

Note

First Record of the Jawfish *Stalix toyoshio* (Perciformes: Opistognathidae) from the South Sea, Korea

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Abstract : A single juvenile of the jawfish *Stalix toyoshio* (24.0 mm standard length) was collected from the South Sea of Korea at a depth of 135 m during box-corer sampling. The specimen was characterized by the absence of stripes on both the body and vertical fins, well-developed cephalic pore systems, yellowish body and fins, six transversely-forked dorsal fin spines, and five mandibular pores. Here, we describe the specimen, which represents the first record of *S. toyoshio* from Korea and the second record from the northwestern Pacific.

Key words : juvenile, new Korean record, Opistognathidae, *Stalix toyoshio*

The opistognathid genus *Stalix* Jordan and Snyder, 1902, includes ten species worldwide and is distributed in tropical Indo-Pacific waters at depths less than approximately 135 m. The genus is uniquely characterized by transversely-forked dorsal fin spines (Smith-Vaniz 1989). In the northwestern Pacific, four valid *Stalix* species have been recognized: *S. histrio* Jordan and Snyder 1902, *S. immaculata* Xu and Zhan in Xu *et al.* 1980, *S. sheni* Smith-Vaniz 1989, and *S. toyoshio* Shinohara 1999 (Smith-Vaniz 1989; Shinohara 1999).

During a survey of the Pacific Ocean Study on the Environment and Interactions between the Deep Ocean and National Seas (POSEIDON) program of the Korea Ocean Research & Development Institute (KORDI), a *Stalix* juvenile was collected from the South Sea, Korea, at 135 m depth using the box-corer sampling method. The specimen was identified as *S. toyoshio*, which is a rare jawfish that until now was known only from the Tanegashima Straits, Japan (Shinohara 1999; Aizawa 2002). Here, we describe the specimen as the first record of *S. toyoshio* from Korean waters and as the second record from the northwestern Pacific. Counts and measurements follow

those of Shinohara (1999). The specimen is deposited in the Ichthyology Laboratory of KORDI.

Family Opistognathidae

Genus *Stalix* Jordan and Snyder, 1902

(New Korean name: Keun-nun-hu-ak-chi-sok)

Stalix Jordan and Snyder, 1902: 495 (type species: *Stalix histrio* Jordan and Snyder, 1902).

Stalix toyoshio Shinohara, 1999

(New Korean name: Keun-nun-hu-ak-chi)

(Figs. 1-3; Table 1)

Stalix toyoshio Shinohara 1999: 267 (type locality: Tanegashima Straits, Japan).

Materials examined. KORDI P060001, 24.0 mm standard length, cleared and stained, 32°15.488'N, 127°09.988'E (South Sea, Korea), 135 m depth, 30 September 2006, box corer, R/V *Onnuri-ho* (KORDI).

Description. Counts and proportional measurements are presented in Table 1. Body moderately elongated and tapered. Eyes large, located at anterior part of head.

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Fig. 1. *Stalix toyoshio* Shinohara from the South Sea, Korea, KORDI P060001, juvenile, 24.0 mm standard length.

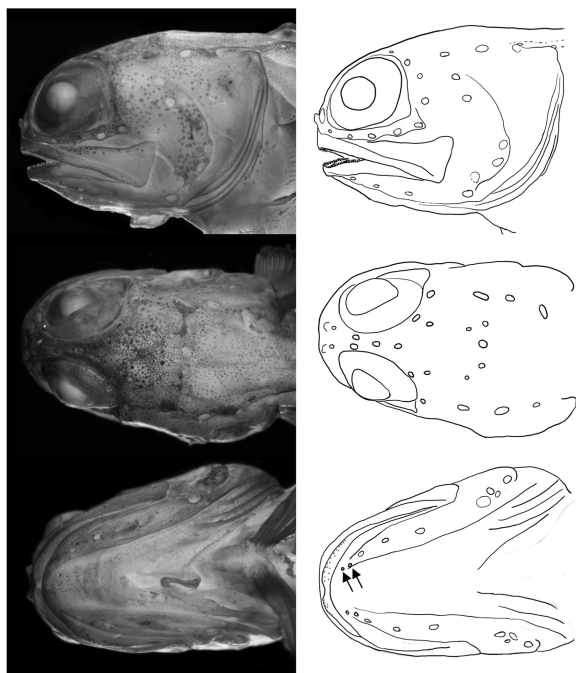


Fig. 2. Lateral (top), dorsal (middle), and ventral (bottom) views of cephalic sensory pores in *Stalix toyoshio* (KORDI P060001). Arrows indicate first and second mandibular pores.

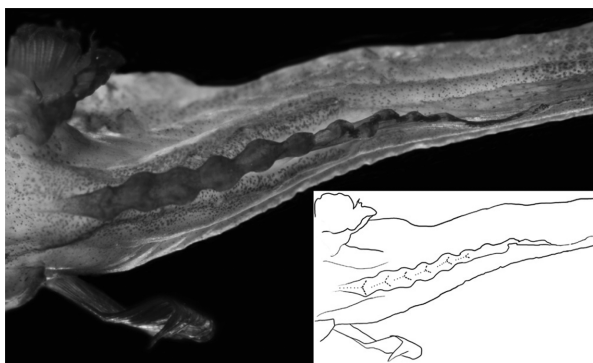


Fig. 3. Dorsal view of *Stalix toyoshio* (KORDI P060001) showing skin hood covering spinous dorsal rays. "V" marks in the white box represent transversely-forked dorsal spine.

Table 1. Comparison of counts and proportional measurements of *Stalix toyoshio*

	Present study	Shinohara (1999)
Standard length (SL) mm	24.0 (n = 1)	41.5-43.2 (n = 3)
Dorsal fin rays	XI, 10	XI, 11
Anal fin rays	II, 10	II, 11
Pectoral fin rays	23	23-24
Pelvic fin rays	I, 5	I, 5
Principal caudal fin rays	3+3 (procurrent) 8+8 (segmented) including 6+6 (branched)	3+3 (procurrent) 8+8 (segmented) including 6+6 (branched)
Vertebrae	26	11+15
% SL		
Predorsal length	33.3	31.3-32.5
Preanal length	62.1	60.9-61.8
Basal length of dorsal fin	61.4	63.9-67.8
Basal length of anal fin	25.9	26.2-28.2
Body depth	19.7	18.3-19.7
Caudal peduncle length	11.0	12.5-13.0
Caudal peduncle depth	11.4	10.7-11.3
Head length	32.5	31.2-31.9
Postorbital head length	20.2	19.2-19.9
Orbital diameter	10.1	9.6-10.2
Upper jaw length	17.8	17.4-18.0
Upper jaw width	6.1	5.6-6.5
Postorbital jaw length	6.0	5.8-6.4

Nostril a single tube. Upper jaw extending far past posterior margin of eyes. Teeth arranged in three rows, outer row larger than inner row. Dorsal fin base long and its fin ray becoming longer posteriorly. Dorsal fin spines covered with a skin hood and anterior six spines transversely forked. Pelvic fins located anterior to pectoral fins. Caudal fin round. Lateral line incomplete, terminated below a vertical from first segmented dorsal fin ray (=12th dorsal fin element). Lateral line pores sparse, positioned very close to lateral line canal. Cephalic sensory pores well developed. First two mandibular pores separated from each other. Scales absent on head, nape, pectoral fin base, breast, and narrow area above lateral line (Figs. 1-3).

Color when fresh. – Head yellowish and orange. Body light brownish. Fins, except for pectoral, yellowish, distally transparent, and their edges pigmented. Pectoral fin transparent, its base yellowish dotted. Dorsal and pelvic fins pigmented near lateral margin of each fin ray base. Brown dots scattered on head and body: thicker around eyes, upper and lower lips, anterior gular region, top of head, cheek, and body (Fig. 1).

Color in alcohol. – Brown dots clearly remain.

Distribution. Known from the Tanegashima Straits,

Kyushu, Japan (Shinohara 1999; Aizawa 2002) and South Sea, Korea (present study).

Ecological notes. This specimen was collected on the sandy substrate by a box corer. Water temperature of the bottom at capture was 15.1°C.

Remarks. We identified the present specimen collected from the South Sea, Korea, as a *Stalix* species based on the presence of six transversely-forked dorsal spines (Smith-Vaniz 1989; Shinohara 1999). Furthermore, of the four *Stalix* species that have been reported from the northwestern Pacific, the diagnostic characters of this specimen corresponded most closely with traits of *S. toyoshio* (Table 1). However, the present specimen exhibits somewhat different characteristics compared to adult *S. toyoshio*: yellowish vertical fins and head, stripe absent from body and fins, brown dots on dorsum of head, separation between the first and second mandibular pores (Fig. 2), smaller numbers of dorsal and anal soft fin rays, and some measurement differences. The condition of the anterior of the two mandibular pores is a diagnostic character that distinguishes *S. toyoshio* (anterior mandibular pore not separated; Fig. 3; Shinohara 1999) from its most similar species, *S. flavida* (anterior mandibular pore separated Smith-Vaniz 1989). Judging from the size of the present specimen, the differences between it and adult *S. toyoshio* appear to originate from variation due to developmental stage or dehydration during fixation and preservation. Although the condition of the mandibular pores should be verified using additional specimens, we identified the present specimen as a juvenile *S. toyoshio* based on the presence of transversely-forked dorsal spines (Fig. 3).

Although *S. toyoshio* is most similar to *S. flavida* (distributed only in western Australian waters), the former

is easily distinguished from the latter by the transverse fork in the sixth dorsal spine (vs. no transversely-forked spines in *S. flavida*), no separation between the first and second mandibular pores (vs. separation between pores), and no pigmentation in the anterior gular region (vs. pigmented; Smith-Vaniz 1989; Shinohara 1999).

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