



Effects of stratification of the tide in the Bay of Fundy

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A finite-element model was used to study the effect of stratification of the behaviour of the tides in the Bay of Fundy. Stratification affected the phase and magnitude of the surface tide and the resulting currents, by magnitudes of up to 5 degrees and 10%, respectively. The results compare favourably with long term tidal gauge records from both St. John, NB and from Yarmouth, NS. Observations from the lower Bay of Fundy show energetic internal wave packets which recur at semi-diurnal tidal frequencies. Likely generation regions were identified from the velocity observations. The stratified model was used with the goal of reproducing the generation of these internal tides, although the subsequent evolution of the wave packet would be poorly reproduced with the available resolution. The ability of the model to reproduce the internal tide will be discussed.