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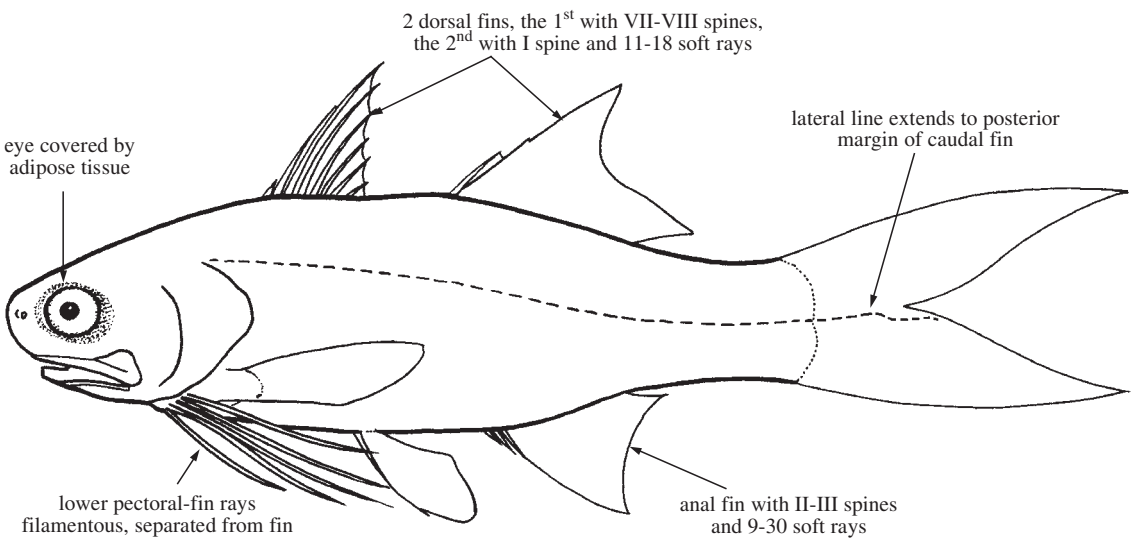
POLYNEMIDAE

Threadfins

by R.M. Feltes

Diagnostic characters: Perciform fishes with oblong, somewhat compressed body (size from 17 to 200 cm). **Eye covered by adipose tissue**, highly variable in size. **Snout conical, protruding anterior past mouth**. Mouth large, subterminal, extending posterior to eye. Supramaxillae absent. Cardiform teeth on premaxillae, palatines, and ectopterygoids. Presence of teeth on vomer, basibranchials and gill arches variable. Branchiostegal rays 7. Two widely separated dorsal fins; second or third spines of first dorsal fin longest; margins of second dorsal fin and anal fin variously concave, anterior rays longest; first dorsal fin with VII or VIII spines, if VIII, then first spine very small; second dorsal fin with I spine and 11 to 18 soft rays; anal-fin insertion ventral to a point 1/4 to 1/3 caudad on second dorsal-fin base, anal fin with II or III spines (if III, then first spine very small) and 9 to 30 soft rays; caudal fin deeply forked with pointed lobes, principal caudal-fin rays 17; **3 to 16 separate articulated pectoral filaments inferior to 12 to 19 rays of pectoral fins**; pelvic fins abdominal, inserted just behind pectoral-fin bases, with I spine and 5 branched rays. Body, most of head, and much of fins covered with finely ctenoid scales; lateral line continuous, and extending to caudal-fin margin; lateral-line scales 42 to 109; scale rows above lateral line 4 to 9; scale rows below lateral line 7 to 15. Nasal bones anterior with lateral aspects surrounding anterior of nasal capsules. Long posterior process of coracoid extends dorsally, medial to pectoral radials. Fourth pectoral radials elongate. Basipterygia not in direct contact with cleithra, but in ligamentous contact with second post-cleithra. Vertebrae 10+14 or 10+15. **Colour:** silvery, golden, or light brown; some with dark spot at anterior of lateral line or with longitudinal lines; dark silvery spot on opercle; fins usually yellow, orange, or brown, and often dusky.



Habitat, biology, and fisheries: Often inhabit sand and mud flats. May enter estuaries or rivers. Development without marked metamorphosis. No external sexual dimorphism. Some species hermaphrodites. Recorded life span from 1 to 20 years. Many species feed largely on crustaceans and predominantly prawns. From 1990 to 1995, the FAO Yearbook of Fishery Statistics reports a range of yearly catch of around 20 700 to 34 700 t of Polynemidae from the Western Central Pacific. The swimbladders of polynemids have been valued for isinglass.

Remarks: The genus *Polynemus* Linnaeus, 1758 included 3 quite divergent species that are today recognized in 3 distinct genera: *Polynemus*, *Polydactylus*, and *Pentanemus*. The International Commission for Zoological Nomenclature established *Polynemus paradiseus* as the type of that genus in 1926. In spite of this ruling many species have continued to be indiscriminately assigned to *Polynemus*.

Similar families occurring in the area: Superficially, threadfins can resemble other silvery fishes in the area (e.g. certain species of Sciaenidae) but the combination of 2 separate dorsal fins and separate pectoral filaments easily distinguishes them. Triglidae and Dactylopteridae also possess free pectoral filaments but they have strong bony armour on their heads and dissimilar body shapes.

Key to the species of Polynemidae occurring in the area

1a. Pectoral-fin insertion well below midline of body; eye diameter variable, 1.3 or less in snout length (Fig. 1) . . . . . → ***2***

1b. Pectoral-fin insertion near midline of body; eye diameter 1.3 or more in snout length (Fig. 2) . . . . . → ***17***

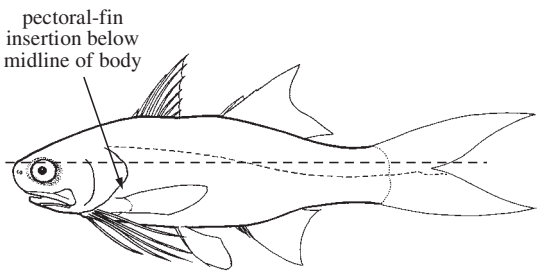


Fig. 1 ***Polydactylus plebeius***

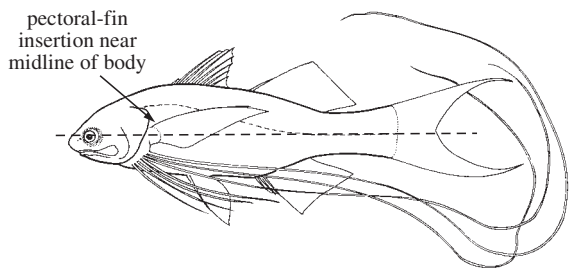


Fig. 2 ***Polynemus dubius***

2a. Teeth extending labially on anterior two-thirds of dentary; tooth plates extending posteriorly from lateral margin of primary tooth plate on vomer (Fig. 3); free lower lip restricted to posterior third of lower jaw; total gill rakers on first gill arch less than 20 (most gill rakers replaced during growth by tooth plates); oral cavity largely covered by small tooth plates; pectoral filaments 3 or 4 . . . . . (***Eleutheronema***) → ***3***

2b. Teeth on dentary restricted to dorsal surface or extending labially only along anterior third of lower jaw; tooth plates on vomer simple or absent; total gill rakers on first gill arch 18 to 60; oral cavity not largely covered by small tooth plates; pectoral filaments 4 to 10 (typically) . . . . . → ***4***

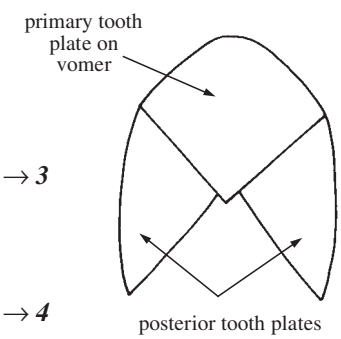


Fig. 3 tooth plates on roof of mouth

3a. Pectoral filaments 3 (Fig. 4) . . . . . ***Eleutheronema tridactylum***

3b. Pectoral filaments 4 (Fig. 5) . . . . . ***Eleutheronema tetradactylum***

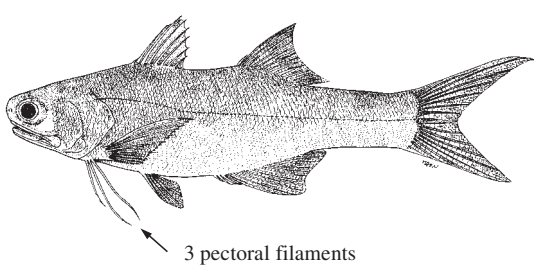


Fig. 4 ***Eleutheronema tridactylum***

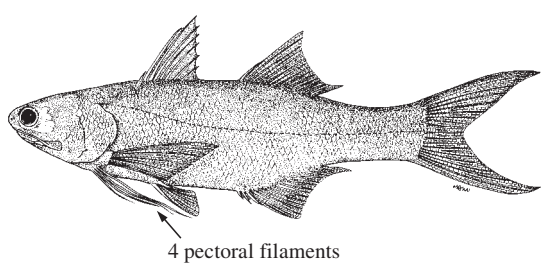


Fig. 5 ***Eleutheronema tetradactylum***

4a. Width of tooth bands on upper and lower jaws 2 times or more in space separating band of teeth on one premaxilla from other (Fig. 6a); tooth plate on palatine shorter than tooth plate on ectopterygoid; basisphenoid does not contact prootic (Fig. 7a); pectoral filaments 5 to 8 . . . . . (***Filimanus***) → ***5***

4b. Width of tooth bands on upper and lower jaws less than 2 times in space separating band of teeth on one premaxilla from other (Fig. 6b); tooth plate on palatine equal or longer than tooth plate on ectopterygoid; basisphenoid contacts prootic (Fig. 7b); pectoral filaments 5 to 10 . . . . . (***Polydactylus***) → ***9***

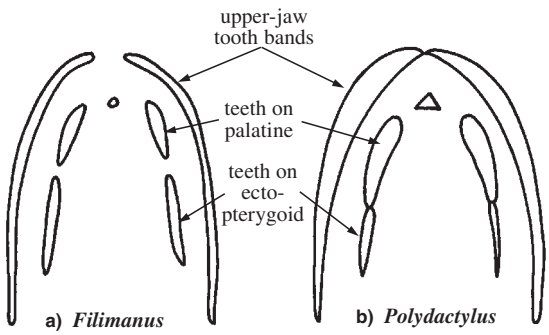


Fig. 6 tooth bands on upper and lower jaws

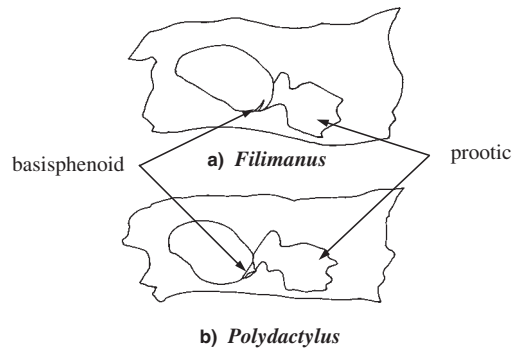


Fig. 7 lateral view of neurocranium

5a. Pectoral filaments extending well past midpoint of anal fin; anal-fin rays 13 to 15; depth of posterior margin of maxilla greater than or equal to eye diameter; snout blunt (Fig. 8) . . . . . → *6*

5b. Pectoral filaments not extending to midpoint of anal fin; anal-fin rays 10 to 12; depth of posterior margin of maxilla less than eye diameter; snout protruding (Fig. 9) . . . . . → *7*

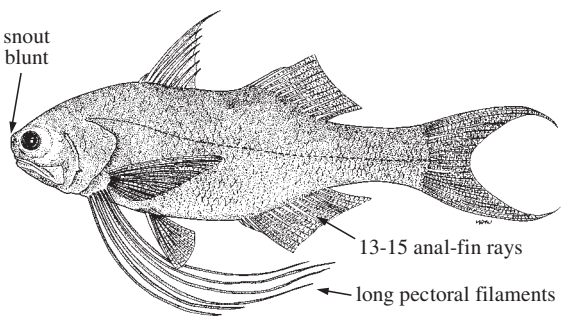


Fig. 8 ***Filimanus hexanema***

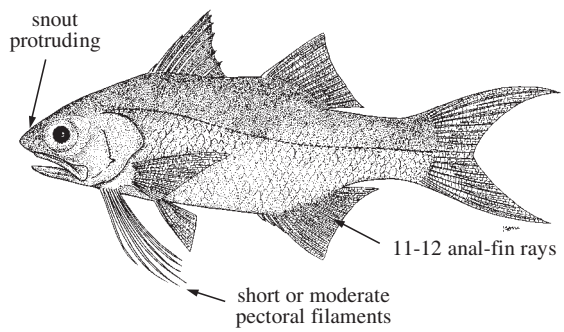


Fig. 9 ***Filimanus heptadactyla***

6a. Pectoral filaments 7; body depth less than 3.2 times in standard length . . . . . ***Filimanus perplexa***

6b. Pectoral filaments 6; body depth more than 3.2 times in standard length . . . . ***Filimanus hexanema***

7a. Pectoral filaments 8 (rarely 7); gill rakers on first gill arch 40 to 48 (mean 46.2); body blue . . . . . ***Filimanus sealei***

7b. Pectoral filaments 6 or 7 (rarely 5); gill rakers on first gill arch 35 to 49; body yellow, green, or silver . . . . . → *8*

8a. Pectoral filaments 6 (occasionally 5), or asymmetrically 5 and 6, or 6 and 7; gill rakers on first gill arch 36 to 46 (mean 41.8); body usually dusky yellow or green dorsally, silver ventrally . . . . . ***Filimanus xanthonema***
(eastern Indian and southwestern Pacific oceans)

8b. Pectoral filaments 7; gill rakers on first gill arch 35 to 41 (mean 38.6); body usually brown dorsally, yellow or silver ventrally . . . . . ***Filimanus heptadactyla***

9a. Posterior margin of preopercle largely entire and covered by scales except ventrally where there are less than 10 small spines; vomer lacking tooth patch; pectoral filaments 6 (Fig. 10) . . . . ***Polydactylus nigripinnis***

9b. Posterior margin of preopercle with serrations on most of posterior margin, usually with more than 10 small spines not covered by scales; vomer with or without tooth patch . . . . . → *10*

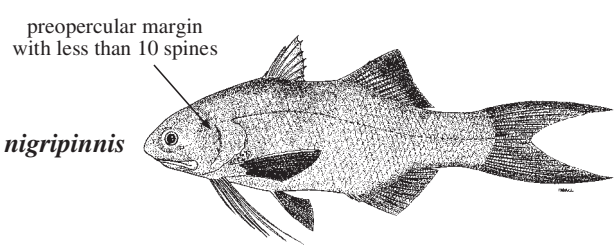


Fig. 10 ***Polydactylus nigripinnis***

10a. Upper pectoral filaments longer than standard length; lateral-line scales 87 to 92; pectoral filaments 7 (Fig. 11) . . . . . ***Polydactylus macrophthalmus***

10b. Upper pectoral filaments much shorter than standard length; lateral-line scales less than 80 . . . . . → ***11***

11a. Caudal-peduncle length less than length of anal-fin base; anal-fin rays 14 to 18; pectoral filaments 6 or 7 (usually 7) (Fig. 12) . . . . . ***Polydactylus multiradiatus***

11b. Caudal-peduncle length equal to or greater than length of anal-fin base; anal-fin rays 9 to 13 . . . . . → ***12***

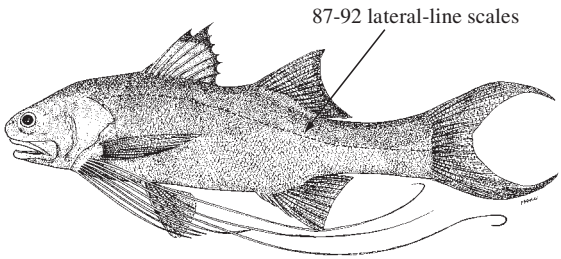


Fig. 11 ***Polydactylus macrophthalmus***

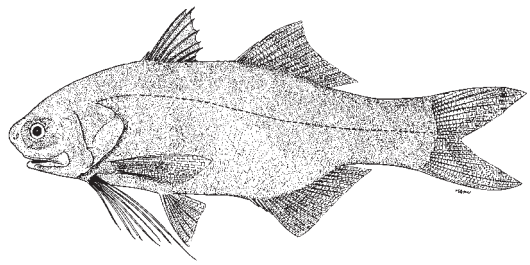


Fig. 12 ***Polydactylus multiradiatus***

12a. Pigmented spot over several anterior lateral-line scales; pectoral-filament length less than head length; pectoral filaments 5 or 6 (Fig. 13) . . . . . → ***13***

12b. No pigmented spot over several anterior lateral-line scales; pectoral-filament length usually greater than head length . . . . . → ***14***

13a. Pectoral filaments 5 . . . ***Polydactylus microstoma***

13b. Pectoral filaments 6 . . . . ***Polydactylus sextarius***

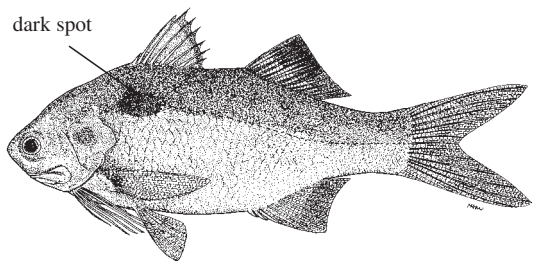


Fig. 13 ***Polydactylus sextarius***

14a. Length of postorbital greater than 3/4 of body depth at origin of second dorsal fin; diameter of eye less than snout length; 2 times length of anal-fin base is less than distance from pelvic-fin origin to anal-fin origin; filaments may extend from caudal-fin lobes; pectoral filaments 5 (Fig. 14); swimbladder with lateral appendages (Fig. 15) . . . . . ***Polydactylus indicus***

14b. Length of postorbital usually less than or equal to 3/4 of body depth at origin of second dorsal fin; diameter of eye greater than or equal to snout length; 2 times length of anal-fin base is greater than distance from pelvic-fin origin to anal-fin origin; no filaments extending from caudal-fin lobes; swimbladder without lateral appendages . . . . . → ***15***

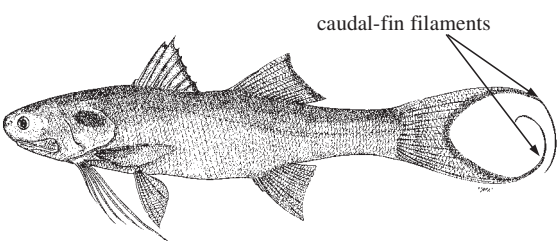


Fig. 14 ***Polydactylus indicus***

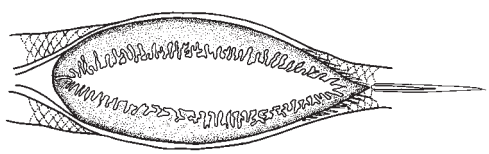


Fig. 15 swimbladder (*Polydactylus indicus*)

15a. Body depth at second dorsal-fin origin less than distance from pelvic-fin origin to anal-fin origin; length of postorbital greater than distance from anterior of snout to posterior margin of preopercle; pectoral-fin rays 13 to 15; pectoral filaments 4 or 5; gill rakers on first gill arch 31 to 37; adults without numerous darker longitudinal lines on body (Fig. 16) . . . . . ***Polydactylus macrochir***

15b. Body depth at second dorsal-fin origin greater than distance from pelvic-fin origin to anal-fin origin; length of postorbital less than distance from anterior of snout to posterior margin of preopercle; pectoral-fin rays 14 to 18; pectoral filaments 5 or 6; gill rakers on first gill arch 19 to 32; adults with numerous darker longitudinal lines on body . . . . . → ***16***

16a. Usually 5 pectoral filaments; gill rakers on first gill arch 19 to 28 (mean 25.6); pectoral-fin rays 14 to 18 (mode 17) . . . . . ***Polydactylus plebeius***

16b. Usually 6 pectoral filaments; gill rakers on first gill arch 27 to 32 (mean 29.3); pectoral-fin rays 14 to 17 (mode 16) . . . . . ***Polydactylus sexfilis***

17a. Posterior margin of preopercle largely entire; pectoral-fin rays 12 to 14; procurrent caudal-fin rays (in dorsal or ventral series) 12 to 14; pectoral filaments 6 or 7 (typically 7); pectoral-filament length less then 1½ total length (Fig. 17) . . . . . ***Parapolynemus verekeri***

17b. Posterior margin of preopercle at least partly serrate; pectoral-fin rays 14 to 19; procurrent caudal-fin rays (in dorsal or ventral series) 15 to 19; pectoral filaments 7 to 16 (typically 7); pectoral-filament length may exceed 1½ total length . . . . . (***Polynemus***) → ***18***

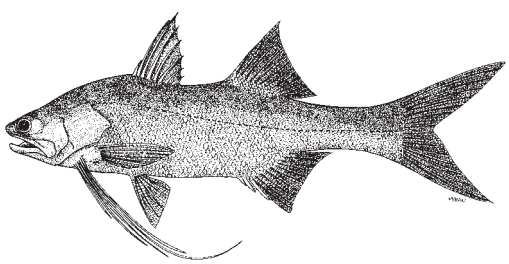


Fig. 16 ***Polydactylus macrochir***

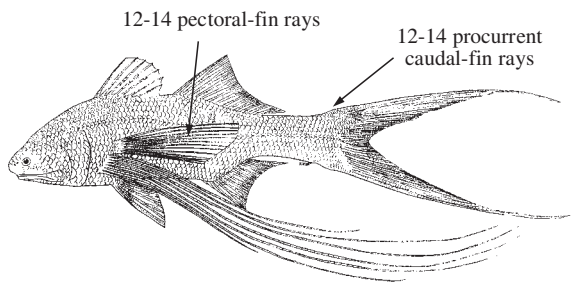


Fig. 17 ***Parapolynemus verekeri***

18a. Pectoral filaments 14 to 16; upper-jaw length less than or equal to caudal-peduncle depth (Fig. 18) . . . . . ***Polynemus multifilis***

18b. Pectoral filaments 7; upper-jaw length greater than caudal-peduncle depth . . . . . → ***19***

19a. Lateral-line scales more than 88; first dorsal fin with VII spines; anal-fin spines II (Fig. 19) . . . . . ***Polynemus hornadayi***

19b. Lateral-line scales less than 87; first dorsal fin with VIII spines; anal-fin spines III. . . . . → ***20***

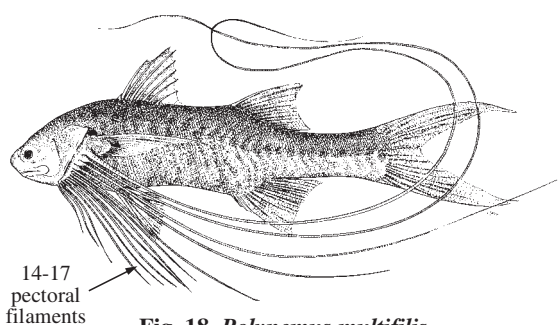


Fig. 18 ***Polynemus multifilis***

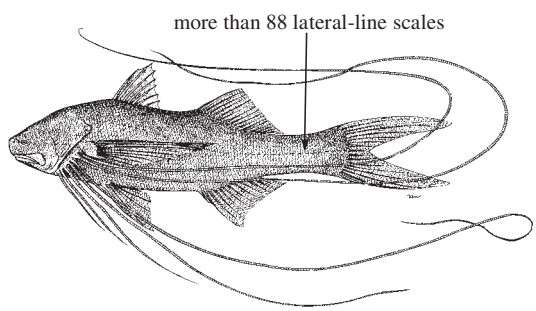


Fig. 19 ***Polynemus hornadayi***

20a. Vomer without tooth patch; usually more than 1/2 of posterior margin of pectoral fins black (for greater than 3 cm), usually not including distal half of dorsalmost rays of fin . . . . . ***Polynemus melanochir***

20b. Vomer with tooth patch; pectoral fins usually not black or less than 1/2 of posterior margin of fin black, dorsalmost rays of fins may be black distally . . . . . ***Polynemus dubius***

List of species occurring in the area

The symbol ◄ is given when species accounts are included.

◄ *Eleutheronema tetradactylum* (Shaw, 1804)
◄ *Eleutheronema tridactylum* (Bleeker, 1849)

◄ *Filimanus heptadactyla* (Cuvier, 1829)
◄ *Filimanus hexanema* (Cuvier, 1829)
◄ *Filimanus perplexa* Feltes, 1991
◄ *Filimanus sealei* (Jordan and Richardson, 1910)
◄ *Filimanus xanthonema* (Valenciennes, 1831)

◄ *Parapolynemus verekeri* (Saville-Kent, 1889)

◄ *Polydactylus indicus* (Shaw, 1804)
◄ *Polydactylus macrochir* (Günther, 1867)
◄ *Polydactylus macrophthalmus* (Bleeker, 1859)
◄ *Polydactylus microstoma* (Bleeker, 1851)
◄ *Polydactylus multiradiatus* (Günther, 1860)
◄ *Polydactylus nigripinnis* Munro, 1964
◄ *Polydactylus plebeius* (Broussonet, 1782)
◄ *Polydactylus sexfilis* (Valenciennes, 1831)
◄ *Polydactylus sextarius* (Bloch, 1801)

◄ *Polynemus dubius* Bleeker, 1851
◄ *Polynemus hornadayi* Myers, 1936
◄ *Polynemus melanochir* Valenciennes, 1831
◄ *Polynemus multifilis* Schlegel, 1843

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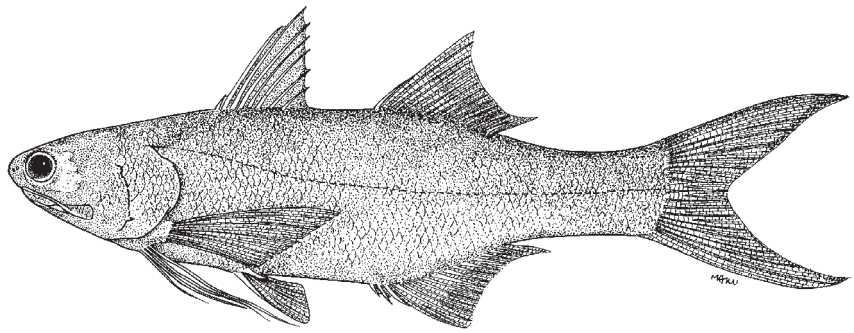
Eleutheronema tetradactylum (Shaw, 1804)

Frequent synonyms / misidentifications: None / *Eleutheronema tridactylum* (Bleeker, 1849).

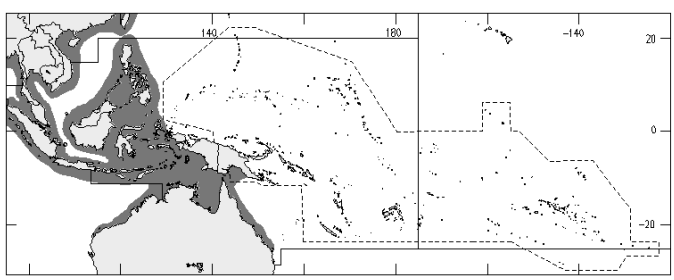
FAO names: En - Fourfinger threadfin; **Fr** - Barbure mamalí; **Sp** - Barbudo mamalí.



Diagnostic characters: A large, relatively elongate species. Body depth at first dorsal-fin origin 2.8 to 5 times in standard length. Head length 2.9 to 3.8 times in standard length. Eye diameter greater than snout length. **Dorsoposterior margin of maxilla not elevated** but nearly straight, posterior margin rounded; upper lip thin or absent; **teeth extending well onto labial surface of anterior two-thirds of dentary, and thick lower lip restricted to posterior third**; head of vomer with tooth plate, with posteriorly-directed smaller patches extending from each lateral tip of this main tooth plate; tooth plates on palatine and ectopterygoid and band of teeth on premaxilla and dentary wide; width of band of teeth on premaxillae less than 2 times in space separating band of teeth on one premaxilla from other; most of oral cavity covered with small tooth plates. Posterior margin of preopercle with less than 76 serrations. **Gill rakers on first gill arch 7 to 18** (replaced by tooth plates in larger fish). First dorsal fin with VIII spines; second dorsal fin with I spine and 12 to 15 soft rays (mean 14); anal fin with III spines and 13 to 17 (mean 15) soft rays; anal-fin base longer than second dorsal-fin base; caudal-peduncle length greater than length of anal-fin base; about 14 to 17 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins with 15 to 19 (mean 17) simple rays, the fins insert low on body, reaching to middle or end of pelvic fins; **4 short pectoral filaments**, third or fourth filament, from ventralmost, the longest, **extending to middle or past end of pelvic fins**; pelvic fins seldom extend past anus. **Lateral-line scales 59 to 91** (mean 77); lateral line terminating between first and second or second and third lower caudal-fin rays, or bifurcates terminating at both these points, some specimens with third dorsal branch occurring further anteriorly and terminating between first and second upper rays; scale rows above lateral line 7 to 14 (mean 11); scale rows below lateral line 12 to 18 (mean 15). Basisphenoid contacts prootic. Vertebrae 10+15. **Hundreds of small pyloric caeca arranged in tufts**. Swimbladder not apparent in adults. **Colour:** back and head silvery green or silvery blue; silvery white or yellowish white ventrally; cheeks and suborbital region golden; iris silvery or yellow with a golden green tinge dorsally; fins grey or with yellow or orange tinge, dusky and darkened marginally; pectoral filaments white or creamy.

Size: Maximum standard length at least 160 cm, commonly to 59 cm standard length. In Queensland, it rarely exceeds 95 cm standard length, usually not over 60 cm fork length. Early growth is rapid. In Australia at 1 year they average 30 cm fork length.

Habitat, biology, and fisheries: Along coasts and in estuaries. Taken at least to 30 m in Gulf of Carpentaria. Diet of adults is largely made up of prawns and fish, with occasional polychaetes. Fishes eaten are largely members of Mugilidae, Engraulidae, and Sciaenidae. The frequency of crustaceans to fish in the diet changes seasonally. Apparently breeds in the sea off South Papua in August, though it may have an extended breeding season. Juveniles are found in estuaries. Matures at about 22 cm standard length in Papua and 28 cm standard length in India. Adults ascend the rivers during winter. Caught with beach seines, longlines, traps, and trawls. Marketed fresh, frozen, and dried or salted. Makes up about 5% of total landings in the Gulf of Carpentaria.

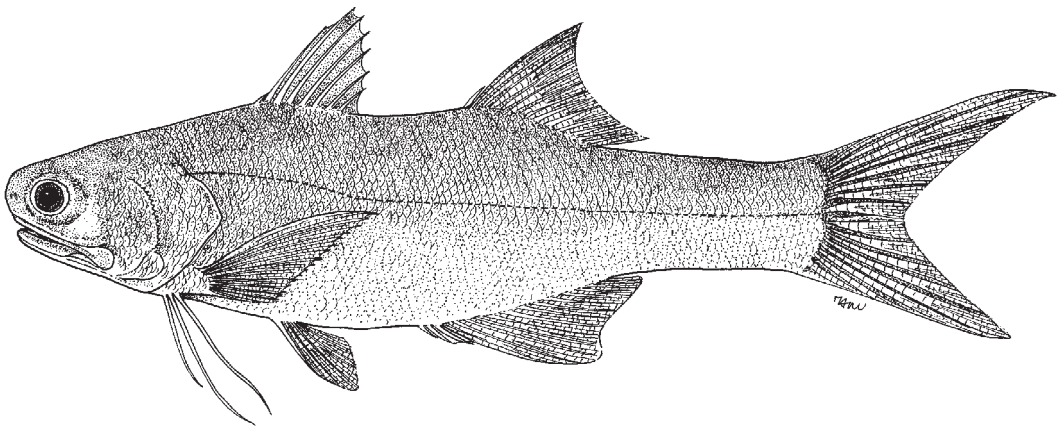


Distribution: Persian Gulf eastward along the coast of the Indian Ocean to the Malay Peninsula, Gulf of Thailand, mouth of the Mekong River delta, China (including Taiwan Province), Philippines, through Indonesia to southern New Guinea, Ashburton River (Western Australia), around the north coast to Sandy Cape (Queensland); in the north possibly to South Japan.

Eleutheronema tridactylum (Bleeker, 1849)

Frequent synonyms / misidentifications: None / *Eleutheronema tetradactylum* (Shaw, 1804).

FAO names: En - Threefinger threadfin.

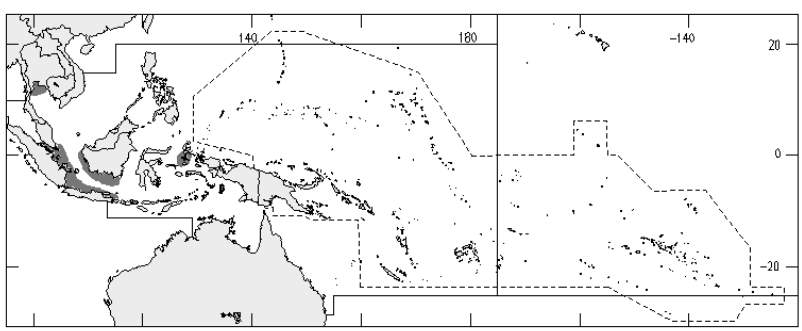


Diagnostic characters: Very similar to *Eleutheronema tetradactylum*. A medium-sized species. Body depth at first dorsal-fin origin 3.7 to 4.6 times in standard length. Head length 3.1 to 3.8 times in standard length. Eye diameter greater than snout length. Dorsoposterior margin of maxilla not elevated but nearly straight, posterior margin rounded; upper lip thin or absent; teeth extending well onto lateral surface of anterior two-thirds of dentary and thick lower lip restricted to posterior third; head of vomer with tooth plate, with posteriorly-directed smaller patches extending from each lateral tip of this main tooth plate; tooth plates on palatine and ectopterygoid and band of teeth on premaxilla and dentary wide; width of band of teeth on premaxillae less than 2 times in space separating band of teeth on one premaxilla from other; most of oral cavity covered with small tooth plates. Posterior margin of preopercle with less than 76 serrations. **Gill rakers on first gill arch 5 to 13** (replaced by tooth plates in larger fish). First dorsal fin with VIII spines; second dorsal fin with I spine and 12 to 15 soft rays (mean 13); anal fin with III spines and 12 to 14 (mean 15) soft rays; anal-fin base longer than second dorsal-fin base; caudal-peduncle length greater than length of anal-fin base; about 14 to 17 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins with 16 to 18 (mean 17) simple rays, the fins insert low on body, reaching to middle or end of pelvic fins; **3 short pectoral filaments**; second or third filament, from ventralmost, the longest, extending to middle or past end of pelvic fins; pelvic fins seldom extend past anus. **Lateral-line scales 69 to 77** (mean 74); lateral line terminating between first and second or second and third lower caudal-fin rays, or bifurcates terminating at both these points, some specimens with third dorsal branch occurring further anteriorly and terminating between the first and second or second and third upper rays; scale rows above lateral line 9 to 11 (mean 9); scale rows below lateral line 11 to 15 (13). Basisphenoid contacts prootic. Vertebrae 10+15. **Colour:** back and body green dorsally; silvery white or yellowish white ventrally; pectoral, dorsal, and caudal fins dark with black borders; golden hue over body and fins.

Size: Maximum standard length at least 27 cm.

Habitat, biology, and fisheries: Occurs along coasts. Has been taken with *E. tetradactylum*.

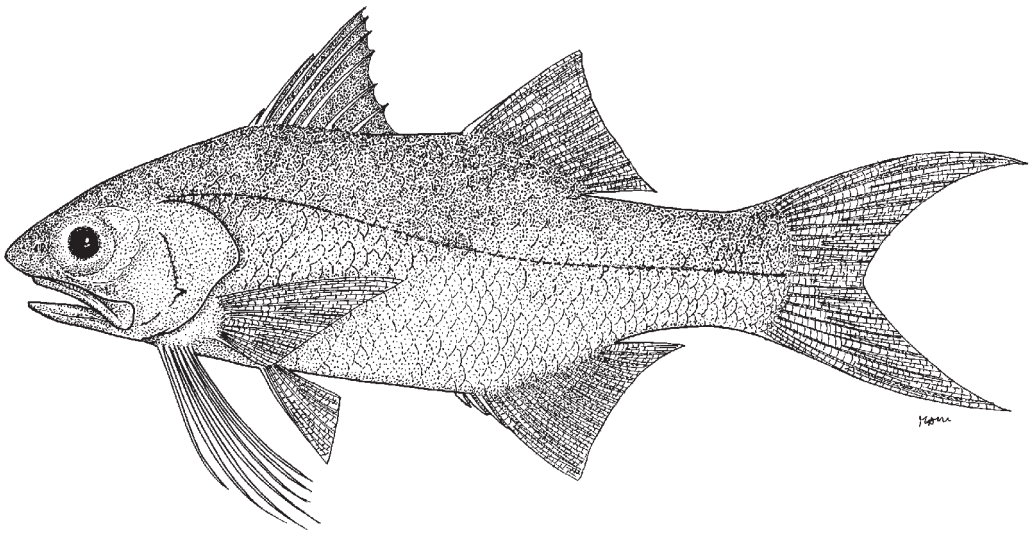
Distribution: Gulf of Thailand to Singapore, north along Malay Peninsula at least to Krabi, Thailand; Sumatra, Java, Borneo, and the Moluccas.



Filimanus heptadactyla (Cuvier, 1829)

Frequent synonyms / misidentifications: None / *Filimanus similis* Feltes, 1991; *Polydactylus sextarius* (Bloch, 1801); *P. multiradiatus* (Günther, 1860).

FAO names: En - Sevenfinger threadfin.

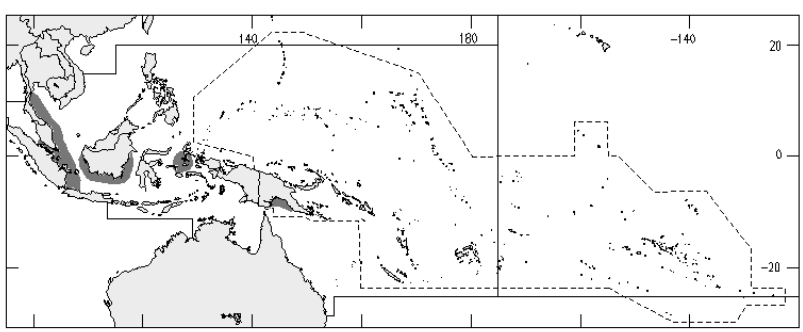


Diagnostic characters: A small species. Body depth at first dorsal-fin origin 3 to 3.6 times in standard length. Head length 3 to 3.6 times in standard length. Eye diameter equal to or greater than snout length. Snout protruding. Depth of maxilla at posterior margin less than eye diameter; **upper lip thin, lower lip fleshy; upper and lower jaws having narrow bands of teeth, bands of teeth on opposing premaxillae separated by gap 2 or more times width of band of teeth**; vomer with small inconspicuous tooth patch; tooth patch on palatines narrow and shorter than tooth patch on ectopterygoid. Posterior margin of preopercle with less than 35 serrations. **Gill rakers on first gill arch 35 to 41** (mean 39). First dorsal fin with VIII spines; second dorsal fin with I spine and 12 or 13 soft rays (mean 12); anal fin with III spines and 11 or 12 (mean 11) soft rays; base of anal fin about equal to or greater than base of second dorsal fin; caudal-peduncle length greater than length of anal-fin base; about 11 to 15 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins with 14 to 16 (mean 15) simple rays, the fins insert low on body, extending to between posterior three-quarters and end of pelvic fins; **7 pectoral filaments**, third or fourth filament, from ventralmost, the longest, **not reaching midpoint of anal fin**; pelvic fins extend to or just past anus. **Lateral-line scales 46 to 49** (mean 48); lateral line terminating between centre of caudal-fin fork and first lower caudal-fin ray, or occasionally between centre and first upper ray or first and second upper rays; scale rows above lateral line 6 or 7 (mean 6); scale rows below lateral line 9 or 10 (mean 10). Basisphenoid does not contact prootic. Anterior margin of ventral section of coracoid expanded. Vertebrae 10+14. Swimbladder simple and elongate. **Colour:** body brown above and golden below; fins yellow with black at least at margins; pectoral fins often mostly black.

Size: Maximum standard length at least 13 cm.

Habitat, biology, and fisheries: Taken in trawls. No other data available.

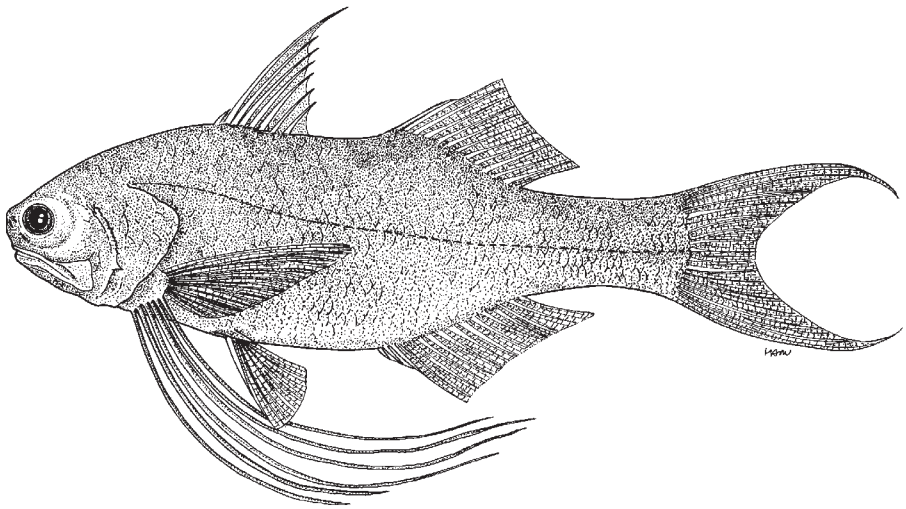
Distribution: Eastern Thailand through Indonesia to Papua New Guinea.



Filimanus hexanema (Cuvier, 1829)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Javanese threadfin.

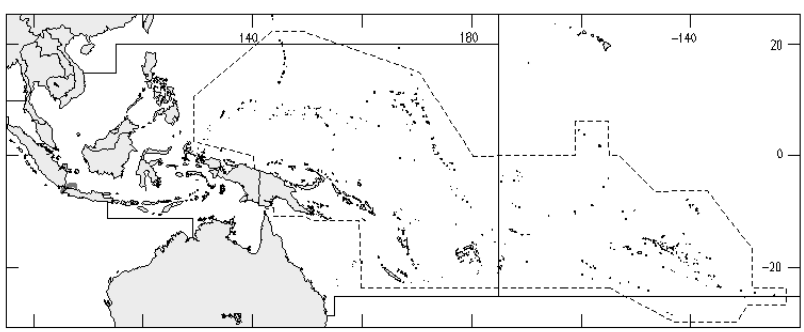


Diagnostic characters: A small species. Body depth at first dorsal-fin origin 3.2 to 3.4 times in standard length; body compressed, greatest body width 2.7 to 3 in body depth at first dorsal-fin origin. Head length 3.3 to 3.6 times in standard length. Eye diameter greater than snout length. Snout blunt. Mouth oblique; **posterior margin of maxilla deep, greater than eye diameter**; upper lip thin, lower lip fleshy; **upper and lower jaws having narrow bands of teeth, bands of teeth on opposing premaxillae separated by gap 2 or more times width of band of teeth**; vomer with small inconspicuous tooth patch; tooth patch on palatines narrow and shorter than tooth patch on ectopterygoid. Posterior margin of preopercle with less than 20 serrations. **Gill rakers on first gill arch 47 to 50** (mean 50). First dorsal fin with VIII spines; **longest spine of first dorsal fin longer than caudal peduncle**; second dorsal fin with I spine and 11 or 12 soft rays; anal fin with III spines and 14 soft rays; anal-fin base longer than second dorsal-fin base; caudal-peduncle length variable relative to length of anal-fin base; about 11 to 15 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins with 14 or 15 (mean 14) simple rays, the fins insert low on body, extending past end of pelvic fins, sometimes reaching past anal-fin origin; **6 pectoral filaments**, fourth or third filament, from ventralmost, the longest, **extending to caudal-fin base**; pelvic fins seldom extend past anus. **Lateral-line scales 49 or 50** (mean 50); lateral line terminating between centre of caudal-fin fork and first lower caudal-fin ray, or occasionally between centre and first upper ray or first and second upper rays; scale rows above lateral line 6; scale rows below lateral line 9 or 10 (mean 10). Basisphenoid does not contact prootic. Anterior margin of ventral section of coracoid expanded. Vertebrae 10+14. **Colour:** body and fins golden yellow, body darker dorsally; fins, especially first dorsal and pectoral fins, may be dusky, most pigment on pectoral fins lateral and highly variable; pectoral filaments black, especially distally.

Size: Maximum standard length at least 12 cm.

Habitat, biology, and fisheries: Taken in trawls. No other data available.

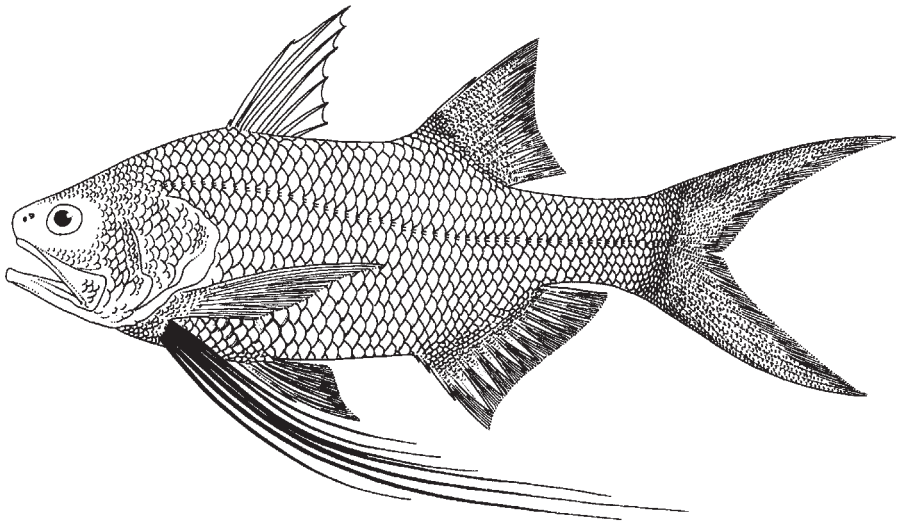
Distribution: Known reliably only from Djakarta (Jawa) with a record for Labuhan (Labuan) on the Sunda Strait.



Filimanus perplexa Feltes, 1991

Frequent synonyms / misidentifications: None / *Polynemus melanochir* Valenciennes, 1831.

FAO names: En - Splendid threadfin.

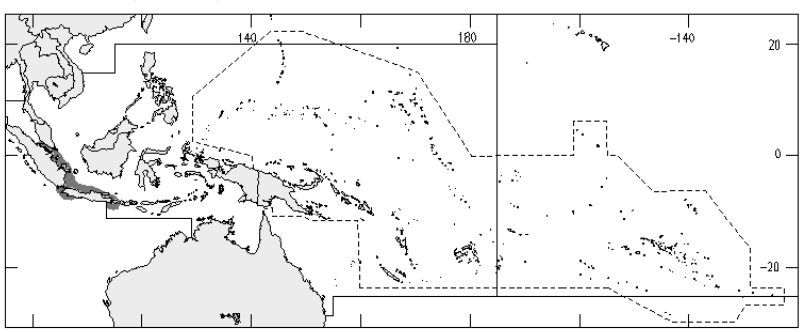


Diagnostic characters: A small species. Body moderately deep, body depth at first dorsal-fin origin 2.9 to 3.3 times in standard length. Head length 2.9 to 3.3 times in standard length. Eye diameter greater than snout length. Snout blunt. Mouth oblique; **posterior margin of maxilla deep, greater than eye diameter**; region of frontals slightly concave; **upper lip thin, lower lip fleshy; upper and lower jaws having narrow bands of teeth, bands of teeth on opposing premaxillae separated by gap 2 or more times width of band of teeth**; vomer with small inconspicuous tooth patch; tooth patch on palatines narrow and shorter than tooth patch on ectopterygoid. Posterior margin of preopercle with less than 26 serrations. **Gill rakers on first gill arch 47 to 50** (mean 50). First dorsal fin with VIII spines; **longest spine of first dorsal fin longer than caudal peduncle**; second dorsal fin with I spine and 11 soft rays; **length of spine of second dorsal fin greater than caudal-peduncle depth**; anal fin with III spines and 13 to 15 (mean 14) soft rays; anal-fin base longer than second dorsal-fin base; caudal-peduncle length variable relative to length of anal-fin base; about 11 to 15 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins insert low on body; pectoral fins with 13 or 14 (mean 14) simple rays, extending past end of pelvic fins, sometimes reaching past anal-fin origin; **7 long pectoral filaments**, third or fourth filament, from ventralmost, the longest, **extending past caudal-fin fork**; pelvic fins seldom extend past anus. **Lateral-line scales 49 to 51** (mean 50); lateral line terminating between centre of caudal-fin fork and first lower caudal-fin ray, occasionally between centre and first upper ray or first and second upper rays; scale rows above lateral line 5 to 8 (mean 6); scale rows below lateral line 9 or 10 (mean 10). Basisphenoid does not contact prootic. Anterior margin of ventral section of coracoid expanded. Vertebrae 10+14. Swimbladder simple and elongate. Pyloric caeca about 6, short and thick. **Colour:** body and fins fawn to yellow, body darker dorsally; fins, especially first dorsal and pectoral fins, dusky to black; most pigment on pectoral fins lateral and highly variable; pectoral filaments black, especially distally.

Size: Maximum standard length at least 16 cm.

Habitat, biology, and fisheries: Taken in trawls. No other data available.

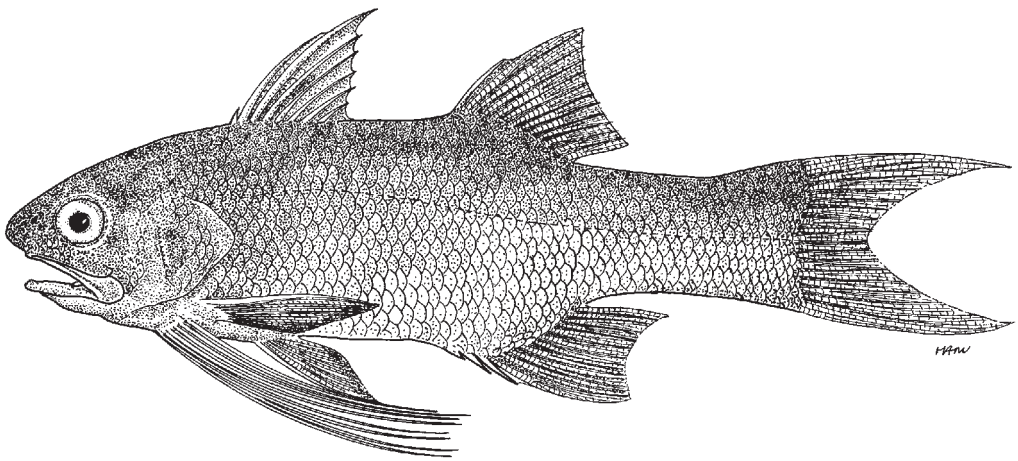
Distribution: Indonesia including Nias, Padang on Sumatra, Java, and Bali.



Filimanus sealei (Jordan and Richardson, 1910)

Frequent synonyms / misidentifications: None / *Filimanus heptadactyla* (Cuvier, 1829); *Polydactylus multiradiatus* (Günther, 1860).

FAO names: En - Eightfinger threadfin.

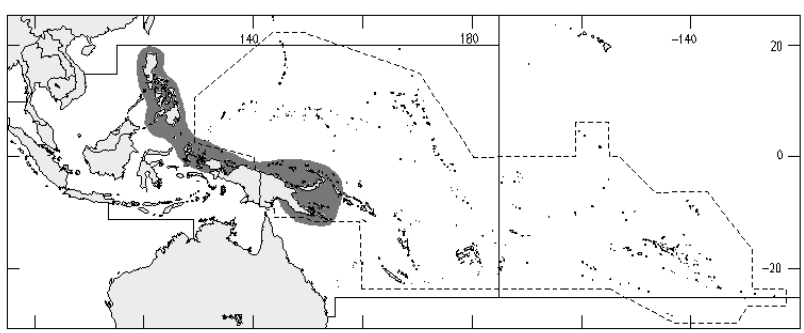


Diagnostic characters: Very similar to *Filimanus heptadactyla*. A small species. Body depth at first dorsal-fin origin 2.9 to 3.5 times in standard length. Head length 3 to 3.4 times in standard length. Eye diameter equal to or greater than snout length. Snout protruding. Depth of maxilla at posterior margin less than eye diameter; upper lip thin, lower lip fleshy; upper and lower jaws having narrow bands of teeth, bands of teeth on opposing premaxillae separated by gap 2 or more times width of band of teeth; vomer with small inconspicuous tooth patch; tooth patch on palatines narrow and shorter than tooth patch on ectopterygoid. Posterior margin of preopercle with less than 35 serrations. **Gill rakers on first gill arch 40 to 48** (mean 46). First dorsal fin with VIII spines; second dorsal fin with I spine and 11 or 12 soft rays (mean 12); anal fin with III spines and 11 soft rays; base of anal fin about equal to or greater than base of second dorsal fin; caudal-peduncle length greater than length of anal-fin base; about 11 to 15 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins with 14 or 15 (mean 14) simple rays, the fins insert low on body, extending to posterior three-quarters of pelvic fins; **8** (rarely 7) **pectoral filaments**, third or fourth filament, from ventralmost, the longest, not reaching midpoint of anal fin; pelvic fins extend to or just past anus. **Lateral-line scales 46 to 50 (mean 49)**; scale rows above lateral line 6 to 7 (mean 7); scale rows below lateral line 9 or 10 (mean 10). Basisphenoid does not contact prootic. Anterior margin of ventral section of coracoid expanded. Vertebrae 10+14. **Colour:** body blue above and silvery below; pectoral and pelvic fins yellow with black at least at margins.

Size: Maximum standard length at least 15 cm.

Habitat, biology, and fisheries: Taken in trawls. No other data available.

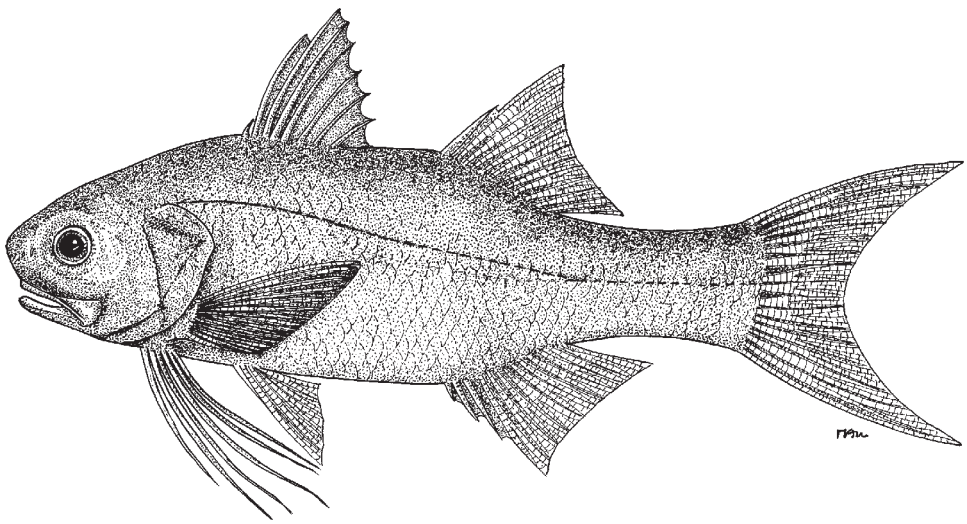
Distribution: The Philippines, New Guinea, Bismarck Archipelago, and the Solomon Islands.



Filimanus xanthonema (Valenciennes, 1831)

Frequent synonyms / misidentifications: *Polynemus pfeifferi* Bleeker, 1853 / *Filimanus similis* Feltes, 1991; *Polydactylus multiradiatus* (Günther, 1860); *P. sexfilis* (Valenciennes, 1831); *P. sextarius* (Bloch, 1801).

FAO names: En - Yellowthread threadfin.

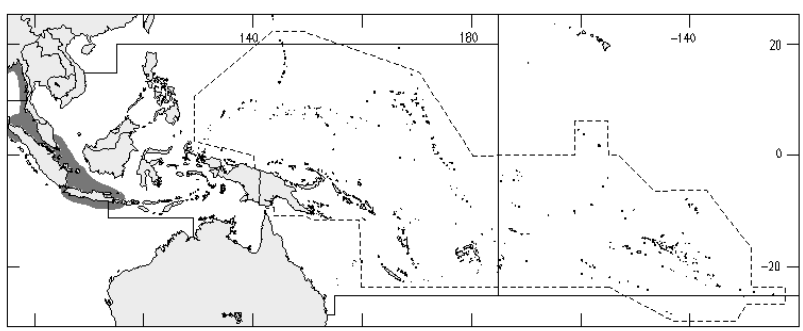


Diagnostic characters: Very similar to *Filimanus heptadactyla*. A small species. Body depth at first dorsal-fin origin 2.8 to 3.7 times in standard length. Head length 2.9 to 3.6 times in standard length. Eye diameter equal to or greater than snout length. Snout protruding. Depth of maxilla at posterior margin less than eye diameter; upper lip thin, lower lip fleshy; upper and lower jaws having narrow bands of teeth, bands of teeth on opposing premaxillae separated by gap 2 or more times width of band of teeth; vomer with small inconspicuous tooth patch; tooth patch on palatines narrow and shorter than tooth patch on ectopterygoid. Posterior margin of preopercle with less than 35 serrations. **Gill rakers on first gill arch 36 to 46** (mean 41.8 in Pacific Ocean). First dorsal fin with VIII spines; second dorsal fin with I spine and 11 to 13 soft rays (mean 12); anal fin with III spines and 10 to 12 (mean 11) soft rays; anal-fin base about equal to or greater than second dorsal-fin base; caudal-peduncle length greater than length of anal-fin base; about 11 to 15 procurrent caudal-fin rays in dorsal or ventral series; pectoral fins with 13 to 15 (mean 15) simple rays, the fins insert low on body, extending to posterior three-quarters of pelvic fins; **5 to 7 (mean 6) pectoral filaments**, may be asymmetric, third or fourth filament, from ventralmost, the longest, not reaching midpoint of anal fin; pelvic fins extend to or just past anus. **Lateral-line scales 43 to 52 (mean 47)**; lateral line terminating between centre of caudal-fin fork and first lower caudal-fin ray, or occasionally between centre and first upper ray or first and second upper rays; scale rows above lateral line 5 to 8 (mean 6); scale rows below lateral line 9 to 12 (mean 10). Basisphenoid does not contact prootic. Anterior margin of ventral section of coracoid expanded. Vertebrae 10+14. Swimbladder simple and elongate. Pyloric caeca about 14, short and thick. **Colour:** body green, dusky yellow, or brown above and silvery below; fins yellow with black at least at margins; pectoral fins often mostly black; free filaments yellow.

Size: Maximum at least 14 cm standard length.

Habitat, biology, and fisheries: Taken in trawls. No other data available.

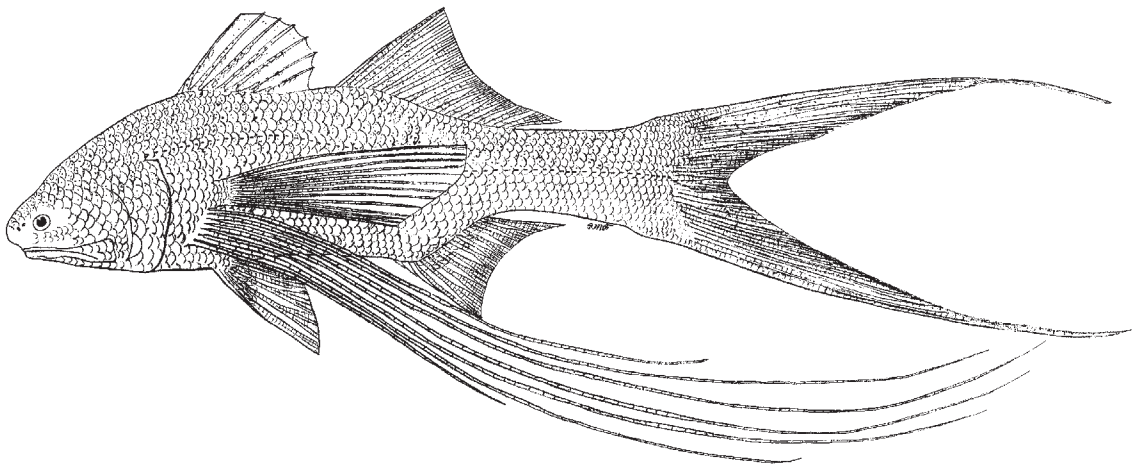
Distribution: Coasts of the Bay of Bengal and the eastern Indian Ocean; Singapore to Lombok.



Parapolynemus verekeri (Saville-Kent, 1889)

Frequent synonyms / misidentifications: *Polynemus intermedius* Nichols, 1954 / None.

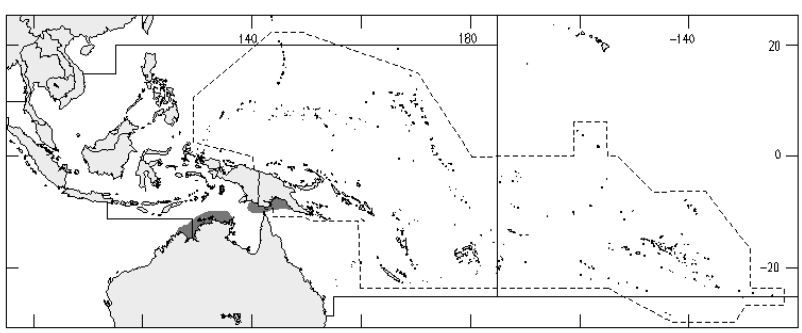
FAO names: En - Dwarf paradise fish.



Diagnostic characters: The smallest polynemid species. Relatively elongate body, its depth at first dorsal-fin origin 3.1 to 5.1 times in standard length. Head length 3.2 to 3.8 times in standard length. Eye diameter 2.5 or less times in snout length. Mouth large, obliquely turned down posteriorly, **upper jaw less than 1.3 times in postorbital length**; posterior margin of maxilla moderately deep, less than 4 times in upper-jaw length; broad head, interorbital less than 2.5 times in postorbital length; no free upper lip, lower lip absent anteriorly and moderate to thick posteriorly; **vomer edentate**; tooth patch on palatine slightly wider and longer than tooth patch on ectopterygoid; band of teeth on maxilla narrow with anterior gap separating opposing sides; **teeth extending laterally on anterior third of dentary of larger specimens. Posterior margin of preopercle lacks serrations. Gill rakers on first gill arch 30 to 43** (mean 40). First dorsal fin with VIII spines; second dorsal fin with I spine and 11 to 14 soft rays (mean 13); anal fin with III spines and 10 to 12 (mean 11) soft rays; anal-fin base shorter than second dorsal-fin base; caudal-peduncle length greater than length of anal-fin base; about 12 to 14 procurrent caudal-fin rays in dorsal or ventral series; caudal-fin lobes long, lower often longest; usually longer than distance from snout to origin of second dorsal fin; pectoral fins with 12 to 14 (mean 13) simple rays, the fins insert near midline on side of body and may reach past posterior end of anal-fin base; **6 or 7** (mean 7) **pectoral filaments**; fifth filament, from ventralmost, the longest, **may extend past end of caudal fin**, but less than 1.5 times in total length; pelvic fins extend past anus. **Lateral-line scales 50 to 60** (mean 56); lateral line terminating between centre of caudal-fin fork and first lower caudal-fin ray; scale rows above lateral line 4 to 6 (mean 5); scale rows below lateral line 8 to 11 (mean 10). Vertebrae 10+14. Swimbladder not apparent. Pyloric caeca narrow, about 15 to 24. **Colour:** body and head yellow, shaded with black dorsally; fins bright orange, pectoral filaments intense vermilion.

Size: Maximum standard length at least 11 cm.

Habitat, biology, and fisheries: Occurs in muddy estuaries and lower portions of rivers. Hundreds of adults approaching breeding condition were taken in trawl on Medusa Banks at a depth of 9 m in January or February 1968.

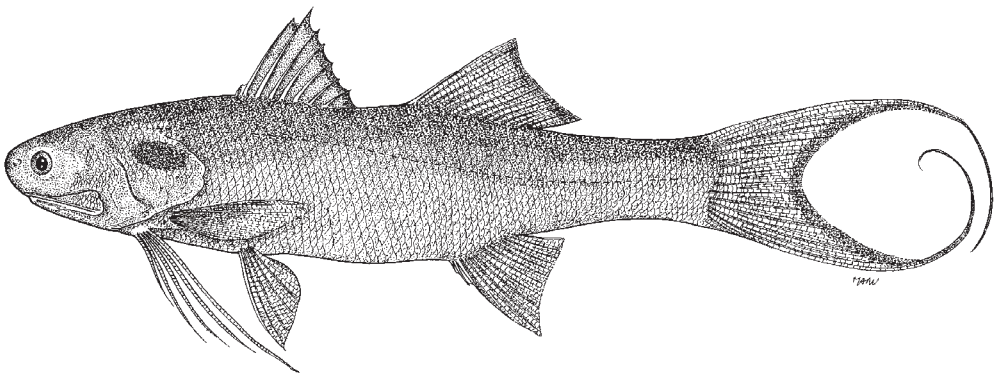


Distribution: Merauke River (New Guinea) through Gulf of Papua; Cambridge Gulf (Western Australia) to Port Stuart (Northern Territory).

Polydactylus indicus (Shaw, 1804)

Frequent synonyms / misidentifications: None / *Polydactylus macrochir* (Günther, 1867); *P. microstoma* (Bleeker, 1851).

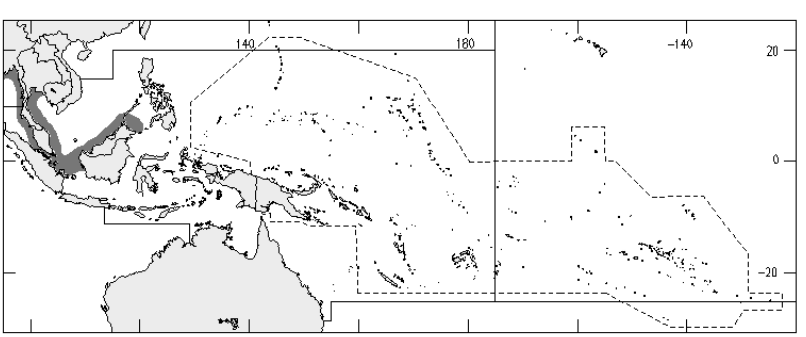
FAO names: En - Indian threadfin; **Fr** - Barbure indien; **Sp** - Barbudo indio.



Diagnostic characters: A large, elongate, shallow-bodied species; body depth at first dorsal-fin origin 3.9 to 5.3 times in standard length. Head length 2.9 to 3.6 times in standard length. Eye diameter less than snout length. Upper lip thin; lower lip medium anteriorly, thick posteriorly; tooth patch on vomer rounded triangle; premaxillary, dentary, palatine, and ectopterygoid tooth patches all wide; width of band of teeth on premaxillae less than 2 times in space separating band of teeth on one premaxilla from other; on larger specimens teeth extend laterally about 1/4 back on dentary; postorbital length greater than 3/4 of body depth at second dorsal-fin origin. Posterior margin of preopercle with less than 65 serrations. **Gill rakers on first gill arch 18 to 30** (mean 20). First dorsal fin with VIII spines; second dorsal fin with I spine and 12 or 13 (mean 13) soft rays; anal fin with III spines and 11 soft rays; anal-fin base shorter than second dorsal-fin base, 2 times length of anal-fin base less than distance from pelvic-fin origin to anal-fin origin; caudal-peduncle length greater than length of anal-fin base; **caudal-fin lobes long, often with filaments**; about 11 to 16 procurrent caudal-fin rays in dorsal or ventral series; **pectoral fins with 12 to 15 (mean 14) simple rays**, the fins insert low on body, reaching to middle of pelvic fins or 3/4 of their length; **5 pectoral filaments**, fifth filament, from ventralmost, the longest, extending past end of pelvic fins; pelvic fins reach near or past anus. **Lateral-line scales 64 to 73** (mean 69); lateral line terminates between second and third lower rays of caudal fin; scale rows above lateral line 6 to 8 (mean 7); scale rows below lateral line 10 to 12 (mean 11). Basisphenoid contacts prootic. Ventral section of the coracoid with foramina and anterior margin of this section greatly expanded. Vertebrae 10+14. **Swimbladder** structure is unique in family **with at least 24 appendages** entering body wall, swimbladder elongate, running entire length of body cavity; ending in a point penetrating the caudal musculature; membrane is thick and silvery. About 16 pyloric caeca in the grouping proximal to the cardiac portion of the stomach, 8 to 10 in the distal group. **Colour:** back and head greyish green or purplish black; silvery white ventrally, with a very indistinct stripe along centre of each line of abdominal scales; fins dusky and darkened marginally.

Size: Maximum standard length at least 113 cm, commonly to 63 cm standard length.

Habitat, biology, and fisheries: Occurs mainly near estuaries, occasionally entering rivers, taken to a depth of 100 m, though rare below 55 m. Young feed almost exclusively on crustaceans. The percent of fishes in the diet increases with size. Taken with beach seines, traps, longlines, and trawls.



Distribution: Durban and Delagoa Bay, South Africa; Maurice; Sind Province (Pakistan); east around the coast of India; along the Malay Peninsula; northwest coast of Sumatra; Gulf of Thailand, and Borneo.

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