

LiDAR-based flow-channel, wet-areas, and cartographic depth-to-water derivation for the Lower Saint John Valley: an example

The following slides illustrate how the UNB process for deriving flow-channel, wet-areas, and depth-to-water works for the general Quispamsis area. These features are overlaid on

- the hill-shaded DEM (digital elevation map)
- local open water features (lakes, bay)
- DNR and SNB compiled wetland borders
- NB air-photo mosaic

The four slides are arranged such that the same area can be viewed with the LiDAR-derived wet-area features turned on or off (full-screen mode). This allows for detailed interpretations of the airphotos as to which particular wet-area features and flow channels may or may not qualify as actual surface-impacting wetlands or flow channels.

The significance of each wet-area feature can be judged by the combined lengths of the wet-area contributing flow channels: upland features with low flow accumulation area pose less hydrological risks than lowland features.

Notes: All of the depth-to-water (DTW) determining flow channels start with a 4 ha flow accumulation area. DTW is represented by blue shading from dark blue (signalling water close to the soil surface at <10 cm) to light blue (signalling water close to the soil surface at <100 cm). The same process can contour DTW for the dry land also. The flow-channels are partially verified by overlaying the GPS-recorded locations of some of the culverts within the area (c/o: Town of Quispamsis).

Map legend: Last slide

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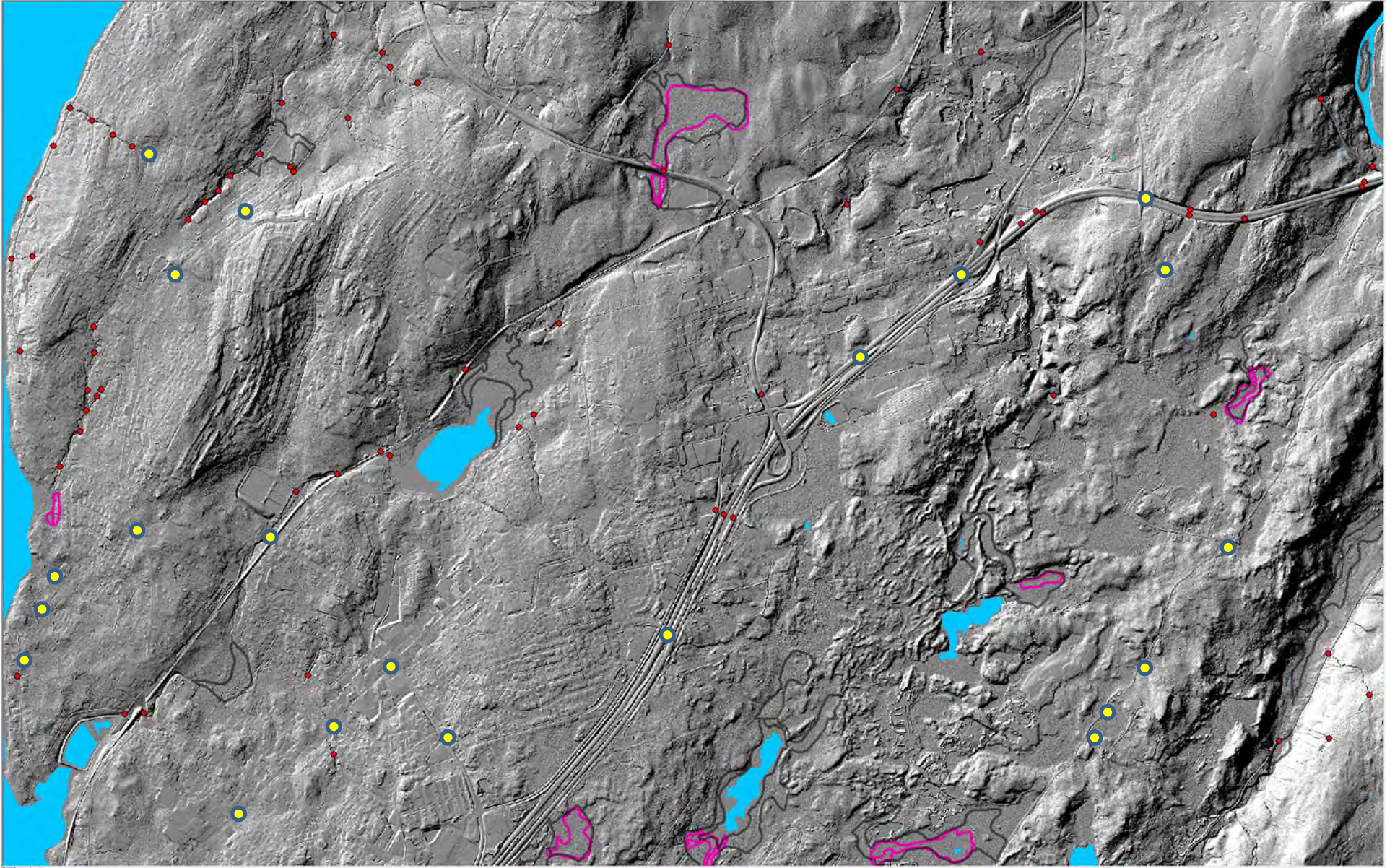
Acknowledgements: Atlantic Climate Adaptation Solutions (ACASA), New Brunswick Department of Environment (LiDAR data and financial support)



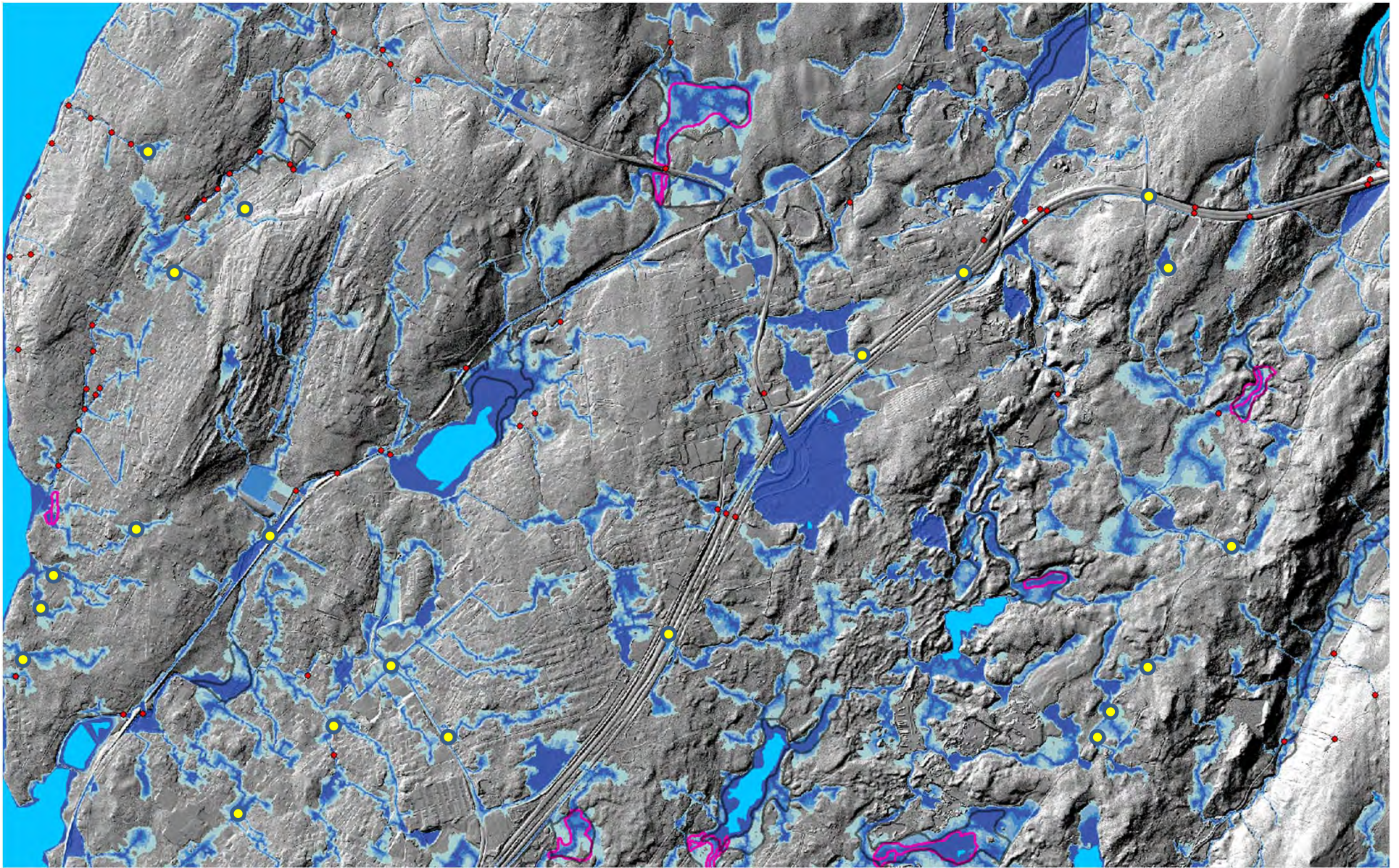
NB air-photos + DNR & SNB wetlands + open-water features (lakes, bay)



NB air-photos + DNR & SNB wetlands + open-water features (lakes, bay)
+ LiDAR-derived flow channels and wet areas









Hill-shaded LiDAR DEM+ DNR & SNB wetlands + open-water features (lakes, bay)



Hill-shaded LiDAR DEM+DNR & SNB wetlands + open-water features (lakes, bay)
+ LiDAR-derived flow channels and wet areas

LiDAR-based flow-channel, wet-areas, and depth-to-water derivation
for the Lower Saint John Valley: Legend

-  **Layers**
-  GPSed-stream-road crossings (culverts, bridges)
-  DNR wetlands
-  SNB wetlands
-  Lakes and other open-water features
- Depth-to-water: <10 cm) to light (<100cm) blue
- Hill-shaded LiDAR DEM
- NB ortho-photos
-  Stream-road crossings not yet GPS registered