

Diagnostic Features : Body fairly elongate and compressed, its depth about 4 to 4.5 times in standard length. Snout moderate, about $\frac{2}{3}$ eye diameter; maxilla moderate, tip somewhat bluntly rounded, reaching almost to sub-operculum, teeth becoming larger after first third of jaw; lower jaw with small teeth at front, followed by only moderately large canine-like teeth, especially around midpoint of jaw. Lower gillrakers 18 to 23, fairly short, few or none of the anterior ones rudimentary. Dorsal fin origin behind midpoint of body; anal fin long, with iii 21 to 24 finrays, its origin under anterior third of dorsal fin base. A silver stripe along flank, disappearing in larger fishes; a curve of black dots on upper part of operculum. No other Pacific anchovy has canine-like teeth, although these teeth are much smaller in young fishes (about 5 cm standard length) and separation from species of *Anchoa* is difficult (*A. chamensis*, *A. curta*, *A. lucida*, *A. naso* and *A. walkeri* are all sympatric with *L. poeyi* and overlap in gillraker and anal finray counts).

Geographical Distribution : Eastern central Pacific (El Salvador to Panama Bay, possibly northern Ecuador).

Habitat and Biology : Marine, pelagic, inshore, but entering brackish if not fresh water (thus probably similar to *L. grossidens*). Feeds on fishes (including other anchovies Peterson, 1956:172), perhaps also crustaceans. Nearly ripe females occurred in the Gulf of Nicoya in June, August and September, and juveniles of 3.3 to 4.5 cm in January and October (Peterson, *loc.cit.*, who describes the ovarian eggs as round - but oval in *L. grossidens*, as indeed in all other New World anchovies so far reported).

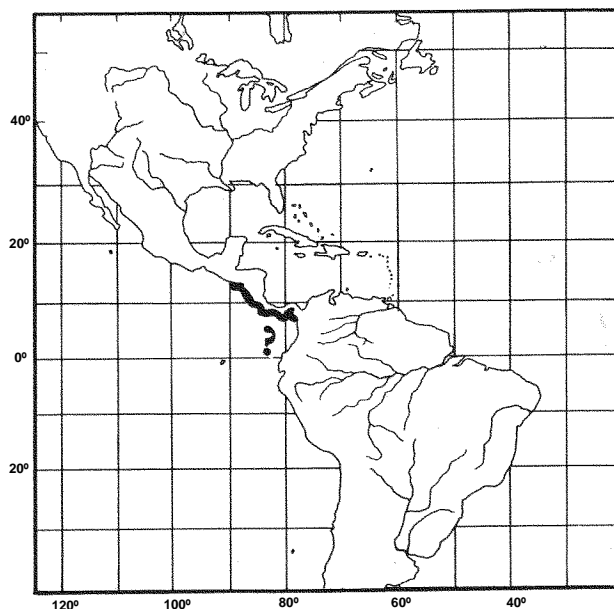
Size : To 20.5 cm standard length (to 23 cm total length fide Hildebrand, 1923 = 18.3 cm standard length), usually about 15 to 17 cm.

Interest to Fisheries : Perhaps contributes to local artisanal catches.

Local Names :

Literature : Peterson (1956 - maturity, food).

Remarks : Very similar to the Atlantic *L. grossidens*, except for less well developed teeth, and perhaps could be regarded as merely a subspecies.



Amazonsprattus Roberts, 1984

ENGR Amaz

Amazonsprattus Roberts, 1984, *Proc. Calif. Acad. Sci.*, 43(20):317 (type: *Amazonsprattus scintilla* Roberts).

Diagnostic Features : Pygmy anchovies (to about 2 cm standard length), much resembling the juveniles of larger species. Snout short; maxilla very short and only just to front of eye; lower jaw short, its articulation at hind border of eye. Gillrakers few (18 or 19). Dorsal fin far back, well behind midpoint of body; anal fin short (12 to 14 branched finrays); pelvic finrays i 5; this low pelvic finray count probably distinguishes *Amazonsprattus* from the juveniles of other anchovies (i 6 in adults, presumably also in juveniles).

Biology, Habitat and Distribution : Freshwater; Amazon drainage. A pygmy species that has mature gonads at about 1.4 to 1.5 cm standard length.

Species : A single species recognized:

A. scintilla Roberts, 1984. Amazon drainage.

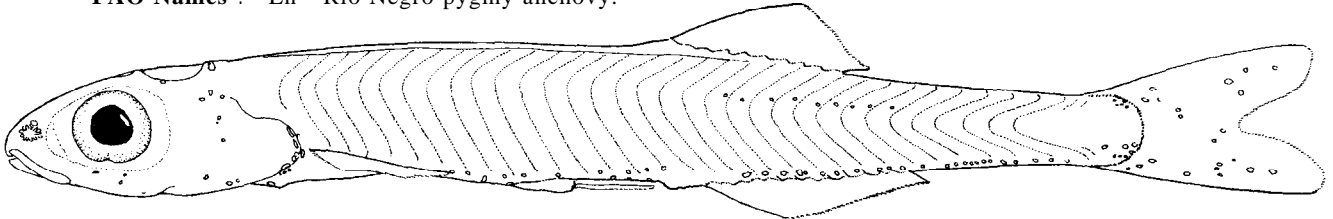
Amazonsprattus scintilla Roberts, 1984

ENGR Amaz 1

Amazonsprattus scintilla Roberts, 1984, Proc.Calif.Acad.Sci., 43(20):317 (Rio Negro, Amazon system).

Synonyms : Amazonsprattus scintilla:Nelson, 1986:899 (an engraulid, not a clupeid species).

FAO Names : En - Rio Negro pygmy anchovy.



Diagnostic Features : A slender dwarf species easily mistaken for a juvenile clupeoid. Mouth small, pre-maxillae absent or minute and toothless; maxilla very short, just reaching to front border of eye, with two supra-maxillae; articulation of lower jaw under hind border of pupil or just behind. Total gillrakers 18 or 19, elongate. Dorsal fin origin well behind midpoint of body; anal fin short, with ii 12 to 14 finrays, its origin under first quarter of dorsal fin base. In life translucent or even transparent, without scales on body. Juvenile anchovies probably always have i 6 pelvic finrays (i 5 in A. scintilla).

Geographical Distribution : Amazon system (Rio Jufari between Castanheiro Grande and Santa Fé, also Rio Negro at Santa Isabel).

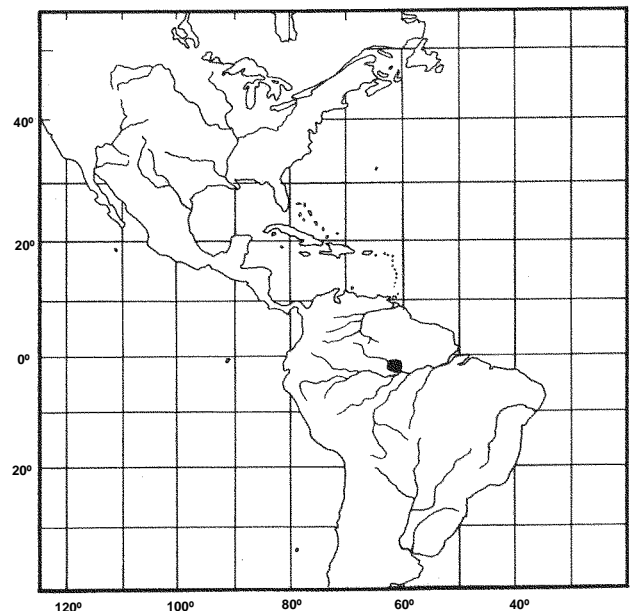
Habitat and Biology : Riverine, collected some distance up a low-gradient swampy tributary of the Rio Negro (the Rio Jufari) and in the main river, in both cases the water generally darkly tinted, acid (pH 4 to 5) and low in dissolved ions. Mature males at 14.3 to 16.2 mm standard length, mature females at 15.9 to 18.2 mm; ovarian eggs creamy or pale orange, a female of 17.3 mm having 20 eggs in the single ovary in January. Feeds on dipteran larvae and pupae, also cladocerans.

Size : To 1.95 cm standard length.

Interest to Fisheries : Nil.

Local Names :

Literature : Roberts (1984 habitat, food, maturity).

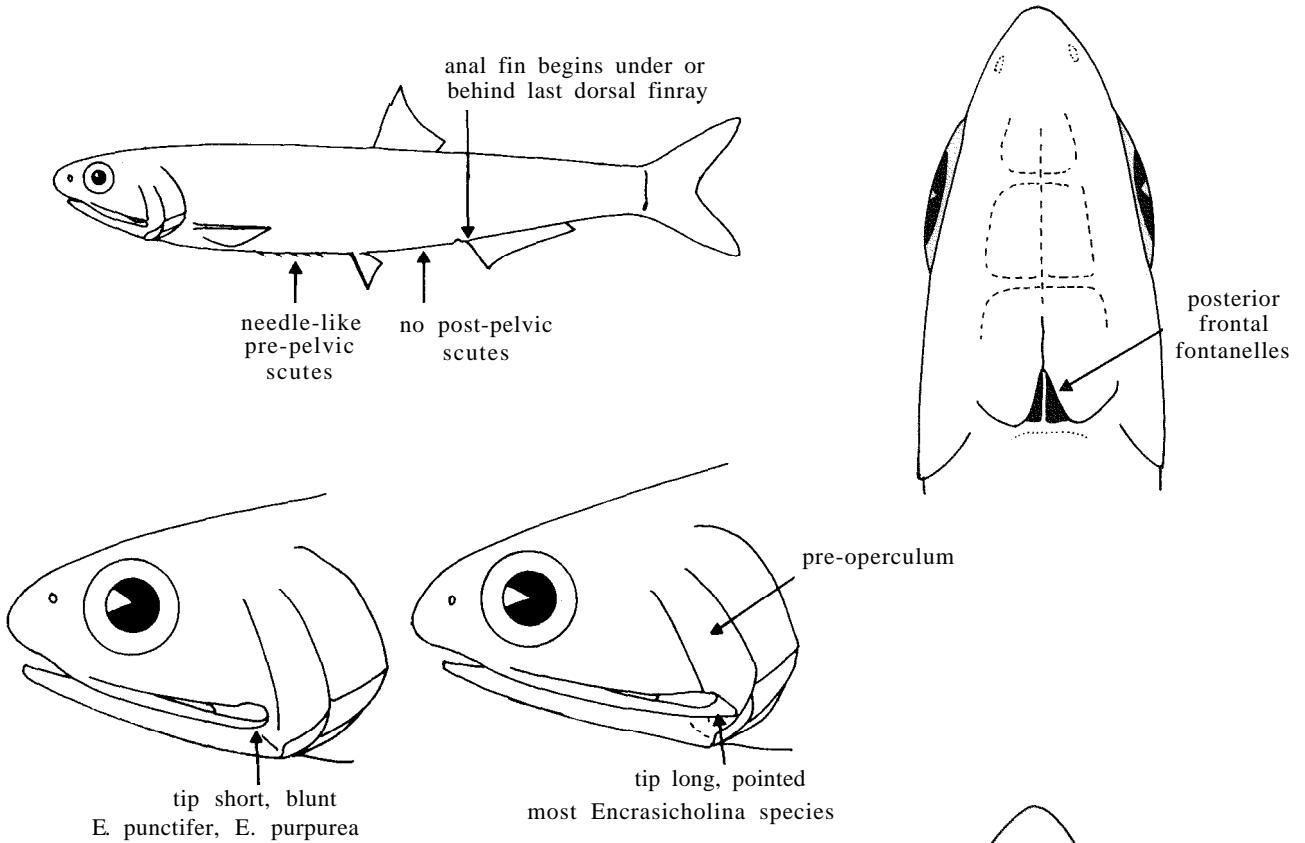


Encrasicholina Fowler, 1938

ENGR Encras

Encrasicholina Fowler, 1938, Monogr.Acad.nat.Sci.Philad., 5:157 (type: Encrasicholina punctifer Fowler, 1938). Stolephorus (part): until recently, authors have included species of Encrasicholina in Stolephorus before the two were clearly separated by Nelson (1983).

Diagnostic Features : Small and rather round-bodied anchovies (to 8.5 cm standard length), the belly rounded, with 0 to 6 (rarely 7) sharp needle-like pre-pelvic scutes, but no post-pelvic scutes; no pre-dorsal scute, no spine on pelvic scute. Posterior frontal fontanelles (on top of head near occiput) remain open in adults. Maxilla tip pointed in some and reaching past front border of pre-operculum (E. heterolobus, E. devisi, E. oligobranchus), blunt and shorter in others (E. punctifer, E. purpureus). Isthmus muscle not reaching forward to hind border of branchial membrane, leaving a portion of the urohyal bone exposed, this portion mostly bearing a little bony or membranous plate. Gillrakers slender, 21 to 30 on lower part of arch. Anal fin short, usually with 13 to 17 branched finrays, its origin under or usually behind base of last dorsal finray. Scales moderate, about 39 to 43 in lateral series. A silver stripe along flank in some species (gold in E. devisi). Eggs oval, without a knob at one end.



Biology, Habitat and Distribution : Marine, pelagic and schooling, mostly inshore, but *E. punctifer* oceanic. Indo-West Pacific only, from western shores of Indian Ocean to Hawaii, Samoa and Society Islands (Tahiti).

Species : In the most recent revision, Wongratana (1980) recognized four species, later adding a fifth (Appendix and Wongratana, 1983), all at that time placed in *Stolephorus*:

(maxilla short, its tip blunt)

- E. punctifer* Fowler, 1938 Widespread (Africa to Tahiti)
- E. purpurea* (Fowler, 1900) Central Pacific (Hawaii)

(maxilla long, its tip pointed)

- E. devisi* (Whitley, 1940) Widespread (Aden to Caroline Islands and Samoa)
- E. heteroloba* (Rüppell, 1837) Widespread (Africa to Fiji)
- E. oligobranchus* (Wongratana, 1983) the Philippines.

Remarks : Nelson (1983) was the first to resurrect Fowler's genus *Encrasicholina*, pointing out that the five species included (already separated as a group in all keys to *Stolephorus*) shared a suite of characters that allied them more closely with *Engraulis* (and some New World genera) than with the remaining species of *Stolephorus*.

	<u>Encrasicholina</u> and <u>Engraulis</u>	<u>Stolephorus</u>
Isthmus	Short, urohyal exposed	Long, urohyal covered
Pre-opercular canal	On pre-operculum only	A branch onto operculum
Epibranchial 1	Toothplate fused to bone	Not fused
Ural centrum (UI)	Fused to pre-ural centrum 1 (i.e. UI-PU1)	Not fused (i.e. UI/PU1)

Encrasicholina devisi (Whitley, 1940)

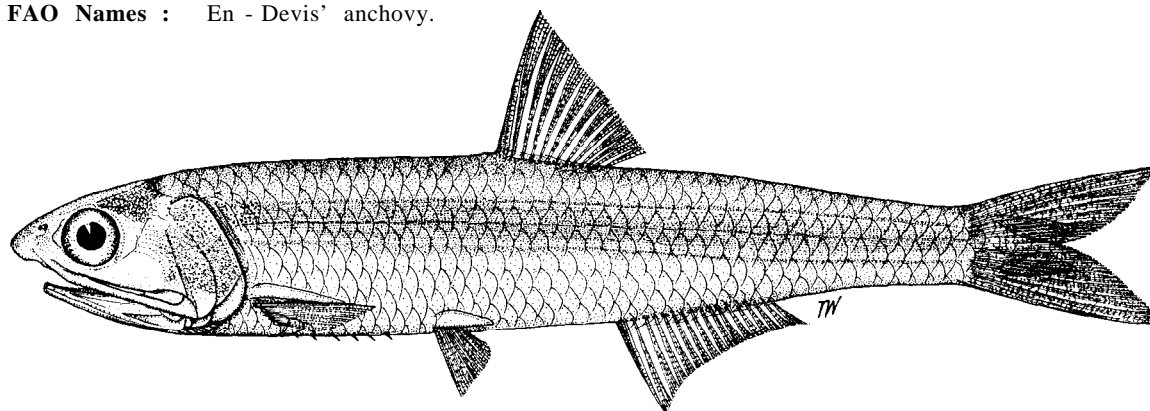
ENGR Encras 4

Amentum devisi Whitley, 1940, *Aust.Zool.*, 9(4):404 (Cape York).

Formerly ENGR Stol 7

Synonyms : *Stolephorus* Species A: Whitehead, 1968a:17 (northern Arabian Sea, Bay of Bengal; a new species recognized by Ronquillo); *Idem.*, 1969a:253, fig. 35 (Singapore); *Idem.*, 1973b:221, fig.43 (synopsis; *devisi* suspected as the correct name); *Stolephorus devisi*: Dalzell & Wankowsky, 1980:21 *et seq.*, figs 2,3,5,7,8,17,19 (New Ireland, biology); Wongratana, 1980:228, pls 192,193 (revision); Wongratana, 1985:27, fig.9 (key); *Encrasicholina devisi*-Nelson, 1983:53 (relation to *Engraulis*; first placement in *Encrasicholina*).

FAO Names : En - Devis' anchovy.



Diagnostic Features : Body rather cylindrical, belly rounded, with 5 or 6 (rarely 3 or 4) sharp needle-like pre-pelvic scutes. Maxilla tip pointed, projecting beyond second supra-maxilla and reaching to sub-operculum. Isthmus short, preceded by a small bony plate on urohyal between branchial membranes. Lower gillrakers 20 to 27 (usually 23 or 24). Unbranched dorsal and anal finrays iii, anal fin short, with usually iii 15 to 17 finrays. In life, a bright silver band on flank, with a thin blue line above, back blue/grey. Closely resembles *E. heteroloba*, which has only ii unbranched dorsal and anal finrays a dull silver/grey band on flank, and the back beige; *E. oligobranchus* has only 17 or 18 gillrakers. Other species of *Encrasicholina* have a fleshy urohyal plate and a maxilla tip blunt and not projecting beyond the second supra-maxilla. Species of *Stolephorus* have a long isthmus reaching to the margin of the branchial membrane. See ENGR Stol 7, Fishing Area 51, also Fishing Areas 57/71.

Geographical Distribution : Widespread in northern part of Indian Ocean (the "Gulf", Gulf of Aden, but apparently not the Red Sea and not to the Kenya coast: coasts of India, Andaman Islands) and in the western central Pacific (Indonesia, Thailand, north to at least Taiwan Island, south to northern Australia; also, eastward to Fiji and Tonga).

Habitat and Biology : Marine, pelagic, schooling, inshore. Like other species, probably feeds mainly on planktonic crustaceans. Breeds throughout the year, with peaks in New Ireland waters during May to June/July and possibly also in September to November. Eggs oval, without a knob at one end.

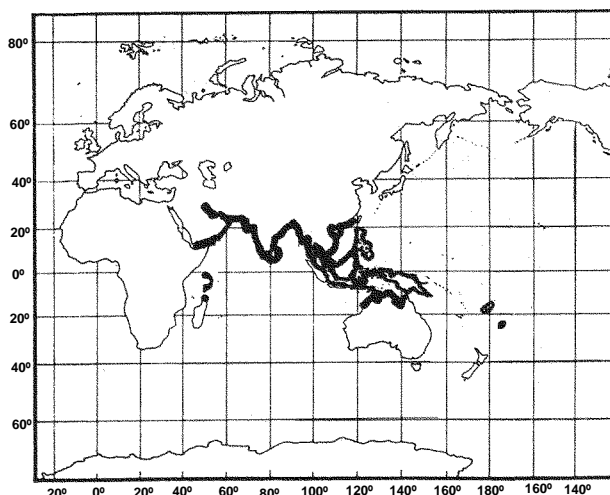
Size : To 7.7 cm standard length.

Interest to Fisheries : At least in some areas (e.g. Micronesia) almost as abundant as *E. heteroloba*, thus presumably makes a significant contribution to "*Stolephorus*" catches. An excellent baitfish (Lewis, Smith & Ellway, 1983:16 - as *heteroloba*).

Local Names : JAPAN: Tarekuchi, katekuchi.

Literature : Tham (1972-fishery, South China Sea), Tiews, Ronquillo & Santos (1975-biology in the Philippines); Daly & Richardson (1980 - enzymes to distinguish populations), Dalzell & Wankowski (1980 - biology, population and fishery dynamics), Wongratana (1982 - as baitfish), Baldwin (1984 - Fijian baitfish).

Remarks : Very close to *E. heteroloba* (see **Remarks** under that species). Wongratana (1980:229) tentatively included *Stolephorus* Species K of Kearney, Lewis & Smith (1972:86, p.1.3.2) in the synonymy of *devisi*, and its well defined lateral stripe and gillraker count (22 to 24) seem to confirm this. They referred to it as the 'blue morph' of *devisi*; their 'golden morph' seems to have been *heteroloba*. As a result, *heteroloba* of Lewis, Smith & Ellway (1983) was probably *devisi*, and *vice versa*.



Encrasicholina heteroloba (Rüppell, 1837)

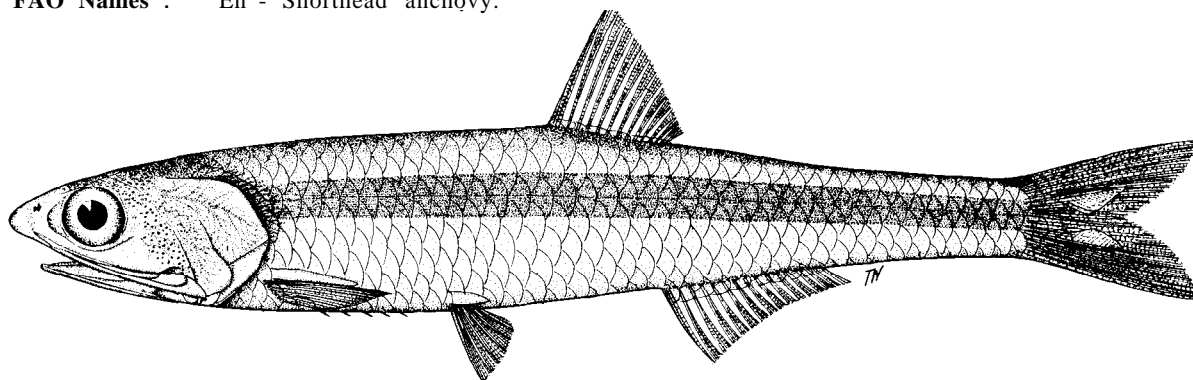
ENGR Encras 1

Formerly ENGR Stol 1

Engraulis heteroloba Rüppell, 1837, Neue Wirbelth., Fische:79, pl. 21, fig.4 (Massawa, Red Sea).

Synonyms : Stolephorus pseudoheterolobus Hardenberg, 1933:261 (Riau, Lingga Archipelago); Tham, 1965: 24, fig.1 (egy to adult) (Singapore, biology); Idem, 1968:unp. fig.1 (synopsis); Anchoviella heteroloba:Fowler, 1941d:698 (the Philippines, Bouru); Stolephorus heterolobus: Munro,1956:27, fig.186 (north Queensland); Whitehead, 1965b:266, fig.4a (isthmus)(Red Sea); Losse, 1968:107 (Mombasa, Zanzibar Channel); Whitehead, 196Ya:254, fig.34 (Singapore); Idem, 1973b:220, fig.42 (synopsis); Tiews, Ronquillo & Santos, 1975:95 et seq. (the Philippines, biology); Dalzell & Wankowski, 1980:20 et seq., figs 2-4, 7-9, 16,19 (New Ireland; biology); Wongratana, 1980:226, pls 190,191 (revision); Wongratana, 1985:27, fig.8 (key); Dor, 1984:43 (Red Sea); Encrasicholina heteroloba - Nelson,1983:53, table 2 (vertebrae) (relation to Engraulis; first placement in Encrasicholina).

FAO Names : En - Shorthead anchovy.



Diagnostic Features : Body rather cylindrical, belly rounded, with 4 to 6 (usually 5) sharp needle-like pre-pelvic scutes. Maxilla tip pointed, projecting beyond second supra-maxilla and reaching to sub-operculum. Isthmus short, preceded by a small bony plate on urohyal between branchial membranes. Lower gillrakers 22 to 30 (usually 23 to 27). Unbranched dorsal and anal finrays only ii; anal fin short, with usually ii 14 to 16 finrays. In life, a dull silver/grey band on flank, the back beige. Closely resembles E. devisi, which has iii unbranched dorsal and anal finrays, a bright silver band on flank, with a thin blue line above, and the back blue/grey; E. oligobranchus has only 17 or 18 gillrakers. Other species of Encrasicholina have a fleshy urohyal plate and a maxilla tip blunt and not projecting beyond the second supra-maxilla. Species of Stolephorus have a long isthmus reaching to the margin of the branchial membrane. See ENGR Stol 1, Fishing Area 51, also Fishing Areas 57/71.

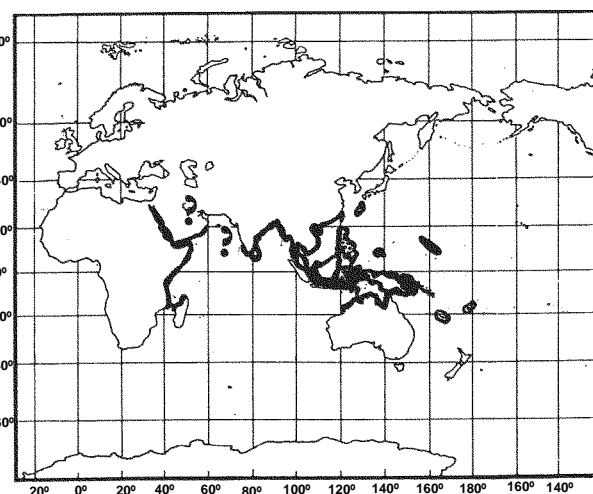
Geographical Distribution : Widespread in Indian Ocean (Red Sea, East African coast to at least northern Madagascar, eastward to Bay of Bengal) and equally widespread in western Pacific (Indonesia, Thailand north to southern Japan; southward to northern coasts of Australia; eastward to Solomon Islands, New Caledonia, Fiji, Tonga, Samoa, also Palau to Kosrae).

Habitat and Biology : Marine, pelagic and schooling, inshore. Like other species, probably feeds mainly on planktonic crustaceans. Breeds throughout the year, with a peak, during the first part of the northeast monsoon in Manila Bay (October to January) or in New Ireland waters in May to June/July and again in September to November (especially this latter period); eggs oval, without a knob at one end.

Size : To at least 8 cm standard length, but probably not much more.

Interest to Fisheries : Forms the bulk of the "Stolephorus" catches in Singapore, Thailand and the Philippines. A delicate baitfish and probably less robust than E. devisi (Lewis, Smith & Ellway, 1983 - as devisi).

Local Names : CHINA: Kang hu (Hokkien), Kong Yue (Canton), Oh jiau (Teochew).



Literature : Tham (1965, 1968, 1972 - biology and general synopsis), Dalzell & Wankowski (1980 - biology, Population and fishery dynamics), Daly & Richardson (1980 - enzymes to distinguish populations), Wongratana (1982 - as baitfish), Baldwin (1984 - Fijian baitfish).

Remarks : The great similarity to E. devisi, which has virtually the same wide geographical range, makes identification difficult. Wongratana (1980:pls 190, 192) showed a slightly more pointed tip to the maxilla in S. heterolobus (longer than deep; the reverse in S. devisi); separation of the species on number of unbranched dorsal and anal finrays requires a scalpel since the first ray is a tiny splinter and can be easily missed.

Hardenberg's pseudoheterolobus is heterolobus, but his heterolobus is devisi, at least to judge by his descriptions, since his types are either not present in Jakarta (Marine Fisheries Research Institute, LPPL) or are so poorly documented and preserved that they are now unrecognized as such.

The blue morph of Stolephorus devisi, described as Species K by Kearney, Lewis & Smith (1972:86, pl.3.2) was devisi, but their golden morph was heteroloba judging by its colour and higher gillraker count (24 or 25). Wongratana (1982) diagnosed colour differences that support this conclusion and are used here. The devisi of Lewis, Smith & Ellway (1983) was probably heteroloba, and vice versa.

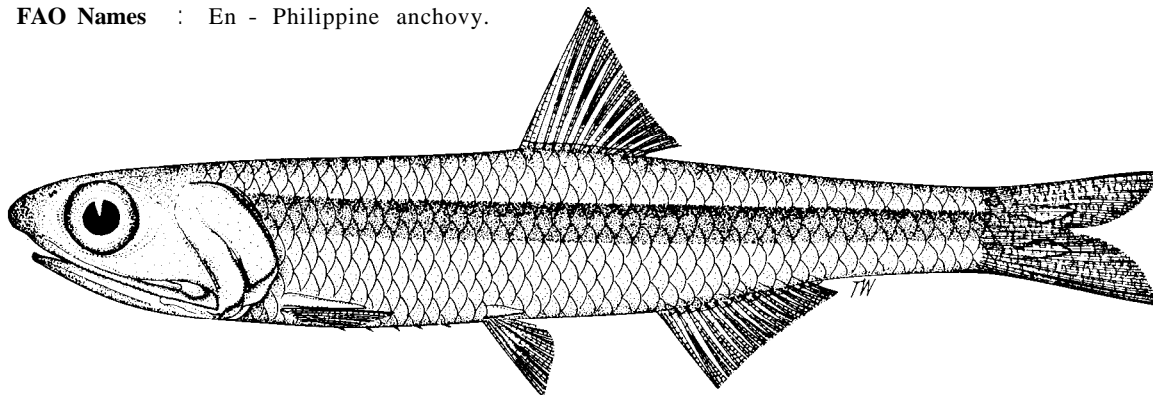
Encrasicholina oligobranchus (Wongratana, 1983)

ENGR Encras 5

Stolephorus oligobranchus Wongratana, 1983, Japan J. Ichthyol., 29(4):397 fig.15 (Manilla Bay, the Philippines).

Synonyms : Stolephorus Species B:Ronquillo, 1970:16 (the Philippines, also Taiwan - incorrect); Stolephorus oligobranchus:Wongratana, 1980:430, fig. (revision; name not validly published); Idem., 1985:27, fig.10 (key).

FAO Names : En - Philippine anchovy.



Diagnostic Features : Body rather cylindrical, belly rounded, with 5 sharp needle-like pre-pelvic scutes. Maxilla tip pointed, projecting beyond second supra-maxilla and not quite reaching to sub-operculum. Isthmus short, preceded by a small bony plate on urohyal between branchial membranes. Lower gillrakers 17 or 18. Anal fin short, with iii 15 finrays. No other species has so few gillrakers (cf. 20 to 30); otherwise it most closely resembles E. devisi.

Geographical Distribution : Manila Bay, the Philippines. The Taiwan record of Ronquillo (1970) was perhaps based on Anchoviella zollingeri of Fowler (1941d), which seems to have been E. punctifer.

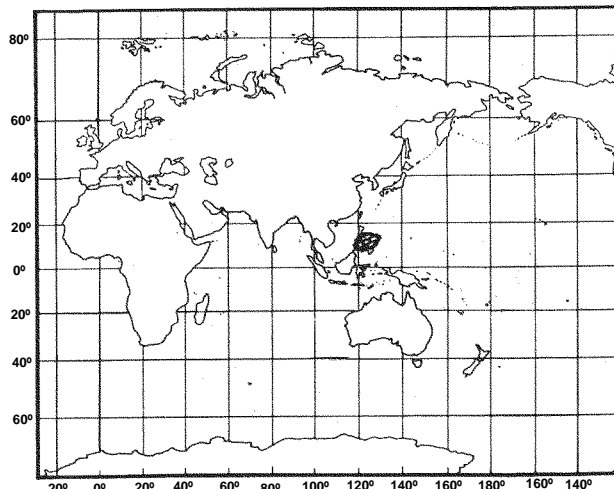
Habitat and Biology : Marine, pelagic and presumably schooling, although the three type (and only known) specimens were caught after 20 months of sampling; evidently rare.

Size : To 6.2 cm standard length.

Interest to Fisheries : Apparently none.

Local Names :

Literature : Baldwin (1984 - Fijian baitfish).



Encrasicholina punctifer Fowler, 1938

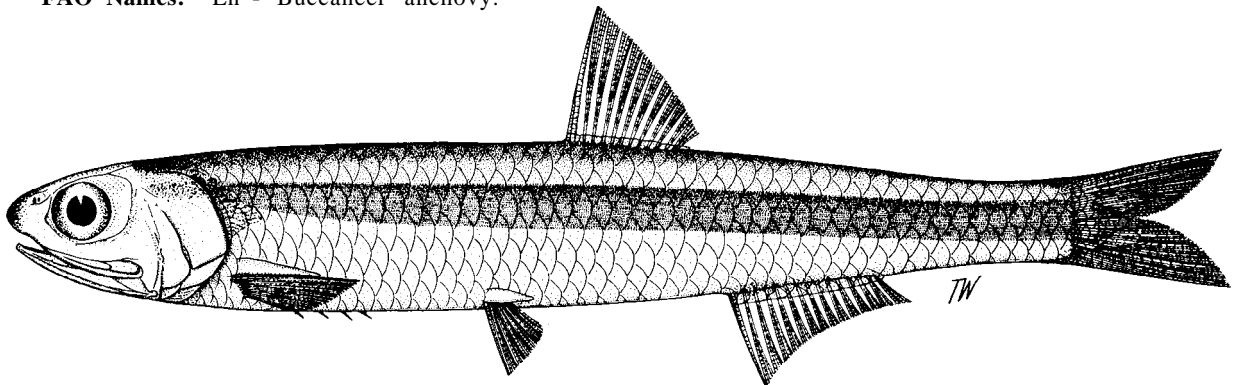
ENGR Encras 2

Formerly ENGR Stol 2

Encrasicholina punctifer Fowler, 1938, *Monogr.Acad.nat.Sci.Philad.*, 2:158, fig.13 (Fare Bay, Society Islands).

Synonyms : *Stolephorus buccaneeri* Strasburg, 1960, *Pacific Sci.*,14:396 (Hawaii); Whitehead, 1965b:268 (Suez, the "Gulf"); Losse, 1968:105 (East Africa); Whitehead, 1968a:17 (Comoro Islands); *Idem*, 1973b:222, fig.44 (synopsis); Ozawa & Tsukuhara, 1973:151 (western Pacific, biology); Tiews, Ronquillo & Santos, 1975:97 *et seq.* (the Philippines, biology); Wongratana,1980:224, pls 188,189 (revision); *Stolephorus punctifer*:Lewis, Smith & Ellway, 1983:16 (Papua New Guinea to Tahiti); Wongratana, 1985:27, fig.7 (key); SFSA, 1986:206, fig.55.4 (south to St. Lucia, perhaps to Durban); *Stolephorus zollingeri*:Weber & de Beaufort, 1913:44 (Lombok, Nusa Laut); Hardenberg, 1934:326, fig.8 (Ambon, Manado, Puger); Fowler, 1941d:700 (the Philippines); Shen, 1959:29 (Taiwan); Hayashi & Tadokoro, 1962a:26 (Japan); *Idem*, 1962b:30 (catches; compared with *Engraulis*); *Encrasicholina punctifer*-Nelson, 1983:53, table 2 (vertebrae) (relation to *Engraulis*; first placement in *Encrasicholina*).

FAO Names: En - Buccaneer anchovy.



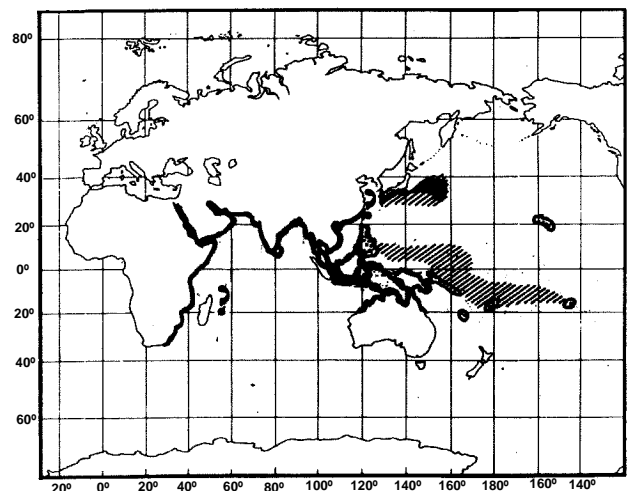
Diagnostic Features : Body rather cylindrical, belly rounded, with 3 to 6 (usually 4 or 5, rarely 2 or 7) sharp needle-like pre-pelvic scutes. Maxilla tip blunt, scarcely projecting beyond second supra-maxilla, not reaching to front border of pre-operculum. Isthmus short, preceded by small fleshy plate on urohyal between branchial membranes. Lower gillrakers usually 23 to 26. Anal fin short, with usually iii 13 or 14 finrays, its origin behind base of last dorsal finray. Resembles *E. purpurea* of Hawaii, which has more gillrakers (usually 26 to 29), a longer maxilla and either lacks scutes or has them very poorly developed. Other species of *Encrasicholina* have a hard, bony urohyal plate and a maxilla tip projecting beyond the second supra-maxilla. Species of *Stolephorus* have a long isthmus reaching to the margin of the branchial membrane; also, anal fin origin below dorsal fin base. See ENGR Stol 2, Fishing Area 51, also Fishing Areas 57/71.

Geographical Distribution : Widespread in the Indian Ocean (entire coast of East Africa, from the "Gulf" and Red Sea south to perhaps Durban, but not yet Madagascar; coasts of Pakistan and India, probably also Burma) and equally widespread in western Pacific (Indonesia, Thailand, the Philippines, China north to southern Japan; northern and eastern coasts of Australia southward to at least Brisbane; eastward from Japan to at least 155°W, southward to Hawaii, and as far east as the Solomons, Fiji, Samoa and Tahiti).

Habitat and Biology : Marine, pelagic and schooling, inshore but also oceanic and hundreds of miles from land. A detailed biological study is needed.

Size : To 8.5 cm standard length (to 13 cm total length *vide* Tiews, Ronquillo & Santos, 1971:112).

Interest to Fisheries : Said to comprise up to 22% of the Philippine "*Stolephorus*" catch (Tham, 1972) and probably makes a significant contribution elsewhere in its wide range. Considered "arguably the most attractive anchovy for bait" by Lewis, Smith & Ellway (1983:16).



Local Names : JAPAN: Taiyo tarekuchi, Taiwan ainoko iwashi; TAIWAN ISLAND: Taiwan'ainoko.

Literature : Strasburg (1960 - separation from E. purpurea), Hayashi & Tadokoro (1962b - Separation from Engraulis), Tham (1970 - fisheries), Ozawa & Tsukahara (1973 - larvae, brain, variation), Miller, Watson & Leis, 1979 (Hawaii, larvae), Baldwin (1984 - Fijian baitfish).

Remarks : It is unfortunate that this well-known and widely distributed anchovy should now acquire a completely different name, both for the genus and the species.

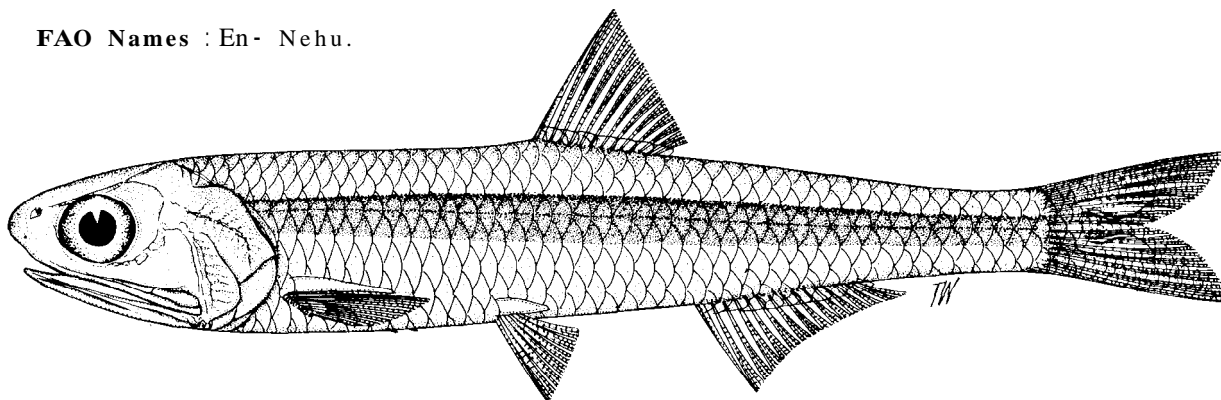
Encrasicholina purpurea (Fowler, 1900)

ENGR Encras 3

Engraulis purpurea Fowler, 1900, Proc.Acad.nat.Sci.Philad.: 497, fig.1 (Hawaiian Islands).

Synonyms : Anchovia purpurea:Jordan & Evermann, 1903:49, fig.12 (Honolulu, Hilo, Kailua); Anchoviella purpurea:Fowler, 1941d:699 (Hawaiian Islands); Stolephorus purpureus:Gosline & Brock, 1960:96, fig.54 (synopsis); Nakamura, 1970:425 et seq. (biology); Tinker, 1978:69, photo (synopsis); Miller, Watson & Leis, 1979:17, figs 19-26, 28 (larvae illustrated, references); Wongratana,1980:223, pls 186,187 (revision); Idem, 1985:27, fig.6 (key); Encrasicholina purpurea-Nelson, 1983:52,53, table 2 (vertebrae) (first placement in Encrasicholina; relation to Engraulis).

FAO Names : En- Nehu.



Diagnostic Features : Body rather cylindrical, belly rounded, most specimens without pre-pelvic scutes, but some with 1 to 5 thin needle-like scutes. Maxilla tip blunt, reaching to front border of pre-operculum, but scarcely projecting beyond second supra-maxilla. Isthmus short, preceded by a small fleshy plate on urohyal between branchial membranes. Lower gillrakers usually 26 to 29. Anal fin short, with usually iii 13 to 15 finrays, its origin behind base of last dorsal finray. Resembles E. punctifer (sympatric in Hawaii), which has fewer gillrakers (23 to 26), a shorter maxilla (not to pre-operculum) and 3 to 6 well developed scutes. Other species of Encrasicholina have a hard, bony urohyal plate and a maxilla tip projecting beyond the second supra-maxilla. Species of Stolephorus have a long isthmus reaching to the margin of the branchial membrane; also, anal fin origin below dorsal fin base.

Geographical Distribution : Central Pacific (Hawaiian Islands only; its use as a baitfish may spread its range).

Habitat and Biology : Chiefly marine, pelagic and schooling, living close inshore and entering bays, inlets, estuaries, canals and even penetrating into fish ponds, thus able to tolerate a wide range of salinities (unlike E. punctifer). Feeds mainly on planktonic crustacean larvae. Breeds throughout the year, with a peak in summer, spawning at night (between 22:00 and 02:00 hours) in bays and estuaries.

Size : To 6 cm standard length (Wongratana, 1980) or 7.5 cm (Nakamura, 1970).

