

A New Species of the Fish Genus *Idiastion* (Pisces: Scorpaenidae) from the Kyushu-Palau Ridge, Western Pacific

Minoru Ishida¹ and Kunio Amaoka²

¹Pacific Coast Research Division, Nansei National Fisheries Research Institute,
1-21 Sanbashidori 6 chome, Kochi-shi, Kochi 780, Japan

²Faculty of Fisheries, Hokkaido University, 1-1 Minatocho 3 chome,
Hakodate-shi, Hokkaido 041, Japan

Abstract *Idiastion pacificum* is described as a new, and second, species of the genus *Idiastion*. This species is the first of the genus from the Indo-Pacific region. It is characterized by having 25 rather than 24 vertebrae, branched pectoral rays, humpbacked body outline, no occipital pit, a small slit behind the fourth gill arch, a swimbladder, teeth on the palatines and well developed spines on head. It is distinguished from *I. kyphos* Eschmeyer recorded from Atlantic by having ctenoid scales on nape and maxilla, and cycloid scales on isthmus, breast, anterior part of belly and membranes of anal, lower part of pectoral and pelvic fins.

Eschmeyer (1965) described *Idiastion kyphos* as a new genus and new species of the subfamily Scorpaeninae, on the basis of one specimen collected from deep water in the southeastern Caribbean Sea between Venezuela and Grenada (11°40'N, 62°33'W, 585–622 m), in having 25 rather than 24 vertebrae, branched pectoral rays, humpbacked body outline, no occipital pit, a small slit behind the fourth gill arch, teeth on the palatines and well developed spines on head. Eschmeyer (1969) and Anderson et al. (1975) reported additional specimens from off Venezuela, off northeastern Florida and off Angola. Only seven specimens of the genus have been reported.

Another specimen of *Idiastion*, that clearly differs from the Atlantic species, in having ctenoid scales on nape and maxilla, and cycloid scales on isthmus, breast, anterior part of belly and membrane of anal, lower part of pectoral and pelvic fins, was found during the examination of the fish collection of the Department of Biology, Faculty of Science, Kochi University (BSKU). It had been collected at 355–375 m deep from the Kyushu-Palau Ridge, western Pacific by bottom trawl net. On the basis of this specimen, *Idiastion pacificum* is described as a new, second species of *Idiastion*.

Methods follow those of Eschmeyer (1969). The last fin ray in the dorsal and anal fins is double, borne on a single pterygiophore, and counted as one. Terminology of infraorbital bones is as Table 1.

Genus *Idiastion* Eschmeyer, 1965
(New Japanese name: Kakure-kasago-zoku)

Idiastion Eschmeyer, 1965: 530 (type species *Idiastion kyphos* Eschmeyer, 1965).

Diagnosis. Body deep, humpbacked and moderately compressed; dorsal rays XII, 8–9; anal rays III, 5; pectoral rays 17–19, some rays branched; villiform teeth on jaws, prevomer, palatine and pharyngeal bones; swimbladder present; peritoneum pale; vertebrae 25; ctenoid scales on interorbital region, infra-orbitals, cheek and opercle; spines on head strong; no occipital pit; a small slit behind the fourth gill arch.

Remarks. This genus is similar to *Phenacoscorpius* by having 25 vertebrae, humpbacked body outline and branched pectoral rays, but species of that genus have an incomplete lateral line, with only first four to ten scales present. *Idiastion* is clearly distinguished from other genera of the subfamily Scorpaeninae in having 25 rather than 24 vertebrae.

Idiastion pacificum sp. nov.
(New Japanese name: Kakure-kasago)
(Figs. 1–2)

Scorpaeninae sp. Kanayama, 1982: 275, 394, color fig. on p. 274 (upper), (Kyushu-Palau Ridge, 355–375 m).

Holotype. BSKU 31153, 128.4 mm SL, Kyushu-Palau Ridge, (26°11.5'N, 135°45.4'E–26°04.7'N, 135°50.4'E),

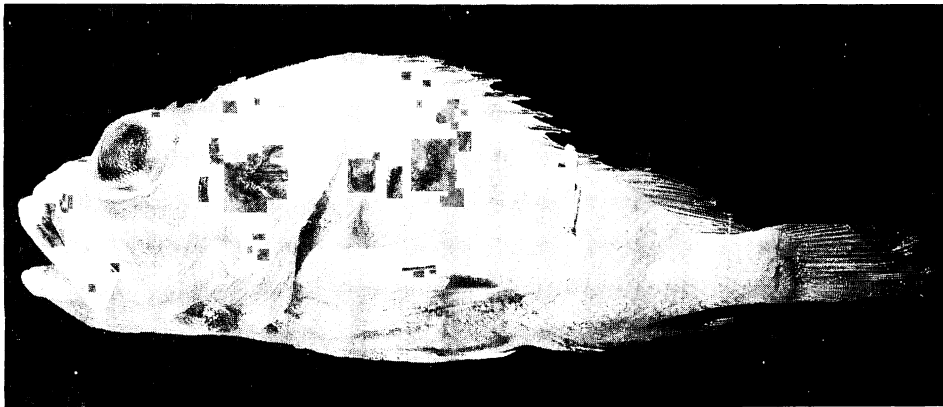


Fig. 1. *Idiastrion pacificum* sp. nov., holotype, BSKU 31153, 128.4 mm SL.

355–375 m, collected together with Kanayama's specimen of *Scorpaeninae* sp. by research vessel Shinei-maru No. 53, otter trawl, 16 December 1979.

Diagnosis. A species of *Idiastrion* with ctenoid scales on nape and maxilla.

Description. Dorsal rays XII, 9; anal rays III, 5; pectoral rays 18 (the second through the seventh branched once on the right side, terminal half of the seventh through the twelfth on the left side missing distally); pelvic rays I, 5; branched caudal rays 7 + 5 = 12; gill rakers 5 + 12 = 17 (left), 6 + 12 = 18 (right); vertebrae 9 + 16 = 25; pored scales in lateral line ca. 26, some scales rubbed off.

Head length 61.6 mm (48.0% of SL), body depth 49.6 (38.6), snout length 14.5 (23.5% of HL), orbit diameter 20.3 (33.0), interorbital width 5.3 (8.6), postorbital length 28.5 (46.3), upper jaw length 29.8 (48.4), pre-dorsal-fin length 61.1 (99.2), pectoral fin length 40.4 (65.6), pelvic fin length 30.6 (49.7), pelvic spine length 16.6 (26.9), caudal fin length 28.1 (45.6), caudal peduncle depth 11.9 (19.3), first dorsal spine length 6.2 (10.1), second dorsal spine length 10.6 (17.2), third dorsal spine length 13.8 (22.4), fourth (longest) dorsal spine length 15.0

(24.4), penultimate dorsal spine length 7.1 (11.5), last dorsal spine length 12.9 (20.9), first anal spine length 8.7 (14.1), second anal spine length 17.8 (28.9), third anal spine length 15.8 (25.6).

Body deep, humpbacked and moderately compressed, its depth more than 1/2.6 of its length. Occipital pit absent. Mouth terminal, jaws equal, a small knob at symphysis, maxilla not reaching posterior margin of orbit, its length almost half of head length. Eye large and oval. Orbit diameter larger than snout length. Villiform teeth on jaws, prevomer, palatines and pharyngeal bones. Gill rakers short, increasing in size to angle. Pseudobranch present. A small slit present behind the fourth gill arch. Interorbital region deeply concave. Nasal, preocular, supraocular, postocular, tympanic, parietal, nuchal, lower posttemporal, supracleithral and cleithral spines sharp and strong, not multiply. Dermosphenotic with several small spines. Pterotic spine blunt. Lachrymal with two lobes over anterior half of maxilla, the posterior lobe forming a blunt spine directing downward and a little backward; a small spine in front of orbit. Third infraorbital gradually becoming wider posteriorly and firmly attached to the upper ridge of preopercle, forming a complete infraorbital stay. Infraorbital ridge with four (left side) and five (right side) spinous points. Preopercle with four spines; the uppermost strong and bearing an accessory spine on its lateral surface of base; the lowermost blunt and directing downward. Opercle with two flat but sharp spines, neither extending beyond its posterior margin. Margin of soft dorsal, anal and caudal fins rounded. Margin of pectoral fin wedge-shaped, ninth ray longest (right side); lower four unbranched rays a little fleshy.

Table 1. Terminology of orbital bones.

| Present study | Eschmeyer, 1969 | Matsubara, 1943 Eschmeyer, 1983 |
|------------------|-----------------|------------------------------------|
| lachrymal | lachrymal | preorbital |
| 2nd infraorbital | 1st suborbital | 1st suborbital |
| 3rd infraorbital | 2nd suborbital | 2nd suborbital |
| 4th infraorbital | 3rd suborbital | 3rd suborbital |
| 5th infraorbital | 4th suborbital | 4th suborbital |
| dermosphenotic | 5th suborbital | 5th suborbital |

Distal halves of the middle rays of the left pectoral fin missing. Pelvic fin reaching between anus and first anal spine. Posterior part of snout, interorbital region, occiput, nape, infraorbitals including lachrymal, cheek, maxilla, opercle, subopercle, posterior part of belly, basal membrane of spinous and soft dorsal fin, upper part of pectoral fin, basal part of caudal fin and side of body covered with ctenoid scales. Isthmus, breast, anterior part of belly and membrane of anal, lower part of pectoral and pelvic fins covered with cycloid scales. Anterior part of snout, premaxilla, mandible, interopercle and branchiostegals naked. Swimbladder present. A slender predorsal bone present.

Color in alcohol. Uniformly pale, without any markings. Peritoneum pale.

Remarks. *Idiastion pacificum* resembles *I. kyphos*, the only previously described species of the genus, in having 25 vertebrae, complete lateral line, a slit behind the fourth gill arch, humpbacked body outline, a swimbladder, teeth on the palatines, well developed head spines, 12 dorsal spines, nine dorsal soft-rays, three anal spines, five anal soft-rays and 18 pectoral rays, with some branched. Although phylogenetic studies have not been made on the worldwide basis for the subfamily Scorpaeninae, the present species appears to be congeneric with *Idiastion* by most characters as mentioned above. *I. pacificum* is distinguished from *I. kyphos* in having ctenoid scales on nape and maxilla, and cycloid scales on isthmus, breast, anterior part of belly and membrane of anal, lower part of pectoral and pelvic fins. The condition of the branching of pectoral rays is variable in *I. kyphos* (Anderson et al., 1975). Then it is not certain that once-branched pectoral rays are usual with *I. pacificum*, until more specimens of the species are available.

Scorpaeninae sp. of Kanayama (1982) collected concurrently may agree with *I. pacificum*, although we could not compare it directly because of the absence of the information on where the specimen is deposited. The coloration of that specimen in life is reported by him as "body reddish brown, with white blotches" and is shown in his figure.

With the record of *Idiastion pacificum*, all genera of the subfamily Scorpaeninae (*Hipposcorpaena*, *Hoplosebastes*, *Idiastion*, *Iracundus*, *Neomerinthe*, *Parascorpaena*, *Phenacoscorpius*, *Pogonoscorpius*, *Pontinus*, *Rhinopias*, *Scorpaena*, *Scorpaenopsis*, *Scorpaenodes*, *Sebastapistes*, *Taenianotus* and *Thysanichthys*) are represented in Indo-Pacific region.

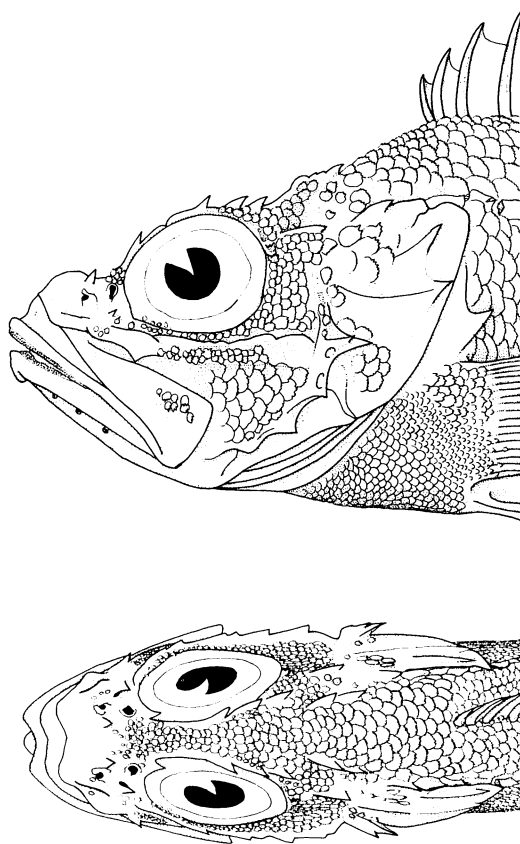


Fig. 2. Head of *Idiastion pacificum* sp. nov., holotype, BSKU 31153, 128.4 mm SL. Upper: lateral view; lower: dorsal view. Scale bar indicates 10 mm.

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Literature cited

- Anderson, W. D., Jr., J. F. McKinney and W. A. Roumillat. 1975. Review of the scorpaenid genus *Idiastion*. *Copeia*, 1975(4): 780-782.
- Eschmeyer, W. N. 1965. Three new scorpionfishes of the

- genera *Pontinus*, *Phenacoscorpius* and *Idiastion* from the western Atlantic Ocean. Bull. Mar. Sci., 15(3): 521-534.
- Eschmeyer, W. N. 1969. A systematic review of the scorpionfishes of the Atlantic Ocean (Pisces: Scorpaenidae). Occ. Pap. Calif. Acad. Sci., (79): 1-143.
- Eschmeyer, W. N. 1983. A new species of the fish genus *Pontinus* (Scorpaeniformes: Scorpaenidae) from off Natal, South Africa. Spec. Publ. J.L.B. Smith Inst. Ichthyol., (28): 1-4.
- Kanayama, T. 1982. Scorpaenidae. Pages 270-279, 392-397 in O. Okamura, K. Amaoka and F. Mitani, eds. Fishes of the Kyushu-Palau Ridge and Tosa Bay. Japan Fisheries Resource Conservation Association, Tokyo, 435 pp. (In Japanese and English.)
- Matsubara, K. 1943. Studies on the scorpaenoid fishes of Japan. Anatomy, phylogeny and taxonomy (I). Trans. Sigenkagaku Kenkyusyo, (1): 1-170.

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九州・パラオ海嶺から得られたカクレカサゴ属(新称)魚類の 1 新種

石田 実・尼岡邦夫

西太平洋の九州・パラオ海嶺の水深 355-375 m から 1 個体のフサカサゴ科魚類が採集された。本種は、脊椎骨が $9+16=25$ 個であること、側線が完全であることなどにより、大西洋から知られていたカクレカサゴ属に分類される。本属の唯一の既知種 *Idiastion kyphos* とは、項部及び主上顎骨が櫛鱗で覆われることにより区別できるので新種カクレカサゴ *I. pacificum* として記載した。本種は、カクレカサゴ属の太平洋初記録である。これによりフサカサゴ亜科の 16 属すべてが太平洋・インド洋海域に分布していることになる。

(石田: 780 高知市棧橋通 6 丁目 1-21 南西海区水産研究所外海調査研究部; 尼岡: 041 函館市港町 3 丁目 1-1 北海道大学水産学部水産動物学講座)