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A new genus and two new species of congrid eels (Teleostei: Anguilliformes: Congridae) from the Indo-West Pacific, with a redescription and osteology of *Chiloconger dentatus*

DAVID G. SMITH[1] & EMMA S. KARMOVSKAYA[2]

[1] *Division of Fishes, MRC-159, Smithsonian Institution, P.O. Box 37012, Washington, DC 20013, USA; smith.davidg@nmnh.si.edu*

[2] *P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Nakhimovskii pr.36, Moscow, 117218 Russia; ekarmovs@sio.rssi.ru*

Abstract

A new genus and two new species of congrid eels, subfamily Bathymyrinae, are described from the western Indian Ocean and the western Pacific. *Kenyaconger* gen. nov. differs from all other congrids in having a tubular posterior nostril, opening on the edge of the upper lip behind the labial flange. *Kenyaconger heemstrai* sp. nov., the only species in the genus, is described from a single specimen collected off the coast of Kenya in the western Indian Ocean. *Chiloconger philippinensis* sp. nov. is described from the Philippines, the first record of the genus outside the eastern Pacific. It differs from *Chiloconger dentatus* (Garman, 1899) in several meristic and morphometric characters. *Chiloconger dentatus* is redescribed from additional material and its osteology is described for the first time. *Chiloconger similis* Wade, 1946 is reassigned to *Paraconger* Kanazawa.

Key words: Congridae, *Chiloconger*, *Kenyaconger*, *Paraconger*, taxonomy, new genus, new species

Introduction

The subfamily Bathymyrinae of the Congridae consists of five currently recognized genera. *Ariosoma* Swainson, 1838 occurs in all oceans and is one of the most speciose of the congrid genera. *Bathymyrus* Alcock, 1889 contains three species from the Indo-West Pacific. *Parabathymyrus* Kamohara, 1938 contains four species from the Indo-West Pacific and the western Atlantic. *Paraconger* Kanazawa, 1961 contains six currently recognized species, inhabiting the eastern and western Atlantic and the eastern Pacific. *Chiloconger* Myers and Wade, 1941 has been known from two eastern Pacific species. In this

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paper, we add a sixth genus, *Kenyaconger*, based on a new species from the western Indian Ocean. We also describe a new species of *Chiloconger* from the Philippines, extending the range of that genus to the western Pacific. We provide an extended redescription of *Chiloconger dentatus* (Garman, 1899), the type species of *Chiloconger*, based on 15 specimens (the species was originally described from a single, small individual), and include an account of its osteology. We discuss the differences between *Chiloconger* and *Paraconger* and transfer *Chiloconger similis* Wade, 1946 to *Paraconger.*

Methods

Counts, measurements, and bone terminology are as in Smith (1989: 460). All measurements are in mm, and unless otherwise stated, lengths are total lengths. Abbreviations for head pores and their associated canals are: IO (infraorbital), LL (lateral line), POM (preoperculomandibular), SO (supraorbital), STC (supratemporal commissure). Institutional abbreviations are as follows: CAS, California Academy of Sciences, San Francisco, CA; LACM, Natural History Museum of Los Angeles County, CA; MNHN, Muséum National d'Histoire Naturelle, Paris; SIO, Scripps Institution of Oceanography, La Jolla, CA; UCR, University of Costa Rica; USNM, National Museum of Natural History, Smithsonian Institution, Washington, DC.

Chiloconger Myers and Wade, 1941

Chiloconger Myers and Wade, 1941: 65

Type species: *Chiloconger labiatus* Myers and Wade, 1941: 66.

Diagnosis. Body moderately elongate, preanal length greater than 40% TL; tip of tail blunt and stiffened, caudal fin reduced; dorsal fin begins over posterior part of appressed pectoral fin; dorsal- and anal-fin rays unsegmented; upper end of gill opening opposite upper part of pectoral-fin base, not enclosing pectoral fin; snout short and blunt, eye large, its diameter slightly greater than snout length; well developed, broadly rounded and elevated flange on upper lip, covering a hollowed-out area; adnasal pore present in at least one species, second and fifth infraorbital pores present, but third and fourth absent; maxillary and mandibular teeth irregularly biserial or triserial, not forming a cutting edge; lateral ethmoid process present, supraoccipital present, posterior end of urohyal simple (not trifurcate).

Relationships. Smith (1989: 490) observed that the Bathymyrinae could be divided into two groups. One group contains the genera *Ariosoma*, *Bathymyrus*, and *Parabathymyrus* and is characterized as follows: supraoccipital bone absent, urohyal trifurcate, adna-

sal pore absent, third and fourth infraorbital pores present, leptocephali with lateral pigment consisting of a series of short, oblique rows of tiny melanophores on myosepta. The other group contains *Paraconger* and *Chiloconger* and is characterized as follows: supraoccipital bone present, urohyal simple, adnasal pore usually present, third and fourth infraorbital pores absent, leptocephali with lateral pigment consisting of a single series of moderately large melanophores along midlateral line. At the time, Smith had no detailed information on *Chiloconger*, but he assigned it to the *Paraconger* group on the basis of retained larval pigmentation in a small specimen. Information presented here (see below) confirms Smith's conclusion; *Chiloconger dentatus* has a supraoccipital and a simple urohyal. In addition, *Chiloconger philippinensis*, at least, has an adnasal pore, and both species lack the third and fourth infraorbital pores.

Key to species

1a. Predorsal length 20–26 % TL, preanal LL pores 19–27, vertebrae 118–122 .... *C. dentatus* (eastern Pacific)

1b. Predorsal length 18–19 % TL, preanal LL pores 36–39, vertebrae 113–115 .... *C. philippinensis* (western Pacific)

***Chiloconger dentatus* (Garman, 1899)**
(Figs. 1–6)

Atopichthys dentatus Garman, 1899: 330, pl. 66 (figs. 3–3a)
Atopichthys obtusus Garman, 1899: 337, pl. 67 (figs. 4–4a)
Chiloconger labiatus Myers and Wade, 1941: 66, pl. 7
Paraconger dentatus, Raju, 1985: 8, fig. 4
Gorgasia obtusa, Raju, 1985: 11, figs. 5F1, 5F2, 6.

Study material (15 adult specimens, 80–270 mm TL; 2 larval specimens, 80–100 mm SL): LACM 21559 (holotype of *Chiloconger labiatus*, 82 mm TL), Port Utría, Colombia, 6° 01' N, 77° 22' W, 15–30 fm (27–55 m), 25 Feb. 1938, mud and sand bottom. Others: CAS 38794 (1: 80), Costa Rica, 9° 19’ 32” N, 84° 29’ 30” W, 42 fm (77 m), 1 March 1938, “Zaca” 214-D-1; LACM 24206 (1: 145), Pacific, Panama, 7º 49’ N, 82º 23’ 30” W, 54 fm (99 m), 27 March 1939, green mud; LACM 33590-4 (1: 193), Costa Rica, 9º 30’ 00” N, 84º 45’ 12” W, 135–102 fm (247–187 m), 17 May 1973; SIO 62–701 (1: 214), 23º 58.3' N, 111º 01.0’ W, 50 fm (92 m), 4 Dec. 1962, 0250–0320 hr, 16-ft otter trawl; SIO 65–227 (1: 222), 24º 12.3’ N, 111º 29.7’ W, 56–58 fm (102–106 m), 27 June 1965, 4-ft otter trawl; UCLA W56–118 (1: 250), Pacific, Mexico, Sinaloa, 25 miles SE of Bahía Topolobampo, Gulf of California, 7–13 June 1956; UCR 334-12 (1: 270), Costa Rica, near Puntarenas; UCR 681-2 (93–109), Costa Rica, Isla del Caño, N. side, 16 March 1972; UCR 686-1 (3:

81–93), Costa Rica, Isla del Caño, 17 March 1972; USNM 195586 (1: 268), Pacific, Mexico, Sinaloa, 25° 18’ N, 108° 48’ W, 2 miles south of entrance of Bahía Topolobampo, 7–13 June 1956; USNM 316123 (ex UCR 489-18) (1: 237), Costa Rica, Puntarenas Province, Golfo de Nicoya, 26–29 Oct. 1970; MCZ 28421 (larva, holotype of *Atopichthys obtusus*, 100 mm SL), off Colombia, 7° 33' N, 79° 17' W, 8 March 1891, "Albatross" 3386; MCZ 28427 (larva, holotype of *Atopichthys dentatus*, 80 mm SL), off Panama, 2° 34' N, 82° 29' W, 4 March 1891, "Albatross" 3375.

Diagnosis. A moderately elongate, small congrid eel of the subfamily Bathymyrinae, with short, bluntly-rounded snout and a dark margin on the dorsal fin anteriorly. Total vertebrae 118–122, preanal LL pores 19–27, predorsal length 20–26 % TL.

Description. Measurements, as % TL: preanal 38.7–49.1, predorsal 20.1–26.2, head 16.8–20.1, depth at anus 4.3–7.8; as % head length: snout 14.0–19.3, eye 13.8–20.9, upper jaw 22.1–32.5, gill opening 10.4–24.4, interbranchial 10.4–28.1, pectoral fin 15.9–37.4. Meristic characters: preanal LL pores 19–27, POM pores 6–7, IO pores 3 or 4, SO pores 3 or 4, STC pores 0, branchiostegal rays 9–10, pectoral rays 16–18, predorsal vertebrae 13–14, preanal vertebrae 42–44, total vertebrae 118–122.

Moderately elongate, round in cross section anteriorly, becoming more compressed posteriorly, anus before midlength (Fig. 1-1). Dorsal-fin origin over posterior part of appressed pectoral fin, continuous around end of tail with caudal and anal fins; caudal fin broadly rounded, its rays reduced in length, shorter than adjacent dorsal and anal rays; anal-fin origin immediately behind anus; pectoral fin well developed. Gill opening a nearly vertical slit slightly below middle of body, its upper end slightly below upper edge of pectoral-fin base, thus not completely enclosing the pectoral fin (the original illustration in Myers and Wade, 1941, pl. 7, reproduced in slightly modified form here as Figure 1, was wrong in this regard); interbranchial nearly equal to gill opening.

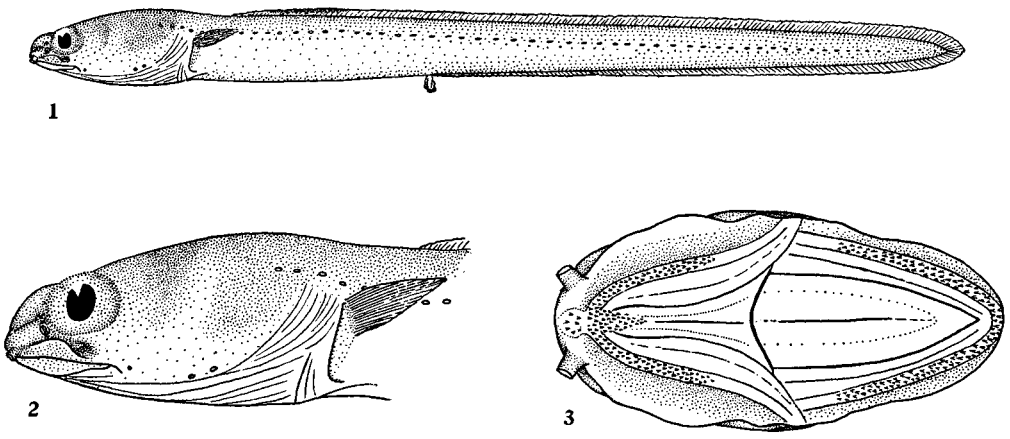

FIGURE 1. *Chiloconger dentatus* (from Myers and Wade, 1941, pl. 7). Note: the figure has been modified here to show the correct position of the upper end of the gill opening.

Head (Fig. 1-2) deepest about midway between pectoral fin and snout tip, tapering anteriorly and posteriorly from this point; snout short, equal to or slightly less than eye diameter. Eye large. Anterior nostril tubular, near tip of snout; posterior nostril a rounded pore with a slightly raised rim, near anterior margin of eye, distinctly below mideye level. A broad, well developed upturned flange on upper lip, beginning on side of snout about 1-2 nostril diameters behind anterior nostril, deepest at middle of length, narrowing posteriorly, ending under anterior part of eye, somewhat before rictus, enclosing an excavated space. A prominent downturned flange on lower lip.

Head pores small, often difficult to see (Fig. 1-2; Fig. 2, left). Supraorbital canal with three or four pores; a small pore (ethmoidal pore) near tip of snout, near edge of lip; a second somewhat larger pore above the preceding, at level of anterior nostril and about one nostril diameter anterior to nostril; a small papilliform pore immediately above base of anterior nostril, which is either the third supraorbital pore or the adnasal pore; a small pore directly above posterior nostril. Infraorbital canal with three or four pores (depending on which canal the small pore above the anterior nostril belongs to); a pore on upper lip just below anterior end of labial flange; a small pore on upper lip near posterior end of labial flange and shortly anterior to rictus; a small pore on side of head directly behind rictus, slightly behind a vertical through posterior edge of eye; no pores in postorbital section of canal. Preoperculomandibular canal with 4–5 pores before rictus and 2 pores behind (one specimen had 1 pore here on one side). No pores in supratemporal commissure.

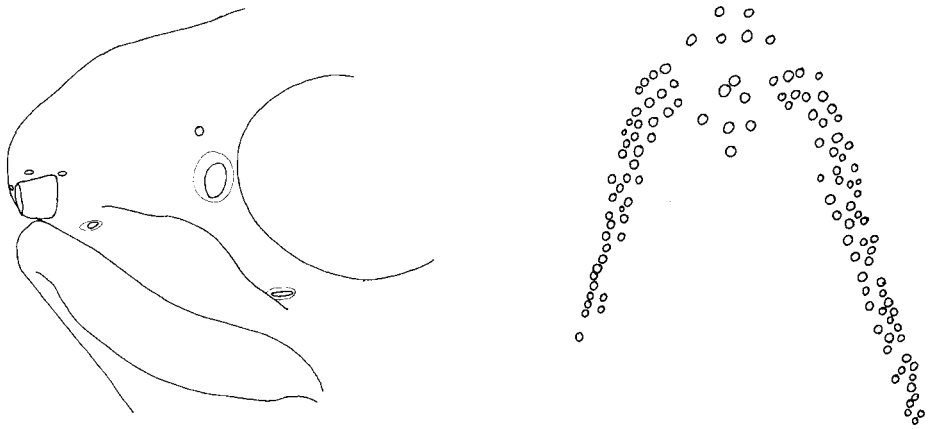

FIGURE 2. *Chiloconger dentatus*. Left, head showing position of nostrils and pores; right, upper dentition (one side of specimen illustrated is damaged).

Teeth small, conical (Fig. 1–3; Fig. 2, right). Intermaxillary teeth in two transverse rows, forming a roughly semicircular patch, separated from vomerine patch. Vomerine teeth in a slightly elongate patch, broadest anteriorly, narrowing posteriorly. Maxillary teeth irregularly triserial, not forming a cutting edge. Mandibular teeth in approximately four series at anterior end of jaw, narrowing posteriorly to three or two series, not forming a cutting edge.

Gas bladder loosely attached to body wall by mesentery, extending from anterior end of stomach to slightly beyond posterior end of stomach. Stomach ends about halfway between pectoral fin and anus.

Color light brown, with minute dark specks dorsally and laterally; dorsal fin with a dark margin anteriorly, fading to a faint line posteriorly. Anal and caudal fins without a dark margin. Esophagus black, stomach pale. Holotype of *C. labiatus* has remnants of larval pigmentation: a row of small melanophores along lateral midline, not quite one per segment; a few melanophores on ventral midline, including two under liver. Six other specimens, 81–145 mm TL, also show traces of larval pigment.

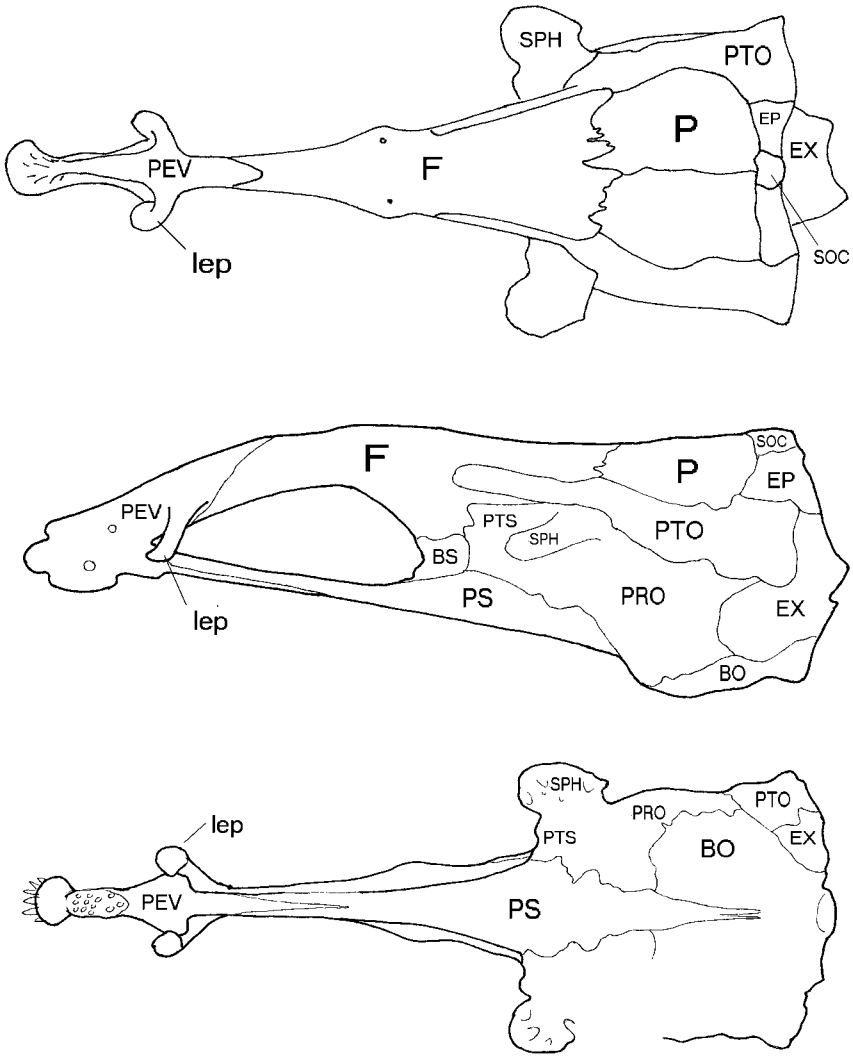

FIGURE 3. Neurocranium of *Chiloconger dentatus* in dorsal (top) view, lateral (middle) view, and ventral (bottom) view. BO, basioccipital; BS, basisphenoid; EP, epiotic; EX, exoccipital; F, frontal; lep, lateral ethmoid process; PEV, premaxillary ethmovomerine complex; P, parietal; PRO, prootic; PS, parasphenoid; PTO, pterotic; PTS, pterosphenoid; SOC, supraoccipital; SPH, sphenotic. Note: right otic region damaged.

Osteology. Neurocranium (Fig. 3) moderately short, triangular in dorsal view, orbital and antorbital portion relatively narrow in dorsal or ventral view; lateral ethmoid process present, relatively slender; sphenotic, pterosphenoid, and prootic fused into a single unit; supraoccipital present; otic bullae slightly inflated.

Maxilla and mandible (Fig. 4) typical of Congridae; maxilla with a well developed pedicel anteriorly and an expanded, ventrally deflected flange at posterior end.

Suspensorium (Fig. 4) relatively short, inclined anteriorly; pterygoid broad, well developed.

All four opercular elements (Fig. 4) present, well developed; posterior margin of opercle smooth.

Pectoral girdle (Fig. 4) complete, well developed. Supracleithrum well developed, expanded dorsally forming three lobes; cleithrum without a sharp bend dorsally; scapula and coracoid both well developed, embedded in a cartilaginous matrix; four actinosts.

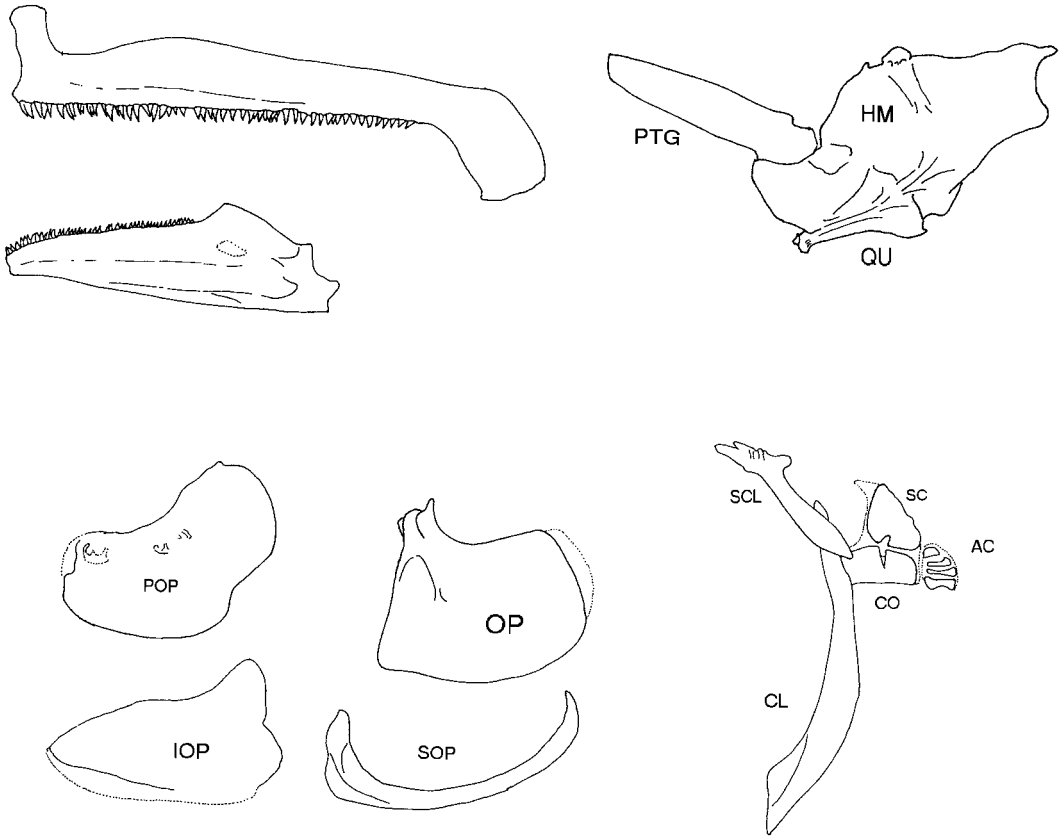

FIGURE 4. *Chiloconger dentatus*. Upper and lower jaws (upper left); suspensorium (upper right); opercular apparatus (lower left); pectoral girdle (lower right). AC, actinost; CL, cleithrum; CO, coracoid; HM, hyomandibula; IOP, interopercle; OP, opercle; POP, preopercle; PTG, pterygoid; QU, quadrate; SC, supracoracoid; SCL, supracleithrum; SOP, subopercle.

Hypohyals absent; ceratohyal and epihyal moderately short; nine branchiostegal rays in specimen examined, posteriormost ray expanded near base into a posteriorly directed lobe; glossohyal moderately stout with a ventral keel; urohyal slender, shaft compressed, not trifurcated posteriorly. (Fig. 5)

Branchial arches (Fig. 5) typical of Congridae; first three basibranchials ossified, fourth cartilaginous, fifth absent; first two hypobranchials ossified, third cartilaginous, fourth and fifth absent; five ceratobranchials present and ossified, fifth slender and reduced; lower pharyngeal tooth plates moderately developed; first through fourth epibranchials, second and third infrapharyngobranchials present; upper pharyngeal tooth plate moderately developed, undivided.

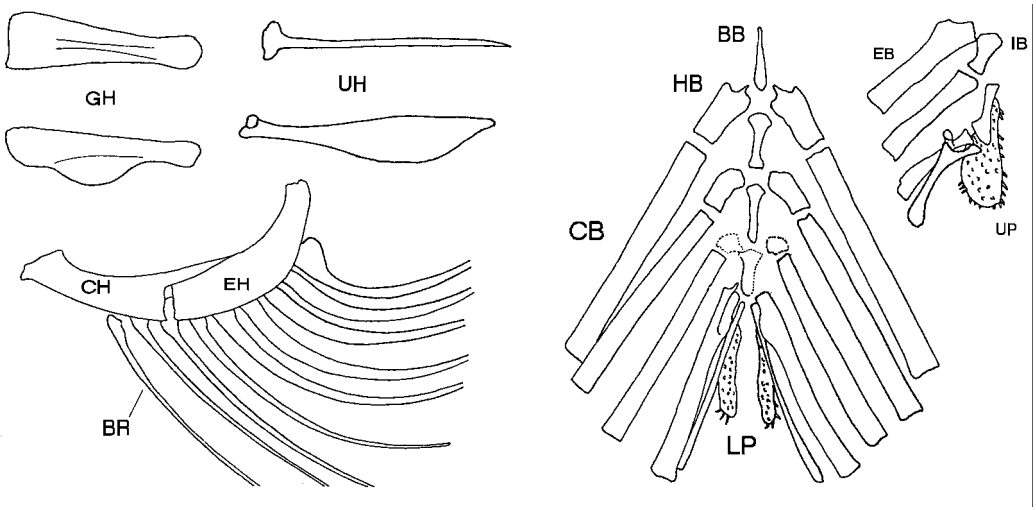

FIGURE 5. *Chiloconger dentatus*. Hyoid arch (left) and branchial arch (right). BB, basibranchial; BR, branchiostegal rays; CB, ceratobranchial; CH, ceratohyal; EB, epibranchial; EH, epihyal; GH, glossohyal; HB, hypobranchial, IB, infrapharyngobranchial; LP, lower pharyngeal tooth plate; UH, urohyal; UP, upper pharyngeal tooth plate. Glossohyal and urohyal in ventral (top) and lateral (bottom) view, anterior end to left; ceratohyal, epihyal and branchiostegal rays of left side, dorsal view; branchial arches, ventral elements in ventral view, dorsal elements left side in dorsal view.

Anteriormost epineurals not fused to neural arch; abdominal vertebrae with broad, almost horizontally inclined parapophyses; pleural ribs present; caudal vertebrae with epicentral processes. In specimen examined, first rib on 12th vertebra, dorsal-fin origin over 13th–14th vertebra, first closed hemal arch on 47th vertebra, total vertebrae 117+ (caudal skeleton missing). (Fig. 6)

Ossicles in cephalic lateralis canals incompletely ossified, outlines unclear in specimen examined.

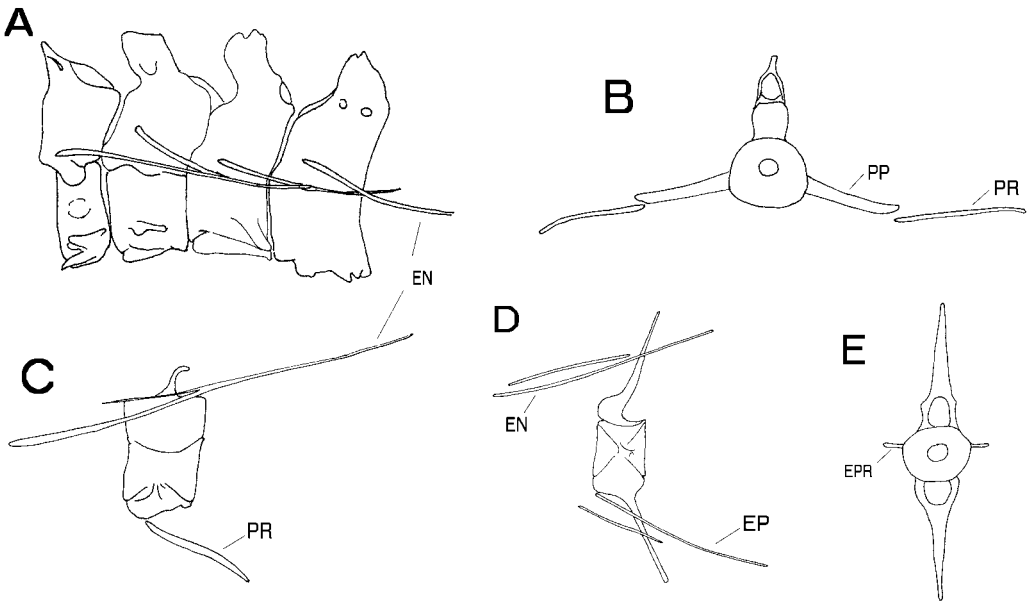

FIGURE 6. *Chiloconger dentatus*, vertebrae. A, anteriormost four vertebrae, left side. B, Abdominal vertebra, anterior view. C, Abdominal vertebra, left lateral view. D, Caudal vertebra, left lateral view. E, Caudal vertebra, anterior view. EN, epineural; EP, epipleural; EPR, epicentral process; PP, parapophysis; PR, pleural rib.

Distribution and habitat. Found along the western coast of Mexico, Central and South America from the southern Gulf of California to Colombia, in depths of 27–247 m. It has not been recorded from any of the oceanic islands of the eastern Pacific.

Remarks. *Chiloconger dentatus* is unusual among congrids in having far fewer lateral-line (LL) pores than vertebrae. The number of preanal LL pores, 19–27, is barely more than half the number of preanal vertebrae, 42–44. This species was first described by Garman (1899) from two then-unidentified leptocephali, *Atopichthys dentatus* and *Atopichthys obtusus*, the former premetamorphic and the latter metamorphic. Raju (1985: 8) assigned *A. dentatus* to *Paraconger*, based on similarities to known larvae of that genus. He erroneously assigned *A. obtusus* to the heterocongrine genus

Gorgasia. Grove and Lavenberg (1997: 179) cited all three names and selected *dentatus* as the valid name.

***Chiloconger philippinensis*, sp. nov.**
(Figs. 7 – 9)

Chiloconger sp., Smith in Carpenter & Niem, 1999:1682, 1686, fig.6 (in key of the subfamilies and genera, in list of species).

Type material: Holotype, MNHN 1998-0664 (male, 166 mm TL), South China Sea,

south-west of Luzon Id.; 28 November 1980, station 59CP4, 14° 00' N., 120° 16' E, 190–186 m depth, beam trawl; C. R. V. "Coriolis", MUSORSTOM 2. Paratypes, MNHN 2002-3730 (4, 161–183 mm), same data as holotype; paratype MNHN 1998-0666 (female, 190 mm); 29 November 1980, station 63CP4, 14° 07' N., 120° 15' E, 230–215 m depth, beam trawl; C. R. V. "Coriolis", MUSORSTOM 2.

Diagnosis. A small species of *Chiloconger* of the subfamily Bathymyrinae, with short bluntly-rounded snout and large brown spot at origin of dorsal fin. Maxillary and mandibular teeth pointed or bluntly conical, close-set in outer series, biserial for the most of length of jaws. Intermaxillary teeth in two transverse rows. Total vertebrae 113–115, preanal lateral-line pores 36–39, predorsal length 18–19 % TL, upper jaw 33–38 % HL.

Description (values given for holotype, with those of paratypes in parentheses). Measurements as % TL: preanal 46.4 (45.3–46.0), predorsal 18.7 (17.6–18.8), head 16.6 (15.5–16.8), trunk 29.8 (28.4–30.5), depth at gill opening 7.5 (6.0–7.5), depth at anus 6.6 (5.9–6.2); as % of head length: snout 18.2 (17.2–20.0), eye 20.0 (20.3–21.7), upper jaw 32.7 (33.3–37.9), gill opening 29.1 (26.5–28.3), postorbital 65.4 (66.7–67.5), interorbital 7.3 (8.3–9.3), interbranchial 25.4 (21.8–26.7), pectoral fin 32.7(35.9–36.7). Meristic characters: preanal LL pores (37) 36–39, POM pores 8, IO pores 3, SO pores 4, STC pores 0, total vertebrae 113 (113, 115), predorsal vertebrae 10 (9, 10), preanal vertebrae 42 (40, 43), precaudal vertebrae 45 (44, 46). Pectoral-fin rays 14 (13, 14), dorsal-fin rays 252 (229, ca. 237), preanal dorsal fin-rays 74 (66, ca. 67), anal-fin rays 147 (157, 167), caudal-fin rays 9 (9). Branchiostegal rays 10 (10).

Moderately elongate, head roughly cylindrical, trunk and tail compressed, anus anterior to midlength; tip of tail blunt and stiffened, caudal fin reduced (Fig. 7). Tail 1.1–1.3 times longer than head and trunk. Head deeper than body. Dorsal-fin origin behind gill opening above tip of pectoral fin, over sixth or seventh lateral line pore (Fig. 8). Anal-fin origin at the distance of 180 (169–196) % of head length from gill opening below 39th (37th–40th) pore of lateral line. Dorsal and anal fins confluent with caudal. Pectoral fin well developed. Gill opening large, crescentic, its upper corner slightly below of upper edge of pectoral-fin base. Mouth cleft extending backward almost to level of posterior margin of eye. Snout short, bluntly-rounded, projecting slightly beyond lower jaw, lips with greatly developed upturned labial flanges. Flange of upper lip broad, covering preorbital groove from anterior nostril to a vertical through mid-length of eye; the greatest height of flange almost reaching posterior nostril. Flange of lower lip prominent, longer than flange of upper lip. Fleshy inner lips covering maxillary and mandibular teeth laterally. Eye large, round, covered with dermal membrane, its diameter slightly more than snout length. Anterior nostril tubular, near tip of snout, directed obliquely anterolaterally. Posterior nostril oval in shape, with raised incised rims, placed immediately in front of eye at level of its lower edge. Numerous plicae, with minute filaments, scattered on tip of snout, between nostrils and along branchial region.

FIGURE 7. *Chiloconger philippinensis*, paratype, MNHN 2002-3730, 183 mm TL.

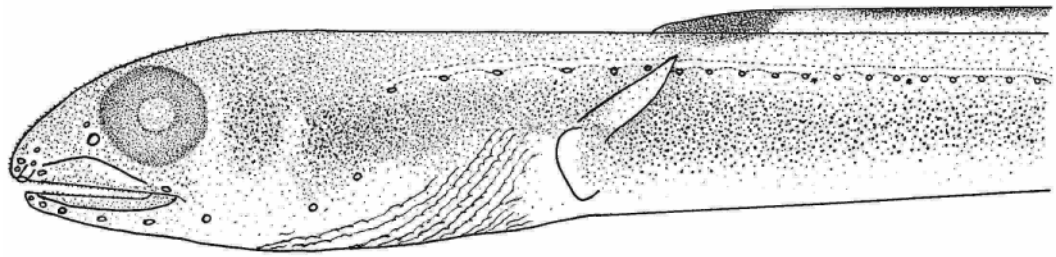

FIGURE 8. *Chiloconger philippinensis*, holotype, MNHN 1998-0664, 166 mm TL, head and anterior body.

Head and lateral line pores relatively conspicuous (Fig. 8). In supraorbital series four pores: one small pore at tip of snout (ethmoidal pore) in front of anterior nostril; one large pore above and slightly before base of anterior nostril; one small papilla-like pore placed above and behind anterior nostril; one small pore before anterior margin of eye over posterior nostril. In infraorbital series three pores: one minute pore (adnasal pore) immediately above base of anterior nostril, one large pore behind anterior nostril, partly hidden in anterior part of labial flange, and one large pore slightly behind mid-eye level, hidden in lip before rictus. No visible infraorbital pore behind rictus. Eight obvious preoperculomandibular pores, six mandibular and two preopercular pores. No pores in supratemporal commissure. Lateral line pores anterior to level of pectoral fin 4 (4), anterior to level of dorsal-fin origin 7 (6–7), anterior to level of vent 37 (36–39).

Teeth (Fig. 9) small, sharply or bluntly conical, set in irregular rows, tapering to one row posteriorly in jaws and vomer. Intermaxillary teeth conical, recurved tooth patch in two semicircular rows, separated from maxillary and vomerine teeth. Vomerine teeth conical, shorter and blunter than those of intermaxillary, in a short oblong patch, arranged in irregular four rows anteriorly, tapering to one-two rows posteriorly, ca. 13. Maxillary and mandibular teeth in bands, those of outer row higher than those of inner row, slightly decreasing in size anterior to posterior. Teeth of outer series pointed, straight, densely set. Teeth of inner series blunt and irregularly spaced. Maxillary teeth roughly in three-four rows anteriorly, biserial for the most of length series, uniserial at posterior end of series; posteriormost few teeth directed anteriorly. Mandibular teeth in four-five rows anteriorly, biserial for the most of length series.

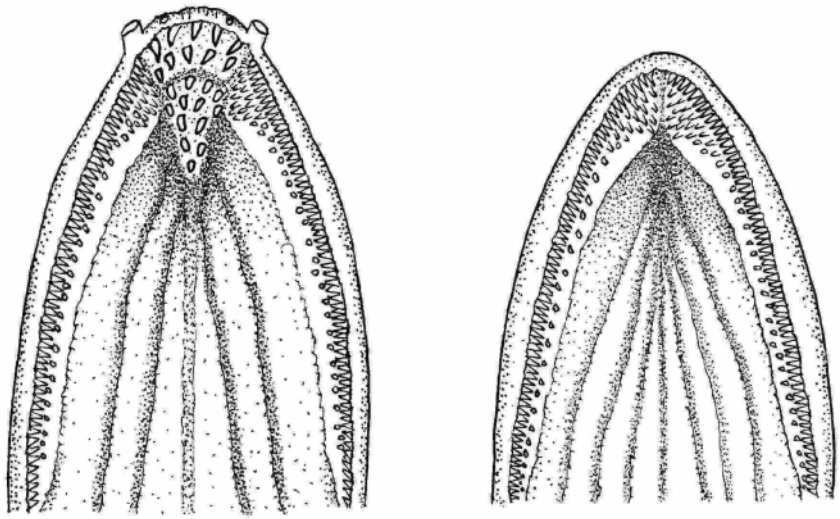

FIGURE 9. *Chiloconger philippinensis*, holotype, upper (left) and lower (right) dentition.

Gas bladder attached to vertebrae, extending posterior to stomach, terminating before anus.

Stomach reaching about one-half or two-thirds of way to anus.

Color in preservative yellowish-brown, lighter ventrally; cheeks and lateral sides of body mottled with tiny melanophores; the single irregular midlateral series of melanophores widely spaced slightly beneath skin. Pectoral, anal and caudal fins pale. Dorsal fin with a large brown spot covering first several rays and membrane, dark-edged posteriorly from about middle of trunk to caudal fin. Nostrils and pores whitish. Digestive tract pale, stomach and intestine brownish anteriorly, speckled with scattering melanophores. Branchial cavity pale.

The specimens range from 161 to 190 mm TL. The largest specimen mature female 190 mm TL, egg diameter 0.75–0.95 mm.

Comparison with other species. *Chiloconger philippinensis* most closely agrees with *C. dentatus* (Garman, 1899) in terms of short bluntly rounded snout, large labial flanges, similar arrangement of dentition, head pores and nostril openings, and pattern of coloration of dorsal fin and body. *Chiloconger philippinensis* differs from *C. dentatus* by combination of its meristic characters: number of vertebrae (113–115 vs. 118–122), number of preanal lateral line pores (36–39 vs. 19–27), number of supraorbital (4 vs. 3), infraorbital (3 vs. 4) and mandibular pores (6 vs. 4–5). *C. philippinensis* also shares some morphometric characters with *C. dentatus* but has relatively shorter head (15.5–16.8% TL vs. 16.8–20.1%), shorter predorsal length (17.6–18.8% TL vs. 20.1–26.2%) and longer upper jaw (32.7–37.9% HL vs. 22.1–32.5%).

Distribution. Known from two Philippines localities, south-west of Luzon Id. trawled at 186–230 m of depth.

Etymology. The specific name refers to the type locality.

The status of *Chiloconger similis*

Chiloconger similis Wade, 1946 was described from a single individual collected off Cape San Lucas, Baja California, Mexico. Based on examination of this specimen and eight similar specimens from the Revillagigedo and Galapagos Islands, we conclude that *C. similis* should be placed in *Paraconger* rather than *Chiloconger.* Below, we compare the condition of seven character states among *Chiloconger philippinensis*, *C. dentatus*, *C. similis*, and *Paraconger californiensis*, the last three all sympatric in the eastern Pacific.

1). Labial flange. In *Chiloconger dentatus*, the flange ends anteriorly at about the level of the base of the anterior nostril. There is no superficial groove extending ventrally to the IO_2 pore. In *C. similis* and *P. californiensis* the flange proper ends anteriorly about opposite the base of the anterior nostril, but a superficial groove continues ventrally, connecting with a depression containing the IO_2 pore.

2) Adnasal (IO_1) pore. In *Chiloconger philippinensis*, this pore is small and papilla-like, just behind the upper edge of the base of the anterior nostril (in *C. dentatus*, the presence of the adnasal pore is problematical). In *C. similis*, this pore is moderately large, with a raised rim, just posterior to the base of the anterior nostril, in the space between the anterior nostril and the groove containing the IO_2 pore. In *P. californiensis*, the condition is much like that of *similis*.

3) Second infraorbital (IO_2) pore. In *C. dentatus* and *philippinensis*, this pore is located in an isolated depression, not a groove, on the outside of the lip, ventral and slightly anterior to the anterior end of the labial groove, and it has a raised rim. In *C. similis*, the pore is tubular and concealed in the labial groove, larger and more open, with a thin-walled rim. In *P. californiensis*, it is much like that of *similis* but smaller and more papilla-like, with thick walls and a smaller opening.

4) Fifth infraorbital (IO_5) pore. In *C. dentatus* and *philippinensis*, this pore is located on the side of the head immediately above the posterior end of the labial flange (i.e., it is not on the flange itself). In *C. similis* and *P. californiensis*, the pore is on the dorsal edge of the flange, below the middle of the eye

5) Second supraorbital (SO_2) pore. In *C. dentatus* and *philippinensis*, this is an open pore, slightly dorsal and distinctly anterior to the anterior nostril, by a distance substantially greater than the diameter of the pore. In *C. similis*, the pore is open, larger, and closer to the base of the anterior nostril, by a distance less than the diameter of the pore. In *P. californiensis*, the pore has a raised rim and is in a slit or groove immediately dorsal to the base of the anterior nostril, the ventral rim of the pore touching the base of the nostril.

6) Upper end of gill opening. In *C. dentatus* and *philippinensis*, the upper end of the gill opening is located slightly below the upper end of the pectoral-fin base, at about the level of the third or fourth ray; the pectoral fin thus is not entirely enclosed by the gill opening. In both *C. similis* and *P. californiensis*, the upper end of the gill opening is above the top of the pectoral-fin base, enclosing the entire fin base.

7) Maxillary teeth. In *C. dentatus* and *philippinensis*, the maxillary teeth are in two to four series, conical, about equal size, and not forming a cutting edge. In *P. californiensis*, the teeth are in one or two rows, those of the outer row larger, compressed, their tips blade-like, closely spaced and forming a cutting edge. *Chiloconger similis* is somewhat intermediate in this respect. The teeth are mostly triserial, but those of the middle row are larger, pointed, and form a saw-like ridge.

Of the seven characters described above, *Chiloconger similis* resembles *Paraconger californiensis* in five of them (labial flange, adnasal pore, IO_5 pore, SO_2 pore, and pectoral fin/gill opening. In the other two characters (IO_2 pore and maxillary teeth), *C. similis* is somewhat intermediate. In most if not all of these characters, the *Paraconger* condition is more derived. Indeed, the gill-opening/pectoral fin character is unique among congrids and has always been diagnostic for the genus *Paraconger.* We thus conclude that *Chiloconger similis* should be placed in *Paraconger* and henceforth known as *Paraconger similis* (Wade, 1946).

Comparative study material. *Paraconger similis*: CAS 86747 (2: 142–145), Galapagos Is., Genovesa Id., 24 November 1995, J. E. McCosker, et al.; LACM 21712 (holotype: 251), Inner Gorda Bank, Cape San Lucas, Lower California, Mexico, 23° 02' 30" N, 109° 03' 07" W, 59–78 fm (108–143 m), 17 February 1940; LACM 43616-1 (2: 395–423), Revillagigedo Is., near Clarion Id., 5–11 January 1984; SIO 87–128 (3: 311–345), Revillagigedo Is., 19° 03' N, 112° 08' W, by hook and line; USNM 362109 (1: 351), Galapagos Is., 1°23' 12" N, 91° 48' 36" W, 400 ft (122 m), 21 June 1998, J. E. McCosker. *Paraconger californiensis*: USNM 177696 (holotype: 505), Mexico, Sinaloa, Gulf of California, 25 miles southeast of Bahía Topolobampo, 22–27 fm (40–49 m), 7–13 June 1956, W. Baldwin.

***Kenyaconger* gen. nov.**

Type species: *Kenyaconger heemstrai* sp. nov.

Diagnosis: Body moderately stout, preanal length greater than 40% TL; caudal fin reduced, tip of tail blunt and stiffened; dorsal- and anal-fin rays unsegmented; head deep, snout short and bluntly rounded; eye large, greater than snout length; well developed flange on upper and lower lip; posterior nostril opening through a tube on edge of upper lip, behind labial flange; adnasal pore absent. Maxillary and mandibular teeth biserial

anteriorly, uniserial posteriorly, main series compressed and incisor-like, closely spaced and forming a cutting edge.

Etymology: Named for the east African nation of Kenya, off whose coast the type species was collected.

***Kenyaconger heemstrai* sp. nov. (Figs. 10–12)**

Type material: Holotype, SAIAB 13954 (male, 267 mm TL), 2° 50' S, 40° 31' W, 275 m, R/V "Fridjof Nansen."

Diagnosis. A congrid eel of the subfamily Bathymyrinae. Snout short, bluntly rounded. Posterior nostril opening ventrally from a tube on upper lip behind labial flange. Maxillary and mandibular teeth biserial anteriorly, uniserial posteriorly, compressed and incisor-like, closely appressed.

Description. Measurements: TL 267 mm, preanal length 118 mm (44.2 % TL), predorsal length 48 mm (18.0 % TL), head length 48 mm (18.0 % TL), depth at gill opening 19.5 mm (7.3 % TL), depth at anus 15.8 mm (5.9 % TL), snout 7.7 mm (16.0 % head), eye 9.2 (19.2 % head), upper jaw 12.7 mm (26.5 % head), gill opening 6.9 mm (14.4 % head), interbranchial 6.5 mm (13.5 % head), pectoral fin 14.7 mm (30.6 % head). Meristic characters: preanal LL pores 43-44, POM pores 8, , IO pores 5, SO pores 3, STC pores 0, predorsal vertebrae 9, preanal vertebrae 46, total vertebrae 139.

A moderately stout eel, anus before midlength, head deeper than body, tail blunt and stiffened (Fig. 10). Dorsal-fin origin directly above pectoral-fin base, continuous around end of tail with caudal and anal fins; caudal fin broadly rounded, its rays reduced in length, shorter than adjacent dorsal and anal rays; anal-fin origin immediately behind anus; pectoral fin well developed. Gill opening a crescentic slit on lower side of body, distance from dorsal to ventral ends very slightly greater than interbranchial distance; dorsal end of gill opening opposite ventral end of pectoral-fin base.

FIGURE 10. *Kenyaconger heemstrai*, holotype, SAIAB 13954, 267 mm TL.

Head deeper than body, snout blunt and rounded (Fig. 11). Small dermal filaments on skin of head. Eye large, its diameter greater than snout length. Anterior nostril a short tube

above upper lip, set off from lip ventrally by a shallow groove continuous with the groove setting off labial flange. Posterior nostril opening through a tube situated just above edge of upper lip immediately behind labial flange; outer side of tube extends ventrally past edge of upper lip, inner side of nostril tube incised. A prominent upturned flange on upper lip, beginning at anterior nostril with a shallow groove separating flange from side of head; width of flange increases posteriorly, posterior half of flange large and thick, covering a deeply excavated space; flange ends near a vertical through anterior margin of eye, immediately anterior to posterior nostril tube. A fleshy inner lip covering maxillary teeth laterally. A prominent downturned flange on lower lip.

Head pores mostly small and difficult to see, the total number and arrangement uncertain (Fig. 11). Three pores visible in supraorbital series: one pore at tip of snout (the ethmoidal pore); one pore just above base of anterior nostril; one pore on side of head just before anterior margin of eye. Five pores visible in infraorbital series: one relatively large pore just behind base of anterior nostril, partially concealed in groove between labial flange and side of head; a papilla-like pore on side of head, concealed by posterior part of labial flange; a papilla-like pore on side of head immediately behind base of posterior nostril tube; a papilla-like pore on side of head between posterior nostril and rictus; a papilla-like pore on side of head 5–6 mm behind rictus (on left side; pore not visible on right side); no postorbital pores. Preoperculomandibular pores small and papilla-like, difficult to see, apparently eight, five before rictus and three behind. No pores visible in supratemporal commissure .

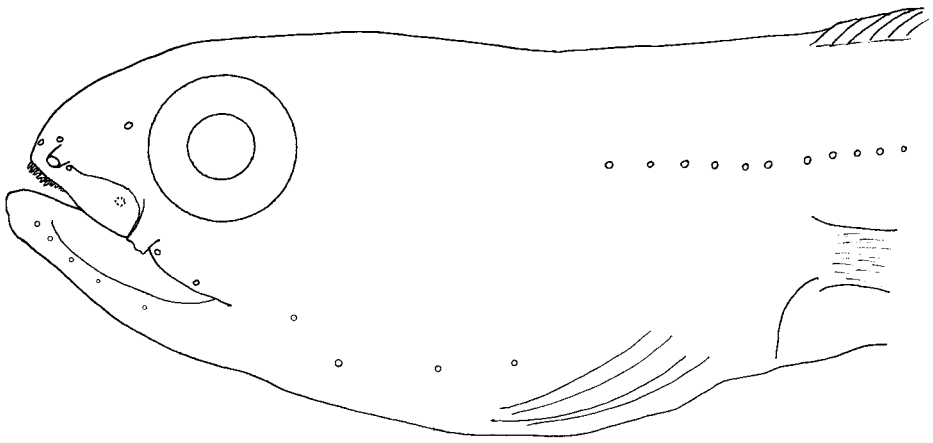

FIGURE 11. *Kenyaconger heemstrai*, holotype, head and anterior body.

Teeth (Fig. 12) small, conical to blade-like . Intermaxillary teeth conical, slightly recurved, arranged in a patch of three to four irregular transverse rows, the patch somewhat broader than long. Vomerine teeth conical, somewhat shorter and blunter than those of intermaxillary, in a short rounded patch immediately behind intermaxillary teeth, with a

narrow posterior extension. Maxillary teeth uniserial for most of length of series, biserial at anterior end of series; teeth of short outer series conical and closely appressed to main (inner) series; teeth of inner series compressed and incisor-like, closely spaced, forming a cutting edge, posteriormost few teeth blade-like and directed anteriorly; maxillary tooth row covered laterally by a sheath-like inner lip, separated from the thick outer lip. Mandibular teeth in a multiserial patch of conical, slightly recurved teeth anteriorly, the patch narrowing posteriorly, becoming uniserial at a point slightly anterior to midpoint of series; teeth in the uniserial portion incisor-like, the tips squared off, closely spaced and forming a cutting edge, except for the posteriormost two or three, which are blade-like and curved anteriorly.

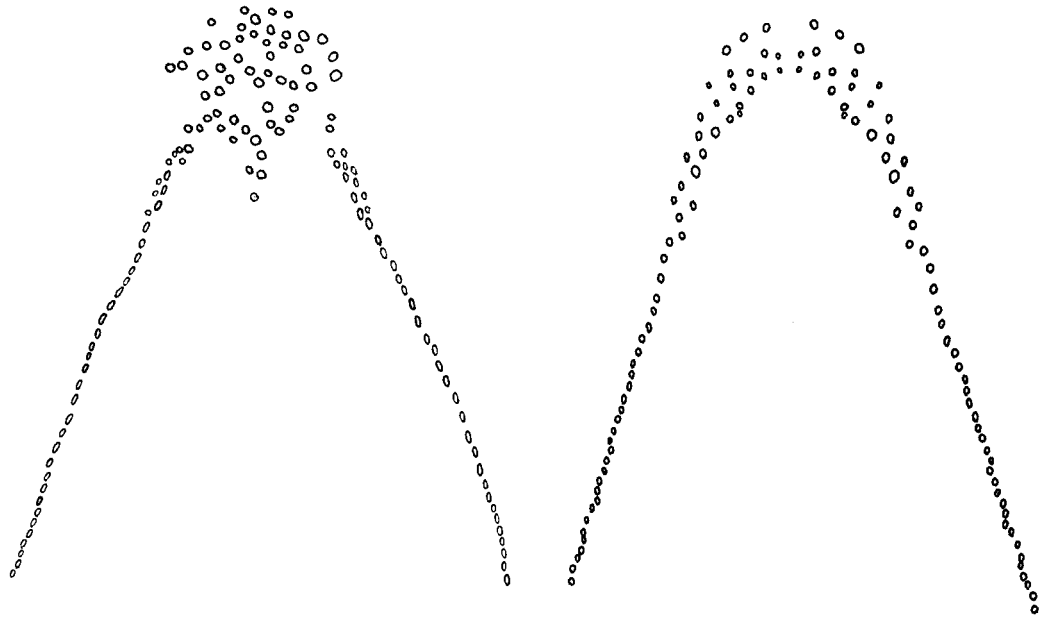

FIGURE 12. *Kenyaconger heemstrai*, holotype, upper (left) and lower (right) dentition.

Color medium brown, slightly paler ventrally; dorsal, anal and caudal fins dark-edged.

Comparison with other species. The new species is clearly a member of the subfamily

Bathymyrinae as defined by Smith (1989: 490): preanal length more than 40% TL; caudal fin reduced and tip of tail stiff; dorsal- and anal-fin rays unsegmented; well developed flange on upper lip; teeth small. The new species differs from all other bathymyrines, and indeed from all other congrid eels, in the form of the posterior nostril. Bathymyrines tend to have the posterior nostril displaced ventrally, below mid-eye level. *Parabathymyrus* has the nostril near the lip and covered by a flap from above. In *Parabathymyrus*, however, the nostril is on the side of the snout above the labial flange. In *Kenyaconger heemstrai*, the nostril opens on the edge of the lip itself, behind the labial flange, and the flap has become a tube.

Smith (1989: 490) observed that the Bathymyrinae could be further subdivided into two groups, one containing *Paraconger* Kanazawa, 1961 and *Chiloconger* Myers and Wade, 1941, and the other containing *Ariosoma* Swainson, 1838, *Bathymyrus* Alcock, 1889, and *Parabathymyrus* Kamohara, 1938. Of the five characters used to separate these two groups, two are osteological (presence or absence of the supraoccipital bone, and simple vs. trifurcate urohyal), and one is larval (a single row of melanophores midlaterally vs. a series of short slashes just below the midlateral line). None of these characters can be determined for the new species. The fourth character is the adnasal pore, present in *Paraconger* and *Chiloconger* but absent in the others. Further study casts some doubt on this last character, however, as *Chiloconger dentatus* may lack it. The latter species has a small pore immediately above the anterior nostril, but this may be a supraorbital pore rather than the adnasal pore. The fifth character is the presence (*Ariosoma* group) or absence (*Paraconger* group) of the third and fourth infraorbital pores. The new species clearly lacks an adnasal pore, and it has the third and fourth infraorbital pores. These characters indicate that the new species belongs to the *Ariosoma-Bathymyrus-Parabathymyrus* group, but information on osteology and larval morphology is needed to confirm this conclusion.

Distribution and habitat. The only known specimen was collected in 275 m off the coast of Kenya in the western Indian Ocean.

Etymology. Named for Philip C. Heemstra of the South African Institute for Aquatic Biodiversity, who collected and preserved the holotype while on board the "Fridjof Nansen"; in recognition of his many contributions to our knowledge of the fishes of the western Indian Ocean.

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