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First record of *Hippichthys albomaculosus* Jenkins & Mailautoka, 2010 (Syngnathidae) in New Caledonia

by

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Résumé. – Premier signalement d'*Hippichthys albomaculosus* Jenkins & Mailautoka, 2010 (Syngnathidae) en Nouvelle-Calédonie.

Trois spécimens d'*Hippichthys albomaculosus* Jenkins & Mailautoka, 2010, connu uniquement des Fidji, ont été récemment collectés dans la Province Nord de la Nouvelle-Calédonie. Les valeurs morpho-méristiques confirment l'identité des spécimens. Cette étude constitue le premier signalement de cette espèce en Nouvelle-Calédonie et hors de sa localité type.

Key words. – Syngnathidae – *Hippichthys albomaculosus* – New record – New Caledonia.

The freshwater pipefish genus *Hippichthys* Bleeker, 1849 is largely distributed in the Indo-Pacific area and at least six valid species are recognized within this group (Dawson, 1978; Fricke *et al.,* 2021): *Hippichthys cyanospilos* (Bleeker, 1854) distributed from the northern Red sea to Fiji; *Hippichthys heptagonus* Bleeker, 1849 distributed from eastern Africa (South Africa and Kenya) to the Solomon; *Hippichthys spicifer* (Rüppell, 1838) distributed from the northern Red Sea to Samoa; *Hippichthys parvicarinitus* (Dawson, 1978) distributed in northern Australia; *Hippichthys penicillus* (Cantor, 1849) distributed from the western Arabian Gulf (Kuwait, Saudi Arabia) to Australia and *Hippichthys albomaculosus* Jenkins & Mailautoka, 2010 only known from Fiji. They are primarily coastal estuarine species that live in brackish waters but several species sometimes enter freshwaters (Kuiter, 2009). As all Syngnathidae, males carry and incubate the eggs in a specialized ventral brood pouch. The *Hippichthys* genus is part of the Syngnathinae subfamily (Herald, 1959) especially characterized by the location of the brood pouch under the tail (tail-brooders). Dawson (1978) distinguished the genus from other tropical pipefish genera in having a particular principal body ridge pattern with superior trunk and tail ridges discontinuous near rear of dorsal fin and lateral trunk ridge ventrally deflected near anal ring.

A recent survey (2020) has been carried out in New Caledonia and three specimens of the genus *Hippichthys* were collected from Népia River, near Ponerihouen in the North Province. There are identified as *Hippichthys albomaculosus* as they match the diagnosis given by Jenkins and Mailautoka (2010) based on fin ray counts, body ring counts, principal body ridge distinctive pattern and particular body colouration. *Hippichthys albomaculosus* has only been known from its type locality, on the island of Vanua Levu in Fiji. This paper presents the first record of *H. albomaculosus* in New Caledonia, and the main morphomeristic measurements of the specimens collected.

MATERIALS AND METHODS

Sample collection

Fish were sampled using a hand net. Following the annex IV of the directive 2010/63/EU, fish were euthanized using an overdose of clove essential oil. Entire fish were stored and preserved in 95% ethanol. Specimens were collected in the Népia River near Ponerihouen, North Province, New Caledonia (Fig. 1).

Morphomeristic

Methods follow Dawson (1977) with several additional measurements. All counts and measurements were taken from the right side of specimens. Measurements were taken with a dial calliper to the nearest tenth of a millimetre and expressed to the nearest whole percent of standard length (% SL). The size is given as standard length (SL). Length measurements are reported as: HL, head length; SnL, snout length; SnD, snout depth; BD, body depth. Ring and fin ray counts are reported as: P, pectoral fin rays; D, dorsal fin rays; A, anal fin rays; C, caudal fin rays; TrR, trunk rings, dermal rings counted from operculum to urogenital papilla; TaR, tail rings, dermal rings counted from urogenital papilla to the last ring before the caudal fin; STr, subdorsal trunk rings, dermal rings counted from anterior dorsal fin insertion to urogenital papilla; STa, subdorsal tail rings, dermal rings counted from urogenital papilla to posterior dorsal fin insertion; STt, subdorsal rings, total dermal rings counted under dorsal fin. In addition to counts and measurements, the observation of ridges on certain body parts (patterns of trunk and tail ridges, opercular ridges) was done. Sex identification was made for each specimen by observation of the urogenital papilla. All specimens examined in the present study are deposited in the Muséum national d'Histoire naturelle, Paris (MNHN).

Material examined

MNHN-IC-2022-0001, 3 females (tag RTNC-371, RTNC-372, RTNC-373), size range 40.3-46.5 mm SL, Népia River near Ponerihouen, North Province, New Caledonia (21°2.725'S, 165°24.186'E), 19 Nov. 2021, Charpin coll.

RESULTS AND DISCUSSION

Morphomeristic analysis of the three specimens collected in New Caledonia allowed to assign them to *Hippichthys albomacu-*

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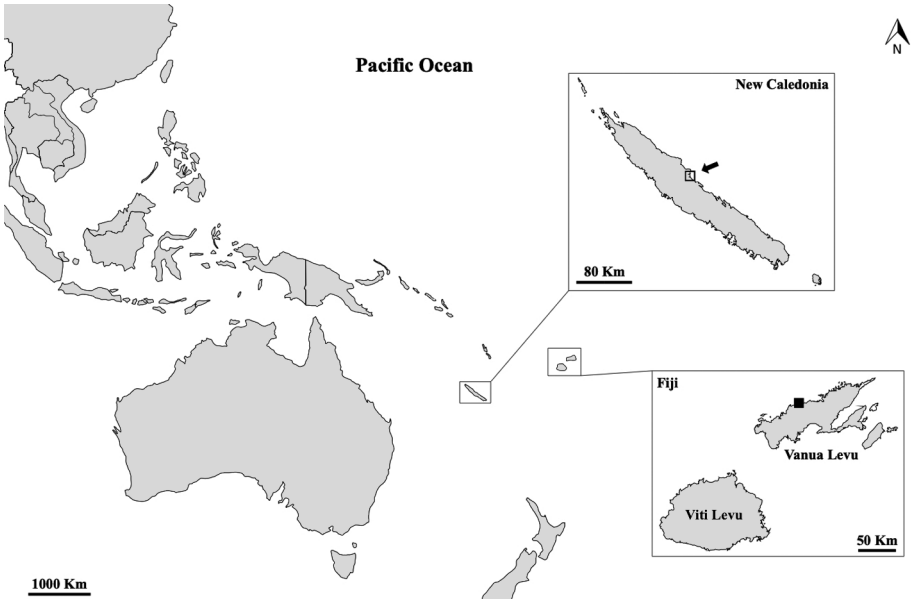

Figure 1. – Distribution of *Hippichthys albomaculosus* in the West Pacific. (■) type locality, (□) new record in New Caledonia.

Table I. – Comparison of the morpho-meristic values of *Hippichthys albomaculosus* between the present study and the original species description. Values in bold correspond to values for the holotype followed in brackets by the range for paratype specimens.

	Hippichthys albomaculosus	
	Present study (n = 3)	Jenkins and Mailautoka (2010) (n = 22)
Total length (mm)	42-48.8	–
Standard length (mm)	40.3-46.5	**83.8** (69.7-88.2)
Snout length (mm)	2.2-2.5	**4.2** (2.9-4.4)
Head length (mm)	5.4-5.5	**9.2** (7-9.4)
Snout length in HL (%)	2.2-2.5	**2.2** (1.8-2.5)
Head length in SL (%)	7.5-8.4	**9.1** (8.8-10.7)
Pectoral fin rays	13	**14** (14-15)
Dorsal fin rays	23-25	**23** (23-25)
Anal fin rays	2	**2**
Caudal fin rays	10	**10**
Trunk rings	13	**13**
Tail rings	35	**35** (35-36)
Subdorsal trunk rings	0	**0**
Subdorsal tail rings	5.5-6.5	**6**
Total subdorsal rings	5.5-6.5	**6**

Figure 2. – *Hippichthys albomaculosus*, MNHN-IC-2022-0001, tag RTNC-371, female, 48.85 mm SL, from Népia River, New Caledonia (© Charpin).

losus according to the description of Jenkins and Mailautoka (2010) (Tab. I). The body is tapered and covered in dermal plates forming a series of rings. The superior trunk and tail ridges are discontinuous. The lateral trunk ridge ventrally deflected near anal ring. The head has a relatively short and thin snout. The operculum has one longitudinal ridge. Venter of trunk is distinctly V-shaped with prominent median longitudinal keel. All scutella are without longitudinal keels. Dorsal fin rays 23-25; pectoral fin rays 13; anal fin rays 2; caudal fin rays 10; trunk rings 13; tail rings 35; dorsal fin origin on the first dorsal ring; total subdorsal rings 5.5-6.5; snout length 2.2-2.5 mm; head length 5.4-5.5 mm; snout length in HL 2.2-2.5; head length in SL 7.5-8.4. Coloration in life (Fig. 2) of the body is overall brownish to yellowish. Latero-ventral surface of trunk shows a series of 9 to 11 ocellated white spots with black margins. The belly is bright red with pectoral and dorsal fins pale to transparent and the caudal fin is dark brown. In preservation, the body is overall greyish with diffuse dark stripes on tail. Latero-ventral surface of trunk shows a series of 9 to 11 ocellated white spots with dark margins. The pectoral and dorsal fins are pale to transparent and the caudal fin is grey. All specimens were caught in brackish water around 100 meters from the Népia River mouth, near Ponerihouen in the North Province of New Caledonia. The river bottom was primarily composed by litter and branches (maximum depth 1.70 m). The three specimens caught in New Caledonia were juveniles or sub-adults, which explains the slights differences in length and counting (Tab. I) between these specimens and those described by Jenkins and Mailautoka (2010), where the description was only based on adults specimens.

The presence of the freshwater pipefish *Hippichthys albomaculosus* is confirmed in New Caledonia according to morphological determination and therefore extends distribution for this species that was only known from its type locality from the Dreketi River on the island of Vanua Levu in Fiji (Fig. 1). Freshwater pipefish remain poorly known among the tropical freshwater biodiversity. Seahorses and freshwater pipefish are considered to be the most threatened species of the Syngnathidae (Pollom *et al*., 2021). Only two species of freshwater pipefish are included in the UICN Red List categories (*Microphis pleurosticus* Peters, 1868, Endangered and *Microphis deocata* (Hamilton, 1822), Vulnerable), the rest of the species being in *Data Deficient* (as it the case for *Hippichthys albomaculosus*) or *Least Concern* due to the lack of knowledge. Our study increased knowledge about the distribution in the Pacific islands of *H. albomaculosus* Jenkins & Mailautoka, 2010.

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