



## ABOUT WHAPMAGOOSTUI...

Whapmagoostui mean «Place of the White Whales». Whapmagoostui is located above the 55th parallel on the eastern Hudson Bay coast.

### GEOLOGICAL CURIOSITIES

**Lacs Guillaume-Delisle-et-à-l'Eau Claire Park Project**  
Pointe Siuraaluk, grabens, plateaus and Hudson Cuestas  
([http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp\\_en.pdf](http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp_en.pdf))

The Lacs-Guillaume-Delisle-et-à-l'Eau-Claire Park Project is intended to protect representative portions of the natural regions known as the Hudson Cuestas and the Hudson Plateau.

The natural region of the Hudson Cuestas stretches along the shoreline of Hudson Bay from the Manitouk passage near Kuujuarapik-Whapmagoostui to the Nastapoka passage, approximately halfway between Umijuq and Inukjuak. The cuestas are asymmetrical hills that were shaped by the effects of erosion. The cuestas have a gradual slope (dip slope) that plunges towards the sea but on the other side, facing the land interior; they consist of spectacular escarpments (scarps). The stratigraphic layering of rock produces extraordinary colour patterns (pink, red, green, white and black) along slopes. After glaciers melted, the Tyrrell Sea submerged the territory under an estimated 280 m of water and when the sea retreated, it left a series of remarkable elevated markings of ancient sea levels. This is the largest system of cuestas in Québec. Along the shores of Lac Guillaume-Delisle, ridges rise to an elevation of 420 m and on either side of the mouth of Petite Rivière de la Baleine, elevation is 350 to 400 m.

Immediately to the east of the escarpment that fringes Hudson Bay, part of the Earth's crust has dropped to form what is known as a graben. The depression that was formed has been filled in part by the waters of Lac Guillaume-Delisle. Most of the land around the lake's edge is covered by a thick layer of unconsolidated deposits. The graben and Eau Claire Plateau converge where faults run along the sub-stratum. The drop of the sub-stratum has caused boulders to rise up due to isostatic compensation around the graben, creating horsts. The escarpment that has resulted is striking and a focal point of the landscape.



The cuestas have a gradual slope (dip slope) that plunges towards the sea (CMEB, 2012).



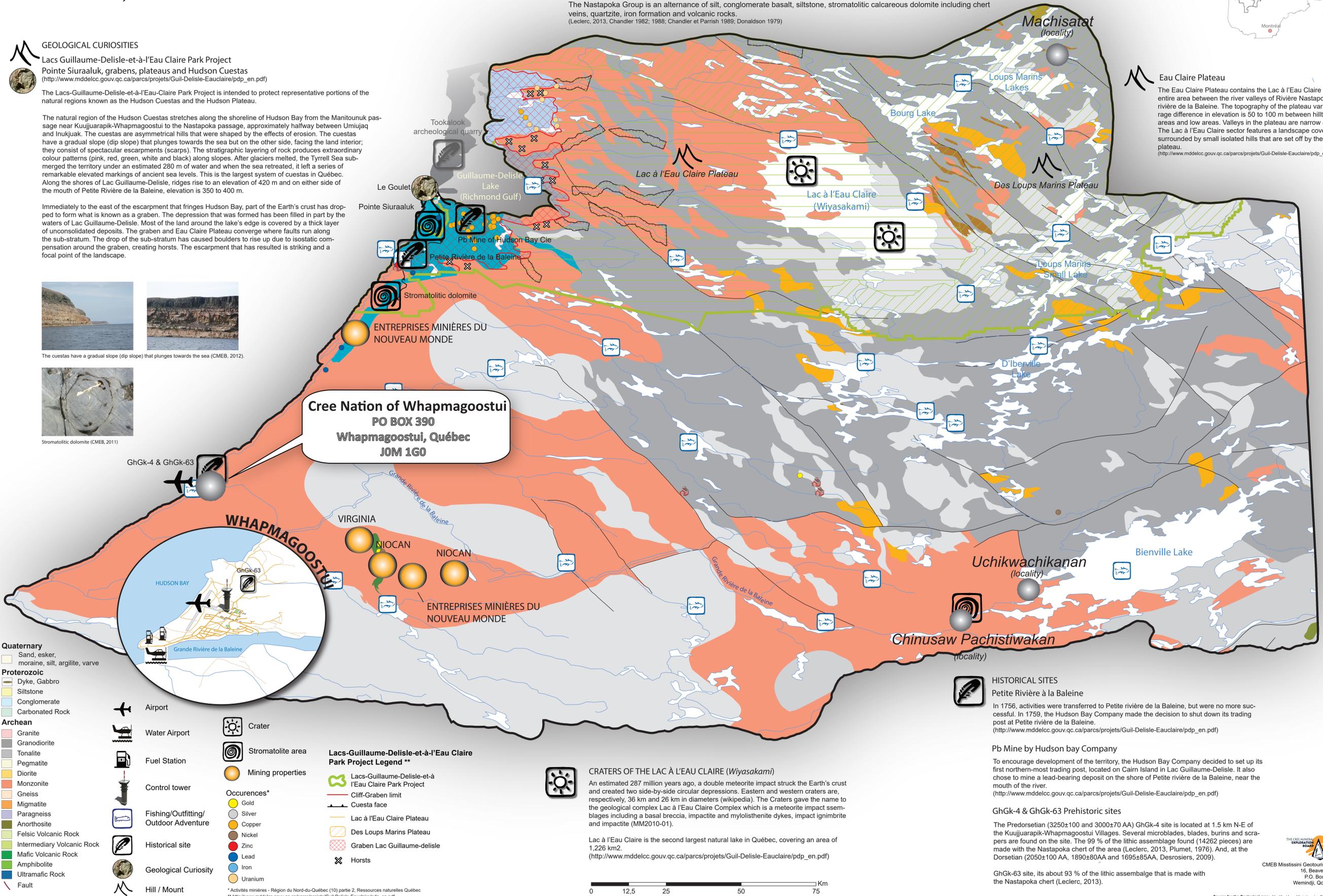
Stromatolitic dolomite (CMEB, 2011)

### GEOLOGICAL HISTORY

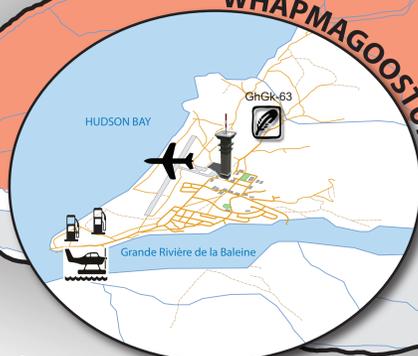
The Whapmagoostui land is part of the Canadian Shield and lies within the Superior geological Province. Two main stratigraphic groups are present in the area: the Proterozoic Nastapoka Group which comprise subaerial basalt flows and underlying stromatolitic dolomite and, the Archean rock of the Minto subprovince (MM2010-01). A part of the Bienville Domain which is characterized by numerous intrusions of granite and granodiorite that invaded pyroxene-bearing felsic intrusive rocks is also part of the territory.

#### Proterozoic Nastapoka Group

The Nastapoka Group is an alternance of silt, conglomerate basalt, siltstone, stromatolitic calcareous dolomite including chert veins, quartzite, iron formation and volcanic rocks.  
(Leclerc, 2013, Chandler 1982; 1988; Chandler et Parrish 1989; Donaldson 1979)



**Cree Nation of Whapmagoostui**  
PO BOX 390  
Whapmagoostui, Québec  
J0M 1G0



- Quaternary**
  - Sand, esker, moraine, silt, argillite, varve
- Proterozoic**
  - Dyke, Gabbro
  - Siltstone
  - Conglomerate
  - Carbonated Rock
- Archean**
  - Granite
  - Granodiorite
  - Tonalite
  - Pegmatite
  - Diorite
  - Monzonite
  - Gneiss
  - Migmatite
  - Paragneiss
  - Anorthosite
  - Felsic Volcanic Rock
  - Intermediary Volcanic Rock
  - Mafic Volcanic Rock
  - Amphibolite
  - Ultramafic Rock
  - Fault
- Other Symbols:**
  - Airport
  - Water Airport
  - Fuel Station
  - Control tower
  - Fishing/Outfitting/Outdoor Adventure
  - Historical site
  - Geological Curiosity
  - Hill / Mount
  - Crater
  - Stromatolite area
  - Mining properties
  - Occurrences\*
    - Gold
    - Silver
    - Copper
    - Nickel
    - Zinc
    - Lead
    - Iron
    - Uranium

**Lacs-Guillaume-Delisle-et-à-l'Eau Claire Park Project Legend \*\***

- Lacs-Guillaume-Delisle-et-à-l'Eau Claire Park Project
- Cliff-Graben limit
- Cuesta face
- Lac à l'Eau Claire Plateau
- Des Loups Marins Plateau
- Graben Lac Guillaume-Delisle
- Horsts

**CRATERS OF THE LAC À L'EAU CLAIRE (Wiyasakami)**

An estimated 287 million years ago, a double meteorite impact struck the Earth's crust and created two side-by-side circular depressions. Eastern and western craters are, respectively, 36 km and 26 km in diameters (wikipedia). The Craters gave the name to the geological complex Lac à l'Eau Claire Complex which is a meteorite impact assemblage including a basal breccia, impactite and mylonite dykes, impact ignimbrite and impactite (MM2010-01).

Lac à l'Eau Claire is the second largest natural lake in Québec, covering an area of 1,226 km<sup>2</sup>.  
([http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp\\_en.pdf](http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp_en.pdf))



**Eau Claire Plateau**

The Eau Claire Plateau contains the Lac à l'Eau Claire sector and the entire area between the river valleys of Rivière Nastapoka and Petite rivière de la Baleine. The topography of the plateau varies little. The average difference in elevation is 50 to 100 m between hilltops, inter-stream areas and low areas. Valleys in the plateau are narrow and shallow. The Lac à l'Eau Claire sector features a landscape covered by a lake, surrounded by small isolated hills that are set off by the surrounding plateau.  
([http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp\\_en.pdf](http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp_en.pdf))

**HISTORICAL SITES**

**Petite Rivière à la Baleine**

In 1756, activities were transferred to Petite rivière de la Baleine, but were no more successful. In 1759, the Hudson Bay Company made the decision to shut down its trading post at Petite rivière de la Baleine.  
([http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp\\_en.pdf](http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp_en.pdf))

**Pb Mine by Hudson bay Company**

To encourage development of the territory, the Hudson Bay Company decided to set up its first northern-most trading post, located on Cairn Island in Lac Guillaume-Delisle. It also chose to mine a lead-bearing deposit on the shore of Petite rivière de la Baleine, near the mouth of the river.  
([http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp\\_en.pdf](http://www.mddelcc.gouv.qc.ca/parcs/projets/Guil-Delisle-EauClaire/pdp_en.pdf))

**GhGk-4 & GhGk-63 Prehistoric sites**

The Predorsetian (3250±100 and 3000±70 AA) GhGk-4 site is located at 1.5 km N-E of the Kuujuarapik-Whapmagoostui Villages. Several microblades, blades, burins and scrapers are found on the site. The 99 % of the lithic assemblage found (14262 pieces) are made with the Nastapoka chert of the area (Leclerc, 2013, Plumet, 1976). And, at the Dorsetian (2050±100 AA, 1890±80AA and 1695±85AA, Desrosiers, 2009).

GhGk-63 site, its about 93 % of the lithic assemblage that is made with the Nastapoka chert (Leclerc, 2013).