CHAPTER III

RESULTS

To show the rank or classification of the ponyfishes and silver-biddies form class to genera, the following taxa are drawn from the classical works of Greenwood *et al.* (1966) and Nelson (1984).

Class Osteichthyes

Subclass Neopterigii

Order Perciformes

Suborder Percoidei

Family Leiognathidae

Genus *Gazza*

Genus *Leiognathus*

Genus *Secutor*

Family Gerreidae

Genus *Gerres*

Genus *Pentaprion*

Key to families of Leiognathidae and Gerreidae

1. Top of head with bony ridge and forming nuchal spine (Fig.1a); scale small ; branchiostegal rays 5 ;

Fig. 1a

dorsal fin with 8 spines and 16-17 soft rays ; anal fin with 3 spines and 14 soft rays.... Leiognathidae

2. Top of head smooth (Fig.1b); scales large; branchiostegal rays 6 ; dorsal with 9 spines and 9-15 soft rays; anal with 3-6 spines and 7-13 soft rays... Gerreidae

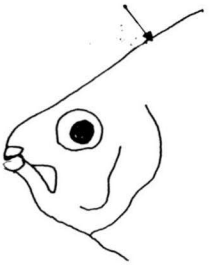

Fig. 1b

Key to genera and species of the family Leiognathidae occuring in Thai waters

1a. Teeth large, canine teeth present anteriorly in each jaw(Fig.2a)...*Gazza minuta*

1b. Teeth small and weak, no canine teeth present(Fig.2b) 2

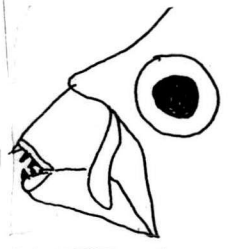

Fig. 2a

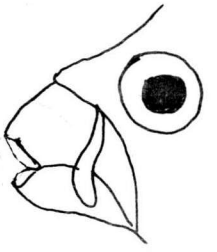

Fig. 2b

2a. Mouthpart protracts upward (Fig.3a);lower jaw ascends at angle of approximately 85°-90° when mouth closed (Fig.4a) ; ventral profile of body more convex than dorsal profile.... *Secutor* 3

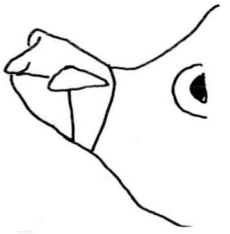

Fig. 3a

2b. Mouthpart protracts forward to downward (Fig.3b); lower jaw ascend at angle of approximately 40°-70° when mouth closed (Fig.4b) ; ventral profile of body similar to or less convex than dorsal profile..... ..... *Leiognathus*....5

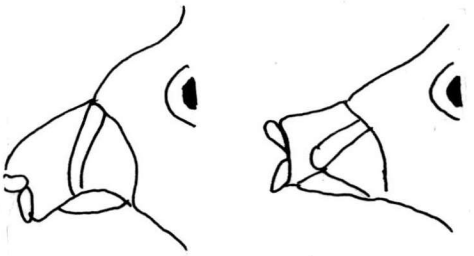

Fig. 3b

3a. Body depth 1.6-2.0 in standard length, 28-57 tubed scales on lateral line, 19-24 gill rakers.. 4

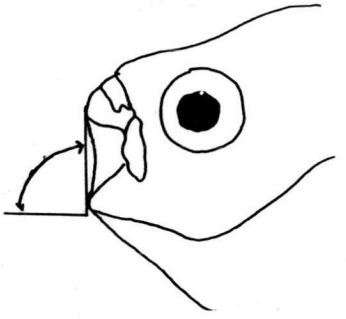

Fig. 4a

3b. Body depth 2.2-2.3 in standard length, 80-90 tubed scales on lateral line, 23-28 gill rakers.. ..... *S. indicius*

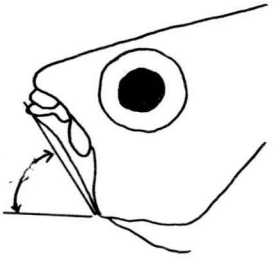

Fig. 4b

4a. Body depth 1.6-1.9 in standard length, 28-32 tubed scales on lateral line..... *S. ruconius*

4b. Body depth 1.9-2.0 in standard length, 47-57 tubed scales on lateral line..... *S. insidiator*

5a. Body depth more than 3 in

standard length, suborbital scaly (Fig. 5a)..... ..... *L. elongatus*

5b. Body depth less than 3 in standard length, suborbital naked (Fig. 5b)..... 6

6a. Breast scaly (Fig.6a)... 7

6b. Breast naked (Fig.6b)...12

7a. Body depth 1.7-2.0 in standard length..... 8

7b. Body depth 2.0-2.7 in standard length..... 9

8a. Body strongly compressed ; total gill rakers 19-23 ; dark vermiculations on sides dorsally... *L.bindus*

8b. Body thickened ; total gill rakers 23-28 ; faint, grey vertical lines on sides dorsally..... ..... *L. splendens*

9a. No dark saddle blotch on nape (Fig.7a)..... 10

9b. A dark saddle blotch on nape (Fig.7b)..... 11

10a. Second dorsal spine greatly produced (Fig.8a), its length nearly equal

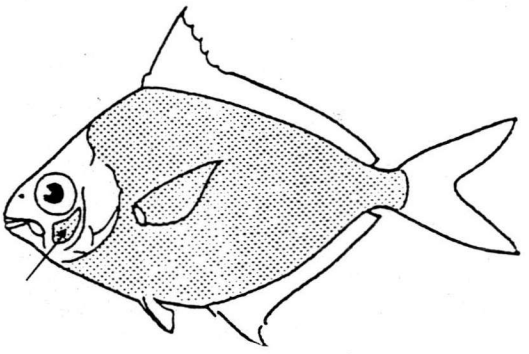

Fig. 5a

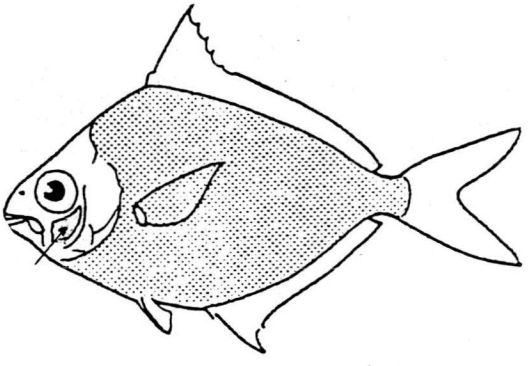

Fig. 5b

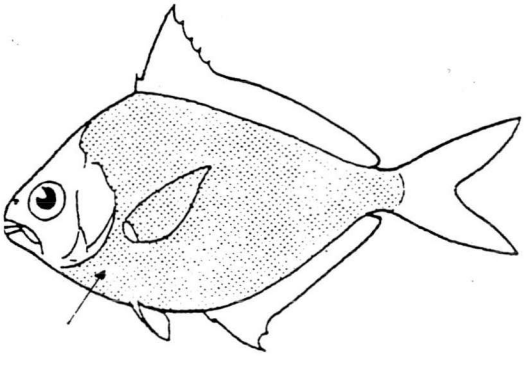

Fig. 6a

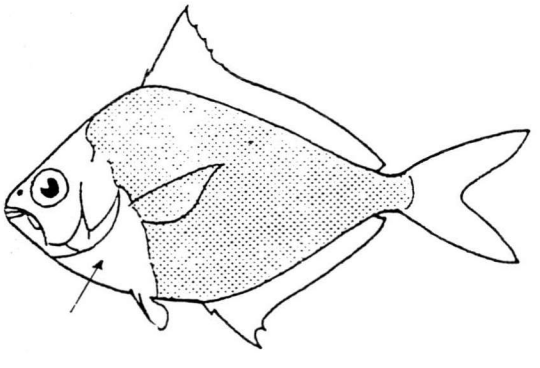

Fig. 6b

to body depth or longer...
..... *L. leuciscus*

10b. Second dorsal spine about half in height of body depth or nearly so (Fig.8b)....*L. lineolatus*

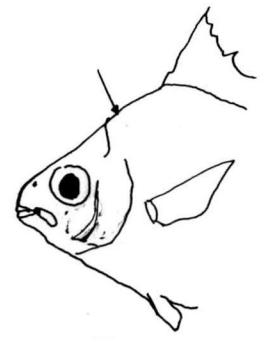

Fig. 7a

11a. Sides dorsally with irregular vertical lines extending down to about lateral line... *L. blochi*

11b. Sides dorsally with four longitudinal rows of broken lines, the lowermost one below lateral line.....
..... *L. pan*

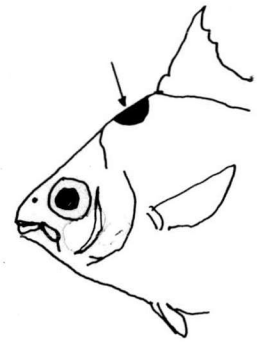

Fig. 7b

12a. Second dorsal spine greatly produced, its length nearly equal to body depth or longer ; a longitudinal series of yellow spots below lateral line..... 13

12b. Second dorsal spine about half in height of body depth or nearly so ; no series of yellow spots below lateral line.... 14

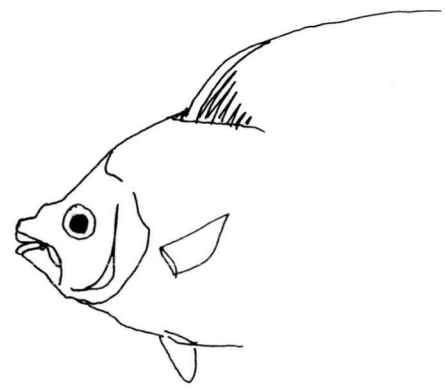

Fig. 8a

13a. Second anal spine not

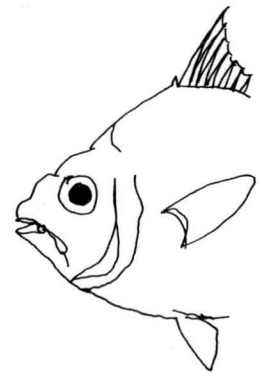

Fig. 8b

greatly produced (Fig.9a) (less than 50% of body depth) ; faint vertical lines on sides dorsally ..... *L. fasciatus*

13b. Second anal spine greatly produced (Fig.9b) (more than 60 % body depth); no faint vertical lines on sides dorsally..... ..... *L. smithursti*

14a. Second dorsal spine slightly produced and strong, its length about half of body depth ; a dark saddle blotch on nape, many irregular wavy to zig-zag lines on sides dorsally, golden-yellow patch on belly .... *L. brevirostris*

14b. Second dorsal spine not produced ; no dark saddle blotch on nape, markings on sides dorsally vertically arranged or absence, no golden-yellow patch on belly..... 15

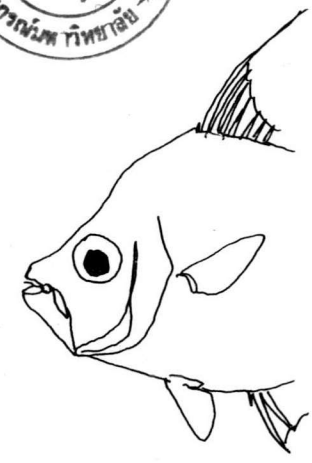

Fig. 9a

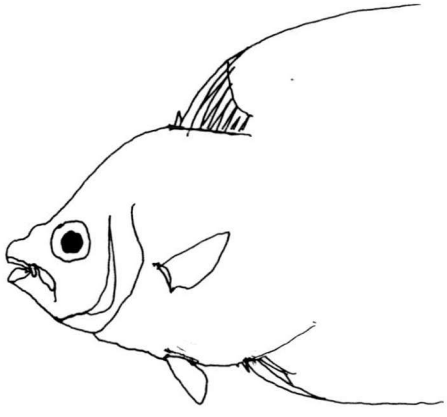

Fig. 9b

15a. Body depth 2.0-2.2 in standard length ; sides dorsally is grey-greenish, outer part of spinous dorsal fin black..... ..... *L. daura*

15b. Body depth 1.7-1.8 in standard length ; many close-set vertical lines extending from dorsal profile to below lateral line, spinous dorsal fin hyaline..... *L. equulus*

Family Leiognathidae

Small to medium-sized fishes with oblong or round bodies, moderately to strongly compressed. Top of head with bony ridges and a well developed nuchal crest or spine; mouth strongly protrusible, gape of mouth, horizontal or oblique. A single dorsal fin with 8 spines and 16 or 17 soft rays; anal fin with 3 spines and 14 soft rays; first dorsal and anal spine minute, second dorsal spine usually longest; caudal fin deeply emarginate to forked. Body covered with small, smooth cycloid, usually thin and easily sheded; top of head scaleless (except on *L. elongatus* with scales on suborbital); gill membrane attached to isthmus ; 5 branchiostegal rays ; vertebrae 10+14.

Color : silvery, upper half and fin usually with some dusky patterning.

All species so far examined posses with a light-producing organ (containing symbiotic luminous bacteria), which surrounds the distal end of the oesophagus (Haneda and Tsuji, 1972 ; McFall-Ngai and Dunlap, 1984) that may function in feeding, defense, and reproduction (Dunlap, 1984).

Little work has been published on the biology of leiognathids and most of current knowledge relates to studies under taken in India and the Philippines. Dietary studies have been carried out by Kuthalingham (1958), Venkataraman (1960), Balan (1963) and Tiews *et al.* (1968). These studies indicate that leiognathids feed on a variety of zoo-and phytoplankton, although some species also comsume substantial quantities of benthic organisms. They have short life-span (possibly 1-2 years) and an extended spawning season (Jones, 1985).

Ekman (1953) stated that fish of the family Leiognathidae is one of the groups of the tropical marine fauna used to occured in the eastern Atlantic region and western Pacific during the Miocene but now occur only in the western Indo-Pacific.

Leiognathids are bottom-living fishes in shallow

coastal waters, with several species entering brackish waters, especially river estuaries. Usually no separate statistics by species are collected for this family. The total catch of ponyfishes reported from fishing area 51 (western central Pacific) exceeded 7,500 tons in 1980 (FAO, 1984). Most are commonly marketed dried salted. In some areas, they are usually used for fishmeal.

Gazza Rüppell, 1835

Gazza Rüppell, 1835, Neue Wirbelth. Fische, 3 (type-species *Gazza equulaeformis* Rüppell)

Diagnosis : body oval, compressed . Mouthpart protracts forward ; lower jaw ascends at angle of approximately 55°-60° when mouth closed ; 2 antero-orbital spines, immediately above the eye and opposite its front margin, the outer larger than the inner. Caniniform teeth present in both jaws, situated at the symphysis in upper jaw and on the side in lower jaw, not concealed by premaxilla ; dorsal and ventral profiles of body approximately equal (Jones, 1985).

Leiognathus Lacepède, 1803

Leiognathus Lacepède, 1803, Hist. Nat. Poiss., 4:448 (type-species *Leiognathus argenteus* Lacepède, 1803)

Equula Cuvier, 1817, Règne Animal., 2:223

(type-species : *Scomber equula* Forsskål)

Equulites Fowler, 1904, J. Acad. Nat. Sci. Philad., 2(12):513 (type-species *Leiognathus vermiculatus* Fowler).

Eubleekeria Fowler, 1904, Ibid., 2(12): 516 (type-species *Equula splendens* Cuvier, 1829).

Aurigequula Fowler, 1918, Proc. Acad. Nat. Sci. Philad., 52:17 (type-species *Clupea fasciata* Lacepède, 1803).

Macilentichthys Whitley, 1932, Mem. Queensland Mus., 10:99, 114 (type-species *Macilentichthys popei* whitley).

Diagnosis : body oval or oblong. Mouthpart protracts forward to downward : lower jaw ascends at angle of approximately 40^{o}-70^{o} when mouth closed : 2 antero-orbital spines which may be fused superficially to resemble broad blade ; teeth usually arranged in villiform band in each jaw or sometimes in single row of uniform conical teeth ; teeth not concealed by rim of premaxilla; dorsal and ventral profiles of body usually approximately equal, or dorsal profile more convex than ventral profile (Jones,1985).

Secutor Gistel, 1848

Secutor Gistel, 1848, Nat. Thier., 9 (type-species *Zeus insidiator* Bloch, 1787).

Deveximentum Fowler, 1904, J. Acad. Nat. Sci. Philad., 517 (type-species *Zeus insidiator* Bloch, 1787)

Diagnosis : body oval and deep. Mouthpart protracts upward ; lower jaw ascends at angle of approximately 85^{o}-90^{o} when mouth closed; 1 antero-orbital spine; teeth minute, arranged in 1-2 irregular rows; teeth of upper jaw concealed behind rim of premaxilla; ventral profile of body more convex than dorsal profile (Jones,1985).

***Gazza minuta* (Bloch, 1797)**

(Fig.6; Tbls.1-3)

Common names

Toothpony, Slimy, Slipmouth, Soapy (Banasopit & Wongratana, 1967; FAO, 1984)

แปบทะเล (เธียร บรรฒโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Scomber minutus Bloch, 1797, Ichthyol., 429.

Zeus argentarius Bloch & Schneider, 1801, Syst. Ichthyol., 96.

Gazza equulaeformis Ruppell, 1835, Neue. Wirbelth. Fische., 4.

Equula minuta Valenciennes in Cuvier & Valenciennes,

1835, Hist. Nat. Poiss., 10:88.

Equula dentex Valenciennes in Cuvier & Valenciennes, 1835, Ibid., 10:91.

Gazza minuta Bleeker, 1851, Nat. Tijdschr. Ned. Ind., 2:213.

Gazza tapeinosoma Bleeker, 1853, Nat. Tijdschr. Ned. Ind., 4:260.

Leiognathus (Gazza) minutus Bleeker, 1879, Verh. Akad. Amsterdam. 19.

Materials examined

(61:34.7-145.5 mm S.L.)

KUMF: 2503 (2:38.0-83.0 mm S.L.), Ban Phae, Rayong, Jan. 1974, Thaveep and partners.

MSD-CU: uncat. (2:86.0-126.0 mm S.L.), Ban Don, Surat Thani, 10 Apr. 1989, S. Premcharoen.
uncat. (2:34.7-36,0 mm S.L.), Pattani fish port, 14 Apr. 1989, S. Premcharoen.
uncat. (4:89.0-107.0 mm S.L.), Kantang Trang, 6 May 1989, S. Premcharoen.
uncat. (6:39.0-45.5 mm S.L.), Krabi market, 7 May 1989, S. Premcharoen.
uncat. (12:92.0-121.2 mm S.L.), Phuket market, 9 May 1989, S. Premcharoen.
uncat. (4:80.0-140.0 mm S.L.), Phuket market, 26 Oct. 1989, S. Premcharoen.
uncat. (1:145.0 mm S.L.), Prachuap Khiri

Khan, Nov. 1989, S. Ananpongsook.

uncat. (2:88.9-145.5 mm S.L.), Bangkok wholesale fish market, 10 Feb. 1990, S. Premcharoen.

uncat. (8:83.2-101.3 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.

uncat. (10:82.3-91.0 mm S.L.), Ban Phae, Rayong, 10 May 1990, S. Premcharoen.

uncat. (1:66.8 mm S.L.), Ban Phae, Rayong, 22 Oct. 1990, S. Premcharoen.

uncat. (3:36.0-113.5 mm S.L.), Phuket market, 29 Nov. 1990, S. Premcharoen.

NICA : 0930 (1:85.0 mm S.L.), Songkla, 2 Aug.1982, collector unknown.

PMBC : 3468(1:134.0 mm S.L.), Phuket, 21 Apr.1972, D.M. Carlson.

3479(1:102.0 mm S.L.), Phuket, 14 Aug.1972, D.M Carlson.

5423 (1:98.0 mm S.L.), Phuket, 1 June 1985, W. Pokapunt.

Diagnosis

Body oval, moderately deep; dorsal and ventral profiles equally convex, its depth contained 2.2-2.3 times in standard length. Breast and suborbital naked . The median portion of nuchal spine is elevated as a ridge before the border of eyes . Second spine of dorsal

and anal fins not elongated. Protracted mouthparth points forward ; upper jaw with 2 symphysial canines, teeth in lower jaw becoming caniniform anteriorly . Gill rakers approximately equal in length to corresponding gill lamellae, total gill rakers 17-20. Tubed scales on lateral line 45-51.

Color : silvery, upper half greyish with bronze wavy lines; dorsal fin with some black speckling, soft dorsal and anal fins edged with grey ; other fins colorless.

Remarks

Gazza minuta is the only species representing the genus in Thai waters, although *G. minuta* can be distinguished from *G. achlamys* by the presence of scales anterior to a line from the front of the soft dorsal fin to the pectoral base in *G. minuta* (naked in *G. achlamys*) and usually by the more elongate body shape, finer serrations on the lower limb of the pre-opercle and larger tooth size (Jones, 1985)

***Leiognathus bindus* (Valenciennes, 1835)**

(Fig.7; Tbls.1-3)

Common names

Orangefin ponyfisn, Slipmouth (Banasopit &

Wongratana, 1967; FAO, 1984)

แป้นกระดาน, แป้นครีบเหลือง (เธียร บรรฌโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Equula bindus Valenciennes in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:78.

Equula bindoides Bleeker, 1851, Nat. Tijdschr. Ned. Indie., 1:372.

Leiognathus virgatus Fowler, 1904, J. Acad. Nat. Sci. Philad., 12:515.

Leiognathus bindus Weber & de Beaufort, 1931, Fish Indo-Austr. Archip., 6:334-335.

Equulites bindus Munro, 1967, The fishes of New Guinea, 240.

Materials examined

(74:34.0-100.0 mm S.L.)

KUMF : 2330 (1:74.0 mm S.L.), Chumphon, 29 May 1923, H.M. Smith.

2797 (1:42.6 mm S.L.), Phuket, 6-20 Nov. 1925, H.M. Smith.

MSD-CU : uncat. (1:64.3 mm S.L.), Ang Sila fish landing, Chon Buri, 18 Dec. 1988, S. Premcharoen.

uncat. (2:44.7-48.0 mm S.L.), Pattani

fish port, 15 Apr. 1989, S. Premcharoen.
uncat. (2:67.0-67.5 mm S.L.), Kantang, Trang, 6 May 1989, S. Premcharoen.
uncat. (8:61.4-84.5 mm S.L.), Phuket market, 9 May 1989, S. Premcharoen.
uncat. (1:34.0 mm S.L.), Ranong fish port, 22 Oct. 1989, S. Premcharoen.
uncat. (2:43.4-68.5 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.
uncat. (41:37.0-61.0 mm S.L.), Ban Phae Rayong, 10 May 1990, S. Premcharoen.
uncat. (12:40.1-85.0 mm S.L.), Phuket market, 29 Nov. 1990, S. Premcharoen.

PMBC : 5426 (2:74.9-100.0 mm S.L.), Phuket, 3 June 1985, W. Pokapunt.

Diagnosis

Body deep and strongly compressed, particularly the lower part; ventral profile at least equally convex as dorsal profile, its depth contained 1.8-1.9 times in standard length. Breast fully scaled, suborbital naked . The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Second spine of dorsal and anal fins not elongated. Protracted mouthpart points forward to slightly downward; single row of irregular small conical teeth in each jaw . Gill rakers long and slender, approximately equal in length to corresponding gill lamellae, total gill

rakers 19-23. Tubed scales on lateral line 45-49.

Color : silvery, upper half with dark vermiculations; outer half of spinous dorsal fin pale yellow to bright orange; faint yellow on basal part of spinous anal fin membrane.

Remarks

L. bindus sometimes may resembles *S. ruconius* in general body shape, but can readily be distinguished from it by having forward protracting mouthparts, two antero-orbital spines, and suborbital naked.

L. virgatus of Fowler (1904) has been commented upon and compared with *L. bindoides* of Bleeker (1865) by Weber & de Beaufort (1931). The two species should be synonymous with *L. bindus*.

***Leiognathus blochi* (Valenciennes, 1835)**

(Fig.8; Tbls.1-3)

Common name

Two bloch ponyfish, Slipmouth (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นคอดำ (เธียร บรรฒโศภิษฐ์ และ ทศพร วงศ์รัตน์, 2510)

Synonyms

Equula blochii Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:84.

Leiognathus (Eubleekeria) spilotus Fowler, 1904, J. Acad. Nat. Sci. Philad., 12(2):516.

Leiognathus blochii Seale, 1910, Philippine J.Sci., 5:273.

Leiognathus blochi Herre, 1953, Fishes 1936-37 and 1940-41 Exped., U.S. Fish. & Wildl. Serv. Res. Rep.,20:291.

Materials examined

(3:47.6-60.8 mm S.L.)

MSD-CU : uncat. (2:50.0-60.8 mm S.L.), Krabi market, 7 May 1989, S. Premcharoen.
uncat. (1:47.6 mm S.L.), Trat, 27 May 1989, S. Premcharoen.

Diagnosis

Body oval, compressed and rather elongated ; the dorsal and ventral profiles equally convex, its depth contained 2.3-2.6 times in standard length. Breast fully scaled, suborbital naked . The median portion of nuchal spine is elevated as a ridge immdiately above the eyes. Second spine of dorsal and anal fins not elongated. Protracted mouthpart points downward ; narrow band of

villiform teeth in each jaw . Gill rakers slender, more than half length of corresponding gill lamellae, total gill rakers 19-21. Tubed scales on lateral line 54-58.

Color : silvery, upper half with dark, irregular vertical lines, distinct brown blotch across nape (persistent in preserved material). The dorsal fin membrane from about half its height to tips of second to fifth spines black ; soft part of dorsal and anal fins, as well as caudal fin, yellow with grey edge ; other fins colorless.

Remarks

Jones (1985) stated that *L. blochi* resembles *L. brevirostris* in general body form and in having a brown blotch across the nape, but can easily be distinguished from it by the presence of scales on the breast.

L. blochi and *L. brevirostris* were dealt with separately by Valenciennes (1835). Day (1876) gave separate descriptions of the species but commented in the account of *L. brevirostris* that they may be varieties of a single speccies. He chiefly distinguished them on the presence (in *L. blochi*) or obsence (in *L. brevirostris*) of scales on breast.

Leiognathus brevirostris (Valenciennes, 1835)

(Fig.9; Tbls.1-3)

Common names

Shortnose ponyfish, Slipmouth (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นจมูกสั้น (เธียร บรรฉโศภิษฐ์ และ ทศพร วงศ์รัตน์, 2510)

Synonyms

Equula brevirostris Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:83.

Leiognathus brevirostris Weber & de Beaufort, 1931, Fish Indo-Austr. Archip., 6:330-331.

Materials examined

(174:16.2-106.0 mm S.L.)

MSD-CU : uncat. (4:37.5-64.7 mm S.L.), Ban Laem, Petchaburi, 8 Jan. 1989, S. Premcharoen.
uncat. (25:38.4-100.0 mm S.L.), Paknam, Samut Prakhan, 19 Nov. 1988, S. Premcharoen.
uncat. (21:54.6-95.5 mm S.L.), Ang Sila fish landing, Chon Buri, 27 Nov. 1988, S. Premcharoen.
uncat. (1:64.0 mm S.L.), Songkla fish

port, 12 Apr. 1989, S. Premcharoen.

uncat. (12:37.5-80.2 mm S.L.), Pattani fish port 1989, S. Premcharoen.

uncat. (10:44.2-81.2 mm S.L.), Ban Don, Sarat Thani, 15 Apr.1989, S. Premcharoen.

uncat. (19:19.0-65.6 mm S.L.), Trat, 27 May 1989, S. Premcharoen.

uncat. (7:41.0-62.3 mm S.L.), Klung, Chanthaburi, 2 Sep. 1989, S. Premcharoen.

uncat. (5:56.2-73.0 mm S.L.), Ban Don, Surat Thani, 8 Sep. 1989, S. Premcharoen.

uncat.(19:36.2-75.2 mm S.L.), Bang Pakong, Chachoengsao, 9 Oct. 1989, S. Premcharoen.

uncat. (2:59.0-68.2 mm S.L.), Kantang, Trang, 28 Oct. 1989, S. Premcharoen.

uncat. (5:23.3-90.0 mm S.L.), Sutun market, 29-30 Oct. 1989, S. Premcharoen.

uncat.(2:62.0-67.0 mm S.L.), Surat Thani market, 8 Nov. 1989, S. Premcharoen.

uncat. (1:71.3 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.

uncat. (29:16.2-70.0 mm S.L.), Trat, 28 Apr. 1990, S. Premcharoen.

uncat. (9:43.0-106.0 mm S.L.), Trat, 30 June 1990, S. Premcharoen.

NICA : 0928 (3:50.0-85.7 mm S.L.), Songkla fish port, 31 Aug. 1982, P. Sirimontraporn.

Diagnosis

Body oval and compressed ; dorsal and ventral profiles equally convex its depth contained 2.1-2.4 times in standard length. Breast and suborbital naked . The median portion of nuchal spine is elevated as a ridge before the border of eyes . Second spine of dorsal and anal fins not elongated (second dorsal spine approximatey half body depth). Protracted mouthpart points downward; narrow band of villiform teeth in each jaw. Gill raker slightly less than half length of corresponding gill lemellae, total gill rakers 16-21. Tubed scales on lateral line 48-60.

Color : silvery, upper half with irregular dark brown wavy to zig-zag vertical lines ; brown blotch across nape (blotch fading in preserved material), golden-yellow patch on belly. Outer half of spinous dorsal and anal fins yellow, color continued along margins of rays, caudal fin with dusky yellow margin; other fins colorless.

Remarks

L. brevirostris resembles *L. blochi* in general body from and in having a brown blotch across the nape, but can distinguished from it by the absence of scales on the breast. Preserved specimens of *L. brevirostris* that have lost the blotch may resemble *L. equulus*, but can usually be distinguished from them by the

differences in body proportions. (Jones, 1985)

According to Day (1876), "*Equula nuchalis* Temminck & Schlegel is very similar to but dorsal and anal spines appear to be usually shorter but this again is subject to considerable variation".

Leiognathus daura (Cuvier, 1829)

(Fig.10; Tbls.1-3)

Common names

Goldstripe ponyfish, Black-finned slipmouth, Slimy, Soapy (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นกะโดงดำ, แป้นแถบเหลืองทอง (เธียร บรรฒโศภิษฐ์ และ ทศพร วงศ์รัตน์, 2510)

Synonyms

Equula daura Cuvier, 1829. Règne Anim., 2:212.

Equula dacer Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss.,10:83.

Equula brevirostris Bleeker, 1845, Nat. & Gencesk. Arch. Ned. Indii, 3(2):518.

Equula gerreoides Bleeker, 1851. Nat. Tijdschr. Ned. Indii, 1:371.

Leiognathus gerreoides Bleeker, 1865, Ned.Tijdschr. Dierk., 2:174.

Leiognathus daura Fowler, 1927, Proc. Acad. Nat. Sci. Philad., 79:273.

Materials examined

(24:33.0-95.5 mm S.L.)

KUMF : 2316 (1:91.0 mm S.L.), Chanthaburi, 4 Jan. 1931. H.M. Smith.

2317 (7:33.0-57.3 mm S.L.), Chanthaburi, 20 Feb. 1934. N. Prayura.

2318 (1:82.5 mm S.L.), Surat Thani, 12 Sep. 1923, H.M. Smith.

MFL : uncat. (1:90.0 mm S.L.), Bangkok, date and collector unknown.

MSD-CU : uncat. (9:65.0-84.0 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.

uncat. (1:81.0 mm S.L.), Ban Phae, Rayong, 10 May 1990. S. Premcharoen.

uncat. (3:65.4-95.5 mm S.L.), Ban Phae, Rayong, 23 June 1990, S. Premcharoen.

NICA : 6402 (1:70.0 mm S.L.), Songkla, date unknown, A. Pongsuwun.

Diagnosis

Body rhomboid and compressed ; dorsal and ventral profiles about equally convex, its depth contained 2.0-2.2 times in standard length. Breast and suborbital

naked . The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Second spine of dorsal and anal fins not elongated. Protracted mouthpart points downward ; 1-2 rows of small blunt conical teeth in each jaw . Gill rakers more than half length of corresponding gill lamellae, total gill rakers 18-22. Tubed scales on lateral line 59-65.

Color : silvery, upper half grey-greenish ; black dots all over lower half of body ; a golden hue on dorsal half of body and on head. Distal half of membrane between second and sixth dorsal spines jet-black, a broad yellow band over the lateralline, which disappears when preserved ; distal half of anal fin golden yellow from second spine onward ; outer margin of lower caudal fin lobe yellow.

Remarks

This species can be distinguished from most members of the family by the romboid body profile , and distal half of membrane between second and sixth dorsal spines jet-black.

Weber & de Beaufort (1931) on examination and comparison of *Equula gerreoides* with *L. daura* concluded that the former is synonymous with the latter.

Leiognathus elongatus (Günther, 1874)

(Fig.11; Tbls.1-3)

Common names

Slender ponyfish, Elongated ponyfish, Slipmouth (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นแก้ว (เธียร บรรฒโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Equula elongata Günther, 1874, Ann. Mag. Nat. Hist., 14:369.

Leiognathus elongatus Smith & Pope, 1906, Proc. U.S. Nat. Mus., 31:466.

Leiognathus stercorarius Evermann & Seale, 1906, Bull. Bur. Fish., 24:67.

Materials examined

(62:43.8-94.2 mm S.L.)

MSD-CU : uncat. (2:45.0-86.2 mm S.L.), Pattani fish port, 14 Apr. 1989, S. Premcharoen.
uncat. (6:68.4-92.0 mm S.L.), Ban Don, Surat Thani, 10 Apr. 1989, S. Premcharoen.
uncat. (1:45.8 mm S.L.), Krabi market, 7 May 1989, S. Premcharoen.
uncat. (3:44.7-83.0 mm S.L.), Kantang,

Trang, 6 May 1989, S. Premcharoen.

uncat. (1:45.8 mm S.L.), Chon Buri, 21 Apr. 1990, T.Wongratana.

uncat. (25:44.4-92.5 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.

uncat. (10:43.8-94.2 mm S.L.), Ban Phae, Rayong, 10 May 1990, S. Premcharoen.

uncat. (8:57.0-71.0 mm S.L.), Ban Phae, Rayong, 23 June 1990, S. Premcharoen.

NICA : 1245 (1:75.5 mm S.L.), Songkla, 20 Apr. 1983, C. Suvantavee.

PMBC : 5410 (3:74.8-88.0 mm S.L.), Phuket, 4 June 1989, W. Pokapunt.

Diagnosis

Body elongated and slender, moderately compressed, its depth contained 3.1-3.4 times in standard length. Breast and suborbital fully scaled . The median portion of nuchal spine is elevated as a ridge above the eyes . Second spine of dorsal and anal fins not elongated. Protracted mouthpart points downward; 1-2 rows of small blunt conical teeth in each jaw . Gill rakers more than half length of corresponding gill lamellae, total gill rakers 15-19. Tubed scales on lateral line 48-55.

Color : silvery ; upper half with irregular brown marbling; horizontal yellow band at mid-height of

spinous part of dorsal fin; anal fin between second and third spines yellow ; other fines colorless, males have bluish longitudinal stripes on belly.

Remarks

This species is unique among all other species of the family in having scales on suborbital and head as well as depth of body more than 3 in standard length.

Weber & de Beaufort (1931) stated that *L. elongatus* and *L. stercorarius* are identically characterised and united these under the name *L. elongatus*.

***Leiognathus equulus* (Forsskål, 1775)**

(Fig.12; Tble.1-3)

Commom name

Common ponyfish, Common slipmouth, Greater pony fish, slimy, Silver belly (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นยักษ์, แป้นใหญ่ (เธียร บรรฌโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Scomber equula Forsskål, 1775, Descr. animal., 75.

Scomber edentulus Bloch, 1785, Naturgesch. Fische,

428.

Leiognathus argenteus Lacepède, 1803, Hist. Nat. Poiss., 4:448-449.

Equula ensifera Valenciennes in Cuvier & Valenciennes, 1835, Cat. Brit. Mus., 2:498.

Equula caballa Valenciennes in Cuvier & Valenciennes, 1835, Ibid., 10:73.

Equula edentula Günther, 1860, Cat. Brit. Mus., 2:498.

Leiognathus edentulus Bleeker, 1863, Ned. Tijdschr. Diesk., 1:235.

Equula equula Klunzinger, 1884, Fische Roth. Meer., 1:74.

Leiognathus obsaura Seale, 1901, Occas. Papers, Brish. Mus., 1:74.

Leiognathus equula Jordan & Starks, 1917, Ann. Carnegie Mus., 11:444.

Leiognathus equulus Weber & de Beaufort, 1931, Fish Indo-Austr. Archip., 6: 322.

Materials examined

(22:21.0-153.0 mm S.L.)

KUMF : 2323 (4:50.3-56.0 mm S.L.), Phatthalung, 5 July 1929, H.M. Smith.

2321 (1:76.4 mm S.L.), Surat Thani, 18 Sep. 1923, H.M. Smith.

MFL : uncat. (1:64.2 mm S.L.), Surat Thani, date

and collector unknown.

MSD-CU : uncat. (1:93.4 mm S.L.), Paknam, Samut Prakan, 19 Nov. 1989.

uncat. (2:50.2-53.6 mm S.L.), Ban Don, Surat Thani, 10 Apr. 1989.

uncat. (3:52.0-96.2 mm S.L.), Pattani fish port, 15 Apr. 1989.

uncat. (2:21.0-32.2 mm S.L.), Trat, 27 May 1989.

uncat. (1:49 mm S.L.), Ban Don, Surat Thani, 8 Sep. 1989.

uncat. (1:78.0 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990.

uncat. (4:81.5-152.0 mm S.L.), Phuket market, 29 Nov. 1990.

NICA : 233 (2:52.0-67.3 mm S.L.), Songkla fish port, 26-27 Sep. 1967, collector unknown.

Diagnosis

Body deep and compressed with a strongly humped back; its depth contained 1.7-1.8 times in standard length. Breast and suborbital naked . The median portion of nuchal spine is elevated as a ridge after or equal hind border of eyes. Second spine of dorsal and anal fins not elongated. Protracted mouthpart points doward ; narrow band of villiform teeth in each jaw ; gill rakers short and fleshy, less than half length of gill lamellae, total gill

rakers 18-22. Tubed scales on lateral line 61-66.

Color : Silvery, upper half with close-set faint grey-brown vertical lines. Membrane between anal fin spines conspicuously yellow ; caudal fin sometimes with pale yellow blotch on lower lobe; other fins colorless.

Remarks

This species resembles *L. fasciatus* in general body form and patterning but can be distinguished from it by the lack of elongation of the second dorsal spine,and by more numerous and narrower bands on sides dorsally.

Rofen (1963) stated that *L. equulus* are greatly abundant throughout the Gulf of Thailand, and the fishing season is primarily April to August.

Leiognathus fasciatus **(Lacepède, 1803)**

(Fig.13; Tbls.1-3)

Common names

Striped ponyfish, Banded ponyfish, Slipmouth (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นแถบ (เธียร บรรฉโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Clupea fasciata Lacepède, 1803, Hist. Nat. Poiss., 460, 463.

Equula filigera Cuvier, 1814, Mem. Mus. Hist. Nat., 1:402.

Equula longispinis Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:92.

Equula kara Valenciennes, in Cuvier & Valenciennes, 1835, Ibid, 10:95.

Equula fasciatus Valenciennes, in Cuvier & Valenciennes, Ibid., 10:96.

Leiognathus fasciatus Bleeker, 1863, Ned. Tijdschr. Dierk, 1:242.

Auriequula fasciata Fowler, 1908. Proc. Acad. Nat. Sci. Philad., 70:17.

Materials examined

(9:57.7-137.0 mm S.L.)

KUMF : 2326 (1:57.7 mm S.L.), Chantaburi, 20 Feb. 1937, N. Prayura.

MSD-CU : uncat. (2:85.0-89.9 mm S.L.), Phuket market, 9 May 1989, , S. Premcharoen.
uncat. (2:125.5-137.0 mm S.L.), Phuket market, 25 Oct. 1989, , S. Premcharoen.
uncat. (3:82.0-121.0 mm S.L.), Phuket market, 29 Nov. 1990, , S. Premcharoen.

NICA : 0210 (1:95.0 mm S.L.), Narathiwat, 15 Sep. 1984, collector unknown.

Diagnosis

Body deep and compressed, the back more strongly arched than anterior part of belly ; it depth contained 1.8-2.0 times in standard length. Breast and orbital naked . The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Second dorsal fin spine distinctly elongated. Protracted mouthpart points downward ; narrow band of villiform teeth in each jaw. Gill rakers short and fleshy less than half length of corresponding gill lamellae, total gill rakers 18-22. Tubed scales on lateral line 60-66.

Color : silvery, upper half with faint grey-brown vertical bars, sometimes breaking into spots laterally ; a few yellow blotches and fading gradually toward lower sides ; upper half spinous anal fin with faint yellow ; soft dorsal fin sometimes with pale yellow margin ; other fins colorless.

Remarks

This species resembles *L. smithursti* in general body shape and in having an elongated second dorsal spine, but is distinguished from it by the second anal

spine not being elongated, and in body pattern, by the presence of 10-15 vertical bars in *L. fasciatus*.

Weber & de Beaufort (1931) and Kühlmorgen-Hille (1968) stated that scales are present on the breast of *L. fasciatus* although very thin and diaphanous. In contrast, James (1975) stated that the breast of *L. fasciatus* in naked, which is consistant with the specimens examined during the present study.

Leiognathus leuciscus **(Günther, 1860)**

(Fig.14; Tbls.1-3)

Common name

Whipfin ponyfish, Ponyfish, Slipmouth (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นกะโดงยาว (เธียร บรรฉโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Equula leuciscus Günther, 1860, Cat. Brit. Mus., 2:503.

Leiognathus leuciscus Bleeker, 1865, Ned. Tijdschr. Dierk., 2:290.

Materials examined

(24:43.0-123.9 mm S.L.)

MFL : uncat. (2:54.6-113 mm S.L.), Ban Don, Surat Thani, date and collector unknown.

MSD-CU : uncat. (5:43.0-63.9 mm S.L.), Pattani fish port, 15 Apr. 1989.

uncat.(5:52.0-64.5 mm S.L.), Satun market, 30 Oct. 1989.

uncat. (1:56.0 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990.

uncat. (5:60.2-80.0 mm S.L.), Ban Phae, Rayong, 10 May 1990.

NICA : 0525 (1:82.2 mm S.L.), Songkla fish port, 1982, collector unknown.

PMBC : 5425 (5:93.0-123.9 mm S.L.), Phuket, 3 June 1985, collector unknown.

Diagnosis

Body compressed and rather elongated ; dorsal and ventral profiles almost equally convex, its depth contained 2.4-2.7 times in standard length. Breast fully scaled, subrobital naked . The median portion of nuchal spine is elevated as a ridge immdiately above the eyes. Second dorsal spine distinctly produced, and second anal spine slightly elongated. Protracted mouthpart points downward ; narrow band of villiform teeth in each jaw. Gill rakers approximately half length of corresponding gill lamellae, total gill rakers 16-19. Tubed scales on lateral

line 48-51.

Color : silvery, upper half with irregular grey-brown vermiculations ; a row of oval yellow blotches below lateral line ; spinous dorsal fin with yellow streak at mid-hight from fourth spine, continuing along margin of rays, soft anal fins with yellow margin ; other fin colorless.

Remarks

This species resembles *L. lineolatus* in general body form, coloration and elongation of the second dorsal spine, but can be distinguish from that species by its fully (rather than partly scaled breast) Although the second anal spine in *L. leuciscus* is of variable length, it is never greatly elongated in *L. lineolatus*.

Leiognathus lineolatus **(Valenciennes, 1835)**

(Fig.15; Tbls.1-3)

Common names

Ornate ponyfish (FAO, 1989)

แป้น

Synonyms

Equula lineolata Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:86.

Leiognathus lineolatus Bleeker, 1865, Ned. Tijdschr. Dierk., 2:290.

Equula novaehollandiae Steindachner, 1879, Denschr. Akad. Wiss. Wien., 41(1):11.

Leiognathus vermiculatus Fowler, 1904, Proc. Acad. Nat. Sci. Philad., 12(2):513.

Equulites novaehollandiae Munro, 1960, Fish. News letter (Aust.), 19(6):20.

Materials examined

(4:40.0-124.0 mm S.L.)

CUMNH : uncat. (1: 124.0 mm S.L.), Prachuap Khiri Khan, 1980, T. Wongratana.

MFL : uncat. (2:40.0-70.0 mm S.L.), off coast Prachuap Khiri Khan, 12 Dec. 1964, T. Wongratana.

NICA : 790(1:55.4 mm S.L.), Songkla, 18 Apr. 1984, collector unknown.

Diagnosis

Body compressed and rather elongated, dorsal and ventral profiles about equally convex, its depth contained 2.5-2.7 times in standard length ; anterior region of breast naked, but scales extending forward

onto breast below pectoral fin. The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Second spine of dorsal and anal fins not elongated. Protracted mouthpart points downward ; narrow band of villiform teeth in each jaw . Gill rakers approximately half length of corresponding gill lamellae, total gill rakers 17-18. Tubed scales on lateral line 51-54.

Color : silvery, upper half with irregular close-set grey-brown vermiculations and spots ; outer half of spinous anal fin yellow, margins of soft dorsal and anal fins yellow, other fins colorless.

Remarks

This species resembles *L. leucisus* (see p. under Remarks)

Leiognathus pan **Wongratana, 1988**

(Fig.16; Tbls.1-3)

Common names

Ponyfish

แป้น

Synonyms

Leiognathus pan Wongratana, 1988, Proc. Biol. Soc. Wash., 101(3):496-502.

Materials examined

(8:28.0-58.3 mm S.L.)

MSD-CU : uncat. (2:29.6-30.0 mm S.L.), Mahachai fish port, Samut Prakan, 5 Nov. 1988, S. Premcharoen.
uncat. (1:40.0 mm S.L.), Kantang, Trang, 28 Oct. 1989, S. Premcharoen.
uncat. (2:28.0-31.2 mm S.L.), Satun market, 29 Oct. 1989, S. Premcharoen.
uncat. (3:44.8-58.3 mm S.L.), Phuket market, 29 Nov. 1990, S. Premcharoen.

Diagnosis

Body slightly elongated and moderately compressed ; dorsal and ventral profiles evenly curved, its depth contained 2.6-2.7 times in standard length. Breast fully sealed, suborbital naked . The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Protracted mouthpart points downward ; narrow band of villiform teeth in each jaw . Gill rakers approximately equal in length to corresponding gill lamellae ; total gill rakers 16-17. Tubed scales on lateral line 49-52.

Color : silvery, upper half with four longitudinal rows of greenish blue spots or broken lines, the lowermost one below lateral line ; greenish-blue blotch across nape. Spinous dorsal fin with black blotch on upper half from second to sixth spines ; caudal fin with pale orange ; other fins colorless.

Remarks

This species is distinguished from the other species by having a prominent dark blotch on the nape, which is also present on other four congeners : *L. argentea* Houttuyn from China and Japan, *L. blochii* (Valenciennes) and *L. brevirostris* (Valenciennes) from India to the western central Pacific and Australia, and *L. nuchalis* (Temminck & Schlegel) from Japan, Chaina and Queensland. However, *L. argentea*, *L. brevirostris*, and *L. nuchalis* are readily distinguishable from the new species by lacking scales on the breast. *Leiognathus blochaii* and *L. spilotus*, doubtfully distinct from each other (Weber & de Beaufort 1931, James 1975), have scaly breasts and are separable from *L. pan* by not having interrupted dorsolateral streaks.

Leiognathus smithursti **(Ramsay & Ogilby, 1886)**

(Fig.17; Tbls.1-3)

Common names

Smithursti's ponyfish, Long-finned ponyfish, slipmouth (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นครีบยาว (เธียร บรรฒโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Equula smithursti Ramsay & Ogilby, 1886, Proc. Linn. Soc. N. S. Wales., 1(2):11.

Leiognathus smithursti Jordan & Seale 1905, (1906), Bull. Bur. Fish., 25:272-273.

Materials examined

(9:70.2-137.0 mm S.L.)

MSD-CU : uncat. (1:70.2 mm S.L.), Krabi market, 7 May 1989, S. Premcharoen.
uncat. (2:126.0-130.3 mm S.L.), Phuket market, 9 May 1989, S. Premcharoen.
uncat. (2:128.4-129.2 mm S.L.), Ranong fish port, 22 Oct. 1989, S. Premcharoen.
uncat. (1:125.5 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.
uncat. (2:127.0-137.0 mm S.L.), Phuket market, 29 Nov. 1990, S. Premcharoen.

NICA : uncat. (1:120.0 mm S.L.), Songkla, 16 Apr. 1983, K. Sookaphat.

Diagnosis

Body oval somewhat slender and compressed ; anterior part of dorsal profile more strongly arched than anterior part of ventral profile, its depth contained 1.8-1.9 times in standard length. Breast and suborbital naked . The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Second dorsal and anal fin spines greatly elongated. Protracted mouthpart points downward ; narrow band of villiform teeth in each jaw . Gill rakers short and fleshy, less than half length of corresponding gill lamellae, total gill rakers 18-21. Tubed scales on lateral line 64-66.

Color : belly more silvery than back which shows a few faint, unevenly spaced and horizontally elongated blotches ; a few blotches below lateral line ; soft anal fin yellow ; margin of soft dorsal fin yellow ; caudal fin with faint yellow ; other fins colorless.

Remarks

This species resembles *L. fasciatus* (see p.71 under Remarks).

There has been some confusions concerning the status of *L. smithursti*, and several authors (e.g., Whitley, 1932 and Munro, 1960) have mistakably regarded

it as a junior synonym of *L. fasciatus* (= *Auriequula longispinis* of Whitley, 1932)

Leiognathus splendens (Cuvier, 1829)

(Fig.18; Tbls.1-3)

Common names

Splendid ponyfish, Silver belly, Slimy, Slipmouth, Soapy (Banasopit & Wongratana, 1967; FAO, 1984)

แป้นกระสวย, แป้นเมือก, แป้นใหญ่ (เธียร บรรฒโศภิษฐ์ และ ทศพร วงศ์รัตน์, 2510)

Synonyms

Equula splendens Cuvier, 1829, Règne Anime, dit., 2a, 2:212.

Equula gomorah Valenciesnes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:80.

Equula cablla Bleeker (not. Cuvier & Valenciennes.) 1850, Fauna Midd. en. Oost-Java, 9.

Leiognathus gomorah Bleeker, 1863, Ned. Tijdschr. Diesk., 1:235.

Leiognathus splendens Bleeker, 1863, Ned. Tijdschr. Diesk, 1:270.

Eubleekeria (Leiognathus) splendens Fowler, 1904, J. Acad. Nat. Sci. Philad., 12(2):516.

Leiognathus philippinus Fowler, 1918, Proc. Acad.

Nat. Sci. Philad., 70:15.

Materials examined

(50:30.0-115.2 mm S.L.)

KUMF : 2327(1:94.7 mm S.L.), Paknam, Samut Prakan, 11 June 1923.

2328 (3:81.2-96.0 mm S.L.), Ta Chalom, Samut Sakhon, 20 July 1923.

MSD-CU : uncat. (3:60.0-61.0 mm S.L.), Ko Sichang, Chon Buri, 18 Dec. 1988, S. Premcharoen.

uncat. (3:42.2-51.0 mm S.L.), Ban Laem, Phetchaburi, 5 Jan. 1989. S. Premcharoen.

uncat. (6:60-77.6 mm S.L.), Ban Don, Surat Thani, 10 Apr. 1989, S. Premcharoen.

uncat. (11:30.0-76.0 mm S.L.), Pattani fish port, 14-15 Apr. 1989., S. Premcharoen.

uncat. (1:100 mm S.L.), Kantang, Trang, 6 May 1989, S. Premcharoen.

uncat. (2:68.6-99.9 mm S.L.), Phuket fish port, 9 May 1989, S. Premcharoen.

uncat. (7:72.2-91.00 mm S.L.), Phuket market, 6 Oct. 1989, S. Premcharoen.

uncat. (1:115.2 mm S.L.), Ranong fish port, 22 Oct. 1989, S. Premcharoen.

uncat. (7:48.3-58.5 mm S.L.), Kantang, Trang, 28 Oct. 1989, S. Premcharoen.

uncat. (4:65.4-69.0 mm S.L.), Smae San, Chon Buri, 21 Apr. 1990, T. Wongratana.

NICA : 0933 (1:69.3 mm S.L.), Songkla, 7 Oct. 1983, P. Sirimontraporn.

Diagnosis

Body compressed and deep, anterior part of dorsal profile more strongly arched than anterior part of ventral profile, its depth contained 1.9-2.9 times in standard length. Breast fully scaled, suborbital naked. The median portion of nuchal spine is elevated as a ridge immediately above the eyes . Second spine of dorsal and anal fins not elongated. Snout short (shorter than eye diameter) and blunt. Protracted mouthpart points downward ; narrow band of villiform teeth on each jaw . Gill rakers approximately equal in length to corresponding gill lamellae ; total gill rakers 23-28. Tubed scales on lateral line 49-56.

Color : silvery, upper half with faint, grey wavy vertical lines, upper third of spinous portion of dorsal fin with conspicuous jet black blotch ; yellow margin along dorsal rays ; spinous fin pale yellow ; other fins colorless.

Remarks

This species can be distinguished from most members of the family by a combination of the characters: conspicuous black blotch on dorsal fin, breast fully scaled and body thickened.

L. jonesi James, 1975 superficially resembles *L. splendens* in the general shape of the body, blotch on the spinous dorsal fin and other body marking but differs from *L. splendens* in a number of characters the following characters being most important, they differ in the degree of pigmentation of the spinous dorsal fin (`grey' against `black'), and the relative length of the dorsal and anal spines (`weak' against `strong').

***Secutor indicius* Monkolprasit, 1973**

(Fig.19; Tbls.1-3)

Common names

Ponyfish

แป้น

Synonyms

Secutor indicius Monkolprasit, 1973, Kasetsart Univ. Fish. Res. Bull., 6:10-17.

Materials examined

(31:60.0-88.2 mm S.L.)

KUMF : 1369 (1:78.0 mm S.L., Holotype), Songkla, 14 May 1965, S. Monkolptasit.

1370 (12:70.0-83.0 mm S.L., Paratype), Songkla, 14 May 1965, S. Monkolprasit.

MSD-CU : uncat. (1:82.0 mm S.L.), Ban Don, Surat Thani, 11 Dec. 1988, B. Petchsathid.

uncat. (15:60.0-88.2 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.

uncat. (2:60.0-83.0 mm S.L.), Ban phae, Rayong, 10 May 1990, S. Premcharoen.

Diagnosis

Body oblong, very compressed ; dorsal and ventral profiles about equally convex, its depth contained 2.2-2.3 in standard length. Breast fully scaled ; suborbital naked . The median portion of nuchal spine is elevated as a ridge immediately above the eyes. Second spines of dorsal and anal fins not elongated. Protracted mouthpart points upward; teeth minute, blunt, coniform, arranged in 1-2 irregular rows in each jaw, upper jaw teeth smaller than those of lower jaw and concealed behind rim of premexilla . Gill rakers long and slender, approximately equal in length to corresponding gill lamellae, total gill rakers 24-28. Tubed scales on lateral line 80-90.

Color : silvery, light blue on upper half ; 17-22 irregular, narrow, broken, vertical series of dark blue bars or sereis ; second to fifth of spinous dorsal with black margin ; all fins colorless.

Remarks

This species is distinguished from the other species of the genus in body proportion, number of gill rakers and number of tubed scales on lateral line (See Tbls.2 & 3).

Jones (1985) stated that adult *S. indicius* and *S. insidiator* from the Gulf of Thailand differ most noticeably in their body pigmentation patterns, *S. indicius* being characterized by narrow broken vertical bars on the upper half of the body and *S. insidiator* having round to oval spots on the upper body.

***Secutor insidiator* (Bloch, 1787)**

(Fig.20; Tbls.1-3)

Common names

Pugnose ponyfish, Slender barred ponyfish, Slimy, Soapy, Slipmouth (Banasopit & Wongratana, 1967; FAO, 1884)

แป้นปากหมู, แป้นหมู (เธียร บรรฉโศภิษฐ์ และทศพร วงศ์รัตน์,

2510)

Synonyms

Zeus insidiator Bloch 1787, Aust. Fische., 3:41.

Equula insidiatrix Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 10:98.

Leiognathus insidiator Bleeker, 1865, Ned. Tijdschr. Dierk, 2:290.

Deveximentum insidiator Fowler, 1904, J. Acad. Nat. Sci. Philad., 12(2):517.

Equula insidiator Jordan & Seale, 1905, Proc. U.S. Nat. Mus., 28:777.

Leiognathus insidiatrix Jordan & Starks, 1917, Ann. Carnegie Mus., 11:444.

Secutor insidiator Fowler, 1927, Proc. Acad. Nat. Sci. Philad., 79:273.

Materials examined

(122:18.0-84.5 mm S.L.)

KUMF : 1386 (1:47.5 mm S.L.), Paknam, Samut Prakan, 22 Dec. 1963, S. Monkolprasit.
1387 (1:41.3 mm S.L.), Klong Wan, Prachuap Khiri Khan, 6 Sep. 1969, S. Monkolprasit.
1388 (1:46 mm S.L.), Phatthalung, 29 Apr. 1965, S. Monkolprasit.

MSD-CU : uncat. (11:34.0-57.3 mm S.L.), Paknam,

Samut Prakan, 19 Nov.1988. S. Premcharoen.
uncat. (18:51.0-64.3 mm S.L.), Ang Sila,
Chon Buri, 27 Nov. 1988. S. Premcharoen.
uncat. (5:58.8-62.0 mm S.L.), Mahachai,
Samut Sakhon, 10 Dec.1988. S. Premcharoen.
uncat. (4:37.0-62.0 mm S.L.), Ban Laem,
Phetchaburi, 8 Jan 1989. S. Premcharoen.
uncat. (10:19.9-52.3 mm S.L.), Ban Don,
Surat Thani, 10 Apr. 1989. S. Premcharoen.
uncat. (16:58.0-62.7 mm S.L.), Pattani
fish port, 14 Apr. 1989. S. Premcharoen.
uncat. (3:57.0-84.5 mm S.L.), Kantang,
Trang, 6 May 1989. S. Premcharoen.
uncat. (2:38.5-43.5 mm S.L.), Trat, 27
Apr. 1989. S. Premcharoen.
uncat. (9:38.0-51.0 mm S.L.), Bangpakong,
Chachoengsao, 10 Sep. 1989. S. Premcharoen.
uncat. (9:20.0-57.5 mm S.L.), Satun
market, 29 Oct. 1989. S. Premcharoen.
uncat.(1:28.0 mm S.L.), Klung, Chantabnuri,
Jan. 1990. S. Premcharoen.
uncat. (1:70.0 mm S.L.), Bangkok wholesale
market, 20 Feb. 1990. S. Premcharoen.
uncat. (9:48.5-57.4 mm S.L.), Ban Phae,
Rayong, 21 Apr. 1990. S. Premcharoen.
uncat. (17:18.0-34.4 mm S.L.), Trat, 28
Apr. 1990. S. Premcharoen.
uncat. (2:42.0-42.5 mm S.L.), Ban Phae,

Rayong, 23 June 1990. S. Premcharoen. uncat. (2:18.3-21.3 mm S.L.), Phuket, 29 Nov. 1990. S. Premcharoen.

Diagnosis

Body oval, deep and compressed, its depth contained 2.0-2.1 times in standard length. Breast fully scaled ; suborbital naked. The median portion of nuchal spine is elevated as a ridge immediately above the eyes. Second spine of dorsal and anal fins not elongate. Protracted mouthpart points upward ; teeth minute, blunt, coniform, arranged in 1-2 irregular rows in each jaw, upper jaw teeth smaller than those of lower jaw and concealed behind rim of premaxilla . Gill raker long and slender, approximately equal in length to corresponding gill lamellae, total gill rakers 19-24. Tubed scales on lateral line 47-56.

Color : silvery, upper half with about 10 broken, dark, vertical bars, pearly blue, be coming grey-brown on preservation ; margin of spinous dorsal fin speckled black, other fins colorless.

Remarks

This species resembles *S. ruconius* in having upward protracting mouthpart and similar coloration, but

can be distinguished by its more elongate body shape and by the absence of scales on suborbital.

Secutor ruconius **(Hamilton-Buchanan, 1822)**

(Fig.21; Tbls.1-3)

Common names

Deep pugnose ponyfish, Deep-bodied ponyfish, Silver belly, Slimy, Spotted slipmouth (Banasopit & Wongratana, 1967, FAO, 1984)

แป้นกะหลอน, แป้นเบี้ย, แป้นป้อม, แป้นเศรษฐี, อีแปะ (เธียร บรรฌโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Chanda ruconius Hamilton-Buchanan, 1822, Fish. Ganges, 106:371.

Equula ruconius Valenciennes, in Cuvier & Valencienes, 1835, Hist. Nat. Poiss., 10:79.

Equula interrupta Valenciennes, in Cuvier & Valenciennes, 1835, Ibid., 10:102.

Leiognathus interruptus Bleeker, 1865, Ned. Tijdschr. Dierk., 2:290.

Deveximentum ruconius Fowler, 1918. Copeia, 58:63.

Leiognathus ruconius Weber & de Beaufort, 1931, Fish. Indo-Austr. Archip., 6:317-318.

Secutor ruconius Fowler, 1927, Proc. Acad. Nat.

Sci. Philad., 79:23.

Materials examined

(70:15.0-66.0 mm S.L.)

KUMF : 1391 (1:31.3 mm S.L.), Laem Sing, Chanthaburi, 20 July 1925, H.M. Smith.
1392 (2:38.0-38.4 mm S.L.), Prachuap Khiri Khan, 15 June 1965, S. Monkolprasit.
1939 (1:37.2 mm S.L.), Songkla, 1 May 1965, S. Monkolprasit.

MSD-CU : uncat. (3:21.4-34.1 mm S.L.), Mahachai, Samut Sakhon, 5 Nov.1988, S. Premcharoen.
uncat. (4:15.0-34.0 mm S.L.), Paknam, Samut Prakan, 19 Nov.1988, S. Premcharoen.
uncat. (1:38.3 mm S.L.), Ang Sila fish landing, Chon Buri, 27 Nov. 1988, S. Premcharoen.
uncat. (5:42.0-47.5 mm S.L.), Ko Sichang, Chon Buri, 18 Dec. 1988, S. Premcharoen.
uncat. (6:21.0 mm S.L.), Ban Don, Surat Thani, 10 Apr. 1989, S. Premcharoen.
uncat.(4:42.0-53.6 mm S.L.), Pattani fish port, 14-15 Apr. 1989, S. Premcharoen.
uncat. (1:23.1 mm S.L.), Trat, 27 May 1989, S. Premcharoen.
uncat. (8:26.1-31.1 mm S.L.), Klung, Chanthaburi, 2 Sep. 1989. S. Premcharoen.

uncat. (4:29.0-41.3 mm S.L.), Satun market, 29-30 Oct. 1989, S. Premcharoen.
uncat. (4:27.3-38.3 mm S.L.), Ban Phae, Rayong, 21 Apr. 1990, S. Premcharoen.
uncat. (20:16.0-32.5 mm S.L.), Trat, 28 Apr. 1990. S. Premcharoen.
uncat. (1:43.2 mm S.L.), Ban Phae, Rayong, 10 May 1990. S. Premcharoen.
uncat. (3:47.3-86.2 mm S.L.), Ban Phae, Rayong, 23 June 1990. S. Premcharoen.
uncat. (4:27.3-32.8 mm S.L.), Trat, 30 June 1990. S. Premcharoen.
uncat. (2:23.5-25.0 mm S.L.), Phuket market, 29 Nov. 1990. S. Premcharoen.

NICA : 0535 (1:35.5 mm S.L.), Songkla, date and collector unknown.

Diagnosis

Body oval, very deep and compressed, its depth contained 1.6-1.9 times in standard length. Breast and suborbital scaled . The median portion of nuchal spine is elevated as a ridge before the border of eyes . Second pine of dorsal and anal fins not elongate. Protracted mouthpart points upward ; teeth minute, blunt, coniform, arranged in 1-2 irregular rows in each law , upper jaw teeth smaller than those of lower jaw and concealed behind rim of premaxilla .

Gill rakers long and slender, approximately equal in length to corresponding gill lamellae, total gill rakers 19-24. Tubed scales on latral line 28-32.

Color : silvery, upper half with about 10 bluish vertical bars. Membrane between second and fifth dorsal fin spines black ; other fins colorless.

Remarks

This species resembles *S. insidiator* (see p. 89 under Remarks).

Weber & de Beaufort (1931) stated that *Equula ruconius* is a different species from *Chanda ruconius*, but treated it as a doubtful synonym of *S. ruconius*.

Key to genera and species of family Gerreidae occuring in Thai waters

1a. Anal fin base longer than base of soft-rayed portion of dorsal fin; 5 or rarely 6 spines and 12-13 softrays in and fin (Fig.10a)..... ..... *Pentaprion longimanas*

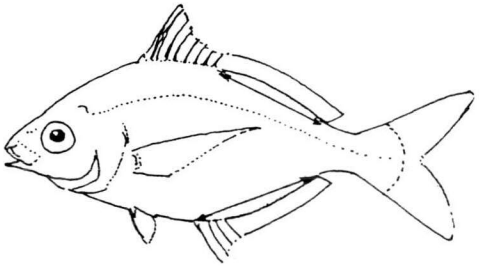

Fig. 10a

1b. Anal fin base shorter than base of soft-rayed portion

of dorsal fin; 3 spines and 7 soft rays in anal fin (Fig.10b)... *Gerres*...2

2a. Pectoral fin not reaching anal origin (Fig.11a).....3

2b. Pectoral fin reaching or beyond anal origin (Fig.11b) 6

3a. Tubed scales on lateral line less than 40; body depth less than 3 or equal in standard length 4

3b. Tubed scales on lateral line more than 40; body depth more than 3 in standard length..... ..... *G. oblongus*

4a. Body depth 2.8-3.0 in standard length; 3.5 rows of scales between fifth dorsal spine and lateral line (Fig.12a); black margin at dorsal spine or sometimes continuing along whole of dorsal fin.....5

4b. Body depth less than or equal 2.5 in standard length; 3 rows of scales

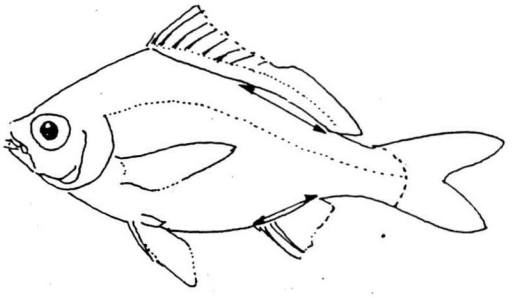

Fig. 10b

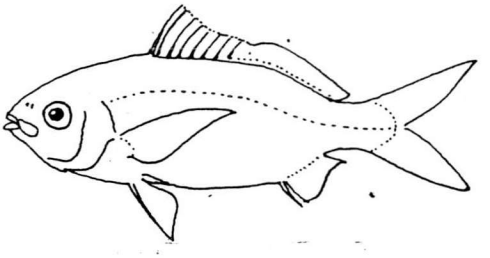

Fig. 11a

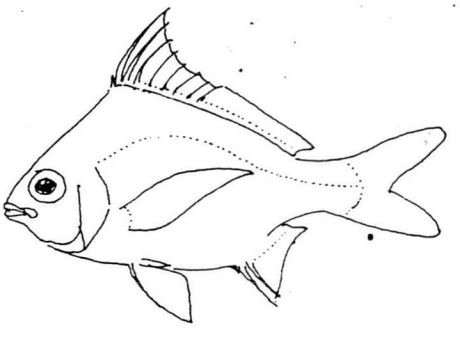

Fig. 11b

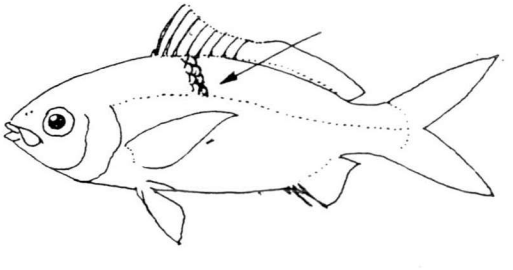

Fig. 12a

between 5th dorsal spine and lateral line (Fig.12b) smoky black at upper half of 2-6 dorsal spine..... ..... *G. lucidus*

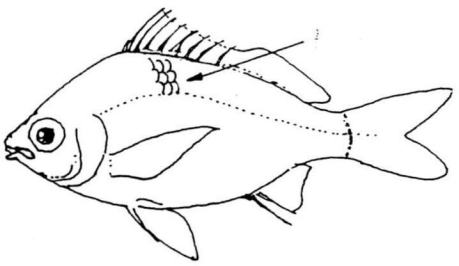

Fig. 12b

5a. Dorsal profile is slightly convex (Fig.13a) ; second anal spine is strong and slightly shorter than third anal spine, outer ray of ventral fin hyaline, no faint dusky bar on sides ..... *G. macrosoma*

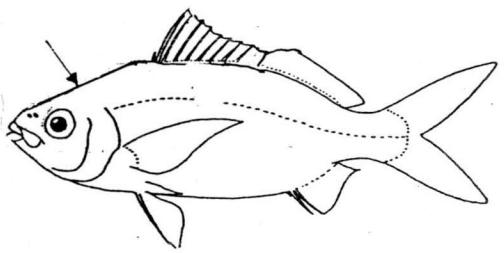

Fig. 13a

5b. Dorsal profile is slightly concave (Fig.13b); second and third anal spine was slender and subequal, outer ray of ventral fin with slighty blackish, body with 8-9 faint dusky bars on sides..... *G. oyena*

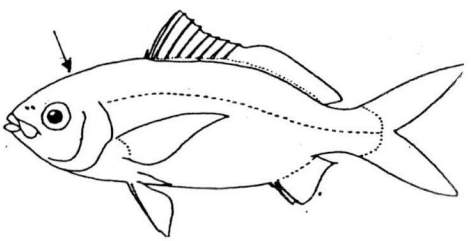

Fig. 13b

6a. Second dorsal spine filamentous (Fig.14a)....7

6b. Second dorsal spine normal (Fig.14b).....8

7a. Second dorsal spine subequal or greater than body depth; 8-10 columns

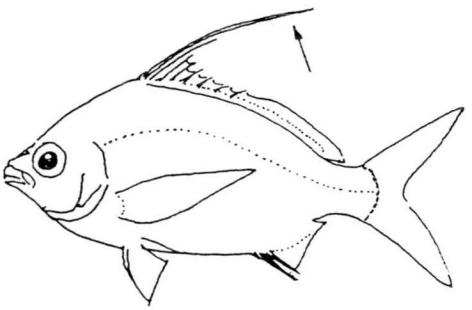

Fig. 14a

of ovoid spots on upper portion of sides; second and third anal spines subequal...*G. filamentosus*

7b. Second dorsal spine shorter than body depth, 11-12 columns of ovoid spots on upper portion of sides, second anal spine slightly shorter than third anal spine..... *G. macracanthus*

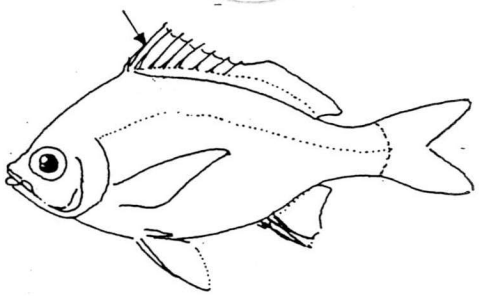

Fig. 14b

8a. Tubed scales on lateral line less than 40; second anal spine slender (Fig.15a), 7-8 indistinct, fine, dark strips following scale rows..... *G. abbreviatus*

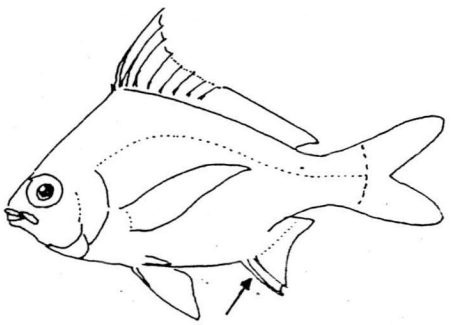

Fig. 15a

8b. Tubed scales on lateral line more than 40 ; second anal spine strong and board (Fig.15b), no fine, dark strips following scale rows..... *G. poieti*

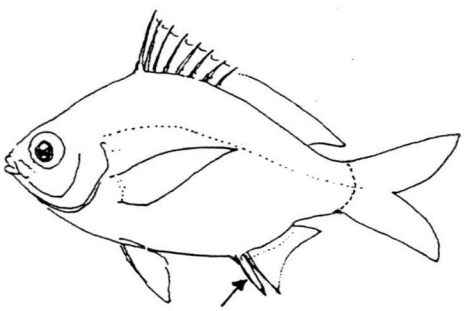

Fig. 15b

Family Gerreidae

The fish of the family Gerreidae are small to medium-sized, body more or less compressed ; back

elevated to varying degrees, so that body profile may be slender or deep. No bony ridges on top of head. Mouth is tremendoustly protrusible ; the upper jaw hinging downward when the mouth is opened , to form a tube ; profile of the lower jaw is concave when the mouth is closed ; minute, acute teeth in both jaw. A long, single dorsal fins with 9 spines, 9-10 soft rays in *Gerres* (13-15 soft rays in *Pentaprion*). Anal fin with 3 spines, 7-8 soft rays in *Gerres* (5-6 spines, 12-13 soft rays in *Pentaprion*). First dorsal and anal spines very short ; base of dorsal and anal fins with an elevated scaly sheath ; pelvic fins , originating below or somewhat behind base of pectoral, with 1 spine and 5 rays and with a long scalelike axillary process, pectoral fins long and pointed ; caudal fin deeply forked, with 15 branched rays. Lateral line complete and continuous. Six branchiostegals ; four gills ; gill membrane free from isthmus; large conspicuous cycloid scales .

Gerreids inhabit in coastal waters of all warm seas ; a few temperate species (FAO, 1984). Mostly found frequently in greate numbers, in sandly shallows or over mud, but also in estuaries. They feed on small bottom-dwelling organisms (FAO, 1981 and Myers, 1991) and fresh ; in large quantities, used for fish meal and as duck food (FAO, 1984).

Gerres Cuvier, 1829

Gerres Cuvier, 1829. Regene Animal, ed.2, 2:104 (type-species *Gerres vaigiensis* Cuvier)

Diapterus Ranzani, 1842, Nat. Comm. Acad. Sci. Inst. Bonon., 5: 340 (type-species *Diapterus auratius* Ranzani)

Catochaenum Cantor, 1850. J. Asist. Soc. Bengal, 58:1037 (type-species *Gerres vaigensis* Cuvier & Valenciennes)

Synistiys Gill, 1862, Proc. Acad. Nat. Sci. Philad. 14:238 (type-species *Gerres longirostris* Gunther)

Moharra Poey, 1875, Anal. Soc. Espan. Hist. Nat., 4:124 (type-species *Gerres rhombeus* Cuvier & velenciennes)

Gerreomorpha Alleyne & Macleay, 1877, Proc. Linn. Soc. Nat. Sci. Wales , 1:274 (type-species *Gerreomorpha rostrata* Alleyne & Macleay).

Xystaema Jordan & Evermann, 1895, Proc. Calfi. Acad. Sci. 2(5):471 (type-species *Mugil cinereus* Walbaum)

Pertica Fowler, 1964. J. Acad. Nat. Sci. Philad., 2(12):3 (type-species *Gerres filamentosus* Cuvier)

Eugerres Jordan & Everman, 1927, Proc. Calfi. Acad. Sci., 4(14):506 (type-species *Gerres plumieri* Cuvier & Valenciennes)

Parochusus Whitley, 1930, Mem. Queensland Mus., 10:16 (type-species *Gerres profundus* Macleay).

Diagnosis : spinous dorsal with 9 spines, soft portion with 10 rays, both equal in size developed

and with a scaly sheath along their bases; anal with 3 spines, soft portion with 7 rays, shorter than the soft dorsal. The spines may be strongly comperessed, some produce into a filament. Body with fine, dark strips following scale rows or with columns of ovoid spots on upper portion of sides.

Pentaprion Bleeker, 1850

Pentaprion Bleeker, 1850, Verh. Batav. Gen., 23:13.

Clara Gill, 1862. Proc. Acad. Nat. Sci. Philad., 14:127.

Diagnosis : spinous dorsal with 9 spines, soft portion with 13-15 rays ; anal with 5-6 spines, soft portion with 12-13 rays, its base longer than that of soft dorsal . All fin spines slender, not produce into a filament. Scales very deciduous. Body uniform brilliant silvery. Fins hyaline.

Gerres abbreviatus Bleeker,1850

(Fig.22; Tbls.4-5)

Common names

Deep body silver-biddy, Blue-backed silver-biddy, Silver bream, Silver perch (Banasopit & Wongratana, 1967; FAO, 1984)

ดอกหมากครีบสั้น (เธียร บรรฌโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Gerres abbreviatus Bleeker, 1850, Verh. Batav. Gen., 23:11.

Diapterus abbreviatus Bleeker, 1865, Ned. Tijdschr. Dierk., 2:279.

Xystaema abbreviatus Jordan & Seale, 1905 (1906), Bull. Bur. Fish., 25:272.

Materials examined

(19:45.0-144.0 mm S.L.)

KUMF : 2291 (1:116.0 mm S.L.), Chumphon, 17 Sep. 1927, H.M.Smith.

2293 (1:102.0 mm S.L.), Laem Sing, Chanthaburi, 3 Feb. 1929, H.M.Smith.

2294 (1:76.5 mm S.L.), Chon Buri, 4 Feb. 1931, H.M.Smith.

2295 (1:88 mm S.L.), Ban Don, Surat Thani, 29 Sep. 1933, H.M.Smith.

MSD-CU : uncat. (2:78.7-83.3 mm S.L.), Paknam, Samut Prakan, 19 Nov.1988, S. Premcharoen.

uncat. (2:122.0-122.3 mm S.L.), Chumphon market, 2 Jan. 1989, P. Watcharanon.

uncat. (1:144.0 mm S.L.), Ban Don, Surat Thani, 9 Apr. 1989, S. Premcharoen.

uncat. (1:45.0 mm S.L.), Klung, Chanthaburi, 2 Sep. 1989, S. Premcharoen.

uncat. (2:77.0-86.0 mm S.L.), Phuket market, 26 Oct. 1989, S. Premcharoen.

uncat.(1:135.0 mm S.L.), Kantang, Trang, 28 Oct. 1989, S. Premcharoen.

uncat. (1:127.6 mm S.L.), Bangkok Wholesale Fish Market, 10 Feb. 1990, S. Premcharoen.

uncat. (3:92.5-122.0 mm S.L.), Ban Phae, Rayong, 10 May. 1990, S. Premcharoen.

uncat. (1:84.0 mm S.L.), Phuket market, 29 Nov. 1990, S. Premcharoen.

NICA : 0032 (1:85.0 mm S.L.), Songkla fish port, 1 Nov. 1982, collector unknown.

Diagnosis

Body deep, dorsal profile elevated anteriorly, forming a sharp angle at dorsal fin origin, its depth contained 2.0-2.2 times in standard length. Predorsal length subequal to or slightly greater than body depth. Snout very short, its length less than eye diameter. Second and third anal spines , slender and subequal. Pectoral fin long, tip to 3/4 base of anal fin, sometimes to last anal soft ray, pelvic fin reaching to anus. Four rows of scales between base of fifth dorsal spine and lateral line, 32-37 tubed scales on lateral

line. Head and body completly covered with scales which are firmly attached.

Colour : bright silvery, greyish on dorsal surface. Snout dusky black. Margin of dorsal fin black, 7-8 indistinct, fine, dark strips following scale rows. Pelvic and anal fins yellowish.

Remarks

This species is one of the deepest bodied of the genus.

Myers (1991) stated that in Belau, Micronesia, this species had reported to a depth of 40 m, they migrated from the mangroves and sand flats to the outer reef edges to spawn for a few days around full moon. They produce non-adhesive and pelagic eggs (Conlu, 1986)

Gerres filamentosus **Cuvier, 1829**

(Fig.23; Tbls.4-5)

Common names

Whipfin silver-biddy, Long-rayed silver-biddy, Silver perch, Spotted mojarra (Banasopit & Wongratana, 1967; FAO,1984)

ดอกหมากกระโดง (เธียร บรรฒโศภิษฐ์ และทศพร วงศ์รัตน์, 2510)

Synonyms

Gerres filamentosus Cuvier, 1829, Regne Animal, 2(2): 188.

Gerres punctatus Valenciennes, in Cuvier & Valenciennes, 1835, Hist.Nat. Poiss., 5: 480.

Catochaenum filamentosum Cantor, 1850, J. Asiat. Soc.Bengal, 58: 1037.

Diapterus filamentosus Bleeker, 1863, Ned. Tijdschr. Dierk., 1: 231.

Xystaema filamentosum Jordan & Evermann, 1902, Proc. U.S. Nat. Mus., 25: 352.

Gerres (Pertica) filamentosus Fowler, 1904, J. Acad. Nat.Sci. Philad., 2(12): 530.

Xystaema punctatum Jordan & Seale, 1905 (1906), Proc. U.S. Nat. Mus., 28: 272.

Material examined

(105: 52.7-225.0 mm S.L.)

KUMF : 2307 (1:116.0 mm S.L.), Gulf of Siam, 6 Apr. 1930, H.M.Smith.

2308 (1:109.5 mm S.L.), Chumphon, 23 Sep. 1927, H.M.Smith.

2309 (1:73.3 mm S.L.), Laem Sing, Chanthaburi, 10 Apr. 1927, H.M.Smith.

2310 (1:91.0 mm S.L.), Chumphon, 23 Dec. 1927, H.M.Smith.

2311 (1:92.1 mm S.L.), Laem Sing, Chanthaburi, 10 Apr. 1927, H.M.Smith.

2312(1:93.3 mm S.L.), Laem Sing, Chanthaburi, 6 Apr. 1930, H.M.Smith.

2313(1:114.0 mm S.L.), Laem Sing, Chanthaburi, 11 Apr. 1930, H.M.Smith.

MSD-CU : uncat.(1:128.0 mm S.L.), Chumphon market, 2 Jan. 1989, P. Watcharanon.

uncat. (1:133.0-208.0 mm S.L.), Ban Don, Surat Thani, 9 Apr.1989, S. Premcharoen.

uncat. (7:72.9-116.4 mm S.L.), Pattani fish port, 15 Apr.1989, S. Premcharoen.

uncat. (1:140.0 mm S.L.), Kantang, Trang, 5 May. 1989, S. Premcharoen.

uncat. (4:61.0-80.0 mm S.L.), Trat, 27 May. 1989, S.Premcharoen.

uncat. (2:149.0-153.0 mm S.L.), Ranong fish port, 22 Oct.1989, S. Premcharoen.

uncat. (5:71.0-133.0 mm S.L.), Phuket market, 26 Oct. 1989, S. Premcharoen.

uncat. (2:147.0-225.0 mm S.L.), Kantang, Trang, 28-29 Oct. 1989, S. Premcharoen.

uncat. (1:115.0 mm S.L.), Bangkok wholesale fish market, 10 Feb. 1990, S. Premcharoen.

uncat. (41:52.7-125.0 mm S.L.), Klung, Chanthaburi, 14 Mar. 1990, H.M.Smith.

uncat. (5:57.6-116.0 mm S.L.), Ban Phae,

Rayong, 21 Apr. 1990, S. Premcharoen.
uncat. (16:74.2-88.0 mm S.L.), Trat, 29 Apr. 1990, S. Premcharoen.
uncat. (7:65.3-120.0 mm S.L.), Ban Phae, Rayong, 10 May. 1990, S. Premcharoen.
uncat. (1:138.0 mm S.L.), Ranong fish port, 26 Nov. 1990, S. Premcharoen.
uncat. (3:84.4-87.7 mm S.L.), Phuket market, 29 Nov. 1990, S. Premcharoen.

Diagnosis

Body oblong, moderately deep, its depth contained 2.6-2.8 times in standard length. Predorsal length subequal to body depth. Snout length subequal to eye diameter. Second dorsal spine produced into a filament, its length about dorsal fin base or subequal, or slightly greater than body depth. Second and third anal spines slender and subequal. Pectoral fin long, tip to 2/3 base of anal fin. Pelvic fin reaching to anus. Five to six rows of scales between base of fifth dorsal spine and lateral line , 40-46 tubed scales on lateral line. Head and body completly covered with scales which are firmly attached.

Color : silvery, with 8-10 columns of ovoid spots on upper portion of sides to midline. Margin of dorsal fin black, tip of caudal fin black, other fins hyaline.

Remarks

This species is distinguished from all other species of gerreids by having the greatly elongated second dorsal spine.

Mc Cristal (1985) reported that from Queensland, this species is a common fish of the beaches and sand clay. It is one of the best eating fish of all the greate fighters on light tackle, and has been recorded up to 2.5 pounds.

Gerres lucidus **Cuvier, 1830**

(Fig.24; Tbls.4-5)

Common names

Saddleback silver-biddy (FAO, 1984)

ตอกหมาก ,กะทิ

Synonyms

Gerres lucidus Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 6: 477.

Materials examined

(12:67.6-113.0 mm S.L.)

KUMF : 2297(1:72.7 mm S.L.), Samut Sakhon, 14 July 1927, H.M.Smith.

2298 (1:85.3 mm S.L.), Chumphon, 6 June 1928, H.M.Smith.

2299 (1:91.9 mm S.L.), Laem Sing, Chanthaburi, 5 Feb. 1929, H.M.Smith.

2301 (1:89.5 mm S.L.), Laem Sing, Chanthaburi, 6 Apr. 1930, H.M.Smith.

2302 (1:91.0 mm S.L.), Laem Sing, Chanthaburi, 7 June 1930, H.M.Smith.

MFL : uncat. (1:113.0 mm S.L.), Phuket, 1971, collector unknown

MSD-CU : uncat. (2:67.6-93.2 mm S.L.), Ban Don, Surat Thani, 9-10 Apr.1989, S. Premcharoen.

uncat. (1:92.2 mm S.L.), Trat, 27 May. 1989, S. Premcharoen.

uncat. (1:75.7 mm S.L.), Bang Pakong, Chachoengsao, 8 Sep. 1989, S. Premcharoen.

uncat. (1:71.7 mm S.L.), Satun market, 29 Oct. 1989, S.Premcharoen.

uncat.(1:97.0 mm S.L.), Phuket market, Oct.1990, S. Premcharoen.

Diagnosis

Body fairly deep, its depth contained 2.3-2.4 times in standard length. Predorsal length subequal to body depth. Spine slender, but second dorsal spine

slightly buntly, second and third anal spines subequal. Pectoral fin short, not reaching anal fin origin. Three rows of scales between base of fifth dorsal spine and lateral line, 32-36 tubed scales on lateral line. Head and body completly covered with scales which are firmly attached.

Color : silvery, dusky dorsally, four diffused, dark saddles along back, extending down sides to midline. Snout black. Pectoral and pelvic fins yellowish, anal fin with the anterior bright yellow.

Remarks

Weber & de Beaufort stated that *Gerres limbatus* Cuvier is the species doubtful as to their occurence in the Archipelago and much resembles *G. lucidus* but is destitute of the dark blotch on the dorsal fin.

***Gerres macracanthus* Bleeker, 1854**

(Fig.25; Tbls.4-5)

Common names

Silver-biddy, Mojarra

ตอกหมาก

Synonyms

Gerres macracanthus Bleeker, 1854, Nat. Tijdschr. Ned. Ind., 5: 195.

Diapterus macracanthus Günther, 18-59, Cat. Brit. Mus., 1: 346.

Xystaema macracanthum Jordan & Seale, 1905 (1906), Bull. Bur. Fish., 25: 272.

Materials examined

(3:121.0-145.0 mm S.L.)

MFL : uncat. (1:121.0 mm S.L.), Chumphon, Sep. 1975, collector unknown.

MSD-CU : uncat.(2:125.0-154.0 mm S.L.), Ranong fish port, 22 Oct.1989, S. Premcharoen.

Diagonsis

Body oblong, moderately deep, its depth contained 2.5-2.6 times in standard length. Predorsal length subequal to body depth. Snout length subequal to eye diameter. Second dorsal spine produced into a filament, its depth about 3/4 body depth, second anal spine strong and slightly shorter than third anal spine. Pectoral fin long, tip extending to third anal spine. Pelvic fin not reaching to anus. Five to six rows of scales between base of fifth dorsal spine and lateral line, 40-42 tubed scales on lateral line. Head and body

completly covered with scales which are firmly attached.

Color : silvery, with 11-12 columns of ovoid spots on upper portion of sides. Margin of dorsal fin black. Pectoral, pelvic, anal and caudal fin with pale yellowish.

Remarks

This species is resemble *G. filamentosus*, but its filamentousof second dorsal spine shorter than that of *G. filamentosus* (Sukhavisidh, 1980) and has more columns of ovoid spots on upper portion of sides.

***Gerres macrosoma* Bleeker, 1845**

(Fig.26; Tbls.4-5)

Common names

Silver biddy, Mojarra

ดอกหมาก

Synonyms

Gerres macrosoma Bleeker, 1854, Nat. Tijdschr. Ned. Ind., 6: 56.

Diapterus macrosoma Bleeker, 1863, Ned. Tijdschr. Dierk., 4: 251.

Gerres (Xystaema) macrosoma Steindschner, 1906,

Sitzb. Akad. Wien. , 65: 1381.

Xystaema macrosoma Jordan & Seale, 1905 (1906), Bull. Bur. Fish., 25: 272.

Materials examined

(12:66-128 mm S.L.)

KUMF : 2303(1:81.3 mm S.L.), Surat Thani, 20 Sep. 1932, H.M.Smith.

MFL : uncat. (3:102.0-121.5 mm S.L.), Bangkok, 1989, collector unknown.

MSD-CU : uncat. (1:104.0 mm S.L.), Klung, Chanthaburi, 9 Jan. 1989, S.Premcharoen.
ucat. (1:128.0 mm S.L.), Phuket market, 26 Oct.1989, S. Premcharoen.
uncat. (1:81.2 mm S.L.), Trat, 29 Apr. 1990, S. Premcharoen.

NICA : 826 (1:93.0 mm S.L.), Songkla, 13 Mar. 1984, collector unknown.

PMBC : 412 (4:66.0-91.2 mm S.L.), Phuket, date and collector unknown.

Diagnosis

Body oblong, slightly slender, its depth contained 2.8-3.0 times in standard length. Predorsal length subequal to body depth. Snout length subequal to eye diameter. Third anal spine is longest, second anal

spine is stronger than third anal spine. Pectoral fin tip not reaching to base of origin of anal fin. Pelvic fins not reaching to anus. Three and half rows of scales between base of fifth dorsal spine and lateral line, 40-41 tubed scales on lateral line. Head and body completly covered with scale which are firmly attached.

Color : silvery, fins hyaline, margin of dorsal fin black.

Remarks

This species is resemble *G. oyena* but dorsal profile slightly convex, while *G. oyena* has dorsal profile concave, and scales on body in *G. macrosoma* are firmly attached, while in *G. oyena* are deciduous.

***Gerres oblongus* Cuvier, 1830**

(Fig.27; Tbls.4-5)

Common names

Slender silver-biddy (FAO,1984)

ดอกหมาก

Synonyms

Gerres oblongus Valenciennes, in Cuvier &

Valenciennes, 1835, Hist. Nat. Poiss., 6: 479.

Gerres gigas Gunther, 1862, Cat. Brit. Mus., 1:354.

Gerres (xystaema) gigas Steindachner, 1906, Sitzb. Akad. Wien., 65: 1380.

Xystaema gigas Jordan & Seale, 1905 (1906), Bull. Bur. Fish., 25: 272.

Xystaema oblongus Barnard, 1925-27, Ann. S. Afri. Mus., 21: 629.

Material examined

(5:111.0-160.0 mm S.L.)

MSD-CU : uncat.(1:160.0 mm S.L.), Kantang, Trang, 5 May 1989, S.Premcharoen.
uncat.(1:134.0 mm S.L.), Phuket market, 26 Oct. 1989, S. Premcharoen.
uncat. (2:147.0-150.0 mm S.L.), Kantang Trang, 28 Oct, 1989, S.Premcharoen.

PMBC : uncat. (1:111.0 mm S.L.), Phuket, date and collector unknown.

Diagnosis

Body oblong, very slender, its depth contained 3.1-3.2 times in standard length. Predorsal length longer than body depth. Snout length equal or slightly greater than eye diameter. Spines are slender, second and third anal spines subequal. Pectoral fins not reaching

to base of origin of anal fin. Pelvic fins not reaching to anus. Four and half rows of scales between base of fifth dorsal spine and lateral line , 45-47 tubed scales on lateral line.

Color : silvery, with 7-8 columns of golden brown ovoid spots on upper portion of sides. Caudal fin with pale yellow, other fins hyaline.

Remarks

Weber & de Beaufort (1931) stated that *Gerres gigas* Gunther is identical with *G. oblongus* Cuvier.

In Belau, Micronesia, this species migrated to specific sandy spots near the outer reef edges to spawn in late afternoon around full moon (Myers, 1991)

***Geres oyena* (Forsskål, 1775)**

(Fig.28; Tbls.4-5)

Common names

Common silver-biddy, Lined silver-biddy (Banasopit & Wongratana, 1967 ; FAO, 1984)

เกล็ดข้าวเม่า, กะทิ, ถอดเกล็ด (เธียร บรรณโศภิษฐ์ และทศพร วงศ์รัตน์, 2510 .

Synonyms

Labrus oyena Forsskal, 1775, Descr. animal., 35.

Labrus longirostris Lacepede, 1802, Hist. Nat. Poiss., 3: 467.

Labrus brittanus Lacepede, 1803, Ibid., 4:132, 134.

Smaris oyeena Ruppell, 1828, Alt. Reise Norall. Afrika, Fische, 11

Gerres oyena Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 6:472.

Diapterus oyena Bleeker, 1863, Ned. Tijdshr. Dierk., 1:232.

Xystaema oyena Seale & Bean, 1908, Proc. U.S. Nat. Mus., 33:244.

Materials examined

(33:38.2-155 mm S.L.)

MFL : uncat. (1:130.8 mm S.L.), Bangkok, Date and collector unknown.

MSD-CU : uncat. (1:129.4 mm S.L.), Pattani fish port, 14 Apr. 1989, S. Premcharoen.
uncat. (2:100.0-115.0 mm S.L.), Kantang, Trang, 5 May 1989, S. Premcharoen.
uncat.(1:145.0 mm S.L.), Kantang, Trang, 28 Oct. 1989, S. Premcharoen.
uncat. (11:45.0-68.5 mm S.L.), Ban Phae,

Rayong, 21 Apr. 1990, S. Premcharoen.
uncat. (1:138.0 mm S.L.), Trat, 28 Apr. 1990, S. Premcharoen.
uncat. (8:97.8-130.0 mm S.L.), Ban Phae, Rayong, 10 May 1990, S. Premcharoen.
uncat. (3:135.0-155.0mm S.L.), Ranong fish port, 26 Nov.1990, S. Premcharoen.

NICA : 6489 (5:38.2-65.3 mm S.L.), Songkla, 14 June 1961, P.C. Gonzales.

Diagnosis

Body slender, its depth contained 2.8-3.0 times in standard length. Predorsal length greater than body depth. Snout length greater than eye diameter. Spine are slender, second anal spine slightly shorter than third spine. Pectoral fins tip not reaching to base of origin of anal fin. Pelvic fins not reaching to anus. Three and half rows of scales between base of fifth dorsal spine and lateral line, 36-40 tubed scales on lateral line. Scales on body are deciduous.

Color : silvery, dusky on upper half of body, margin of dorsal fin black, other fins with pale yellowish, 8-10 faint dusky bars on sides of body.

Remarks

This species is sometimes easily distinguished from other species of the genus by having very deciduous scales. It is the species that Thais prefer the most in cooking.

Gerres poieti Cuvier, 1829

(Fig.29; Tbls.4-5)

Common names

Strongspine silver-biddy (FAO, 1984)

ตอกหมาก

Synonyms

Gerres poieti Cuvier, 1829, Règne Animal, 2(2):188.

Gerres poeti Valenciennes, in Cuvier & Valenciennes, 1835, Hist. Nat. Poiss., 3(2): 512.

Diapterus poetie Bleeker, 1845, Nat. Genecsk. Arch Ned. Ind., 3(2): 512.

Diapterus poetie Bleeker, 1864, Versl. Akad. Amsterdam,, 16: 360.

Diapterus poeti Bleeker, 1872, Ibid., 2(7):250.

Xystaema poeti Jordan & Seale, 1905 (1906), Bull. Bur. Fish., 25: 272.

Materials examined

(8:57.6-139.0 mm S.L.)

MFL : uncat. (1:88.1 mm S.L.), Bangkok, date and collector unknown.

MSD-CU : uncat. (1:108.55 mm S.L.), Ban Phae, Rayong, 10 May 1990, S. Premcharoen. uncat. (2:119.3-139.0 mm S.L.), Ranong fish port, 26 Nov.1990, S. Premcharoen.

PMBC : uncat. (3:87.0-106.0 mm S.L.), Phuket market, date and collector unknown.

NICA : uncat. (1:57.8 mm S.L.), Songkla fish port, date and collector unknown.

Diagnosis

Body deep, its depth contained 2.2-2.4 times in standard length. Predorsal length shorter than body depth. Snout very short, less than eye diameter. Second anal spine strong and broad, slightly shorter than third anal spine. Pectoral fins long, tip extending to level of first anal fin spine. Pelvic fins not reaching to anus. Four rows of scales between base of fifth dorsal spine and lateral line, 40-42 tubed scales on lateral line. Head and body completly covered with scales which are firmly attached.

Color : bright silvery, greyish on dorsal surface. Margin of dorsal fin black, other fins hyaline.

Remarks

This species is distinguished from all other species of gerreieds by having broadly and strongly second anal spine.

It appeared to have a preference for brackish waters since commom about esturies and coastal lagoons. (FAO, 1984)

Pentaprion longimanus **(Cantor, 1850)**

(Fig.30; Tbls.4-5)

Common names

Longfin silver-biddy (FAO, 1984)

แป้นแก้ว (เธียร บรรฒโศภิษฐ์ และ ทศพร วงศ์รัตน์, 2510)

Synonyms

Equula longimana Cantor, 1850, J. Asiat. Soc. Bengal, 18:1134.

Pentaprion gerreoides Bleeker, 1850, Verh. Batav. Gen., 23:13.

Pentaprion longimanus Bleeker, 1876-77, Atl. ichth., 8:130.

Materials examined

(27:63.3-110.0 mm S.L.)

KUMF : 2791 (1:102.8 mm S.L.), Phuket, 6-10 Nov. 1972, S. Sontirat.

MSD-CU : uncat.(8:75.0-102.0 mm S.L.), Chanthaburi market, 14 Mar. 1990, S. Premcharoen.
uncat. (16:63.3-99.0 mm S.L.), Ranong fish port, 26 Nov.1990, S. Premcharoen.

PMBC : 5315 (1:110.0 mm S.L.), Phuket, date and collector unknown.
5427 (1:90.0 mm S.L.), Phuket, date and collector unknown.

Diagnosis

Monotypic (see generic description)

Remarks

This species can be superficially separated from the other species in the same family by the long dorsal and anal fin bases,of which formed by the larger number of spines and rays.

Table 1 Frequency distribution of fin rays counts for Leiognathidae

Species	Dorsal fin rays				Anal fin rays			Pectoral fin rays						N
	VIII	15	16	17	III	14	15	15	16	17	18	19	20	
Gazza minuta	47	2	45	-	47	47	-	2	22	23	-	-	-	47
Leiognathus bindus	57	3	51	3	57	55	2	2	53	2	-	-	-	57
L. blochi	3	-	3	-	3	3	-	-	1	2	-	-	-	3
L. brevirostris	112	-	108	4	112	107	5	-	19	38	17	21	17	112
L. daura	24	-	24	-	24	24	-	-	1	5	12	6	-	24
L. elongatus	45	-	40	5	45	45	-	5	31	9	-	-	-	45
L. equulus	22	-	22	-	22	22	-	-	-	-	-	4	18	22
L. fasciatus	9	-	9	-	9	9	-	-	-	-	1	7	1	9
L. leuciscus	24	-	24	-	24	23	1	7	12	5	-	-	-	24
L. lineolatu	4	-	4	-	4	4	-	-	-	3	1	-	-	4
L. pan	8	-	8	-	8	8	-	-	-	1	3	4	-	8
L. smithursti	9	-	9	-	9	9	-	-	-	5	2	2	-	9
L. splendens	37	-	33	4	37	36	1	-	-	23	8	6	-	37
Secutor indicius	25	-	25	-	25	25	-	-	-	6	10	9	-	25
S. insidiator	94	-	94	-	94	91	3	13	16	47	18	-	-	94
S. ruconius	44	-	44	-	44	42	2	20	24	-	-	-	-	44

Table 2 Frequency distribution of total gill rakers counts for Leiognathidae

Species	15	16	17	18	19	20	21	22	23	24	25	26	27	28	N
Gazza minuta			7	21	12	7									47
Leiognathus bindus					14	13	9	13	8						57
L. blochi					2	-	1								3
L. brevirostris		12	13	25	15	29	18								112
L. daura				10	3	3	-	8							24
L. elongatus	4	16	13	6	6										45
L. equulus				7	9	5	-	1							22
L. fasciatus					7	1	-	1							9
L. leuciscus		5	9	8	2										24
L. lineolatus			3	1											4
L. pan		2	6												8
L. smithursti				1	4	3	1								9
L. splendens									2	6	15	9	4	1	37
Secutor indicius									5	7	4	5	2	2	25
S. insidiator					11	29	14	12	17	11					94
S. ruconius					7	20	6	4	3	4					44

Table 3 Frequency distribution of total number of tubed scales on lateral line for Leiognathidae

Species	28	29	30	31	32...45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66...80	81	82	83	84	85	86	87	88	89	90	N
Gazza minuta					6	9	7	16	2	3	5																										47
Leiognathus bindus					7	29	8	2	11																												57
L. blochi														1	-	-	1	1																			3
L. brevirostris								3	6	34	3	6	15	7	3	12	7	9	-	7																	112
L. daura																			3	-	3	11	-	5	2												24
L. elongatus								6	3	4	5	4	3	11	9																						45
L. equulus																					1	2	1	4	5	9											22
L. fasciatus																				1	1	1	-	2	-	4											9
L. leuciscus								1	2	18	3																										24
L. lineolatus											1	2	-	1																							4
L. pan									1	4	2	1																									8
L. smithursti																								1	4	4											9
L. splendens									1	-	-	9	11	14	-	2																					37
Secutor indicius																										9	-	5	-	1	3	-	2	2	1	2	25
S. insidiator							3	-	7	12	10	12	8	17	8	11	6																				94
S. ruconius	8	14	15	3	4																																44

Table 4 Frequency distribution of fin ray counts for Gerreidae

Species	Dosal fin rays								Anal fin rays							Pectoral fin rays			N
	IX	9	10	...	13	14	15		III	IV	V	VI	7	8	... 12 13	14	15	16	
Gerres abbreviatus	19	1	18						19				19			2	16	1	19
G. filamentosus	74	2	72						74				72	2		1	63	10	74
G. lucidus	12	1	11						12				12				11	1	12
G. macracanthus	3		3						3				3				3		3
G. macrosoma	12		12						12				12				12		12
G. oblongus	5		5						5				5				5		5
G. oyena	33		33						33				33				30	3	33
G. poieti	8		8						8				8				8		8
Pentaprion longimanus	27					1	11	15			25	2			3 24	2	25		27

Table 5 Frequency distribution of total number of tubed scales on lateral line for Gerreidae

Species	Tubed scales on lateral line																N
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
Gerres abbreviatus	2	2	–	2	2	11											19
G. filamentosus									4	1	2	13	23	22	3		68
G. lucidus	1	1	–	3	6												11
G. macracanthus									2	–	1						3
G. macrosoma									11	1							12
G. oblongus														3	–	2	5
G. oyena					2	–	26	2	3								33
G. poieti									1	6	1						8
Pentaprion longimanus							18	3	5	1							27

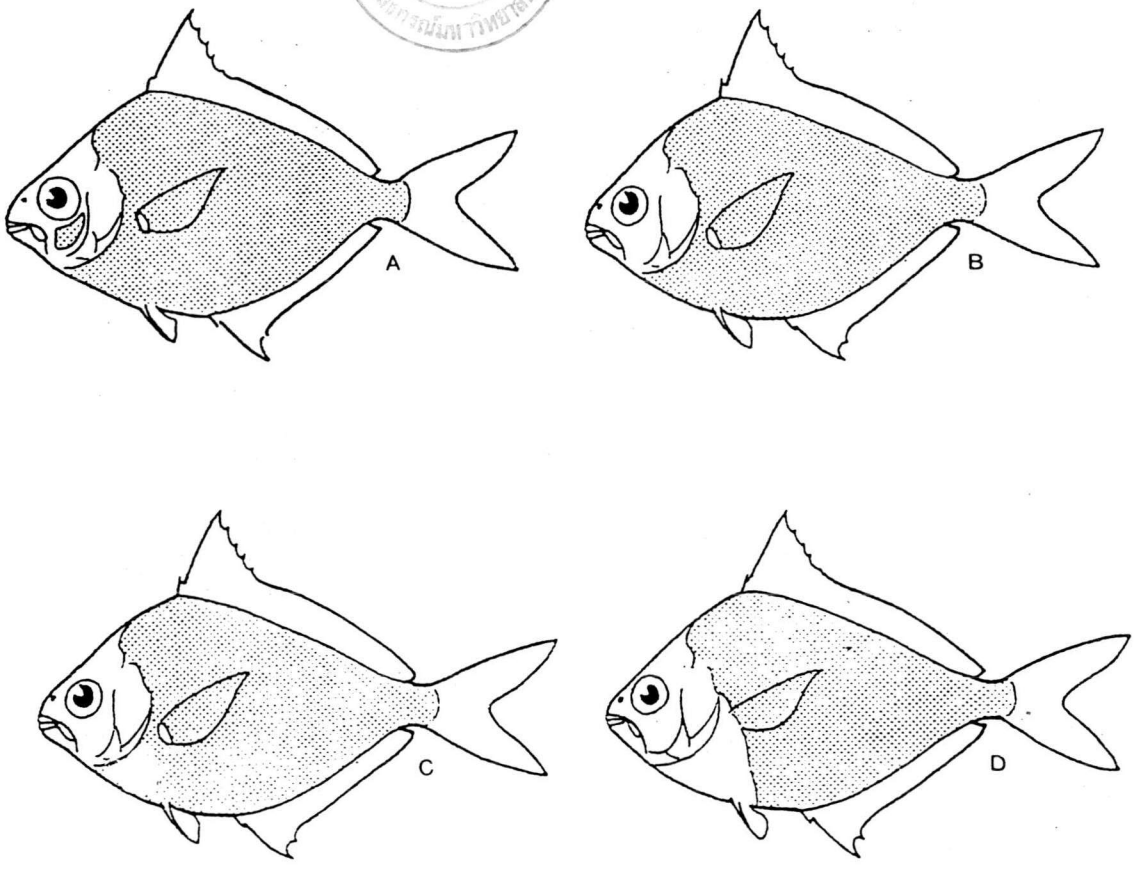

Fig. 3 Schematic drawings showing of distribution of scales among leiognathid fishes. Scaly areas are stippled. (refer to Tbl. 6)

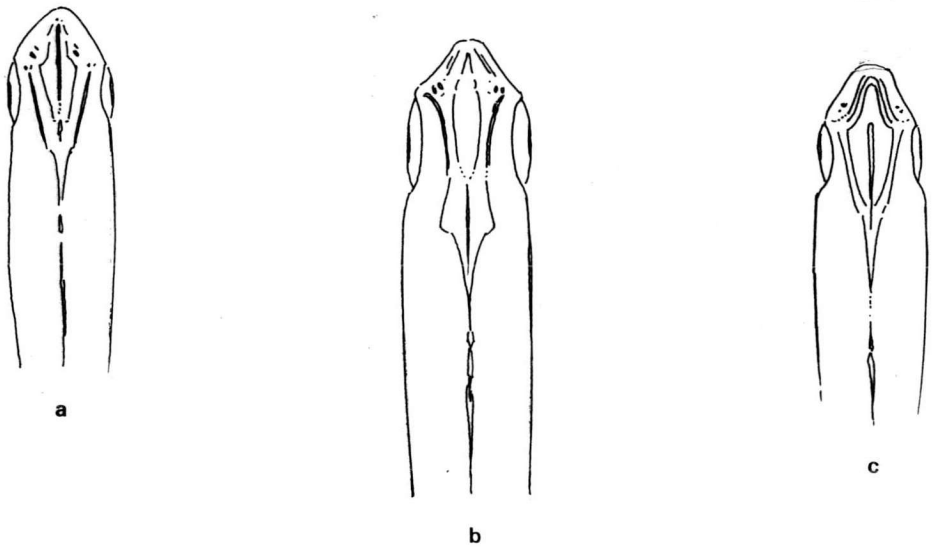

Fig. 4 Dorsal view of head among leiognathid fishes

(a) The median portion of nuchal spine is elevated as a ridge before border of eye

(b) The median portion of nuchal spine is elevated as a ridge after or equal hind border of eye

(c) The median portion of nuchal spine is elevated as a ridge immediately above the eye

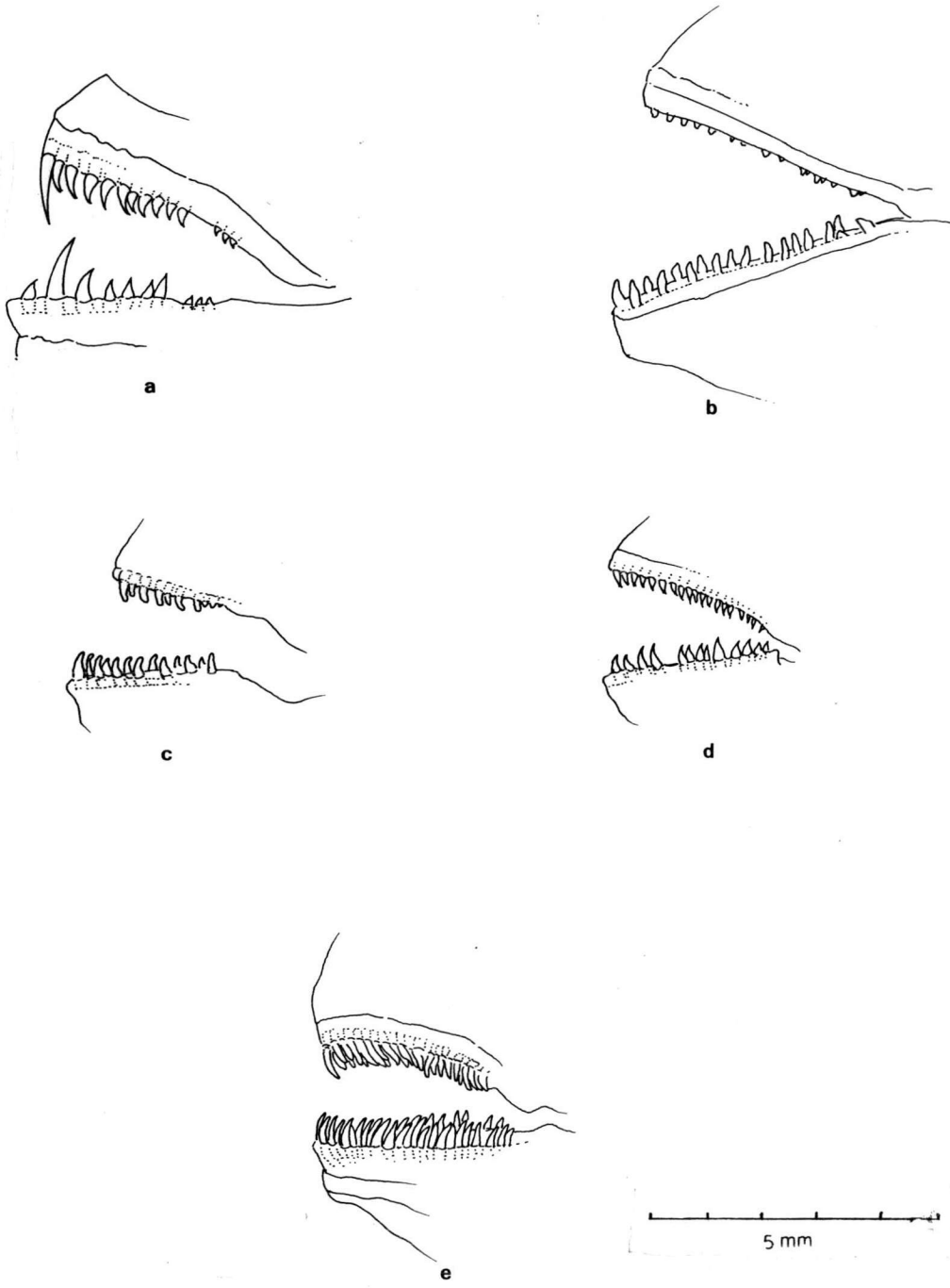

Fig. 5 Half-jaw dentition of species groups among Leiognathid fishes (refer to Tbl. 7)

Table 6 Four patterns of distribution of scales on leiognathid fishes

A. Suborbital and chest scaly	*Leiognathus elongatus*
B. Breast scaly	*L. bindus*
	L. blochi
	L. leucicus
	L. pan
	L. splendens
	Secutor indicius
	S. insidiator
	S. ruconius
C. Breast partial scaly	*L. lineolatus*
D. Breast naked	*Gazza minuta*
	L. brevirostris
	L. daura
	L. equulus
	L. fasciatus
	L. smithursti

Table 7 Tooth shape and arrangement of species groups for Leiognathidae

Fig.	Tooth shape and arrangement	Species
5a	Teeth arranged in single row in each jaw ; pair of symphysial canines in upper jaw ; teeth in lower jaw becoming caniniform anteriorly	*Gazza minuta*
5b	Teeth minute ; blunt coniform, arranged in 1-2 irregular rows in each jaw; upper jaw teeth smaller than those in lower jaw, and concealed behind rim of premaxilla	*Secutor indicius* *S. insidiator* *S. ruconius*
5c	1-2 rows of small conical teeth anteriorly in each jaw; the inner teeth smaller than the outer in upper jaw but subequal in lower jaw	*Leiognathus daura* *L. elongatus*
5d	1 row of irregular small conical teeth anteriorly in each jaw ; upper jaw teeth smaller than those in lower jaw	*L. bindus*
5e	Band of villiform teeth in each jaw	*L. blochi* *L. brevirostris* *L. equulus* *L. fasciatus* *L. leuciscus* *L. lineolatus* *L. pan* *L. smithursti* *L. splendens*

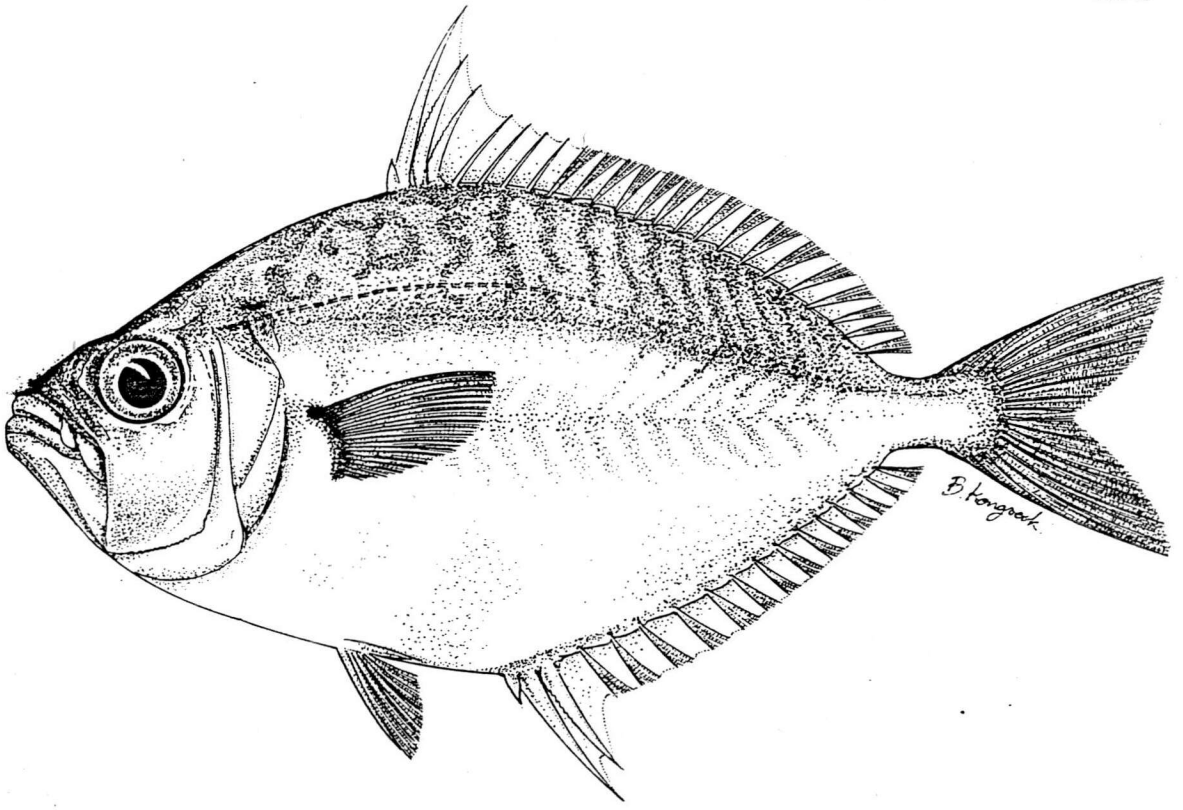

Fig.6 *Gazza minuta*, uncat. 103.3 mm S.L.,
Ang Sila, Chon Buri.

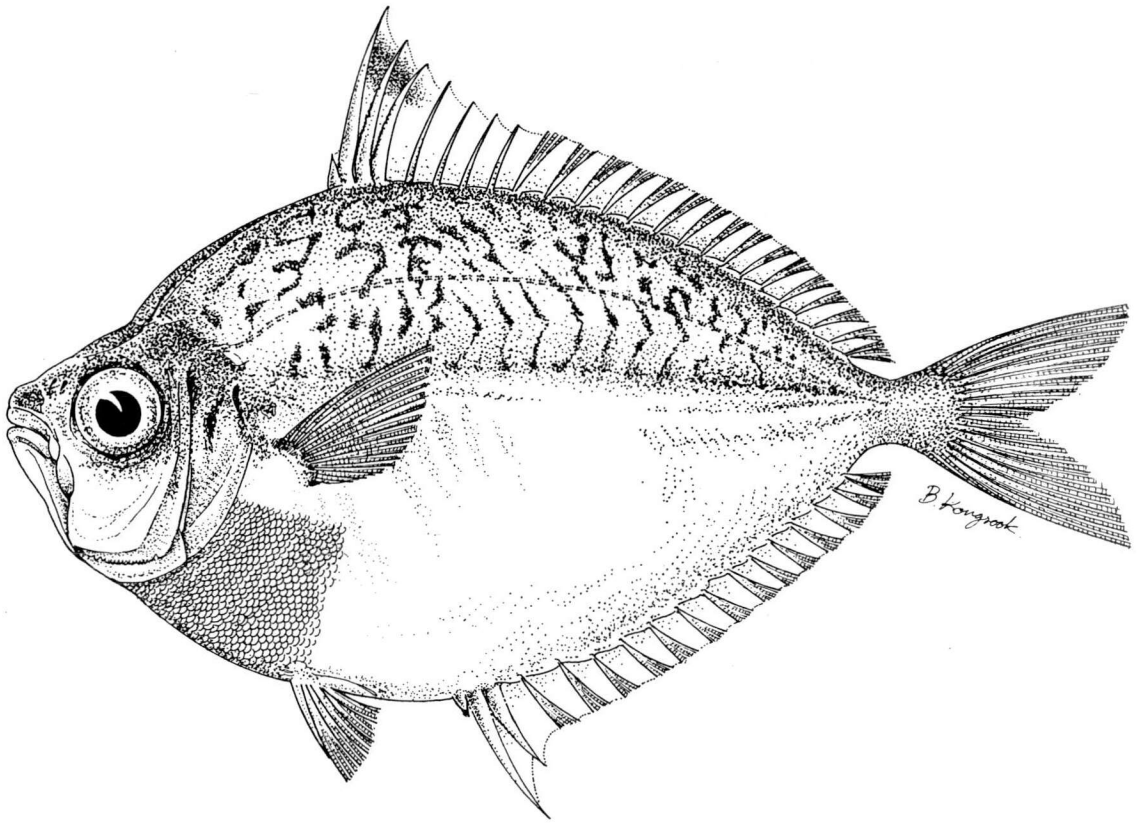

Fig.7 *Leiognathus bindus*, uncat. 48.0 mm S.L.,
Ban Don, Surat Thani.

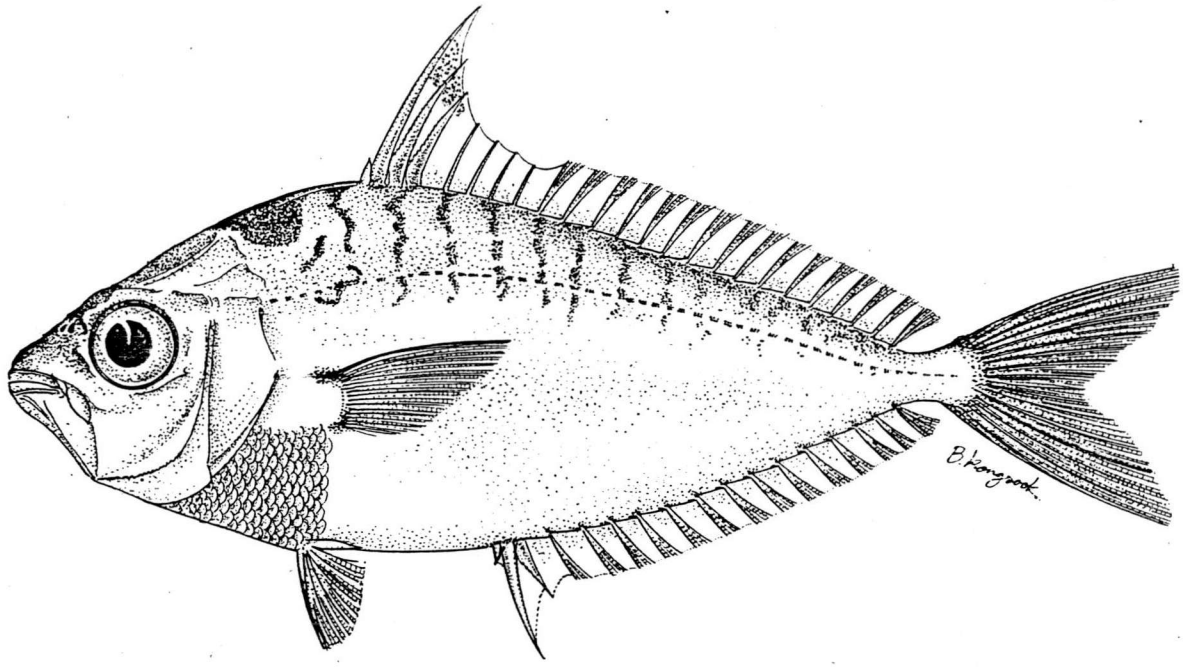

Fig.8 *Leiognathus blochi* uncat. 60.8 mm S.L., Krabi market.

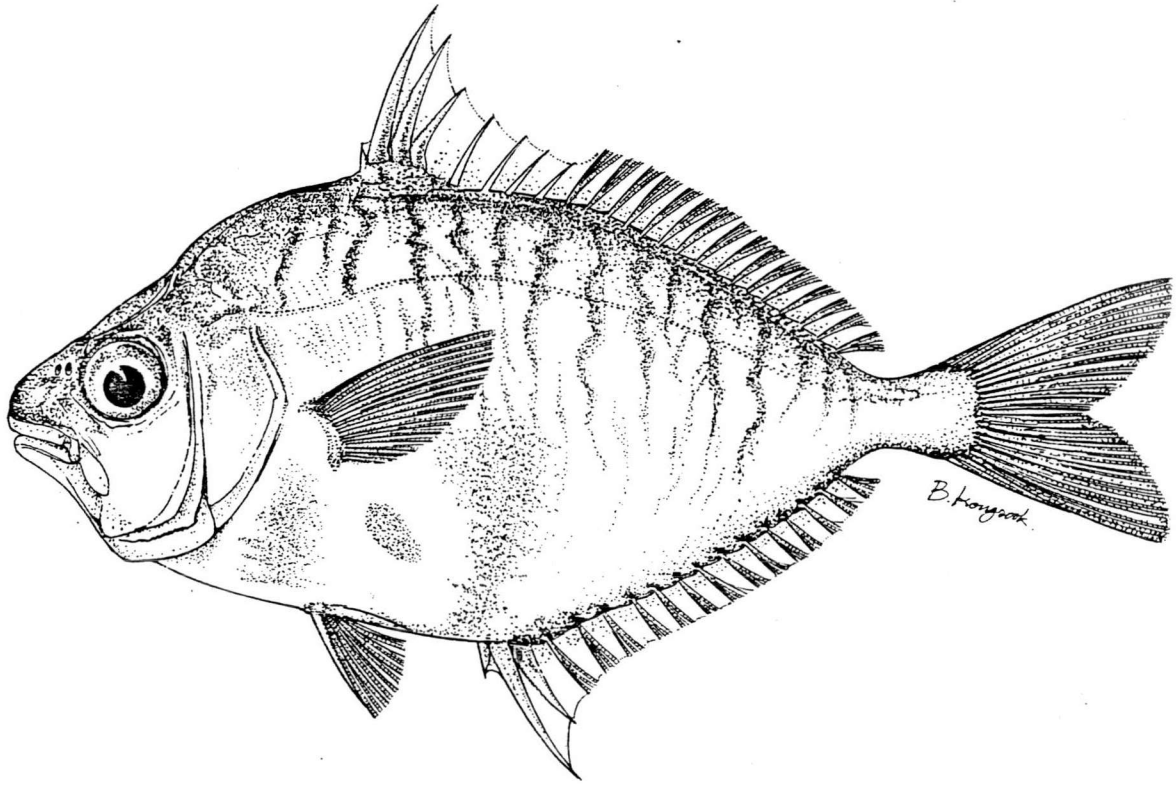

Fig.9 *Leiognathus brevirostris* uncat. 52.2 mm S.L., Trat.

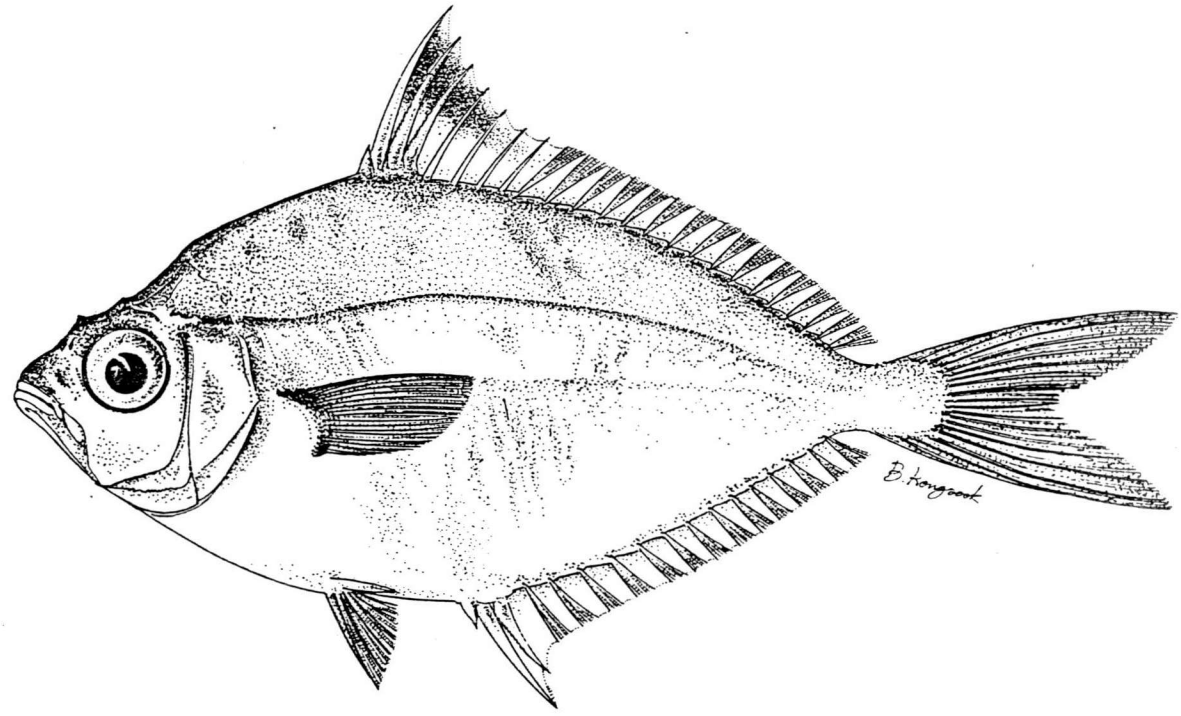

Fig.10 *Leiognathus daura*, uncat. 84.0 mm S.L.,
Ban Phae, Rayong.

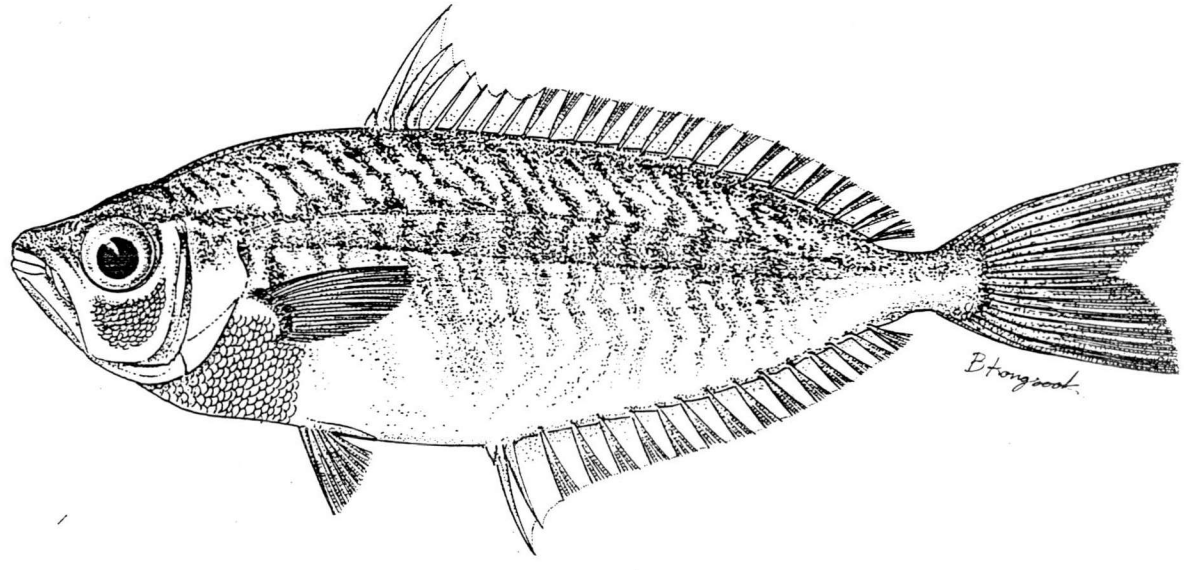

Fig.11 *Leiognathus elongatus*, uncat. 92.0 mm S.L.,
Ban Don, Surat Thani.

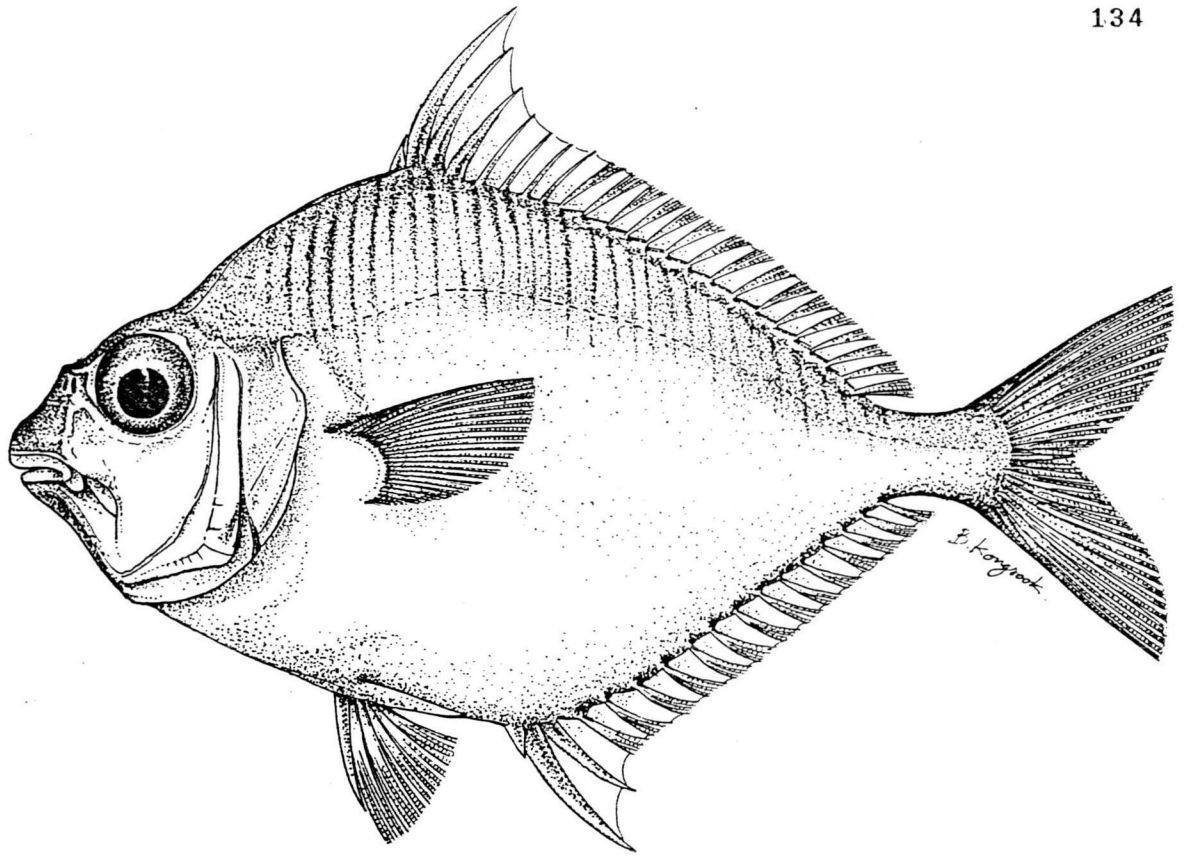

Fig.12 *Leiognathus equulus*, uncat. 96.2 mm S.L.,
Ban Don, Surat Thani.

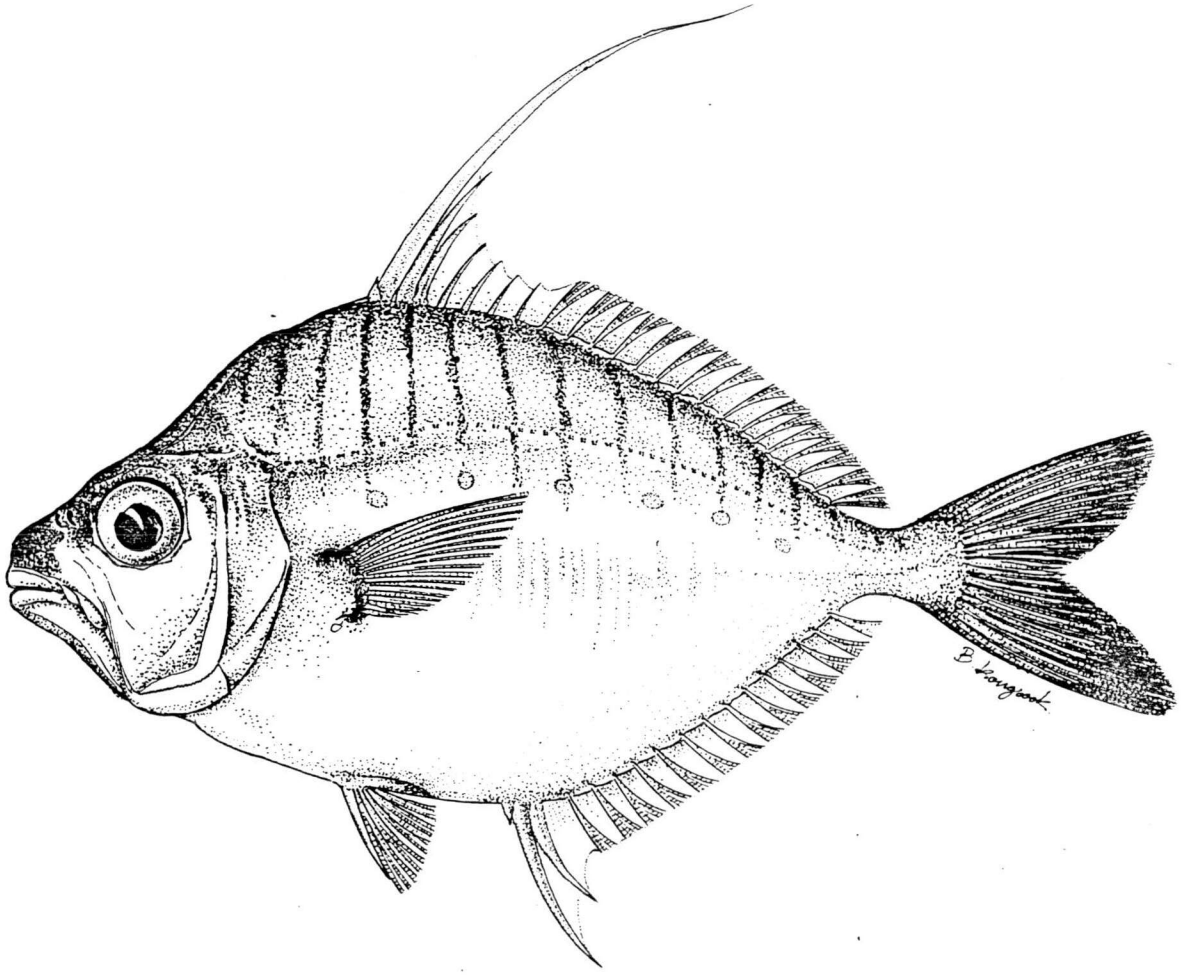

Fig.13 *Leiognathus fasciatus*, uncat. 89.9 mm S.L.,
Phuket market.

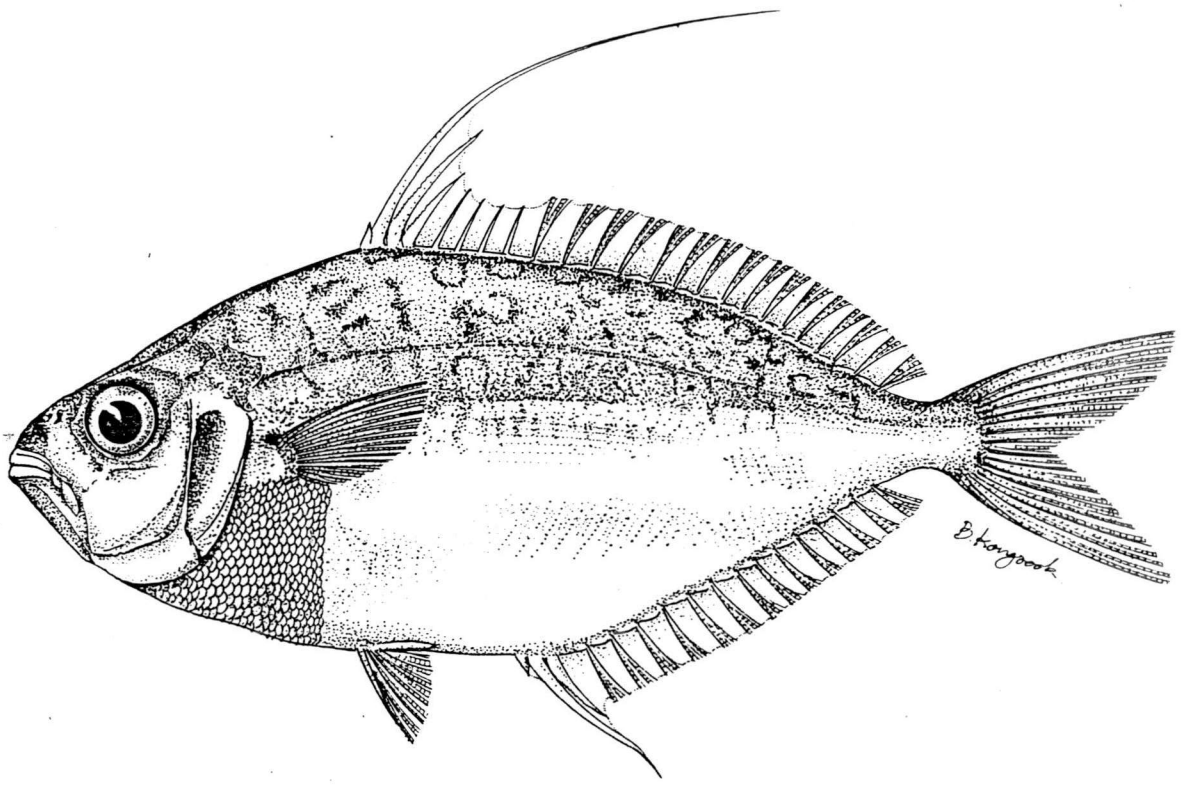

Fig.14 *Leiognathus leuciscus*, uncat. 76.8 mm S.L.,
Kantang, Trang.

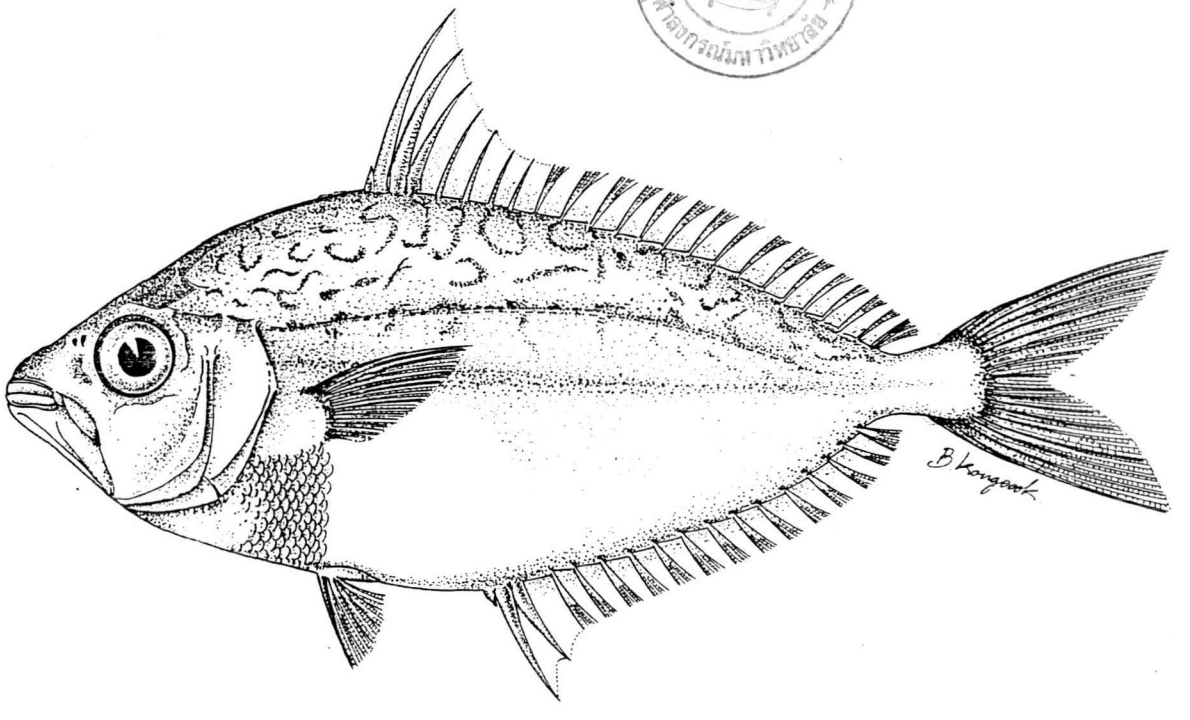

Fig.15 *Leiognathus lineolatus*, MFL. 124.0 mm S.L.,
Prachuap Khiri Khan.

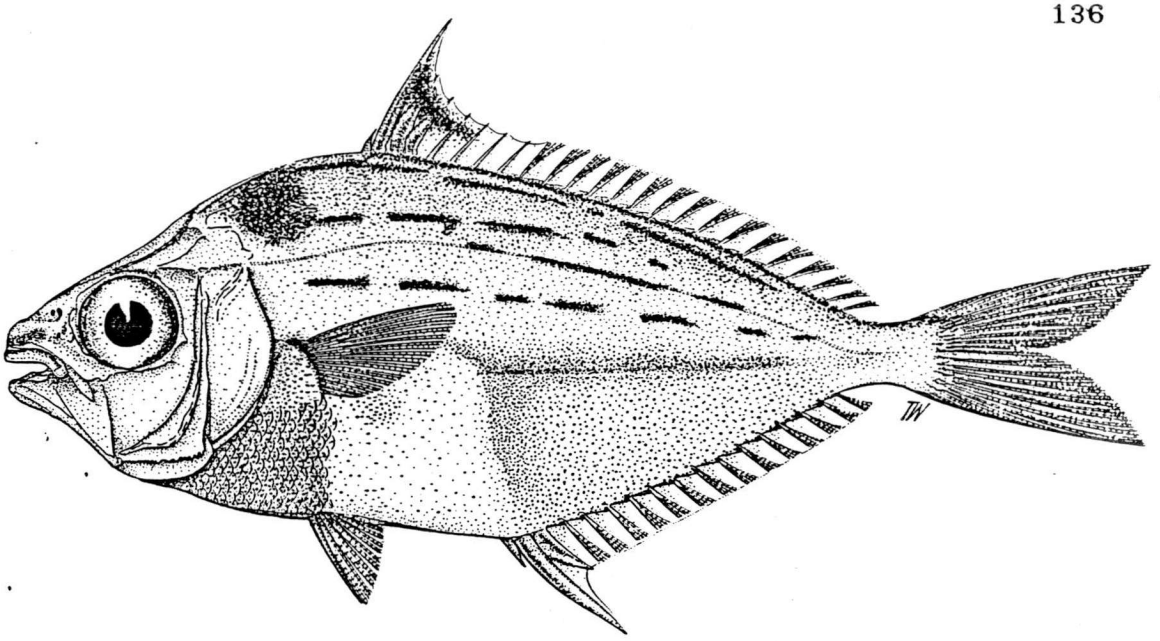

Fig.16 *Leiognathus pan*, uncat. 58.3 mm S.L.,
Phuket market (Fig. by T. Wongratana)

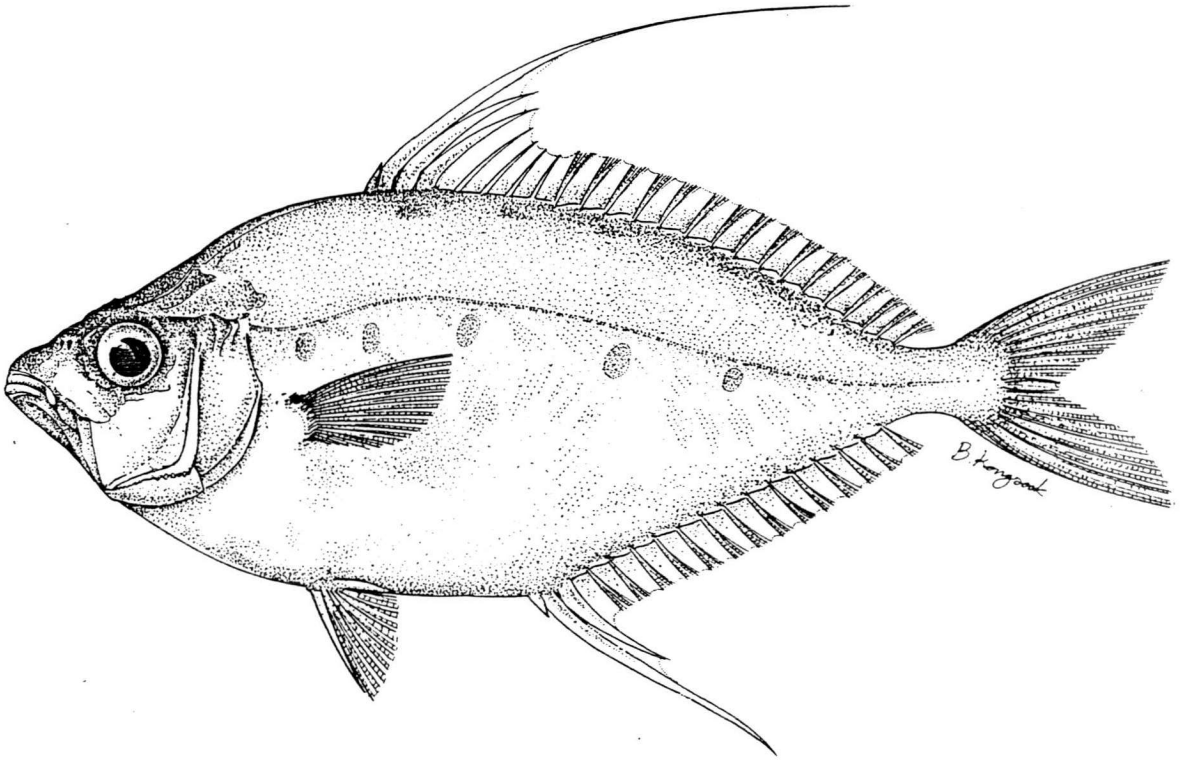

Fig.17 *Leiognathus smithursti*, uncat. 129.2 mm S.L.,
Ranong fish habour.

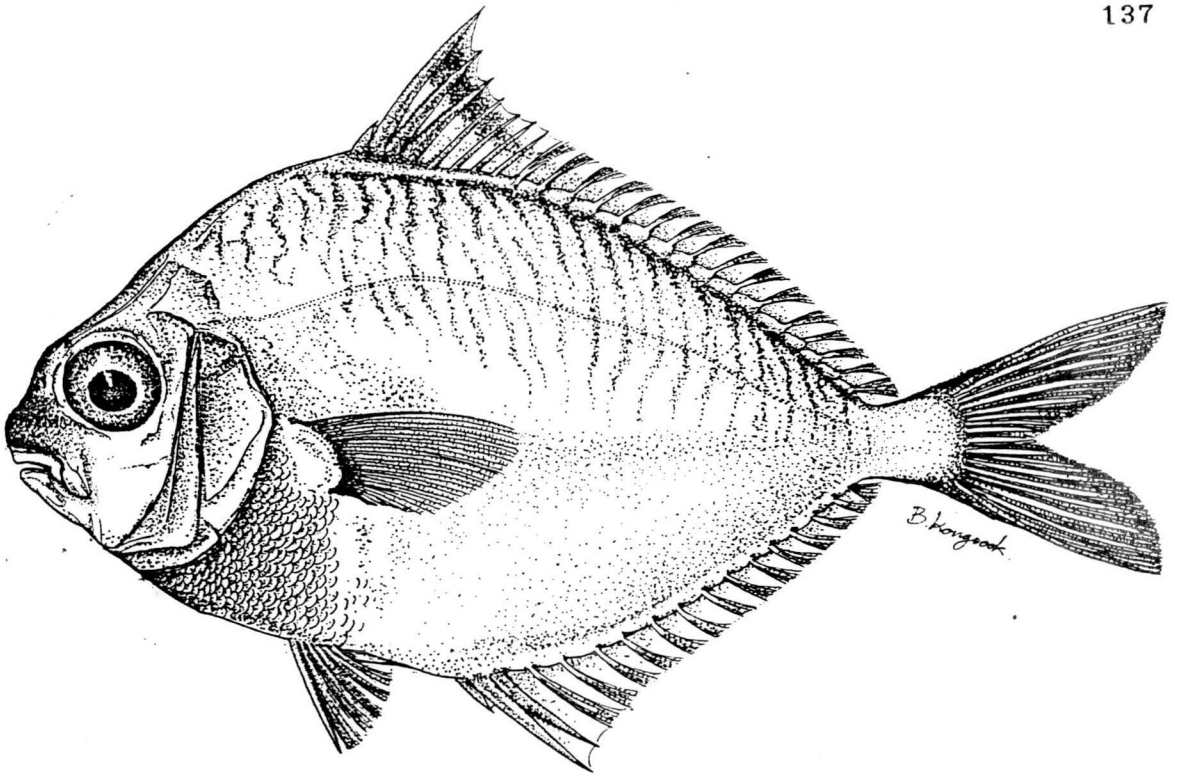

Fig.18 *Leiognathus splendens*, uncat. 66.5 mm S.L.,
Ko Sichang, Chon Buri.

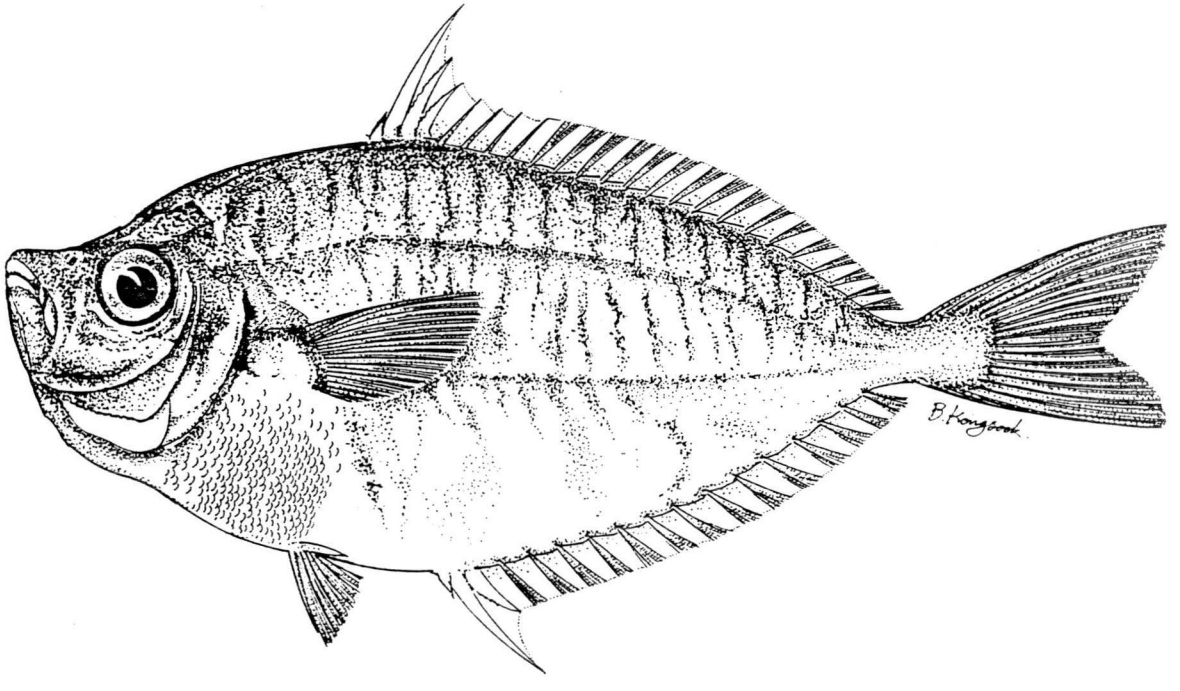

Fig.19 *Secutor indicius*, uncat. 71.0 mm S.L.,
Ban Phae, Rayong.

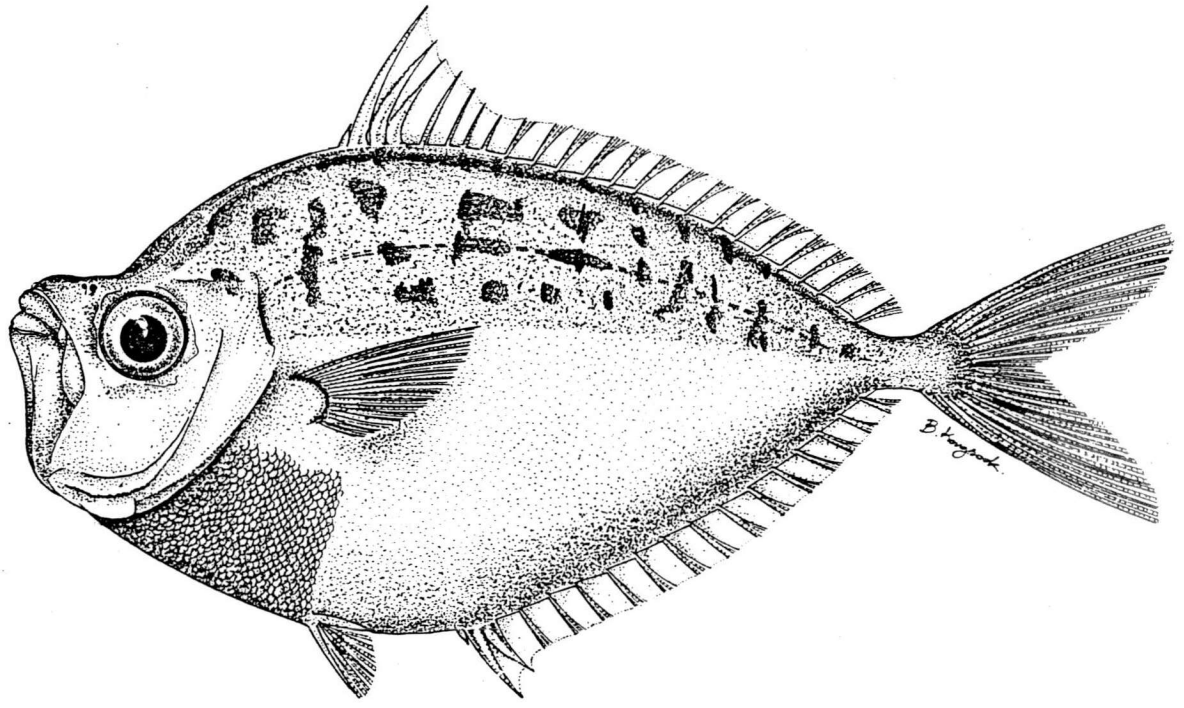

Fig.20 *Secutor insidiator*, uncat. 71.0 mm S.L.,
Ban Phae, Rayong.

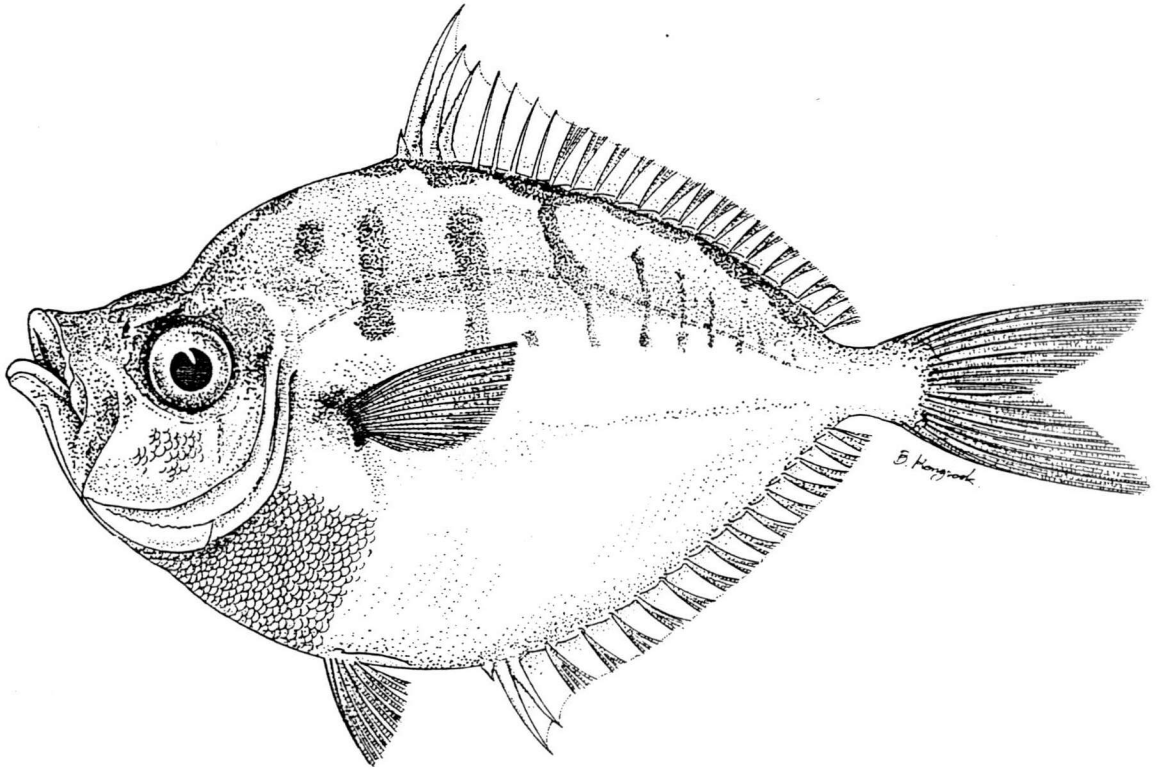

Fig.21 *Secutor ruconius*, uncat. 43.2 mm S.L.,
Ban Don, Surat Thani

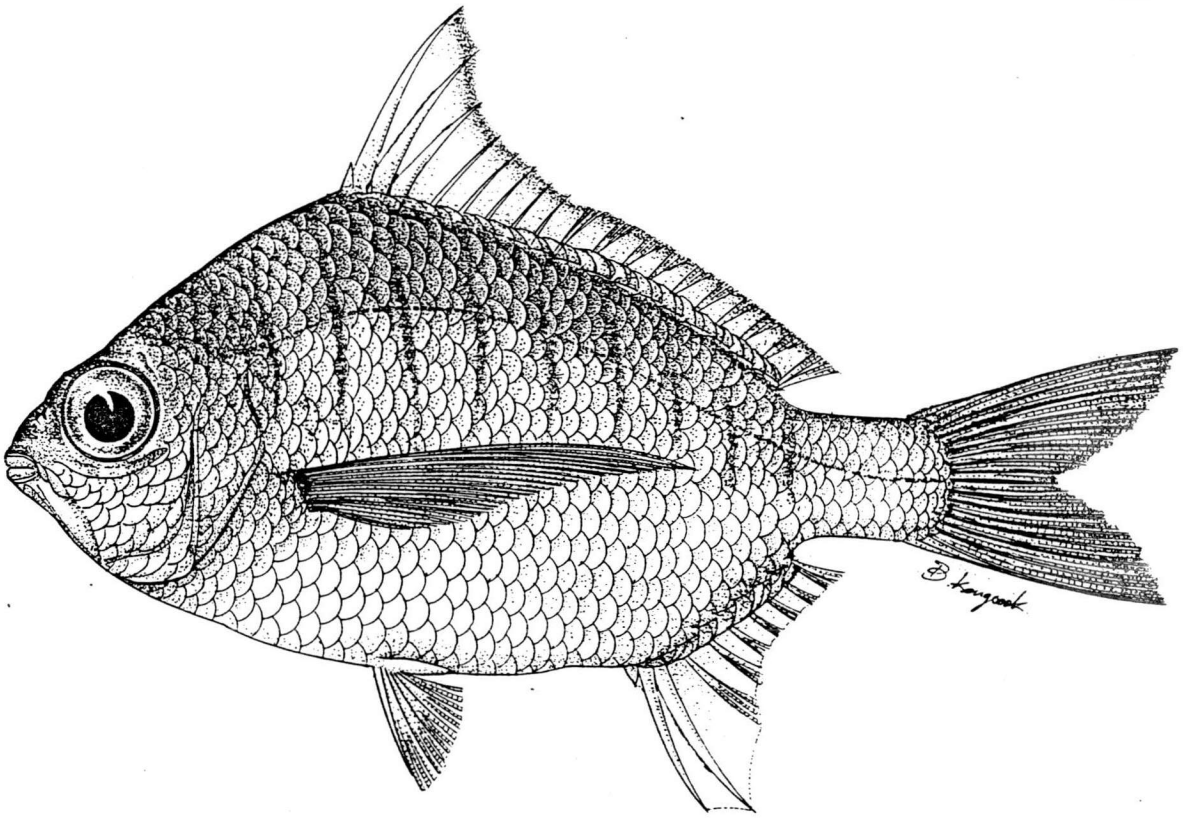

Fig.22 *Gerres abbreviatus*, uncat. 86.0 mm S.L.,
Phuket market.

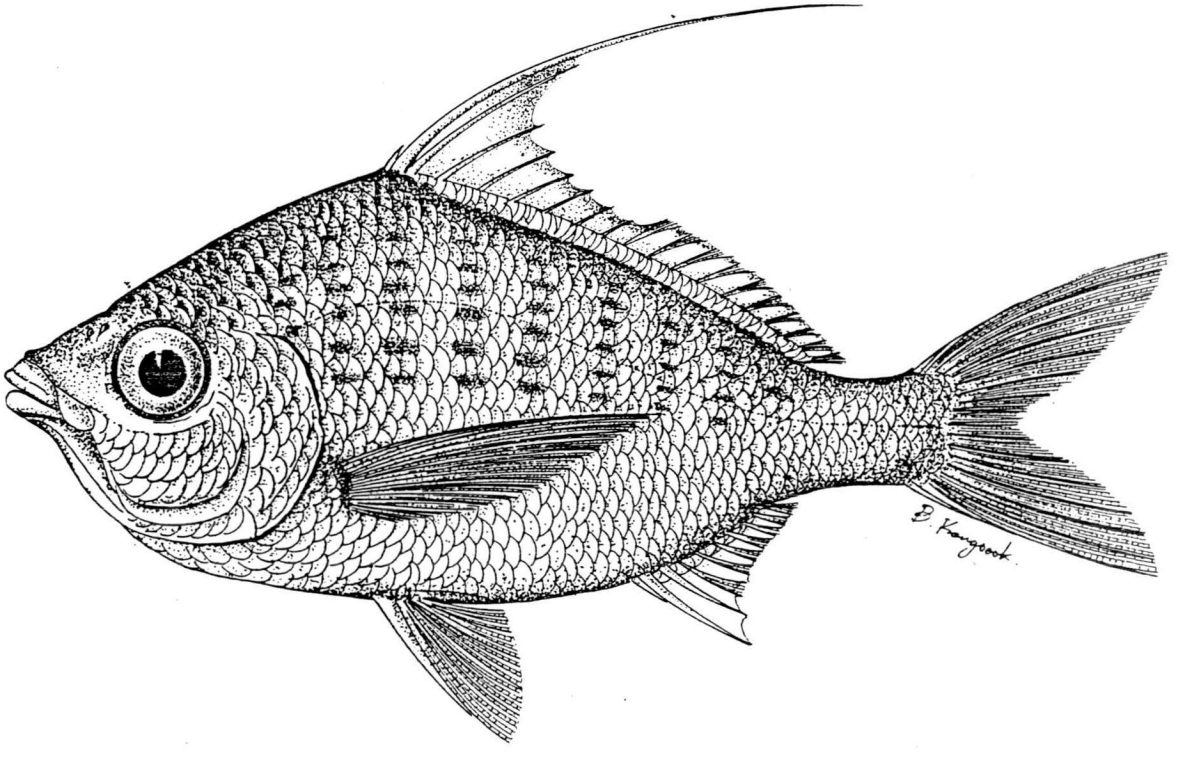

Fig.23 *Gerres filamentosus*, uncat. 145.0 mm S.L.,
Bar Don, Surat Thani.

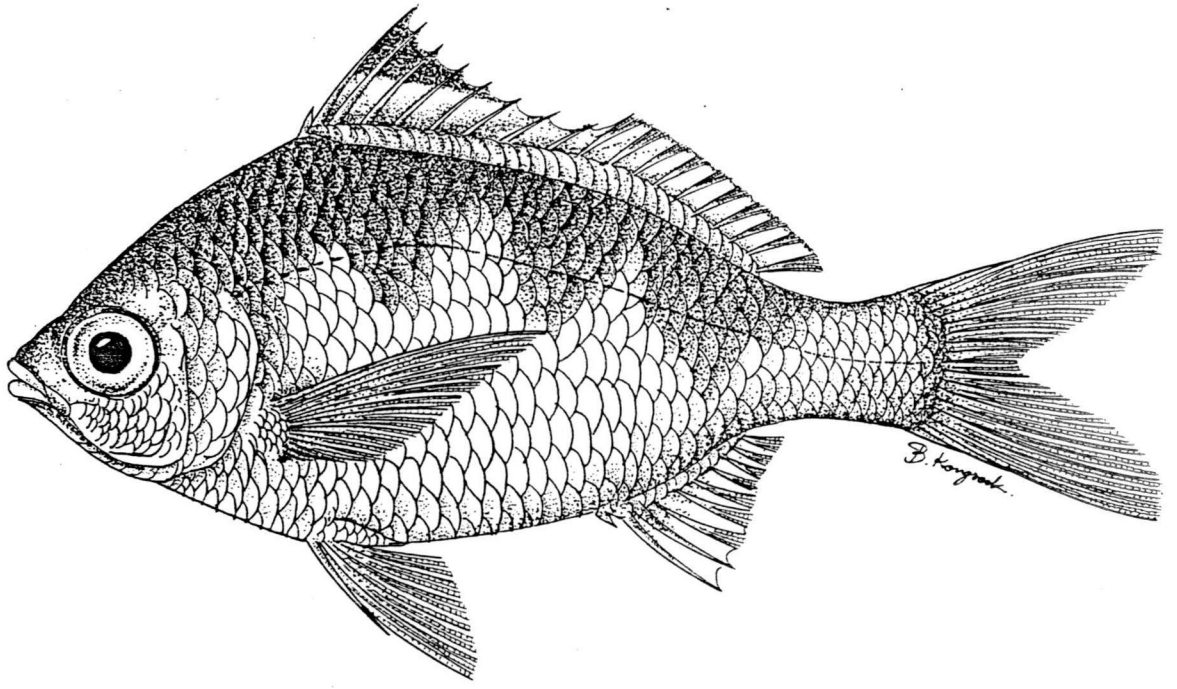

Fig.24 *Gerres lucidus*, uncat. 92.2 mm S.L., Trat.

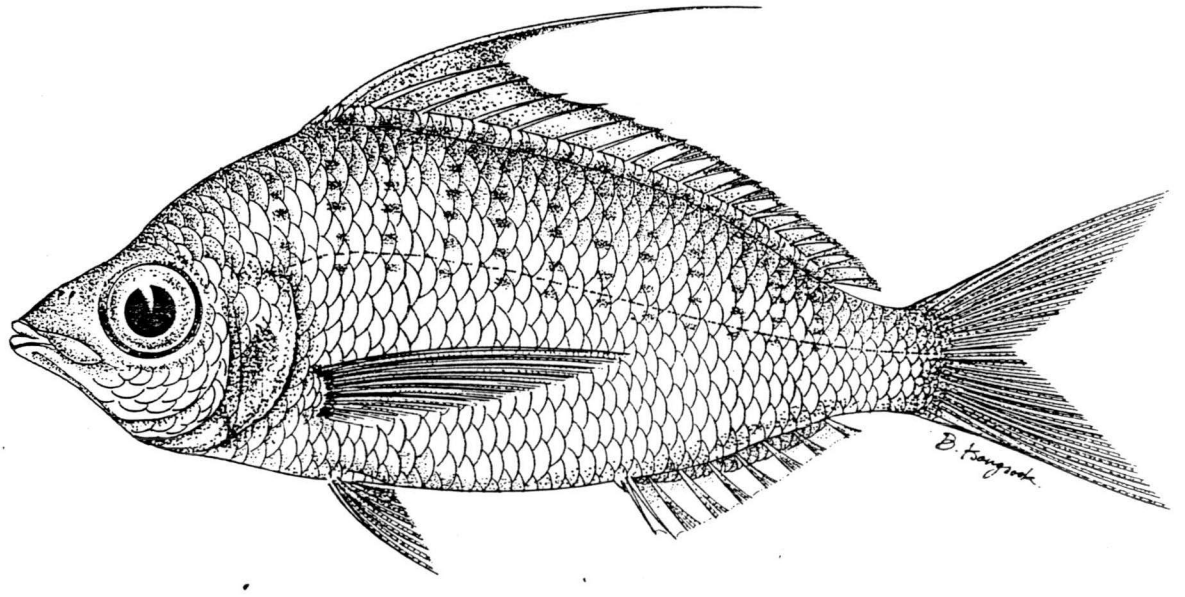

Fig.25 *Gerres macracanthus*, uncat. 125.0 mm S.L.,
Ranong fish habour.

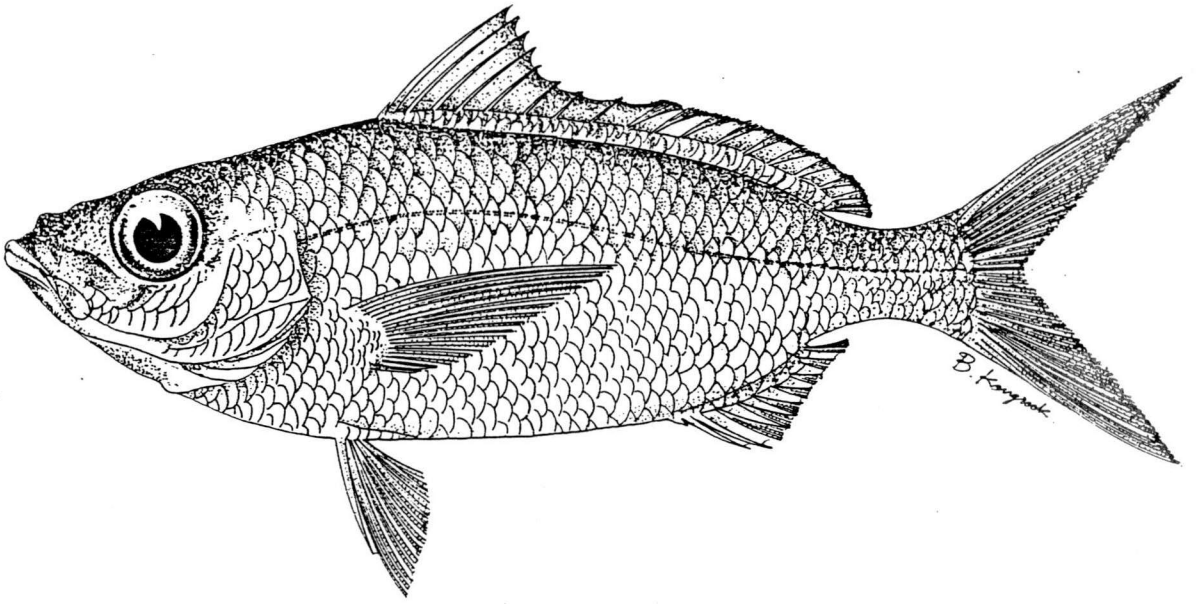

Fig.26 *Gerres macrosoma*, uncat. 104.0 mm S.L.,
Klung, Chanthaburi.

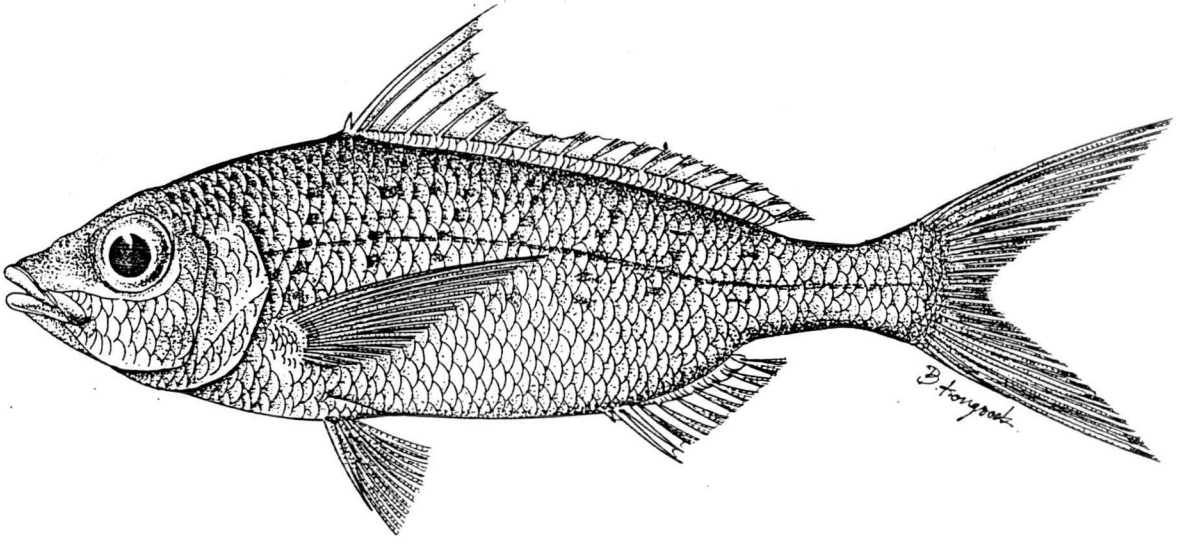

Fig.27 *Gerres oblongus*, uncat. 147.0 mm S.L.,
Kantang, Trang.

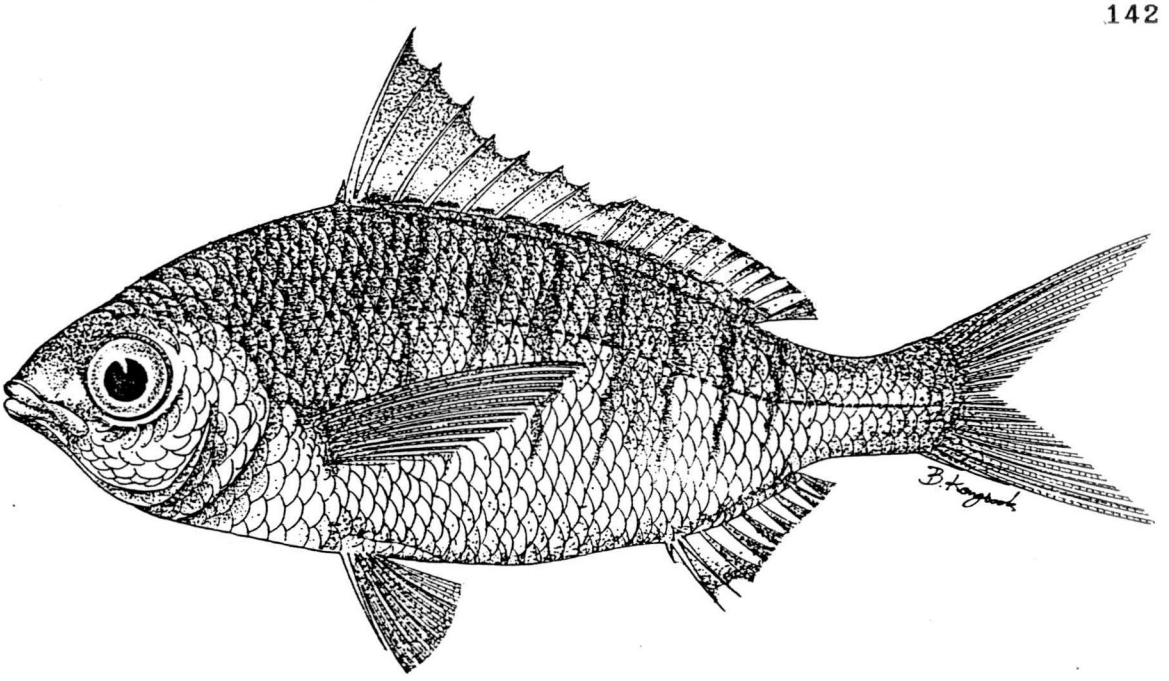

Fig.28 *Gerres oyena*, uncat. 110.0 mm S.L.,
Ban Phae, Rayong.

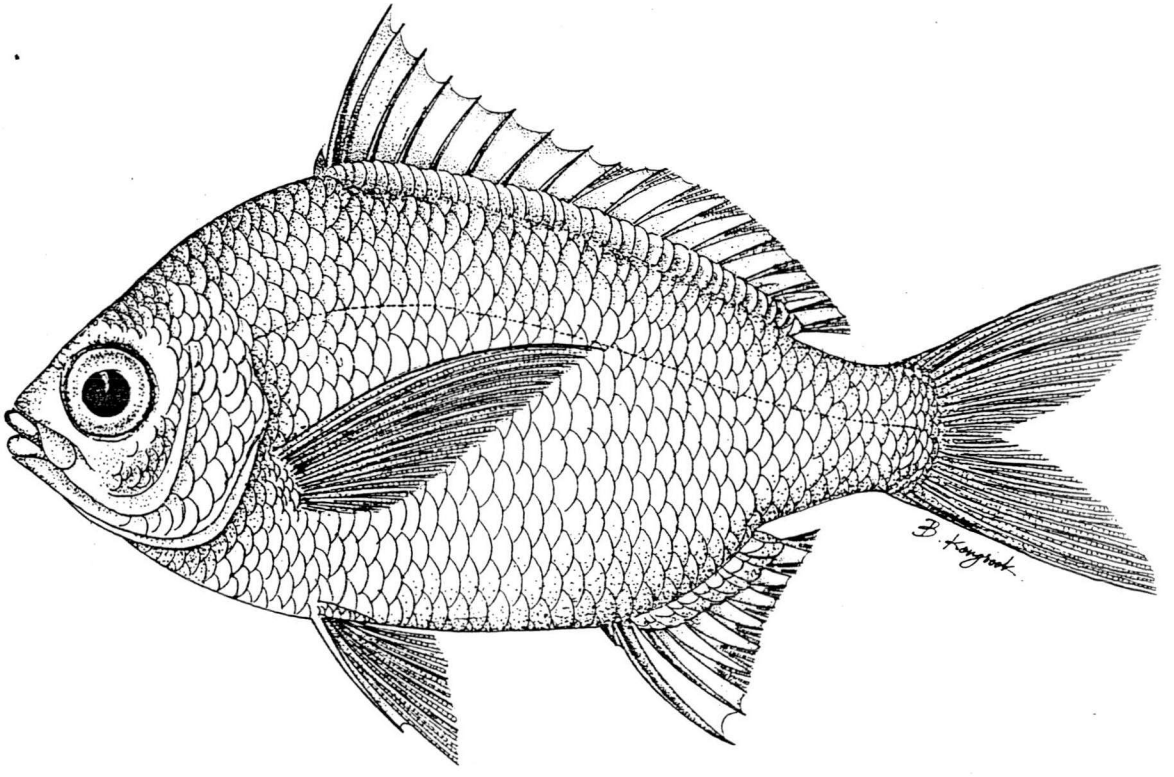

Fig.29 *Gerres poieti*, uncat. 119.3 mm S.L.,
Ranong fish habour.

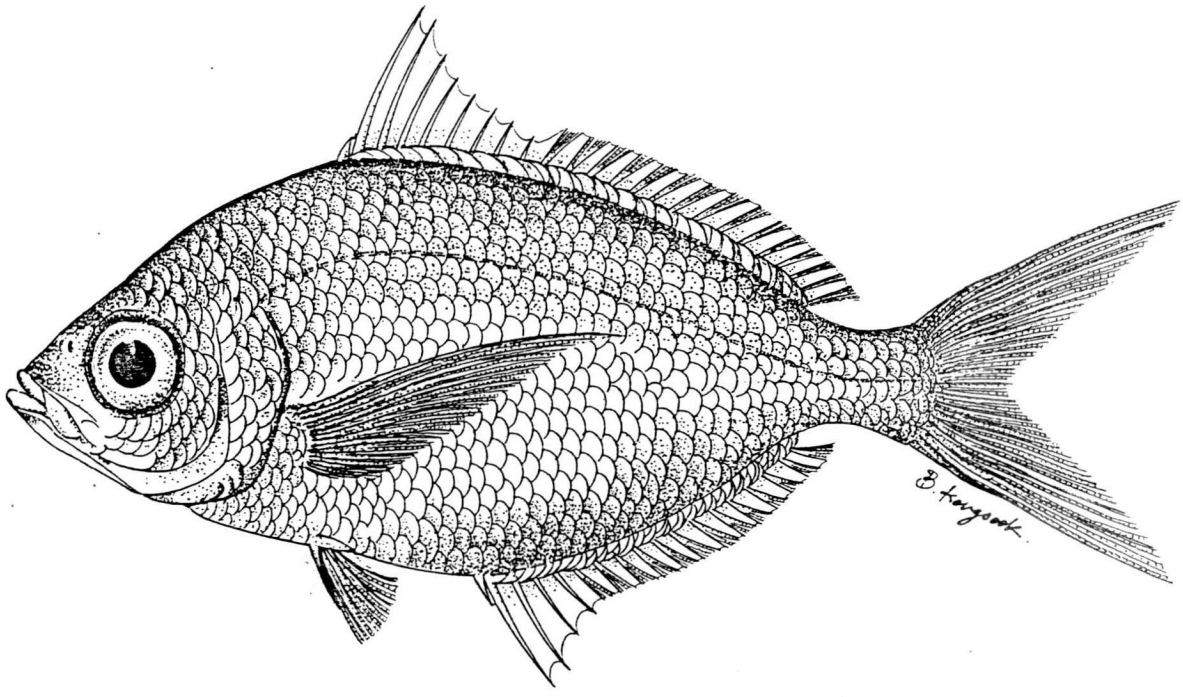

Fig.30 *Pentaprion longimanus*, uncat. 90.8 mm S.L., Phuket market.

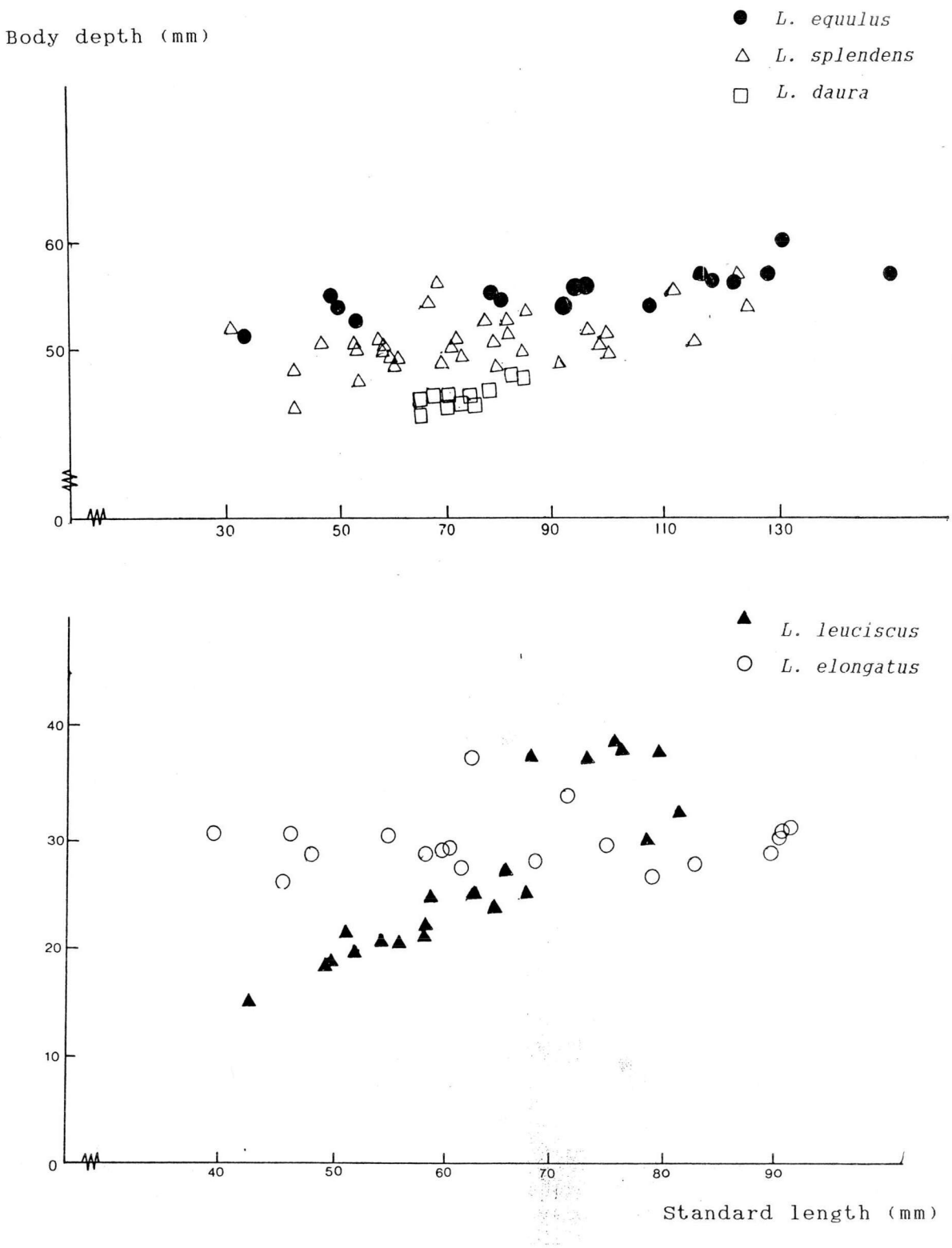

Fig. 31 Body depth in relative to standard length in 5 species of *Leioganthus*

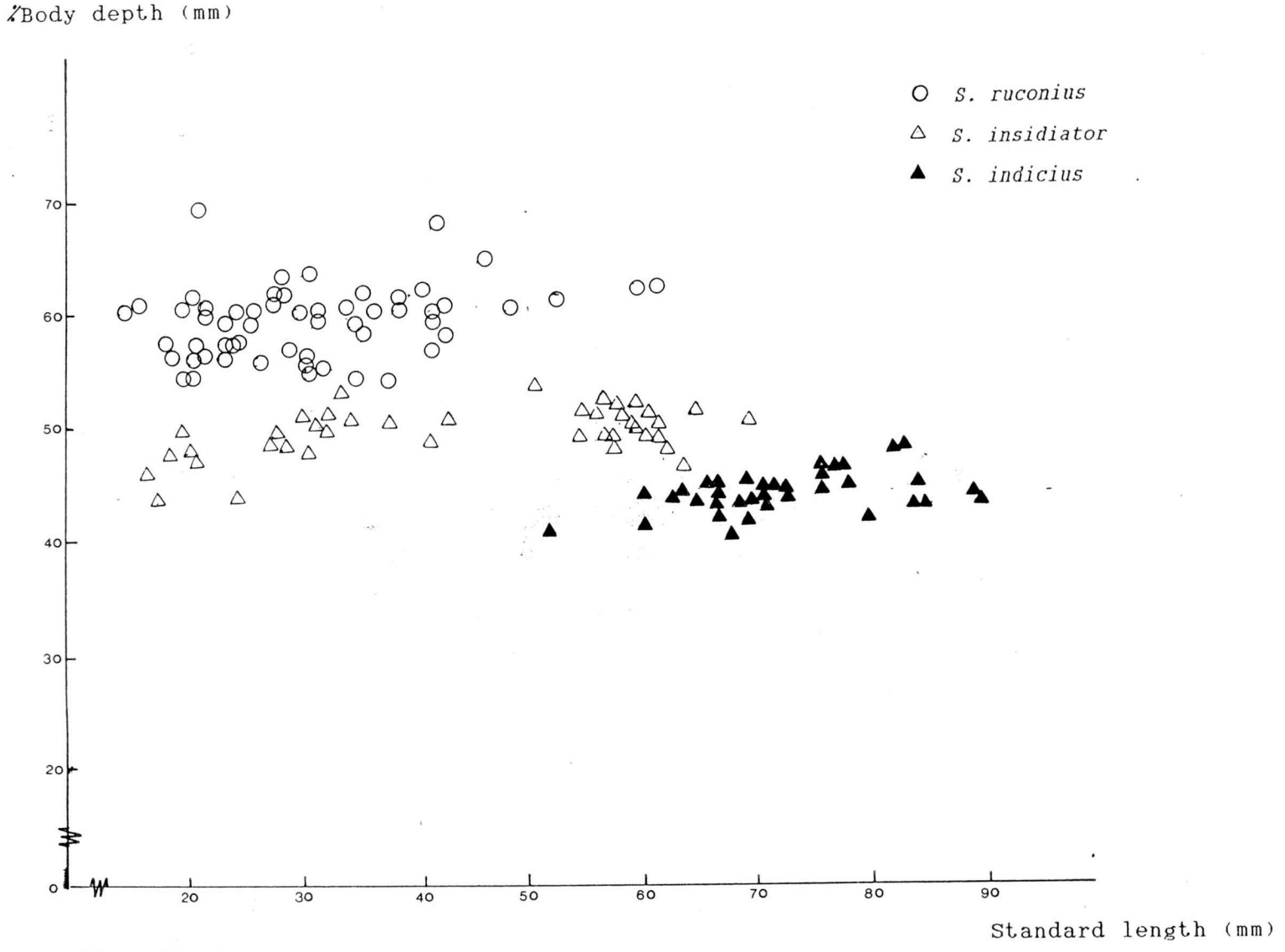

Fig. 32 Percentage of body depth in standard length in relation to standard length in 3 species of *Secutor*

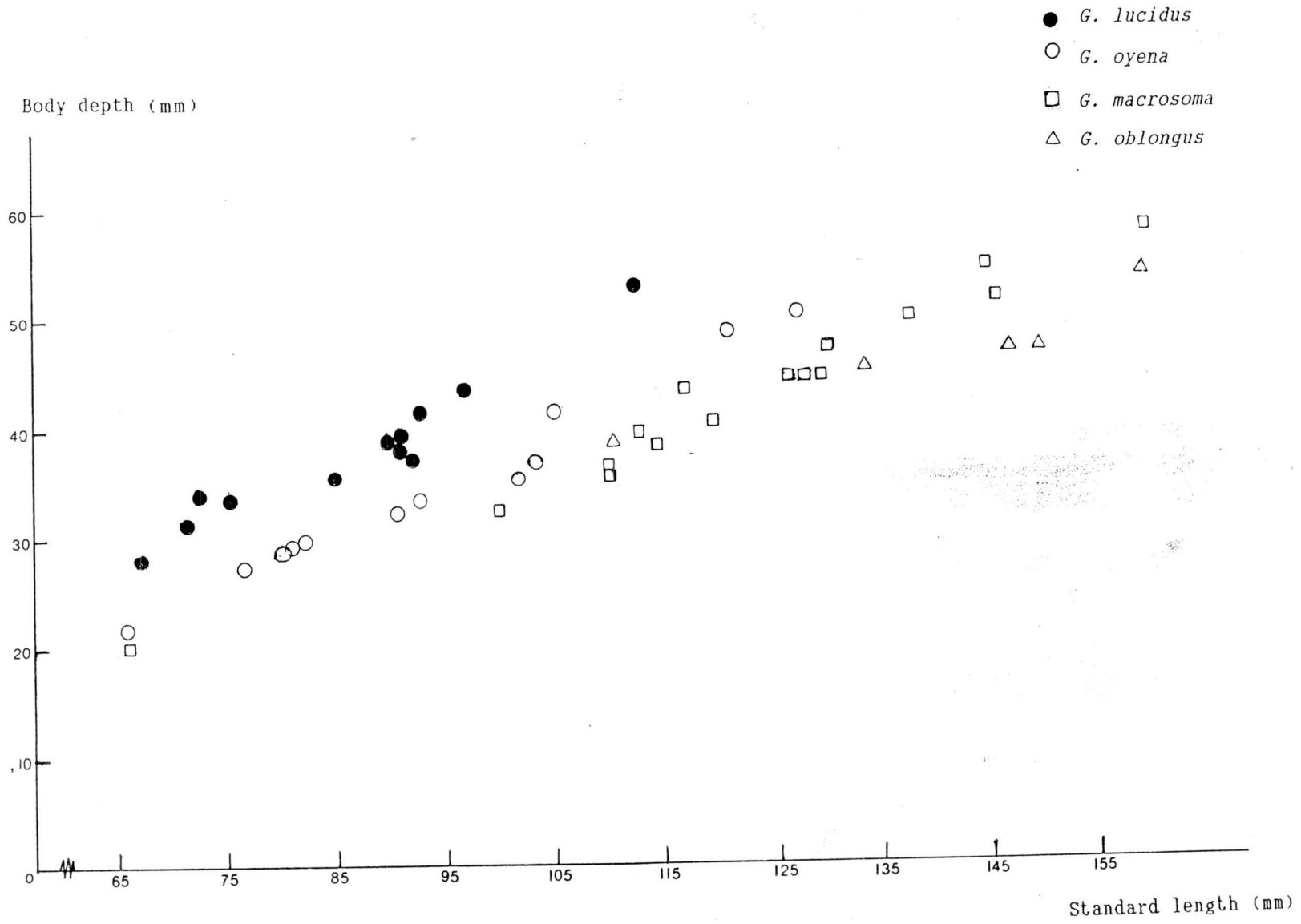

Fig. 33 Body depth in relation to standard length in 4 species of *Gerres*

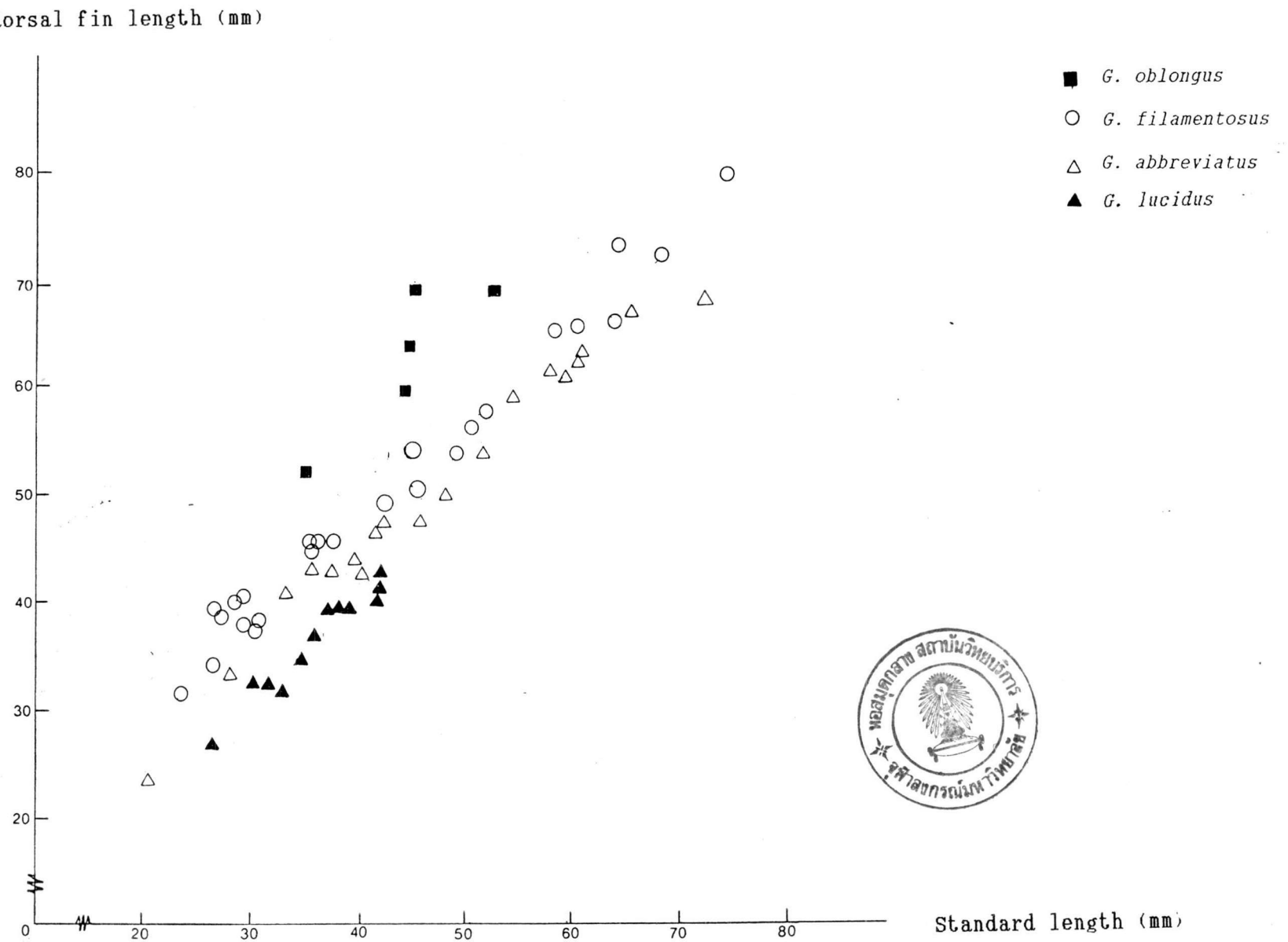

Fig. 34 Predorsal fin length in relation to standard length in 4 species of *Gerres*

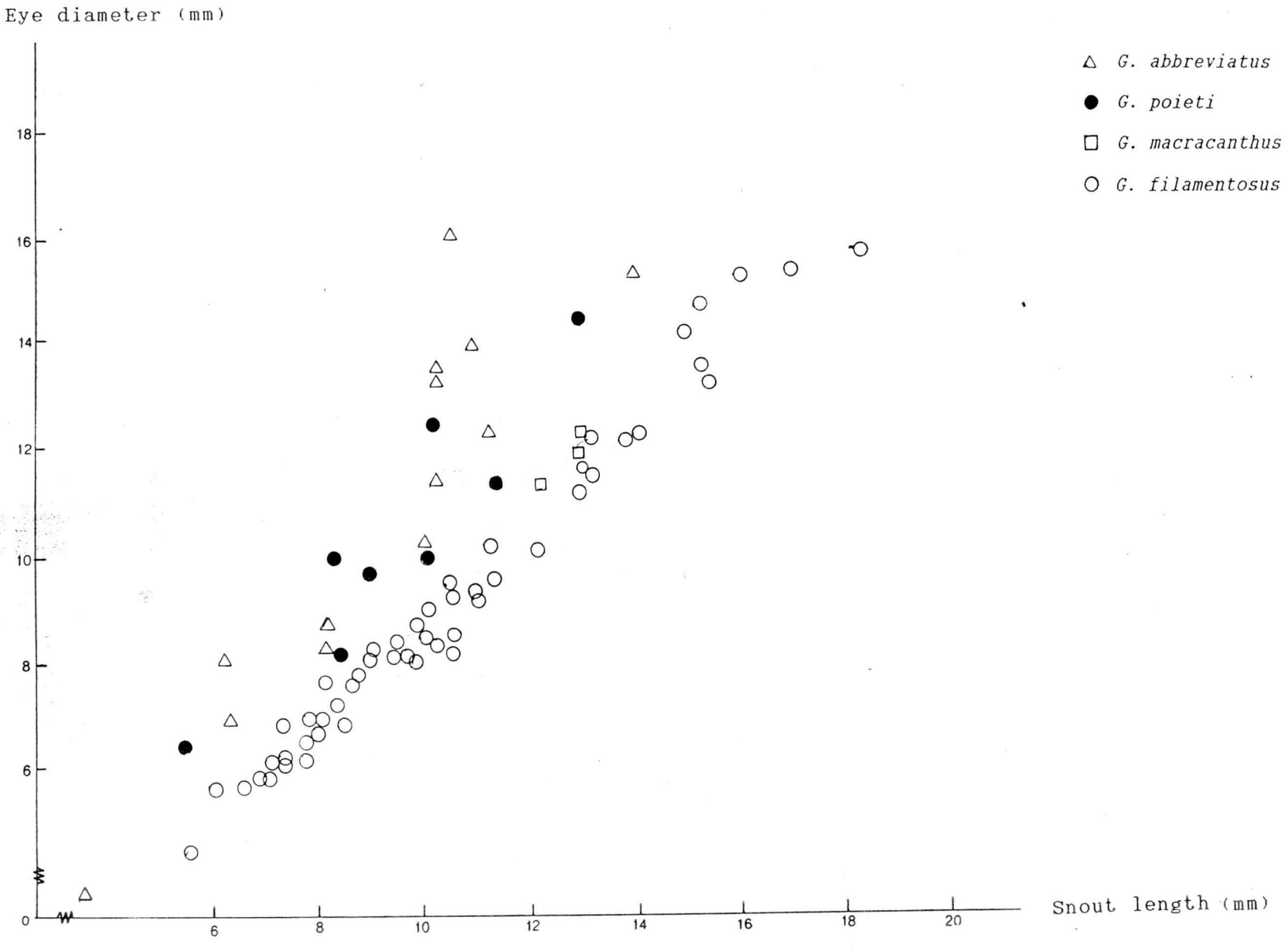

Fig. 35 Eye diameter in relation to snout length in 4 species of *Gerres*

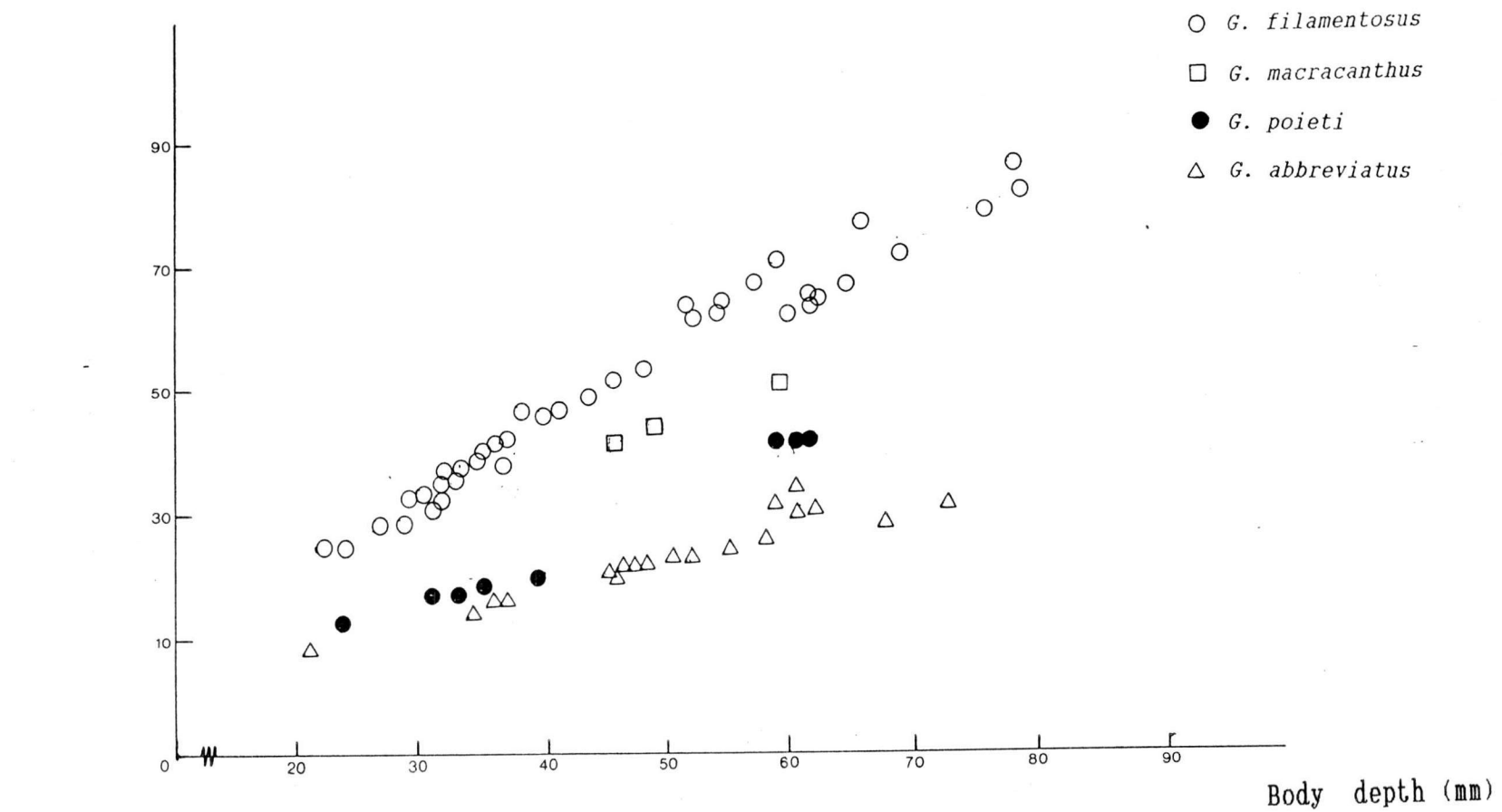

Fig. 36 Second dorsal fin spine in relation to body depth in 4 species of *Gerres*