

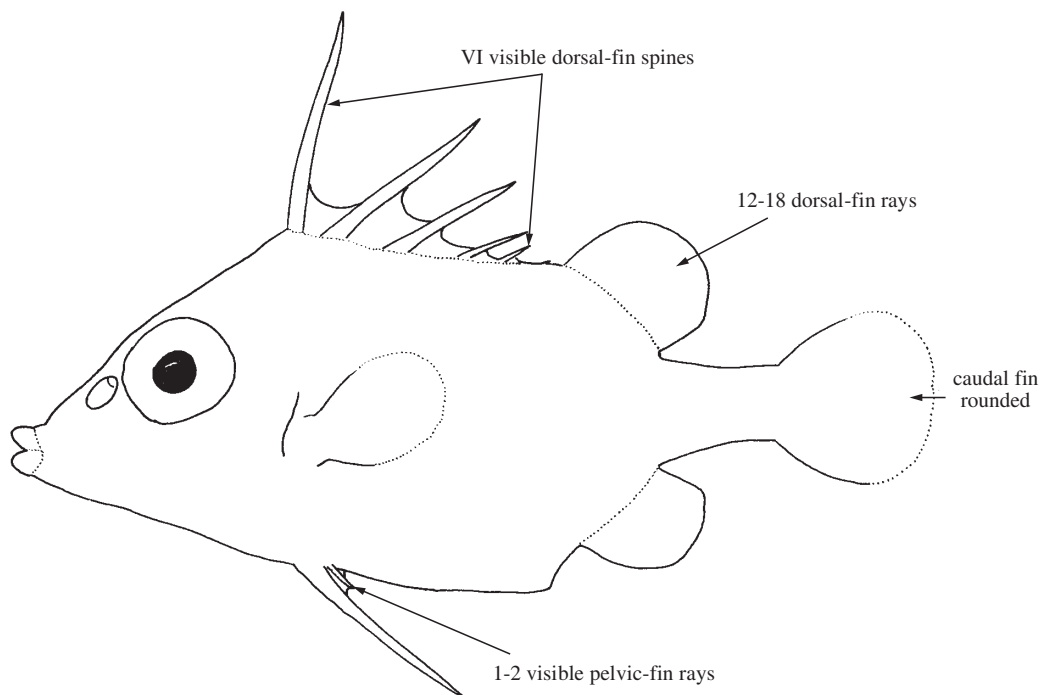
Order TETRAODONTIFORMES

TRIACANTHODIDAE

Spikefishes

by K. Matsuura

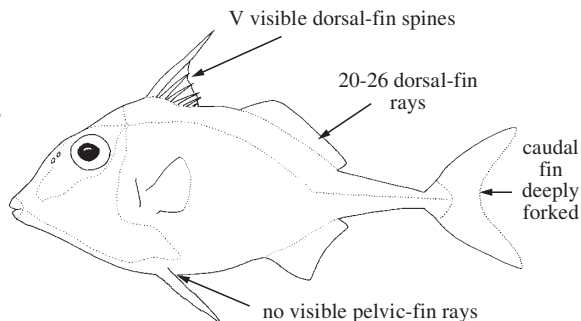
Diagnostic characters: Small fishes (size to 20 cm); body deep and slightly compressed, covered by moderately thick skin with numerous small scales not individually distinguishable readily to the unaided eye, each scale bearing upright spinules and having a roughly shagreen-like appearance. Snout produced into a tube in several genera. Mouth small and usually terminal; teeth moderate, usually conical, 10 or more in an outer series in each jaw. Gill opening a moderately short vertical slit in front of pectoral-fin base. Dorsal-fin spines VI, gradually decreasing in length from large first spine to small sixth spine, the latter of which may be inconspicuous; **dorsal-fin rays 12 to 18**; **caudal fin not forked, rounded to almost truncate**; most dorsal-, anal-, and pectoral-fin rays branched; **pelvic fins with I large spine and 1 or 2 visible, rudimentary rays**. **Caudal peduncle not distinctly tapered, and compressed, deeper than wide**. Lateral line inconspicuous. **Colour:** generally pinkish, frequently with spots or horizontal lines of yellow, blue, green, or darker red.



Habitat, biology, and fisheries: Mostly benthic (except for *Atrophacanthus japonicus*), occurring at depths between 35 to 900 m. Feed on bottom invertebrates. Not normally marketed, but sometimes taken as bycatch in commercial bottom trawl catches.

Similar families occurring in the area

Triacanthidae: caudal fin deeply forked; caudal peduncle distinctly tapered and depressed, wider than deep; dorsal-fin rays 20 to 26 (12 to 18 in Triacanthodidae); snout never produced into a tube.

**Triacanthidae**

Key to the genera of Triacanthodidae occurring in the area

- 1a. Snout shorter than rest of head, its length about equal to or shorter than orbit diameter (Fig. 1a) → 2
- 1b. Snout extremely long and tubular, its length much greater than that of rest of head (Fig. 1b) → 6
- 2a. Teeth compressed from front to back, wider than thick, truncated distally (Fig. 2a); lips large, swollen, spongy to touch *Tydemanina*
- 2b. Teeth conical, sharply pointed to bluntly rounded distally (Fig. 2b); lips neither especially large nor swollen and spongy to touch → 3

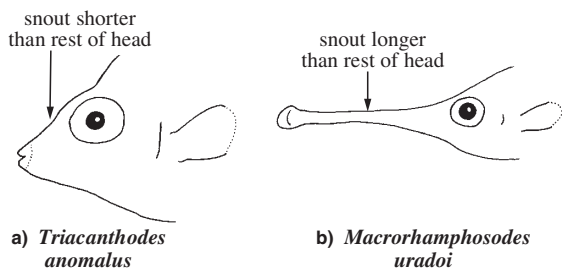


Fig. 1 lateral view of head

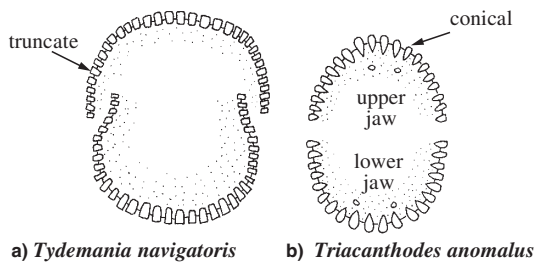


Fig. 2 shapes of jaw teeth

- 3a. Teeth in 2 series in both jaws, a major series and an internal series of 1 to 6 (usually 2) isolated teeth; ventral end of pseudobranch at a level below lower edge of pectoral-fin base, its lamellae numerous (27 to 48) *Triacanthodes*
- 3b. Teeth in a single series in each jaw; ventral end of pseudobranch at a level between slightly to well above lower edge of pectoral-fin base, its lamellae of moderate to low number (11 to 24) → 4
- 4a. Dorsal-fin spines decreasing in length gradually from large first spine to short sixth spine (Fig. 3a), last spine short but always protruding through skin and easily seen . . . *Paratriacanthodes*
- 4b. Dorsal-fin spines decreasing in length rapidly from large first spine to third spine, the last 3 spines much shorter (Fig. 3b), fourth always protruding through skin and slightly longer than fifth and sixth, which either protrude slightly through skin or are embedded beneath it → 5
- 5a. Pelvis narrow, its width between pelvic-fin spines 4 to 6 times (usually about 5) in its length (from region of pelvic-fin spine to posterior end); snout short, about equal to postorbital length (from orbit to upper end of gill opening) (Fig. 4a); first dorsal-fin spine short, when depressed reaching to tip of fourth spine *Atrophacanthus*
- 5b. Pelvis wide, its width between pelvic-fin spines 1.9 to 2.3 times in its length; snout moderately long, distinctly longer than postorbital length (Fig. 4b); first dorsal-fin spine relatively long, when depressed reaching to tip of sixth spine *Bathypylax*

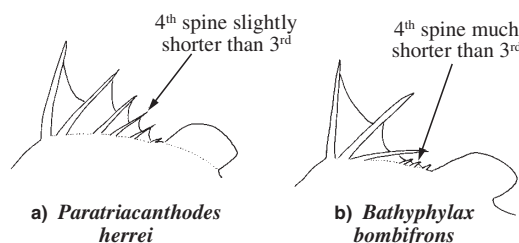


Fig. 3 spiny dorsal fin

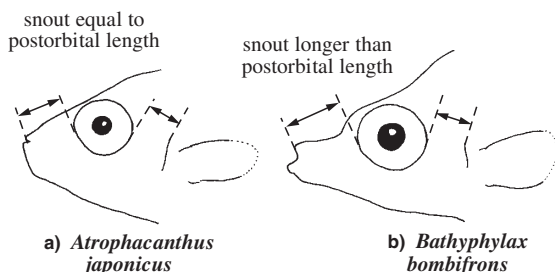
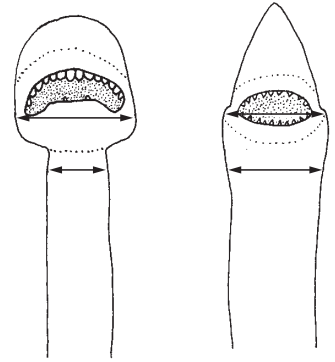


Fig. 4 lateral view of head

- 6a.** Width of mouth immediately behind snout about twice the snout width (Fig. 5a); mouth usually twisted to either the right or left, except in small specimens; teeth in lower jaw much compressed from front to back, much wider than thick, well developed and easily seen; teeth in upper jaw, if present, smaller and less wide than in lower jaw; if present, 4 or less; third dorsal-fin spine moderately well developed, about 2/3 length of second *Macrorhamphosodes*
- 6b.** Width of mouth immediately behind snout equal to, or only slightly greater than, snout width (Fig. 5b); mouth symmetrically placed, not twisted to one side or the other; teeth conical in both jaws, often mostly embedded and difficult to see; third dorsal-fin spine usually barely protruding through surface of skin, occasionally better developed but still less than 1/2 length of second *Halimochirurgus*



a) *Macrorhamphosodes uradoi* b) *Halimochirurgus alcocki*

Fig. 5 dorsal view of mouth

List of species occurring in the area

- Atrophacanthus japonicus* (Kamohara, 1941)
- Bathyphylax bombifrons* Myers, 1934
- Bathyphylax omen* Tyler, 1966
- Halimochirurgus alcocki* Weber, 1913
- Halimochirurgus centriscoides* Alcock, 1899
- Macrorhamphosodes platycheilus* Fowler, 1934
- Macrorhamphosodes uradoi* (Kamohara, 1933)
- Paratiracanthodes retrospinis* Fowler, 1934
- Paratriacanthodes herrei* Myers, 1934
- Triacanthodes anomalus* (Temminck and Schlegel, 1850)
- Triacanthodes ethiops* Alcock, 1894
- Triacanthodes intermedius* Matsuura and Fourmanoir, 1984
- Tydemania navigatoris* Weber, 1913

Reference

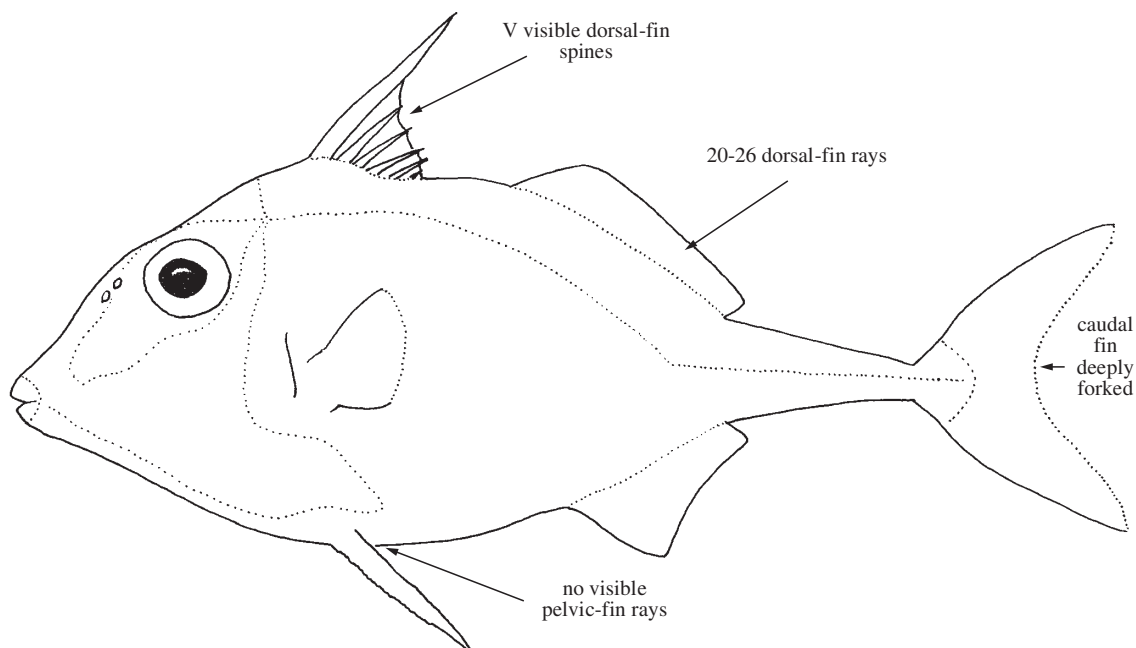
Tyler, J.C. 1968. A monograph of Triacanthoidea. *Acad. Natl. Sci. Philad., Monogr.*, (16):364 p.

TRIACANTHIDAE

Triplespines

by K. Matsuura

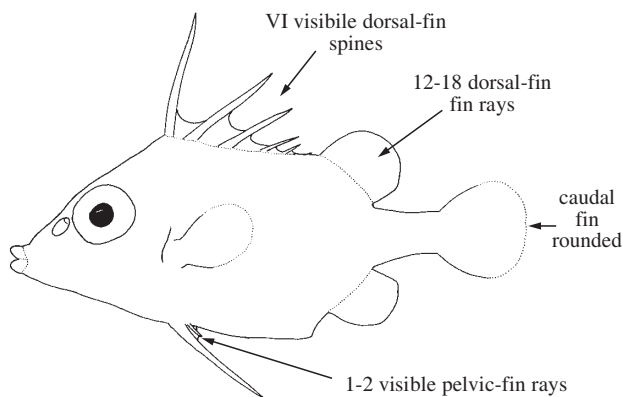
Diagnostic characters: Small fishes (to 30 cm), with moderately elongate, strongly compressed body; skin moderately thick with numerous scales not individually easily discernible to the unaided eye, each scale bearing upright spinules and having a rough, shagreen-like appearance. Mouth small and usually terminal; teeth in an outer series of about 10 heavy incisors in each jaw, internally to which are several molariform teeth, usually 4 in upper jaw and 2 in lower jaw. Gill opening a moderately short vertical slit in front of pectoral-fin base. Dorsal-fin spines VI (usually only V visible, the sixth rudimentary), **dorsal-fin rays 20 to 26; caudal fin deeply forked; pelvic fins with I large spine and no visible rays**; most dorsal-, anal-, and pectoral-fin rays branched. **Caudal peduncle distinctly tapering to a narrow transversely indented region just in front of caudal-fin base, where the peduncle is wider than deep.** Lateral line inconspicuous. **Colour:** generally silvery, with upper half of body dusky, with or without darker blotches.



Habitat, biology, and fisheries: Benthic, occurring usually on flat, sandy or weed-covered bottoms. Feed on bottom invertebrates. Marketed but not commercially important.

Similar families occurring in the area

Triacanthodidae: caudal fin not deeply forked, rounded to almost truncate; caudal peduncle not distinctly tapered, deeper than wide; dorsal-fin rays 12 to 18 (20 to 26 in Triacanthidae); snout produced into a tube in several genera



Triacanthodidae

Key to the species of Triacanthidae occurring in the area

- 1a. Scale-covered ventral surface of pelvis almost as wide anteriorly as posteriorly, not distinctly tapered to a point (Fig. 1a) → 2
- 1b. Scale-covered ventral surface of pelvis much wider anteriorly than posteriorly, distinctly tapered to a point (Fig. 1b) → 4
- 2a. Postorbital distance (eye to upper end of gill opening) short (5.2 to 6.8% standard length), slightly more than 1/2 diameter of orbit; snout long (21.2 to 27.7% standard length), distinctly concave and much compressed anteriorly; basal one-third of first dorsal-fin spine much less darker than distal portion (Fig. 2a) *Triphichthys weberi*
- 2b. Postorbital distance (eye to upper end of gill opening) long (7 to 9.9% standard length), about equal to diameter of orbit; snout short (15.6 to 20.6% standard length), straight or very slightly concave and not especially compressed anteriorly; basal one-fourth to one-half of first dorsal-fin spine much darker than distal portion (Fig. 2b) → 3

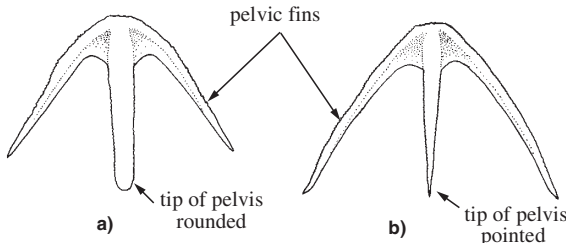


Fig. 1 ventral view of pelvis and pelvic fins

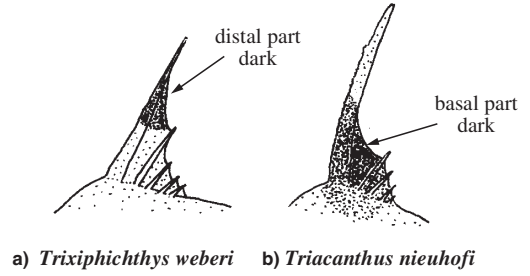


Fig. 2 spiny dorsal fins

- 3a. Spiny dorsal-fin membrane very dark between first and third spines, and usually equally dark between third and fifth spines (Fig. 3); outline of head from base of first dorsal-fin spine to above eye an even slightly convex curve or almost a straight line *Triacanthus biaculeatus*
- 3b. Spiny dorsal-fin membrane very dark between first and second spines, slightly to much less darker between second and third spines, and pale between third and fifth spines (Fig. 2a); outline of head between base of first dorsal-fin spine and eyes somewhat convex in front of spine and then straight or slightly concave over eye . . . *Triacanthus nieuhoi*

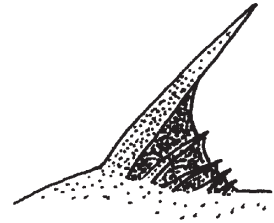


Fig. 3 *Triacanthus biaculeatus*

- 4a. Second dorsal-fin spine more than 1/2 length of first dorsal-fin spine (Fig. 4a); anal-fin base about 2 times in soft dorsal-fin base; scales with an anterior to posterior series of high, thin, distally emarginated vertical ridges (Fig. 5a) *Pseudotriacanthus strigilifer*
- 4b. Second dorsal-fin spine much less than 1/2 length of first dorsal-fin spine (Fig. 4b); anal-fin base usually 1.5 to 1.7 times in soft dorsal fin base; scales with a low, distally emarginated, cruciform ridge (Fig. 5b) → 5

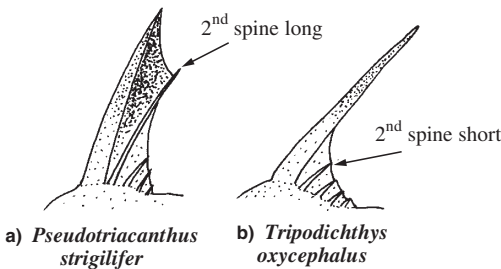


Fig. 4 spiny dorsal fins

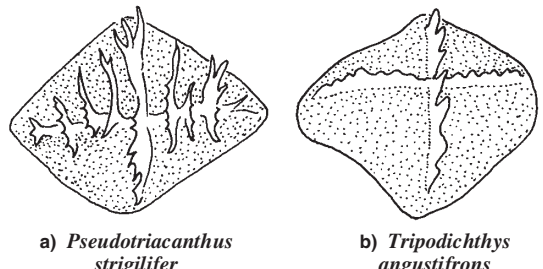
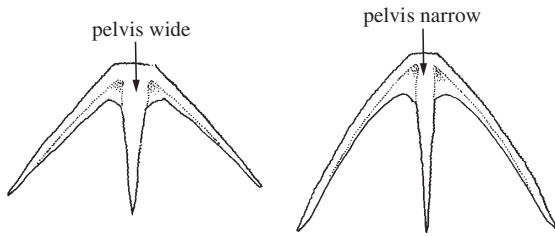


Fig. 5 scales

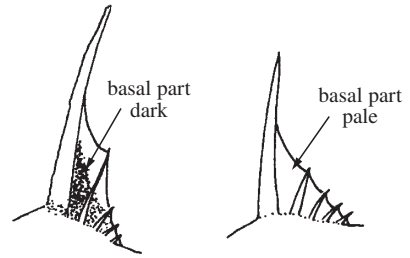
- 5a. Pelvis wide between bases of pelvic-fin spines (5 to 6.6% standard length), its width 3.2 to 4.5 (usually slightly less than 4) times in length of pelvis (Fig. 6a); caudal peduncle short, 19.2 to 23% standard length *Tripodichthys oxycephalus*
- 5b. Pelvis narrow between bases of pelvic-fin spine (1.4 to 3% standard length), its width 7.2 to 12.4 (usually about 9 or 10) times in length of pelvis (Fig. 6b); caudal peduncle long, 23.3 to 31.2% standard length → 6

- 6a. Spiny dorsal-fin membrane very dark between second spine and base of first spine, and often between second and third spines (Fig. 7a); dorsal-fin rays modally 23 to 24 (22 to 24), anal-fin rays modally 18 (18 or 19), and pectoral-fin rays modally 15 (14 to 16) *Tripodichthys angustifrons*
- 6b. Spiny dorsal-fin membrane pale (Fig. 7b); dorsal-fin rays modally 22 (20 to 24), anal-fin rays modally 17 (15 to 19), and pectoral-fin rays (including the uppermost rudimentary element) modally 14 (13 to 15). *Tripodichthys blochi*



a) *Tripodichthys oxycephalus* b) *Tripodichthys blochi*

Fig. 6 lateral view of spiny dorsal fin



a) *Tripodichthys oxycephalus* b) *Tripodichthys blochi*

Fig. 7 lateral view of spiny dorsal fin

List of species occurring in the area

The symbol is given when species accounts are included.

- Pseudotriacanthus strigilifer* (Cantor, 1849)
- Triacanthus biaculeatus* (Bloch, 1786)
- Triacanthus nieuhoi* Bleeker, 1852
- Tripodichthys angustifrons* (Hollard, 1854)
- Tripodichthys blochi* (Bleeker, 1852)
- Tripodichthys oxycephalus* (Bleeker, 1851)
- Trixiphichthys weberi* (Chaudhuri, 1910)

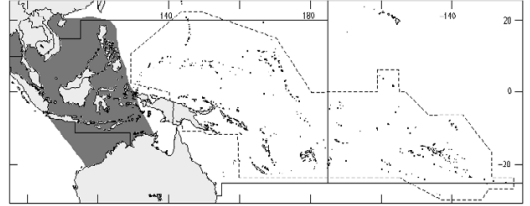
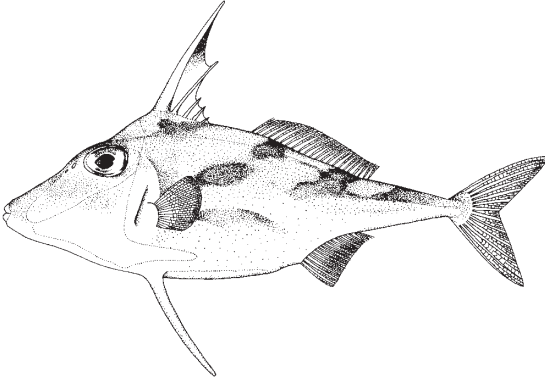
Reference

Tyler, J.C. 1968. A monograph of Triacanthoidea. *Acad. Natl. Sci. Philad., Monogr.*, (16):364 p.

***Pseudotriacanthus strigilifer* (Cantor, 1849)**

En - Longspined tripodfish; **Fr** - Tripod épineux; **Sp** - Tripodín espinudo.

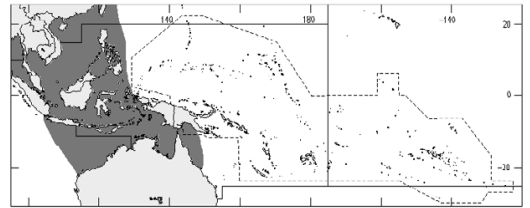
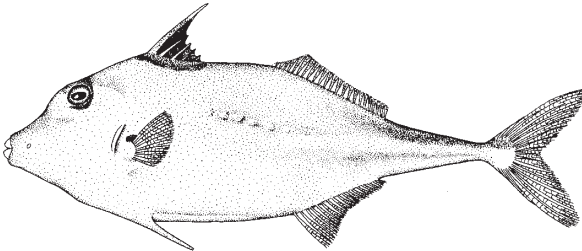
Maximum total length 25 cm. Coastal and estuarine waters, over sandy or muddy substrates, to depths of usually 60 m, occasionally to 100 m. Feeds on benthic invertebrates. Taken by trawl and gill nets, marketed fresh. Tropical western Indian Ocean to western Pacific, from Gulf of Oman to Indonesia and Philippines.



***Triacanthus biaculeatus* (Bloch, 1786)**

En - Shortnosed tripodfish; **Fr** - Tripodin nez court; **Sp** - Tripodín ñato.

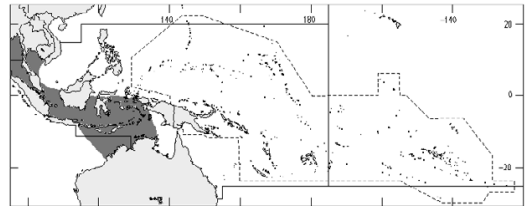
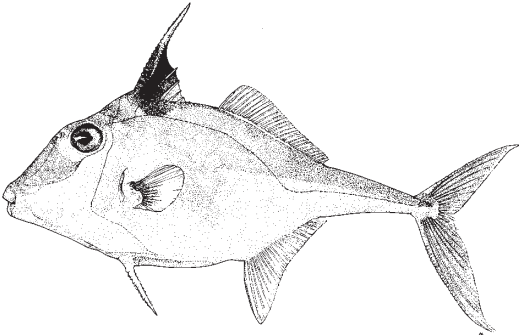
Maximum total length 30 cm. Coastal and estuarine waters, over sandy or muddy substrate, to depths of 60 m. Feeds on benthic invertebrates. Taken by trawl, shore seines, and gill nets; marketed fresh. Widespread in the Indo-West Pacific, from Persian Gulf eastward through Bay of Bengal to eastern Australia, northward to southern Japan and China.



***Triacanthus nieuhofti* Bleeker, 1852**

En - Silver tripodfish.

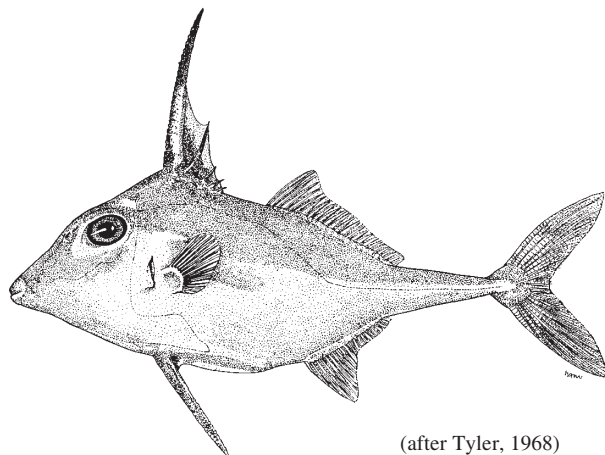
Maximum total length 28 cm. Coastal, over sandy or muddy substrate. Feeds on benthic invertebrates. Taken by trawl, marketed fresh. Mainly Indonesia to northwestern Australia; recorded also from Bay of Bengal.



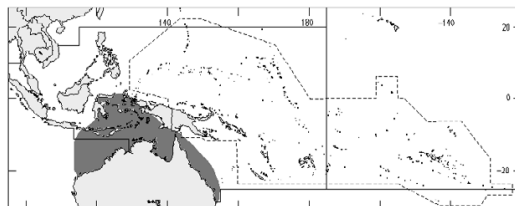
(after Gloerfelt-Tarp and Kailola, 1984)

Tripodichthys angustifrons (Hollard, 1854)**En** - Blackflag tripodfish.

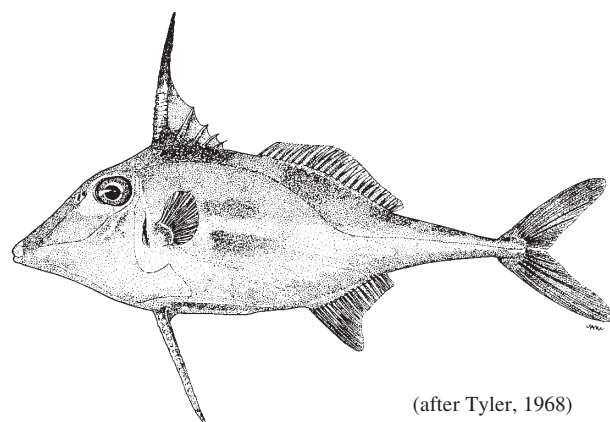
Maximum total length 20 cm. Coastal, over sandy or muddy substrate, to depths of 15 m. Feeds on benthic invertebrates. Taken by trawl, rarely marketed. Known only from Australia and Indonesia.



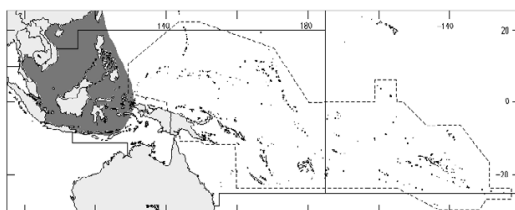
(after Tyler, 1968)

***Tripodichthys blochi*** (Bleeker, 1852)**En** - Longtail tripodfish.

Maximum total length 15 cm. Coastal, over sandy or muddy substrate, to depths of 50 m. Feeds on benthic invertebrates. Taken by trawl, marketed fresh. Distributed in tropical western Pacific from China, Southeast Asia, Philippines, and Indonesia; a single stray recorded from Japan.



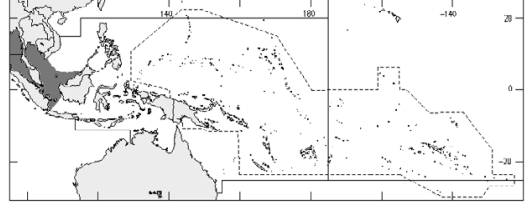
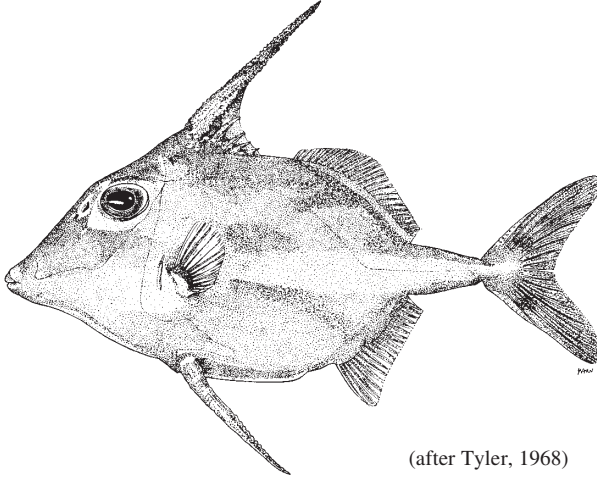
(after Tyler, 1968)



***Tripodichthys oxycephalus* Bleeker, 1851**

En - Shorttail tripodfish.

Maximum total length 20 cm. Coastal, over sandy or muddy substrate, to depths of 35 m. Feeds on benthic invertebrates. Taken by trawl, marketed fresh. From Indonesia and Gulf of Thailand westward through Bay of Bengal to east coast of India.



***Trixiphichthys weberi* (Chaudhuri, 1910)**

En - Blacktip tripodfish.

Maximum total length 30 cm. Coastal, over sandy or muddy substrate, to depths of 65 m. Feeds on benthic invertebrates. Taken by trawl, marketed fresh. Distributed in tropical western Pacific from the Philippines through Indonesia to northwest Australia, and on both sides of Bay of Bengal in the Indian Ocean.

