

Eastmain-1-A and Sarcelle Powerhouses and Rupert diversion

Summary of Mitigation and Enhancement Measures

Part 3 – *Waskaganish*

May 2012



The Community of Waskaganish and the Project

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The Community of Waskaganish and the Project

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INTRODUCTION

This document was prepared as part of the Cree public consultation process introduced by the Environmental and Social Impact Review Committee (COMEX) for the Eastmain-1-A and Sarcelle powerhouses and Rupert diversion project.

It will serve as a reference for the COMEX members, Cree land users and Cree community representatives to keep them abreast of the mitigation and enhancement measures implemented on each trapline and the general measures to promote economic spinoffs in the Cree community (workers, companies and tallymen) and jobsite integration of Cree workers. It also includes assessments of the effectiveness of the measures based on monitoring programs and interviews with the users concerned.

The document is in six parts, one for each of the six communities of Mistissini, Nemaska, Waskaganish, Eastmain, Wemindji and Chisasibi.

This part is a summary for the community of Waskaganish (Map W-1).

Map W-2 – Components of the Eastmain-1-A/
Sarcelle/Rupert Project

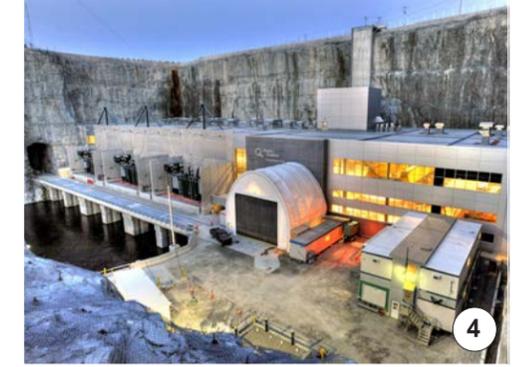
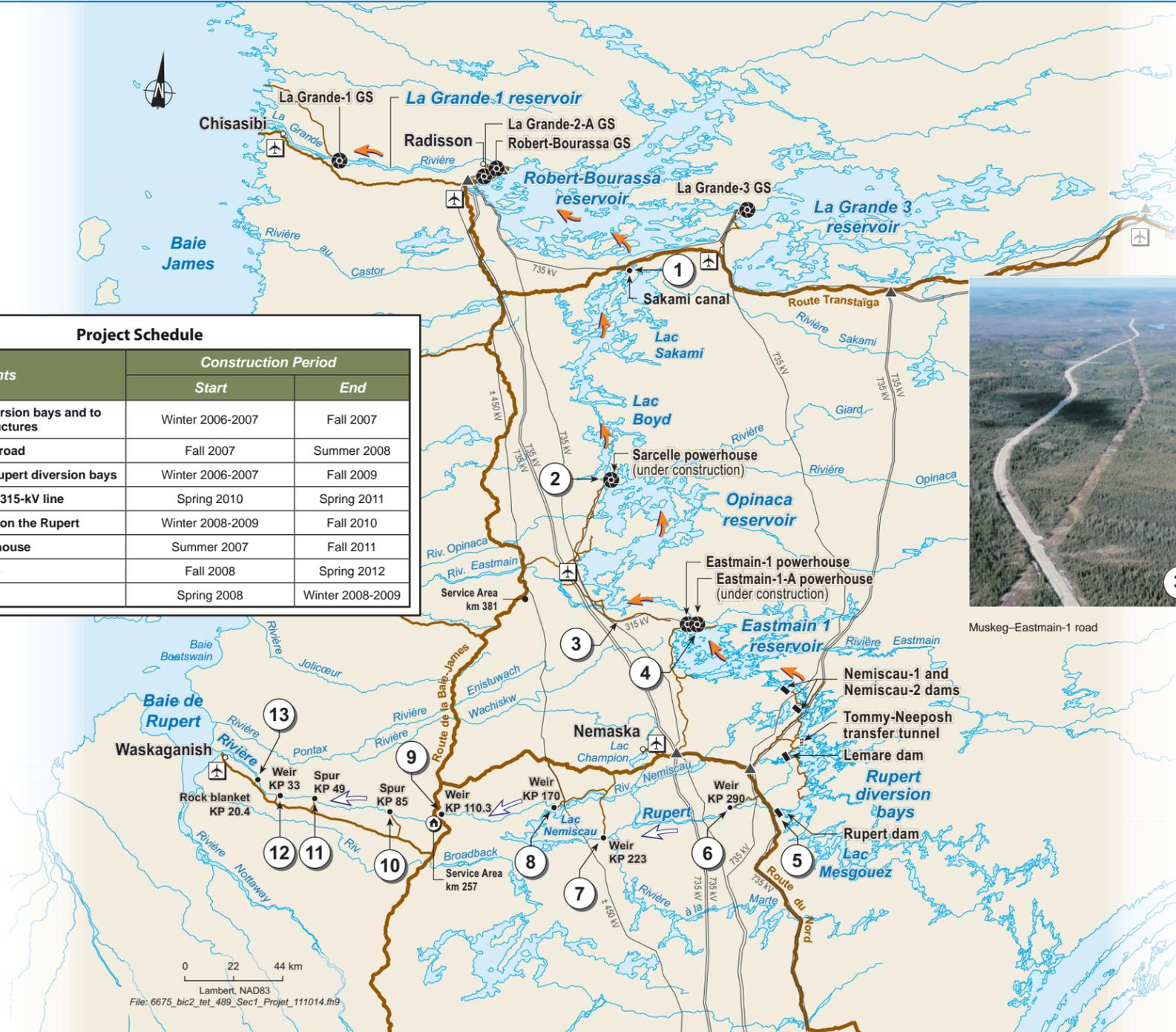


Sakami canal



Sarcelle powerhouse (under construction)

Project Components	Construction Period	
	Start	End
Access roads to diversion bays and to Rupert diversion structures	Winter 2006-2007	Fall 2007
Muskeg–Eastmain-1 road	Fall 2007	Summer 2008
Dams and dikes in Rupert diversion bays	Winter 2006-2007	Fall 2009
Eastmain-1–Sarcelle 315-kV line	Spring 2010	Spring 2011
Hydraulic structures on the Rupert	Winter 2008-2009	Fall 2010
Eastmain-1-A powerhouse	Summer 2007	Fall 2011
Sarcelle powerhouse	Fall 2008	Spring 2012
Sakami canal	Spring 2008	Winter 2008-2009



Eastmain-1-A powerhouse (under construction)



Muskeg–Eastmain-1 road



Rupert dam



Rock blanket KP 20.4



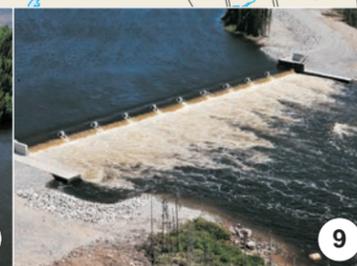
Weir KP 33



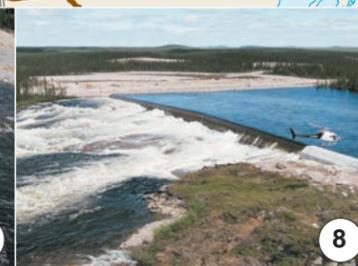
Spur KP 49



Spur KP 85



Weir KP 110.3



Weir KP 170



Weir KP 223



Weir KP 290

Summary of Mitigation and Enhancement Measures

1.0 Project and Agreements

In the *Agreement Concerning a New Relationship Between the Gouvernement du Québec and the Crees of Québec* signed on February 7, 2002, the Crees consented to construction of the Eastmain-1-A powerhouse and Rupert diversion project subject to the environmental assessment required under the *James Bay and Northern Québec Agreement*. Among other things, the Agreement stipulates that:

- Hydro-Québec will pay the cost of all remedial work that is required by the government authorizations for the project;
- Remedial work for the Crees, jobs for Crees, contracts for Crees and Cree companies and other topics related to the project are covered under the *Boumhounan Agreement*.

Under the *Boumhounan Agreement*¹, Hydro-Québec made specific commitments to:

- Reduce project impacts by implementing remedial and mitigation measures;
- Ensure that Crees participate in project-related studies and construction.

It was in this context that SEBJ signed a letter of undertaking with each tallyman directly affected by the project regarding implementation of the mitigation and enhancement measures so that the tallymen could continue to practice their traditional activities during and after project construction.

Later, in 2010, the decision by the parties to the *Boumhounan Agreement* to amend certain provisions related to Sarcelle powerhouse led to the signature of the *Convention relative à la centrale de la Sarcelle*² [Agreement concerning Sarcelle powerhouse] and the *Convention complémentaire n° 2* [Complementary agreement No. 2]. The latter agreement specifies that the flow of water diverted to Sarcelle powerhouse and the Sarcelle control structure must not exceed 2,770 m³/s, except in emergencies.

Finally, note that the community of Chisasibi is not a signatory to the *Boumhounan Agreement*. However, we took the community into account in the environmental assessment for the project and a mitigation measure was retained to respond to an important community concern. This measure consisted of installing a granular blanket on parts of the southern bank of La Grande Rivière downstream of La Grande-1 that are sensitive to erosion (9.2 km according to the 2004 Environmental Impact Statement). Furthermore, La Grande Rivière and Baie James (James Bay) were included in the study area of certain environmental monitoring programs associated with the Eastmain-1-A/Sarcelle/Rupert project.

1. The Cree signatories of the *Boumhounan Agreement* are the Grand Council of the Crees (Eeyou Istchee), the Cree Regional Authority, the Eastmain Band, the Cree Nation of Mistissini, the Nemaska Band and the Waskaganish Band.

2. In the *Convention relative à la centrale la Sarcelle*, in addition to the description of the Sarcelle project and the La Sarcelle Regional Development Fund, amendments have been made to include the Cree Nation of Wemindji among the beneficiaries of the *Boumhounan Agreement*.

2.0 Main Project Components and Construction Phases

In November 2006 and February 2007, upon completion of the environmental assessment process, Hydro-Québec obtained the necessary provincial and federal authorizations to build the Eastmain-1-A and Sarcelle powerhouses and Rupert diversion project. This project, located in the Baie-James region, affected the Cree communities of Mistissini, Nemaska, Waskaganish, Eastmain, Wemindji and Chisasibi.

The main project components illustrated on Map W-2, for which construction began in February 2007, are the following:

- **Eastmain-1-A powerhouse** (768 MW with three Francis turbines) near the existing Eastmain-1 facility.
- **Sarcelle powerhouse** (150 MW with three bulb-type turbines) at the outlet of Opinaca reservoir near the Sarcelle control structure.
- The **Rupert diversion**, which includes:
 - Four dams, including Rupert dam at KP 314 of the river, and 73 dikes;
 - A spillway on the Rupert at the dam site that also controls the instream flow;
 - Five other instream flow release structures built into some of the retaining structures in the diversion bays (Nemiscau-1, Nemiscau-2, Ruisseau-Arques, Lemare and LR-51-52);
 - A 2.9-km-long transfer tunnel between the two diversion bays with a maximum capacity of 800 m³/s;
 - Nine canals (four in the forebay and five in the tailbay) with a total length of about seven kilometres to facilitate flow to the various parts of the diversion bays.

The Rupert diversion began operation on November 7, 2009. Since December 3, 2009, it has channeled part of the Rupert's flow to Eastmain-1 powerhouse and the two new powerhouses (Eastmain-1-A and Sarcelle), then onto the Robert-Bourassa, La Grande-2-A and La Grande-1 powerhouses. The average annual flow diverted to the Eastmain watershed is about 452 m³/s.

The project also includes:

- **Eight hydraulic structures on the Rupert** at KP 20.4, 33, 49, 85, 110.3, 170, 223 and 290, which substantially maintain the water level in nearly half of the river downstream from the diversion point at KP 314;
- **A canal with a concrete weir** at the outlet of Lac Sakami was completed in spring 2009 and channels the additional flow from the Rupert diversion while maintaining the stipulated operating levels in the lake;
- **Two 315-kV transmission lines** to bring the power generated by the new plants onto the grid: one 101-km line links the Sarcelle and Eastmain-1 powerhouses and the other 0.5-km line connects the Eastmain-1 and Eastmain-1-A powerhouses.

The following were also required to complete the project:

- 131 km of temporary construction roads and permanent roads to the main structures;
- A permanent, 40-km Muskeg-Eastmain-1 road connecting Muskeg substation and the Eastmain-1-Nemiscau road;
- Five temporary workcamps to house workers, including two camps used during construction of Eastmain-1 powerhouse (Nemiscau and Eastmain workcamps) and three new camps (Rupert, Sarcelle and Oujeck);
- Food and lodging services at Siibii camp in the village of Waskaganish were used by workers assigned to construction of the hydraulic structures at KP 20.4, 33 and 49 as well as at the service area at Km 257 for workers assigned to the structures at KP 85 and 110.3.

3.0 Cree Information and Consultation Process

The Eastmain-1-A/Sarcelle/Rupert project stands out not only because of its technical achievements, but also for its unique approach to relations with the host community. A process for improving our ways of doing things emerged as the various stages of the project proceeded, allowing us to establish a climate of cooperation and respect with the Crees

Formal participation process



PRELIMINARY STUDIES 1997-2001

1999 Agreement with Mistissini

The agreement authorized Hydro-Québec to proceed with the necessary technical studies within the Mistissini traplines to examine the alternatives for partial diversion of the Rupert at KP 314 or KP 490



DRAFT PHASE 2002-2006

Cree-Hydro-Québec Feasibility Study Group (Boumhounan Committee)

Forum for discussing field studies and surveys, project design, impacts and mitigation measures, as well as for consulting and disseminating information to the Crees. The committee is made up of representatives of:

- Wemindji, Eastmain, Chisasibi, Waskaganish, Nemaska and Mistissini;
- Cree Regional Authority (CRA);
- Hydro-Québec/SEBJ.

Boumhounan Committee members:

- **Examined** terms of reference and study results;
- **Were consulted** on technical aspects of the project;
- **Participated** in siting hydraulic structures on the Rupert and in fine-tuning the instream flow regime;
- **Collaborated** in the review of the Environmental Impact Statement.



Communication tools:

- Information offices in the communities run by a representative and a coordinator;
- *Boumhounan Newsletter* 6 and *Boumhounan NewsFlash* 14 ;
- Advertising, notices and special advertising sections in *The Nation*;
- CD-ROM on the project (in Cree).



CONSTRUCTION 2007-2012

Monitoring Committee

The Monitoring Committee combines members of the *Technical and Environmental Committee* for the Eastmain-1 project and the *Boumhounan Committee* for the Eastmain-1-A/Sarcelle/Rupert project and is a discussion forum on technical, social and environmental aspects of the project. The committee is made up of representatives of:

- Wemindji, Eastmain, Chisasibi, Waskaganish, Nemaska and Mistissini;
- Niskamoon Corporation;
- Hydro-Québec/SEBJ.

Monitoring Committee members:

- **Agree** with terms of reference;
- **Discuss** study results;
- **Confirm** the selection of consultants;
- **Participate** in the evaluation of consulting firms;
- **Agree** on certain modifications to technical aspects of the project, such as:
 - Strategies for accessing hydraulic structures,
 - Location of infrastructures for worker accommodations;
- **Support** users in developing and implementing mitigation measures;
- **Create** subcommittees to discuss key issues in greater depth such as fish, the human environment and navigation.

Other joint committees

- Cree tourism – Working group made up of COTA, CNACA, Niskamoon Corporation and Hydro-Québec
- Cree health – Committee made up of the Cree Board of Health and Social Services and Hydro-Québec
- Instream flow management – *Rupert River Water Management Board*

Communication tools:

- *Boumhounan Newsletter* 14 (quarterly);
- Advertising and notices in *The Nation* and *Destination*;
- *Hydro and Friends*, semi-monthly radio show on JBCCS;
- Visits to Cree schools to present the *Blue water = Green energy* workshop;
- Jobsite tours on request.



84 shows as of
December 21, 2011



OPERATION SINCE 2010



66 meetings
as of
December 13, 2011



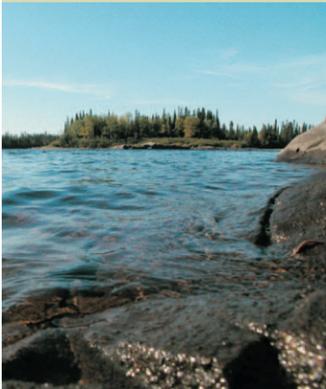
Communication tools:

- *Tipaachimuwin* newsletter 2 ;
- Notices and monthly advertising sections in *The Nation*;
- *Hydro and Friends*, semi-monthly radio show on JBCCS;
- Web microsite.

Information and consultation activities

Activities with tallymen and other users

Activities with communities

PRELIMINARY STUDIES	DRAFT PHASE	CONSTRUCTION	OPERATION
<p>Participation in geotechnical field campaigns</p> <ul style="list-style-type: none"> • Clearing • Hydrometric surveys • Laboratory analysis of soil samples  <p>Over 2,000 person-days</p> 	<p>Participation in technical and environmental studies</p> <ul style="list-style-type: none"> • Meeting with tallymen to present field study logistics • Tallymen or their representatives accompany field crews and participate in field surveys  <p>23,156 days worked</p>	<p>Participation in technical studies and environmental follow-ups</p> <ul style="list-style-type: none"> • Meeting with tallymen to discuss and plan logistics for field studies • Tallymen or their representatives accompany field crews and participate in field surveys • Training and orientation of Cree personnel by consulting firms (study objectives, health and safety, traditional knowledge, expectations, etc.)  <p>20,747 days worked as of December 13, 2011</p> 	
	<p>Activities to collect and incorporate traditional knowledge (woodland caribou, spawning ground locations, fish species in the Rupert, land use)</p>	<p>Annual individual meetings with the 33 tallymen to review environmental commitments, hear their concerns and elicit their comments</p>  <p>426 meetings from 2007 to 2011</p>	<p>Annual meetings with tallymen in each community</p> 
	<p>Workshops on impacts and mitigation measures with tallymen and their guests (2003-2004)</p>  <p>24 meetings/ over 500 participants</p>	<p>Thematic presentations on request (examples: lake cisco, eelgrass, Weh-Sees Indohoun Corporation)</p> 	
	<p>Public information and discussion sessions in the four communities most affected, namely Waskaganish, Nemaska, Mistissini and Eastmain (2003-2004), and presentations on specific topics at the Crees' request (Waskaganish Youth Council, Nadoshtin Corporation, Waskaganish Band Council and Grand Council of the Crees)</p>  <p>9 meetings/ over 364 participants</p>		
<p>Public meetings in the communities of Chisasibi, Wemindji, Waskaganish, Nemaska, Mistissini and Eastmain to ensure that the project took the Crees' concerns into account</p>  <p>20 meetings in the summer of 1998</p>	<p>Information-sharing meetings with the tallymen affected by the development of the La Grande complex, the Eastmain-1 project and the Eastmain-1-A/Sarcelle/Rupert project (2003)</p>	<p>Frequent, regular discussions with team members responsible for relations with Crees at the jobsite (Records of Cree requests and complaints)</p> 	
<p>Visits by Hydro-Québec President and CEO and the President of Hydro-Québec Production to the Cree communities of Chisasibi, Wemindji, Waskaganish, Mistissini and Eastmain, and with the Grand Council of the Crees to propose development of a 1,280-MW project involving partial diversion of the Rivière Rupert at KP 314</p>	<p>Regional trappers conference to discuss their perceptions of the project (September 2006)</p>	<p>Semi-annual information tours to the Cree communities concerned</p> <ul style="list-style-type: none"> • In winter, presentation of studies and upcoming work • In summer, presentation of the previous year's follow-up results  <p>10 tours from 2007 to 2011</p>	
	<p>Cree-Hydro-Québec-SEBJ conference on lessons to be drawn from the Eastmain-1 project to ensure that the Eastmain-1-A/Sarcelle/Rupert project proceeds smoothly (November 2006)</p>	<p>Participation in annual general meetings in the communities Information booth or presentation</p>	

PRELIMINARY STUDIES	DRAFT PHASE	CONSTRUCTION	OPERATION												
 <p><i>Paix des Braves</i> agreement signed in February 2002, under which the Crees agreed to construction of the Eastmain-1 project as defined in the JBNQA, and to the Eastmain-1-A powerhouse and Rupert diversion project subject to the environmental assessment carried out by the relevant authorities</p> <p>Choice of alternative involving partial diversion of the Rupert at KP 314 and signature of the <i>Boumhounan Agreement</i> in February 2002</p>	<p>Joint identification of mitigation measures based on past experience with the La Grande complex project to mitigate anticipated impacts and facilitate land use</p>   	<p>Specification of mitigation measures and implementation by tallymen</p> <table border="1"> <tr> <td data-bbox="1631 475 1696 862">Camp relocation</td> <td data-bbox="1696 475 2331 862"> <p>The tallyman:</p> <ul style="list-style-type: none"> Determined the location of his new camp; Chose the camp layout; Assessed costs; Built his camp. </td> </tr> <tr> <td data-bbox="1631 862 1696 1483">Navigation</td> <td data-bbox="1696 862 2331 1483"> <p>The tallyman:</p> <ul style="list-style-type: none"> Identified corridors to be cleared for navigation and land use; Participated in flyovers of corridors; Participated in marking areas to be cleared; Did the clearing himself or subcontracted it to the contractor of his choice; Participated in river flyovers and navigated the river to test cleared corridors; Determined locations of signs along the shoreline; Installed signs; Commented on navigation charts.  <p>288 signs</p> </td> </tr> <tr> <td data-bbox="1631 1483 1696 1866">Access roads</td> <td data-bbox="1696 1483 2331 1866"> <p>The tallyman:</p> <ul style="list-style-type: none"> Identified preliminary route, walked it and marked it; Optimized route (culverts, curves, slopes, wetlands); Executed contract to clear the right-of-way. </td> </tr> </table>	Camp relocation	<p>The tallyman:</p> <ul style="list-style-type: none"> Determined the location of his new camp; Chose the camp layout; Assessed costs; Built his camp. 	Navigation	<p>The tallyman:</p> <ul style="list-style-type: none"> Identified corridors to be cleared for navigation and land use; Participated in flyovers of corridors; Participated in marking areas to be cleared; Did the clearing himself or subcontracted it to the contractor of his choice; Participated in river flyovers and navigated the river to test cleared corridors; Determined locations of signs along the shoreline; Installed signs; Commented on navigation charts.  <p>288 signs</p>	Access roads	<p>The tallyman:</p> <ul style="list-style-type: none"> Identified preliminary route, walked it and marked it; Optimized route (culverts, curves, slopes, wetlands); Executed contract to clear the right-of-way. 	<p>Follow-up on effectiveness of mitigation measures</p> <table border="1"> <tr> <td data-bbox="2331 475 2396 862">Instream flow management</td> <td data-bbox="2396 475 2999 862"> <p>Rupert River Water Management Board:</p> <ul style="list-style-type: none"> Monitors follow-up results; Suggests modifications to the instream flow regime when needed. </td> </tr> <tr> <td data-bbox="2331 862 2396 1483">Navigation</td> <td data-bbox="2396 862 2999 1483"> <p>The tallyman:</p> <ul style="list-style-type: none"> Monitors navigation corridors annually (wood debris, condition of signs, etc.). </td> </tr> <tr> <td data-bbox="2331 1483 2396 1866">Fish</td> <td data-bbox="2396 1483 2999 1866"> <p>Smokey Hill Liaison Committee:</p> <ul style="list-style-type: none"> Identifies measures required for continuation of the traditional cisco fishery.  </td> </tr> </table>	Instream flow management	<p>Rupert River Water Management Board:</p> <ul style="list-style-type: none"> Monitors follow-up results; Suggests modifications to the instream flow regime when needed. 	Navigation	<p>The tallyman:</p> <ul style="list-style-type: none"> Monitors navigation corridors annually (wood debris, condition of signs, etc.). 	Fish	<p>Smokey Hill Liaison Committee:</p> <ul style="list-style-type: none"> Identifies measures required for continuation of the traditional cisco fishery. 
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Cree participation in every phase of implementation of mitigation measures



Information on the location of the gauging stations



Seeding of exposed banks along the Rupert River



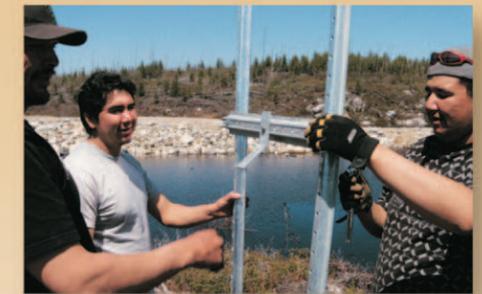
Training on safety when close to open water



Bathymetric surveys



Job site visit by Cree elders



Signage in the navigation corridors on the Rupert diversion bays



Development of brook trout spawning grounds



Signage in the navigation corridors on the Rupert diversion bays



Anadromous cisco fishing at the Smokey Hill site



Construction of fishing pools at the Smokey Hill site



Consultations with tallymen on mitigation measures

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4.0 The Project and the Community of Waskaganish

The Cree village of Waskaganish, with approximately 2,300 inhabitants, is located at the mouth of the Rivière Rupert (estuary zone) on the south shore. By road, the village is located:

- 20.3 km from the Gravel Pit/Smokey Hill community area;
- 102 km from the Route de la Baie-James;
- 102 km and 123 km, respectively, from the Oujeck workcamp and the campsite at the service area at Km 257, used for the construction of the hydraulic structures;
- 21 km, 36 km, 54 km, 99 km and 127 km, respectively, from the hydraulic structures at KP 20.4, 33, 49, 85 and 110.3.

The Cree Nation of Waskaganish traplines cover more than 29,905 km². The land is divided into 38 traplines, each operated under the supervision of a tallyman who, with his family, harvests the wildlife resources (see Map W-3). In agreement with the tallymen concerned, other community members may build camps on the traplines and use the resources. The territory also contains shared use areas that are described below.

Traplines affected

The project affects eight of the 38 Waskaganish traplines:

- Five traplines on the north shore of the Rupert, from KP 125 to the mouth of the river, affected by the flow reduction (R13, R12, R11, R5 and R4);
- Three traplines on the south shore of the Rupert, from KP 95 to the mouth of the river, affected by the flow reduction (N1, N2 and N9).

The main activities and areas of these traplines used before the project began are covered in Section 2.

The Environmental Impact Statement (2004) states that for the eight traplines:

« Apart from community use of these traplines, about 17 extended families (as opposed to nuclear families) including close to 30 beneficiaries of the "Income Security Program for Cree Hunters and Trappers" harvest these traplines regularly. To these must be added the hunting partners, guests and other community members who use these traplines for goose-hunting and fishing, particularly in the Rivière Rupert. »

Table W-1 shows the project components on each affected trapline and, as applicable, the related hydraulic modifications.

The Rivière Rupert crosses Waskaganish traplines from KP 125 to KP 0. The weir at KP 110.3, the spurs at KP 85 and 49, the weir at KP 33 and the rock blanket at KP 20.4 substantially maintain the water levels in 62.1 of the 125 km of that stretch of the Rupert. In the 62.9-km stretch of the Rivière Rupert that is not controlled by hydraulic structures, the total area exposed is approximately 180 ha.

The charts in Figure W-1 show the hydraulic characteristics of the lower Rivière Rupert since the Rupert diversion became operational.

Waskaganish community shared-use areas affected by the project

Traplines R4, R5, R11, N1 and N9, on the Rivière Rupert or at its mouth, are used regularly by community members for fishing and goose-hunting, given their proximity to the village or the accessibility via the Waskaganish road.

There are communal-use areas along the Rupert:

- Rupert estuary, which extends from the first set of rapids at KP 5 to the bay;
- The Gravel Pit settlement, also called Smokey Hill Landing, on the south shore of the river, between KP 21.3 and 22 and the traditional fishing site at Smokey Hill near KP 24.

These sites are used by groups and families and are therefore considered communal areas by the community.

The Rupert estuary and Baie de Rupert – Village of Waskaganish

The Rupert estuary represents a zone of major importance for the entire community of Waskaganish. With regard to the use of wildlife resources, the main activities are:

- Net fishing and angling practised throughout the estuary but more intensively near the first set of rapids;
- Ice fishing, using lines or nets, practised in the estuary;
- Goose-hunting downstream of the first set of rapids.

The estuary provides access to a major snowmobiling and boating area. From Waskaganish, users cross the river or travel along Baie de Rupert to reach their traplines or their hunting and fishing areas. Baie de Rupert and its islands are used regularly year-round by members of the community of Waskaganish for net fishing, ice fishing, trapping, small game hunting, berry picking and woodcutting, as well as educational and cultural activities. These locations are primarily reached by motorboat from various beach landings, from the boat ramp on the edge of the village, or by snowmobile using precise routes depending on weather conditions and tides.

In addition, at the village, the Rupert is used by village residents for recreational and ceremonial purposes as well as for swimming.

Finally, the Waskaganish water intake is situated upstream of the first rapids, near KP 5.6 of the Rivière Rupert. The embankments on both sides of the river were protected in 2009 by riprap. In 2010, the new drinking water treatment plant, built by Hydro-Québec/SEBJ in accordance with the *Boumhounan Agreement*, began operation.

In 2012, the secondary pipe used to transport raw-water samples river via the intake will be extended and lowered to ensure that flow conditions are the same as the main pipe, when both pipes have to be used simultaneously to supply water.

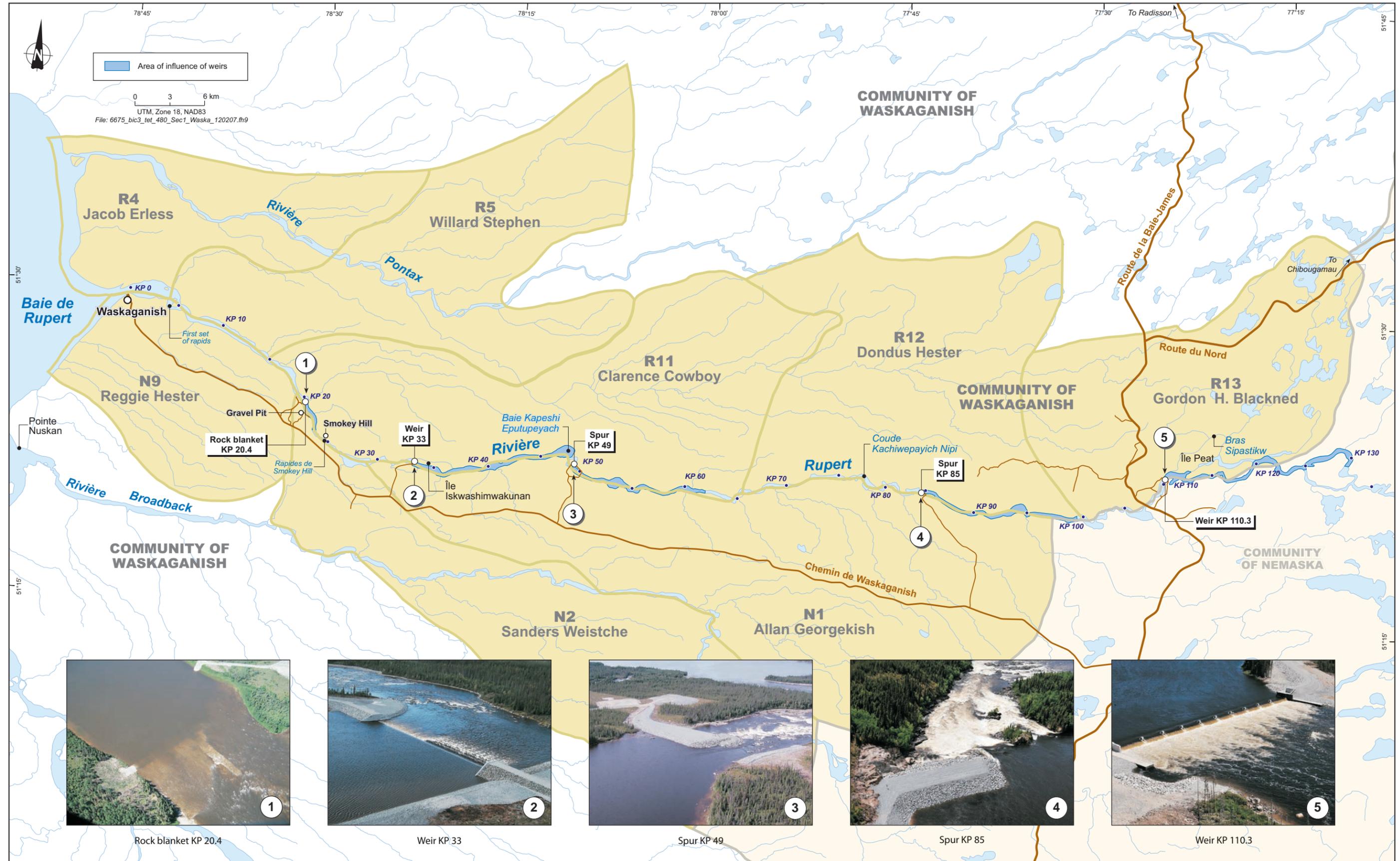
Smokey Hill and Smokey Hill Landing (Gravel Pit)

This highly valued and important gathering point comprises the traditional community anadromous cisco fishing site. Dip-net (also called scoop-net) fishing is practiced at Smokey Hill (KP 24) and fish nets are used around the Gravel Pit settlement, which has over 40 buildings and various types of equipment (dock, ramps, seaplane base, etc.) and a large community and religious meeting room. On the north shore, there is a cultural camp where traditional structures such as the *Miichiwaahp* and the *Shaapuhtuwaan* have been erected.

The stretch of the Rivière Rupert from Gravel Pit to Smokey Hill also represents a community area for goose-hunting and cisco gill-net fishing.

The rock blanket at KP 20.4 substantially maintains the water levels at the Gravel Pit site and provides the same accessibility conditions to the river and the Smokey Hill site from the boat ramp and the dock. However, since the rock blanket and new flow conditions do not allow for maintenance of the hydraulic conditions at the foot of the Smokey Hill Rapids, the scooping sites on both the north and the south shores are now exposed. The corrective measure designed and carried out in 2010 and 2011 with the users, taking into account their traditional knowledge, involved building small shallow pools on the south and the north shores surrounded by wooden platforms and attached to the bank by wooden walkways.

Map W-3 – Project Components Located on the Waskaganish Territory



Rock blanket KP 20.4



Weir KP 33



Spur KP 49



Spur KP 85



Weir KP 110.3

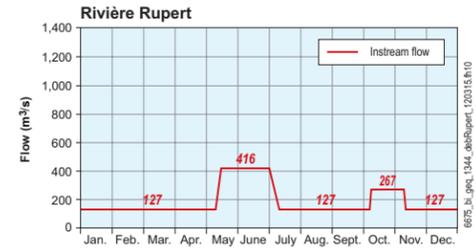
Table W-1 – Project Components on the Waskaganish Traplines

Trapline (Area – km ²)	Tallyman	Permanent Project Infrastructure ^a	Reduced-flow Stretch of the Rivière Rupert (KP)	
			Controlled by a hydraulic structure	Uncontrolled stretch and exposed area (ha)
R13 (446 km ²)	Gordon H. Blackned	<ul style="list-style-type: none"> • KP 110.3 weir • Permanent access road for the KP 110.3 weir on the north shore of the Rupert 	<ul style="list-style-type: none"> • KP 125 to the KP 110.3 weir 	<ul style="list-style-type: none"> • KP 110.3 to KP 100 (16.1 ha)
R12 (525 km ²)	Dondus Hester	<ul style="list-style-type: none"> • KP 85 spur 	<ul style="list-style-type: none"> • KP 99 to the KP 85 spur 	<ul style="list-style-type: none"> • KP 85 to KP 66 (27.9 ha)
R11 (551 km ²)	Clarence Cowboy	<ul style="list-style-type: none"> • KP 49 spur • KP 33 weir • KP 20.4 rock blanket 	<ul style="list-style-type: none"> • KP 64.1 to the KP 49 spur • KP 48 to the KP 33 weir • KP 23.7 to the KP 20.4 rock blanket 	<ul style="list-style-type: none"> • KP 66 to KP 64.1 ha) • KP 49 to KP 48 (0.96 ha) • KP 33 to KP 23.7 (17.09 ha) • KP 20.4 to KP 15 (4.50 ha)
R5 (511 km ²)	Willard Stephen	<ul style="list-style-type: none"> • No component 		<ul style="list-style-type: none"> • KP 15 to KP 4 (61.0 ha)
R4 (296 km ²)	Jacob Erless	<ul style="list-style-type: none"> • No component 		<ul style="list-style-type: none"> • KP 4 to river mouth (4.7 ha)
N1 (782 km ²)	Allan Georgekish	<ul style="list-style-type: none"> • KP 85 spur and its construction road • KP 49 spur and its construction road • KP 33 weir and its construction road 	<ul style="list-style-type: none"> • KP 96.5 to the KP 85 spur • KP 64.1 to the KP 49 spur • KP 48 to the KP 33 weir 	<ul style="list-style-type: none"> • KP 85 to KP 64.1 (17.08 ha) • KP 49 to KP 48 (0.64 ha) • KP 33 to KP 29 (4.62 ha)
N2 (575 km ²)	Sanders Weistche	<ul style="list-style-type: none"> • KP 20.4 rock blanket and half of the construction road • KP 33 weir 	<ul style="list-style-type: none"> • KP 23.5 to the KP 20.4 rock blanket 	<ul style="list-style-type: none"> • KP 29 to KP 23.5 (11.14 ha) • KP 20.4 to KP 19 (0.49 ha)
N9 (264 km ²)	Reggie Hester	<ul style="list-style-type: none"> • Half of the construction road to the KP 20.4 rock blanket • Bank stabilization area on both sides of the Waskaganish drinking water intake on the Rupert • The new Waskaganish drinking water treatment plant • Siibii camp (in the village of Waskaganish itself) (a camp that is not under the control of the SEBJ) 		<ul style="list-style-type: none"> • KP 19 to river mouth (13.4 ha)

a. Areas used temporarily during the construction of the structures (construction roads, contractor areas, borrow pits, quarries, waste disposal sites, etc.) are also located on most of these traplines. Once decommissioned, all of these areas were redeveloped and reforested, except for a few of the construction roads the tallymen elected to preserve to facilitate use of their traplines.

Figure W-1 – Main Hydraulic Characteristics (normal hydrological conditions)

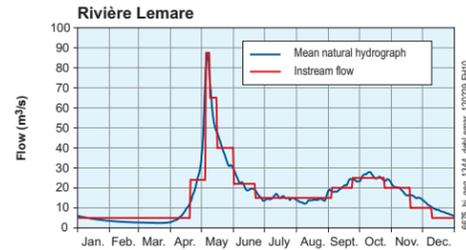
Ecological Instream Flow Regime



Rivière Rupert

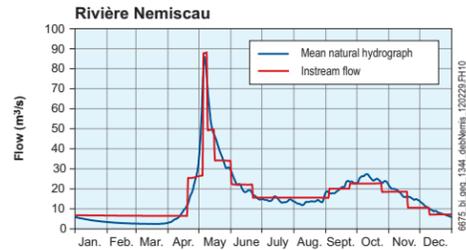
The mean annual flow of 181 m³/s represents approximately 28% of the flow before diversion (637 m³/s).

In 2010 and 2011, the natural average inflows at the dam site were 433 m³/s and 675 m³/s respectively, meaning that the percentage of water returned to the Rupert was 42% in 2010 and 27% in 2011.

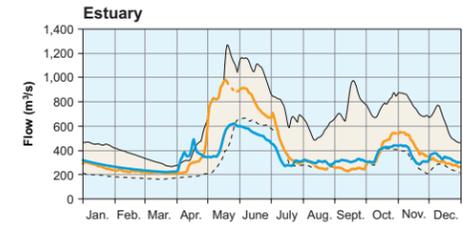


Lemare et Nemiscau Rivers

The in-stream flow regime of the Lemare and Nemiscau rivers is designed to reproduce their natural average inflows throughout the year. The rivers' annual averages are 16.2 m³/s and 15.9 m³/s respectively.



Rupert Estuary Flow

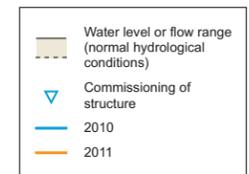


Estuary

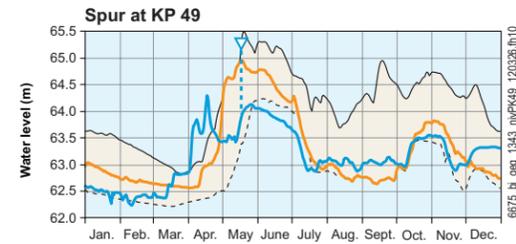
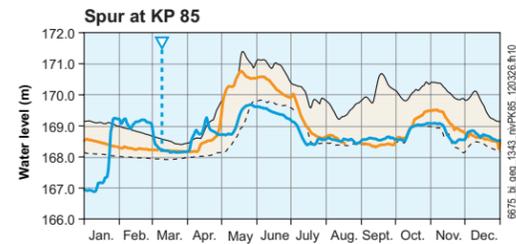
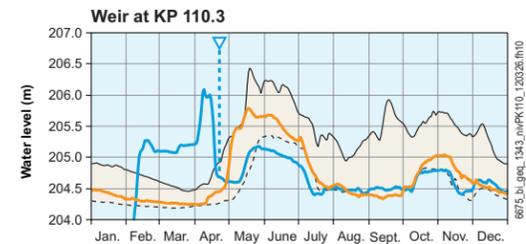
The inflows from the Rupert at its mouth are expected to vary between 1,300 m³/s and 400 m³/s in the spring and between 970 m³/s and 270 m³/s in the summer.

The approximate maximum flows reached in the spring of 2010 and 2011 were 600 m³/s and 1,000 m³/s respectively and remained at 300 m³/s throughout the summers the same years.

The water level drops by an average of 10 cm to 15 cm during open-water season and by about 30 cm at low tide.



Water Levels at the Hydraulic Structures in the Lower Rupert



Weir at KP 110.3 21.7-km area of influence between KP 110.3 and 132		
Maximum spring water level immediately upstream of the weir (m) ^a		
Long-range forecasts	Max. 2010	Max. 2011
Between 205.1 and 206.4	206.08	205.77
Summer water level immediately upstream of the weir (m) ^b		
Long-range forecasts	Average Summer 2010	Average Summer 2011
Between 204.4 and 205.9	204.48	204.41

a. Spring design level: 1.2 m higher than natural average levels
b. Summer design level: 1.0 m higher than natural average levels

Spur at KP 85 14-km area of influence between KP 85 and 99		
Maximum spring water level immediately upstream of the spur (m) ^a		
Long-range forecasts	Max. 2010	Max. 2011
Between 169.8 and 171.4	169.67	170.75
Summer water level immediately upstream of the spur (m) ^b		
Long-range forecasts	Average Summer 2010	Average Summer 2011
Between 168.4 and 170.6	168.54	168.45

a. Spring design level: 0.7 m higher than natural average levels
b. Summer design level: 0.1 m higher than natural average levels

Spur at KP 49 15.1-km area of influence between KP 49 and 64.1		
Maximum spring water level immediately upstream of the spur (m) ^a		
Long-range forecasts	Max. 2010	Max. 2011
Between 64.2 and 65.5	64.28	64.93
Summer water level immediately upstream of the spur (m) ^b		
Long-range forecasts	Average Summer 2010	Average Summer 2011
Between 62.8 and 64.9	63.03	62.77

a. Spring design level: 1.0 m higher than natural average levels
b. Summer design level: 0.3 m higher than natural average levels

Weir at KP 33 15-km area of influence between KP 33 and 48		
Maximum spring water level immediately upstream of the weir (m) ^a		
Long-range forecasts	Max. 2010	Max. 2011
Between 54.2 and 55.4	54.78	54.77
Summer water level immediately upstream of the weir (m) ^b		
Long-range forecasts	Average Summer 2010	Average Summer 2011
Between 53.3 and 54.9	53.73	53.30

a. Spring design level: 0.8 m higher than natural average levels
b. Summer design level: 0.4 m higher than natural average levels

Rock blanket at KP 20.4 3.3-km area of influence between KP 20.4 and 23.7		
Maximum spring water level immediately upstream of the rock blanket (m) ^a		
Long-range forecasts	Max. 2010	Max. 2011
Between 15.8 and 16.4	15.79	16.18
Summer water level immediately upstream of the rock blanket (m) ^b		
Long-range forecasts	Average Summer 2010	Average Summer 2011
Between 15.3 and 16.1	15.37	15.31

a. Spring design level: 0.3 m higher than natural average levels
b. Summer design level: 0.2 m higher than natural average levels

5.0 Issues and Concerns

For the community of Waskaganish, the main issues identified in the Environmental Impact Statement (2004) were:

- Preservation of the fish community and habitats in the Rivière Rupert;
- Continuation of hunting, fishing and trapping activities;
- Recreational and scenic interest of the Rivière Rupert;
- Economic spinoffs (jobs and contracts).

Concerns expressed in the draft-design phase

The main concerns expressed by the participants at the Waskaganish public hearings in 2005 were:

Changes to the traditional way of life

- Decrease in traditional practices, which by the same token means an additional loss of the Cree way of life;
- Modifications to the river that result in the loss of a central element of the culture that is critical for teaching future generations about traditional ways;
- Destruction of fishing sites that are an integral part of the traditional way of life, in particular at Smokey Hill.

Travelling conditions

- More difficult navigation conditions in the river estuary, which is already a problem due to the isostatic rebound;
- Ice conditions in spring and fall and safety when carrying out hunting and fishing activities.

Impacts on wildlife

- Decrease in the number of animals in the affected areas and their movement toward unaffected areas;
- Loss of fish habitats and their movement toward new areas.

Water quality in the Rivière Rupert

- Change in the river's water quality and consequences on domestic use and on youth leisure activities;
- Saltwater intrusion in the Rupert estuary at high tide.

Jobs and training

- Training and employment opportunities provided by the project to the Crees must be present not only during the construction phase but also during operation.

Permanent changes made to the Rivière Rupert and the psychological effects

- Feeling of sadness associated with the loss of the natural character and aesthetic value of the Rupert.

Social impacts

- Fear of an increase in certain social problems already present in Cree communities related to, for example, alcohol and drug abuse.

Tourism potential

- Loss of the natural character of the Rivière Rupert as a tourism promotion tool and eventually a loss in economic spinoffs.

Possibility of other hydropower projects in the area

Concerns expressed during the construction and operation phases

During land-use follow-up studies (2007 and 2008-2009) and as the project progressed, the tallymen's concerns became more specific. They are summarized below and presented in Section 2.

General concerns

- Difficulty for the tallymen and their families to see the real impacts on animals and harvests before the work is completed and to foresee the most appropriate mitigation measures;
- Difficulty understanding the operation of the instream flow release structures and the effect of the hydraulic structures (area of influence, variations in water levels) after the diversion;
- Fear of Rupert dam failure;
- Presence of alcohol in the workcamps and its harmful effects.

Specific concerns

Economic spinoffs

- Participation in the project as contractors, specifically for clearing (access, structures, work areas) and for mitigation and enhancement measures .

Camps, land accessibility and safety

- Maintaining accessibility to camps located near the work areas during construction;
- Impact of the lower water level on accessibility to certain camps and use of the shores in areas that are not controlled by hydraulic structures;
- Fear of ice jams in certain areas of the river and loss of camps;
- Increase in nuisances (noise, dust, speed, animal mortality), vandalism and safety hazards for some camps located near roads, workcamps or jobsites;
- New navigation conditions on the Rupert (hydraulic structures, shoals, long stretches of rapids, etc.) and the need to enhance or create portages;
- Motorboat crossing at the KP 20.4 rock blanket site on the Rupert;
- Difficulty navigating in the Rupert estuary (in particular the channels at the mouth of the estuary) and difficulty accessing certain camps on the banks of the estuary or Baie de Rupert;
- Safety of snowmobile travel on the ice cover of the Rivière Rupert, in particular the trails located on the estuary;
- Whether or not to preserve the construction roads leading to the hydraulic structures once the work is completed;
- Changes in water quality in the Rupert and the impact on domestic use;
- Safety for children playing near the KP 110.3 weir and near worksites in general.

Environmental resources and hunting and fishing activities

- Need to harvest beavers before flow reduction in the Rupert;
- Beavers' ability to adapt to the new hydraulic conditions on the Rupert;
- Impact of construction activities on hunting, fishing and trapping activities and need for certain tallymen to relocate their activities to other areas of their trapline or to neighboring traplines;
- Disruption of goose and moose hunting activities due to helicopter fly-overs;
- Increased hunting and fishing pressure primarily due to the presence of Cree workers and new access roads to the hydraulic structures;
- Impact on fish and on animals living in riparian habitats, in particular the fear of decreased populations;
- Possible loss of fishing sites owing to deterioration in fish quality and quantity in the lower Rivière Rupert;
- Decreased efficiency at the traditional dip-net fishing site at Smokey Hill;
- Impact on ice fishing, particularly between Waskaganish and Pointe au Peuplier;
- Cleaning of the sites after the work has been completed.

Concerns expressed by the community to the Grand Council of the Crees annual general meetings for which resolutions have been passed

- Deterioration of boat launching and docking conditions at the village's existing infrastructure;
- Difficulty in identifying the two navigation channels to reach Baie de Rupert;
- Deterioration of the visual aspect of the banks due to exposure;
- Deterioration of the quality of the road to Waskaganish and of certain roads in the village;
- Ice conditions on the Rivière Rupert due to construction activities;
- Impact of the project on the Rivière Pontax.

6.0 Mitigation and Enhancement Measures on the Traplines

Mitigation and enhancement measures on the Waskaganish traplines affected by the project targeted two main objectives:

- Maintenance and improvement of land access;
- Maintenance and improvement of wildlife potential and maintenance of hunting and fishing activities.

These measures are presented in Tables W-2 and W-3 and shown on Maps W-4 and W-5. They were determined, depending on the case, by:

- Hydro-Québec guarantees, assurances and commitments in the *Boumhounan Agreement*;
- The Environmental Impact Statement and Supplement;
- Conditions in the authorizations issued by the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP), Fisheries and Oceans Canada (DFO) and Transport Canada;
- Letters of undertaking with each of the tallymen affected by the project (see the box below).

Context for the Letters of Undertaking with the Tallymen

As part of the Environmental Impact Statement, and in response to questions 290, 291 and 292, which requested additional information concerning the measures to ensure the continued pursuit of traditional activities during the various project phases, the tallymen and their guests were asked, in 2005, 2006 and 2007, to tell Hydro-Québec about the measures they hoped would be implemented so that they could continue to practise their traditional activities during and after project construction.

At the end of this process, Hydro-Québec/SEBJ signed a letter of undertaking with each of the 34 tallymen directly affected by the project, including 8 in the Waskaganish community. Each letter included:

- The list of measures requested by the tallyman and accepted by Hydro-Québec/SEBJ;
- A map showing the approximate location of these measures.

Every year, a meeting is held with each tallyman to review implementation of the undertakings and make any necessary adjustments.

6.1 Measures to Maintain and Improve Land Access

Measures to maintain and improve land access involve relocation of camps and three main types of access and travel in the traplines (see Table W-2 and Map W-4).

These measures all have the same objective: to facilitate resumption of use of each affected trapline by making portions of the trapline more accessible where the tallyman and his family wish to maintain their traditional hunting, fishing and trapping activities.

6.1.1 Relocation of Camps

Relocation of some camps, including a number of buildings (cabins, annexes, tent frames, etc.), was necessary if one of the following conditions was met:

- The camp was affected, or its use disturbed, by the construction and use of access infrastructure or project facilities;
- If the use of a camp located along the lower Rupert—usually on a stretch not controlled by a hydraulic structure—were to be compromised by bank exposure, reduced accessibility, etc.

Six camps, including 11 cabins, were relocated and four tent frames were improved (enhancement measure). Among the six campsites chosen by the land users affected, three are on the banks of the Rivière Rupert.



Allan Georgekish's new camp at KP 84 of the road to Waskaganish



Gordon H. Blackned's new camp next to the Rivière Rupert

6.1.2 Navigation in the Lower Rivière Rupert

The five hydraulic structures built at KP 110.3, 85, 49, 33 and 20.4 represent the most important mitigation measure for maintaining the navigation conditions. They support water levels for more than 62.1 of the river's 125 kilometres where the Rupert crosses the community of Waskaganish to ensure that navigation conditions remain unchanged in the stretches they control.

The other navigation-related mitigation measures in the lower Rupert are:

- Enhancement or creation of 17 portages, including entrance and exit signs;
- Installation of hazard alert signage near the KP 110.3 weir, the KP 85 and 49 spurs, and the KP 33 weir;
- Three navigation charts for the 125-km stretch of the Rupert flowing through Waskaganish territory;
- Construction of two boat ramps upstream of the KP 110.3 weir on the north and south banks (the latter being located on a Nemaska trapline) and rebuilding of the boat ramp behind the Km 257 service area on Route de la Baie-James at KP 107.5 of the Rivière Rupert (also built on a Nemaska trapline);
- Inclusion of a passageway in the design of the KP 20.4 rock blanket to maintain navigability;
- Construction of a boat ramp downstream of the rock blanket on the south shore at KP 18;
- Identification of a navigable channel between KP 10 and 20.4 in areas where navigation is difficult;
- Signage of two navigation corridors in the Rupert estuary.

In addition to these measures, a subsidized program for each tallyman and their family members was added in 2010 and is designed to encourage them to use the river and become familiar with the new physical and biological characteristics, in particular the new navigation conditions.

Information brochures were published in 2009, 2010 and 2011 for users regarding the navigation conditions and ongoing construction on the Rivière Rupert.



Sign indicating the entrance of a portage



Hazard alert sign (hydraulic structure)



Boat ramp built on the north shore, at KP 110.3 of the Rivière Rupert

6.1.3 Snowmobile Crossings

Maps were produced every month for each of the Waskaganish tallymen to show ice conditions on the Rupert (continuous cover, thin or patchy ice and areas of open water) in their respective traplines. This information, complemented by the users' close watch on the ice cover and traditional knowledge, is essential for safe snowmobile travel on the river. A map of the entire area was also produced for the Waskaganish community.

6.1.4 Land Access – Vehicules, ATVs and Snowmobiles

To facilitate the pursuit of their traditional activities, the tallymen considered land access very important and opted to keep a large construction road network in place and develop new access roads as well as snowmobile and ATV trails.

For the eight Waskaganish traplines, a land access network of over 75 km was added:

- 34.7 km of construction roads will remain in place at the request of the tallymen (8 roads);
- 1 km of new access roads or improved existing roads (3 roads);
- 16.4 km of ATV trails (4 trails);
- 22.6 km of snowmobile trails (6 trails).

Road signs were also erected for road users' safety (presence of caribou or moose) or for the safety of trapline users approaching Cree camps or snowmobile trail crossings.



ATV trail with bridge on trapline N9



ATV trail to Lac Houré



Access road to the KP 49 weir



Access road to the KP 110.3 weir
and to the boat ramp

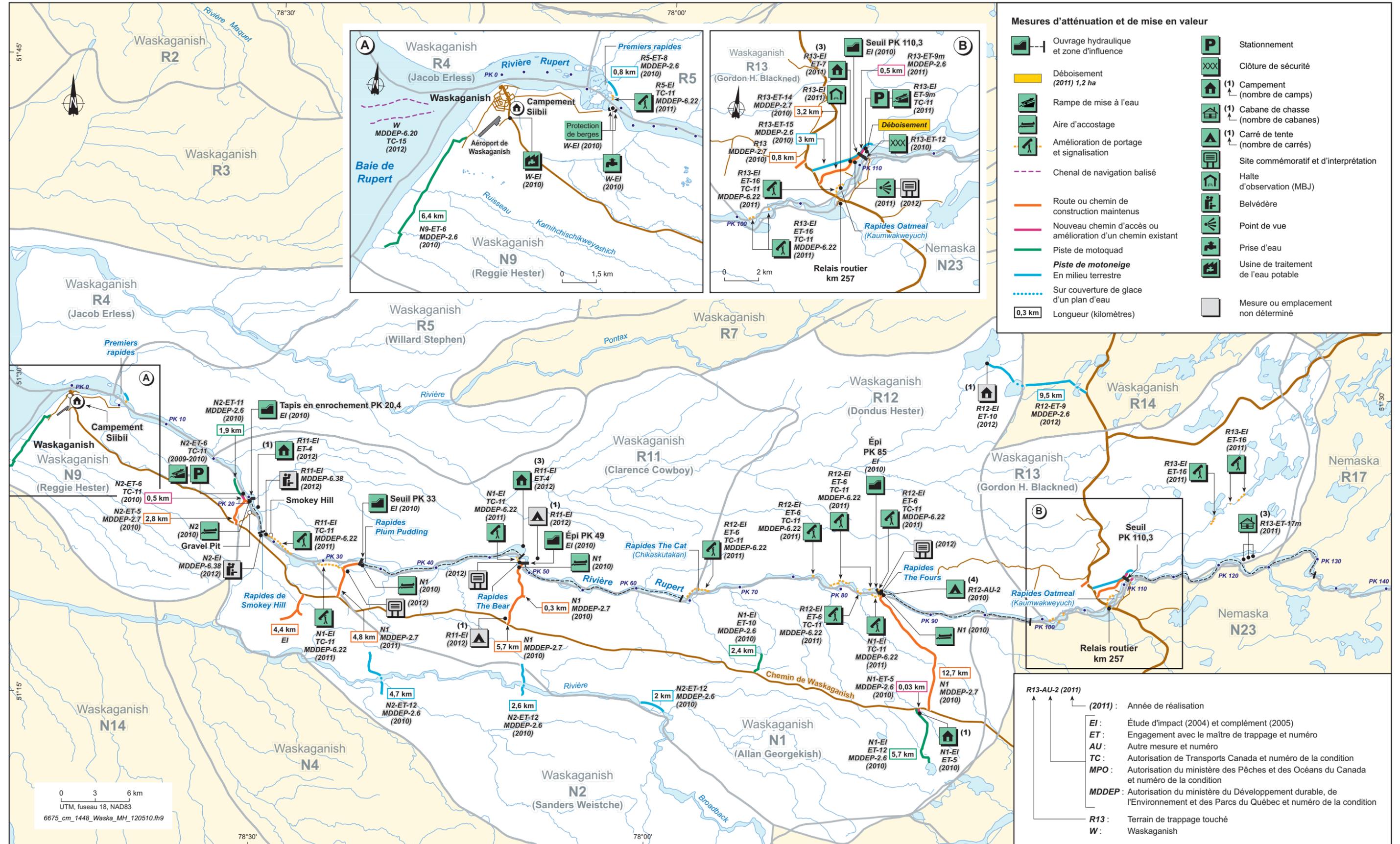


Snowmobile trail leading to the
Rivière Broadback

Table W-2 – Summary – Measures to Maintain and Improve Land Access

Trapline		R13	R12	R11	R5	R4	N1	N2	N9	TOTAL
Measure	Unit	Scope								
Camp										
Relocation of camps	Number of camps/ No. of cabins	1/3	1/1	4/6	–	–	1/1	–	–	7/11
Tent frames improvements	Number of tent frames	–	4	–	–	–	–	–	–	4
Navigation										
Stretches controlled by hydraulic structures (to maintain water levels in the Rivière Rupert)	KP structure (km)	KP 110 weir (14.7 km)	KP 85 spur (14 km)	KP 20.4 rock blanket (3.3 km) KP 33 weir (15 km) KP 49 spur (15.1 km)	–	–	KP 33 weir (15 km) KP 49 spur (15.1 km) KP 85 spur (10.8 km)	KP 20.4 rock blanket (3.3 km)	–	62.1 km
Development of boat ramps, access road and parking	No.	1	–	–	–	–	–	1	–	2
Development of landing sites	No.	–	–	–	–	–	3	1	–	4
Installment of hazard alert signage (hydraulic structures)	No.	1	1	2	–	–	3	–	–	7
Creation/enhancement of portages and signage	No.	5	6	2	1	–	3	–	–	17
Production of navigation charts	No.	3								3
Signage in navigation corridors	No.	–	–	–	–	1	–	–	1	2
Clearing around boat ramps	No. (ha)	1.2	–	–	–	–	–	–	–	1.2
Snowmobile Crossings										
Production of maps on ice conditions (2010-2012)	–	Since 2010								Since 2010
Land Access										
Construction roads kept in place	No. (km)	2 (4 km)	–	–	–	–	4 (23.5 km)	2 (7.2 km)	–	8 (34.7 km)
Construction of new access roads	No. (km)	1 (0.5 km)	–	–	–	–	1 (0.3 km)	1 (0.5 km)	–	3 (1.3 km)
Development of ATV trails	No. (km)	–	–	–	–	–	2 (8.1 km)	1 (1.9 km)	1 (6.4 km)	4 (16.4 km)
Development of snowmobile trails	No. (km)	1 (3 km)	1 (9.5 km)	–	1 (0.8 km)	–	–	3 (9.3 km)	–	6 (22.6 km)
Installment of hazard alert signage (moose, caribou)	No.	–	–	–	–	–	4	–	–	4
Installation of road signs indicating Cree camps	No.	–	–	–	–	–	15	–	2	17
Installation of road signs indicating snowmobile or ATV crossings	No.	–	–	–	–	–	15	–	2	17
Installation of safety fence at weir	No.	1	–	–	–	–	–	–	–	1

Map W-4 – Summary – Measures to Maintain and Improve Land Access



6.2 Measures to Maintain or Improve Wildlife Potential and Maintain Hunting and Fishing Activities

A number of mitigation and enhancement measures were put in place to create new habitats and/or increase the potential of existing habitats on the lower Rupert and on adjacent traplines. (See Table W-3 and Map W-5).

These measures involved:

- Fish;
- Birds;
- Land animals.

Most of these measures were also intended to maintain hunting and fishing activities by protecting wildlife resources or creating more favorable harvest conditions.

6.2.1 Measures for Fish

The instream flow in the Rupert, adjusted to take spawning and rearing periods for fish species into account (lake whitefish, lake sturgeon, walleye, suckers), and the five hydraulic structures (KP 110.3, 85, 49, 33, 20.4) are among the most important mitigation measures for maintaining fish habitats in the portion of the Rupert that crosses the community of Waskaganish.

Other measures include:

- Development of a new spawning ground (3,901 m²) downstream of the KP 110.3 weir to compensate for the loss of spawning, feeding and rearing habitats for the target species (walleye, lake whitefish, suckers);
- Development of a new brook trout spawning ground (585 m²) in the KP 41 tributary of the Rupert;
- Stocking of young lake sturgeon at KP 123 of the Rupert to support this species for the first five years after flow reduction in the lower Rupert;
- Construction of small shallow pools on the south and the north shores at Smokey Hill, surrounded by a wooden platform and connected to the bank by wooden walkways for traditional anadromous cisco dip-net fishing.



Multispecies spawning ground developed at the foot of the KP 110.3 weir
(on the south shore on a Nemaska trapline)



Brook trout spawning ground developed in a tributary at KP 41 of the Rupert



Pools and platforms developed for cisco fishing at Smokey Hill

6.2.2 Measures for Birds

The hydraulic structures at KP 110.3, 85, 49, 33 and 20.4 are the most important mitigation measures for maintaining bird habitat (grassbeds) and preserving goose-hunting sites in the stretch of the Rivière Rupert within Waskaganish territory.

Other enhancement measures for birds involved the creation of new habitats on exposed banks along the Rivière Rupert and in some affected areas to support goose-hunting during migration:

- Seeding with herbaceous vegetation (grasses and leguminous plants) on over 38.2 ha of exposed riverbanks to speed up vegetation growth in barren areas, reduce erosion by surface runoff, support wildlife, particularly Canada geese, and consequently improve hunting potential;
- Creation of nine goose-hunting ponds in various affected areas (borrow pits, disposal sites) by seeding with grasses to attract migrating geese and support hunting;
- Creation of a new goose-hunting pond in a wetland.

A final series of measures applied to existing goose-hunting sites in areas adjacent to the Rupert:

- Clearing of two flyways (5.2 ha) to improve the sites' efficiency by making them more attractive to geese and increasing visibility for hunters;
- Construction of three hunting cabins so hunters can use a hunting site further away from the main camp due to the loss of a closer hunting site.



Goose-hunting pond developed in borrow pit DT-33F1 on trapline N2



Seeding carried out around the goose-hunting pond at KP 33 on trapline N1

6.2.3 Measures for Land Animals

Trapping-out of beaver lodges

Prior to impoundment of the Rupert diversion bays and flow reduction in the lower Rupert, a trapping-out program was conducted to prevent loss of beavers. This program was spread over two years (2008-2009). Under the program, more than 70 beaver lodges were trapped in the Waskaganish traplines.

Recreational moose hunting

For recreational moose hunting, no specific measures were taken to control the intensity on the Waskaganish traplines involved in the project because, with the exception of trapline R13, all traplines are located in Category I and II lands on which recreational moose hunting is forbidden. On trapline R13, during the period from 2007 to 2011, no moose were killed by recreational hunters.

Table W-3 – Summary – Measures to Maintain or Improve Wildlife Potential and Maintain Hunting and Fishing Activities

Trapline		R13	R12	R11	R5	R4	N1	N2	N9	TOTAL
Measure	Unit	Scope								
Fish/Fishing										
Instream flow adjusted to spawning periods (Rivière Rupert)	–	Since November 7, 2009								–
Stretches controlled by hydraulic structures (to maintain water levels in the Rivière Rupert)	KP structure (km)	KP 110.3 weir (14.7 km)	KP 85 spur (14 km)	KP 20.4 rock blanket (3.3 km) KP 33 weir (15 km) KP 49 spur (15.1 km)	–	–	KP 33 weir (15 km) KP 49 spur (15.1 km) KP 85 spur (10.8 km)	KP 20.4 rock blanket (3.3 km)	–	62.1 km
Development of spawning grounds:										
- Multispecies spawning ground	No. (m ²)	1 (3,901 m ²)	–	–	–	–	–	–	–	1 (3,901 m ²)
- Brook trout spawning ground	No. (m ²)	–	–	–	–	–	1 (585 m ²)	–	–	1 (585 m ²)
Sturgeon stocking – larvae (L) and young-of-the-year (Y)	No.	5,189 Y	–	–	–	–	–	–	–	5,189 Y
Measures to facilitate fishing in Smokey Hill	No.	–	–	2 pools	–	–	–	2 pools	–	4
WSI and special regulation to control sport fishing (2008-2010)	No. of lakes closed	0	–	–	–	–	–	–	–	0
Guide to fish consumption (mercury)	Year published	2015 and every 3 years								2015 and every 3 years
Waterfowl/Hunting										
Stretches controlled by hydraulic structures (to maintain water levels in the Rivière Rupert)	KP structure (km)	KP 110.3 weir (14.7 km)	KP 85 spur (14 km)	KP 20.4 rock blanket (3.3 km) KP 33 weir (15 km) KP 49 spur (15.1 km)	–	–	KP 33 weir (15 km) KP 49 spur (15.1 km) KP 85 spur (10.8 km)	KP 20.4 rock blanket (3.3 km)	–	62.1 km
Development of goose ponds (borrow pits)	No.	1	–	–	–	–	4	4	–	9
Development of goose ponds (other)	No.	–	–	–	–	–	–	–	2	2
Construction of hunting shelters	No.	3	–	–	–	–	–	–	–	3
Seeding of exposed banks	ha	4.6	3.7	7.1	–	–	1.02	7	14.8	38.22
Clearing of goose flyways	No. (ha)	–	–	–	–	–	–	1 (3.7 ha)	1 (1.5 ha)	2 (5.2 ha)
Land Animals/Hunting										
Trapping-out of beaver lodges	No. of lodges	16	8	8	1	3	21	8	5	70
WSI and special regulation to control sport hunting (moose) (2008-2010)	No. of moose killed	0	–	–	–	–	–	–	–	0

6.3 Redevelopment and Enhancement

6.3.1 Worksite Rehabilitation

Worksite rehabilitation is an integral part of the planned mitigation measures. These sites include quarries and borrow pits, access road rights-of-way, service areas used by contractors, and material storage areas (see Table W-4 and Map W-5).

With the exception of the construction roads kept in place at the tallymen's request, all affected sites were rehabilitated (leveling, slope grading, restoration of natural drainage, scarification of compacted soil, spreading of previously stripped topsoil) and replanted or seeded or both, depending on the situation.

In Waskaganish territory, over 277,000 trees and shrubs (green alder, jack pine, poplar) were planted on affected sites.

In addition, the rights-of-way for all the access roads to the Rupert hydraulic structures (kept in place at the tallymen's request) were completely seeded (mix of grasses and leguminous plants) in 2010 and 2011. The same was done for all affected sites near the hydraulic structures and all borrow pits that were redeveloped as goose-hunting ponds. Seeding covered a total area of nearly 34.59 ha.



Hydroseeding



Mix for manual seeding



Planting

6.3.2 Enhancement

The enhancement structures include the roadside observation areas, the viewpoint at the KP 110.3 weir and the development of commemorative and interpretation sites near the hydraulic structures in the lower Rupert (see Table and Map W-4).

Municipality of Baie-James roadside observation area

With the flow reduction in the Rupert, the roadside lookout at Oatmeal Rapids lost part of its effectiveness as an observation point.

In cooperation with the Municipality of Baie-James, the existing lookouts were modified. Trails and platforms were added on the south and north banks of Oatmeal Rapids to provide access to the new shoreline and showcase the interesting aspects of the modified rapids.

Viewpoint at the KP 110.3 weir

At the KP 110.3 weir, a gravel platform was put in place during the site restoration. This platform provides an excellent view of the weir.

Development of commemorative and interpretation sites near the hydraulic structures

Commemorative and interpretation signs will be installed in 2012 at the portage sites near the five hydraulic structures implemented in the Waskaganish territory in collaboration with the Cree Regional Authority (CRA), namely:

- A sign describing the structure and associated environmental objectives;
- A historical sign for Cree users of the traplines adjacent to the structure;
- An interpretation sign concerning the Rupert, its cultural and scenic value, as well as its past and current uses.

These signs are designed primarily for the families whose traplines have been affected, but also for other visitors such as canoe brigades from Waskaganish, Nemaska and the CRA, as well as recreational canoeists and tourists.

Enhancement of Smokey Hill

Developments will be undertaken to enhance the Smokey Hill Rapids. The exact nature and scope of these measures will be defined in 2012, but they will improve the site's accessibility and appearance as well as testifying to its cultural and historic significance.



Viewpoint at the KP 110.3 weir on the north shore



Parking area at the MBJ roadside observation area on the north shore of the Rivière Rupert

Map W-5 – Summary – Measures to Maintain or Improve Wildlife Potential and Maintain Hunting and Fishing Activities

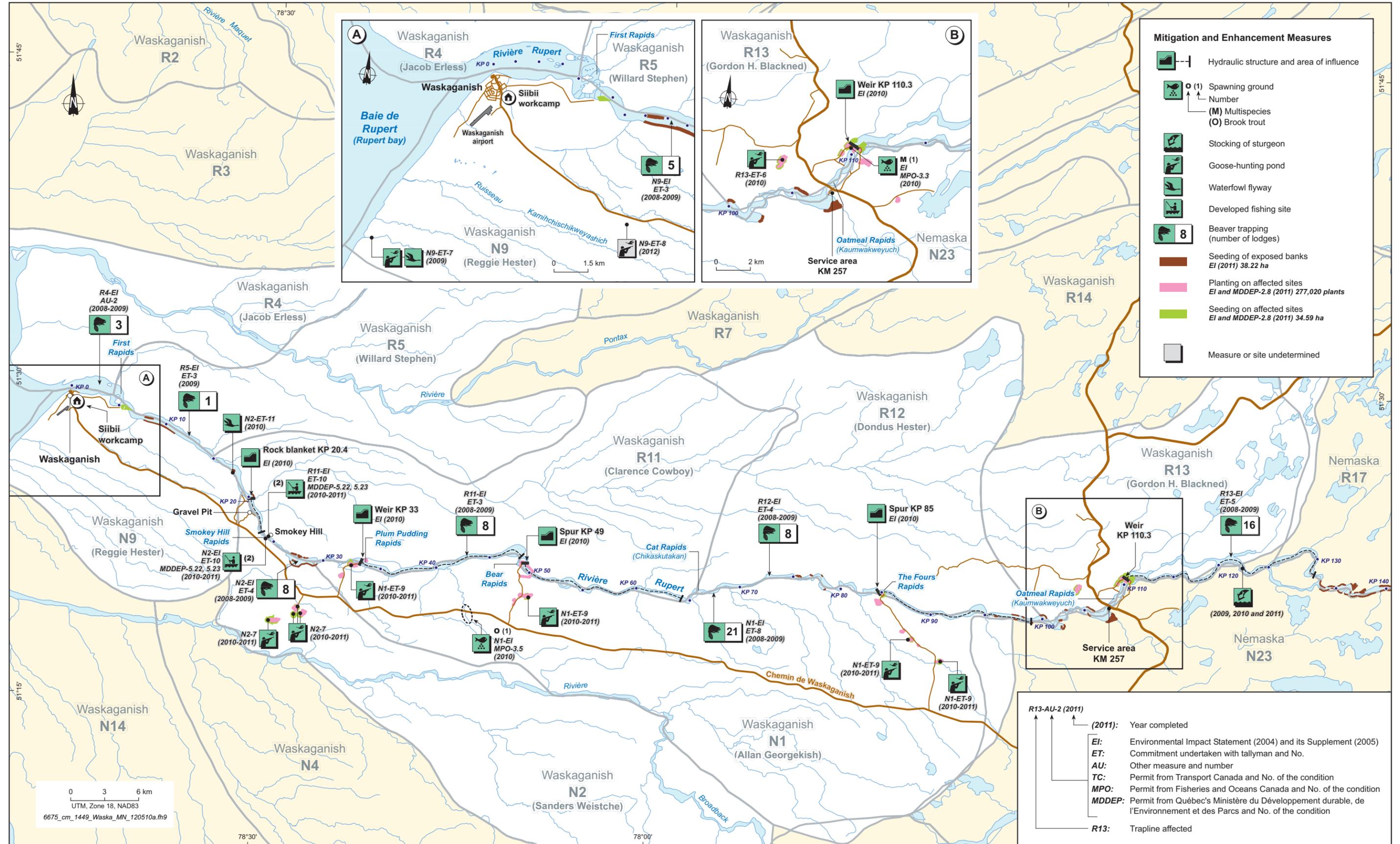


Table W-4 – Summary – Redevelopment and Enhancement Measures

Trapline		R13	R12	R11	R5	R4	N1	N2	N9	TOTAL
Measure	Unit	Scope								
Planting of affected sites (2008-2011)	No. of plants	33,390	–	–	–	–	193,860	49,770	–	277,020
Seeding of affected sites (2008-2011)	ha	8.74	–	–	–	–	5.42	20.3	0.13	34.59
Enhancement of MBJ roadside observation area	No.	1	–	–	–	–	–	–	–	1
Smokey Hill lookouts	No.	–	–	1	–	–	–	1	–	2
Development of viewpoint on hydraulic structures	No.	1	–	–	–	–	–	–	–	1
Commemorative and interpretation sites	No.	1	–	–	–	–	3	1	–	5

6.3.3 Archaeology

As part of the archaeological research resulting from the project and initiated in 2002, more than 800 areas with archaeological potential were inventoried. Over 274 archaeological sites or activity areas were recorded, including 99 sites from the pre-contact and historic periods, 91 sites from the modern and contemporary periods and 84 activity areas.

Specifically, archaeological digs addressed close to 90 of these sites and yielded vestiges of all eras: artifacts of chipped stone, stone flakes or tools made of various materials (chert, quartz, quartzite, etc.) from as far away as Ramah and Hudson bays, the Labrador Trough and Lac Mistassini.

Seven archaeological sites were identified based on the inventories conducted in the area of the five hydraulic structures located on Waskaganish territory and a dig was organized on one site near the KP 110.3 weir because it was likely to be disturbed.

6.4 Effectiveness of Mitigation and Enhancement Measures

The effectiveness of the mitigation and enhancement measures carried out as of December 31, 2011 was evaluated based on the following:

- Assessment by the tallymen interviewed during the land use follow-up;
- Results of the environmental follow-up studies available.

The assessment addressed the following:

- *Mitigation measures*, which are specifically designed to mitigate any impact on wildlife or land use as set out in the project's Environmental Impact Statement or the environmental follow-up studies;
- *Enhancement measures*, which are designed to help land users benefit from certain project components (construction roads, borrow pits) or that meet the needs expressed by the tallymen to continue using and facilitating the use of the territory during and after the project.

The opinions expressed by each tallyman regarding the measures implemented on their respective trapline as well as the results of the follow-up studies are included in the fourth table of the status report of each of the eight traplines presented in Section 2. Certain measures were not commented on by the tallymen, either because they have only recently been implemented and it is too early for them to evaluate their relevance or effectiveness, or because they haven't seen them yet.

The following considerations must also be kept in mind:

- Opinions of the tallymen were gathered during the summer and fall of 2011 and may have changed since;
- In several cases, the tallymen expressed their opinions in Cree. An interpreter then translated them into English (in their entirety or a summary) and then the interviewer wrote them down;
- Certain terms used during the assessment of the measures do not have a direct equivalent in Cree (e.g. satisfaction).

The environmental follow-up programs can only be used to provide preliminary conclusions on a few mitigation measures, including those regarding the effectiveness of instream flow for the biological functions of fish, the use of new spawning grounds and the effectiveness of the new cisco dip-net fishing sites at Smokey Hill.

6.4.1 Effectiveness of Mitigation Measures

New camps

The location of selected campsites on traplines N1 and R13 corresponds to user choice.

Navigation

Stretch controlled by hydraulic structures

The follow-up program reveals that the hydraulic structures of KP 20.4, 33, 49, 85 and 110.3 help maintain navigation conditions in their areas of influence. Four of the five tallymen affected nevertheless expressed their dissatisfaction regarding water levels maintained by the weirs and spurs. They consider the levels to be too high (except in the case of the structure at KP 20.4). Their concerns include flooded trees, water quality, disturbances surrounding the installation of fishing nets and goose-hunting sites.

Portage, boat ramp, signage

According to the tallymen affected, enhancing the portages (clearing, walkways, bridges, etc.) along the Rupert is a good measure. The boat ramp at KP 110.3 is useful, and the tallyman has expressed his satisfaction in this regard. The hazard alert signage near the weirs and spurs is also considered useful.

Snowmobile crossings

Four tallymen received the maps of ice conditions for the Rupert, which are produced monthly in order to ensure the safety of individuals travelling by snowmobile. They confirmed that the maps were helpful in identifying safe crossings. Three tallymen said they had not received or seen the maps.

Fish/Fishing

Ecological instream flow

Five of the eight tallymen affected commented on the ecological instream flow:

- Three of them consider it effective for the health and reproduction of the main fish species;
- One expressed his fear regarding pike egg survival in areas where the current is insufficient;
- Another tallyman considers the spring water levels to be much too high, making it difficult for him to set his fishing nets.

Based on the follow-up of the spawning ground developed downstream of KP 110.3, the ecological instream flow as adjusted in the spring facilitates walleye and sucker spawning.

New spawning grounds

The tallyman on trapline R13 has not seen any activity in the multispecies spawning ground developed at KP 110.3, which is on the south shore of the river. He nevertheless believes that the lake sturgeon and walleye observed in the spring on his side of the river were spawning. The follow-up of this spawning ground showed that it is used in the spring by walleye and suckers but it was unable to detect usage during the fall spawning.

Measures to facilitate fishing at Smokey Hill

Several measures were introduced in 2010 and 2011 under the administration of the Smokey Hill Liaison Committee to support cisco fishing activities. The measures include developing fishing pools in the rapids, supporting the hydroacoustic tracking of fish concentrations during the migration period, experimental net fishing by users and providing new fishing nets.

More specifically, with regard to dip-net fishing at the foot of the rapids, the two tallymen affected confirmed that after poor fishing results in 2010, the dip-net fishing pools developed in 2011 increased effectiveness.

Waterfowl/Hunting

According to one tallyman, it is too early to assess the effectiveness of the seeding of exposed banks along the Rupert, which was carried out in the summer of 2011 to control erosion and improve habitat potential for waterfowl.

Two other tallymen indicated that the seeding sites were well chosen and that the vegetation was growing nicely.

Land animals/hunting

The seven tallymen who commented on the beaver trapping-out program that this measure was necessary to prevent the possible loss of beavers due to reduced flow in the Rupert.

They were pleased to have contributed to planning and carrying out this trapping activity.

Rehabilitation of affected sites

Three tallymen consider that the planting and seeding on the affected sites are useful for attracting animals, namely geese in the seeded goose-hunting ponds.

According to one of the tallymen, poplar is a better choice than jack pine given that nothing grows under pine trees.

Finally, the tallymen expressed satisfaction regarding the planting contracts thanks to the jobs created.

6.4.2 Effectiveness of Enhancement Measures

Land access

Overall, the tallymen affected found the following to be useful for them or for other users in their families or communities:

- Construction roads kept in place at their request, which provide access to the Rupert (hydraulic structure sites, boat ramps or landings) and to goose-hunting ponds developed in borrow pits;
- New ATV and snowmobile trails built to help them reach other areas of their traplines more easily for goose and moose hunting. Two ATV trails still require modifications in certain areas and one snowmobile trail can only be used when there is enough snow to cover high stumps;
- The boat ramp at KP 19.5 is used and appreciated.

Fish/Fishing

The tallyman on trapline R13 considers that stocking the Rupert with lake sturgeon is a good measure.

The tallyman on trapline N1 voiced concerns over using the brook trout spawning ground in the KP 41 tributary and mentioned that some of the equipment had been moved. By monitoring this spawning ground, it was possible to observe the presence of eggs and to notice that the spawning ground had lost some of its substrate.

Waterfowl/Hunting

On three of the eight Waskaganish traplines, goose-hunting ponds were developed but their effectiveness has been variable:

- The goose-hunting pond created in a borrow pit on trapline R13 was used and is considered to be a good measure by users;
- Three of the four ponds developed on trapline N1 were used in 2011 and hunting success was variable;
- The four goose-hunting ponds created in the borrow pits on trapline N2 were used in 2011 and one of them is particularly productive; the cleared flyway in a goose-hunting area on trapline N2 meets the tallyman's expectations;
- The goose-hunting pond created on trapline N9 is not effective.

Enhancement

The tallyman on trapline R13 is aware of the project to improve the MBJ roadside observation area on his side of the river, but he has not seen the results of the work.

7.0 General Measures to Promote Economic Spinoffs for the Crees (Workers, Companies, Tallymen)

7.1 Measures to Benefit Cree Workers

The measures for Cree workers include:

- Presence of a resource person with the Commission de la construction du Québec (CCQ) [Québec construction board] to help Crees obtain certification:
 - By removing labor pool restrictions in the JBNQA territory and giving Crees priority;
 - By making the English versions of documents available to Crees so they can prepare for the various CCQ examinations.
- Presence of Cree employment counselors on the jobsite to:
 - Facilitate and supervise the hiring of Cree workers;
 - Educate employers and SEBJ personnel about hiring Cree workers;
 - Participate in various management activities, such as health and safety committees.

7.2 Measures to Benefit Cree Companies

The main measures designed to promote Cree companies⁴ were:

- Establishment of a minimum of \$240 million in contracts under the *Boumhounan Agreement* and another \$50 million under the *Convention relative à la centrale de la Sarcelle* [Agreement concerning Sarcelle powerhouse] to be negotiated with Cree companies during construction, mainly in the following categories:
 - Clearing
 - Workcamp construction and operation
 - Road construction and maintenance
 - Air transport
 - Fuel supply
- Establishment of service contracts with the Cree Regional Authority (CRA) and the Cree communities of Mistissini, Nemaska, Waskaganish, Eastmain, Wemindji, Chisasibi;
- Direct negotiation of the terms of contracts between the designated Cree companies and SEBJ.

4. Cree companies are designated by the Contracts Review Committee set up by the Grand Council of the Crees of Québec (Eeyou Istchee) and by the Cree Regional Authority (CRA).

7.3 Measures to Benefit Tallymen

The measures for tallymen were mainly in the planning and contracting phases. Some measures were also introduced to support tallymen during contracting, performance and management. The measures are listed below.

Development and awarding of contracts for mitigation and enhancement measures

- Breakdown of contracts by trapline;
- Prioritization of tallymen with regard to contracts offered;
- Simplification of plans and specifications and of tender documents;
- Replacement of financial guarantees with holdbacks on invoice payments;
- Reduction of the term of invoice payments from 60 to 30 days;
- Support for tallymen during the bidding process.

Execution of contracts for mitigation and enhancement measures

- Support and supervision upon request (planning of performance phases, information about equipment and management, support for invoicing, logistics, support for implementation of safety measures, etc.).



In the center, Johnny Saganash, Cree employment counselor



Work carried out by a Cree company in Waskaganish



Work carried out by a tallyman's company



Camp Siibii at Waskaganish

7.4 Economic Spinoffs in the Community of Waskaganish

From 2007 to 2011, Cree workers accounted for an average of 10% of all workers on the project, 20% of whom were Cree workers from Waskaganish, i.e. an average of 36 people each month. In addition, 31 contracts were awarded to three Cree companies from Waskaganish (including the band council) and one joint venture with Nemaska. Tallymen obtained 41 contracts worth slightly more than \$0.88 million. The value of the contracts awarded was close to \$214 million.

Table W-5 – Cree Workers and Companies from Waskaganish

Number of Workers (Monthly average)	2007	2008	2009	2010	2011	Average (2007-2011)
Total workers	1,308	2,543	2,682	1,759	1,048	1,868
Total Cree workers	212	282	215	145	60	183
Proportion of Cree workers	16 %	11 %	8 %	8 %	6 %	10 %
Number of Cree Workers (Monthly average)	2007	2008	2009	2010	2011	Average (2007-2011)
Total Cree workers	212	282	215	145	60	183
Cree workers from Waskaganish	27	35	54	55	7	36
Proportion of Cree workers from Waskaganish	13 %	12 %	25 %	38 %	12 %	20 %

Companies from Waskaganish	2007-2011 (No. of contracts)	2007-2011 (\$M)
Newco Rupert Construction (Waskaganish/Nemaska)	3	196.42
Waska Ressources	18	15.10
Diamond and Sylvico	3	1.23
Council of the Cree Nation of Waskaganish	4	0.28
TOTAL	28	213.03
Tallymen	25	0.44
TOTAL	53	213.47

8.0 Measures to Promote Jobsite Integration of Cree Workers

To promote the integration of Cree workers, three groups of measures were implemented:

Specialized Cree personnel hired at the jobsite:

- Cree liaison officers to assist industrial safety officers in their dealings with Cree workers and to promote awareness of camp regulations among the workers;
- A Native social worker;
- A Native recreation attendant.

Support for Cree cultural projects in cooperation with Niskamoon Corporation:

- Construction of three Cree gathering places (*Shaapuhtuwaan*) at Rupert, Nemiscau and Sarcelle workcamps;
- Organization of traditional suppers for Cree workers;
- Use of the *Shaapuhtuwaan* by Cree workers to cook game or hold friendly gatherings;
- Organization of French courses in 2009 and 2010.

Access for Cree workers to electronic media and infrastructure to maintain ties with their families and their community:

- Local Cree radio broadcasts in the workcamps;
- Free Internet access in recreation centers for all workers;
- Possibility for each worker to have a family member visit the workcamp instead of taking a regular leave.



Shaapuhtuwaan at the Rupert camp



Radio program: Hydro and Friends



Intercultural day at the Neeposh family camp

9.0 Participation by Tallymen in Implementation of Mitigation and Enhancement Measures

The various aspects of implementing the mitigation and enhancement measures on the traplines, from design to execution, are shown in Table W-6.

Note also that the tallymen or designated family members:

- Were systematically included in consultants' crews during field work and surveys required to determine and optimize mitigation measures;
- Participated in all environmental monitoring including studies on the effectiveness of the mitigation measures.



Mechanical seeding by Sanders Weistche



Manual seeding by Clarence Cowboy



Mechanical seeding by Gordon H. Blackned

Table W-6 – Implementation of Mitigation and Enhancement Measures

Design and Site Selection	Execution	
<i>Incorporation of Cree Users' Traditional Knowledge</i>	<i>Contracts with Waskaganish Tallymen</i>	<i>Contracts with Cree Companies from Waskaganish</i>
<ul style="list-style-type: none"> • Validation of sites for boat ramps • Identification of portage trails (lower Rupert) • Validation of navigation charts (lower Rupert) • Identification of access road, ATV and snowmobile trail corridors • Choice of construction roads to be kept in place • Identification of goose pond sites in affected areas • Identification of goose flyway requiring clearing • Validation of active beaver lodges (lower Rupert) 	<ul style="list-style-type: none"> • Relocation of camps (7 camps – 11 buildings) (2007-2011) • Enhancement of 17 portages (2011) • Construction of 2 access roads (0.8 km) (2010 and 2011) • Construction of 4 ATV trails (16.4 km) (2010-2011) • Construction of 6 snowmobile trails (22.6 km) (2010-2011) • Clearing of 2 goose flyways (5.2 ha) (2010) • Development of 9 goose-hunting ponds (2010 and 2011) • Beaver trapping-out (70 lodges) (2008-2009) • Mechanical seeding of exposed banks on the Rupert (4.9 ha) (2010-2011) • Planting on affected sites (277,020 plants) (2010-2011) 	<ul style="list-style-type: none"> • Development of a multipurpose spawning ground at the KP 110.3 weir (3,160 m²) (2009) • Signage of two navigation corridors in the Rupert estuary (2012)
		<i>Contracts with Other Cree Companies</i>
		<ul style="list-style-type: none"> • Construction of an access road (0.5 km) (2010)

10.0 Effectiveness of the General Measures to Promote Economic Spinoffs and the Integration of Cree Workers

Table W-7 summarizes the results of the 2010-2011 follow-up studies monitoring the effectiveness of these measures. Note that the effectiveness of the mitigation and enhancement measures on the eight community traplines is discussed in Section 2.

Table W-7 – Effectiveness of the General Measures to Promote Economic Spinoffs for the Crees and Jobsite Integration of Cree Workers

Measures	Follow-Up Results (as of December 31, 2011)
General Measures to Promote Economic Spinoffs for the Crees (Workers, Companies, Tallymen)	
Measures to promote the recruitment of Cree workers	
<p>Presence of a resource person at the Commission de la construction du Québec (CCQ) [Québec construction board] to help Crees obtain competency certificates</p> <ul style="list-style-type: none"> By removing labour pool restrictions in the JBNQA territory By making the English versions of documents available to Crees so they can prepare for the various CCQ examinations 	<p>According to the CCQ representative, the assessment of the CCQ competency certificates issued since 2007 is positive. Most Crees who have competency certificates obtained their first one on the Eastmain-1 and Eastmain-1-A/Sarcelle/Rupert jobsites. These projects were catalysts with regard to Cree worker accessibility in the construction field and helped them obtain good working conditions.</p> <p>To support their certification, the CCQ worked closely with an SEBJ Cree counsellor on the jobsite to make the application and processing of certain administrative measures more flexible.</p> <p>2007, 2008 and 2009 were the most productive years with, respectively, 123, 180 and 206 Crees with a competency certificate, excluding exemption certificates. Many of them worked on the Eastmain-1-A/Sarcelle/Rupert project.</p>
<p>Hiring of Cree employment counsellors at the jobsite:</p> <ul style="list-style-type: none"> To facilitate and supervise the hiring of Cree workers To educate employers and SEBJ personnel about hiring Cree workers To participate in various management activities, such as health and safety committees 	<p>In early 2007, two Cree counsellors were hired to work at the Rupert and Eastmain workcamps. In 2008, when work began on Sarcelle powerhouse, a third counsellor joined the team. When activity slowed in 2011, the team was reduced to two counsellors for Sarcelle and Eastmain.</p> <p>The Cree counsellors promoted the hiring of Cree workers among contractors. However, the results were poor among non-Native contractors namely due to language issues, lack of experience or skills, restrictions regarding obtaining CCQ competency certificates and certain tax constraints.</p> <p>The Cree counsellors also promoted jobs offered on the jobsite in the Cree communities even though obtaining a job on the jobsite resulted mainly from a referral from a friend (47%); 18% were contacted by their employer and 15% had communicated with their current employer. Twelve workers, i.e. 8%, were hired through their band council.</p>
Measures to promote the awarding of contracts to Cree companies	
<p>Establishment of at least \$240M and \$50M in contracts to be negotiated with Cree companies during construction</p>	<p>Under the project, 165 contracts were awarded to 37 Cree companies and 151 to tallymen between 2007 and 2011. Most of the contracts were obtained based on the mechanism designed to give preference to Crees in the awarding of contracts (\$447M).</p> <p>The amount paid to the companies as at December 31, 2011 was close to \$831M, i.e. 27% of all expenses incurred during the project (\$3,083,098,853). More than half of the contracts awarded to the Cree were in regard to work to be carried out, i.e. primarily clearing work and building permanent structures such as roads or weirs.</p> <p>In addition, contracts for the provision of services represented 43% of the value of the contracts awarded to Cree companies (\$360M) whereas 4% (\$32M) were in regard to camp infrastructures.</p>
<p>Direct negotiation of contract terms between the designated companies and SEBJ</p>	<p>Based on the mechanism designed to give preference to Crees in the awarding of contracts (Cree-designated companies), \$427M of contracts were awarded to Cree companies out of a total amount of close to \$791M.</p>
<p>Establishment of service contracts with the CRA and the Cree communities of Mistissini, Nemaska, Waskaganish, Eastmain, Wemindji and Chisasibi</p>	<p>For the six Cree Monitoring Committee representatives, salaries and administrative costs total approximately \$0.5M annually.</p> <p>In addition, the environmental field work and studies led to employment for close to 500 different workers for both 2007 and 2008, 711 workers in 2009 and 455 workers in 2010. They generated income of approximately \$7.42M during the 2007-2010 period.</p>

Table W-7 – Effectiveness of the General Measures to Promote Economic Spinoffs for the Crees and Jobsite Integration of Cree Workers (continued)

Measures	Follow-Up Results (as of December 31, 2011)
General Measures to Promote Economic Spinoffs for the Crees (Workers, Companies, Tallymen) (continued)	
Measures to benefit the tallymen	
<p>In accordance with the commitments set out in the <i>Boumhounan Agreement</i>, SEBJ implemented various measures to promote the participation by the tallymen in carrying out the mitigation measures.</p> <p>Steps taken to meet this commitment were initiated in 2007 when the project began. In fact, it was at that point that the company first decided to offer the tallymen the experience of carrying out clearing work in the sectors where there had been no recovery. Given that the experience was generally positive, SEBJ began awarding more and more contracts for increasingly diversified work as the project progressed.</p>	<p>The most used measure was the breakdown of contracts based on trapline boundaries. For instance, the clearing of the diversion bays was broken down into 17 contracts awarded to 8 tallymen or their company for an approximate value of \$15M. Similarly, with regard to carrying out portages, instead of negotiating and managing a single contract, the company chose to divide the work between 10 contracts awarded to the tallymen. The same was true for the seeding of exposed banks and planting in the areas affected by the project.</p>
Measures to Promote Jobsite Integration of Cree Workers	
Specialized Cree personnel hired at the jobsite	
<ul style="list-style-type: none"> • Cree counsellors hired to organize awareness-building activities with employers (preventing integration issues, promoting sponsorship, etc.) and with Cree workers (information on the services available, awareness of camp regulations, etc.) to promote the integration of Cree workers • Cree liaison officers to assist industrial safety officers in their dealings with Cree workers and to promote awareness of camp regulations among the workers • A Native social worker • A Native recreation attendant • A resource person able to act as a Cree-French or Cree-English interpreter where necessary 	<ul style="list-style-type: none"> • Three Cree counsellors were hired and worked in the different workcamps used during the project. They participated in the jobsite management committees and played a key role in implementing the measures designed to promote the integration of Cree workers. • Approximately 10 liaison officers were hired between 2007 and 2010. According to the jobsite representatives interviewed in 2008 and 2010, the hiring of a Cree liaison officer was a very useful measure. The liaison agents reduce the potential for conflict during dealings involving security agents and their daily interaction with Cree workers help raise awareness regarding the camp regulations and industrial safety. • A Native social worker was hired in 2008. She had between 81 and 102 consultations per year in 2009 and 2010. • One Cree recreation attendant was hired. The attendant's presence and work were appreciated by the Cree workers. Participation in leisure activities was good on all the camps. Their participation seems to have been related more to the fact that they liked the activities offered (hockey, volleyball, bingo, etc.) than to the presence of a Cree attendant. • The Cree counsellors and other Cree SEBJ employees occasionally played this role but most interpretation needs were met within the work teams.
Consultation with Cree agencies regarding prevention and support measures for Cree workers	
<p>With the Natimachewin project financed by the Niskamoon Corporation, many activities were carried out for Cree workers, including:</p> <ul style="list-style-type: none"> • Construction of three Cree gathering places (<i>Shaapuhtuwaan</i>) at Rupert, Nemiscau and Sarcelle workcamps • Organization of traditional suppers for Cree workers at Rupert and Nemiscau workcamps • Organization of French courses • Organization of various activities based on the workers' interests (health walks, berry picking, etc.) • Support in creating a Cree AA group • Managing violations of camp regulations 	<ul style="list-style-type: none"> • The <i>Shaapuhtuwaan</i> at the Rupert workcamp (2008 to 2009), the <i>Cree Cabin</i> at the Nemiscau workcamp (2009 to 2010) and the <i>Mitchuap</i> at the Sarcelle workcamp (2009 to 2012) were used by Cree workers to organize traditional meals or other social activities. According to follow-up results, 63% of Cree workers participated in activities or gatherings in these sites. • In their free time, an average of 63% of Cree workers participated in traditional meetings or suppers organized by the Natimachewin project. The traditional suppers were the most popular activity among Cree workers. • French classes were provided from 2008 to 2010. The initial enthusiasm for these courses decreased over time. • From 2008 to 2010, a Cree activity coordinator organized traditional suppers and occasional activities based on the needs expressed by the workers. • A meeting place could have been made available for this type of group but a Cree AA group was not created given that the Cree workers preferred meeting with the social worker individually. • Based on the camp management regulations, expelled workers were allowed to return to the camp to work following a specific time period depending on the seriousness of the violation. An average of 5% of Cree workers were expelled from the workcamp between 2002 and 2010.

Table W-7 – Effectiveness of the General Measures to Promote Economic Spinoffs for the Crees and Jobsite Integration of Cree Workers (continued)

Measures	Follow-Up Results (as of December 31, 2011)
<i>Measures to Promote Jobsite Integration of Cree Workers (continued)</i>	
Measures to promote ties between workers and their families/community	
<ul style="list-style-type: none"> • Local Cree radio broadcasts in the workcamps • Free Internet access in the recreation centres • Possibility for a Cree worker to have a family member visit the workcamp, rather than take a regular leave. Visits by a family member were permitted. Visits of several days, including accommodation, could be authorized if a worker wished. • News from the workcamp was relayed to the communities 	<ul style="list-style-type: none"> • During their time at the camp, 73% of the Cree workers listened to community radio broadcasts. • Free Internet stations were available in the leisure centers at all the workcamps. The Internet was used by 54% of the Cree workers in their free time, particularly the youngest workers, and 28% of the workers said they used the Internet to maintain contact with their family. • The possibility of replacing the regular leave with a visit was not used very often, but it was appreciated by those who did take advantage of it. • News from the workcamp was delivered via the Boumhounan Newsletter, the Hydro and Friends program and the Monitoring Committee's information tours. <p>Based on follow-up results, all the workers said they maintained contact with their family during their stay at the workcamp. They did so mainly by phone (99%) or through visits during their free time (55%).</p>
Measures to promote relations between Cree workers and non-Native workers	
<ul style="list-style-type: none"> • Building awareness among camp residents regarding Cree culture • Building awareness among SEBJ personnel regarding Cree culture • Promoting Cree participation in sport and leisure activities 	<p>At the mandatory orientation session, the workers are made aware of the presence of Cree workers. In addition, the jobsite welcome centres highlight different aspects of the Cree culture and Cree involvement in the project. Posters illustrating Cree culture were placed in different locations (airport, cafeteria, administration offices). Some Crees nevertheless feel that more could have been done in terms of raising awareness of all of the workers on the project.</p> <p>The Hydro-Québec's Aboriginal Relations training program was given on three occasions on the jobsite in 2008. From 2007 to 2010, 44 SEBJ employees took the training program either at the jobsite, in Montréal or in Québec City. It should be noted that 121 SEBJ employees had already taken the training program as part of the Eastmain-1 project.</p> <p>The Crees' interests were taken into account when organizing the leisure activities. Participation by the Crees was good: 37 % participated in team sports, 51 % opted for individual sports (weightlifting/working out, badminton, golf) and 85 % participated in games (bowling, pool, etc.). Although there were sports teams including both Crees and non-Crees, people generally formed teams with people from their background.</p> <p>Relations between Cree workers and non-Native workers are good. Based on follow-up results, 94% of Cree workers feel that relations with their non-Native colleagues are very good (53%) or fairly good (41%) and 95% of workers feel that social relations at the workcamp are very pleasant (55%) or fairly pleasant (40%).</p>

CONCLUSION

The signature of the *Boumhounan Agreement* in 2002 launched the Eastmain-1-A and Sarcelle powerhouses and Rupert diversion project, which was intended to be carried out under the new relationship between Hydro-Québec/SEBJ and the Cree, a relationship based on cooperation and mutual respect.

This new relationship was reflected in the participation by the Cree in designing both the project and the mitigation and enhancement measures. Cree companies, workers and tallymen were also involved in the work related to the project and in carrying out the mitigation and enhancement measures. Finally, the tallymen participated in all the technical and environmental surveys in the draft design and construction phases as well as in all the environmental follow-up studies, some of which are currently planned until 2021.

Mitigation and Enhancement Measures

On the eight traplines affected in the community of Waskaganish, close to 25 types of mitigation and enhancement measures were defined, namely to maintain or improve access to the territory, the use of the river and hunting and fishing activities. The vast majority of these measures had been implemented at the end of 2011 or were in the process of being implemented. They will be completed in 2012, with the exception of some measures that affect the estuary and are designed to maintain access and navigation conditions at the mouth of the Rupert.

During the fall of 2011, the tallymen were consulted on the effectiveness of more than 70 mitigation and enhancement measures carried out on their respective traplines.

The tallymen made positive comments or expressed satisfaction on most of the mitigation measures, including selection of campsites, boat ramps, enhancement of portages, beaver trapping-out program, dip-net fishing pools, and planting and seeding of affected sites.

Although the environmental follow-up data reveal that the hydraulic structures at KP 20.4, 33, 49, 85 and 110.3 meet the objectives for navigation and aquatic environments, the tallymen were somewhat disappointed. Their frustration is related to water levels, which they feel are too high, particularly in the spring and immediately upstream of the structures. The tallymen also raised other concerns such as the effects on water quality, flooding, tree decline and falling trees, which in some cases interfere with the setting of fish nets.

With regard to enhancement measures, the tallymen particularly appreciate the new land access roads and the fact that construction roads are kept in place, which facilitates their use of the traplines. They nevertheless had reserves regarding the quality of the road surface on some segments of the ATV trails.

It is important to stress that the tallymen's assessment of the effectiveness of the mitigation measures was carried out when the tallymen were beginning to resume their use of the areas modified by the project. In addition, the results of several environmental follow-up studies are not yet available or are insufficient for drawing definitive conclusions on the nature and scope of the impacts generated by the project.

Nevertheless, various aspects will remain in place for several more years to ensure that in the long term, the process of resuming use of the traplines can be continued, on the one hand, with the support and under the supervision of the joint Cree/Hydro-Québec committees and on the other hand, with the users' participation in the many planned environmental follow-up studies concerning the impacts and the effectiveness of the mitigation measures.

Economic Spinoffs

Since 2007, Waskaganish companies have obtained 31 contracts, including for the construction of three hydraulic structures on the Rupert and their access roads, bank stabilization work near the water intake, the construction of the new drinking water treatment plant and the work involved in operating the Siibii camp.

The tallymen have also obtained 41 contracts enabling some of them to develop management and construction expertise with the support of jobsite personnel.

From 2007 to 2011, close to 20% of Cree workers on the project were from the community of Waskaganish. In general, the results of the follow-ups carried out with Cree workers show that they appreciated their work experience on the jobsites. In fact, 92% of them would like to have a similar experience due to the nature of the work, the knowledge and experience they acquired and the good salaries. Finally, their reintegration into the community was relatively straightforward and 81% of them found new jobs.

Environmental Follow-up

Between 2007 and 2011, the concerned tallymen or their representatives participated in all the follow-up programs carried out on the territory of Waskaganish. Their involvement will be maintained given that approximately 20 environmental follow-up studies will be continued, some of which are currently planned until 2021. The majority of these follow-ups focus on changes in the fish populations in the river and the estuary, whereas others involve the use of the territory, changes to the shoreline and vegetation, and the way they are used by wildlife and waterfowl.

Committees

During 2012, the transition from the construction crews to the operations crews will accelerate. Continuity will be assured, in part, by the Cree-Hydro-Québec joint committees, including the Monitoring Committee, the Rupert River Management Board and the Smokey Hill Liaison Committee.

Agreements

As part of the agreements between Hydro-Québec and the Cree managed by the Niskamoon Corporation, several dedicated funds are available to meet the needs of the Cree regarding community projects as well as projects designed to help the Cree pursue their traditional activities.

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