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**On the hydrodynamics of fish schooling**[1] IMAN BORAZJANI, MOHSEN DAGHOOGHI, University at Buffalo, SUNY — A Considerable number of fish species swim in a coordinated manner within approximately constant and equal distance from each other, forming a pattern which is referred to as a fish school. It is believed that fish schooling results in more efficient swimming. However, no experimental evidence has conclusively shown the hydrodynamic effects of neighboring fish on swimming, probably due to the challenges involved in measuring the performance under controlled conditions in a school. We investigate possible hydrodynamical effects of fish schooling by constructing an infinite school of virtual swimmers based on a mackerel fish body and carangiform kinematics. We carry out our self-propelled simulation based on prescribed undulations of the fish body (assuming that all of the fish in the school move in exact same manner) and calculating motion of the center of mass. One of the most important geometrical factors of the fish schooling pattern seems to be the distance between two adjacent fish in the school. Therefore, we examined fish schools with different distances of two adjacent fish.

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