

A Note on Weather Fish, *Misgurnus* Lacepede 1803, from Japan and Vietnam.

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Through the courtesy of Dr. P. Banarescu, Bucharest, we have received 2 specimens of weather fish *Misgurnus* from Vietnam and 4 specimens of *Misgurnus* from Japan. The specimens from Vietnam were collected by Professor Dao-Van-Tien, the Japanese ones by Professor Kobayasi. We have determined the Vietnam specimens as *Misgurnus mizolepis fukien* Nichols (1925) and the Japanese specimens as *Misgurnus mizolepis elongatus* Kimura, (1934).

METHODS USED

The body length was measured from the tip of snout to the base of caudal rays. The body depth and width was measured at the base of dorsal, the depth of caudal peduncle by normal way vertically at the end of anal base. The length of caudal peduncle was measured as the distance between the vertical line from the hind margin of anal base to the insertion of caudal rays. The length of snout is measured from its tip to the anterior margin of orbit, length of the head from the tip of snout to posterior margin of the opercle. The diameter of eye was measured in the longitudinal axis. All measurements were made using dividers with the accuracy 0.1 mm. The keys in the book of Nichols (1943) were used for determination (Nichols, 1925 and Kimura, 1934). All specimens were preserved in formaline solution, and later transferred into alcohol.

DESCRIPTION

Misgurnus mizolepis fukien Nichols, 1925. With regard to published descriptions we have found that the anal opening was located in $1/4$ distance of V-A. Dorsal basis is in the middle of distance between caudal base and gill opening, shifted a little in posterior direction. The ventral insertion is somewhat shifted behind the vertical from the anterior end of dorsal base. Pectorals are sharply shaped on their tops, their length is more than $1/3$ of P-V distance. Ventral fin is longer than $1/2$ of V-A distance. The peduncular keels are fleshy and prominent. Our observations are in correspondence with published data of Nichols (1925). The longest maxillary barbel is the anterior one, according to Nichols (l. c.) the longest barbel is the posterior one. The length of barbels is very remarkable which was also noted by Banarescu (1961). The body coloration in fixed specimens is not clearly visible. It seems, they are darker along the lateral line. Head is covered with small spots. This corresponds with Nichols (1925). The spot on the dorsal part of caudal fin base is very evident. The ground coloration is brownish, darker on the dorsal half of the body. The description of coloration of the type specimen of *Misgurnus mizolepis fukien* in Nichols (1925) is not in correspondence with the figure of this type in Nichols (1928).

Scales are good in our specimens, Nichols (1925) writes, scales are "more or less embedded in thick skin". (Locality: Vietnam).

Both specimens are males. This species is known from Fukien province of China, the find in Vietnam is very interesting.

TABLE 1

Misgurnus mizolepis fukien (Vietnam)

	1	2	average	Nichols 1925
Body length in mm.	89,2	79,7	84,5	127,0
Body depth in % of body length	14,2	13,8	14,0	14,1
Body width in % of body depth	63,7	65,5	64,6	66,8
Caudal peduncle length in % of body length	17,6	17,2	17,4	...
Caudal peduncle length in % of head length	119,0	114,0	116,5	125,0
Caudal peduncle depth in % of body length	10,8	11,3	11,0	...
Caudal peduncle depth in % of peduncle length	61,0	65,6	62,2	71,5
Head length in % of body length	14,8	15,0	14,9	15,1
Snout length in % of head length	31,9	33,3	32,6	38,5
Diameter of eye in % of head length	16,7	13,3	15,0	...
Diameter of eye in % of snout length	52,5	40,0	46,3	40,0
Interorbital distance in % of head length	23,5	22,5	23,0	...
Interorbital distance in % of snout length	74,0	67,5	70,7	65,0
Length of longest barbel in % of head length	63,0	55,8	59,4	...
Length of longest barbel in % of snout length	198,0 ¹	168,0 ¹	183,0 ¹	111,0 ²
Lateral rows of scales	138 ³	140 ³	139 ³	140,01

1. anterior barbel
2. posterior barbel
3. approximately

Misgurnus mizolepis elongatus Kimura, 1934. In examined specimens the insertion of ventral fin is located posterior to the vertical from the base of dorsal (in about 1/2 of dorsal base length). Anal base is nearer to dorsal than to caudal fin. Peduncular keels normally developed. Maxillary barbels short, the longest one is the anterior one. These observations are in correspondence with Kimura (1934). Pectoral is rounded, reaches up about to 1/4 of P-V distance. Ventral is reaching to about 1/4 of V-A distance, this we have found in three specimens (females). This is also in correspondence with data of

Kimura (1934). The fourth male specimen has the pectoral longer, its length is more than 1/3 of P-V distance and ventral is longer than 1/2 of V-A distance. It is necessary to note sex of fish examined in diagnoses, this was omitted by Kimura, (l.c.). In fin lengths the sex dimorphism is apparent (Vladykov 1935.) The dorsal base is in the middle of distance between the caudal origin and preopercular margin. Nichols (1943) has found the dorsal base in the middle of distance between eye margin and caudal base, Kimura (1934) between tip of snout and caudal base.

TABLE II

Misgurnus mizolepis elongatus (Japan)

	1	2	3	4	average	Kimura 1934
Body length in mm.	119,7	105,0	96,5	97,4	104,6	210,0*
Body depth in % of body length	12,4	14,3	12,3	11,6	12,6	12,8
Body width in % of body depth	78,5	67,0	75,5	76,0	74,2	...
Caudal peduncle length in % of body length	19,1	21,1	19,0	18,0	19,3	16,8
Caudal peduncle length in % of head length	120,0	121,0	120,0	117,0	119,5	...
Caudal peduncle depth in % of body length	10,0	10,7	9,4	9,2	9,8	...
Caudal peduncle depth in % of peduncle length	52,5	51,0	49,5	51,5	51,1	40,0
Head length in % of body length	16,0	17,4	16,0	15,4	16,2	14,9
Snout length in % of head length	36,2	35,0	37,6	39,3	37,0	38,5
Diameter of eye in % of head length	11,5	11,0	11,7	10,0	11,0	14,3
Diameter of eye in % of snout length	31,9	31,2	31,0	39,4	33,4	36,5
Interorbital distance in % of head length	21,0	21,9	23,4	16,7	20,7	37,5
Length of longest barbel in % of head length	29,3	38,3	32,4	26,7	31,7	33,3

*total length

The coloration is not evidently retained in formalin and alcohol specimens, only on body sides and dorsal part of the body the small spots are visible. These statements are similar to them of Kimura (1934). (Locality: Okazaki, Aiti Prefecture, Japan.) Sex: 3 Specimens are females, and 1 is male (Specimen No. 3).

SUMMARY

Misgurnus from Japan and Vietnam were determined by use of Nichols (1934) keys with regard to published descriptions of Nichols (1925) and Kimura (1934). Our results follows: 2 specimens from Vietnam belong to subspecies *Misgurnus mizolepis fukien* Nichols, 1925, known originally from the Chinese province Fukien, 4 species from Japan belong to subspecies *Misgurnus mizolepis elongatus* Kimura, 1934. In systematical studies on *Misgurnus*, it is necessary to take regard to sexual dimorphism, which is evident in length of paired fins. Some remarks on systematics of Asiatic weather fish are published already in our former paper (Oliva-Hensel, 1961). Full of interest is the opinion of L. S. Berg (1931), who believes the differences between *Misgurnus* species, described by Nichols (1925) from China are not real and all these forms (*Misgurnus mizolepis*, *Misgurnus mohoity*, *Misgurnus anguillicaudatus*), synonymized with *Misgurnus fossilis anguillicaudatus* (Cantor).

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