

AN OCCURRENCE OF *THYRSITOIDES MARLEYI* FOWLER IN
THE ANDAMAN SEA (PISEES: GEMPYLIDAE)

*Thosaporn Wongratana**

ABSTRACT

Despite the very intensive collecting of marine fishes in Thai waters by me since 1965, no Gempylidae have been taken. This attention is drawn to an unusual occurrence of a gempylid, *Thyrsitoides marleyi* Fowler, in the Andaman Sea. The description given here is based on a single specimen, 660.0 mm S.L. This elongate voracious fish has been previously known only from the type and three additional specimens from Durban (type locality), East London and Port Elizabeth (east coast of Southern Africa), and La Réunion. This fifth specimen, captured so far from S.W. Indian Ocean is of great interest zoogeographically. *Thyrsitoides marleyi* may now be added to the known fish fauna of the Andaman Sea, where it is by all means rare.

INTRODUCTION

FOWLER (1929) described a 1,280 mm T.L. specimen of a snake mackerel of the family Gempylidae, taken off Durban, South Africa, on which he based the monotypic *Thyrsitoides marleyi*. Later, SMITH (1937, 1949) referred a second and a third specimen, 590 mm and 20 in. T.L. from East London and Port Elizabeth respectively, to this species. He also added that more specimens of this fish were wanted. A fourth specimen, 750 mm S.L. was recorded by FOURMANOIR & GUÉZÉ (1967) from La Réunion, in western Indian Ocean.

A fifth solitary specimen of *Thyrsitoides marleyi* was obtained on 4 September 1973, from the Andaman Sea, off the Thai Coast, a distance of about 3,900 miles from La Réunion and 5,700 miles from the type locality and even further from Smith's localities. This Andaman specimen was presented to me by Mr. Wichit Masayawanij, of the Thai Marine Fisheries

* Marine Fisheries Laboratory, Department of Fisheries, Bangkok, Thailand. Present Address: British Museum (Natural History), Cromwell Road, London SW 7 5 BD, England.

Co., Bangkok, since the fish was recognized as new to him. It was brought along with other large sized fishes, e.g. *Scomberomorus*, *Sphyræna*, *Lutianus* and *Trichiurus*, common in the Bangkok Fish Market.

The expansion of Thai fishing activities into the eastern Indian Ocean raises the question whether this specimen was truly caught within the shallow waters of the Thai coast. Nevertheless, it is the first recorded appearance of *Thyrsitoides marleyi* in the tropical northern Indian Ocean. Apparently, it does not occur throughout the Indian Ocean. This can be probably explained by the currents in Indian Ocean and the influence of the south west monsoon. When the south equatorial current reaches the African Continent, most of it's course turns northward and turns back towards the Andaman Sea during June to October; alternatively, there is the equatorial counter current.

The snake mackerels, barracoutas, escolars or oilfish of family Gempylidae are still scientifically little known; uncommon species and their status are always worthy of study. The known genera and species form a fairly natural group. Some grow to a considerable weight and size, attaining 75 kg. or more and a length of about 2 m. (HALSTEAD, 1967). GOSLINE & BROCK (1965) report a length of 5 feet for *Ruvettus pretiosus* Cocco and 4 feet for *Lepidocybium flavobrunneum* (Smith). They are exceedingly variable family of fast swimming fishes, abounding in the open seas. Some are very widely distributed or cosmopolitan species and descending to or living at a considerable depth. The various genera (GREY, 1953) are: *Lepidocybium* Gill, *Ruvettus* Cocco, *Epinnula* Poey, *Thyrsitoides* Fowler, *Thyrsites* Cuvier, *Thyrsitops* Gill, *Rexea* Waite, *Promethichthys* Gill, *Nealotus* Johnson, *Nesiarchus* Johnson, *Mimasea* Kamohara and *Gempylus* Cuvier. Their some 15 species are usually well defined forming an almost perfected gradation from the long compressed body form of *Gempylus* which represented that of *Trichiurus* to the scombroid form of the *Lepidocybium*. However, at a quick look, some of them may also be confused (ROUGHLEY, 1963) with the barracuda, a savage fish of the family Sphyrænidae; Nevertheless from them they are externally distinguished by the more compressed body, structures of fins and scales. Ichthyologically (GOSLINE & BROCK, 1965), the principal character used for separating the gempylid fish

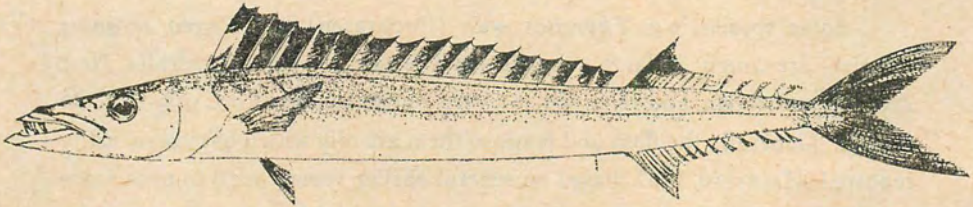


Figure 1. Drawing of *Thyrsitoides marleyi* Fowler, by Mrs. P. Chuenchitpong.

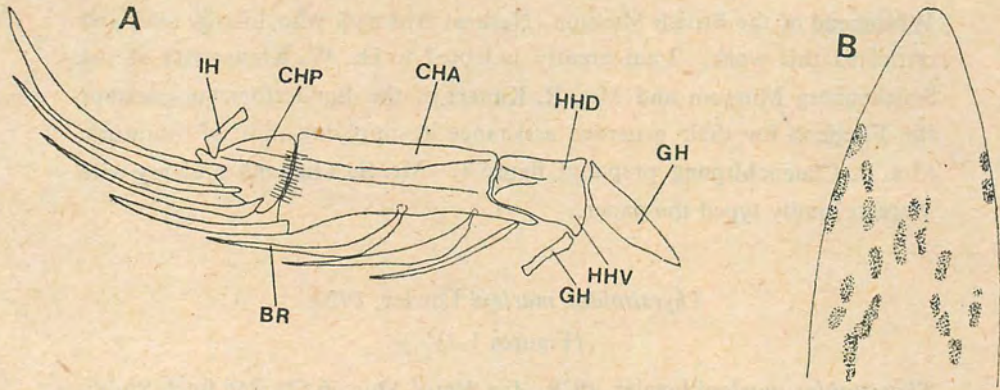


Figure 2. A. Hyoid arch; and B. arrangement of patches of teeth on tongue (drawings by author). Abbreviations: BR, branchiostegal rays; CHA, anterior ceratohyal; CHP, posterior ceratohyal; GH, glossohyal; HHD, dorsal hypohyal; HHV, ventral hypohyal, IH, interhyal.

of the suborder Trichiuroidei from the Percoidei is the fixed premaxillaries; in this they resemble the tuna, but the latter has in addition a very specialized tail structure.

Some species, e.g. *Thyrsites atun* (Euphrasen) and *Rexea solandri* (Cuvier) are caught in large quantities in a certain season in Australia, New Zealand and Japan, and regarded as a very esteemed and afford very delicate eating. Generally the flesh and bones of them are oily which has occasionally reported (HALSTEAD, 1967, based on several earlier researchers) to pronounce a purgative effect for the consumption of *Ruvettus* and *Lepidocybium*. SMITH (1949) gives a note that the wide ranging *T. atun* of the Indo-Pacific is able to inflict a serious wound, the bite is said to prevent blood coagulation. However, regarding the rarier of *T. marleyi*, its ciguatoxism is still unknown, therefore, the capture of other specimens and its biology is also worthy of note.

For presentation of the specimen to examine and collect, I am very grateful to Mr. **Wichit Masayawaniij**, of the Thai Marine Fisheries Co., Ltd., Bangkok. Gratitude and sincere thanks are also extended to Dr. **P.J.P. Whitehead** of the British Museum (Natural History), who kindly read and criticized this work. I am greatly indebted to Dr. **W. Klausewitz** of the Senckenberg Museum and Mrs. **R. Kunert** of the Bundesforschungsanstalt für Fischerei for their generous assistance in supplying most of literature. Mrs. **P. Chuenchitpong** prepared figure 1. Mr. **S. Timkrab** and my wife Maresri kindly typed the paper.

Thyrsitoides marleyi Fowler, 1929

(Figures 1-2)

Thyrsitoides marleyi Fowler, 1929, *Ann.Natal Mus.*, 6 (2) :255,fig.2; Smith, 1937, *ibid.*, 8(2) :189; Smith, 1949, *Sea fish.S.Africa*: 311; Grey, 1953, *Copeia* no.3 :139; Fourmanior & Guézé, 1967, *Cah.O.R.S.T.O.M., Serie Oceanogr.*, 5(1) :55.

Material examined : A specimen 660 mm S.L. (787 mm T.L.), from the Andaman Sea, Off the Thai coast, 4 September 1973. It is now kept in the collection of the Marine Fisheries Laboratory, Bangkok and it bears the number MFLB. 1973.9. 11.1.

For morphometric data (in percent of standard length) see Table 1.

Body elongate, deepest at front, somewhat slender and tapering to caudal peduncle; laterally compressed. Depth at dorsal origin 9.2 in S.L. and 11.7 at second dorsal origin. Greatest width at base of pectoral 4.7 in head and 6.4 at perpendicular through second dorsal origin. Caudal peduncle short, without ridge of skin, little compressed, its width 1.5 in its depth. Head large, pointed and compressed, its length 3.7 in S.L., upper profile of head forming an oblique line from snout to origin of dorsal fin, its depth through hind edge of preoperculum 2.5 in head, extreme width of head at the same point 4.6 in head. Snout somewhat longer than postorbital length and 2.3 in head. Mouth large; maxillary extending to below anterior edge of eye, its hind margin rounded; premaxillary symphysis pointed, mandible projecting well beyond it to a distance about half eye diameter. Interorbital space wide, 6.4 in head, with an extremely shallow broad median groove, hardly more than a depression. Frontoparietal ridges with numerous longitudinal striae, converging posteriorly and almost meeting. Eyes large, very slightly postmedian, irregularly rounded, vertical diameter 8.0 in head, adipose eyelid absent. Nostrils widely separated, the posterior one about twice as large as the anterior and slightly behind the mid-point between anterior eye border and anterior nostril. Opercular bone thin and papery, unarmed, its posterior angle terminating just above upper pectoral axil. Lower edge of preoperculum and its angle free. Gill opening extremely large, gill membranes free from each other and from isthmus. Gas bladder large, elongate. Anus situated approximately one eye diameter before origin of anal fin.

A single row of sharp teeth in both jaws, the anterior and posterior teeth rudimentary and close-set, those in middle widely spaced, fairly developed, compressed, with broad bases; about 20 in each side in the upper and 12-14 in the lower jaws (rudiment teeth not counted). Three very large, fixed, pointed, somewhat compressed premaxillary teeth, the middle one longest, 1.7 in vertical eye diameter. Tip of lower jaw with two smaller canine teeth, about 4 in eye diameter, projecting upward and backward beyond tip of snout and lying outside upper jaw when mouth is closed.

Table 1. Measurements of body parts and their proportions expressed in percent of standard length of *Thyrsitoides marleyi* Fowler, taken in the Andaman Sea, off the coast of Thailand. MFLB. 1973.9.11.1.

Character	Measurement mm	Proportion % S.L.
Standard length	660.0	—
Total length (from tip of lower jaw)	787.0	119.24
Body depth at 1st dorsal origin	72.1	10.92
Body depth at 2nd dorsal origin	56.5	8.56
Least depth of caudal peduncle	21.1	3.19
Body width at pectoral fin base	37.8	5.72
Body width at below 2nd dorsal origin	28.0	4.24
Least width of caudal peduncle	14.0	2.12
Head length	179.0	27.12
Head depth at hind edge of preoperculum	72.1	10.92
Head width at preoperculum	39.1	5.92
Preorbital (Snout) length	79.0	11.96
Vertical eye diameter	22.5	3.40
Postorbital length	74.5	11.28
Bony interorbital width	28.1	4.25
Upper jaw length	80.5	12.19
Tip of snout to : 1st dorsal origin	160.0	24.24
: 2nd dorsal origin	503.0	76.21
: anal origin	499.0	75.60
: pectoral origin	182.0	27.57
: pelvic origin	201.5	30.53
: middle of anus	477.0	72.27
Length of 1st dorsal base	333.0	50.45
Length of 2nd dorsal base	130.0	19.69
Length of anal base	16.5	2.50
Height of 1st dorsal spine	57.0	8.63
Height of 2nd dorsal	49.0	7.42
Height of anal	48.5	7.34
Length of pectorals (left, right)	73.1/69.7	11.07/10.56
Length of pelvics (left, right)	47.2/47.5	7.15/7.19
Length of caudal	127.0	19.24

Vomer and palatine edentulous. Tongue moderately large, free at front, with scattered small patches of minute teeth or asperities (Figure 2 B), especially on posterior half of tongue. Pharyngeal teeth small, spinate, numerous, arranged in a longitudinal ovate patch. Gill rakers unequally developed, with many small spines; a rigid T-shaped raker in angle of arch followed by three equal sized rakers on lower arch, alternately double and single points, two smaller ones on upper arch. Pseudobranch large, about twice eye diameter in length, longest filament 3.3 in the length of pseudo-branchial base. Branchiostegal rays 7, compressed, anterior one smallest, posterior one longest, 3 on posterior ceratohyal and 4 on anterior ceratohyal (Figure 2 A). Pyloric caeca 11, well developed, cylindrical in shape.

Skin very thin, smooth; scales small, cycloid, very deciduous and at first sight absent in the examined specimen. Scales present on caudal peduncle and caudal fin, dense and prominent, rather adherent, somewhat elongate in shape. Lateral line originating at upper edge of gill opening, running parallel and close to dorsal profile but bifurcating beneath space between fourth and fifth dorsal spines; the upper branch passes directly backward and ends below base of sixteenth (left side) or little behind that of fifteenth (right side) dorsal spines; lower branch turns abruptly downward and backward and then runs horizontally in a straight line along middle of side to middle of caudal peduncle and continues on to caudal fin; 202 scale tubes in upper lateral line, 31 to the origin of lower branch; and about 279 tubes in the lower branch to flexure of caudal fin.

D. XVIII; I, 13+4; first dorsal originating above upper angle of gill opening, anterior spines longest, 3.0 in head, spines gradually decreasing in length. Origin of second dorsal starting a short distance behind base of last dorsal spine and directly above origin of anal fin, anterior rays little falcate and 3.7 in head; its base about 2.5 in spinous dorsal base length. Anal I, 12+5; similar to second dorsal, its longest ray 3.7 in head. Pectorals II, 12; a little falcate, longest ray 2.5 - 2.6 in head and reaching to below space between sixth and seventh dorsal spines; upper axil of pectorals on horizontal from lower eye margin. Pelvics I, 5; well developed, close together and inserting slightly behind base of pectorals, 3.8 in head. Caudal deeply forked, lobes pointed, 1.4 in head.

Colour: In the fresh specimen, bluish grey on upper half of head and body, paler or dusky below, with tints of silvery lustre. Membrane of spinous dorsal largely jet black, the spines and narrow portion of membrane posterior to them white, especially behind first spine. Proximal and distal portion of the main second dorsal blackish, the rest of the fin paler. Pectoral rays dusky at their tips. Caudal largely blackish. Prominent teeth yellowish, upper surface of tongue blackish, buccal and branchial cavities colourless. Peritoneum dusky black. Colour of formalin preserved specimen rather dusky black.

Remarks: *Thyrsitoides marleyi* is a monotypic species like most of the members of the family (GREY, 1953). It bears two lateral lines or a branch lateral line on each side of body; these are found (GREY, 1953) also in *Epinnula*, *Rexea*, *Mimasea* and *Gempylus*. Furthermore, they share this character with *Grammatorcynus bicarinatus* (QUOY & GAIMARD) of the related family Scomberomoridae which is seldomly caught and marketed along the Andaman coast of Thailand, especially at Phuket Island.

The Indian Ocean genus of *Thyrsitoides* Fowler is generally held to be distinct from the closely related *Rexea* Waite (Syn. *Jordanidia* Snyder) of the Indo-Pacific, chiefly in having well developed pelvic fins (recorded data from five known specimen ranging from 20 in. T.L. to 1,280 mm T.L.) and 4-6 detached finlets (2 finlets in *Rexea*). Although pelvic fins characterize young Gempylidae (DEBEAUFORT & CHAPMAN, 1951) but their presence in adult is a little problematic. MATSUBARA & IWAI (1952) reported that in the monotypic *Rexea* the pelvic fins may be absent or represented by a single spine, sometimes entirely hidden under the skin, even in young specimens; generally they are longer in younger fishes and usually entirely absent in specimens over 242 mm S.L. Therefore, upon this study according to the size of material studied, the comparison of equivalent stradia have repeatedly revealed that they are different.

The number of detached finlets of the dorsal and anal fins are said to vary slightly among individuals and with growth as in some carangid and scombroid fishes (in which are likewise joined to the main fin in young fish and thus sometimes difficult to distinguish from it). In this connection the total number of fin rays is a rather better guide in comparisons.

The original description and figure of *Thyrsooides marleyi* by FOWLER (1929) are excellent as well as those of SMITH (1937, 1949). GREY (1953) also provides a good key for adult Gempylidae, including *T. marleyi*. My single specimen, the basis of the description and figure of this study agree fairly well with these works, except in having no palatine teeth (although examined by dyeing the bones with alizarin) and the pelvic fin inserted a little behind the pectoral fin base. FOWLER (1929) and SMITH (1973) distinguished *T. marleyi* on the basis of scattered patches of cycloid scales on head, body and caudal peduncle. In this Andaman specimen, however, all scales except at caudal peduncle and caudal fin are deciduous. Furthermore, the difference in number of scales in lateral lines may be due to the difficulty in making an exact count since my specimen had no scales and the count was made from scale pockets and tubes (202 in upper and 279 in lower lateral lines; cf. 190 and 310).

The stomach contents of my specimen were not examined but its slight damage on abdomen near pelvic fins allowed me to find that the lower portion of the visceral organ were infected by many scattered anisakid (nematode) larvae.

The Thai vernacular name erected for this fish is Pla Insee Saak, for its resemblance in most respects to Pla Insee or *Scomberomorus* and at the same time to Pla Saak or *Sphyræna*. This close superficial resemblance was also noticed by Mr. Wichit Masayawani and several of my colleagues.

REFERENCES

- DE BEAUFORT, L.F. and W.M. CHAPMAN, 1951. *The fishes of the Indo-Australian Archipelago*, 9. E.J. Brill, Leiden, 484 pp.
- FOURMANOIR, P. and P. GUEZE, 1967. Poissons nouveaux ou peu connus provenant de la Réunion et de Madagascar. *Cah.O.R.S.T.O.M., série océanogr.* 5 (1): 47-58.
- FOWLER, H.W., 1929. New and little known fishes from the Natal coast. *Ann. Natal. Mus.*, 6 (2): 255.
- GOSLINE, W.A. and V. BROCK, 1965. *Handbook of Hawaiian fishes*. University of Hawaii Press, Honolulu, 252 pp.

- GREY, M. 1953. Fishes of the family Gempylidae, with records of *Nesiarchus* and *Epinnula* from the Western Atlantic and descriptions of two new subspecies of *Epinnula orientalis*. *Copeia* 3: 135-141.
- HALSTEAD, B.W., 1967. *Poisonous and venomous marine animals of the world*, 2. U.S. Government Printing Office, Washington, 1070 pp.
- MATSUBARA, K. and T. IWAI, 1952. Studies on some Japanese fishes of the family Gempylidae. *Pacific Science.*, 6 (3): 193-212.
- ROUGHLEY, T.C., 1963. *Fishes and fisheries of Australia*. Angus and Robertson, 328 pp.
- SMITH, J.L.B., 1937. New records of South African fishes. *Ann.Natal. Mus.*, 8 (2): 167-198.
1949. *The sea fishes of Southern Africa*. Central News Agency, Cape Town, 550 pp.