

FISHES OF THE FAMILY MELAMPHAIDAE OVER THE SEAMOUNTS OF THE CENTRAL ATLANTIC OCEAN

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The data on catches of fishes of the family Melamphaidae over seamounts of the central part of the Atlantic Ocean, mainly over the Mid-Atlantic Ridge, are presented. The material was collected during expeditions on the research vessels "Akademik Sergei Vavilov" (voyage 43, 2016), "Prof. Logachev" (voyage 39, 2018), and "Akademik Mstislav Keldysh" (voyage 87, 2021–2022). Morphometry of fish of 12 species belonging to the genera *Melamphaes*, *Poromitra*, *Scopeloberyx*, and *Scopelogadus* is given, coloration features of fixed individuals are indicated, and distribution in the World Ocean is described. For several species, catches far from previously known habitats are recorded.

Keywords: Melamphaidae, *Melamphaes leprus*, *Melamphaes inconspicuus*, *Melamphaes lentiginosus*, *Poromitra*, *Scopeloberyx*, *Scopelogadus*, Atlantic Ocean, Mid-Atlantic Ridge.

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INTRODUCTION

The deep-sea pelagic ichthyofauna is noticeably inferior in terms of the degree of study to coastal fish. A number of taxonomic groups (Gonostomatidae, Stomiidae, Myctophidae and others) are more or less studied, but the materials are regularly supplemented with descriptions of species new to science, information on their biology, and clarification of their ranges. These fish also include Melamphaidae. Information on their taxonomy and distribution in the Atlantic Ocean can

be found in a number of generalizing works (Ebeling, 1962; Ebeling, Weed, 1963, 1973; Kotlyar, 2004a, 2005, 2010, 2011, 2015a, 2015b, 2016a, 2016b, 2020; Keanes data¹⁾).

This article presents the results of processing a small collection of fish gathered during expeditions of the IO RAS to the central part of the Atlantic Ocean on three research vessels: "Akademik Sergey Vavilov" (ASV), cruise 43, 2016; "Professor Logachev" (PL), cruise 39, 2018; "Akademik Mstislav Keldysh" (AMK), cruise 87, 2021-2022. The aim of the work is to present an annotated list of Melamphaidae species, some of which are quite rare, caught in recent years in the central part of the Atlantic Ocean, mainly over the Mid-Atlantic Ridge.

MATERIALS AND METHODS

The stations where the material was collected and the trawling conditions are given in the table. The collectors were IO RAS staff: on ASV and PL - S.G. Kobylansky and A.V. Mishin, on AMK - A.V. Mishin. The catch sites of individual melamphaeid species are shown in Fig. 1. Trawling was carried out using a non-closing midwater Isaacs-Kidd trawl in the Samyshev-Aseev modification, equipped with a double bag 25 m long, with a mouth area of 6 m².

List of stations where material was collected and trawling conditions of scientific vessels in the central part of the Atlantic Ocean

Station number	Date	Coordinates		Fishing time	Depth of location, m	Fishing horizon, m
		N*	W			
"Akademik Sergey Vavilov"						
2618	13.10.2016	30°08′	32°11′	02:02–03:30	—	700–0
2624	15.10.2016	26°32′	33°56′	00:04–01:36	5004	700–0
2649-1	22.10.2016	10°46′	41°05′	03:15–04:20	—	700–0
2656	24.10.2016	08°15′	38°25′	01:12–01:43	3846	200–0
2657	24.10.2016	08°13′	38°24′	02:00–03:35	3257	700–0
2675	27–28.10.2016	00°01′	36°01′	22:49–00:47	4514	700–0

¹⁾Keene M.J. 1987. Systematics and distribution of the deep-sea fish family Melamphaidae in Atlantic Ocean: Unpublished PhD dissertation. Kingston: Univ. Rhode Island, 375 p.

"Professor Logachev"						
39L182rt	27.02.2018	14°37'	44°56'	02:55–05:45	3080	1500–0
39L196rt	03–04.03.2018	14°35'	44°57'	22:08–01:44	3312	2500–0
39L213rt	07.03.2018	14°42'	44°56'	21:51–23:00	3031	700–0
39L215rt	08.03.2018	14°42'	45°42'	00:30–03:09	4060	1500–0
39L227rt	12.03.2018	15°49'	46°40'	00:07–01:22	4138	700–0
39L234rt	15.03.2018	16°13'	46°42'	01:52–04:25	3127	1500–0
"Akademik Mstislav Keldysh"						
7277	22.12.2021	24°03'	20°39'	05:03–05:53	3900	1440–0
7416	03.03.2022	26°34'	24°22'	23:43–03:15	4700	1860–0

Note. *For stations 2675 and 7416, S latitude is indicated; "–" – no data.

The following designations of morphometric characters are used in this work: *SL* – standard fish body length, *c* – head length, *ao* – snout length, *o* – horizontal eye diameter, *po* – postorbital distance, *ch* – head height, *io* – interorbital space width, *hf* – forehead height; *lmx*, *lmd* – length of upper and lower jaws; *hl* – width of suborbital bone, *H* – maximum body height; *h*, *lpc* – height and length of caudal peduncle, respectively; *aD*, *aP*, *aV*, *aA* – antedorsal, antepectoral, anteventral, anteanal distances; *PV₁* – pectoventral distance along the straight line between the lower edge of the pectoral fin and the beginning of the ventral fin, *PV₂* – pectoventral distance horizontally between the verticals of the lower edge of the pectoral fin base and the beginning of the ventral fin, *VA* – ventroanal distance; *ID*, *IA* – length of dorsal and anal fin bases; *IP*, *IV* – length of pectoral and ventral fins; *l sp.br.* – length of the angular gill raker on the 1st gill arch; *pD₁*, *pA₁* – postdorsal and postanal distances from the beginning of *D* and *A* respectively to the beginning of the caudal fin; *pD₂*, *pA₂* – postdorsal and postanal distances from the end of *D* and *A* respectively to the beginning of the caudal fin; *D*, *A*, *P*, *V* – number of rays in the dorsal, anal, pectoral and ventral fins; *sp.br.*, *sp.br.₂*, *sp.br.₃* – number of gill rakers on the 1st, 2nd and 3rd gill arches (number of rakers on the upper half + angular raker + number of rakers on the lower half); *sp.br.₄* – number of gill rakers on the 4th gill arch (number of rakers on the upper half + number of rakers on the lower half), *fil.p.* – number of pseudobranch filaments, *squ₁* – number of transverse scale rows from nape

to caudal fin origin, *squ*₂ - number of transverse scale rows from posterior edge of posttemporal bone to caudal fin origin, *s* - number of scales in oblique row from *D* towards *A*, *pr.sq.* - number of predorsal scales, *vert.* - number of vertebrae (abdominal + caudal, including urostyle), *pc* - number of pyloric caeca. When counting gill rakers, all rakers were counted, including rudimentary ones. Scales in Melamphaidae are deciduous and usually absent, therefore scale pockets were counted.

All collected fish were fixed in 70% ethanol solution. The text indicates coloration of fixed specimens only.

RESULTS

***Melamphaes leprus* Ebeling, 1962**

(Fig. 2)

PL, station 39L215rt, 1 specimen *SL* 17.5 mm.

Meristic characters : *D* III 14, *A* I 8, *P* 15, *VI* 7, *sp.br.* 5 + 1 + 14 = 20, *sp.br.* 3 + 10 = 13, *fil.p.* 4, *squ*₁ 33, *squ*₂ 29, *s* 8, *vert.* 12 + 16 = 28, *pc* 8. Anal fin begins under vertical of 3rd ray from the end of *D*.

Some measurements, in % *SL* : *c* 34.9, *ao* 9.1, *o* 6.3, *po* 20.0, *ch* 26.0, *io* 14.0, *hf* 4.6, *lmx* 18.6, *lmd* 22.0, *hl* 4.3, *l sp.br.* 8.3, *H* 25.7, *h* 10.0, *lpc* 24.9, *aD* 43.4, *aP* 40.0, *aV* 39.4, *aA* 62.9, *PV*₁ 3.4, *PV*₂ 2.0, *VA* 24.6, *ID* 30.0, *IP* 27.1, *IV* 26.3, *IA* 11.1, *pD*₁ 61.7, *pD*₂ 32.0, *pA*₁ 35.4, *pA*₂ 25.1; in % *with* : *ao* 26.2, *o* 18.0, *po* 57.4, *ch* 74.6, *io* 40.2, *hf* 13.1, *lmx* 53.3, *lmd* 63.1, *hl* 12.3, *l sp.br.* 23.8.

The coloration of the juvenile is light brown, head is brown, all fins are light, there is fine point pigmentation on the frontal part of the head and ventral fins. Dark stripes are located along the back, sides, lower body (especially on the caudal peduncle), with a dark spot at the base

of the caudal fin. The coloration of the examined specimen is quite similar to that of the juvenile. The fry is light brown, the head is brown, all the fins are light, there is a small dotted pigment on the frontal part of the head and ventral fins. Dark stripes are located along the back, side, lower part of the body (especially on the caudal peduncle), at the base of the caudal fin there is a dark spot. The coloring of the examined specimen is quite similar to that of the fry *SL* 19.5 mm, shown in the figure in the work of Keene and Tighe (Keene, Tighe, 1984. P. 289. Fig. 207E).

According to diagnostic features, the studied specimen corresponds well to the species description (Ebeling, 1962). However, it is the first time 12 vertebrae have been noted in the trunk section of the spine. Previously, only fish with 11 trunk vertebrae were known (Ebeling, 1962; Kotlyar, 2011; Afonso et al., 2021; Keene's data¹).

In adult *M. leprus* the ventral fins are located behind the vertical of the posterior edge of the pectoral fin base. In young fish, these fins can be located both in front of and under this vertical (Ebeling, 1962). In the examined specimen, they are located slightly ahead of this vertical.

In the original description, the species was known only from catches in the tropical Eastern Atlantic between 11°N and 04°S (Ebeling, 1962). Subsequently, Keene¹ expanded these boundaries to 17°N - 13°S and 29°W - 11°E based on new material. Afonso et al. (2021) reported the capture of *M. leprus* *SL* 90 mm in Brazilian waters near the Fernando de Noronha archipelago - 03°19'59.1"S 32°24'42.1"W. The examined specimen was caught slightly north of known capture locations and notably further west (~ 45°W).

***Melamphaes polylepis* Ebeling, 1962**

ASV, station 2657, 1 specimen *SL* 30.0 mm.

Meristic characters : D III 14, A I 8, P 15, V I 7, $sp.br.$ $6 + 1 + 15 = 22$, $sp.br.$ $4 + 10 = 14$, $fil.p.$ 4, squ_1 37, squ_2 33, s 10, $pr.sq.$ 8, $vert.$ $11 + 18 = 29$. Anal fin begins under the vertical of the 3rd ray D from its end.

On the hemal spine of the first caudal vertebra, there are two spines directed downward and sideways. Upper jaw extends to the vertical of the posterior edge of the eye.

Some measurements , in % SL : c 35.3, ao 6.7, o 6.0, po 21.7, ch 24.0, io 10.0, hf 3.7, lmx 15.3, lmd 18.3, hl 4.3, l $sp.br.$ 6.8, H 25.0, h 9.7, lpc 26.0, aD 42.7, aP 36.3, aV 38.7, aA 61.7, PV_1 4.0, PV_2 0, VA 24.3, ID 27.0, IP 25.7, IV 19.3, IA 11.0, pD_1 60.0, pD_2 34.0, pA_1 37.7, pA_2 27.7; in % c : ao 18.9, o 17.0, po 61.3, ch 67.9, io 28.3, hf 10.4, lmx 43.4, lmd 51.9, hl 12.3, l $sp.br.$ 19.3.

The fish coloration is brown, the head is darker, black on the preopercle and opercle. Fins are light. Small black pigment spots are present on the rays of all fins. Apparently, this coloration feature is characteristic only for small immature fish. The fish is brown, the head is darker, black on the preoperculum and operculum. The fins are light. There are small black pigment spots on the rays of all fins. Apparently, this coloring feature is characteristic only of small immature fish.

Melamphaes polylepis inhabits tropical waters of the Atlantic, Indian, and western part of the Indian Oceans (Ebeling, 1962; Kotlyar, 2011).

***Melamphaes inconspicuus* Kotlyar, 2015**

(Fig. 3)

ASV, station 2618, 1 specimen SL 21.0 mm.

Meristic characters : D III 15, A I 8, P 15, V I 7, $sp.br.$ $5 + 1 + 13 = 19$, $sp.br.$ $4.5 + 10 = 15$, $fil.p.$ 5, squ_1 34, squ_2 29, s 8, $pr.sq.$ 8, $vert.$ $12 + 15 = 27$. Anal fin begins under vertical between 1st and 2nd rays D from its end.

Upper jaw slightly falls short of vertical of posterior eye margin.

Some measurements , in % SL : c 33.3, ao 6.7, o 6.2, po 21.4, ch 25.7, io 9.5, hf 4.8, lmx 16.7, lmd 19.0, hl 4.8, l $sp.br.$ 6.0, H 23.8, h 8.6, lpc 21.4, aD 42.4, aP 38.1, aV 40.5, aA 65.7, PV_1 3.3, PV_2 0, VA 27.1, ID 26.7, IP 30.0, IV 27.6, IA 9.5, pD_1 57.1, pD_2 31.0, pA_1 31.9, pA_2 22.4; in % c : ao 20.0, o 18.6, po 64.3, ch 77.1, io 28.6, hf 14.3, lmx 50.0, lmd 57.1, hl 14.3, l $sp.br.$ 17.3.

Fish coloration is uniform, brown, including head, all fins are light. The fish is uniformly brown, including the head, all fins are light.

The original description *M. inconspicuus* was made based on a small series of fish from tropical waters of the North Atlantic (Kotlyar, 2015a). Keen in his dissertation described a new species from the Atlantic Ocean, which he named *M. indicoides* (invalid name, as unfortunately, the work was not published). The characteristics of *M. indicoides* match well with *M. inconspicuus*, therefore I believe that *M. indicoides* would have become a junior synonym of *M. inconspicuus* if Keen's work had been published. Catches of *M. indicoides* were made in the tropical part of the Atlantic Ocean between 35°N and 24°S. The studied specimen of *M. inconspicuus* was caught above the Mid-Atlantic Ridge south of the Azores Islands.

***Melamphaes lentiginosus* Kotlyar, 2015**

(Fig. 4)

AMK, station 7416, 6 specimens SL 10.5-22.0 mm.

Meristic characteristics (mean values in parentheses): *D* III 14-16 (14.5), *A* I 8, *P* 14, *VI* 7, *sp.br.* (3-5) + 1 + (10-12) = 14-17 (3.4 + 1 + 11.2 = 15.6), *sp.br.* 3 + (8-9) = 11-12 (3 + 8.8 = 11.8), *fil.p.* 3 (3 specimens), *squ* ₁ 33-35 (34.2), *squ* ₂ 29-31 (30.0), *s* 10-11 (10.4), *pr.sq.* 7-11 (8.3), *vert.* 12 + 16 = 28. Anal fin begins under the vertical of 4-6th (4.5) ray *D* from its end. Pelvic fin begins under (in 3 specimens) or behind the vertical of posterior edge of pectoral fin base.

Some measurements, in % *SL*: *c* 34.1-38.1 (35.4), *ao* 6.8-9.5 (8.3), *o* 5.2-8.6 (6.6), *po* 20.0-21.4 (21.0), *ch* 23.1-26.2 (25.0), *io* 10.8-14.3 (12.7), *hf* 3.8-5.8 (4.8), *lmx* 15.4-19.0 (16.9), *lmd* 19.1-20.5 (19.9), *hl* 4.8-6.2 (5.6), *l sp.br.* 4.6-6.8 (5.8), *H* 25.2-26.7 (25.8), *h* 8.6-10.1 (9.3), *lpc* 23.2-28.6 (27.0), *aD* 42.7-46.2 (43.7), *aP* 36.8-40.5 (38.4), *aV* 37.9-43.2 (40.0), *aA* 59.5-68.2 (64.0), *PV* ₁ 2.3-5.9 (4.3), *PV* ₂ 0-1.8 (1.0 in 3 specimens), *VA* 21.4-27.7 (24.9), *ID* 28.6-30.0 (29.3), *IP* 26.2-33.3 (30.9), *IV* 17.1-20.5 (19.0), *IA* 11.4-12.9 (12.0), *pD* ₁ 60.0-68.2 (62.8), *pD* ₂ 30.5-38.6 (33.3), *pA* ₁ 33.9-41.4 (37.8), *pA* ₂ 24.2-33.3 (28.2); in % *c*: *ao* 19.5-26.7 (23.4), *o* 14.8-22.7 (18.6), *po* 52.5-62.5 (59.6), *ch* 66.4-73.3 (70.7), *io* 31.0-41.7 (36.1), *hf* 10.0-16.9 (13.6), *lmx* 44.2-53.3 (47.8), *lmd* 52.5-59.4 (56.1), *hl* 12.5-17.7 (15.9), *l sp.br.* 13.6-19.5 (16.5).

Coloration brown, head darker; yellowish on body where scales have fallen off. Fins light with gray tinge, especially on caudal fin. In small fish (*SL* 10.5-17.3 mm) (Fig. 4a), numerous small black punctate pigment spots on anterior part of head, jaws, dorsal, pectoral, and pelvic fins. In larger specimen (*SL* 22.0 mm) (Fig. 4c), such punctate pigment spots remain on dorsal and pectoral (closer to base) fins.

Specimen *SL* 22.0 mm is the largest caught to date.

M. lentiginosus was known from catches in the southern half of the Atlantic Ocean over the Mid-Atlantic Ridge and near the southern end of the Walvis Ridge between 15° and 26°S (Kotlyar,

2015b). In western direction, it was recorded up to 13°W. Present catch was made significantly westward (~24°W) over the Mid-Atlantic Ridge in the Vema Channel area.

***Melamphaes pumilus* Ebeling, 1962**

ASV, station 2675, 2 specimens *SL* 12.0 and 13.9 mm.

Meristic characters : *D* III 13, *A* I 7-8, *P* 14-15, *VI* 7, *sp.br.* 3 + 1 + 12 = 16, *sp.br.* 43 + (8-9) = 11-12, *squ*₁ 33, *squ*₂ 29, *s* 7-8, *pr.sq.* 7-8, *vert.* 12 + 15 = 27. Anal fin begins under vertical of 4th ray *D* from its end.

Some measurements (12.0/13.9 mm), in % *SL* : *c* 37.5/36.7, *ao* 10.4/9.4, *o* 5.4/4.7, *po* 22.1/19.8, *ch* 27.5/28.8, *io* 11.3/12.6, *hf* 7.9/8.3, *lmx* 19.2/18.7, *lmd* 20.8/20.1, *hl* 6.3/6.9, *l sp.br.* 5.4/6.8, *H* 28.3/28.8, *h* 9.2/9.0, *lpc* 27.1/25.9, *aD* 39.6/44.6, *aP* 38.3/38.1, *aV* 39.2/40.3, *aA* 58.3/61.3, *PV*₁ 3.8/2.9, *PV*₂ 0/0, *VA* 21.7/23.7, *ID* 32.1/30.6, *IP* 31.3/28.8, *IV* 14.6+/18.0+, *IA* 11.7/12.6, *pD*₁ 65.8/65.8, *pD*₂ 33.3/31.7, *pA*₁ 37.5/41.4, *pA*₂ 27.9/28.1; in % *c* : *ao* 27.8/25.5, *o* 14.4/12.7, *po* 58.9/53.9, *ch* 73.3/78.4, *io* 30.0/34.3, *hf* 21.1/22.5, *lmx* 51.1/51.0, *lmd* 55.6/54.9, *hl* 16.7/18.6, *l sp.br.* 14.4/18.6.

Fish coloration is light brown, head slightly darker than the rest of the body, all fins are light. No black point pigment spots on the head, body, and fins. The fish is light brown, the head is slightly darker than the rest of the body, all the fins are light. There are no black dotted pigment spots on the head, body and fins.

Tropical-subtropical Atlantic species. Known from catches between 45° and 13°N (Ebeling, 1962; Keene et al., 1987; Kotlyar, 2016b; Keene's data¹). Found mainly in the central and western parts of the ocean, the easternmost catches are known up to 28°W (Kotlyar, 2016b). This discovery is the southernmost, almost at the equator.

***Melamphaes typhlops* (Lowe, 1843)**

ASV, station 2624, 4 specimens *SL* 9.3-12.7 mm; PL, station 39L196rt, 1 specimen *SL* 58.5 mm.

The largest specimen has the best preservation (*SL* 58.5 mm). Its description is given below.
Meristic characters : *D* III 14, *A* I 8, *P* 15, *V* I 7, *sp.br.* $2 + 1 + 11 = 14$, *sp.br.* $4 + 8 = 10$, *squ*₁ 30, *squ*₂ 26, *s* 8, *pr.sq.* 7. The anal fin begins behind the vertical of the last ray of the dorsal fin. In the suborbital seismosensory canal above the posterior end of the upper jaw, there is one pore, inside the cheek angle there are three pores; on the preopercle (above the bone angle) in the preopercular-mandibular seismosensory canal, there are $2 + 3 + 3 + 3$ pores.

Some measurements , in % *SL* : *c* 35.0, *ao* 6.8, *o* 5.0, *po* 22.2, *ch* 25.3, *io* 13.7, *hf* 4.3, *lmx* 15.9, *lmd* 19.0, *hl* 4.4, *l sp.br.* 3.6, *H* 28.5, *h* 8.9, *lpc* 18.8, *aD* 42.7, *aP* 35.9, *aV* 39.3, *aA* 70.1, *PV*₁ 2.9, *PV*₂ 1.0, *VA* 36.8, *ID* 29.9, *IP* 27.4, *IV* 21.4, *IA* 8.0, *pD*₁ 62.4, *pD*₂ 34.2, *pA*₁ 25.6, *pA*₂ 19.7; in % *c* : *ao* 19.5, *o* 14.1, *po* 63.4, *ch* 72.2, *io* 39.0, *hf* 12.2, *lmx* 45.4, *lmd* 54.1, *hl* 14.7, *l sp.br.* 10.2.

The coloration of the fish is uniform, dark brown, all fins are light.

The examined specimens correspond well to the existing descriptions of this species (Ebeling, 1962; Ebeling, Weed, 1973; Kotlyar, 2016a; Kean's data¹). The fish were caught in the tropical part of the Atlantic Ocean above the Mid-Atlantic Ridge.

M. typhlops is endemic to the Atlantic Ocean. It occurs from equatorial to subtropical waters approximately between 45°N (Kotlyar, 2016a) and 28°S (Kean's data¹).

***Poromitra megalops* (Lütken, 1877)**

AMK, station 7277, 1 specimen *SL* 20.0 mm.

Meristic characteristics : *D* III 11, *A* I 8, *P* 13, *V* I 7, *sp.br.* $8 + 1 + 18 = 27$, *sp.br.* $4 + 12 = 17$, *fil.p.* 4, *squ*₁ 34, *squ*₂ 29, *s* 9, *pr.sq.* 8. The anal fin begins under the vertical of the 4th

ray *D* from its end. On the upper edge of the frontale crest there are 12 spines, five spines on the lower and posterior edges of praeperculum, 10 spines on the upper (posterior) edge of operculum, five spines on interoperculum, three spines on the outer edge of suboperculum.

Some measurements, in % *SL*: *c* 36.3, *ao* 5.0, *o* 12.5, *po* 18.0, *ch* 25.0, *io* 10.8, *hf* 1.5, *lmx* 16.3, *lmd* 21.3, *hl* 2.8, *l sp.br.* 6.4, *H* 25.0, *h* 8.0, *lpc* 32.5, *aD* 46.0, *aP* 37.5, *aV* 33.5, *aA* 55.0, *PV*₁ 6.8, *PV*₂ 6.3, *VA* 23.0, *ID* 22.5, *IP* 22.5, *IV* 26.3, *LA* 9.3, *pD*₁ 57.5, *pD*₂ 35.0, *pA*₁ 40.0, *pA*₂ 32.0; in % *c*: *ao* 13.8, *o* 34.5, *po* 49.7, *ch* 69.0, *io* 29.7, *hf* 4.1, *lmx* 44.8, *lmd* 58.6, *hl* 7.6, *l sp.br.* 17.7.

Coloration of the fish is gray-brown, head darker, fins light.

According to diagnostic features, this specimen matches well with existing species descriptions (Ebeling, Weed, 1973; Kotlyar, 2010).

The studied specimen was caught in the Eastern Atlantic near the Tropic seamount. *P. megalops* inhabits the Atlantic Ocean, where it is recorded from 58°N (Kotlyar, 2010) to 36°S (Keen's data¹).

***Poromitra macrophthalma* (Gilchrist, 1903)**

ASV, station 2649-1, 1 specimen *SL* 31.5 mm.

A separate publication is dedicated to the description of this specimen (Kotlyar, 2022). This is the only catch of *P. macrophthalma* in the Atlantic Ocean. The species inhabits tropical-subtropical waters of the Indian Ocean and western and central parts of the Pacific Ocean (Kotlyar, 2010).

***Scopeloberyx robustus* (Günther, 1887)**

FL, station 39L182rt, 1 spec. *SL* 17.5 mm; station 39L234rt, 1 spec. *SL* 28.0 mm.

Meristic characters : D III 12, A I 8, P 14, V I 7, $sp.br.$ $5 + 1 + (14-15) = 20-21$, $sp.br.$ $_{4}(3-5) + 9 = 12-14$, $fil.p.$ 2 (1 per specimen), $pr.sq.$ 8. Anal fin begins under the vertical of the 4th ray of D from its end.

Some measurements (17.5/28.0 mm), in % SL : c 42.3/36.8, ao 10.2/9.3, o 6.3/5.4, po 25.7/21.8, ch 26.2/23.9, io 9.7/9.6, hf 5.1/4.6, lmx 21.7/18.6, lmd 26.2/21.8, hl 4.5/4.6, l $sp.br.$ 8.0/7.1, H 25.7/23.9, h 9.1/8.2, lpc 23.4/23.2, aD 52.6/46.4, aP 44.6/37.5, aV 48.0/43.6, aA 69.8/62.9, PV_1 3.7/7.1, PV_2 2.0/2.1, VA 23.4/21.4, ID 21.7/20.7, IP 28.5/-, IV 17.1/-, IA 7.4/7.5, pD 46.3/46.7, pD_2 26.9/28.6, pA_1 31.4/32.1, pA_2 22.9/25.0; in % c : ao 24.3/25.2, o 14.8/12.5, po 60.8/59.2, ch 62.2/65.0, io 23.0/26.2, hf 12.2/12.6, lmx 51.3/50.5, lmd 62.2/59.2, hl 10.8/12.6, l $sp.br.$ 18.9/19.4.

The length of the gill lamella located opposite the angular gill raker of the 1st gill arch is 7.1/15.0% of the angular gill raker length.

Coloration of fish is light brown, head dark brown, fins light.

For a long time, up to five species of the genus *S. robustus* reduced the genus to five species *Scopeloberyx* were included in its synonymy (Ebeling, Weed, 1973), whose validity was later confirmed (Kotlyar, 2004a, 2004b). In the years before the revision of this genus's species, many works appeared that mentioned *S. robustus*, often without providing any diagnostic characteristics. The correct identification of *S. robustus* in these publications is questionable, as this would make the species cosmopolitan. Overall, it can be stated that the species inhabits tropical and subtropical waters of the Atlantic, Indian, and western Pacific Oceans (Kotlyar, 2004a).

***Scopeloberyx opisthopterus* (Parr, 1933)**

ASV, station 2656, 1 specimen *SL* 22.0 mm (damaged); AMK, station 7277, 2 specimens *SL* 26.5 and ~23.0 mm (damaged). Fish were caught in the central part of the Atlantic Ocean above the Mid-Atlantic Ridge (MAR) and near the Tropic seamount (Eastern Atlantic).

Meristic characters (MAR/Tropic): *D* III 10, *A* I 7, *P* 13/14, *V* I 8/I 7, *sp.br.* 3 + 1 + 11 = 15, *sp.br.* ₄ 3 + 8 = 11/3 + 9 = 12, *squ* ₁ 33/32, *squ* ₂ 29/28, *s* 11, *pr.sq.* 10/12, *vert.* 10 + 16 = 26/-. Anal fin begins under the vertical of the 3rd ray of *D* from its end.

Some measurements specimen *SL* 26.5 mm, in % *SL* : *c* 32.1, *ao* 9.4, *o* 3.0, *po* 19.2, *ch* 22.6, *io* 8.3, *hf* 3.8, *lmx* 17.4, *lmd* 20.0, *hl* 6.0, *l sp.br.* 6.2, *H* 21.1, *h* 8.3, *lpc* 30.2, *aD* 46.0, *aP* 32.1, *aV* 41.5, *aA* 60.4, *PV* ₁ 9.8, *PV* ₂ 8.4, *VA* 20.3, *ID* 20.8, *IP* broken, *IV* broken, *IA* 7.5, *pD* ₁ 56.6, *pD* ₂ 35.8, *pA* ₁ 37.7, *pA* ₂ 30.1; in % *c* : *ao* 29.5, *o* 9.4, *po* 60.0, *ch* 70.6, *io* 25.9, *hf* 11.8, *lmx* 54.1, *lmd* 62.4, *hl* 18.8, *l sp.br.* 19.4.

S. opisthopterus together with *S. microlepis* form a group of the genus *Scopeloberyx* , in which the pecto-ventral distance (*PV* ₂) is greater than 5% *SL* .

Coloration : body rather light (scales lost), head black; dorsal, pectoral and pelvic fins light; anal and caudal fins gray.

P. opisthopterus inhabits tropical-subtropical waters of all oceans (Kotlyar, 2005).

***Scopeloberyx* sp.**

FL, station 39L213rt, 2 specimens *SL* 13.8-18.8 mm.

Description of this new species is in press.

***Scopelogadus mizolepis* (Günther, 1878)**

FL, station 39L227rt, 1 specimen *SL* 27.0 mm.

Meristic characters : D II 11, A I 9, P 14, V I 7, $sp.br.$ $7 + 1 + 14 = 22$, $sp.br.$ $25 + 1 + 14 = 20$, $sp.br.$ $32 + 1 + 13 = 16$; $sp.br.$ $45 + 10 = 15$, $fil.p.$ 4, squ_1 16, squ_2 13. Anal fin begins under the vertical of the 5th ray of D from its end.

Some measurements, in % SL : c 41.1, ao 9.6, o 9.3, po 23.0, ch 27.0, io 14.8, hf 5.6, lmx 15.2, lmd 19.3, hl 6.7, l $sp.br.$ 5.9, H 28.1, h 9.3, lpc 29.6, aD 53.0, aP 41.1, aV 38.9, aA 57.4, PV_1 5.6, PV_2 3.7, VA 20.0, ID 21.5, IP 31.9, IV broken, LA 13.0, pD_1 55.6, pD_2 33.3, pA_1 43.0, pA_2 30.4; in % c : ao 23.4, o 22.5, po 55.9, ch 65.8, io 36.0, hf 13.5, lmx 36.9, lmd 46.8, hl 16.2, l $sp.br.$ 14.4.

The length of the longest of the two gill rakers located opposite the angular gill raker on the first gill arch was 15.6% of the length of this gill raker.

Coloration of the fish is uniformly brown, darker on the head and scale pocket margins, fins are light.

This species is widely distributed in tropical and subtropical zones of the Atlantic, Indian, and western Pacific Oceans. It is very rare in the southeastern Pacific Ocean (Kotlyar, 2020).

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COMPLIANCE WITH ETHICAL STANDARDS

The study used fish specimens from museum collections. Permission to study such material is not required.

CONFLICT OF INTEREST

The author of this work declares that he has no conflict of interest.

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FIGURE CAPTIONS

Fig. 1. Capture locations of Melamphaidae: (●) – *Melamphaes leprus* , (○) – *M. polylepis* , (■) – *M. inconspicuus* , (□) – *M. lentiginosus* , (▲) – *M. pumilus* , (△) – *M. typhlops* , (◇) – *Poromitra megalops* , (◆) – *P. macrophthalma* , (▼) – *Scopeloberyx robustus* , (⊕) – *S. opisthopterus* , (☆) – *Scopeloberyx* sp., (★) – *Scopelogadus mizolepis* .

Fig. 2. *Melamphaes leprus* SL 17.5 mm: a – external view, b – X-ray image.

Fig. 3. *Melamphaes inconspicuus* SL 21.0 mm: a – external view, b – X-ray image.

Fig. 4. *Melamphaes lentiginosus* : a, b – SL 14.0 mm; c, d – SL 22.0 mm; a, c – external view; b, d – X-ray image.