



**Fig. S1.** Comparison of peak magnitudes of dorsal expansion kinematics, i.e. neurocranium elevation, with ventral expansion kinematics: (A) urohyal retraction, (B) urohyal depression, and (C) cleithrum retraction. The XROMM analysis enables dorsal and ventral expansion kinematics to be measured independently, by using the body plane as a reference for each bone. Urohyal retraction and depression and cleithrum retraction are expressed as positive values (i.e. greater values correspond to greater retraction and depression distances or rotations), and data were pooled from all three individuals ( $N=30$  strikes).



**Movie 1.** Dorsoventral view (top) and lateral view (bottom) X-ray videos of a largemouth bass suction feeding on a live goldfish. The video is playing 10 times slower than real time; see Materials and methods for X-ray settings and technique.