Supplementary material

Tolerable ranges of fluid shear for early life-stage fishes: implications for safe fish passage at hydropower and irrigation infrastructure

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Fig. S1. Velocity profile of the flow-establishment zone of the shear flume. Measurements (m s$^{-1}$) were taken 90 mm in front of the nozzle and incrementally radiating out (mm) from the centreline of the jet stream. Velocity profiles for all the flow rates tested are shown (source: Boys et al. 2013, reproduced with permission).
Fig. S2. Percentage mortality of Murray cod larvae at different days post-hatch (9–29) when exposed to varying strain rates. The triangle markers show the results from each replicate, the dashed line represents the probability of mortality as predicted by a binary logistic regression model and the shaded region shows the 95% confidence limits.
Fig. S3. Golden perch eggs showing (a) no injury, (b) the disruption of cellular protein and (c) torn chorion (source: Boys et al. 2014, reproduced with permission).
Fig. S4. Examples of different injuries observed in larvae following exposure to elevated strain rates: (a) spinal injury, (b) missing eye, (c) rupture of the yolk sac and (d) decapitation. These fish are 9-days post-hatch Murray cod after exposure to a strain rate of 1906 s$^{-1}$ (source: Boys et al. 2014, reproduced with permission).

References
