click for previous page

Size : To about 20 cm standard length.

Interest to Fisheries : The most heavily exploited fish in world history, yielding 13 059 900 t in 1971, but with great fluctuations and a decline since that year. The total catch in 1982 was 1 831 627 t (94% from Peru, 6% from Chile), used almost wholly for reduction. The fishes are recruited to the fishery at about 8 cm standard length at age 5 or 6 months. They are caught by purse seine vessels (known as bolicheras in Peru). A good summary of the dynamics of the fishery is given by Schaeffer (1967) and the state of the fishery is monitored in publications by the Instituto del Mar del Peru in cooperation with FAO (in Boletins and Informes of the Instituto).

Local Names : CHILE: Anchoveta (Arica), Chicora (Iquique), Sardina bocona (Valparaiso), Sardina (Talcahuano, San Vicente); PERU: Anchoveta, Anchoveta peruana.

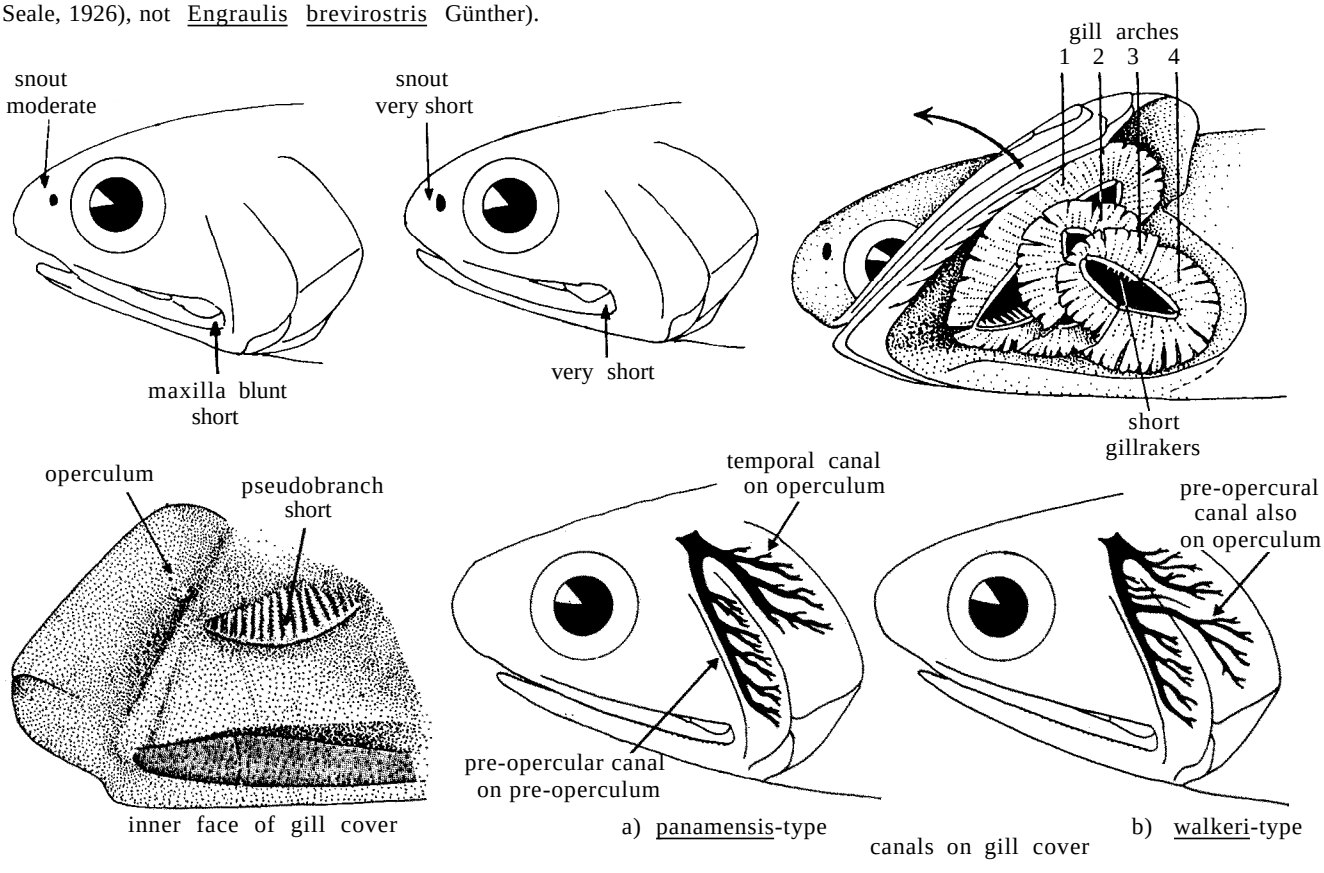
Literature : Numerous papers in recent years, especially on the fishery; additional earlier references given in Jordan & Chirinos de Vildoso (1965) and Schaefer (1967).

Remarks : Distinctions between this species and the Californian anchoveta (E. mordax) are discussed under the latter species.

Anchioviella Fowler, 1911

ENGR Anchoviel

Anchoviella Fowler, 1911, Proc.Acad.nat.Sci.Philad., 43:211 (type: Engraulis perfasciatus Poey). Amplova Jordan & Seale, 1925, Copeia, (1):31 (type: Anchovia brevirostra Meek & Seale = Anchoviella balboae (Jordan & Seale, 1926), not Engraulis brevirostris Günther).



Diagnostic Features : Fairly small, somewhat compressed anchovies. (to 12 cm standard length, usually about 6 to 8 cm, but some that may only attain 3 cm). Snout pointed in some, bluntly rounded and very short in others (scarcely longer than pupil); maxilla short (not or only just reaching to front margin of pre-operculum), tip blunt, barely extending beyond tip of second supra-maxilla; fine teeth on lower jaw; gillrakers slender, increasing in larger fishes in some species (lower gillrakers as few as 14 to 18, usually about 20 to 25, but to 30 or even 35 in some); gillrakers present on hind face of third epibranchial. Pseudobranch shorter than eye, not reaching onto inner face of operculum. Canals on gill cover with (walkeri-type) or without (panamensis-type) a pre-opercular branch passing back onto the operculum to run downward parallel to the temporal canal. Dorsal fin origin at about midpoint of body; anal fin short, moderate or long (10 to 15 branched rays in some, usually about 15 to 22, but 28 to 34 in A. analis), its origin usually below dorsal fin base (but behind base of last dorsal finray in some). The short and blunt maxilla distinguishes Anchoviella from Anchoa, and the short pseudobranch distinguishes it from Engraulis of the Atlantic.

Biology, Habitat and Distribution : Marine, estuarine and/or purely freshwater; Atlantic and Pacific coasts and drainage of North, central and South America. Some species filter-feed on small planktonic organisms, those with few gillrakers feed on larger animals (crustaceans, etc.).

Species : Hildebrand (1943), in the first comprehensive revision of the genus, recognized 19 species. More recent studies (Whitehead, 1973a; Cervigón, 1982; Nelson, unpublished) have removed some of Hildebrand's species to other genera (Engraulis, Anchovia) or included others since described or placed in synonymies, to make 13 Atlantic species and 2 Pacific species (total 15 species). A number of further species from the Amazon have been recognized and await description (chiefly by Dr G. Nelson). To aid identification, the species are arranged geographically (north to south) for each region and the purely freshwater species are listed separately (excluding those that may penetrate into freshwater from estuaries):

Atlantic only :

A. blackburni Hildebrand, 1943 Western central Atlantic
A. elongata (Meek & Hildebrand, 1923) Western central Atlantic
A. perfasciata (Poey, 1860) Western central Atlantic

A. brevirostris (Günther, 1868) Western central and South Atlantic
A. cayennensis (Puyo, 1945) Western central and South Atlantic
A. lepidentostole (Fowler, 1911) Western central and South Atlantic

Pacific only :

A. analis Miller, 1945 Northern part of eastern central Pacific
A. balboae (Jordan & Scale, 1926) Southern part of eastern central Pacific

Freshwater :

A. alleni (Myers, 1940) Upper Amazon
A. carrikeri Fowler, 1941 Upper to lower Amazon
A. guinanensis (Eigenmann, 1912) Middle and lower parts of Orinoco south to Amazon
A. jamesi (Jordan & Seale, 1926) Upper and middle parts of Orinoco south to Amazon
A. manamensis Cervigón, 1982 Lower parts of Orinoco and Guyanas rivers
A. nattereri (Steindachner, 1880) Lower part of Amazon
A. vaillanti (Steindachner, 1908) Sâo Francisco River

Remarks : The definition of the genus Anchoviella has relied mainly on the short and blunt maxilla (cf. long and pointed in Anchoa), coupled with the absence of those specialized features that characterize other New World genera (Anchovia, Centegraulis, Lycengraulis, Pterengraulis). The posterior anal fin origin in A. perfasciata and A. cayennensis (behind dorsaal fin base) and the tendency for the posterior frontal fontanelles to be occluded in larger specimens, allies these two species with Engraulis sensu stricto (which has a long pseudobranch). The very long anal fin in A. analis allies it with the Anchoa panamensis-group, where it would be placed but for its short and blunt maxilla.

The following nominal species certainly or probably do not belong in Anchoviella.

Engraulis iquitensis Nakashima, 1941 (Peruvian Amazon)
Does not accord with any described species of Anchoviella of the upper Amazon (A. alleni, A. carrikeri, A. jamesi). With reservations it is identified as Lycengraulis batesii.

Anchoviella miarcha (Jo dan & Gilbert, 1882) (Mazatlan, Mexico)
The types are lost and the name is best regarded as a nomen dubium (Nelson, 1983:49)

Anchovia scitula Fowler, 1911 ('San Diego, California')
The hoiotype is the Indo-Pacific Stolephorus indicus (Nelson, 1983:49)

Anchoviella parri Hildebrand, 1943:131, fig.58 (San Felipe Bay, Gulf of California)
An upper Gulf form of A. lucida, perhaps a distinct species

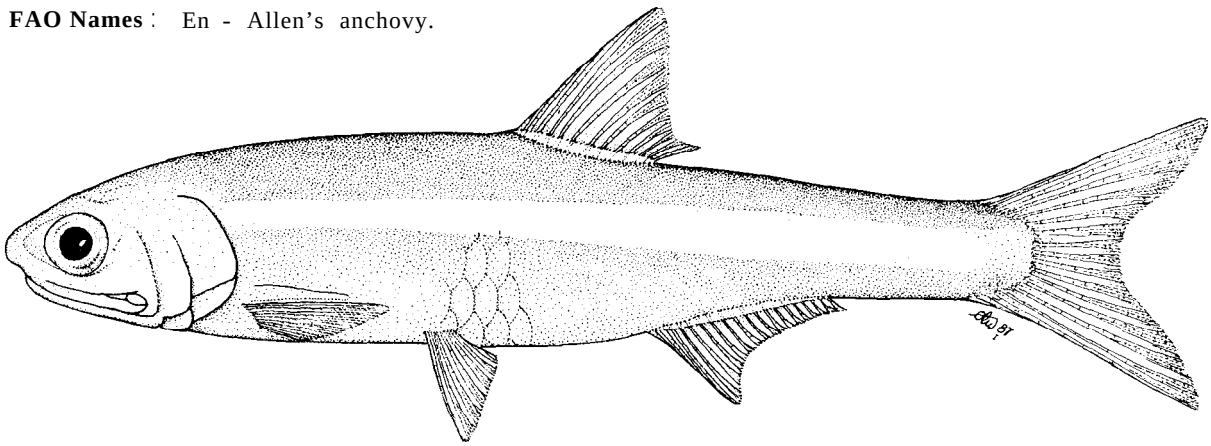
Anchoviella alleni (Myers, 1940)

ENGR Anchoviel 2

Amplova alleni Myers, 1940, Proc.Calif.Acad.Sci., 23(29):441 (Lake Cashiboya, Ucayali and Morona Rivers, Peruvian Amazon system).

Synonyms : Anchoviella guianensis:Whitehead, 1973a:157 (alleni placed in synonymy, no specimens seen); Amplova alleni:Eigenmann & Allen, 1942:333, p1.22, fig.3 (photo)(Lake Cashiboya, Ucayali and Morona Rivers); Anchoviella alleni-Hildebrand, 1943:124, fig.53 (Lake Cashiboya and Morona River at Gosulimacocha); Fowler, 1948:18, fig.10 (compiled).

FAO Names : En - Allen's anchovy.



Diagnostic Features : Body fairly slender, moderately compressed, its depth about 5 times in standard length. Snout moderate, about 3/4 eye diameter; maxilla short, failing to reach pre-operculum by about 1/2 pupil diameter; lower gillrakers 24 or 25; gill cover pattern not recorded. Anal fin fairly short, with iii 15 to 18 finrays, its origin below or a little behind base of last dorsal finray. A silver stripe along flank, up to eye diameter in depth. Atlantic Anchoviella species that overlap in both gillraker and anal finray counts are: the marine and estuarine A. lepidentostole and A. brevirostris (also snout much shorter), and the fresh water A. guianensis and A. carrikeri gillrakers not more than 26 and 24; also, A. guianensis in middle and lower parts of Amazon and in Orinoco).

Geographical Distribution : Upper Amazon system (Lake Cashiboya, Ucayali, Marañon and Morona Rivers).

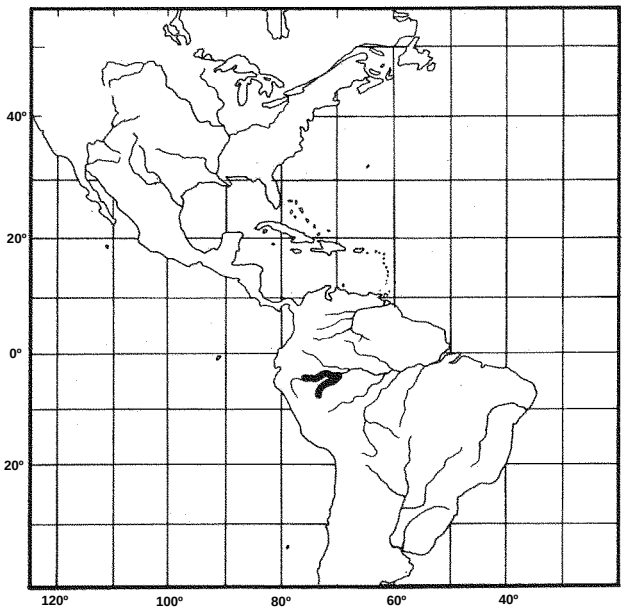
Habitat and Biology : Fresh water lacustrine and riverine, in upper reaches. More data needed.

Size : To 8.8 cm standard length.

Interest to Fisheries : Presumably contributes to artisanal catches, since it is said to be the common anchovy of the Marañon (Myers, 1940:441).

Local Names :

Literature :



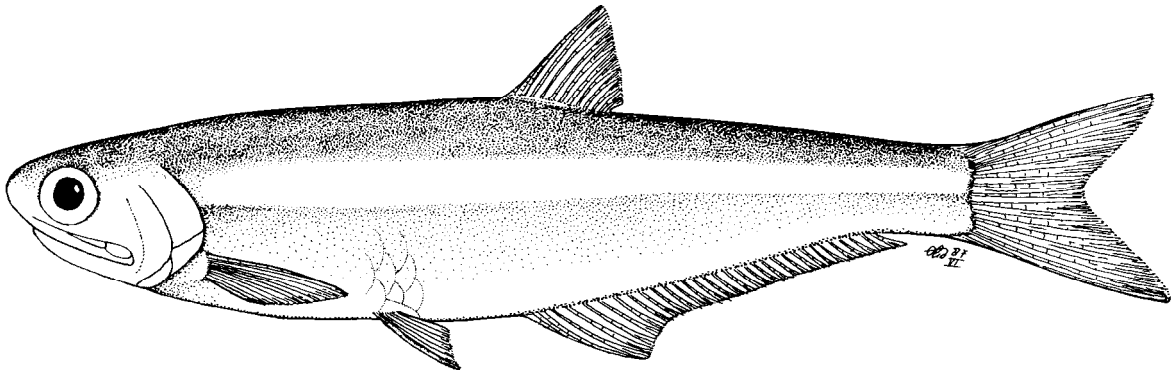
Anchoviella analis Miller, 1945

ENGR Anchoviel 13

Anchoviella analis Miller, 1945, J.Wash.Acad.Sci., 35(8):266, fig.1 (Laguna de Mexcaltitán, Mexico).

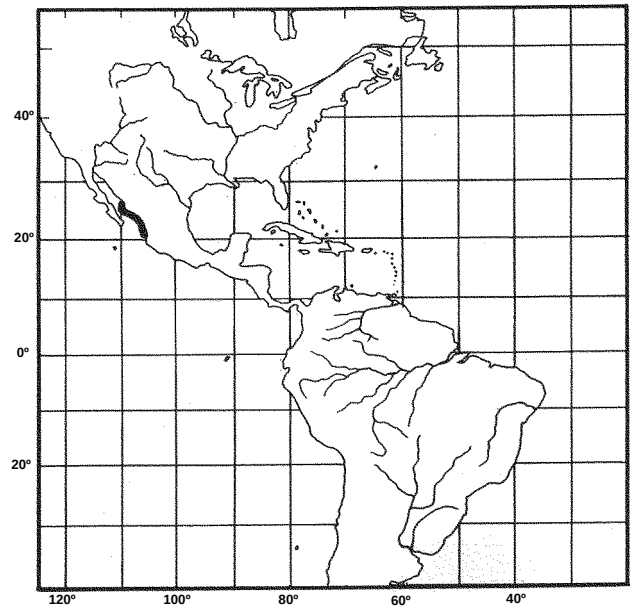
Synonyms : Anchoa panamensis :Warburton, 1978:503, 512, 515, tabs 3-6, 8, fig.7 (Huizache-Caimanero lagoon, northwest Mexico; community structure, abundance); Idem, 1979:455, tabs I-III, figs 2-4 (same locality, growth); Anchoviella analis-Miller, 1960:250, fig.1 (Rio Yaqui south to Tuxpan, Mexico; redescription).

FAO Names: En - Longfin Pacific anchovy.



Diagnostic Features : Body fairly elongate, strongly compressed, its depth about 4 to 4.5 times in standard length. Snout moderate, about 3/4 eye diameter; maxilla moderate, tip obliquely rounded, almost reaching to pre-operculum; lower gillrakers 21 to 24; gill cover canals of panamensis-type. Pectoral fins long, reaching to or just beyond pelvic fin base; anal fin very long, with iii 28 to 34 finrays, its origin under or just before or behind dorsal fin origin. A silver stripe along flank, about 3/4 eye diameter. No other Anchoviella species has so many anal finrays (only A. balboae present in eastern Pacific). Strongly resembles some long-finned Anchoa species (especially A. panamensis), but the Anchoa maxilla is longer and more pointed, reaching onto or beyond the pre-operculum.

Geographical Distribution : Eastern central Pacific (Mexico, from the Rio Yaqui south to about Tuxpan, Nayarit).



Habitat and Biology : In shallow coastal lagoons (at 1 to 2 m), also in estuaries, but apparently not in the sea, living in somewhat murky to muddy brackish to salt water over mud or firm sand with a veneer of mud (Miller, 1960). One of the top three dominant fishes in the Huizache-Caimanero lagoon system in Mexico (Warburton, 1979).

Size : To about 10 cm standard length.

Interest to Fisheries : Perhaps of some potential interest, with a total estimated annual production of 9.24 g m^2 in the Huizache-Caimanero lagoons of Mexico (Warburton, 1979).

Local Names :

Literature : Miller (1960 - notes on ecology), Warburton (1978, 1979 - growth, abundance, place in lagoon community).

Remarks : It seems likely that this species belongs to the panamensis-group of Anchoa and is not a species of Anchoviella, but the present definition of Anchoa (maxilla long, tip pointed) excludes it.

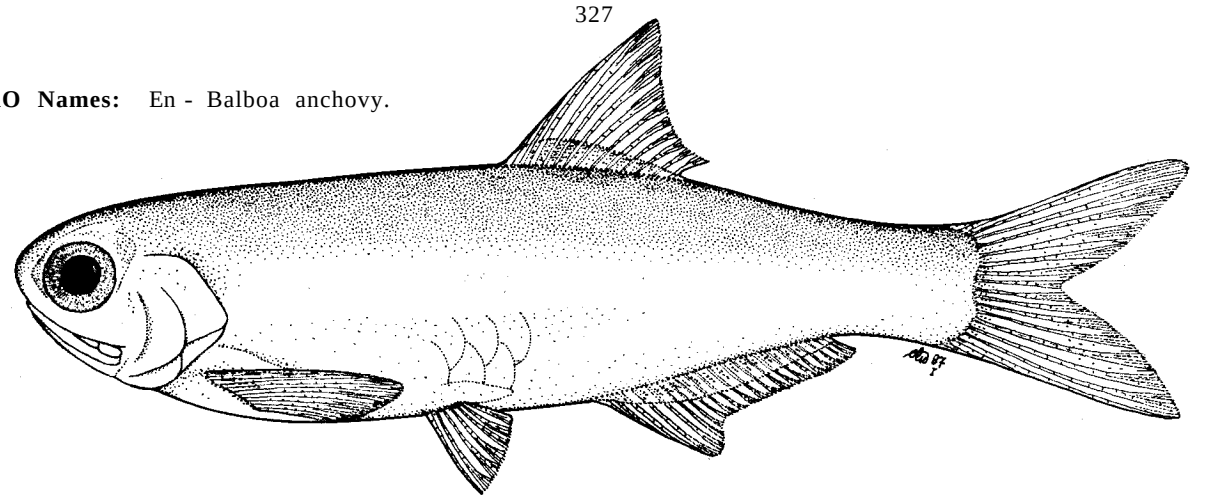
Anchoviella balboae (Jordan & Seale, 1926)

ENGR Anchoviel 14

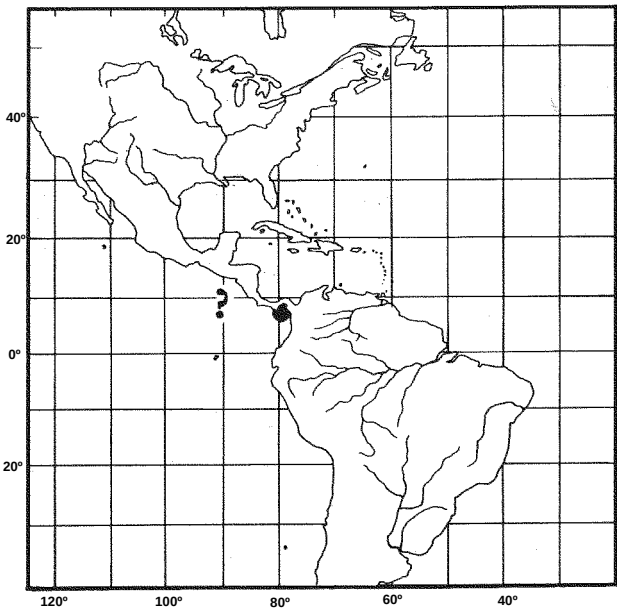
Amplova balboae Jordan & Seale, 1926, Bull.Mus.comp.Zool.Harv., 67(11):411 (Balboa, Canal Zone).

Synonyms : Anchovia brevirostra:Meek & Hildebrand, 1923:198, p1.12, fig.1 (Balboa; the subsequent type of balboae); Stolephorus brevirostris:Hildebrand, 1925:284 (Cutuco, Salvador); Amplova balboae:Myers, 1940:439 (On Meek & Hildebrand ; Anchoviella balboae-Hildebrand, 1943:135, fig.60 (Balboa, Miraflores Locks and Chame Point, Panama; Cituro, Salvador doubtful).

FAO Names: En - Balboa anchovy.



Diagnostic Features : Body fairly stout, somewhat compressed, its depth about 3.5 to 4 times in standard length. Snout very short. scarcely longer than pupil: maxilla short, tip bluntly rounded, not quite reaching to articulation of lower jaw; lower gillrakers increasing with size of fish, 22 in a juvenile, 28 to 33 in adults (35 fide Hildebrand, 1943:136); gill cover canals of walkeri-type. Pectoral fin large, reaching almost to pelvic fin; anal fin moderately long, with iii 17 to 23 finrays, its origin under about middle of dorsal fin base. No silver lateral stripe recorded (Hildebrand, 1943). Distinguished from Pacific species of Anchoviella (A. analis) and Anchoa by the very short snout.



Geographical Distribution : Eastern central Pacific (Panama; Salvador perhaps an error).

Habitat and Biology : Marine, pelagic and schooling. More data needed.

Size : To 7.2 cm standard length.

Interest to Fisheries : No data.

Local Names :

Literature :

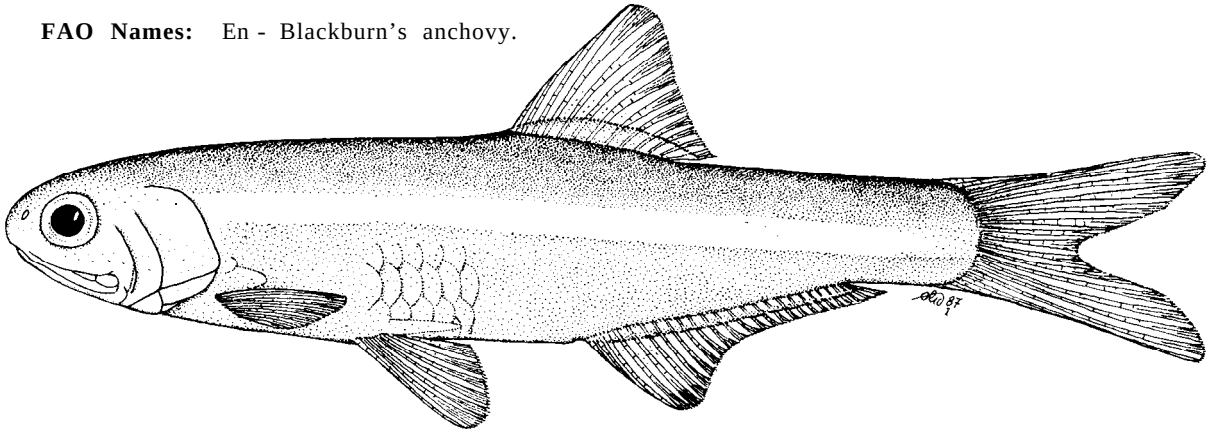
Anchoviella blackburni Hildebrand, 1943

ENGR Anchoviel 3

Anchoviella blackburni Hildebrand, 1943, Bull.Bingham oceanogr.Coll., 8(20):129, fig.57 (Estanques Bay and Jacque Point, Gulf of Venezuela).

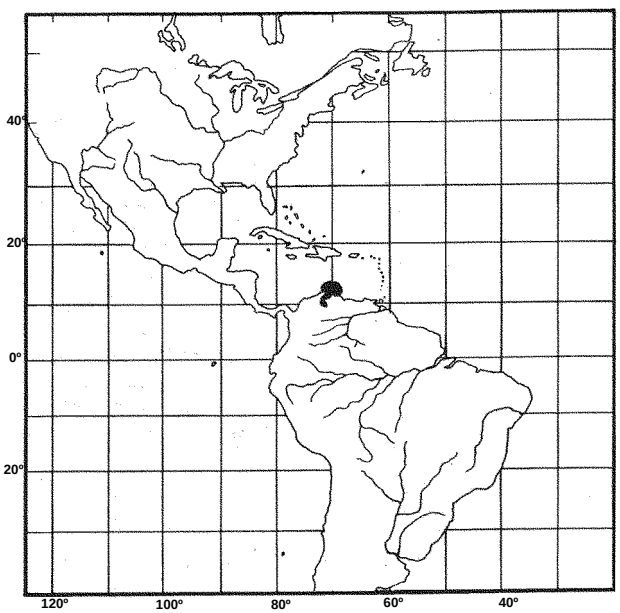
Synonyms : Anchoviella blackburni-Schultz, 1949:48 (Boca del Caño de Sagua, Bahia de Estanques, Punta Jacque, Bahia Salinas, small lagoons to north of Maracaibo,Venezuela); FWNA, 1964:226, fig.51 (synopsis); Cervigón, 1966:146 (compiled).

FAO Names: En - Blackburn's anchovy.



Diagnostic Features : Body fairly slender, somewhat compressed, its depth about 4.5 to 5 times in standard length. Snout short, a little over l/2 eye diameter; maxilla short, tip bluntly rounded, failing to reach preoperculum by about l/2 pupil diameter; lower gillrakers 15 to 18; gill cover canals of panamensis-type. Anal fin long, with iii 22 to 24 finrays, its origin a little in advance of midpoint of dorsal fin base. A silver stripe along flank, about l/2 to 3/4 eye diameter. Only Anchoviella vaillanti of Brazil overlaps in both gillraker and anal finray counts (but branched anal finrays not more than 22 and anal fin origin below last dorsal finray base); A. manamensis of the Orinoco and Surinam also has 18 or fewer gillrakers, but branched anal finrays only 15 to 18.

Geographical Distribution : Southern Caribbean (northern coast of Venezuela), possibly also Surinam.



Habitat and Biology : Marine, pelagic, coastal, but also in small lagoons and in Lake Maracaibo. More specimens and data needed.

Size : Known only from juveniles of about 3 cm standard length or 3.8 cm total length.

Interest to Fisheries : Probably none, considering its apparent rarity (at least in museum collections)

Local Names :

Literature :

Remarks : Known only from small specimens, for which the low gillraker count (15 to 18) may be a juvenile character. However, few Anchoviella species have such a high anal finray count (iii 22 to 24) and these do not occur in the Caribbean area (A. nattereri, A. lepidentostole); A. elongata of the Panama region has not more than 22 branched anal finrays.

The record of A. blackburni from Surinam by Boeseman (1956:184) was tentative; the gillrakers were 16 or 17 at 2 to 3 cm standard length, but if they increase with size, then perhaps the specimens were juvenile A. guianensis (20 to 25 in adults).

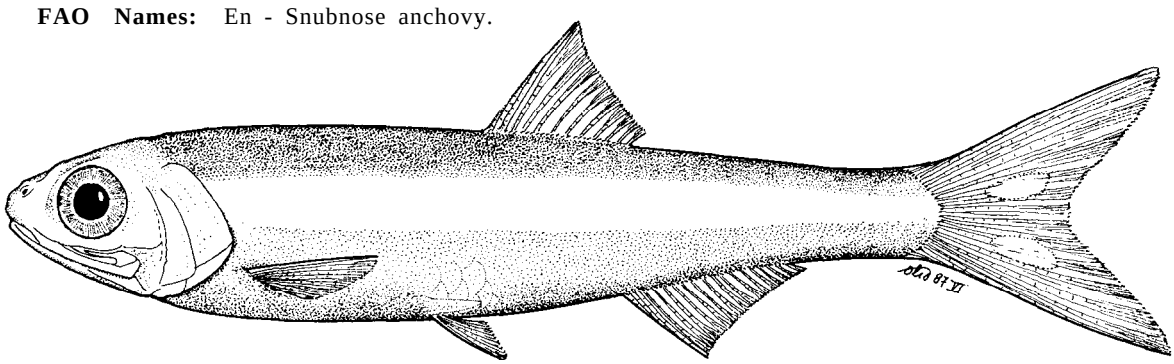
Anchoviella brevirostris (Günther, 1868)

ENGR Anchoviel 4

Engraulis brevirostris Günther, 1868, Cat.Fish.Brit.Mus.,7:392 (Caxoeira on Paraguaçu River, Bahia, Brazil).

Synonyms : Anchoviella brasiliensis Hildebrand, 1943:138, fig.62 (Rio Ribeira de Iguapé, Sào Paulo, Brazil); Fowler, 1948:20, fig.11 (listed); Carvalho,1951:62, p1.2, fig.5 (Rio Ribeira de Iguape); Nomura CK Menezes, 1964:352 (same); Anchoviella hildebrandi Carvalho, 1950b:78, fig.1 (near Cachoeira, Paraguacu River, i.e., type locality of brevirostris); Idem, 1951:61, pl.2, fig.4 (Paraguacu River); Menezes, 1974:216 (hildebrandi types lost); Amplova brevirostris:Myers, 1940:438 (key), 440 (compiled); Anchoviella brevirostris-Hildebrand, 1943:119 (on Günther; Amazon specimens not this species); Carvalho, 1951:52, pl.1, fig.2 (Amazon at Teffé, Paraguaçu at Caxoeira, Piauf River); FWNA, 1964:216, not figured (synopsis, excluding Amazon specimens); Whitehead, 1973a:figs 57, 58 (jaws) (Guyana, Surinam, off Amazon mouth at 2º29'N, 48º58'W); Figueiredo & Menezes, 1978:28, fig.36 (Guianas to Paraná coast, Brazil); Cervigón, 1982:217 (Perdenales, Caño Mánamo, Orinoco, Venezuela).

FAO Names: En - Snubnose anchovy.



Diagnostic Features : Body fairly slender, somewhat compressed, its depth about 4 to 5 times in standard length. Snout very short, about l/2 eye diameter and projecting only slightly beyond lower jaw; maxilla short, tip bluntly rounded, failing to reach pre-operculum by about l/2 pupil diameter; lower jaw longer than upper, its symphysis almost at tip of snout; lower gillrakers 23 to 27; gill cover canals of panamensis-type. Anal fin short, with iii 15 to 17 (rarely 15) finrays, its origin below last part of dorsal fin base (but not behind it). A silver stripe along flank, narrow in front, about 3/4 eye diameter over anal fin. Atlantic Anchoviella species that overlap in both gillraker and anal finray counts are: A. perfasciata (not south of Trinidad) and A. alleni (Peruvian Amazon); A. quianensis and A. carrikeri (snout projects clearly beyond lower jaw, walkeri type gill cover canals); in addition, all these species have the anal fin origin under or behind the last dorsal finray base.

Geographical Distribution : Western central and South Atlantic (Orinoco mouth, the Guianas south to Rio Ribeiro do Iguape, Sào Paulo coast, Brazil).

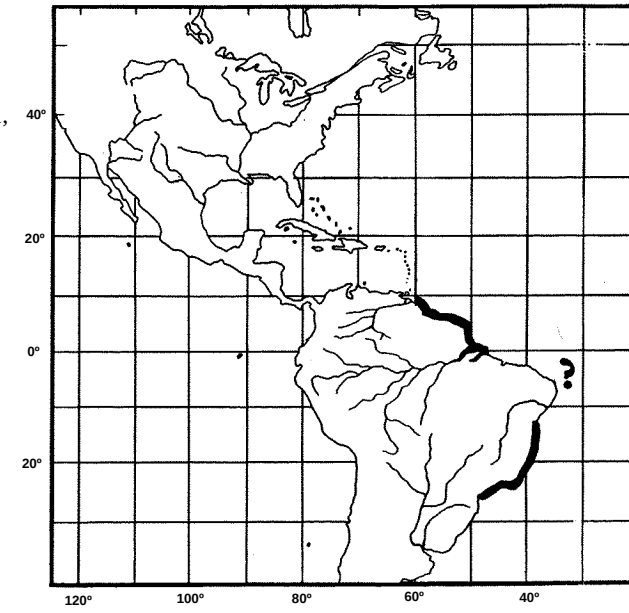
Habitat and Biology : Marine, pelagic, coastal, down to 50 m depth, but also estuarine and into almost freshwater. Ripe or almost ripe individuals caught in March and May (Orinoco - Cervigón, 1982:218).

Size : To 7.2 cm standard length.

Interest to Fisheries : Probably contributes to artisanal clupeoid catches in estuaries.

Local Names :

Literature : Cervigón (1982 - brief notes on breeding



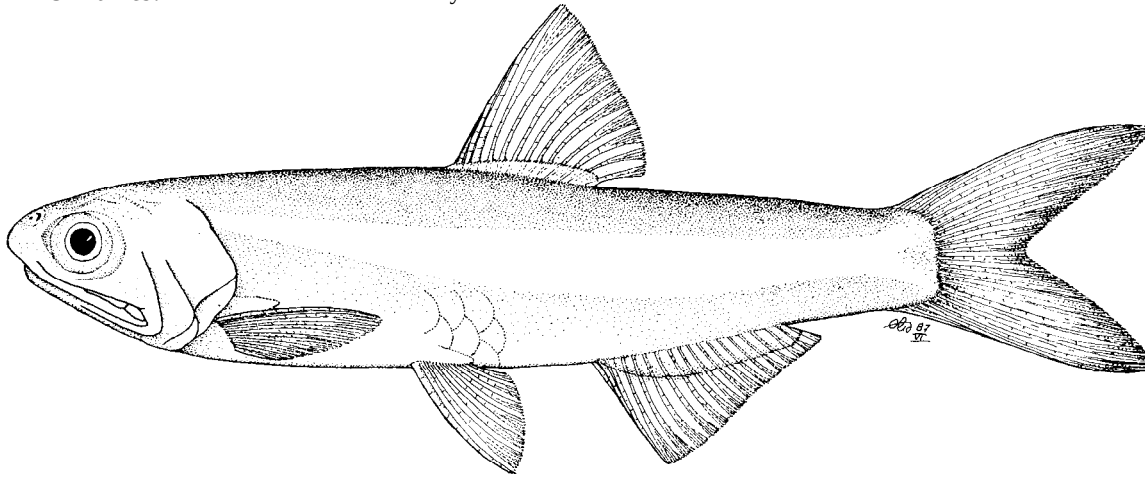
Anchoviella carrikeri Fowler, 1941

ENGR Anchoviel 5

Anchoviella carrikeri Fowler,1941, Proc.Acad.nat.Sci.Philad., 92:73, fig.28 (mouth of Chapare River, Cochabamba, Bolivia).

Synonyms : Anchoviella brevirostris: Hildebrand 1943:119 (carrikeri doubtfully placed in synonymy, no specimens seen); Anchoviella carrikeri-Campos, 1942:205, fig.18 (compiled).

FAO Names: En - Carriker's anchovy.



Diagnostic Features : Body fairly slender, moderately compressed, its depth about 4.75 to 5 times in standard length. Snout moderate, a little over l/2 eye diameter; maxilla moderate, tip bluntly rounded, failing to reach pre-operculum by about l/4 pupil diameter; lower gillrakers 20 to 24; gill cover canals of walkeri- type. Anal fin moderate, with iii 15 to 18 finrays, its origin a little behind base of last dorsal finray. A silver stripe along flank, widening to about eye diameter over anal fin. Atlantic Anchoviella species that overlap in both gillraker and anal finray counts are: A. guianensis (not in upper Amazon; maxilla shorter, failing to reach pre-operculum by l/3 to l/2 pupil diameter); A. brevirostris, A. elongata and A. alleni (all with panamensis-type gill cover canals; only A. alleni in uper Amazon and gillrakers 24 or 25)

Geographical Distribution : Amazon (Chapare River mouth to lower reaches).

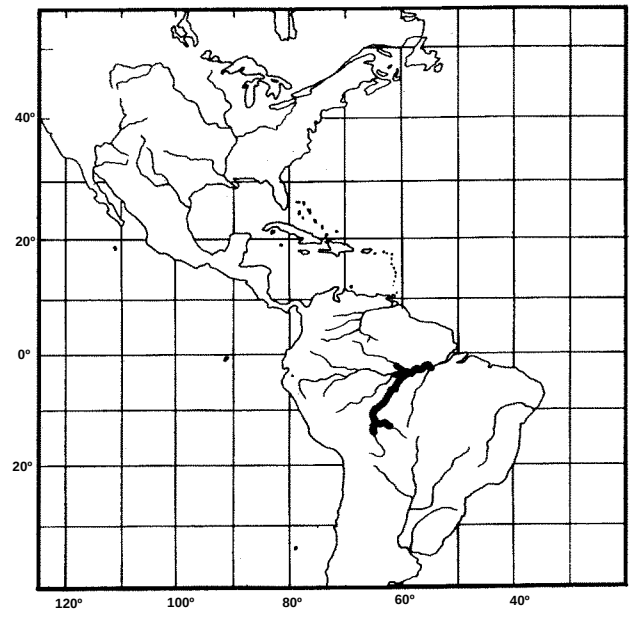
Habitat and Biology : Freshwater, riverine, in middle and upper reaches. More data needed.

Size : To 6.5 cm standard length.

Interest to Fisheries : No data.

Local Names :

Literature : Fowler (1941 a-good description, but gillrakers wrongly given as 14 or 15).



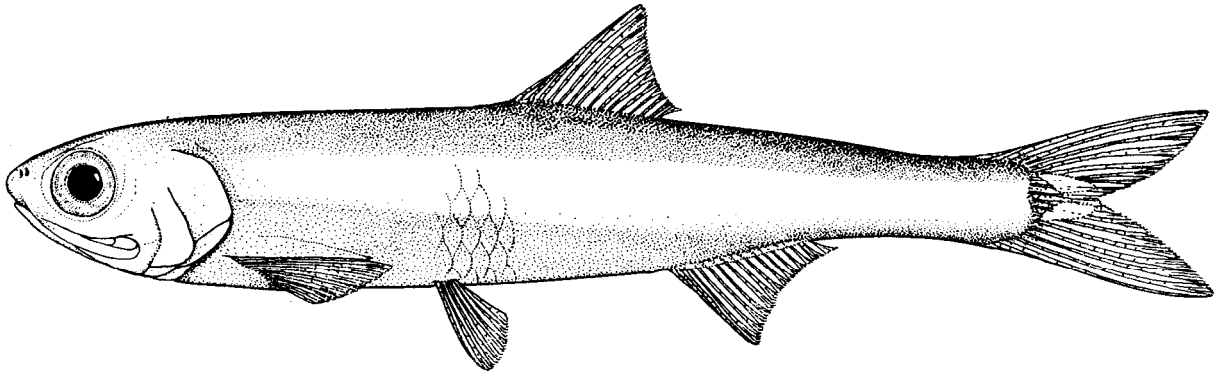
Anchoviella cayennensis (Puyo, 1945)

ENGR Anchoviel 11

Stolephorus cayennensis Puyo, 1945, Bull.Soc.Hist.nat.Toulouse, 80:101, fig.1 (Cayenne River at Macouria, but reported also from Mahury and mouth of Kourou Rivers); Idem, 1949, Faune Emp.franc., 12, Poiss.Guyane franc., 157, fig.80 (repeat).

Synonyms : Anchoviella victoriae Hildebrand & Carvalho, 1948:292, fig.3 (Victoria, Espirito Santo, Brazil); Carvalho, 1951:51, p1.1, fig.1 (Vitória); Menezes, 1974:216 (types of victoriae); Anchoviella cayennensis-FWNA, 1964:212 (on Puyo); Whitehead, 1973a:161, 186 (key), figs 61, 62 (Surinam, Trinidad).

FAO Names: En - Cayenne anchovy.



click for next page