

A New Prickly Dogfish, *Oxynotus japonicus*, from Japan

Kazunari Yano and Makoto Murofushi

(Received May 1, 1984)

Abstract *Oxynotus japonicus* sp. nov. is described on the basis of a specimen collected by a bottom trawl at depths between 225 m and 270 m in Suruga Bay, Japan. It differs from other species of the genus in having the following combination of characters: spines of 1st and 2nd dorsal fins sloping slightly backward; length from tip of 1st dorsal spine to apex of 1st dorsal fin 2.6 times vertical height from tip of spine to fin base; length from tip of 2nd dorsal spine to apex of 2nd dorsal fin 1.9 times vertical height from tip of spine to fin base; and 2nd dorsal base 1.3 in interspace between 1st and 2nd dorsal fins.

The genus *Oxynotus* includes only four described species: *O. centrina* (Linnaeus, 1758), *O. paradoxus* Frade, 1929 and *O. caribbaeus* Cervigon, 1961 from the Atlantic Ocean; and *O. bruniensis* (Ogilby, 1893) from the South Pacific. A fifth species described here as *Oxynotus japonicus* sp. nov. is based only on the holotype trawled from Suruga Bay, Japan and then deposited in the fish collection of the Heda Village Museum.

Methods

Measurements follow Yano and Tanaka (1983). Dermal denticles were studied under a binocular microscope and photographed with a scanning electron microscope. Vertebral counts were made according to the method of Springer and Garrick (1964). Soft X-rays were used to make radiographs of the vertebrae and the dorsal spines.

Institution names are abbreviated as follows: HVM, Heda Village Museum; FSFL, Far Seas Fisheries Research Laboratory, Shimizu; TMFE, Elasmobranchii collection of the Department of Fisheries, Faculty of Marine Science and Technology, Tokai University.

Comparative materials

O. paradoxus: FSFL N707, male, 555 mm in total length (TL), 436 mm in precaudal length from snout tip to upper caudal origin (PL), 25°28.3'N, 16°04.5'W, 532 m depth, bottom trawl net (*Kaiyo Maru*), Jan. 7, 1972.

O. centrina: FSFL EG147, female, 545 mm TL, 438 mm PL, 25°31'N, 15°47'W, 180 m depth, bottom trawl net (No. 3 *Shinsei Maru*), Dec. 7, 1974; FSFL M232, female, 440 mm TL, 349 mm PL, 25°25'N, 15°58'W, 212 m depth, bottom trawl net (No. 3

Shinsei Maru), Dec. 8, 1974; FSFL ED325, male, 545 mm TL, 439 mm PL, 10°54'N, 17°04'W, 111 m depth, bottom trawl net (No. 3 *Shinsei Maru*), Jan. 6, 1975; FSFL EI716, male, 495 m TL, 405 mm PL, 4°42'N, 9°18'W, 142 mm depth, bottom trawl net, Jan. 15, 1975; FSFL L247, male, 522 mm TL, 413 mm PL, 9°30'S–6°40'S, 12°54'E–11°54'E, 34–200 m depth, bottom trawl net, July 27–Aug. 28, 1973.

O. bruniensis: FSFL ED053, female, 711 mm TL, 583 mm PL, 34°58.2'S, 151°06.7'E, 381 m depth, bottom trawl net (*Kaiyo Maru*), Dec. 31, 1975; FSFL B1797, male, 578 mm TL, 461 mm PL, 43°05.0'S, 174°55.5'E, 380–470 m depth, bottom trawl net, July 13, 1967; FSFL M219, female, 604 mm TL, 485 mm PL, off New Zealand, bottom trawl net, Sep. 22, 1974; TMFE 2795, male, 394 mm TL, 295 mm PL, 44°39'S, 172°53'E, 476–515 m depth, bottom trawl net, Mar. 8, 1983.

Oxynotus japonicus sp. nov.

(New Japanese name: Oroshi Zame)

(Fig. 1)

Holotype. HVM 00019, mature male, 540 mm TL, 435 mm PL, off Heda in Suruga Bay, 225–270 m in depth, bottom trawl net (*Fukutoku Maru*), Feb. 28, 1982.

Diagnosis. Length from snout tip to 1st dorsal fin spine 2.1 and to 2nd dorsal spine 1.2 in PL. Spiracle large, oval, its length 1.7 in horizontal diameter of eye. Spine of 1st dorsal fin sloping slightly backward. Length from tip of 1st dorsal spine to apex of 1st dorsal fin 2.6 times vertical height from tip of spine to fin base. Length from tip of 2nd dorsal spine to apex of 2nd dorsal fin 1.9 times vertical height from tip of spine to fin base. Second dorsal base 1.3 in interspace between 1st and 2nd dorsal fins.

Description. Proportional dimensions in per-

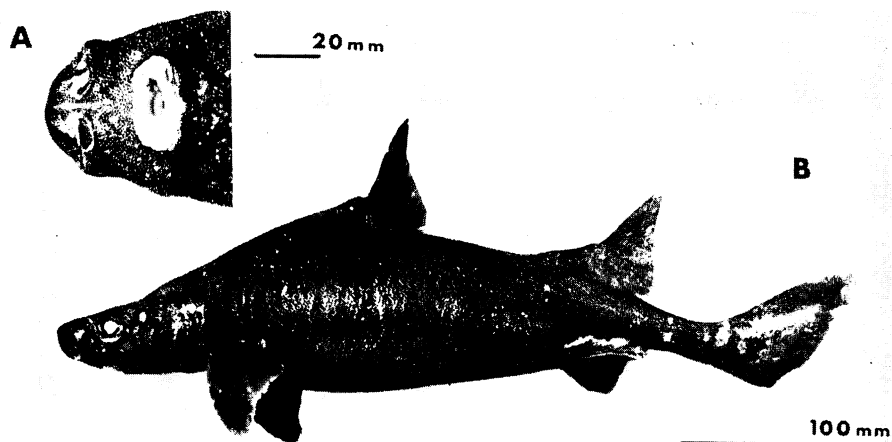


Fig. 1. Holotype of *Oxynotus japonicus* sp. nov., male, 540 mm TL, HVM 00019. A, ventral view of head region; B, lateral view.

centage of TL are shown in Table 1.

Head depressed anterior to spiracles; trunk compressed and very high. Strong ventrolateral ridge along each side of trunk between pectoral and pelvic fins. Dorsal fins large and high. Caudal peduncle without lateral keels or precaudal pits. Head measured to 5th gill opening 4.4 in PL. Length from snout tip to 1st dorsal fin spine 2.1 and to 2nd dorsal spine 1.2 in PL. Snout short, its length anterior to eye 4.0 in head length and 2.3 in interorbital width. Eye oval, horizontal diameter of eye about equal to snout length and 3.9 in head. Spiracle large, oval, its length 1.7 in horizontal diameter of eye and 2.7 in distance between inner corners of spiracles. Gill openings very small, vertical. Length of 1st gill opening 3.7, 3rd 4.3, 5th 5.2 in horizontal diameter of eye. Nostrils very large, close together, their maximum length 1.5 in preoral length. Interspace between nostrils narrow, 4.3 in preoral length. Lateral and medial nasal apertures round, separated from each other chiefly by the thick fleshy posterior nasal flap; medial apertures almost covered by the extensive, convex-margined anterior nasal flap which projects rearwards. Mouth small, almost transverse, with thick, fleshy lips with wrinkles. Preoral clefts long and deep, distance between inner ends of preoral clefts equal to interspace between nostrils. First dorsal fin subtriangular, large, very high, its height 3.2 times length of its base measured from origin of exposed spine.

Spine of 1st dorsal fin sloping slightly backward (Fig. 2). Length from tip of 1st dorsal spine to apex of 1st dorsal fin 2.6 times vertical height from tip of spine to fin base. Second dorsal fin similar in shape to 1st dorsal fin. Height of 2nd dorsal fin about same as length of its base and 2.2 times length of its base from origin of exposed spine. Spine of 2nd dorsal fin sloping slightly backward (Fig. 2). Length from tip of 2nd dorsal spine to apex of 2nd dorsal fin 1.9 times vertical height from tip of spine to fin base. Second dorsal base 1.3 in interspace between 1st and 2nd dorsal fins. Caudal deep and short; subterminal notch shallow, but distinct. Pectoral with convex anterior margin, concave posterior margin; length of base 2.8 in length of anterior margin. Length of pelvic fin base 1.1 in its depth. Clasper subcylindrical, hard, with spur and claw present, probably mature.

Teeth $\frac{13}{5-1-5}$, dissimilar in upper and lower jaws. Upper teeth narrow, erect, smooth edged. Lower teeth with only one row functional, broad, blade-like, smooth edged.

Dermal denticles large and widely separated, strong and erect so that skin is remarkably rough to the touch; they cover the whole of body except lips, margin of posterior nasal flaps, small area at axils of fins and inner margins of claspers. Each denticle of the trunk region with a high, tridentate, erect or nearly so, four-angled base. All three processes pointed, median process largest (Fig. 3).

Color uniformly dark brown, but lips, margin

Table 1. Proportional dimensions in percentage of total length of *Oxynotus japonicus* sp. nov., *O. paradoxus*, *O. centrina* and *O. bruniensis*.

Catalogue number	<i>O.</i>	<i>O.</i>	<i>O. centrina</i>					<i>O. bruniensis</i>			
	<i>japonicus</i>	<i>paradoxus</i>	FSFL	FSFL	FSFL	FSFL	FSFL	TMFE	FSFL	FSFL	FSFL
	Holotype	FSFL	FSFL	FSFL	FSFL	FSFL	FSFL				
	HVM 00019	N 707	M 232	EI 716	L 247	ED 325	EG 147	2795	B 1797	M 219	ED 053
Sex	male	male	female	male	male	male	female	male	male	female	female
Total length (mm)	540	555	440	495	522	545	545	394	578	604	711
Snout tip to:											
outer nostrils	1.67	1.80	1.59	1.01	1.34	2.39	1.47	1.78	2.08	1.49	1.97
eye	4.63	3.78	4.32	2.83	3.07	4.59	3.49	4.31	3.46	3.64	3.52
spiracle	9.44	9.01	9.77	8.28	7.85	10.09	8.81	7.87	9.00	8.77	8.72
mouth	5.56	5.77	5.00	4.24	4.60	4.95	5.14	5.08	4.50	4.14	5.49
1st gill opening	14.81	14.23	16.14	14.14	14.94	16.88	16.33	15.23	14.19	14.07	12.94
5th gill opening	18.52	18.38	20.68	19.19	19.35	19.63	18.90	18.02	17.47	17.88	16.60
pectoral origin	18.89	19.64	20.91	19.19	19.73	19.63	18.72	18.27	17.99	18.21	16.74
pelvic origin	60.19	60.36	61.14	62.13	62.07	63.30	64.22	57.11	64.01	62.75	65.12
cloaca	64.81	65.41	65.45	65.66	67.05	66.42	67.71	60.15	66.78	67.05	69.06
1st dorsal spine origin	37.96	29.19	28.41	30.91	28.54	28.44	29.91	37.06	34.60	36.42	37.97
2nd dorsal spine origin	67.41	65.23	65.23	69.90	61.88	65.13	65.69	59.64	65.22	62.09	67.51
upper caudal origin	80.56	78.56	79.32	81.82	79.12	80.55	80.37	74.87	79.76	80.30	82.00
lower caudal origin	75.93	75.68	76.59	77.58	77.01	77.98	79.08	71.07	76.47	77.81	78.06
Interspace between:											
1st dorsal and 2nd dorsal	16.67	24.14	20.45	20.20	17.62	19.27	19.27	9.14	13.32	10.76	14.63
2nd dorsal and caudal	10.56	11.35	10.23	12.12	9.96	9.17	10.64	10.15	10.21	10.26	9.14
pelvic and caudal	9.63	9.91	9.32	9.09	9.20	9.17	9.17	10.41	9.00	9.60	9.42
Nostrils: distance between											
inner corner	1.30	1.26	0.91	1.01	1.34	1.10	1.28	1.52	0.69	1.32	1.55
Mouth width	5.56	5.41	5.68	6.67	5.17	6.42	4.95	5.84	6.57	4.80	5.34
Gill opening length:											
1st	1.30	1.26	1.14	1.01	1.72	1.10	1.28	1.02	1.04	1.32	0.84
5th	0.93	1.08	1.36	2.02	1.34	1.47	1.10	1.02	0.69	1.16	0.84
Horizontal diameter of eye	4.81	4.50	4.32	5.05	4.60	4.59	4.04	4.06	4.33	4.30	4.36
Interorbital width	10.56	8.47	10.23	10.10	8.62	10.64	9.17	7.87	9.00	9.44	8.44
Spiracle: vertical diameter	2.78	2.16	3.41	2.83	2.87	2.94	2.57	1.52	1.90	1.99	1.69

Table 1. (Continued)

Catalogue number	<i>O.</i>	<i>O.</i>	<i>O. centrina</i>					<i>O. bruniensis</i>			
	<i>japonicus</i>	<i>paradoxus</i>	FSFL	FSFL	FSFL	FSFL	FSFL	TMFE	FSFL	FSFL	FSFL
	HVM 00019	N 707	M 232	EI 716	L 247	ED 325	EG 147	2795	B 1797	M 219	ED 053
First dorsal fin:											
length of base from spine	4.81	4.68	9.55	10.10	8.24	8.26	10.09	6.85	8.65	8.28	8.16
length from tip of spine to apex of fin	12.22	13.87	8.41	9.09	9.00	8.26	8.44	12.18	14.01	9.11	12.38
vertical height from tip of spine to base	4.63	5.41	10.68	9.29	10.54	10.09	9.54	9.64	10.38	9.27	9.85
height	15.19	16.22	15.91	14.14	14.18	14.68	13.39	19.04	19.03	16.23	18.28
Second dorsal fin:											
length of base	12.96	12.61	10.91	13.13	11.49	12.29	11.93	12.69	13.84	13.25	13.36
length of base from spine	6.11	4.86	5.68	6.46	4.41	5.50	4.95	5.84	7.79	6.95	6.33
length from tip of spine to apex of fin	9.63	10.27	5.19	6.46	6.13	6.42	6.24	10.66	10.38	8.28	8.02
vertical height from tip of spine to base	5.00	4.86	9.09	8.08	8.62	8.26	8.26	9.39	8.30	8.28	7.31
height	13.70	14.59	11.82	11.11	9.96	11.19	11.01	15.48	15.57	14.40	13.36
Pectoral fin:											
length of anterior margin	15.56	14.95	18.18	17.78	17.24	17.43	18.34	16.75	15.57	15.23	16.88
Pelvic fin:											
length of anterior margin	9.63	9.91	9.09	10.10	9.58	9.17	11.01	8.63	10.21	7.78	8.44
Caudal fin:											
length of upper lobe	20.37	21.98	21.82	20.20	21.07	21.28	21.10	26.65	23.36	21.52	21.80
length of lower lobe	13.89	12.61	15.00	12.12	11.49	13.76	14.13	15.23	14.71	13.25	14.06
Trunk at pectoral origin:											
width	15.74	14.41	15.91	16.97	14.37	15.05	16.15	13.96	15.92	14.90	16.17
height	15.17	14.41	17.05	18.18	14.94	18.35	18.35	15.23	19.81	19.81	18.28
Dental formula	13/5-1-5	13/5-1-5	11/4-1-4	10/4-1-4	11/4-1-4	10/4-1-4	9/4-1-4	14/5-1-5	13/5-1-5	12/5-1-5	13/5-1-5
Number of vertebrae:											
monospondyloous	46	50	50	49	46	46	47	43	42	45	—
precaudal	62	64	66	65	64	65	64	61	59	64	—
total	92	95	94	92	92	91	91	90	85	90	—

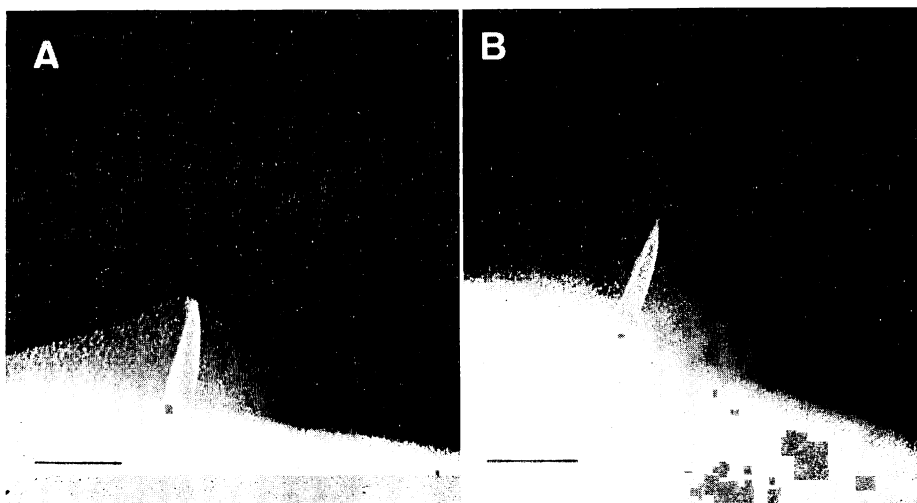


Fig. 2. X-ray photographs of 1st and 2nd dorsal fins of *Oxynotus japonicus* sp. nov. A, 1st dorsal fin; B, 2nd dorsal fin. Each scale indicates 20 mm.

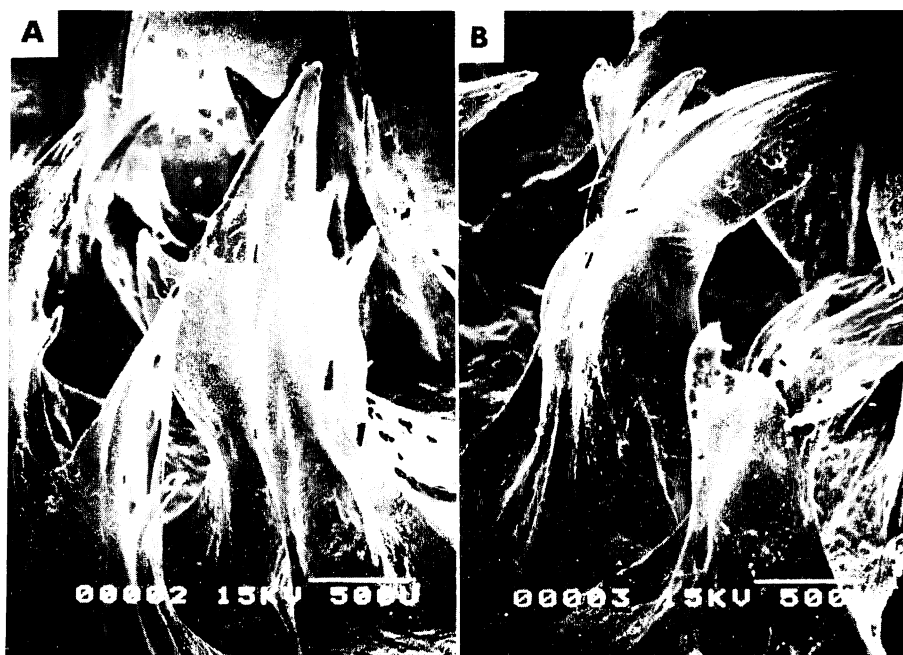


Fig. 3. Dermal denticles of trunk below 1st dorsal fin of *Oxynotus japonicus* sp. nov. A, anterior view; B, lateral view. Each scale indicates 500 μ m.

of posterior nasal flaps, small area at axils of fins and inner margins of claspers white.

Total vertebral number 92, monospondylous 46, and precaudal 62.

Remarks. The new species differs from other species of the genus by the following characters:

from the closely similar *O. paradoxus* in having 2nd dorsal base 1.3 in interspace between 1st and 2nd dorsal fins, length from snout tip to 1st dorsal fin spine 2.1 in PL (Table 2), spiracle oval shaped; from *O. centrina* in having spine of 1st dorsal fin sloping slightly backward, distance from snout

Table 2. List of the main characters which may be used to separate the five species of *Oxynotus*.
¹⁾taken from measurement or ²⁾illustration of Cervigon (1960).

	<i>O. japonicus</i> sp. nov.	<i>O. paradoxus</i>	<i>O. centrina</i>	<i>O. bruniensis</i>	<i>O. caribbaeus</i>
First dorsal fin spine	backward	backward	forward	forward	forward
Interspace between 1st and 2nd dorsal					
Length of 2nd dorsal base	1.3	1.9	1.5-1.8	0.7-1.1	1.6 ¹⁾
PL					
Length from shout tip to 1st dorsal spine	2.1	2.7	2.6-2.8	2.0-2.3	3.3 ²⁾
Length from tip of 1st dorsal spine to apex of 1st dorsal fin					
Height from tip of spine to fin base	2.6	2.5	0.8-1.0	1.0-1.8	1.2 ²⁾
Length from tip of 2nd dorsal spine to apex of 2nd dorsal fin					
Height from tip of spine to fin base	1.9	2.1	0.6-0.8	1.0-1.3	0.6 ²⁾

tip to 1st dorsal spine 2.1 in PL, length from tip of 1st dorsal spine to apex of 1st dorsal fin 2.6 times vertical height from tip of spine to fin base, length from tip of 2nd dorsal spine to apex of 2nd dorsal fin 1.9 times vertical height from tip of spine to fin base (Table 2), number of lower teeth 5-1-5 (Table 1); from *O. bruniensis* in having spine of 1st dorsal fin sloping slightly backward (Table 2), interspace between 1st and 2nd dorsal fins 6.0 in TL; from *O. caribbaeus* judging from a illustration of Cervigon (1961) in having spine of 1st dorsal fin sloping slightly backward, short interspace between 1st and 2nd dorsal fins, long length from tip of 2nd dorsal spine to apex of 2nd dorsal fin.

Only four species have been known in the genus *Oxynotus*; *O. centrina* from the eastern North Atlantic, Mediterranean, tropical east Atlantic, the west coast of South Africa (Garman, 1913; Barnard, 1949; Bigelow and Schroeder, 1957; Penrith, 1969; Maurin and Bonnet, 1970; Karrer, 1973; Cadenat and Blache, 1981), *O. paradoxus* from the eastern North Atlantic (Frade, 1929; Norman, 1932; Tucker and Palmer, 1949; Brandes *et al.* 1954; Krefft, 1955; Maurin and Bonnet, 1970; Cadenat and Blache, 1981), *O. caribbaeus* from the Caribbean Sea off Venezuela (Cervigon, 1961; Carpenter, 1966), and *O. bruniensis* from off New Zealand and Australia (McCulloch, 1914; Thomson, 1918; Phillipps, 1928; Bigelow and Schroeder, 1957; Garrick, 1960). Therefore, the

present new species is the fifth in the genus and is the first record of the genus from the North Pacific Ocean.

Key to species of *Oxynotus*

- 1a. Spine of 1st dorsal fin sloping slightly forward; length from tip of 2nd dorsal spine to apex of 2nd dorsal fin shorter than or about equal to height from tip of spine to fin base.....2
- 1b. Spine of 1st dorsal fin sloping slightly backward; length from tip of 2nd dorsal spine to apex of 2nd dorsal fin about 2 times height from tip of spine to fin base.....4
- 2a. Interspace between 1st and 2nd dorsal fins less than or about equal to length of 2nd dorsal fin base.....*O. bruniensis*
- 2b. Interspace between 1st and 2nd dorsal fins longer than length of 2nd dorsal fin base. .3
- 3a. Length from tip of 1st dorsal spine to apex of 1st dorsal fin longer than height from tip of spine to fin base.....*O. caribbaeus*
- 3b. Length from tip of 1st dorsal spine to apex of 1st dorsal fin shorter than or about equal to height from tip of spine to fin base
.....*O. centrina*
- 4a. Second dorsal base 1.6-2.0 in interspace between 1st and 2nd dorsal fins; spiracle almost circular.....*O. paradoxus*
- 4b. Second dorsal base 1.3 in interspace between 1st and 2nd dorsal fins; spiracle oval.....

.....*O. japonicus* sp. nov.

Acknowledgments

We wish to express our sincere thanks to Prof. T. Yasuhara, Mishima College of Humanities and Sciences, Nihon University, Mr. M. Sato and Ms. K. Suganuma, Heda Village Museum, for generously allowing us to examine the holotype kept in the museum, to Prof. J. A. F. Garrick, Department of Zoology, Victoria University of Wellington and Mr. S. Springer, University of Florida for their valuable advice and criticism of the manuscript, to Dr. H. Hatanaka, Far Seas Fisheries Research Laboratory, and Mr. M. Aizawa for materials, to Mr. Y. Fukuda, Department of Anatomy, Faculty of Medicine, University of Tokyo for taking photographs of the denticles, to Dr. S. Tanaka and Prof. T. Tamura, Faculty of Marine Science and Technology, Tokai University for their valuable advice and aid, to Dr. S. Branstetter, Department of Wildlife and Fisheries Sciences, Texas A & M University and Prof. E. Clark, Department of Zoology, University of Maryland for sending important literature, and to fishermen of *Fukutoku Maru* for collecting the holotype of the new species.

Literature cited

Barnard, K. H. 1949. Occurrence of the spiny dog-fish *Oxynotus centrina* in South African waters. *Nature*, 164 (4179): 970.
 Bigelow, H. B. and W. C. Schroeder. 1957. A study of the sharks of the suborder Squaloidea. *Bull. Mus. Comp. Zool. Harv.*, 117(1): 1-150, pls. 1-3.
 Brandes, C. H., A. Kotthaus and G. Krefft. 1954. Rare fishes from distant northern seas. *Ann. Biol.*, 11: 29-30.
 Cadenat, J. and J. Blache. 1981. Fauna tropicale. Requins de Méditerranée et d'Atlantique. Office de la Recherche Scientifique et Technique Outre-Mer, (21): 1-330.
 Carpenter, J. S. 1966. Capture of immature *Oxynotus caribbaeus* Cervigon from the type locality. *Copeia*, 1966 (2): 356-357.
 Cervigon, F. 1961. Una nueva especie de *Oxynotus* de las costas de Venezuela. *Noved. Cientif., Contr. Ocas. Mus. Hist. Nat. La Salle, Ser. Zool.*, 27: 1-10.
 Frade, F. 1929. Une nouvelle espèce ou une aberration individuelle de l'*Oxynotus centrina* (L.). *Bull. Soc. Portugaise Sci. Nat.*, 10(22): 236-267.
 Garman, S. 1913. The Plagiostomia. *Mem. Mus. Comp. Zool. Harv.*, 36: 1-515, pls. 1-75.

Garrick, J. A. F. 1960. Studies on New Zealand Elasmobranchii. Part XI. Squaloids of the genera *Deania*, *Etmopterus*, *Oxynotus* and *Dalatias* in New Zealand waters. *Trans. Roy. Soc. N.Z.*, 88: 489-517.
 Karrer, C. 1973. Über Fische aus dem Südostatlantik. *Mitt. Zool. Mus. Berlin*, 49: 191-257.
 Krefft, G. 1955. Ichthyologische Mitteilungen aus dem Institut für see-fischerei der Bundesforschungsanstalt für Fischerei IV. *Zool. Anz.*, 154: 157-164.
 McCulloch, A. R., 1914. Biological results of the fishing experiments carried on by the F.I.S. "Endeavour", 1909-14. Report on the fishes, part 2. Commonwealth of Australia Fisheries, 2(3): 77-165.
 Maurin, C. and M. Bonnet. 1970. Poissons des côtes Nord-Ouest Africaines. (Campagnes de la Thalassa 1962 et 1968). *Rev. Trav. Inst. Pêches Marit.*, 34(2): 125-170.
 Norman, J. R. 1932. Note on a shark, *Oxynotus paradoxus* Frade, new to the British Fauna. *Proc. Zool. Soc. Lond.*, 1932: 77-79.
 Penrith, M.J. 1969. New records of deep-water fishes from South West Africa. *Cimbebasea*, (a), 1(3): 59-75.
 Phillipps, W. J. 1928. Sharks of New Zealand: No. 2. *N. Z. J. Sci. Tech.*, 10(4): 221-226.
 Springer, V. G. and J. A. F. Garrick. 1964. A survey of vertebral numbers in sharks. *Proc. U.S. Natn. Mus.*, 116(3496): 73-96.
 Thomson, J. A., 1918. Records of new or rare fish from New Zealand waters. *N. Z. J. Sci. Tech.*, 1(1): 5-7.
 Tucker, D. W. and G. Palmer. 1949. New British records of two rare deep-sea fishes: *Oxynotus paradoxus* Frade and *Aphanopus carbo* Lowe. *Nature*, 164(4178): 930-931.
 Yano, K. and S. Tanaka. 1983. Portuguese shark, *Centroscymnus coelolepis* from Japan, with notes on *C. owstoni*. *Japan. J. Ichthyol.*, 30(3): 208-216.

(KY: Department of Fisheries, Faculty of Marine Science and Technology, Tokai University, 3-20-1, Orido, Shimizu 424 Japan; MM: Faculty of Mishima Junior College, Nihon University, Bunkyo-cno, Mishima 411, Japan)

駿河湾から得られたツノザメ類の1新種 *Oxynotus japonicus*

矢野和成・室伏 誠

駿河湾, 戸田沖の水深 225 m から 270 m の間で行われた底曳網により得られた 1 新種オロシザメ *Oxynotus japonicus* を記載した。本種は第 1 と第 2 背鰭の棘が僅かに後方に傾いていること, 第 1 と第 2 背鰭の先端から棘までの前縁部の長さが棘先端から背鰭基底までの垂直

高よりも非常に長いこと、第1背鰭と第2背鰭の間の長さが第2背鰭の基底長の1.3倍であること等により同属の他種と明瞭に区別された。さらに本属は太平洋の北半球からの初記録となった。

(矢野: 424 清水市折戸 3-20-1 東海大学海洋学部水産学
科; 室伏: 411 三島市文教町 2 日本大学短期大学部
(三島))