1086-35-187 **Katelyn J Grayshan*** (kgraysha@nd.edu), 255 Hurley Hall, Notre Dame, IN 46556. *Analysis of the b-family equation.*

We study a family of shallow water wave equations called the b-family equation. Known for having multipeakon solutions, this family includes the Camassa–Holm equation and the Degasperis–Procesi equation as its most notable and only integrable members. We show that the periodic and non-periodic Cauchy problem for the b-family equation is well-posed in Sobolev spaces H^s with exponent $s > 3/2$. Moreover, we find that the corresponding data-to-solution map is continuous from H^s to $C([0,T];H^s)$ but not uniformly continuous on bounded subsets. We prove that this map is not uniformly continuous using approximate solutions together with delicate commutator and multiplier estimates. The novelty of the proof lies in the fact that it makes no use of conserved quantities. (Received August 05, 2012)