

Preliminary Faunistic Survey of Ophiuroids in the Westernmost Part of the Sea of Japan

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Abstract Thirteen species of ophiuroids belonging to 6 families and 11 genera were collected at depths of 43-133 m in the westernmost part of the Sea of Japan in November 1999 and July 2000. The following 5 species, were the first record from the sea: *Ophiophrissus acanthius* H. L. CLARK, 1911, *Ophiocentrus koehleri* GISLÉN, 1926, *Amphiura* (A.) *leptobrachia* MURAKAMI, 1942, *Amphiophiura pomphophora* (H. L. CLARK, 1911), and *Ophiomusium scalare* LYMAN, 1878. The zoogeography of ophiuroids occurring in the Sea of Japan is also discussed.

Key words: echinoderm, ophiuroid, taxonomy, the Sea of Japan, zoogeography.

INTRODUCTION

Ninety-one species of ophiuroids belonging to 12 families and 32 genera have hitherto been recorded from the Sea of Japan (DJAKONOV, 1954; IRIMURA, 1979; SHIN, 1992, 1995, 1996; SHIN and KOH, 1993; KOGURE and HAYASHI, 1998; KOGURE, 1999). During research cruises by TRV Toyoshio-maru in 1999 and 2000, a total of 673 individuals of ophiuroids was collected from 14 stations set on the continental shelf of the westernmost part of the Sea of Japan. These are assigned to 6 families, 11 genera and 13 species, including the new record from the sea. The present paper briefly deals with the taxonomy, distribution and zoogeography of these ophiuroids.

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MATERIALS AND METHODS

Ophiuroids were collected from 14 stations in the westernmost part of the Sea of Japan with a dredge (mouth area: 500 mm wide, 150 mm high; mesh size: 5 mm) and a sledge-net (mouth area: 1450 mm wide, 326 mm high; mesh size of last part: 0.33 mm) deployed by TRV Toyoshio-maru (320t) (Fig. 1; Table 1), during November 17-18, 1999 and July 13-14, 2000. These gears were towed along the bottom at a speed of 2 knot for five minutes.

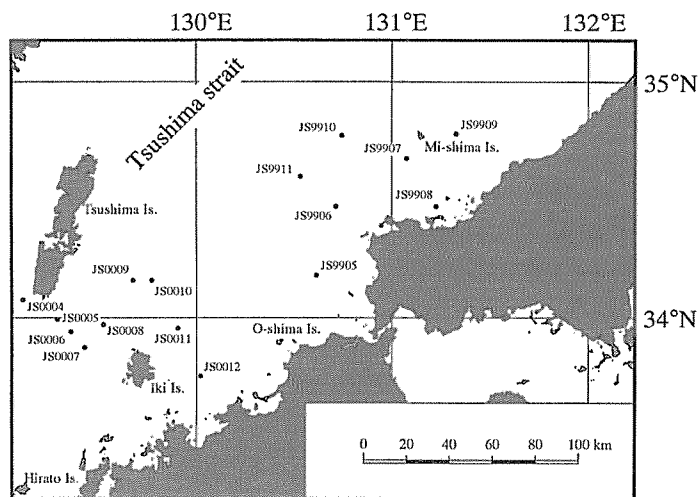


Fig. 1. Locality of ophiuroids

Table 1. Locality of ophiuroids

Locality No.	Locality	Date	Depth(m)	Gear (dredge or sledge-net)	
JS9906	North-West of Kaku-shima	34°28.50' N, 130°42.80' E	1999/11/17	105	dredge
JS9907	South-West of Mi-zima	34°40.80' N, 131°04.60' E	1999/11/17	98	dredge
JS9908	West off Senzaki	34°28.50' N, 131°13.80' E	1999/11/18	61	dredge, sledge-net
JS9909	East of Mizima	34°47.00' N, 131°20.00' E	1999/11/18	99	dredge, sledge-net
JS9910	North of Kaku-shima	34°46.50' N, 130°45.00' E	1999/11/18	116	dredge, sledge-net
JS9911	North-West of Kaku-shima	34°36.20' N, 130°31.80' E	1999/11/18	127	dredge, sledge-net
JS0004	South of Toto	34°04.26' N, 129°06.31' E	2000/7/13	122	dredge
JS0005	South of Izuhara Harbor	33°59.27' N, 129°17.03' E	2000/7/13	109	dredge
JS0006	South of Izuhara Harbor	33°56.21' N, 129°21.19' E	2000/7/13	133	dredge
JS0008	North-West of Iki Isl.	33°58.14' N, 129°31.36' E	2000/7/13	101	dredge
JS0009	North of Iki Isl.	34°09.40' N, 129°40.42' E	2000/7/13	116	dredge
JS0010	North of Iki Isl.	34°09.27' N, 129°46.24' E	2000/7/13	105	dredge
JS0011	North-West of Iki Isl.	33°57.23' N, 129°54.24' E	2000/7/14	86	dredge
JS0012	North of Karatsu	33°45.00' N, 130°01.18' E	2000/7/14	43	dredge

RESULTS

A total of 673 individuals of ophiuroids collected during the cruises were assigned to six families, 11 genera and 13 species (Table 2). Among these the following five species are the first record from the Sea of Japan: *Ophiophrixus acanthius* H. L. CLARK, 1911, *Ophiocentrus koehleri* GISLÉN, 1926, *Amphiura* (A.) *leptobrachia* MURAKAMI, 1942, *Amphiophiura pomphophora* (H. L. CLARK, 1911) and *Ophiomusium scalare* LYMAN, 1878. The most abundant species were *Ophiura kinbergi* (LJUNGMAN, 1866) (10 stations, 539 inds.), followed by *Stegophiura sladeni* (DUNCAN, 1879) (6 stations, 84 inds.). The taxonomic and distributional notes are remarked, involving a few references with a good description.

Table 2. List of ophiuroids (Locality numbers correspond to Fig 1 and Table 1.)

Species	Locality number (Number of specimens)	Depth (m)
Family Ophiomyxidae		
<i>Ophiophrixus acanthius</i> H. L. CLARK, 1911	JS9911 (24)	127
Family Amphiuridae		
<i>Amphiura</i> (<i>Amphiura</i>) <i>koreae</i> DUNCAN, 1879	JS9909 (1), JS9910 (1)	99-116
<i>Amphiura</i> (<i>Amphiura</i>) <i>leptobrachia</i> MURAKAMI, 1942	JS0006 (1), JS0008 (3)	101
<i>Ophiocentrus koehleri</i> GISLÉN, 1926	JS9910 (1), JS9911 (1), JS0005 (1), JS0011 (1)	86-127
Family Ophiotrichidae		
<i>Ophiotrix</i> (<i>Ophiotrix</i>) <i>panchyendyta</i> H. L. CLARK, 1911	JS0004 (1)	122
Family Ophiidermatidae		
<i>Ophiopsamus anchista</i> (H. L. CLARK, 1911)	JS0004 (5)	122
Family Ophionereididae		
<i>Ophionereis dubia</i> (MÜLLER & TROSCHEL, 1842)	JS0006 (1), JS0009 (1)	116-133
Family Ophiuridae (Subfam. Ophiurinae)		
<i>Ophiura kinbergi</i> (LJUNGMAN, 1866)	JS9907 (2), JS9909 (1), JS9910 (1), JS9911 (455), JS0004 (19), JS0006(9), JS0009 (5), JS0011 (23), JS0012 (23)	43-133
<i>Ophiochalsis aspera</i> KOEHLER, 1931	JS9910 (1)	116
<i>Amphiophiura pomphophora</i> (H. L. CLARK, 1911)	JS0004 (1)	122
<i>Stegophiura sladeni</i> (DUNCAN, 1879)	JS9906 (2), JS9908 (4), JS9909 (7), JS9910 (5), JS9911 (55), JS0011 (11)	61-127
<i>Stegophiura vivipara</i> MATSUMOTO, 1915	JS9907 (1), JS0004 (2), JS0006 (1)	98-133
Family Ophiuridae (Subfam. Ophiolepidinae)		
<i>Ophiomusium scalare</i> LYMAN, 1878	JS9911 (2)	127

TAXONOMY AND DISTRIBUTION

Family Ophiomyxidae LJUNGMAN, 1866

***Ophiophrixus acanthius* H. L. CLARK, 1911**

[Japanese name; Atsu-kawa-kumohitode]

(Plate 1A)

Ophiophrixus acanthius H. L. CLARK, 1911: 273-274, fig. 137.

Locality: JS9911 (24 specimens).

Remarks: Disc diameter: minimum, 2.4mm, Maximum, 4.6mm.

Distribution: Sagami Bay to Amakusa, Kyusyu (IRIMURA, 1990; IRIMURA *et al.*, 1995). New record from the Sea of Japan (present study).

Family Amphiuroidae LJUNGMAN, 1867

***Ophiocentrus koehleri* GISLÉN, 1926**

[Japanese name: Igaguri-kumohitode]

(Plate 1B)

Ophiocentrus verticillatus: MATSUMOTO, 1917: 213, fig. 59.

Locality: JS9910 (1 specimen), JS9911 (1 specimen), JS0005 (1 specimen), JS0011 (1 specimen).

Remarks: Disc diameter: 3.5 mm (JS9910), 10.1 mm (JS9911), 3.7 mm (JS0005), 8.0 mm (JS0011).

Distribution: Indo-West Pacific: in Japan, Sagami Bay to Amakusa, Kyushu (IRIMURA, 1991b). New record from the Sea of Japan (present study).

***Amphiura (Amphiura) koreae* DUNCAN, 1879**

[Japanese name: Chosen-kumohitode]

Amphiura (Amphiura) koreae: MATSUMOTO, 1917: 198-199, fig. 53; IRIMURA, 1991: 140-141, pls. A-E, fig. F.

Locality: JS9909 (1 specimen), JS9910 (1 specimen).

Distribution: Off Sanriku to Kyushu on the coast of the Pacific Ocean, Toyama Bay to the Yellow Sea; the Sea of Japan (IRIMURA, 1991a; present study).

***Amphiura (Amphiura) leptobrachia* MURAKAMI, 1942**

[Japanese name: Tsutsu-toge-kumohitode]

(Plate 1C)

Amphiura leptobrachia MURAKAMI, 1942: 29, fig. 4.

Locality: JS0006 (1 specimen), JS0008 (3 specimens).

Remarks: The range of the disc diameter: 4.0mm (JS0006), 3.0–3.5mm (JS0008). The first and second scales are round and larger than other scales. This species is closely related to *Amphiura (A.) macraspis* MURAKAMI, 1942, but is distinguished from it by the slender radial shields and the smaller oral shields. The only single specimen from JS0006 can be assigned to *Amphiura (A.) leptobrachia* MURAKAMI on the basis of the following features, although the aboral side of the disc is mostly damaged: the oral side is covered by fine scales; the radial shields are less than half the disc radius, separated from each other, crescentic, twice as long as wide.

Distribution: Sagami Sea, (IRIMURA, 1991b). New record from the Sea of Japan (present study).

Family Ophiotrichidae LJUNGMAN, 1867

***Ophiotrix (Ophiotrix) panchyendyta* H. L. CLARK, 1911**

[Japanese name; Toge-kumohitode]

(Plate 1D)

Ophiotrix panchyendyta H. L. CLARK, 1911: 264-265, fig. 131; IRIMURA, 1982: 47-52, fig. 29, pl. 2,

fig. 5, pl. 7, figs. 5-6, pl. 9, figs. 1-5, pl. 10, fig. 4.

Locality: JS0004 (1 specimen).

Distribution: Off Hokkaido to Kagoshima Bay, Korea Strait, the East China Sea, the Sea of Japan (IRIMURA, 1990; present study).

Family Ophiidermatidae LJUNGMAN, 1867

***Ophiopsamus anchista* (H. L. CLARK, 1911)**

[Japanese name: Me-nashi-kumohitode]

(Plate 1E)

Pectinura anchista H. L. CLARK, 1911: 23-25, fig. 1; IRIMURA, 1982: 64-65, fig. 39.

Locality: JS0004 (5 specimens).

Distribution: Indo-West Pacific: in Japan, the Sea of Japan, Sagami Bay (IRIMURA, 1991b; present study).

Family Ophionereididae LJUNGMAN, 1867

***Ophionereis dubia* (MÜLLER & TROSCHEL, 1842)**

[Japanese name: Amime-kumohitode]

(Plate 1F)

Ophionereis dubia: IRIMURA, 1982: 71-72, fig. 43, Pl. 2 Fig. 6, Pl. 8 fig. 1.

Locality: JS0006 (1 specimen), JS0009 (1 specimen).

Remarks: In the present specimens, its peculiar color reticulation was not clearly recognized, but these are distinguishable from a related species *Ophionereis semoni* (DÖDERLEIN, 1896) by the presence of scales on the aboral side of the disc.

Distribution: Indo-West Pacific: in Japan, the Sea of Japan, Boso Peninsula (IRIMURA, 1991b; IRIMURA *et al.*, 1995; present study).

Family Ophiuridae LYMAN, 1865

Subfamilies Ophiurinae LYMAN, 1865

***Ophiura kinbergi* (LJUNGMAN, 1866)**

[Japanese name: Kushi-no-ha-kumohitode]

(Plate 1G)

Ophiura kinbergi: IRIMURA, 1982: 89-90, fig. 55, pl. 14 fig. 3; IRIMURA, 1990: 96.

Locality: JS9907 (2 specimens), JS9909 (1 specimen), JS9910 (1 specimen), JS9911 (455 specimens), JS0004 (19 specimens), JS0006 (9 specimens), JS0009 (5 specimens), JS0011 (23 specimens), JS0012 (23 specimens).

Distribution: Indo-West Pacific: in Japan, Mutsu Bay, the Sea of Japan, Honshu (IRIMURA, 1990; present study).

***Ophiochalsis aspera* KOEHLER, 1931**

Ophiochalsis aspera KOEHLER, 1931: 267-269, pl. 13 figs. 9-10.

Locality: JS9910 (1 specimen).

Distribution: Toyama Bay, Sagami Bay, Suruga Bay, Tosa Bay, the Sea of Japan, Ambon (Indonesia) (IRIMURA, 1991b; present study).

***Amphiophiura pomphophora* (H. L. CLARK, 1911)**

Ophiura pomphophora H. L. CLARK, 1911: 89-91, fig. 29-30.

Locality: JS0004 (1 specimen).

Remarks: Disc diameter: 10.5mm. The present specimen is slightly different from the original description of *Amphiophiura pomphophora* by CLARK (1911) as follows. In the present specimen, the ventral arm plates are contacted with each other except at the tip of the arm, whereas in the original description, those are contacted with each other proximally and the following ones are separated from each other or slightly contacted with each other. The second to fourth ventral arm plates in the present specimen are widely rectangular and ca. three times as wide as long. In the original description, however, the second and third ones are square, outwardly curved on the aboral side, and narrower in width than in the present specimen. Arm spines of the present specimen are wide at the proximal arm segments; about as long as corresponding proximal arm segments, half as long as mid arm segments, one-third as long as corresponding apical arm segments. In CLARK (1911), arm spines are cylindrical, half to one-third as long as the corresponding arm segments.

Distribution: The East China Sea, off Suzaki (Sagami-Nada) (CLARK, 1911). New record from the Sea of Japan (present study).

***Stegophiura sladeni* (DUNCAN, 1879)**

[Japanese name: Aka-hako-kumohitode]

(Plate 1H)

Stegophiura sladeni: IRIMURA, 1982: 84-85, fig. 52, Pl. 15 figs. 34; IRIMURA, 1990: 99.

Locality: JS9906 (2 specimens), JS9908 (4 specimens), JS9909 (7 specimens), JS9910 (5 specimens), JS9911 (55 specimens), JS0011 (11 specimens).

Distribution: The Sea of Japan, the Yellow Sea, the East China Sea (IRIMURA, 1990; IRIMURA, 1991b; present study).

***Stegophiura vivipara* MATSUMOTO, 1915**

[Japanese name: Ko-mochi-kumohitode]

(Plate 1I)

Stegophiura vivipara: IRIMURA, 1982: 86-87, fig. 53, Pl. 15 figs. 12.

Locality: JS9907 (1 specimen); JS0004 (2 specimens), JS0006 (1 specimen).

Distribution: The East China Sea, Toyama Bay, Choshi (IRIMURA, 1991b; present study).

Subfamily Ophiolepidinae MATSUMOTO, 1915

***Ophiomusium scalare* LYMAN, 1878**

[Japanese name: Taira-ishigaki-kumohitode]

(Plate 1J)

Ophiomusium scalare: MATSUMOTO, 1917: 286, fig. 77; IRIMURA, 1990: 93.

Locality: JS9911 (2 specimens).

Remarks: Disc diameter: 11.2mm, 12.5mm.

Distribution: Indo-West Pacific: in Japan, Uruga Strait, off Kagoshima (IRIMURA, 1991b). New

record from the Sea of Japan (present study).

DISCUSSION

Table 3 depicts the distribution and depth range of 91 species of ophiuroids collected from the Sea of Japan in the previous and present studies. Their distributional patterns are assignable to five basic types: (1) cosmopolitan (2 spp.); (2) North Pacific element, including circum-boreal regions (26 spp.); (3) Indo-West Pacific element (28 spp.); (4) East Asia endemic element (22 spp.); (5) Endemic to Japan and its neighbouring waters (12 spp.). The distributional pattern of one species is unknown.

Among 13 species collected, 6 species are assigned to the Indo-West Pacific element: *Ophiocentrus koehleri*, *Ophionereis dubia*, *Ophiopsamus anchista*, *Ophiura kinbergi*, *Ophiomusium scalare* and *Ophiochalsis aspera*. Species endemic to East Asia and Japan are *Amphiura* (A.) *koreae*, *Ophiothrix* (*Ophiothrix*) *panchendyta*, *Stegophiura sladeni* and *S. vivipara*, and *Ophiophrixus acanthius*, *Amphiura* (A.) *leptobrachia* and *Amphiophiura pomphophora*, respectively (CLARK, 1991; IRIMURA, 1990, 1991b; IRIMURA *et al.*, 1995; present study). Generally *Ophiura sarsii* LÜTKEN, 1855, a representative of North Pacific element, is distributed at depths of >200 m in the southern part of the Sea of Japan (CLARK, 1911), but has so far been recorded also from depths of 30 to 60 m in the Korean waters (SHIN, 1996). However it is distinct that no species belonging to North Pacific element, including *O. sarsii*, were collected from 43 to 133 m depths of the westernmost part of the Sea of Japan during the present cruises. This is possibly due to a strong influence of the warm Tsushima Current in the westernmost part of the Sea of Japan.

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Table 3. List of ophiuroids from the Sea of Japan. 1, CLARK, 1911; 2, DIAKONOV, 1954; 3, IRIMURA, 1979; 4, IRIMURA, 1991a; 5, IRIMURA *et al.*, 1995; 6, KOGURE, 1999; 7, KOGURE & HAYASHI, 1998; 8, SHIN, 1992; 9, SHIN, 1995; 10, SHIN, 1996; 11, SHIN & KOH, 1993; 12, This paper. Main distribution in the Table is mainly based on IRIMURA, 1991b.

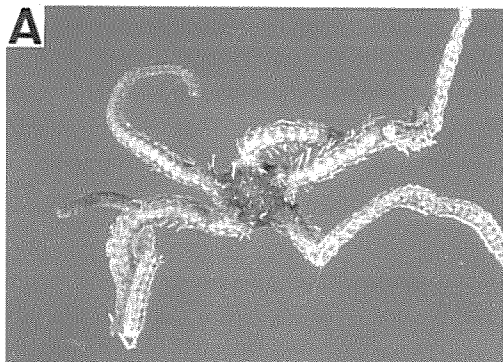
Species	Locality in the Sea of Japan	Main distribution	Depth (m)	Reference
Ophiomyxidae (Subfam. Ophiomyxinae)				
<i>Ophiomyxa australis</i> LUTKEN, 1869	South of Korea, Cheju Isl.	Indo-West Pacific area	20-540	8, 10
Ophiomyxidae (Subfam. Ophiomyxinae)				
<i>Ophiophiracrus acanthus</i> H. L. CLARK, 1911	Off Yamaguchi Prf.	Around Japan	127	12
Asteronychidae				
<i>Asteronyx loveni</i> MÜLLER & TROSCHEL, 1842	Shin-Yamato Bank	Cosmopolitan	1000	5
Euryalidae				
<i>Astroceras annulatum</i> MORTENSEN, 1933	South of Korea, Cheju Isl.	Indo-West Pacific area	40-50	8, 10
Gorgonocephalidae				
<i>Astroboa arctos</i> MATSUMOTO, 1915	South of Korea, Cheju Isl.	East Asia coast	9-25	10
<i>Astrocladus annulatus</i> (MATSUMOTO, 1912)	South and East of Korea	East Asia coast	50-60	10
<i>Astrocladus confertus confertus</i> (DODERLEIN, 1902)	South and East of Korea, Sado Strait	Indo-West Pacific area	0-880	2, 7, 8, 9, 10
<i>Astrocladus confertus doifei</i> DODERLEIN, 1910	South of Korea, Sado Isl.	Indo-West Pacific area	10-90	3, 9, 10
<i>Astrocladus confertus pardalis</i> (DODERLEIN, 1902)	South of Korea, Korea Strait	Indo-West Pacific area	0-200	1, 10
<i>Astrocladus tudwigi</i> (DODERLEIN, 1896)	South of Korea, Cheju Isl.	East Asia coast	20-140	8, 10
<i>Astrodendrum sugaminum</i> (DODERLEIN, 1902)	South of Korea-west of Hokkaido	Indo-West Pacific area	30-735	1, 10
<i>Gorgonocephalus dolichodactylus</i> DODERLEIN, 1911	South of Korea, Cheju Isl.	Indo-West Pacific area	60	8, 10
<i>Gorgonocephalus eucnemis</i> (DODERLEIN, 1902)	Korea Strait-off Sakhalin	Circum Boreal	73-783	1, 3, 5
<i>Gorgonocephalus tuberosus</i> DODERLEIN, 1902	South of Korea	East Asia coast	36-570	10
Ophiacanthidae				
<i>Ophiacantha adiaphora</i> H. L. CLARK, 1911	Off Sado-Tsugaru Strait	North Pacific area	93-1200	1, 2
<i>Ophiacantha bidentata</i> (REIZIUS, 1805)	East of Korea-west of Hokkaido	Arctic-North Pacific	10-4500	1, 2, 5
<i>Ophiacantha gracilis</i> (STUDER, 1882)	Off Korea. Near the east coast of the Sea of Japan	Indo-West Pacific area	ca. 100	2
<i>Ophiacantha levispina</i> LYMAN, 1878	South of Korea, Cheju Isl.-west of Hokkaido	Indo-West Pacific area	50-1700	1, 2, 8, 10
<i>Ophiacantha linea</i> SHIN & RHO, 1986	South of Korea, Cheju Isl.	East Asia coast	100	10
<i>Ophiacantha omoplata</i> H. L. CLARK, 1911	East of Korea-Sado Strait	Around Japan	260-432	2, 5, 7
<i>Ophiacantha pentagona</i> KOEHLER, 1897	Korea Strait	Around Japan	108	1
<i>Ophiacantha rhachophora</i> H. L. CLARK, 1911	Near Tsugaru Strait	East Asia coast	90-1000	1, 2
<i>Ophiophthalmus normani</i> (LYMAN, 1879)	Off Hokkaido	North Pacific area	400-560	5
<i>Ophiophthalmus tylota</i> (H. L. CLARK, 1911)	Near Tsugaru Strait	North Pacific area	164-379	1
<i>Ophiosommotes tylota tuberculata</i> DIAKONOV, 1954	Near Tsugaru Strait	North Pacific area	132-286	2
Ophiactidae				
<i>Ophiactis affinis</i> DUNCAN, 1879	South of Korea, Cheju Isl.	Indo-West Pacific area	20-90	8, 9, 10
<i>Ophiactis brachygenys</i> H. L. CLARK, 1911	South and East of Korea	East Asia coast	20-700	10

<i>Ophiactis dyscrita</i> H. L. CLARK, 1911	South of Korea, Cheju Isl.	East Asia coast	20-100	8, 10
<i>Ophiactis macropleuromia</i> MARXTANNER-TUNNIESCHER, 1887	South and West of Korea	Indo-West Pacific area	5-50	10
<i>Ophiactis modesta</i> BROCK, 1888	South of Korea	Indo-West Pacific area	30	10
<i>Ophiactis plana</i> LYMAN, 1869	Off Toyama Prf. -near Tsugaru Strait	Tropical-subtropical area	357	1, 5
<i>Ophiactis profundii</i> LUTKEN & MORTENSEN, 1899	South of Korea, Cheju Isl.	Indo-West Pacific area	192-925	10
<i>Ophiactis savignyi</i> (MÜLLER & TROSCHEL, 1842)	South of Korea, Cheju Isl., Sado Isl.	Tropical-subtropical area	0-60	3, 8, 10
<i>Ophiopholis aculeata</i> LINNAEUS, 1767	East of Korea-west of Hokkaido	Circum Boreal	0-2000	1, 2, 7, 10
<i>Ophiopholis brachyactis</i> H. L. CLARK, 1911	East of Korea, Cheju Isl., off Ando Zaki	East Asia coast	50-660	1, 8, 10
<i>Ophiopholis japonica</i> LYMAN, 1879	East of Korea-west of Hokkaido	North Pacific area	30-783	1, 2, 3, 7, 10, 11
<i>Ophiopholis mirabilis</i> (DUNCAN, 1879)	Korean coasts, Japanese coasts	East Asia coast	20-145	1, 2, 8, 10, 11
Amphiuridae				
<i>Amphiodia (Amphiodia) craterodonta</i> H. L. CLARK, 1911	Off Korea-off Sakhalin	North Pacific area	38-212	1, 2, 5, 10, 11
<i>Amphiodia (Amphiodia) euryaspis</i> H. L. CLARK, 1911	Korean coasts and Japanese coasts	North Pacific area	336-458	1, 2
<i>Amphiodia (Amphiodia) fissa</i> (LUTKEN, 1869)	Off Ulsan, north coast of Hokkaido	North Pacific area	0-685	2, 4, 5
<i>Amphiodia (Amphisipina) periercta</i> H. L. CLARK, 1911	Locality: uncertain	Amphipacific	7-29	2
<i>Amphioplus (Amphioplus) ancistrotus</i> (H. L. CLARK, 1911)	South of Korea-near Sado Isl.	East Asia coast	10-280	1, 2, 5, 10
<i>Amphioplus (Amphioplus) asterictus</i> H. L. CLARK, 1915	Off Korea	East Asia coast	10	5
<i>Amphioplus (Amphioplus) japonicus</i> (MATSUMOTO, 1915)	South of Korea-Mutsu Bay	Around Japan	2-100	5, 10
<i>Amphioplus (Amphioplus) macruspis</i> (H. L. CLARK, 1911)	Korean coasts, Japanese coasts	Around Japan	7-1400	1, 2, 7, 10
<i>Amphioplus (Amphioplus) megapomus</i> H. L. CLARK, 1911	South of Korea	East Asia coast	110	5
<i>Amphioplus (Amphichilus) tricooides</i> (MATSUMOTO, 1917)	South of Korea -Sagami Sea	East Asia coast	0	10
<i>Amphipholis japonica</i> MATSUMOTO, 1915	Sado Isl.	East Asia coast	0	3
<i>Amphipholis kochii</i> LUTKEN, 1872	East of Korea, Peter the Great Bay, Sado Isl.	Around Japan	0-120	2, 3, 5, 10
<i>Amphipholis pugetana</i> (LYMAN, 1861)	South of Korea, Cheju Isl.-northern Japan	Around Japan	0-480	2, 4, 5, 8, 10
<i>Amphipholis squamata</i> (DELLE CHIAJE, 1828)	South of Korea, Cheju Isl.-off Otaru	Amphi-North Pacific	80	5, 8, 10
<i>Amphipholis tetracantha</i> MATSUMOTO, 1941	East of Korea	Cosmopolitan	40-60	10
<i>Amphiuura (Amphiuura) arcyata</i> H. L. CLARK, 1911	Off Sado Isl.-off Hokkaido	Around Japan	107-850	1, 2, 5, 6
<i>Amphiuura (Amphiuura) digitata</i> (H. L. CLARK, 1911)	Off Sado Isl.	Around Japan	128-549	1, 2
<i>Amphiuura (Amphiuura) koreae</i> DUNCAN, 1879	South of Korea, Cheju Isl.-off Toyama Bay	North Pacific area	20-1370	1, 2, 5, 8, 10, 12
<i>Amphiuura (Amphiuura) lepideraspis</i> DIAKONOV, 1935	Locality: uncertain	East Asia coast	51-414	2
<i>Amphiuura (Amphiuura) leptobranchia</i> MURAKAMI, 1942	Locality: uncertain	North Pacific area	101	12
<i>Amphiuura (Amphiuura) psilopora</i> H. L. CLARK, 1911	Off Yamaguchi Prf.	Around Japan	64-78	2
<i>Amphiuura (Amphiuura) incompleta</i> DIAKONOV, 1954	Near Askol'd Isl. Cape Basargin	North Pacific area	ca. 60	2
<i>Amphiuura (Fellaria) sinicola</i> MATSUMOTO, 1941	Locality: uncertain	North Pacific area	0	9, 10
<i>Amphiuura (Amphiuura) syntaracha</i> H. L. CLARK, 1915	South of Korea, Chindo Isl.	East Asia coast	3-5	3
<i>Amphiuura (Fellaria) vadicola</i> MATSUMOTO, 1915	Sado Isl.	Around Japan	3-100	5, 9, 10
<i>Ophiocentrus koehleri</i> GISELEN, 1926	South of Korea-off Hokkaido	East Asia coast	116-127	12
	Off Yamaguchi Prf.	Indo-West Pacific area		
Ophiotrichidae				

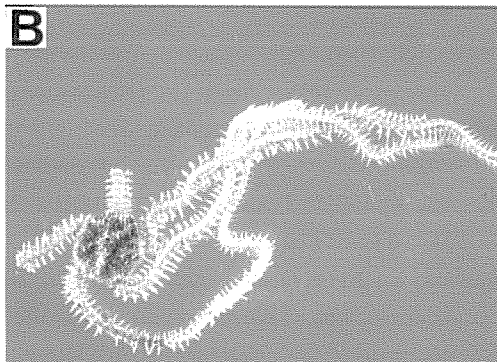
<i>Ophiogymna fulgens</i> (KOEHLER, 1905)	South and East of Korea, Cheju Isl., Korea Strait	Indo-West Pacific area	20-108	1, 8, 10
<i>Ophiothela danae</i> VERRILL, 1869	South of Korea, Cheju Isl.	Indo-West Pacific area	2-60	8, 10
<i>Ophiolithrix (Ophiolithrix) exigua</i> LYMAN, 1874	South and East of Korea-off Aomori Prf.	Indo-West Pacific area	0-82	5, 8, 9, 10
<i>Ophiolithrix (Ophiolithrix) paucityendgia</i> H.L. CLARK, 1911	Korea Strait-near Tsugaru Strait	Around Japan	86-208	1, 5, 6, 7, 12
Ophiodermatidae				
<i>Ophiarachnella gorgonia</i> MÜLLER & TROSCHEL, 1842	South and East of Korea, Cheju Isl., Sado Isl.	Indo-West Pacific area	0	3, 5, 8, 10
<i>Ophiarachnella infernalis</i> (MÜLLER & TROSCHEL, 1842)	South of Korea, Cheju Isl.	Indo-West Pacific area	0	8, 10
<i>Ophiopsamys anchista</i> (H. L. CLARK, 1911)	South of Korea, Cheju Isl., Sado Isl.	Indo-West Pacific area	5-122	3, 8, 10, 12
<i>Ophiopsamys assimilis</i> (BELL, 1888)	Off Ishikawa Prf.	Unknown	0-30	5
Ophionereididae				
<i>Ophionereis dubia</i> (MÜLLER & TROSCHEL, 1842)	South and East of Korea, Cheju Isl.-Toyama Bay	Indo-West Pacific area	0-220	1, 3, 5, 8, 10, 12
<i>Ophionereis eurybrachipter</i> H. L. CLARK, 1911	South of Korea	North Pacific area	30-100	10
Ophiocomidae				
<i>Ophiomastix mixta</i> LÜTKEN, 1869	South of Korea, Cheju Isl.	Indo-West Pacific area	5-30	8, 10
Ophiuridae (Subfam. Ophiurinae)				
<i>Amphiophiura megapoma</i> (H. L. CLARK, 1911)	East of Korea-coasts of Honshu	North Pacific area	115-298	1, 2, 11
<i>Amphiophiura oediplax</i> (H. L. CLARK, 1911)	Off Sado Isl.	North Pacific area	350-485	2
<i>Amphiophiura pomphophora</i> (H. L. CLARK, 1911)	Off Yamaguchi Prf.	Around Japan	122	12
<i>Aspidophiura forbesi</i> (DUNCAN, 1879)	Korea Strait	Indo-West Pacific area	108	1
<i>Ophiochalcis aspera</i> KOEHLER, 1931	Off Yamaguchi Prf.	Indo-West Pacific area	116	12
<i>Ophiura kimbergi</i> (LJUNGMAN, 1866)	South and East of Korea-Sado Isl.	Indo-West Pacific area	8-400	1, 2, 3, 5, 6, 10, 12
<i>Ophiura leptocentia</i> H. L. CLARK, 1911	East of Korea-west of Hokkaido	Amphi-North Pacific	30-3240	1, 2, 5, 7, 10, 11
<i>Ophiura sarsii sarsii</i> LÜTKEN, 1855	Off Korea-Tatar Strait	Arctic; Northern hemisphere	3-3000	1, 2, 7
<i>Ophiura sarsii vadicola</i> DIKONOV, 1954	Sea of Japan, Tatar Strait	Arctic; Northern hemisphere	40-135	2, 3, 5, 6
<i>Stegophiura nodosa</i> (LÜTKEN, 1854)	Off Sakhalin	North Pacific area	73-79	1
<i>Stegophiura sladeni</i> (DUNCAN, 1879)	Off Korea-near Tsugaru Strait	East Asia coast	20-1250	1, 6, 7, 9, 10, 12
<i>Stegophiura sterea</i> (H. L. CLARK, 1908)	Off Korea-near Sado Isl.	East Asia coast	20-1700	1, 5, 6, 10, 11
<i>Stegophiura striata</i> (DUNCAN, 1879)	Wakasa Bay	East Asia coast	130-160	5
<i>Stegophiura vivipara</i> MATSUMOTO, 1915	Off Korea-off Sado Isl.	East Asia coast	30-135	5, 6, 10, 12
Ophiuridae (Subfam. Ophiolepidinae)				
<i>Ophiomusium scalare</i> LYMAN, 1878	Off Yamaguchi Prf.	Indo-West Pacific area	36-570	12
<i>Ophiopenia disacantha</i> H. L. CLARK, 1911	East of Korea-near Sado Isl.	North Pacific area	10-2000	1, 2, 5, 7, 10, 11
<i>Ophioplocus japonicus</i> H. L. CLARK, 1911	Korean coasts, Cheju Isl.-Sado Isl.	East Asia coast	0	3, 5, 8, 9, 10

Tokyo, 95pp.

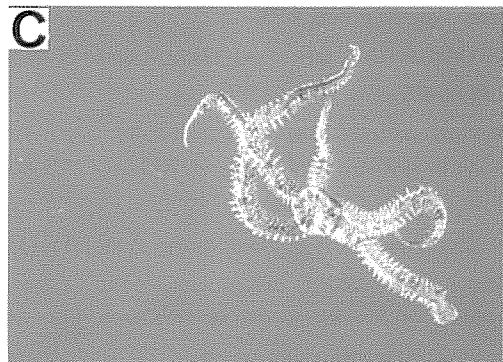
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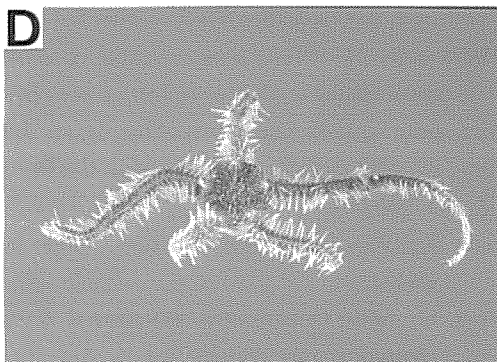
A
Ophiophriscus acanthius H. L. CLARK, 1911
(JS9911), disc diameter 4.6 mm.



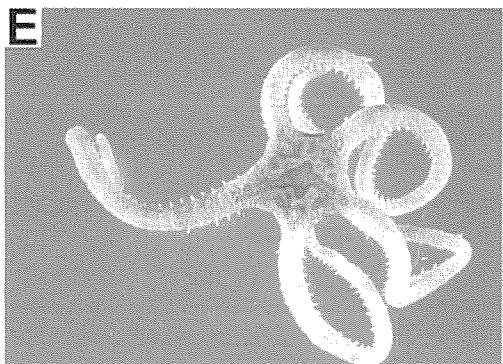
B
Ophiocentrus koehleri GISLÉN, 1926 (JS0011), disc diameter 7.4 mm.



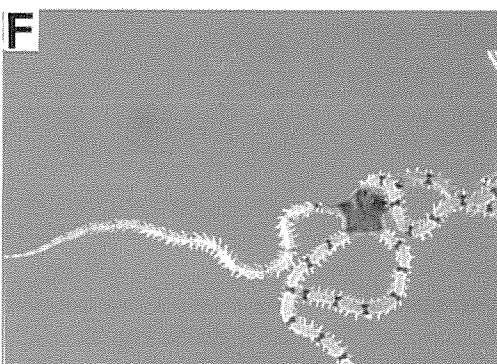
C
Amphiura (Amphiura) leptobrachia MURAKAMI,
1942 (JS0008), disc diameter 3.2 mm.



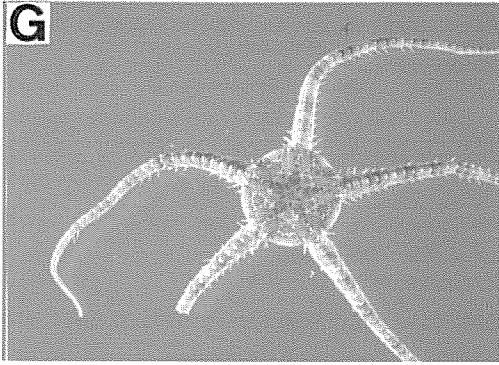
D
Ophiothrix panchyendyta H. L. CLARK, 1911
(JS0004), disc diameter 7.0 mm.



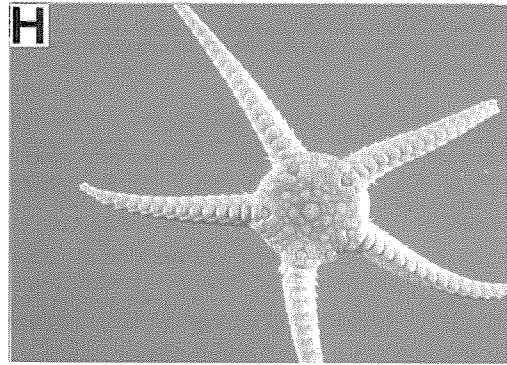
E
Ophiopsamus anchista (H. L. CLARK, 1911)
(JS0004), disc diameter 6.7 mm.



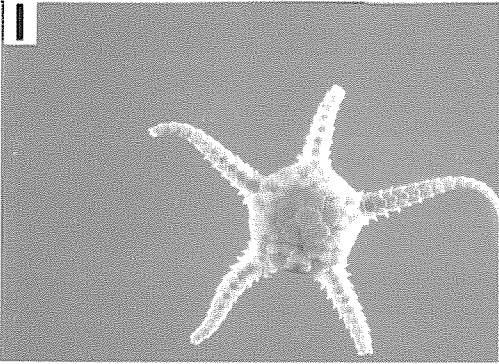
F
Ophionereis dubia (MÜLLER & TROSCHEL, 1842)
(JS0006), disc diameter 3.4 mm.



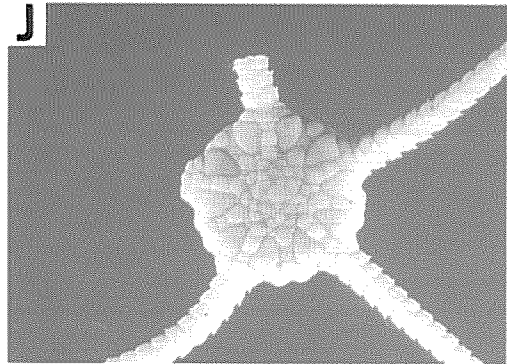
Ophiura kinbergi (LJUNGMAN, 1866) (JS0012), disc diameter 6.5 mm.



Stegophiura sladeni (DUNCAN, 1879) (JS0011), disc diameter 9.9 mm.



Stegophiura vivipara MATSUMOTO, 1915 (JS0004), disc diameter 7.4 mm.



Ophiomusium scalare LYMAN, 1878 (JS9911), disc diameter 12.5 mm.

日本海最西部のクモヒトデ相の予備的調査

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要 旨 1999年11月及び2000年6月に日本海最西部の水深43-133mの海域において6科11属13種のクモヒトデが採集された。この中で5種, *Ophiophrizus acanthius*, *Ophiocentrus koehleri*, *Amphiura* (*A.*) *leptobrachia*, *Amphiophiura pomphophora*, *Ophiomusium scatatare*が日本海初記録であった。日本海全域からこれまでに採集されたクモヒトデ類の動物地理についても論じた。

キーワード: 棘皮動物, クモヒトデ, 動物地理, 日本海, 分類学

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