

MERISTICS**Fins:**

Dorsal rays – D₁ IV-V, D₂ I+11-13

Anal rays – I+13-14

Pelvic rays – I+5

Pectoral rays – 17-18

Myomeres:

Total number – 27 (26-28)

LIFE HISTORY

Range: Atlantic Ocean: Trondheim to Morocco.
Also known from the Mediterranean and Black Sea.

Habitat: demersal; marine; depth range 0-80 m.

Spawning season: summer and autumn.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Ehrenbaum, E. (1905-1909). *Eier und Larven von Fischen. Nordisches Plankton*, 1: 413pp.
- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Munk, P., J. G. Nielsen (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark: 215pp.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi Giovanili di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS:** Undescribed

Capsule diameter - Unknown

No. of oil globules - Unknown

Shell surface - Unknown

Pigment - Unknown

Yolk - Unknown

Diameter of oil globules - Unknown

Diagnostic features - Unknown

LARVAE

Hatching length - Unknown

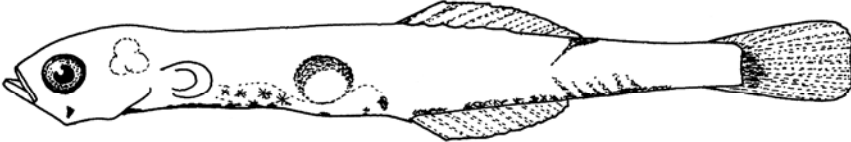
Yolk-sac absorption - Unknown

Flexion length -

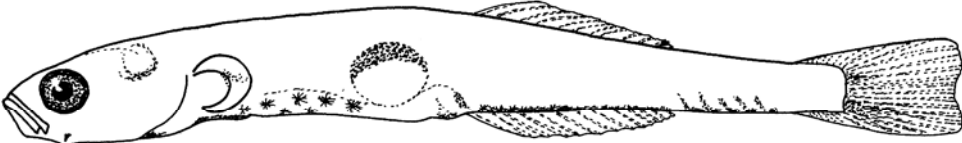
Transformation length -

Pigmentation – Very few pigments. Melanophore on angle of lower jaw. Stellate melanophores on ventral abdomen. Row of melanophores from the anus extending almost to caudal fin. Melanophores on base of caudal fin.

Diagnostic features - At 7 mm the pectoral fins are present as minute flaps. At 10 mm the second dorsal fin and the anal fin are fully developed. Behind the anal fin are about 5-6 diagonal stripes situated on the ventral half of the body. Prominent swimbladder well back in the body. Fewer myomeres than other Gobiids. The late larva is very similar to the adult.



10 mm



17 mm

Plate 67- Early life history stages of *Aphia minuta*. Petersen (1919).

MERISTICS**Fins:**

Dorsal rays - D₁ II-III, D₂ I+18-20

Anal rays - I+20-21

Pelvic rays - I+5

Pectoral rays -

Myomeres:

Total number - 39 (29-31)

LIFE HISTORY

Range: Eastern Atlantic: Lofotens, Norway, to Gibraltar. Also known from the Mediterranean Sea.

Habitat: demersal; marine; depth range 1-400 m.

Spawning season: summer.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Ehrenbaum, E. (1905-1909). *Eier und Larven von Fischen. Nordisches Plankton*, 1: 413pp.
- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Munk, P., J. G. Nielsen (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark: 215pp.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi Giovanili di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS:** Undescribed

Capsule diameter - Unknown

No. of oil globules - Unknown

Shell surface - Unknown

Pigment - Unknown

Yolk - Unknown

Diameter of oil globules - Unknown

Diagnostic features - Unknown

LARVAE

Hatching length - Unknown

Yolk-sac absorption - Unknown

Flexion length -

Transformation length -

Pigmentation - Heavily pigmented early larva.

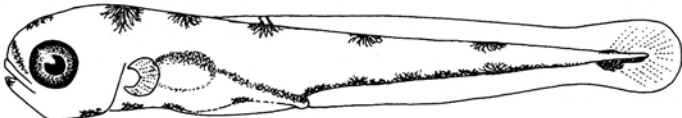
Melanophores in front of the eye and on tip of the lower jaw. Five large melanophores on head, neck and dorsal postanal body contour.

Melanophores develop on the abdomen and there is a continuous row of postanal ventral pigment.

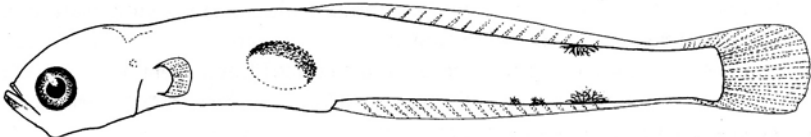
At 7-9 mm the pigmentation is reduced to a single dorsal branched melanophore and a few melanophores along the ventral contour.

At 11 mm additional melanophores are present along the ventral postanal region.

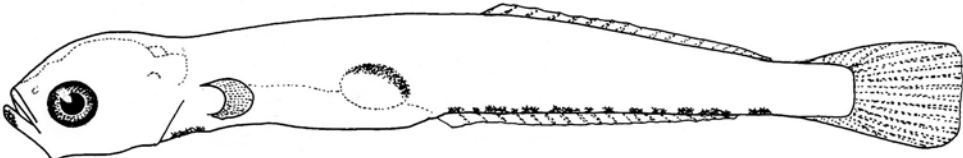
Diagnostic features - Characteristic pigmentation. Prominent swimbladder.



4 mm



9 mm



11 mm

Plate 68- Early life history stages of *Crystallogobius linearis*. Petersen (1919).

MERISTICS**Fins:**

Dorsal rays - D₁ VII, D₂ 14-16

Anal rays - I+14

Pelvic rays - I+5

Pectoral rays -

Myomeres:

Total number - 28

LIFE HISTORY

Range: Eastern Atlantic: northern Spain to Madeira and the Canary Islands; Mediterranean.

Habitat: demersal; marine.

Spawning season: spring and summer.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

Monteiro, J., R. Borges, J. Robalo, V.C. Almada, S. Henriques, E.J. Gonçalves (submitted). Larval development of *Gobius xanthocephalus* and genetic validation of larval identification.

EARLY LIFE HISTORY DESCRIPTION**EGGS:** Undescribed

Capsule diameter - Unknown

No. of oil globules - Unknown

Shell surface - Unknown

Pigment - Unknown

Yolk - Unknown

Diameter of oil globules - Unknown

Diagnostic features - Unknown

LARVAE

Hatching length - 2.8 mm

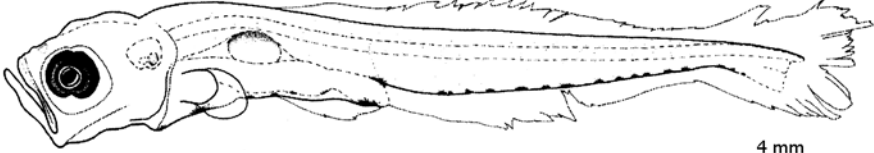
Yolk-sac absorption -

Flexion length - 5.0-5.5 mm

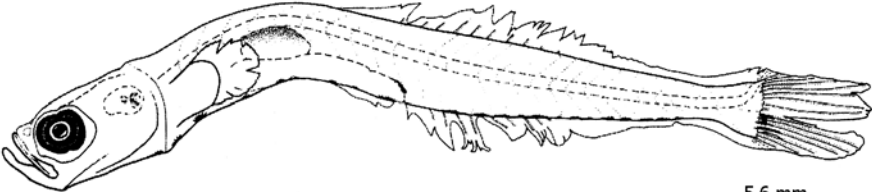
Transformation length -

Pigmentation - Newly hatched larvae: No pigmentation at the lower jaw. Lacks dorsal pigmentation. Presence of a ventral postanal row of regularly spaced melanophores extending from the anus to the caudal fin.

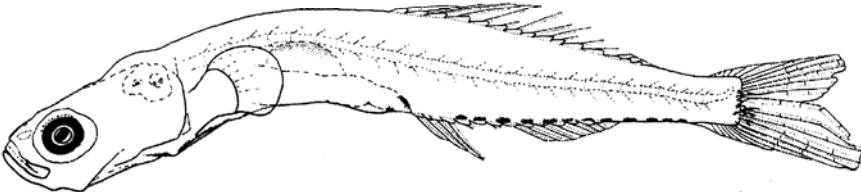
Diagnostic features - Characteristic pigmentation. Meristics.



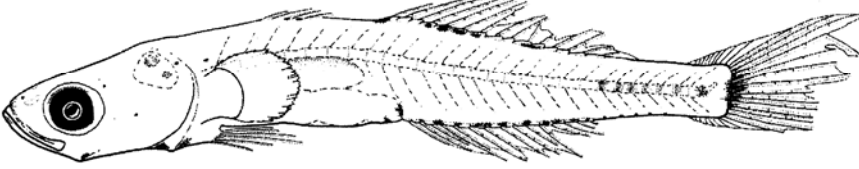
4 mm



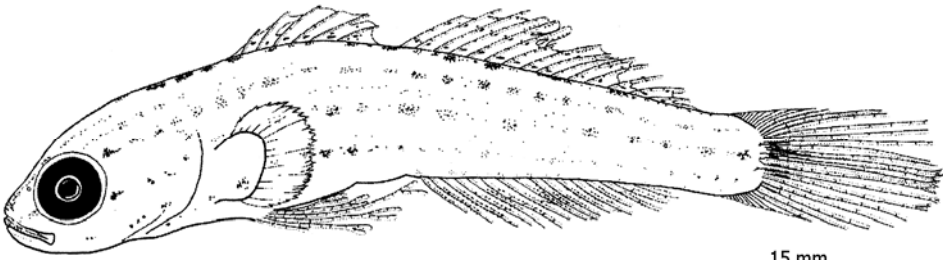
5.6 mm



8 mm



11 mm



15 mm

Plate 69- Early life history stages of *Gobius xanthocephalus*. Monteiro *et al.* (Submitted).

MERISTICS**Fins:**

Dorsal rays - D₁ VI, D₂ I+13

Anal rays - I+10-12

Pelvic rays - I+5

Pectoral rays - 19-22

Myomeres:

Total number -

LIFE HISTORY

Range: Eastern Atlantic: southwestern England to Agadir, Morocco, throughout the Mediterranean and Black Sea.

Habitat: demersal; marine; depth range 0-10 m.

Spawning season: spring and summer.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

Gil, F., E.J. Gonçalves, C. Faria, V.C. Almada, C. Baptista, H. Carreiro (1997). Embryonic and larval development of the giant goby *Gobius cobitis* (Pisces: Gobiidae). *Journal of Natural History*, 31: 799-804.

Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi Giovanilli di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.

EARLY LIFE HISTORY DESCRIPTION**EGGS**

Capsule diameter - 3.59x1.18 mm

No. of oil globules -

Shell surface - smooth, fusiform

Pigment -

Yolk -

Diameter of oil globules -

Diagnostic features -

LARVAE

Hatching length - 5.5 mm

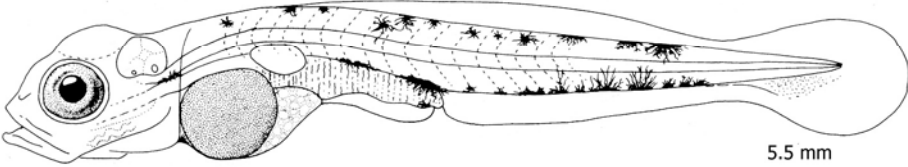
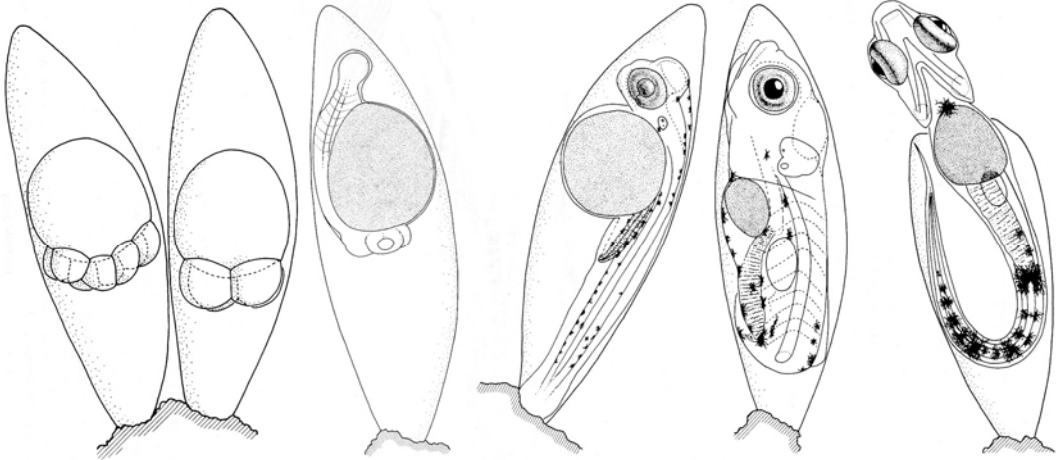
Yolk-sac absorption - 5.5-5.6 mm

Flexion length - 7.5 mm

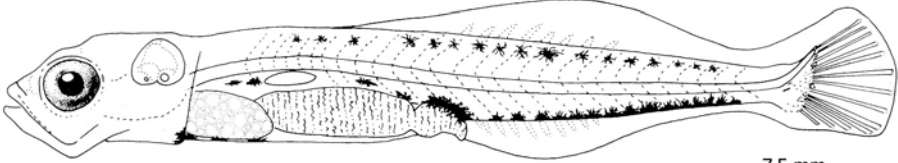
Transformation length - 17-19 mm

Pigmentation - Newly hatched larva: eyes fully pigmented, swim bladder formed but not filled, reduced yolk. Ventral row of melanophores extending from behind the anus to the caudal region. Two large melanophores above the anus and three others at the dorsal midline near the caudal peduncle. Pigmented gas bladder. Late larva: dorsal row of melanophores extending from the head to the caudal region.

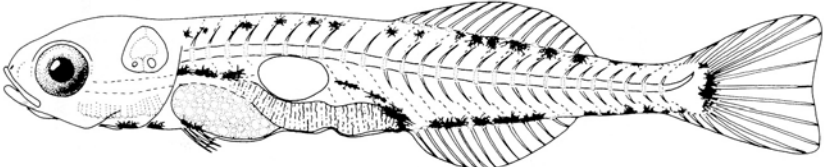
Diagnostic features - Pigmentation.



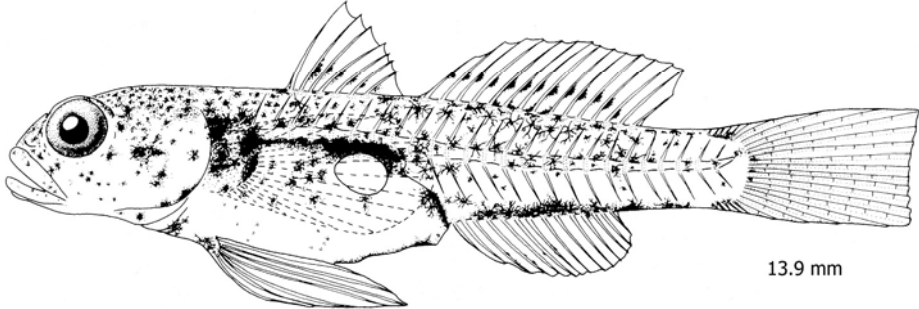
5.5 mm



7.5 mm



11.0 mm



13.9 mm

Plate 70- Early life history stages of *Gobius cobitis*. Gil *et al.* (1997).

MERISTICS**Fins:**

Dorsal rays - D₁ VI, D₂ I+14
Anal rays - I+12-13
Pelvic rays - I+5
Pectoral rays - 20-21

Myomeres:

Total number -

LIFE HISTORY

Range: Eastern Atlantic: southwest Ireland to Morocco, Mediterranean and Senegal.

Habitat: demersal; marine; depth range 15-40 m.

Spawning season: Unknown.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

Gil, F., R. Borges, C. Faria, E.J. Gonçalves (2002). Early development of the red mouthed goby, *Gobius cruentatus* (Pisces: Gobiidae). *Journal of the Marine Biological Association, U.K.*, 82: 161-163.

EARLY LIFE HISTORY DESCRIPTION**EGGS**

Capsule diameter - 2.04x0.56 mm
No. of oil globules - 0
Shell surface - smooth, fusiform
Pigment - Late embryonic stages fully pigmented.
Yolk - unsegmented
Diameter of oil globules -
Diagnostic features -

LARVAE

Hatching length - 3.30 mm
Yolk-sac absorption -
Flexion length -
Transformation length -
Pigmentation - Newly hatched larva: seven to nine ventral melanophores along gut and one above the anus. Continuous row of postanal melanophores with large stellate pigment in the middle of this row. Dorsal melanophores (between the head and trunk). Swim bladder prominent and fully pigmented.
Diagnostic features - Pigmentation.

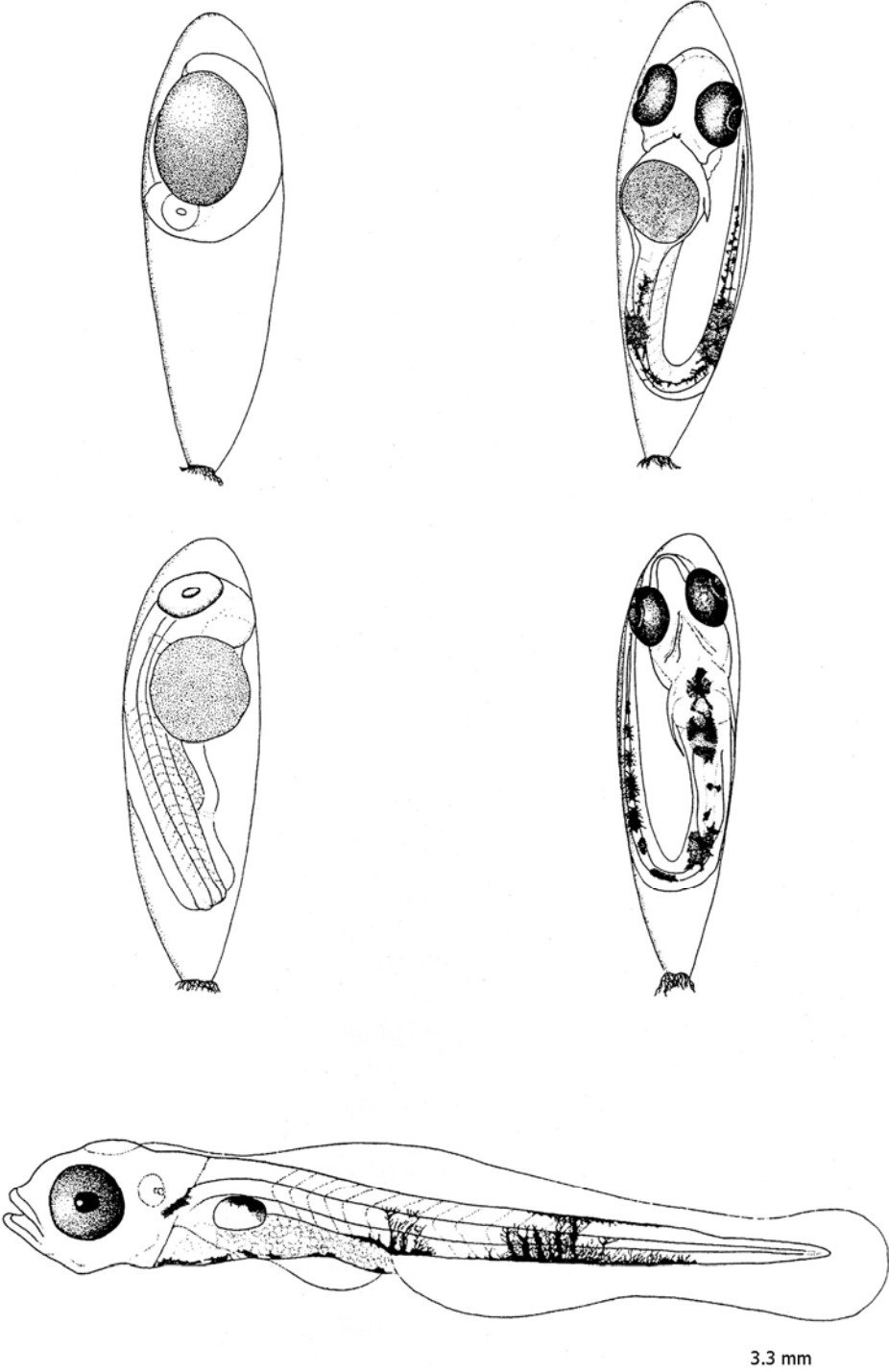


Plate 71- Early life history stages of *Gobius cruentatus*. Gil *et al.* (2002).

MERISTICS**Fins:**

Dorsal rays - D₁ V-VII, D₂ I+11-13

Anal rays – I+11-12

Pelvic rays – I+5

Pectoral rays – 15-20

Myomeres:

Total number – 27-29

LIFE HISTORY

Range: Eastern Atlantic and Mediterranean Sea: throughout North Africa from Cape Blanc, Mauritania north and eastwards to the Suez Canal; also along the eastern Atlantic coast northwards to Trondheim (Norway) and Baltic Sea. Also known from the Black Sea.

Habitat: demersal; marine; depth range 1-75 m.

Spawning season: spring and summer.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Munk, P., J. G. Nielsen (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark: 215pp.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi Giovanili di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Petersen, C.G.J. (1892). On the eggs and breeding of our Gobiidae. *Reports of the Danish Biological Station*, 2: 1-9.
- Petersen, C.G.J. (1917). On the development of our common gobies (*Gobius*) from the egg to the adult stages etc.. *Reports of the Danish Biological Station*, 24: 5-16.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS**

Capsule diameter – 1.5 mm

No. of oil globules – many oil globules

Shell surface – smooth, fusiform

Pigment -

Yolk -

Diameter of oil globules -

Diagnostic features -

LARVAE

Hatching length – 2.5 mm

Yolk-sac absorption – 4.0-4.5 mm

Flexion length -

Transformation length -

Pigmentation – Newly hatched larva: no pigment on head. Three characteristic ventral melanophores, one below the yolk sac, one at the anus and one mid-way on the tail. Postanal row of melanophores, with one large ramified about mid-way along the postanal region. No postanal dorsal pigmentation. Late larvae: no significant change in pigmentation, head and jaws with no pigmentation. Gas bladder heavily pigmented. One melanophore on the ventral half of the caudal fin. More advanced in development than other related species at equivalent sizes.

Diagnostic features – Pigmentation. Prominent gas bladder. Fewer myotomes than *Pomatoschistus minutus* and *Pomatoschistus microps*.

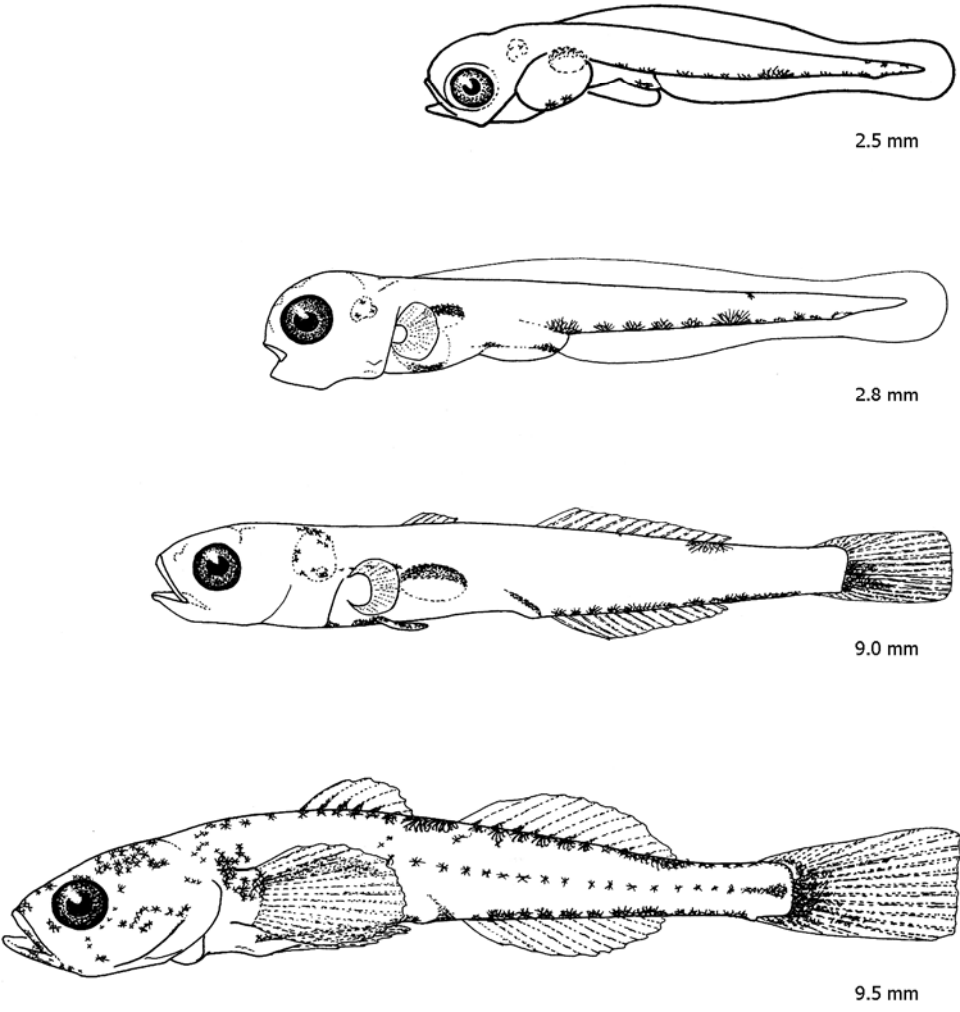


Plate 72- Early life history stages of *Gobius niger*. Petersen (1892, 1917, 1919).

MERISTICS**Fins:**

Dorsal rays - D₁ VI, D₂ I+13-14
 Anal rays - I+10-13
 Pelvic rays - I+5
 Pectoral rays - 18-23

Myomeres:

Total number - 28

LIFE HISTORY

Range: Eastern Atlantic: western Scotland to Senegal. Also known from the Mediterranean and Black Sea. Indian Ocean: as lessepsian migrant in the Gulf of Eilat and Red Sea.

Habitat: demersal; marine; depth range 3-15 m.

Spawning season: spring and summer.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Borges, R., C. Faria, F. Gil, E.J. Gonçalves, V.C. Almada (2003). Embryonic and larval development of *Gobius paganellus* (Pisces: Gobiidae). *Journal of the Marine Biological Association of the U.K.*, 83: 1151-1156.
- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi Giovanilli di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS**

Capsule diameter - 1.84x3.0 mm
 No. of oil globules -
 Shell surface - smooth, fusiform
 Pigment -
 Yolk -
 Diameter of oil globules -
 Diagnostic features -

LARVAE

Hatching length - 4.0-4.8 mm
 Yolk-sac absorption - 5 mm
 Flexion length -
 Transformation length -
 Pigmentation - Newly hatched larva: no melanophores on head, postanal dorsal and ventral melanophores. Several melanophores above the anus and below the gut. Gas bladder fully pigmented. Late larva: postanal dorsal melanophores disappears (7 mm). No melanophores on head (until 11-12 mm). Row of melanophores from throat to anus. Large melanophore above the anus. Large stellate melanophores appears in the otocystic region. Diagnostic features - Pigmentation.

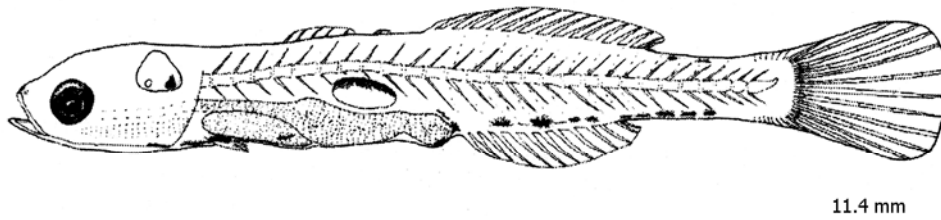
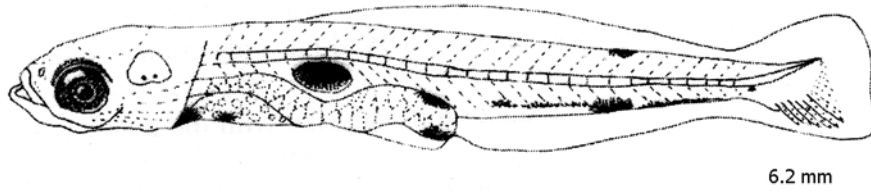
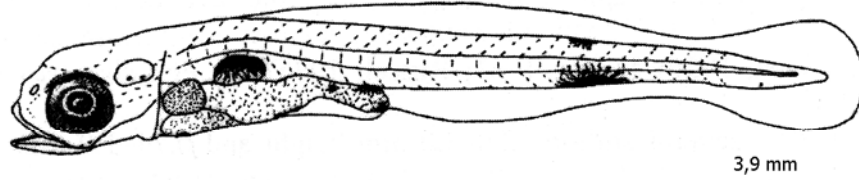


Plate 73- Early life history stages of *Gobius paganellus*. Borges *et al.* (2003).

GOBIIDAE

Gobiusculus flavescens (Fabricius, 1779)

MERISTICS

Fins:

Dorsal rays - D₁ VII-VIII, D₂ I+9-10
Anal rays - I+10-11
Pelvic rays - I+5
Pectoral rays - 18-19

Myomeres:

Total number - 35-40

LIFE HISTORY

Range: Eastern Atlantic: Faeroes, Vesterålen (Norway), and western Baltic to north-west Spain, excluding south-eastern North Sea. Reported from Estonia. Mediterranean records, from Sicily and the Adriatic.

Habitat: demersal; marine; depth range 0-20m.

Spawning season: spring and summer.

ELH pattern: Oviparous, demersal eggs planktonic larvae.

MAIN REFERENCES

- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi Giovanili di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Petersen, C.G.J. (1892). On the eggs and breeding of our Gobiidae. *Reports of the Danish Biological Station*, 2: 1-9.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION

EGGS

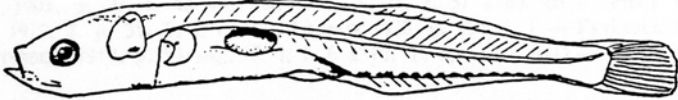
Capsule diameter - 0.8-0.6 mm
No. of oil globules - reddish-brown oil globules
Shell surface - Egg pear-shaped, with round or pointed apex
Pigment -
Yolk -
Diameter of oil globules -
Diagnostic features -

LARVAE

Hatching length - 2.2-2.6 mm
Yolk-sac absorption - 4.0 mm
Flexion length -
Transformation length -
Pigmentation - Newly hatched larva: continuous row of ventral melanophores from throat to anus and a ventral postanal row and one or two dorsal postanal melanophores. One melanophore, mid-way along the tail, especially prominent. Sub-otocystic melanophore. Late larva: dorsal pigmentation disappears when the larva reaches 5 mm. A large melanophore develops in the otocystic region when the larva reaches 8-9 mm. Large melanophore above the anus.
Diagnostic features - Pigmentation.



2.6 mm



8.5 mm



9.0 mm



15.0 mm

Plate 74- Early life history stages of *Gobiusculus flavescens*. Petersen (1919)

MERISTICS**Fins:**

Dorsal rays - D₁ VI, D₂ I+7-9

Anal rays - I+5-6

Pelvic rays - I+5

Pectoral rays - 15-17

Myomeres:

Total number - 25-26

LIFE HISTORY

Range: Eastern Atlantic: Kattegat and Belt seas to Portugal; also from Banyuls, western Mediterranean, and Canary Islands.

Habitat: demersal; reef-associated; depth range 0-30 m.

Spawning season: spawns throughout the whole year.

ELH pattern: Oviparous, planktonic larvae.

MAIN REFERENCES

- Demir, N., F. Russell (1971). On the postlarva of the goby *Lebetus*. *Journal of the Marine Biological Association of the U.K.*, 51: 669-678.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Ré, P. (1980-1981). On the occurrence of postlarval stages of *Lebetus* (Pisces: Gobiidae) off Portugal. *Boletim da Sociedade Portuguesa de Ciências Naturais*, 20: 67-69.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS:** Undescribed

Capsule diameter - Unknown

No. of oil globules - Unknown

Shell surface - Unknown

Pigment - Unknown

Yolk - Unknown

Diameter of oil globules - Unknown

Diagnostic features - Unknown

LARVAE

Hatching length - Unknown

Yolk-sac absorption - Unknown

Flexion length -

Transformation length -

Pigmentation - Body well covered with melanophores except in the caudal region. Well marked mediolateral row of melanophores. Row of melanophores between the bases of the anal fin rays.

Diagnostic features - Characteristic pigmentation. Larva more pigmented than that of *Lebetus scorpioides*. Pelvic fins develop quickly reaching nearly to the anus when the larva is only 5-6 mm long.

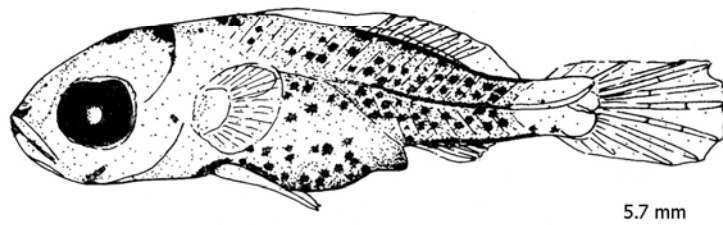
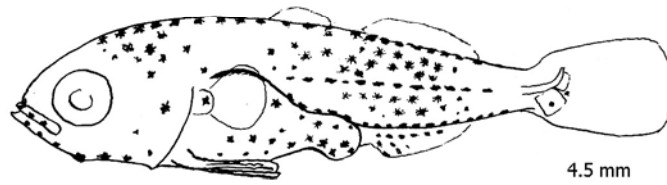
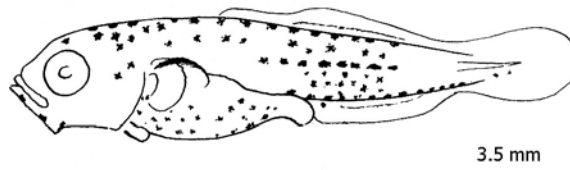


Plate 75- Early life history stages of *Lebetus guilleti*. Russell (1976), Ré (1980-1981).

MERISTICS**Fins:**

Dorsal rays - D₁ VI-VII, D₂ I+9-10

Anal rays - I+7-8

Pelvic rays - I+5

Pectoral rays - 17-21

Myomeres:

Total number - 27-29

LIFE HISTORY

Range: Eastern Atlantic: southwest Iceland, the Faeroes and Hemnefjord, Norway, to northern Bay of Biscay.

Habitat: marine; reef-associated; depth range 30-375 m.

Spawning season: spawns throughout the whole year.

ELH pattern: Oviparous, planktonic larvae.

MAIN REFERENCES

- Demir, N., F. Russell (1971). On the postlarva of the goby *Lebetus*. *Journal of the Marine Biological Association of the U.K.*, 51: 669-678.
- Fage, L. (1918). Shore-fishes. *Rep. Dan. Oceanogr. Exped. 1908-10 Medit. adjac. Seas*, 2, Biology A3: 1-154.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS:** Undescribed

Capsule diameter - Unknown

No. of oil globules - Unknown

Shell surface - Unknown

Pigment - Unknown

Yolk - Unknown

Diameter of oil globules - Unknown

Diagnostic features - Unknown

LARVAE

Hatching length - Unknown

Yolk-sac absorption - Unknown

Flexion length -

Transformation length -

Pigmentation - Body covered with pigmentation except on caudal region. Well marked mediolateral row of melanophores. Whole larva less pigmented than *L. guilleti*.

Diagnostic features - Pigmentation, meristics. Pelvis fins develop much slower than those of *L. guilleti*. These may not reach the anus in specimens with 8 mm. Shape of body slender than *L. guilleti*.

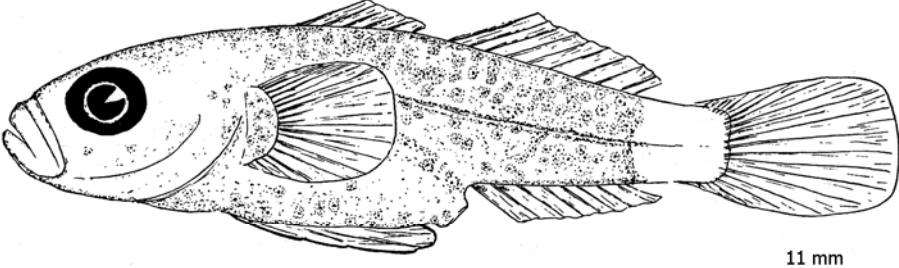
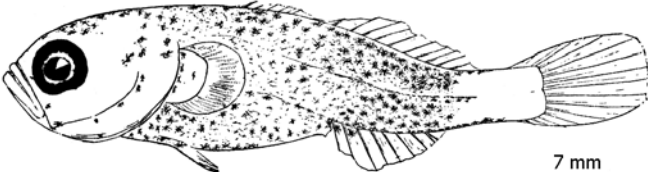


Plate 76- Early life history stages of *Lebetus scorpioides*. Fage (1918).

GOBIIDAE

Pomatoschistus minutus (Pallas, 1770)

MERISTICS

Fins:

Dorsal rays - D₁ VI-VII, D₂ I+10-12
Anal rays – I+9-12
Pelvic rays – I+5
Pectoral rays – 18-21

Myomeres:

Total number – 32-34

LIFE HISTORY

Range: demersal; brackish; marine; depth range 4–200 m.

Habitat: Eastern Atlantic: from Norway to Spain; also Mediterranean Sea and Black Sea.

Spawning season: spawns throughout the whole year.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Lebour, M.V. (1920). The eggs of *Gobius minutus*, *pictus* and *microps*. *Journal of the Marine Biological Association, U.K.*, 12: 253-260.
- Munk, P., J. G. Nielsen (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark: 215pp.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi giovanili di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Petersen, C.G.J. (1892). On the eggs and breeding of our Gobiidae. *Reports of the Danish Biological Station*, 2: 1-9.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION

EGGS

Capsule diameter – 0.9-1.4x0.7-0.8 mm
No. of oil globules -
Shell surface – smooth, pear-shaped
Pigment -
Yolk – pigmented embryo
Diameter of oil globules -
Diagnostic features -

LARVAE

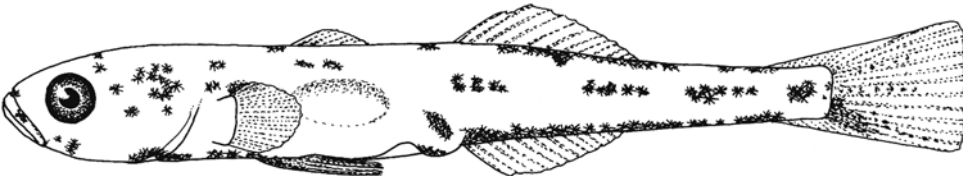
Hatching length – 3.0 mm
Yolk-sac absorption – 3.5 mm
Flexion length -
Transformation length -
Pigmentation – Newly hatched larva: pigmentation along the ventral and dorsal body contours. Melanophores develop in the otocystic region, on head and on the lower jaw. Late larva: basically the same pigmentation pattern. Pigmentation intensifies along the tail (dorsal and ventral body contours). In postflexion larvae, melanophores appear on head and on medio-lateral region. Diagnostic features – Pigmentation. Prominent gas bladder. Melanophores along the ventral side of the tail are of the same size (there is no evidence of a large branched melanophore midway along the tail).



7 mm



12 mm



16 mm

Plate 77- Early life history stages of *Pomatoschistus minutus*. Petersen (1919).

MERISTICS**Fins:**

Dorsal rays - D₁ V-VI, D₂ I+7-10

Anal rays – I+8-9

Pelvic rays – I+5

Pectoral rays – 16-20

Myomeres:

Total number – 30-31

LIFE HISTORY

Range: Eastern Atlantic: Norway (Trondheim fjord) to Spain and the Canary Islands.

Habitat: demersal; marine; depth range 1-55 m.

Spawning season: spawns throughout the whole year.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Lebour, M.V. (1920). The eggs of *Gobius minutus, pictus* and *microps*. *Journal of the Marine Biological Association, U.K.*, 12: 253-260.
- Munk, P., J. G. Nielsen (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark: 215pp.
- Petersen, C.G.J. (1917). On the development of our common gobies (*Gobius*) from the egg to the adult stages etc.. *Reports of the Danish Biological Station*, 24: 5-16.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS**

Capsule diameter – 0.75-0.8 mm long

No. of oil globules – many oil globules

Shell surface – smooth, pear-shaped

Pigment -

Yolk -

Diameter of oil globules -

Diagnostic features -

LARVAE

Hatching length – 3.0 mm

Yolk-sac absorption – 3.5 mm

Flexion length -

Transformation length -

Pigmentation – Newly hatched larva: well pigmented. Melanophores on the yolk sac and along the dorsal and ventral body contour.

Dorsal melanophores stretch from the neck to the middle of the tail. Melanophores on head, otocystic region and lower jaw. Late larva:

dorsal pigmentation disappears being dominated by the postanal ventral row, which has large branched melanophores from above the anus to the caudal region. Postflexion larva: dorsal pigmentation reappears. Three groups of medio-lateral melanophores.

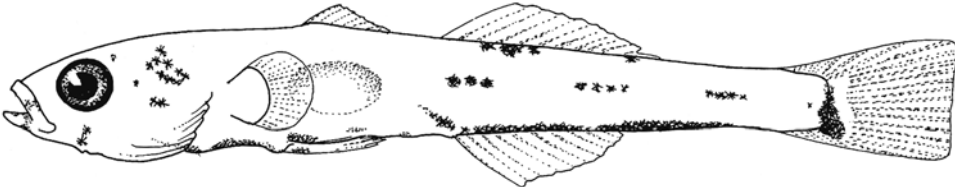
Diagnostic features – Pigmentation. Prominent gas bladder. Well pigmented newly hatched larvae. Well developed dorsal pigmentation.



3 mm



7 mm



15 mm

Plate 78- Early life history stages of *Pomatoschistus pictus*. Petersen (1919).

MERISTICS**Fins:**

Dorsal rays - D₁ V-VII, D₂ I+8-11

Anal rays – I+8-9

Pelvic rays – I+5

Pectoral rays – 15-20

Myomeres:

Total number – 30-32

LIFE HISTORY

Range: Eastern Atlantic: Norway to Morocco, including Baltic Sea (to southern Portugal) and western Mediterranean. Also in Mauritania and the Canary Islands.

Habitat: demersal; freshwater; brackish; marine; depth range 0–12 m.

Spawning season: spring and summer.

ELH pattern: Oviparous, demersal eggs and planktonic larvae.

MAIN REFERENCES

- Lebour, M.V. (1919). The young of the Gobiidae from the neighbourhood of Plymouth. *Journal of the Marine Biological Association, U.K.*, 12: 48-80.
- Lebour, M.V. (1920). The eggs of *Gobius minutus, pictus* and *microps*. *Journal of the Marine Biological Association, U.K.*, 12: 253-260.
- Munk, P., J. G. Nielsen (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark: 215pp.
- Padoa, E. (1933-1956). Gobiidae. *Uova, larve e stadi giovanili di Teleostei: monografia elaborata con l'uso del materiale raccolto e sveriato da Salvatore Lo Bianco. Fauna e Flora Golfo Napoli Monogr.* 38: 648-678.
- Petersen, C.G.J. (1892). On the eggs and breeding of our Gobiidae. *Reports of the Danish Biological Station*, 2: 1-9.
- Petersen, C.G.J. (1917). On the development of our common gobies (*Gobius*) from the egg to the adult stages etc.. *Reports of the Danish Biological Station*, 24: 5-16.
- Petersen, C.G.J. (1919). Our gobies (Gobiidae). From the egg to the adult stages. *Reports of the Danish Biological Station*, 26: 45-66.
- Russell, F.S. (1976). *The eggs and planktonic stages of British marine fishes*. Academic Press, London: 524pp.

EARLY LIFE HISTORY DESCRIPTION**EGGS**

Capsule diameter – 0.7-1.0x0.65-0.7 mm

No. of oil globules – many oil globules

Shell surface – smooth, pear-shaped with rounded apex

Pigment -

Yolk -

Diameter of oil globules – up to 0.08 mm

Diagnostic features -

LARVAE

Hatching length – 3.0 mm

Yolk-sac absorption – 3.5 mm

Flexion length -

Transformation length -

Pigmentation – Newly hatched larva:

melanophores on yolk and along the ventral body contour. One prominent ventral melanophore, mid-way along the tail. One to

Two dorsal melanophores. Late larva:

melanophores on the otocystic region, on head

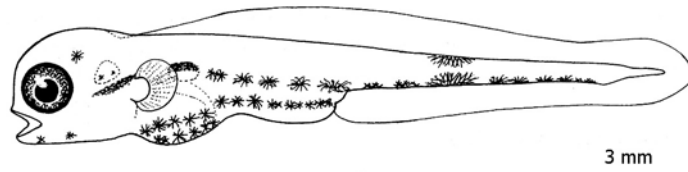
and lower jaw. Pigmentation intensifies half-way

along the tail and medio-lateral region.

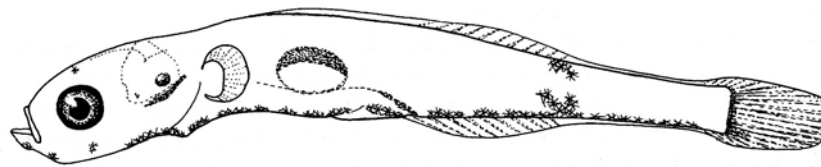
Diagnostic features – Pigmentation. Prominent

gas bladder. Very large melanophore mid-way

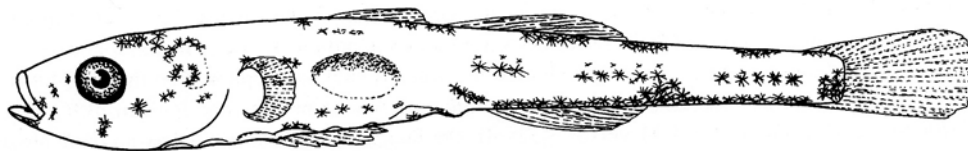
along the ventral side of the tail.



3 mm



7 mm



15 mm

Plate 79- Early life history stages of *Pomatoschistus microps*. Petersen (1919).