

POMATOMIDAE

Bluefish

by B.B. Collette, National Marine Fisheries Service, National Museum of Natural History, Washington, D.C., USA

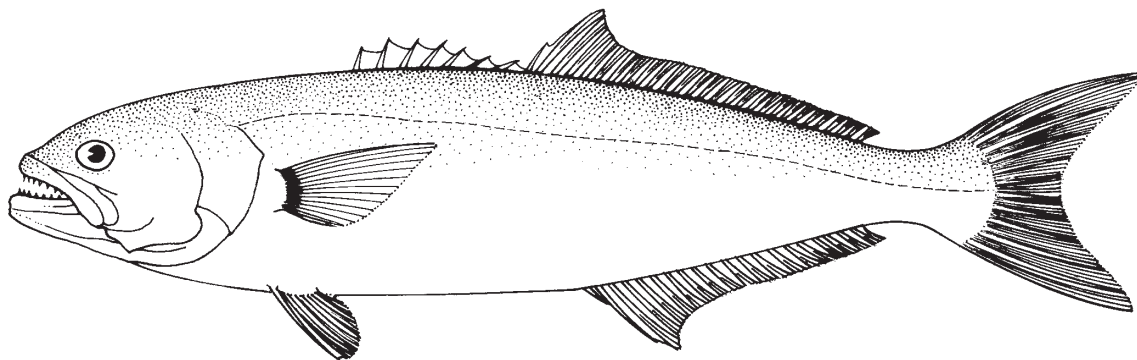
A single species in this family.

Pomatomus saltatrix (Linnaeus, 1766)

BLU

Frequent synonyms / misidentifications: *Pomatomus saltator* (Linnaeus, 1766) / None.

FAO names: **En** - Bluefish; **Fr** - Tassergal; **Sp** - Anchova de banco.

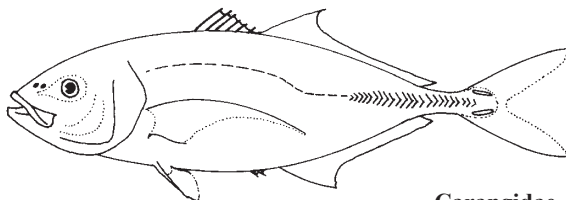


Diagnostic characters: A large species (to 1 m) with a sturdy, compressed body and large head. Mouth large, terminal, lower jaw sometimes slightly projecting; **jaw teeth prominent, sharp, compressed, in a single series**. Two dorsal fins, the first short and low with 7 or 8 relatively weak spines connected by a membrane, the second long, with 1 spine and 23 to 28 soft rays; anal fin a little shorter than soft dorsal fin, with 2 spines and 23 to 27 soft rays; caudal fin moderately forked; pectoral fins short, not reaching origin of soft dorsal fin. Scales small, covering head, body, and bases of vertical fins; lateral line almost straight. **Colour:** back greenish blue, sides and belly silvery; dorsal and anal fins pale green tinged with yellow, pectoral fins bluish at base, caudal fin dull greenish tinged with yellow.

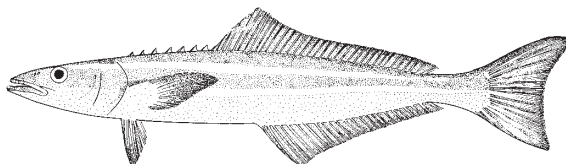
Similar families occurring in the area

Carangidae: usually have 2 detached spines in front of anal fin; also, scutes on caudal peduncle in many species, and detached finlets behind dorsal and anal fins in *Elagatis*, *Decapterus*, and *Oligoplites*. The most superficially similar carangid, *Seriola*, differs in having bands of villiform teeth in jaws.

Rachycentridae: spines of dorsal fin shorter, isolated, not connected by a membrane; body not elongate; teeth much smaller and not in a single row; 2 silvery stripes on body.



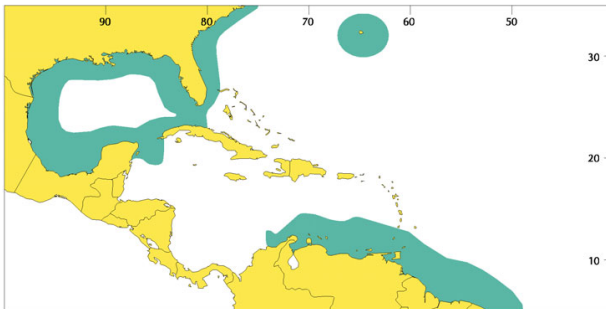
Carangidae



Rachycentridae

Size: Maximum to 110 cm; commonly to 60 cm. The IGFA all-tackle gamefish record is 14.40 kg for a fish caught in North Carolina in 1972.

Habitat, biology, and fisheries: Usually found in coastal temperate and subtropical waters. A powerful, swift fish, the young hunting in schools, the adults in loose groups. Voracious visual feeders renowned for their appetites, schools of actively feeding bluefish have attacked bathers. Caught mainly with gill nets, lines, and purse seines; commonly taken on hook-and-line by sports fishermen in the USA. FAO statistics report landings ranging from 756 to 1 458 t from 1995 to 1999. Marketed mostly fresh but also makes an excellent smoked product.



Distribution: Coastal temperate and subtropical waters of the world except absent from the eastern Pacific and the Indo-West Pacific north of the equator. In the western Atlantic known from Bermuda, the Atlantic coast of North America (Nova Scotia to the Gulf of Mexico) and South America (Colombia to Argentina) but absent from the Bahamas, West Indies (except for the northern coast of Cuba), and Caribbean coast of Central America.

References

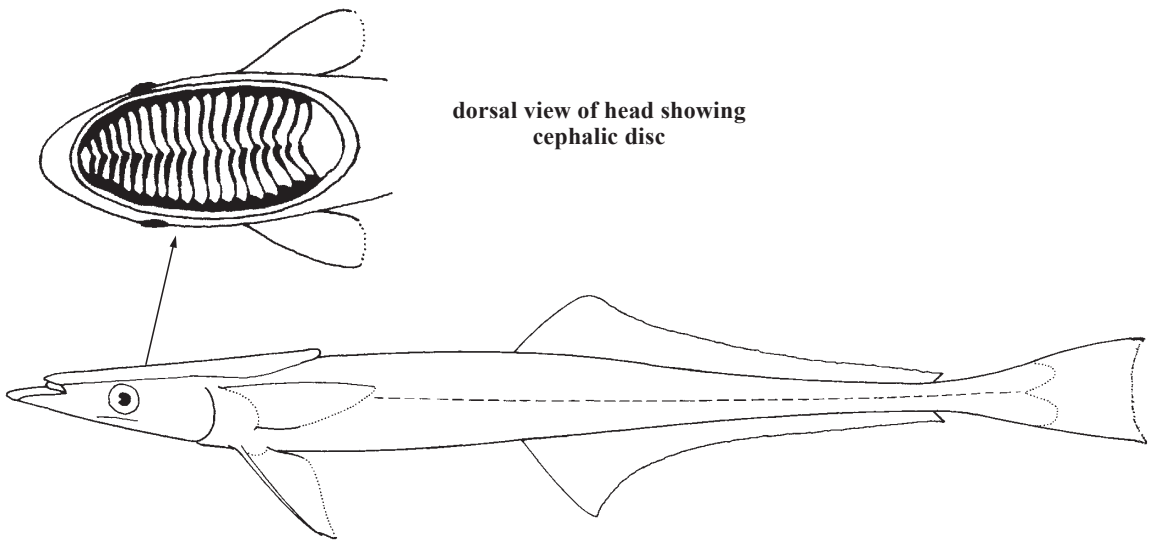
- Goodbred, C.O. and J.E. Graves. 1996. Genetic relationships among geographically isolated populations of bluefish (*Pomatomus saltatrix*). *Fish. Bull., U.S.*, 90:703-710.
- Lyman, H. 1987. *Bluefishing*. Nick Lyons Books, New York, 154 p.

ECHENEIDAE

Remoras (sharksuckers, discfishes)

by B.B. Collette, National Marine Fisheries Service, National Museum of Natural History, Washington D.C., USA

Diagnostic characters: Perciform fishes with a transversely laminated, oval-shaped cephalic disc, this structure homologous with spinous dorsal fin; skull wide, depressed to support disc; body fusiform, elongate. Jaws broad, the lower projecting beyond the upper; villiform teeth present in jaws and vomer (centrally on roof of mouth), usually on tongue and in certain species on palatines (laterally on roof of mouth). Opercle without spines, premaxillae not protractile, gill membranes free from isthmus. **Dorsal and anal fins long, lacking spines**, dorsal-fin soft rays range from 18 to 45, anal-fin soft rays from 18 to 41; caudal fin slightly forked, emarginate, or slightly rounded (in large specimens of some species), juveniles of some species with an elongate median filament; pectoral fins set high on body, pointed or rounded, with 18 to 32 soft rays; pelvic fins thoracic, close together, narrowly or broadly attached to underside of body, with 1 spine and 5 soft rays. Scales small, cycloid (smooth), usually embedded in the skin. No swimbladder. **Colour:** life colours subdued, pale brown, greyish to black, sometimes light to whitish or with light and dark horizontal stripes on trunk.



dorsal view of head showing
cephalic disc

Habitat, biology, and fisheries: The Echeneidae have been divided into 2 subfamilies, 4 genera, and 8 species, all of which occur in the central and western Atlantic. Remoras attach themselves to many different marine vertebrates including sharks, rays, tarpons, barracudas, sailfishes, marlins, swordfishes, jacks, basses, groupers, ocean sunfish, sea turtles, whales, and dolphins; they may also attach to ships and various floating objects. Some remoras have a great preference or specificity towards certain hosts. *Remora australis*, the whalesucker, is only known from marine mammals. *Remora osteochir*, the marlinsucker, is almost always found attached to spearfishes, particularly the sailfish and white marlin. The preferred host of *Remorina albescens*, the white suckerfish, is the manta ray. Species of the genus *Echeneis* are often free-swimming and occur in shallow, inshore waters. *Remora* and *Remorina* are almost always captured on their host where they may be found attached to the body, in the mouth, or in the gill cavity. Discfishes have relatively little commercial importance. *Echeneis naucrates* is readily taken on hook-and-line and is occasionally seen in markets.

Similar families occurring in the area

No other family of fishes has a cephalic sucking disc. Cobia (family Rachycentridae) bear some resemblance to the remoras. It has been postulated that a cobia-like ancestor may have given rise to the echeneid fishes.

Key to the species of Echeneidae occurring in the area

- 1a. Body very elongate, depth contained 8 to 14 times in standard length; pectoral fins pointed; usually a dark longitudinal band on sides, bordered with white; anal-fin soft rays 29 to 41; caudal fin lanceolate in young, the middle rays filamentous, almost truncate in adults, the lobes produced (subfamily Echeneinae) → 2
- 1b. Body not elongate, depth contained 5 to 8 times in standard length; pectoral fins rounded, colour nearly uniform, without bands; anal-fin soft rays 18 to 28; caudal fin forked in young becoming emarginate or truncate in adults (subfamily Remorinae) → 3

- 2a. Sucking disc small, with 9 to 11 laminae; vertebrae 39 to 41 *Phtheirichthys lineatus*
- 2b. Sucking disc large, with 18 to 28 laminae; vertebrae 30 *(Echeneis)* → 4

- 3a. Pelvic fins narrowly attached to abdomen; disc laminae 13 or 14; vertebrae 26; colour whitish; usual host manta rays *Remorina albescens*
- 3b. Pelvic fins broadly attached to abdomen; disc laminae 15 to 19; vertebrae 27; colour light to dark brown; hosts include sharks, billfishes, or cetaceans, depending on species *(Remora)* → 5

- 4a. Disc laminae usually 23; dorsal-fin rays usually 39; anal-fin soft rays usually 36; tips of dorsal, anal, and caudal fins white. *Echeneis naucrates*
- 4b. Disc laminae usually 21; dorsal-fin rays usually 36; anal-fin soft rays usually 33; more white on fins at all sizes *Echeneis neucratoides*









- 5a. Total gill rakers 28 to 37 *Remora remora*
- 5b. Total gill rakers 11 to 20 → 6

- 6a. Disc laminae 24 to 28; total gill rakers 17 to 20; hosts usually cetaceans *Remora australis*
- 6b. Disc laminae 27 to 34; total gill rakers 11 to 17; preferred hosts, billfishes → 7

- 7a. Dorsal-fin soft rays 27 to 34; disc length 28 to 40% standard length; pectoral-fin rays 23 to 27; outer two-thirds of pectoral-fin rays flexible *Remora brachyptera*
- 7b. Dorsal-fin soft rays 21 to 27; disc length 37 to 49% standard length; pectoral-fin rays 20 to 24; pectoral-fin rays stiff to their tips in specimens longer than 150 mm standard length *Remora osteochir*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Echeneis naucrates* Linnaeus, 1758.
-  *Echeneis neucratoides* Zuiew, 1786.
-  *Phtheirichthys lineatus* (Menzies, 1791).
-  *Remora australis* (Bennett, 1840).
-  *Remora brachyptera* (Lowe, 1839).
-  *Remora osteochir* (Cuvier, 1829).
-  *Remora remora* (Linnaeus, 1758).
-  *Remorina albescens* (Temminck and Schlegel, 1850).

References

Cressey, R.F. and E.A. Lachner. 1970. The parasitic copepod diet and life history of discfishes (Echeneidae). *Copeia*, 1970:310-318.

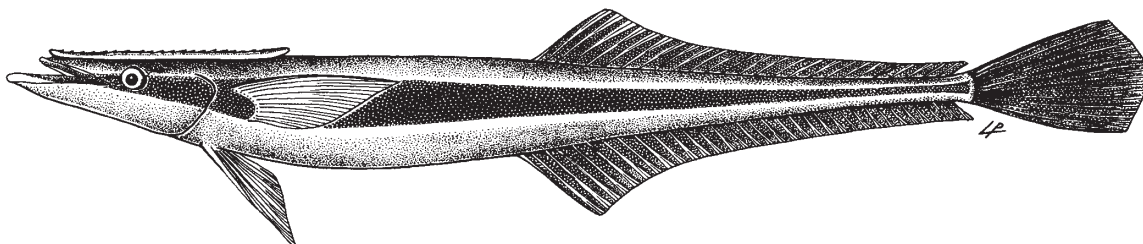
Lachner, E.A. 1986. Echeneididae. In *Fishes of the North-eastern Atlantic and the Mediterranean*, edited by P.J.P Whitehead et al. UNESCO, 3:1329-1334.

Echeneis naucrates Linnaeus, 1758

EHN

Frequent synonyms / misidentifications: None / *Echeneis neucratoides* Zouiev, 1786.

FAO names: En - Sharksucker; Fr - Rémora commun; Sp - Pegatimón.

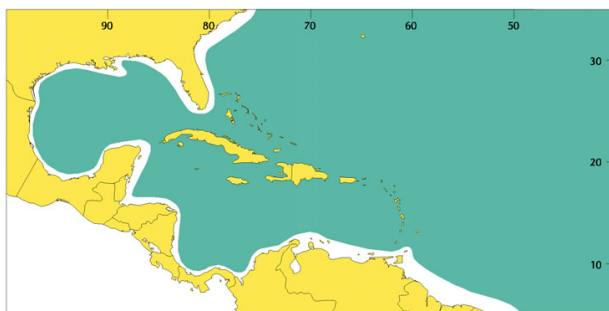


Diagnostic characters: An elongate fish (to 900 mm standard length), **depth of body contained 8 to 14 times in standard length**. Jaws broad, the lower projecting beyond the upper. First dorsal fin replaced by a transverse laminated oval cephalic disc with **21 to 28 laminae**; second dorsal and anal fins long, without spines, **the anal fin with 31 to 41 soft rays**; caudal fin lanceolate in young, the middle rays elongate and filamentous; almost truncate in adults with upper and lower lobes longer than the middle rays; pectoral fins short, high on body, pointed. **Colour: dark longitudinal stripe on sides bordered by narrow white stripes above and below**. Tips of dorsal, anal, and caudal fins white; white edging becomes narrower with increasing size.

Size: Maximum to 900 mm standard length. The IGFA all-tackle gamefish record is 2.3 kg for a fish caught in Papua New Guinea in 1994.

Habitat, biology, and fisheries: Unlike most other remoras, the sharksucker is often found free swimming in shallow inshore waters. It will attach temporarily to a wide variety of hosts particularly sharks, but also including rays, jacks, parrotfishes, sea turtles, and also ships, buoys, and even bathers. Sometimes used as an aid in artisanal fisheries. A line is tied to the caudal peduncle of a remora and then it is released; upon attaching to another fish, the remora and its host are pulled in by the fisherman. Taken with drift nets and trawls. Occasionally marketed fresh.

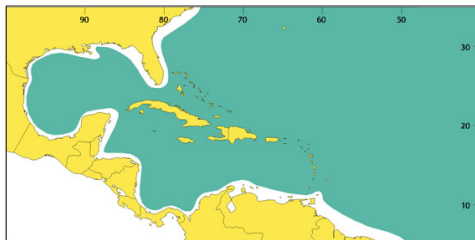
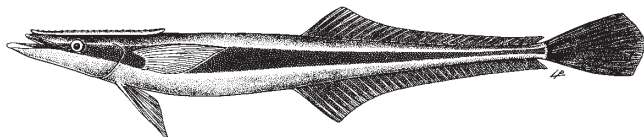
Distribution: Worldwide in tropical and temperate seas except for the eastern Pacific.



***Echeneis neucratoides* Zuiew, 1786**

En - Whitefin sharksucker; **Fr** - Rémora blanc; **Sp** - Pega aleta blanca.

Maximum size uncertain due to confusion with *Echeneis naucrates*. Oceanic. Attaches to a wide variety of hosts. Restricted to the western Atlantic unlike all other species of remoras which are wide-spread.

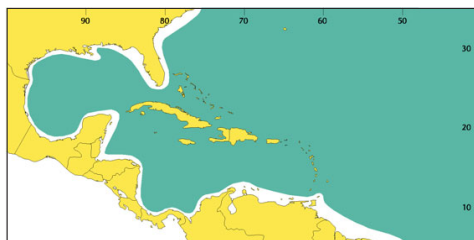
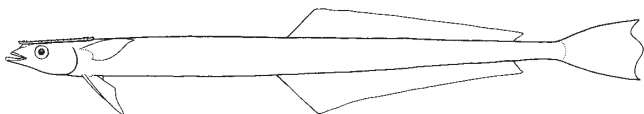


***Phtheichthys lineatus* (Menzies, 1791)**

HTL

En - Slender suckerfish.

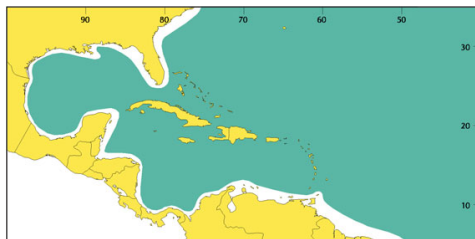
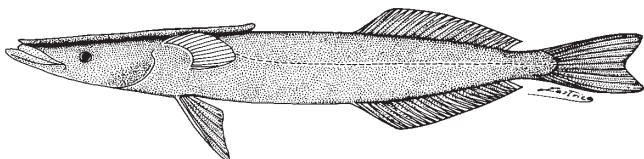
Maximum size to 435 mm standard length. Oceanic. Attaches to body or enters gill chambers of other fishes, most frequently barracuda. Worldwide in tropical and subtropical waters but rare in the Atlantic Ocean.



***Remora australis* (Bennett, 1840)**

En - Whalesucker; **Fr** - Rémora des baleines; **Sp** - Pegaballena.

Maximum size to 403 mm standard length. Oceanic. Hosted by cetaceans. Probably widely distributed in all warm seas; the rarest member of the family.

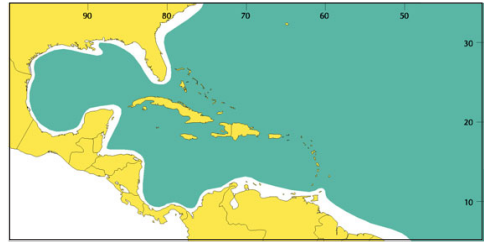
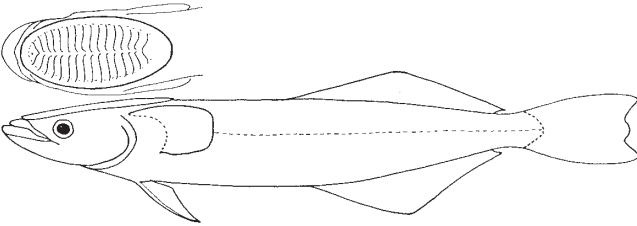


Remora brachyptera (Lowe, 1839)

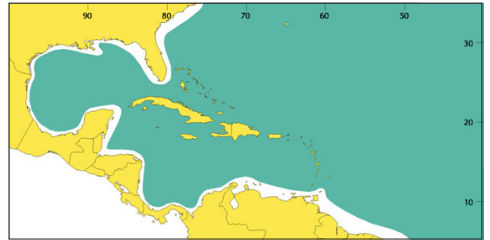
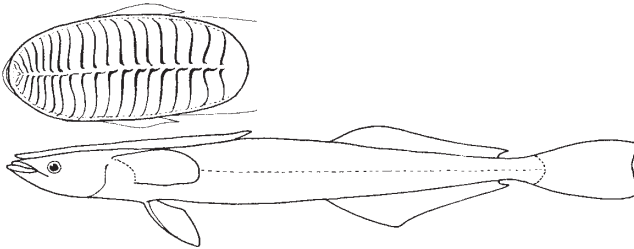
REY

En - Spearfish remora; **Fr** - Rémora des espadons; **Sp** - Tardanaves.

Maximum size to 260 mm standard length. Oceanic. Billfishes are preferred hosts. Worldwide in all warm seas.

***Remora osteochir*** (Cuvier, 1829)**En** - Marlinsucker; **Fr** - Rémora des marlins; **Sp** - Agarrador.

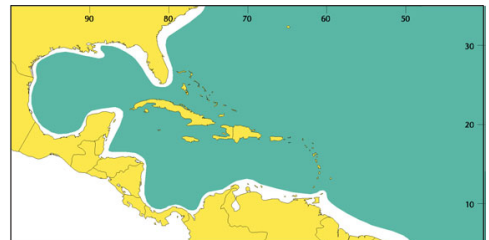
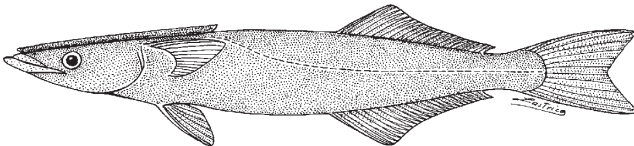
Maximum size to 386 mm standard length. Oceanic. Occurs on the body and in the gill cavity of billfishes, particularly the white marlin and the sailfish. Parasitic copepods form an important part of diet, 70% of stomachs with food contained parasitic copepods. Worldwide in all warm seas.

***Remora remora*** (Linnaeus, 1758)

REO

En - Common remora (AFS: Remora); **Fr** - Rémora; **Sp** - Rémora.

Maximum size to 618 mm standard length. Offshore waters. Found on at least 12 species of sharks, especially blue and whitetip sharks, attached to body or in gill chamber. Parasitic copepods form an important part of diet. Common in warm parts of all oceans.

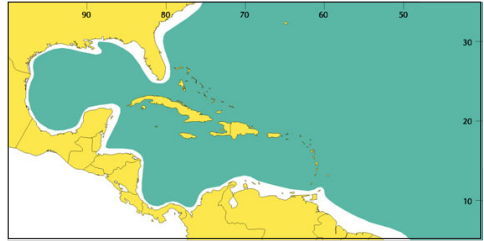
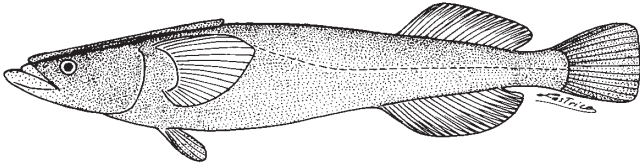


Remorina albescens (Temminck and Schlegel, 1850)

RRL

En - White suckerfish.

Maximum size to 225 mm standard length. Oceanic. The preferred hosts are manta rays, but there are also a few records from sharks. Found in warm parts of all oceans.



RACHYCENTRIDAE

Cobia

by B.B. Collette, National Marine Fisheries Service, National Museum of Natural History, Washington, D.C., USA

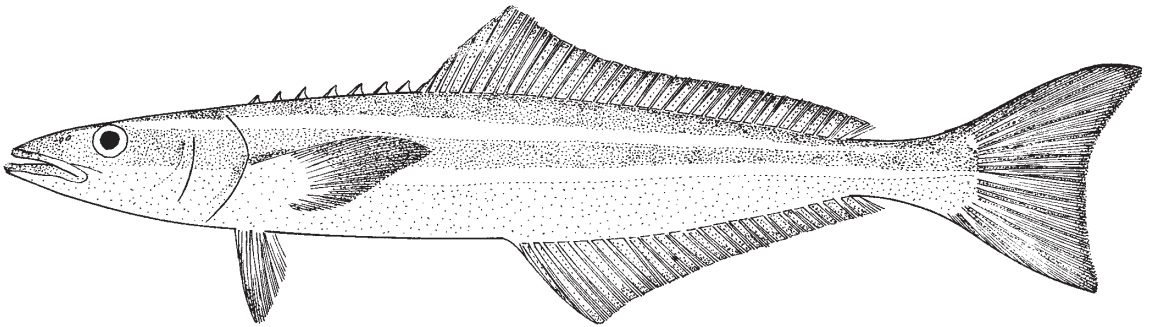
A single species in this family.

Rachycentron canadum (Linnaeus, 1766)

CBA

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - Cobia; **Fr** - Mafou; **Sp** - Cobie.



Diagnostic characters: A large species reaching a length of 200 cm. Body elongate, subcylindrical; **head broad and depressed**. Mouth large, terminal, with projecting lower jaw; villiform teeth in jaws and on roof of mouth and tongue. **First dorsal fin with 7 to 9 (usually 8) short but isolated spines, not connected by a membrane**; second dorsal fin long, anterior rays somewhat elevated in adults; anal fin similar to dorsal, but shorter; caudal fin lunate in adults, upper lobe longer than lower lobe (caudal fin rounded in juveniles, the central rays prolonged); pectoral fins pointed, becoming more falcate with age. Scales small, embedded in thick skin, lateral line slightly wavy anteriorly. **Colour:** back and sides dark brown, **with 2 sharply defined narrow silvery bands**; belly yellowish.

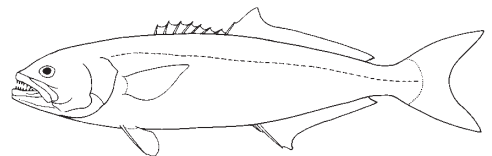
Similar families occurring in the area

Pomatomidae: spines of dorsal fin connected by a membrane; also, body and head deeper and no stripes on sides; teeth large and very sharp.

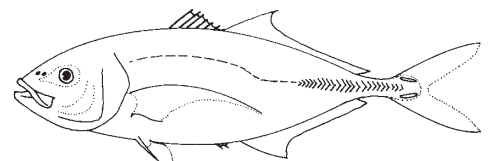
Carangidae: none have a broad depressed head, and most species usually have 2 detached spines visible in front of anal fin; also distinctly elongate carangid species have either scutes on lateral line (*Decapterus*, *Trachurus*) or detached fin-lets behind dorsal and anal fins (*Decapterus*, *Elagatis*).

Size: Maximum to 200 cm; commonly to 110 cm. The IGFA all-tackle game fish record is 61.5 kg for a fish caught in Western Australia in 1985.

Habitat, biology, and fisheries: Coastal and continental, pelagic to depths of 50 m over waters as deep as 1 200 m; also found over shallow coral reefs and off rocky shores, occasionally in estuaries. Feeds extensively on crabs, other benthic in-



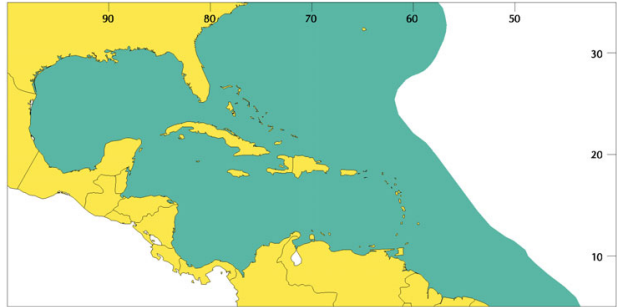
Pomatomidae



Carangidae

vertebrates, and fishes. Grows rapidly and reaches at least 8 years of age. Throughout most of its range, cobia are an incidental catch in other fisheries. Caught with handlines, trolling, in pound nets, driftnets, and seines. FAO statistics report landings ranging from 392 to 757 t from 1995 to 1999. Not rare in some local markets. Large size and strong fighting qualities make cobia a favourite of coastal recreational fishermen. Marketed mostly fresh, but holds up well as a frozen product, and also makes a fine smoked product.

Distribution: Nearly worldwide in subtropical and tropical seas, but absent from the eastern Pacific Ocean and the Pacific Plate. Found throughout the area from Massachusetts and Bermuda southward to Argentina.



References

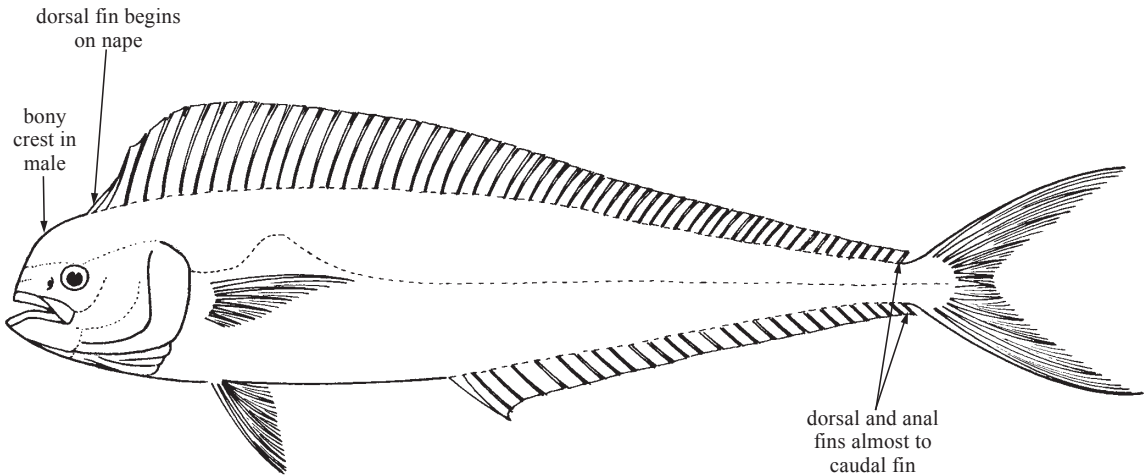
- Shaffer, R.V. and E.L. Nakamura. 1989. Synopsis of biological data on the cobia *Rachycentron canadum* (Pisces: Rachycentridae). *NOAA Tech. Rept. NMFS*, 82:21 p.
- Smith, J.W. 1995. Life history of cobia, *Rachycentron canadum* (Osteichthyes: Rachycentridae), in North Carolina waters. *Brimleyana*, 23:1-23.

CORYPHAENIDAE

Dolphinfishes ("dolphins")

by B.B. Collette, National Marine Fisheries, Service, National Museum of Natural History, Washington, D.C., USA

Diagnostic characters: Elongate compressed fishes reaching 2 m in length. Mouth large, with many fine teeth in bands. **Adult males develop a bony crest on front of head.** **Dorsal and anal fins very long, continuing almost to caudal fin,** without spines; **dorsal-fin origin on nape;** anal-fin origin at or before middle of body; caudal fin deeply forked; pelvic fins fitting into a groove on abdomen. Scales small and cycloid (smooth). Lateral line curved upward above pectoral fin. **Colour:** in life variable, sides with golden hues and back brilliant metallic greens and blues; many small black spots on head and body. Individuals less than 15 cm have dark vertical bars.



Habitat, biology, and fisheries: Dolphinfishes are epipelagic, inhabiting open waters, but also approaching the coast and following ships. Feed mainly on fishes, but also on crustaceans and squids. Breed in the open sea, probably approaching the coast as water temperatures rise. Caught by trolling and on tuna longlines; also occasionally with purse seines. Marketed fresh; highly appreciated foodfishes.

Similar families occurring in the area

No other fishes have a combination of characters such as dorsal fin from nape almost to caudal fin; anal fin from about middle of body almost to caudal fin; no spines in dorsal and anal fins; caudal fin deeply forked; and pelvic fins well developed.

Key to the species of Coryphaenidae occurring in the area

- 1a. Greatest body depth in adults less than 25% of standard length; pectoral fins of adults more than half length of head; dorsal-fin rays 58 to 66; tooth patch on tongue small and oval (Fig. 1a); 17 or 18 caudal vertebrae *Coryphaena hippurus*
- 1b. Greatest body depth in adults more than 25% of standard length; pectoral fins of adults about half length of head; dorsal-fin rays 52 to 59; tooth patch on tongue broad and square (Fig. 1b); 19 or 20 caudal vertebrae *Coryphaena equiselis*

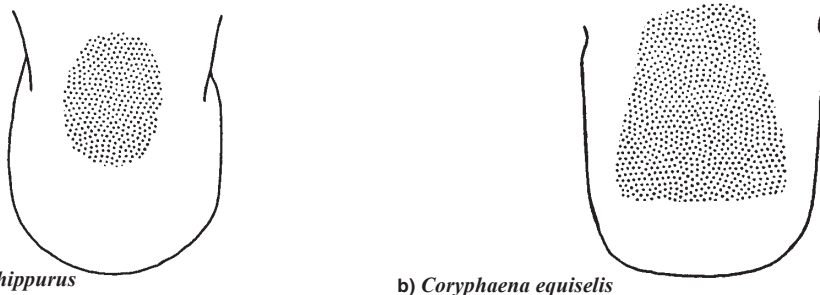





Fig. 1 tooth patch on tongue

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Coryphaena equiselis* Linnaeus, 1758.
-  *Coryphaena hippurus* Linnaeus, 1758.

References

Gibbs, R.H., Jr., and B.B. Collette. 1959. On the identification, distribution, and biology of the dolphins, *Coryphaena hippurus* and *C. equiselis*. *Bull. Mar. Sci. Gulf Carib*, 9(2):117-152.

Oxenford, H.A. 1999. Biology of the dolphinfish (*Coryphaena hippurus*) in the western central Atlantic: a review. *Scientia Maritima*, 63:277-301.

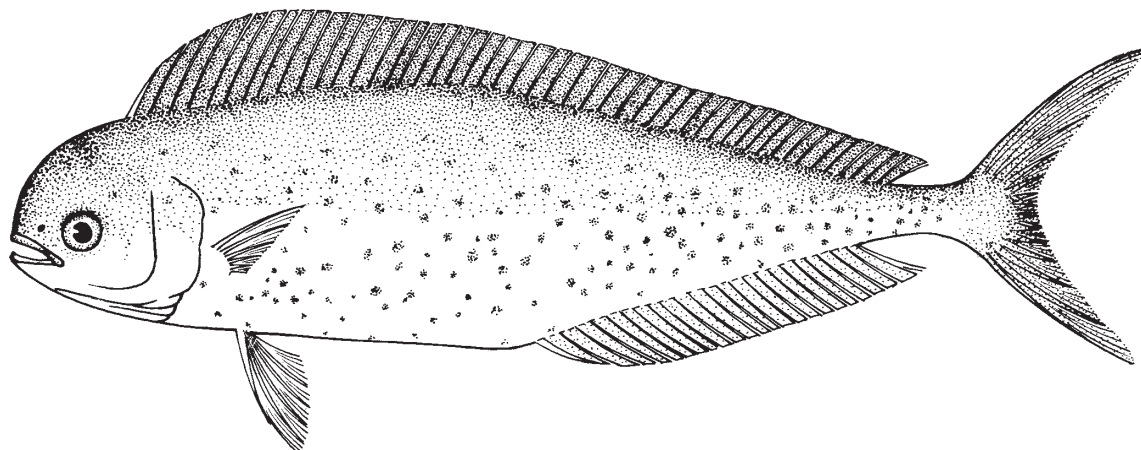
Palko, B.J., G.L. Beardsley, and W.J. Richards. 1982. Synopsis of the biological data on dolphin fishes, *Coryphaena hippurus* Linnaeus and *Coryphaena equiselis* Linnaeus. *NOAA Tech. Rep. NMFS Circ.*, (443):28 p.

Coryphaena equiselis Linnaeus, 1758

CFW

Frequent synonyms / misidentifications: *Coryphaena equisetis* Linnaeus, 1758 / *Coryphaena hippurus* Linnaeus, 1758.

FAO names: En - Pompano dolphinfish; Fr - Coryphène dauphin; Sp - Dorado.

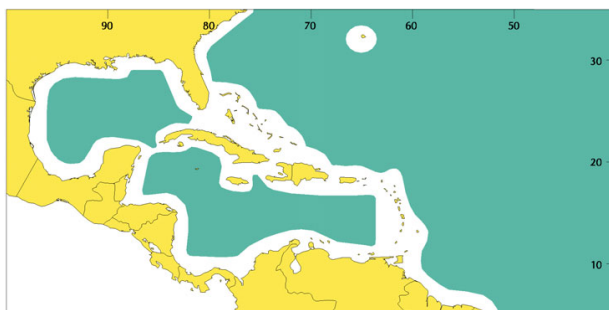


Diagnostic characters: Body elongate and compressed, **greatest body depth in adults more than 25%**; young fish (up to 30 cm) have head profile slightly convex. **Tooth patch on tongue broad and square**; bands of teeth present on jaws, vomer, and palatines. A single dorsal fin extending from above eye almost to caudal fin, with 52 to 59 soft rays; a convex anal fin extending from anus almost to caudal fin; **pectoral fins about half of head length**; caudal fin deeply forked; caudal vertebrae 19 or 20, total vertebrae 33. **Colour:** back brilliant metallic blue-green in life; fading rapidly after death to grey with a green tinge; sides silvery with a golden sheen and numerous black spots; dorsal fin dark. In juveniles, entire margin of caudal fin white; pelvic fins not pigmented.

Size: Maximum to 75 cm, commonly to 50 cm.

Habitat, biology, and fisheries: Epipelagic, inhabiting open waters, but also approaching the coast. Probably resemble *C. hippurus* in following ships and concentrating below floating objects. Feed on small fishes and squids. Caught mainly by trolling and with floating lines. Marketed fresh. Infrequently caught and usually not distinguished from *C. hippurus* so no separate landing statistics are available.

Distribution: Probably throughout the area, but not always distinguished from *C. hippurus*; found worldwide in most tropical and subtropical seas, except for the Mediterranean Sea.

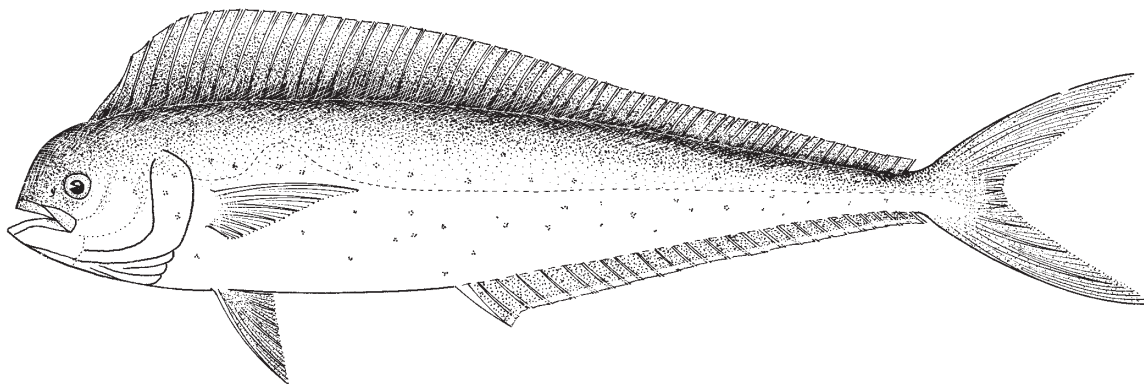


Coryphaena hippurus Linnaeus, 1758

DOL

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - Common dolphinfish (AFS: Dolphinfish); **Fr** - Coryphène commune; **Sp** - Dorado común.



Diagnostic characters: Body elongate and compressed, **greatest body depth in adults less than 25% of standard length**; young fish (up to 30 cm) have a slender elongate body with head profile slightly convex; in larger males (30 to 200 cm), the head profile becomes vertical with development of a bony crest; **tooth patch on tongue small and oval**; bands of teeth present on jaws, vomer, and palatines. A single dorsal fin extending from above eye almost to caudal fin, with 58 to 66 rays; a concave anal fin extending from anus almost to caudal fin; **pectoral fins more than half of head length**; caudal fin deeply forked; caudal vertebrae 17 or 18, total vertebrae 31. **Colour:** back brilliant metallic blue-green in life, after death fading to grey with a green tinge; sides silvery with a golden sheen, and 1 row of dark spots or golden blotches running beside dorsal fin and 1, 2, or more rows on and below lateral line, some scattered irregularly; dorsal and anal fins spotted blue to black, the latter with a white edge; pectoral fins pale; caudal fin silvery with a golden sheen. In juveniles, only tips of caudal-fin lobes white; pelvic fins black.

Size: Maximum to 200 cm; commonly to 100 cm. The IGFA all-tackle game fish record is 39.91 kg for a fish caught in the Bahamas in 1998.

Habitat, biology, and fisheries: Epipelagic, inhabit open waters, but also approach the coast; follow ships and form small concentrations below floating objects. Feed mainly on fishes, but also on crustaceans and squids. Breed in the open sea, probably approaching the coast as water temperatures rise. Caught by trolling and on tuna longlines; also occasionally with purse seines. Marketed fresh; a very highly appreciated sportfish and foodfish, frequently marketed under the exotic sounding Hawaiian name "mahī-mahī". FAO statistics report landings ranging from 3 549 to 4 300 t from 1995 to 1999.

Distribution: Throughout the whole area; also, tropical and subtropical seas of the world.

