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***Aulohalaelurus kanakorum* n.sp., a New Species
of Catshark (Carcharhiniformes, Scyliorhinidae,
Atelomycterinae) from New Caledonia**

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ABSTRACT. A new catshark, *Aulohalaelurus kanakorum* n.sp., is described from an adult male collected from off south-western New Caledonia. It is the second species in the genus *Aulohalaelurus*, previously restricted to western Australia. The new species is distinct from its allopatric congener, *Aulohalaelurus labiosus* (Waite, 1905), mainly by colour pattern, longer interdorsal space, pelvic-anal distance, shorter prepelvic length, morphology of dermal denticles and higher number of diplospondylous vertebrae. A neotype is also designated for *A. labiosus* (Waite, 1905).

SÉRET, B., 1990. *Aulohalaelurus kanakorum* n.sp., a new species of catshark (Carcharhiniformes, Scyliorhinidae, Atelomycterinae) from New Caledonia. Records of the Australian Museum 42(2): 127–136.

Fowler (1934: 235–237) defined two subgenera of the genus *Halaelurus* Gill, 1862, *Holohalaelurus* (type species *Scyliorhinus regani* Gilchrist, 1922) and *Aulohalaelurus* (type species *Catulus labiosus* Waite, 1905). The diagnosis provided by Fowler for his new subgenus *Aulohalaelurus* was "...labial folds greatly developed, extend along lower jaw nearly to symphysis..." in which folds mean furrows or grooves as suggested by the Greek stem *aulos* meaning grooves. This subgenus was elevated to generic rank by Whitley (1934: 153; 1940: 89) but Bigelow & Schroeder (1948: 198) relegated it to the synonymy of *Halaelurus*, and Compagno (1973) did not mention this genus in his classification of living elasmobranchs. In his revision of the scyliorhinid catsharks, Springer (1979: 35–36) recognised the monotypic genus *Aulohalaelurus* and provided a

more detailed diagnosis. Compagno included *Aulohalaelurus* in his revision of the carcharhinoid sharks (1979: 183) and in his catalogue of sharks (1984b: 294) pointed out that the validity of this genus had to be confirmed. In the revised version of his study on the Carcharhiniformes, Compagno (1988: 103–105) recognised the monotypic genus *Aulohalaelurus* and suggested that it is the "...primitive sister group..." of *Atelomycterus*. Both genera were included in the subfamily Atelomycterinae, new rank for Atelomycteridae White (1936) as proposed and defined by Compagno (1988: 98).

Waite (1905) described his species *Catulus labiosus* from a male 620 mm total length (TL) collected off Fremantle, and supposedly deposited in the Western Australian Museum (WAM). Whitley (1934: fig.1) illustrated

this specimen. McKay (1966) stated that the type of *Halaaelurus labiosus* was in WAM, but none of the WAM specimens he listed as "...actual records..." fits with Waite's holotype. Springer (1979) mentioned that the holotype is "...a 620 mm male WAM...", but he gave no catalogue number for this holotype and provided the measurements of another specimen (adult male 540 mm TL, WAM P12020, Point Peron, Fremantle). Compagno (1984b) determined that Waite's holotype is WAM P13253-001. Through the courtesy of Nick Haigh from WAM, I examined this catalogued specimen, but it is an adolescent male of 482 mm TL, not the 620 mm male described by Waite, although the associated label states it is Waite's holotype! Close comparison of this adolescent male with Whitley's drawing (1934: fig.1) caused me to conclude that undoubtedly Whitley drew this specimen which he thought was "...the unique holotype..." of *A. labiosus*. Considering the two thirds natural size drawing of the holotype's head (Waite, 1905: fig.23), it should actually be about 620 mm long. The correct holotype could not be found and the origin of the confusion could not be explained (N. Haigh, personal communication, 1987). The 620 mm adult male (WAM P27184-001) examined by Compagno (1988) was collected in 1981 off Two Rocks, WA. Thus the specimen WAM P13253-001 is herein designated as the neotype of *A. labiosus* (with the agreement of Dr G.R. Allen, Curator of Fishes, WAM). As a result, the new species was compared to Waite's original description, to subsequent descriptions by Garman (1913), Whitley (1934, 1940), Fowler (1941), Stead (1963), McKay (1966), Springer (1979) and Compagno (1984b, 1988), and to three specimens from WAM.

The new scyliorhinid catshark from New Caledonia is assigned to the genus *Aulohalaaelurus* on the basis of the following set of characters (as defined by Compagno, 1984b, 1988): supraorbital crests present on cranium above eyes; anterior nasal flaps moderately expanded, well separated from each other and not reaching mouth; nasoral grooves absent; labial furrows very long, upper reaching level of upper symphysis; second dorsal fin about as large as the first dorsal fin.

Material and Methods

Measurements were taken according to Compagno (1984a, 1988). Vertebral counts were done on radiographs according to Springer & Garrick (1964). These authors recommend to insert a pin at the origin of upper caudal lobe to separate the precaudal from the caudal vertebrae; however, the number of diplospondylous vertebrae were also counted to the origin of the lower caudal lobe to include all the caudal vertebrae and this number is given in brackets. Teeth and dermal denticles were observed with a stereoscopic microscope and by scanning electron microscope. As the new species is known from the holotype only, no dissection was performed to reveal anatomical structure except for the left clasper; however, the pectoral skeleton structure was

observed from radiographs. Terminology of clasper components and cartilages is according to Compagno (1979, 1988). Abbreviations for museums and institutions follow Leviton *et al.* (1985).

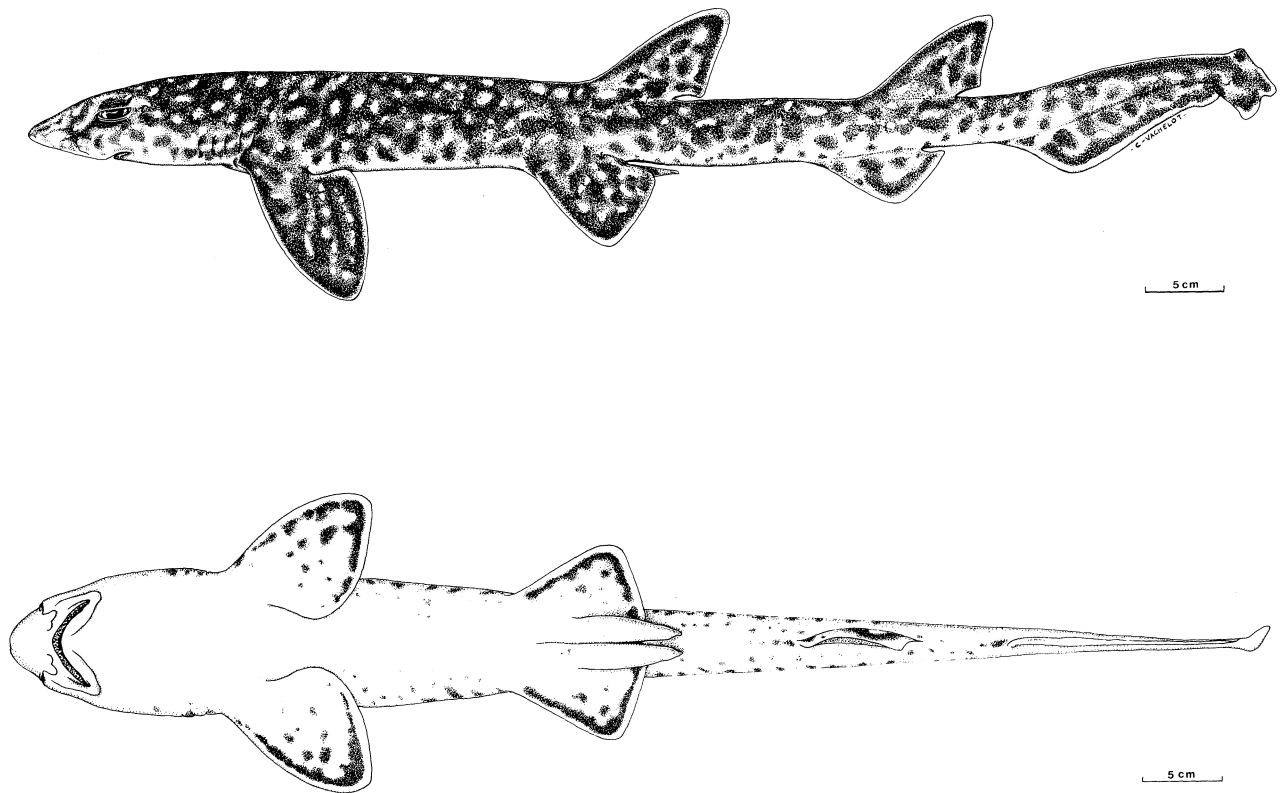
Aulohalaaelurus kanakorūm n.sp.

Figs 1,2

Type material. HOLOTYPE: adult male, 785 mm TL, MNHN 1988.1860, pass of islet N'Do, south-western lagoon off New Caledonia, handled by Mr Ph. Tirard, 49 m depth, 7 Feb. 1986. (Remark: left mouth corner was torn out, probably when the handline hook was removed).

Diagnosis (based on holotype). A relatively small scyliorhinid catshark with the following character combination: body firm, elongate and subcylindrical; head relatively broad and depressed; snout short and rounded in dorsal view and bluntly conical in lateral view; upper and lower labial furrows very long, uppers extending to level of upper symphysis and lowers almost reaching lower symphysis; anterior nasal flaps developed, but not greatly expanded, covering excurrent aperture, separated from each other and falling short of mouth; posterior nasal flaps absent; nasoral groove absent; subocular gutter and ridge present; interdorsal space 1.8 times first dorsal fin base length; pelvic insertion to anal origin interspace 1.9 times anal base length; distance from tip of snout to pelvic origin 2 times head length; dermal denticles with strong medial cusp and barely developed lateral cusp on each side, 2 strong medial ridges and low lateral ridge on each side of crown; colour pattern vivid consisting of numerous dark brown blotches more or less fused to form a variegated brown network surrounding numerous white blotches on back and sides of body; anterior and posterior margins of fins distinctly white and outlined by submarginal dark brown strip. Clasper external components: fused clasper groove, rhipidion, soft rhipidion, cover-rhipidion, exorhipidion, pseudosiphon and pseudopera; clasper glans cartilages: dorsal terminal, ventral terminal, accessory dorsal marginal, dorsal terminal two and ventral terminal two. Diplospondylous precaudal centra 62 (57 to ventral caudal lobe).

Description. Morphometric measurements of the holotype are given in Table 1. Body firm with thick and relatively rough skin. Trunk shorter than tail, subcylindrical, with flat belly. Tail elongate, compressed and gently tapering posteriorly, with caudal peduncle short and compressed, vertically oval in cross section. Head short, about 19% TL, relatively broad and depressed, greatest width 1.5 times head length and greatest height at eyes 0.5 times greatest width. Snout short, preoral length 3.2% TL and about 0.4 times mouth width, rounded-parabolic in dorsal view and bluntly conical in lateral view. Nostrils moderately large, with only



Figs 1 and 2. *Aulohalaelurus kanakorum* n.sp., adult male 785 mm TL, holotype, MNHN 1988.1860. 1: in lateral view; 2: in ventral view; left mouth corner reconstructed.

small, circular incurrent aperture externally distinct. Anterior nasal flaps triangular lobes with undulated posterior margin, covering excurrent aperture, ending close to the mouth but not reaching it and separated from each other, with internarial width about equal to nostril length. Posterior nasal flaps absent. Nasoral grooves absent. Labial furrows very long; uppers extending to level of upper symphysis; lowers somewhat longer than uppers, almost reaching lower symphysis. Mouth arched, 0.4 times as long as wide, with upper teeth exposed when closed. Tongue and palate without oral papillae but covered with dermal denticles. Eyes elongated ovals, dorsolateral on head, with relatively deep subocular gutters and strong subocular ridges; lower nictating eyelids well differentiated and covered with dermal denticles. Spiracle about one fourth of eye length and close behind eye. Gill slits high, subequal, lateral on head; 4th and 5th slits smaller and over origin of pectoral fin base. External skin of gill slits covered with dermal denticles. Dorsal fins subequal in size and shape, height about equal to base length, with elongate slightly convex anterior margin, bluntly pointed apex, straight posterior and concave inner margin, free rear tip abruptly angular. First dorsal origin slightly anterior to

level of pelvic insertion. Interdorsal space 1.8 times first dorsal fin base length. Pectoral fin moderately large, anterior and posterior margins slightly convex, angular apex and broadly rounded inner corner. Pelvic fin with nearly straight anterior and posterior margins, apex as blunted right angle, inner margins not fused to form apron over claspers. Anal fin small, low and triangular, smaller than second dorsal fin and about opposite to it, original of anal base far behind pelvic insertion and slightly anterior to level of second dorsal fin; anterior and posterior margins slightly convex, apex bluntly angular, inner margin short and straight, free rear tip sharply angular. Caudal fin short, about 20% TL, upper caudal lobe poorly developed, upper caudal margin slightly convex, not undulated and without crest of dermal denticles; terminal lobe large, subrectangular with its posterior margin indented as if a result of some abnormality or regeneration subsequent to some injury; ventral lobe elongate and relatively high, preventral margin sigmoid, postventral margin slightly concave, apex bluntly angular; subterminal notch simple deep slot.

Colour pattern of fresh specimen from colour photos vivid consisting of numerous dark brown blotches more

Table 1. Morphometric measurements of *Aulohalaelurus kanakorum* n.sp. and *A. labiosus*, expressed as percentage of total length (TL).

	<i>A. kanakorum</i>	<i>A. labiosus</i>	<i>A. labiosus</i>	<i>A. labiosus</i>	McKay, 1966	McKay, 1966	Springer, 1979	<i>A. labiosus</i>		N
	MNHN 1988.1860 adult male	WAM P13253.001 adolescent male	WAM P27957.001 juvenile male	WAM P27957.001 juvenile male	<i>A. labiosus</i> WAM P332 male	<i>A. labiosus</i> WAM P11749 adult male	<i>A. labiosus</i> WAM P1202 adult male	MEAN	ST.DEV.	
Total length in mm (%TL)	785	482	308	294	487	585	584			
Tip of snout to first dorsal fin	45.9	48.3	45.8	47.3	49.1	49.6	49.3	48.2	1.5	6
Tip of snout to second dorsal fin	66.9	65.8	62.0	63.9	66.7	67.7	66.9	65.5	2.2	6
Tip to snout to upper caudal lobe	81.0	80.9	78.2	78.9			79.6	79.4	1.2	4
Tip of snout to pectoral origin	17.2	17.0	18.8	18.0	16.4	17.3	17.8	17.6	0.8	6
Tip of snout to pelvic origin	39.0	41.9	41.6	42.2	42.3	43.1	43.5	42.4	0.7	6
Tip of snout to anal origin	61.1	59.1	56.8	59.5	62.6	63.4	63.2	60.8	2.7	6
Tip of snout to lower caudal lobe	77.1	74.7	72.7	74.1	78.0	78.8		75.7	2.6	5
Tip of snout to cloaca	41.5	45.2	42.5	43.9			46.3	44.5	1.6	4
Preorbital length	4.8	5.0	4.9	4.4	4.5	4.1	5.1	4.7	0.4	6
Eye length	3.1	2.9	2.6	2.7	2.5	2.4	1.9	2.5	0.3	6
Eye height	1.1	1.0	1.0	1.0				1.0	0.0	3
Interorbital space	6.2	5.6	6.0	5.8	5.3	5.6	5.7	5.7	0.2	6
Prespiracular length	8.9	8.7	8.4	8.2	7.2	7.7	8.0	8.0	0.5	6
Spiracle diameter	0.8	0.8	0.6	0.6			0.7	0.7	0.1	4
Prenarial length	2.0	1.7	2.0	2.2	1.8	1.9	2.0	1.9	0.2	6
Nostril length	2.2	1.9	2.3	2.0				2.1	0.2	3
Internarial space	2.3	2.5	2.3	2.2			2.3	2.3	0.1	4
Nasal flap length	1.7	1.7	1.9	2.0				1.9	0.2	3
Preoral length	3.2	3.1	3.2	3.1	2.7	3.1	3.1	3.1	0.2	6
Mouth width	7.3	6.5	6.5	5.8	6.4	6.3	7.4	6.5	0.5	6
Mouth length	3.2	3.4	3.1	3.1			3.3	3.2	0.2	4
Upper labial furrow length	3.4	3.5	3.1	3.1	3.1	3.4	3.7	3.3	0.3	6
Lower labial furrow length	3.9	3.5	3.6	3.6	3.6	3.6		3.6	0.0	5
Pre-first gill slit length	14.4	14.3	14.6	14.3	12.3	12.8	13.9	13.7	0.9	6
Pre-fifth gill slit length	19.1	18.7	19.2	18.7	17.2	18.3	18.5	18.4	0.7	6
First gill slit height	2.4	1.8	2.3	1.8			2.2	2.0	0.3	4
Fifth gill slit height	1.6	1.1	1.3	1.4			1.1	1.2	0.2	4
D1 anterior margin length	12.0	12.4	11.4	10.5				11.4	1.0	3
D1 base length	7.5	8.3	7.0	7.3	7.0	7.5	6.9	7.3	0.5	6
D1 height	7.4	6.2	6.3	5.3	5.1		5.6	5.7	0.5	5
D1 inner margin length	2.9	3.0	2.9	2.4			3.1	2.9	0.3	4
D1 posterior margin length	7.0	6.0	5.0	5.3				5.4	0.5	3
Interdorsal space	13.8	9.1	9.1	10.0			10.4	9.7	0.7	4

Table 1 cont'd: idem.

					McKay, 1966	McKay, 1966	Springer, 1979			N
	<i>A. kanakorum</i> MNHN 1988.1860 adult male	<i>A. labiosus</i> WAM P13253.001 adolescent male	<i>A. labiosus</i> WAM P27957.0001 juvenile male	<i>A. labiosus</i> WAM P27957.001 juvenile male	<i>A. labiosus</i> WAM P332 male	<i>A. labiosus</i> WAM P11749 adult male	<i>A. labiosus</i> WAM P1202 adult male	<i>A. labiosus</i>		
Total length in mm	785	482	308	294	487	585	584	MEAN	ST.DEV.	
(%TL)										
D2 anterior margin length	11.6	12.4	12.5	10.9				11.9	0.9	3
D2 base length	7.5	9.1	9.0	8.2	7.4	7.4	8.3	8.2	0.7	6
D2 height	6.5	5.9	6.2	5.4	4.9	6.0	5.2	5.6	0.5	6
D2 inner margin length	2.7	3.0	2.6	2.4			2.8	2.7	0.3	4
D2 posterior margin length	6.4	5.4	5.1	5.2				5.2	0.2	3
Pectoral anterior margin length	12.4	11.6	10.4	9.5	10.1	12.0	11.3	10.8	1.0	6
Pectoral base length	4.8	3.8	4.2	4.4	4.3	4.4	4.3	4.2	0.2	6
Pectoral inner margin length	5.5	5.4	3.9	4.1				4.5	0.8	3
Pectoral posterior margin length	10.1	8.1	8.4	7.7			8.1	8.1	0.3	4
Pectoral insertion to pelvic length	18.9	21.0	21.1	21.3			20.4	21.0	0.4	4
Pelvic anterior margin length	8.4	8.7	7.8	7.1	7.2	7.7		7.7	0.6	5
Pelvic base length	6.4	6.4	4.9	5.2	6.0	5.5		5.6	0.6	5
Pelvic length	10.7	10.6	8.4	8.5			10.0	9.4	1.1	4
Pelvic inner margin length	5.1	4.6	3.6	3.6				3.9	0.6	3
Pelvic posterior margin length	6.6	5.9	5.9	5.8				5.9	0.1	3
Pelvic insertion to anal origin	16.2	13.0	13.0	12.6			13.5	13.0	0.4	4
Anal anterior margin origin	8.0	10.0	8.1	8.3				8.8	1.0	3
Anal base length	8.5	10.4	9.1	9.5	9.2	9.4	8.1	9.3	0.7	6
Anal length	10.6	12.9	11.0	11.6				11.8	1.0	3
Anal inner margin length	2.0	2.3	1.9	2.0			2.0	2.1	0.2	4
Anal posterior margin length	5.2	3.9	4.5	4.4				4.3	0.3	3
D2 insertion to lower caudal lobe	7.4	6.6	7.0	7.5			4.8	6.5	1.2	4
Anal insert. to lower caudal lobe	7.4	5.0	7.1	5.4			6.9	6.1	1.1	4
Caudal peduncle height	3.4	4.0	4.2	4.4			3.9	4.1	0.2	4
Caudal peduncle width	2.1	2.6	2.9	3.2				2.9	0.3	3
Upper caudal lobe length	17.6	19.6	22.4	21.4				21.1	1.4	3
Lower caudal lobe length	18.3	20.5	20.5	21.8				20.9	0.8	3
Subterminal caudal lobe length	3.6	2.2	3.9	3.4				3.2	0.9	3
Clasper outer length	7.5	7.3	1.9	1.4						
Clasper inner length	11.0	10.6	4.1	4.1						
Clasper base width	1.7	1.2	0.9	1.0						

or less fused to form variegated brown network surrounding numerous white blotches on back and sides of body; anterior and posterior margins of fins distinctly white and outlined by a submarginal dark brown strip. Venter white to creamy white with few scattered dark brown spots on tail; anterior margin of pectoral and pelvic fins narrowly white, posterior margin markedly white, centre of fins with some scattered dark spots. When exposed to air, faint brownish crossbands appear on back of head and trunk of preserved specimen, one band on head at level of gill slits, one on trunk at level of pectoral fins and one at midtrunk level.

Pectoral fin skeleton (Fig.3, from radiographs) aplesodic, length of greatest radial 47% of anterior pectoral margin length. Total number of radials 16 with 3–4 elements. Propterygium with proximal radial element,



Fig.3. *Aulohalaelurus kanakorum* n.sp., adult male 785 mm TL, holotype, MNHN 1988.1860, left pectoral skeleton from radiographs.

intermediate radial element and 2 distal radial elements. Mesopterygium with 3 proximal elements fused at base, 2 rows of intermediate elements and row of distal elements. Metapterygium with row of 12 proximal elements, 1–2 rows of intermediate elements and 0–1 row of distal elements.

Cranium not dissected in holotype, but presence of developed supraorbital crests verified by probing and from radiographs.

Teeth (Fig.4) similar in both jaws, those in lower jaw somewhat larger. Teeth arranged in quincunx, with 2–6 series (functional and replacement teeth). Tooth rows in upper jaw 74, with 2/2 medial and 35/35 anteroposterior. Teeth near symphysis typically with strong, erect primary cusp, flanked at base with smaller secondary cusplets. Most teeth tricuspid, with strong primary cusp and smaller secondary cusplets about half size of primary on each side. Some teeth with very reduced secondary cusplet, obliquely orientated, on one or both sides. Outer surface of cusps and cusplets predominantly smooth with few low longitudinal ridges, not reaching tip of cusps. Cutting edges of teeth smooth, without serrations. Medial teeth smaller than anterior ones; size of anteroposterior teeth decreasing from symphysis to jaw articulation. Moderately narrow and deep basal groove separating crown from root. Root consisting of 2 large lobes separated by open transverse groove on attachment surface.

Dermal denticles (Fig.5) observed on upper flank under first dorsal fin. Denticle crown roughly tricuspid with strong twin medial ridges separated by shallow groove, ending in strong pointed medial cusp; wing-like lateral extensions with low lateral ridge ending in very short, blunt, hardly developed cusp. Crown outer surface without microrelief. Crown length about 0.75 mm, width about 0.45 mm. Denticles more or less regularly arranged and spaced.

Total vertebral count (Table 2): 151, including 45 monospondylous precaudal centra (MP), 62 (57) diplospondylous precaudal centra (DP), and 44 (49) caudal centra (DC). Ratios as defined by Compagno (1988):

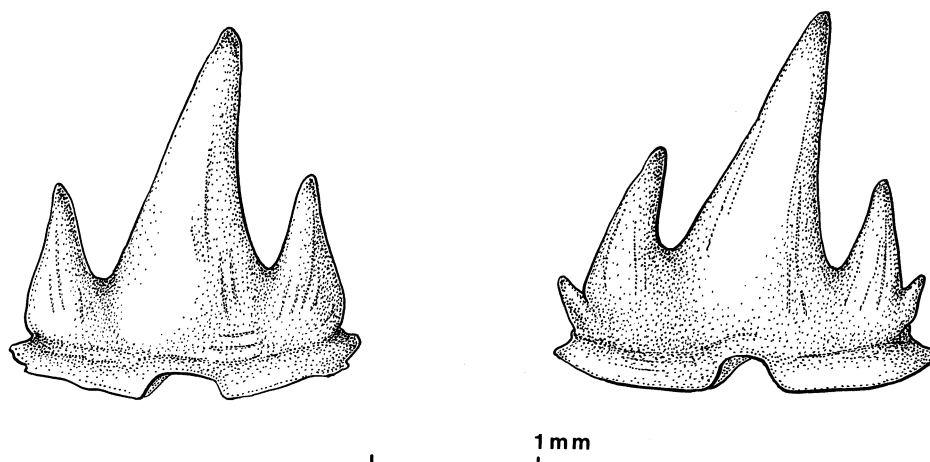


Fig.4. Frontal view of anterior teeth of *Aulohalaelurus kanakorum* n.sp., adult male 785 mm TL, holotype, MNHN 1988.1860.

DP/MP=1.4(1.3), and DC/MP=1.0(1.1).

Clasper morphology (Fig.6a). Claspers stout, moderately long and fairly thick extending to nearly half of their inner length behind pelvic fin tips. Claspers subcylindrical, glans tapering with tips bluntly pointed. Whole ventral surface of claspers covered with dermal denticles extending to outer margin of dorsal surface of ventral lobe, otherwise dorsal surface smooth. Clasper hooks absent. Clasper groove (CG) not open dorsally on proximal part; dorsomedial edges of marginal cartilages united by soft tissue and forming closed tube or fused clasper groove (FCG) between apopyle (APO) and hypopyle (HP). On dorsomedial edge of dorsal lobe of glans, a moderately large cover-rhipidion (CR) with moveable bean-shaped lateral expansion, covering

proximal part of rhipidion (RH). Rhipidion (*sensu* Leigh-Sharpe, 1920) large longitudinal blade sustained by cartilaginous element, with base attaching to inner margin of dorsal lobe and with dorsomedial free edge extending laterally from level of hypopyle to distal part of glans. Along inner margin of ventral lobe, a massive dermal component corresponding to ‘rhipidion’ of rajoid specialists, consisting of soft and thick pseudo-lamellae without cartilaginous structure (this component, left unnamed for sharks by Compagno, 1979, 1988, is herein termed soft rhipidion (SRH) although not being fan-like). Exorhipidion (ERH), differentiated but not greatly expanded, extending from level of hypopyle to distal part of glans on dorsolateral edge of ventral lobe and primarily over soft rhipidion, blade-like, relatively

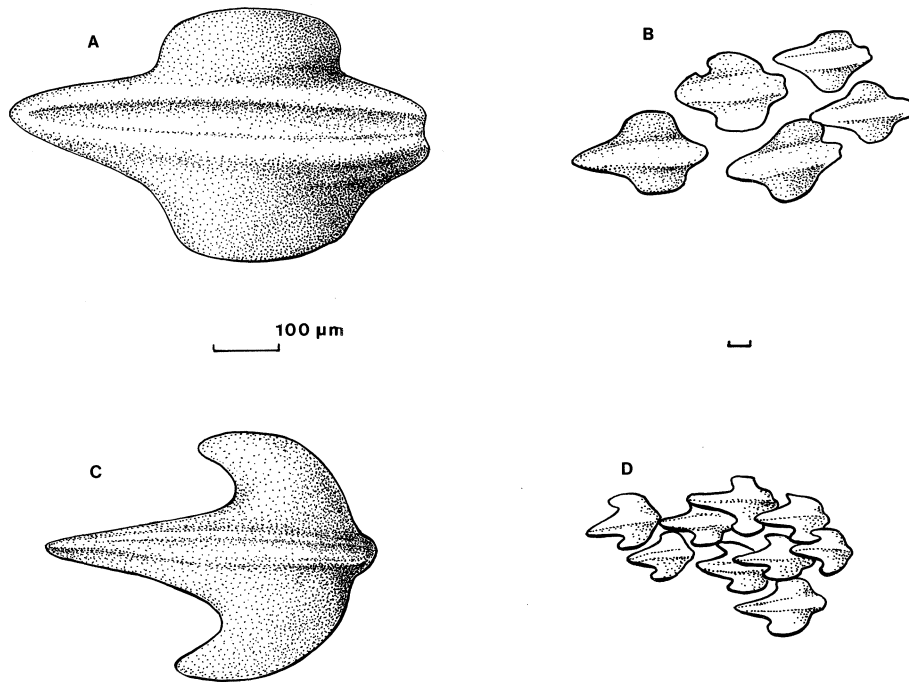


Fig.5. Dermal denticles from the upper flank under the first dorsal fin. a,b: *Aulohalaelurus kanakorum* n.sp., adult male 785 mm TL, holotype, MNHN 1988.1860; c,d: *A. labiosus*, adolescent male, 482 mm TL, WAM P13253-001.

Table 2. Vertebral counts and ratios of *Aulohalaelurus kanakorum* n.sp and *A. labiosus*. In brackets: counts and ratios enumerated and calculated with precaudal vertebrae counted to ventral caudal lobe.

	<i>A. kanakorum</i> MNHN 1988.1860 male 785 mm	<i>A. labiosus</i> WAM P13253.001 male 482 mm	<i>A. labiosus</i> WAM P27957 male 308 mm	<i>A. labiosus</i> WAM P27957 male 294 mm	<i>A. labiosus</i> Compagno 1988 male 620 mm
Monospondylous vertebrae MP	45	45	45	46	46
MP in % Total number	29.8	30.4	29.8	30.9	29.7
Diplospondylous vertebrae DP	62 (57)	57 (54)	57 (52)	57 (51)	55
DP in % Total number	41.1 (37.7)	38.5 (36.5)	37.7 (34.4)	38.3 (34.2)	35.5
Caudal vertebrae DC	44 (49)	46 (49)	49 (54)	46 (52)	54
DC in % Total number	29.1 (32.5)	31.1 (33.1)	32.5 (35.8)	30.9 (34.9)	34.8
Total number in vertebrae	151	148	151	149	155
DP/MP	1.4 (1.3)	1.0 (1.1)	1.1 (1.2)	1.0 (1.1)	1.2
DC/MP	1.0 (1.1)	1.0 (1.1)	1.1 (1.2)	1.0 (1.1)	1.2

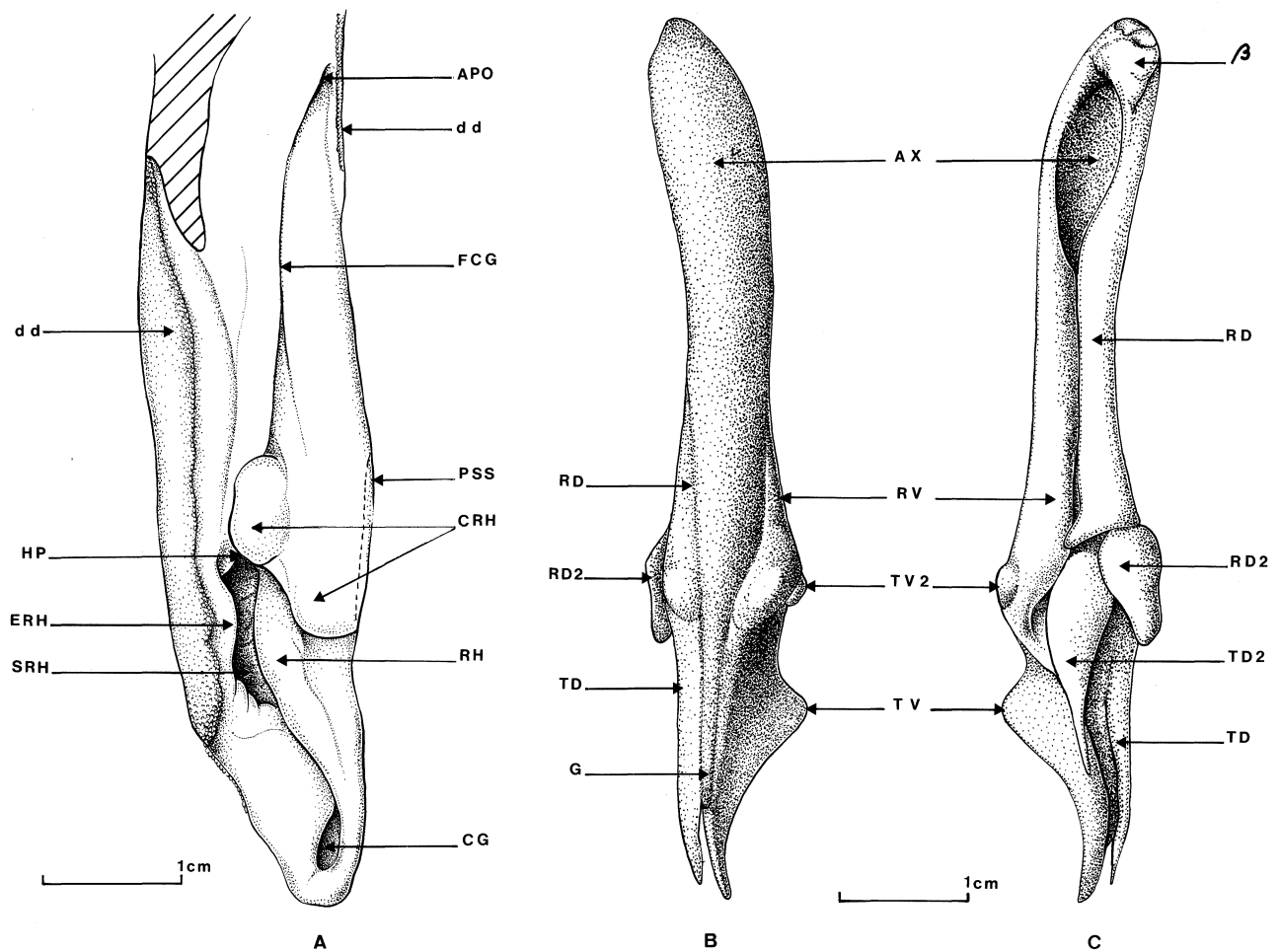


Fig. 6. Left clasper of *Aulohalaelurus kanakorum* n.sp., adult male 785 mm TL, holotype, MNHN 1988.1860. a: dorsal view; b: skeleton in ventral view; c: skeleton in dorsal view. See text for terminology.

moveable with convex free edge forming root of a blind elongate cavity along inner margin of ventral lobe; pseudopera (PSP) opening laterally, close to hypopyle. Pseudosphon (PSS) opening along dorsal margin of dorsal lobe, opposite level of cover-rhipidion. Envelope absent on dorsomedial edge of ventral lobe of glans.

Clasper skeleton (Fig. 6b,c). Proximal part of clasper skeleton or clasper shaft consisting of axial cartilage (Ax), by means of which clasper attaches to basipterygium of pelvic fin and 2 marginal cartilages, dorsal marginal cartilage (RD) and ventral marginal cartilage (RV). Marginal cartilages curved, tightly fused to Ax along ventromedial edge and joined by soft tissue along dorsomedial edge, forming clasper tube together with Ax. Distal part of Ax or end-style (G), long rod-like, only partially calcified, extending to distal part of glans. Clasper glans skeleton consisting of 5 cartilages. Dorsal terminal cartilage (TD) and ventral terminal cartilage (TV) attaching respectively to RD and RV along their anterior edge, to G along their ventromedial edge and posteriorly united by connective tissue to form clasper tip. Accessory dorsal marginal (RD2) cartilaginous, fingernail shaped, anteriorly articulating to posterior edge of RD, supporting cover-rhipidion. Lateral flap of cover-rhipidion sustained by posteromedial apophysis of RD.

Dorsal terminal 2 (TD2) cartilaginous, oblong, thin and blade-like, attaching anteriorly to RD and internally to longitudinal crest of TD. Internal wall of PSS composed of parts of RD, RD2 and TD and external wall not supported by any cartilaginous element. Gutter-shaped posterior margin of RV forming external of PSP. Exorhipidion (ERH) supported by fibrous tissue and small cartilaginous nodule, ventral terminal 2 cartilage, joined to posterior edge of RV.

Weight of preserved specimen: 1535 g.

Comparison. The new catshark, *Aulohalaelurus kanakorum*, is evidently very closely related to its allopatric congener *A. labiosus*; however, both species can be distinguished by a set of features. The most distinctive feature is colour pattern. Although *A. labiosus* may present variations in colour, it is predominantly brownish-grey with scattered dark, relatively small blotches (hence its local name of blackspotted catshark) and a few light spots. In *A. kanakorum*, the blotches are larger, more numerous and are fused to form a dark brown variegated network surrounding numerous white blotches. The ventral side of head and belly of both species is whitish to yellowish white. There are obscure dark

saddle-like markings on the back from head to tail in *A. labiosus*; faint brownish crossbands appeared on the back of *A. kanakorum* when exposed to air. The fins of *A. labiosus*, mainly the dorsals, are white-tipped whereas the anterior and posterior margins of fins of *A. kanakorum* are distinctly white and outlined by submarginal dark brown strip. Preserved juvenile specimens and fresh and live specimens of *A. labiosus* (photographed by N. Haigh) are brownish grey with somewhat larger brown-black blotches, those on the flanks surrounding light blotches to form an irregular longitudinal row or pseudo-ocelli, but dark blotches never fuse to form a reticular pattern as in *A. kanakorum*. *Aulohalaelurus labiosus* also has distinct dark saddle-like markings present on the back of the body, a few white spots scattered on body, dorsal fins white-tipped, and pectorals, in some specimens, with whitish posterior margins. This variegated colour pattern looks like that of *Atelomycterus marmoratus*.

Some morphometric measurements are significantly different between the two species. The interdorsal space is longer in *A. kanakorum* than in *A. labiosus*, 13.8% TL versus 9.7% TL (standard deviation = 0.5; n = 4); the pelvic insertion-anal origin interspace is also longer in *A. kanakorum*, 16.2% TL versus 13.0% TL (standard deviation = 0.4; n = 4); the prepelvic length is shorter in *A. kanakorum* than in *A. labiosus*, 39.0% TL versus 42.4% TL (standard deviation = 0.7; n = 6). The caudal peduncle appeared to be more compressed (width 2.1% TL versus 2.9% TL) and less deep (height 3.4% TL versus 4.1% TL) in *A. kanakorum* than in *A. labiosus*. The first dorsal fin and pectoral fin also appeared somewhat larger, but the upper and lower caudal lobes appeared shorter in *A. kanakorum*; however, these differences have yet to be confirmed.

The dermal denticles of *A. labiosus* are clearly tricuspid with a strong pointed primary cusp and a lateral pointed cusp on each side. The number of diplospondylous vertebrae is somewhat higher in *A. kanakorum* than in *A. labiosus*, 62 (57 if centra counted to ventral caudal lobe origin) versus 55–57 (51–54).

A different maximum size might also be attained, the holotype of *A. kanakorum* is 785 mm TL, and the largest specimen (WAM P5690) of *A. labiosus* is 673 mm TL (McKay, 1966; N. Haigh, personal communication).

Habitat. *Aulohalaelurus kanakorum* is a coral reef inhabitant known only from the type locality (south-western lagoon off New Caledonia); *A. labiosus* occurs in shallow waters of west Australian reefs. *Aulohalaelurus kanakorum* can be considered a rare species since this shallow water catshark was recently discovered in an area scientifically and recreationally explored for many years. *Aulohalaelurus labiosus* seems relatively common off Western Australia; however, it was not collected during recent trawling surveys off north-western Australia (Gloerfelt-Tarp & Kailola, 1985; Sainsbury *et al.*, 1985) and seems to be restricted to the coast of Western Australia between the Houtman Abrolhos and Albany.

Etymology. *Aulohalaelurus kanakorum* is dedicated to the Melanesian people of New Caledonia.

Comparative material. *Aulohalaelurus labiosus* (Waite, 1905): WAMP13253-001, adolescent male 482 mm TL, 32°03'S 115°44'E, Fremantle, WA; WAMP27957-001, 2 juvenile males 294 and 308 mm TL, 29°16'S 114°55'E, Port Denison, WA. *Atelomycterus marmoratus* (Bennett, 1830): MNHN 1987-1301, female 676 mm TL, Kep, Kampuchea; NMW 50049, female 401 mm TL, Singapore. *Atelomycterus macleayi* Whitley, 1939: NMW 85670, juvenile female 160 mm TL, Australia.

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