1046-76-1964   **Roxana Tiron*** (`tiron@email.unc.edu`), 118 Bim Street, Apt G, Carrboro, NC 27510, and **Roberto Camassa**, **Ann Almgren** and **Amber Sallerson**. *Unstable internal waves.*

Internal waves propagating in a stratified ocean have been observed and reported to have large amplitudes. Understanding the breaking mechanisms of these waves is crucial for explaining mixing and transport phenomena within the ocean. As experimental observations show, for near two layer stratification, waves become unstable in large am plitude regimes and the wave-breaking closely resembles Kelvin Helmholtz shear instability originating in the maximum displacement of the pycnocline region. The instability is modulated by the stream-wise variation of the shear. We simulate numerically the generation and propagation of solitary waves starting from a step function initial con dition and monitor the wave-induced shear instabilities. A conservative pro jection method for the variable density Euler equations is implemented in this scope. The code is validated against experimental data as well as theoretical results. In an effort to elucidate wether the instabilities are an intrinsic property of the wave or they are induced by the experimental generation, we study the time evolution of traveling wave solutions. (Received September 16, 2008)