

**Diagnostic Features:** Body depth 3.2 to 3.5 in SL; snout length about equal to or greater than diameter of eye; diameter of eye 3.1 to 4.0 in head length; lower margin of eye just above a line from tip of snout to upper base of pectoral fin; interorbital width 1.2 to 1.9 in eye; suborbital depth 1.2 to 2.3 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile about 3 to 7 scale rows before origin of dorsal fin; preopercle naked width 1.3 to 1.7 in scaly width; pectoral fins moderately long, 1.1 to 1.3 in head length, reaching to or just beyond level of anus; pelvic fins very long, 1.1 to 1.4 in head length, reaching to or just beyond level of origin of anal fin; caudal fin forked, upper rays prolonged and pointed, but not forming a filament; 3 or 4 pair of small recurved canines anteriorly in upper jaw; gill rakers 11 to 13. **Colour:** body silvery pink with bluish iridescent tinges, darker above; 5 pale golden-yellow stripes on sides beneath lateral line; ventral surface silvery-white with broad lemon-yellow stripe on either side of ventral midline; head with golden iridescent reflections; ovoid-shaped, pinkish-mauve blotch extending from beneath eye to upper part of opercle; eye pinkish-silver; upper lip yellow anteriorly; dorsal fin pale pink, with broad yellow margin, edged below by red; greyish mauve submarginal stripe on posterior half of fin; anal fin translucent pinkish, with reddish margin and narrow yellow submarginal stripe; narrow yellow stripe just above base of anal fin, extending to tip of last anal-fin ray; caudal fin pink, upper tip yellow; pelvic fins pinkish, with bright yellow stripe along second ray from base to tip of fin; pectoral fins pinkish; peritoneum silvery-white.

**Geographical Distribution:** So far known only from Indonesia: southern coasts of eastern Java, Bali, Lombok (Fig. 89).

**Habitat and Biology:** A benthic species, occurs in depths of 65 to 125 m.

**Size:** Maximum size is 26 cm SL, commonly 15 cm SL.

**Interest to Fisheries:** Taken so far only by exploratory bottom trawling. Not seen in local markets. No major fishery exists.

**Literature:** Gloerfelt-Tarp & Kailola (1984, as *N. virgatus* and figured as *N. tambuloides*); Allen & Swainston (1988, as *N. sp.*).

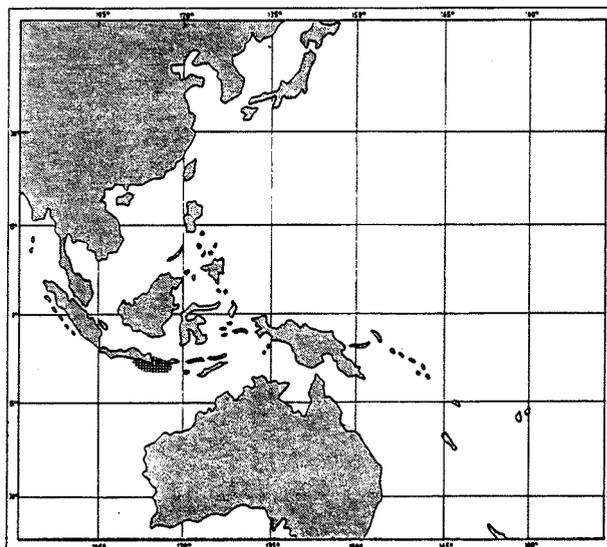


Fig. 89

**Remarks:** This undescribed species is easily confused with *N. virgatus*, under which name it may have been misidentified in the past.

*Nemipterus sp. 2*

Fig. 90, Plate III, c

NEMIP Nem 5

Undescribed species

**Synonyms:** None.

FAO Names: En - Palefin threadfin bream.

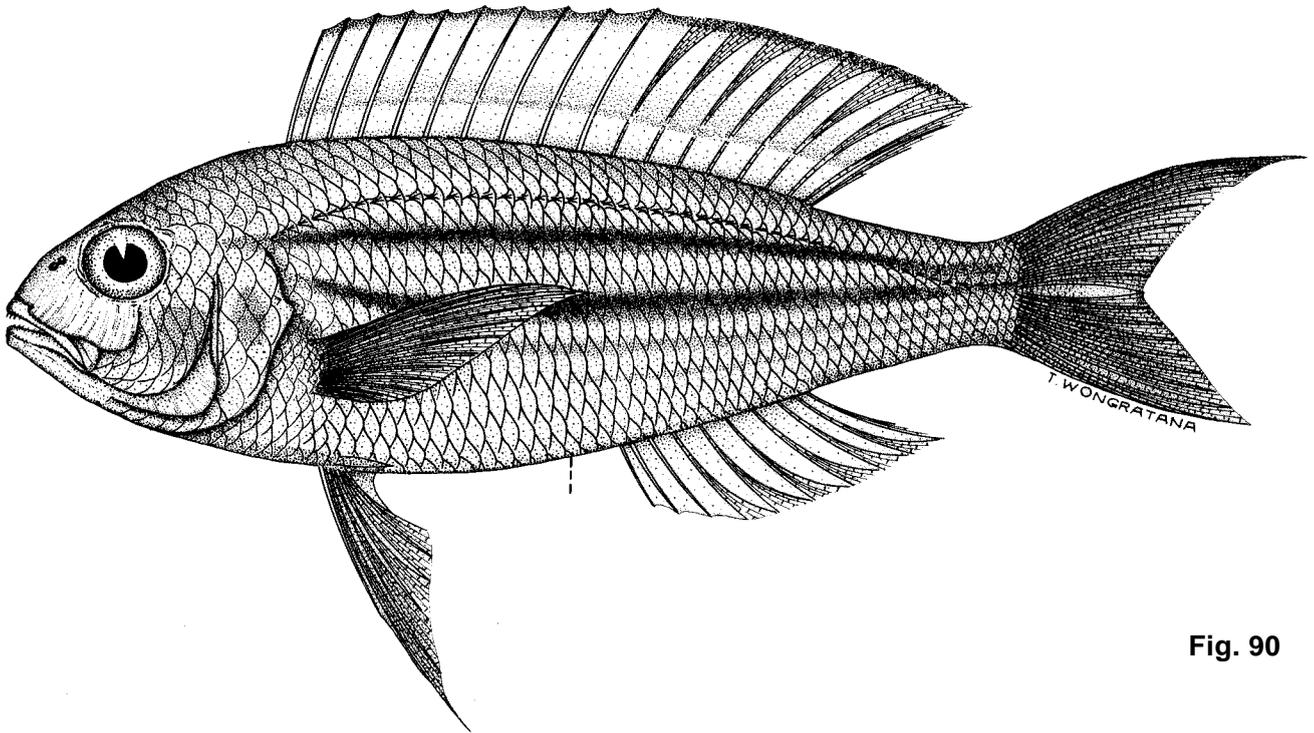


Fig. 90

**Diagnostic Features:** Body depth 2.8 to 3.4 in SL; snout length about equal to or greater than diameter of eye; diameter of eye 2.9 to 4.3 in head length; lower margin of eye tangent to or just above a line from tip of snout to upper base of pectoral fin; interorbital width 0.9 to 1.8 in eye; suborbital depth 1.1 to 2.1 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile about 3 to 7 scale rows before origin of dorsal fin; preopercle naked width 1.1 to 1.6 in scaly width; pectoral and pelvic fins long, reaching to or just short of level of origin of anal fin; pectoral fins 0.9 to 1.1 in head length, pelvic fins 1.0 to 1.2 in head length; caudal fin forked, upper rays prolonged and pointed, but not forming a filament; 3 or 4 pair of small recurved canines anteriorly in upper jaw; gill rakers 13 to 16.

**Colour:** body pinkish, silvery below; two narrow golden-yellow stripes on sides; the first from above upper preopercle margin to upper caudal-fin base; the second from behind upper opercle margin, curving downwards slightly and extending to middle of caudal-fin base; cheeks and opercle tinged with bluish-gold; dorsal fin pale pinkish-yellow, with bright yellow margin and pale dusky submarginal stripe; caudal pinkish, upper tip bright yellow; anal fin translucent whitish; pelvic fins translucent whitish, yellow stripe extending down second soft ray, axillary scale yellow; pectoral fins pale pink.

**Geographical Distribution:** West Pacific, including southern Japan, Gulf of Thailand, South China Sea, Strait of Malacca, Indonesia (Fig. 91).

**Habitat and Biology:** A benthic species, occurs on sand or mud bottoms in depths of about 60 to 80 m.

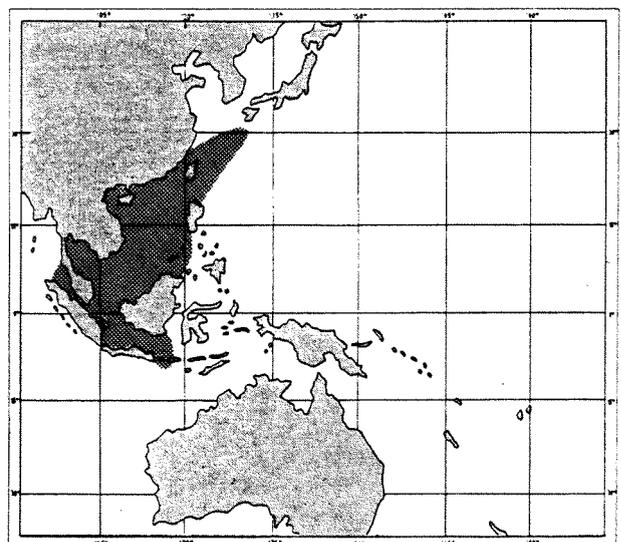


Fig. 91

Estimates of asymptotic length ( $L_{\infty}$ ), asymptotic weight ( $W_{\infty}$ ), coefficient of growth ( $K$ ), and rate of natural mortality made for the population off Kalimantan in the South China Sea (Pauly & Martosubroto, 1980, as *N. marginatus*) are:  $L_{\infty}$  = 24.5 cm TL,  $W_{\infty}$  = 210 g,  $K$  = 0.42,  $M$  = 1.73.

**Size:** Maximum size is 21.5 cm SL, commonly 16 cm SL.

**Interest to Fisheries:** Taken by handline and bottom trawl. This species constitutes about 20% of the total nemipterid catch in the South China Sea off Kalimantan, but catch rates are low (about 3.5 kg/hour at 45 m depth). No major fishery exists.

**Local Names:** PHILIPPINES: Silay, Bakag, Bisugo, Bisugong maylawi.

**Literature:** Fischer & Whitehead (1974, as *N. marginatus*); Rau & Rau (1980, as *N. marginatus*); Gloerfelt-Tarp & Kailola (1984, as *N. sp 3*).

**Remarks:** This undescribed species has been previously misidentified as *N. marginatus* by most authors.

*Nemipterus* sp. 3

Fig. 92, Plate III, d

NEMIP Nem 24

Undescribed species

**Synonyms:** None.

**FAO Names:** En - Dawn threadfin bream.

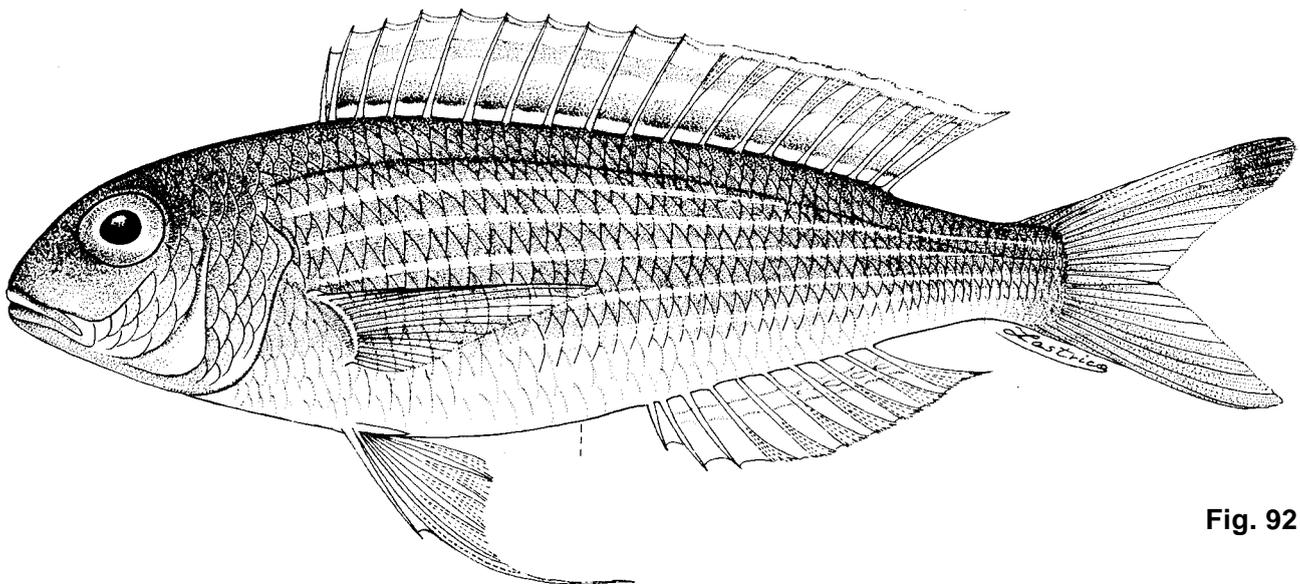


Fig. 92

**Diagnostic Features:** Body depth 3.2 to 3.9 in SL; snout length equal to or a little more than diameter of eye; diameter of eye 2.9 to 3.7 in head length; lower margin of eye tangent to or above a line from tip of snout to upper base of pectoral fin; interorbital width 1.2 to 1.8 in eye; suborbital depth 1.1 to 2.0 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile somewhere between 2 scale rows before origin of dorsal fin and third dorsal spine; preopercle naked width 1.2 to 1.7 in scaly width; pectoral fins

moderately long, 1.1 to 1.4 in head length, reaching to or just beyond level of anus; pelvic fins very long, 0.9 to 1.3 in head length, reaching to just before level of origin of anal fin and third anal spine; caudal fin forked, tips of fin pointed or slightly rounded; scale rows on body below lateral line upward-curved anteriorly; 3 pair of small recurved canines anteriorly in upper jaw; gill rakers 11 to 14. **Colour:** body pinkish above, shading through pale mauve to silvery on ventral half; sides with 4 or 5 longitudinal, upward-curved silvery-white stripes along the middle of each scale row below lateral line, from behind head to caudal peduncle; head pinkish with golden-yellow reflections on opercle; upper lip with yellow edge; dorsal fin pale translucent yellow, with lemon-yellow margin and pale mauve submarginal stripe; broad bicoloured submedial stripe, yellow above orange below, becoming uniformly yellow posteriorly; anal fin transparent, with pale lemon submedial stripe (sometimes broken) above base of fin; caudal fin yellowish pink, upper tip rosy; pelvic and pectoral fins transparent.

**Geographical Distribution:** West Pacific from the Ryukyu Islands to southeastern Indonesia (Fig. 93).

**Habitat and Biology:** A benthic species, found on sand or mud bottoms in depths of 56 to 90 m.

**Size:** Maximum size is 20 cm SL, commonly 15 cm SL.

**Interest to Fisheries:** Taken in commercial trawls in the South China Sea and southern Gulf of Thailand together with other species of *Nemipterus*. No major fishery exists.

**Local Names:** JAPAN: Hira-itoyori.

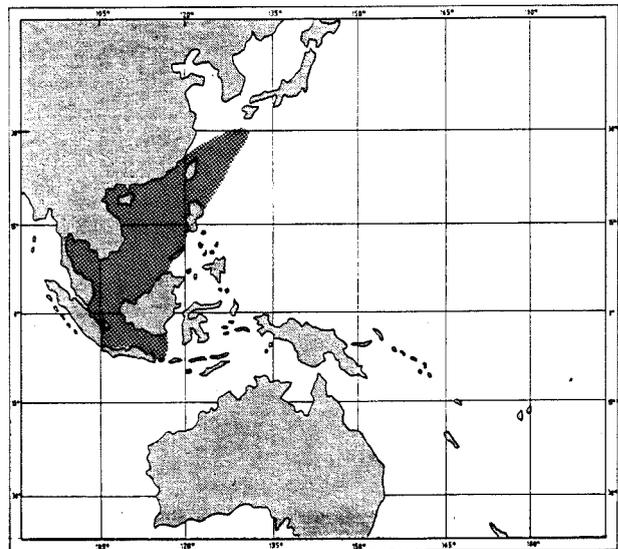


Fig. 93

**Literature:** The following have reported this species as *N. delagoae*: Masuda *et al.* (1975, 1984); Shen (1984); Lee (1986).

**Remarks:** This undescribed species has been previously misidentified as *N. delagoae* (= *N. bipunctatus*), a species which it closely resembles but which is restricted to the Indian Ocean.

*Nemipterus tambuloides* (Bleeker, 1853)

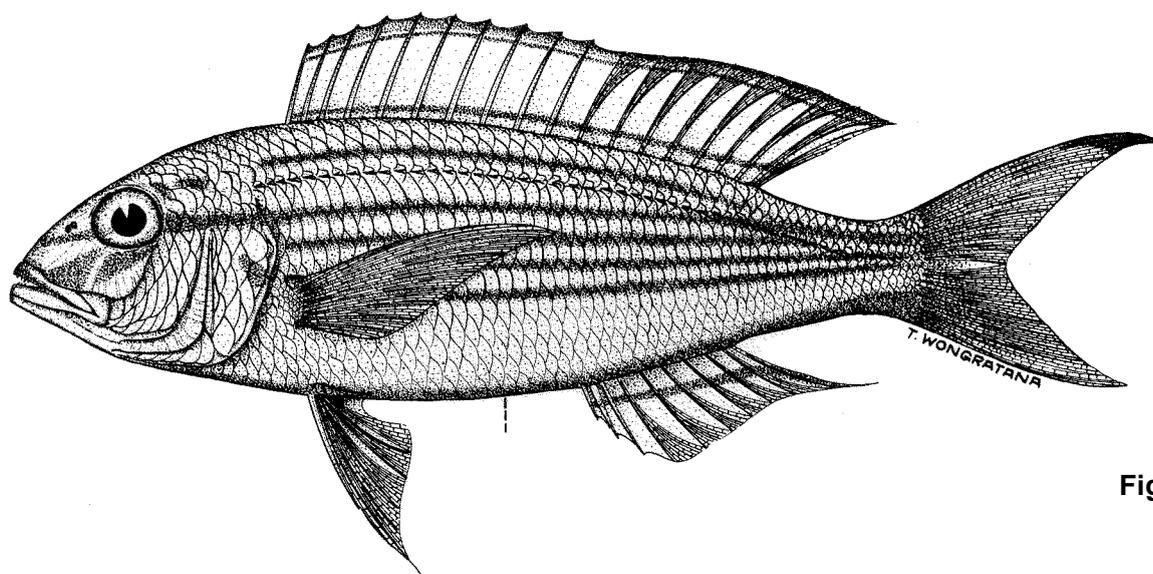
Fig. 94, Plate III, e

NEMIP Nem 11

*Dentex tambuloides* Bleeker, 1853b, Nat. Tijdschr. Ned.-Indië, 4: 465 (Batavia, Java).

**Synonyms:** *Nemipterus pentalineae* Wongratana (1974) (nomen nudum).

**FAO Names:** En - Fivelined threadfin bream.

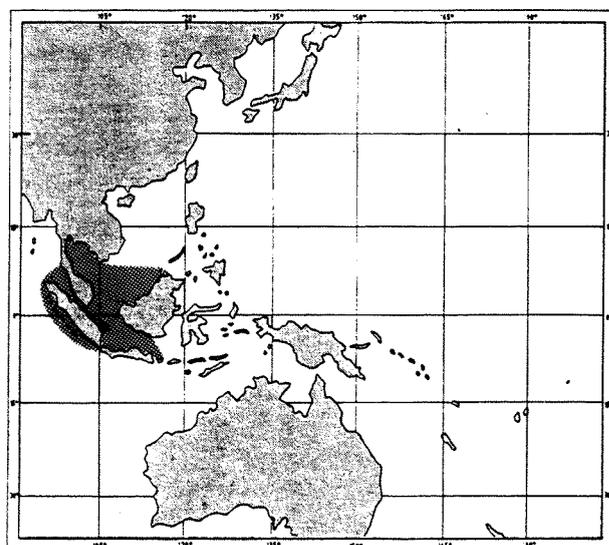


**Fig. 94**

**Diagnostic Features:** Body depth 3.2 to 3.6 in SL; snout length equal to or greater than diameter of eye; diameter of eye 3.2 to 4.1 in head length; lower margin of eye tangent to or just above a line from tip of snout to upper base of pectoral fin; interorbital width 1.5 to 1.9 in eye; suborbital depth 1.3 to 1.8 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile about 2 to 7 scale rows before origin of dorsal fin; preopercle naked width 1.8 to 2.4 in scaly width; pectoral and pelvic fins long, reaching to between level of anus and origin of anal fin; pectoral fins 1.0 to 1.1 in head length, pelvic fins 1.1 to 1.4 in head length; caudal fin forked, upper lobe pointed; 3 or 4 pair of small recurved canines anteriorly in upper jaw; gill rakers 12 to 14. **Colour:** upper part of head and body rosy, paling to silvery-white on ventral surface; 5 well-defined sulphur-yellow stripes along body; the first of these beginning above lateral line and extending along scale row to posterior of dorsal fin; second stripe running from snout through eye, postorbital part of head, and then extending as a more or less straight line to upper caudal fin base; remaining stripes beginning behind head and following each scale row, slightly ascending posteriorly; sulphur-yellow stripe along either side of ventral midline from isthmus to lower caudal-fin base; head with two yellow stripes beneath eye; cheeks and opercle with golden and mauve reflections; dorsal fin translucent pink, with yellow margin and bluish grey inframarginal stripe; narrow sulphur-yellow stripe extending just above base of dorsal fin; anal fin translucent bluish-white with pale yellow stripe near base of fin, this stripe bent posteriorly and extending out to tip of last anal ray; caudal fin bright rosy, upper tip sulphur-yellow; pectoral fins pale pink; pelvic fins pale yellowish, spine and first ray bluish-grey.

**Geographical Distribution:** Andaman Sea, Strait of Malacca, Philippines, Gulf of Thailand, South China Sea, Indonesia (Fig. 95).

**Habitat and Biology:** A benthic species, occurs on sand or mud bottoms in depths of 50 to 70 m.



**Fig. 95**

**Size:** Maximum size is 23 cm SL, commonly 18 cm.

**Interest to Fisheries:** Taken by handline and bottom trawl. An abundant species in Thailand, landed in large quantities throughout the year.

**Literature:** Gloerfelt-Tarp & Kailola (1984, fig. as *N. virgatus*).

*Nemipterus theodorei* Ogilby, 1916

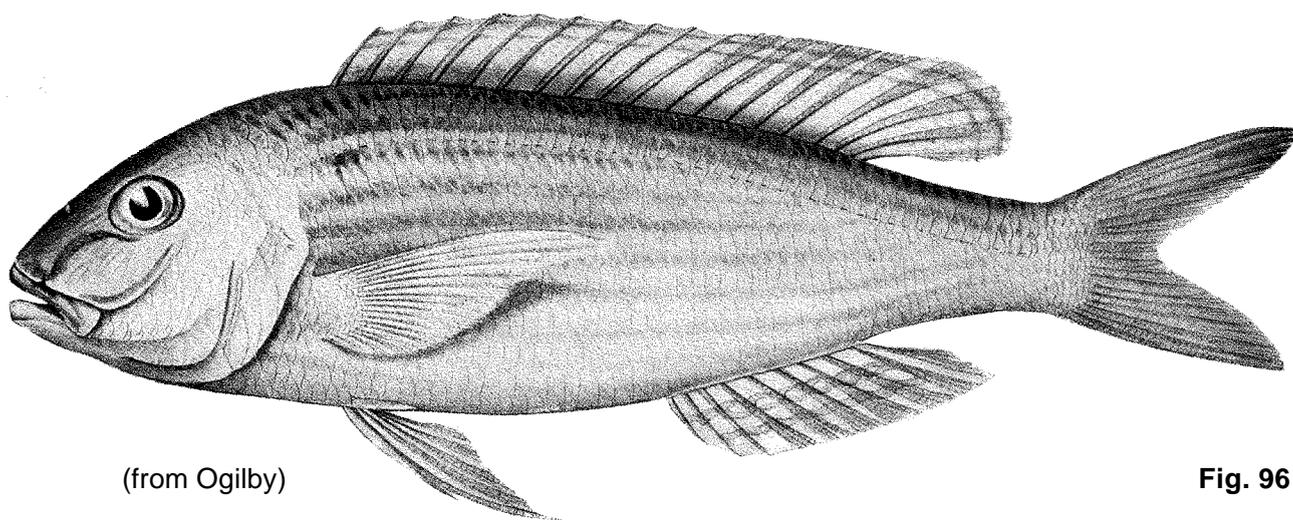
Fig. 96, Plate III, f

NEMIP Nem 25

*Nemipterus theodorei* Ogilby, 1916, Proc. Rov. Soc. Old, 28: 113 (Caloundra Banks, Queensland).

**Synonyms:** None.

**FAO Names:** En - Theodore's threadfin bream.



(from Ogilby)

Fig. 96

**Diagnostic Features:** Body depth 3.0 to 3.5 in SL; snout length about equal to or greater than diameter of eye; diameter of eye 3.1 to 4.2 in head length; lower margin of eye above a line from tip of snout to upper base of pectoral fin; interorbital width 1.2 to 1.6 in eye; suborbital depth 0.9 to 1.9 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile at about or behind origin of dorsal fin; preopercle naked width 1.0 to 1.6 in scaly width; pectoral fins long, 1.0 to 1.2 in head length, reaching to or almost to level of origin of anal fin; pelvic fins very long, 1.0 to 1.4 in head length, reaching to or beyond level of origin of anal fin; caudal fin forked; scale rows on body below lateral line upward-curved anteriorly; 3 or 4 pair of small recurved canines anteriorly in upper jaw; gill rakers 12 to 13. **Colour:** body pinkish-mauve on upper half, paling to pearly-white on ventral surface; 5 or 6 greenish-yellow stripes on sides below lateral line; a red spot beneath origin of lateral line; top of head tinged with lavender, a purple stripe curving from lower edge of eye to upper lip; upper lip yellow; cheeks and opercle tinged golden; an indistinct bluish-grey spot on upper part of opercle; iris scarlet, its upper one fourth green; dorsal fin pale yellow, pink near base; two narrow, mauve submarginal stripes, bordered above and below by golden-yellow, along fin; caudal fin pinkish-yellow, upper lobe with dusky tip; anal fin translucent silvery-white, with broken pale yellow stripes along medial part of fin; pectorals and pelvic fins transparent.

**Geographical Distribution:** Eastern Australia from north Queensland to New South Wales (Fig. 97).

**Habitat and Biology:** A benthic species, occurs on sand or mud bottoms in depths of 19 to 410 m.

**Size:** Maximum size is 20 cm SL, commonly 18 cm SL.

**Interest to Fisheries:** Taken by handline and bottom trawl. No major fishery exists.

**Local Names:** AUSTRALIA: Theodore's butterfly bream.

**Literature:** Ogilby (1918).

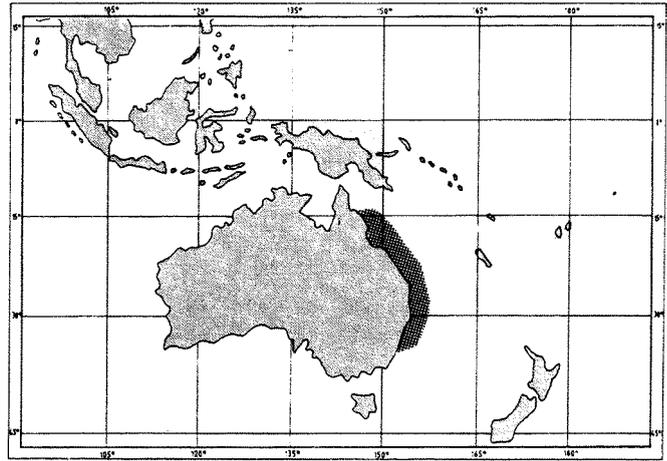


Fig. 97

***Nemipterus virgatus*** (Houttuyn, 1782)

Fig. 98, Plate III, g

NEMIP Nem 13

***Sparus virgatus*** Houttuyn, 1782, Verh. Holland. Maatsch. Wet. Haarlem, 20: 323 (Japan).

**Synonyms:** *Sparus sinensis* Lacépède (1802); *Dentex setigerus* Valenciennes in C. & V. (1830b); *Nemipterus matsubarae* Jordan & Evermann (1902).

**FAO Names:** En - Golden threadfin bream.

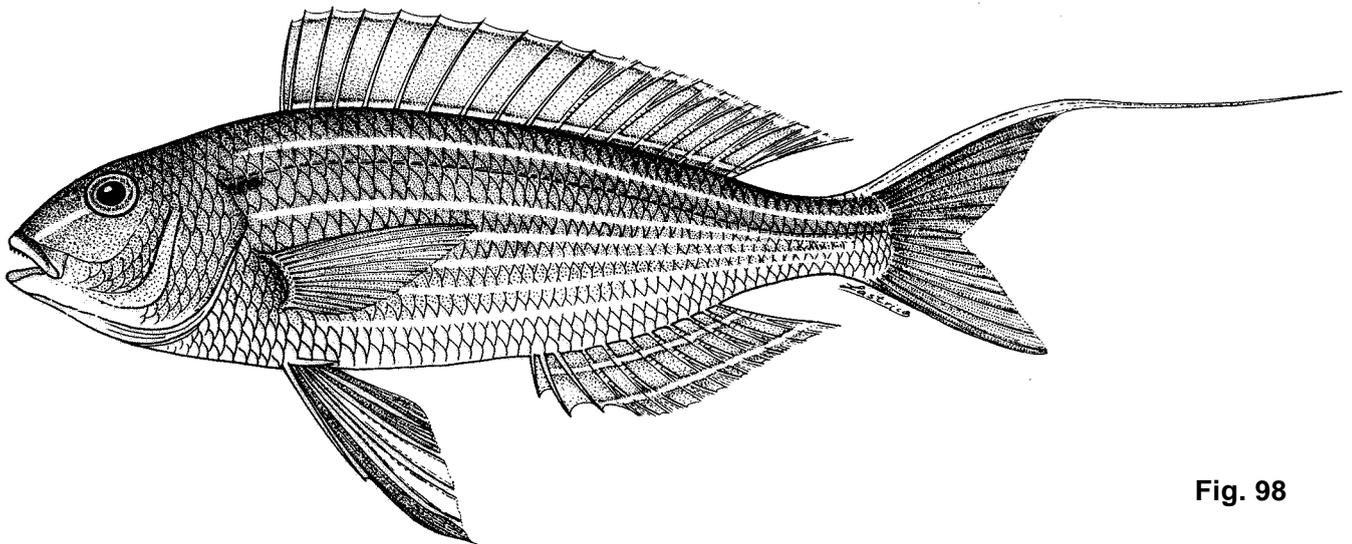


Fig. 98

**Diagnostic Features:** Body depth 3.2 to 4.0 in SL; snout length greater than diameter of eye; diameter of eye 3.4 to 4.3 in head length; lower margin of eye above a line from tip of snout to upper base of pectoral fin; interorbital width 1.4 to 2.1 in eye; suborbital depth 1.0 to 1.7 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile 5 to 7 scale rows before origin of dorsal fin; preopercle naked width 1.1 to 2.0 in scaly width; pectoral and pelvic fins long, reaching to between level of anus and origin of anal fin; pectoral fins 1.0 to 1.2 in head length, pelvic fins 1.0 to 2.5 in head length; caudal fin moderately forked, upper lobe produced into trailing filament; 3 or 4 pair of small recurved

canines anteriorly in upper jaw; gill rakers 12 to 16. **Colour:** body pink, paler below; yellow stripe on back above lateral line; 5 yellow stripes on sides beneath lateral line, the uppermost of these stripes beginning just beneath origin of lateral line and running horizontally to upper base of caudal peduncle, the remaining stripes somewhat concave and descending anteriorly; ventral surface white; head pink, a yellow stripe from upper lip extending to anteroventral margin of eye; two faint yellow bars across cheeks sometimes present; eye pinkish; upper lip yellow; dorsal fin pale pink, with broad yellow margin, edged below by red anteriorly; a yellow stripe just above base of dorsal fin; anal fin translucent pinkish with yellow submarginal stripe, and narrow yellow stripe just above base of fin, this extending to tip of last anal-fin ray; caudal fin pink, upper margin of fin and filament yellow; pelvic fins pinkish, with yellow stripe along second and third rays; pectoral fins translucent pinkish.

**Geographical Distribution:** Southern Japan, East China Sea, northern part of South China Sea from Vietnam to Formosa Strait, north-western Australia and Arafura Sea (Fig. 99).

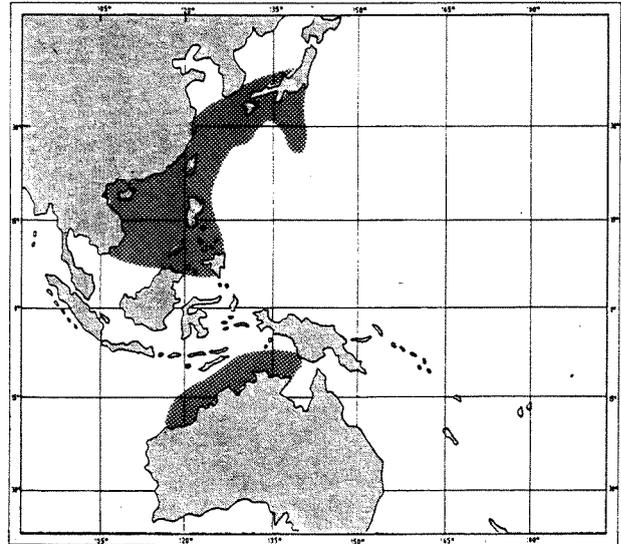


Fig. 99

**Habitat and Biology:** A benthic species, occurs on mud or sand bottoms in depths down to about 220 m. Very abundant in the northern part of the South China Sea and southern part of the East China Sea. Young fish generally occur in shallower water, between 18 and 33 m (Eggleston, 1973). Females predominate at small sizes and males at larger sizes, due to faster growth rates in males (Eggleston, 1973; Kao & Liu, 1979). This species is a rudimentary hermaphrodite, in which all males have functional testes with rudimentary ovarian portions throughout their life. Spawning takes place from February to June with a peak from February to April in the South China Sea (Eggleston, 1973; Liu & Su, 1972). Eggs and larvae are described by Aoyama & Sotogaki (1955), Renzhai & Surfen (1980) and Renzhai (1986). The diet consists of crustaceans, fish and cephalopods (Eggleston, 1973).

Estimates of the parameters of the von Bertalanffy growth curve made for the population from Hong Kong (Eggleston, 1973) are:  $L_{\infty} = 44.7$  cm TL,  $K = 0.41$ ,  $t_0 = -0.12$  (males); and  $L_{\infty} = 36.2$  cm TL,  $K = 0.35$ ,  $t_0 = -0.71$  (females).

**Size:** Maximum size is 35 cm SL, commonly 23 cm SL.

**Interest to Fisheries:** Taken in commercial quantities by handlines, longlines, and bottom trawls. Juveniles are also caught in considerable quantities by shrimp trawlers using beam trawls. *N. virgatus* is one of the most important commercial fish in the East China Sea and northern South China Sea (Li, 1954; Eggleston, 1973). Marketed mainly fresh, but also steamed or made into fish balls.

**Local Names:** CHINA: Hung Sam.

**Literature:** Fischer & Whitehead (1974); Sainsbury *et al.* (1984); Shen (1984); Allen & Swainston (1988).

*Nemipterus vitiensis* Russell, 1990

Fig. 100, Plate III, h

NEMIP Nem 26

*Nemipterus vitiensis* Russell, 1990, Beagle, Rec. Nor. Terr. Mus. Arts Sci., 7: 35 (Fiji, Vanuatu).

**Synonyms:** None.

**FAO Names:** En - Fiji threadfin bream.

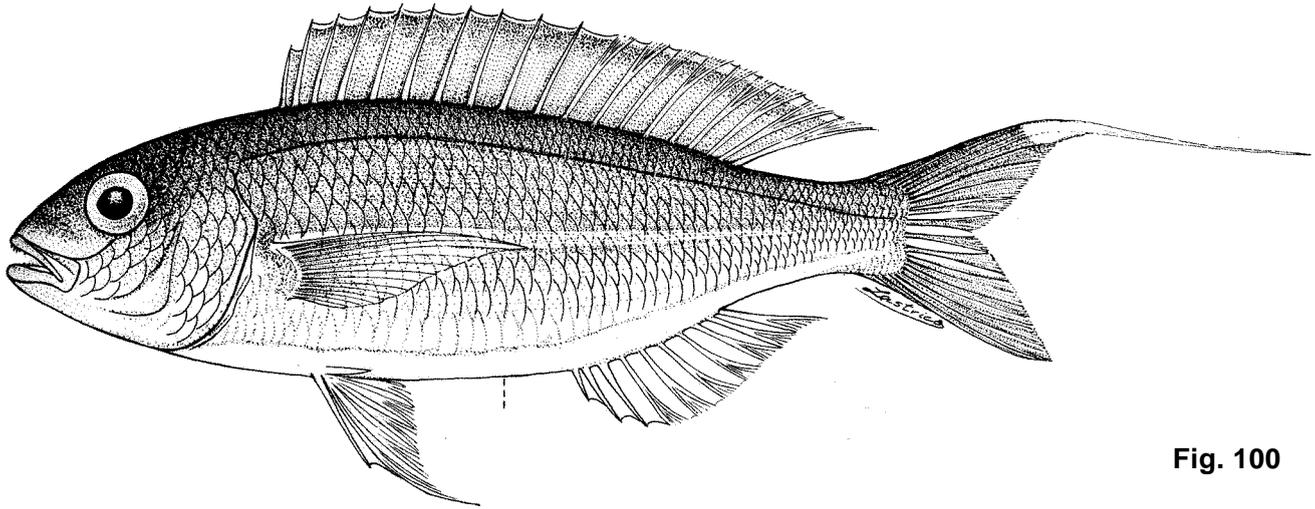


Fig. 100

**Diagnostic Features:** Body depth 3.2 to 3.8 in SL; snout length greater than diameter of eye; diameter of eye 3.0 to 3.2 in head length; lower margin of eye tangent to a line from tip of snout to upper base of pectoral fin; interorbital width 1.6 to 1.8 in eye; suborbital depth 2.0 to 3.0 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile about 3 to 7 scale rows before origin of dorsal fin; preopercle naked width 1.8 to 2.3 in scaly width; pectoral and pelvic fins moderately long, reaching to just beyond level of anus; pectoral fins 1.0 to 1.2 in head length, pelvic fins 1.3 to 1.5 in head length; caudal fin forked, upper lobe produced into a long, trailing filament; 4 pair of small recurved canines anteriorly in upper jaw; gill rakers 12 to 14. **Colour:** head and body silvery-white, dusky-blue on dorsum; indistinct yellow midlateral stripe from above pectoral fin to caudal peduncle; broad lemon-yellow stripe on either side of ventral midline; eye silvery; dorsal fin light dusky, upper margin of fin yellow-edged, with dusky-mauve submarginal stripe; anal fin transparent; caudal fin dusky-pink, caudal filament yellow; pelvic fins transparent; pectoral fins pink, with dusky base.

**Geographical Distribution:** Fiji and Vanuatu (Fig. 101).

**Habitat and Biology:** A benthic species, occurs on sand or mud bottoms close to reefs in depths of 27 to 273 m.

**Size:** Maximum size is 22 cm SL, commonly 17 cm SL.

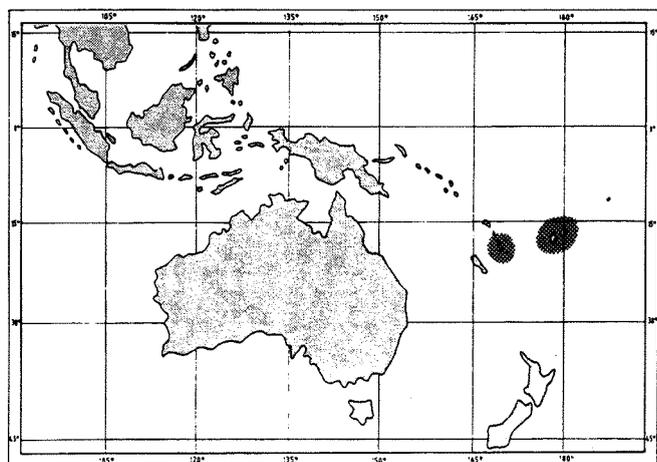


Fig. 101

**Interest to Fisheries:** Taken by handline. Appears in local fish markets. No major fishery exists.

**Remarks:** This species appears most closely related to *N. aurifilum* and *N. bathybius*, but differs principally in coloration.

*Nemipterus zysron* (Bleeker, 1856-57)

Fig. 102, Plate IV, a

NEMIP Nem 7

*Dentex zysron* Bleeker, 1856-57, Nat. Tijdschr. Ned.-Indië, 12: 219 (Nias).

**Synonyms:** *Dentex metopias* Sleeker (1857); *Heterognathodon petersii* Steindachner (1864).

**FAO Names:** En - Slender threadfin bream. Fr - Cohana élégante. Sp - Saga elegante.

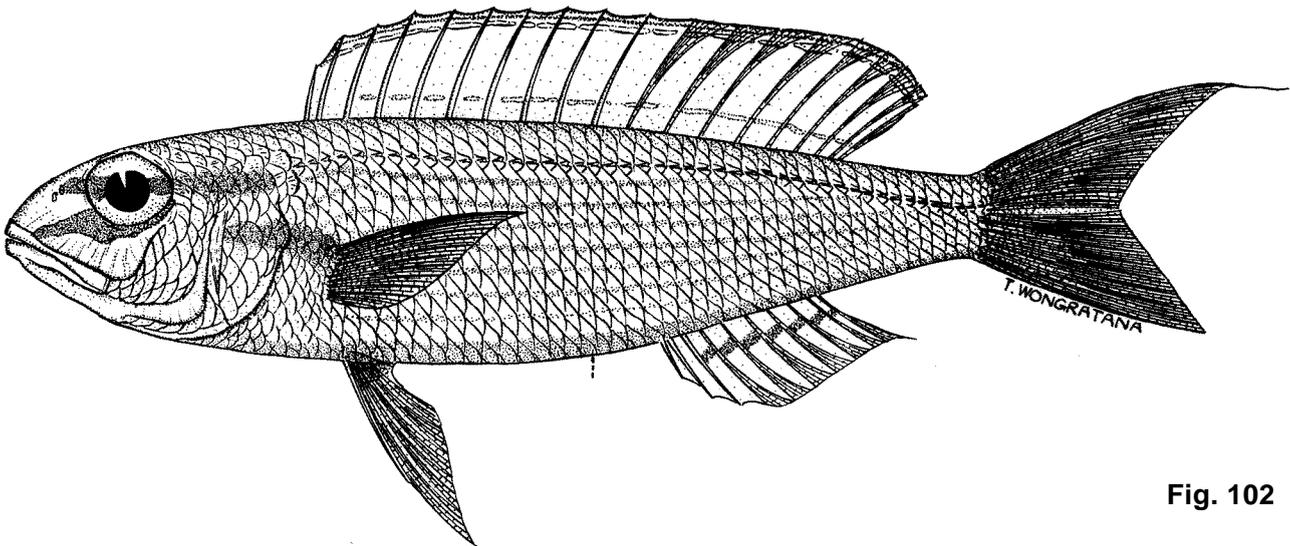


Fig. 102

**Diagnostic Features:** Body depth 3.8 to 4.6 in SL; snout length about equal to or less than diameter of eye; diameter of eye 2.6 to 3.5 in head length; lower margin of eye tangent to or just above a line from tip of snout to upper base of pectoral fin; interorbital width 1.5 to 2.3 in eye; suborbital depth 1.6 to 3.3 in eye diameter; a line drawn up from the posterior edge of suborbital reaching the dorsal profile about 2 to 6 scale rows before origin of dorsal fin; preopercle naked width 1.5 to 2.4 in scaly width; pectoral and pelvic fins short, reaching to just short of level of anus; pectoral fins 1.1 to 1.4 in head length, pelvic fins 1.2 to 1.7 in head length; caudal fin forked, upper lobe produced into a short filament; 3 or 4 pair of small recurved canines anteriorly in upper jaw; gill rakers 10 to 15. **Colour:** upper part of body reddish, silvery below; sides below lateral line with indistinct yellow stripes along the middle of each scale row; head pinkish, suffused with mauve on the snout; yellow stripes in front of eye through nostrils, and from upper lip to beneath eye; less distinct golden stripe from behind eye to origin of lateral line, and across upper part of opercle to upper base of pectoral fin; dorsal fin pale yellow with a bright yellow margin; a pale mauve submarginal stripe and pale mauve stripe near base of dorsal fin; anal fin pale lilac with a series of elongate yellow spots or yellow stripe submedially; caudal fin pinkish, upper and lower lobes pale yellowish, filament yellow; pectoral fins pale yellow; pelvic fin translucent whitish, base of fin and axillary scale pale yellow.