

DISCOVERY OF A GIANT SPECIMEN OF MARBLE GOBY, *OXYELEOTRIS MARMORATUS* (PISCES: TELEOSTEI: ELEOTRIDIDAE) FROM THAILAND, WITH COMMENTS ON ITS LOCAL DISTRIBUTION AND FISHERIES

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ABSTRACT

A very large specimen of marble goby, *Oxyeleotris marmoratus*, 51.5 cm in standard length, from the middle course of Chao Phraya River was studied. It is 1.5 cm longer than SMITH's (1945) previous maximum record which has stood for over 40 years as one of the largest gobies of the world. Another specimen of about 8 kg was reported by the same fish dealer, which corresponds to the length of nearly 3 feet reported by MAXWELL (1921) or 1 m by ANON. (1926). The distribution of this giant species in Thailand and its fisheries are discussed.

INTRODUCTION

According to HOESE (1984) "Approximately 500 genera and 2,000 species of gobioid fishes have been named. Currently, about 270 genera are recognized, and it is estimated that the group contains between 1,500 and 2,000 species. About 50 families, subfamilies, and tribes have been named". Not until HOESE's (1984) work, were the family groups of gobioid fishes adequately characterized. He recognized the following families: Rhyacichthyidae, Eleotrididae, Xenisthmidae, Microdesmidae, Gobiidae and Kraemeriidae.

Within the great diversity of gobioid fishes of the Indo-Pacific region, *Pandaka pygmaea* or the little goby from Malabon, Philippines, has been established as the smallest known fish and vertebrate in the world. The marble goby or sand goby or sleeper, *Oxyeleotris marmoratus*, has been somewhat controversially treated (especially by Thai biologists) as the largest goby of the world, although the bigmouth sleeper, *Gobiomorus dormitor*, of the same family Eleotrididae from the tropical west Atlantic coast attains the length of 61 cm in standard length (LEE et al., 1981). This consideration was drawn chiefly from the account given by SMITH (1945) who had 13 years of experience with fishes and fisheries in Thailand. He wrote, "This is not only the largest of the local gobies, but it is also one of the largest in the world. Examples 30 to 40 cm long are not infrequently met with and maximum length of 50 cm is reported". Reports of its length of 60 cm in several local works (ANON., 1980; MEENAKARN, 1986)

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undoubtedly refer to total length derived from a standard length of 50 cm formerly given by SMITH (1945). Until now no actual specimen of that size or larger has turned up to support any further claim.

Search of the literature for more records of *Oxyeleotris marmoratus* revealed that MAXWELL (1921) had given the size of this fish, but under the name *Eleotris marmoratus*, as much as three feet; ANON. (1926), however, gave a length of nearly a meter for the fish from Thailand (which greatly exceeds the maximum length of *Gobiomorus domitor*). HERRE's (1927) and KOUMANS' (1936, 1957) largest specimen was only 460 mm in length. There seems to be no published basis for the statement of Dr. C.N. MAXWELL and ANON., and their reports have not been cited subsequently. The present specimen, however, makes the reports of MAXWELL and ANON. of 3 feet or more for the fish from Thailand more believable.

Oxyeleotris marmoratus was originally described as *Eleotris marmorata* from Bandjermassing, Borneo, by BLEEKER (1852). The earliest record of this fish for Thailand apparently was that of GÜNTHER (1861) who based his study of 5 small specimens collected from rivers in Thailand by H. Mouhot in the British Museum (Natural History). Prior to the first half of this century, BLEEKER (1865a, 1865b), SAUVAGE (1883), HORA (1923), FOWLER (1934, 1935, 1937, also under the name *Callieleotris platycephalus*) subsequently recorded the fish from different waters in the central plain of the country.

OBSERVATIONS

On 27 February 1988, I discovered and purchased a giant specimen of *Oxyeleotris marmoratus* at the Farmers' Market Organization, Bangkok. It is now kept on exhibition at the Chulalongkorn University Museum of Zoology (catalogue number CUMZ 2531.2.29.1).

Data for the present specimen follow: a female fish, standard length 51.5 cm, total length 62.5 cm, weight 4170 g, depth of body at first dorsal fin origin 14.4 cm, greatest width at about the same level 11.8 cm, head length 17.1 cm, upper jaw length 6.9 cm, longitudinal eye diameter 1.3 cm, least depth at caudal peduncle 7.7 cm, height of first dorsal fin 5.1 cm, height of longest ray of second dorsal fin 7.5 cm, height of longest ray of anal fin 7.2 cm, length of pelvic fin 7.7 cm, length of pectoral fin 10.1 cm, length of caudal fin 11.0 cm; fin formula: D_1 VI; D_2 I, 8(1); A I, 8(1); P_1 18; P_2 I, 5; lateral scale series 74, transverse scale series (upward and backward from the origin of anal fin) 30, predorsal scale series 64, and circumpeduncular scales 34. Teeth villiform, in bands on jaws, medially interrupted, and tapering posteriorly, teeth bands on lower jaw narrower. Teeth on outer and inner edges of mandibular bands and outer edge of maxillary bands forming a caniniform row; few teeth medially at inner edge of upper jaw bands also caniniform. All scales anteriorly before line between the origin of second dorsal fin and urogenital opening cycloid, posteriorly ctenoid. Scales on head smallest, at caudal peduncle largest. Colour of head, body and fins dirty dark



Figure 1. The largest known specimen of marble goby, *Oxyeleotris marmoratus* (Bleeker), 51.5 cm in standard length; CUMZ 2531.2.29.1.

brown, with small irregular patches of dirty orangish or yellowish colour, throat and belly much lighter. Tongue pure white, maxillary and mandibulary grooves whitish. The fish was netted from the Chao Phraya River in the vicinity of Ayutthaya Province.

Interestingly, at the time of purchase I was told by the same dealer and her assistant that a much larger specimen of the same kind of goby had been brought to the market from about the same place by them about 3 years ago. That individual weighed for sale at 8 kg. In their experience the fish sold to me ranked only second to that extraordinary specimen. For inland fishermen or fish dealers, descriptions of *pla bu sai*, or *pla bu jaak* could scarcely apply to anything except *O. marmoratus*, especially with its large size. I therefore tend to agree with MAXWELL (1921) that this species of goby is "The largest form ... from the rivers of Siam, Borneo, Sumatra and the Malay Peninsula grows to nearly three feet"; and with ANON. (1926) who described that "The largest of all known gobies is *Oxyeleotris marmoratus*, which attains a length of nearly a meter and is not uncommon in Siam". Coincidentally, their figures that show its measurements in relation to length indicate a possible total size about 8 kg. But until that size of the fish is discovered, I am quite confident that the present specimen is the largest taken in any museum collection, and that *Oxyeleotris marmoratus* could be the largest goby of the world.

Naturally, fish of great size are extremely rare and are of special interest not only to fishermen but to ichthyologists. But because of its rarity, high market value (ca. US \$4.00–6.00 per kg in local markets) and esteem as foods no specimen of great size has been preserved in any collection or museum, to my knowledge. It is hoped that this brief report will encourage a search for and collection of additional specimen (s) of greater size for museums.

LOCAL DISTRIBUTION AND FISHERIES

This species of goby is of very limited distribution in the Philippines (HERRE, 1927) and possibly also Taiwan (CHEN, 1968) but is frequently found in Borneo and the islands of Indonesia. It occurs also on the Asiatic mainland in Malaya and Indo-China. It is by far the most numerous and most generally distributed of Thai freshwater gobies, which include at least 10 species (SMITH, 1945; TAKI, 1974; KOTELLAT, 1985).

Oxyeleotris marmoratus of 10–25 cm standard length are a familiar sight to the present artisanal fishermen in both still and running waters, of large or small size, throughout Thailand. They may be caught by various kinds of nets, seines, hooks and lines, and sometimes with traps. More than 40 years ago SMITH (1945) gave the Thai distribution of the fish as follows: "...Throughout the Menam Chao Phya as far north as Paknampo, in Bung Borapet, in the Menam Loburi, in the Menam Tachin (at Phra Pathom), and in the peninsula where there is a record of a specimen taken in the Tale Noi.". Examination of local official reports confirms the above occurrences and at the same time extends its range over most parts of the country. It is primarily a fish of swamps, marshes, paddie fields, ditches and ponds, in muddy or clear waters;

it is also found in canals, rivers, irrigation tanks and reservoirs. It occurs throughout the central districts from Prachuab Kiri Khan at Bang Nangrom to the Petchaburi River, Meklong River and its branches, Tachin, Chao Phraya and Pasak Rivers, Bang Pakong River and in irrigation tanks in Choburi and Rayong Provinces. In the north it is found in the Nan River in Nan Province and in the Sirikit Reservoir. Within the northeastern region it is reported from many big and small irrigation tanks and reservoirs, in Nakhorn Ratchasima, Khon Kaen, Sakol Nakhorn, Kalasin and Ubol Ratchatani Provinces, and the Mekhong River at Nong Khai Province. In Peninsular Thailand, the fish is found in the Tapi River, at the inner part of Songkhla Lake (Tale Noi), and in Bang Lang irrigation tank of Yala Province. Moreover, it also frequents the brackish waters along the coast of the Gulf of Thailand and outside the mouths of rivers and canals. No record reveals its occurrence along the Andaman coast. The types of bottom where they live vary from mud to clay, and sometimes to sand and gravels.

At Nakhorn Sawan where the relatively clear water of the Ping River meets the turbid water of the Nan River to form the Chao Phraya, a cage fishery of *Oxyeleotris marmoratus* is carried out most along the banks of the Nan River. It is therefore likely that the fish favours turbid water over clear water.

Oxyeleotris marmoratus is known to Thais under the name *pla bu sai* (meaning sand goby) in allusion to its rough body surface when rubbed from back to front but not to its general colouration which resembles sand only in young fishes. But near places of tidal influence, especially along coastal areas where the fish is found among *ton jaak* or nipa palm (*Nipa fruticans*), another vernacular name in use is *pla bu jaak*. In many places it is known as *pla bu oey* for its very sluggish behaviour, or *pla bu tong* (meaning golden goby). Throughout its local distribution it is widely called *pla bu* for short.

It ranks very high as a local food fish. It is considered to have exceptional nourishing qualities and is sometimes prescribed by Thai-Chinese for elderly persons or patients recovering from illness. Its flesh is firm, white and slightly sweet, and possesses good keeping qualities. Fishes of 15–30 cm in total length are often kept alive in aerated tanks for display to customers at local seafood restaurants. It can live for hours out of water and thus can be transported a long distance. Its natural foods mainly comprise smaller fishes, crustaceans and insects.

The artificial or induced breeding of this goby was first successfully done by Thai biologists in 1972. The fishes reach maturity at about 10–12 cm SL. Their eggs are adhesive; the male fish is responsible for nursing the eggs and guarding the newly hatched offspring. They are later transferred to ponds to grow. They are also reared in cages or netted baskets which are kept floating in waterways, ponds, swamps or irrigated tanks and reservoirs. In many cases young fishes netted by local fishermen are sorted out from the catch and reared to grow further. 'Trashfishes' are normally used for their food.

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