Figure S1: **Example image of how the kinematics were tracked over time.** Blue dots correspond to the points tracked along the tentacle. Green lines correspond to the central axis of the base and a corresponding perpendicular line. The cyan curve corresponds to the dimensional polynomial fit and the red curve to the dimensionless polynomial fit (both are shown here to verify the nondimensionalization is accurate).
Figure S2: Time varying fits to instantaneous values of the coefficients for the x-position (top) and y-position (bottom) for five pulses of one polyp. The blue dotted line corresponds to the instantaneous values of the coefficients, and the red line to the time varying fit. Note that these plots have a dimensional x-axis of time in seconds even though the fits to the coefficients were computed nondimensionally. This polyp was filmed and tracked at 125 frames per second.
Figure S3: Data from the corresponding 3D numerical simulations for an average polyp at \(Re_f = 10\). (A) Snapshots of the vorticity and velocity field during contraction and expansion. (B) Log(FTLE) of the instantaneous velocity vector field during contraction and expansion. (C) Vertical velocity averaged along three lines positioned 0, 0.0025, and 0.005 m above the tip of the tentacles at the end of contraction. (D) Horizontal (radial) velocity averaged along three lines positioned 0.005, 0.0075, and 0.01 m from the central axis of the polyp. Note that positive flow is towards the polyp.
Movie 1
Movie 2