

Romaine hydroelectric complex environmental monitoring program: lessons learned so far



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The energy situation in Québec

- Vast hydrographic system: 180,000 km² of surface freshwater, 22% of the territory
- Since the late 19th century, Québec has been using the hydraulic force of rivers and falls to generate electrical energy
- World's 4th largest generator of hydroelectricity
- Reliable source of clean, renewable energy producing very little greenhouse gas



Hydroelectricity is a prime solution for reducing GHG emissions and ensuring a reliable energy supply.

The Romaine complex in brief

- Preliminary studies and environmental impact assessment filed: 2004–2007
- Issuance of approvals and start of construction work: 2009

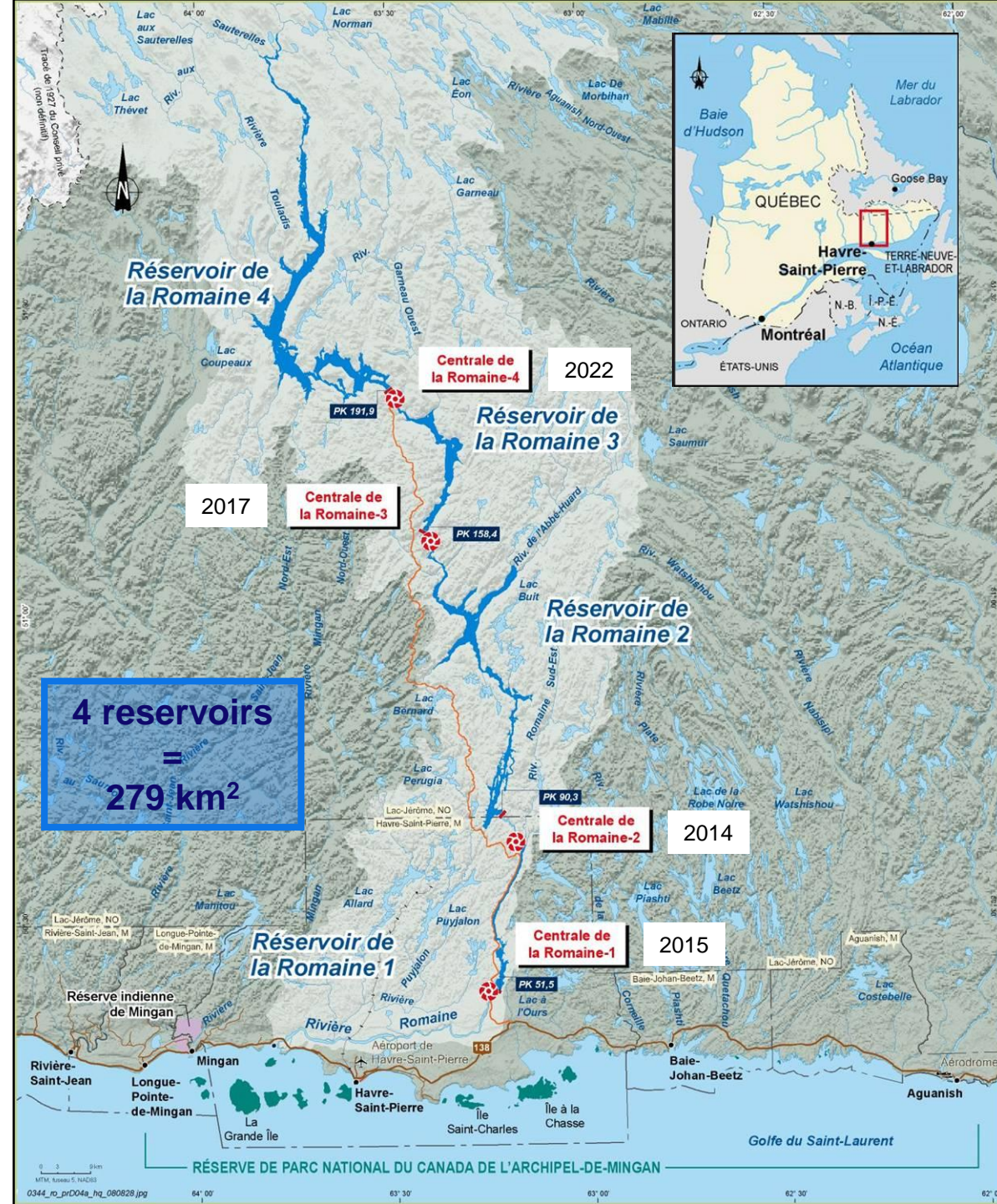
4 developments =

1,550 MW



- rockfill dam
- reservoir
- generating station with 2 generating units
- spillway

+
150-km access road





Romaine-1



Romaine-2



Mouth of the Rivière Romaine



Romaine-3



Romaine-4

Hydroelectricity = green energy but . . . not without impact

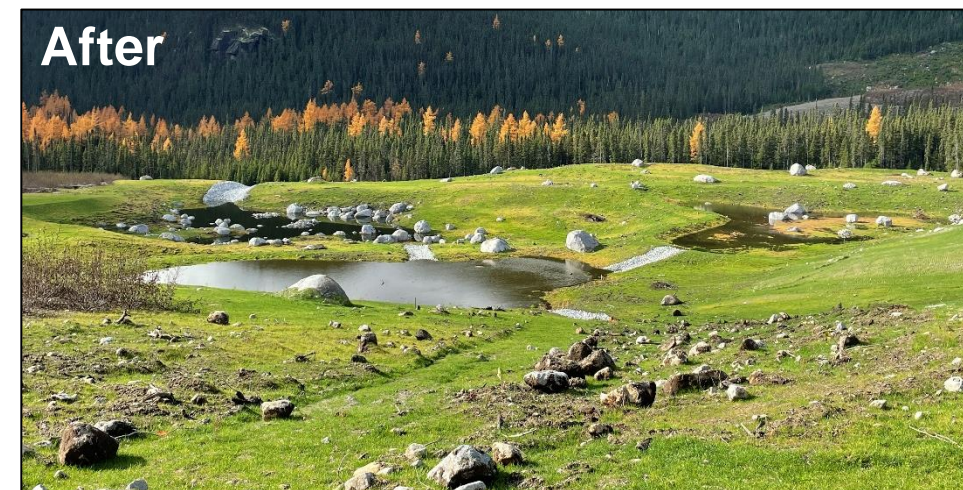
Many mitigation and compensation measures implemented

Some examples:

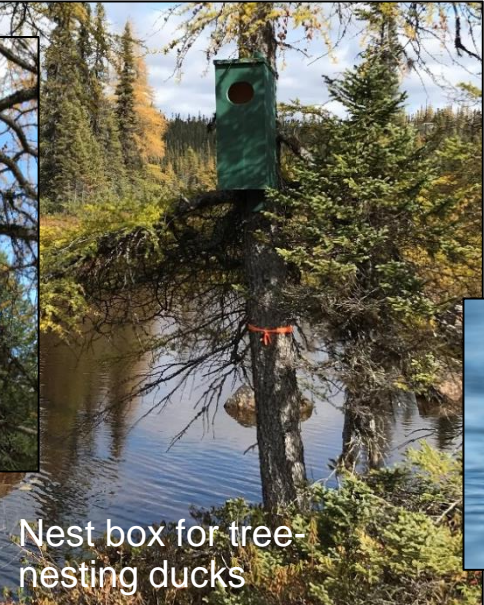
- Pre-flooding archaeological digs and dissemination of results
- Salmonid species enhancement program
- Abandoned sandpits in wetland areas
- Ecological instream flow for fish
- Monitoring of large wildlife during filling of reservoirs
- Installation of nest boxes for tree-nesting ducks and nesting platforms for birds of prey
- Construction of snowmobile bridges, boat ramps and parking areas for territory users
- Restoration and reforestation after the work



Developing
wetlands



Some mitigation and compensation measures



Nest box for tree-nesting ducks

Some mitigation and compensation measures



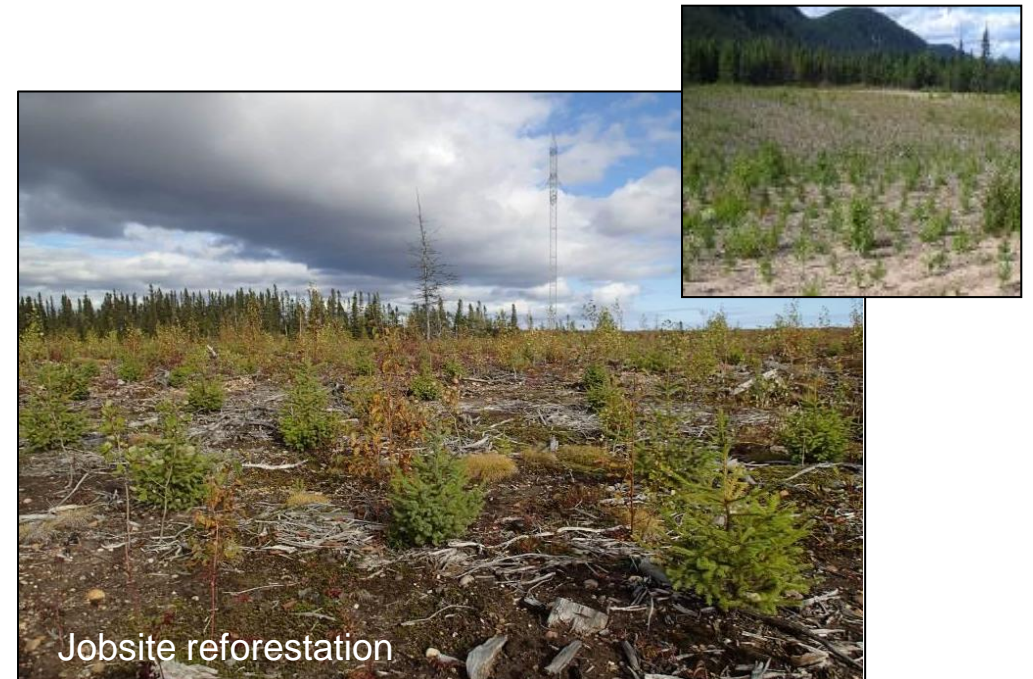
Archaeological digs



Boat ramp with parking area



Snowmobile bridge



Jobsite reforestation

Partnering agreements with local communities

- Agreements with local communities to foster the practice of traditional activities and economic and social development and to enhance the territory
- Monitor the project's social and economic impacts and make adjustments as needed
- Discussion and collaboration forums: several meetings every year (methodologies applied during studies, results, follow-up calendar, issues, etc.)
- Active participation in environmental studies
- Private contracts for the development of mitigation measures



Environmental follow-up program 2009–2040

Objectives

- Check on changes in the environment
 - Physical environment (e.g., thermal regime, ice regime, bank erosion)
 - Biological environment (e.g., fish communities, salmonid spawning grounds, woodland caribou, waterfowl, oceanography)
 - Human environment (e.g., social impacts on communities, use of the territory by communities)
- Verify the effectiveness of mitigation and compensation measures
- Identify any adjustments needed



Some follow-up studies



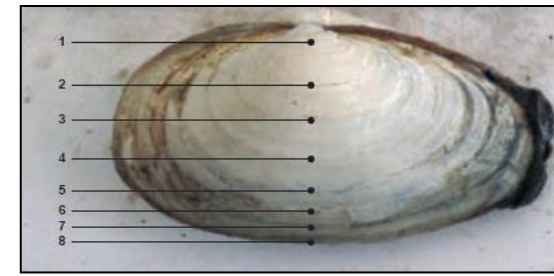
Use of the territory and social impacts in communities



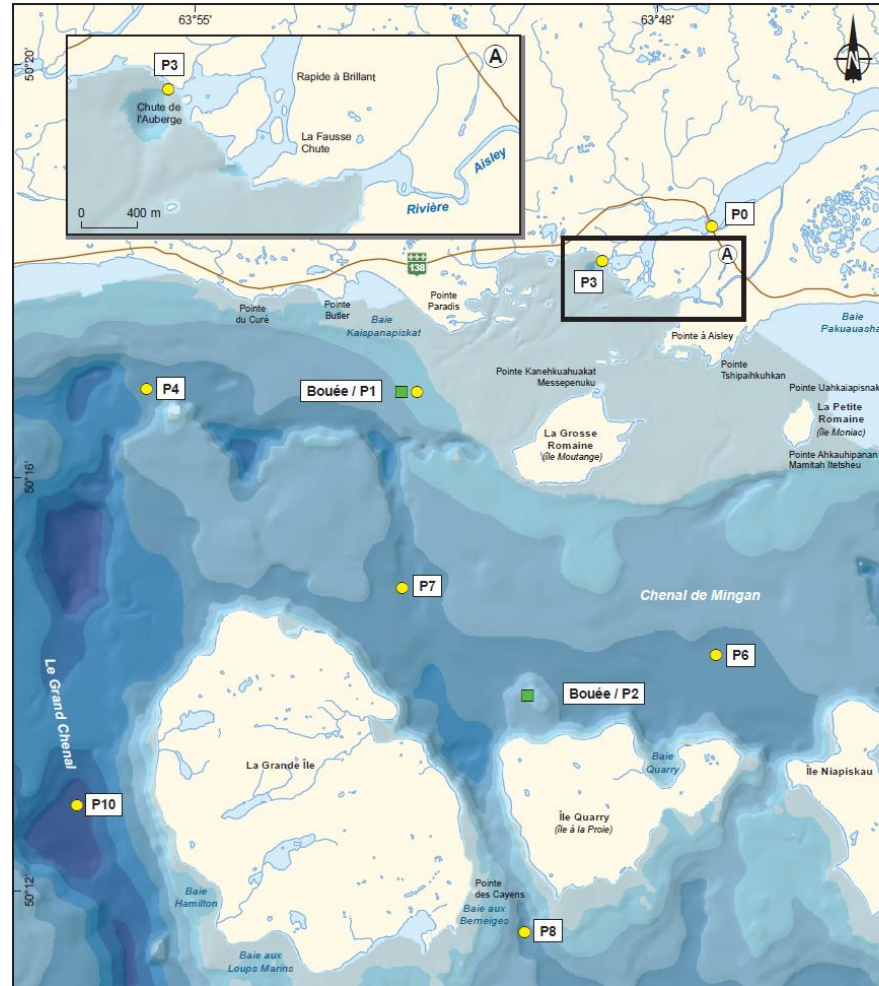
Some follow-up studies



Woodland caribou



Oceanography



ENVIRONMENTAL FOLLOW-UP

What lessons have been learned so far?

- Carefully document the situation “before” for a better understanding of matters “after”
- Importance of control stations and environments not affected by the project
- Patience: an invaluable ally in follow-up
- Ongoing involvement and communications with local communities to identify issues clearly
- Transparency for the benefit of the environment



Environment
ministers visit the
Romaine complex

ENVIRONMENTAL FOLLOW-UP

What lessons have been learned so far?

- Don't set quantitative fishing yield goals when monitoring fish populations
- Invest more upstream to prevent additional costs during operation
- Opening up the territory: pros and cons
- Be humble: admit that an impact study cannot be perfect and correct as necessary



Every project is unique.

Feedback is very important to avoid repeating mistakes and build better projects.

Let's put our collective energy to work!



Let's continue the conversation!

Post questions and comments in the IAIA23 app.



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