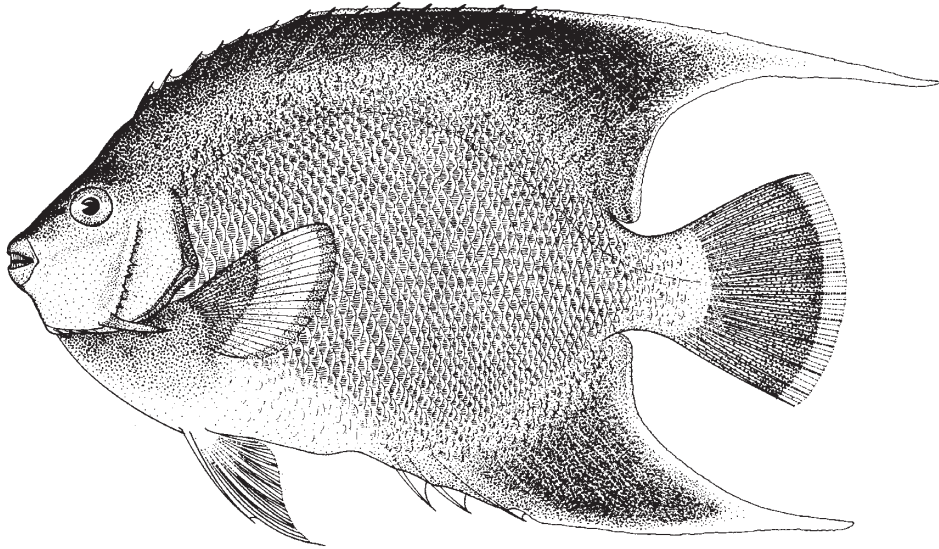


***Holacanthus bermudensis*** Goode, 1876

**Frequent synonyms / misidentifications:** *Angelichthys isabelita* Jordan and Rutter, 1898 / *Holacanthus ciliaris* Linnaeus, 1758.

**FAO names:** **En** - Blue angelfish; **Fr** - Demoiselle bleue; **Sp** - Isabelita azul.



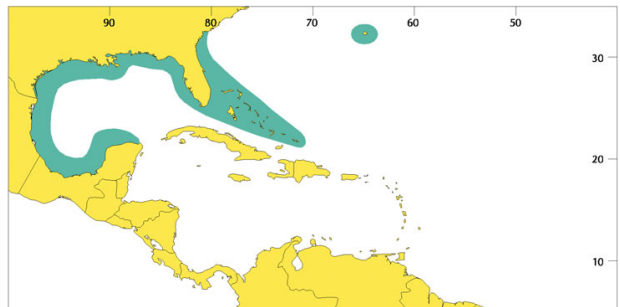
**Diagnostic characters:** Body deep, oval to almost round, compressed. Snout short, blunt, mouth small, terminal; teeth arranged in bands in jaws. A large spine at angle of preopercle. Hind margin of preorbital without enlarged posteriorly-directed spines. **Dorsal fin with 14 spines** and 19 to 21 soft rays; anal fin with 3 spines and 20 or 21 soft rays. Soft dorsal and anal fins greatly produced in adults, the tips extending beyond posterior edge of caudal fin. Caudal fin slightly curved at edge, without filaments at upper or lower edges. Pectoral fins moderate, with 19 soft rays. Pelvic fins barely reaching (if at all) first anal-fin spine. **Scales in regular series**, 45 to 50 in lateral line. **Colour:** scales brownish to reddish brown with pale (yellowish) edges; nape and chest including pectoral-fin base bluish to purplish; **no "crown" (black spot edged and spotted with blue) present**; preopercular spines and spinelets above it blue; dorsal and anal fins brownish to bluish, edged with blue, inside of which there is a narrow yellow stripe; extended tips yellow; pelvic fins yellow; pectoral fins bluish to purplish basally, a yellow stripe at centre, outer portion hyaline; **posterior edge of caudal fin yellow**. Body of juveniles darker, crossed by 3 primary blue-white bars and some incomplete stripes between, **the middle primary stripe straight**; head with dark eyeband from nape to chest bordered by light blue lines; yellow area present from opercle (posterior to eyeband) across pectoral-fin base to abdomen (including pelvic fins) and mouth orange-yellow; caudal fin yellow.

**Size:** Attains a length of at least 45 cm; common to 30 cm.

**Habitat, biology, and fisheries:** Common around shallow coral reefs throughout most of the area. Feeds on small benthic invertebrates. Not a foodfish (but can be eaten). Sought after as an aquarium fish, especially the young.

**Distribution:** Bermuda, the Bahamas, Florida to Yucatán, including the Gulf of Mexico. Strays north to New Jersey.

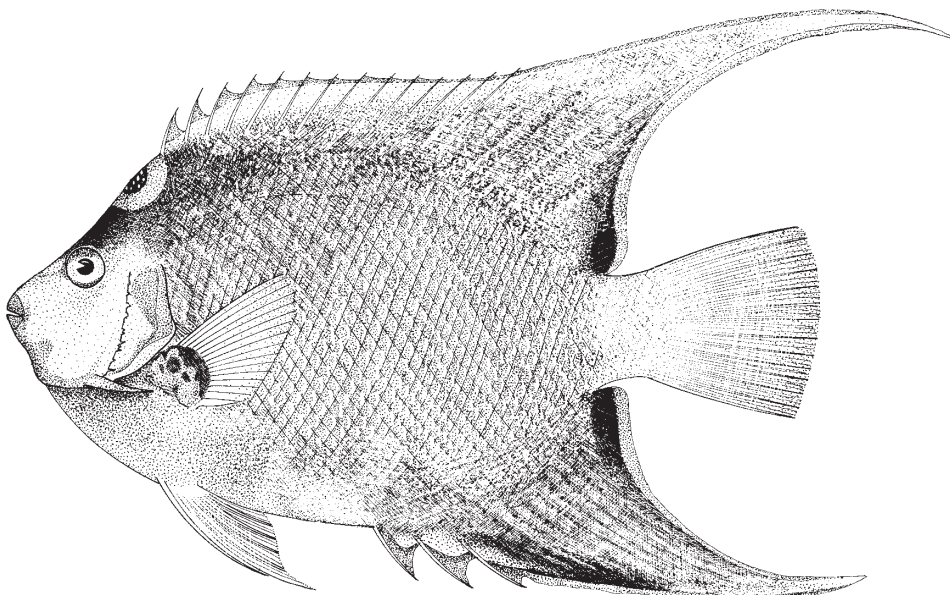
**Notes:** Adults can easily be distinguished from *Holacanthus ciliaris* by colour pattern, but the young are much more similar and usually somewhat difficult to identify. To confuse matters these sister species hybridize on a regular basis. *Holacanthus townsendi* was based on such a hybrid.



***Holacanthus ciliaris*** (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** None / *Holacanthus bermudensis* Goode, 1876.

**FAO names:** En - Queen angelfish; Fr - Demoiselle royale; Sp - Isabelita patale.



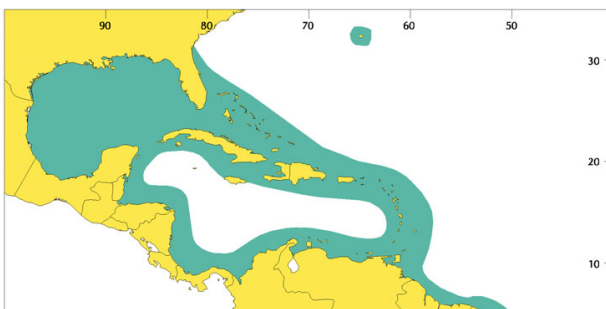
**Diagnostic characters:** Body deep, oval to almost round, compressed. Snout short, blunt, mouth small, terminal. Teeth arranged in bands in jaws. A large spine at angle of preopercle. Hind margin of preorbital without enlarged posteriorly-directed spines. **Dorsal fin with 14 spines** and 19 to 21 soft rays; anal fin with 3 spines and 20 or 21 soft rays. **Soft dorsal and anal fins greatly produced in adults**, the tips extending beyond posterior edge of caudal fin. Caudal fin slightly curved at edge, without filaments at upper or lower edges. Pectoral fins moderate, with 19 soft rays. Pelvic fins barely reaching (if at all) first anal fin spine. **Scales in regular series**, 45 to 50 in lateral line. **Colour:** bluish laterally with yellow-orange edges to scales; head yellowish, dark blue above eyes, with blue markings on eyes, snout, preopercular spine, and opercle; **a large black blotch circled and spotted with blue ('crown') at nape**; mouth, chin, throat, chest, and abdomen purplish blue; spines of preopercle and upper portion of opercle blue; dorsal and anal fins body colour but changing to shades of orange near edges, which are light blue; extended tips yellow; **pectoral fins yellow with black blotch spotted with light blue at base**; **pelvic and caudal fins yellow**. Body of juveniles darker, crossed by 3 primary blue-white bars (and incomplete light stripes between them), **the middle one curved**; head with dark eyeband from nape to chest bordered by light blue lines; yellow area present from opercle (posterior to eyeband) across pectoral base to abdomen (including pelvic fins) and mouth orange-yellow; caudal fin yellow.

**Size:** Attains a length of at least 45 cm; common to 30 cm.

**Habitat, biology, and fisheries:** Common around shallow coral reefs throughout most of the area. Feeds on small benthic invertebrates. Juveniles pick parasites from other fishes. Not an important foodfish (but is eaten). Taken chiefly in traps and marketed fresh. Mostly sought after as an aquarium fish, especially when young.

**Distribution:** Bermuda, the Bahamas, Florida to Brazil, including the Gulf of Mexico.

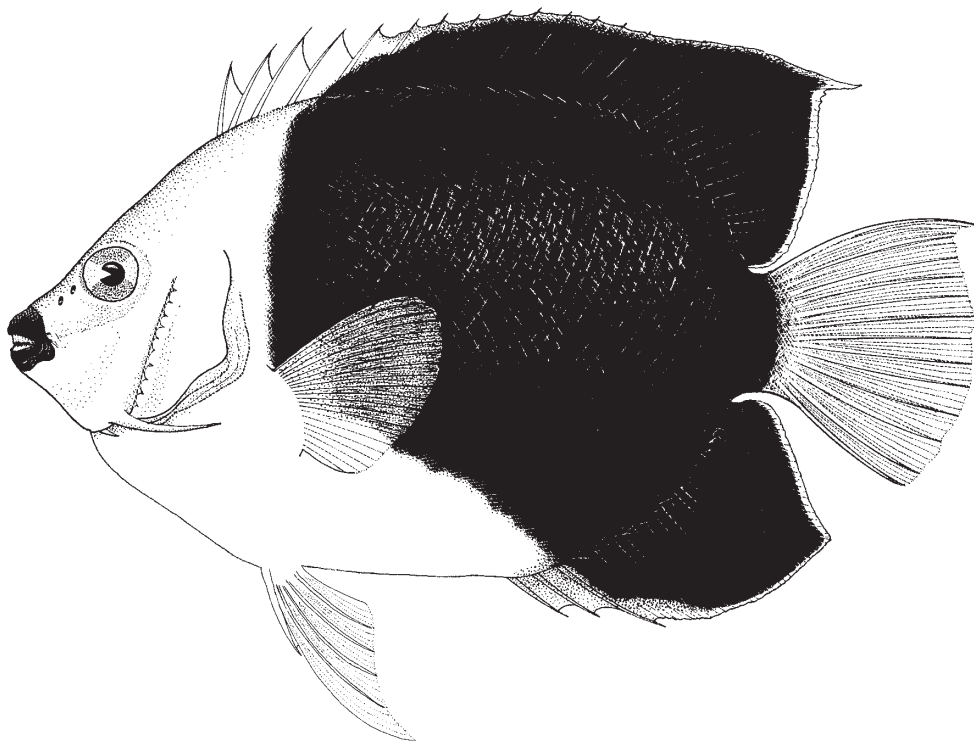
**Notes:** The adults can easily be distinguished from *Holacanthus bermudensis* by colour pattern, but the young are much more similar and usually somewhat difficult to identify. These sister species hybridize on a regular basis producing all sorts of intermediate patterns.



***Holacanthus tricolor*** (Bloch, 1795)

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

**FAO names:** **En** - Rock beauty; **Fr** - Demoiselle beauté; **Sp** - Isabelita medioluto.

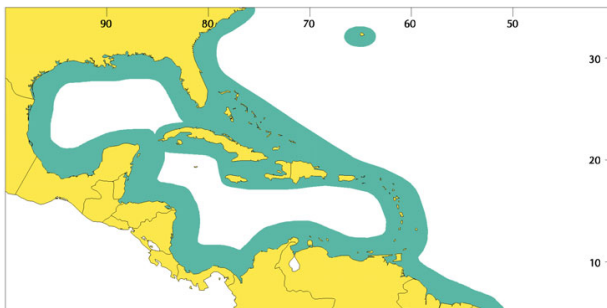


**Diagnostic characters:** Body deep, 1.5 to 1.9 in standard length, oval, compressed. Snout short, terminal, provided with teeth arranged in bands. A large spine at angle of preopercle, with small spinelets on ascending arm; lower arm with 2 spinelets. A blunt spine on preorbital, but no large posteriorly directed spines. **Dorsal fin with 14 spines** and 17 to 19 soft rays, anal fin with 3 spines and 18 to 20 soft rays. **Soft dorsal and anal fins square-cut in adults, a small filament extending from angle of dorsal fin** and often also anal fin. Caudal fin with edge slightly bowed, **upper corner with a short filament** (sometimes also on lower corner). Pectoral fins moderate, with 17 or 18 soft rays. Pelvic fins extending to anal-fin spines. **Scales in regular series, 43 to 46 in lateral line.** **Colour: posterior body and fins about from fourth dorsal-fin spine and behind pectoral fins diagonally back to anal-fin base black, sharply differentiated from anterior portion of body and head, which are bright yellow;** edge of gill cover orange; preopercular spine orange; pectoral, ventral, and caudal fins yellow; dorsal and anal fins body colour, with yellow posterior edge, orange horizontal edges; mouth purplish; iris blue and yellow. Young almost completely yellow with a black spot ocellated with blue posteriorly above the median line; with age this spot is lost in larger darker area that develops (i.e. the spot does not expand to become large black area as is commonly reported).

**Size:** To about 25 cm.

**Habitat, biology, and fisheries:** A reef and rocky species of warm waters. Relatively common in clear reef areas in shallow water. Juveniles commonly found in stands of the stinging coral *Millepora*. Commonly feeds on sponges. Not a foodfish. Sought after in the aquarium trade.

**Distribution:** Georgia, Florida, the Bahamas, and Bermuda to southeastern Brazil.



***Pomacanthus arcuatus*** (Linnaeus, 1758)

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

**FAO names:** En - Grey angelfish; Fr - Demoiselle blanche; Sp - Cachama blanca.

**Diagnostic characters:** Body deep, almost circular, depth 1.3 to 1.4 in standard length, compressed. Head deep, snout short. Mouth terminal, small; jaw teeth arranged in bands. A large spine present at angle of preopercle. **Dorsal fin with 9 spines** and 31 to 33 soft rays; anal fin with 3 spines and 23 to 25 soft rays. **Anterior soft rays of dorsal and anal fins prolonged into filaments in adults**, the posterior contour of these fins convex. **Caudal fin emarginate** to slightly double emarginate (round in young). Pectoral fins moderate; pectoral rays 19 or 20. Pelvic fins extend to beyond anal-fin spines. **Both large and small scales present, very irregularly arranged.** **Colour:** adults with **body scales dark-centred with pale edges**, giving an overall greyish to brownish colour; head grey, fins grey to brownish grey (scales closer to body also with light edges), darker along soft portions; jaws and chin white; area behind head to chest (including pectoral and pelvic fins) dark brown; dorsal and anal fins with bright blue edges; **caudal fin with narrow whitish posterior edge; inside of pectoral fins yellow.** Juveniles

differently coloured than adults; they are almost entirely velvety black with bright yellow markings; yellow band starts from nape, crosses opercle behind eye, and ends on chest in front of ventral fins; a second yellow band runs from posterior dorsal fin spines across body to abdomen; a third extends from edge of soft dorsal fin across body to edge of soft anal fin; caudal fin black with yellow band running along upper edge, crossing fin at base, and continuing along lower edge; **posterior edge of fin hyaline**; yellow stripes on either side of mouth uniting above upper lip; **a median snout stripe extends across upper and lower lips**; small juveniles with blue in pelvic and anal fins.

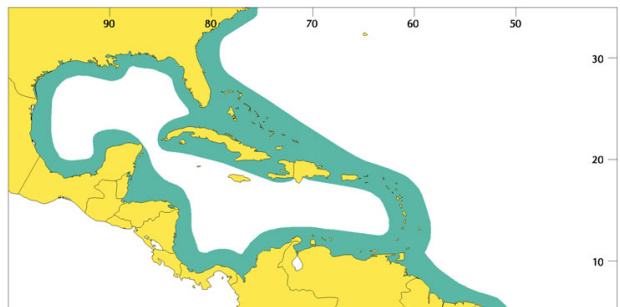
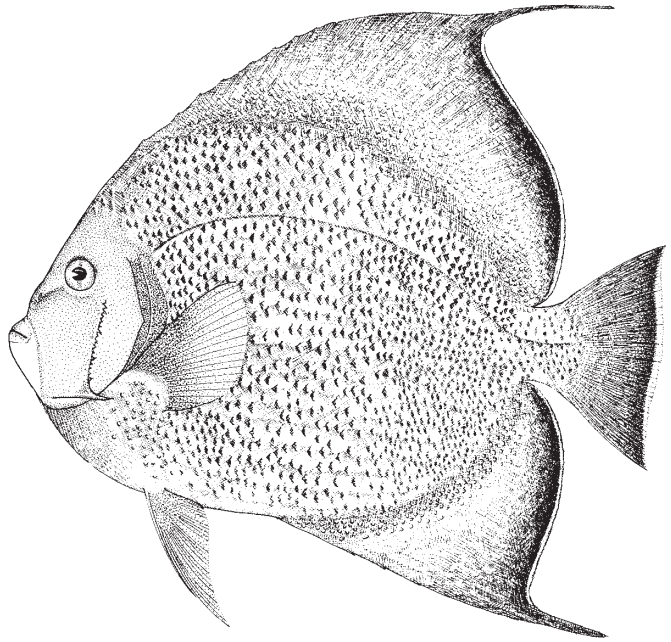
**Size:** Possible maximum length of 60 cm, commonly to 36 cm.

**Habitat, biology, and fisheries:** Fairly common on reefs and rocky areas. Seen mostly in pairs, but also as individuals and in small groups. They feed on various invertebrates and algae. Not a foodfish. The young, because of their bright colours, are sought after for the aquarium trade. Reported to be an ectoparasite picker (cleaner).

**Distribution:** Western Atlantic from New York (probably not overwintering north of Florida) to Rio de Janeiro, Brazil. Introduced to Bermuda.

**Notes:** The adults can easily be distinguished from the sister species, *Pomacanthus paru* by many features.

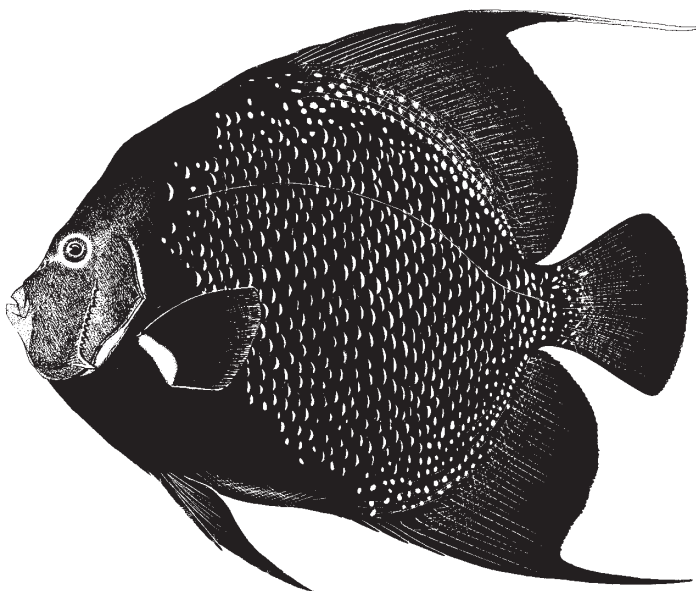
The overall colour makes them easily distinguishable: *P. arcuatus* has body scales with brown spots surrounded by pale tan; *P. paru* is dark brown to blackish, the body scales with bright yellow crescents on their edges. There are 9 dorsal spines in *P. arcuatus*, 10 in *P. paru*. Caudal fin is emarginate (versus convex in *P. paru*) with a narrow pale margin (versus dark to edge in *P. paru*). The inner surface of the pectoral fins are yellow, pale with yellow blotches in *P. paru*. The juveniles, however, are very similar. They can be distinguished by the extent of the median stripe on the snout and the colour of the posterior edge of the caudal fin.



***Pomacanthus paru*** (Bloch, 1787)

**Frequent synonyms / misidentifications:** *Pomacanthus aureus* Bloch, 1787 / None.

**FAO names:** **En** - French angelfish; **Fr** - Demoiselle chiririte; **Sp** - Cachama negra.



**Diagnostic characters:** Body deep, almost circular, depth 1.3 to 1.4 in standard length, compressed. Head deep, snout short. Mouth terminal, small; jaw teeth arranged in bands. A large spine present at angle of preopercle. **Dorsal fin with 10 spines** and 29 to 31 soft rays; anal fin with 3 spines and 22 to 24 soft rays. **Anterior soft rays of dorsal and anal fins prolonged into filaments in adults**, the posterior contour of these fins convex. **Caudal fin convex** (round in young). Pectoral fins moderate; pectoral soft rays 19 or 20. Pelvic fins extend to beyond anal fin spines. **Both large and small scales present, irregularly arranged.** **Colour:** adults blackish, **most scales of body (except the extreme anterior from nape to abdomen) with yellow crescent on posterior edge.** A yellow ring encircles the eye, the ring bordered by a blue marking on lower edge. Head dark grey, lips and chin light blue-grey. **A yellow bar present at base of pectoral fin and along lower posterior edge of gill cover.** Dorsal-fin filament yellow. Juveniles velvety black with yellow markings. A yellow band extends from nape to chest, crossing head behind eye. A second band extends from dorsal spines across body to abdomen; a third band extends from edge of soft dorsal fin across body to middle of edge of anal fin. **Caudal fin black, the black portion encircled by yellow (including posterior edge).** Yellow stripe on both sides of mouth meeting above. **A median stripe crosses upper lip but does not extend onto lower lip.** Small young have blue in their pelvic and anal fins.

**Size:** Reaches a length of about 38 to 40 cm.

**Habitat, biology, and fisheries:** Commonly found on reefs and rocky zones in the area. Feeds on benthic invertebrates and algae. Young pick parasites from other fishes. Not an important foodfish. Young sought after as aquarium fish.

**Distribution:** Florida and the Bahamas to Brazil and straggling north to New York in the Gulf Stream. Introduced to Bermuda but not established, however, rare waifs reported from Bermuda. Reported from St. Helena and Ascension Islands in the eastern Atlantic.

**Note:** The change-over from juvenile to adult coloration occurs at a later time (at a larger size) than in *P. arcuatus*.

