Large-amplitude solitary waves with vorticity

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The water wave equations describe the motion of an incompressible inviscid fluid under the influence of gravity which is bounded above by a free surface under constant (atmospheric) pressure. In this talk, we will consider traveling solitary water waves on a shear flow with an arbitrary distribution of vorticity. After proving lower and upper bounds for the wave speed, we will construct exact solutions with large amplitude using a degree-theoretic continuation argument.