

***Polydactylus* Lacepède, 1803**

Polydactylus Lacepède, 1803: 419 [type species: *Polydactylus plumierii* Lacepède, 1803, presently regarded as a junior synonym of *Polydactylus virginicus* (Linnaeus, 1758)].

Synonyms: None.

Diagnostic Features: Body oblong to moderately deep. Adipose eyelid well developed; eye diameter greater than snout length. Lip on lower jaw well developed, dentary teeth restricted to dorsal surface except in adults of *Polydactylus opercularis* (in adults of *P. opercularis*, anterior one-third of lower jaw with small teeth extending onto lateral surface, adjacent portion of lip poorly developed); width of tooth band on upper and lower jaws greater than space (on symphysis) separating tooth bands on opposing premaxillae; teeth villiform in broad bands on jaws, palatines and ectopterygoids; vomerine tooth plate without teeth in some species. Posterior margin of maxilla just short of, reaching to, or extending beyond level of posterior margin of adipose eyelid. Posterior margin of preopercle serrated. Basisphenoid in contact with prootic; sphenotics not visible dorsally between anterior margins of parietal and pterotic. First dorsal fin with VIII spines; second dorsal fin with I spine and 11 to 15 soft rays; anal fin with III spines and 10 to 18 soft rays; anal-fin base less than head length; pectoral fin with 12 to 18 rays; pectoral-fin insertion well below midline of body; pectoral-fin base (including base of pectoral filaments) less than upper-jaw length; pectoral filaments 4 to 9, not extending beyond level of posterior tip of caudal fin; caudal fin deeply forked, upper and lower caudal-fin lobes not filamentous. Pored lateral-line scales 45 to 94; scale rows above lateral line 5 to 11, below 8 to 16. Gillrakers 21 to 38. Vertebrae 10 precaudal and 14 caudal; supraneural bones 2 or 3. Swimbladder present or absent.

Habitat and Biology: *Polydactylus* species are generally found on sandy or muddy bottoms in coastal waters and estuaries, and in depths of 1 to 150 m. Only a single species, *Polydactylus macrophthalmus*, occurs in complete fresh-water rivers on the Indonesian islands. Most species of *Polydactylus* are epibenthic predators feeding on crustaceans and fishes on or near the bottom. The reproduction of a few species has been studied, and they appear to be protandrous, sex changing from male to female with growth.

Geographic Distribution: The genus is widely distributed in tropical and subtropical latitudes of all oceans, but has never been recorded in the Red Sea or Mediterranean. Fourteen species occur in the Indo-Pacific, 2 species are known from the eastern Pacific, 3 species are found in the western Atlantic, and 1 species occurs in the eastern Atlantic.

Interest to Fisheries: The species of *Polydactylus* are among the most important commercial fishes in tropical fisheries of the world. Especially, in the middle East, South Asia and Southeast Asia, they are among the highest priced species in fish markets. A few species (e.g. *Polydactylus quadrifilis* and *P. macrochir*) are known as important sport fishes. *Polydactylus sexfilis* is cultivated in Hawaii.

Species: The genus comprises 20 species:

Polydactylus approximans: California to Peru (eastern Pacific)

Polydactylus bifurcus: Indonesia (Indo-Pacific)

Polydactylus longipes: Philippines (western Pacific)

Polydactylus macrochir: Northern Australia and southern Papua New Guinea (Indo-Pacific)

Polydactylus macrophthalmus: Indonesia (western Pacific)

Polydactylus malagasyensis: East coast of Africa (Indian Ocean)

Polydactylus microstomus: Sri Lanka to New Caledonia (Indo-Pacific)

Polydactylus mullani: Arabian Sea (Indian Ocean)

Polydactylus multiradiatus: Northern Australia and southern Papua New Guinea (Indo-Pacific)

Polydactylus nigripinnis: Northern Australia and southern Papua New Guinea (Indo-Pacific)

Polydactylus octonemus: New York to Yucatán (western Atlantic)

Polydactylus oligodon: Florida to Brazil (western Atlantic)

Polydactylus opercularis: California to Peru (eastern Pacific)

Polydactylus persicus: Persian Gulf (Indian Ocean)

Polydactylus plebeius: South Africa to Polynesia (Indo-Pacific)

Polydactylus quadrifilis: Eastern Atlantic

Polydactylus sexfilis: Mauritius to Pitcairn Island (Indo-Pacific)

Polydactylus sextarius: India to Papua New Guinea (Indo-Pacific)

Polydactylus siamensis: Thailand (Indo-Pacific)

Polydactylus virginicus: New Jersey to Brazil (western Atlantic)

Remarks: *Polydactylus plumierii*, described as a new genus and species by Lacepède (1803), is presently regarded as a junior synonym of *Polydactylus virginicus*. *Polydactylus* differs from other genera in having the following combination of characters: eye diameter 1.3 or less in snout length (1.3 or more in *Parapolydactylus* and *Polynemus*); width of tooth band on upper and lower jaws greater than space separating tooth bands on opposing premaxilla (narrower in *Filimanus* and *Pentanemus*); lip of anterior parts of lower jaw well or poorly developed (absent in *Eleutheronema*); basisphenoid in contact with prootic (not in contact in *Filimanus*); pectoral-fin base, including base of pectoral filaments, less than upper-jaw length (greater in *Galeoides*); anal-fin soft rays less than 18 (more than 24 in *Pentanemus*); swimbladder absent or simple, not extending beyond anal-fin origin (swimbladder with many appendages in *Leptomelanosoma* and extending beyond anal-fin origin in *Galeoides*).

Key to the Indo-Pacific Species of *Polydactylus*

- 1a. A large black spot present anteriorly on lateral line → 2
- 1b. No large black spot anteriorly on lateral line → 6

- 2a. Pectoral filaments 5; body and fins tinged with yellowish silver (Fig. 67, Plate IIIId) . . . ***Polydactylus microstomus***
(India to New Caledonia)
- 2b. Pectoral filaments 6 or 7; body and fins tinged with silver → 3

- 3a. Pectoral filaments 7; second spine of first dorsal fin more robust than other dorsal-fin spines (Fig. 68, Plate IIIe) ***Polydactylus mullani***
(northern Arabian Sea)
- 3b. Pectoral filaments 6; all first dorsal-fin spines of similar thickness → 4

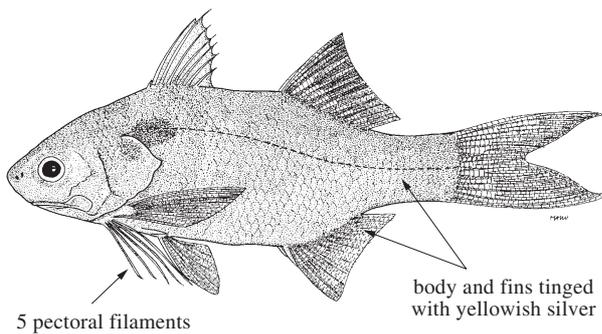


Fig. 67 *Polydactylus microstomus*

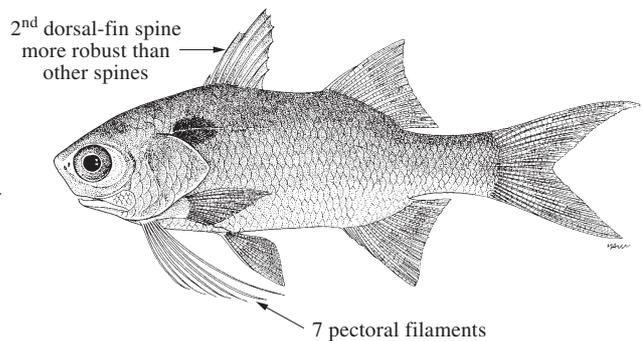


Fig. 68 *Polydactylus mullani*

- 4a. Gillrakers 25 to 30 (mode 28); second dorsal-fin spine short (mean 6% of standard length); swimbladder atrophied (Fig. 69, Plates Ve-f) ***Polydactylus sextarius***
(India to Papua New Guinea)
- 4b. Gillrakers 29 to 35 (mode 31); second dorsal-fin spine long (mean 7% of standard length); swimbladder well-developed → 5

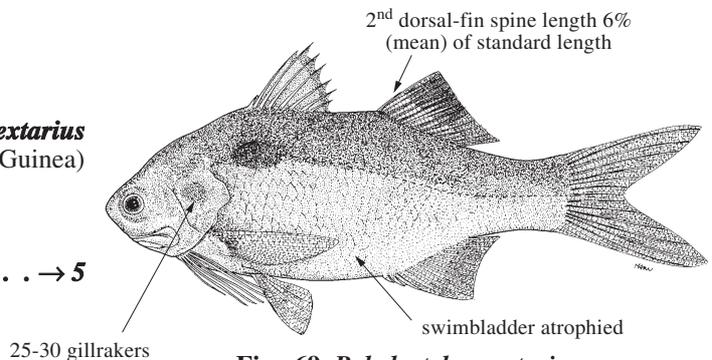


Fig. 69 *Polydactylus sextarius*

- 5a. Pectoral-fin rays 14; scale rows below lateral line 10 (rarely 9); palatines inwardly turned anteriorly; pectoral fin long (mean 24% of standard length); pectoral filaments short (mean 29% of standard length) (Fig. 70, Plate IIIc) ***Polydactylus malagasyensis***
(east coast of Africa and Madagascar)
- 5b. Pectoral-fin rays 12 to 14 (mode 12); scale rows below lateral line 9 (rarely 8); palatines straight anteriorly; pectoral fin short (mean 19% of standard length); pectoral filaments long (mean 32% of standard length) (Fig. 71, Plate IVc) ***Polydactylus persicus***
(Persian Gulf)

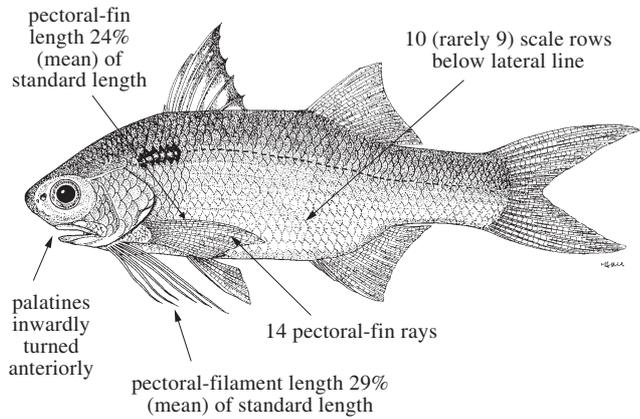


Fig. 70 *Polydactylus malagasyensis*

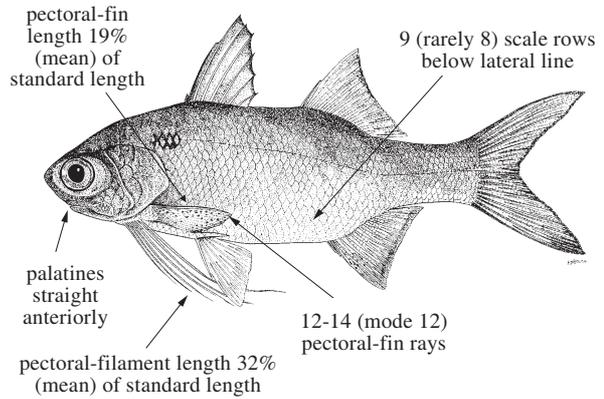


Fig. 71 *Polydactylus persicus*

- 6a. Pectoral filaments 5 → 7
- 6b. Pectoral filaments 6 or 7 → 10
- 7a. Posterior margin of maxilla extending considerably beyond level of posterior margin of adipose eyelid; occipital profile concave in adults (Fig. 72, Plate IIIa) ***Polydactylus macrochir***
(northern Australia and southern Papua New Guinea)
- 7b. Posterior margin of maxilla reaching to or extending only slightly beyond level of posterior margin of adipose eyelid; occipital profile nearly straight throughout life → 8
- 8a. Lateral line bifurcated on caudal-fin base, extending to posterior margins of upper and lower caudal-fin lobes; second spine of first dorsal fin more robust than other spines (Fig. 73, Plate IIg) . . . ***Polydactylus bifurcus***
(Indonesia)
- 8b. Lateral line unbranched on caudal-fin base, extending to posterior margins of lower caudal-fin lobe; thickness of all spines of first dorsal fin similar → 9

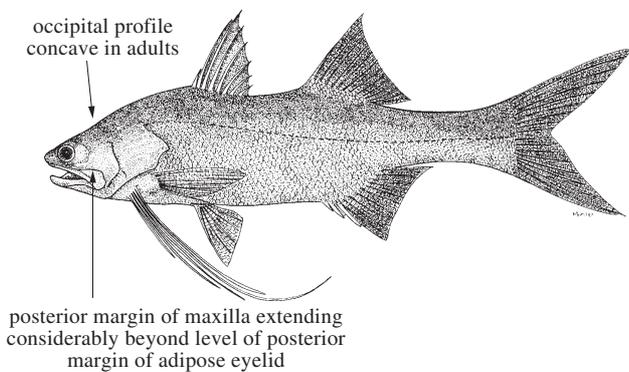


Fig. 72 *Polydactylus macrochir*

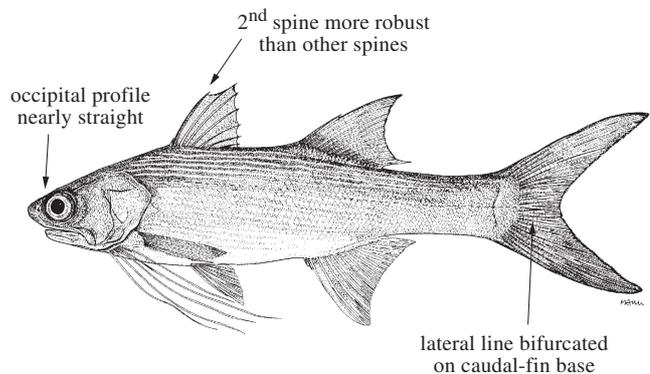


Fig. 73 *Polydactylus bifurcus*