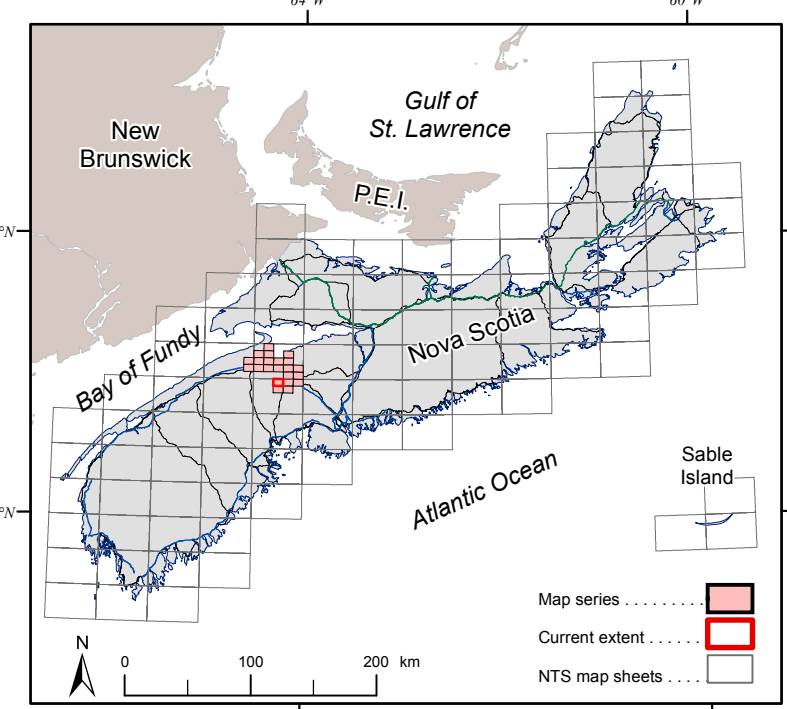
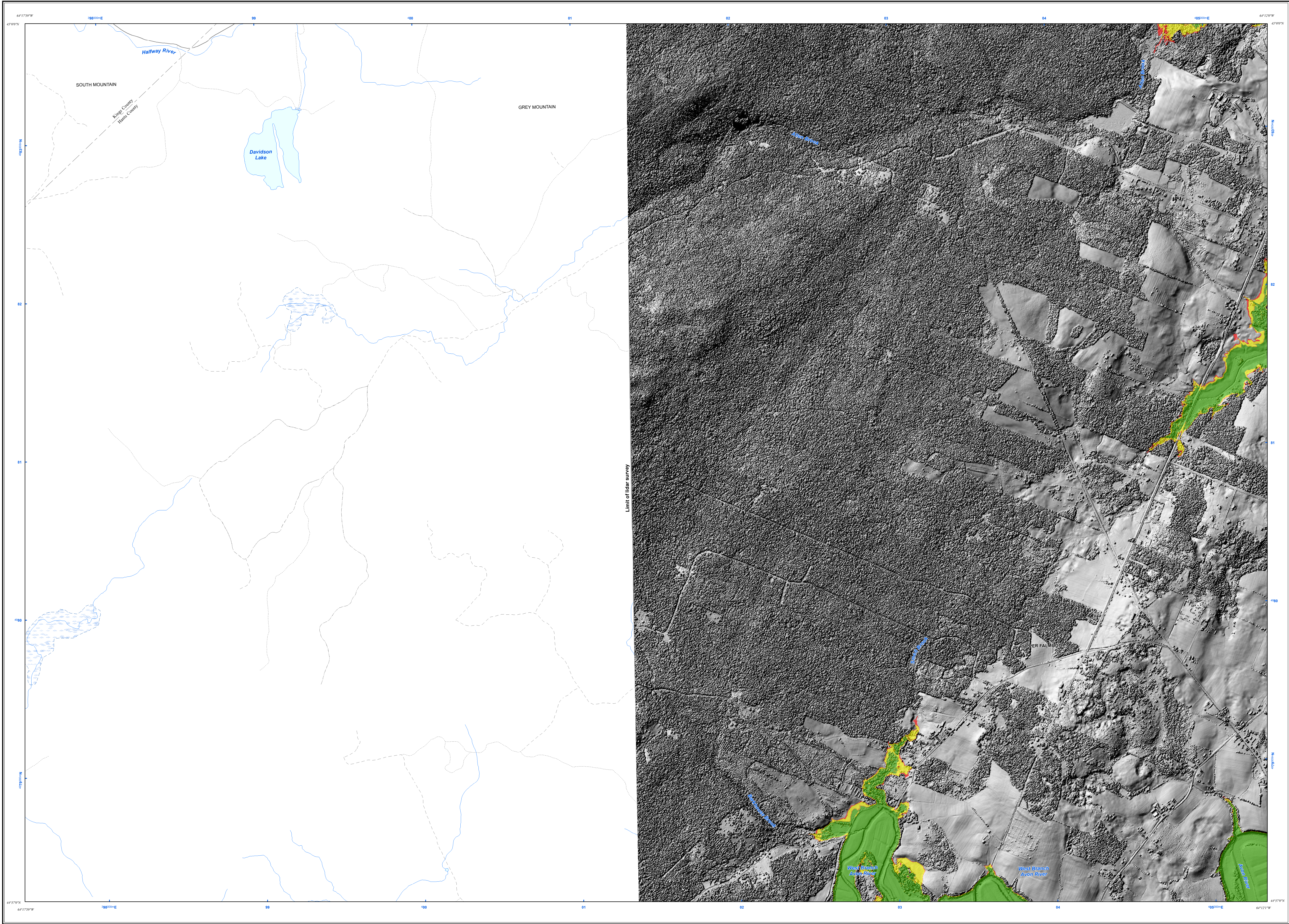




Descriptive Text

The flood risk limits were extracted from flood inundation layers, which were derived from the digital elevation model (DEM) that was constructed from ground points measured by a Light Detection and Ranging (lidar) survey. The flood inundation layers were modelled in a geographic information system (GIS) and represent still water levels. Only low lying areas that are connected to the ocean were shown to be flooded with this modelling method. These water levels represent the ocean as a horizontal plane and do not incorporate wave run-up during storms. Wave run-up is controlled by the wind direction and associated wave direction during storms and the local offshore and nearshore topography.

The estimated return periods and water level scenarios for 2025 and 2100 were determined from Richards and Daigle (2011). The return periods represent the time between high-water events occurring with a 95% probability according to Richards and Daigle (2011). Since this estimate of a return period of a high-water event is based on a 95% probability, it could happen any time in the future, but is predicted to have a 95% chance of occurring within a time interval such as 25 years or 100 years. These high-water events can be thought of as the 25 or 100 year events. These return-period water levels were reported in Chart Datum (CD) for Hantsport. These have been converted from CD to the Canadian Geodetic Vertical Datum of 1929 (CGVD29, land elevation vertical datum) based on the Hantsport CD-CGVD28 offset of 7.23 m.

The lidar survey and flood risk maps were produced by the Applied Geomatics Research Group (AGRG), Nova Scotia Community College (NSCC) (Webster et al., 2011). In areas where the land is protected from the sea by dikes, the inundation maps represent the maximum extent of flooding possible based on the water level overtopping the dikes. The maps do not depict the length of time for the water to cross the land surface or the influence of the tide's cycle. The background topography on the maps represents a shaded relief image derived from a 2 m lidar digital surface model (DSM), azimuth of 315° and sun angle defined from the northwest at 45° with the terrain vertically exaggerated five times. This model incorporates both ground elevations as well as those from vegetation (trees) and buildings.

Map Notes

GIS data produced by Tim Webster, Kevin McGuigan and Candace MacDonald of AGRG/NSCC. Data were collected in 2008 and processed to flood layers from 2010-2011.

Cartography and reproduction by Angie Ehler of the Nova Scotia Department of Natural Resources, Geoscience Information Services Section, 2012. The maps were developed using ArcGIS® 10.

Universal Transverse Mercator Projection (UTM), Zone 20, Central Meridian 67°00' West, North American Datum (NAD) 1983 Canadian Spatial Reference System (CSRS) 98.

Base and digital data derived from the Nova Scotia Topographic Database (NSTDB). Copyright Her Majesty the Queen in Right of the Province of Nova Scotia. The NSTDB is available from Service Nova Scotia and Municipal Relations (SNSMR), Land Information Services Division (LIS), Nova Scotia Geomatics Centre (NSGC), Amherst, Nova Scotia.

Shaded relief image derived from a 2 m lidar bare-earth Digital Elevation Model, Azimuth of 315°, sun angle of 45° and a vertical exaggeration of 5. The lidar was acquired by, or under contract to, the Applied Geomatics Research Group (AGRG), Nova Scotia Community College, over two separate missions. Lidar data were acquired by Terra Remote Sensing Inc. in May 2003 for the area from Grand Pré westward under contract to AGRG. The "wood grain" effect, which resembles topographic contours, is a <30 cm ranging limitation of the lidar sensor used in 2003. This is a processing artifact and does not represent terraced surfaces. The area to the east, from Grand Pré to Windsor, was acquired by AGRG in April 2007 using an Optech ALTM 3100 lidar sensor. See Webster et al. (2011) for further details on the lidar processing, surface construction and accuracy validation.

Nova Scotia Department of Natural Resources
Mineral Resources Branch
Open File Map ME 2012-057

Map of Coastal Flood Risk from Sea-level Rise and Storm Surge of the Upper Falmouth Area, Hants and Kings Counties, Nova Scotia

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Scale 1:10 000

0 0.5 1 km

Halifax, Nova Scotia 2012

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References

Richards, W. and Daigle, R. J. 2011: Scenarios and guidance for adaptation to climate change and sea-level rise - NS and PEI municipalities, Atlantic Climate Adaptations Solutions Association, Nova Scotia Environment, 78 p.
<http://atlanticadaptation.ca/node/227>

Webster, T., McGuigan, K. and MacDonald, C. 2011: Lidar processing and flood risk mapping for coastal areas in the District of Lunenburg, Town and District of Yarmouth, Amherst, County Cumberland, Wolfville and Windsor; Atlantic Climate Adaptation Solutions Association, 130 p.
<http://atlanticadaptation.ca/acasa/node/128>

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Disclaimer

The information on this map may have come from a variety of government and nongovernment sources. The Nova Scotia Department of Natural Resources and partners of the Atlantic Climate Adaptation Solutions Association do not assume any liability for errors that may occur. This map is intended for use at the published scale of 1:10 000.

Recommended Citation

Webster, T., McGuigan, K. and MacDonald, C. 2012: Map of coastal flood risk from sea-level rise and storm surge of the Upper Falmouth area, Hants and Kings counties, Nova Scotia; Nova Scotia Department of Natural Resources, Mineral Resources Branch, Open File Map ME 2012-057, scale 1:10 000.

