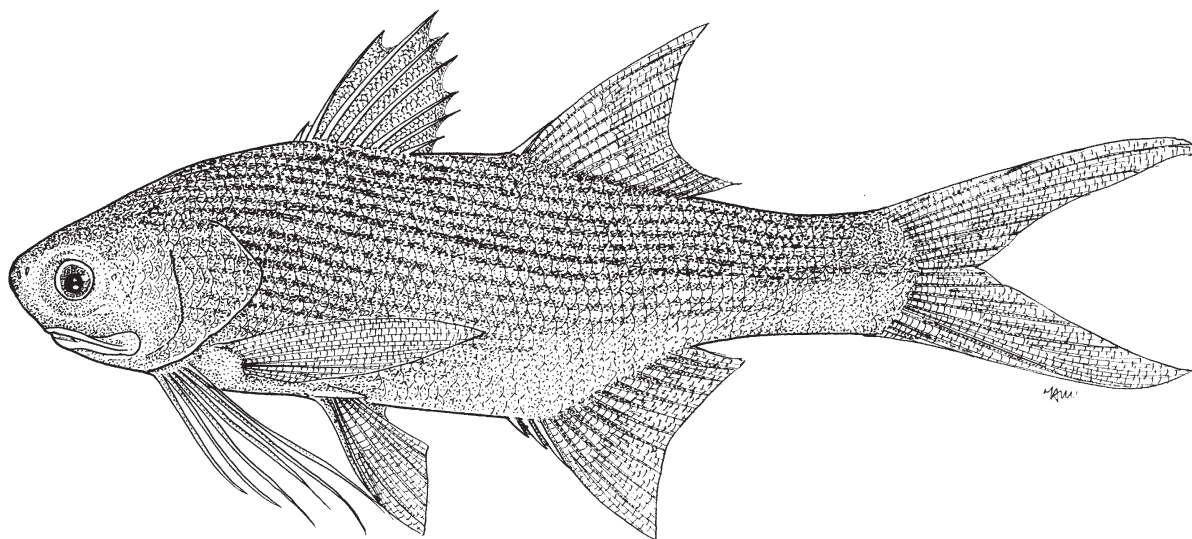


***Polydactylus sexfilis*** (Valenciennes, 1831)**Fig. 120; Plate Vb-d**

*Polynemus sexfilis* Valenciennes in Cuvier and Valenciennes, 1831: 515 [type locality: Mauritius; lectotype (MNHN 9731, 265 mm standard length) designated by Motomura, Iwatsuki and Kimura, 2001a; 2 paralectotypes (MNHN A. 3027, 96 mm standard length; MNHN 9728, 92 mm standard length)].

**Synonyms:** *Polynemus kuru* Bleeker, 1853b: 600 [type locality: Jakarta, Java, Indonesia; 2 syntypes (RMNH 6006, 87 to 198 mm standard length) determined from 5 Bleeker specimens by Motomura, Iwatsuki and Kimura, 2001a].

**FAO Names:** En - Sixfinger threadfin; Fr - Barbure à six doigts; Sp - Barbudo de seis dedos.



**Fig. 120** *Polydactylus sexfilis*

**Diagnostic Features:** A medium-sized species. Body depth at first dorsal-fin origin 26 to 32% (mean 29%) of standard length; head length 27 to 34% (mean 32%) of standard length. Snout pointed; occipital profile nearly straight. Posterior margin of maxilla reaching to level of posterior margin of adipose eyelid; upper-jaw length 13 to 15% (mean 15%) of standard length; depth of posterior margin of maxilla less than eye diameter; lip on lower jaw well developed, dentary teeth restricted to dorsal surface; teeth villiform in broad bands on vomer, palatines and ectopterygoids. Posterior margin of preopercle serrated. First dorsal fin with VIII spines, all spine bases of similar thickness; second dorsal fin with I spine and 12 or 13 (mode 13) soft rays; anal fin with III spines and 11 or 12 (mode 11) soft rays, anal-fin base approximately equal to second dorsal-fin base; pectoral fin with 15 or 16 (mode 16) rays, its length 20 to 23% (mean 21%) of standard length, posterior tip not reaching to level of posterior tip of pelvic fin; all pectoral-fin rays unbranched except larger specimens (in larger specimen, third pectoral-fin ray bifurcated at tip, fourth and fifth pectoral-fin rays divided into 3 at tip, and remaining pectoral-fin rays unbranched); pectoral filaments 6; first pectoral filament shortest, not reaching to level of pelvic-fin origin; second to fifth pectoral filaments extending beyond level of pelvic-fin origin; sixth pectoral filament longest, its length 28 to 41% (mean 35%) of standard length, not reaching to or extending beyond level of posterior tip of pelvic fin; caudal fin deeply forked, upper and lower caudal-fin lobes not filamentous, upper caudal-fin lobe 39 to 48% (mean 44%) and lower lobe 37 to 46% (mean 41%) of standard length. Pored lateral-line scales 60 to 67 (mode 64); lateral line simple, extending from upper end of gill opening to upper end of lower caudal-fin lobe; scale rows above lateral line 8 to 10 (mode 9), below 12 to 14 (mode 13). Gillrakers 11 to 14 (mode 13) on upper limb, 15 to 18 (mode 17) on lower limb, 27 to 31 (mode 30) total. Vertebrae 10 precaudal and 14 caudal; supraneural bones 3. Swimbladder present. **Colour:** Upper sides of head and trunk tinged silvery brown, becoming more silver on lower sides; first dorsal fin black; posteriormost ray of second dorsal fin white, remainder of fin greyish black; base of pectoral fin greyish black, becoming dense black posteriorly; bases and tips of pectoral filaments white, middle parts of filaments greyish black; anterior part of pelvic fin greyish black, remainder of fin white; posteriormost ray of anal fin white, remainder of fin greyish black; caudal fin uniformly greyish black; 7 to 9 prominent dark stripes along longitudinal scale rows above lateral line, 1 to 12 faint stripes below (sometimes no stripes, especially in smaller specimens).

**Geographical Distribution:** Widely distributed in the Indo-Pacific region, generally in the vicinity of oceanic islands (Fig. 121). Specimens never collected from the coast of the Australian continent. The species is considered to be less dependent upon large fresh-water rivers (based on known locality data) than other, heavily-dependent polynemid species. Distributional implications of the species in Japanese waters were discussed by Motomura, Burhanuddin and Iwatsuki (2000).

**Habitat and Biology:** Occurs along shallow (less than 50 m), sandy and rocky coastal beaches, in lagoons and near reef areas in the vicinity of oceanic islands, frequently in zones of turbulence. Feeds mainly on crustaceans and teleosts.

Matures first as males at between 20 and 25 cm fork length, subsequently transforming into functional females at between 30 and 40 cm fork length following a hermaphroditic stage (Santerre and May, 1977; May, Akiyama and Santerre, 1979). Displays a lunar spawning rhythm. Observations of spawning behaviour given by May, Akiyama and Santerre (1979). The potential of the species for aquaculture has also been studied (e.g. May, 1976; Ostrowski *et al.*, 1996; Leber, Brennan and Arce, 1998; Masuda and Ziemann, 2000).

**Size:** Maximum standard length at least 45 cm (Motomura and Senou, 2002).

**Interest to Fisheries:** One of the most important commercial and sport fisheries' species in Hawaii, where it is actively cultivated.

**Local Names:** AUSTRALIA: Six-fingered threadfin; BANGLADESH: Dagi, Golden sixthread tesselfish, Topshi; FRENCH POLYNESIA: Moi; HAWAII: Moi, Moili'i, Pacific thread-fin fish, Pacific threadfin; INDONESIA: Mulut tikus; JAPAN: Nan'you-agonashi; MARSHALL ISLANDS: Atkaru, Becadulce; PAPUA NEW GUINEA: Six-fingered threadfin; PITCAIRN: Moi; SAMOA: l'ausi, Umiunia, Umi'umia; SEYCHELLES: Mulet barbe; SOLOMON ISLANDS: Bou na pana, Six-fingered threadfin; SRI LANKA: Gatha, Kala; TAHITI: Moi; TUAMOTO ISLANDS: Moi;

**Literature:** Motomura, Burhanuddin and Iwatsuki (2000); Motomura, Iwatsuki and Kimura (2001a); Motomura and Senou (2002); Motomura (2002).

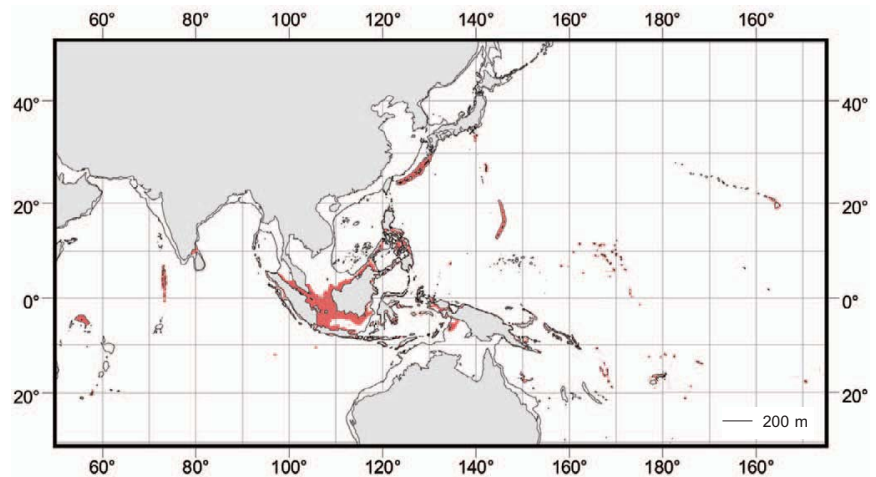
**Remarks:** *P. sexfilis* has usually been regarded as a valid species (e.g. Sauvage, 1891; Munro, 1955; Jones and Kumaran, 1980). Although *P. kuru* has also been regarded as a valid species (e.g. Kendall and Goldsborough, 1911; Weber and de Beaufort, 1922; Mishra and Krishnan, 1993), type materials of the 2 have never been directly compared. Recent examination of 2 syntypes of *Polynemus kuru* showed them to correspond closely with lectotype and 2 paralectotypes of *P. sexfilis*. Therefore, *P. kuru* is regarded as a junior synonym (Motomura, Iwatsuki and Kimura, 2001a).

Fricke (1999) synonymized *Polydactylus sexfilis* with *P. sextarius*, but his opinion was clearly erroneous. *Polydactylus sexfilis* can be easily distinguished from *P. sextarius* in lacking a large black spot anteriorly on the lateral line (present in the latter) and possessing villiform teeth in broad bands on the vomer (teeth absent).

Although Munro (1955, 1967) and Menon and Babu Rao *in* Fischer and Bianchi (1984) described the pectoral fin of *P. sexfilis* as being black, the fin membrane pigmentation was found to be quite variable (from no pigment to entirely black).

The pectoral-fin rays of *P. sexfilis* were thought to remain unbranched throughout life. However, the pectoral fin of a large specimen (KPM-NI 8127, 456 mm standard length, from the Izu Islands, Japan) was found to have 3 branched rays. Although the first, second, and sixth to sixteenth pectoral-fin rays of the specimen were unbranched, the third, and fourth and fifth rays were bifurcated and divided into 3, respectively, near the tips. This change from unbranched to branched fin rays is apparently related to fish growth. Five similar *Polydactylus* species: *P. malagasyensis*, *P. microstomus*, *P. mullani*, *P. persicus* and *P. sextarius*, characterized by having a large black spot anteriorly on the lateral line, are also known to have branched pectoral-fin rays. However, the pectoral-fin ray condition in these species differs from that of *P. sexfilis* in that all of the rays, except the uppermost 1 or 2, are branched throughout life.

Like *P. sexfilis* and 2 other Indo-Pacific *Polydactylus* species, such as *P. longipes* and *P. nigripinnis*, are characterized by having 6 pectoral filaments and lacking a large black spot anteriorly on the lateral line. Comparisons of *P. sexfilis* with *P. longipes* and *P. nigripinnis* are given in the accounts of the latter 2 species.



**Fig. 121** *Polydactylus sexfilis*  
■ Known distribution

*Polydactylus sexfilis* is most similar to *P. plebeius* in overall body appearance, but differs from the latter in having higher counts of pectoral filaments (6 versus 5 in the latter), lower counts of pectoral-fin rays [15 or 16 (mode 16) versus 16 to 18 (mode 17; rarely 15)] and higher counts of gillrakers [27 to 31 (mode 30) versus 24 to 32 (mode 26)]. Furthermore, *P. sexfilis* tends to have a longer second dorsal-fin ray than *P. plebeius*, although the proportional length measurements for such overlapped between the 2 species [21 to 30% (mean 26%) of standard length versus 19 to 28% (mean 22%) of standard length; see Motomura, Iwatsuki and Kimura, 2001a: fig. 3]. Both anal- and caudal-fin rays of *P. sexfilis* are also slightly longer than those of *P. plebeius* [anal fin: 20 to 26% (mean 23%) of standard length versus 17 to 23% (mean 19%); upper caudal fin: 39 to 48% (mean 44%) versus 33 to 44% (mean 39%); lower caudal fin: 37 to 46% (mean 41%) versus 30 to 41% (mean 36%)].

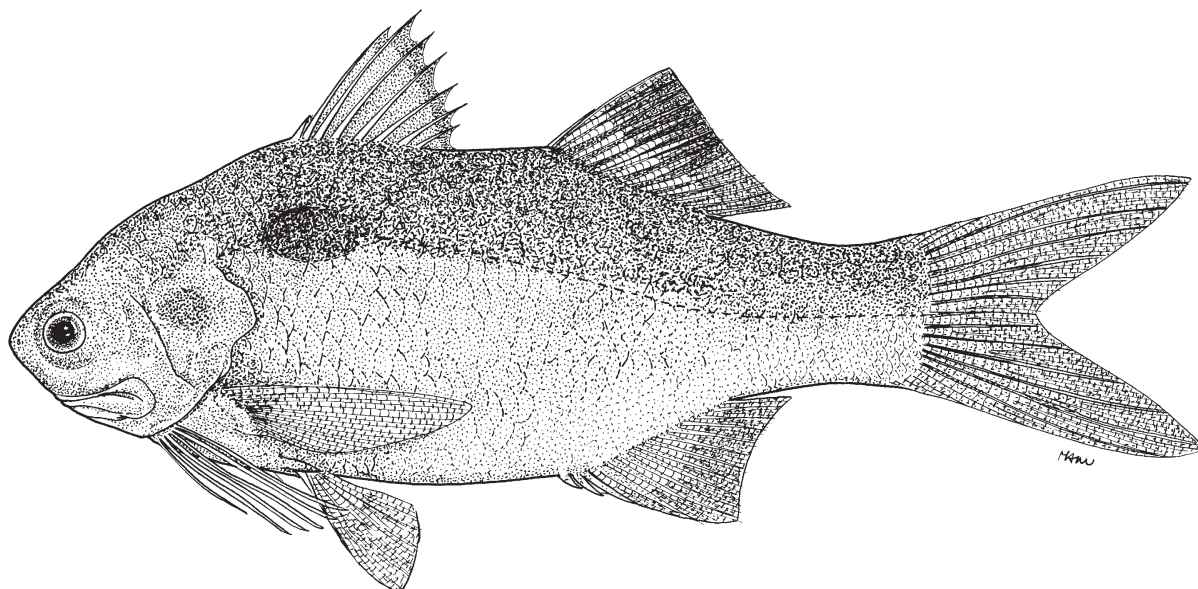
***Polydactylus sextarius*** (Bloch and Schneider, 1801)

**Fig. 122; Plate Ve-f**

*Polynemus sextarius* Bloch and Schneider, 1801: 18, pl. 4 [type locality: Tranquebar, Tamil Nadu, India; holotype (ZMB 565, 125 mm standard length)].

**Synonyms:** None.

**FAO Names:** **En** - Blackspot threadfin; **Fr** - Barbure à tache noire; **Sp** - Barbudo de mancha negra.



**Fig. 122** *Polydactylus sextarius*

**Diagnostic Features:** A small- to medium-sized species. Body depth at first dorsal-fin origin 29 to 36% (mean 32%) of standard length; head length 30 to 35% (mean 33%) of standard length. Snout pointed; occipital profile nearly straight. Posterior margin of maxilla not reaching to or extending slightly beyond level of posterior margin of adipose eyelid; upper-jaw length 12 to 14% (mean 13%) of standard length; depth of posterior margin of maxilla less than eye diameter; lip on lower jaw well developed, dentary teeth restricted to dorsal surface; teeth villiform in broad bands on palatines and ectopterygoids; vomerine tooth plate covered with skin and teeth absent; palatines inwardly turned anteriorly. Posterior margin of preopercle serrated. First dorsal fin with VIII spines, all spine bases of similar thickness; second dorsal fin with I spine and 12 or 13 (mode 13) soft rays; anal fin with III spines and 11 to 13 (mode 12) soft rays, anal-fin base approximately equal to second dorsal-fin base; pectoral fin with 13 to 15 (mode 14) rays (all rays unbranched, except uppermost 1 or 2), its length 19 to 25% (mean 22%) of standard length, posterior tip not reaching to level of posterior tip of pelvic fin; pectoral filaments 6, first filament shortest; sixth pectoral filament longest, its length 20 to 29% (mean 25%) of standard length, not reaching to level of posterior tip of pectoral fin; caudal fin deeply forked, upper and lower caudal-fin lobes not filamentous, upper caudal-fin lobe 33 to 41% (mean 36%) and lower lobe 31 to 41% (mean 34%) of standard length. Pored lateral-line scales 45 to 51 (mode 46); lateral line simple, extending from upper end of gill opening to upper end of lower caudal-fin lobe; scale rows above lateral line 5 or 6 (mode 6), below 8 to 11 (mode 11). Gillrakers 10 to 14 (mode 12) on upper limb, 14 to 18 (mode 16) on lower limb, 25 to 30 (mode 28) total. Vertebrae 10 precaudal and 14 caudal; supraneural bones 3. Swimbladder atrophied, like a fine string. **Colour:** Head and upper sides of trunk with slightly darkish silver tinge, becoming lighter on lower sides; snout

semi-translucent; posterior margin of first and second dorsal fins and caudal fin slightly blackish, other parts translucent; posterior tip of anal fin whitish, other parts blackish; pectoral-fin membrane white with scattered melanophores; pectoral filaments whitish; anterior parts of pelvic fin slightly yellowish white, other parts whitish; a large black spot anteriorly on lateral line.

**Geographical Distribution:** Known from the eastern Indian to western Pacific oceans where it ranges from southwestern India to Papua New Guinea and Miyazaki, Kyushu Island, Japan (Fig. 123). Although Munro (1967) reported a single example (CSIRO C. 1002, 157 mm standard length) collected from Papua New Guinea, *P. sextarius* is considered to occur rarely west of Huxley's line (sensu George in Whitmore, 1981). Therefore, it may occur rarely in the Philippines, eastern Indonesia, including the Lesser Sunda Islands, Sulawesi Island, Moluccas and Irian Jaya, and Papua New Guinea.

**Habitat and Biology:** Occurs on sandy and muddy bottoms, being taken from depths of 16 to 73 m. The species feeds mainly on shrimps (less than 20 mm) and amphipods, other important dietary items (in 50% or more of the stomachs) being crabs, mysids, fishes and polychaetes (Hida, 1967).

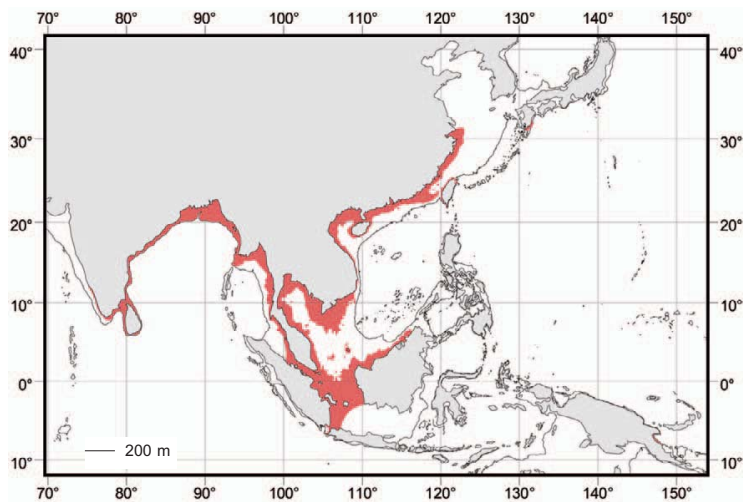


Fig. 123 *Polydactylus sextarius*  
■ Known distribution

Hida (1967) reported the sex composition of 140 specimens of *P. sextarius* from the Bay of Bengal, India as: 112 hermaphrodites ranging from 50 to 149 mm standard length, 27 mature females ranging from 100 to 105 mm standard length and 1 sex undetermined. The hermaphrodites with relatively large testes were considered as mature males (90 to 134 mm standard length) and those with granulated ova about 0.3 to 0.5 mm diameter as mature female (105 to 149 mm standard length). The species undergoes a protandrous change through a juvenile-hermaphrodite-female progression, first reaching sexual maturity as a functional male hermaphrodite. There is no evidence that females develop directly from juveniles.

**Size:** Maximum standard length at least 17 cm (Motomura and Iwatsuki, 2001b).

**Interest to Fisheries:** An important fishery species, generally caught by trawl in the Bay of Bengal and Thailand.

**Local Names:** INDIA: Blackspot threadfin; JAPAN: Kataguro-agonashi; MALAYSIA: Benong, Gubal, Kurau, Lelaoh tanah, Melong, Mancong, Senangin, Senangin buis, Senohong; MYANMAR: Za yaw; PAPUA NEW GUINEA: Black-spot threadfin; SRI LANKA: Kutlikala.

**Literature:** Motomura *et al.* (1999); Motomura and Iwatsuki (2001b); Motomura (2002).

**Remarks:** Fricke (1999) synonymized *Polynemus sexfilis* and *P. astrolabi* under *Polydactylus sextarius*. However, *Polydactylus* (= *Polynemus*) *sexfilis* is presently recognized as a valid species (Motomura, Iwatsuki and Kimura, 2001a) and *P. astrolabi* was synonymized with *Galeoides decadactylus* (Motomura, Iwatsuki and Kimura, 2001b).

Five *Polydactylus* species: *P. malagasyensis*, *P. microstomus*, *P. mullani*, *P. persicus* and *P. sextarius*, are characterized by having all pectoral-fin rays branched, except the uppermost 1 or 2, the vomer without teeth and a large black spot anteriorly on the lateral line. *Polydactylus sextarius* can be easily distinguished from *P. microstomus* and *P. mullani* by the number of pectoral filaments [6 versus 5 (rarely asymmetrically 5 and 6) and 7 (rarely asymmetrically 6 and 7), respectively, in the latter]. Comparisons of *P. sextarius* with *P. malagasyensis* and *P. persicus* are given in the accounts of the latter 2 species.

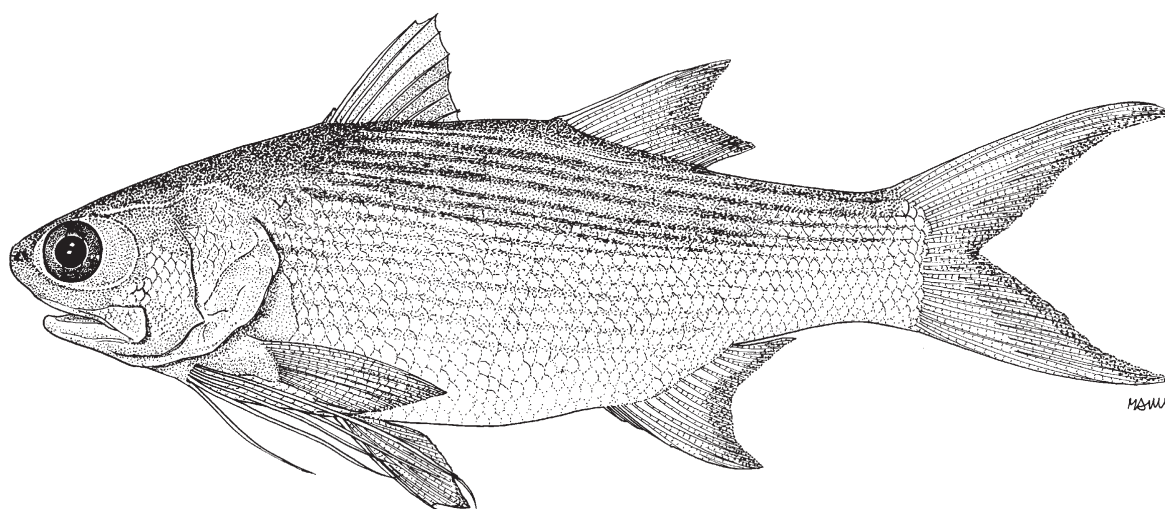
*Polydactylus siamensis* Motomura, Iwatsuki and Yoshino, 2001

Fig. 124; Plate Vg

*Polydactylus siamensis* Motomura, Iwatsuki and Yoshino, 2001: 122, fig. 1B [type locality: northern Gulf of Thailand (purchased at Samyan market, Bangkok); holotype (URM-P 14050, 252 mm standard length); paratype (MUFs 18280, 137 mm standard length)].

**Synonyms:** None.

**FAO Names:** En - Largemouth striped threadfin; Fr - Barbure à grande bouche; Sp - Barbudo rayado de boca grande.



**Fig. 124** *Polydactylus siamensis*

**Diagnostic Features:** A medium-sized species. Body depth at first dorsal-fin origin 30 to 33% (mean 32%) of standard length; head length 31 to 34% (mean 32%) of standard length. Snout pointed; occipital profile nearly straight. Posterior margin of maxilla extending slightly beyond level of posterior margin of adipose eyelid; upper-jaw length 16 to 17% (mean 17%) of standard length; depth of posterior margin of maxilla less than eye diameter; lip on lower jaw well developed, dentary teeth restricted to dorsal surface; teeth villiform in broad bands on vomer, palatines and ectopterygoids. Posterior margin of preopercle serrated. First dorsal fin with VIII spines, all spine bases of similar thickness; second dorsal fin with I spine and 12 or 13 (mode 13) soft rays; anal fin with III spines and 11 soft rays, anal-fin base less than second dorsal-fin base; pectoral fin with 15 rays (all rays unbranched), its length 20 to 22% (mean 21%) of standard length, posterior tip not reaching to level of posterior tip of pelvic fin; pectoral filaments 5; first pectoral filament shortest, just short of or reaching to level of pelvic-fin origin; second to fourth pectoral filaments not reaching to level of posterior tip of pelvic fin; fifth pectoral filament longest, its length 31 to 43% (mean 36%) of standard length, reaching to or extending beyond level of posterior tip of pelvic fin; caudal fin deeply forked, upper and lower caudal-fin lobes not filamentous, upper caudal-fin lobe 38 to 41% (mean 40%) and lower lobe 34 to 37% (mean 35%) of standard length. Pored lateral-line scales 54 to 58 (mode 54); lateral line simple, extending from upper end of gill opening to upper end of lower caudal-fin lobe; scale rows above lateral line 7, below 10 or 11 (mode 11). Gillrakers 9 or 10 (mode 10) on upper limb, 13 or 14 (mode 13) on lower limb, 22 to 24 (mode 23) total. Vertebrae 10 precaudal and 14 caudal; supraneural bones 3. Swimbladder absent. **Colour:** 7 or 8 prominent dark stripes along scale rows above lateral line, 7 to 9 faint stripes below.

**Geographical Distribution:** Currently known only from Bangkok, Songkhla and Phuket, Thailand (Fig.125). According to local fishermen at Bangkok, Samut Prakan and Prachuap Khirikhan, Thailand, *P. siamensis* rarely occurs in the Gulf of Thailand and the record from the Gulf of Thailand is based only on 3 specimens. The species is mainly distributed in the Andaman Sea.

**Habitat and Biology:** No data are available.

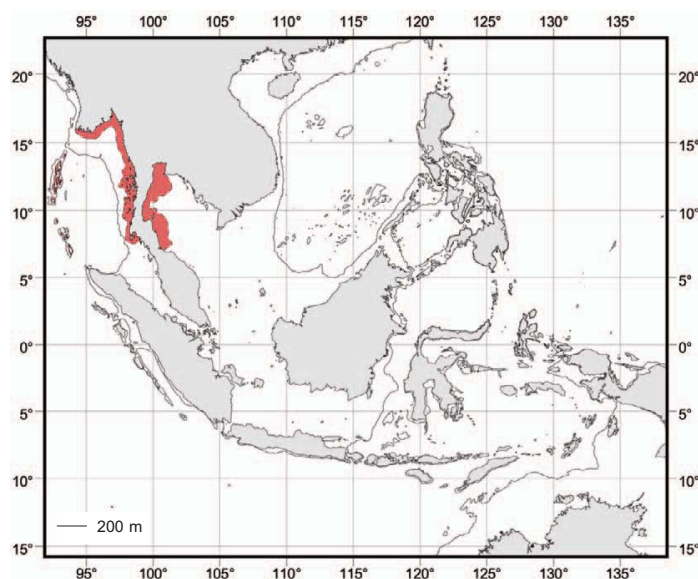
**Size:** Maximum standard length at least 25 cm (Motomura, Iwatsuki and Yoshino, 2001).

**Interest to Fisheries:** None.

**Local Names:** MYANMAR: Za yaw.

**Literature:** Motomura, Iwatsuki and Yoshino (2001); Motomura (2002).

**Remarks:** *P. siamensis* was recently described as a new species by Motomura, Iwatsuki and Yoshino (2001) and characterized by having 5 pectoral filaments, several longitudinal dark stripes along each scale row on the lateral body surface, and lower counts of pectoral-fin rays (15), scales above and below the lateral line [7 and 10 or 11 (mode 11), respectively], pored lateral-line scales [54 to 58 (mode 54)] and gillrakers [9 or 10 (mode 10) upper series, 13 or 14 (mode 13) lower and 22 to 24 (mode 23) total]. Comparisons of *P. siamensis* with related species, *P. bifurcus* and *P. plebeius*, are given in the accounts of the latter 2 species.



**Fig. 125** *Polydactylus siamensis*  
■ Known distribution