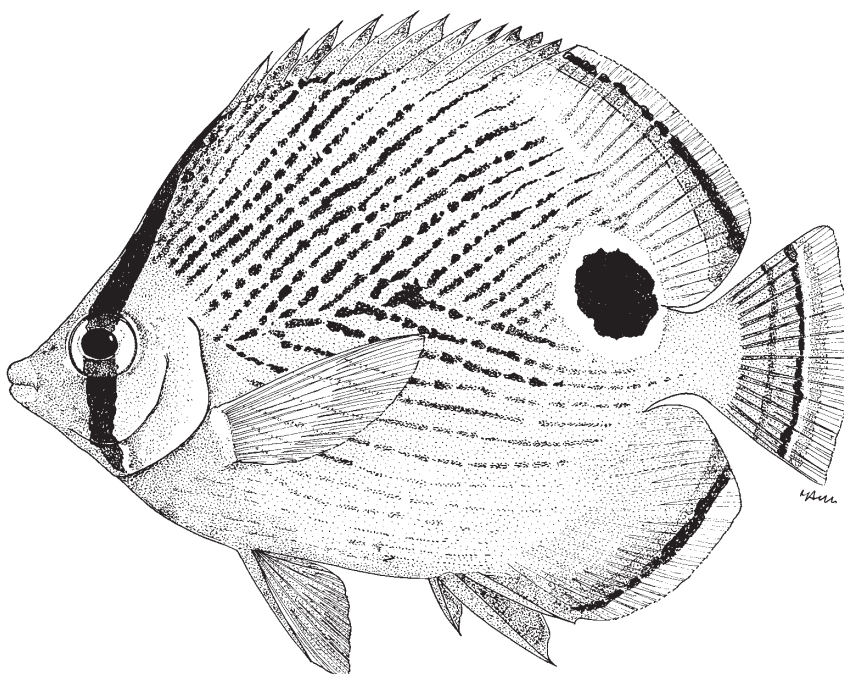
- Böhlke, J.E. and C.C.G. Chaplin. 1968. *Fishes of the Bahamas and adjacent tropical waters*. Wynnewood, Pennsylvania, Livingston Publishing Co., 771 p.
- Burgess, W.E. 1978. *Butterflyfishes of the World*. Neptune City, New Jersey, TFH Publications, Inc., 832 p.
- Nelson, J.S. 1994. *Fishes of the World*, 3rd edition. John Wiley and Sons, Inc., 600 p.
- Randall, J.E. 1996. *Caribbean Reef Fishes*. Neptune City, New Jersey, T.F.H. Publications, Inc., 368 p.
- Robins, C.R. and G.C. Ray. 1986. *A Field Guide to the Atlantic Coast Fishes of North America*. Peterson Field Guide Series. Boston, Houghton Mifflin Company, 354 p.

Chaetodon capistratus Linnaeus, 1758

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Frequent synonyms / misidentifications: None / None.

FAO names: En - Foureye butterflyfish.



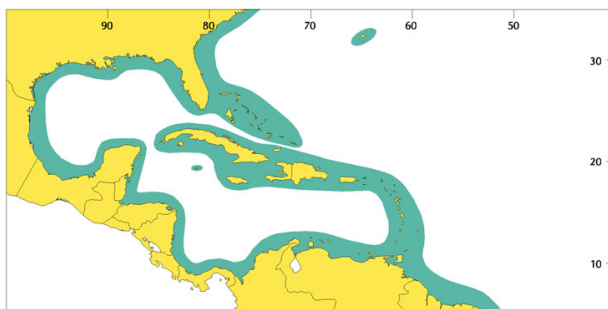
Diagnostic characters: Body deep, 1.5 to 1.6 in standard length, compressed. Snout short, pointed, 3.0 to 3.5 in head length; teeth in bands (bands composed of 6 or 7 rows in each jaw). Dorsal fin with 13 spines and 18 to 20 (rarely 17) rays; anal fin with 3 spines and 16 or 17 rays. Pectoral fin moderate, usually with 14 rays. Soft dorsal and anal fins angled, edges almost forming continuous line with posterior edge of caudal fin. Lateral-line scales 35 to 41 (usually 38 to 40), pores usually 33 to 35. **Colour:** whitish to pale yellow, the body covered with diagonal dark lines converging at midline into forward-directed angles. **A large black spot ocellated with white present posteriorly between midline and soft dorsal-fin base.** Eye band bordered with yellow, extending from nape through eye to lower edge of interopercle. No median stripe on interorbital. A submarginal, dark-edged, light brown band in vertical fin (when fins are spread this forms a continuous band). Pelvic fins yellowish, pectoral fins clear. Caudal fin with hyaline edge. Juveniles with larger ocellated spot on posterior body (more on midline), and in very small specimens a second ocellated spot in soft dorsal fin.

Size: Reaches a length of 8 cm standard length.

Habitat, biology, and fisheries: Relatively common in rocky and reef areas with juveniles more common in grass beds (such as *Thalassia*). Seen as individuals or in pairs. Feeds on small benthic invertebrates. Not a foodfish. It is commonly sold in pet shops as an aquarium fish.

Distribution: Tropical western Atlantic from the Carolinas to Brazil. Occurs in Bermuda and the Gulf of Mexico and straggles north to Massachusetts in late summer.

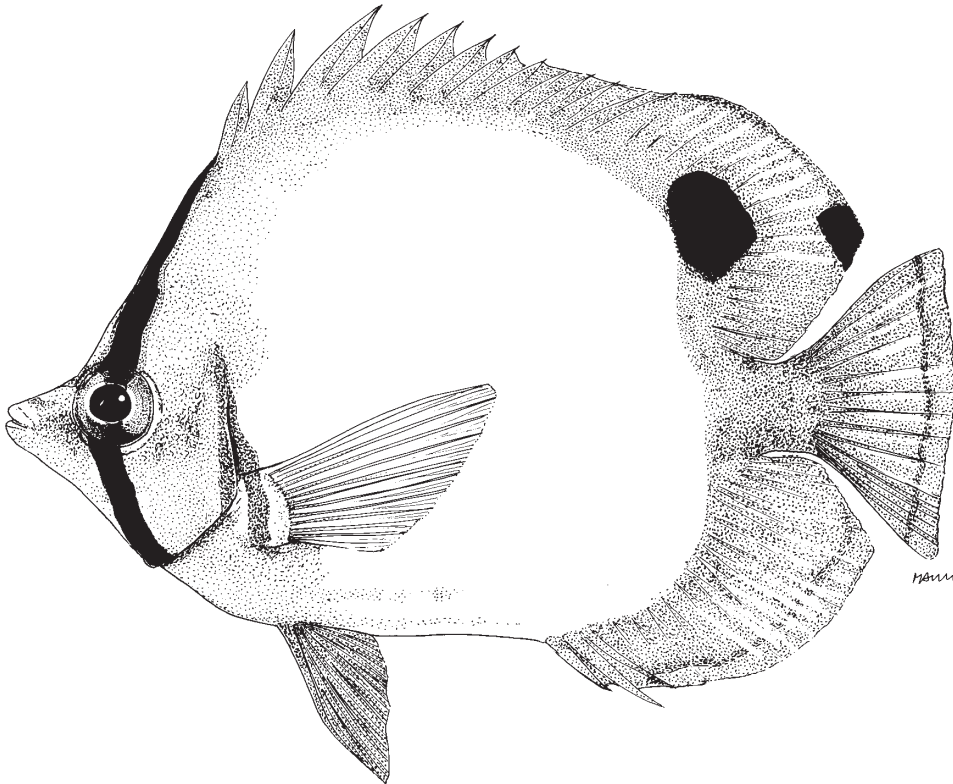
Note: This is the sister species to *Chaetodon striatus*. The 2 are easily distinguished by colour pattern, *C. capistratus* possessing the large ocellus that *C. striatus* lacks; *C. striatus* has dark bars crossing body as a permanent pattern (in *C. capistratus* a similar pattern is seen when the fish is sleeping or under stress). This is the most common butterflyfish in the Caribbean.



Chaetodon ocellatus Bloch, 1781

Frequent synonyms / misidentifications: None / None.

FAO names: En - Spotfin butterflyfish.

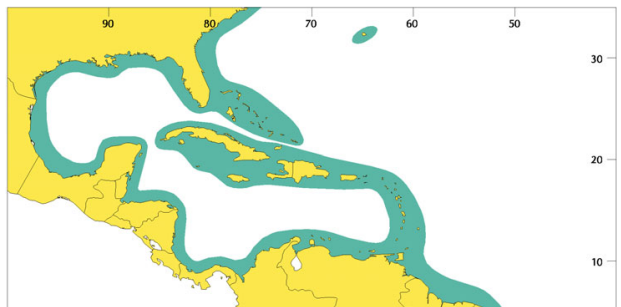


Diagnostic characters: Body deep, 1.4 to 1.7 in standard length, compressed. Snout short, 2.7 to 3.3 in head length; mouth small, terminal; jaws with bands of small teeth (8 or 9 rows in upper jaw, 6 to 9 rows in lower jaw). **Dorsal fin with 12 or 13 spines and 18 to 20 (rarely 21) soft rays.** Anal fin with 3 spines and 16 or 17 (rarely 15) rays. Pectoral fin moderate, with 14 or 15 rays. Soft dorsal and anal fins angled, so that edges almost reach end of caudal fin. Scales in lateral line usually 33 to 39, pores 35 to 39. **Colour:** body white, pelvic and vertical fins yellow, the yellow stronger posteriorly (to yellow-orange) and extending across caudal peduncle and including extreme posterior portion of body. A yellow stripe crosses upper gill opening to and including pectoral-fin base. **Black eyeband bordered with yellow from nape through eye vertically to lower edge of interopercle. No interorbital stripe. Large non-ocellated black spot in soft rays of dorsal fin near body (may fade depending on mood) and small black spot at angle of dorsal fin (males only).** Juveniles similar, but dark bar may extend from dorsal-fin spot across body and caudal peduncle into anal fin.

Size: Maximum of 15 cm standard length.

Habitat, biology, and fisheries: Predominantly a reef species feeding on various benthic invertebrates. Commonly occurring in pairs. Not a foodfish. This species occurs quite often in the aquarium trade.

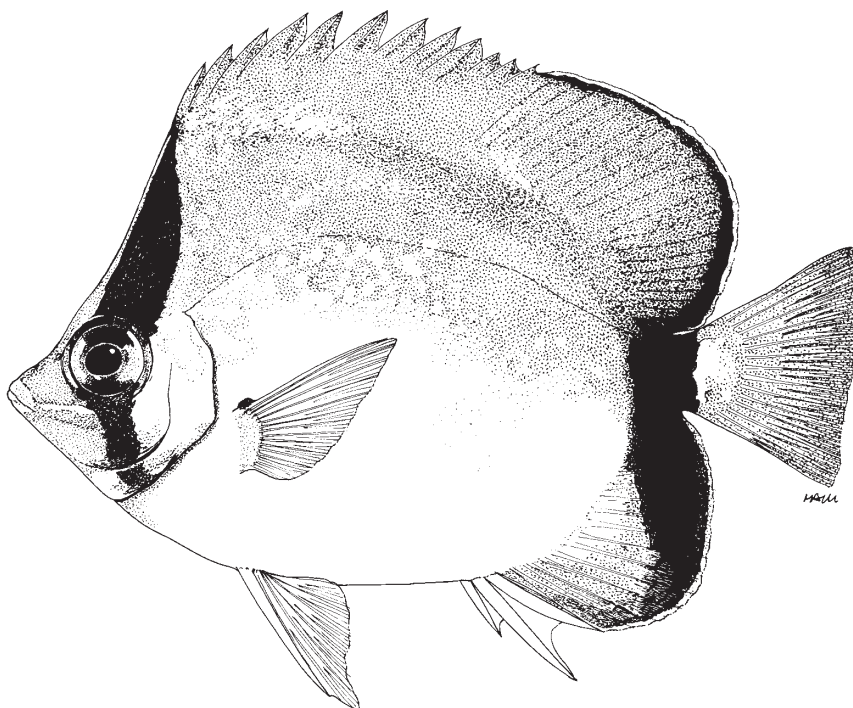
Distribution: Recorded from New England south to Brazil, including the Gulf of Mexico and Bermuda. Juveniles are carried north in the Gulf Stream and apparently do not survive the winter.



Chaetodon sedentarius Poey, 1960

Frequent synonyms / misidentifications: None / None

FAO names: En - Reef butterflyfish.

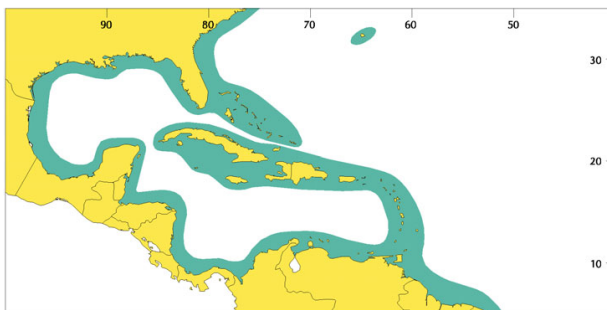


Diagnostic characters: Body deep, 1.6 to 1.8 in standard length, compressed. Snout short, pointed, 3.0 to 3.6 in head length; teeth in bands (bands composed of 5 or 6 rows in each jaw). Dorsal fin with 13 (occasionally 14) spines and 21 or 22 (rarely 20) soft rays; anal fin with 3 spines and 17 to 19 (usually 18) soft rays. Pectoral fin moderate, usually with 14 rays. **Soft dorsal and anal fins rounded, posterior edges not extending much beyond base of caudal fin.** Lateral-line scales 36 to 44 (usually 36 to 40), pores 33 to 41. **Colour:** body white with yellowish to tan tinge dorsally (caused by yellowish to buff coloured scale edges). Weak indications of 7 to 10 vertical lines of a scale's width crossing body. **Eyeband, extending from predorsal area to chest,** is strong, black above eye, weaker below eye, barely indicated on chest, bordered in front and behind with white lines. **A black bar crosses body posteriorly from soft dorsal to soft anal fin, usually only dusky in dorsal fin, more intense on caudal peduncle and in anal fin.** Edge of spinous dorsal fin yellow, narrow edge of soft dorsal and anal fins white, submarginally with dark line, remainder of dorsal fin mostly yellow. Caudal fin yellow, basally white; pelvic fins white; pectoral fins hyaline. No median stripe on snout. Juveniles similar but with a dark spot in dorsal fin and vertically elongate dark spot in anal fin.

Size: Attains a length of 15 cm standard length.

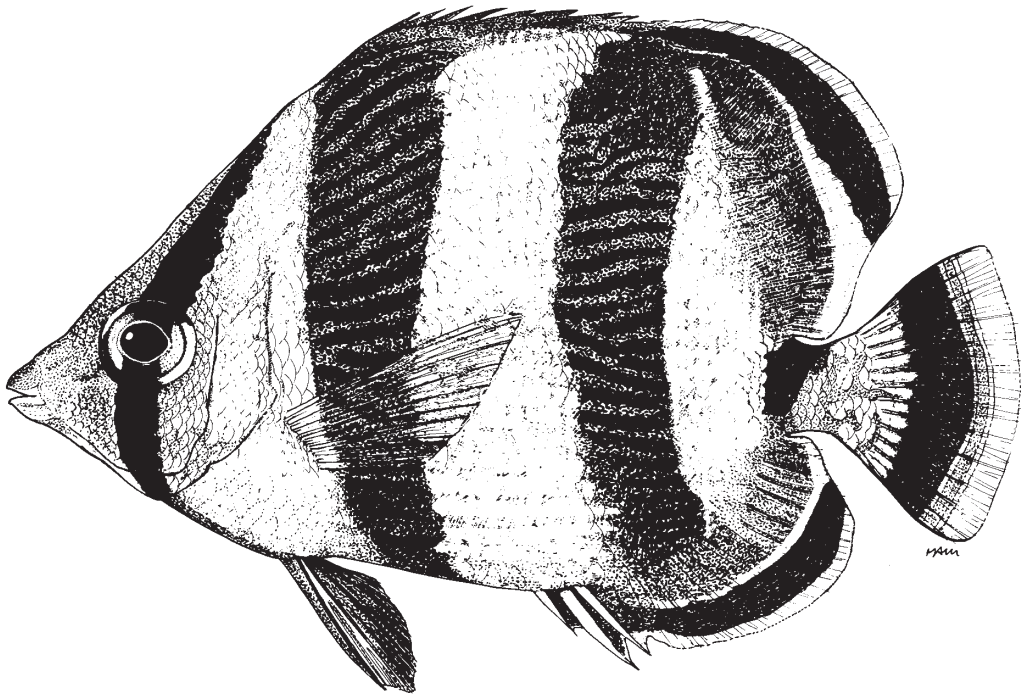
Habitat, biology, and fisheries: Usually inhabiting, on average, deeper water than *C. capistratus*, *C. striatus*, and *C. ocellatus*, being recorded at depths of more than 100 m, though commonly seen in much shallower water. Feeds on benthic invertebrates. Not a foodfish. Appears in pet shops for sale as an aquarium fish, though appears to be more delicate than the more common shallow water species.

Distribution: From the North Carolina coast south through the Caribbean to Brazil. Includes the Bahamas, Bermuda, and the Gulf of Mexico. Common in Florida in deep water.



Chaetodon striatus Linnaeus, 1758

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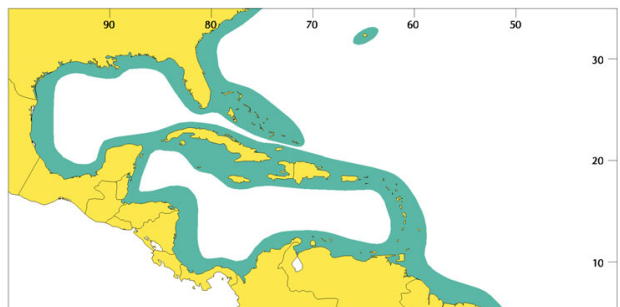
Frequent synonyms / misidentifications: None / None.**FAO names:** En - Banded butterflyfish.

Diagnostic characters: Body deep, 1.4 to 1.8 in standard length, compressed. Snout short, pointed, 2.9 to 3.8 in head length; teeth in bands (bands composed of 9 or 10 rows in each jaw). Dorsal fin with 12 spines and 20 (rarely 19) rays; anal fin with 3 spines and 16 or 17 rays. Pectoral fin moderate, usually with 14 rays. Soft dorsal and anal fins angled, edges almost forming continuous line with posterior edge of caudal fin. Lateral-line scales 37 to 42, pores 35 to 38. **Colour:** whitish to pale yellow, the body covered with dusky to greyish oblique lines converging at midline into forward-directed angles. A broad dark bar extends from anterior dorsal fin spines vertically across body to belly. A second broad dark bar extends from posterior spines across body into middle of anal fin. **No large black ocellated spot present posteriorly between midline and soft dorsal-fin base.** Eyeband runs from nape through eye to lower edge of interopercle. No stripe on interorbital. Submarginal dark brown band present in vertical fins (when fins are spread this forms a continuous band). Bases of soft dorsal and anal fins sooty brown, separated from submarginal band by light line. Dark band or wedge crosses caudal peduncle but does not reach ventral margin. Most of caudal-fin base whitish with worm-like light brownish lines. **Pelvic fins dark brown, spine white**, pectoral fins clear. Juveniles with large ocellated spot in soft dorsal fin (none on body).

Size: Reaches a length of 15 cm standard length.

Habitat, biology, and fisheries: Like *Chaetodon capistratus*, relatively common in rocky and reef areas with juveniles more common in grass beds (such as *Thalassia*). Also seen as individuals or as pairs. Feeds on small benthic invertebrates. Not a foodfish. Commonly sold in pet shops as an aquarium fish.

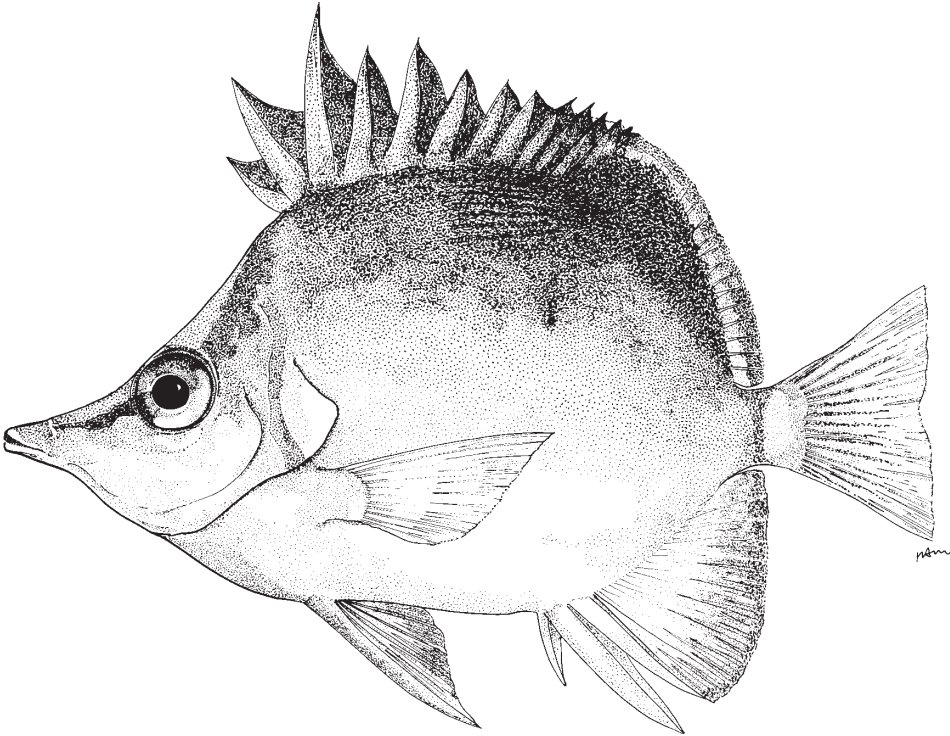
Distribution: Florida and Gulf of Mexico to Brazil. Strays north to New Jersey and has been reported from the eastern Atlantic. Also recorded from Bermuda.



***Prognathodes aculeatus* (Poey, 1860)**

Frequent synonyms / misidentifications: *Chaetodon aculeatus* (Poey, 1860) / None.

FAO names: En - Longsnout butterflyfish.



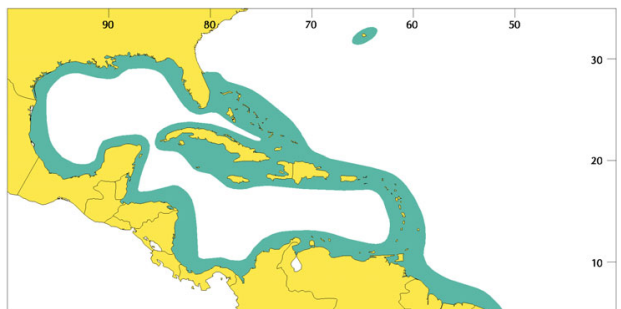
Diagnostic characters: Body deep, 1.7 to 1.9 in standard length, compressed. **Snout prolonged, beak-like**, its length 2.2 to 2.3 in head length; mouth small, terminal; teeth of jaws in brush-like bands of 8 to 10 rows. Dorsal fin with 13 spines and 18 or 19 soft rays. **Spinous dorsal fin triangular, the anterior spines long and deeply incised**; edge of soft dorsal fin nearly vertical. Anal fin with 3 spines and 14 to 16 rays. Soft dorsal and anal fins not extending much beyond caudal-fin base. Pectoral fins moderate, usually with 13 rays. Lateral-line scales 39 to 43, pores 24 to 29. **Colour:** upper body yellow-orange becoming dark brown in dorsal fin, lower body and head whitish. **Eyeband brownish above eye, continuing as yellow-orange stripe from eye to upper edge of snout; median snout stripe present.** Orange stripe extends through soft dorsal fin and crosses caudal peduncle; orange stripe along upper posterior edge of opercle present. Ventral and anal fins yellow. Caudal and pectoral fins hyaline.

Size: Maximum 8 cm standard length.

Habitats, biology, and fisheries: Normally inhabits moderate to deep tropical waters around reef or rocky areas. Occurs most abundantly at 15 to 55 m, but has been found from 1 m to at least 100 m depth. Elongate snout used for selecting small benthic invertebrates from coral and rock crevices and between sea urchin spines. Not a foodfish. Popular aquarium fish, commonly appearing in pet shops for sale.

Distribution: Southern Florida, the Bahamas, and the Gulf of Mexico, along the Caribbean Island arc to the northern coast of South America. Also recorded from Bermuda.

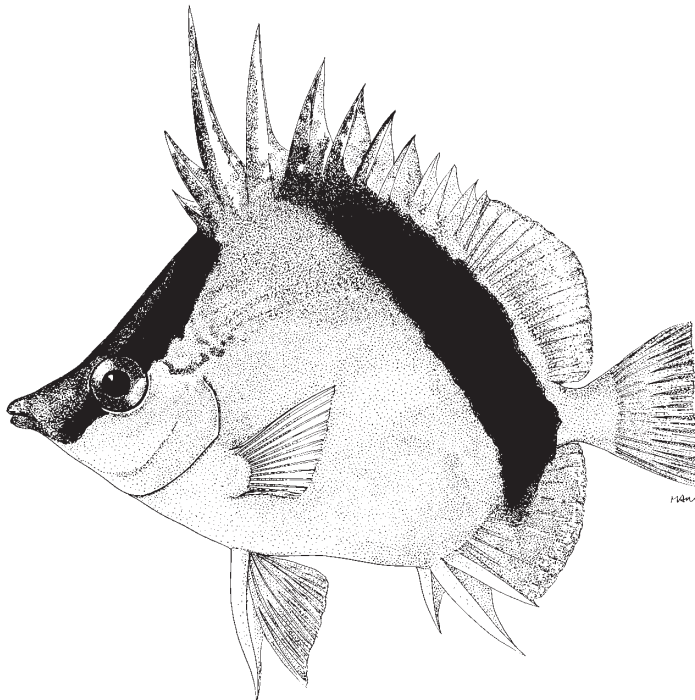
Notes: Some authors have used the combination *Chaetodon aculeatus*. I now regard *Prognathodes* as a full genus.



***Prognathodes aya* (Jordan, 1886)**

Frequent synonyms / misidentifications: None / None.

FAO names: En - Bank butterflyfish.



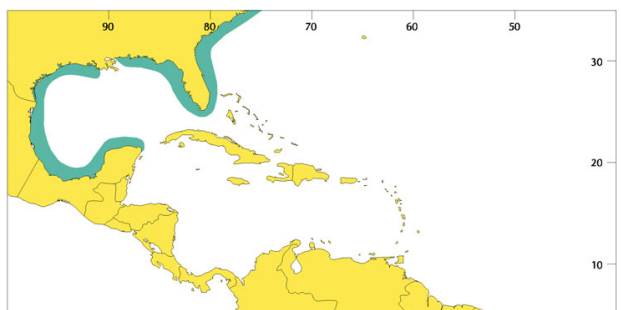
Diagnostic characters: Body deep, 1.5 to 1.9 in standard length, oval to round, strongly compressed. **Snout pointed, slightly produced**, 2.4 to 3.0 in head length. Mouth small, terminal; jaws with brush-like bands (composed of 7 to 9 rows in upper jaw, 5 to 7 rows in lower jaw) of teeth. Dorsal fin with 13 spines and 18 or 19 soft rays; anal fin with 3 spines and 15 soft rays. **Spinous dorsal fin triangular**, third spine longest, soft portion with nearly vertical edge. **Soft portions of dorsal and anal fins not extending much beyond base of caudal fin**. Pectoral fins moderate, usually with 13 rays. Lateral-line scales 37 to 40, pores 30 to 34. **Colour:** white, sometimes with yellowish to golden tinge dorsally. **A white-bordered black bar extends from about sixth to tenth dorsal fin spines diagonally backward across body to base of posterior half of anal fin** (not extending much onto fin, if any). **Black eyeband extending from first 2 dorsal fin spines to eye, continuing as a weak stripe below eye downward and forward toward isthmus**. **Median snout stripe present** from interorbital area to tip of snout. Lips yellowish. Pectoral fins clear, remaining fins mostly yellow.

Size: Maximum length about 15 cm standard length.

Habitat, biology, and fisheries: Normally found in deep tropical waters at depths between 20 and 200 m. Most commonly encountered on (but not restricted to) rocky slopes of shelf areas. Feeds mostly on small, benthic invertebrates found on reefs and rocks. Not a foodfish. Occasionally seen in the aquarium trade. Not commonly offered because of difficulty in retrieving it from deep waters.

Distribution: Florida, through Gulf of Mexico to Campeche Banks. Recorded northward to Cape Hattaras (obvious waif).

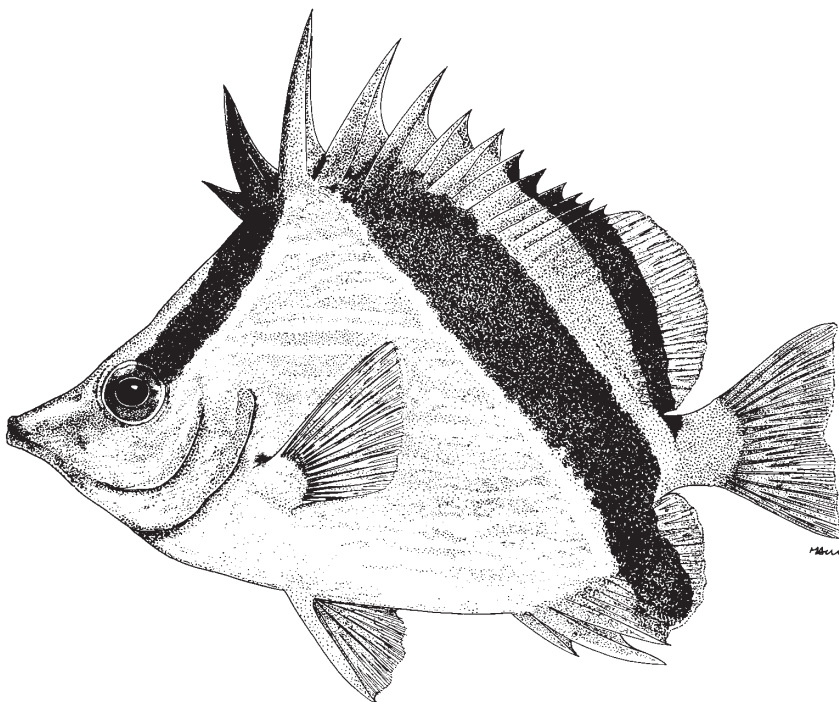
Note: *Prognathodes aya* and *Prognathodes guyanensis* are sister species, the former occupying coastal shelf areas, the latter following the Caribbean Island arc to northern South America.



Prognathodes guyanensis Durand, 1960

Frequent synonyms / misidentifications: None / None.

FAO names: En - Guyana butterflyfish.



Diagnostic characters: Body deep, 1.6 to 1.8 in standard length, strongly compressed. Snout pointed, slightly produced, 2.7 to 2.8 in head length. Mouth small, terminal; jaws with brush-like bands (composed of about 7 rows in upper jaw, 8 rows in lower jaw) of teeth. Dorsal fin with 13 spines and 19 soft rays; anal fin with 3 spines and 15 soft rays. **Spinous dorsal fin triangular**, third spine longest, soft portion with nearly vertical edge. Soft portions of dorsal and anal fins not extending much beyond base of caudal fin. Pectoral fins moderate, usually with 14 rays. Lateral-line scales 37 to 41, pores 29 to 34. **Colour:** pale yellow to white, pectoral fins clear, other fins yellowish. A black, white-bordered bar extends from middle dorsal-fin spines diagonally across body and through anal fin, ending at anal-fin edge. **A second bar extends from the tips of the posterior dorsal-fin spines, through the soft dorsal fin, and onto the upper to middle part of the caudal peduncle.** A black eyeband includes the first 2 dorsal fin spines, descending to eye, and **below eye becoming more orange and angling forward to corner of mouth. Interorbital stripe present.**

Size: Maximum length known about 12.5 cm standard length.

Habitat, biology, and fisheries: Inhabits rocky and/or reef slope areas in relatively deep water, usually below 250 m. The type specimen was taken at 60 to 250 m depth. Feeds on benthic invertebrates. Not a foodfish. Occasional specimens are captured for the aquarium trade.

Distribution: Bahamas and Greater Antilles and northern South America (Guyana).

Note: This sister species of *Prognathodes aya* appears to be more of an island form, although it does occur on the coast of northern South America. It is not seen very often (because of the depth and type of habitat) and information on it is hard to come by.

