

## **Aploactinidae: Velvetfishes**

J.M. Leis

Aploactinids are marine, cryptic demersal scorpaeniform fishes found primarily in tropical waters of the western Pacific and Indian Oceans, with a few species represented in temperate waters of Australia. Aploactinids are a poorly understood group and many species are known from only a few specimens. This is probably due to their relatively small adult size, very cryptic appearance, and adult habitat among vegetation, or rocky, shelly, coral rubble, or coralline algae substrata. Overall, there are about 40 species in 18 genera (Poss and Eschmeyer, 1978; Poss & Johnson, 1991; Poss, 2000; Johnson, in press), 20 and 18, respectively, of which occur in Australia. Only one of the nine species known to occur in temperate Australian waters is common there (J Johnson, personal communication), but adult distributions are poorly known and larvae may range further south than do adults. Adults are small, cryptic fishes, characterised by a dorsal fin that originates very far forward (normally on the head), large pectoral fins, and a body usually covered with modified prickly scales, that give the skin a velvet-like appearance. The head has numerous bony ridges and blunt spines. Nothing is known of spawning mode. Only a few larvae have been described (Kojima, 1988; Leis and Carson-Ewart, 2000; Leis *et al.*, 2004). Aploactinid larvae are characterised by their huge, early-forming pectoral fins, dorsal fin with some spines on the head, massive, coiled gut, large head with short snout and steep profile, head spination, myomere number, and thick, vesicular skin. Specialisations to pelagic life are the extremely large, early forming pectoral fins and the extensive head spination, however, much of the latter is retained by adults.

### **Meristic characters of aploactinid genera of temperate Australia**

	Dorsal	Anal	Pectoral	Pelvic	Caudal	Vertebrae
<i>Acanthosphex</i>	XI-XIII,7-11	I-II,6-8	9-10	I,2	-	24-26
<i>Aploactis</i>	XII-XV,11-15	I-III,10-12	11-14	I,2	-	28-30
<i>Aploactisoma</i>	XIII-XV,12-16	I,9-12	10-11	I,2	13	
<i>Cocotropus</i>	XII-XV,7-12	I-II,6-9	11-14	I,3	-	25-28
<i>Erisphex</i>	X-XIII,9-16	I-II,9-15	11-15	I,1-2	-	27-31
<i>Kanekonia</i>	XI-XIII,7-10	I-II,7-9	13-16	I,1-2	-	25-26
<i>Matsubarichthys</i>	II+IV,6	II,4	15	I,1	6+5=11	9+12=21
<i>Neoaploactis</i>	VI+VII+I,9-10	I-II,7-9	12	I,3	-	26
<i>Paraploactis</i>	XII-XV,8-11	I-II,7-10	13-15	I,3	-	26-28

### **Main characters of aploactinid larvae**

- Myomeres 21-31
- Huge, early-forming pectoral fins
- 3-5 dorsal-fin spines separate and positioned on the head from formation
- Pelvic-fin count I, 1-3
- Massive, coiled gut
- Large head with short snout and steep profile
- Extensive head spination, consisting of blunt spines
- Thick, vesicular skin that is often inflated in preflexion larvae, and that often obscures myomeres

### **References to aploactinid larvae**

Kojima (1988), Leis and Carson-Ewart (2000), Leis *et al.* (2004)

### **Families with similar larvae**

Larvae of the scorpaeniform families Pataecidae and Gnathanacanthidae are unknown, but likely to be similar to aploactinid larvae.

Pataecids and gnathanacanthids - 28-44 myomeres; lack a detached to semidetached spiny dorsal fin on the head.

**Scorpaenidae** - Preflexion aploactinids are very similar to morph A scorpaenids of Leis and Rennis (2000), although myomere counts may be useful in distinguishing them; postflexion individuals are usually identifiable based on the fin-ray counts particularly the pelvic count of I, 1-3 of aploactinids (I, 4-5 in most scorpaenids); most of the scorpaenids have better-developed head spination that is pungent; in many, the dorsal fin does not extend onto the head.

Lophiiformes - Early larvae of some lophiiform fishes – particularly those with early-forming pectoral fins - might be confused with early *Matsubarichthys inusitatus* larvae because they share inflated dermis and low number of myomeres; exhalent opening of the gill is located at the lower edge or below the pectoral-fin base.

Grammistinae **Serranidae** - one or more very elongate, whip-like anterior spines in the dorsal fin; a dorsal fin that does not extend onto the head; no spination on the infraorbital or parietal.

**Ophidiidae** - myomeres >50; a dorsal fin without spines; no head spination.

**Blenniidae** - myomeres usually, >30; often have enlarged, recurved canine teeth; lack head spination other than on the preopercle; more compact gut.

**Note:** families in bold text are dealt with in Neira *et al.*, 1998.

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