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D IX-X, 8-11

A III, 7-9

P₁ 12-16P₂ I, 5

C 17

V 25

Distribution Adults occur in coastal drainages of south-eastern Australia from the Richmond River, NSW (28°53'S) to the Murray River, SA (139°E). They are catadromous, generally inhabiting estuaries and tidal reaches of rivers and they move to estuary mouths to spawn during winter. Adults are silvery-grey dorsally and silvery-white ventrally. Very similar to *Maquaria novemaculeata*, except for a snout profile that is concave and a paler colouration. Maximum size 75cm but more commonly 40cm (Harris & Rowland 1996, Allen *et al.* 2002, Hoese *et al.*, *in press*).

Diagnostic characters

- Myomeres 12-14 + 11-13 = 25
- Ratio SnL = ED until 7 mm, after which SnL < ED
- No spines on anterior preopercular border
- 4-7 expanded melanophores along the dorsal midline of the trunk and tail
- Midlateral series of melanophores on trunk and tail
- Internal and external pigment line through eye

Description of larvae

Morphology Body depth is moderate (BD 30-35%). Head is moderate to large (HL 32-41%). Snout is concave to straight and is approximately the same length as the eye diameter, but becomes shorter than eye diameter from 7 mm. Eye is moderate and round (ED 27-32% of HL). Small canine teeth are present in all larvae examined. The nasal pit roofs over shortly after settlement. Head spination is weak. Three short spines are present on the posterior preopercular border in the smallest larva examined; a fourth spine develops in some postflexion larvae from 6.3 mm and in all juveniles. An opercular spine is present in all juveniles and may occur in larvae from 7.1 mm. A minute interopercular spine is present from 6.0 mm and persists in all juveniles. Low, smooth supraocular and supracleithral ridges form by the time notochord flexion is complete. A weak posttemporal ridge is present from 7 mm. A small spine develops on the supracleithrum from 10.6 mm. The gut is moderate to long (PAL 60-67%). The large, triangular gut is fully coiled in the smallest larva examined. Gas bladder is conspicuous, located over the midgut and is small to moderate in size. Scales have not developed in the largest specimen examined.

Size at

Hatching	<4.8 mm
Notochord flexion	4.8 – 5.5 mm
Settlement	10.3-13.5 mm
Formation of fins:	
Caudal	<4.8–5.4 mm; Dorsal <4.8–11.3 mm; Anal <4.8 –11.3 mm; Pectoral 5.4–10.3 mm; Pelvic 6.3–10.3 mm

Pigmentation Larvae are moderately pigmented with melanophores concentrated on the dorsal and ventral midlines, and midlateral surface of the trunk and tail. *External:* Small, expanded melanophores are present at the tips of the upper and lower jaws. Melanophores are present on the snout and operculum in line with the eye. One or 2 melanophores are present on the ventral midline of the gular membrane, and there is one at the angle of the lower jaw. Four to seven large, expanded melanophores are present along the dorsal midline of the trunk and tail, from the nape to just posterior to the dorsal-fin base. A series of expanded melanophores is present along the lateral midline of the trunk and tail, commencing at the gas bladder and extending to the posterior end of the dorsal and anal fins. In postflexion larvae, this series extends onto the anterior third of the caudal peduncle. Two to 4 small melanophores occur between the cleithral symphysis and pelvic-fin base, and 1-4 between the pelvic-fin base and the anus. One to three expanded melanophores occur along the anal-fin base. The expanded melanophores along the dorsal and ventral midlines become small to absent during the juvenile stage. After settlement, additional expanded melanophores develop laterally on the head and body, the dorsal fins become pigmented and small melanophores cover the head and body. *Internal:* Melanophores are present along the roof of the mouth and posterior to the eye below the mid- and hindbrain. Melanophores are present over the gas bladder, the mid- and hindgut, and may be present along the notochord. The external and internal pigment series thus give the impression of a line of heavy pigment from the tip of the snout, across the head and trunk to the tail.

Figure - Larvae of *Macquaria colonorum*. **A** Postflexion (I.41690-007). **B** Postflexion (I.41690-005). **C** and **D** Recently-settled juveniles (I.20052-010). A & B from Swansea Channel, NSW and C & D from Clyde River, NSW. Illustrated by S. Bullock and T. Trnski.

Material Examined Morphological development of the larvae and small juveniles of *Macquaria colonorum* (17 specimens, 4.8-7.1 and 10.3-13.5 mm respectively) is described from channel net and beach seine collections from Swansea Channel, NSW and Clyde River, NSW, respectively. Registration numbers: AMS I.20052-010 (C and D), I.41690-005 (B), -006, -007(A) and -008, I.41691-002, I.41692-001, I.41693-001.

Identification justification Larvae and juveniles were identified as percichthyids using the characters in Brown and Neira (1998). The larvae and juveniles described here were confirmed as being *Macquaria* because of their coastal distribution and meristic values. The overlap in meristic values between *M. colonorum* and *M. novemaculeata* made separation of the species difficult. The availability of reared *M. novemaculeata* from positively identified adults determined the species allocations. This description is based on the publication Trnski *et al.* (2005).

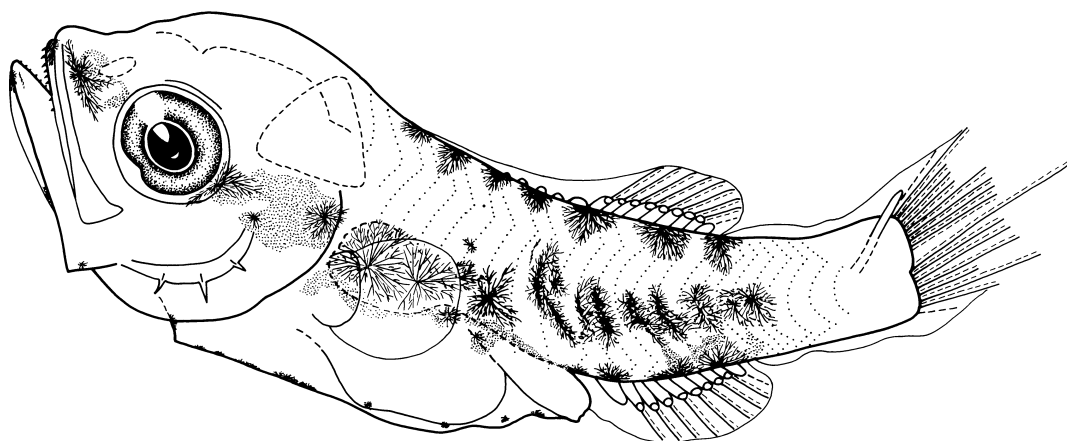
References Allen, G. R., Midgley, S. H. and Allen, M. (2002). Field guide to the freshwater fishes of Australia, 394 pp. Western Australian Museum, Perth.

Brown, P. and Neira, F.J. (1998). Percichthyidae: basses, perches, cods. In: *Larvae of temperate Australian fishes: laboratory guide for larval fish identification*. pp 259-265. Neira, F.J., Miskiewicz, A.G. and Trnski, T. (Eds). University of Western Australia Press, Perth.

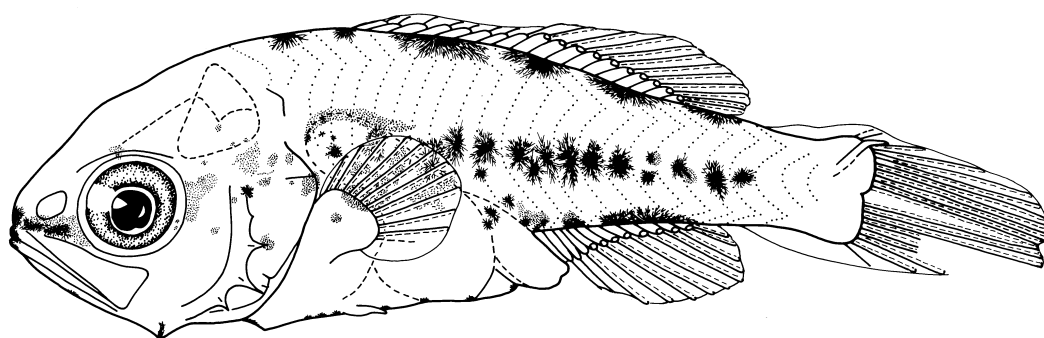
Harris, J.H. and Rowland, S.J. (1996). Family Percichthyidae: Australian freshwater cods and basses. In: *Freshwater fishes of south-eastern Australia*. pp 150-163. McDowall, R.M. (Ed). Reed Books, Chatswood, New South Wales.

Hoesel, D.F., Bray, D.J., Allen, G.R., Allen, C.J., Cross, N.J. and Paxton, J.R. (in press). Pisces: Mugilidae to Molidae. Zoological Catalogue of Australia, Vol. 7 part 2. Australian Biological Resources Survey, Canberra.

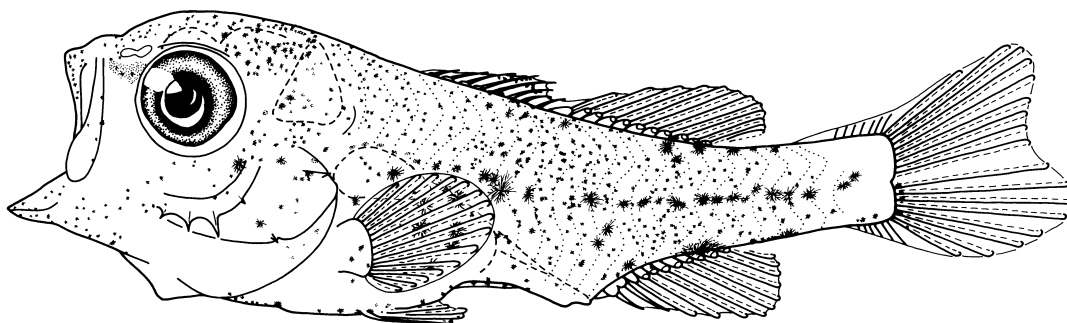
Trnski, T., Hay, A.C. and Fielder, D.S. (2005). Larval development of estuary perch (*Macquaria colonorum*) and Australian bass (*M. novemaculeata*) (Perciformes: Percichthyidae), and comments on their life history. Fishery Bulletin, 103: 183-194.



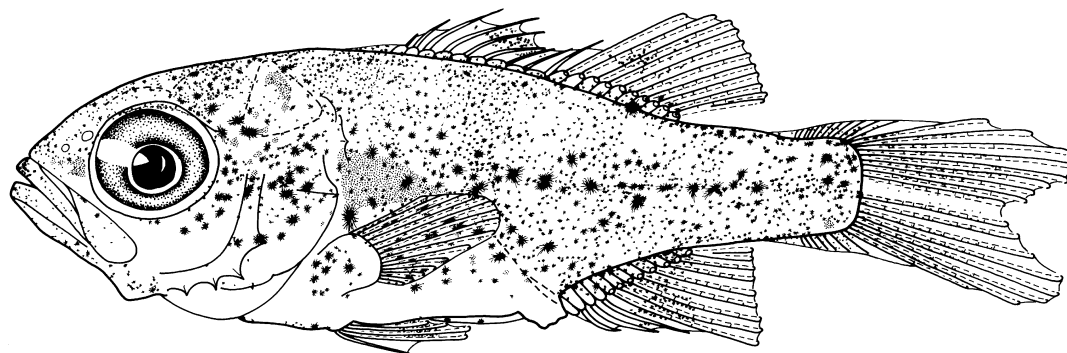
A 4.8mm



B 7.1mm



C 10.3mm



D 12.5mm