

# THIRTEEN UNRECORDED SPECIES OF FISH FROM KOREAN WATERS

CHYUNG, Moon Ki and KIM, Kyun Hyun

(Central Fisheries Inspection Station)

韓國產魚種 未記錄 13種

鄭 文 基 · 金 均 炫

(中央水產檢查所)

(Received May 30, 1959)

We have undertaken a systematic work of collecting as many specimens of Korean fishes as possible, including the fresh water species, from the entire south Korean waters since 1951 (mainly from June, 1958 to May, 1959) for a thorough study on the fauna of Korean fishes. In course of our studies we have found thirteen unrecorded species (5 orders, 11 families and 12 genera) from Pusan, Masan, Tongyung, Yeosu, Mokpo and Jeju-do (Quelpart Isl.).

We wish to express our thanks to Mr. K. I. Yoo of the Central Fisheries Inspection Station, who extended his assistance in our research work. Thanks are also due to Mr. Y. J. Lee and Mr. S. C. Chyung for their photographic work. Especially we must express our sincere thanks to Dr. T. Mori, who extended his assistance in our research of various literature.

## Class Chondrichthyes

### Subclass Holocephali

### Order Chimaerida

### Family Chimaeridae

#### 1. *Phasmichthys mitsukurii* (DEAN) (Pl. I, Figs. 1, 2)

*Chimaera mitsukurii* DEAN, \*1904: J. Coll. Sci. Imp. Univ. Tokyo, 19(3) 6, Pl. I, figs. 1, 2, Japan;

JORDAN et SNYDER, 1904: \*\*Proc. U. S. Nat. Mus., 27, P. 224, fig. 2.

*Phasmichthys mitsukurii*\*\*\* (DEAN)\*\*\*\*

*Hydrolagus mitsukurii* DEAN\*\*\*\*\*

COMMON NAME: Gal-eunsang-eo (Tentative Korean name), Chimaera or Ratfish (US), Aka-ginzame (Japan).

STUDY MATERIAL: Only one specimen from Pusan collected on October 15, 1958.

RANGE: Deep sea of Japan.

DESCRIPTION: Gill opening single on each side, as in the bony fish; gill cover composed of flesh or soft cartilage; two dorsal fins; the first dorsal precede by a strong spine; skin smooth without scales; snout blunt; bifid claspers based in between the base of the pelvic fins; anal fin absent; tail tapers to a fine point; total length 780 mm; length of clasper 110 mm; color of body silvery with iridescent reflection of brown. Character of *Chimaera phantasma* (Eunsang-eo), recorded in Korean water is characteric having claspers trifid; anal present; deeply notched between anal and lower lobe of caudal fin. Tail less tapering to a point (except young) and size greater than *P. mitsukurii*.

\* TANAKA & ABE, 1955: P. 31 and fig.

\*\* OKADA & MATSUBARA, 1938: P. 28.

\*\*\* JORDAN et HUBBS, 1925: Mem. Carneg. Mus., 10, P. 119.

\*\*\*\* MATSUBARA, 1955: PP. 143-145.

\*\*\*\*\* BIGELOW et SCHROEDER, 1953: PP. 533-538.

## Class Osteichthyes

## Superorder Teleostei

## Order Percida

## Suborder Carangina

## Family Carangidae

2. *Trachurus declivis* (JENYNS) (Pl. I, Fig. 3)

*Trachurus declivis* (JENYNS), 1835: Zool. Beagle, Fishes, p. 68, Pl.

COMMON NAME: Nogjul-maegari (Tentative Korean name), Mackerel (US), None (Japan).

STUDY MATERIAL: Only one specimen from Pusan collected on October 15, 1958.

RANGE: Widely distributed in the temperate seas of Pacific Ocean, common in the Southern Coast of Japan.

DESCRIPTION: Body elongate; lateral line bends down abruptly above vent, scutes along its entire length; no distinctly separate finlet after the dorsal and anal fins; head length equal to depth of body; diameter of eye shorter than snout length; height of the scute in the decurved portion along the lateral line greater than its of highest scute in the straight part near caudal peduncle; color green on back (MATSUBARA, 1955). Figured specimen measures as follows: total length 178 mm; standard length 143 mm; head length 42 mm; depth of body 41 mm; diameter of eye 12 mm; snout length 13 mm; height of scute in the decurved part 11 mm; number of scutes 76; color of body tinge greenish gray above, silvery on the sides and belly. All characters of specimen coincide with description of MATSUBARA, 1955.

## Suborder Percina

## Family Serranidae

## Subfamily Malakichthyinae

3. *Malakichthys wakiyai* JORDAN et HUBBS (Pl. I, Fig. 4)

*Malakichthys wakiyai* JORDAN et HUBBS, 1922: Mem. Carn. Mus., X, 2, pp. 233-234.\*\*

COMMON NAME: Bolgi-ureog (Tentative Korean name), Bass (US), Wakiya-hata (Japan).

STUDY MATERIAL: 14 specimens from Pusan, three specimens collected on October 15, 1958 and eleven specimens collected on January 18, 1959.

RANGE: Nagasaki, Kochi, Zuruga Bay, Japan.

DESCRIPTION: Three spines on the opercle; preopercle with serrate margin; first dorsal IX; a pair of forward spines on the tip of lower jaw; scales large, about 50 scales in the lateral line; anal soft rays 9; fin length of anal fin longer than longest spine of anal fin; standard length ranges 4.9 to 5.5 times of fin length of anal fin; first dorsal margin darkly colored. (see Table 1).

Table 1. Measurement of *Malakichthys wakiyai*.

Description Specimen No.	Standard Length	Total Length	Base L. of anal	Length of 2nd A.	scales in L. L.	S. L. ****	
						B. L. ****	
1	114mm	150mm	23mm	15mm	50	4.95	
2	125	165	23	16	50	5.40	
3	142	181	26	18	51	5.46	
4	81	105	15	11	51	3.43	
5	82	107	15	11	51	5.47	
6	82	107	16	12	47	5.12	
7	84	109	16	12	51	5.25	

\* NICHOLS, 1920: Bull. American Mus. Nat. Hist., 42(13), PP. 477-481; WAKIYA, 1924: Ann. Carneg. Mus., 15(2-3), PP. 139-292, Pls. 15-38; OKADA & MATSUBARA, 1938: P. 163; MATSUBARA, 1955: PP. 555-556.

\*\* OKADA & MATSUBARA, 1938: p. 195; MATSUBARA, 1955: pp. 614-618; ABE, 1957: pp. 335-336 and fig.

\*\*\* S. L. = Standard length.

\*\*\*\* B. L. = Base length of anal.

8	84	110	16	13	49	5.25
9*	85	110	17	12	48	5.00
10	85	114	16	11	50	5.31
11	85	115	17	13	50	5.00
12	89	115	18	10	50	4.94
13	90	116	18	11	48	5.00
14	91	118	18	12	52	5.05

### Suborder Callionymina

#### Family Callionymidae

#### 4. *Callionymus flagris* JORDAN et FOWLER (Pl. I, Figs. 5, 6)

*Callionymus flagris* JORDAN et FOWLER, 1903: Proc. U. S. Nat. Mus., XXV, P. 952, fig. 7.\*\*

COMMON NAME: Sil-yangtae (Tentative Korean name), Hatatate-numeri (Japan).

STUDY MATERIAL: Only one specimen from Pusan.

RANGE: Aomori, Japan.

DESCRIPTION: Two dorsal fins, first dorsal rays tapering to a point; a lateral line on the back; a large antler-like spine on the preopercle with a forward spines on its bottom and tricuspsia in its top; standard length 120mm; total length 170mm; head length, 27mm; diameter of eyes 9mm; snout length 10mm; anal soft rays 10; length of genital papilla 7mm; head length shorter than 1/4 in standard length; diameter of eye almost equal to snout length; outer half-portion of anal fin dark-colored; no spots below the lateral line; all branched soft rays of caudal fin taper to a point except one or two rays both of upper and lower tips of caudal fin; spines of the first dorsal tapering to a point; its fin membrane deeply notched, its second spine appreciably shorter than the rest; last soft ray of second dorsal fin over the base of caudal fin by 10mm.

### Suborder Blenniina

#### Superfamily Zoarcicae

#### Family Pholidae

#### 5. *Pholis ornatus* (GIRARD) (Pl. I, Fig. 7)

*Pholis ornatus* (GIRARD), 1854: Proc. Acad. Nat. Sci. Philad., VII, P. 149.\*\*\*

COMMON NAME: Osaeg-bedoratsi (Tentative Korean name), Saddled blenny (US), Aya-ginpo (Japan).

STUDY MATERIAL: Four specimens from Pusan collected on January 18, 1959.

RANGE: Sea of Japan - South to Peter the Great Bay, San Francisco to Bering Sea.

DESCRIPTION: Dorsal spines 75 to 77; anal soft rays 33 to 37; head more than 1/8 in total length; head two times in pectoral fin; anal spines two, small and unmodified; origin of anal fin under the 34th to the 41st dorsal spine; pelvic fins present, but small; color of body yellowish green above, yellow, yellowish orange, or brown on the belly; color of all fins reddish; about 20 dark spots on the sides, extending to dorsal fin; a dark strip under the eyes.

Table 2. Measurement of *Pholis ornatus*

Description Specimen No.	Standard Length	Total Length	No. of D. Spine	Anal	Head Length	Pectoral Length
1****	145 mm	156 mm	77	II-36	17 mm	8 mm
2	146	157	75	II-36	19	9
3	150	162	76	II-37	20	9
4	154	165	76	II-33	20	10

\* Specimen of Plate I, Fig. 4.

\*\* OKADA & MATSUBARA, 1938: P. 387; MATSUBARA, 1955: PP. 708714; TANAKA & ABE, 1955: P. 249 & fig.

\*\*\* SCHULTZ, 1936: p. 192; CLEMENS & WILRY, 1949: p. 179; MATSUBARA, 1955, pp. 757-762.

\*\*\*\* Specimen of Plate I, Fig. 7.

## Family Zoarcidae

6. *Petroschmidtia toyamensis* KATAYAMA (Pl. I, Fig. 8)

*Petroschmidtia toyamensis* KATAYAMA, 1941: Zool. Mag., 53(12), PP. 593-594.\*

COMMON NAME: Tsiseong-galtsi (Tentative Korean name), Eel pout (US), Ago-genge (Japan).

STUDY MATERIAL: Only one specimen from Pusan collected on October 15, 1958.

RANGE: Deep sea of Japan, (Toyama Bay and Hyoko-ken).

DESCRIPTION: Body elongate, greatly compressed; head broad, somewhat depressed; snout longer, rounded, depressed; mouth terminal large, upper jaw greatly overhanging lower jaw; caudal fin indistinct, completely with dorsal and anal fins; the tail evenly pointed, no notch separating the fins; dorsal composed of soft rays only, its soft rays 90; teeth absent from vomer and palatines; pelvic 1-2; pectoral soft rays 20; total length 375 mm; head length 88mm, 32% in the total length; interorbital space 16mm, 16.2% of head; Color, brown to blue on dorsal surface and sides; lighter on ventral surface; white on scale pockets of body; about six spots on back.

## Family Zoarcidae

7. *Davidjordania poecilimon* (JORDAN et FOWLER) (Pl. I, Fig. 9)

*Lycenchelys poecilimon* JORDAN et FOWLER, \*\*

*Davidjordania poecilimon* (JORDAN et FOWLER), 1902: Proc. U.S. Nat. Mus., V, XXV, p. 743.\*\*\*

COMMON NAME: Munja-galtsi (Tentative Korean name), Sarasa-kagi or Kitsumedara (Japan).

STUDY MATERIAL: Only one specimen from Pusan collected on October 15, 1958.

RANGE: Japan (Toyama Bay and Kinkwasan).

DESCRIPTION: Foramen on the below-orbit, cheek and occiput; snout greater than diameter of eye; gill opening extending down to in front of lower pectoral base; fins: pectoral soft rays 17, dorsal soft rays 107, anal soft rays 90; dark browned eleven H-shaped spots on the sides of body; total length 275 mm; head length 60 mm; snout length 15 mm; diameter of eye 11 mm; all characters of specimen coincide with its figure of MATSUBARA, 1955 except snout shorter than diameter of eye in the latter.

## Suborder Labrina

## Family Labridae

## Subfamily Cheiliniinae

8. *Cirrhilabrus temmincki* BLEEKER (Pl. II, Fig. 10)

*Cirrhilabrus* sp. SCHLEGEL, 1846: Fauna Japonica, Pisces, p. 167; Nagasaki, Japan.

*Cirrhilabrus temmincki* BLEEKER, \*\*\*\* 1853: Verh. Bat. Gen., Vol. 15, Ichth. Japan p. 17, Nagasaki: GUNTHER, Cat. Fishes British Mus., vol. 4, p. 124; Japanese Sea; JORDAN et SNYDER, 1902: Proc. U.S. Nat. Mus., vol. 24, p. 651, fig. 10, Wakanoura, Japan; JORDAN, TANAKA et SNYDER, 1913: Cat. fishes Japan, p. 205, fig. 150, Wakanoura and Nagasaki, Japan; FOWLER et BRAN, 1928: 100, U. S. Nat. Mus., vol. 7, p. 338, Jolo and Sirum Island, Sulu Province, Phippines; De BEAUFORT, 1940: Fishes Indo-Australian Archipelago, vol. 8, p. 22, Sulu Island, Philippines, Japan.

COMMON NAME: Sil-yongtsi (Jeju-do, Korea), Wrasse (US), Itohiki-bera (Japan).

STUDY MATERIAL: Only one specimen from Jeju-do (Quelpart Isl.) collected on September 23, 1951.

RANGE: Southern Japan and Philippines.

\* MATSUBARA, 1955: pp. 770-774.

\*\* TANAKA & ABE, 1955: p. 256 and fig.

\*\*\* OKADA & MATSUKI, 1938: p. 406; MATSUBARA, 1955: pp. 770-780, Pl. 85(296).

\*\*\*\* MATSUBARA, 1955: pp. 887-906.

DESCRIPTION: Lateral line drops abruptly under posterior portion of dorsal; dorsal fin single, with 12 weak spines; preopercle with serrate margin; cheek scales with two rows; scales large, scales along the center of body 24; ventral fin tapers to a fine point, its length 40 mm; standard length 75 mm; total length 94 mm; depth of body 37 mm.

#### Order Tetraodontida

##### Family Triacanthodidae

#### 9. *Triacanthodes anomalus* TEMMINCK et SCHLEGEL (Pl. I, Fig. 11)

*Triacanthodes anomalus* (TEMMINCK et SCHLEGEL), 1850: Fauna Japan., Poiss., P. 295, Pl. CXXXIX, fig. 3.\*  
COMMON NAME: Bunhong-jichi (Tentative Korean name), Benikawamuki (Japan).

STUDY MATERIAL: Only one specimen from Yeosu collected on May 2, 1959.

RANGE: Southern Japan.

DESCRIPTION: Fairly compressed body, with small spiny scales, not overlapping; pelvic each of a spine and one feeble, soft ray; no lateral line; caudal, rounded, caudal peduncle short; teeth conical; first dorsal VI, 5th and 6th small; second dorsal soft rays 15; anal soft rays 13; pectoral soft rays 12; pelvic one strong spine and one feeble soft ray; all spine rough; standard length 72 mm; total length 82 mm; depth of body 35 mm; snout not much projected; gill opening wide, tend to under the base of pectoral; two yellowish band on the body, color weak red.

#### Order Cottida

##### Superfamily Cotticae

##### Family Cottidae

#### 10. *Gymnocanthus pistilliger* (PALLAS) (Pl. I, Fig. 12)

*Gymnocanthus pistilliger* (PALLAS), 1811: Zoogr. Posso-Asiat., III, P. 43.\*\*  
COMMON NAME: Mit-haeddae (Tentative Korean name), Sculpin (US), Hage-kajika (Japan).

STUDY MATERIAL: Five specimens from Pusan collected on October 15, 1958.

RANGE: Sea of Japan (Southern limit to Peter the Great Bay), Okhotsk Sea, Bering Sea.

DESCRIPTION: A broad, bony support extending back under the skin from lower part of eye across the cheek; no anal spines; pelvic fins thoracic with one spine and three soft rays; dorsal fin deeply notched; teeth absent from vomer and palatines; body scaleless; brachial membrane not joined to the isthmus; a large antlerlike spine on the preopercle with bicuspid; inter-orbital with bony plates; color: back, mottled olive-gray; side brassy bordered below by yellow; belly, white; all fins with many dark gray bars. (see Tabel 3).

Table 3. Measurement of *Gymnocanthus pistilliger*

Description Specimen No.	Standard length	Total Length	Width of Head	Depth of Head
1	120 mm	146 mm	19 mm	18 mm
2	128	155	25	23
3***	172	211	36	32
4	183	225	34	30
5	190	235	40	35

#### Order Echeneida

##### Family Echeneidae

#### 11. *Remora albescens* (TEMMINCK et SCHLEGEL) (Pl. II, Figs. 13, 14)

\* MATSUBARA, 1955: pp. 986-987; OKADA & MATSUBARA, 1938: p. 283, pl. 72, fig. 1.

\*\* OKADA & MATSUBARA, 1938: p. 328; MATSUBARA, 1955: pp. 1132-1154.

\*\*\* Specimen of Plate I, Fig. 12.

*Echeneis albescens* SCHLEGEL,\* 1842: Fauna Japonica Pisces, P. 272, Pl. 120, fig. 4; Nagasaki, Japan; BLEEKER, 1859: Acta. Soc. Indo-Neerl., vol. 6, P. 20, Doreh, New Guinea; GÜNTHER, 1860: Cat. Fishes India, P. 258, Pl. 57, fig. 2; MARTIN, 1938: Philippine Jour. Sci., vol. 66, p. 387; between Mumaguet, Negros Oriental Province, and Siguijor Isl.

*Remora albescens* BLEEKER,\*\* 1863: Ned. Tijds. Dierk., vol. 1, p. 236; Ter, ate Island; BLEEKER, 1868, Versl. Akad, Amsterdam, Ser. 2, p. 77; Batijan Island.

*Remora albescens* TEMMINCK et SCHLEGEL,\*\*\*

*Remora albescens* JORDAN et EVERMANN, 1896: Check List of North American Fishes, Report U.S. Fish. Comm., p. 490; JORDAN, EVERANN et CLARK, 1928(1930): Check list of Fishes, Report, U. S. Comm. Fisheries, part 2, p. 449; BREDER, 1936: Bull. Bingham Oceanogr. Collection, vol. 2, P. 43, fig. 14; Panama; Lower California; FOWLER, 1941: Proc. Acad. Nat. Sci. Phila., vol. 93, P. 272. Figs. 19-20; Oahu Isl., Hawaiian Island; FOWLER, 1944: Acad. Nat. Sci. Phila., Monograph 6, P. 251; Perlas Island, Bay of Panama.

COMMON NAME: Hin-bbalpani (Tentative Korean name), Sucker or Remoras (US), Shiro-koban (Japan).

STUDY MATERIAL: Only one specimen from Mokpo collected on March 23, 1959.

RANGE: Temperate and tropical seas in the Pacific and Atlantic.

DESCRIPTION: Body rather shorter, subfusiform, head elongate, depressed, broad; eye small high, lateral; lower jaw blunt, projecting beyond the upper jaw; gill membrane separate, free isthmus; spinous fin forming large adhesive disk on upper surface of head and anterior of body, suboval, broader posteriorly, not reached to tips of pectoral and pelvic fins; sucking disk with 13 laminae, length of disk 80 mm, its broad 55 mm; pectoral rounded; second dorsal and anal fins similar in form, both placed posteriorly; caudal slightly concave; color white all body; standard length 220 mm; total length 255 mm.

#### Order Gadia

##### Suborder Corphaenoidna

##### Family Corphaenoidae

#### 12. *Coelorhynchus multispinulosus* KATAYAMA (Pl. II, Figs. 15, 17)

*Coelorhynchus multispinulosus* KATAYAMA, 1942:\*\*\*\* Zool. Mag., 54(8), pp. 332-334, fig. 1.

COMMON NAME: Jul-bieultsi (Tentative Korean name), Grenadiers or Rattail (US), Yari-hige (Japan).

STUDY MATERIAL: Six specimens from Pusan, Masan, Tongyung and Yeosu collected on December 1958.

RANGE: Japan.

DESCRIPTION: Elongate body tapering to a point; tail tapers to a fine point, dorsal and anal fins confluent, there being no caudal fin; snout pointed; scales strong but easily shed; a short, more or less elevated, dorsal in front, followed by long second dorsal fin which joins a similar anal fin point end of tail; a barbel present below chin; 5 point spots (::) on the surface of scales; a long photophores from vent to in front of ventral base under the skin; interdorsal space shorter than first dorsal length.

Table 4. Measurement of *Coelorhynchus multispinulosus*

Description Specimen No.	Total Leng.	Interdorsal Space	First D. Length	Localities	Date of collection
1*****	207 mm	8 mm	11 mm	Pusan	Dec. 14' 58
2	215	10	12	Masan	Dec. 16' 58
3	190	8	11	Tongyung	Dec. 18' 58
4	160	7	9	Yeosu	Dec. 20' 58
5	180	7	11	"	"
6	250	10	14	"	"

\* OKADA & MATSUBARA, 1938: p. 376; TANAKA & ABE, 1955: p. 217 and fig.

\*\* MATSUBARA, 1955: pp. 1209-1212.

\*\*\* SMITH, 1953: p. 341.

\*\*\*\* MATSUBARA, 1955: pp. 1305-1320, Pl. 133(454)

\*\*\*\*\* Specimen of Plate II, Figs. 15, 17.

## Family Coryphaenoididae

13. *Coelorhynchus longissimus* MATSUBARA (Pl. II, Figs. 16, 17)

*Coelorhynchus longissimus* MATSUBARA, 1943:\* Jour. Sigenkagaku Kenkyusyo, 1(2), PP. 131-152, figs. 1-9.

COMMON NAME: Mujul-bineultsi (Tentative Korean name), Grenadiers or Rattail (US), Tongari-hige (Japan).

STUDY MATERIAL: Only one specimen from Pusan collected on December 20, 1958.

RANGE: Kumano, Japan.

DESCRIPTION: Elongate body tapers but caudal fin distinct; snout pointed as in the *Acipenser medirostris*; small spines on the surface of scales wider forward to margin in row; a small visible photophore from vent to in front of pelvic base (see Fig. 17); depth of body 1/6 in standard length; head length about 4.4 times of diameter of eye; first dorsal fin length slightly longer than interdorsal; standard length 165 mm; total length 175 mm; depth of body 28 mm; head length 53 mm; diameter of eye 12 mm; first dorsal fin length 12 mm; interdorsal space 10 mm.

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## 摘 要

우리는 1951년以來 주로 1958年 6月에서 1959年 5月사이에 南韓一帶의 淡水魚와 鹹水魚를 採集하여 整理中 釜山, 馬山, 統營, 麗水, 木浦 및 濟州道等地에서 上記와 如하 13種(5目, 11科 12屬)의 未記錄 魚種이 나왔으므로 이를 同定하여 發表한다. 이中 二科 Coryphaenoidae 및 Triacanthodidae 와 六屬 *Phasmichthys*, *Petroshmidtia*, *Davidiijordania*, *Cirrhilabrus*, *Coelorhynchus* 및 *Triacanthodes* 는 우리나라에서의 未記錄 科, 屬이다. 이들 標本은 中央水産檢査所에 保管中이다.

\* MATSUBARA, 1955: PP. 1305-1320, P. 134(457).

Plate I



Fig. 1.

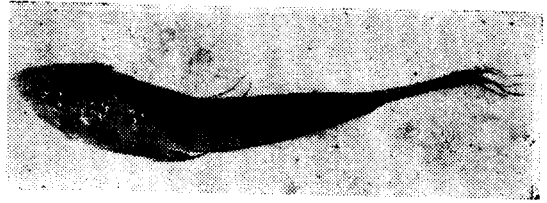


Fig. 5.

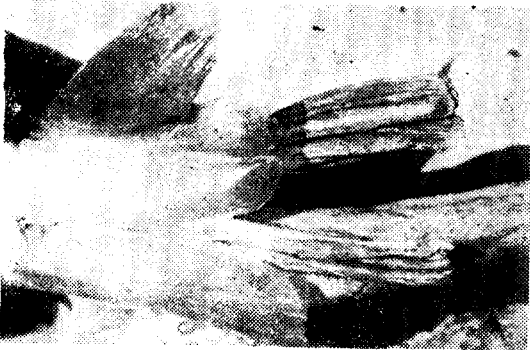


Fig. 2.

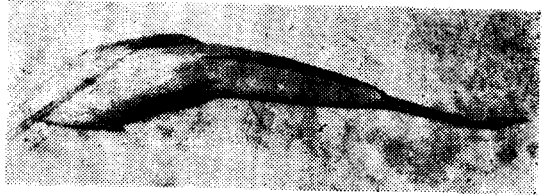


Fig. 6.

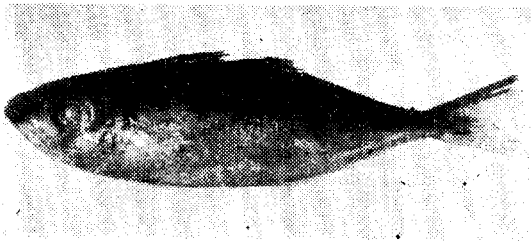


Fig. 3.



Fig. 7.



Fig. 8.

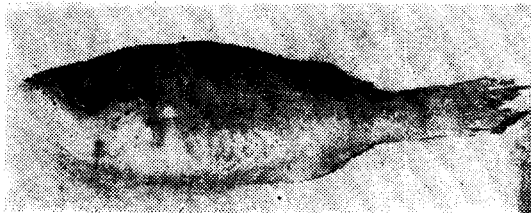


Fig. 4.

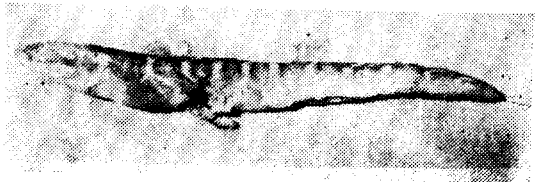


Fig. 9.

- Fig. 1. *Phasmichthys mitsukurii* (DEAN), Total length 780mm.  
 Fig. 2. Claspers of *Phasmichthys mitsukurii*, Length of clasper 110mm.  
 Fig. 3. *Trachurus declivis* (JENYNS), Standard length 143mm.  
 Fig. 4. *Malakichthys wakiyai* JORDAN et HUBBS, Standard length 85mm.  
 Fig. 5. *Callionymus flagris* JORDAN et FOWLER, (Dorsal view), Standard length 120mm.  
 Fig. 6. *Callionymus flagris* JORDAN et FOWLER, (Ventral view).  
 Fig. 7. *Pholis ornatus* (GIRARD), Standard length 145mm.  
 Fig. 8. *Petroschmidtia toyamensis* KATAYAMA, Total length 375mm.  
 Fig. 9. *Davidjordanania poecilimon* (JORDAN et FOWLER), Total length 275mm.



## Plate I



Fig. 10.

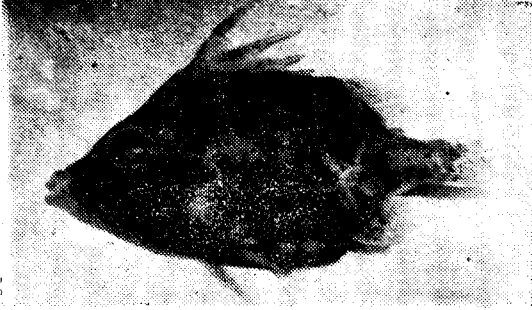


Fig. 11.

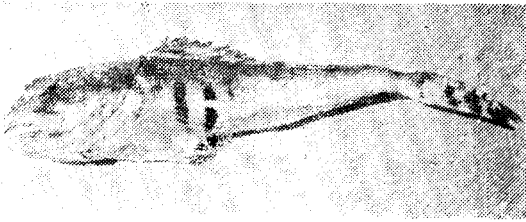


Fig. 12.



Fig. 13.

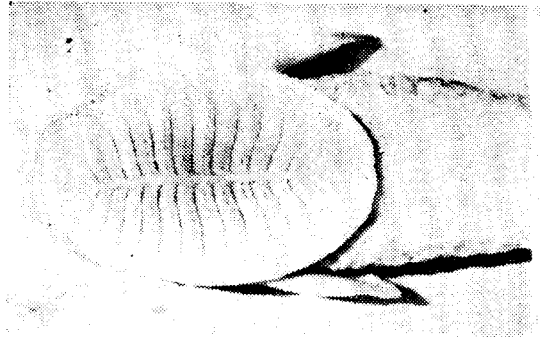


Fig. 14.

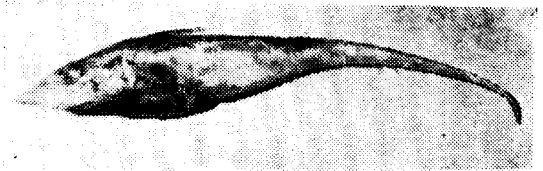


Fig. 15.

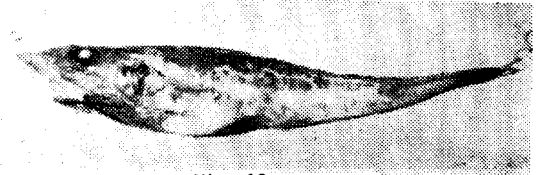


Fig. 16.

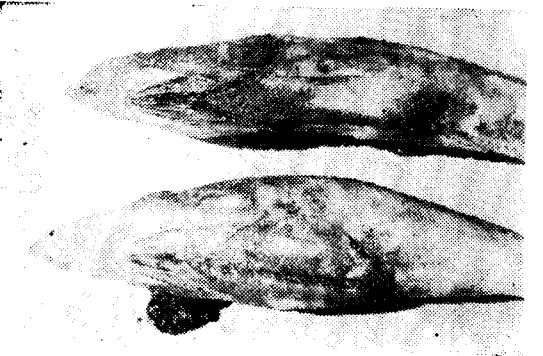


Fig. 17.

- Fig. 10. *Cirrhitlabrus temmincki* BLEEKER, Standard length 75mm.  
 Fig. 11. *Triacanthodes anomalus* TEMMINCK et SCHLEGEL, Standard length 72mm.  
 Fig. 12. *Comnocanthus pistilliger* (PALLAS), Standard length 172mm.  
 Fig. 13. *Remora albescens* (TEMMINCK et SCHLEGEL), Standard length 220mm.  
 Fig. 14. Sucking disk of *Remora albescens*, Length of disk 80mm.  
 Fig. 15. *Coelorhynchus multispinulosus* KATAYAMA, Total length 207mm.  
 Fig. 16. *Coelorhynchus longissimus* MATSUBARA, Standard length 165mm.  
 Fig. 17. Above: *C. longissimus*, (Ventral view), Photophores.  
 Below: *C. multispinulosus*, (Ventral view), Photophores.