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PRIMARY RECORD OF *PSENES MACULATUS* LÜTKEN,  
FROM THE NORTH PACIFIC\*\*\*\*

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Hitherto, regarding the species belonging to the genus *Psenes* (Nomeidae) there has been reported only one specimen in each species *Psenes cyanophrys* VALENCIENNES as described by Kamohara ('42) and *Psenes arafrensis* GÜNTHER as described by Tomiyama ('54), from Japanese waters.

One specimen corresponding to *Psenes maculatus* LÜTKEN was collected by the training ship "Oshoro Maru" of Hokkaido Univ., from the North Pacific in 1956. Heretofore, this species was recorded from the comparatively warmer Atlantic only. Accordingly, the author would describe the specimen in this paper.

The specimen was collected with many large jelly-fishes (unidentified), by means of a fish larva net towed in the surface, at 43°44' N, 154°58' E at 7 p.m. (sunset time) July 16th 1956. (No. L-151)

Here, the author wishes to express heartfelt thanks to the late Prof. S. I. Sato of Fac. of Fish., Hokkaido Univ., under whose guidance and criticism this work has been done. Cordial thanks are offered to Dr. T. Abe of Tōkai Reg. Fish. Res. Lab., who gave facilities for consultation of the literature, and moreover gave him various sorts of advice. Also, he wishes to acknowledge his indebtedness to Capt. T. Fujii, Officers and crew of the "Oshoro Maru" and to research members of the cruise of the year 1956, who rendered valuable help in the collection of the specimen.

*Psenes maculatus* LÜTKEN

Hanten-hanabirauwo (new Japanese name)

*Psenes maculatus*: Lütken, 1880, Dansk. Vid. Selsk. Skrift. Kjöbenhavn, 5, ser. 12, 518~521; Collett, 1896, Rés. camp. sci, accom. yacht Albert Isou. Monaco, X, 31~33; Jordan & Evermann, 1896, Bull. U. S. Nat. Mus. (49), 951; Regan, 1902, Ann. Mag. Nat. Hist. 10(7), 125~126; Fowler, 1936, Bull. American Mus. Nat. Hist. 70, 664~665; Miller, 1946, Jour. Wash. Acad. Sci. 36(6), 210.

D. X-I, 22; A. III, 21; P. 21; V. I, 5; Scales in L. L. about 55; Gill rakers 9+15 (left side); Vertebrae 15+18=33; Branchiostegals 5.

Total length 49.9mm; body length 36.1mm. Length of head 2.39 in body length; depth of body 2.17. Length of snout 4.19 in head length; maxillary 2.51; interorbital

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width 2.90; depth of caudal peduncle 3.87. Length of longest dorsal spine 2.60 in head length; longest dorsal ray 2.25; longest pectoral ray 1.31; longest anal ray 2.06; longest ventral ray 1.39.

Body is oval, its highest part in the breast. Tip of snout is round, and two nostrils are posited on it, anterior one is especially clear with large hole. Eye large, diameter of orbit 2.69 in head length. Lateral line is running on the dorsal side of about five scales below the dorsal fin but incomplete at caudal portion. All fins are large, the tips of pectoral and ventral beyond the origin of anal fin. The rays of each fin were observed by X-ray, the first dorsal has 10 spines, the second dorsal 1 spine and 22 rays, the anal 3 spines and 21 rays and the caudal ix+8+7+viii, viz., it has 15 straight rays. Teeth are arranged in irregular line on the upper jaw, and more sharp and longer than those on the lower jaw. Palatine teeth 4 on left side and 3 on right side (Fig. 1).

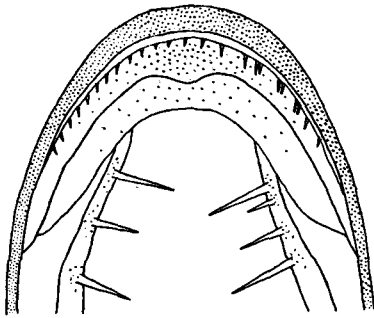


Fig. 1. Inner view of the palate of *Psenes maculatus* LÜTKEN

Color in formalin is nearly light brown with about six dark brown bands, posterior two are extending to the base of dorsal and anal. Anterior half of first dorsal is blackish-brown, and about one-third of the marginal portions of second dorsal and anal are light brown; their other portions are colorless. Caudal light brown in marginal part, however its tips are black. The pectoral is faint in colour and margined with light-black. As for the ventral, about one-third of its middle portion is colorless, and its other portions are black.

On this species, Lütken (1880) made the first record from the Atlantic ( $39^{\circ}\text{N}\sim 25^{\circ}4'\text{S}$ ,  $34^{\circ}40'\text{W}\sim 27^{\circ}26'\text{W}$ ); he clearly indicated that his specimen has teeth on the palatine and vomer. He strongly suspected that his specimen was really the young stage of a *Cubiceps*. Collett (1896) described it from the sea between Newfoundland and the Azores ( $41^{\circ}40'37''\text{N}$ ,  $43^{\circ}48'10''\text{W}$ ) and he emphasized that it was an error in judgment, for Lütken (1880) suspect strongly that his species was really the young stage of a *Cubiceps*. But more recently Miller (1946) mentioned this matter, of Collett's (1896) opinion insisting that his interpretation was wrong, although he seems to have overlooked or ignored the palatine and vomerine dentition. Jordan & Evermann (1896) described the species from the Atlantic ( $27^{\circ}49'\text{N}$ ,  $76^{\circ}12'\text{W}$ ) from the Albatross expedition. They said, according agreeing with Lütken, the specimen was very likely the young of *Psenes capensis* (*Cubiceps capensis* or *gracilis*), but that species has D. X-I, 19; A. I, 19. Regan (1902) made a revision of Stromateidae. Genus *Psenes* was distinguished from the genera *Nomeus* and *Cubiceps*,

for *Psenes* has an oval body, is toothless in the palate and the ventral fin is below the pectoral fin. This species should be included in genus *Psenes* according to Lütken (1880); he made a synopsis of the species according to the number of dorsal and anal fin rays, and the depth of body etc. Fowler (1936) made a synopsis of this genus from the western Africa quoting from Lütken (1880), Collett (1896) and Regan (1902). Miller (1946) made observation on the four specimens of U. S. Nat. Mus. He offered discussion on this species quoting from Lütken (1880) and Collett (1896), and he raised a question, whether this species should be included in the genus *Psenes*, but he made no observation on the teeth of palate.

From the above-mentioned, in comparison with the known two species of genus *Psenes* from Japanese waters, this species is distinguished from those two species, according to the points noted here. *P. cyanophrys* has higher caudal peduncle (3.00 in B.L.), and a larger number of dorsal and anal fin rays and gill-rakers. *P. arafrensis* has greater depth of body (1.75 in B.L.) and shorter snout (5.00 in H.L.), and a smaller number of lateral scales. Besides, this species is distinguished from *P. arafrensis* of Tomiyama's ('54) specimen being 58mm in total length and lacking palatine and vomerine teeth.

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Fig. 1. *Psenes maculatus* LÜTKEN T. L. 49.9mm (No. L-151)

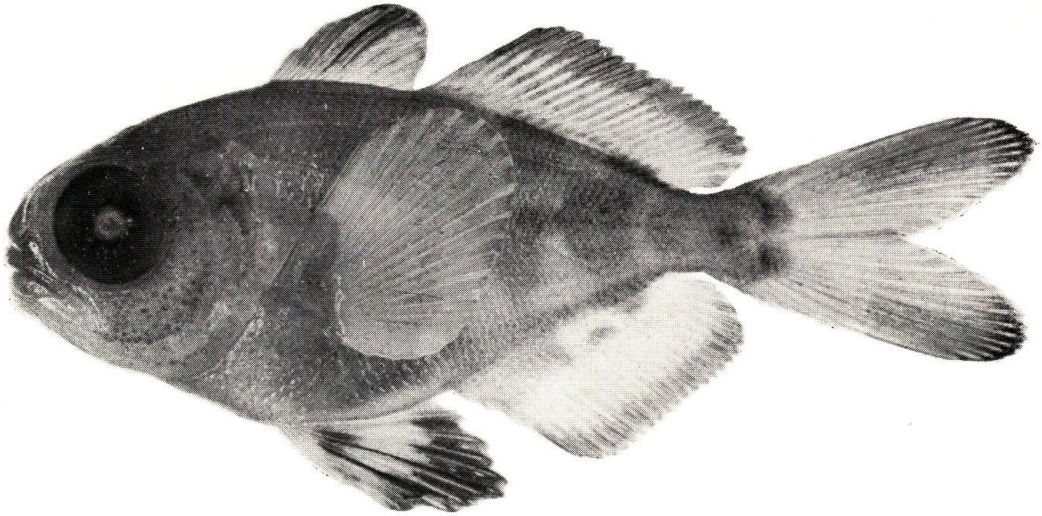


Fig. 2. Radiograph of the specimen shown in fig. 1

