

1 **Ocean acidification promotes otolith growth and calcite deposition in gilthead**
2 **sea bream (*Sparus aurata*) larvae**

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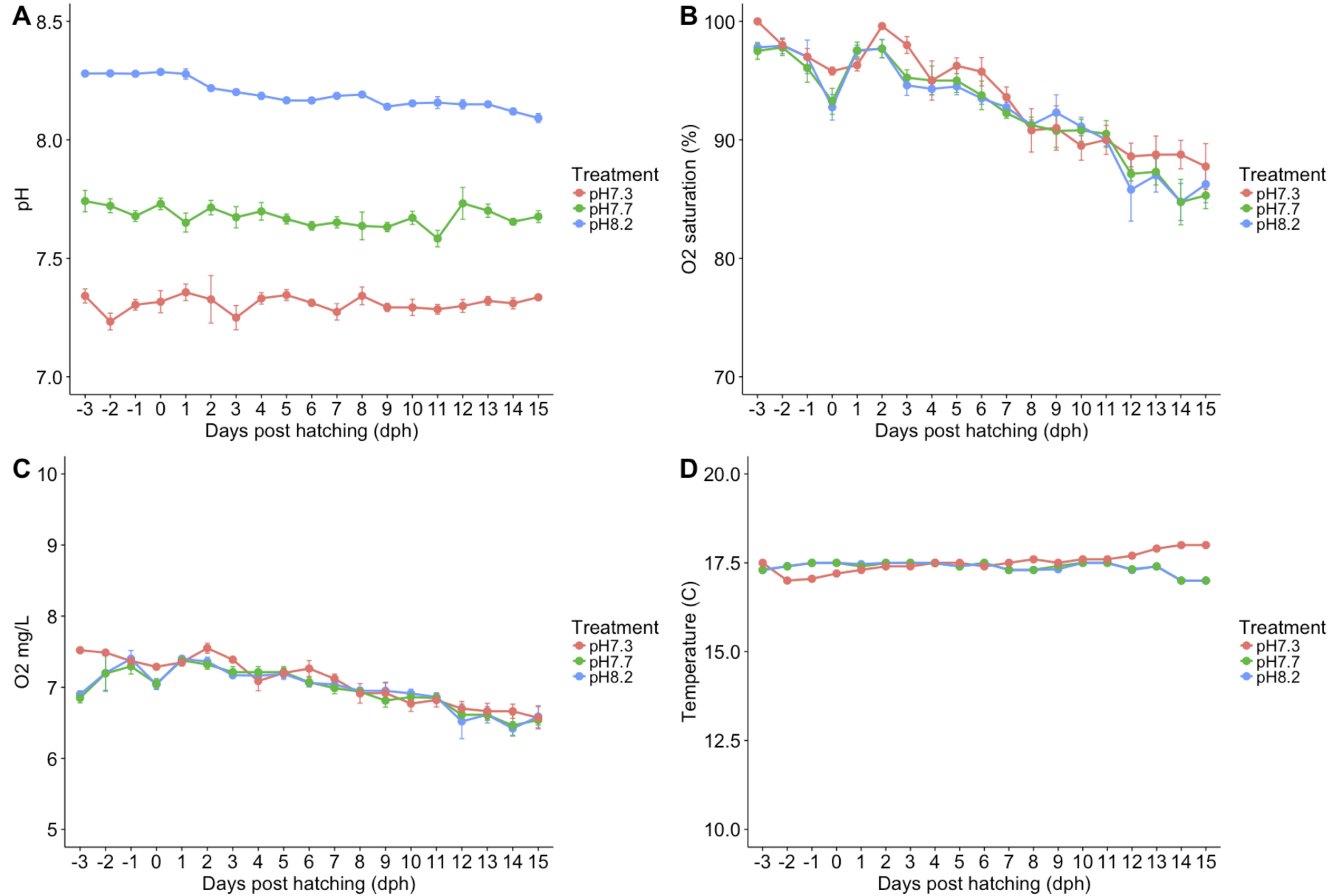
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16 Keywords: otolith, ocean acidification, pH, gilthead sea bream, calcite

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Supplementary Figure 1

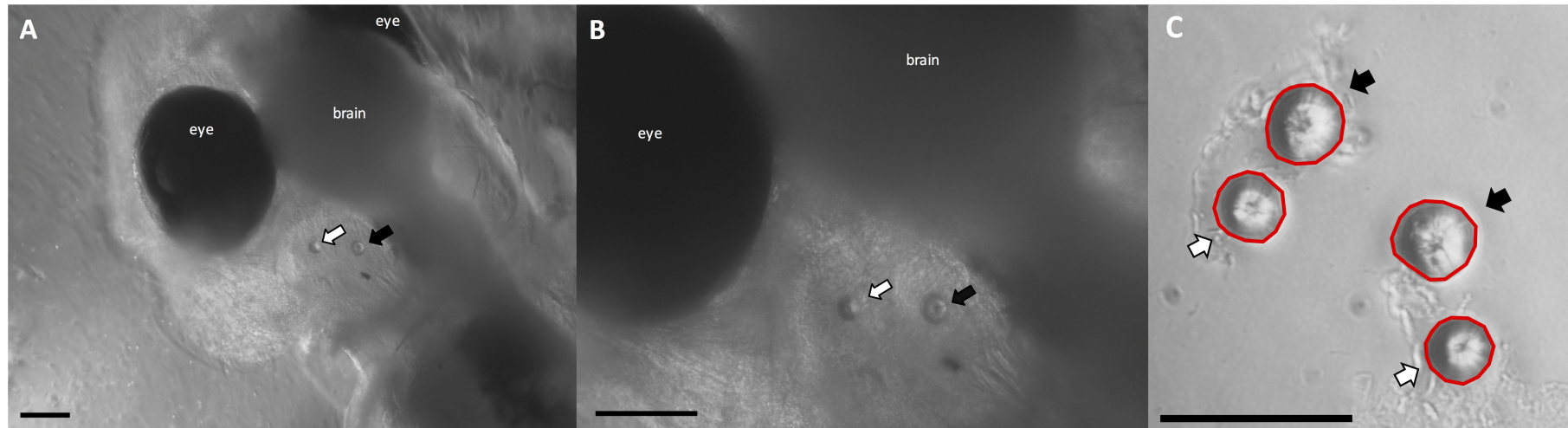


Supplementary Figure 1. Water parameters.

Water pH (A), oxygen saturation (B), dissolved oxygen (C) and temperature (D) during the experimental period for pH8.2 (blue line), pH7.7 (green line) and pH7.3 (red line) treatments.

Values represent the average \pm SD of 8 replicate tanks.

Supplementary Figure 2

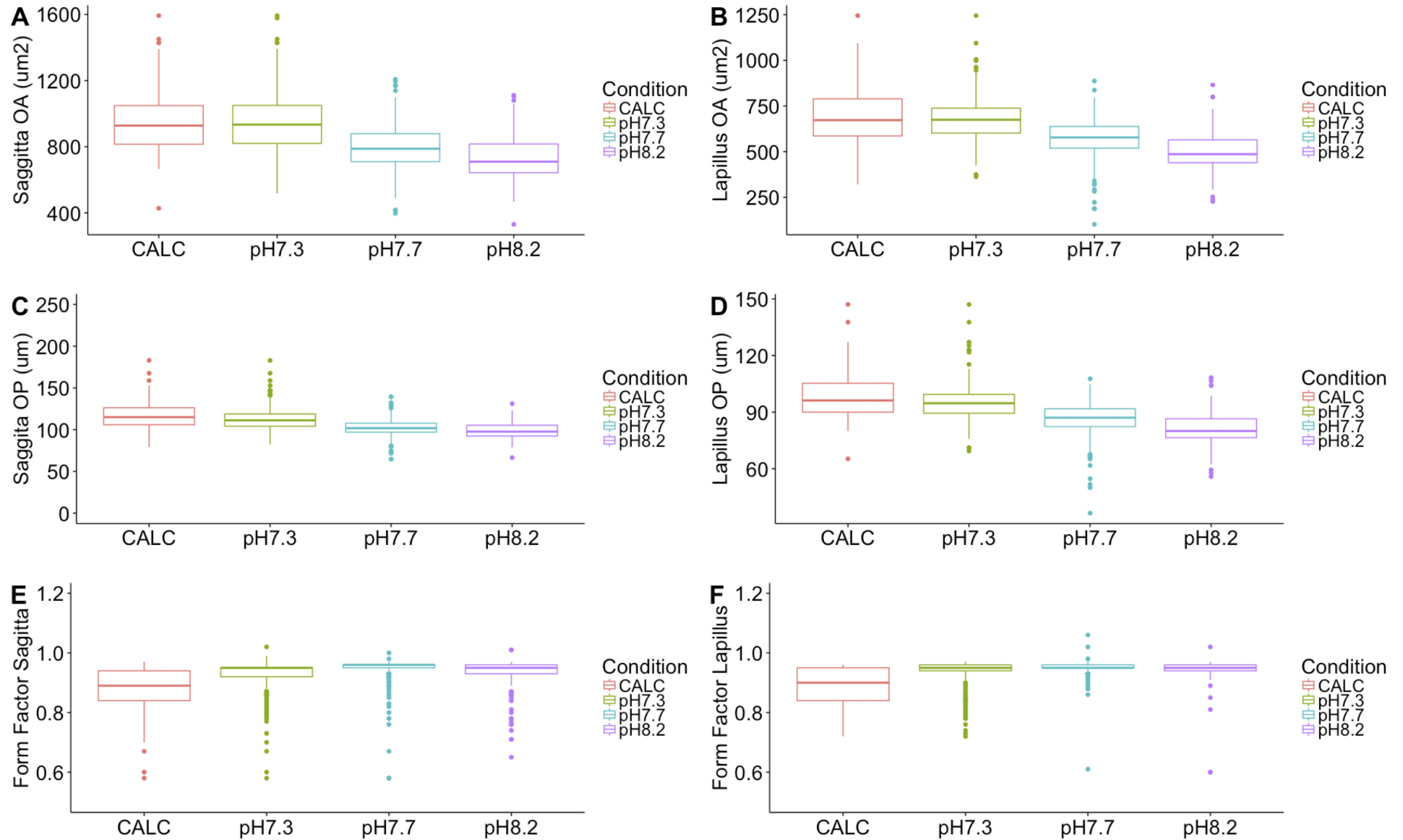


Supplementary Figure 2. Otolith location in gilthead sea bream larvae.

In situ location of the otoliths (arrows) in the head of a gilthead sea bream larvae (**A**). Detail of the gilthead sea bream larval otoliths (**B**). Magnified view of otoliths showing how otolith area and perimeter were measured (**C**).

The larger sagitta (black arrow) and the smaller lapillus (white arrow) are indicated. Scale bar indicates 100µm. An example of otolith measurement is shown as a red line in picture C.

Supplementary Figure 3

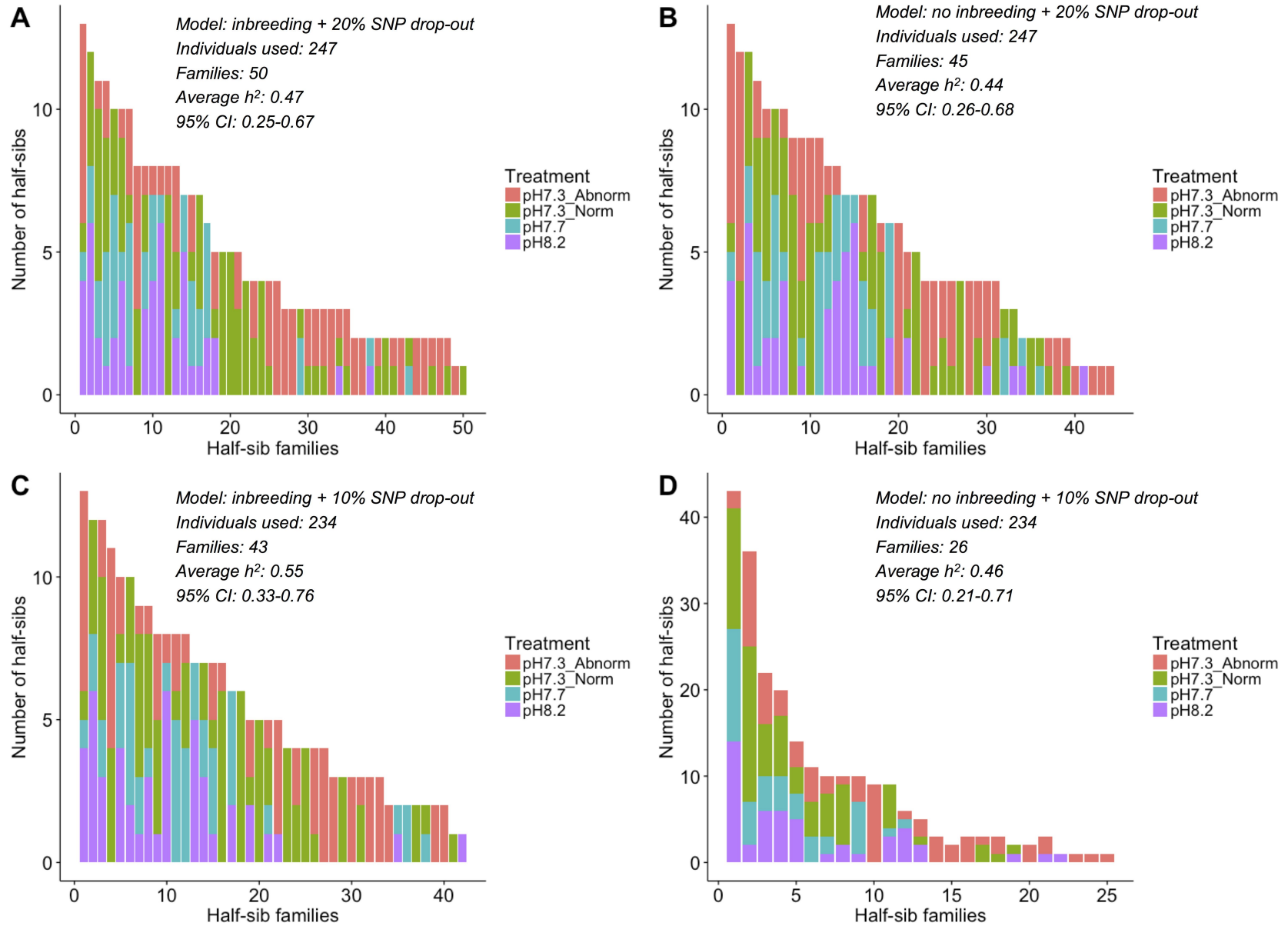


Supplementary Figure 3. Normalized OA, OP and Form Factor of calcitic otoliths.

Sagittae OA (A), lapilli OA (B), sagittae OP (C), lapilli OP (D), sagittae FF (E) and lapilli FF (F) for calcitic otoliths (red) compared to aragonitic otoliths from pH7.3 (green), pH7.7 (blue) and pH8.2 (purple) groups.

OA= otolith area; OP= otolith perimeter; FF= form factor; CALC=calcite

Supplementary Figure 4



Supplementary Figure 4. Pedigree reconstruction models for gilthead sea bream larvae.

Family reconstruction for the larvae exposed to pH8.2, pH7.7 and pH7.3 (showing round and irregular otoliths) considering: (A) inbreeding and 20% SNP dropout (B) no inbreeding and 20% SNP dropout (C) inbreeding and 10% SNP dropout and (D) no inbreeding and 10% SNP dropout. Individual bars represent a half-sib family with the contribution of individuals from each treatment indicated in different colours. 95% CI= 95% confidence interval.

h^2 = narrow-sense heritability.