

***Himantolophus pseudalbinus* Bertelsen & Krefft, 1988,
a junior synonym of *H. albinus* Maul, 1961 (Himantolophidae),
with the first record from the Pacific Ocean**

by

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RÉSUMÉ. - *Himantolophus pseudalbinus* Bertelsen & Krefft, 1988, un synonyme junior de *H. albinus* Maul, 1961 (Himantolophidae), et premier signalement pour l'océan Pacifique.

Un spécimen de la famille des Himantolophidae (pêcheurs bouclés) a été collecté à l'ouest de la Nouvelle-Calédonie le 22 février 2002. Le spécimen est une grande femelle (207 mm TL ; 153 mm SL) avec un illicium très développé. Il possède des caractéristiques morphologiques spécifiques à la fois de *Himantolophus albinus* Maul, 1961 et de *H. pseudalbinus* Bertelsen & Krefft, 1988. Dix-sept spécimens de *H. albinus* ont été collectés par le passé, tous dans l'océan Atlantique, alors que seul l'holotype sud-africain de *H. pseudalbinus* est connu. L'examen des données disponibles sur le matériel précédemment collecté montre que l'unique caractère morphologique discriminant *H. albinus* et *H. pseudalbinus* est polymorphique [extrémités non bifides ou bifides des branches principales de l'appendice distal du bulbe (DA)] et ne permet pas de distinguer les deux espèces. Ainsi *H. pseudalbinus* est placé ici en synonyme junior de *H. albinus*. L'illicium de l'espèce présente d'importantes variations de structure et de taille, principalement liées à l'ontogénie, mais également à la variabilité intra-spécifique. *H. albinus* est signalée pour la première fois dans l'océan Pacifique et il s'agit de la quatrième espèce du genre avec une distribution poly-océanique.

Key words. - Himantolophidae - *Himantolophus pseudalbinus* - *H. albinus* - PCW - New Caledonia - Synonymy - First record.

The description of *Himantolophus pseudalbinus* Bertelsen & Krefft, 1988, was based on a single specimen, 82 mm in standard length (SL), collected from SE of Cape Town, South Africa. No additional material has been reported. In the comments to the description, Bertelsen and Krefft (1988) noted: "*H. pseudalbinus* differs from *H. albinus* only in having bifurcated tips of each main branch of DA. The assumption that this represents a specific difference is based partly on the position of the single record, far outside the known distribution area of *H. albinus*."

The description of *H. albinus* (Maul, 1961), was based on a single specimen, 190 mm SL, from off Câmara de Lobos, Madeira. Sixteen additional specimens were caught after the description (Bertelsen and Krefft, 1988 ; Quéro *et al.*, 2000; Quéro *et al.*, 2001), all from the Atlantic Ocean (see also Bertelsen, 1986, 1990). The holotype is the largest specimen known and male specimens are still unknown. Bertelsen and Krefft (1988) gave a complete description of the species based on 13 specimens (28-190 mm SL) of the 15 known specimens at that time and illicial apparatus morphology varies greatly depending on specimen size.

The family Himantolophidae (footballfish) belongs to the sub-order Ceratioidei and the order Lophiiformes (anglerfishes). *Him-*

antolophus is the only genus of the Himantolophidae, and includes 18 valid species all listed by Bertelsen and Krefft (1988). Bertelsen and Krefft (1988) divided *Himantolophus* females into five "species groups": the "*H. albinus* group"; the "*H. appeli* group"; the "*H. cornifer* group"; the "*H. groenlandicus* group" and the "*H. nigricornis* group". *H. albinus* and *H. pseudalbinus* belong to the "*H. albinus* group." Specific identification of females is based mainly on the illicial morphology.

On 22 February 2002, during the trawling cruise *Opéra-06* off New Caledonia, I collected a large, adult female *Himantolophus*, 207 mm TL and 153 mm SL. (Station No. 10, trawler *Opéra*, Lansdowne Bank, Western New Caledonia, 20°52'-20°51'S, 160°43'-160°35'E, 826-1097 m depth, T = 4.2°C at fishing depths.). The specimen was preserved directly after capture then deposited in the collection of the Muséum national d'histoire naturelle (MNHN 2003-0118).

Measurements and morphological observations were taken two years later and were compared with available data from Bertelsen and Krefft (1988): *H. albinus* (13 spms): Holotype, MMF 2598, 190 mm SL, off Câmara de Lobos, Madeira; MMF 18983, 34 mm SL; ISH 617/66, 45 mm SL; ISH 2245/71, 28 mm SL; ISH 444/74, 60 mm SL; ISH 3244/79, 75 mm SL; ISH 3245/79, 2 spms, 39 and 80 mm SL; ISH 3433/79, 99 mm SL; ISH 3716/79, 104 mm SL; UMML 33635, 29 mm SL; MCZ 55398, 53 mm SL and USNM 229968, 66 mm SL. *H. pseudalbinus* (1 spm): Holotype, ZIL 49711, 82 mm SL, 35°01'S, 24°36.8'E, 1280-1300 m, SE Cape Town, South Africa.

Measurements and terminology used for the illicium follow Bertelsen and Krefft (1988, fig. 8, p. 23). Institutional acronyms follow Leviton *et al.* (1985).

Description of the *Himantolophus* specimen caught in the Pacific Ocean

Description of the body (Fig. 1) is similar to that provided by Bertelsen and Krefft (1988) for *H. albinus* and *H. pseudalbinus*, with the following exceptions: skin with 165 dermal spines (except on the anterior part of the head) including 11-12 spines on pectoral lobes. Spines generally with large base but some very small.

Measurements. - Total length (TL) = 207 mm; standard length (SL) = 153 mm; pre-anal length = 119 mm (77.8% SL); pre-anal fin length = 137 mm (89.5% SL); pre-dorsal fin length = 136 mm (88.9% SL); pre-pectoral fin length = 85 mm (55.6% SL); body depth = 81 mm (52.9% SL); caudal peduncle depth = 18 mm (11.8% SL); anal fin base length = 18 mm (11.8% SL); dorsal fin base length = 25 mm (16.3% SL); pectoral fin base length = 15 mm (9.8% SL); head length = 85 mm (55.6% SL); eye diameter = 6 mm (3.9% SL); pre-orbital length 27 mm (17.6% SL); eye-olfactory

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Figure 1. - **A:** *Himantolophus albinare* Maul, 1961; MNHN 2003-0118, adult female, 207 mm TL, 153 mm SL, from Pacific Ocean. **B:** Detail of the papillae on the snout and chin. Scale bar = 20 mm. [*A* : Femelle adulte de l'océan Pacifique. *B* : Détail des papilles sur le museau et le menton. Échelle = 20 mm.]

papillae distance = 8 mm (5.2% SL); pre-illicium length = 15 mm (9.8% SL); gill opening = 21 mm (13.7% SL).

Description. - Illicium extremely well developed (Fig. 2A, Tab. I). Illicial stem (IS) long, pliable and black, except two white blotches anteriorly and posteriorly on base. Nine white appendages (IA) on IS; two ones close together, on posterior base. Seven others laterally along IS, simple or branched at tips, with black bases. Pale spines anteriorly and a few posteriorly on IS, as well as on lower half of escal bulb (EB). Posterior escal appendage (PA) bifurcated with black basal portion. One of main branches of PA (mb) with bifurcated tip, other simple. Lower part of EB dark and upper part white. Posterior pair of dark distal swellings (ds) on escal bulb pres-

ent as well as two pairs of escal lobes (el) on top of EB. Distal, light guiding escal appendage (DA) very long with two main branches (mb) one with bifurcated tip (bt) and one simple. Base of DA very long with thin, dark blotch posteriorly.

Fin-ray counts. - D-4; P-16 & 17; A-3 and C-9.

Colour. - Rays of fins black, uniform brownish-black body, snout and olfactory papillae white (Fig. 1B), and well-delimited white areas on fresh specimen: two long parallel stripes on back, wide anteriorly at the illicial base to thin posteriorly at dorsal fin insertion, and distinct patches on base of illicium, on dorsal and ventral side of caudal peduncle, on insertion of dorsal and anal fins and on first dorsal fin ray. All the white blotches on the body and

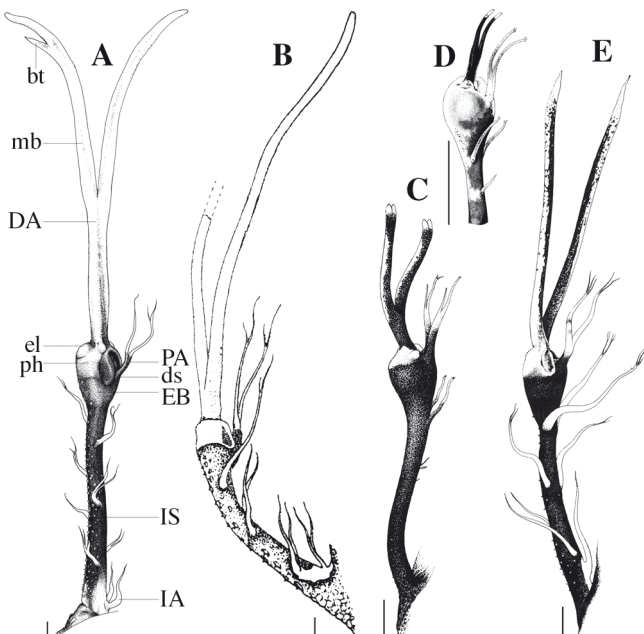


Figure 2. - Comparison of *Himantolophus albinare* illicia; **A:** Pacific Ocean specimen, MNHN 2003-0118, 153 mm SL. **B:** Holotype of *H. albinare*, MMF 2598, 190 mm SL. **C:** Holotype of *H. pseudalbinare*, ZIL 49711, 82 mm SL. **D:** Specimen ISH 3245/79, 39 mm SL. **E:** Specimen ISH 3716/79, 104 mm SL. (Fig. B is from Maul (1961; Fig. 11 (in part), p. 112); Figs C, D and E are from Bertelsen and Krefft (1988; Fig. 19, p. 55 and Fig. 23, p. 60). Abbreviations: DA = distal, light guiding escal appendage; ds = distal swellings of EB; EB = bulbe de l'esca; el = lobes de l'esca; IA = filaments de la tige de l'illicium; IS = tige de l'illicium; mb = branches principales de DA; PA = appendice postérieur de l'esca; ph = photophore de l'esca; bt = extrémité bifide de DA. Échelles = 5 mm.]

Table I. - Comparison of illicial characters for *H. albinares*: MNHN 2003-0118 from the Pacific Ocean specimen, the holotypes of *H. albinares* and *H. pseudalbinares*, and previously recorded specimens of *H. albinares* (data from Bertelsen and Krefft, 1988). Measurements in % SL. [Comparaison des caractères illiciaux de *H. albinares* : MNHN 2003-0118 provenant du spécimen de l'océan Pacifique, des holotypes de *H. albinares* et *H. pseudalbinares*, et des spécimens antérieurement signalés de *H. albinares* (données de Bertelsen et Krefft, 1988). Mesures en % SL.]

	<i>Himantolophus</i> sp.	<i>H. pseudalbinares</i>	<i>H. albinares</i>	
	MNHN 2003-0118 153 mm SL	ZIL 49711 (holotype) 82 mm SL	MMF 2598 (holotype) 190 mm SL	Range for 13 previous catalogued specimens 28-190 mm SL
Length of illicium	69.9	52.0	43.0	25.0-54.0
Diameter of esca bulb	9.2	9.1	6.3	6.1-9.1
Length of DA, total	75.8	27.0	74.0	5.7-74.0
Length of DA base	32.0	6.7	7.9	< 1.0-9.4
Length of PA	17.0	13.0	21.0	2.9-21.0
Length of longest IA	18.6	10.0	18.0	3.7-23.0
No. of IA	9	5	9	2-9

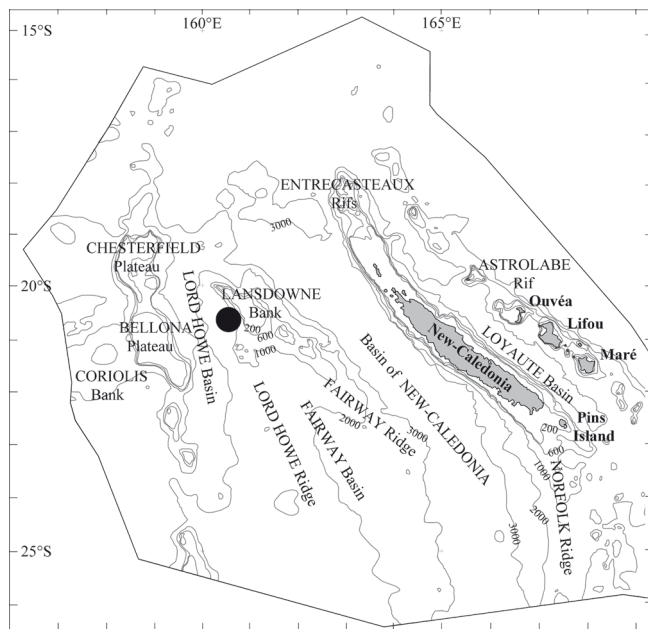


Figure 3. - Catch location (●) of *Himantolophus albinares*, MNHN 2003-0118 in the Economic Zone of New Caledonia (solid line) in the Western Central Pacific Ocean. [Localité de capture (●) de *Himantolophus albinares*, dans la zone économique de Nouvelle-Calédonie (ligne continue) dans l'océan Pacifique ouest-centre.]

illicium, shiny white on the fresh specimen, except the blotches on the olfactory and chin papillae.

Distribution: Off New Caledonia at 826-1097 m depth (Fig. 3).

DISCUSSION

Comparison of the Pacific Ocean *Himantolophus* specimen with *H. albinares* and *H. pseudalbinares*

The only known specimen of *H. pseudalbinares* differs from *H. albinares* only by having bifurcated tips on each main branch of DA (Bertelsen and Krefft, 1988).

The 17 available specimens of *H. albinares* show extremely large variation in measurements and ornamentation of the illicial apparatus. The illicium size and shape as the length and number of appendages on IS are mainly related to ontogeny but also to intra-specific variability (Fig. 2; Tab. I). Commonly smaller specimens have smaller illicia and fewer appendages than larger specimens. Small specimens have nude skin, and spines develop with growth. The presence of white blotches is also a variable character.

The Pacific Ocean *Himantolophus* specimen is similar to the description of *H. albinares* by Maul (1961) and Bertelsen and Krefft (1988) except in having one main branch of DA with a bifurcated tip and the other one without a bifurcated tip. Thus it possesses morphological characters diagnostic for both *H. albinares* and *H. pseudalbinares*. Therefore here we place *H. pseudalbinares* as a junior synonym of *H. albinares*. Length of illicium and length of DA base of the Pacific Ocean *Himantolophus* specimen are also distinctly out of the range of variation of measures from other known specimens (Tab. I), but I consider it as intra-specific variations.

The Pacific specimen has the longest illicium (Tab. I) of the species. With a SL of 152 mm this is the second largest known specimen (HT 190 mm SL) of *H. albinares*. Atlantic specimens of *H. albinares* have no bifurcated tips on the two main branches of DA, while the single specimen from off South Africa has bifurcated tips on both main branches and the Pacific specimen has bifurcated tips on just one of the two main branches. Additional material is needed to know if bifurcated tips might be related to geographical origin.

H. albinares is the 8th species of the family recorded from the Pacific Ocean and the 4th with a poly-oceanic distribution.

New diagnosis for *H. albinares*, updated from Bertelsen and Krefft (1988)

Females of *H. albinares* differ from those of other species of the “*H. albinares* group” in having the following combination of characters: Length of illicium 25-69.9% SL in specimens larger than 30 mm SL (34-190 mm); esca with distal appendage cleft, undivided part < 1-32% SL; each main branch simple or with bifurcated tip, unpigmented to darkly pigmented except on tip; its total length 8-13% SL in specimens 34-66 mm, 25-75.8% SL at 75-190 mm; length of posterior appendage 8.5-21% SL in specimens 30-190 mm, pigmentation faint or absent; 2-9 posterolateral appendages on illicial stem, simple or branched at tip, longest 7-23% SL in specimens longer than 30 mm; spines absent on upper

part of esca bulb and appendages. Numerous dermal spines on large specimens. White blotches (shiny white on fresh specimens) often present on dorsal and ventral side of caudal peduncle, on dorsal and anal fin insertions, on sides of back and on base of illicium.

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REFERENCES

- BERTELSEN E., 1986. - Himantolophidae. *In*: Fishes of the North-eastern Atlantic and the Mediterranean, Vol. 3 (Whitehead P.J.P., Bauchot M.-L., Hureau J.-C., Nielsen J. & E. Tortonese, eds), pp. 1378-1380. Paris: UNESCO.
- BERTELSEN E., 1990. - Himantolophidae. *In*: Check-List of the Fishes of the Eastern Tropical Atlantic, CLOFETA, Vol. 1 (Quéro J.-C., Hureau J.C., Karrer C., Post A. & L. Saldanha, eds), pp. 494-495. Lisbon: JNICT, Paris: SEI & Paris: UNESCO.
- BERTELSEN E. & G. KREFFT, 1988. - The ceratioid family Himantolophidae (Pisces, Lophiiformes). *Steenstrupia*, 14(2): 9-89.
- LEVITON A.E., GIBBS R.H. Jr., HEAL E. & C.E. DAWSON, 1985. - Standards in herpetology and ichthyology: Part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia*, 1985(3): 802-832.
- MAUL G.E., 1961. - The ceratioid fishes in the collection of the Museu Municipal do Funchal (Melanocetidae, Himantolophidae, Oneirodidae, Linophrynidae). *Bolm Mus. Munic. Funchal*, 14(50): 87-159.
- QUÉRO J.-C., LORANCE P., TARDY J. & E. TARDY, 2000. - Observations ichtyologiques effectuées en 1999 à bord du navire de recherche "Thalassa". *Ann. Soc. Sci. Nat. Charente-Marit.*, 8(9): 1047-1058.
- QUÉRO J.-C., DU BUIT M.-H., IGLESIAS S., MORIZUR Y., SOULIER L. & J.-J. VAYNE, 2001. - Observations Ichtyologiques effectuées en 2000. *Ann. Soc. Sci. Nat. Charente-Marit.*, 9(1): 27-32.

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