Investigation #6 • APMA 935 • Nonlinear Water Wave

- Final write-up due, by Noon Friday 31 March. Please submit a progress report to webct by the preceding Tuesday.

A) Nonlinear Wavespeed (5 pages) Section 8.2 of the text discusses the weakly nonlinear perturbation theory for the two-dimensional surface wave. In particular, rederive the nonlinear effects as shown in equation (8.47). Establish the first corrections to the flow quantities, $\eta(x,t)$ and $\phi(x,y,t)$, and verify the results illustrated in Figure 8.12.