

## A Revision of the Cottid Fish Genus *Vellitor*

Akihisa Iwata

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**Abstract** The cottid fish genus *Vellitor* is represented in Japan and Korea by two species, *V. centropomus* (Richardson) and *V. minutus* sp. nov. The genus is characterized by the strongly compressed and deep body, the large acute head, the slender caudal peduncle and by the absence of spines and cirri on the dorsal surface of head. *V. minutus* is distinguished from *V. centropomus* by the number of pectoral fin rays (*V. minutus*, 18~20: *V. centropomus*, 13~16) and shape of this fin (*V. minutus*, rounded: *V. centropomus*, bilobate). The two species show clear isolation in their habitat preferences.

The cottid fish genus *Vellitor* has been represented by only one species, *V. centropomus* (Richardson), which is distributed along the coasts of Japan and Korea.

*Podabrus centropomus* Richardson (1848) was described from Cheju Island, Korea. The genus *Vellitor* with *centropomus* as the type-species was erected by Jordan and Starks (1904). These authors also synonymized *Centridermichthys nudus* Döderlein (1887) described from Tokyo Bay, Japan, with *V. centropomus*.

In this study, examination of extensive materials reveals that this genus contains two species one of which, *V. minutus*, is undescribed.

### Materials and methods

Measuring and counting procedures followed Hubbs and Lagler (1958) except as noted below. Body depth was measured at the anus, head width at the preopercular margin, and body width at the end of the first dorsal fin. Interpectoral width is the distance between the ventral bases of the pectoral fins. Counts for vertebrae were taken from radiographs. The materials examined are listed in each species account. Abbreviations for the catalogue numbers of the specimens are: NSMT-P, Department of Zoology, National Science Museum, Tokyo; HUMZ, Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University; MTUF, the Museum of Tokyo University of Fisheries; YCM-P, Yokosuka City Museum; ZUMT, Department of Zoology, University of Tokyo; BMNH, British Museum (Natural History), London; USNM, National Museum of Natural History, Smithsonian Institution, Washington.

### Genus *Vellitor* Jordan et Starks, 1904

*Vellitor* Jordan and Starks, 1904: 319, fig. 38 (type-species, *Podabrus centropomus* Richardson, 1848).

**Diagnosis.** No spines or cirri on dorsal surface of head. Body strongly compressed and deep, head acute and compressed, caudal peduncle slender.

**Description.** Body width 8.2~14.2% of standard length (SL); posteriorly tapering into a slender caudal peduncle, its depth 4.1~6.5% of SL. Head large, its length 32.2~40.0% of SL. Upper profile of head making a gentle slope from snout to first dorsal fin. Ventral side of head straight and nearly horizontal from tip of lower jaw to the origin of pelvic fin. Snout long and acute in lateral view. Mouth large, slightly oblique, maxillary reaching to below anterior border or anterior half of eye. Lower jaw projecting beyond upper jaw. Teeth villiform; bands on jaws widened in front, wider on upper jaw; the palatine with a narrow band on its posterior end; the vomer with  $\wedge$ -shaped patch. Preopercular margin with only one acute spine directed slightly upward. Eye moderate in size. Interorbital flattened or slightly elevated; its width a little narrower than eye diameter. Anterior half of lateral line arched over the pectoral fin, sloping gently downward from the dorsal interspace, posterior half extending along axis of body. Lateral line scales pipe-like in shape and embedded. Some embedded small scales behind axilla of pectoral fin. Other parts of body naked. Branchiostegal rays 6. Branchiostegal membranes of both sides

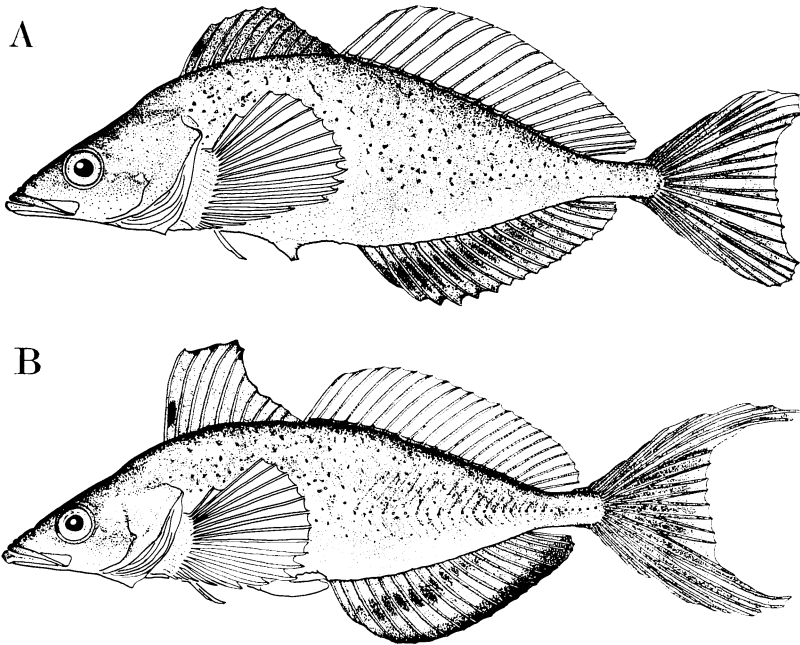


Fig. 1. *Vellitor minutus* sp. nov. A, paratype, NSMT-P 19793, 81.5 mm SL, 103.0 mm TL, female; B, holotype, NSMT-P 19799, 93.6 mm SL, 129.3 mm TL, mature male. Both specimens collected from Kominato, Chiba Pref., Japan.

broadly united and free from isthmus. Genital papilla of male well developed, cylindrical and tripartite; the middle of the three processes hooked. All fin rays except for those of caudal fin unbranched. Pelvic rays I, 2. Dorsal spines very slender and flexible.

**Key to the species of *Vellitor***

- 1a. Pectoral rays 18~20; longest ray not reaching to the origin of anal fin, lowermost ray vestigial. The end of first dorsal fin coincides with the origin of second dorsal fin. . . . . *V. minutus* sp. nov.
- 1b. Pectoral rays 13~16, longest ray reaching to the base of third or fourth anal ray, lowermost ray not vestigial. First and second dorsal fins separated by a space equal to the diameter of pupil. . . *V. centropomus*

***Vellitor minutus* sp. nov.**

(New Japanese name: Hime-sui)

(Figs. 1, 2A, B, 3A, C)

**Holotype:** NSMT-P 19799, 93.6 mm SL, 129.3 mm in total length (TL), male, Kominato (35°07'N, 140°11'E), Chiba Pref., Japan, Nov. 10, 1977.

**Paratypes:** 39 specimens, 22.6~91.5 mm SL.

Kominato, Chiba Pref.: NSMT-P 19794, 74.4 mm, female, Dec. 18, 1976; NSMT-P 19795, 23.4 mm, sex undetermined, June 13, 1977; NSMT-P 19796, 71.0 mm, female, June 14, 1977; NSMT-P 19797, 37.8 mm, male, July 6, 1977; NSMT-P 19798, 39.5 mm, female, July 6, 1977; NSMT-P 19793, 81.5 mm, female, Jan. 29, 1977. HUMZ 92517, 72.3 mm, male, Feb. 26, 1976; HUMZ 92518, 75.1 mm, female, Jan. 22, 1977; HUMZ 92519, 62.7 mm, male, June 13, 1977; HUMZ 92520, 79.9 mm, female, July 6, 1977; HUMZ 92521, 39.3 mm, female, July 6, 1977. MTUF 24661, 78.5 mm, female, Dec. 14, 1975; MTUF 24662, 84.1 mm, female, Feb. 26, 1976; MTUF 24663 (cleared and stained), 70.2 mm, female, Feb. 26, 1976; MTUF 24664, 83.8 mm, female, Jan. 30, 1977; MTUF 24665, 35.2 mm, July 7, 1977; MTUF 24666, 91.5 mm, Dec. 22, 1977. YCM-P 10010, 77.9 mm, female, Apr. 16, 1976; YCM-P 10011, 66.0 mm, female, Mar. 7, 1977; YCM-P 10012, 86.3 mm, female, Mar. 8, 1977; YCM-P 10013, 64.1 mm, Sep. 25, 1977. ZUMT 54267, 75.0 mm, Feb. 26, 1976; ZUMT 54268, 34.2 mm, female, July 20, 1976; ZUMT 54269, 85.5 mm, female, Jan. 29, 1977; ZUMT 54270, 49.2 mm, July 7, 1977. BMNH 1981.9.5.13, 83.2 mm, female, Jan. 27, 1977; BMNH 1981.9.5.14, female, Mar. 7, 1977; BMNH 1981.9.5.15, 80.3 mm, male, Apr. 23, 1977; BMNH 1981.9.5.16, 25.3 mm,

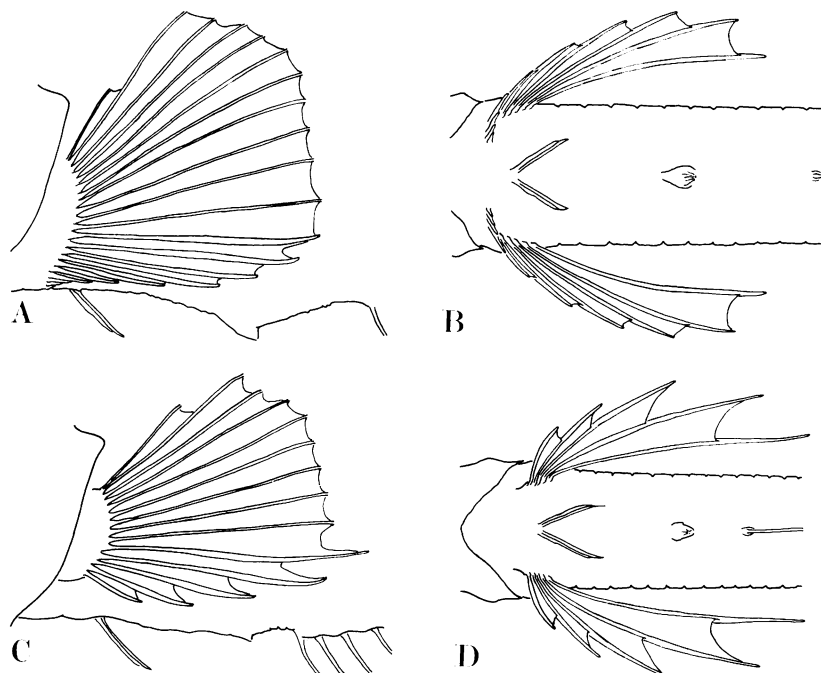


Fig. 2. Schematic figures of lateral and ventral views of pectoral fin. A and B, *Vellitor minutus* sp. nov.; C and D, *V. centropomus*.

sex undetermined, June 13, 1977; BMNH 1981.9.5.17, 38.7 mm, female, July, 1977; BMNH 1981.9.5.18, 67.3 mm, female, Nov. 9, 1977. USNM 228073, 86.7 mm, female, Jan. 29, 1977; USNM 228074,

22.6 mm, sex undetermined, June 13, 1977; USNM 228075, 50.9 mm, June 14, 1977; USNM 228076, 34.1 mm, July 7, 1977; USNM 228077, 74.2 mm, Nov. 10, 1977.

Table 1. Frequency distributions of meristic counts of *Vellitor*.

	Pectoral-rays							
	13	14	15	16	17	18	19	20
<i>V. minutus</i>						1	21	18*
<i>V. centropomus</i>	5	149	8*	1**				
	Dorsal spines			Dorsal soft-rays				
	IX	X	XI	18	19	20	21	22
<i>V. minutus</i>	2	38*				4	33*	3
<i>V. centropomus</i>	11	150*	1	9	66	77*	10	
	Anal soft-rays							
	17	18	19	20				
<i>V. minutus</i>		13	24*	3				
<i>V. centropomus</i>	5	63*	85	9				
	Lateral line pores							
	36	37	38	39	40	41	42	43
<i>V. minutus</i>				1	9	15	10*	2
<i>V. centropomus</i>	3	4	17	36*	44	28	3	

\* Holotype. \*\* Right rays of holotype.

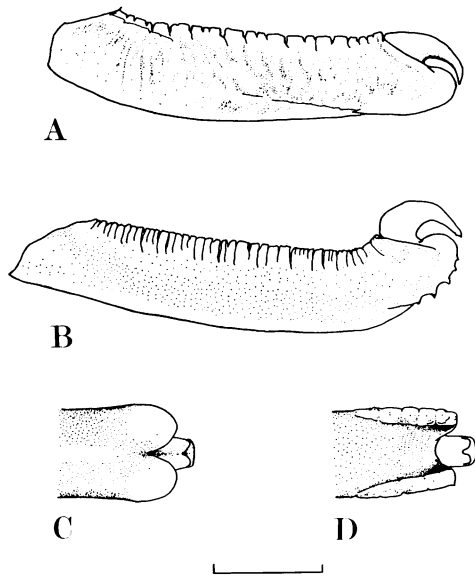


Fig. 3. Lateral and ventral views of genital papilla of mature male. A and C, *Vellitor minutus* sp. nov.; B and D, *V. centropomus*. Scale indicates 3 mm.

Tenjin-jima (35°13'N, 139°36'E), Yokosuka, Kanagawa Pref.: YCM-P 2372, 60.3 mm, female, Feb. 26, 1975; YCM-P 10014, 49.5 mm, female, Aug. 12, 1977. ZUMT 54271, 59.9 mm, female, Aug. 12, 1977.

Nabeta (34°40'N, 138°59'E), Shimoda, Shizuoka Pref.: YCM-P 10015, 28.3 mm, female, June 6, 1974.

**Diagnosis.** Pectoral fin rays 18~20; not reaching to the origin of anal fin; the lowermost ray vestigial. Interpectoral width narrow 2.7~6.4% of SL; pectoral fin base width 9.7~13.2% of SL. First and second dorsal fins contiguous. Color of anal and caudal fins brownish.

**Description.** Data in parentheses apply to paratypes (see also Tables 1, 2). Dorsal rays X, 21 (IX~X, 20~22); anal rays 19 (18~20); pectoral rays 20 (18~20); pelvic rays I, 2 (I, 2); lateral line pores 42 (39~43); vertebrae 12+26=38 (12+25~27=37~39). Snout long, 31.6% (29.6~33.3) of head length. Maxillary reaching below anterior half of eye, 38.3% (33.1~41.7) of head length. Body deep 80.0% (56.5~93.8) of head length. Pectoral fin rounded; longest ray slightly thickened, 73.4% (64.3~92.4) of body depth. Interpectoral width narrow (Fig. 2A, B). First dorsal spine not

elongated in both sexes; the longest dorsal spine (fourth or fifth) in females and immature males 31.8~51.3% of body depth; the spines behind it not rapidly shortened posteriorly. In mature males the first to fifth spines longer than those of females; the longest 40.6~80.2% of body depth; the spines behind it rapidly shortened posteriorly. No notch between first and third spines. Length of second dorsal fin base longer than that of anal fin base. Length of longest dorsal ray nearly equal to that of longest anal ray. Anal fin originating under about third or fourth ray of second dorsal fin. Pelvic fin short. Caudal fin slightly forked, asymmetrical; upper fourth or fifth ray shortest. Both tips of caudal fin rounded in females; elongated and pointed in males (Fig. 1). Genital papilla of males well developed, cylindrical and tripartite; the middle process hooked. The ventral side of the remaining two smooth without fleshy processes (Fig. 3A, C).

**Color in life:** Head and body orange brown, a little paler ventrally, with many small dark dots. A few silver spots behind the nostril and the eye. First dorsal, anal and caudal fins orange brown. First dorsal fin with an elliptical black spot between first and second spines. A yellowish white blotch on the upper edge of caudal fin in female; indistinct in male. Membranes of pectoral and second dorsal fins transparent, the fin rays pale orange brown.

**Color in formalin:** No marked change except for fading reddish tinge and silver spots.

**Sexual dimorphism:** In this species sexual dimorphism is seen in: 1) large cylindrical genital organ in male, 2) first dorsal fin higher in male than in female, 3) elongated and pointed caudal fin tips in male.

**Distribution.** Kominato, Chiba Pref.; Tenjin-jima, Yokosuka, Kanagawa Pref.; Nabeta, Shimoda, Shizuoka Pref.

**Etymology.** The Latin name *minutus* refers to the body size of this species which is smaller than *V. centropomus*.

**Ecological notes.** According to my underwater observations made at Kominato, *Vellitor minutus* inhabits only the *Eisenia* and *Ecklonia* belt. Its color and swimming action closely resemble leaves of *Eisenia* and *Ecklonia* waving in the current. This may be regarded as a kind of protective coloration. Additionally, this species

sometimes adheres to the surface of these weeds by means of their pectoral fins. Three juveniles, 22.6~25.3 mm SL, were captured among the leaves of *Ecklonia*. They were the same coloration as adult except for the transparent membrane on the posterior part of the first dorsal and anal fins.

Shiogaki and Dotsu (1974) reported that in the spawning of *Pseudoblennius cottoides* the eggs were fertilized internally and subsequently spawned. *V. minutus* has the same reproductive method. The spawning season continues from November to April. The eggs are demersal and adhesive; about 1.5 mm in diameter; transparent pale pink with several oil globules of different sizes. The newly hatched larvae

are pelagic with well developed eyes and mouth, 6~7 mm TL at hatching.

*Vellitor centropomus* (Richardson, 1848)

(Japanese name; Sui)

(Figs. 2C, D, 3B, D, 4)

*Podabrus centropomus* Richardson, 1848: 11, pl. 1, figs. 7, 11; Günther, 1860, 152.

*Centridermichthys nudus* Döderlein (in Steindachner and Döderlein), 1887: 258.

*Vellitor centropomus*: Jordan and Starks, 1904: 319, fig. 38; Matsubara, 1955: 1158; Watanabe, 1958: 400, figs. 191~192, pl. 41; Watanabe, 1960: fig. 61, pl. IV.

**Materials examined.** Holotype: BMNH 1982. 6.10.1, 83.0 mm SL, female, Cheju Island, Korea, collecting date unknown.

Table 2. Proportional measurements in hundredths of standard length of *Vellitor*. Data other than for the holotypes show the mean values and their ranges (in parentheses) for paratypes and other specimens.

Character	<i>Vellitor minutus</i>		<i>Vellitor centropomus</i>	
	Holotype	Paratypes N=39	Holotype	Present specimens N=43
Standard length (mm)	93.6	22.6~91.5	83.0	39.2~114.0
Head length	33.1	34.8 (32.4~40.4)	33.0	36.9 (34.5~39.1)
Body depth	26.5	25.8 (19.8~31.9)	29.4	23.6 (17.1~27.7)
Preanal length	43.7	46.7 (41.7~53.0)	44.3	46.9 (44.1~49.5)
Snout length	10.5	10.9 ( 9.8~12.2)	10.3	13.3 (11.8~14.4)
Head width	13.8	13.6 (12.0~15.2)	12.4	12.7 (11.0~13.4)
Body width	11.5	10.8 ( 8.2~12.8)	12.7	10.6 ( 8.4~14.2)
Maxillary length	13.2	13.3 (11.3~14.7)	—	14.3 (12.6~14.7)
Eye diameter	7.8	7.7 ( 6.5~10.1)	7.9	7.3 ( 6.3~ 8.4)
Interorbital width	5.6	6.0 ( 5.0~ 7.9)	5.4	5.7 ( 4.2~ 7.2)
Caudal peduncle length	7.6	9.7 ( 6.9~13.4)	—	11.0 ( 7.5~14.0)
Caudal peduncle depth	5.8	5.4 ( 4.1~ 6.0)	7.6	5.0 ( 4.2~ 6.5)
Pectoral fin base	10.7	11.5 ( 9.7~13.2)	8.8	8.3 ( 7.5~10.0)
Interpectoral width	4.3	4.4 ( 2.7~ 6.4)	9.2	8.3 ( 6.8~ 9.4)
Longest pectoral ray	19.4	20.3 (18.0~22.3)	24.7	23.6 (19.0~28.3)
Longest pelvic ray	7.6	6.1 ( 4.3~ 7.2)	8.8	7.0 ( 5.0~ 9.7)
Longest dorsal spine				
female and immature male		10.6 ( 8.7~12.8)	13.6	15.5 (11.5~18.3)
mature male	15.9	15.3 (10.0~20.5)		24.7 (13.8~43.8)
Longest dorsal ray	13.6	13.9 (11.9~16.1)	15.3	15.5 (11.9~19.6)
Longest anal ray	13.6	14.5 (11.1~16.2)	13.3	14.7 (10.5~21.0)
First dorsal base	22.3	20.9 (16.3~24.4)	20.4	20.3 (15.7~24.4)
Second dorsal base	40.7	40.9 (36.5~44.0)	41.6	36.0 (32.2~37.8)
Anal fin base	33.8	33.6 (29.6~36.3)	36.1	35.5 (31.3~38.4)
Snout to first dorsal origin	32.6	33.4 (30.4~37.5)	29.6	34.2 (32.0~37.3)
Snout to first dorsal end	53.6	53.6 (50.9~55.5)	48.6	53.7 (47.4~57.2)
Snout to second dorsal origin	53.6	53.6 (52.2~55.5)	49.0	55.9 (52.6~59.1)
Snout to second dorsal end	88.6	89.9 (85.6~93.3)	89.9	88.6 (85.6~90.9)
Snout to anal origin	54.7	55.6 (53.1~62.9)	52.4	56.0 (52.8~59.7)
Snout to anal end	87.7	88.1 (83.3~92.9)	91.2	89.9 (85.8~93.2)

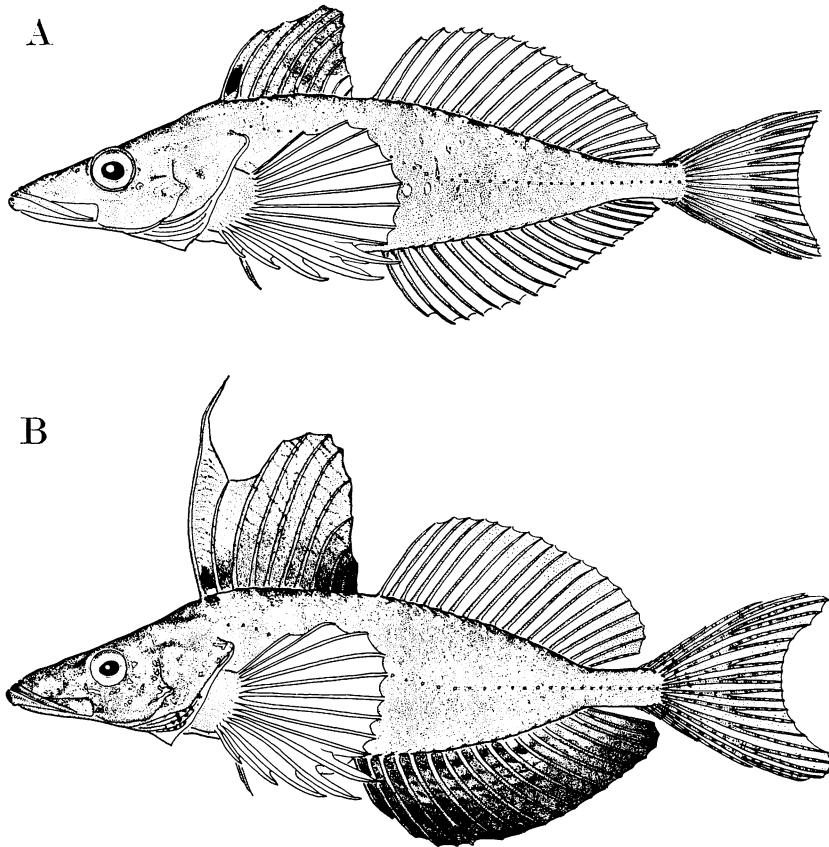


Fig. 4. *Vellitor centropomus*. A, ZUMT 54261, 91.2 mm SL, 111.0 mm TL, female; B, NSMT-P 19804, 111.6 mm SL, 146.2 mm TL, mature male. Both specimens collected from Kominato, Chiba Pref.

Additional specimens: 141 specimens, 11.8~120.3 mm SL. Kominato, Chiba Pref.: NSMT-P 19800, female, Sep. 6, 1974; NSMT-P 19801, female, Jan. 24, 1976; NSMT-P 19802, females, Feb. 25, 1976; NSMT-P 19803, sex undetermined, Mar. 5, 1977; NSMT-P 19804, male, Nov. 9, 1977. HUMZ 92502, male, Nov. 20, 1976; HUMZ 92503, female, Jan. 28, 1977; HUMZ 92504, female, Jan. 29, 1977; HUMZ 92505 and 92506, females, Mar. 8, 1977; HUMZ 92507, 92508, and 92509, sex undetermined, Mar. 8, 1977; HUMZ 92510, male, July 3, 1977. MTUF 24567, male and females, Dec. 14, 1975; MTUF 24658, sex undetermined, Jan. 30, 1977. YCM-P 10001, male, Sep. 6, 1976; YCM-P 10002, female, Nov. 9, 1977; YCM-P 10003, females, Nov. 10, 1977; YCM-P 10004, sex undetermined, Mar. 6, 1977; YCM-P 10005, females, July 7, 1977. ZUMT 54259, male, July 14, 1976; ZUMT 54260, females, Apr. 23, 1977; ZUMT 54261, females, Nov. 9, 1977; ZUMT 54262, sex undetermined, Mar. 6, 1977; ZUMT 54263, female, July 6, 1977. USNM 228067, females, Apr. 17, 1976; USNM 228068, male and

female, Nov. 20, 1976; USNM 228069, female, Jan. 22, 1977; USNM 228071, females, July 6, 1977. BMNH 1981.9.5.1~2, females, Feb. 25, 1976; BMNH 1981.9.5.3, female, Mar. 7, 1976; BMNH 1981.9.5.4, female, Apr. 17, 1976; BMNH 1981.9.5.5, male, Dec. 12, 1976; BMNH 1981.9.5.6~8, sex undetermined, June 1977. Takanoshima (34°59'N, 139°51'E), Tateyama, Chiba Pref.: USNM 228072, males and female, Sep. 11, 1977. BMNH 1981.9.5~12, males and females, Sep. 11, 1977. Tenjinjima, Yokosuka, Kanagawa Pref.: YCM-P 3825, male, Dec. 1, 1967; YCM-P 3825-2, female, Dec. 1, 1976. Misaki (35°09'N, 139°37'E), Kanagawa Pref.: YCM-P 10006, female, 1975. Shishiki (33°13'N, 129°23'E), Nagasaki Pref.: NSMT-P 19805, males and female, June 29, 1975. Nanao (37°03'N, 136°58'E), Ishikawa Pref.: HUMZ 92514, 92515 and 92516, males and females, Aug. 9, 1977; MTUF 24660, males and females, Sep. 1977; ZUMT 54265, males, Oct. 1977; ZUMT 54266, females, Oct. 1977. Oki (36°N, 133°E), Shimane Pref.: HUMZ 92514, 92515 and 92516, females, Sep. 10, 1974. Toga

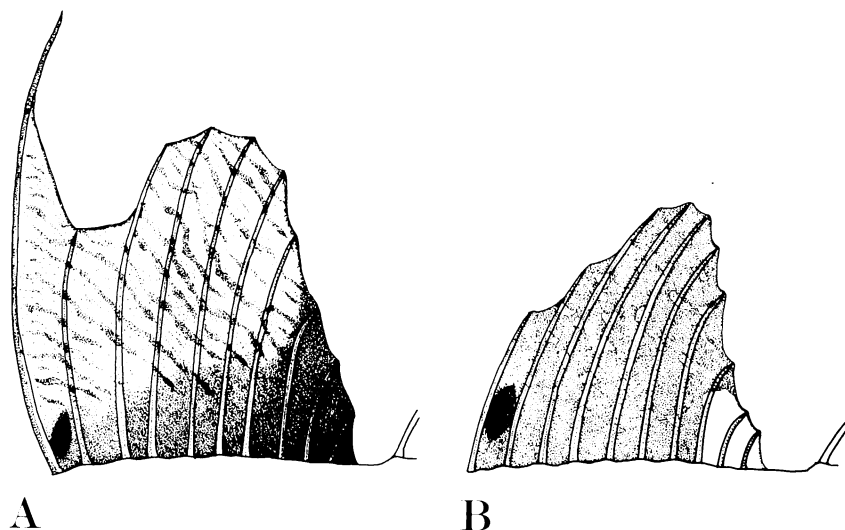


Fig. 5. First dorsal fin of *Vellitor centropomus*. A, mature male; B, female.

(39°57'N, 139°43'E), Akita Pref.: MTUF 24659, male, collecting date unknown. Yomogidamura (40°58'N, 140°40'E), Mutsu Bay, Aomori Pref.: YCM-P 10007, males and females, Dec. 7, 1975. Nabeta, Shimoda, Shizuoka Pref.: YCM-P 10008, females, June 6, 1974. Kakizaki (34°40'N, 138°58'E), Shimoda, Shizuoka Pref.: YCM-P 10009, females, July 16, 1974. Fukuejima (32°38'N, 128°47'E), Nagasaki Pref.: ZUMT 54264, male, July 27, 1973. Mano (38°02'N, 138°34'E), Sadogashima, Niigata Pref.: HUMZ 59502, female, Oct. 19, 1976; HUMZ 59507~59510, males and female, Oct. 20, 1976.

**Description.** Data for the holotype are given first followed by those for other specimens in parentheses (see also Tables 1, 2). Dorsal rays X, 20 (IX~XI, 18~21); anal rays 18 (17~20); pectoral rays 15 (16 in right side) (13~15); pelvic rays I, 2 (I, 2); lateral line pores 39 (36~42); vertebrae (11~12+25~27=37~39). Snout long, 31.0% (32.7~38.8) of head length. Maxillary reaching to anterior border of pupil. Body depth 89.1% (43.2~74.2) of head length. Pectoral fin compound; lower rays better developed and stouter than the others, ninth or eleventh ray longest, 84.0% (83.8~125.4) of body depth. Interpectoral width wide (Fig. 2C, D). The longest spine of first dorsal fin (fourth or fifth in female and immature male) 46.3% (51.7~79.8) of body depth, the spines behind it rapidly shortened posteriorly. In males the first dorsal fin higher than that in females and

first spine well elongated and longest; second spine shorter than first and third, forming a deep notch (Fig. 5). Length of second dorsal fin base nearly equal that of anal fin base. Longest dorsal ray nearly equal that of longest anal ray. Anal fin originating under about first or second dorsal ray, ending slightly in advance of the end of second dorsal fin. Pelvic fin short. Caudal fin slightly forked, symmetrical. Tips of caudal fin pointed and elongate in males (Fig. 4). Genital papilla of male well developed, cylindrical and tripartite; the middle process hooked; a row of 3~5 fleshy-processes on the ventral side of the outer processes (Fig. 3B, D).

Color in life: Head and body olive brown, a little paler ventrally. Many pale pupil-size dots on body, sometimes connecting with each other to form irregular cross bands. Some large silver spots from behind the eye to about the middle of anal fin base, smaller and sometimes absent in males. First dorsal fin reddish brown; in females and immature males with many pale dots, transparent at posterior part. In mature males pale dots sometimes connecting with each other to form oblique wavy bands, the basal area dark (Fig. 5). Membranes of pectoral, second dorsal, anal and caudal fins transparent, but in mature males anal fin dark. Upper half of second dorsal fin dusky; lower half reddish brown. Irregular reddish brown bands on

caudal fin. Branchiostegal rays mottled.

Color in formalin: No marked change except fading of reddish tinge and silver spots.

Sexual dimorphism: Similar to that seen in *V. minutus* except for coloration and shape of first dorsal fin.

**Distribution.** The collection localities of this species reported by previous authors are as follows: Tokyo Bay (Steindachner and Döderlein, 1887); Sendai Bay, Miyagi Pref. (Kosaka, 1967); Tsushima, Nagasaki Pref. (Yamaguchi, 1965); Ohshima, the Inland Sea, Yamaguchi Pref. (Katayama and Fujioka, 1958); Shirahama, Wakayama Pref. (Araga and Tanase, 1966); Ise Bay, Aichi Pref. (Nakajima, 1975). It is, however, possible that *V. minutus* is included in these collections. This species occurs along the coasts of Japan and Korea.

**Ecological notes.** Based on my underwater observations made at Kominato, *V. minutus* and *V. centropomus* show differences in their habitat preferences. *V. centropomus* lives in the sargassum belt where tidal current is less than in the *Eisenia* and *Ecklonia* belt which is the habitat of *V. minutus*. *V. centropomus* is rarely found among the leaves of these weeds. The color of this species may serve some camouflage function. Juveniles larger than 11.8 mm SL were captured among sargassum weed. On the other hand, Koike and Nishiwaki (1977) reported this species in the *Zostera* zone in Shimoda Bay, Shizuoka Pref. A similar observation has been made at Tenjin-jima, Yokosuka, Kanagawa Pref. (Mr. Hayashi, personal communication).

The reproductive method, breeding period and egg diameter are the same as in *V. minutus*, while the color of the eggs are transparent pale yellow.

**Remarks.** Richardson (1848) counted the pectoral fin rays of the holotype as seventeen, but I counted fifteen on the left and sixteen on the right side. The specimens collected from Japanese waters fit the diagnosis of *V. centropomus* (the type locality of which is Korea), except that there are some differences from the holotype in proportional characters, for example, head length (33% of SL in holotype vs. 34.5~39.1% in Japanese specimens), body depth (29.4% of SL vs. 17.1~27.7%), snout length (10.3% of SL vs. 11.8~14.4%), and second dorsal base length (41.6%

of SL vs. 32.2~37.8%). It is, however, possible that the body proportion has become distorted in the holotype which has been preserved for nearly 150 years. Even if this is not the explanation of the differences noted, I regard this as only intraspecific variation.

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- (Laboratory of Embryology and Genetics, Faculty of Fisheries, Hokkaido University, Hakodate 041, Japan)

スイ属魚類の再検討

岩田明久

スイ属魚類について再検討を行なった。スイ属は 1) 体が著しく側扁し、体高が高い事 2) 頭部は大きく鋭角的である事 3) 細い尾柄を持つ事 4) 頭部背面に棘や皮弁を有しない事などで定義される。該当種はスイ *Vellitor centropomus* とヒメスイ *V. minutus* で後者は新種である。

ヒメスイ *V. minutus* の胸鰭は丸く、鰭条数が 18~20 で最下方の鰭条は痕跡的な事により、スイ *V. centropomus* と明瞭に区別される。

この2種は生息場所の選好性が異なり、スイ *V. centropomus* はガラモ帯やアマモ帯に、ヒメスイ *V. minutus* はアラメ・カジメ帯にそれぞれすみわけている。(041 函館市港町 3-1-1 北海道大学水産学部発生学遺伝学講座)