

Abstract Submitted  
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**How lampreys swim in nature? Pressure field and the mechanisms of propulsion**<sup>1</sup> IMAN BORAZJANI, MOHSEN DAGHOOGHI, State Univ of NY - Buffalo — We performed self-propelled, large-eddy simulations of lampreys based on the recent experiments on live lampreys. Using two undulation types (traveling and standing waves), the pressure field around the body is visualized and physical principles of eel-like swimming are discussed. Visualization of pressure does not show any evidence in support of the suction-based theory, recently proposed as the prime mechanism of thrust generation for eel-like swimming. On the contrary, our results for surface pressure are in good agreement with theoretical predictions of Lighthill's elongated body theory for deformable bodies.

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