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George H Lytle* (george.lytle@asbury.edu), 1 Macklem Drive, Wilmore, KY 40390. *Do the Wave: Applying Group Finite Elements to the Shallow Water Equations*. Preliminary report.

We consider the general nonlinear Shallow Water Equations. After a discussion of the Method of Characteristics solution, we propose a numerical code using Group Finite Elements. Our simulation exhibits several aspects of the analytical solution, but it is limited by the constraints on the boundary at $x = \ell$. This project was conducted at George Mason University during the 2012 Research Experience for Undergraduates program funded by the National Science Foundation. (Received August 11, 2012)