1026-35-231 **Yi Li*** (yili@cs.stevens.edu), Department of Mathematical Sciences, Stevens Institute of Technology, Castle Point on Hudson, Hoboken, NJ 07030. *Nonlinear Dispersive approximations to the water wave problem.*

We investigate the nonlinear dispersive effect of a second order approximations to the full water wave problem. Using the Hamiltonian formulation and comparison method, we demonstrate the nonlinear dispersive effect on the existence of global solutions as a contrast to the dispersion less, first order shallow water approximation. (Received February 28, 2007)