

# **Qaujisarvik - CEN's Research Station Network**

Update on upcoming new research stations

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**Scientific coordinator**



**CENTRE D'ÉTUDES NORDIQUES**

**CEN** Centre for Northern Studies

## **QAUJISARVIK** (*Inuktitut for Laboratories*)

### 9 research stations

- 5 located in communities
- 4 in remote locations
- Only 2 remote stations in Nunavut (Qikiqtaaluk region)

### 1 small research ship (Louis-Edmond Hamelin)

- Now managed by Reformar (UQAR)

## **INTERACT**

- 1 research station in the TA (Whapmagoostui-Kuujuarapik Station)
- 9 in the VA

## **Qaujisarvik is growing!**

- 2 new research stations in Nunavut
  - Pond Inlet (Mittimatalik)
  - Qikiqtarjuaq
- 1 expansion/construction project in Umiujaq (Nunavik)



# Pond Inlet and Qikiqtarjuaq research stations

- CFI grant of 17.5M CAD
- A joint effort

CEN (Gilles Gauthier) and Takuvik (Marcel Babin)  
UQAR and UQTR



**Qikiqtani Inuit  
Association**

## Strong Partnership with QIA

MOU signed with QIA

- to co-manage the station
- to transfer the ownership to a local organization after 15 years of operation





## **Pond Inlet** (terrestrial oriented research)



## **Qikiqtarjuaq** (Marine oriented research)



# Future state of Arctic terrestrial and marine ecosystems in a global change context: a holistic approach

POND INLET

QIKIQTARJUAQ

TERRESTRIAL

MARINE

Climate change and human activity

Changes in the cryosphere  
over seasons and years

- Permafrost thawing
- Snow regime
- Glacial melt
- Surface hydrology

Cascading effects

Tundra ecosystem

- Plant community and production (shrubs)
- Herbivore-snow interaction
- Tundra food web
- Apparition of new species

Freshwater ecosystem

- Lake biogeochemistry and gas emission
- Primary production
- Aquatic food web
- Top predators (char)

Land-ocean  
interactions

- River discharge
- Glacier calving
- Transfer of inorganic and organic matter
- Animal movements

Ecosystem Services

- Drinking water quality
- Food security for Inuit
- Habitat restoration

Changes in snow, sea ice and ocean over day,  
seasons, years and decades

- Metamorphism and thermodynamics
- Sea ice microphysics
- Optics
- Turbulence and vertical exchanges
- Advection

Cascading effects

• Biogeochemical cycles (nutrients, gases, ...)

• Primary and secondary production

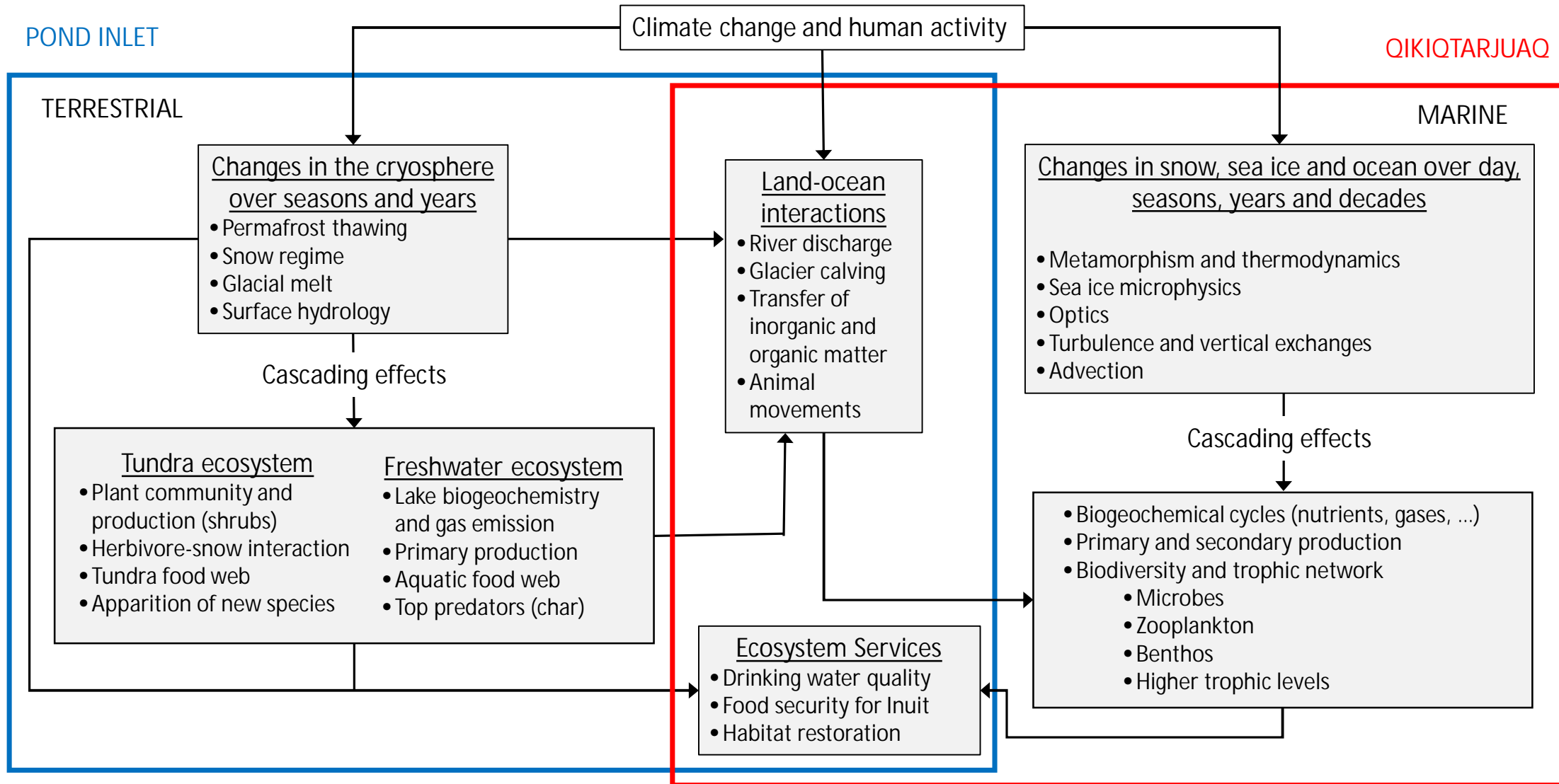
• Biodiversity and trophic network

• Microbes

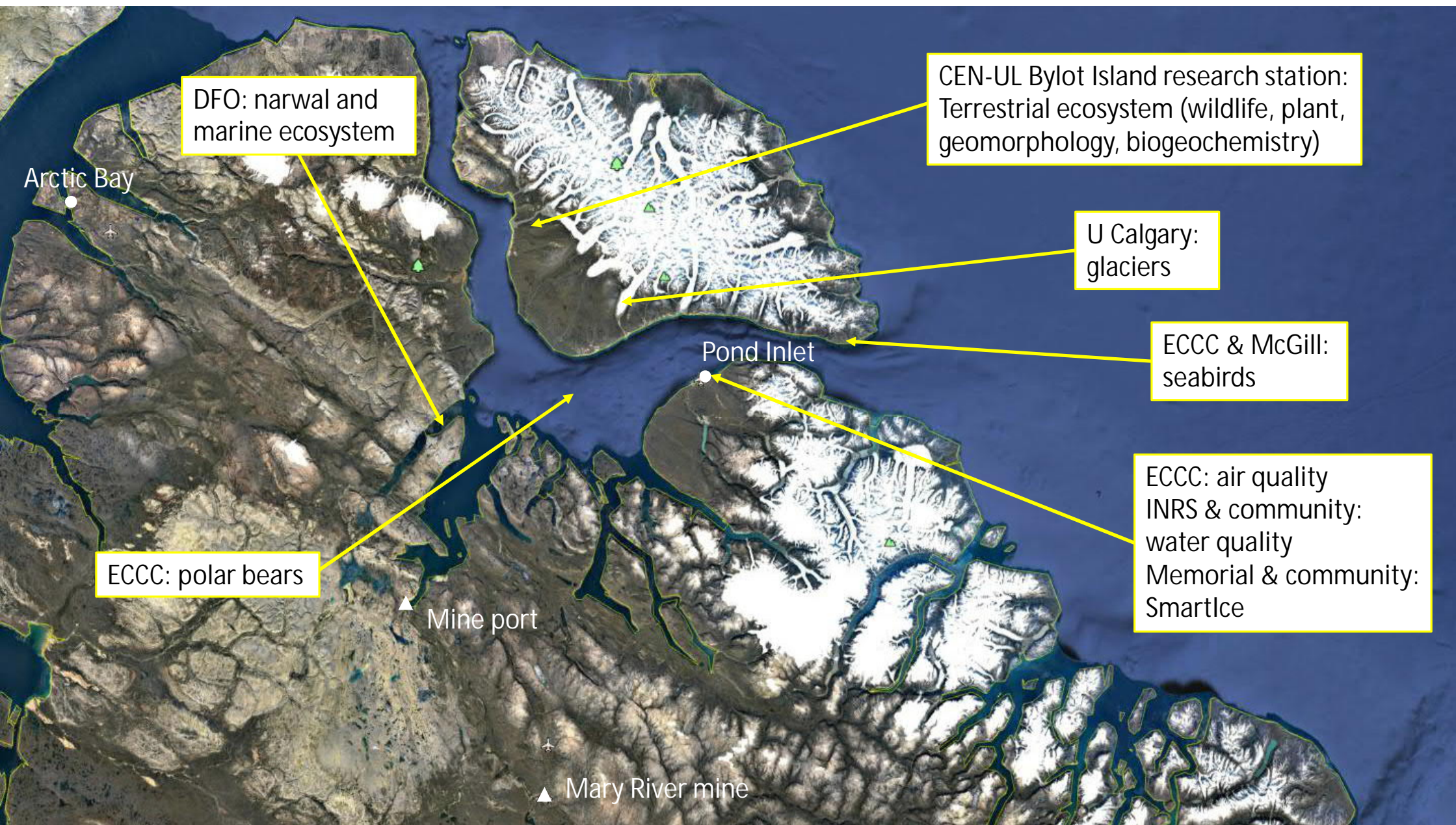
• Zooplankton

• Benthos

• Higher trophic levels

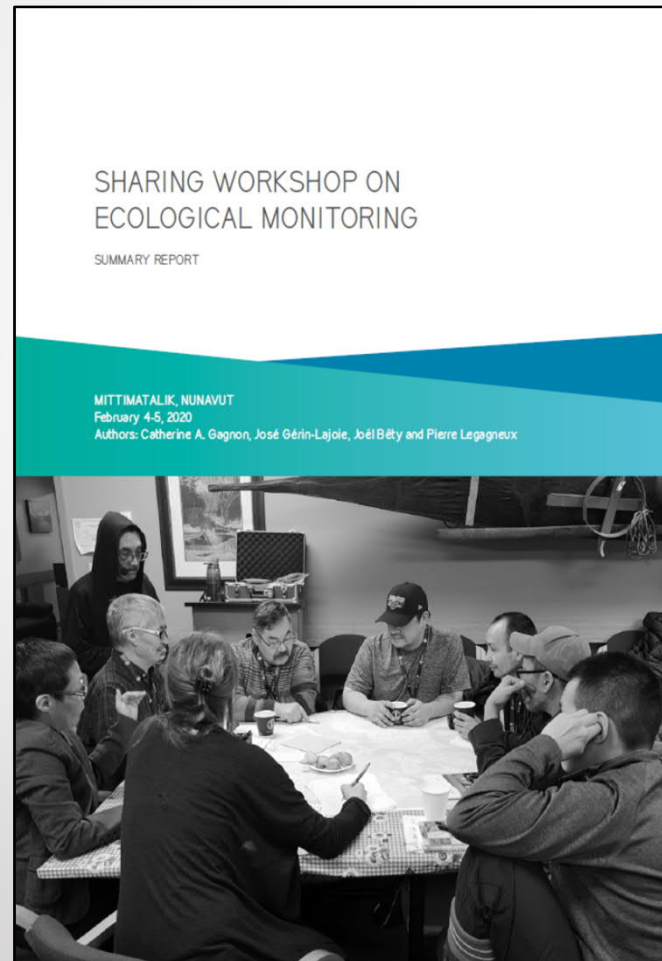
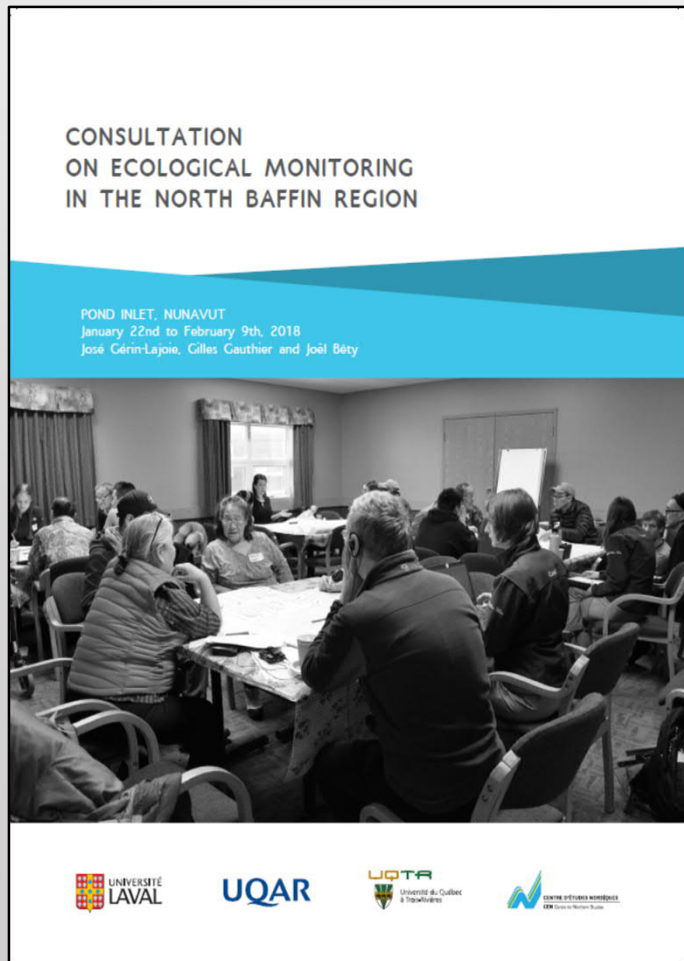








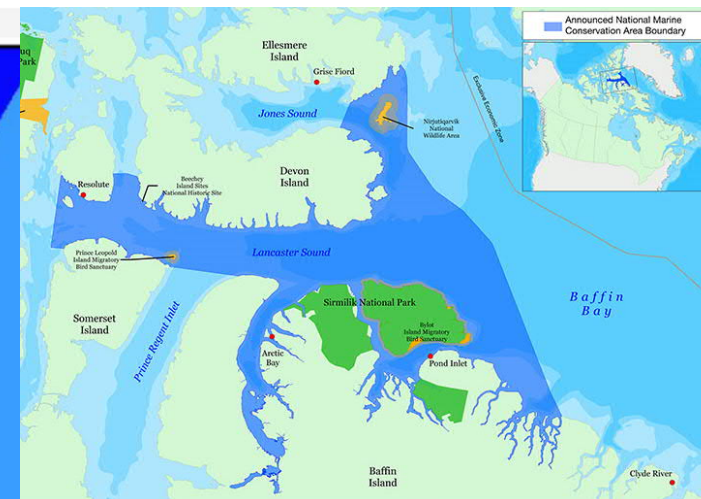
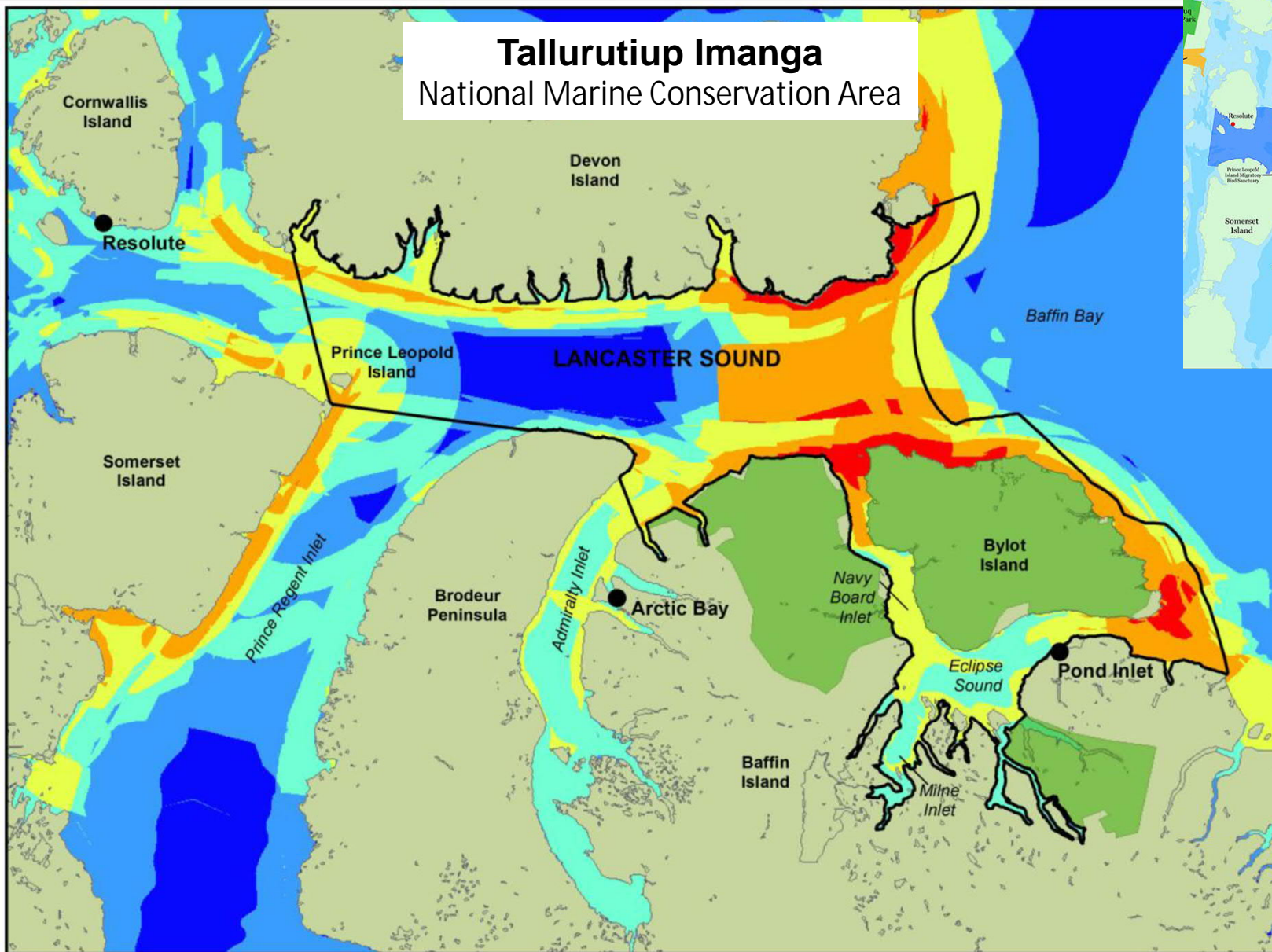
# Consultation and partnership with the community



**Qikiqtani  
Inuit  
Association**

(Reports available at:  
<http://www.cen.ulaval.ca/bylot/en/report.php>)

# Tallurutiup Imanga National Marine Conservation Area



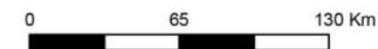
## Legend

### Relative Conservation Value

- Low
- Low to Moderate
- Moderate
- Moderate to High
- High
- Very High
- Sirmilik National Park
- NMCA Boundary Proposal (December 2010)

Data Information: Overlay of 18 datasets acquired from Fisheries and Oceans Canada (DFO), Canadian Wildlife Service (CWS), Lancaster Sound Region: Data Atlas (LSRDA), and Environment Canada. Data were overlaid and the number of features was totalled. Areas with 8 or more features were classified as high or very high.

Projection: Lambert Conformal Conic

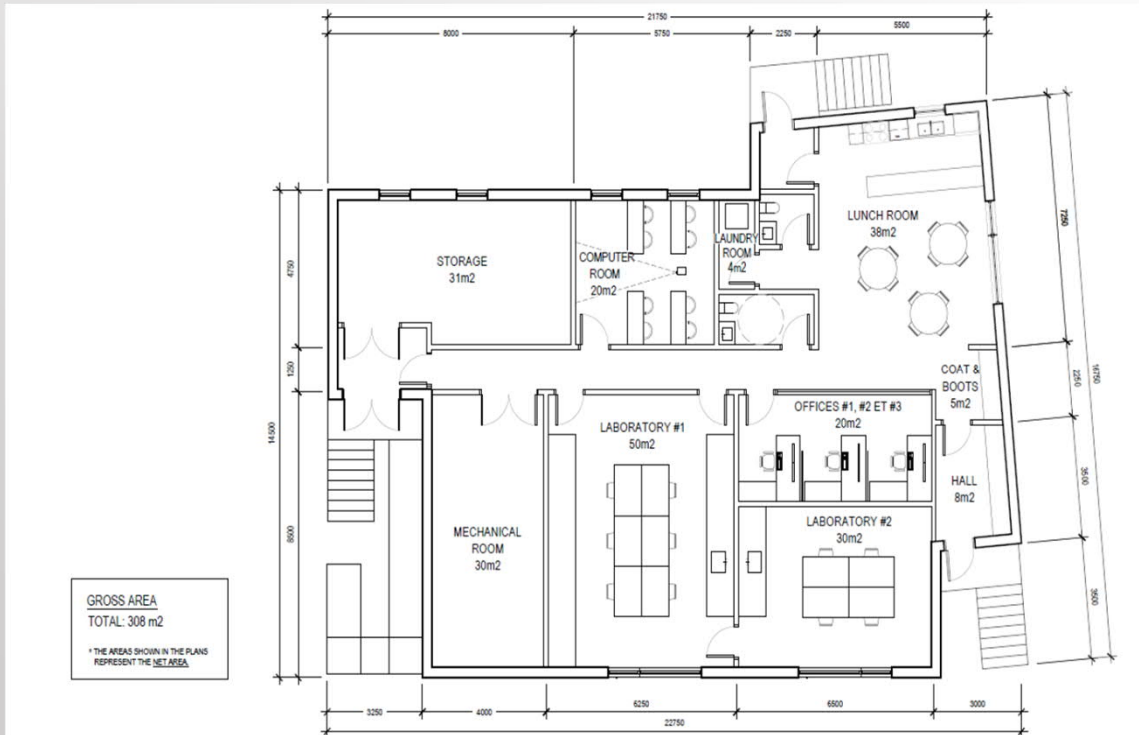


Parks Canada - 2012



# Pond Inlet research station

To be built on the campus of the QIA  
Inuit training and research center (2024)



# Construction project of a new research station in Umiujaq



Current Station (U3 familial house)



Construction project for the new station







## Why a new station?

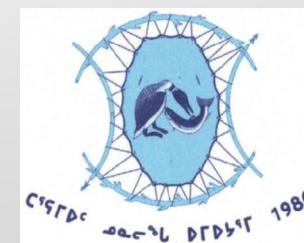
- Region of high scientific interest to study rapidly changing environments
- Current station misadapted to research needs and occupancy
- Need a formation room to facilitate and increase exchanges with the community, co-produce knowledge and project co-management
- Opportunity of funding from the SPN/INQ



Institut nordique  
du Québec

## Social acceptability

- Support from Makivik Corporation
- Support from the Land Holding Corporation Annituvik of Umiujaq
- Support from the Nunavik Village (NV)





# Objectives for the new station

- Increase the capacity to 12 users (currently at 6)
- Add a formation room and laboratory spaces
- Build on pile (minimize the impact on resources and natural environment)
- Include storage spaces (no containers)
- Use high quality materials (engineering wood products) and innovative construction concepts
- Carbo-neutrality
  - Solar energy
  - Bioenergy (biomasse/ heating with torrefied pellets)
  - Geothermal energy (vertical – at an experimental scale)
- Favour local/regional economy



1 VUE COIN NORD-EST



2 VUE COIN SUD-EST



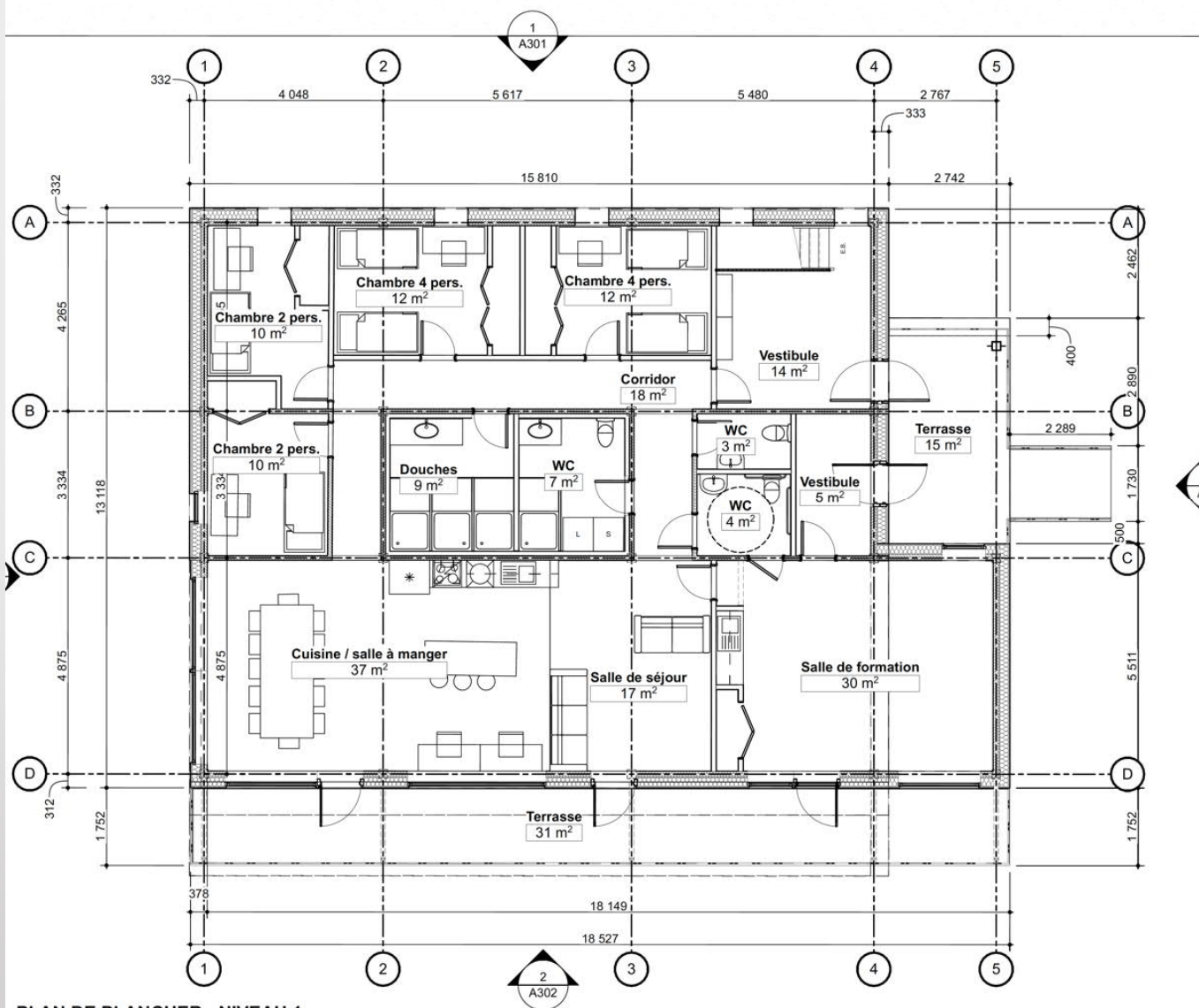
3 VUE COIN SUD-OUEST



4 VUE COIN NORD-OUEST

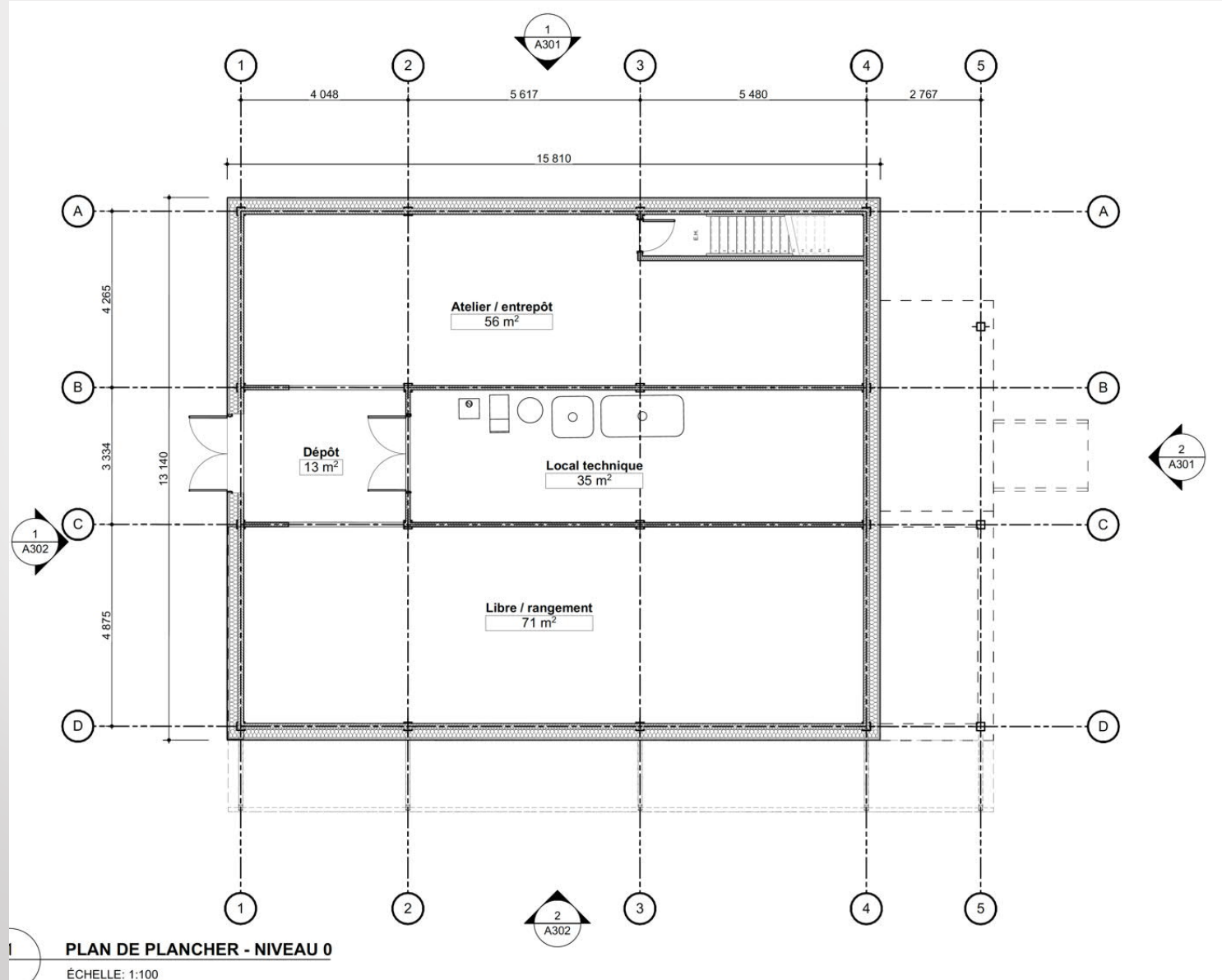


CHEMIN DE L'AÉROPORT



PLAN DE PLANCHER - NIVEAU 1

ÉCHELLE: 1:100







# Thank you!

Qikiqtarjuaq