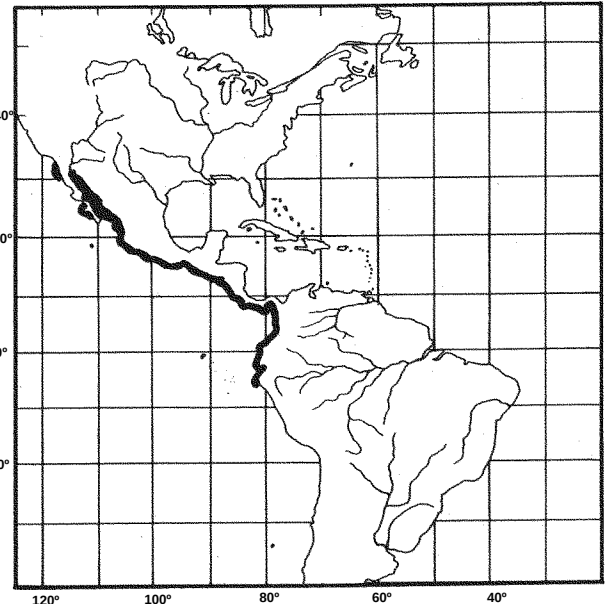


Diagnostic Features: Body compressed and fairly deep, its depth 3 to 3.5 times in standard length; head large and deep. Snout short and pointed, about 2/3 eye diameter; maxilla moderate, tip blunt, just failing to reach lower jaw articulation; lower gillrakers fine and numerous, increasing in larger fishes, about 25 at 5 cm standard length, 60 at 12 cm; no gillrakers on posterior face of third epibranchial. Branchiostegal membrane broad, covering entire isthmus; branchiostegal rays 8, long and slender. Anal fin moderate, with iii 17 to 24 finrays (usually 20 to 22), its origin under last third of dorsal fin base. A silver stripe along flank in smaller fishes, disappearing at about 8 to 10 cm standard length. Similar to *Anchovia macrolepidota* in general appearance, but distinguished by the broad branchiostegal membrane (if split, can still be found with forceps); this distinguishes it from all other Pacific anchovies (which are usually more slender, have less deep heads, a longer maxilla, fewer gillrakers).

Geographical Distribution : Eastern central Pacific (apparently as far north as Los Angeles, but these are perhaps releases from bait tanks of tuna boats; southern Pacific coast of Baja California, Gulf of California south to Panama, Colombia, Ecuador and northern Peru to Bay of Sechura at 5°30' S).

Habitat and Biology: Marine, pelagic, inshore (down to 9 m depth) and forming quite large schools which seem to break up and reform rather rapidly; found principally over mud flats, apparently not making long migrations along sandy or rocky areas to other suitable mud flats, although other migrations occur. Juveniles feed principally on diatoms, also silica-flagellates, dinoflagellates and small crustaceans; adults also subsist mainly on diatoms (most stomachs contain mud as well as benthic diatoms). Spawning, at least in the Gulf of Panama, occurs over shallow mud flats in October to January, with a peak in November and December (slightly earlier to the north and to the south as well); eggs oval (Simpson, 1959:figs 35, 36), spawned at 01.00 to 04.30 hours, hatching about 20 hours later.



Size : To 17 cm standard length, usually about 14 or 15 cm.

Interest to Fisheries : A small amount eaten fresh or canned, but used chiefly as fishmeal and as a tuna baitfish; caught with cast nets for local consumption, but with lampara nets for the bait fishery and purse seines for the reduction fishery, mainly within 8 km of the shore. Most abundant in Gulf of Panama, but other important fishing areas in Alemjas Bay (Pacific coast of Baja California), Guayamas Bay and Ahome Point (Gulf of California) and Gulf of Guayaquil (Ecuador, Peru). The total catch in 1982 was only 64 133 t (171 916 t in 1980); Bayliff (1969:tab.XIII) showed the rise in catches by the tuna-bait fleet from 1946 to 1956 and the sudden decline after that, due to a switch to purse seining and decline of the tuna-bait fishery.

Local Names : COLOMBIA: Cardume, Anchoveta; COSTA RICA: Anchoveta; ECUADOR: Anchoveta, Chuhueco, Esmeraldas, Ojito; MEXICO: Anchoveta (north), Sardin, Sardina (south); PANAMA: Anchoveta, Cardume, Sardina; USA: Anchoveta (fishermen and AFS list).

Literature: Bayliff (1969 - complete synopsis of biology and fishery); important papers summarized there are Howard (1954), Simpson (1959), Howard & Landa (1958).

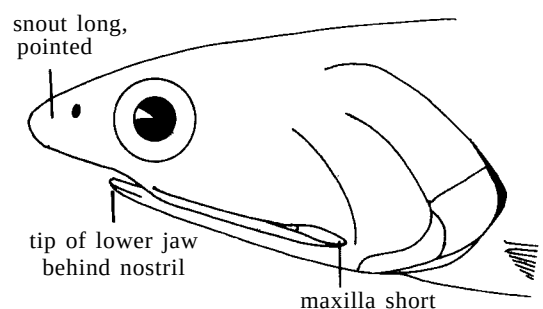
Remarks: Closely resembles the Atlantic *C. edentulus*, but has a rather larger head, more slender body, smaller eye and longer cheek. However, the provenance makes separation simple.

Jurengraulis Whitehead gen.nov.

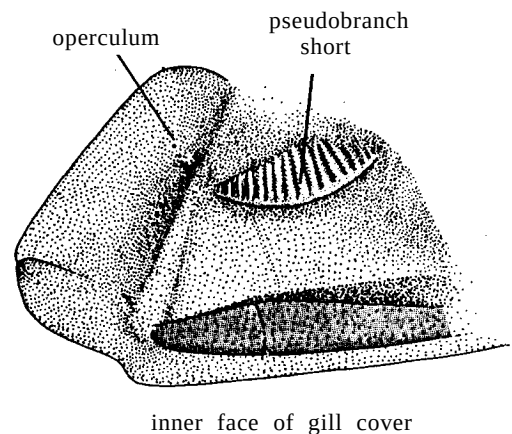
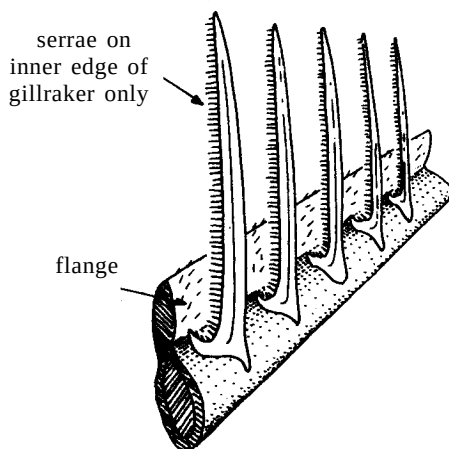
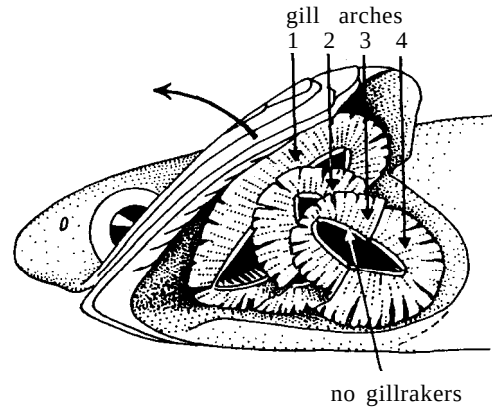
ENGR Juren

Jurengraulis gen.nov. (type: *Cetengraulis juruensis* Boulenger).

Diagnostic Features : Moderate-sized, rather round-bodied and slender anchovies (to 16 cm standard length), oval in cross-section and little compressed. Head very long (about 3.5 times in standard length); maxilla short, not reaching front margin of pre-operculum, not extending beyond tip of second supra-maxilla; jaw teeth minute or absent; tip of lower jaw behind nostril. Gillrakers fine and numerous (lower gillrakers 53 to 58), serrae present only along inner edge, a distinct flange present behind gillraker bases on first three arches forming a



groove; no gillrakers on hind face of third epibranchial. Pseudobranch short, less than eye diameter, not reaching onto inner face of operculum. Branchiostegal rays 9 or more, the membrane not broadly covering the isthmus. Dorsal fin at about midpoint of body; anal fin short, with 20 to 22 branched finrays, its origin under base of last dorsal finray. Resembles the marine *Cetengraulis*, which has only 8 but long branchiostegal rays and a broad branchiostegal membrane that covers most of the isthmus; in general body shape resembles *Engraulis* (sensu stricto, i.e. the *encrasicolus*-group), which has pseudobranch longer than eye, gillrakers present on hind face of third epibranchial, branched anal finrays 13 to 15, lower gillrakers only 27 to 43; similar to the New World *Engraulis* (*anchoita*, *ringens*, *mordax*), but either pseudobranch longer or maxilla reaching onto pre-operculum, lower gillrakers not more than 45, and all are marine.



Biology, Habitat and Distribution : Fresh water only, in Amazon system.

Species : A single species recognized:

J. juruensis (Boulenger, 1898) Amazon system.

Remarks : Nelson (1984b) argued for retention of this species in the genus *Cetengraulis*, but the specialized and unique branchiostegal rays and membrane of *Cetengraulis*, as well as its essentially marine habit, do not suggest any closer ancestry than that between *Cetengraulis* and *Anchovia*.

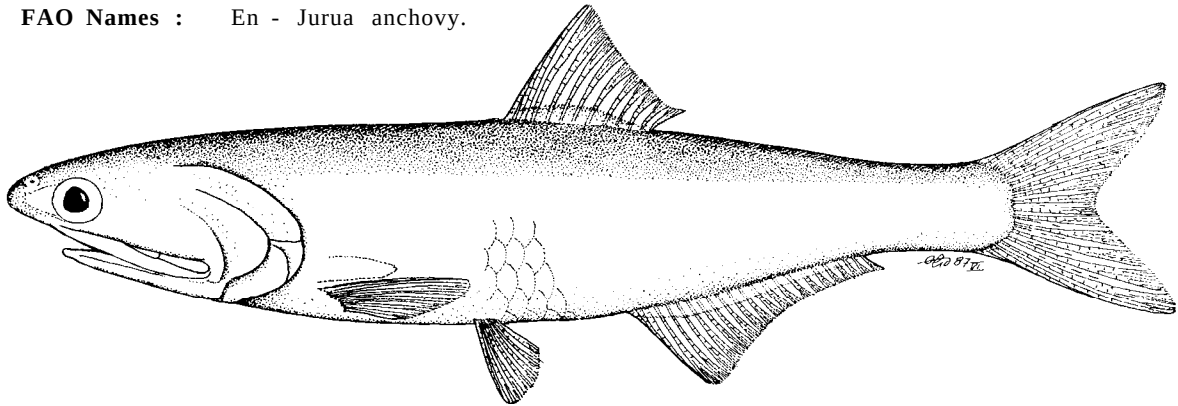
Jurengraulis juruensis (Boulenger, 1898)

ENGR Juren 1

Cetengraulis juruensis Boulenger, 1898, *Trans.zool.Soc.Lond.*, 14(7):421-8.

Synonyms : *Cetengraulis juruensis*: Fowler, 1941c:236 (*Engraulis iquitensis* wrongly placed in synonymy); Campos, 1942:202, fig.15 (on Boulenger); Hildebrand, 1943:158 (on Boulenger); Fowler, 1948:24, fig.16 (refs); Whitehead, 1973a:89, fig.30d (maxilla) (relationships); Nelson, 1984b:423 (Rio Mamoré in Bolivia and Manaus, Amazon system; relationships).

FAO Names : En - Jurua anchovy.



Diagnostic Features: Body slender, little compressed, oval in cross-section, its depth about 5.5 times in standard length. Head long, about 3.5 times in standard length; snout long and pointed; maxilla short, tip bluntly rounded, not reaching to front border of pre-operculum, not projecting beyond tip of second supra-maxilla; teeth in jaws minute or absent. Lower gillrakers 53 to 58, long and slender; no gillrakers on hind face of third epibranchial. Dorsal fin origin at about midpoint of body; anal fin moderate, with iii 20 to 22 finrays, its origin under last dorsal finray. Apparently without a silver stripe along flank (although this may be present in juveniles). Of similar freshwater South American anchovies, *Pterengraulis* has the dorsal fin origin behind the anal fin origin, *Lycengraulis* has canine-like teeth and *Anchoviella* as well as the previous two have fewer gillrakers; the very long head and long pointed snout of *J. juruensis* are quite distinctive.

Geographical Distribution: Western central Atlantic drainage (Amazon system, from Rio Mamoré in Bolivia to Manáus, including the Jurua and probably other tributaries).

Habitat and Biology: Riverine in middle and upper reaches. The numerous and rather long gillrakers armed with fine setae, together with the very long and highly coiled gut (Nelson, 1984b:pl.1D and fig. 2B) suggest a microplanktonic diet. More data needed.

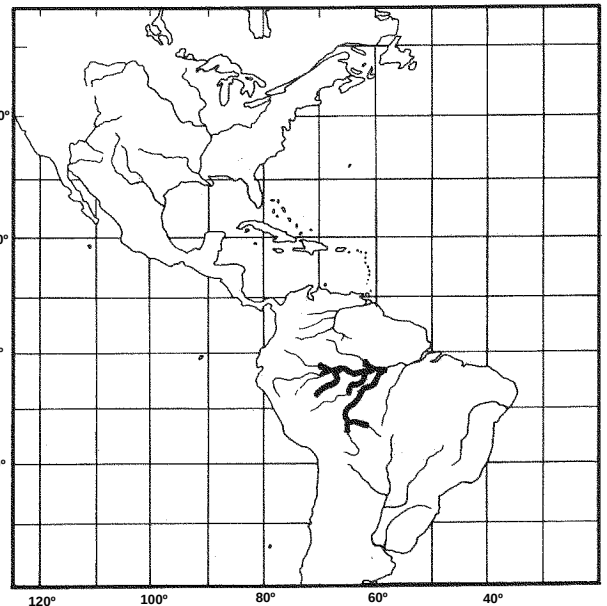
Size : To at least 16 cm standard length.

Interest to Fisheries : Unknown.

Local Names :

Literature:

Remarks: *Engraulis iguitensis* Nakashima, 1941 of the Peruvian Amazon is not *J. juruensis* (anal fin origin too advanced, teeth in jaws, head too short, etc.); its short maxilla suggests a species of *Anchoviella*, but the anal fin is too long for *A. allenii*, *A. carrikeri* or *A. jamesi*. With reservations it is identified as *Lycengraulis batesii*.

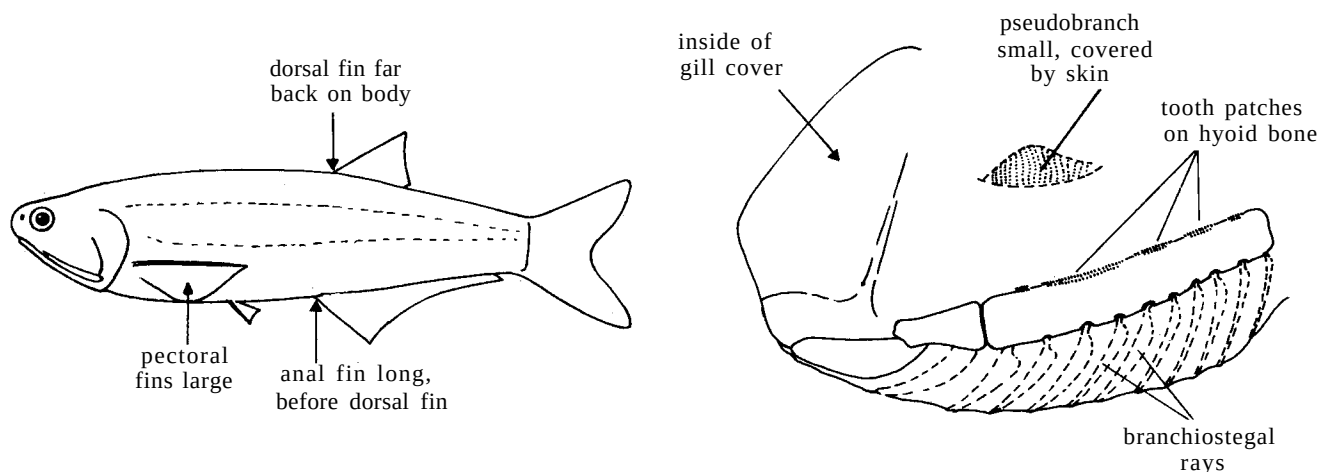


Pterengraulis Günther 1868

ENGR Pter

Pterengraulis Günther, 1868, *Cat.fish.Brit.Mus.*, 7:384, 398 (type: *Clupea atherinoides* Linnaeus, 1766).

Diagnostic Features: Fairly large and strongly compressed anchovies (to at least 20 cm standard length). Teeth in jaws short and even; lower gillrakers few (12 to 14); small patches of teeth on upper edge of hyoid bones. Pectoral fins large, to beyond pelvic fin base; dorsal fin far back on body; anal fin long (28 to 32 branched finrays), its origin before that of dorsal fin. Somewhat resembles *Lycengraulis*, which has canine-like teeth.



Biology, Habitat and Distribution : Euryhaline; Atlantic coasts and lower parts of rivers of northeastern South America. Predators on small fishes, crustaceans, etc.

Species : Only a single species has ever been recognized:

P. atherinoides (Linnaeus, 1766) Atlantic coasts and drainage of northeastern South America.

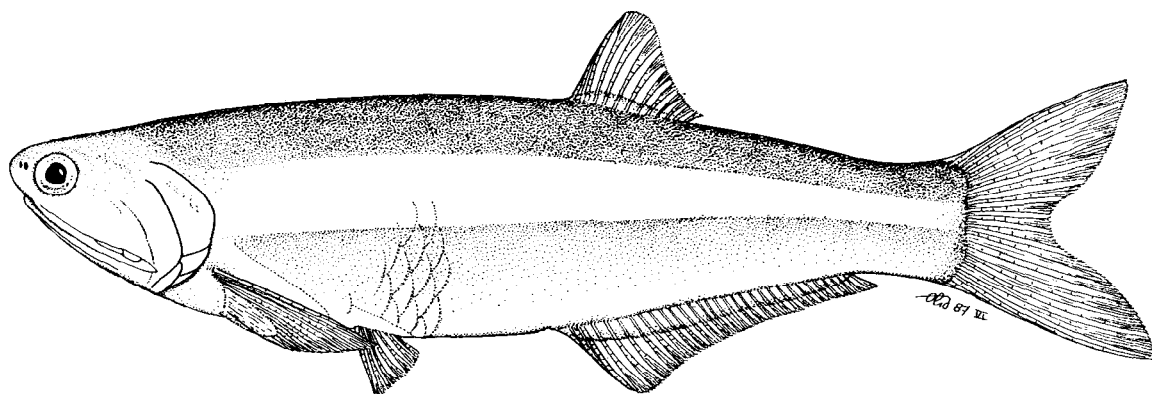
Pterengraulis atherinoides (Linnaeus, 1766)

ENGR Pter 1

Clupea atherinoides Linnaeus, 1766, Syst.nat., 12th ed., 1:535 (Surinam).

Synonyms : Engraulis atherinoides: Valenciennes, 1848:31 (Surinam); Günther, 1868:398 (Surinam, Guyana, also Rio Capin); Steindachner, 1880:177 (Pará, Cametá, Garupá in Amazon system); Pterengraulis atherinoides: Jordan & Evermann, 1896:450 (compiled); Schreiner & Ribeiro, 1903:94 (Guianas to Brazil); Starks, 1913:10 (Pará market); Jordan & Séale, 1926:386 (Pará Cametá, Gurupá, Arary, Brazil); Fowler, 1931:407 (Caño de Guanoca, Venezuela); Puyo, 1936:170, fig.36 (French Guiana); Fowler, 1941b:126 (Rio Jaguaribe, Ceará, Brazil); Idem., 1942:135 (Brazil refs); Campos, 1942:200 (Brazil, compiled); Hildebrand, 1943:139, fig.63 (Caño de Guanoco, Rio Apure, San Fernando de Apure, Venezuela, also Amazon, Pará, Fortaleza, Cametá and Arary); Fowler, 1948:26, fig.20 (Brazil, synonymy); Schultz, 1949:48 (San Fernando de Apure); Puyo, 1949:158, fig.81 (French Guiana); Boeseman, 1952:193 (Surinam); Idem., 1956:185 (Suriname River, 17 km from mouth); Lowe (McConnell), 1962:693 (Guyana coast); FWNA, 1964:229, fig.52 (synopsis); Whitehead, 1973a:181, figs 71, 72 (branchiostegals, hyoid teeth) (Guyana, Surinam); Cervigón, 1980:234, fig.283 (synopsis); Idem., 1982:223 (Orinoco delta).

FAO Names : En - Wingfin anchovy.



Diagnostic Features : Body strongly compressed, fairly elongate, its depth about 3.5 to 4.5 times in standard length. Snout short, about 2/3 eye diameter; maxilla moderate, tip bluntly rounded, not quite or just reaching lower jaw articulation; lower gillrakers 12 to 14, short, with often a single rudimentary raker in front. Pectoral fins large, reaching beyond pelvic fin base; anal fin long, with iii 28 to 32 finrays, its origin in front of

dorsal fin origin. A silver lateral stripe along flank, broad anteriorly, narrowing over anal fin. *Lycengraulis* species are similar in appearance, but have large canine-like jaw teeth; in addition, the dorsal fin origin is before the anal fin origin (as in all other Atlantic anchovies).

Geographical Distribution : Western central and South Atlantic coasts and drainage (Orinoco delta, the Guianas, south to Ceará, Brazil).

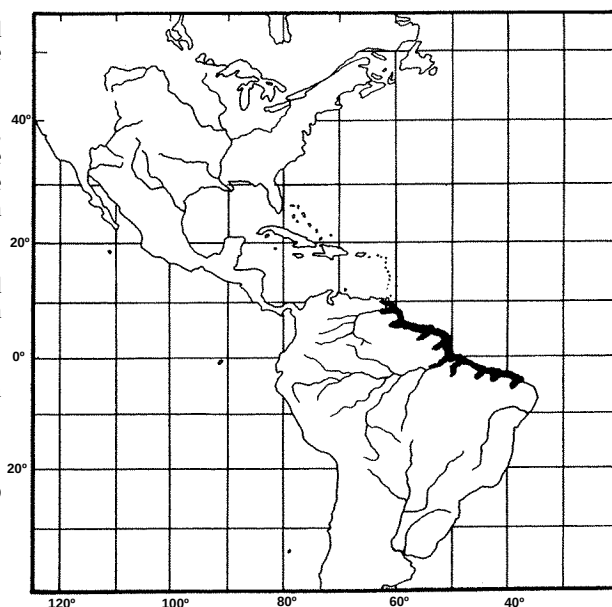
Habitat and Biology : Estuarine and fresh water, reaching some distance inland (at least 17 km up the Suriname River; to above Santarem on the Amazon). The short and few gillrakers suggest predatory feeding on small fishes, etc. No data on breeding.

Size : To at least 20 cm standard length (reported to 30 cm total length, or about 25 cm standard length, in FWNA, 1964:230).

Interest to Fisheries : Of local importance in artisanal fisheries, very common in Belém market (Starks, 1913).

Local Names : FWNA: Hareng gras, sardinha (no locality).

Literature :

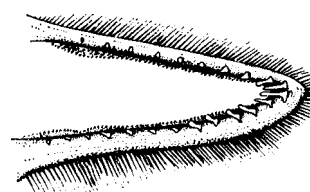
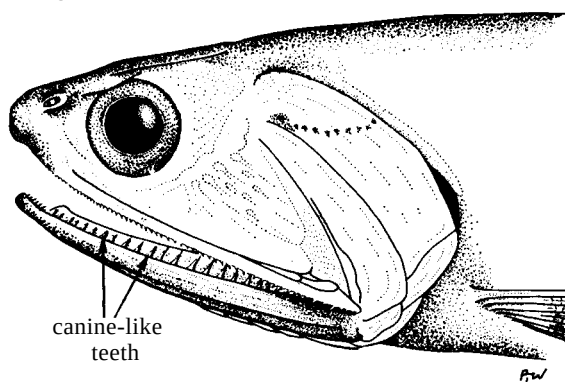


Lycengraulis Günther, 1868

ENGR Lycen

Lycengraulis Günther, 1868, Cat.fish.Brit.Mus. , 7:385, 399 (type: *Engraulis grossidens* Agassiz, 1829).

Diagnostic Features : Fairly large and rather compressed anchovies (to 26 cm standard length, mostly about 20 cm). Teeth enlarged, canine-like and well-spaced, especially in lower jaw; lower gillrakers few or moderate (12 to 27), the anterior gillrakers becoming rudimentary in some species. Pectoral fins moderate, not or just reaching to pelvic fin base; dorsal fin origin only a little behind midpoint of body; anal fin long (21 to 30 branched finrays), its origin below about midpoint of dorsal fin base. The canine-like teeth distinguish it from all other New World genera.



first gill arch

Biology, Habitat and Distribution : Euryhaline or fresh water; Atlantic and Pacific coasts and rivers of South and central America. Predators, feeding on fishes and crustaceans.

Species : Three species are recognized here, following Whitehead (1973a), but the two Atlantic species may each be a complex of subspecies or even species:

L. batesii (Günther, 1868) Atlantic drainage of northeastern South America

L. grossidens (Agassiz, 1829) Atlantic coasts and drainage of northeastern South America

L. poeyi (Kner & Steindachner, 1865) Pacific coasts and drainage of southern Central America.

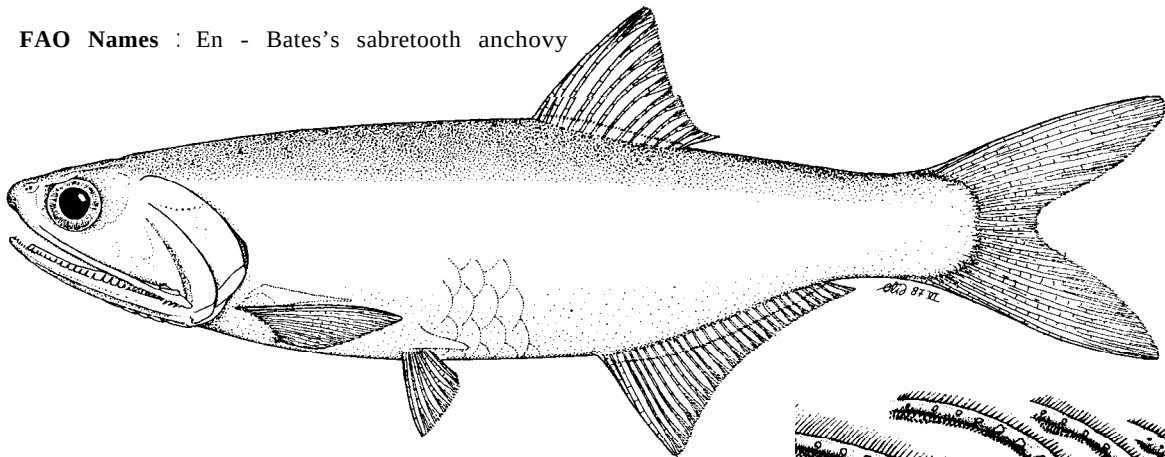
Lycengraulis batesii (Günther, 1868)

ENGR Lycen 2

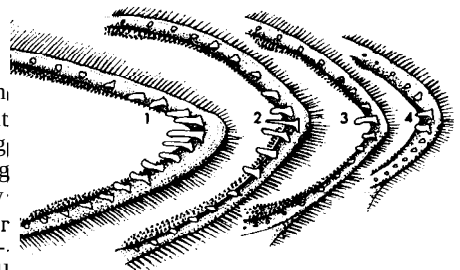
Engraulis batesii Günther, 1868, Cat.fish.Brit.Mus., 7:399 (Pará River, Brazil).

Synonyms : ? Engraulis iquitensis Nakashima, 1941:62, fig. (Peruvian Amazon); Lycengraulis barbouri Hildebrand, 1943:151, fig.69 (Rio Poti, tributary of Rio Paranyha, also Pará Brazil); Fowler, 1948:24 (Brazil records); FWNA, 1964:243, fig.58 (same); Cervigón, 1966:148 (Orinoco delta); Lycengraulis batesii: Jordan & Seale, 1926:385 (Brazil, but some specimens grossidens, i.e., gillrakers 23 in Rio Doce specimen and 21 in description); Fowler, 1942:135 (Brazil records); Campos, 1942:211, p.1.9, fig.24 (Iguapé, Brazil); Hildebrand, 1943:148, fig.67 (Rio Apuré, tributary of Orinoco; Pará Teffe and Rio Jutahi, Brazil); Fowler, 1948:25 (Brazil records); FWNA, 1964:240 fig.56 (synopsis); Boeseman, 1952:1913 (Suriname River, as grossidens); Gines & Cervigón, 1969:31, 40 (Guianas coasts); Lüling, 1969:577, fig.3d (as barbouri) (Rio Ucayali, Rio Huallaga); Alcantara, 1973:13, fig.2 (middle and lower Amazon); Whitehead, 1973a:166, figs 63, 64 (jaws), 65 (gillrakers) (Guyana, Surinam; batesii syntypes); Cervigón, 1982:221 (Orinoco delta).

FAO Names : En - Bates's sabretooth anchovy



Diagnostic Features : Body fairly elongate and compressed, its depth about 4 to 5 times in standard length (small fishes more slender). Snout moderate, about 3/4 eye diameter, maxilla moderate, tip pointed, reaching almost to or just beyond front margin of pre-operculum, teeth becoming larger toward tip of jaw; lower jaw with small teeth at front, followed by larger canine-like teeth, especially around midpoint of jaw. Lower gillrakers 12 to 15, short and stumpy, the anterior 1 to 3 rakers rudimentary in fishes over about 10 cm standard length. Dorsal fin origin well behind midpoint of body; anal fin long, with iii 26 to 30 finrays, its origin below first to fourth branched dorsal finrays. A broad silver stripe along flank, twice eye diameter at widest, but disappearing in fishes over about 10 to 12 cm standard length; a curve of black dots on upper part of operculum. Closely resembles L. grossidens, which has 16 to 27 gillrakers. No other. Atlantic New World anchovies have canine-like teeth.

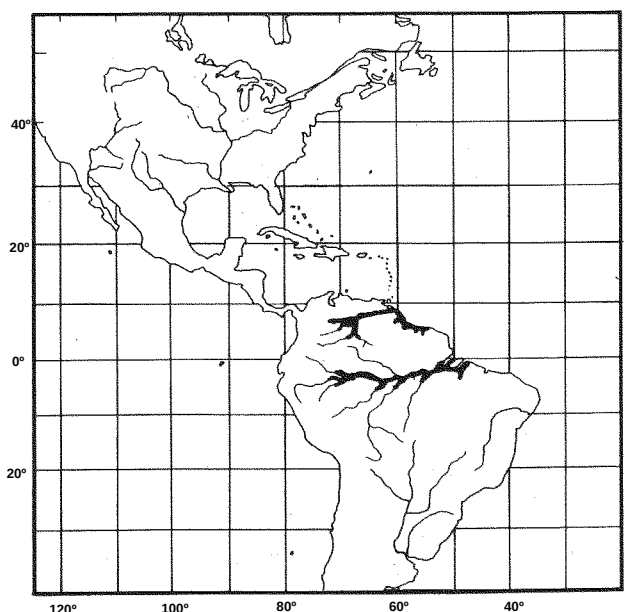


gillrakers on the four arches

Geographical Distribution : Western central and South Atlantic drainage (Orinoco, as far up as the Rio Manacacias in Colombia, rivers of the Guianas, and Amazon at least as far up as Teffe and the Jutahi River - if specimens were identified correctly - and even as far as the Ucayali, Huallago and Morona Rivers of the upper Amazon).

Habitat and Biology : Freshwater, riverine, far up rivers, but apparently reaching down to river mouths (Marowijne and Coppename in Surinam - Whitehead, 1973a:167; Orinoco delta - Cervigón, 1982), but with no indication of salinity tolerance. Carnivorous, feeding on small fishes and probably crustaceans. Cervigón (1982) recorded a ripe female of 17.2 cm standard length at Tucupita, Orinoco delta.

Size : To about 26 cm standard length, usually about 15 to 20 cm.



Interest to Fisheries : Probably of some value to artisanal river fisheries, but not forming large schools.

Local Names :

Literature :

Remarks : The figure and vertebral counts for Nakashima's Peruvian Engraulis iquitensis suggest Lycengraulis batesii, in which case the canine-like teeth were overlooked; body shape and dorsal fin position exclude Pterengraulis, while maxilla shape excludes Anchoa.

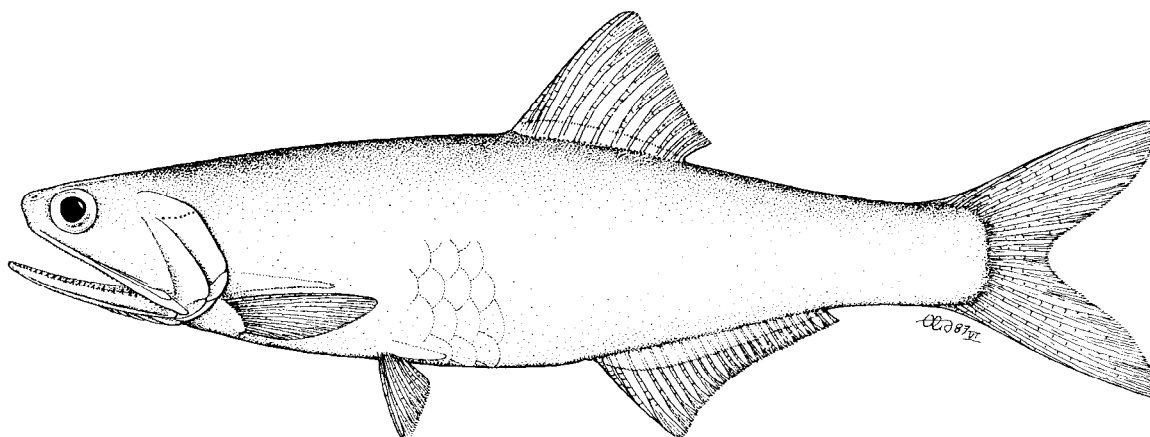
Lycengraulis grossidens (Agassiz, 1829)

ENGR Lycen 1

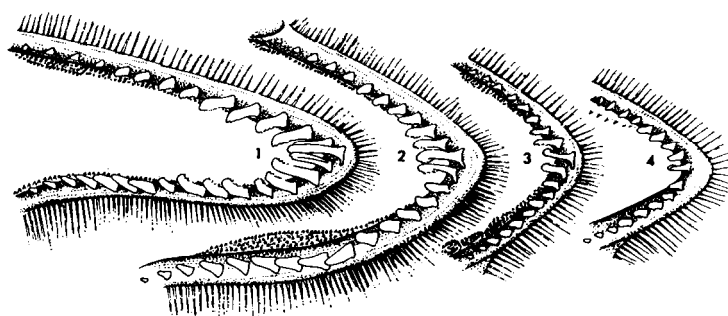
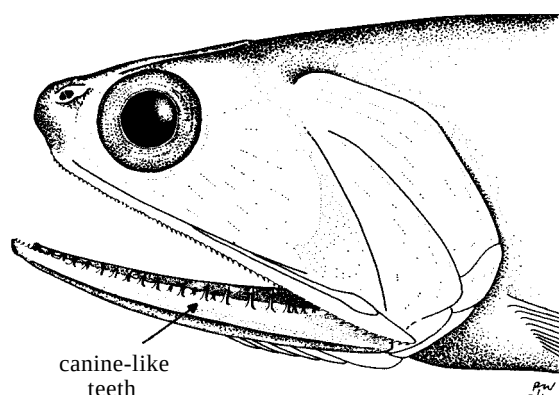
Engraulis grossidens Agassiz, 1829 (May or June), in Spix and Agassiz, Select.gen.spec.pisc.Bras., 1:50 (Rio de Janeiro; name and brief description preceding Engraulis janeiro Spix on same page).

Synonyms : Engraulis janeiro Spix, in Spix & Agassiz, 1829:p1.24, fig.1 (proposed in synonymy, thus invalid - Art 11(d) and 16(b) (ii) of International Code); Engraulis dentex Valenciennes, 1848:28 (Rio de Janeiro); Engraulis olidus Günther, 1874:455 (Paraná River, Brazil); Stolephorus olidus Eigenmann, 1907:453 (Buenos Aires, Argentina); Devincenzi, 1924:189 (Uruguay); Lycengraulis olidus:Hildebrand, 1943:144, fig.65 (Rio Grande do Sul, Brazil, 'Paraguay', Uruguay, Buenos Aires, Argentina); Fuster de Plaza & Boschi, 1961:8, figs 1,7 and 8 (gillrakers), 10 visceral organs) (Argentina, migration, ecology); FWNA, 1964:234, tab.8 (compared with grossidens); Ringuelet, Arámburu & Aramburu, 1967:63, fig.2A (Argentina, fresh water); Weiss & Krug, 1977:84, figs 2, 3, 4 (eggs, larvae) (Lagoa dos Patos estuary, Rio Grande do Sul, Brazil); Castello, 1977:9, 63 (Lagoa dos Patos, eggs post-larvae); Castello, 1978:8, 47 (Lagoa dos Patos, post-larvae); Anchovia abbotti Fowler, 1915:522, fig.1 (Port-of-Spain, Trinidad); Anchoviella abbotti:Jordan, Evermann & Clark, 1930:50 (compiled); Lycengraulis abbotti:Hildebrand, 1943:150, fig.68 (the type only); FWNA, 1964:242, fig.57 (synopsis); Lycengraulis schroederi Hildebrand, 1943:153, fig.70 (Rio Doce, Brazil); Lycengraulis polymera Marini, 1935:446 (Rio de la Plata, nomen nudum); Lycengraulis limnichthys Schultz, 1949:51, fig.8 (Rio Aqua Caliente, above Lake Maracaibo, Venezuela); FWNA, 1964:237, fig.55 (synopsis); Lycengraulis simulator Fuster de Plaza, 1962, figs 1, 2, 3 (gillrakers, maxilla) (Bela Vista, Paraná River, Argentina); Ringuelet, Aramburu & Aramburu, 1967:62 (Argentina); Engraulis grossidens:Günther, 1868:399 (Guyana); Lycengraulis grossidens-Jordan & Seale, 1926:383 (Brazil from Para to Rio Grande do Sul, also Uruguay); Fowler, 1942:135 (Brazil, refs); Campos, 1942:210, Pl.9, figs 22, 23 (head) (Ubatuba, Brazil); Hildebrand, 1943:143, fig.64 (Gulf of Venezuela to Santos, Brazil; olidus, abbotti and schröderi kept distinct); Fowler, 1948:25, fig.18 (Brazil, compiled); Boesernan, 1956:185 (Surinam River, 17 km from mouth); FWNA, 1964:234, fig.54 (synopsis); Whitehead, 1967a:134 (types of dentex); Whitehead & Myers, 1971:487, 495, 496 (grossidens, janeiro-nomenclature); Eskinazi, 1972:291 (Santa Cruz canal, Pernambuco, food); Roux, 1973:54 (Brazil, compiled); Whitehead, 1973a:173, figs 67, 68 and 69 (jaws, gillrakers) (Trinidad, Gulf of Paria, Guyana, Surinam); Perez *et al.*, 1975:228 *et seq.*, figs 1-4 (electrophoretograms) (protein analysis, relationships; compared with L. limnichthys); Figueiredo & Menezes, 1978:29, fig.37 (Ubatuba, Brazil); Cervigón, 1980:233, fig.2.81A (compiled) Cervigón, 1982:222 (Orinoco delta); Whitehead & Bauchot, 1986:32 (types of dentex). **Note:** this rather extended synonymy is given in order to assist future workers who may raise some or all the junior synonyms to subspecific or even specific status. Alcántara (1973) proposed the new species 'amazonensis' in her Master's thesis, but this does not qualify as a valid publication of the name.

FAO Names : En - Atlantic sabretooth anchovy.



Diagnostic Features : Body fairly elongate and compressed, but varying rather widely in depth (even in the same sample, e.g., 19 to 25% at 14.6 cm standard length). Snout moderate, about 2/3 eye diameter; maxilla moderate, tip pointed, reaching onto sub-operculum, teeth becoming larger toward tip of jaw; lower jaw with small teeth in front, followed by larger canine-like teeth, especially around midpoint of jaw. Lower gillrakers 16 to 27, short but the longest not less than pupil diameter in adults, few or none of the anterior rakers rudimentary. Dorsal fin origin behind midpoint of body; anal fin long, with iii 21 to 26 finrays, its origin below 6th to 8th branched dorsal finrays. A broad silver stripe along flank, up to twice eye diameter at widest, disappearing in fishes over about 10 cm standard length; a curve of black dots on upper part of operculum. Closely resembles *L. batesii*, which has only 12 to 15 lower gillrakers, the anterior 1 to 3 rudimentary in larger fishes. No other Atlantic New World anchovies have canine-like teeth.



gillrakers on the four arches

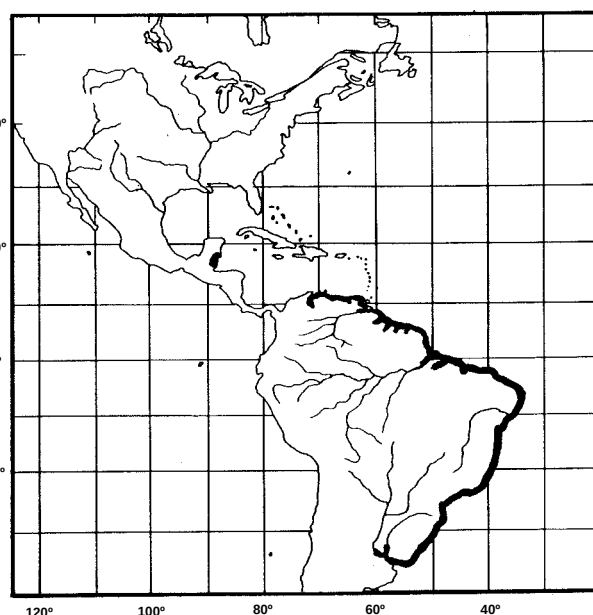
Geographical Distribution : Western central and South Atlantic and drainage (Belize, but no southerly records until Lake Maracaibo, Gulf of Venezuela, Trinidad and south to Argentina at Carmen de Patagoones or 41°S; also in lower and sometimes middle parts of the Orinoco, the Amazon to above Manaus, and the Paraná to about Corrientes, as well as in smaller rivers along this Atlantic coastline).

Habitat and Biology : Marine, pelagic, inshore (down to 38 m depth), forming moderate schools, but also in estuaries and in freshwater, usually migrating from estuaries or the sea, but possibly the *limnichthys* of Lake Maracaibo and the '*amazonensis*' of Alcántara (1973) represent purely freshwater forms. In freshwater, feeds principally on small fishes, prawns and copepods, also insect larvae; in the sea, on fishes and various crustaceans (Fuster de Plaza & Boschi, 1961). Spawns in freshwater, migrating up rivers (in the La Plata system found in fresh water in May to November, with spawning in the stretch from Rosario to Corrientes in October and November; females grow larger and have a longer head than males (Fuster de Plaza and Boschi, *loc.cit.*); eggs occur in the estuarine Lagoa dos Patos, Rio Grande do Sul, Brazil, throughout the year, but mainly in spring and summer (September to December), believed to have been spawned in coastal waters and brought into the lagoon; larvae appear to prefer shallower and almost fresh water within the lagoon (Weiss & Krug, 1977). The eggs are oval, without an oil drop, the yolk segmented.

Size : To 23.5 cm standard length, usually 15 to 18 cm.

Interest to Fisheries : Caught frequently and abundantly with seine nets off Mar del Plata, Argentina, also caught in the Paraná River; probably contributes elsewhere to artisanal catches.

Local Names : ARGENTINA: Anchoa; BRAZIL: Manjubao, Sardinha prata.



Literature : Fuster de Plaza & Boschi (1961 -excellent synopsis of biology in Argentine waters, as olidus), Ringuelet, Arámburu & Arámburu (1967 - synopsis of biology for olidus and simulator in Argentine waters), Weiss & Krug (1977 - eggs and larvae in southern Brazil).

Remarks : Nine names have been proposed for this species (including ‘amazonensis’ of Alcántara, 1973 not yet formally published), of which janeiro, dentex, abbotti, schroederi and polymera seem to be synonyms of grossidens sensu stricto. The other four names may apply to forms, subspecies or even species distinct from grossidens in body form, meristics, ecological requirements and spawning habits. Dr Gareth Nelson has compiled the following data:

	branched anal rays	lower gillrakers	vertebrae	habitat
<u>grossidens</u>	21-26	16-22	42,43,44	anadromous
<u>limnichthys</u>	21-24	19-23	39,41,42	? freshwater
‘amazonensis’	23-28	18-21	42, 43, 44	? freshwater
<u>olidus</u>	23-25	19-22	46,47,48	anadromous
<u>simulator</u>	22-26	23-27	44,45,47	anadromous

The high gillraker count of simulator (of Argentina) sets it apart from olidus (Argentina, southern Brazil) and indeed from all the others. Protein analyses suggests a clear distinction between limnichthys (Lake Maracaibo) and grossidens (widespread). According to Alcántara (1973), ‘amazonensis’ differs from grossidens in having a longer maxilla, larger eye, longer snout and shorter pre-anal distance. It can also be noted that olidus of southern Brazil is believed to spawn along the coast, whereas Argentinian olidus spawns in fresh water. Much more work is needed to reach a conclusion on the true number of species, subspecies or forms.

Lycengraulis poeyi (Kner & Steindachner, 1865)

ENGR Lycen 3

Engraulis poeyi Kner & Steindachner, 1865, Abh.bayer.Akad.Wiss., 10:23, p1.3, fig.3 (Rio Bayano, Panama).

Synonyms : Lycengraulis poeyi-Meek & Hildebrand, 1923:211 (tide streams and sandy beach at Balboa, also Panama market); Campos, 1942:211 (compiled, but southern Brazil erroneously included); Hildebrand, 1943:146, fig.66 (Panama); Peterson, 1956:171 (Gulf of Nicoya, Costa Rica); Whitehead, 1970:41, pl.3C (Steindachner's fig.) (type of poeyi lost).

FAO Names: En - Pacific sabretooth anchovy.

