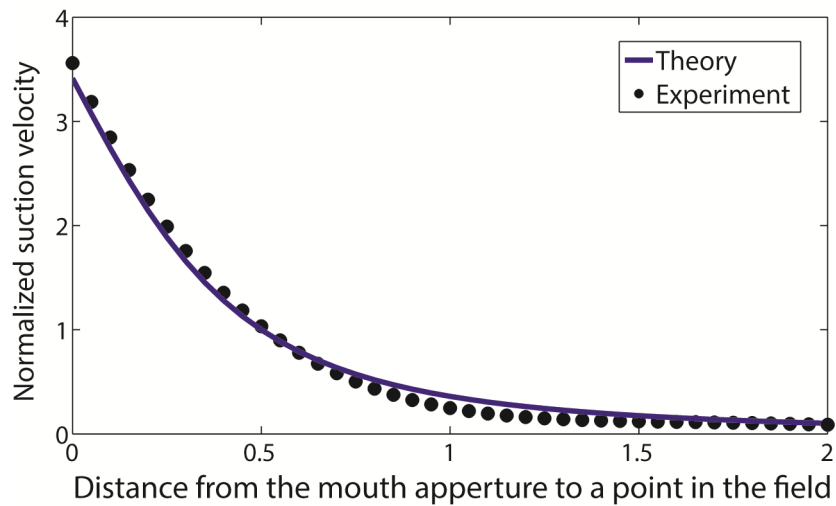


Supplementary figure 1. Approximation of the fish's body by a three-dimensional ellipsoid whose maximal length, height and width are the same as those of our fish.



Supplementary figure 2. Axial velocity induced by a disk of sinks. Mouth suction velocity is normalized by the instantaneous axial fluid velocity calculated at the distance $r(t)$ from the plane of mouth aperture. The units of the horizontal axis are normalized with the instantaneous radius of the mouth aperture $r(t)$. Circles correspond to a polynomial fit of experimental data given in [\(Day et al., 2005\)](#), solid line –equation (7).



Movie 1. Mexican blind cave fish *Astyanax fasciatus* open their mouth repeatedly when approaching the corner in an unfamiliar aquarium. Fish were filmed by two synchronized hi-speed video cameras at $125 \text{ frames s}^{-1}$, providing side and top views of the aquarium. We report that these mouth suction events help Mexican blind cave fish detect obstacles.



Movie 2. The suction flows generated by *Astyanax fasciatus* near an aquarium corner induce a steep pressure gradient in the neuromasts of the lateral line. Flows are visualized using digital particle image velocimetry (dPIV). Overlaid are: measured mouth time-dependent gape size, measured flow speed at the center of the mouth orifice, and the calculated pressure gradient in the neuromasts.