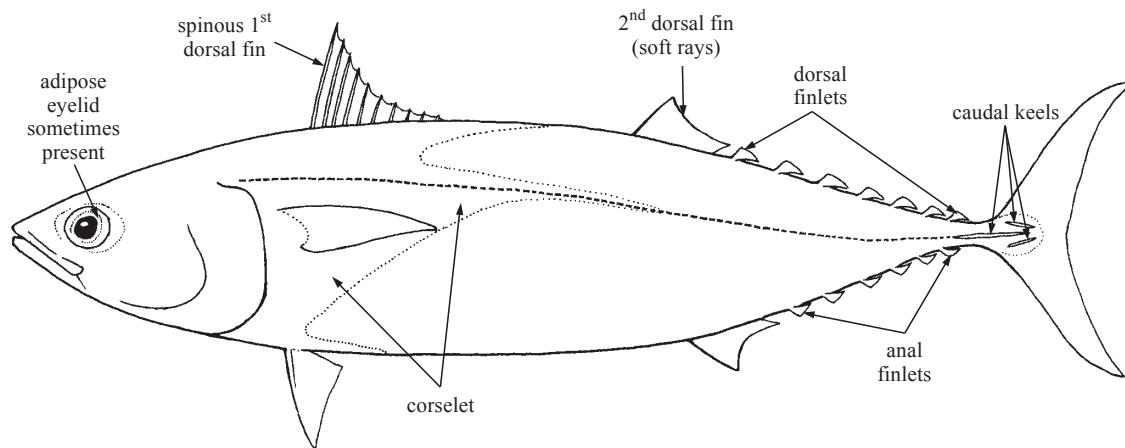


SCOMBRIDAE

Mackerels and tunas

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

Diagnostic characters: Medium to large-sized (to 3 m) with elongate and fusiform body, moderately compressed in some genera. Snout pointed; adipose eyelid sometimes present (*Scomber*); premaxillae beak-like, free from nasal bones which are separated by ethmoid bone; mouth moderately large; teeth in jaws strong, moderate, or weak; no true canines; palate and tongue may have teeth. Two dorsal fins; anterior fin usually short and separated from posterior fin; **5 to 10 finlets present behind dorsal and anal fins; caudal fin deeply forked** with supporting caudal rays completely covering hypural plate; pectoral fins placed high; pelvic fins moderate or small. **At least 2 small keels on each side of caudal peduncle, a larger keel in between in many species.** Lateral line simple. Vertebrae 31 to 66. Body either uniformly covered with small to moderate scales (e.g. *Scomber*, *Scomberomorus*) or a corselet developed (area behind head and around pectoral fins covered with moderately large, thick scales) and rest of body naked (*Auxis*, *Euthynnus*, *Katsuwonus*), or covered with small scales (*Thunnus*). **Colour:** *Scomber* species are usually bluish or greenish above with a pattern of wavy bands on upper sides and silvery below; *Scomberomorus* and *Acanthocybium* are blue-grey above and silvery below with dark vertical bars or spots on sides. *Sarda* has 5 to 11 stripes on back; *Euthynnus* has a striped pattern on back and several dark spots between pectoral and pelvic fins; *Katsuwonus* has 4 to 6 conspicuous longitudinal stripes on belly; *Auxis* and *Thunnus* are deep blue-black above; most species of *Thunnus* have bright yellow finlets with black borders.

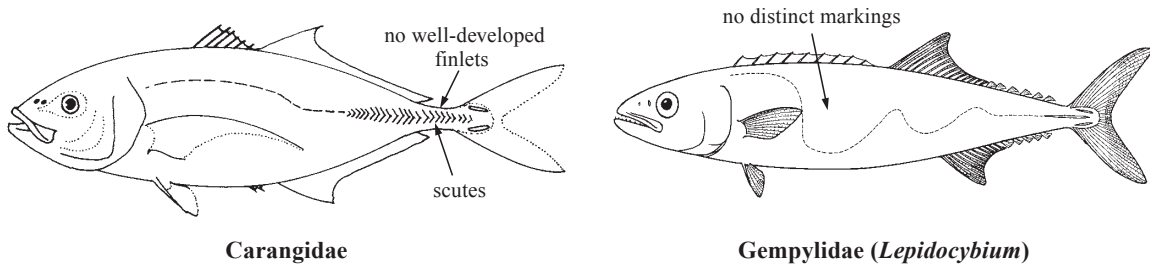


Habitat, biology, and fisheries: A diverse group of pelagic fishes. Some smaller species inhabit coastal waters while the larger ones, especially *Thunnus maccoyii*, *T. obesus*, *T. alalunga*, and *T. tonggol* carry out wide, transoceanic migrations. All scombrids are excellent foodfishes and many of them are of significant importance in coastal pelagic or oceanic commercial and sports fisheries.

Similar families occurring in the area

Carangidae: dorsal-fin spines 3 to 8 (9 to 27 in Scombridae); scutes frequently developed along posterior part of lateral line and usually no well-developed finlets are present (except in *Oligoplites* with a series of dorsal and anal finlets; *Elagatis* and *Decapterus* with 1 dorsal and 1 anal finlet); carangids also have 2 detached spines in front of anal fin (except in *Elagatis*).

Gempylidae: back usually brown, rarely blue-brown; never distinct markings on body; no keels on caudal peduncle, except in *Lepidocybium*.



Key to the species of Scombridae occurring in the area

- 1a. Two small keels on either side of caudal peduncle (Fig. 1 a); 5 dorsal and 5 anal finlets; adipose eyelids cover front and rear of eye *Scomber colias*
- 1b. Two small keels and a large median keel between them on either side of caudal peduncle (Fig. 1b); 7 to 10 dorsal and 7 to 10 anal finlets; adipose eyelids absent → 2

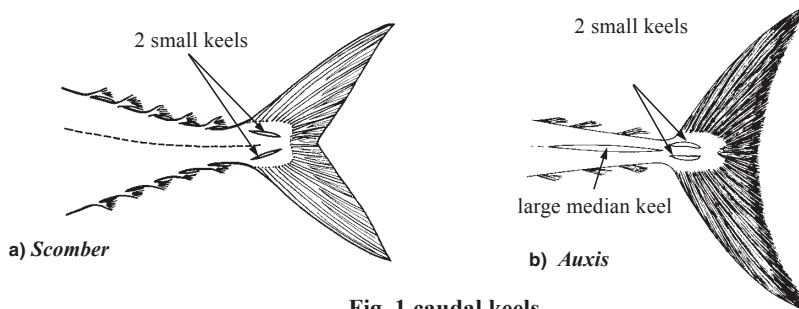


Fig. 1 caudal keels

- 2a. Teeth in jaws strong, compressed, almost triangular or knife-like; corselet of scales obscure → 3
- 2b. Teeth in jaws slender, conical, hardly compressed; corselet of scales well developed → 7
- 3a. Snout as long as rest of head (Fig. 2a); no gill rakers; 23 to 27 spines in first dorsal fin; posterior end of maxilla concealed under preorbital bone. *Acanthocybium solandri*
- 3b. Snout much shorter than rest of head (Fig. 2b); at least 6 gill rakers on first gill arch; 14 to 19 spines in first dorsal fin; posterior end of maxilla exposed (*Scomberomorus*) → 4

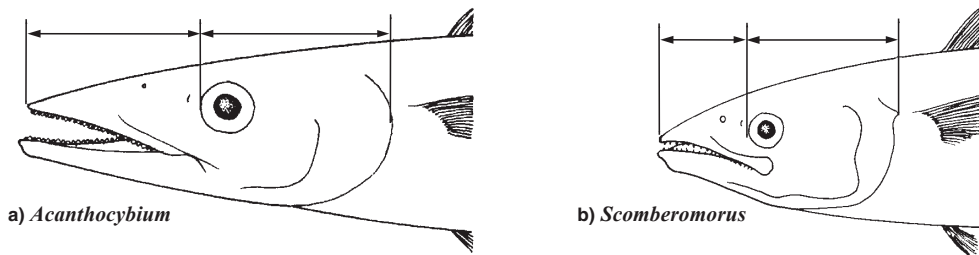


Fig. 2 lateral view of head

- 4a. Lateral line with a deep dip below second dorsal fin; total gill rakers on first arch 7 to 13
 *Scomberomorus cavalla*
- 4b. Lateral line straight or descending gradually, without a deep dip below second dorsal fin;
 total gill rakers on first arch 12 to 18 → 5
- 5a. One long stripe on sides with spots or interrupted lines above and below the stripe
 *Scomberomorus regalis*
- 5b. Sides with small round spots, orange in life, without any lines or stripes → 6
- 6a. Second dorsal-fin rays 17 to 20, usually 18 or more; total vertebrae 51 to 53
 *Scomberomorus maculatus*
- 6b. Second dorsal-fin rays 15 to 19, usually 18 or fewer; total vertebrae 46 to 49
 *Scomberomorus brasiliensis*

- 7a. Upper surface of tongue without cartilaginous longitudinal ridges (Fig. 3a); 5 to 10 narrow, longitudinal stripes on upper part of body; 20 to 23 spines in first dorsal fin *Sarda sarda*
- 7b. Upper surface of tongue with 2 longitudinal ridges (Fig. 3b); 9 to 16 spines in first dorsal fin → 8

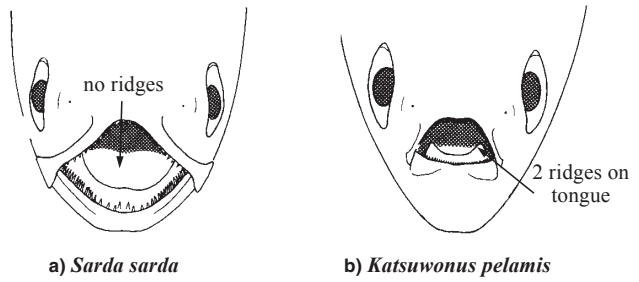


Fig. 3 anterior view of head

- 8a. First and second dorsal fins widely separated, the space between them equal to the length of first dorsal-fin base (Fig. 4); 9 to 11 spines in first dorsal fin; interpelvic process single and long, at least as long as longest pelvic fin ray (Fig. 6) (*Auxis*) → 9
- 8b. First and second dorsal fins barely separated, at most by eye diameter; 12 to 16 spines in first dorsal fin (Fig. 5); interpelvic process bifid and short, much shorter than pelvic fin rays (Fig. 7) → 10

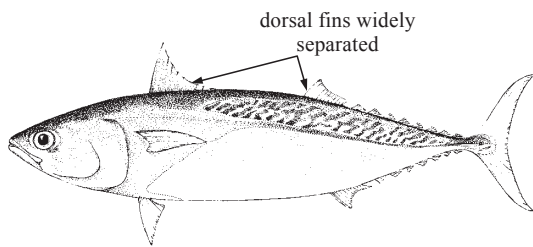


Fig. 4 *Auxis*

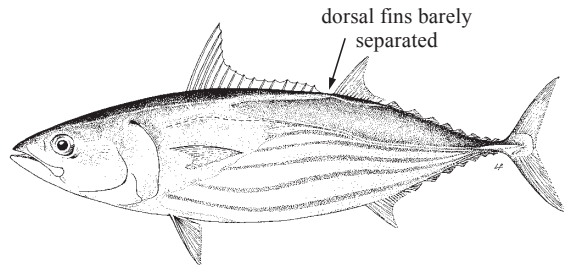


Fig. 5 *Katsuwonus pelamis*

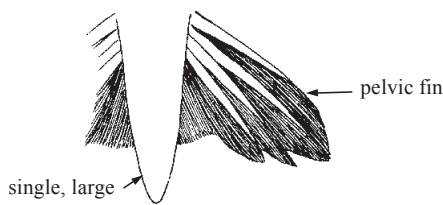


Fig. 6 interpelvic process

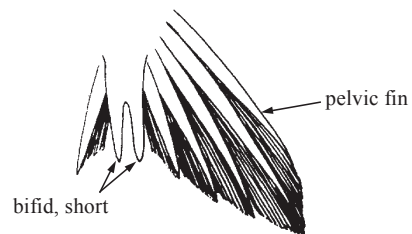


Fig. 7 interpelvic process

- 9a. Posterior extension of corselet narrow, only 1 to 5 scales wide under origin of second dorsal fin (Fig. 8); pectoral fin extends posteriorly beyond a vertical with the anterior margin of the dorsal scaleless area *Auxis thazard thazard*
- 9b. Posterior extension of corselet much wider, usually 10 to 15 scales wide under origin of second dorsal fin (Fig. 9); pectoral fin does not extend posteriorly as far as a vertical with anterior margin of dorsal scaleless area. *Auxis rochei rochei*

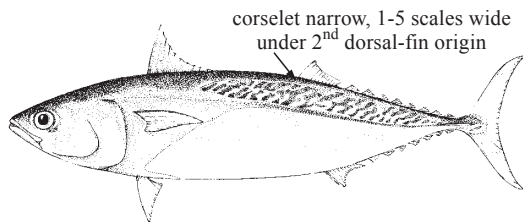


Fig. 8 *Auxis thazard thazard*

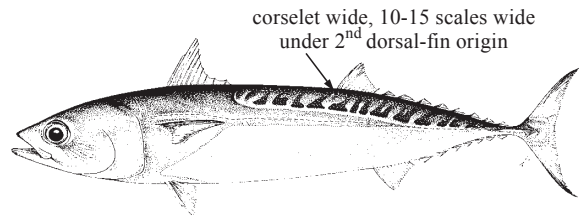


Fig. 9 *Auxis rochei rochei*

- 10a. Three to 5 prominent dark longitudinal stripes on belly (Fig. 5); gill rakers 53 to 63 on first arch. *Katsuwonus pelamis*
- 10b. No dark longitudinal stripes on belly; gill rakers 19 to 45 on first arch. → 11
- 11a. Body naked behind corselet of enlarged and thickened scales; black spots usually present between pectoral- and pelvic-fin bases (Fig. 10); 26 or 27 pectoral-fin rays . . . *Euthynnus alletteratus*
- 11b. Body covered with very small scales behind corselet; no black spots on body (Fig. 11); 30 to 36 pectoral-fin rays (*Thunnus*) → 12

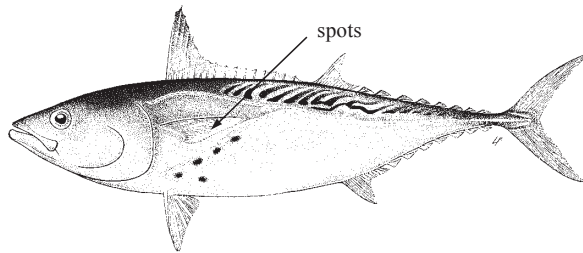


Fig. 10 *Euthynnus alletteratus*

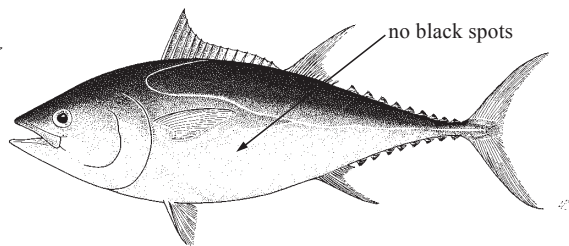


Fig. 11 *Thunnus thynnus*

- 12a. Ventral surface of liver covered with prominent striations; central lobe of liver equal to or longer than left and right lobes (Fig. 12) → 13
- 12b. Ventral surface of liver without striations; right lobe of liver much longer than left or central lobes (Fig. 13) → 14

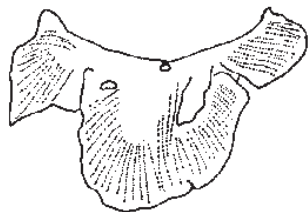


Fig. 12 *Thunnus alalunga* (liver)

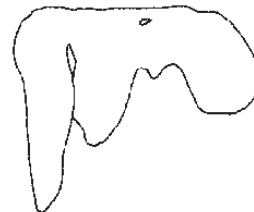


Fig. 13 *Thunnus albacares* (liver)

- 13a. Total gill rakers on first arch 31 to 43; pectoral fins short, less than 80% of head length, 16.8 to 21.7% of fork length (Fig. 11) *Thunnus thynnus*
- 13b. Total gill rakers on first arch 23 to 31; pectoral fins moderate to long, more than 80% of head length → 15

- 14a. Total gill rakers on first arch 26 to 34, usually 27 or more; second dorsal and anal fins of larger individuals (120 cm fork length and longer) elongate, more than 20% of fork length (Fig. 14) *Thunnus albacares*
- 14b. Total gill rakers on first arch 19 to 28, usually 26 or fewer; second dorsal and anal fins never greatly elongate, less than 20% of fork length at all sizes (Fig. 15) *Thunnus atlanticus*

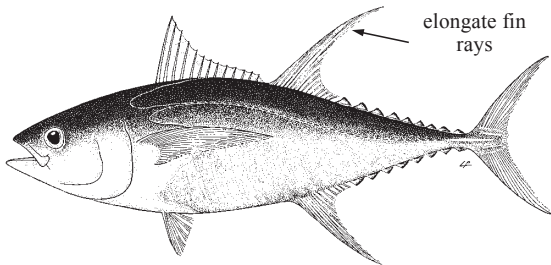


Fig. 14 *Thunnus albacares*

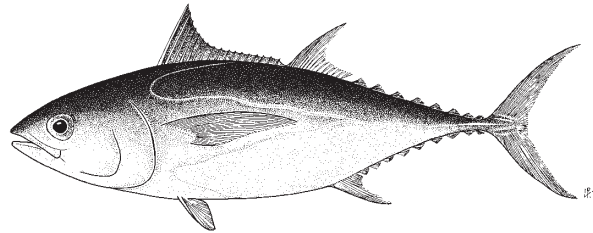


Fig. 15 *Thunnus atlanticus*

- 15a. Caudal fin with a narrow white posterior border (Fig. 16); pectoral fins very long, reaching well past end of second dorsal-fin base; greatest body depth at or slightly before level of second dorsal fin *Thunnus alalunga*
- 15b. Caudal fin without white posterior border (Fig. 17); pectoral fins short or moderate in length, reaching end of second dorsal-fin base (except in small individuals); greatest body depth about middle of body, near middle of first dorsal fin. *Thunnus obesus*

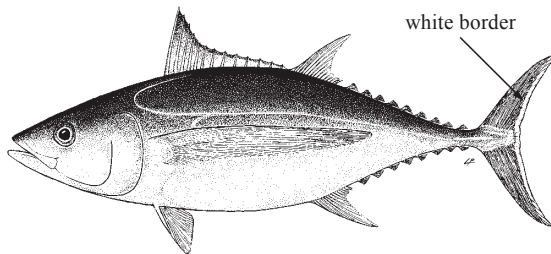


Fig. 16 *Thunnus alalunga*

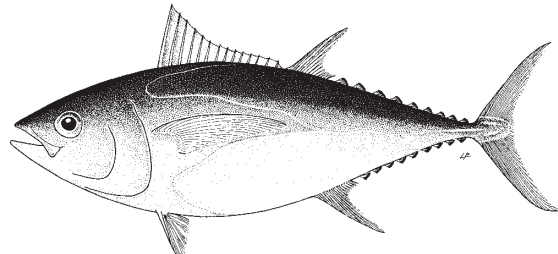


















Fig. 17 *Thunnus obesus*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Acanthocybium solandri* (Cuvier, 1832).
-  *Auxis rochei rochei* (Risso, 1810).
-  *Auxis thazard thazard* (Lacepède, 1800).
-  *Euthynnus alletteratus* (Rafinesque, 1810).
-  *Katsuwonus pelamis* (Linnaeus, 1758).
-  *Sarda sarda* (Bloch, 1793).
-  *Scomber colias* Gmelin, 1789.
-  *Scomberomorus brasiliensis* Collette, Russo and Zavala-Camin, 1978.
-  *Scomberomorus cavalla* (Cuvier, 1829).
-  *Scomberomorus maculatus* (Mitchill, 1815).
-  *Scomberomorus regalis* (Bloch, 1793).
-  *Thunnus alalunga* (Bonnaterre, 1788).
-  *Thunnus albacares* (Bonnaterre, 1788).
-  *Thunnus atlanticus* (Lesson, 1831).
-  *Thunnus obesus* (Lowe, 1839).
-  *Thunnus thynnus* (Linnaeus, 1758).

References

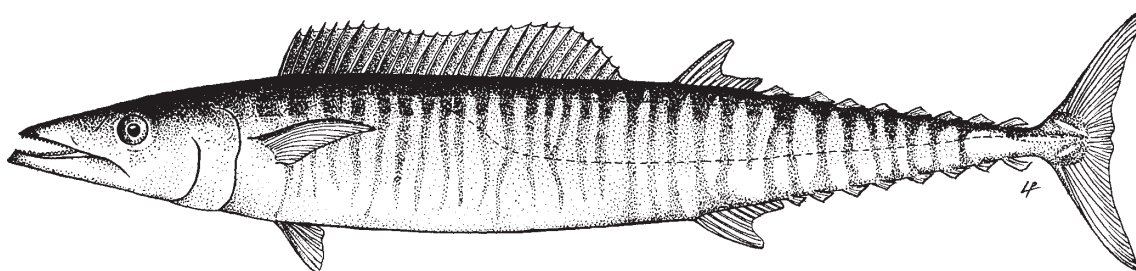
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Acanthocybium solandri (Cuvier, 1832)

WAH

Frequent synonyms / misidentifications: None / None.

FAO names: En - Wahoo; Fr - Thazard-bâtard; Sp - Peto.

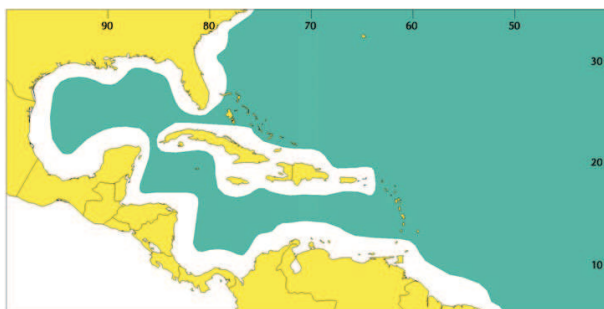


Diagnostic characters: Body very elongate, fusiform and only slightly laterally compressed. Snout about as long as rest of head. Gill rakers absent, posterior part of maxilla completely concealed under preorbital bone. Two dorsal fins, the first with 23 to 27 spines; 9 dorsal and anal finlets; 2 small flaps (interpelvic processes) between pelvic fins. **Colour:** back iridescent bluish green; **numerous dark vertical bars on sides** that extend to below lateral line.

Size: Maximum to 210 cm fork length. The IGFA all-tackle game fish record is 71.89 kg for a fish caught in Baja California in 1996.

Habitat, biology, and fisheries: An offshore epipelagic species. Piscivorous, preying on pelagic fishes such as scombrids, flyingfishes, herrings, scads, and lanternfishes, and on squids. Spawning seems to extend over a long period of the year. Fecundity is high, 6 million eggs were estimated for a 131 cm female. An excellent foodfish, greatly appreciated wherever it occurs. Primarily a sportfish on light to heavy tackle, surface trolling with spoon, feather lure, strip bait, or flyingfish or halfbeak. Landings recorded in Area 31 between 1995 and 1999 ranged from 1 011 to 1 352 t per year.

Distribution: A cosmopolitan species. Present throughout the Caribbean area, especially along the north coast of western Cuba where it is abundant during winter. May be migratory occurring in the Gulf Stream, especially in the Straits of Florida.

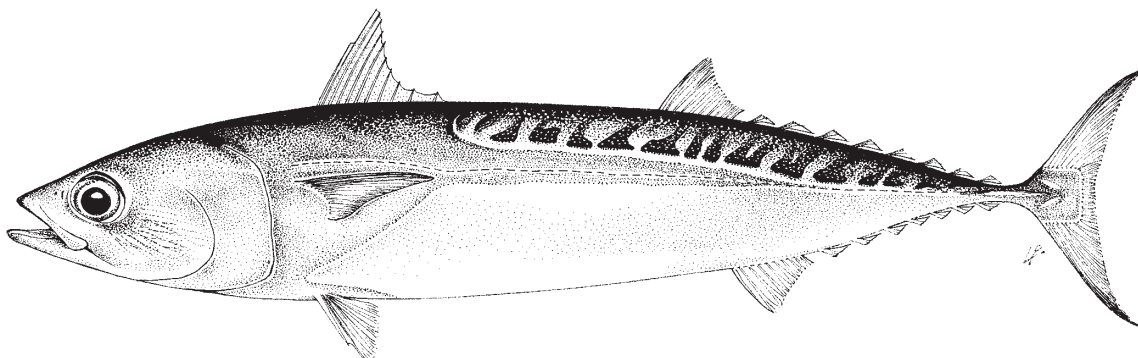


Auxis rochei rochei (Risso, 1810)

BLT

Frequent synonyms / misidentifications: *Auxis thynnoides* Bleeker, 1855; *Auxis maru* Kishinouye, 1915 / *Auxis thazard* (Lacepède, 1800).

FAO names: En - Bullet tuna (AFS: Bullet mackerel); Fr - Bonitou; Sp - Melvera.

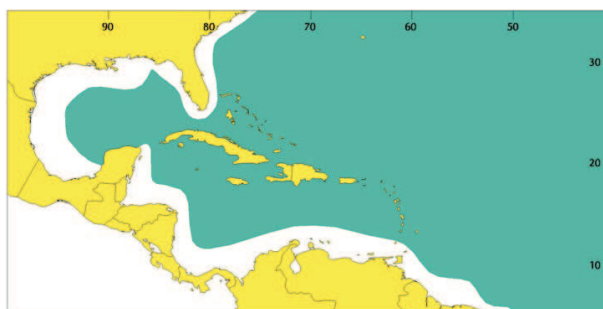


Diagnostic characters: Body robust, elongate, and rounded. Two dorsal fins separated by a large interspace (at least equal to length of first dorsal-fin base), the second fin followed by 8 finlets; pectoral fins short, not reaching vertical line from anterior margin of scaleless area above corselet; **a large, single-pointed flap (interpelvic process) between pelvic fins**; anal fin followed by 7 finlets. Body naked except for **corselet, which is well developed in its posterior part (more than 6 scales wide under second dorsal-fin origin)**. A strong central keel on each side of caudal-fin base between 2 smaller keels. **Colour:** back bluish, turning to deep purple or almost black on the head; **a pattern of 15 or more fairly broad, nearly vertical dark bars in the scaleless area**; belly white; pectoral and pelvic fins purple, their inner sides black.

Size: Maximum to 40 cm fork length, commonly to 35 cm.

Habitat, biology, and fisheries: Adults have been taken largely in inshore waters and near islands. Feeds on small fishes, especially clupeoids; also on crustaceans, especially megalops larvae and larval stomatopods, and on squids. Caught with purse seines, lift nets, traps, pole-and-line, and by trolling. Landings of *Auxis* species in Area 31 between 1995 and 1999 ranged from 1 524 to 3 053 t per year. Presumably both species are represented in the catch.

Distribution: A cosmopolitan warm-water species that occurs sporadically throughout the Western Central Atlantic. Until recently, only one species was recognized in this area, so exact distribution of the 2 species (*A. rochei* and *A. thazard*) is not well known. *A. rochei* appears the more common of the two. Replaced by *Auxis rochei eudorax* in the eastern Pacific.

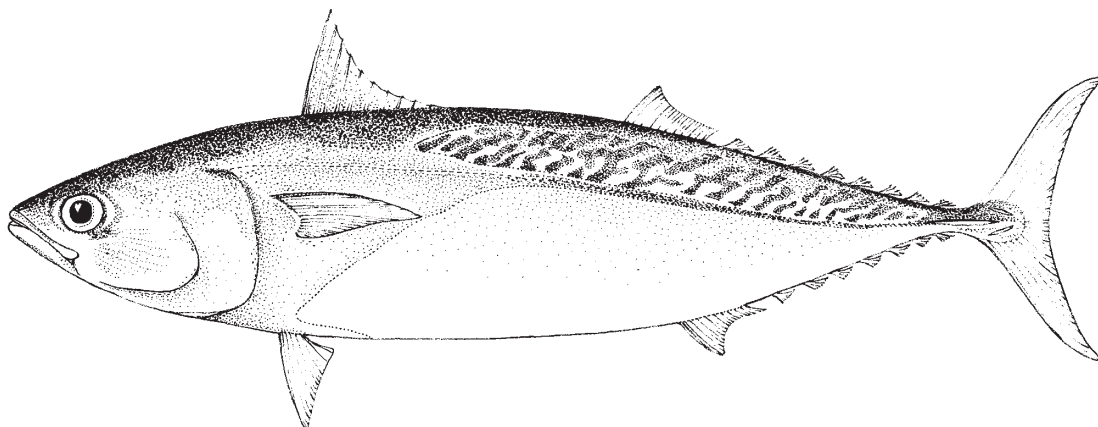


Auxis thazard thazard (Lacepède, 1800)

FRI

Frequent synonyms / misidentifications: *Auxis tapeinosoma* Bleeker, 1854; *Auxis hira* Kishinouye 1915 / None.

FAO names: En - Frigate tuna (AFS: Frigate mackerel); Fr - Auxide; Sp - Melva.

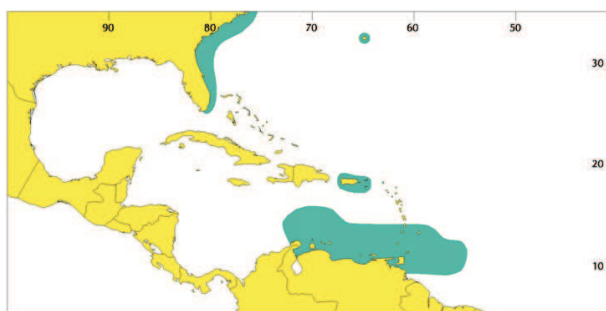


Diagnostic characters: Body robust, elongate, and rounded. Two dorsal fins, the first with 10 to 12 spines, separated from the second by a large interspace (at least equal to length of first dorsal-fin base), the second fin followed by 8 finlets; pectoral fins short but reaching past vertical line from anterior margin of scaleless area above corselet; **a large single-pointed flap (interpelvic process) between pelvic fins**; anal fin followed by 7 finlets. Body naked except for the **corselet, which is well developed and narrow in its posterior part (no more than 5 scales wide under second dorsal-fin origin)**. A strong central keel on each side of caudal-fin base between 2 smaller keels. **Colour:** back bluish, turning to deep purple or almost black on the head; **a pattern of 15 or more narrow, oblique to nearly horizontal dark wavy lines in the scaleless area above lateral line**; belly white; pectoral and pelvic fins purple, their inner sides black.

Size: Maximum to 50 cm fork length, commonly to 40 cm (larger than *A. rochei*). The IGFA all-tackle game fish record is 1.72 kg for a fish caught in Australia in 1998.

Habitat, biology, and fisheries: Caught with beach seines, drift nets, purse seines, and by trolling. Marketed fresh; possibly also frozen. Landings of *Auxis* species in Area 31 between 1995 and 1999 ranged from 1 524 to 3 053 t per year. Presumably, the catch consists of both species.

Distribution: A cosmopolitan warm-water species that occurs sporadically throughout the Western Central Atlantic. Until recently, only 1 species, currently known as *A. rochei*, was recognized in the western Atlantic so the exact distribution of the two species is not well known. Definitely reported from the USA coast from North Carolina to Florida, Bermuda, Puerto Rico, Martinique, and from west of St. Vincent, off Caracas, at Trinidad, and around Margarita Island, eastern Venezuela. Replaced by *Auxis thazard brachydorax* in the eastern Pacific.

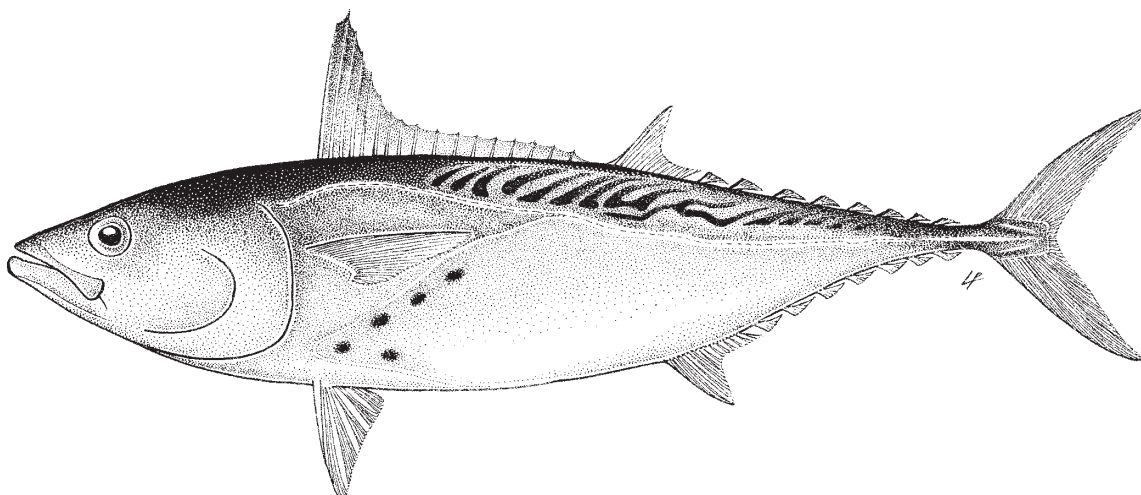


Euthynnus alletteratus (Rafinesque, 1810)

LTA

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - Little tunny; **Fr** - Thonine commune; **Sp** - Bacoreta.

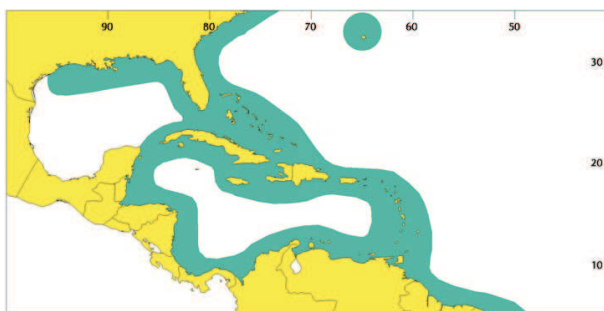


Diagnostic characters: A large fish, body robust and fusiform. Two dorsal fins separated by a narrow space (not wider than eye diameter); **anterior spines in dorsal fin much higher than those midway**, giving the fin a strongly concave outline; second dorsal fin much lower than first, followed by 8 finlets; pectoral fins short; 2 flaps (interpelvic processes) between pelvic fins; anal fin followed by 7 finlets. Body naked, except for the corselet and lateral line. Caudal peduncle bearing on either side a prominent central keel between 2 small keels at bases of caudal-fin lobes. **Colour: back dark blue with a complicated striped pattern not extending forward beyond middle of first dorsal fin**; lower sides and belly silvery white; several characteristic dark spots between pelvic and pectoral fins (not always very conspicuous).

Size: Maximum to 100 cm fork length, commonly to 75 cm, and about 6 kg weight. The IGFA all-tackle game fish record is 15.95 kg for a fish caught in Algeria in 1988.

Habitat, biology, and fisheries: Found in surface waters, mainly on the continental shelf. Less migratory than *Katsuwonus pelamis* or other tunas; usually found in coastal areas with swift currents, near shoals and off-shore islands. Feeds mainly on small fishes such as clupeoids and other pelagic species, as well as on fish larvae, squids, and crustaceans. At times, schools can be located by the presence of diving birds that are also feeding on the smaller fishes. Caught throughout the year in Bermuda, Florida, and parts of the Caribbean. In open waters it is fished with purse seines and trolling lines; juveniles are also taken with beach seines. Because of its abundance in inshore waters it is a popular sportfish on light tackle, commonly taken by trolling feather jigs, spoons, or strip bait. It is also popular and very effective as a live bait for sailfish. Marketed mainly fresh, also canned. The total catch reported from Area 31 between 1995 and 1999 ranged from 1 674 to 3 010 t taken mainly by Venezuela.

Distribution: Widespread in the area, from New England south to Victoria Island, Brazil, including Bermuda. Also found in the eastern Atlantic and Mediterranean.

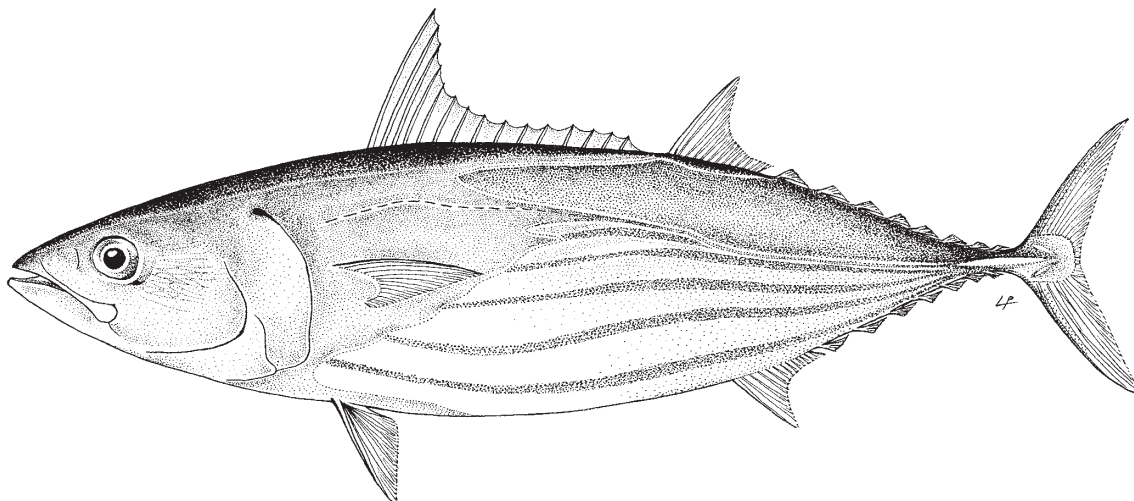


Katsuwonus pelamis (Linnaeus, 1758)

SKJ

Frequent synonyms / misidentifications: *Euthynnus pelamis* (Linnaeus, 1758) / None.

FAO names: En - Skipjack tuna; Fr - Listao; Sp - Listado.

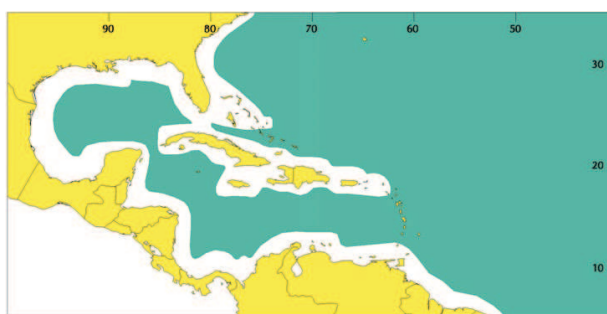


Diagnostic characters: Body fusiform, elongate, and rounded. **Gill rakers numerous, 53 to 63 on first arch.** Two dorsal fins separated by a small interspace (not larger than eye), the first with 14 to 16 spines, the second followed by 7 to 9 finlets; pectoral fins short with 26 or 27 rays; 2 flaps (interpelvic processes) between pelvic fins; anal fin followed by 7 or 8 finlets. Body scaleless except for the corselet and lateral line. A strong keel on each side of base of caudal fin between 2 smaller keels. **Colour:** back dark purplish blue, **lower sides and belly silvery, with 4 to 6 very conspicuous longitudinal dark bands** which in live specimens may appear as discontinuous lines of dark blotches.

Size: Maximum to 100 cm fork length, commonly to 80 cm. The IGFA all-tackle game fish record is 20.54 kg for a fish caught in Baja California in 1996.

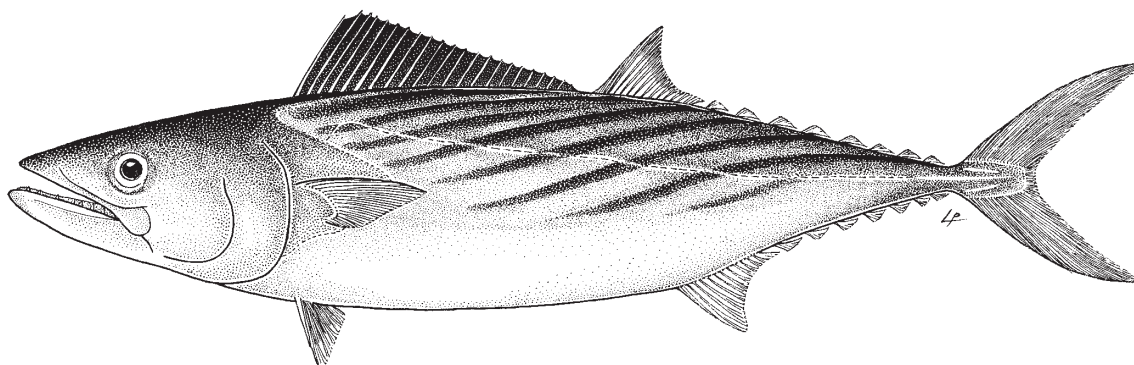
Habitat, biology, and fisheries: Occurs in large schools in deep coastal and oceanic waters, generally above the thermocline. Commonly found in mixed schools with blackfin tuna, *Thunnus atlanticus*. Feeds on fishes, cephalopods, and crustaceans. Caught mainly by pole-and-line; also with purse seines. Also an important game fish usually taken by trolling on light tackle using plugs, spoons, feathers, or strip bait. Marketed canned or frozen. The total reported catch from Area 31 between 1995 and 1999 ranged from 4 185 to 5 829 t. The Cuban fishery is directed at both *K. pelamis* and *Thunnus atlanticus* and the catch of *K. pelamis* also includes some *T. atlanticus*.

Distribution: Cosmopolitan in tropical and subtropical seas. Common throughout the tropical western Atlantic; north to Cape Cod in the summer, and south to Argentina.



Sarda sarda (Bloch, 1793)

BON

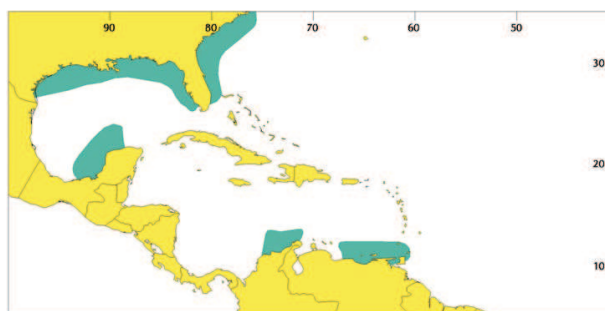
Frequent synonyms / misidentifications: None / None.**FAO names:** **En** - Atlantic bonito; **Fr** - Bonite à dos rayé; **Sp** - Bonito del Atlántico.

Diagnostic characters: A small, relatively narrow-bodied tuna. Mouth moderately wide, upper jaw reaching to hind margin of eye or beyond; 16 to 22 gill rakers on first arch. **Dorsal fins close together, the first very long, with 20 to 23 spines and straight or only slightly concave in outline;** 7 to 9 dorsal and 6 to 8 anal finlets; pectoral fins short; pelvic fins separated by 2 flaps (interpelvic processes). Lateral line conspicuously wavy. Body entirely covered with scales that are minute except on the well-developed corselet; caudal peduncle slender, with a well-developed lateral keel between 2 smaller keels on each side. **Colour: back and upper sides steel-blue, with 5 to 11 dark slightly oblique stripes running forward and downward;** lower sides and belly silvery.

Size: Maximum to 85 cm fork length and 5 kg weight, commonly to 50 cm and about 2 kg weight. The IGFA all-tackle game fish record is 8.30 kg for a fish caught in the Azores in 1953.

Habitat, biology, and fisheries: A pelagic migratory species often schooling near the surface in inshore waters. Feeds mostly on fishes, particularly small clupeoids, gadoids, and mackerels. In coastal waters it is caught mostly with gill nets and purse seines, while trolling lines are more often used offshore. Marketed mainly fresh and canned. The reported catch from Area 31 between 1995 and 1999 ranged from 3 472 to 4 926 t.

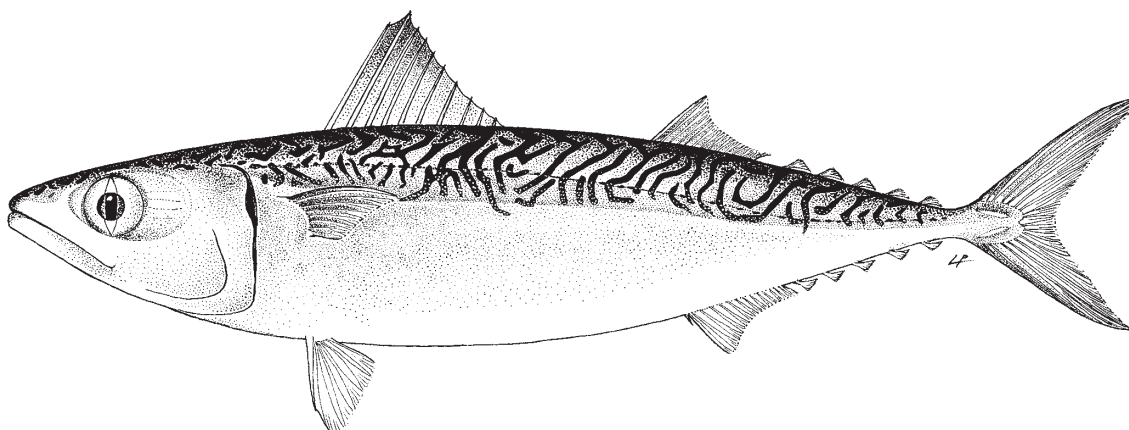
Distribution: Occurs along the tropical and temperate coasts of the Atlantic Ocean, including the Gulf of Mexico, Mediterranean and Black seas. Its usual northern limit in the western North Atlantic is Cape Ann, Massachusetts, but there are records north to the outer coast of Nova Scotia. Common along the east coast of the USA but becomes uncommon around Miami and the Florida Keys. There are several records from the Gulf of Mexico. Apparently absent from most of the Caribbean Sea but recorded from Colombia and the Gulf of Cariaco, Venezuela. Records become more common south of the Amazon.



Scomber colias Gmelin, 1789

Frequent synonyms / misidentifications: *Pneumatophorus colias* (Gmelin, 1788); *Scomber japonicus* Houttuyn, 1782 / None.

FAO names: **En** - Atlantic chub mackerel; **Fr** - Maquereau blanc; **Sp** - Estornino del Atlántico.



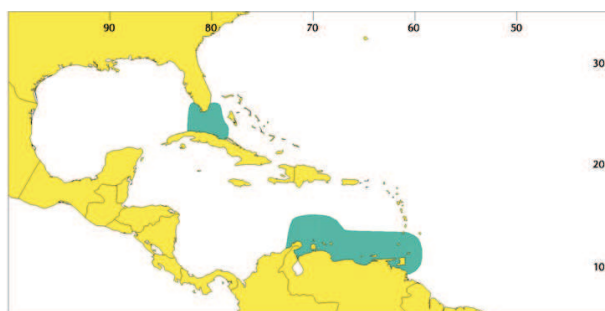
Diagnostic characters: Body elongate and rounded, snout pointed, caudal peduncle slim. **Front and hind margins of eye covered by adipose eyelids.** Two widely separated dorsal fins (interspace at least equal to length of first dorsal-fin base), the first with 8 to 10 spines; **5 dorsal and 5 anal finlets**; a single small flap (interpelvic process) between pelvic fins. Scales behind head and around pectoral fins larger and more conspicuous than those covering rest of body, but no well-developed corselet. Two small keels on each side of caudal peduncle (at base of caudal-fin lobes), but no central keel between them. Swimbladder present. **Colour:** back steel-blue crossed by faint wavy lines; **lower sides and belly silvery-yellow with numerous dusky rounded blotches.**

Size: Maximum to 50 cm fork length, commonly to 30 cm. The IGFA all-tackle game fish record for the closely-related *S. japonicus* is 2.17 kg for a fish caught at Guadaloupe Island, Mexico in 1986.

Habitat, biology, and fisheries: A schooling pelagic species occurring mostly in coastal waters. Feeds on small pelagic fishes such as anchovy, pilchard, sardinella, sprat, silversides, and also pelagic invertebrates. Caught with purse seines, often together with sardines, sometimes using light trolling lines, gill nets, traps, beach seines and midwater trawls. Marketed fresh, frozen, smoked, salted, and occasionally also canned. The catch reported from Area 31 between 1995 and 1999 ranged from 379 to 771 t.

Distribution: Inhabits the warm-water belt of the Atlantic Ocean and adjacent seas. In the western Atlantic from Nova Scotia south to Argentina. Uncommon in the Gulf of Mexico and Caribbean Sea but reported from the Florida Keys, northern Cuba, and off the coast of Venezuela.

Remarks: Based on morphological and molecular data, the Atlantic chub mackerel is now considered distinct from the Indo-Pacific chub mackerel, *Scomber japonicus* Houttuyn, 1782.

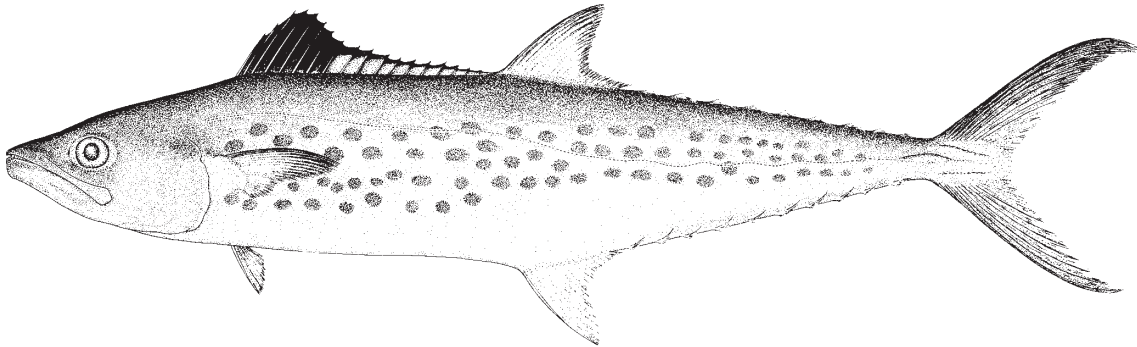


Scomberomorus brasiliensis Collette, Russo, and Zavalla-Camin, 1978

BRS

Frequent synonyms / misidentifications: None / *Scomberomorus maculatus* (Mitchill, 1815)

FAO names: En - Serra Spanish mackerel; Fr - Thazard tacheté du sud; Sp - Serra.

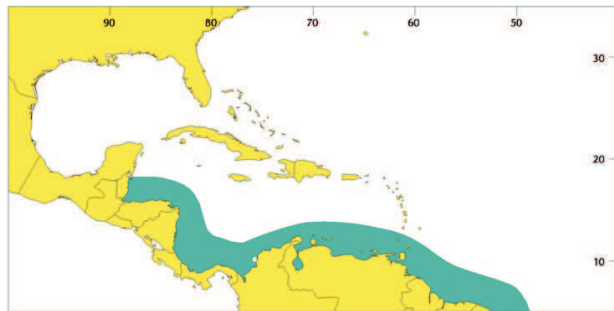


Diagnostic characters: Body elongate, strongly compressed. Snout much shorter than rest of head; posterior part of maxilla exposed, reaching to a vertical from hind margin of eye; many gill rakers on first arch (1 to 3, usually 2, on upper limb; 9 to 13, usually 10 or 11, on lower limb; 11 to 16, usually 13 to 15, total). Two scarcely separated dorsal fins, the first with 17 or 18 spines, the second with 15 to 19 rays; dorsal and anal finlets 8 to 10; 2 flaps (interpelvic processes) between pelvic fins. Lateral line gradually curving down toward caudal peduncle. Body entirely covered with small scales, no corselet developed; pectoral fins without scales, except at bases. **Colour:** back iridescent bluish green, **sides silvery with numerous yellow to bronze spots, the number of spots increasing with size from about 30 at 20 cm fork length to between 45 and 60 at fork lengths from 50 to 60 cm; no streaks on body;** anterior third of first dorsal fin black.

Size: Maximum to at least 125 cm fork length, commonly to 65 cm.

Habitat, biology, and fisheries: Tends to form schools and enters tidal estuaries. Feeds on small fishes, penaeoid shrimps, and squids. Caught mainly with purse seines and on line gear. Also a sportsfish taken by trolling feathers or pork rind or by casting fly and spinning lures into surface schools. Marketed mostly fresh, but in Brazil some is salted; the flesh is highly appreciated. Landings recorded for *S. brasiliensis* in Area 31 (mostly from Venezuela, Trinidad, and Tobago) between 1995 and 1999 ranged from 4 480 to 6 725 t per year. In addition, part of the catch reported from the USA and Mexico as *Scomberomorus maculatus* is in fact, *S. brasiliensis*.

Distribution: Restricted to the western North Atlantic from Yucatán and Belize south to Rio Grande do Sul, Brazil.

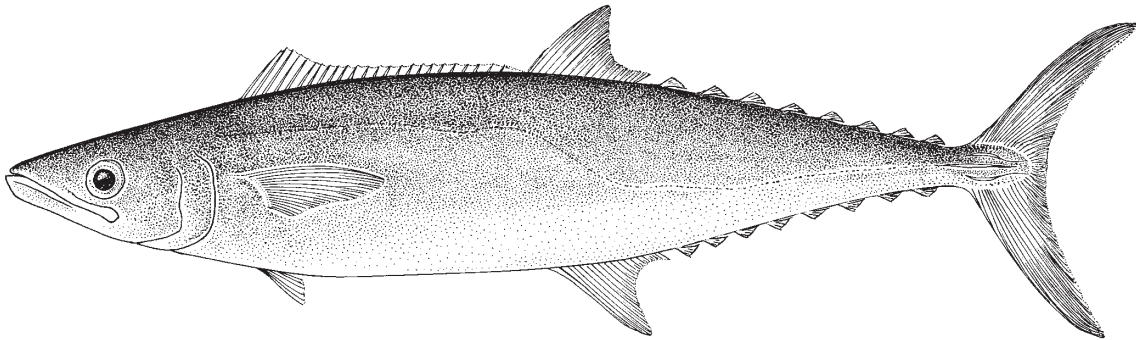


Scomberomorus cavalla (Cuvier, 1829)

KGM

Frequent synonyms / misidentifications: None / None.

FAO names: En - King mackerel; Fr - Thazard barré; Sp - Carite lucio.

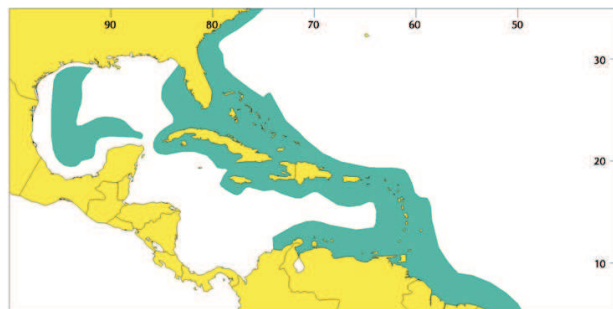


Diagnostic characters: Body elongate, strongly compressed. Snout much shorter than rest of head; posterior part of maxilla exposed, reaching to a vertical with hind margin of eye; **gill rakers on first arch few (0 to 2, usually 1, on upper limb; 5 to 9, usually 7 to 9, on lower limb; 6 to 11, usually 8 to 10, total)**. Two scarcely separated dorsal fins, the first with 14 to 16 (usually 15) spines; dorsal finlets 8 or 9, anal finlets 9 or 10; 2 flaps (interpelvic processes) between pelvic fins. **Lateral line abruptly curving downward below second dorsal fin.** Body entirely covered with scales, no corselet developed; pectoral fins without scales, except at bases. **Colour:** back iridescent bluish green, sides silvery; anterior third of first dorsal fin pigmented like the posterior two thirds, not black; young with spots on sides similar to those in *Scomberomorus maculatus*.

Size: Maximum to 150 cm fork length and 36 to 45 kg, commonly to 70 cm. The IGFA all-tackle game fish record is 42.18 kg for a fish caught in Puerto Rico in 1999.

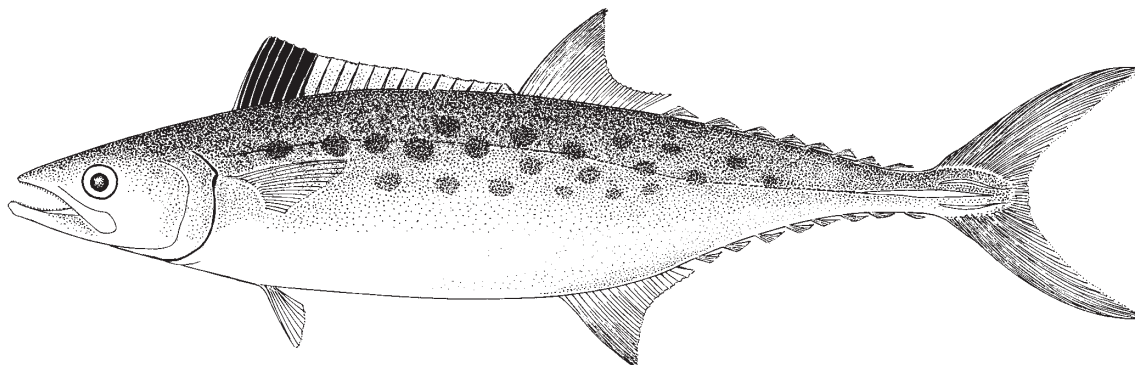
Habitat, biology, and fisheries: Occurs singly or in small groups; often found in outer reef areas. Feeds mainly on small fishes. Caught with purse seines or “mandingas” (Venezuela) and on line gear. Also an important sportfish taken by trolling with halfbeaks, mullet strip in back of large feather lures, or strip bait. Marketed fresh or frozen. The catch reported from Area 31 from 1995 to 1999 ranged between 7 904 and 12 180 t. The actual catch is probably higher as the FAO statistics include an additional unclassified landings of *Scomberomorus* species.

Distribution: Found on both coasts of Florida, throughout the Antilles and along the northern coast of South America; southward extending to Rio de Janeiro, northward seasonally to Massachusetts.



Scomberomorus maculatus (Mitchill, 1815)

SSM

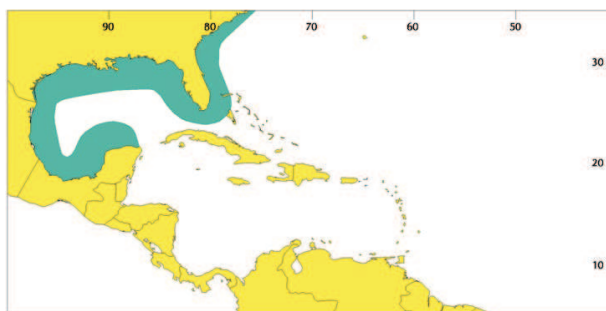
Frequent synonyms / misidentifications: None / None.**FAO names:** En - Atlantic Spanish mackerel (AFS: Spanish mackerel); Fr - Thazard Atlantique; Sp - Carite Atlántico.

Diagnostic characters: Body elongate, strongly compressed. Snout much shorter than rest of head; posterior part of maxilla exposed, reaching to a vertical from hind margin of eye; **many gill rakers on first arch (1 to 4, usually 2, on upper limb; 8 to 12, usually 10 or 11, on lower limb; 11 to 16, usually 12 to 14, total)**. Two scarcely separated dorsal fins, the first with 17 to 19 (usually 19) spines; dorsal and anal finlets 8 or 9; 2 flaps (interpelvic processes) between pelvic fins. **Lateral line gradually curving down toward caudal peduncle.** Body entirely covered with small scales, no corselet developed; pectoral fins without scales, except at bases. **Colour:** back iridescent bluish green, **sides silvery with numerous yellow to bronze spots and no streaks;** anterior third of first dorsal fin black.

Size: Maximum to at least 70 cm fork length, commonly to 50 cm. The IGFA all-tackle game fish record is 5.89 kg for a fish caught in North Carolina in 1987.

Habitat, biology, and fisheries: Tends to form schools and enters tidal estuaries. Feeds on small fishes, especially sardines and anchovies. Caught mainly with purse seines and on line gear. Also an important sportfish taken by trolling feathers or pork rind or by casting fly and spinning lures into surface schools. Marketed mostly fresh or frozen; the flesh is highly appreciated. Landings recorded for *S. maculatus* in Area 31 between 1995 and 1999 ranged from 9 207 to 12 414 t per year.

Distribution: Restricted to the western North Atlantic (although reported from the eastern Pacific and eastern Atlantic, based on 2 other species, *Scomberomorus sierra* and *Scomberomorus tritor*, respectively). Ranges from Maine to Yucatán, primarily in waters over the continental shelf. Absent from Bermuda and most of the West Indies. Replaced from Belize to Brazil by a similar species, *S. brasiliensis*.

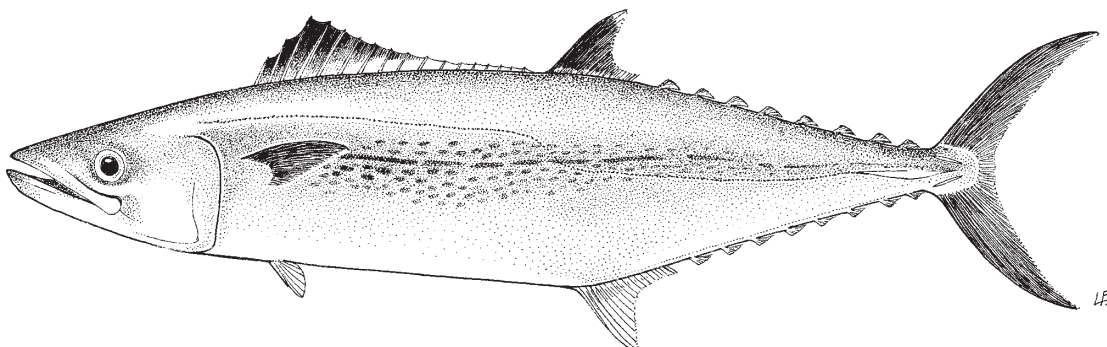


Scomberomorus regalis (Bloch, 1793)

CER

Frequent synonyms / misidentifications: None / None.

FAO names: En - Cero; Fr - Thazard franc; Sp - Carite chinigua.

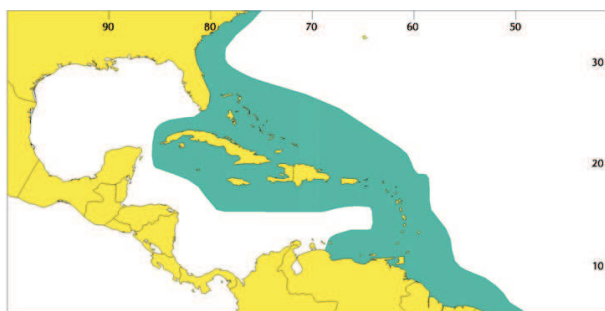


Diagnostic characters: Body elongate, strongly compressed. Snout much shorter than rest of head; posterior part of maxilla exposed, not quite reaching to a vertical with hind margin of eye; many gill rakers on first gill arch (2 to 4, usually 3, on upper limb; 10 to 14, usually 11 to 13, on lower limb (12 to 18, usually 15 or 16, total). Two scarcely separated dorsal fins, the first with 17 to 19 (usually 17 or 18) spines; dorsal finlets 8; anal finlets 2; 2 flaps (interpelvic processes) between pelvic fins. **Lateral line gradually curving down toward caudal peduncle.** Body entirely covered with small scales, no corselet developed; pectoral fins covered with small scales. **Colour:** back iridescent bluish green, **sides silvery, with a midlateral row of streaks of variable length; small yellow spots above and below the streaks;** anterior third of first dorsal fin black.

Size: Maximum to 80 cm fork length, commonly to 45 cm. The IGFA all-tackle game fish record is 7.76 kg for a fish caught in Florida in 1986.

Habitat, biology, and fisheries: Common over reefs, usually solitary or in small groups. Feeds mainly on small fishes, especially sardines, anchovies, and silversides. Caught with purse seines or 'mandingas' (Venezuela) and on line gear. Also a sportfish trolling with cut bait. Marketed mostly fresh. Its flesh is highly esteemed. The catch reported from Area 31 between 1995 and 1999 ranged from 307 to 429 t (400 t from Martinique).

Distribution: From Massachusetts southward throughout the Antilles to Brazil; the most common *Scomberomorus* species in the West Indies; very abundant around Cuba.

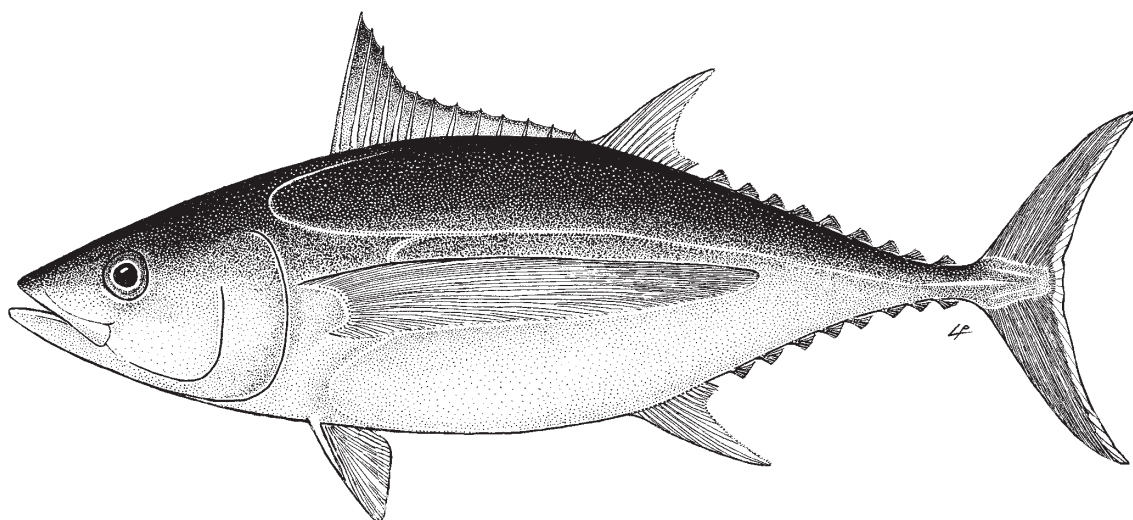


Thunnus alalunga (Bonnaterre, 1788)

ALB

Frequent synonyms / misidentifications: *Germo alalunga* (Bonnaterre, 1788) *Thunnus germo* (Lacepède, 1800) / None.

FAO names: En - Albacore; Fr - Germon; Sp - Atún blanco.

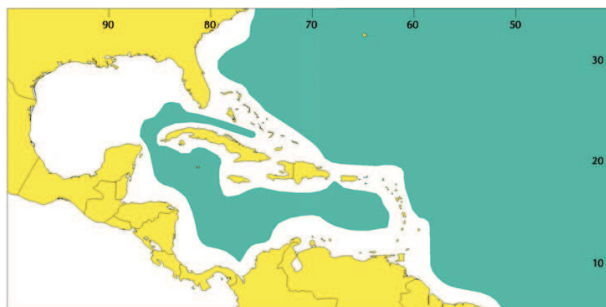


Diagnostic characters: A large species with an elongate fusiform body deepest at a more posterior point than in other tunas (at or only slightly anterior to second dorsal fin rather than near middle dorsal-fin base). Eyes moderately large; gill rakers 25 to 31 on first arch. Two dorsal fins separated only by a narrow interspace, the second clearly lower than the first and followed by 7 to 9 finlets; **pectoral fins remarkably long, usually 30% of fork length or longer, reaching well beyond origin of second dorsal fin (usually up to second dorsal fin)**, 2 flaps (interpelvic processes) between pelvic fins; anal fin followed by 7 or 8 finlets. Small scales on body; corselet of larger scales developed but not very distinct. Caudal peduncle bearing on each side a strong lateral keel between 2 smaller keels. Liver has striated ventral surface. Swimbladder present. **Colour:** back metallic dark blue, lower sides and belly whitish; a faint lateral iridescent blue band runs along sides in live fish; first dorsal fin deep yellow, second dorsal and anal fins light yellow, anal finlets dark; **posterior margin of caudal fin white.**

Size: Maximum to 120 cm fork length, commonly to 100 cm. The IGFA all-tackle game fish record is 40.00 kg for a fish caught in the Canary Islands in 1977.

Habitat, biology, and fisheries: Oceanic, the young often in large schools; found below the thermocline or at temperatures of 17 to 21°C. Feeds on many kinds of organisms, particularly fishes, squids, and crustaceans. Caught with purse seines and longlines; also by trolling. Marketed mainly canned or frozen. Landings reported between 1995 and 1999 ranged from 1 399 to 5 457 t, caught almost entirely by Taiwan Province of China.

Distribution: A cosmopolitan species, often extending into cool waters. In the western Atlantic from south of New England to southern Brazil. There are no records for the Gulf of Mexico although it is widespread throughout the Caribbean Sea and off the coast of Venezuela.

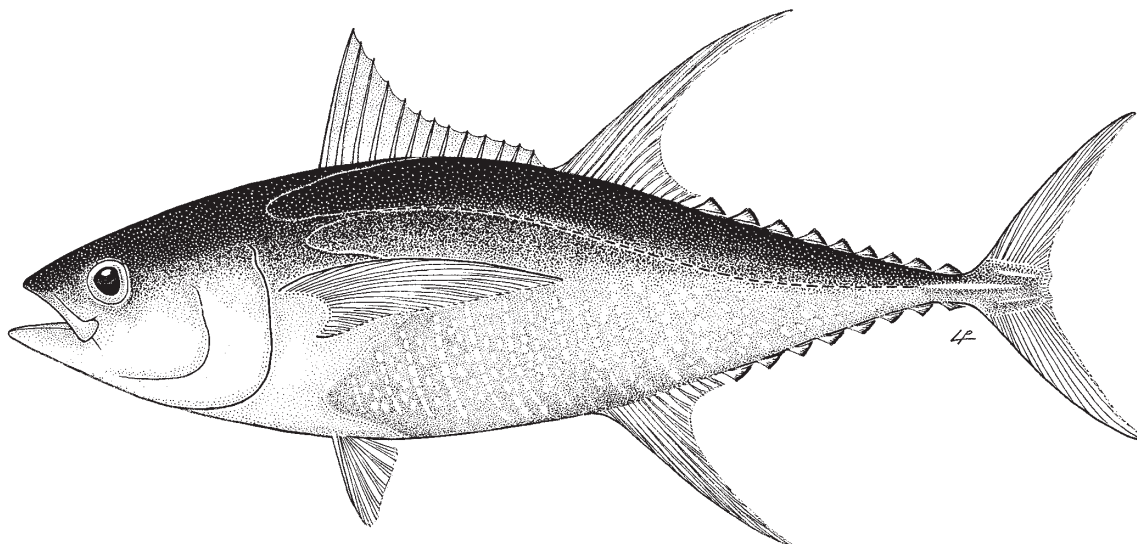


Thunnus albacares (Bonnaterre, 1788)

YFT

Frequent synonyms / misidentifications: *Neothunnus macropterus* (Temminck and Schlegel, 1844); *Neothunnus albacora* (Lowe, 1839); *Thunnus argentivittatus* (Cuvier, 1832) / None.

FAO names: En - Yellowfin tuna; Fr - Albacore; Sp - Rabil.

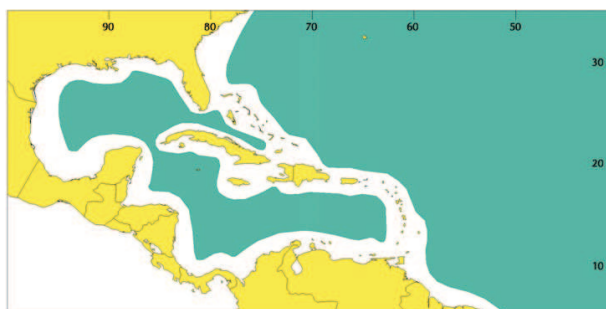


Diagnostic characters: A large species with an elongate, fusiform body, slightly compressed from side to side. **Gill rakers 26 to 34 on first arch.** Two dorsal fins, separated only by a narrow interspace, the second followed by 8 to 10 finlets; anal fin followed by 7 to 10 finlets; 2 flaps (interpelvic processes) between pelvic fins; **large individuals may have very long second dorsal and anal fins, becoming well over 20% of fork length;** pectoral fins moderately long, usually reaching beyond second dorsal-fin origin but not beyond end of its base, usually 22 to 31% of fork length. Body with very small scales; corselet of larger scales developed but not very distinct. Caudal peduncle very slender, bearing on each side a strong lateral keel between 2 smaller keels. **No striations on ventral surface of liver.** Swimbladder present. **Colour:** back metallic dark blue changing through yellow to silver on belly; **belly frequently crossed by about 20 broken, nearly vertical lines;** dorsal and anal fins and finlets bright yellow, the finlets with a narrow black border.

Size: Maximum to 195 cm fork length, commonly to 150 cm. The IGFA all-tackle game fish record is 176.35 kg for a fish caught in the Revillagigedo Islands, Mexico in 1977.

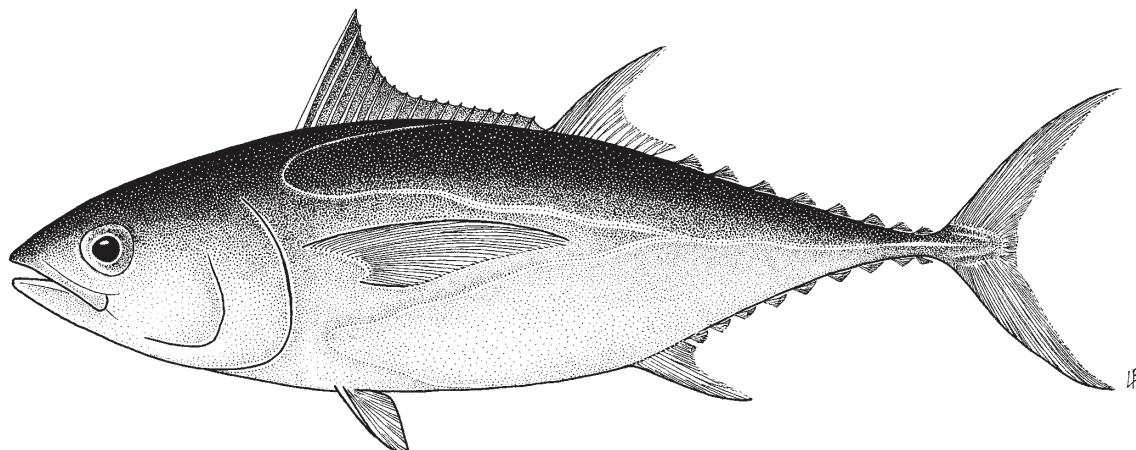
Habitat, biology, and fisheries: Oceanic, above and below the thermocline. Feeds on a wide variety of fishes, crustaceans, and cephalopods. Caught mainly with longlines and purse seines, and also by sport fishermen. Marketed canned, fresh, or frozen. The total reported catch from Area 31 from 1995 to 1999 ranged from 23 282 to 26 847 t caught mostly by Venezuela and Colombia.

Distribution: A pantropical species. In the western Atlantic it is known from about 42°N southward through the Sargasso Sea, Gulf of Mexico, and Caribbean Sea. Also present off the coast of South America from 10°N to 32°N.



Thunnus atlanticus (Lesson, 1831)

BLF

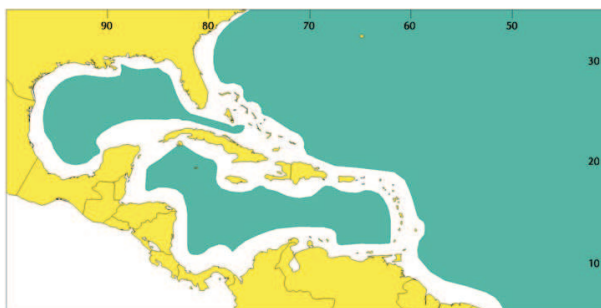
Frequent synonyms / misidentifications: None / None.**FAO names:** **En** - Blackfin tuna; **Fr** - Thon à nageoires noires; **Sp** - Atún des aletas negras.

Diagnostic characters: A small species of tuna with a fusiform body, slightly compressed from side to side. **Few gill rakers, 19 to 25 on first arch.** Two dorsal fins, separated only by a narrow interspace, the second followed by 7 to 9 finlets; pectoral fins with 31 to 35 rays, moderate in length, usually 22 to 31% of fork length; 2 flaps (interpelvic processes) between bases of pelvic fins; anal fin followed by 6 to 8 finlets. Very small scales on body; corselet of larger and thicker scales well developed but not very conspicuous. Caudal peduncle with a strong lateral keel between 2 smaller ones. **Ventral surface of liver not striated, right lobe longer than centre and left lobes.** Swimbladder present. **Colour:** back metallic dark blue, lower sides silvery grey, belly milky white; first dorsal fin dusky, **second dorsal and anal fins dusky with a silvery lustre;** finlets dusky with a trace of yellow.

Size: Maximum to 89 cm fork length; commonly to 72 cm. The IGFA all-tackle game fish record is 20.63 kg for a fish caught at Key West, Florida in 1996.

Habitat, biology, and fisheries: A warm-water species found further north during the summer. The 20°C isotherm is probably a limiting factor in its distribution. From the distribution of larvae and juveniles, it appears that spawning occurs well offshore in the clear blue oceanic waters of the Florida Current and probably elsewhere in the Gulf of Mexico and Caribbean Sea. Commonly found in mixed schools with skipjack tuna, *Katsuwonus pelamis*. In Bermuda waters, food consists of surface and midwater fishes, squids, amphipods, shrimps, and stomatopod larvae. Around Cuba the food is composed of about 60% fishes, 24% squids, and 16% larval crustaceans. The southeastern shore of Cuba supports the largest fishery for the species. The Cuban fishery is 3 to 4 miles offshore, uses live bait and jackpole, and is directed at *T. atlanticus* and the skipjack, *K. pelamis*. In the Lesser Antilles, commercial fishing occurs in the blue waters to land. There is also an important sportfishery in Florida and the Bahamas. Marketed fresh, frozen, and canned. The catch reported from Area 31 between 1995 and 1999 ranged from 2 461 to 3 376 t. In Cuba, the catches of *T. atlanticus* and *Katsuwonus pelamis* are not separated so statistics cannot be apportioned.

Distribution: Known only from the western Atlantic, from off Martha's Vineyard, Massachusetts, and Cape Hatteras throughout Area 31, south to Trinidad Island off the coast of Brazil and off Rio Janeiro at 22°21'S, 37°37'W.

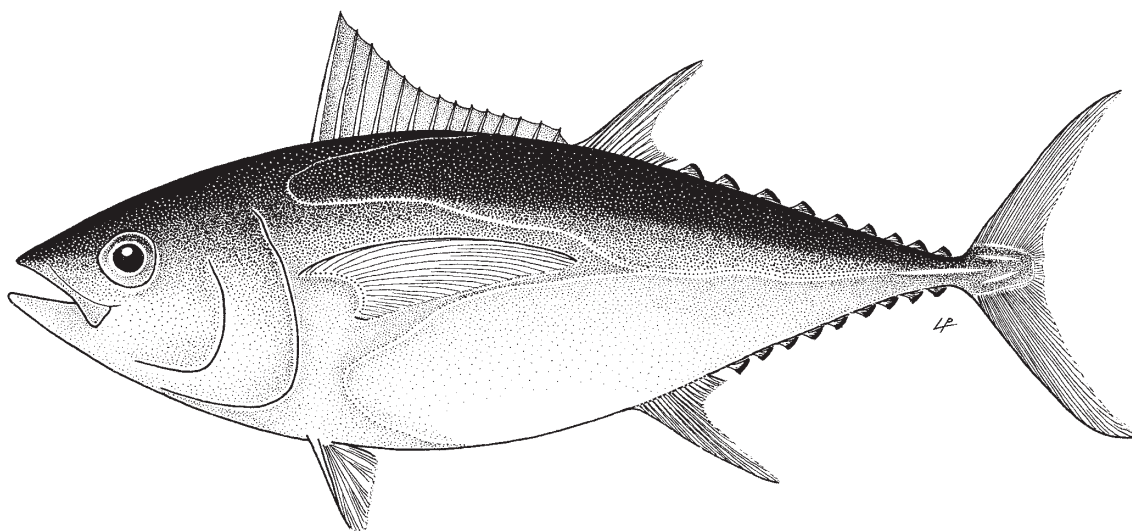


Thunnus obesus (Lowe, 1839)

BET

Frequent synonyms / misidentifications: *Parathunnus mebachi* Kishinouye, 1915; *Parathunnus sibi* (Temminck and Schlegel, 1844) / None.

FAO names: En - Bigeye tuna; Fr - Thon obèse; Sp - Patudo.

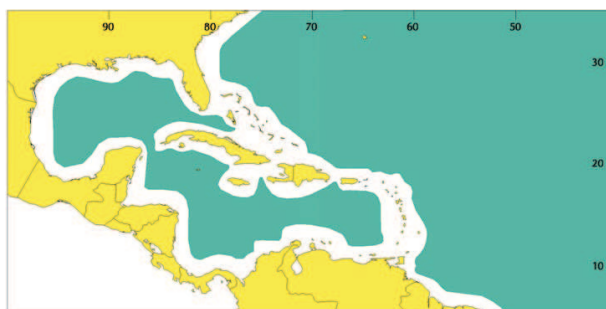


Diagnostic characters: A large species with robust, fusiform body, slightly compressed from side to side. **Gill rakers 23 to 31 on first arch.** Two dorsal fins, separated only by a narrow interspace, the second followed by 8 to 10 finlets; **pectoral fins moderately long (22 to 31% of fork length) in large specimens (over 110 cm fork length), but very long (as long as in *T. alalunga*) in smaller specimens;** 2 flaps (interpelvic processes) between pelvic fins; anal fin followed by 7 to 10 finlets. Very small scales on body; corselet of larger and thicker scales developed but not very distinct. Caudal peduncle very slender, with a strong lateral keel between two smaller keels. **Ventral surface of liver striated, central lobe longer than left or right lobes.** Swimbladder present. **Colour:** back metallic dark blue, lower sides and belly whitish; a lateral iridescent blue band runs along sides in live specimens; first dorsal fin deep yellow, second dorsal and anal fins light yellow, **finlets bright yellow edged with black.**

Size: Maximum to 236 cm (hook-and-line record from Peru); commonly to 180 cm. The IGFA all-tackle game fish record is 197.31 kg for a fish caught off Cabo Blanco, Peru in 1957.

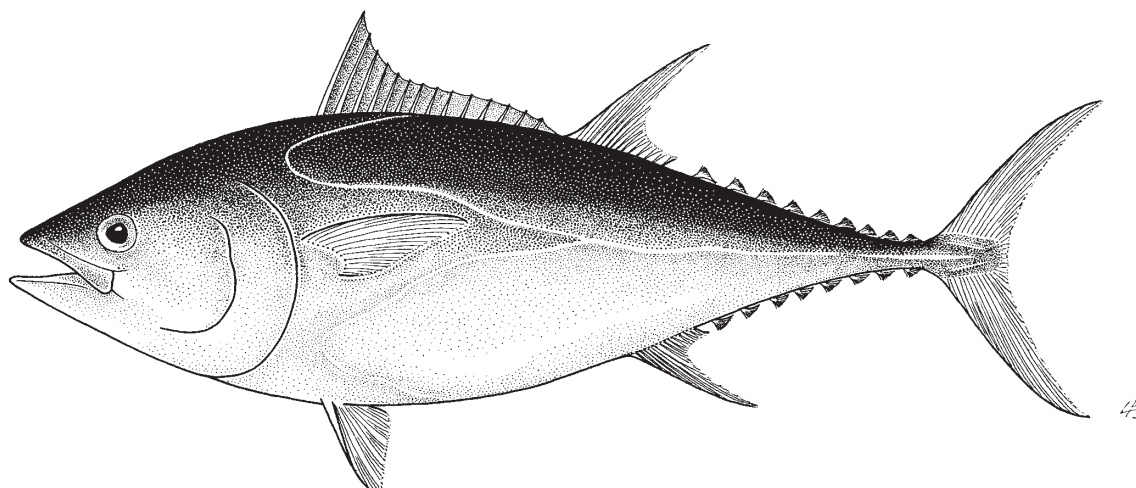
Habitat, biology, and fisheries: A pelagic oceanic species, taken from the surface to depths of 250 m. Feeds on a wide variety of fishes, cephalopods, and crustaceans. Caught mainly with longlines; occasionally purse seines are also used. Marketed mainly canned or frozen. The total catch reported from Area 31 between 1995 and 1999 ranged from 702 to 7 812 t.

Distribution: Pantropical. In the western Atlantic from 42°18'N, 64°02'W southward throughout Area 31 to Argentina.



Thunnus thynnus (Linnaeus, 1758)

BFT

Frequent synonyms / misidentifications: *Thunnus thynnus thynnus* (Linnaeus, 1758) / None.**FAO names:** **En** - Atlantic bluefin tuna; **Fr** - Thon rouge du nord; **Sp** - Atún.

Diagnostic characters: A very large species with a fusiform and rounded body (nearly circular in cross-section), very robust anteriorly. **Gill rakers 34 to 43 on first arch.** Two dorsal fins separated only by a narrow interspace, the second higher than the first; 8 to 10 finlets present behind the second dorsal fin and 7 to 9 behind the anal fin; **pectoral fins very short, less than 80% of head length**, never reaching the interspace between the dorsal fins; 2 separate flaps (interpelvic processes) between the pelvic fins; a well-developed, although not particularly conspicuous corselet; very small scales on rest of body. Caudal peduncle slender, with a strong lateral keel between 2 small keels at bases of caudal-fin lobes. Ventral surface of liver striated. Swimbladder present. **Colour:** back dark blue or black, lower sides and belly silvery white with colourless transverse lines alternated with rows of colourless dots (the latter dominate in older fish), visible only in fresh specimens; first dorsal fin yellow or bluish, the second reddish brown; anal fin and finlets dusky yellow edged with black; lateral keel black in adults.

Size: Maximum to over 300 cm fork length, commonly to 200 cm. The IGFA all-tackle game fish record is 679 kg for a fish caught in Nova Scotia in 1979.

Habitat, biology, and fisheries: A pelagic, very fast swimming species known to effect transoceanic migrations; the young generally form schools, sometimes together with other scombrid species of similar size; immature specimens are found in warm waters only, while adults enter cold waters in search of food. Outside the spawning season it is a voracious predator that preys on many kinds of fishes, crustaceans, and cephalopods. Primarily taken on longlines in Area 31. The catch in Area 31 has dropped off from 7 400 t in 1965 to between 160 and 850 t from 1995 to 1999. A large part of the catch is air-shipped fresh or frozen to Japan for preparation as sashimi.

Distribution: A North Atlantic species known from Labrador and Newfoundland, southward throughout to northeastern Brazil in the western Atlantic.

Remarks: Replaced by *Thunnus orientalis* in the North Pacific, once considered a subspecies of *T. thynnus*, but now considered a full species.

