Electronic supplementary material for:

Herzog H, Klein B, Ziegler A. 2017 Form and function of the teleost lateral line revealed using three-dimensional imaging and computational fluid dynamics. *J. R. Soc. Interface*

Multimedia Content of Main Article Figures 1, 3, and 5-10

Figure 1. Morphology of the cephalic lateral line of *Leuciscus idus* analyzed using photogrammetry. Structures were visualized using methylene blue staining. An interactive 3D model with several pre-saved views can be activated by left-clicking anywhere onto this figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the 3D mode).

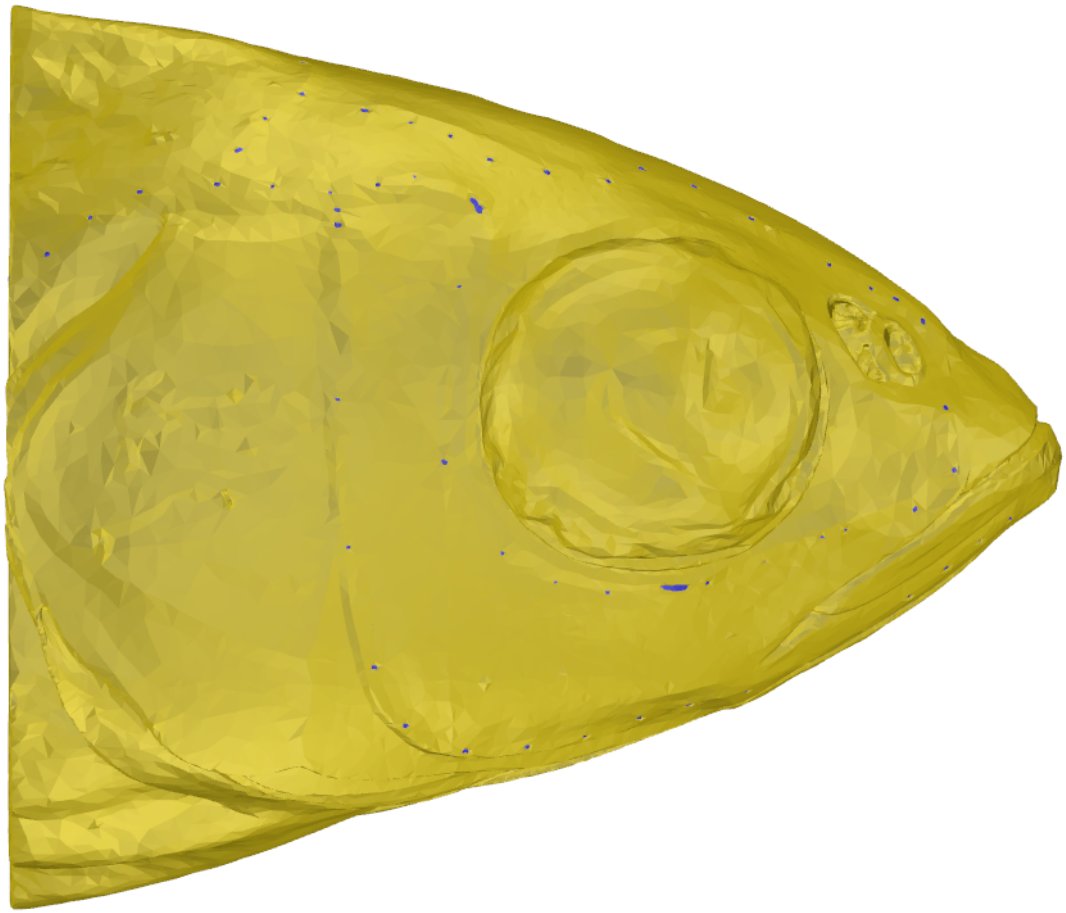

Figure 3. Three-dimensional visualization of the cephalic lateral line of *Leuciscus idus* based on contrast-enhanced µCT data. Individual canals were reconstructed using manual segmentation. An interactive 3D model with labeling and several pre-saved views can be activated by left-clicking anywhere onto this figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the 3D mode).

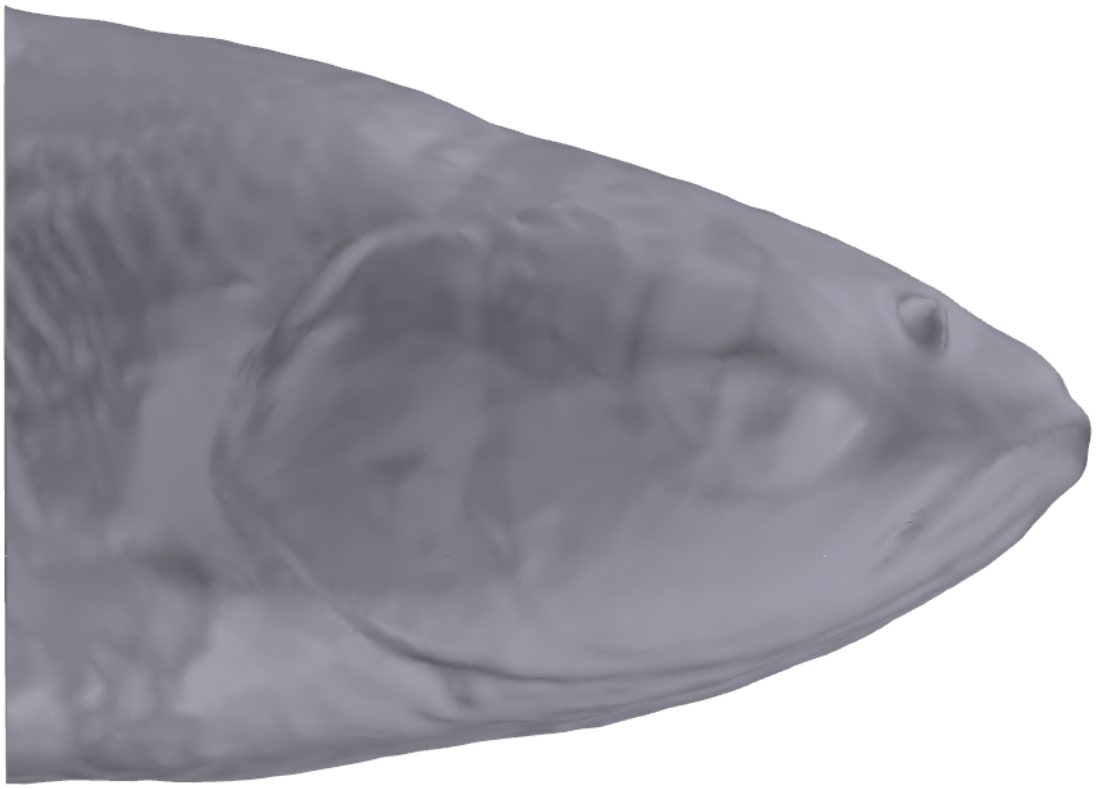

Figure 5. Morphology of the head of a specimen of *Leuciscus idus* analyzed using laser scanning. An interactive 3D model with several pre-saved views can be activated by left-clicking anywhere onto this figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the 3D mode).

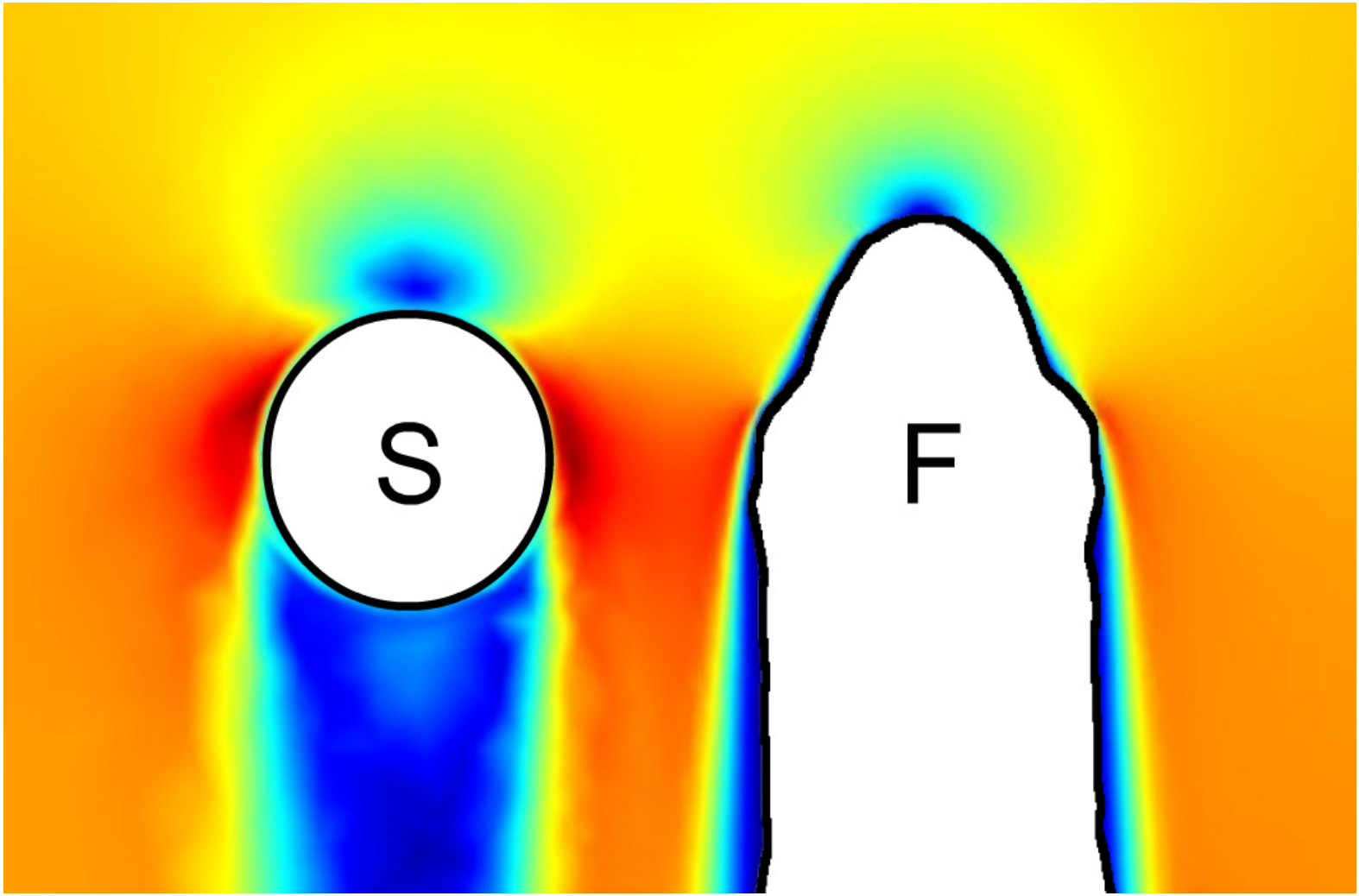

Figure 6. Simulation of bulk water flow and pressures induced by a vibrating sphere acting on the head of *Leuciscus idus*. Changes in the flow field within the bulk water flow (10 cm/s) induced by the vibrating sphere (amplitude ±150 µm). A looped video of this simulation can be activated by left-clicking anywhere onto the figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the video mode).

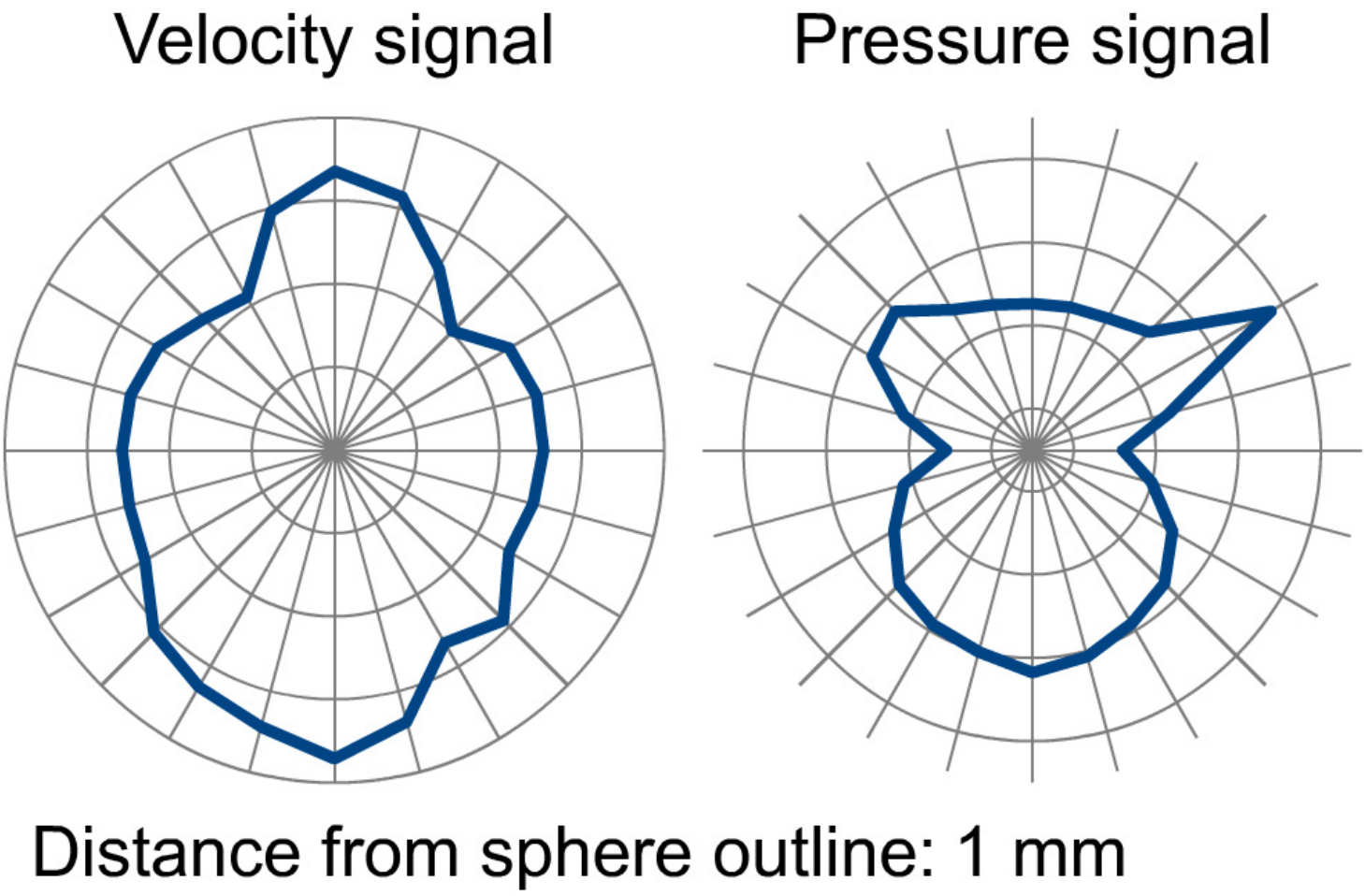

Figure 7. Spatial distribution and relative amplitude of flow and pressure fields induced by a sphere vibrating in bulk water flow. The relative vibration signatures (displacement ±50 µm) in velocity and pressure referenced to bulk water flow (10 cm/s) are shown as polar plots. A looped video of this simulation can be activated by left-clicking anywhere onto the figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the video mode).

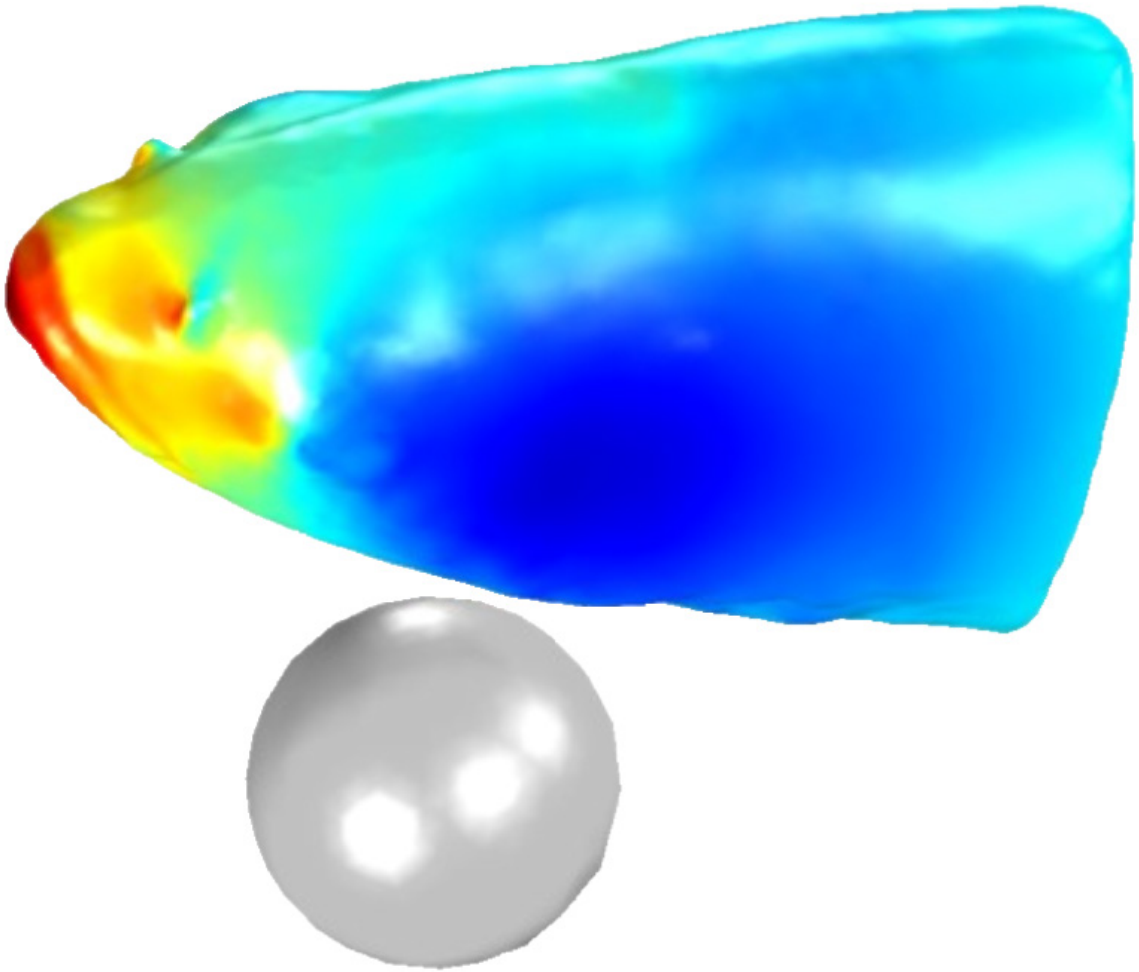

Figure 8. Simulation of the pressure induced by a vibrating sphere and bulk water flow (10 cm/s) on head and canal pores of *Leuciscus idus*. Exemplary pressure field on the surface of the fish's head induced by a sphere vibrating parallel to the fish with an amplitude of ±150 µm in bulk water flow. A looped video of this simulation can be activated by left-clicking anywhere onto the figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the video mode).

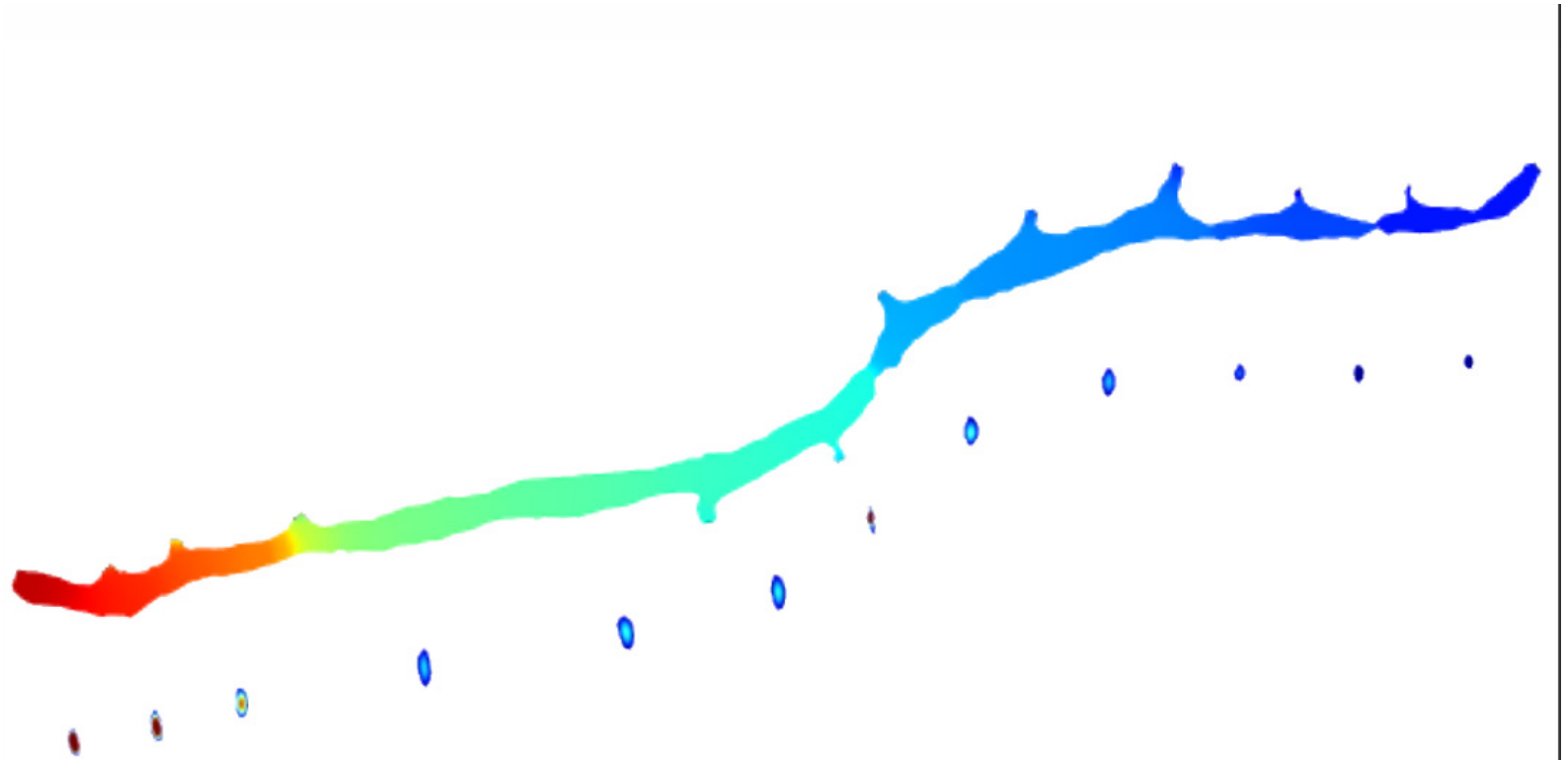

Figure 9. Simulation of fluid flow inside the right supraorbital canal (SO) of *Leuciscus idus*. Pressure on the canal walls and fluid flow velocity induced by pressures acting on the canal pores caused by bulk flow and a vibrating sphere. A looped video of this simulation can be activated by left-clicking anywhere onto the figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the video mode).

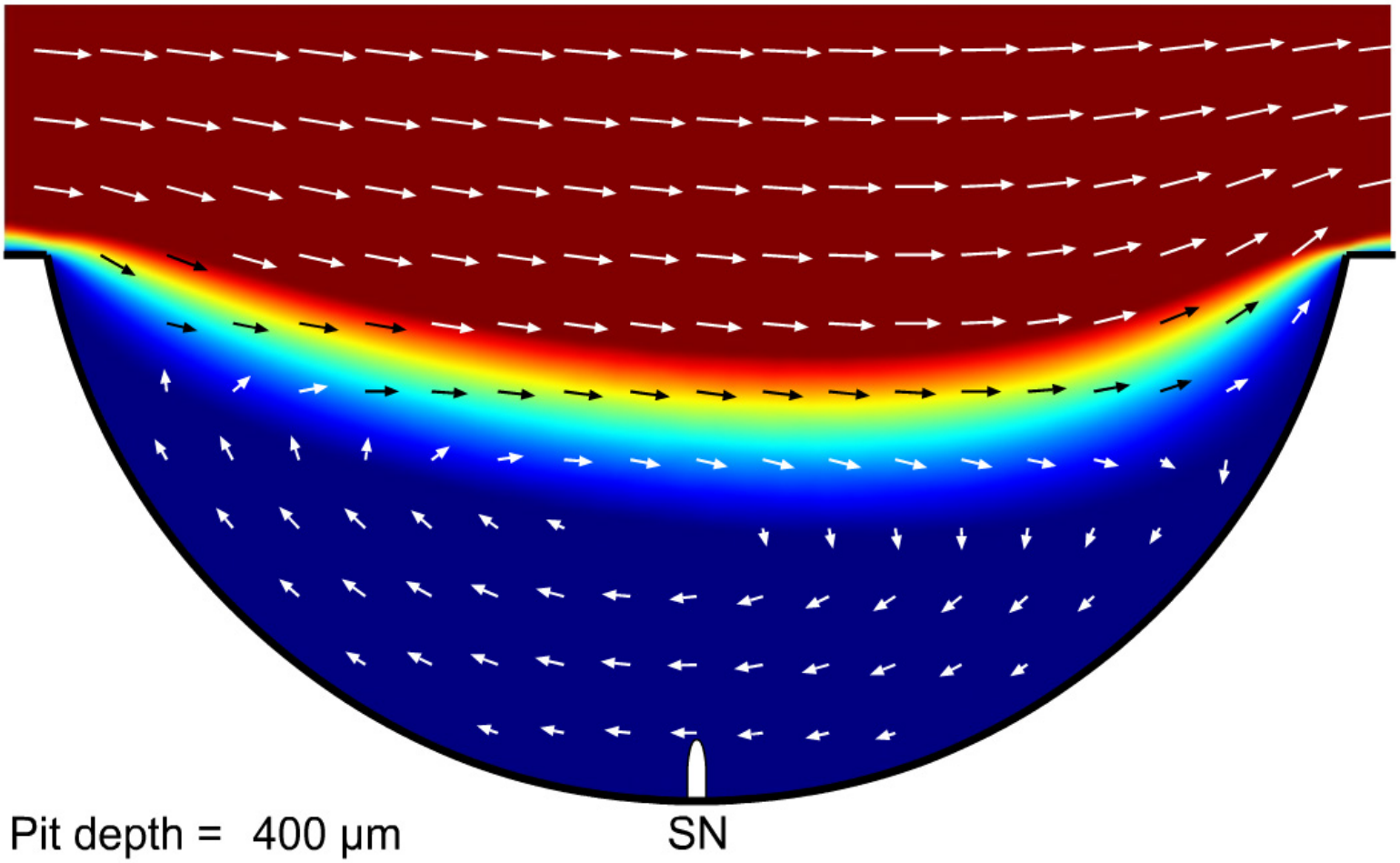

Figure 10. Influence of epidermal pits on surface hydrodynamics of *Leuciscus idus*. Exemplary flow field induced by a DC flow of 10 cm/s and a pit depth of 150 µm (velocity magnitude color-coded, arrows pointing in the direction of flow, arrow lengths scaled logarithmically). A looped video sequence of this simulation can be activated by left-clicking anywhere onto the figure (requires Acrobat Reader 9.0 or higher on all operating systems, right-click to deactivate the video mode).