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D II+IV, 6 A II, 3-5 P₁ 15-16 P₂ I, 1 C 10 V 20-21

Distribution This species was described from a single, 8 mm specimen, collected at One Tree Island Lagoon, Qld, Australia. Recently a metamorphosed, settled, 6.4 mm specimen was collected in northern New South Wales, which assisted with the identification of 15 larvae from plankton tows between Brisbane, Qld (27°S) and Sydney, NSW (34°S), Australia. The adult habitat and morphology remain unknown.

Diagnostic characters

- 8-10 + 10-12 = 20-21 myomeres
- Dorsal fin count II+IV, 6
- Large, early-forming, pigmented pectoral fins that reach well beyond the anus
- Blunt head spines form following notochord flexion
- Rapid development, with all fins formed and the skeleton largely ossified by 4 mm
- Long notochord tip

Description of larvae

Morphology Body depth is moderate to deep (29-41%). Head is large (HL 29-39% in preflexion and flexion and 36-46% in postflexion). Canine teeth form following flexion, initially in the lower jaw. The eyes are initially large (ED 31-38% of HL), but become progressively smaller, especially following flexion (ED 20-27% of HL). The inhalent nostrils form tubes by about 3.3 mm, and these project over the premaxilla by 4 mm. The gill exhalent opening is restricted to the upper portion of the base of the pectoral fin and becomes progressively smaller and moves dorsally, so that by the completion of flexion, it is restricted to a pore located dorsal to the opercle. Most of the spines are blunt and their development is connected with the development of sensory pores and tubes. The most prominent are the 2 preopercular spines, the 3 blunt lachrymal spines and ridge, and the ridges of the suborbital stay and of the pterotic-posttemporal. The settled individual has all head spines covered by skin. Most rays in the large, well-developed pectoral fins are already formed in the smallest larva. The skin is thick and granular, and, particularly in smaller larvae, is inflated. The gap between dorsal spines II and III is present from when the fin first forms. Gut is moderate to long (PAL 48-65%), is massive and coiled with a descending

posterior portion in the smallest larva, which is retained until about 4 mm, when the body becomes depressed. The notochord tip is very long, and is retained following flexion until about 4 mm. Apparently no scales form in this species other than the well-developed tubular scales along the lateral line.

Size at

Hatching	<1.8 mm
Notochord flexion	2.6-3.1 mm
Settlement	from 6.4 mm
Formation of fins:	
Caudal 2.2-3.1 mm; Dorsal 2.2-3.1 mm; Anal 2.2-3.1 mm; Pectoral <1.8-2.6 mm; Pelvic 3.1-3.2 mm	

Pigmentation Pigment is variable among individuals, and changes in pigment take place over small size intervals. Early postflexion larvae have uniform coverage of small melanophores on the pectoral fin. After about 3.5 mm, the pigment becomes restricted, and eventually forms vertical bands from about 3.9 mm. There is a concentration of melanophores on the ventral surface, especially on the gut. A series of very fine melanophores on the ventral surface of the tail is present in small larvae, but may be absent from the late preflexion stage. Scattered melanophores are present dorsally and laterally on the trunk, and these increase in number with development. Similar melanophores form on the tail, but these are more confined to the ventro-lateral surfaces and form later than those on the trunk. There is very little pigment on the head until 4 mm. The settled specimen is darkly pigmented on the head and trunk and less so on the tail.

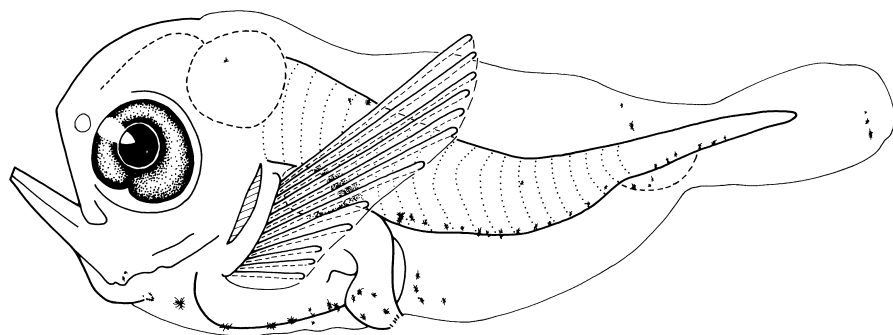
Figure – Larvae of *Matsubarichthys inusitatus*. In all specimens, the thick skin partially obscures the myomeres, and the illustrated myomeres are approximate. Diagonal lines indicate the gill exhalent opening. Broken lines are branchiostegal rays. Pectoral-fin pigment omitted in A-C. **A** Preflexion (I.26205-001). **B** Preflexion (I.26205-001). **C** Postflexion (I.36610-003). **D** Postflexion (I.26205-001). **E** Postflexion (I.26213-005). Illustrated by J. M. Leis, inked by S.Bullock. After Leis *et al.* (2004).

Material Examined Description is based on 15 specimens: 1.8-4.0 + 8.4 mm (holotype) all captured with plankton nets. Additionally the settled fish of 6.4 mm was examined. All examined specimens are deposited in the Australian Museum: I.26081-004, I.26112-034, I.26205-001, I.26213-005, I.29395-001 (holotype), I.36591-004, I.36601-006, I.36610-003, I.40938-004, I.41289-011.

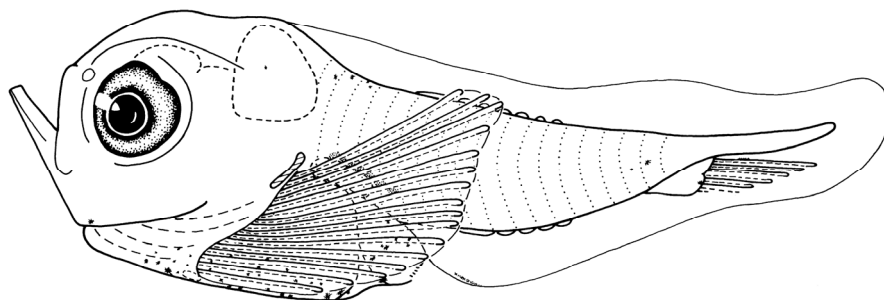
Identification justification Larvae and the settled individual were identified as *M. inusitatus* by the very low myomere and fin-ray counts, highly restricted gill opening and general morphology of aploactinids, in particular the early-forming pectoral-

fins, the form of the dorsal fin, the thick skin and the head spination (Leis and Carson-Ewart 2000). We are aware of no other species in Australian waters, and certainly no other aploactinid, with these meristic characters (Leis *et al.* 2004). This description is based on the publication Leis *et al.* (2004).

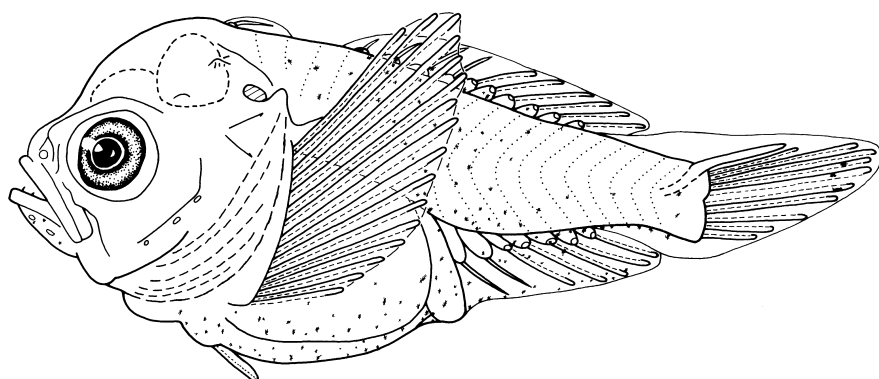
References Leis JM, Hay AC and Miskiewicz AG (2004). Larval development of the rare Australian aploactinid fish *Matsubarichthys inusitatus* (Pisces: Scorpaeniformes). Zoological Studies Vol.43, no.3, 2004.



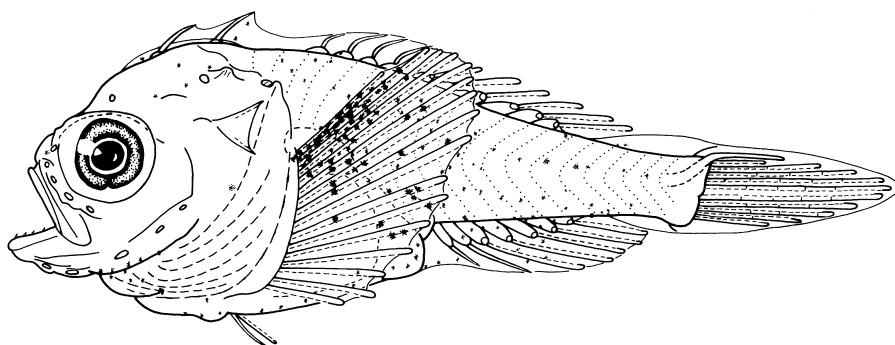
A 1.8mm



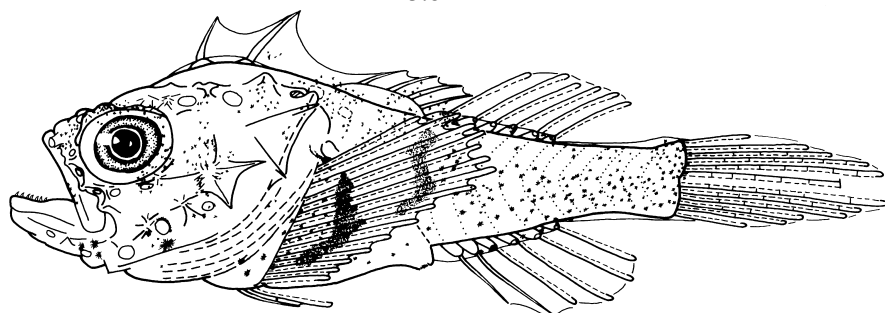
B 2.6mm



C 3.1mm



D 3.8mm



E 4.0mm