

2.2 Information by Species

Acanthocybium Gill, 1862

SCOMBR Acan

Genus with reference : Acanthocybium Gill, 1862. Type-species: Cybium sara Bennet, 1840 (= Cybium solandri Cuvier, 1831) by original designation.

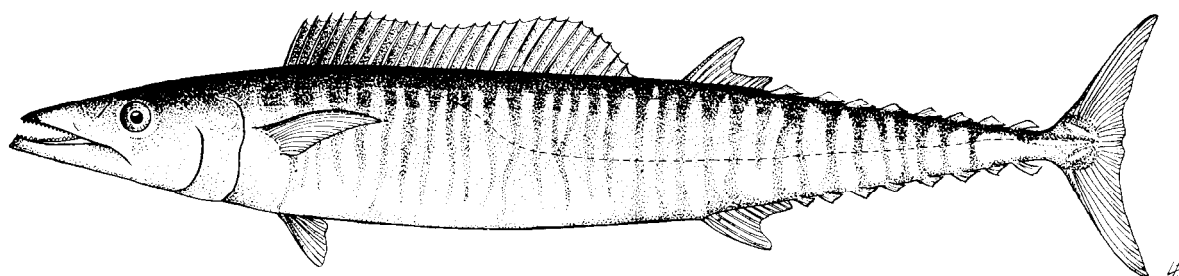
Acanthocybium solandri (Cuvier, 1831)

SCOMBR Acan 1

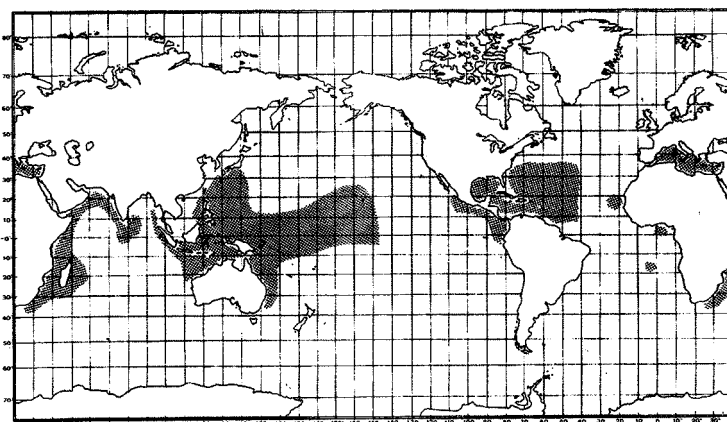
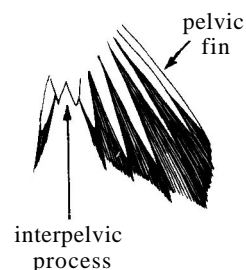
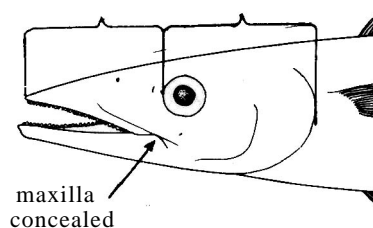
Cybium solandri Cuvier in Cuvier & Valenciennes, 1831; Histoire Naturelle des Poissons, 8:192-193 (based on Solander's manuscript, locality unknown).

Synonymy : Cybium sara Lay & Bennett, 1839; Cybium petus Poey, 1860; Cybium verany Döderlein, 1871; Acanthocybium petus - Poey, 1875; Acanthocybium solandri - Lütken, 1880; Acanthocybium sara - Jordan, Tanaka, & Snyder, 1913; Acanthocybium solanderi - Fitch & Craig, 1964.

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



Diagnostic Features : Body very elongate, fusiform and only slightly compressed. Mouth large with strong, triangular, compressed, and finely serrate teeth closely set in a single series; snout about as long as the rest of head; gillrakers absent; posterior part of maxilla completely concealed under preorbital bone. Two dorsal fins, the first with 23 to 27 spines, the second with 12 to 16 rays followed by 8 or 9 finlets; anal fin with 12 to 14 rays followed by 9 finlets; interpelvic process small and bifid. Lateral line single, abruptly curving downward under first dorsal fin. Body covered with small scales; no anterior corselet developed; caudal peduncle slender, with a well defined lateral keel between the two small ones on each side. Swimbladder present. Vertebrae 30 to 32 precaudal plus 31 to 33 caudal, total 62 to 64. Colour: back iridescent bluish green; sides silvery with 24 to 30 cobalt-blue vertical bars which extend to below lateral line, some doubled or y-shaped, becoming dusky-grey after death.



Geographical Distribution : Tropical and subtropical waters of the Atlantic, Pacific and Indian oceans including the Caribbean and Mediterranean seas.

Habitat and Biology : An epipelagic, oceanic species frequently solitary or forming small loose aggregations rather than compact schools.

Spawning seems to extend over a long period; fish in different maturity stages are frequently caught at the same time. Fecundity is believed to be quite high: some 6 million eggs per spawning were estimated for a 131 cm

long female. Wahoo are known to prey on scombrids, porcupinefishes (Diodontidae), flyingfishes (Exocoetidae), herrings and pilchards (Clupeidae), scads (Decapterus), lanternfishes (Myctophidae), other pelagic fishes and squids.

Size : Maximum size is 210 cm fork length and 83 kg or more. The all-tackle angling record is a 67.6 kg fish taken off Cat Bay, Bahamas in 1962. Size of the fish in most surface fisheries ranges between 100 and 170 cm fork length. Like other scombrids, wahoo show size variations associated with changes in latitude and hence, water temperature. Average weight tends to increase northwards and southwards of the equator (Iversen & Yoshida, 1957; Nakamura, 1952).

Interest to Fisheries : There do not appear to be any organized fisheries for this species but it is highly appreciated when caught. In a number of areas (Western Central Atlantic, Hawaiian Islands, Great Barrier Reef), it is primarily a gamefish taken on light to heavy tackle, surface trolling with spoons, feather lures, or strip bait (flying fish or halfbeak).

There is a longline base in Samoa where wahoo is landed as by-catch and canned for local consumption. Catches were reported from Venezuela, St. Helena, and Kiribati in the period from 1974 to 1981. They ranged between 58 and 218 metric tons per year (FAO, 1979, 1983). Wahoo is marketed fresh, salted or spice-cured (slices of meat).

Local Names : BRAZIL: Cavalha empinge; COLOMBIA: Peto, Sierra, Sierra canalera, Wahoo; CUBA: Peto; DOMINICAN REPUBLIC: Peto; MARTINIQUE: Thazard raité; MEXICO: Peto; PACIFIC ISLANDS TRUST TERRITORIES: Palau: Keskas, Mersad; Tobi: Yar; Polynesia: Paere, Rorora; PUERTO RICO: Peto; SOUTH AFRICA: Wahoo; USA: Wahoo; Hawaii: Ono; USSR: Korolevskaya makrel; VENEZUELA: Peto, Sierra.

Literature : Iversen & Yoshida (1957); Collette (1978, Species Identification Sheets, Western Central Atlantic); Collette (1981, Species Identification Sheets, Eastern Central Atlantic).

Remarks : Giant digenetic trematods, tentatively identified as Hirudinella ventricosa, were found in 80.5% of the 885 stomachs of wahoo caught in the southeastern Atlantic and Gulf of Mexico (Manooch & Hogarth, 1983).

Allothunnus Serventy, 1948

SCOMBR Allo

Genus with reference : Allothunnus Serventy, 1948:132. Type-species: Allothunnus fallai Serventy, 1948, by monotypy.

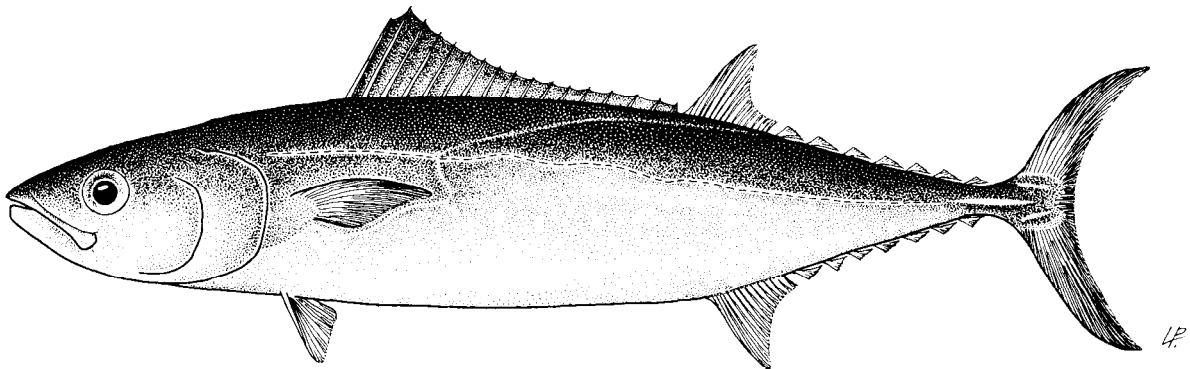
Allothunnus fallai Serventy, 1948

SCOMBR Allo 1

Allothunnus fallai Serventy, 1948:132-135, fig. 1 (South Island, New Zealand).

Synonymy : None.

FAO Names : En - Slender tuna; Fr - Thon élégant; Sp - Atún lanzón.

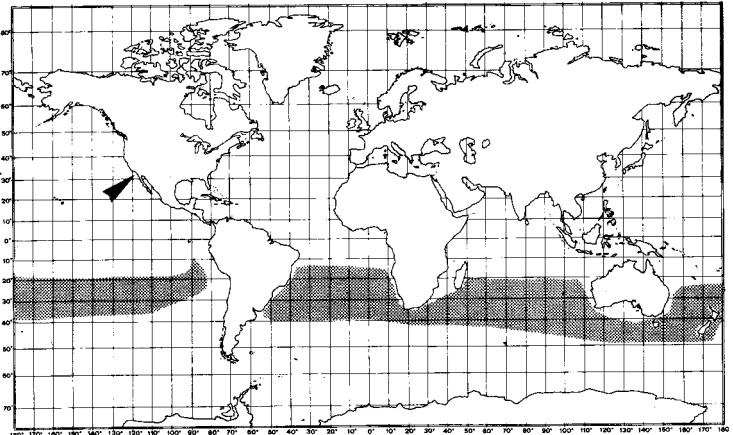


Diagnostic Features : Body robust, elongate and rounded. Teeth very small and conical, 40 to 55 on each side of upper and lower jaws; 70 to 80 gillrakers on first arch, more than in any other scombrid species. Dorsal fins close together, the first with 15 to 18 spines, the second with 12 or 13 rays, followed by 6 or 7 finlets; anal fin with 13 or 14 rays, followed by 6 or 7 finlets; pectoral fins with 24 to 26 rays; interpelvic process small and bifid. Body naked ventrally behind the long anterior corselet; dorsal half of body to lateral line covered with small scales caudal peduncle slender with a well developed lateral keel between the 2 smaller keels on each side. Swimbladder absent. Vertebrae 20 precaudal plus 20 caudal, total 40.

Geographical Distribution : Circum-global in the Southern Ocean from 20° to 50° S (Collette & Chao, 1975: fig. 69), except for one individual taken in Los Angeles Harbour (Fitch & Craig, 1964) (see ►).

Habitat and Biology : Slender tuna is epipelagic, probably oceanic species, feeding mainly on krill (euphausiids) (Webb & Wolfe, 1974), and also on squids and small fishes. Juveniles are principally encountered between 20 and 35°S at surface temperatures ranging from 19 to 24° C. With increasing size they gradually move into higher latitudes where water temperatures are lower.

Size : Maximum size is 96 cm fork length and less than 10 kg weight. Sizes in Japanese longline catches range between 65 and 96 cm. In the southwestern Indian Ocean, the dominant length class is 85 or 86 cm, while smaller fish prevail in the other oceans. The smallest fish showing signs of maturity was a male of 71.5 cm fork length.



Interest to Fisheries : At present there is no special fishery for slender tuna, but the species has been taken incidentally South of 38° S by longliners fishing for *Thunnus maccoyii* (Warashina & Hisada, 1972). However, because of its plankton-feeding behaviour, *Allothunnus fallai* is less vulnerable to longline gear. On the other hand, purse seiners made catches of 50 and 80 tons of slender tuna off the east coast of Tasmania in June 1974, the fish averaging 9 kg in weight. This is an indication that the species may be more common in these waters (Webb & Wolfe, 1974). The flesh is paler than that of most true tunas and is very oily. Tasmanians agree, however, that the cooked meat has fine eating qualities (Webb & Wolfe, 1974). A Japanese test pack of *Allothunnus* gave a canned product very similar to high-priced white meat tuna (albacore) even though the raw material fetches a price even lower than that of "second-class" tuna (skipjack) (Klawe, pers.comm.). Hence industrial exploitation of this species is unlikely in the near future.

Local Names : JAPAN: Hosokatsuo; SOUTH AFRICA: Slank tuna, Slender tuna; USA: Slender tuna; USSR: Yuzhnij tunets.

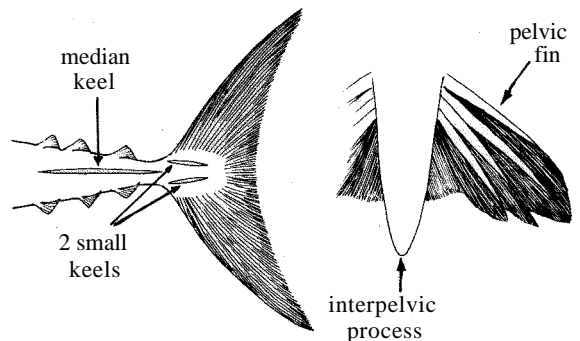
Literature : Nakamura & Mori (1966); Warashina & Hisada (1972); Webb & Wolfe (1974); Collette & Chao (1975).

Auxis Cuvier, 1829

SCOMBR Aux

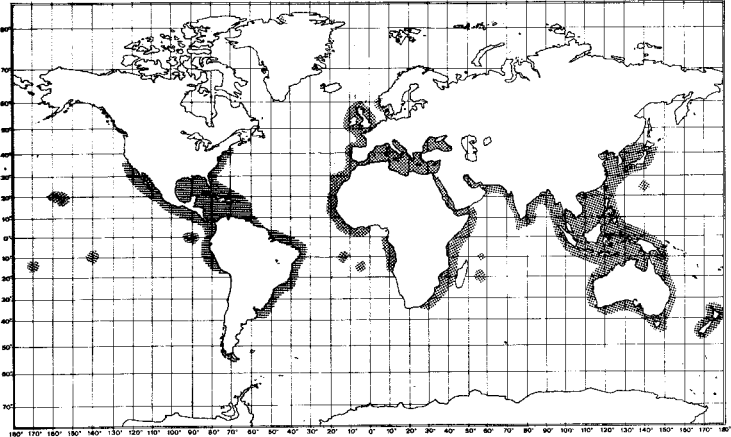
Genus with referente : *Auxis* Cuvier, 1829:199. Type-species : *Scomber rochei* Risso, 1810, by subsequent selection of Gill, 1862.

Diagnostic Features : Body robust, elongate and rounded. Teeth small and conical, in a single series; 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; a large single interpelvic process, longer than the pelvic fins; anal fin followed by 7 finlets. Body naked except for the corselet, which is well developed in its posterior part. A strong central keel on each side of caudal fin base between 2 smaller keels. Swimbladder absent. Vertebrae 20 precaudal plus 19 caudal, total 39. Colour: back bluish, turning to deep purple or almost black on the head; belly white, without stripes or spots; pectoral and pelvic fins purple, their inner sides black.



Geographical Distribution : Worldwide in tropical and subtropical waters, including the Mediterranean and the Black Sea.

Habitat and Biology : Epipelagic, neritic and oceanic genus in warm waters with strong schooling behaviour. Though larvae have a high temperature tolerance (at least between 21.6° and 30.5°C), the widest among tuna species studied, their optimum temperature is between 27.0° and 27.9°C, and the species is usually confined to oceanic salinities.



From larval records, it is deduced that Auxis spawns throughout its distribution range. In correlation with temperature and other environmental changes, the spawning season varies with areas, but in some places it may even extend throughout the year. Spawning is believed to occur in several batches of up to 1 million eggs.

Food is primarily selected by the size of the gillrakers and consists of fishes, crustaceans, cephalopods and others (see i.e. Uchida, 1981, for a selection). In turn, Auxis are preyed upon primarily by large tunas, billfishes, barracudas, various sharks and others. Cannibalism is widespread. Because of their abundance, they are considered an important element of the food web, particularly as forage for other species of commercial interest (Olson, 1982).

Interest to Fisheries : Catches of Auxis are usually not identified to species. In the period from 1978 to 1981 the nominal world catch varied between 75 760 metric tons (1978) and 137 043 metric tons (1980), equivalent to an overall increase in landings over the previous years, but decreased to 108 689 metric tons in 1981 (FAO, 1983). Catches outside the Atlantic were highest in Fishing Areas 61 and 71, with Japan and the Philippines landing 16 287 and 78 248 metric tons respectively in 1981 (FAO, 1983).

Auxis are caught most commonly with pole and line; other commercial and artisanal gear include trolling lines, handlines, small-scale longlines, and a wide variety of nets, including traps, gill or drift nets, ring nets, beach seines, otter trawls, and purse seines. In some of these gears, Auxis are taken incidentally to other-species sought. In the purse seine fisheries for yellowfin and skipjack tunas, Auxis, being smaller and hence getting "gilled" in the webbing, are even considered a nuisance.

Both Auxis species are appreciated food fish, but the quality of the meat deteriorates rather rapidly after death. They are canned, flake-dried and smoked.

Local Names : ALGERIA: Auxide, Bisu, Melva, Melvara, Scunno; ANGOLA: Jedeu; BRAZIL: Bonito cachorro; BRITISH WEST INDIES: Blowgoat, Frigate mackerel, Round-belly bonito; CANADA: Frigate mackerel, Thazard; COLOMBIA: Atún, Bonito, Cachorreta, Macarela; DENMARK: Auxide; ECUADOR: Botellita; FRANCE: Auxide, Auxide bise, Bizet, Bonitou, Bounitou, Bounicou, Melva, Palamida, Tazard; FRENCH SPEAKING WEST AFRICA: Melva; GHANA: Frigate mackerel, Okpopu, Odaabi, Poku-poku; GREECE: Kopáni; HAITI: Maquereau; INDIA: Choorai, Churai, Frigate mackerel; North Malayalam: Kutti-choora; Malayalam: Urulan-choora; Eli-choorai, Kutteli-choorai (Tamil); INDONESIA: Timpiah, Timpik; ISRAEL: Palmida gammadit, Tuna nanasit; ITALY: Basiso, Bisu, Culariau, Mazzita, M'pisu, Pisantuni, Sangulu, Scurmo, Sgamiru, Sgionfetta, Strombo, Strumbo, Tambarella, Tambarello, Tamburella, Tombarello, Tumbarel, Tunnacchiu; IVORY COAST: Boku-boku, Bongu, Poku-poku; KENYA: Frigate mackerel, Sehewa (Swahili); KOREA: Mogman-dung-i, Mul-chi, Mul-chi-da-rae, Mu-tae-da-raeng; MALAYSIA: Sarawak: Tongkol; MALTA: Mazzita, Tombrell, Tombitombi, Zgamirru; MEXICO: Bonito, Melva; MOROCCO: Melva; NETHERLANDS: Valse bonito; NEW ZEALAND: Frigate tuna; NORWAY: Auxis; PACIFIC ISLANDS TRUST TERRITORIES: Chesodm, Keokeo; PAPUA NEW GUINEA: Deho; PERU: Barrilete, Barrilete negro, Fragata, Macarela, Macarela bonito, Melva; PHILIPPINES: Frigate mackerel, Manko, Mangko, Tunungan (Marinao, Samal, Visaya, and Tao sug); PORTUGAL: Bonito, Cachorra, Gayado, Judeu, Serra; Madeira: Chapouto; SENEGAL: Bonite à dos rayé; SEYCHELLES: Bonite folle; SOMALIA: Sehewa (Swahili); Mijurtein coast: Tubani (Somali); SOUTH AFRICA: Boo hoo, Bullet mackerel, Fregat-makriel, Frigate mackerel, Kocelmakriel; SPAIN: Bis, Bonito del Norte, Macaela, Melva, Melvara, Visol; SRI LANKA: Alagoduwa, Frigate mackerel, Rogodwa (Sinhalese); SURINAME: Blowgoat, Frigate mackerel; SWEDEN: Auxide; TAIWAN, PROVINCE OF CHINA: Chien yu; TANZANIA: Sehewa (Swahili); THAILAND: Pla O; TURKEY: Gobene; UK: Plain bonito; USA: Boo hoo; Hawaii: Keokeo, Mexican skipjack; USSR: Auksida, Makreletunets, Makrelevyj tunets, Skumbrievyj tunets; VENEZUELA: Cabaña negra; VIET NAM: Cá Bo; YUGOSLAVIA: Rumbac, Trupac, Tunjic.

Literature : Wade (1949); Fitch & Roedel (1963); Yoshida & Nakamura (1965); Fischer, ed. (1973, Species Identification Sheets, Mediterranean and Black Sea); Fischer & Whitehead, eds. (1974, Species Identification Sheets, Eastern Indian Ocean/Western Central Pacific); Collette (1978, Species Identification Sheets, Western Central Atlantic; 1981, Species Identification Sheets, Eastern Central Atlantic); Uchida (1981).

Remarks : In the belief that there was only a single worldwide species of Auxis, many authors have used the scientific name A. thazard as including A. rochei. This is reflected in the large number of local names found in the literature for A. thazard, many of which are also in use for A. rochei or should in fact be attributed exclusively to that species as is the case for those names used in the Mediterranean and Black seas, where A. thazard does not occur. For this reason most local names are listed in the generic section. Because of persistent difficulties with species identification and hence, association of distributional records with individual species it appears advisable, for the time being, to refrain from showing separate geographical records for A. rochei and A. thazard. Therefore, the map here included gives the entire distributional range of the genus Auxis.

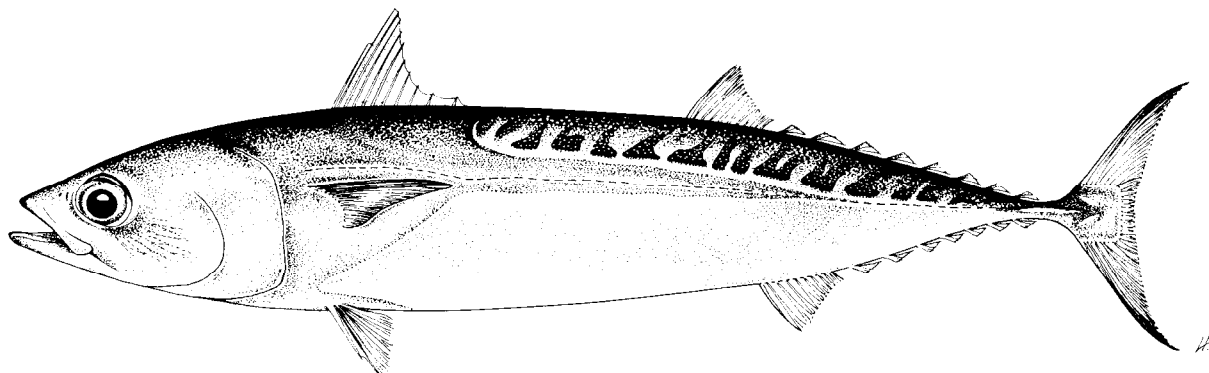
Auxis rochei (Risso, 1810)

SCOMBR Aux 2

Scomber rochei Risso, 1810, Ichthyologie Nice:165-167 (Nice).

Synonymy : Scomber bisus Rafinesque, 1810; Thunnus rocheanus - Risso, 1826; Auxis vulgaris Cuvier in Cuvier & Valenciennes, 1831; Auxis bisus - Bonaparte, 1845; Auxis thynnoides Bleeker, 1855; Auxis rochei - Günther, 1860; Auxis maru Kishinouye, 1915.

FAO Names : En - Bullet tuna; Fr - Bonitou; Sp - Melvera.



Diagnostic Features : Pectoral fins short, not reaching vertical line from anterior margin of scaleless area above corselet; corselet well developed in its posterior part (more than 6 scales wide, usually 10 to 15) under second dorsal fin origin). Colour: a pattern of 15 or more fairly broad, nearly vertical dark bars in the scaleless area.

Geographical Distribution : Cosmopolitan in warm waters. See distribution map in generic section.

Habitat and Biology : An epipelagic, neritic as well as oceanic species. The spawning season may vary from region to region depending on the hydrographical regime: in many parts of the Mediterranean and in the Straits of Gibraltar, maturing fish are common from May onwards, and more than 30% are spent by September. In large areas of the Gulf of Mexico, peaks of batch spawning are reported from March to April and from June to August, while in the coastal waters from Cape Hatteras to Cuba and in the Straits of Florida, the spawning season begins in February. Indirect evidence suggests that the season extends at least from June through July off Taiwan Island and from May through August off southern Japan as indicated by gonad indexes and larval counts respectively. Silas (1969) estimated fecundity as ranging between 31 000 and 103 000 eggs per spawning according to the size of the fish. Food consists largely of small fishes, particularly anchovies and other clupeoids (Etchevers, 1957). For further information on the biology of this species see generic section on Auxis.

Size : Maximum fork length is 50 cm in Japanese catches, common to 35 cm. Common fork lengths in the Indian Ocean range between 15 and 25 cm (Silas & Pillai, 1982). Fork length at first maturity off Gibraltar is 35 cm in females and 36.5 cm in males (Rodriguez-Roda, 1966).

Interest to Fisheries : Catches of Auxis are usually not identified to species. However, almost the entire Atlantic and Mediterranean catch is supposedly A. rochei. Between 1977 and 1981, 14 countries reported catches of Auxis from Fishing Areas 21, 27, 31, 34 and 47. The highest catches were reported by Ghana, Italy, Spain and Venezuela (FAO, 1983).

Local Names : AUSTRALIA: Long corseletted frigate mackerel, Maru frigate mackerel; JAPAN: Chiboh, Dainanpo, Magatsuwo, Manba, Mandara, Marugatsuwo, Marumejika, Marusöda, Marusödakatsuo, Mejika, Nodoguro, Rohsoku, Soda, Soku, Subo, Subota, Uzawa. (Dainanbo, Marumedika, Marugatsuo, and Magatsuo are variations in spelling of some of the above names.) Other names mentioned by Rosa (1950) are kobukura, Kogatsuo, Kubarai; USA: Bullet mackerel, Bullet tuna.

Literature : Collignon (1961); Jones (1963); Fitch & Roedel (1963); Fischer & Whitehead, eds (Species Identification Sheets, Eastern Indian Ocean/Western Central Pacific; Collette (1978, Species Identification Sheets, Western Central Atlantic; 1981, Species Identification Sheets, Eastern Central Atlantic); Uchida (1981).

Remarks : For other local names and remarks see generic section.

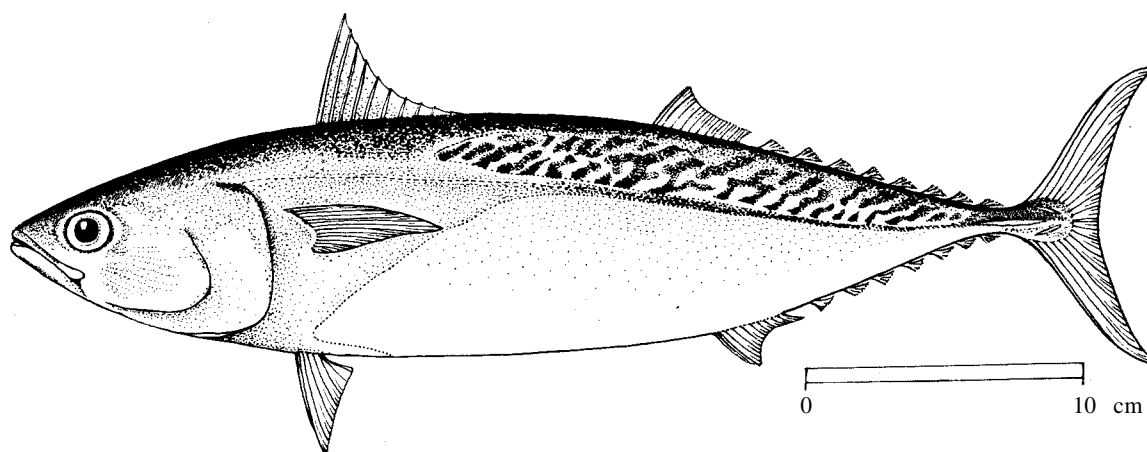
Auxis thazard (Lacepède, 1800)

SCOMBR Aux 1

Scomber thazard Lacepède, 1800, Histoire Naturelle des Poissons, 2:599 (New Guinea).

Synonymy : Auxis taso Commerson in Cuvier & Valenciennes, 1831; Auxis tapeinosoma Bleeker, 1854; Auxis thazard - Dresslar & Fesler, 1889; Auxis hira Kishinouye, 1915. In the belief that there was only a single worldwide species of Auxis, many authors have used the name A. thazard as including A. rochei.

FAO Names : En - Frigate tuna; Fr - Auxide; Sp - Melva.



Diagnostic Features : Pectoral fins short, but reaching past vertical line from anterior margin of scaleless area above corselet; corselet well developed and narrow in its posterior part (no more than 5 scales wide under second dorsal fin origin). Colour: a pattern of 15 or more narrow, oblique to nearly horizontal, dark wavy lines in the scaleless area above lateral line.

Geographical Distribution : Probably cosmopolitan in warm waters but there are only a few documented occurrences in the Atlantic Ocean. See distribution map in generic section.

Habitat and Biology : An epipelagic, neritic as well as oceanic species. In the eastern Pacific, mature fish occur throughout the year, though off Costa Rica spawning is heaviest from December through April, while in Japanese waters it peaks in July as expressed by the index of sexual maturity (Yasui, 1975). In the southern Indian Ocean, the spawning season extends from August to April; north of the equator it is reported from January to April. Fecundity was estimated at about 1.37 million eggs per year in a 44.2 cm long female. Fecundity of fish in Indian waters ranged between approximately 200 000 to 1.06 million eggs per spawning in correlation with size of females. For other pertinent information on the biology see generic section on Auxis.

Size : Maximum fork length from driftnet records in the Indian Ocean is 51 cm, but off Sri Lanka it is 58 cm; the common size in catches ranges between 25 and 40 cm, but depends on the type of gear used, and may also vary seasonally and by region. Size at first maturity is reported at about 29 cm fork length in Japanese waters, but about 35 cm around Hawaii. The species grows larger than A. rochei.

Interest to Fisheries : Catches of Auxis are usually not identified to species because of current problems in identification. It may, however, be assumed that the Pacific and Indian Ocean catches reported by Japan, the Philippines and the Maldives are predominantly A. thazard. In the period from 1977 to 1980 these catches almost doubled to 122 995 metric tons, particularly due to increased landings by the Philippines, but decreased to about 98 000 metric tons 1981 (FAO, 1983).

Local Names : AUSTRALIA: Frigate mackerel, Leadenall; JAPAN: Hiramejika, Hirasoda, Hirasodakatsuo, Oboso, Obosogatsuwo, Shibuwa, Soma, Suma (Hirasohda, Hiragatsuo, and Hiramedika are variations in spelling of some of the above names); USA: Bullet mackerel, Frigate mackerel, Frigate tuna.

Literature : Fitch & Roedel (1963); Fischer & Whitehead, eds (1974, Species Identification Sheets, Eastern Indian Ocean/Western Central Pacific); Collette (1978, Species Identification Sheets, Western Central Atlantic; 1981, Species Identification Sheets, Eastern Central Atlantic); Uchida (1981).

Remarks : For other local names and remarks see generic section.

Cybiosarda Whitley, 1935

SCOMBR Cybio

Genus with reference : Cybiosarda Whitley, 1935:236. Type-species: Scomberomorus (Cybiosarda) elegans Whitley, 1935, by monotypy.

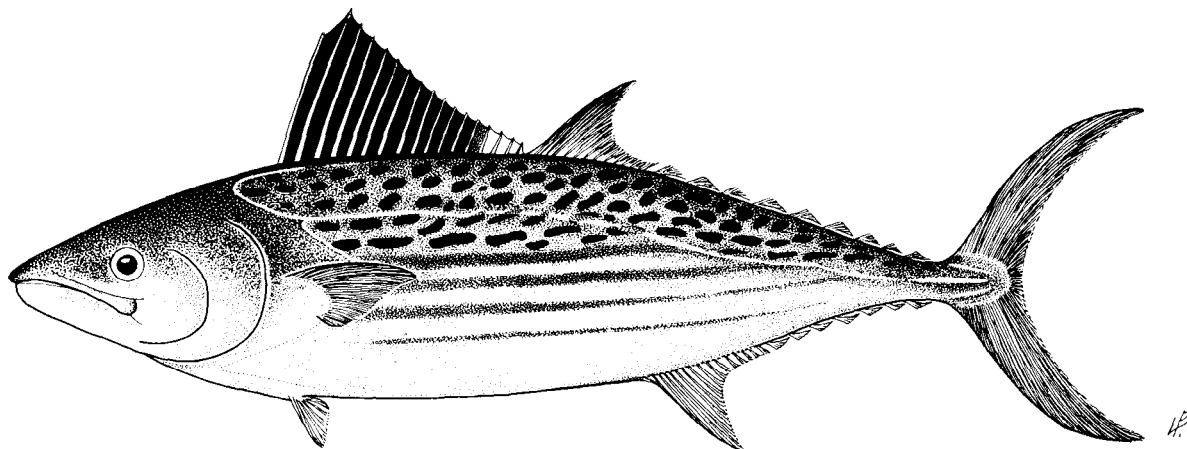
Cybiosarda elegans (Whitley, 1935)

SCOMBR Cybio 1

Scomberomorus (Cybiosarda) elegans Whitley, 1935, Rec.Austral.Mus.,19:236-237 (Moreton Bay, Queensland).

Synonymy : Cybiosarda elegans - Whitley, 1936; Gymnosarda elegans - Fraser-Brunner, 1950.

FAO Names : En - Leaping bonito; Fr - Bonite à dos tacheté; Sp - Bonito saltador.



Diagnostic Features : Body relatively short and deep, strongly compressed. Mouth rather large, upper jaw reaching to hind margin of eye; 2 tooth patches on upper surface of tongue; 13 to 22 large, conical teeth on upper jaw, 10 to 17 on lower jaw; 12 to 15 gillrakers on first arch; laminae of olfactory rosette 28 to 33; interorbital width 23.9 to 31% of head length. Dorsal fins close together, the first high anteriorly, with 16 to 18 spines; the second with 17 to 19 rays followed by 8 to 10 finlets; anal fin with 15 to 17 rays followed by 6 or 7 finlets; pectoral fins short with 22 to 24 rays; interpelvic process small and bifid. Body mostly naked behind the well developed corselet except for a band of scales along the bases of dorsal and anal fins and patches of scales around the bases of the pectoral and pelvic fins; caudal peduncle slender, with a well developed lateral keel between two smaller keels on each side. Swimbladder absent, spleen not visible in ventral view, concealed under liver; liver with an elongate right lobe and a short left lobe which tends to fuse with the middle lobe. Vertebrae 22 to 24 precaudal plus 23 to 26 caudal, total 47 or 48. Colour: belly light with several stripes reminiscent of those of the skipjack tuna, Katsuwonus pelamis; back deep blue covered with elongate black spots; first dorsal fin jet black anteriorly, white in the few last posterior membranes; anal and second dorsal fins yellow.