



## Abstract View

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# Modelling the Mean Barotropic Circulation in the Bay of Fundy and Gulf of Maine

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### ABSTRACT

Two dimensional, nonlinear numerical models are used to study the residual barotropic circulation generated by tides and steady winds in the Bay of Fundy and Gulf of Maine. The first a multi-grid model, is used to examine the Bay of Fundy with a coarse look at the Gulf of Maine. The circulation in the upper Bay of Fundy is predominantly tidally driven. The model clearly reproduces the major gyres observed at the head of the Bay. Steady wind stresses have some effect on the strength of these currents but little effect on the pattern. The counterclockwise gyre, observed in the body of the Bay of Fundy, is not reproduced in the model. The second model covers the lower Bay of Fundy and the Gulf of Maine with a single fine grid and is used to look at details in the Gulf of Maine. A clockwise circulation around Georges Bank and Nantucket Shoals is clearly indicated from tidal forcing alone, as is a gyre over the shallow part of Browns Bank. Different steady wind-stress fields give rise to variations in current strength and current patterns. The counterclockwise Maine eddy is only found in the model when forced by a steady northeast wind stress in addition to tides.

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