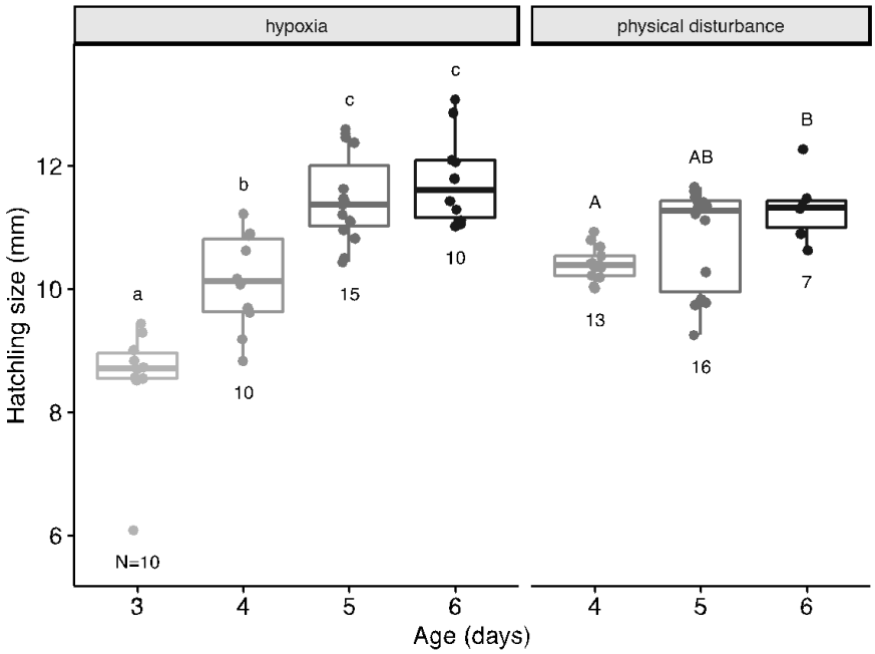
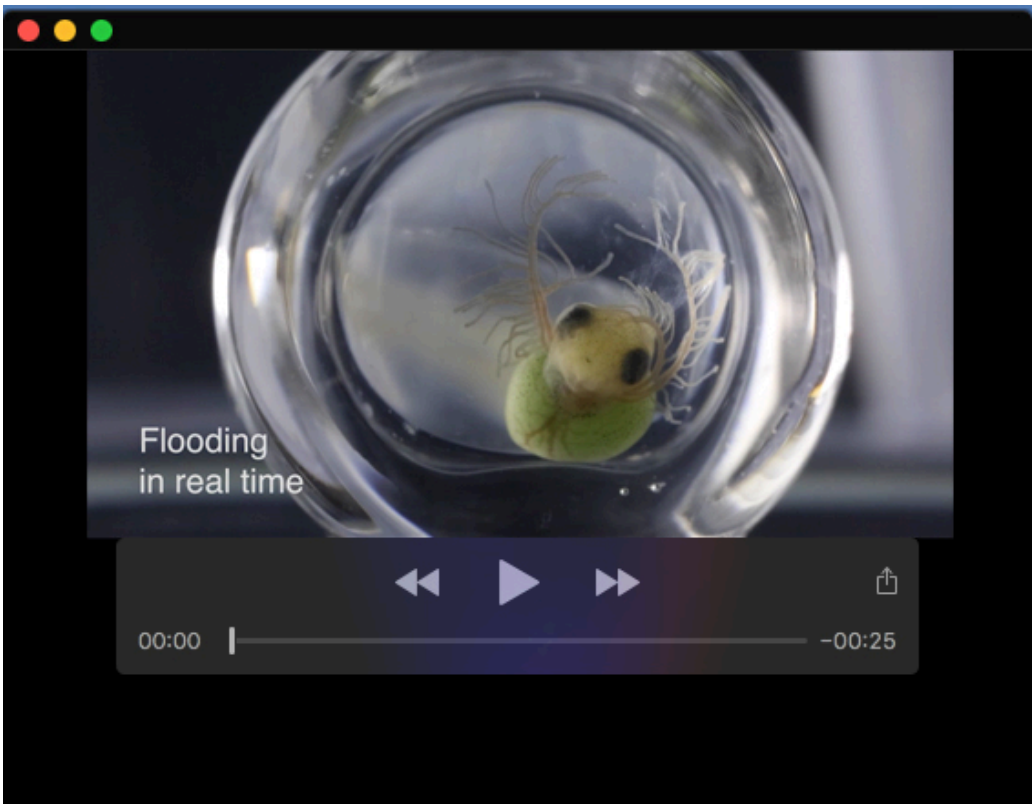
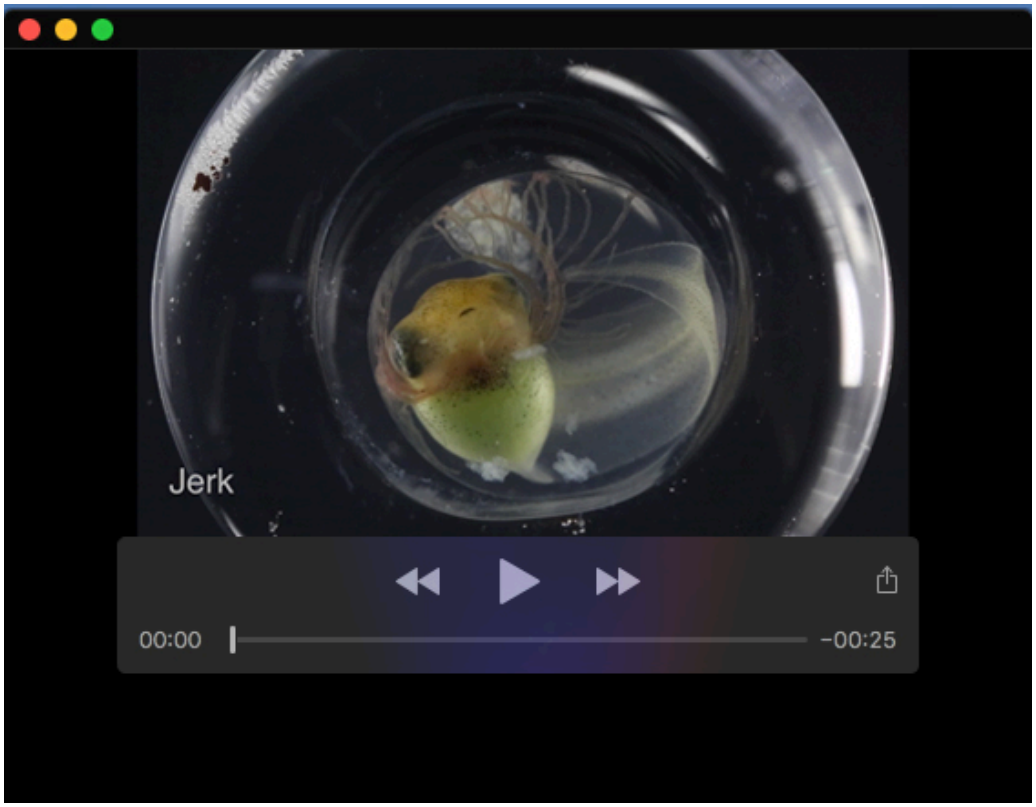


Fig. S1. Total lengths of *A. callidryas* hatchlings from flooded and jiggled eggs across ages. Different letters indicate significant differences between ages from Tukey *post hoc* analyses of mixed models on each cue type respectively. Points indicate data from individual embryos (total *N*=87 hatchlings), jittered horizontally to improve visualization. Numbers show N of hatchlings measured per age, per cue type. Box plots show medians, IQR, and extent of data to ±1.5×IQR.

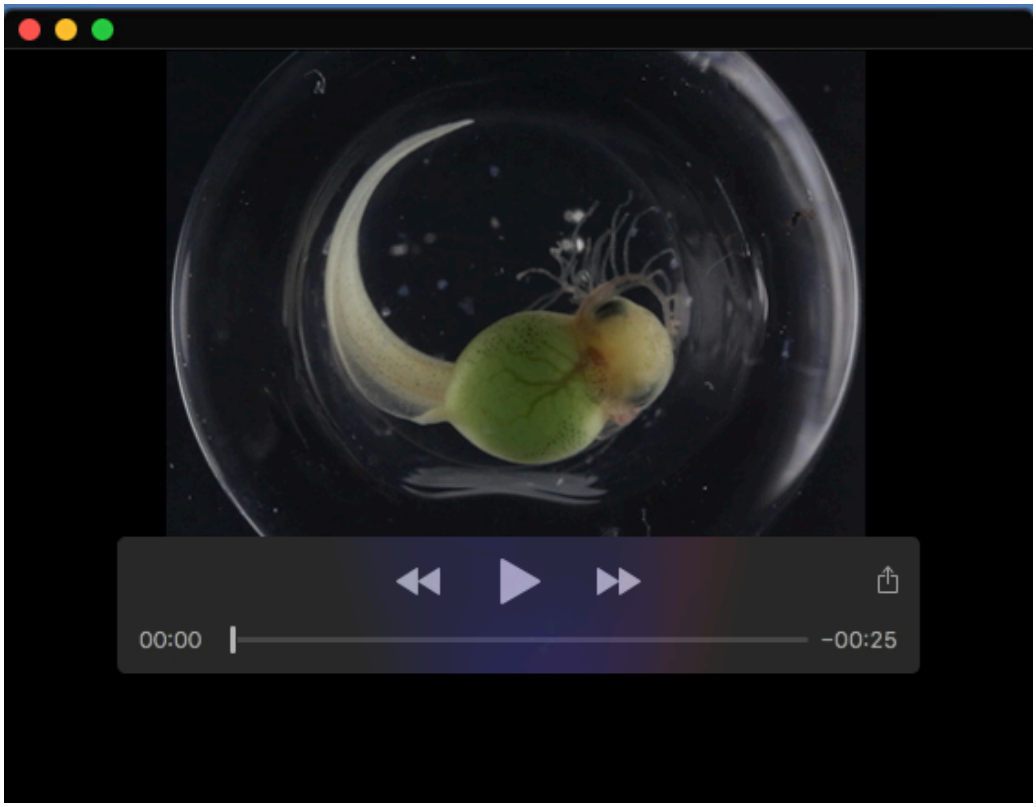


Movie 1. Flooding and position changes or oxygen-sampling behavior. The clip shows an *A. callidryas* embryo at 3 days inside a custom-made glass cup used in hypoxia-cued hatching tests, as it is submerged under boiled, degassed water and changes positions. The video was recorded using a Canon DSLR and MPE-65 mm macro lens and plays first in real time and then at 5x speed.



Movie 2. Jerking behavior, buccal cavity compression, membrane rupture, and exit from the egg. *A. callidryas* embryos 6 days of age display jerking behavior and a buccal cavity compression while flooded. The first embryo moves quickly, but does not change position, using a strong and abrupt axial muscle contraction (jerk). The second embryo moves its lower jaw, briefly changing the shape of its snout, but does not gape open its mouth or jerk its body (buccal cavity compression). This behavior is followed by rupture of the egg membrane and exit from the egg capsule. The videos were recorded using a Canon DSLR and MPE-65 mm macro lens and play in real time.

Journal of Experimental Biology • Supplementary information



Movie 3. Body compression, thrashing, and exit from the egg. An embryo 3 days of age shows extensive body compression and thrashing effort as it exits from the egg capsule during flooding. The video was recorded using a Canon DSLR and MPE-65 mm macro lens and plays in real time.