

**The 'Saxby Tide' of October 4-5, 1869:
A possible geological marker around the Bay of Fundy?**

Alan Ruffman

*Geomarine Associates Ltd., 5112 Prince Street, P.O. Box 41,
Station M, Halifax, Nova Scotia B3J 2L4, Canada*

An exhaustive event-specific search supported by the Atmospheric Environment Branch of Environment Canada has been completed for October 1869 'Saxby Gale'. Most of the primary sources from Atlantic Canadian and Maine newspapers have been captured, along with later articles and some personal accounts in letters, diaries, and vessel logs. The original Stephen Martin Saxby (1804-1883) letters to The Standard of London, England in December 1868 and September 1869 have been recovered, wherein he predicted, on a worldwide basis, not only a very high 'spring' (or perigean) astronomic tide, but that it would be accompanied by equinoctial gales at 0500 local time on October 5, 1869. He was fortuitously proven right in the Bay of Fundy and Maine though the cause was a tropical cyclone that had been travelling up the eastern seaboard of the U.S. for at least two days before.

Newspaper accounts present an often graphic view of the eye of the hurricane making landfall in the area of the Maine/New Brunswick border. Winds on the 'righthand' side of the track were strong enough to cause blowdown and an increased forest fire hazard in the years following. Significant building damage was reported in the area immediately adjacent to the border, with roads and railways blocked by debris. Many vessels blew ashore in the Passamaquoddy Bay area. As the storm came ashore it may have been a category 2 event and the counterclockwise winds drove the storm surge,

or 'Saxby Tide', up the Bay of Fundy. As the storm surge arrived on top of one of the highest perigean tides of the period and overtopped most, if not all, of the Acadian dykes in the Minas Basin and Chignecto Bay and flooded lowlands such as the Tantramar Marsh and areas of the present-day communities of Moncton, Taylor Village, Sackville, Amherst, Truro, Great Village, Maitland, and Windsor. On the 'left' side of the track huge amounts of rain were unloaded in the northern New England states through to eastern New York State.

The forensic analysis of primary sources as well as family and folklore are all beginning to confirm the Saxby storm surge as the highest historically documented storm surge in the Bay of Fundy being in the order of 1.7 to 2.1m; had the hurricane arrived two or three days later, the perigean tide would have been about 0.6m higher. By capturing recoverable levels of the highest water levels on October 4-5, 1869 these can be corrected for eustatic sealevel rise over the past 130 years and for differential isostatic rebound to allow maps to be plotted showing the coastal areas that would be inundated today were such an event to recur. The 1869 saltwater inundation flooded into parts of marshes, farmland, coastal lowlands, and lakes or ponds where no saltwater had been known for perhaps more than 110 years or since at least the 1759 storm and related storm surge that so impacted the early Acadian settlements in western Nova Scotia. A careful

examination of the microfossils and flora in cores in such horizon.
strategic locations may well find a thin Saxby Gale marker