

RECORDS OF FIVE SPECIES OF TRIACANTHODID FISHES FROM EAST AFRICA

BRIAN BENBOW

East African Marine Fisheries Research Organization, Zanzibar.

ABSTRACT

In benthos samples from routine trawling operations of the R.V. 'Manihine' of the East African Marine Fisheries Research Organisation there occurred specimens of five species of the Plectognath family Triacanthodidae; *Triacanthodes ethiops* Alcock, *Atraphacanthus japonicus* (Kamohara), *Tydemania navigatoris* Weber, *Macrorhamphosodes platycheilus* Fowler and *Halimochirurgus centriscoides* Alcock. These records extend the previously recorded range and distribution of these species.

INTRODUCTION

DURING three research cruises of the R. V. 'MANIHINE', of the East African Marine Fisheries Research Organization, specimens representing five distinct species of the family Triacanthodidae were collected from four stations. Three of these species have not previously been recorded from East Africa and two are new to the Western Indian Ocean.

Atraphacanthus japonicus (Kamohara 1941) (Pl. I A)

Tydemania japonica Kamohara 1941
Atraphacanthus danae Fraser-Brunner 1950
Astraphacanthus japonicus Kamohara 1958

Thirty-five specimens of *A. japonicus* were collected from two stations off the North Kenya Coast of East Africa. Specimen reference numbers: EAMFRO/MUS. 856; KNP 196 and KNP 249.

Measurements of the specimens were taken (after Tyler, 1968) as follows:—

S.L. 68.5 to 82 mm.

Snout :	8.5 to 10.5 mm (8% S.L.)	Head :	24 to 27.5 mm (20.5% S.L.)
Eye :	10 to 12 mm (8% S.L.)	Post orbital :	6.5 to 9 mm (6.8% S.L.)
Gill opening :	5.5 to 7 mm (4.9% S.L.)	Depth :	22.5 to 25 mm (18% S.L.)
Dorsal height :	7.5 to 10.5 mm (6.4% S.L.)	Dorsal base :	10.5 to 12.5 mm (8% S.L.)
Anal height :	6.5 to 8.5 mm (5.5% S.L.)	Anal Base :	7.5 to 10.5 mm (7% S.L.)
Pelvis :	21.5 to 27 mm (17.8% S.L.)	Peduncle length :	14.5 to 19 mm (12% S.L.)
Peduncle depth :	5.5 to 7 mm (4.8% S.L.)	Caudal length :	12 to 16 mm (10.5% S.L.)

N.B.—(The fin measurements were taken from the soft dorsal and anal fins).

The specimens examined showed the typical size reduction in the last three dorsal spines. The East African specimens appear to have a slightly shorter snout and more limited gill opening than the specimens from the Celebes Sea and the Philippines. The colour was dark reddish brown above, silvery below.

Collection Data : From two stations, both off Ras Ngomeni on the North Kenya Coast :—

(a) R.V. 'MANIHINE' Cruise 331, Station 4, —7th November 1971 ; Position : 02°58'S 40°23'E ; Depth : 250 m ; Gear : Agassiz trawl. Thirteen specimens collected.

(b) R.V. 'MANIHINE' Cruise 393, Station 12, —8th February 1976 ; Position : 02°55'S 40°24.2'E ; Depth : 200 m ; Gear : Otter trawl. Twenty-two specimens collected : specimens of *Macrorhamphosodes platycheilus* Fowler and *Triacanthodes ethiops* Alcock were also collected on this station.

Distribution : Previously recorded from the Celebes Sea, the Philippines and East Africa :—

TANZANIA : 'Anton Bruun' Cruise 9, Station 425, —20th December 1964 ; Position : 06° 48'S 39°51'E ; Depth : 330 to 440 m. One specimen (ANSP 103654).

***Triacanthodes ethiops* Alcock 1894 (Pl. I B)**

Triacanthodes anomalus Gunther 1880

Triacanthodes ethiops Alcock 1894

Trisacanthodes aethiops Alcock 1895

Paratriacanthodes herrei Norman 1939

Paratriacanthodes myersi Fraser-Brunner 1941

Triacanthodes anomalus japonicus Kamohara 1943

Forty-one specimens of *T. ethiops* were collected from two stations off the north coast of Kenya. Specimen reference numbers : EAMFRO/MUS. 963 ; KNP 250.

Measurements of the specimens were taken as follows :—

S.L. 54 to 84 mm

Snout :	7 to 14.5 mm (16% S.L.)	Head :	16.5 to 32 mm (37% S.L.)
Eye :	7 to 14 mm (16.5% S.L.)	Post orbital :	4 to 7.5 mm (8.4% S.L.)
Gill opening :	4.5 to 10.5 mm (10.5% S.L.)	Depth :	24.5 to 37 mm (46% S.L.)
Dorsal height :	6 to 12 mm (12% S.L.)	Dorsal base :	8 to 16 mm (18% S.L.)
Anal height :	7 to 10.5 mm (12.8% S.L.)	Anal base :	6.5 to 11.5 mm (13.6%)
Pelvis :	15.5 to 26.5 mm (30% S.L.)	Peduncle length :	9 to 16.5 mm (18% S.L.)
Peduncle height :	5 to 8 mm (9.8% S.L.)	Caudal length :	13 to 20 mm (25.7% S.L.)

The specimens show characteristic features of the genus *Triacanthodes*, the spinous dorsal being well-developed with the first spine the greatest in length, with gradual reduction in size to the last spine. The teeth are well-developed, conical and in a single series. In the specimens examined a pair of additional teeth were

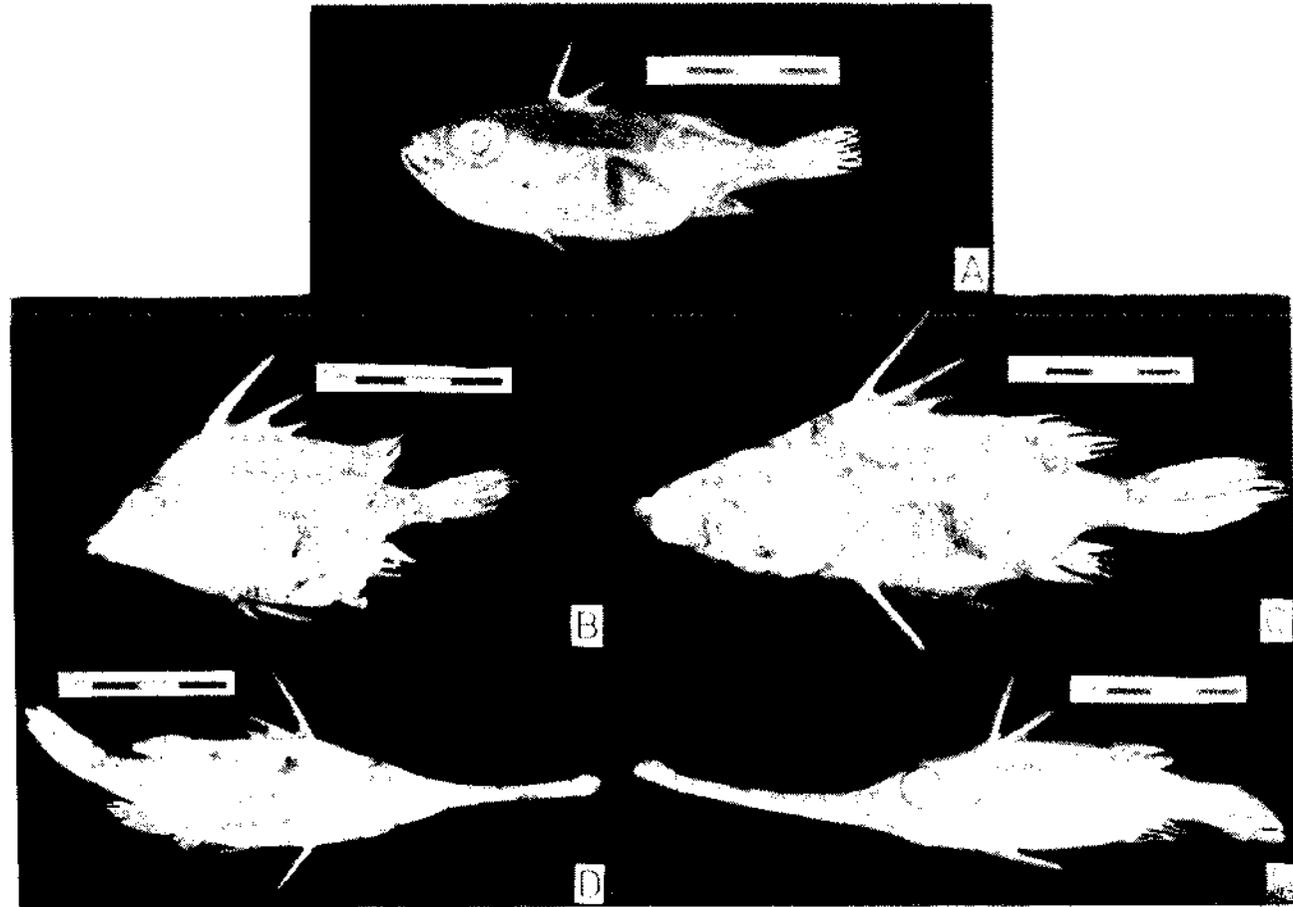


PLATE I. A. *Atopocanthus japonicus* (Kamoharui), KNP 196; B. *Triacanthodes ethiops* Alecto, KNP 250; C. *Tydomania navigatoris* Weber, KNP 251; D. *Macrorhamphosodes platycheilus* Fowler, KNP 252; and E. *Halimochirus centriscoides* Alecto, KNP 253.

present, internal to the main series. The characteristic striped markings of the species *ethiops* were present in all specimens though these markings faded rapidly after preservation. In the living specimens the colours were light red above and silvery below. The lines of the body were a conspicuous bright yellow colour. The eye was orange ringed with yellow.

Collection Data : From two stations, both off Ras Ngomeni on the North Kenya Coast.

(a) R.V. 'MANIHINE' Cruise 393, Station 11, 8th February 1976; Position : 03° 06'S 40° 19'E; Depth : 240 m; Gear : Otter trawl. A single specimen : two specimens of *M. platycheilus* were also collected on this station.

(b) R.V. 'MANIHINE' Cruise 393, Station 12, 8th February 1976; Position : 02° 55'S 40° 24.2'E; Depth : 200 m; Gear : Otter trawl. Forty specimens : a single specimen of *M. platycheilus* and specimens of *A. japonicus* were also collected on this station.

Distribution : Previously recorded from Japan, the Philippines, Indonesia (Moluccas) and from three stations in Africa :—

(a) KENYA : 'Anton Bruun' Cruise 8, Station 421 G, 8th November 1964; Position : 02° 56'S 40° 28'E; Depth : 260 m; four specimens (ANSP 103286).

(b) ZANZIBAR : 'John Murray' Expedition, Station 106, 12th January 1934; Position : 05° 38'S 39° 15'E; Depth : 200 m; eight specimens (BMNH 1939.5.24 : 1840-47).

(c) NATAL : Off the mouth of the Umhloti River, depth 200 m. One specimen (SAM 13085).

Tydemania navigatoris Weber 1913 (Pl. IC)

Tydemania navigatoris Weber 1913

Tydemania navigatoris Kamohara 1958

Two specimens were collected from a single station off the Tanzanian Coast. Specimen reference numbers : KNP 251. Two specimens were collected from a single station off the Tanzanian Coast.

Measurements of the specimens were taken as follows :—

S.L. 99.5 to 109.5 mm

Snout :	15.5 to 18.5 mm (16.8% S.L.)	Head :	37 to 40 mm (36.5% S.L.)
Eye :	15 to 16 mm (14.6% S.L.)	Post orbital :	8.5 to 9 mm (8.7% S.L.)
Gill opening :	6 mm (8.7% S.L.)	Depth :	32 to 36 mm (33% S.L.)
Dorsal height :	12.5 to 14.5 mm (13% S.L.)	Dorsal base :	17 to 18 mm (16.5% S.L.)
Anal height :	12.5 to 13.5 mm (12.3% S.L.)	Anal base :	12.5 to 14.5 mm (13% S.L.)
Pelvis :	31.5 to 27 mm (25.5% S.L.)	Peduncle length :	18.5 to 19 mm (17.3% S.L.)
Peduncle height :	9.5 to 10 mm (9% S.L.)	Caudal length :	21.5 to 27.5 mm (25% S.L.)

The specimens were easily identified by the characteristic thin wide truncated teeth. The snout is moderate, though in these specimens slightly longer than in the Pacific and Eastern Indian Ocean specimens. The first three dorsal spines are well-developed and the last three rudimentary. The retrose barbs on the first dorsal and pelvic spines are very well-developed. The living colour is light red on the upper parts of the body to pale tan on the ventral surface.

Collection Data : From a single station off Latham Island on the Tanzanian Coast :—

R.V. 'MANIHINE' Cruise 359, Station 1, 6th July 1973 ; Position : 06° 48'S 39° 37'E ; Depth: 650 m ; Gear: Isaacs Kidd Mid-Water trawl (accidentally touched on bottom). Two specimens ; a single specimen of *Halimochirus centriscoides* Alcock was also collected on this station.

Distribution : Recorded from Japan, China (Hong Kong), the Philippines, Indonesia, the Bay of Bengal and South Africa (a single uncatalogued specimen from Natal). This species has not previously been recorded from East Africa.

Macrorhamphosodes platycheilus Fowler 1934 (Pl. 1D)

Macrorhamphosodes platycheilus Fowler 1934

Macrorhamphosodes uradoi Kamohara 1937

Three specimens of *M. platycheilus* were collected from two stations off the North Kenya Coast. Specimen reference numbers : EAMFRO/MUS. 964 ; KNP 252.

Measurements of the specimens were taken as follows :—

S.L. 87 to 117.7 mm

Snout :	36 to 49 mm (40% S.L.)	Head :	47 to 64 mm (53.8% S.L.)
Eye :	7.5 to 9.5 mm (8.3% S.L.)	Post orbital :	4.7 to 7.1 mm (5.9% S.L.)
Gill opening :	4 to 5 mm (4.2% S.L.)	Depth :	17.5 to 26 mm (20.9% S.L.)
Dorsal height :	8.5 to 10 mm (8.6% S.L.)	Dorsal base :	8.5 to 11.5 (9.5% S.L.)
Anal height :	7 to 9.5 mm (7.6% S.L.)	Anal base :	9 to 12 mm (10.4% S.L.)
Pelvis :	18.5 to 26.5 mm (22.4% S.L.)	Peduncle length :	12.5 to 19 mm (15.2% S.L.)
Peduncle width :	5.5 to 7.8 mm (6.3% S.L.)	Caudal length :	15.5 to 18.5 mm (16.6% S.L.)

All three specimens show the distinctive long snout and the thin wide compressed teeth, the mouth having well-developed lips, characterising the genus *Macrorhamphosus*. These specimens of *M. platycheilus* show the relatively constricted gill opening and lack of teeth in the upper jaw, distinct from those features in the species *M. uradoi* (Kamohara). In two specimens the mouth is twisted to the left and in one, twisted to the right. In the living fish the upper body is a light orange brown, fading to a light silvery colour on the lower body.

Collection data : The three specimens were collected from two stations off Ras Ngomeni on the north Kenya Coast.

(a) R.V. 'MANIHINE' Cruise 393, Station 11, 8th February 1976 ; Position: 03° 06'S 40° 19'E ; Depth : 240 m ; Gear : Otter trawl. Two specimens ; a specimen of *T. ethiops* was also collected on this station.

(b) R.V. 'MANIHINE' Cruise 393, Station 12, 8th February 1976 ; Position: 02° 55'S 40° 24.2'E ; Depth : 200 m ; Gear : Otter trawl. A single specimen ; specimens of *T. ethiops* and *A. japonicus* were also collected from this station.

Distribution : Recorded from the Philippines and from the Andaman Sea of the Bay of Bengal. *M. platycheilus* is new to the marine fauna of East Africa and has not been previously recorded from the Western Indian Ocean.

***Halmochirurgus centriscoides* Alcock 1899 (Pl. IE)**

Halmochirurgus centriscoides Alcock 1899

Halmochirus centriscoides Jordan 1920

A single specimen of *H. centriscoides* was recorded from a station of the Tanzanian Coast. Specimen reference number : KNP 253.

Measurements of the specimen were taken as follows :—

S.L. 129.5 mm

Snout :	59 mm (45.5% S.L.)	Head :	76.5 mm (59% S.L.)
		Eye :	11 mm (8.5% S.L.)
Post orbital :	7.5 mm (5.7% S.L.)	Gill opening :	5 mm (4% S.L.)
Depth :	22.5 mm (17% S.L.)	Dorsal height :	7.5 mm (7.3% S.L.)
Dorsal base :	11.5 mm (8.8% S.L.)	Anal height :	7.5 mm (5.7% S.L.)
Anal base :	10 mm (7.7% S.L.)	Pelvis :	25 mm (19.3% S.L.)
Peduncle length :	14.5 mm (11% S.L.)	Peduncle height :	7 mm (5.4% S.L.)
Caudal length :	18 mm (13.8% S.L.)		

The Tanzanian specimen of *H. centriscoides* showed the basic characters of the genus. Only the first three dorsal spines are evident, the first two being well-developed and the third only just visible. The long tubular snout is very characteristic. This species is distinct from the closely related *H. alcocki* Weber 1913 by the shorter and wider mouth, slightly shorter snout, longer gill opening, longer postorbital and wider pelvis. The colour of the living fish was reddish above and silvery below. The sides of the body were marked with four horizontal dark stripes which faded soon after death.

Collection Data : From one station, north-west of Latham Island off the Tanzanian Coast.

R.V. 'MANIHINE' Cruise 359, Station 1, 6th July 1973 ; Position : 06° 48'S 39° 37'E ; Depth : 650 m ; Gear : Isaacs Kidd mid-water trawl (accidentally touched bottom). A single specimen ; two specimens of *T. navigatoris* were also collected on this station.

Distribution : Previously known from the Gulf of Mannar and the Andaman Sea of the Bay of Bengal. *H. centriscoides* is new to East Africa and has not previously been recorded from the Western Indian Ocean.

ABBREVIATIONS

KNP—National Museums of Kenya, Nairobi.

EAMFRO/MUS—East African Marine Fisheries Research Organization Museum, Zanzibar.

ANSP—Academy of Natural Sciences of Philadelphia, U.S.A.

BMNH—British Museum (Natural History), London.

SAM—South African Museum, Cape Town.

REFERENCES

- ABE, T. 1963. *Key to fishes*. Hokuryukan, Tokyo, 1-358.
- ALCOCK, A. W. 1894. An account of a recent collection of bathybial fishes from the Bay of Bengal and from the Lacadive Sea. *Jour. Asiatic Soc. Bengal*, **63** (2) : 115-137.
- 1895. Illustrations of the Zoology of the 'Investigator'. Fishes, Part III. Calcutta, pls. 14-16.
- 1899. *H. centriscoides* a new deep-sea fish from the Gulf of Mannar. *Proc. Asiatic Soc. Bengal*, July 1889, 78.
- FOWLER, H. W. 1934. Descriptions of new fishes obtained 1907 to 1910, chiefly in the Philippine Islands and adjacent. *Proc. Acad. Nat. Sci. Philadelphia*, **85** : 233-367.
- FRASER-BRUNNER, A. 1941. Notes on the plectognath fishes-V. The families of triacanthiform fishes with a synopsis of the genera and description of a new species. *Ann. Mag. Nat. Hist. (London)*, **7** (11) : 420-430.
- 1950. Studies in plectognath fishes from the 'Dana' Expeditions. 1. An interesting new genus of triacanthodid fishes from the Celebes Sea. *'Dana' Rept.*, **35** : 1-8.
- GUNTHER, A. 1880. Report on the shore fishes procured during the voyage of the H.M.S. 'Challenger', *Zool.*, **1** (6) : 1-82.
- JORDAN, D. S. 1920. The Genera of Fishes, Part IV. *Leland Stanford Junior Univ. Publ. Univ. Ser.* **43** : 411-576.
- KAMOHARA, T. 1937. A review of triacanthodid fishes found in the waters of Japan. *Annot. Zool. Japonensis*, **16** (1) : 5-8.
- 1941. Descriptions of one new and two rare fishes from Japan. *Ibid.*, **20** (3) : 166-168.
- 1943. Some unrecorded and new fishes from Province Tosa, Shikoku, Japan. *Rept. Kochi Univ. Nat. Sci.*, **3** : 1-122.
- 1958. A Catalogue of fishes of Kochi Prefecture, (Province Tosa), Japan. *Rept. U.S.A. Mar. Biol. Sta.*, **5** (1) : 1-76.
- MUNRO, I. S. R. 1967. *The fishes of New Guinea*. Port Moresby, 1-651.
- NORMAN, J. R. 1919. *Fishes* : 'John Murray' Expedition. *Sci. Repts.*, **7** (1) : 1-116.
- SMITH, J. L. B. 1949. *The sea fishes of Southern Africa*. 1972 Ed. 5, Cape Town : 1-580.
- TYLER, J. C. 1968. A monograph on plectognath fishes of the superfamily triacanthoidea. *Mon. Acad. Nat. Sci. Philadelphia*, **16** : 1-364.
- WEBER, M. 1913. Die Fische der 'Siboga' expedition. *'Siboga' expeditie*, **57** : 1-710.