



**PUBLIC HEALTH DEPARTMENT ANALYSIS PAPER:
THE CURRENT AND PROJECTED
EEYOU POPULATION
November 2015 REVISION
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This document is prepared as a background, reference document for surveillance work in public health. As an internal reference document, it helps the public health surveillance team to keep track of current and past information relevant for understanding the social and administrative context for counting the population of Eeyou Istchee and Health and Social Services Region (HR) 18. The document is periodically updated.

Note to readers: this document is not designed to tell you which population figures you should use in your work. It is a reference document for the surveillance team.

ACRONYMS USED IN THIS DOCUMENT

AANDC	Aboriginal Affairs and Northern Development Canada
AR	Administrative regions of the ISQ <ul style="list-style-type: none">• AR 10 – Nord-du-Québec (Administrative)
CBHSSJB	Cree Board of Health and Social Services of James Bay
CNG	Cree Nation Government
CSSS	<i>Centre de santé et de services sociaux</i> (formerly CLSC)
CSST	<i>Commission de la santé et de la sécurité du travail</i>
Eeyou/ch	Cree language term for a person/the people of Eeyou Istchee Health and Social Services Regions of the MSSS
HR	<ul style="list-style-type: none">• HR 10 – Nord-du-Québec (health and social services)• HR 17 – Nunavik• HR 18 – Eeyou Istchee
ISQ	<i>Institut de statistique du Québec</i>
JBNQA	James Bay and Northern Quebec Agreement (1975)
MSSS	<i>Ministère de la santé et des services sociaux du Québec</i>
RCHSSJB	Regional Centre of Health and Social Services of James Bay

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1. BACKGROUND TO THIS ANALYSIS PAPER ON COUNTING THE EEYOU POPULATION

The Cree Board of Health and Social Services of James Bay (CBHSSJB) not only uses statistics on population size in all areas of its work, but it has to understand how these statistics are derived. The purpose of this analysis paper is to document the sources of information for counting the population and to discuss how they can and are being used. Its primary purpose is to serve as a reference document for public health surveillance.

Population statistics are a basic building block for delivering health and social services:

- Statistics on population size underlie all other statistics on population health. We only know the significance of the number of people with diabetes as that number is put in relation to the size of the overall population.
- Understanding the demand for services in any specific area begins with understanding the number of people in the population who might require them. The surveillance team receives continuous requests for up-to-date information on these numbers.
- Governments often determine inter-governmental money transfers on the basis of formally identified population counts.

The methodology behind large population statistics is well developed and the statistics produced are stable. However, with small populations like Eeyouch, population statistics can become much more unstable since a small change in one area will have a large impact on the overall picture. For this reason, it is important to understand the similarities and differences of various sources for counting the population, in order to link each source to its definitions.

Another complexity in counting Eeyouch is how to define and identify the population. Eeyouch are identified through their adherence as beneficiaries of the James Bay and Northern Québec Agreement (1975) ¹ (JBNQA), however this is not a category counted in recurrent censuses of Statistics Canada which count individuals on the basis of geographic location, languages, aboriginal status and ethnicity. And, while Eeyouch along with a small minority of Chisasibi Inuit are the only individuals with rights under the JBNQA to reside in the JBNQA communities in the region, a small minority of others – non Eeyou aboriginals and non-aboriginals – also live there, largely as a temporary work force.

This analysis paper on counting the current and projected Eeyou population was first published as part of the section on population in the 2005 report on the evolution of health determinants and health status in the region². Since that time, and as new population data has become available, Pierre Lejeune has updated this analysis, including population projections, for

¹ Beneficiaries are identified in the JBNQA as: a member of a Cree band under the Indian Act, or a person of Cree ancestry ordinarily resident in the Territory, or a person of Cree or Indian ancestry recognized by one of the Cree communities as a member, or an adopted child. (section 3.2.1). Available at: <http://www.gcc.ca/pdf/LEG000000006.pdf>

² Torrie J, Bobet E, Kishchuk N, Webster A. (2005) The evolution of health status and health determinants in the Eeyou Region (Eeyou Istchee): Eastmain 1A Powerhouse and Rupert Diversion Sectoral Report. Series 4 Number 3: Report on the Health Status of the Population. Chisasibi, Cree Board of Health and Social Services of James Bay. 2 vols. <http://www.creehealth.org>

the Public Health Department and these have been made available on the website³. In the spring of 2012, the surveillance team drafted the population chapter for an updated health profile and realized that the HR 18 population projections done by the *Institut de statistique du Québec* (ISQ) did not fit with actual age group counts for some years. The team felt the projections were too heavily weighed for an increase among the elderly while predicting too small an increase of children and youth. Following discussions, the ISQ has revised their methodology underlying their projections. Their most recent projection document was released in June 2015⁴, and it has been further revised by the public health surveillance team for regional planning within the Cree Board of Health and Social Services of James Bay (CBHSSJB) (see Section 8 for details).

2. JURISDICTIONAL ISSUES RELEVANT FOR UNDERSTANDING THE DEMOGRAPHY OF EYEOUCH AND HR 18⁵

Jurisdictional issues defined, in part, through geography as well as aboriginal status are important and confounding factors which must be taken into account when determining how to count the population of Eeyou Istchee and of Health and Social Services Region (HR) 18 of the *Ministère de la santé et des services sociaux du Québec* (MSSS).

To understand the complexity of the jurisdictional issues it is necessary to distinguish:

- the geographical definition of Eeyou Istchee,
- the boundaries defined for the JBNQA territory,
- the boundaries defined by the previous James Bay Municipality,
- Categories I, II and III lands,
- the geographical mandate of the CBHSSJB, and
- the new geographical mandate of the Eeyou Istchee-James Bay Regional Government.

The territory commonly referred to as Eeyou Istchee includes the hunting territories, originally defined by Québec Order-in Council, which Eeyouch identify as their traditional hunting territory. Eeyou Istchee, defined in this way, comprises the major watersheds which drain northwestern Québec and discharge into James Bay. This is an approximate definition, however, and there are local exceptions to this general statement.

The JBNQA territory (for the purposes of the surrender of aboriginal territorial claims), is defined by the 1898 and 1912 Boundary Extension Acts. It does not correspond to contemporary boundary definitions which directly affect Eeyouch of Eeyou Istchee⁶.

The territory now referred to as James Bay or Eeyou Istchee in the context of recent governance legislation was defined by the James Bay Municipality, created in 1971⁷. The northern limit is defined by the 55th parallel and the southern limit by the 49th parallel.

³ Lejeune P, Torrie J. Public Health Department Analysis Paper: the Current and Projected Eeyou Population. Cree Board of Health and Social Services of James Bay. Available at <http://www.creehealth.org>.

⁴ MSSS, Estimations et projections de population comparables (1996-2036) <http://www.informa.msss.gouv.qc.ca/Details.aspx?Id=ZoCuuedJKNw=>

⁵ Thanks to Alan Penn for his close review of this section.

⁶ See the map of the Cree Nation Government at <http://www.gcc.ca/newsarticle.php?id=313> Accessed July 6, 2015.

The nine⁸ Cree First Nations are located on Category I A lands⁹ for which the administration, management and control has been transferred to the Government of Canada (the Governor in Council) for the use and benefit of the individual First Nations. The subsurface title remains with Québec ('nue-propriété'). Adjacent to Category I A lands are Category I B lands which are held in ownership by Cree Land Holding Corporations administered by Cree Village Corporations¹⁰.

Up to 2012, administration of Category II and III lands was the responsibility of the James Bay Municipality, a non-Eeyou structure. Since 2012, Category II lands are now administered by the Cree Nation Government (CNG) with powers and responsibilities similar to those of the earlier James Bay Municipality. The Cree Nation Government is the successor to the Cree Regional Authority, created by the JBNQA, which since 2009 and notwithstanding its provincial legal character, shares certain by-law powers and administrative responsibilities with the individual Cree First Nations.

The Cree Nation Government now has, as explained above, responsibilities defined primarily by municipal legislation for Category II lands. However, it should be understood that the administration of public lands and natural resources within Category II lands, as in the case of Category III lands (which still constitute over 80% of the region) is subject to provincial laws and regulations relating to land use planning and the allocation of public lands and the resources on or associated with public lands. In the case of Category III lands, these municipal-level responsibilities for land use planning and other aspects of land use are the responsibility of the Eeyou Istchee – James Bay Regional Government (EIBJRG)^{11 12}. This entity, based in Matagami, represents the Cree First Nations other than Whapmagoostui (which is located north of the 55th parallel) as well as the Jamesian (non-Beneficiary) municipalities and localities without municipal status (a number of which are located to the southwest of the Cree hunting territories). The existing municipalities in James Bay/Eeyou Istchee conserve their municipal territories and the territories under their control at the time of the negotiation of the JBNQA.

Quebec administrative regions (ARs) are different than Quebec health and social service regions (HRs). In the north, the vast AR 10 takes in HRs 10, 17 and 18¹³ (Figure 1). The anomaly is that HR 18 comprises the Eeyou communities – or category I lands - as islands within the surrounding HR 10, which is largely unpopulated except for the towns of Chibougamau, Chapais, Lebel-sur-Quévillon, Mattagami and Radisson and which comprises all the Category II and III lands.

⁷ Between 1971 and 2012, the James Bay Municipality, a non-Eeyou structure, was responsible for the governance of the territory surrounding the Eeyou communities and comprising Category 2 and 3 lands.

⁸ Eight communities were signatory to the JBNQA in 1975. Oujé-Bougoumou was treated later as a distinct community/First Nation. Washaw Sibi is in the process of developing.

⁹ Cree-Naskapi (of Quebec) Act (S.C. 1984, c. 18). Version current to 2015-06-17 and last amended on 2014-05-15 was accessed July 2, 2015 at <http://laws-lois.justice.gc.ca/eng/acts/C-45.7/>

¹⁰ These are municipal corporations recognized by the Cities and Towns Act of Québec.

¹¹ Bill n°42: An Act establishing the Eeyou Istchee James Bay Regional Government and introducing certain legislative amendments concerning the Cree Nation Government. Accessed July 2, 2015 at <http://www.assnat.qc.ca/en/travaux-parlementaires/projets-loi/projet-loi-42-40-1.html>

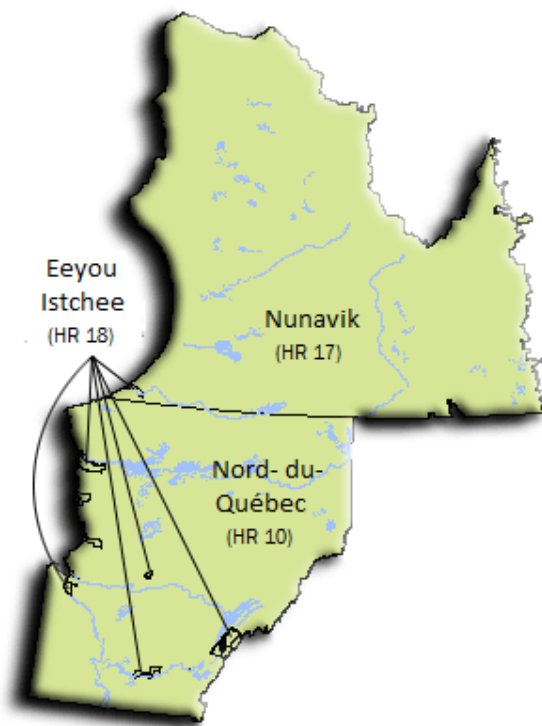
¹² The entire territory is roughly 450,000 km² with over 80% comprising category III lands.

¹³ The southern boundary of administrative region 10 is north of the southern boundary described in the JBNQA.

This structure continues to create unresolved jurisdictional issues for the CBHSSJB responsible for HR 18 and the Regional Centre of Health and Social Services of James Bay (RCHSSJB) responsible for HR 10¹⁴. Which ambulances are called for accidents outside of category I lands? How are services under the *Commission de la santé et de la sécurité du travail* (CSST) delivered and by whom to new mines? Should the CBHSSJB or the CNG participate in the governance of second line health care services delivered through HRs 10 and 8 (Abitibi)? Who is responsible for medical emergencies and medical evacuation of beneficiaries happening outside of Eeyou communities? Who is responsible when the individual is not a Cree Beneficiary?

The majority of second line services in HR 18 are delivered outside of the region, especially in the hospitals in HRs 10 and 8 where the CBHSSJB maintains Cree Patient Services to assist Eeyou beneficiaries in accessing services in those locations.

Figure 1: Administrative region 10 including the 3 health regions 10, 17 and 18



HR 18's hospital in Chisasibi serves primarily that community while also used for some services for the closest coastal communities, and responsible for a growing number of regional-level functions within the CBHSSJB. Over a third of the clients of the Chibougamau hospital are from the inland Eeyou communities in HR 18^{15, 16} while a sixth of Val-d'Or hospital clients come from mostly coastal Eeyou communities¹⁷.

¹⁴ On its website the RCHSSJB says it is the only CSSS which has also responsibilities as an agency. The CBHSSJB is a 'board' because it was set up and stayed under the law organising health and social services which was in vigour in 1978 in Québec. The CBHSSJB also has a full Public Health Department while Health Region 10's public health functions are organized through Region 15.

¹⁵ From 2009-2010 to 2013-2014 they were 38.4% of the patient population, with 99.2% from the inland.

One consequence of AR 10 is that the ISQ has never produced statistical information specific to Eeyou Istchee. This has obvious political and practical implications. In particular, for its own planning purposes, the CBHSSJB cannot draw upon much of the regular, regional statistical background information that other health regions in Quebec use for such purposes.

However, the ISQ does produce demographic projections for each HR of the MSSS, including HRs 10, 17 and 18. Although some issues remain, which will be addressed further in this document, the quality of these projections for HR 18 has improved greatly.

As mentioned above, the organization of the CBHSSJB is an anomaly as it is geographically located within a different region with which it has no administrative ties. A further anomaly is that while the CBHSSJB has a mandate to provide services to everyone seeking services within Eeyou communities, it also operates with a semi-autonomy as an Eeyou organisation. The governance of the CBHSSJB is not open to all residents of HR 18, as would the Boards of other regions in Quebec, but only to Beneficiaries, along with some representatives for employee groups. As well, the CBHSSJB operates a medical insurance program, the Cree Miyupiimatiisiun Benefits Program (formerly called Non-insured Health Benefits), which provides medical needs not covered by the MSSS through an insurance program which is a treaty right of Eeyou beneficiaries derived through the JBNQA.

3. ISSUES OF INDIGENOUS STATUS RELEVANT FOR UNDERSTANDING THE DEMOGRAPHY OF EYYOU ISTCHEE AND THAT OF HEALTH REGION 18

One consequence of the above is that everyone who is neither a Cree or Inuit Beneficiary named in the JBNQA has no *a priori* legal rights to live in the communities and no civic rights within Eeyou political structures at local and regional levels^{18 19}. The majority of these non-beneficiaries are

¹⁶ Information about Eeyouch living in HR 10 is incomplete and hard to evaluate. Unfortunately, the participation rates to the 2011 National Household Survey were very low in the Nord-du-Québec communities, averaging 66.1%. Since this survey is the only source of data about the aboriginal languages spoken by the participants, these figures are unreliable for region 10 and can not be reported. Based on Statistics Canada 2011 census, 130 persons in this region reported Cree as their maternal language. Some 80 persons indicated that Cree was the language most often used at home and another 40 that Cree was used at home along with another language.

¹⁷ From 2009-2010 to 2013-2014 they comprised 15.3% of the patient population, 81.0% from the coast.

¹⁸ In 2011, 0.5% of the regional population (some 80 persons) was identified as Inuit living in Chisasibi and Whapmagoostui where the two populations have historically lived in proximity. While not holding Eeyou rights, they do hold Inuit rights under the JBNQA.

¹⁹ The JBNQA states: “Non-Native people presently residing in Category I lands shall have the right to remain until the expiration of their rights of occupancy or residency on such lands, and shall be subject to the general by-laws and regulations of the local government. Subject to the foregoing, non-Native people will not be allowed to reside in Category I lands except in accordance with the by-laws and regulations established by the local government. However, such by-laws and regulations must permit non-Native people to reside in the area for purposes allowed by the local government, for purposes of administrative or public service duties or scientific research, provided such activities do not entail an influx of substantial numbers of people likely to alter in an appreciable way the demographic makeup of the community. In particular, non-Crees married to Crees, and their immediate families in the first degree, shall have the right to reside in Category I lands.” (5.1.11)

“The following persons shall also be permitted access to Category I lands:

people working in the region, usually because they are certain types of professionals. They can never become permanent residents but are always defined by their temporary status as ‘invited’ workers²⁰.

As a general rule of thumb, the Public Health Department considers the non-Eeyou-Inuit population to be less than 5% of the regional population²¹. This population, predominantly non-Aboriginal, is highly educated, part of the temporary work force in the region and with permanent residence elsewhere²². When living in the region, they are mostly in excellent health for as soon as someone becomes ill they tend to return to their permanent or original place of residence.

4. SOURCES OF POPULATION FOR REGION 18

For public health purposes, the demographic profile of the population of HR 18 needs to include:

- Eeyou population with breakdowns by community, age group and sex;
- Total population with breakdowns by community and age group;
- Estimates of the Eeyou versus non-Eeyou populations;
- Projected regional populations over time.

Sources for counting the population are found in administrative records and in sets of periodic census data.

Registre des autochtones Cris, Inuits et Naskapis (Autochtones (L02)) (the JBNQA Beneficiary List)²³: Maintained by the MSSS, this list is based on the actual population of Beneficiaries living in the communities and is updated every three months. The data is available by nation membership (Cree, Inuit and Naskapi), age, sex, place of residence (community name or in other categories such as “Out of community but on territory” or “Out of territory”) or community of affiliation. The list also includes a smattering of non-aboriginal spouses married prior to the JBNQA and some families of mixed ancestry who were not recognised under the Indian Act in 1975²⁴. Each of the nine Eeyou First Nation administrations maintains the list of community members, sending additions and deletions to Quebec City. The MSSS also revises the list with the Quebec death registry from time to time. This is the source used by the CHB Public Health Department when it needs to compare communities between themselves or to the region.

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- persons authorized to reside on Category I lands;
 - persons authorized to exercise a public function or engaged in technical surveys, the construction or operation of a public work or public utility;
 - owners of mineral rights and persons engaged in the exercise thereof;
 - as well as such other persons as may be authorized by the Cree Local Authority.

Subject to the foregoing, only members of the Cree band or community shall have access to Category I lands and the Cree Local Authority shall have by-law power to regulate access provided that any such by-law shall not negate or unreasonably restrict the right of access.” (5.1.12)

²⁰ There are a small number of non-Beneficiary spouses in the communities.

²¹ Based on Statistics Canada 2001, 2006 and 2011 census figures.

²² Even though, while employed, some declare the region as their permanent address for tax purposes.

²³ See: <http://www.informa.msss.gouv.qc.ca/Details.aspx?Id=0ZO3L087Je4=&Source=/divmYIVYBQ=>

²⁴ Historically, these families were considered ‘non-status’ by Indian Affairs. Since obtaining Beneficiary status through the JBNQA, most individuals in these families now also hold federal ‘status’.

The AANDC Indian Registry²⁵: This source only counts individuals who legally hold First Nations status in Canada living on, near or off own reserve or on another reserve. Again, local offices in each community send additions and deletions to Ottawa to maintain the list up-to-date.

Statistics Canada censuses: The results of the censuses, released by Statistics Canada every five years, are available for total population as well as for Aboriginal population by age, sex and community of residence.

The ISQ population estimates and projections: These figures are produced using Statistics Canada censuses numbers, corrected for the undercounting of certain age groups during the Census and for the annual movement of the population (obtained by the use of data contained in the *Fichier d'inscription des personnes assurées* of the *Régie de l'Assurance Maladie du Québec*). These are the numbers used by the MSSS for the production of all their statistics. This is also the source the CHBSSJB Public Health Department uses when it needs to compare HR 18 to the province or to other health regions of Quebec. Again, this information is available by age, sex and community of residence.

Table 1: Population categories presented by the principal sources

Source	JBNQA Cree beneficiaries	All residents	All aboriginal residents	Indians on reserve
MSSS JBNQA beneficiary list	Yes			
AANDC Indian Registry				Yes
Statistics Canada censuses		Yes	Yes	
ISQ estimates and projections		Yes		

These categories of the population overlap. The Statistics Canada category 'Aboriginal' includes all individuals who self-identify as North American Indian, Inuit or Métis and/or have reported band membership and/or have affirmed that they are registered Indians. In HR 18 this includes Eeyouch, Inuit, Métis as well as non-Beneficiary Status Indians with affiliation outside of Eeyou Istchee.

²⁵ Health Canada. 2012. Denominator Guidelines for Health Surveillance in First Nations Populations. Surveillance, Health Information, Policy and Coordination Unit, First Nations and Inuit Branch. Ottawa, Ontario. http://publications.gc.ca/collections/collection_2012/sc-hc/H34-255-2012-eng.pdf

Table 2: Uses of principal sources of population counts

Source	Uses
MSSS JBNQA Beneficiary List	Used on a regular basis within the CBHSSJB, the Public Health Department and by other organisations within the region
AANDC Indian Registry	Possibly used by federal departments for funding calculations
Statistics Canada censuses	Population counts not used by the Public Health Department
ISQ estimates and projections	Used within the Public Health Department for comparative purposes and only source used by the Quebec government, including the MSSS

5. ISSUES WITH SOURCES OF POPULATION FOR REGION 18

Registre des autochtones Cris, Inuits et Naskapis (Autochtones (L02)) (the JBNQA Beneficiary List): One of the problems identified with this source is that some of the newborns are registered very late as JBNQA beneficiaries with the MSSS, sometimes up to three years after their birthdate. This results in an underestimation of the size of the 0 to 4 year old age cohort. There may also be a problem with the late declaration of deceased persons leading to a slight overestimation in the older age groups. Table 3 shows the difference between the 0-4 age group declared to the MSSS as of July 1st, 2011 and the estimated figure using the number of actual births. Lastly, it is possible that some persons are declared residing in one of the communities while working (and residing) out of the territory, such as in Chibougamau, Montreal or Ottawa. It should be noted that until 1991 Oujé-Bougoumou did not have category IA (federal) lands and its residents were considered off-reserve members of other communities.

Table 3: Number of JBNQA Cree beneficiaries aged 0 to 4 years as of July 1st, 2011, number of births from mid-2006 to mid-2011 and % difference between both sources, by community of residence, Eeyou Istchee

Community	JBNQA Cree beneficiaries 0-4	Births mid-2006 to mid 2011	Difference JBA 0-4 -- Births	% difference JBA 0-4 -- Births
Chisasibi	366	550	-184	-33.5%
Eastmain	72	102	-30	-29.4%
Mistissini	326	398	-72	-18.1%
Nemaska	76	80	-4	-4.4%
Oujé-Bougoumou	100	99	1	1.0%
Waskaganish	199	297	-98	-32.9%
Waswanipi	119	222	-103	-46.4%
Wemindji	129	172	-43	-25.0%
Whapmagoostui	62	96	-34	-35.4%
Eeyou Istchee	1,449	2,015	-566	-28.1%

Sources: MSSS, JBNQA Cree Beneficiary List, 2011; MSSS, Births registry, 2006 to 2011.

The AANDC Indian Registry: As an HR of Québec, the CBHSSJB does not have access to the Indian Registry. However, it appears to have been used in the past to determine federal allocations for specific programs at the time these programs were transferred, although since then budgetary increases are just based on a percentage increase²⁶.

Statistics Canada censuses: Statistics Canada 2011 census population figures for Eeyou Istchee were dubious (as they were in previous censuses; see Appendix A for details) as the census ended with a very low participation rate in the region (82.1%). It is not clear if this was due to the method of collecting the data, rather than by actual non-participation. Figures for Oujé-Bougoumou were not published for that reason (participation rate of 66.2% only, when the level required for the publication of census figures is 75%). This community's First-Nation population, as reported by Statistics Canada's National Household Survey in 2011, was 630 individuals, while the JBNQA Beneficiary List indicates that 785 Eeyouch were living in Oujé during the same year.

ISQ population estimates and projections: The main issue with this source has to do with the quality of the numbers since they are based on the Statistics Canada census figures. Both sources report a total of 720 individuals (aboriginal and non-aboriginal) living in Oujé-Bougoumou as of 2011 while the JBNQA shows 785 Cree beneficiaries for the same year in Oujé.

6. UNDERSTANDING CURRENT EYYOU POPULATION PROJECTIONS

Estimating population growth is an essential element at the base of any population portrait. However, while the methods for calculating these estimations are reliable for large populations, they are much less so for small ones, for which even minor changes may result in significant differences.

The only population projections available for HR 18 are produced by the ISQ, at the request of the MSSS. For many years until 2015, these population projections always reported numbers well below those on the the JBNQA Cree Beneficiary List (See Figure 2 and, for a full explanation, Appendix A).

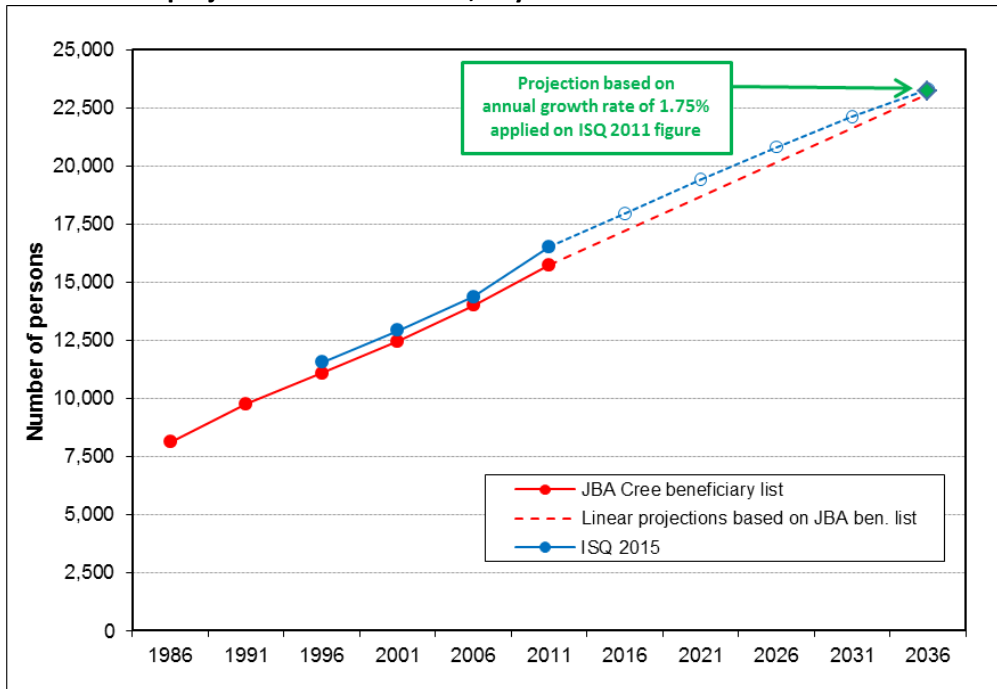
In 2004, the Public Health Department of the Cree Territory of James Bay asked the INSPQ to provide more accurate projections for regional population growth. Based on information supplied by the JBNQA Beneficiary List, the INSPQ suggested that the Public Health Department project either a 2.0% or, more conservatively, a 1.5% Eeyou population growth rate.

In March of 2012, members of the Public Health surveillance team met with two methodologists from the ISQ and learned that the estimates for population growth in past years had been based on AR 10 population counts, the rates of which were then applied to the population projections of the three HRs 10, 17 and 18 comprised in AR 10. The ISQ acknowledged that due to this approach

²⁶ For funding today, amounts allocated to specific programs in Eeyou Istchee are based on increases to existing funding, or in the case of new programs, some indication of the size of the problem (e.g. suicide). Historically when programs were created and transferred to communities the allocations were determined by the size of the community's population. The amounts have been increased most years by a percentage which is normally the same for all communities. For example, all Cree communities received an increase of 3% for the Brighter Future programs in 2013 and 2014. The percentage is decided every year by the National office of Health Canada. The NNADAP budget is determined the same way.

the rapid population decline observed in HR 10 (-20.0% from 1996 to 2006) exerted a downward influence on the AR 10 population growth rate which was then used to calculate the HR 17 and 18 projections.

Figure 2: JBNQA Cree Beneficiary List population, 1986 to 2011, and ISQ population estimates and projections 1996 to 2036, Eeyou Istchee

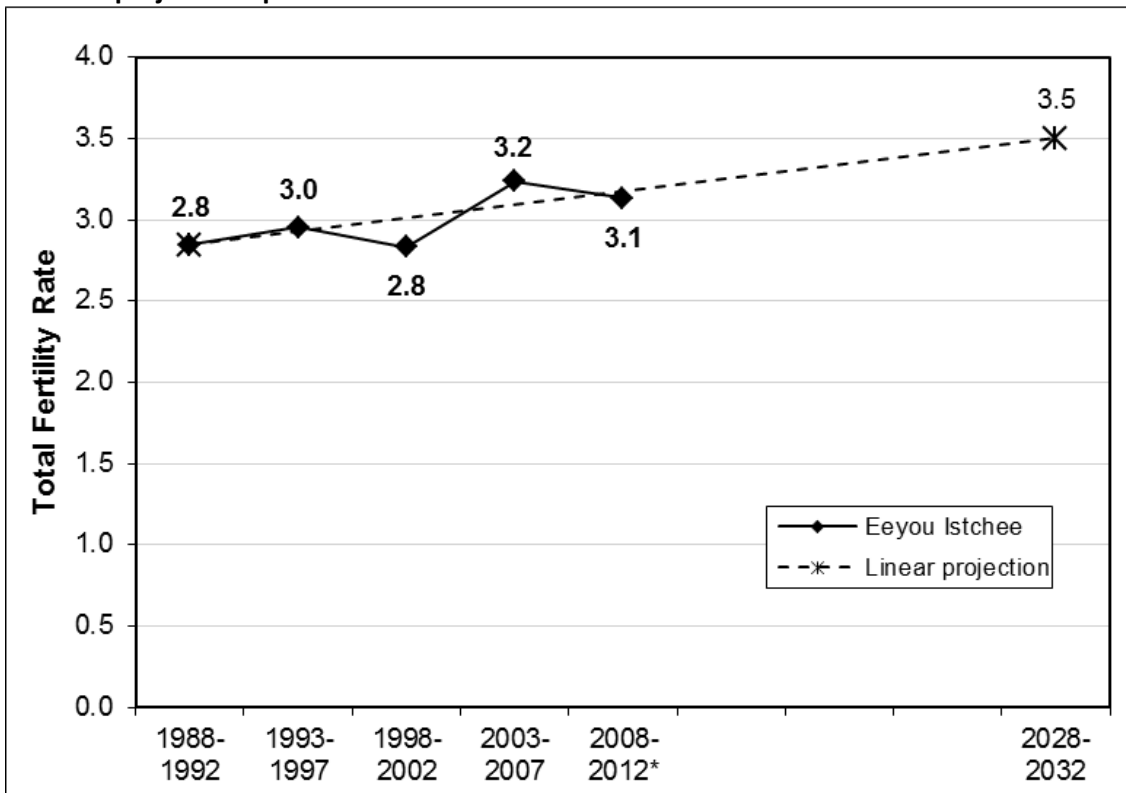


Sources: - MSSS, JBNQA Cree Beneficiary List, 1986 to 2011 (uncorrected);
 - MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census).

Following this discussion, in 2014 the ISQ produced corrected trends based on the 2011 census data (Figure 2 above). Based exclusively on HR 18 past population counts, this new trend, finally follows the same curve as the Beneficiary List up to 2011, and is in line with the linear projection of the Beneficiary List. And, at 1.75%, the growth rate proposed by the ISQ falls exactly between the 1.5% and 2.0% growth rates suggested by the INSPQ in 2004.

Other sources of information also support this projection of population growth in Eeyou Istchee. Figure 3 below shows the future trends in the total fertility rate through a linear projection. This indicator represents the number of children who would be born to each woman during her lifetime if, as she ages, the current fertility patterns at each age continue to hold true. It is calculated by summing up the number of births by specific age group for a given period divided by the average female population for the same age group and same period. The replacement fertility rate (to keep the population size steady, without immigration) is roughly 2.1 births per woman.

Figure 3: Total fertility rate (TFR) per woman, Eeyou Istchee, 1988-1992 to 2008-2012 and projection up to 2028-2032



Total Fertility Rate = Sum of (Number of births by specific age group for a given period divided by the average female population of the period for the same age group).

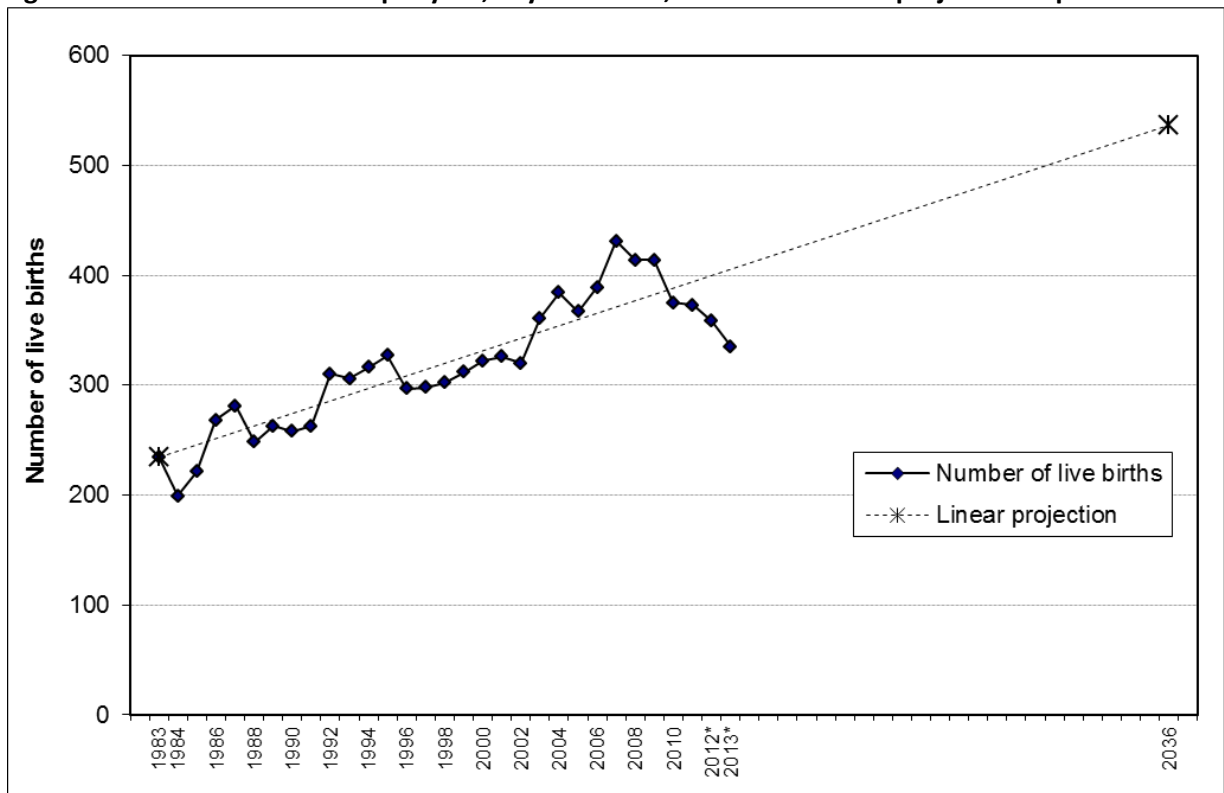
*: The 2012 birth database is a temporary version, therefore some slight differences could be observed in future reports.

Sources: - MSSS, Births data bank, 1988 to 2012;

- MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census).

But, while the linear projection based on the number of births also predicts an increase (Figure 4), a sharp drop in the number of births started in 2010 could influence the numbers of women of childbearing age who will be living 20 years from now, thus reducing the number of births and the future population size.

Figure 4: Number of live births per year, Eeyou Istchee, 1983 to 2013 and projections up to 2036



*: The 2012 and 2013 birth figures are produced from temporary versions of the birth data banks, therefore some slight differences could be observed in future reports.

Sources: - MSSS, Births data bank, 1983 to 2012;

- 2013 : ISQ, Naissances, décès et accroissement naturel, MRC¹ du Nord-du-Québec, 2009-2013

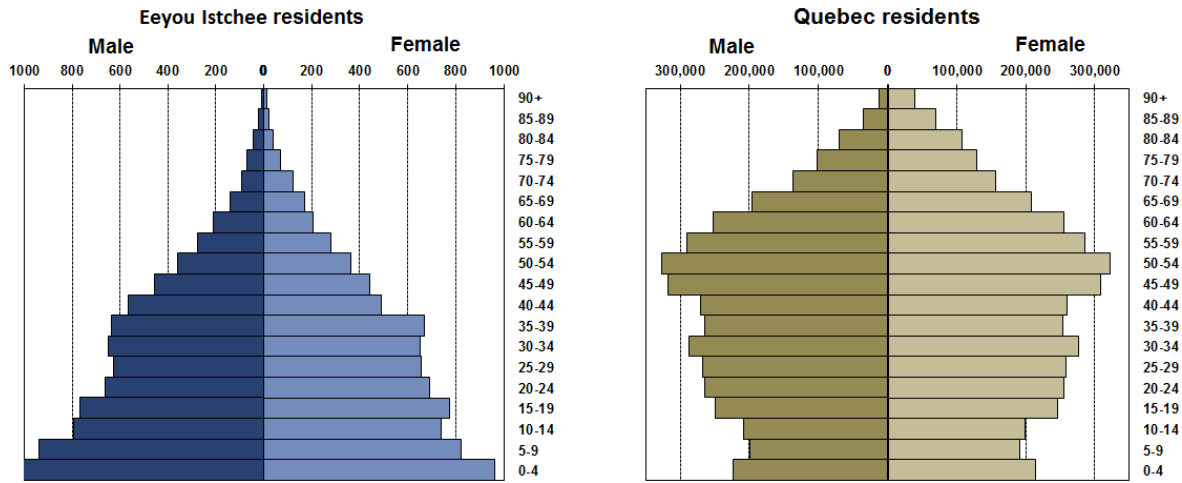
http://www.stat.gouv.qc.ca/statistiques/profils/profil10/societe/demographie/nais_dec/es/deces10_mrc.htm

7. EYYOU POPULATION PROJECTIONS

Based on 2015 ISQ estimates and projections, the population of Eeyou Istchee has doubled in size in the past 28 years, growing from 8,772 individuals in 1983 to 17,370, in 2014. The most recent projections, distributed by the MSSS in June 2015, predict continued growth in coming years.

According to these 2015 projections, the age distribution by sex for 2011 results in a fairly evenly distributed pyramid (Figure 5). This is a structure that depicts a society growing so that that the lower strata are replacing the upper ones (minus those who are deceased), as years go by.

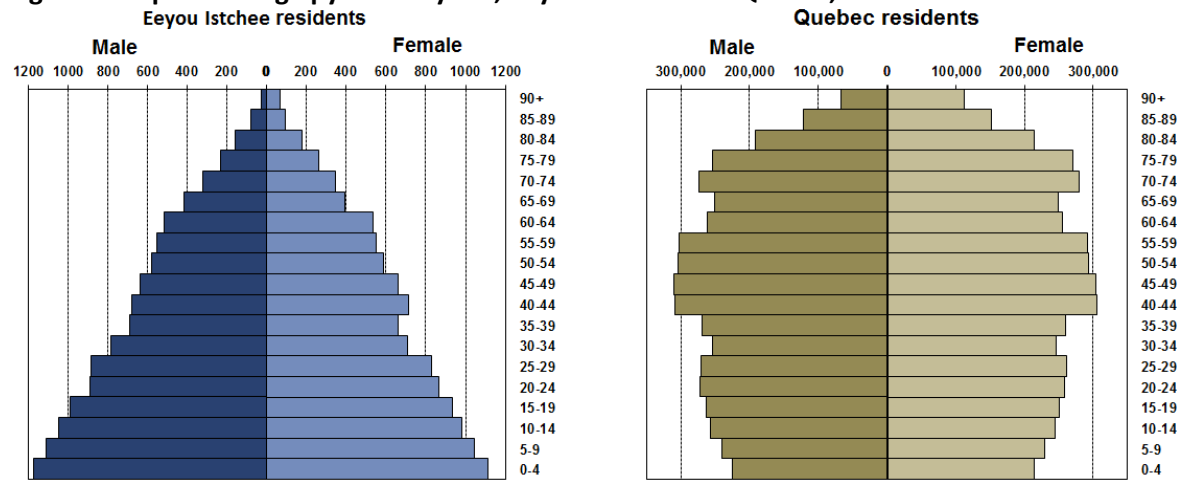
Figure 5: Population age pyramid by sex, Eeyou Istchee and Quebec, 2011



Source: MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census)

In comparison the Quebec age pyramid looks more like an inuksuk where persons aged 65 years or more, now representing 16% of the whole population, will constitute 26% of it by 2036 (Figure 6).

Figure 6: Population age pyramid by sex, Eeyou Istchee and Quebec, 2036



Source: MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census)

While the proportion (%) of those aged 65 years or more has not changed much in the past 20 years, staying at about 5% of the whole population, the ISQ predicts it will more than double to 11.1% by 2036 (Table 4). The proportion of the 0 to 9 year old cohort will diminish from 22.6% in 2011 to 19.0% in 2036, and the 10 to 29 year old cohort from 34.6% to 31.9%. The proportion of the 30 to 64 year old cohort will remain relatively stable.

Table 4: Number and % of persons as projected for 2011, 2016, 2021, 2026, 2031 and 2036 by sex and age group, Eeyou Istchee

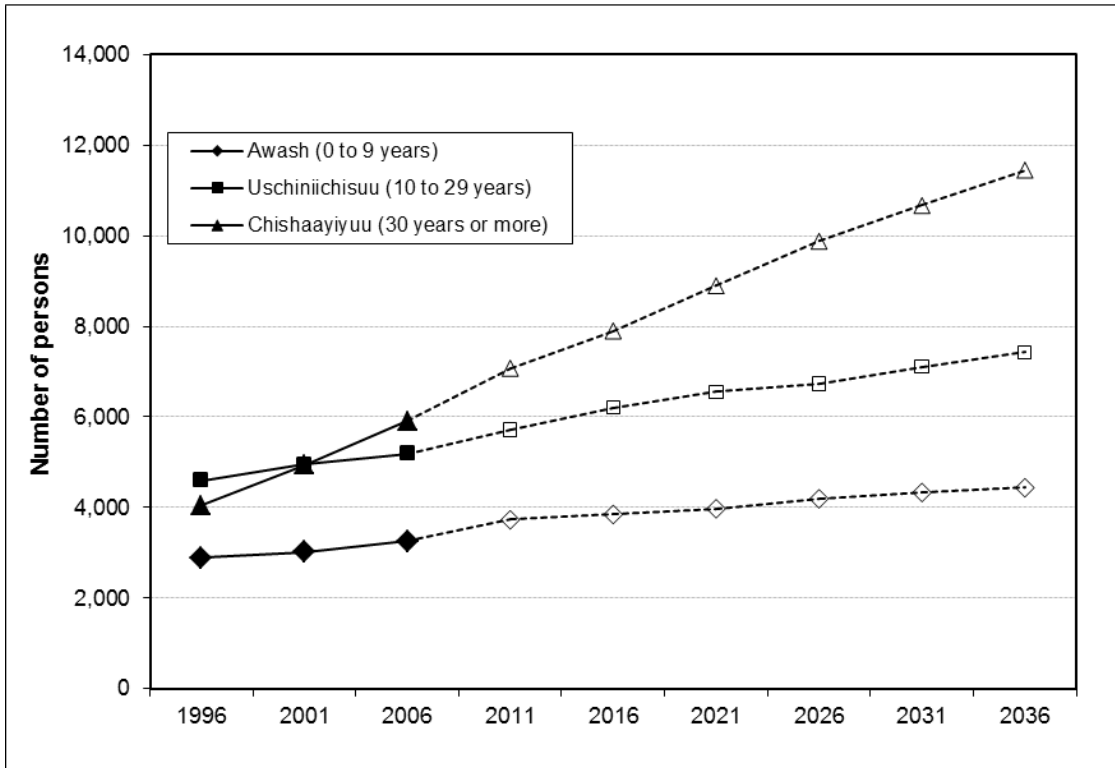
Age groups	2011	2016	2021	2026	2031	2036
Female						
Awash (0 to 9 years)	1,782	1,869	1,938	2,035	2,103	2,154
Uschiniichisuu (10 to 29 years)	2,863	3,060	3,190	3,254	3,437	3,609
Chishaaiyuu (30 years and over)	3,549	3,948	4,477	4,998	5,390	5,767
Total	8,194	8,877	9,605	10,287	10,930	11,530
0 to 29 years	4,645	4,929	5,128	5,289	5,540	5,763
30 to 64 years	3,104	3,417	3,783	4,101	4,261	4,413
65 years and over	445	531	694	897	1,129	1,354
Male						
Awash (0 to 9 years)	1,950	1,981	2,040	2,162	2,232	2,285
Uschiniichisuu (10 to 29 years)	2,855	3,145	3,360	3,484	3,675	3,818
Chishaaiyuu (30 years and over)	3,528	3,953	4,418	4,878	5,276	5,680
Total	8,333	9,079	9,818	10,524	11,183	11,783
0 to 29 years	4,805	5,126	5,400	5,646	5,907	6,103
30 to 64 years	3,159	3,494	3,821	4,103	4,287	4,456
65 years and over	369	459	597	775	989	1,224
Total						
Awash (0 to 9 years)	3,732	3,850	3,978	4,197	4,335	4,439
Uschiniichisuu (10 to 29 years)	5,718	6,205	6,550	6,738	7,112	7,427
Chishaaiyuu (30 years and over)	7,077	7,901	8,895	9,876	10,666	11,447
Total	16,527	17,956	19,423	20,811	22,113	23,313
0 to 29 years	9,450	10,055	10,528	10,935	11,447	11,866
30 to 64 years	6,263	6,911	7,604	8,204	8,548	8,869
65 years and over	814	990	1,291	1,672	2,118	2,578
Distribution (%) of total						
Awash (0 to 9 years)	22.6%	21.4%	20.5%	20.2%	19.6%	19.0%
Uschiniichisuu (10 to 29 years)	34.6%	34.6%	33.7%	32.4%	32.2%	31.9%
Chishaaiyuu (30 years and over)	42.8%	44.0%	45.8%	47.5%	48.2%	49.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
0 to 29 years	57.2%	56.0%	54.2%	52.5%	51.8%	50.9%
30 to 64 years	37.9%	38.5%	39.1%	39.4%	38.7%	38.0%
65 years and over	4.9%	5.5%	6.6%	8.0%	9.6%	11.1%

Note: As it is commonly done, the population projections figures are presented by census years.

Source: MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census)

Based on the same ISQ projections scenario, Chishaayiyuu (30 years or more) is the group that will be growing the fastest in size (Figure 7).

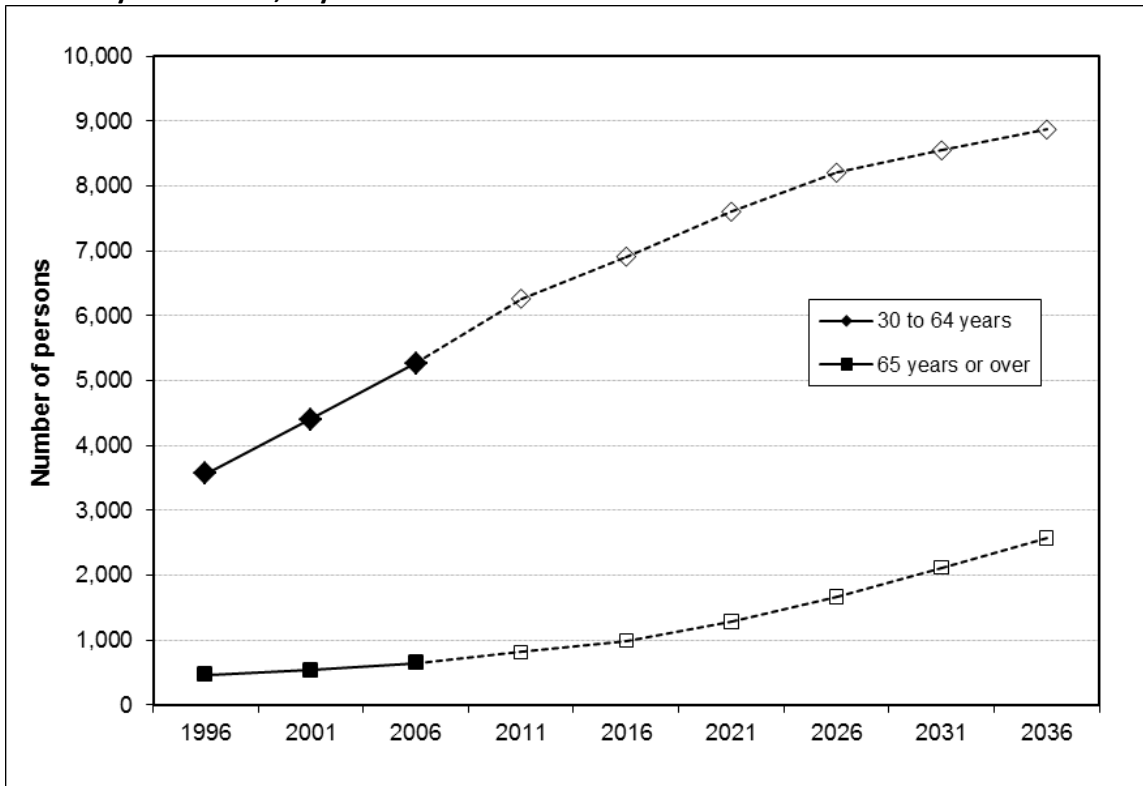
Figure 7: Total population estimates up to 2006 and projections to 2036 by age groups, Eeyou Istchee



Source: MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census)

Looking at the Chishaayiyuu group more closely, the ISQ is predicting that the 30 to 64 year old cohort will be the most affected with this increase in coming years (Figure 8).

Figure 8: Population estimates up to 2006 and projections up to 2036 by age groups, persons 30 years or over, Eeyou Istchee



Source: MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census)

An issue remains with the March 2015 ISQ projections. Adding the number of residents age 5 years or more reported for 2011 to produce the eventual population cohort in 2036 aged 30 years or more, and deducting from the total the estimated number of deaths for the 2011 to 2036 period for that population cohort, results in 12,468 individuals. However, the ISQ projections only target 11,447 individuals in 2036. The difference is even more pronounced when observing the cohort aged 65 years or over. The ISQ projects 2,578 individuals while the addition of those aged 40 years or more in 2011, minus the expected deaths, gives a result of 3,021 elders in 2036 (a difference of -14.7%). The surveillance team will discuss these differences with the ISQ methodologists in 2016.

8. EEYOU POPULATION PROJECTIONS BY COMMUNITIES

Considering the issues with the ISQ estimates by communities reported in Section 5, the approach chosen to estimate the communities' population projections is to apply the rate of regional increase calculated by the ISQ for each specific age group (Table 5) to the 2011 JBNQA Cree Beneficiary List corrected age group figures.

Table 5: ISQ population projections increase rate from previous 5 year period

Year	2016	2021	2026	2031	2036
Awash (0 to 9 years)	3.2%	3.3%	5.5%	3.3%	2.4%
Uschiniichisuu (10 to 29 years)	8.5%	5.6%	2.9%	5.6%	4.4%
Chishaayiyuu (30 years and over)	11.6%	12.6%	11.0%	8.0%	7.3%
Total	8.6%	8.2%	7.1%	6.3%	5.4%

Source: MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census)

As shown in Table 6 below, the total differs slightly from the ISQ regional predictions.

Table 6: Difference between projections based on the JBNQA Beneficiary List figures and ISQ regional population projections, Eeyou Istchee, 2036

Age group	JBNQA Cree beneficiary list	ISQ regional projections
Awash (0 to 9 years)*	4,581	4,439
Uschiniichisuu (10 to 29 years)	7,411	7,427
Chishaayiyuu (30 years and over)	10,925	11,447
Total*	23,008	23,313

Note * The 0 to 4 year-old age group population, included in the 0 to 9 year old, has been corrected using the mid-2006 to mid-2011 birth figures from the MSSS

Sources: - MSSS, JBA Beneficiary List, July 1st, 2011;
 - MSSS, Births registry, 2006 to 2011;
 - MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census).

Table 7: Corrected JBA Beneficiary List population for 2011* and population projections for 2016, 2021, 2026, 2031 and 2036, by community of Eeyou Istchee

Community	Chisasibi (see below to include Inuit population)						Eastmain					
	2011	2016	2021	2026	2031	2036	2011	2016	2021	2026	2031	2036
Awash (0 to 9 years)*	1,022	1,054	1,089	1,149	1,187	1,216	164	169	175	184	190	195
Uschiniichisuu (10 to 29 years)	1,483	1,609	1,699	1,748	1,845	1,926	254	276	291	299	316	330
Chishaayiyuu (30 years and over)	1,770	1,976	2,225	2,470	2,668	2,863	295	329	371	412	445	477
Total*	4,275	4,645	5,024	5,383	5,720	6,030	713	775	838	898	954	1,006

Community	Mistissini						Nemaska					
	2011	2016	2021	2026	2031	2036	2011	2016	2021	2026	2031	2036
Awash (0 to 9 years)*	840	867	895	945	976	999	150	154	159	168	174	178
Uschiniichisuu (10 to 29 years)	1,180	1,281	1,352	1,390	1,468	1,533	260	282	298	306	323	338
Chishaayiyuu (30 years and over)	1,493	1,667	1,877	2,083	2,250	2,415	311	347	391	434	469	503
Total*	3,513	3,817	4,129	4,424	4,700	4,955	721	783	847	907	964	1,016

Community	Oujé-Bougoumou						Waskaganish					
	2011	2016	2021	2026	2031	2036	2011	2016	2021	2026	2031	2036
Awash (0 to 9 years)*	194	200	207	218	225	231	540	557	575	607	627	642
Uschiniichisuu (10 to 29 years)	281	305	322	331	350	365	781	848	895	920	971	1,014
Chishaayiyuu (30 years and over)	310	346	390	433	467	501	874	976	1,099	1,220	1,317	1,414
Total*	785	853	923	988	1,050	1,107	2,195	2,384	2,579	2,763	2,936	3,096

Community	Waswanipi						Wemindji					
	2011	2016	2021	2026	2031	2036	2011	2016	2021	2026	2031	2036
Awash (0 to 9 years)*	434	448	463	488	504	516	314	324	335	353	365	373
Uschiniichisuu (10 to 29 years)	656	712	751	773	816	852	455	494	521	536	566	591
Chishaayiyuu (30 years and over)	698	779	877	974	1,052	1,129	648	723	814	904	977	1,048
Total*	1,788	1,943	2,101	2,251	2,392	2,522	1,417	1,540	1,665	1,784	1,896	1,999

Community	Whapmagoostui						Eeyou Istchee					
	2011	2016	2021	2026	2031	2036	2011	2016	2021	2026	2031	2036
Awash (0 to 9 years)*	194	200	207	218	225	231	3,851	3,973	4,105	4,331	4,473	4,581
Uschiniichisuu (10 to 29 years)	356	386	408	420	443	462	5,706	6,192	6,536	6,724	7,097	7,411
Chishaayiyuu (30 years and over)	355	396	446	495	535	574	6,754	7,540	8,489	9,425	10,179	10,925
Total*	905	983	1,064	1,140	1,211	1,277	16,311	17,721	19,169	20,539	21,824	23,008

Community	Chisasibi (including Inuit population)						Eeyou Istchee (including Chisasibi Inuit population)					
	2011	2016	2021	2026	2031	2036	2011	2016	2021	2026	2031	2036
Awash (0 to 9 years)*	1,042	1,075	1,110	1,171	1,210	1,239	3,871	3,993	4,126	4,353	4,496	4,604
Uschiniichisuu (10 to 29 years)	1,511	1,640	1,731	1,781	1,880	1,963	5,734	6,223	6,569	6,757	7,132	7,448
Chishaayiyuu (30 years and over)	1,804	2,014	2,267	2,517	2,719	2,918	6,788	7,578	8,532	9,473	10,230	10,979
Total*	4,357	4,734	5,120	5,486	5,830	6,146	16,393	17,810	19,266	20,642	21,934	23,124

Note * The 0 to 4 year-old age group population, included in the 0 to 9 year old, has been corrected using the mid-2006 to mid-2011 birth figures from the MSSS

- Sources: - MSSS, JBA Beneficiary List, July 1st, 2011;
 - MSSS, Births registry, 2006 to 2011;
 - MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census).

FOR MORE INFORMATION: <http://www.creehealth.org>
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 and (514) 953-8283

APPENDIX A - HISTORICAL ASSESSMENTS OF EYYOU DEMOGRAPHY

This appendix includes information from previous versions of this analysis paper and is included here so that this earlier information is not lost, although it is no longer of immediate relevance. Some sections here are also found in the main text.

UNDERCOUNTING OF THE EYYOU POPULATION IN THE 1990S AND 2000S

The 1991 census may have undercounted the population by about 30%, a problem not unrelated to undercounting in the 1986 census. Therefore, subsequent population projections based on the 1991 census and used by the MSSS significantly under-estimated the population. Until 1998, all MSSS analyses of the state of health of the population, or of costing per capita for health services in HR 18, were using the wrong denominator with various outcomes: comparative rates reporting aspects of the state of health of the population would have been higher, while costs of providing services would have been over-estimated on a per capita basis.

In February 1998, the MSSS published a “corrected” population projection produced by the ISQ and based on the 1991 census. In 1999, projections were produced from the same census, trying to estimate the population up to that year, but there was an important overestimation of the population growth rate (Figure 9). Then, in 2000, the ISQ produced revised projections based, this time, on the 1996 census. While both presented an increase in population, the growth predicted in the 1999 projection was slowed down too much in the version of 2000, leading to an underestimation of the population once again. In February 2005, a new population projection was published by the ISQ, this time based on the 2001 census. While, up until 2002, the numbers seem to agree with the MSSS JBNQA Beneficiary List (considering a 95% aboriginal population in the ISQ list), they subsequently show a decline in population growth which is not matched by a decline in the MSSS Beneficiary List for 2003 and 2004 which is based on actual, not projected, Cree beneficiaries living in the communities.

The differences between the actual Beneficiary population living in the communities and the ISQ projections of the population had an important implication in the past: the Government of Quebec population projections underestimated the present and future populations that were being served by the CBHSSJB. In projections up to 2009, we estimate that they were missing between 900 and 1,000 persons. In addition, these figures did not include about 100 Inuit residing permanently in Chisasibi. This means that when consulting Québec government reports on Eeyouch produced prior to 2010, it is essential to confirm the population denominator used in any calculations of rates.

STEPS TAKEN AND CORRECTIONS MADE BY THE ISQ IN 2014

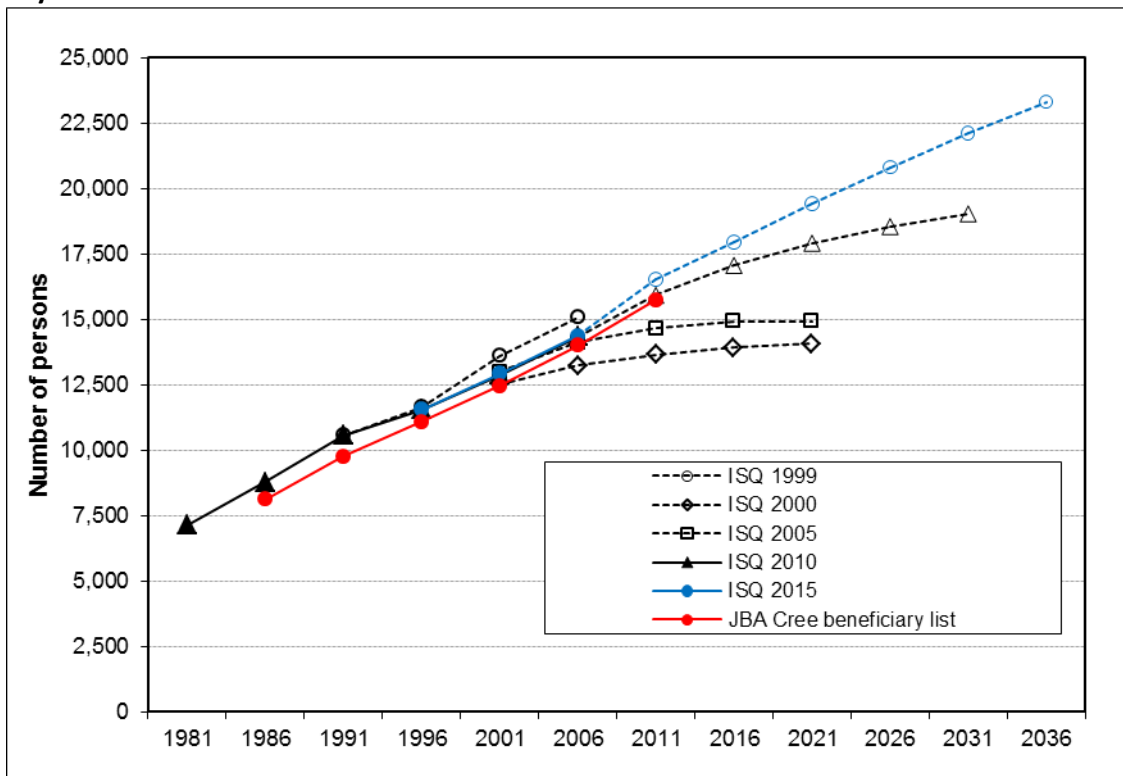
As mentioned earlier in this document, in 2004 the Public Health Department of the Cree Territory of James Bay asked the INSPQ to provide more accurate projections for regional population growth. Based on information supplied by the JBNQA Beneficiary List, the INSPQ suggested that the Public Health department project either a 2.0% or, more conservatively, a 1.5% Eeyou population growth rate.

In March 2012 members of the Public Health surveillance team held a teleconference with two methodologists from the ISQ who explained that Administrative region (AR) 10 population counts

in previous years were used to estimate the population growth rate. This rate was then applied to the population projections of the three Health regions (HR 10, 17 and 18) comprised in AR 10. The ISQ acknowledged that this procedure was wrong because the rapid population decline observed in HR 10 (-13.8% in the past 10 years) was slowing the overall AR 10 population growth rate.

Following this discussion, the ISQ produced in 2014 corrected trends based on the 2011 census data (Figure 9). This new trend, now based exclusively on HR 18 past population counts, finally follows the same curve as the Beneficiary List up to 2011, and is in line with the average population growth rate suggested by the INSPQ in 2004, which is falling around 1.75 %.

Figure 9: Different scenarios of total population estimates, 1981 to 2006 and projections up to 2036, Eeyou Istchee



Sources: - MSSS, JBNQA Cree Beneficiary List, 1986 to 2011 (uncorrected);

- MSSS, ISQ population estimates and projections, January 1999 (based on 1996 census).
- MSSS, ISQ population estimates and projections, January 2000 (based on 1996 census).
- MSSS, ISQ population estimates and projections, January 2005 (based on 2001 census).
- MSSS, ISQ population estimates and projections, January 2010 (based on 2006 census).
- MSSS, ISQ population estimates and projections, June 2015 (based on 2011 census).

But Statistics Canada census population figures for Eeyou Istchee were dubious for 2011. The last census had a very low participation rate in the region (82.1%), and figures for Oujé-Bougoumou were not even published (participation rate of 66.2% only, when the level required for the publication of census figures is 75%).