

Storm tides in the Bay of FundyC. Desplanque¹, and D. J. Mossman²¹*27 Harding Street, Amherst, Nova Scotia B4H 2A8, Canada*²*Department of Physics, Engineering and Geoscience, Mount Allison University, 67 York Street, Sackville, New Brunswick E4L 1E6, Canada*

Storm tides, or storm surges, as measured and defined along a coast, are the differences between the observed water level and the predicted astronomical tide as a result of atmospheric disturbance. Historically, storm tides have played havoc in the Bay of Fundy region. Here the tidal system resonates close to the 12 hour, 25 minute dominant lunar tide of the Atlantic Ocean. The main variations in normal Fundy tides are caused by astronomical factors. The most favourable combination of astronomical factors to produce strong tides in the Bay of Fundy is when four elements: perigee, spring tide,

and anomalistic and tropical monthly cycles peak simultaneously. The closest match occurs at intervals of 18.03 years. Problems arise when storms coincide with these intervals. A strong case can be made for the coincidence of the Saros with several major historical storm tides in the Bay of Fundy, including: the 1976 Groundhog Day storm, the 1869 Saxby Tide, and the 1759 storm tide. Due to continuing global sea level rise, and regional crustal subsidence the possible recurrence of destructive storm tides has perilous implications for property owners and settlements in the Fundy coastal zone.