



10 Year Monitoring Report Main River Canadian Heritage River

Submitted by: *Newfoundland and Labrador Parks and
Natural Areas Division*

Prepared By: *Model Forest of
Newfoundland & Labrador*

Prepared for: *Canadian Heritage Rivers Board*



Canadian
Heritage
Rivers
System



Le Réseau
de rivières
du patrimoine
canadien

Model Forest of Newfoundland & Labrador Inc. (MFNL)

MFNL has catalogued this document as follows:

10 YEAR MONITORING REPORT, MAIN RIVER CANADIAN HERITAGE RIVER

Authors:

Peter Davison and Nathan Wareham

Contributions from:

Newfoundland Labrador Parks and Natural Areas Division, and multiple Main River watershed stakeholders

Copies of this document may be obtained from:

Model Forest of Newfoundland & Labrador Inc.

P. O. Box 68

Corner Brook, NL A2H 6C3

Telephone: 709-637-7300

Fax: 709-634-0255

Executive Summary

Main River, situated on the southeastern side of the Great Northern Peninsula of Newfoundland, continues to be one of the most accessible pristine and wild rivers available for anglers and outdoor enthusiasts in Newfoundland and Labrador. In 2001, Main River was designated as a Canadian Heritage River (CHR) under the Canadian Heritage Rivers System (CHRS) based on the rivers exceptional natural and recreational values.

In 2011, the 10-year celebration as a CHR, the Department of Environment and Conservation, Parks and Natural Areas Division, the managing agency of the CHR, was required to perform a 10-year review of the river's CHRS heritage values and integrity guidelines. This 10-year monitoring report on the Main River CHR fulfills this reporting requirement and presents the CHRS Board with a status update on the natural and recreational heritage values and integrity guidelines of the CHR corridor. The report also establishes a chronology of significant events and research undertaken within the CHR corridor and identifies changes or potential threats to the natural and recreational values of the Main River.

As a requirement during the CHR nomination process, the government of Newfoundland and Labrador's (hereinafter referred to as the "Province") Parks and Natural Areas Division (PNAD) submitted a management plan for the nominated Main River CHR corridor. The management plan detailed numerous goals and objectives that, when completed, would ensure the values within Main River would be maintained and protected. To fulfill the goal of managing the CHR corridor in a cooperative multi-stakeholder approach, PNAD formed the Main River Management Advisory Committee in 2003 comprised of stakeholders within the Main River watershed. The designation as a CHR does not provide legislative protection; therefore, the management plan indicated that the CHR corridor would receive legislative protection upon designation as a CHR. On August 28, 2009, the Province designated 152 km² (76%) of the CHR corridor as the Main River Waterway Provincial Park (MRWPP), under the Provincial Parks Act, and 49 km² (24%) of the corridor as the Main River Special Management Area (SMA), under the Lands Act.

PNAD, the managing agency of the Main River CHR, has been instrumental in forming partnerships for flora and fauna research, monitoring visitor use, assisting with water quality monitoring, and gathering input from stakeholders in the management of the corridor. Based on monitoring by PNAD staff, visitor use levels are considered to have not yet reached a point where additional protection mechanisms are required. All infrastructure enhancements (tenting sites, hiking trails and portage routes) have been conducted with the objective of maintaining a backcountry wilderness experience throughout the corridor and have not compromised the natural values of the CHR.

Over the past 10 years (2001-2011) the only known industrial anthropogenic disturbance within the CHR corridor has been the treatment of a portion of the SMA with *Bacillus thuringiensis kurstaka* (BtK) in 2008 and 2009 by the Department of Natural Resources in response to severe defoliation of balsam fir by *Lambdina fiscellaria* (hemlock looper). Due to the legislative protection mechanisms in place and the limited amount of industrial development within the surrounding watershed, the natural heritage values within the corridor have been maintained and are expected to remain post 2011.

Based on the findings presented in this 10-year monitoring report, Main River continues to meet all the CHRS integrity guidelines upon which it was originally nominated. Currently (as of February 2011) there are no substantial threats to the Main River CHRS integrity guidelines and the current mechanisms in place (MRWPP, SMA, Federal Species at Risk Act, Provincial Endangered Species Act, Provincial Environmental Assessment Act and the MRMAC) will ensure the CHRS integrity guidelines and heritage values will be maintained into the future.

Table of Contents

Executive Summary	i
Table of Figures	iii
Table of Tables	iii
List of Acronyms	1
1.0 Introduction	1
2.0 Background	2
3.0 Methodology	5
4.0 Chronology of Research, Management, & Stewardship Activities	6
5.0 Natural Heritage Values	8
5.1 Background	8
5.2 Condition of Natural Heritage Values since Designation	10
6.0 Cultural Heritage Values	15
6.1 Background & Status	15
6.2 Condition of Cultural Heritage Values since Designation	16
7.0 Recreational Heritage Values	16
7.1 Background & Status	16
7.2 Condition of Recreational Heritage Values since Designation	17
8.0 Integrity Guidelines	23
9.0 Review of Management Plan Objectives since Designation	26
10.0 Conclusion and Recommendations	34
Appendix A: Stakeholder Interviews and Communications	38
Appendix B: List of research studies occurring in, partially in, or in close proximity to Main River, Canadian Heritage River from 2001 to 2011	40

Table of Figures

Figure 1. Figure 1. Boundaries of the Main River watershed and the Canadian Heritage River corridor (comprised of the Waterway Provincial Park and Special Management Area). Main River, Newfoundland and Labrador, was designated as a Canadian Heritage River in 2001.	5
---	---

Table of Tables

Table 1. Chronology of events for the Main River, Canadian Heritage River, during the period of 2001 to 2011. All significant events, monitoring activities, and PNAD commissioned surveys that occurred within the CHR corridor or relevant items occurring outside the corridor but within the watershed are included. A complete list of all research studies is included in Appendix B. Titles of reports, surveys and projects are highlighted with italic font.	6
Table 2. The condition of natural heritage values and changes or threats to values within Main River, Canadian Heritage River, from February 2001 to February 2011. The element description column follows the methodology and terminology presented in the Canadian Heritage Rivers System document " <i>A Framework for the Natural Values of Canadian Heritage Rivers, 2nd Edition, March 2001</i> ".	12
Table 3. Condition of recreational heritage values and changes or threats to said values, as of February 2011, since designation of Main River as a Canadian Heritage River in 2001.	18
Table 4. Status, changes and/or threats of the Main River, Canadian Heritage River System integrity guidelines since designation as a Canadian Heritage River in 2001. Cultural integrity values were not applied during the designation of Main River as a Canadian Heritage River; therefore, the cultural integrity guidelines are shown as N/A in this table.	24
Table 5. Degree of achievement of commitments identified within the management plan for Main River, Canadian Heritage River, since designation in February 2001.	27

List of Acronyms

CBPPL	Corner Brook Pulp and Paper Ltd.
CHR	Canadian Heritage River
CHRS	Canadian Heritage Rivers System
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
DNR	Department of Natural Resources
MRMAC	Main River Management Advisory Committee
MRWPP	Main River Waterway Provincial Park
NL	Newfoundland and Labrador
PNAD	Department of Environment and Conservation, Parks and Natural Areas Division
SMA	Special Management Area
TCR	Department of Tourism, Culture and Recreation
The Province	Government of Newfoundland and Labrador
WD	Department of Environment and Conservation, Wildlife Division
WPP	Waterway Provincial Park
WRD	Department of Environment and Conservation, Water Resources Division

1.0 Introduction

Main River & the Canadian Heritage Rivers System

Of all the rivers within Newfoundland and Labrador (NL), few can match the wild landscapes, scenic vistas and abundant wildlife found along Main River. To conserve the ecological integrity of the Main River, ensuring it can be enjoyed by future generations, the government of Newfoundland and Labrador (hereinafter referred to as the Province) nominated the river corridor to the Canadian Heritage Rivers System (CHRS) in 1991. In February of 2001, 10 years following the nomination, Main River received the Canadian Heritage River (CHR) designation, to be managed by the Department of Environment and Conservation, Parks and Natural Areas Division (PNAD).

The mandate of the CHRS is best described as:

“The Canadian Heritage Rivers System was established in 1984 by Federal, provincial and territorial Governments to conserve rivers with outstanding natural, cultural and recreational heritage, to give them national recognition, and to encourage the public to enjoy and appreciate them. Today, there are 41 Canadian Heritage Rivers (37 designated, and another 4 nominated) across Canada, and more are being added to the system each year” (CHRS, 2011).

One of the important aspects of the CHRS is, when a river is nominated and receives CHR designation, no new legislation is created and this responsibility remains with the managing agency (Federal, Provincial/Territorial government). Upon the designation of Main River as a CHR in 2001, PNAD became responsible for the management, oversight and monitoring of many activities within the Main River CHR corridor. Some responsibilities within the CHR not governed or managed directly by PNAD include the Provincial Endangered Species Act, Lands Act, Water Resources Act, Wild Life Act, and the Federal Species at Risk Act, NL Fishery Regulations under the Fisheries Act, and the Migratory Bird Convention Act.

CHRS currently releases an annual report which highlights information on program activities and the state of the rivers that hold CHRS designation or nomination. Every river designated under the CHRS is subject to a review every 10 years detailing the state of the river's heritage values and any changes or threats to the values. In February of 2011, the Main celebrated its 10th anniversary as a CHR and is now subject to its first 10-year monitoring review.

The objectives of this 10-year monitoring report on the Main River CHR are as follows:

- Develop a chronology of significant events related to the CHR corridor in the last 10 years;
- Establish the current condition of the CHR's natural, recreational and cultural values;
- Assess whether the CHRS integrity guidelines are still being met;
- Determine the status of the goals and objectives outlined in the Main River management plan;
- Outline recommendations for the management of the CHR corridor.

2.0 Background

The "Main"

Main River, situated on the southeastern side of the Great Northern Peninsula of Newfoundland, continues to be one of the most pristine and wild rivers available for anglers and outdoor enthusiasts in NL. Beginning 675 metres above sea level among the barrens of the Long Range Mountains, the river flows through undisturbed boreal forest, through a maze of grassy islands and slow water known as the Big Steady, before plunging through a steep glacial-formed valley and out into White Bay in the Atlantic Ocean. ¹A map of Main River illustrating the CHR corridor, the Main River Waterway Provincial Park (MRWPP) and Main River Special Management Area (SMA) can be seen in Fig. 1.

Main River straddles two ecoregions: The headwaters and Big Steady are situated within the Long Range Barrens ecoregion, and downstream from the Big Steady, Main River flows through the Northern Peninsula Ecoregion. The ecosystems within the CHR corridor are intact, with the terrestrial system providing habitat for numerous animal populations including nearly all land mammals found within insular Newfoundland, and the aquatic system supporting healthy populations of Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*). The terrestrial ecosystem includes rare old growth balsam fir and black spruce boreal forest and provides critical habitat for the provincially threatened Newfoundland marten. In addition to the Newfoundland marten, several rare bird species such as the Grey-Cheeked Thrush (*Catharus minimus*), Rusty Blackbird (*Euphagus carolinus*) and Olive-sided Flycatcher (*Contopus cooperi*) have been identified (T. Leonard, personal communication, March 12, 2012). There is at least one rare plant species, upland bent (*Agrostis perennans*), found within the corridor (Hanel, 2004). Complementing the natural values within the terrestrial ecosystem is the equally outstanding aquatic ecosystem which supports numerous recreational activities.

The population of Atlantic salmon and brook trout combined with the wilderness landscapes make Main River one of the top fly fishing destinations in insular Newfoundland. In addition to anglers, the CHR is frequently used by hunters,

¹ Topographic Maps: The Main River is covered by National Topographic Series maps at 1:250,000 by Map 12H (Sandy Lk), and at 1:50,000 by maps 12H/14E & W (Main R.), 12h/11E (Silver Mtn: White Bay) and 12H/15W (Jackson's Arm: White Bay).

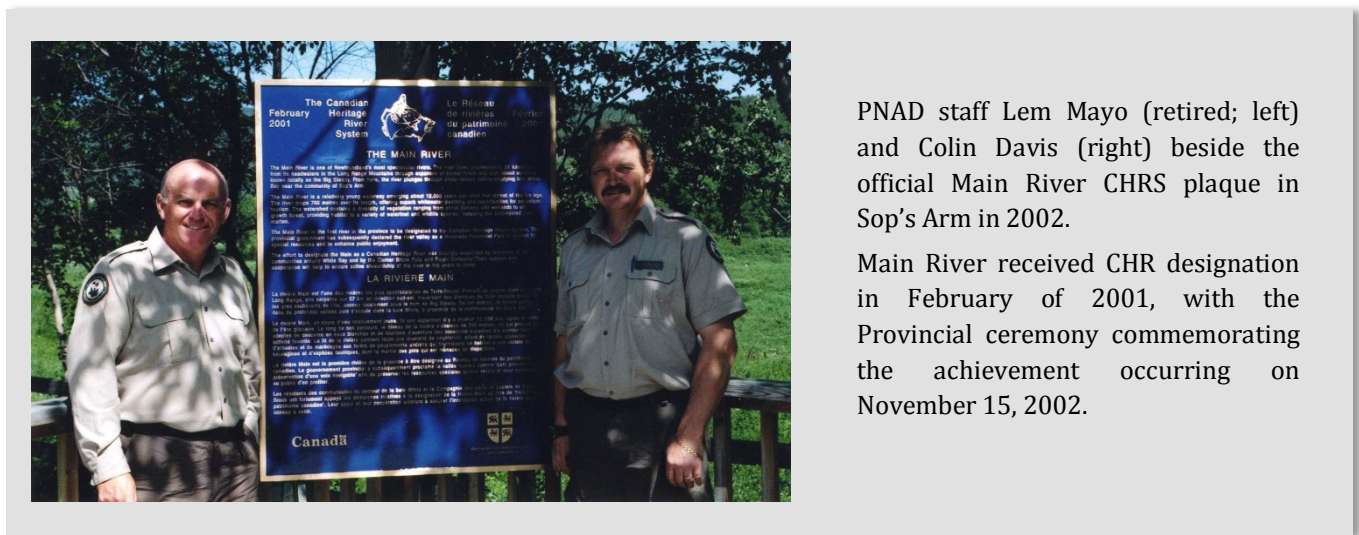
snowmobilers, hikers, paddlers, campers and anyone else wanting to enjoy a wilderness experience. There are no private cottages within the CHR. Visitor use is comprised of both residents and non-residents of NL with several outfitting businesses using the CHR corridor for guided hunting and fishing trips. During the nomination period of the CHR corridor, it was decided that the two commercial outfitting businesses, with structures residing in the park, would remain. The two outfitting establishments with structures within the CHR cater to out-of-province anglers and hunters, with more emphasis being placed on the later group in recent years (R. Payne, personal communication, March 20, 2012) (R. Parsons, personal communication, March 21, 2012).

The History of Main River as a Canadian Heritage River

In 1987, the report “*A Systematic Study of Insular Newfoundland Rivers to Identify Potential CHRS Candidates*” was commissioned by the Co-operative Heritage Planning Agency of Parks Canada in conjunction with the Parks Division of the Department of Culture, Recreation and Youth, government of Newfoundland and Labrador (Halfyard, 1987) (the Parks Division has since been renamed to Parks and Natural Areas Division, and is now located within the Department of Environment and Conservation). The report evaluated nine river systems located in insular Newfoundland with the purpose of establishing the potential of each river system for nomination to the CHRS (Halfyard, 1987). The report concluded that Main River was one of the top three candidates for nomination (Halfyard, 1987), and in 1991, the Province nominated Main River to the CHRS Board as a potential CHR and the first river in the province to receive such a nomination.

Prior to designation as a CHR, the managing agency, PNAD, was required to complete a heritage values strategy/management plan describing how the river would be managed to conserve its outstanding natural and recreational values. Numerous steps were undertaken to create the management plan including such activities as: public stakeholder consultations and open house discussions, organized by PNAD, to provide input into the development of the plan. The plan outlined how PNAD would maintain the integrity of the river within the nominated corridor and address activities that happen in the watershed which may potentially impact the nominated corridor. Due to the complexity of the process, it was not until January, 2001 that the “*Management Plan for Main River as a Canadian Heritage River*” was complete.

The completion of the management plan fulfilled one of the last requirements for designation and approximately one month following plan submission Main River received the CHR designation from the CHRS Board. Provincially, the public



PNAD staff Lem Mayo (retired; left) and Colin Davis (right) beside the official Main River CHRS plaque in Sop's Arm in 2002.

Main River received CHR designation in February of 2001, with the Provincial ceremony commemorating the achievement occurring on November 15, 2002.

commemoration and unveiling of the CHR plaque in Main River occurred on November 15, 2002 by Gerry Byrne, former Minister of State (ACOA), on behalf of Sheila Copps, former Minister of Canadian Heritage, and the Julie Bettney, former Minister of the Department of Tourism, Culture and Recreation (TCR) for Newfoundland and Labrador (TCR, 2002). In 2002 PNAD was situated within the TCR, but is now situated within the Department of Environment and Conservation.

To fulfill its commitments under the management plan, the Province began to implement a strategy to get the 201 km² CHR corridor protected by legislation. In 2009 the Province designated 152 km² (76%) of the corridor as the MRWPP, under the Provincial Parks Act, and 49 km² (24%) as a SMA, under the Lands Act. Activities within the SMA are regulated based on the first priority of maintaining the natural and recreational values of the CHR. At the time, the Minister of the Department of Environment and Conservation, Charlene Johnson described the reasoning for legislative protection as:

“Designation of Main River Waterway Provincial Park under the Provincial Parks Act provides the necessary legislative mechanism to protect areas which exhibit exceptional natural and recreational characteristics while, at the same time, accommodating recreational activities and acting as stimulus for economic opportunities” (Environment and Conservation, 2009).



Photograph celebrating the official designation of Main River as a Waterway Provincial Park on August 28, 2009. Charlene Johnson, former Minister of the Department of Environment and Conservation (centre) joined by Parks and Natural Areas staff, Colin Davis (left) and Brad LeDrew (right).

Minister Johnson also solidified the Province’s commitment to preserving this pristine wilderness area by stating:

“The establishment of this park demonstrates Government’s commitment to conserve biodiversity and protect a valuable watershed. Main River’s outstanding natural and recreational values make it an excellent candidate for this designation. The area offers opportunities for paddling, angling, snowmobiling, ecotourism ventures and scientific research” (Environment and Conservation, 2009).

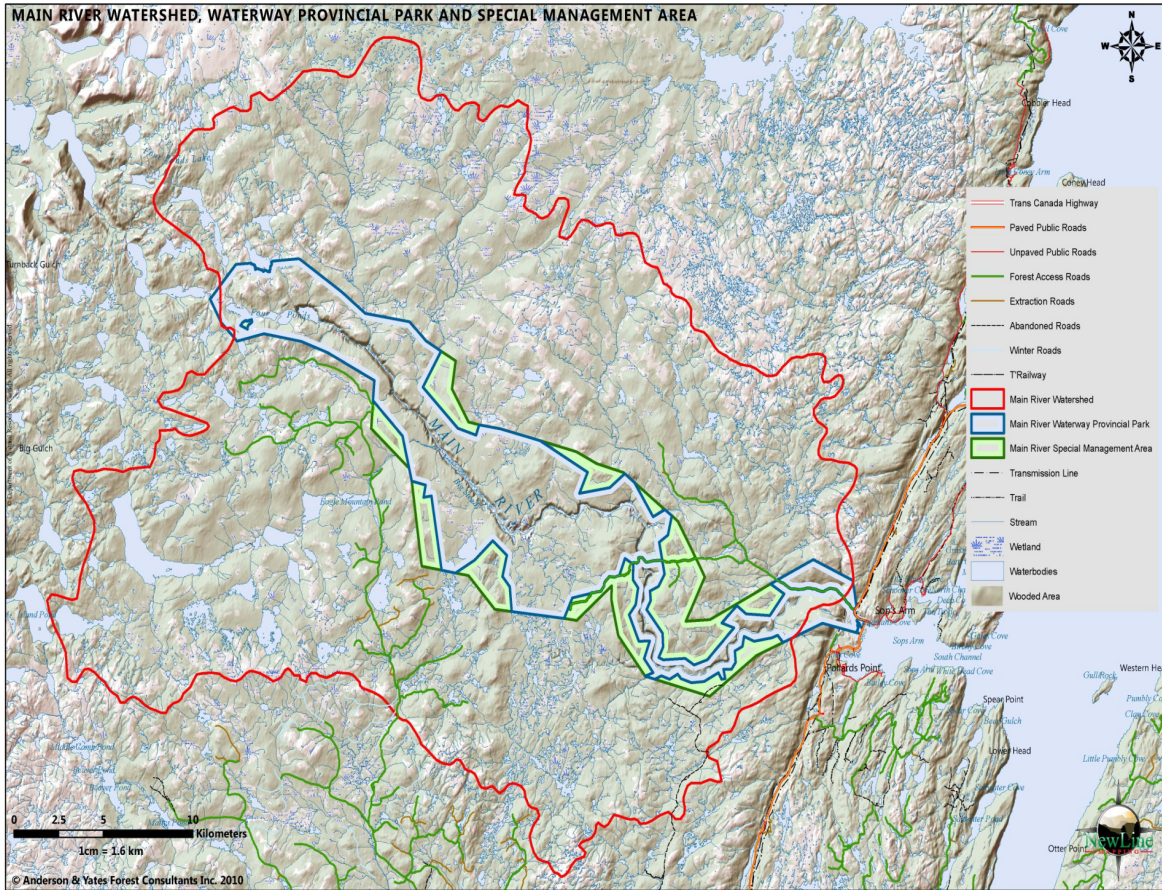


Figure 1. Figure 1. Boundaries of the Main River watershed and the Canadian Heritage River corridor (comprised of the Waterway Provincial Park and Special Management Area). Main River, Newfoundland and Labrador, was designated as a Canadian Heritage River in 2001.

3.0 Methodology

The primary approaches used to gain information on the activities occurring within the corridor, and current status, changes, and potential threats to the CHRS heritage values since designation in 2001 were:

1. Interviews with stakeholders;
2. Review of available literature using:
 - a. Yaffle Database Search (Memorial University);
 - b. University of British Columbia Data Base;
 - c. Water Survey of Canada;
 - d. A search of the Atlantic Cooperative Wildlife Ecology Research Network, which included Acadia University and the University of New Brunswick;
 - e. An internet search using Google and Google Scholar.

Interviews with stakeholders and literature reviews were extremely valuable for finding information about the state of the river and the progress that has been made to preserve/enhance the values upon which Main River was designated as a CHR in 2001. Interviews were conducted with representatives of the following government departments: Department of Environment and Conservation’s PNAD, Wildlife Division (WD), Crown Lands Division, and Water Resources Division (WRD),

Fisheries and Oceans Canada (DFO) and Canadian Wildlife Service (CWS). Interviews were also conducted with several additional stakeholders, and with individuals who were involved in the initial nomination process. A comprehensive list of all interviews is included in Appendix. All representatives provided information regarding activities and research conducted over the past 10 years and identified any potential changes/threats to the CHRS integrity guidelines and heritage values.

4.0 Chronology of Research, Management, & Stewardship Activities

Over the last 10 years there have been a number of activities that have take place in the Main River CHR corridor. One of the more notable studies undertaken prior to the CHR designation was Dr. John McCarthy’s study on the old growth forests of Main River. McCarthy’s study, *“Natural disturbance and structure in two primary boreal forests of Western Newfoundland”*, contributed a significant amount of baseline knowledge on the unique old growth boreal forests within the CHR. Numerous studies, monitoring activities, and PNAD commissioned surveys have occurred within the CHR since designation to the CHRS in 2001 and are shown in Table 1.

Numerous independent research projects have been completed within the Main River watershed with study areas occurring within, partially within or in close proximity to the CHR corridor since 2001, and a complete list of all research projects and surveys is included in Appendix B. The subject area of the independent research resulting in peer reviewed scientific papers has been focused on such items as:

- the natural disturbance and structure of old growth boreal forests;
- songbird population dynamics within natural and managed landscapes;
- natural and anthropogenic fragmentation and the effects on songbirds;
- natural fragmentation and the effects on a peatland dragonfly;
- nest-site success and characteristics of boreal forest songbirds;
- coarse woody debris decay and classification in old growth boreal forests.

Table 1. Chronology of events for the Main River, Canadian Heritage River, during the period of 2001 to 2011. All significant events, monitoring activities, and PNAD commissioned surveys that occurred within the CHR corridor or relevant items occurring outside the corridor but within the watershed are included. A complete list of all research studies is included in Appendix B. Titles of reports, surveys and projects are highlighted with italic font.

Year	Significant Events, Actions, Research or Studies since 2001
2001	<ul style="list-style-type: none"> • The government of Newfoundland and Labrador (hereinafter referred to as the Province) has Main River designated as its first CHR by the CHRS Board in February, 2001.
2002	<ul style="list-style-type: none"> • November 15, 2002: the Province and Federal governments officially commemorate the CHR designation with the unveiling of the CHR plaque during a ceremony in Sop’s Arm. • PNAD creates the position of Main River Planner. • PNAD creates the position of Main River Park Ranger.

Year	Significant Events, Actions, Research or Studies since 2001
2003	<ul style="list-style-type: none"> • The Main River Management Advisory Committee (MRMAC), as recommended in the management plan, is established to advise PNAD on how the CHR corridor should be developed and managed. The committee holds its first meeting on April 25, 2003. • PNAD commissions Memorial University of Newfoundland to conduct “<i>A Survey of the Avifauna of Main River</i>” resulting in 70 bird species being identified (report published in 2004). • PNAD commissions Claudia Hanel to conduct “<i>A Botanical Survey of the Proposed Main River Waterway Provincial Park</i>” (report published in 2004). • PNAD initiates weekly monitoring of visitor use and visitor expectations within the CHR.
2004	<ul style="list-style-type: none"> • PNAD develops day-use areas in the CHR corridor at the Kruger Bridge, Northern Feeder and the Flats. • PNAD initiates a salmon scale collection project in partnership with Fisheries and Oceans Canada resulting in the hiring of two summer students. • PNAD eliminates the Main River Park Ranger position, but creates a Main River Park Technician position. • Water sampling is initiated at Eagle Mountain Brook by WRD, in partnership with Environment Canada. • PNAD organized a canoe trip down Main River to evaluate which traditional tenting sites should be maintained/enhanced by PNAD. The canoe trip also provided staff with first-hand knowledge on the paddling conditions visitors can expect while on the river.
2005	<ul style="list-style-type: none"> • PNAD builds three kiosks along the Main River Road identifying key natural and recreational values contained in the CHR. • A pilot test of intensive live trapping versus non-intensive hair collection is conducted in partnership between the WD and PNAD. • PNAD commissions Tract Consulting Inc. to develop a “<i>Concept Plan and Design for Main River Gateway/ Staging Area</i>”. • PNAD implements a permit registration process to monitor park use and visitors. • PNAD installs digital monitoring equipment to establish the level of snowmobile use. • Salmon scale collection project continues, resulting in the hiring of two summer students.
2006	<ul style="list-style-type: none"> • PNAD creates a Park Manager position. • Models of Newfoundland marten population size were built using jackknife estimation technique and program CAPTURE in partnership between WD and PNAD. • PNAD purchases an outfitting structure on the Big Steady with plans to remove the structure and develop a new patrol structure to facilitate enforcement, monitoring, scientific research, and to increase PNAD presence on the Big Steady. • CBPPL removes several bridges in the vicinity of Eagle Mountain Brook. • Salmon scale collection project continues, resulting in the hiring of two summer students.

Year	Significant Events, Actions, Research or Studies since 2001
2007	<ul style="list-style-type: none"> • PNAD removes the outfitting structure on the Big Steady. • WD begins a 10-year small mammal study to evaluate the distribution and population trends of small mammals using 14 study sites across NL including one site within the CHR. • PNAD field staff assists WD in maintaining and monitoring the small mammal study site located within the CHR. • PNAD establishes a field office in Pollard’s Point. • Salmon scale collection project continues, resulting in the hiring of two summer students.
2008	<ul style="list-style-type: none"> • PNAD and WD partner to conduct a roving creel survey to determine the population structure and growth rates of brook trout. • PNAD field staff conducts a Newfoundland marten backtracking survey in partnership with WD and Parks Canada. • PNAD secures funding for a summer student to perform salmon scale collection and other CHR field work. • Main River Festival organized, celebrating Canadian Rivers Day. • In response to forecasted severe defoliation of balsam fir within the CHR by <i>Lambdina fiscellaria</i> (hemlock looper), Department of Natural Resources (DNR), Newfoundland Forest Service, treats 270 Ha of forests within the SMA with the biological control agent <i>Bacillus thuringiensis kurstaka</i> (BtK). • Salmon scale collection project continues, resulting in the hiring of two summer students.
2009	<ul style="list-style-type: none"> • On August 28, 2009, the Honorable Charlene Johnson, former Minister of the Department of Environment and Conservation announces the formation of the 152 km² MRWPP and the 49 km² SMA during a ceremony near the mouth of Main River. • PNAD rebuilds old staircase at the Kruger Bridge, providing safer and easier access to the river for anglers, canoeists, kayakers and rafters. • In response to 849 Ha of defoliation and additional forecasted severe defoliation of balsam fir within the CHR by hemlock looper, DNR, Newfoundland Forest Service, treats 1460 Ha of forests within the SMA with the biological control agent BtK. • Salmon scale collection project continues, resulting in the hiring of one summer student.
2010	<ul style="list-style-type: none"> • PNAD begins construction of a patrol structure on the Big Steady, to facilitate enforcement, monitoring, and scientific research activities, replacing the outfitting structure purchased in 2006 and subsequently removed in 2007. • Salmon scale collection project continues, resulting in the hiring of one summer student.
2011	<ul style="list-style-type: none"> • CBPPL relinquish all timber rights within the Main River watershed back to the Province. • Foray NL conducts a Wild Mushroom Census in the MRWPP.

5.0 Natural Heritage Values

5.1 Background

As one of the few remaining untamed wilderness rivers within Newfoundland and Labrador, Main River provides visitors with a multitude of opportunities to appreciate the incredible natural values within CHR corridor. The continuance of these outstanding values within the CHR has resulted in the river being a popular destination for researchers, anglers, hunters, paddlers, hikers and nature photographers. Whether it is the rare old growth balsam fir and black spruce boreal forest,

where both species can reach ages of 250 years old, the provincially threatened Newfoundland marten, excellent water quality or the abundant scenic vistas, Main River continues to possess the values that enabled it to become a CHR in 2001.

Before a river can be designated as a CHR under the CHRS, it has to meet either the cultural or natural heritage selection guidelines (CHRS, 2001). The designation of Main River as a CHR was based solely on the natural heritage selection guidelines with recreational heritage values being used as supporting rationale. For a river to qualify as a CHR it has to meet at least one of the four standard CHRS natural heritage selection guidelines listed below. Due to natural features such as the presence of glacially influenced landscapes, intact aquatic and terrestrial ecosystems, rare old growth boreal forests, abundant natural beauty, and critical Newfoundland marten habitat, the river met and continues to meet all four of the following CHRS natural heritage selection guidelines:

- Is an outstanding example of river environments as they are affected by the major stages and processes in the earth's evolutionary history which are represented in Canada;
- Is an outstanding representation of significant ongoing fluvial, geomorphological and biological processes;
- Contains along its course unique, rare or outstanding examples of natural phenomena, formations or features, or areas of exceptional natural beauty;
- Contains along its course habitats of rare or endangered species of plants and animals.



Main River, Canadian Heritage River, located on the island of Newfoundland.

It should be noted that for the purpose of this report the natural heritage values are reported on using the CHRS document "*A Framework for the Natural Values of Canadian Heritage Rivers, Second Edition 2001*". One of three primary objectives of the framework document is to encourage CHRS managing agencies to use a standardized approach during the identification, documentation, evaluation and management of rivers' natural values (CHRS, 2001). Furthermore, CHRS identifies the following potential applications of the framework (CHRS, 2001):

- a common vocabulary for CHRS documents, discussions, and interpretation of selection guidelines;
- assessment of possible nominations against existing Canadian Heritage Rivers;
- the assessment of the state of the System;
- the identification of gaps in the System;
- defining management priorities on designated rivers;
- structuring monitoring studies.

Considering the above mentioned details, the condition of Main River's natural heritage values since designation are described following the terminology and organizational structure identified within the framework. Table 1 identifies all natural values upon which Main River was designated a CHR and presents a 10-year summary of all significant actions and research as well as any changes or potential threats to the values.

5.2 Condition of Natural Heritage Values since Designation

Main River CHR is fortunate to have experienced no industrial anthropogenic disturbance such as timber harvesting or mineral extraction within the corridor since the river's CHR designation in 2001. The absence of large scale human caused disturbance has been one contributing factor allowing the CHR to maintain the condition of its natural heritage values.

Of the many natural heritage values contained within the Main River CHR, the pristine water quality continues to support a healthy aquatic ecosystem including a population of Atlantic salmon (*Salmo salar*) that continues to sustain one of the best recreational salmon fisheries in NL. To detect any changes, WRD has been conducting water quality sampling (temperature, dissolved oxygen, turbidity, pH, total dissolved solids and specific conductivity) within the CHR since 1986 and has yet to detect any significant changes (PNAD, 2009) (L. Hyde, WRD, personal communication, March 20, 2012). WRD conducts quarterly water quality sampling at three locations within the CHR: Eagle Mountain Brook, Paradise Pool and at the mouth of the river at the bridge on Route 420. In addition to the quarterly sampling, in 2007 a real-time automated sampling unit was installed at Paradise Pool providing year round constant monitoring of water flow rates, and water quality information during the ice free months. It should be noted that the ability to detect short term water quality changes has been reduced since the real-time automated water quality equipment at Paradise Pool was removed in 2011 due to Environment Canada budgetary reductions. Real-time flow data continues to be monitored at the station in Paradise Pool and is available on the WRD's website.



The Big Steady on Main River CHR, Newfoundland and Labrador. The CHR corridor contains critical habitat for the threatened Newfoundland marten and showcases rare old growth balsam fir and black spruce boreal forest with both tree species surviving for upwards of 250 years.

To better understand the ecosystem within the Main River corridor and watershed, PNAD has commissioned several surveys within the CHR and there have been numerous independent research projects completed by educational institutions such as Memorial University, Acadia University and Mount Allison University. PNAD continues to perform monitoring surveys focused on the impacts of visitor use on the natural values. In 2003, to address a knowledge gap on the avifauna and botanical populations within the corridor, PNAD commissioned Memorial University of Newfoundland to conduct "A Survey of the Avifauna of Main River", and Claudia Hanel to conduct "A Botanical Survey of the Proposed Main River Waterway Provincial Park". Both reports were completed in 2004, with the avifauna

study identifying 70 bird species of which at least three are considered rare: Grey-cheeked Thrush (*Catharus minimus*), Rusty Blackbird (*Euphagus carolinus*) and the Olive-sided Flycatcher (*Contopus cooperi*). In addition to the PNAD commissioned surveys of 2003, the WD has conducted Newfoundland marten live trapping and tagging within the CHR before switching to a hair snagging mark-recapture program in 2004. The most recent (2007 data) Newfoundland marten population estimates indicate there are 94-190 individuals within the Main River watershed (E. Herdman, WD, personal

communication, March 21, 2012). In 2007, to supplement the work done on evaluating the Newfoundland marten population, the WD initiated a province-wide small mammal study with one of the 14 study sites occurring within the CHR. Three of the seven project goals of the study are: identify species and distribution of species, develop population trends, and disease monitoring and early detection (Rodrigues, 2011). The small mammal study will heighten the understanding of small mammals within the CHR such as the invasive southern red-backed vole (*Clethrionomys gapperi*) which can be the main prey for the Newfoundland marten. The distribution of this vole is expanding within insular Newfoundland with Main River being considered the most northerly extent of the population (Rodrigues, 2011). PNAD, in partnership with WD, has been managing and monitoring the small mammal study site within the CHR since 2007.

Additional projects occurring within the CHR have included research on the old growth forests, waterfowl surveys conducted by PNAD and Canadian Wildlife Service, PNAD salmon scale sample collection, and a mycological survey conducted by Foray Newfoundland and Labrador. A complete review of the significant actions, research or studies focused on natural heritage values from 2001-2011, along with any changes or threats to said values are included in Table 1. A detailed list of all research and studies occurring within or in close proximity to the CHR are included in Appendix B.

As previously mentioned, there has been no industrial timber harvesting or mineral extraction occurring within the CHR since designation in 2001. There have been several small scale modified timber harvests conducted by CBPPL in watershed outside of the CHR. During these modified timber harvesting operations, operational constraints (soil, slope, watercourse frequency, reduced m³/ha, etc) resulted in substantially higher operating costs compared to traditional harvest methods. In 2011, CBPPL, the sole industrial forestry operator within the Main River watershed, released all timber rights within the watershed back to the Province. As of February 2011, DNR has no plan to permit timber harvesting within the watershed in the near future. This reduction in industrial development will reduce potential threats to the natural values contained within the CHR.

As opposed to timber harvesting, which tends to be highly visible on the landscape, the Province's control of forest pests is not as noticeable but has occurred within the CHR (D. Lavigne, personal communication, March 13, 2012). The control of the balsam fir defoliator, *Lambdina fuscicollis* (hemlock looper), by DNR, using the biological control agent *Bacillus thuringiensis kurstaka* (BtK) has occurred two times within the CHR corridor between 2001 and 2011 (D. Lavigne, DNR, personal communication, March 13, 2012). During this period, BtK was applied to 270 Ha and 1460 Ha during the years of 2008 and 2009, respectively. Application was in response to severe defoliation of balsam fir combined with very high egg counts (used to forecast defoliation levels). Although the use of BtK in the CHR may have reduced the amount of balsam fir mortality resulting from severe defoliation, the impact on the dynamics of the old growth forest ecosystem within the CHR has not been evaluated. Other than the suppression of hemlock looper populations, the abundant natural values in the CHR, such as excellent water quality, healthy and intact terrestrial and aquatic ecosystems, abundant wildlife, rare animal populations and scenic vistas remain.

Following 10 years as a CHR, the level of scientific knowledge on the natural heritage values within the corridor has increased significantly. Due to the legislative protection mechanisms in place and the minimal amount of industrial development within the entire watershed, the natural heritage values within the corridor have been maintained. There are no significant threats to the values within the corridor as of February 2011.

Table 2. The condition of natural heritage values and changes or threats to values within Main River, Canadian Heritage River, from February 2001 to February 2011. The element description column follows the methodology and terminology presented in the Canadian Heritage Rivers System document “A Framework for the Natural Values of Canadian Heritage Rivers, 2nd Edition, March 2001”.

CHRS Natural Framework (2001) Themes and Sub-Themes	Main River Natural Heritage Elements Descriptions	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
1. HYDROLOGY			
1.1 Drainage Basins	Atlantic Ocean Basin; stream number is 1.	None	None
1.2 Seasonal Variation	Highest period of flow is between April-June. Relatively low flows take place from January to March and July to September.	Real-time flow rate is monitored at Paradise Pool and is available on the WRD website.	None
1.3 Water Content	pH range(5.5-6.5) and dark color occurs due to dissolved minerals and organic material from surrounding boggy terrain; Insignificant sediment load (<5.0 JU)	WRD has been monitoring water quality on Main River since 1986 and real-time water quality data has been collected since 2007 as part of the provincial water quality network. Real-time water quality data collection was discontinued in 2011.	None
1.4 River Size	Flow volume can range from almost 400 m ³ /s to 1.84 m ³ /s with the average being 85 m ³ /s. River length is 57km.	None	None
2. PHYSIOGRAPHY			
2.1 Physiographic Regions	Appalachian Acadian Uplands	None	None
2.2 Geological Processes	Main River developed after the melting of the Laurentide ice cap, which moved toward both coasts of the Northern Peninsula. Deep deposits of glacial till occur at the rivers mouth with erratic, and glacier striations and polishing occurring in numerous locations within the CHR corridor.	None	None
2.3 Hydrogeology	Impervious bedrock (igneous and metamorphic) with surficial unconsolidated materials of low porosity: fine-grained clay and silt.	None	None

CHRS Natural Framework (2001) Themes and Sub-Themes	Main River Natural Heritage Elements Descriptions	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
2.4 Topography	Steep gradient (6.5 m/km) Height above sea level ranges from zero metres at the mouth to 675 m in the headwaters.	None	None
3. RIVER MORPHOLOGY			
3.1 Valley Types	Flat/rounded interfluves - narrow floodplain	None	None
3.2 Channel Types	Stream Configuration: straight Lake System: Feeder Lakes	None	None
3.3 Channel Profile	Prolonged Rapids	None	None
3.4 Fluvial Landforms	Deltas	None	None
4. BIOTIC ENVIROMENTS			
4.1 Aquatic Ecosystems	Wetlands systems: bogs and fens	None	None
4.2 Terrestrial Ecosystems	Ecozone: Atlantic Maritime	None	None
5. VEGETATION			
5.1 Significant Plant Communities	Shrubs: dwarf shrub barrens	Botanical survey of 2003 completed by Claudia Hanel for PNAD.	None
	Trees: old growth boreal forest, with balsam fir and black spruce trees exceeding 250 years.	In 2011, CBPPL released all timber rights within the Main River watershed back to the Province. The Mount Allison Dendrochronology Laboratory studies decay classification of coarse woody debris in the old growth forest of Main River.	None
	Fungi and Lichens	Foray Newfoundland and Labrador conduct the Faculty Foray 2011 Mushroom Census in the WPP where they identified 209 different species (Foray Newfoundland and Labrador, 2011)	None
5.2 Rare Plant Species	As of 2011, one plant, <i>Agrostis perennans</i> , has received a S2 ranking (rare).	Botanical Survey of 2003.	None

CHRS Natural Framework (2001) Themes and Sub-Themes	Main River Natural Heritage Elements Descriptions	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
6. FAUNA			
6.1 Significant Animal Populations	<p>The larger mammals within the corridor are: moose, caribou, black bear, Newfoundland marten, eastern coyote, snowshoe hare, red squirrel, beaver, mink, otter, red fox, and lynx.</p> <p>The most recent estimate of the Newfoundland marten population within the Main River watershed is 94-190 individuals (2007 data).</p>	<p>Newfoundland marten live trapping and tagging program switched to a hair snagging mark-recapture program in 2007.</p> <p>WD started a province wide 10-year Small Mammal Study in 2007 with one of the 14 study sites occurring within the CHR.</p>	None
	<p>Avifauna: The 2003 Avifauna Survey identified 70 species of birds within the Main River Watershed.</p>	<p>In 2003, PNAD commissioned Memorial University of Newfoundland to conduct "<i>A Survey of the Avifauna of Main River</i>" in which 70 bird species were identified (Lewis, Fifield, & Jedrey, 2004).</p> <p>Phil Taylor, Acadia University, conducted an eight year research program within the Main River watershed resulting in nine peer reviewed papers from various authors.</p> <p>(Refer to Appendix B for a complete list of research and surveys occurring in the CHR or in close proximity to the corridor.)</p>	None
	<p>Fish: Healthy populations of Atlantic salmon and brook trout exist within the river.</p>		None

CHRS Natural Framework (2001) Themes and Sub-Themes	Main River Natural Heritage Elements Descriptions	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
6.2 Rare Animal Species	<p>Newfoundland marten, 1 of 14 subspecies in Canada, exists only in insular Newfoundland.</p> <p>The most recent estimate of the Newfoundland marten population within the Main River watershed is 94-190 individuals (based on 2007 data) (E. Herdman, personal communication, March 21, 2012).</p>	<p>A winter marten project (2006) monitored 55 random plots in February and March to estimate population size and composition.</p> <p>WD started a province-wide 10-year Small Mammal Study in 2007 with one of the 14 study sites occurring within the CHR.</p> <p>WD is currently operating a province-wide marten hair snag program to evaluate the marten population, with several sites occurring within the CHR.</p>	<p>In 2007, the Newfoundland marten, listed as endangered in 2001, was down-listed to threatened as the population has been increasing.</p>
	<p>Grey-Cheeked Thrush (<i>Catharus minimus</i>) is listed as vulnerable within the Province's Endangered Species Act.</p> <p>Rusty Blackbird (<i>Euphagus carolinus</i>) is listed as vulnerable within the Province's Endangered Species Act, and of special concern within the Species of Risk Act.</p> <p>Olive-sided Flycatcher (<i>Contopus cooperi</i>) is listed as threatened within the Species at Risk Act and the Species at Risk Act.</p>	<p>None</p>	<p>None</p>

6.0 Cultural Heritage Values

6.1 Background & Status

At the time of nomination cultural heritage values were considered, but were not used to determine CHR status for Main River. Sop's Island, within the Main River estuary was the original settlement location of European settlers until the provincial government relocated the community to current location of Sop's Arm in the 1950's (Memorial University of Newfoundland, 2005). In addition to the settlement of the area by European settlers, there is evidence of early Inuit habitation near the river approximately 2,100 years ago, while a site along the north side of the river, just west of Sop's Arm, has been attributed to the nomadic Beothuk culture. The sheltered bays and arms around the mouth of the Main River, although situated outside of the CHR, could provide additional information on the 4,000-year maritime tradition of the region (LeDrew, Fudge and Associates Limited. (LFA)., 1989).

Although there has been no substantiated evidence of Viking use within the CHR, L'Anse aux Meadows is only 250 km away from the Main River estuary causing some to suspect similar archaeological sites exist in the area. As of 2011 the only information available on the presence of Vikings in the area is some documentary evidence of Viking artifacts being found adjacent to the Main River estuary on Sops Island, although this has not yet been scientifically validated.

6.2 Condition of Cultural Heritage Values since Designation

Cultural heritage values have not been thoroughly investigated along Main River but the community of Sop's Arm, continues to rely on the estuary and river corridor for recreational activities.

Archaeologically, only three sites are currently known in the area and further investigation of the site along the north side of the river is unlikely due to human caused ground disturbance (close proximity to excavated gravel pit).

7.0 Recreational Heritage Values

7.1 Background & Status

Main River is a renowned wilderness adventure waterway, offering a wide range of outdoor recreation activities in an untamed natural environment (PNAD, 2001). The CHR continues to offer excellent recreational opportunities such as snowmobiling, fishing, hunting, camping, hiking, canoeing, kayaking, and rafting during high water levels. Commercial outfitters, with two companies situated within the CHR, continue to guide mostly non-resident clientele to hunt big game animals such as moose, caribou and black bear, or to fish for Atlantic salmon and brook trout (R. Payne, personal communication, March 20, 2012). The commercial outfitters generally focus on hunting opportunities for non-resident guests, with most of the fishing on the river being conducted by non-guided residents of NL.



Main River CHR continues to possess water quality suitable for all the water-based recreational activities identified at the time of designation in 2001. Although snowmobilers and anglers are the largest user groups, the river is an excellent wilderness canoe, rafting and kayak destination with abundant wildlife and endless scenic vistas.

The largest user group, snowmobilers, visits the CHR to enjoy the consistently high annual snowpack while enjoying the wilderness views, with the most popular area being the Big Steady. PNAD has established signage along the snowmobile trail that travels from Sop's Arm to Four Ponds along the river, while the NL Snowmobile Federation grooms and maintains the trail along Main River road from Sop's Arm and crossing the Kruger Bridge where it proceeds to head southwest and out of the CHR corridor. Additional access to the CHR is possible using several trails off of the Taylor Brook access road, located within the southern portion of the Main River watershed.

The second largest user group, Atlantic salmon anglers, considers the Main one of the best salmon rivers in the province. Although the river is not known for having large salmon as in the neighbouring Humber River, the success rate of salmon anglers on the river is in the top 10% of all insular Newfoundland scheduled salmon rivers, with a salmon catch rate per rod day of 0.67 (DFO, 2011). Salmon fishing can occur everywhere along the CHR with the following minor exceptions for the 2011-2012 fishing season (DFO, 2011):

- Catch-and-release only on Sunshine Pool from 150m below to 300m above falls;
- Catch-and-release only on Northwest branch of the River;
- Section of Northwest branch of the Main River 300m below to 300m above the falls at Wardens Pool is closed to fishing;

In addition to anglers, canoeists and kayakers that have experienced the mix of fast and slow water combined with the continuous natural beauty along the river's course leave the river recognizing it as one of the top waterways in the province. As the flow rate on the river is highly influenced by melting snow and rain the river presents opportunities for white-water rafting, with the optimal time normally occurring during the first week in June. By utilizing annual flow rate data from WRD, guides such as Jim Price, Eastern Edge Outfitters, have been able to identify the most opportune moments when the river is at its prime for rafting. This is best described by Jim Price when he says:

"For a few brief weeks in June a torrent is unleashed and paddlers rush in to ride it. It's 25km of non-stop action [from the Kruger Bridge to the ocean] and when the water levels are right, it's a natural roller-coaster ride."

7.2 Condition of Recreational Heritage Values since Designation

The recreational heritage values of the Main remain unchanged from their condition when the river received CHR designation in February 2001, with PNAD continually working to enhance the visitor experience. PNAD describes the condition of the recreational values in the CHR as:

"It is the outstanding natural scenery, the variety of landscapes, opportunities for viewing wildlife and flora in a natural setting with little evidence of human development, combined with the qualities of the river itself, that makes Main River a prime setting for high quality outdoor recreational pursuits. While one can break down to some degree the components or natural values that contribute to a high quality outdoor experience they must really be considered holistically, for it is the combination of many natural elements that create the uniqueness of Main River (PNAD, 2001)."

PNAD has taken several measures over the last 10 years to ensure that all opportunities can be enjoyed. Historically, the headwaters were only accessed by floatplane or helicopter; therefore, when PNAD established a portage route from Taylors Brook forest access road to the Four Ponds area it increased access to the area for all adventurers. With the removal of the bridge over Eagle Mountain Brook and several bridges on nearby tributaries in 2006, access to the Four Ponds portage route became more challenging. Although the portage route to Four Ponds is no longer readily accessible, access to the river has been enhanced by improved trail signage, a new staircase at the Kruger Bridge, and a portage trail from Taylor Brook Road into the Big Steady via Caribou Lake. PNAD has enhanced access to the CHR and have continually strived to

increase the visitor satisfaction using such mechanisms as installing privies, fire pits and picnic tables at some of the traditional tenting sites along the river. Following 10 years as a CHR, the “Main” continues to provide unmatched recreational opportunities, with a more thorough review of the recreational values to be found in Table 2.

Table 3. Condition of recreational heritage values and changes or threats to said values, as of February 2011, since designation of Main River as a Canadian Heritage River in 2001.

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
1. BOATING			
1.1 White-water Canoe, Kayak & Raft	White-water canoeing, kayaking, and rafting opportunities exist for both commercial operators and individuals. The best opportunities exist when flow rates are between 40 m ³ /s and 100 m ³ /s (J. Price, personal communication, March 15, 2012).	Several adventure outfitters have used the CHR from 2001 to 2011. One of the more frequent commercial users, Jim Price, Eastern Edge Outfitters, conducted organized rafting and kayaking trips on Main River in early June from 2004 until 2010 (personal communication, March 15, 2012). Jim Price of Eastern Edge Outfitters has suspended his operations on the Main River due to insurance costs concerns and inconsistent water levels (personal communication, March 15, 2012).	None
1.2 Extended Canoe Tripping (motor & non-motor)	Non-motorized canoeing and kayaking are the main means of transportation with some portaging required.	Colin Davis, PNAD, estimates that 20 (average of two/year) extended canoe trips have taken place on the river from 2001 to 2011 (personal communication, March 15, 2012).	None
1.3 Day Paddling & Rowing	Day trips are possible.	None	None
1.4 High Speed Boating	Only boats with an engine size of 6 H.P. can be used in the main channel and an engine size of 20 H.P. can be used in the headwater lakes.	PNAD monitoring has documented that boating is only occurring on the lower 2-4 km of the Big Steady and on Caribou Lake and Four Ponds (C. Davis, personal communication, March 12, 2012).	None
1.5 Motorized Pleasure Cruising/Houseboats	N/A	N/A	N/A
1.6 Commercial Tour Boats	N/A	N/A	N/A
1.7 Sailing	N/A	N/A	N/A

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
2. ANGLING			
2.1 Day Angling	Day angling exists with the Main having a catch rate in the top 10% of all scheduled salmon rivers in insular Newfoundland (DFO, 2011).	Starting in 2010-2011, DFO required all large Atlantic salmon (>63 cm) caught in insular Newfoundland to be released in an effort to conserve salmon stocks (DFO, 2011).	None
2.2 Weekend Angling	Main River has a salmon catch rate within the top 10% of all insular Newfoundland scheduled salmon rivers and is readily accessible by residents throughout the province for weekend angling.	None	None
2.3 Extended Angling Vacation	The two commercial outfitting camps within the CHR corridor guide salmon and trout anglers who come to experience the excellent angling and undisturbed landscapes within the Main River.	In recent years, the two commercial outfitters located within the CHR have been focusing on non-resident hunting clientele rather than non-resident anglers (R. Payne, personal communication, March 20, 2012) (R. Parsons, personal communication, March 21, 2012).	The proposed Maritime Transmission Link will have transmission lines in close proximity to Four Ponds Outfitters and Heritage River Outfitting. The transmission lines may degrade views, while the infrastructure needed to access/build these lines may increase access to the more remote regions of the CHR.
2.4 Fly Fishing	Fly fishing occurs throughout the CHR and is the only method allowed on NL scheduled salmon rivers (DFO, 2011).	None	None
2.5 Ice Fishing	Brook trout are found in the river and are frequently angled for in the headwaters and waterbodies adjacent to the Big Steady. Ice fishing is prohibited on Main River as it is a scheduled salmon river (DFO, 2011).	PNAD conducted a roving creel survey during the ice fishing season of 2008.	None
2.6 Specific Fish Species	Healthy populations of Atlantic salmon and brook trout exist in the river.	None	None

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
3. WATER CONTACT/CONTENT			
3.1 Swimming	Swimming occasionally occurs throughout the river, but the most popular location is the “Salmon Hole” located <1km upstream from the Main River estuary (B. LeDrew, personal communication, March 12, 2012).	None	None
3.2 Water Skiing	N/A	N/A	N/A
3.3 Snorkel/Scuba	Scuba diving is not known to occur, but people frequently snorkel in the “Salmon Hole” to view the migrating Atlantic salmon.	None	None
4. WATER-ASSOCIATED ACTIVITIES			
4.1 Trail Use (hiking, walking, cycling)	<p>There are some primitive unmarked trails used by hikers, and by anglers accessing the river.</p> <p>Many of the trails are maintained to provide a natural backcountry experience, although some trail signage has been established.</p> <p>PNAD created a portage trail from Taylor Brook Road to the Big Steady via Caribou Lake, a portage trail from Taylor Brook Road into Four Ponds, and the “Northern Feeder” hiking trail.</p>	Signage has been established on some of the trails which have existed prior to 2001 and on trails created by PNAD.	None

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
4.2 Camping	<p>Privately owned Sop's Arm Campground is located at the mouth of Main River.</p> <p>There are several established tenting sites located throughout the CHR corridor, but users are allowed to camp at any location along the river.</p> <p>PNAD staff continue to promote a leave only footprints policy to all users encountered.</p>	<p>PNAD staff maintain several backcountry tent sites where, at some locations, they provide users with privies, fire pits, and picnic tables.</p>	None
4.3 Hunting & Trapping	<p>Hunting is permitted within the CHR and principally involves the pursuit of moose, caribou, black bear and waterfowl.</p> <p>Land-based traps, land-based locking neck snares, and small game snares are prohibited in most of the CHR corridor (Wildlife Division, 2010) (Wildlife Division, 2011).</p>	<p>Snaring and trapping restrictions have been in effect in portions of the CHR corridor since 1996.</p>	None.
5. WINTER ACTIVITIES			
5.1 Snowmobiling/Dog Sledding	<p>Snowmobilers are the largest user-group within the CHR corridor.</p> <p>A snowmobile trail heads westward from Sop's Arm to Four Ponds along the CHR with diversions along several of its tributaries.</p> <p>The NL Snowmobile Federation uses the Main River Road.</p>	<p>Snowmobile trails have been enhanced through PNAD's improvement of signage along the trails.</p> <p>The NL Snowmobile Federation performs manual vegetation control as needed along the Main River road leading into the Kruger Bridge (D. O'Keefe, personal communication, March 20, 2012).</p>	None
5.2 Cross-Country Skiing	<p>PNAD staff report that there is very limited cross country skiing occurring in the CHR (C. Davis, personal communication, March 12, 2012).</p>	None	None

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
5.3 Skating	The characteristics of the river make it unsuitable for skating.	None	None
6. NATURAL HERITAGE APPRECIATION			
6.1 Wildlife	Main River CHR corridor contains such a variety of habitats that most of the land mammals occurring on insular Newfoundland are found there.	None	None
6.2 Vegetation	Main River straddles two ecoregions: The headwaters and Big Steady are situated within the Long Range Barrens ecoregion, and downstream from the Big Steady, Main River flows through the Northern Peninsula Ecoregion.	None	None
6.3 Vistas/Scenic Quality	Undisturbed and pristine barrens, bogs, waterbodies and forests make the Main River famous for its natural beauty. The colour contrasts along the river, dark green grassy islands, dark blue water, and green moss-carpeted old growth forests, combine to create abundant high quality vistas.	None	The proposed Maritime Transmission Link anticipates there will be transmission lines situated between Gros Morne National Park and the CHR, but not within the CHR boundary. Lines may be visible from vantage points within the CHR corridor.
6.4 Geological Features/Water Features	Evidence of the Laurentide ice cap is evident by the massive erratics on the highlands and in the gorges, as well as the many outcrops with glacial polish and striations.	None	None
7. HUMAN HERITAGE APPRECIATION			
7.1 Historic Sites	N/A	N/A	N/A
7.2 Cultural Landscapes	N/A	N/A	N/A
7.3 Sporting Events/Activities	N/A	N/A	N/A

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Value(s)
7.4 Cultural Events/Activities	N/A	N/A	N/A

8.0 Integrity Guidelines

The CHRS has established natural, cultural, and recreational integrity guidelines that have to be met by all CHRs. These integrity guidelines are in addition to the natural and recreational heritage values previously described in this report. During the nomination of Main River as a CHR all three integrity guidelines were considered; however, only natural and recreational guidelines were applied within the original nomination document. Above the natural, cultural and recreational integrity guidelines, the CHRS has established the following three overarching guidelines:

1. The river and its environment should be of sufficient size and contain most of the key interrelated and interdependent elements to demonstrate the key aspects of the processes, features, activities or other phenomena which give the river its outstanding value;
2. The river and its environment should contain those ecosystem components required for the continuity of the features or objects to be protected;
3. The quality of the water should be such as to provide for the continuity and/or improvement of the resources upon which “value” to the system has been determined.

Main River continues to meet the three overarching guidelines and all the natural and recreational integrity guidelines upon which it was designated as a CHR in 2001. With the legislative protection provided by the establishment of MRWPP and the SMA, and the minimal anthropogenic disturbance that has occurred within the surrounding watershed, the natural and recreational integrity guidelines remain intact. Table 3 describes the status of Main River’s natural, cultural, and recreational integrity guidelines as well as any changes or threats to said guidelines following 10 years as a CHR in February 2011.



PNAD has installed signage at key access points along the CHR educating users to respect the environment in an effort to ensure future users will encounter the same outstanding natural values that were present at the time of designation in 2001.

Table 4. Status, changes and/or threats of the Main River, Canadian Heritage River System integrity guidelines since designation as a Canadian Heritage River in 2001. Cultural integrity values were not applied during the designation of Main River as a Canadian Heritage River; therefore, the cultural integrity guidelines are shown as N/A in this table.

CHRS Principles, Procedures and Operations Guidelines (2000)	Integrity Value(s)	Changes or Threats to Integrity Value(s) since Nomination
1. NATURAL INTEGRITY GUIDELINES		
1.1 The nominated area is of sufficient size and contains all or most of the key interrelated and interdependent elements to demonstrate the key aspects of the natural processes, features or other phenomena which give the river its outstanding natural values.	Main River is 57km long and has numerous headwater ponds located at high elevations within the Long Range Mountains, tributaries along its entire length, and is completely free of any obstructions to fish and water movement. The CHR corridor encompasses an area of 201 km ² .	As of January 2011, all timber rights within the Main River watershed and SMA have been transferred back to the Province. Considering the transfer of timber rights, the MRMAC has made a recommendation to PNAD to incorporate the SMA into the MRWPP boundary.
1.2 The nominated area contains those ecosystem components required for the continuity of the species, features or objects to be protected.	The terrestrial and aquatic ecosystems within the CHR are intact and the minimal anthropogenic disturbance in the surrounding watershed has been in the form of timber harvesting and mineral exploration.	On August 28, 2009, 152 km ² of the 201 km ² CHR corridor was designated as the MRWPP, under the Provincial Parks Act, while the remaining 49 km ² of the corridor was designated as a SMA, under the Lands Act.
1.3 There are no human-made impoundments within the nominated area.	No impoundments exist on the Main River or in its watershed.	Industrial development activities are prohibited within the MRWPP, under the Provincial Parks Act. Activities within the SMA are regulated based on the first priority of maintaining the natural and recreational values of the CHR.
1.4 All key elements and ecosystem components are unaffected by impoundments located outside the nominated area.	The nearest man-made impoundments are situated on the Cat Arm River watershed, approximately 30 km north of Main River. The transmission line from the Cat Arm hydroelectric site runs through the easternmost portion of the CHR corridor near the community of Sop's Arm.	In 2002, NL Hydro conducted vegetation control on the transmission line using a manual cutting method (C. Parsons, personal communication, March 15, 2012).
1.5 Natural values for which the river is nominated have not been created by impoundments.	None of the natural values have been created by impoundments.	None

CHRS Principles, Procedures and Operations Guidelines (2000)	Integrity Value(s)	Changes or Threats to Integrity Value(s) since Nomination
1.6 The water of the nominated river is uncontaminated to the extent that its natural aquatic ecosystem is intact.	<p>The abundance, variety and integrity of aquatic and littoral floral and faunal species in the Main River indicate that there is no appreciable level of contamination in the system.</p> <p>Its natural aquatic ecosystem is intact and there are no indications of anthropogenic pollutants.</p>	None
1.7 The natural aesthetic value of the river is not compromised by human developments.	Aesthetics have not been affected by human developments.	<p>The proposed Maritime Transmission Link anticipates there will be transmission lines situated between Gros Morne National Park and the CHR, but not within the CHR boundary.</p> <p>Lines may be visible from vantage points within the CHR corridor.</p> <p>In 2010, PNAD began construction of a patrol structure on the Big Steady to facilitate enforcement, monitoring and scientific research activities, replacing the outfitting structure purchased in 2006 and subsequently removed in 2007.</p>
2. CULTURAL INTEGRITY VALUES		
2.1 The nominated area is of sufficient size and contains all or most of the key interrelated and interdependent elements to demonstrate the key aspects of the features, activities or other phenomena which give the river its outstanding cultural value.	N/A	N/A
2.2 The visual appearance of the nominated area of river enables uninterrupted appreciation of at least one of the periods of the river's historical importance	N/A	N/A
2.3 The key artifacts and sites comprising the cultural values for which the river is nominated are unimpaired by impoundments and human land uses.	N/A	N/A
2.4 The water quality of the nominated area does not detract from the visual character or the cultural experience provided by its cultural values.	N/A	N/A

CHRS Principles, Procedures and Operations Guidelines (2000)	Integrity Value(s)	Changes or Threats to Integrity Value(s) since Nomination
3. RECREATIONAL INTEGRITY VALUES		
3.1 The river possesses water of a quality suitable for contact recreational activities, including those recreational opportunities that supported	<p>The water in Main River is unpolluted and acceptable for water contact recreational activities.</p> <p>Although the river water is dark in colour, due to the water passing through peat bogs and the presence of iron, this does not present a health hazard.</p>	None
3.2 The river's visual appearance is capable of providing river travelers with a continuous natural experience, or a combined natural and cultural experience, without significant interruption by modern human intrusions.	<p>The Main River is a truly outstanding example of river environments characteristic of insular Newfoundland.</p> <p>The mountain uplands, lush green grasslands, and coastal estuary and coves, combined with the abundant wildlife, present one of the last remaining natural areas on the island.</p>	There has been no documented change or threat, although there have been some concerns around the perceived increase use of helicopters being used to transport anglers into the CHR.
3.3 The river is capable of supporting recreational uses without significant loss or impact on its natural, cultural or aesthetic values.	All recreational uses are supported with no reported impacts.	<p>The establishment of MRWPP in 2009 and the adjacent SMA will ensure the integrity guidelines are maintained.</p> <p>Much of the vegetation within the Big Steady is adapted to yearly ice and flood disturbance; therefore, low impact camping should not damage the vegetation, with the following caveat: The “hardy” nature of the plants should not be taken for granted as repeated camping at the same site may damage the grasses and sedges potentially causing the soil to become destabilized and susceptible to erosion (M. Burzynski, personal communication, March 20, 2012).</p>

9.0 Review of Management Plan Objectives since Designation

In 2001, as part of the CHRS nomination process, PNAD created the “*Management Plan for Main River as a Canadian Heritage River*” describing how the CHR corridor would be managed and identifying numerous commitments that would be undertaken. Within this report, items identified within the management plan are shown as “goals” and “objectives”. The creation of the management plan facilitated Main River being designated as a CHR in 2001. Table 4 lists the management

plan goals and objectives, and reports on the degree of achievement as of 2011. Within the management plan there were several key commitments identified: the creation of a WPP, creation of a SMA to protect the near viewshed, implementation of a stewardship agreement between stakeholders within the watershed, formation of the MRMAC, and ensuring timber harvesting methods retain viewshed integrity. The reader should note that with CBPPL's January 2011 transfer of timber rights within the Main River watershed, back to the Province, has resulted in the commitments made by CBPPL regarding harvesting practices within the watershed becoming null and void post 2011.

The most significant commitment identified in the management plan was, upon designation of Main River as a CHR the nominated corridor would be designated as a WPP to be managed under the Provincial Parks Act. Following the designation of Main River as a CHR in 2001, the process to establish the nominated corridor as a WPP began and in 2009 the MRWPP was officially established. The formation of the MRMAC occurred in 2003, with the main purpose of providing PNAD with stakeholder input into how the CHR will be developed. The MRMAC includes nearly all stakeholders within the watershed and continues to play an important role in advising PNAD. The MRMAC replaced the cooperative management approach initially planned for the stewardship agreement.

The stewardship agreement was to include all stakeholders within the Main River watershed. The objective of the stewardship agreement was to ensure activities happening within the watershed do not negatively impact upon the integrity of the natural and recreational values for which the river was nominated. Unfortunately, not all stakeholders were in agreement of how the watershed should be managed; therefore, the stewardship agreement was never signed by all stakeholders and was not pursued beyond the initial draft agreement. The CHRS Board acknowledged that the Federal Species at Risk Act combined with the formation of a WPP and the MRMAC would protect the ecological integrity of the Main River watershed more than the stewardship agreement would have been able to provide. Even though the stewardship agreement was not signed, CBPPL, the only industrial forestry operator within the watershed, agreed to modify their harvesting methods to retain viewshed integrity along Main River and retain 100m buffers along all major tributaries of the river.

CBPPL completed several modified harvest trials within the watershed, but not within the CHR, during the years of 2001 and 2004, and in 2011 made the strategic decision to release their land tenure within the watershed back to the Province. There is no industrial timber harvesting occurring within the watershed as of February 2011 and DNR has no plan to permit industrial timber harvesting within the watershed in the near future.

Table 5. Degree of achievement of commitments identified within the management plan for Main River, Canadian Heritage River, since designation in February 2001.

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
Establish legislative mechanisms that facilitate the protection of the Main River Canadian Heritage River (CHR) corridor.	Within the Main River CHR corridor, a WPP and SMA to be established to facilitate protection of natural heritage values.	Completed	In 2009, MRWPP (managed under the Provincial Parks Act) and SMA (managed under the Lands Act) were created.

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
CHR corridor will be managed in a cooperative, multiple stakeholder, fashion.	A stewardship agreement, the Main River Management Advisory Committee (MRMAC), and the "Friends of the Main River" will be established to engage stakeholders in the management of the CHR corridor.	Addressed	<p>The MRWPP, SMA, MRMAC, Federal Species at Risk Act and Provincial Endangered Species Act replaced the need to have a stewardship agreement.</p> <p>There has been no local champion to lead the formation of a "Friends of the Main River".</p> <p>PNAD has partnered with the White Bay South Development Association in acquiring summer students to assist with the permit registration system and salmon scale project, and with Grenfell Campus of Memorial University of Newfoundland, Department of Innovation, Trade and Rural Development and Humber Economic Development Board to acquire the tools needed for the salmon scale project.</p>
Natural heritage values to be managed to ensure they are maintained.	A plan to protect a representative example of old growth forest from the eastern Northern Peninsula	Completed	The establishment of MRWPP has provided protection for a portion of the old growth forests of the eastern Northern Peninsula.
	The pristine water quality of the Main River will be monitored to ensure quality is maintained.	Initiated and On-going	<p>There has been no reported degradation of water quality within Main River from 1986 to 2011 (PNAD, 2009) (L. Hyde, personal communication, March 20, 2012) and WRD continues to conduct quarterly water quality sampling from three locations within the CHR: Eagle Mountain Brook, Paradise Pool, and at the mouth of the river.</p> <p>In 2007, WRD, in partnership with Environment Canada, initiated real-time water quality and flow rate monitoring at Paradise Pool.</p> <p>In 2011, the real-time water quality equipment was removed from Paradise Pool due to Environment Canada budgetary reductions, but the real-time flow rate monitoring equipment remains and data is available on the WRD website.</p>

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
	Two management zones to be established: <i>Preservation Zone</i> , centred on the Big Steady area, and <i>Natural Environment Zone</i> , covering the remainder of the CHR corridor.	Not yet initiated	76 % of the CHR corridor is now protected under the Provincial Parks Act, with the remaining 24% being managed as a SMA under the Lands Act. User intensity has not increased to a level where a <i>Preservation Zone</i> needs to be established to provide further protection of the natural heritage values.
	The proposed <i>Preservation Zone</i> to be managed as a natural area with no development of facilities other than a designated trail.	On-going	To facilitate enforcement, monitoring and scientific research activities, PNAD has established a patrol structure on the Big Steady, replacing the outfitting structure purchased in 2006 and subsequently removed in 2007.
	The proposed <i>Natural Environment Zone</i> to be managed so the natural environment may be appreciated and enjoyed using low impact activities and developments.	Completed and on-going	Hiking trails and several backcountry tent sites have been established and maintained by PNAD. Snowmobiles are permitted within the CHR corridor. Outboard motors are permitted, although only boats with an engine size of 6 H.P. can be used in the main channel and an engine size of 20 H.P. can be used in the headwater lakes.
Recreational use will not adversely affect the Main River's outstanding wilderness character.	Visitor use to be limited to those which are not disruptive to the river's wilderness character.	On-going	PNAD has placed restrictions around outboard motor sizes (details above) and has restricted ATV use. There has been some public opinion that claims an increase in the amount of anglers using helicopters to access the river; although, there is no supporting data. Snowmobiling has not received similar claims, likely due to the lack of conflicting uses during winter months.
	Recreational use to be monitored.	On-going	PNAD employ two seasonal staff to monitor activity on the CHR and have periodically used electronic trail counters to monitor snowmobile use. A free permit registration system for users was implemented in 2005 until 2008 when it was discontinued to evaluate the effectiveness of the system.

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
	The park's recreational use carrying capacity to be determined	Not yet initiated	None
	Sport angling by residents and non-residents to be permitted.	Completed and on-going	Fishing is permitted in throughout the CHR following the applicable fishing regulations.
	Populations of Atlantic salmon to be managed and regulations enforced to ensure sustainable recreational opportunities.	On-going	<p>All fishing regulations are established by DFO. During the 2011/2012 Atlantic salmon season, there was an annual retention limit of four salmon on the Main River. Refer to the annual NL Anglers Guide for current and more detailed information.</p> <p>DFO along with the Department of Justice, Fish and Wildlife Enforcement Division, monitors and enforces the fishing regulations.</p> <p>Since 2005, PNAD staff annually assist DFO's salmon management efforts by collecting scale samples.</p>
	Hunting by residents and non-residents to be permitted.	Completed and on-going	Hunting is permitted throughout the CHR following the applicable WD's small and big game hunting regulations, as well as CWS's migratory bird regulations.
	To facilitate access to the river, the Kruger Bridge would remain.	Completed and on-going	<p>DNR purchased the Kruger Bridge from CBPPL to ensure the bridge would remain.</p> <p>Since the release of all timber rights within the Main River watershed by CBPPL in 2011, maintenance of Main River road is now the responsibility of DNR.</p>

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
	Adventure tourism operators and commercial outfitters to be permitted.	Completed and on-going	<p>Four Ponds Outfitting, and Heritage River Outfitters have accommodation facilities in the CHR, and numerous other operators continue to operate within the CHR.</p> <p>Several adventure tourism operators use the CHR, with the most frequent user being Jim Price, Eastern Edge Outfitters, who conducted organized rafting and kayaking trips on Main River in early June from 2004 until 2010 but has since suspended his operations on the Main River due to increased insurance premiums and inconsistent water levels (Jim Price, personal communication, March 15, 2012).</p> <p>Since 2009, commercial outfitters have required a permit from PNAD to operate within the MRWPP.</p>
	Tenting to be permitted throughout the CHR corridor and established sites will be of the wilderness experience type.	Completed and on-going	<p>Tenting is permitted throughout the CHR.</p> <p>Several sites have been established, with signage, with some sites having privies, fire pits, and picnic tables.</p> <p>PNAD staff monitor visitor use and compliance, and educate visitors on the leave only footprints policy.</p>
	No new outfitting companies will be permitted to establish structures within the CHR.	Completed and on-going	Any new structures to be erected within the MRWPP and SMA require Ministerial approval.
	TCR to work with the communities of White Bay South to further develop non-consumptive adventure tourism in the Main River area.	On-going	Discussions continue into the development of a Main River Gateway. The gateway would be an established site where visitors could acquire information on Main River with the proposed location being near the entrance to Main River road.

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
Resource development within the Main River watershed will not affect the natural heritage values within the CHR corridor.	No industrial development activities to occur within the WPP.	Completed	Industrial development activities are prohibited under the Provincial Parks Act.
	Activities permitted within the SMA will not degrade the natural and recreational heritage values within the CHR corridor.	Completed and on-going	SMA regulations identify the first priority of the SMA as the maintenance of the natural and recreational values of the Main River CHR. Forest harvesting is permitted according to the relevant forest management plan. Mining and mineral exploration is prohibited.
	Within the watershed, but outside of the WPP, modified timber harvesting techniques (strip cutting, selective cutting) to be utilized.	Completed	In 2001, CBPPL committed to using modified timber harvesting techniques within the Main River watershed. Clearcutting is prohibited within the SMA. As of January 2011, CBPPL released their timber rights within the Main River watershed, returning the rights back to the Province; therefore, commitments made by CBPPL are no longer applicable post 2011.
	The Canadian Wildlife Service recommended that a 100 metre treed buffer be established above the Big Steady area to the headwaters and 30 meters below the Big steady to the mouth of the river.	Addressed	The boundary of the MRWPP has fulfilled the Canadian Wildlife Service's buffer width recommendation.
	Timber harvesting in the Main River watershed to leave deciduous species, snags and shrubs on the landscape whenever possible.	Completed	CBPPL did not harvest deciduous species within the watershed. As of January 2011, CBPPL released their timber rights within the Main River watershed, returning the rights back to the Province.

Management Plan Goals	Management Plan Objectives	Degree of Achievement (Not yet initiated; initiated; underway; completed; addressed; on-going)	Actions/Notes
	Hydroelectric development and/or new electric transmission development to be prohibited within the waterway park and SMA.	Addressed and on-going	<p>The Provincial Parks Act indicates that “a park may not be utilized in any manner for... hydro electric development”.</p> <p>The SMA regulations do not prohibit hydroelectric or transmission line development; although, the purpose of the SMA is the “maintenance of the ecological and viewshed integrity... as to maintain the natural and recreational values of the CHR shall be the first priority in the consideration of any use of the SMA”.</p>
	No private cottages to be allowed within the CHR corridor.	Addressed	<p>The Provincial Parks Act states that “a park may not be utilized in any manner for... private cottages”.</p> <p>SMA regulations state that “a structure shall not be constructed within the special management area without the prior consent of the minister responsible for the special management area”.</p>
	Existing commercial camps within the heritage river corridor to remain.	Completed	Two commercial outfitting camps, Four Ponds Outfitting and Heritage River Outfitters, remain in the corridor.
	A cottage development plan for watershed will be drafted.	On-going	The Lands Division of the Dept. of Environment and Conservation has indicated that there has been no need for additional control mechanisms focused on cottage development within the Main River watershed (D. Morrissey, personal communication, January 17, 2012).
Scientific research and monitoring will advance the understanding of the Main River ecosystem.	Monitoring to be conducted by PNAD staff to determine the impact of human use and natural processes on the flora, fauna and water quality.	On-going	<p>PNAD hires two seasonal staff annually to monitoring activities and impacts on natural values, educate users, and assist partners with survey and/or research needs as required.</p> <p>A patrol structure as been established to facilitate scientific research and monitoring within the Big Steady.</p>
	A historic resources overview assessment will be completed.	Not yet initiated	A historic resources assessment has not been completed.
	A detailed botanical and avifaunal survey to be completed.	Addressed and on-going	Numerous scientific surveys and research studies have been conducted within the CHR and complete details are included in Appendix B.

10.0 Conclusion and Recommendations

Conclusion

Main River continues to display all the exceptional natural heritage and recreational values present at the time of nomination as a CHR in 2001. As one of the premier outdoor recreation destinations in NL, access to the area is relatively straightforward compared to other sites possessing similar wilderness landscapes.

PNAD, the managing agency of the CHR corridor, has ensured the corridor is managed in a cooperative stakeholder fashion by using mechanisms such as the formation of the MRMAC in 2003. Designation of the Main River as a CHR does not provide legislative protection; therefore, concluding a process that began in 2001, in 2009 the Province created the MRWPP, regulated under the Provincial Parks Act, and SMA, regulated under the Lands Act ensuring the CHR corridor will be protected into the future. Although a stewardship agreement among all stakeholders was attempted during the first years of the CHR, the combination of the MRMAC, SMA, MRWPP, Federal Species at Risk Act and Provincial Endangered Species Act replaced the need for this agreement.

Following the cooperative stakeholder approach used in the management of the corridor, PNAD has been instrumental in fostering partnerships in research, monitoring and education within the CHR corridor. Research studies, undertaken by post-secondary institutions, have focused on such items as peatland dragonflies, songbirds, natural disturbance, and old growth forests. Dr. John McCarthy's research on natural disturbance and structure of the old growth boreal forest within the CHR corridor contributed a substantial amount of knowledge on the forests in the area. The avifauna, and botanical surveys commissioned by PNAD have advanced the understanding of the diversity contained within the CHR corridor and highlighted the uniqueness of the habitats contained therein.

In addition to research, PNAD's monitoring initiatives and partnerships have assisted in tracking the condition of the natural and recreational values within the CHR corridor. Collaborative efforts with DFO through an annual salmon scale collection project has provided DFO with information to be used in the management of the Main River recreational salmon fishery. Partnering with WRD has ensured continuous water quality monitoring within the CHR, and partnerships with WD have assisted with the Province's small mammal study and marten population evaluation. PNAD has demonstrated a strong commitment to monitoring and research within the CHR corridor and have been able to disseminate educational information to users while conducting their routine monitoring activities.

During the first 10 years as a CHR, visitor services and infrastructure within the CHR corridor have been enhanced while ensuring the pristine environment and wilderness landscape has not been compromised. Main River was designated as a CHR based on its outstanding natural values, while recreational values were used as supporting rationale in the designation process. Visitors to the CHR corridor will notice PNAD signage infrastructure, such as the "Leave Only Footprints" or trailhead signs. Other infrastructure improvements such as tent site enhancements, improved river access at the Kruger Bridge, improved parking areas, or the development of portage trails, have increased the accessibility of the CHR allowing more individuals to enjoy the exceptional natural values and recreational opportunities.

Main River is fortunate to have experienced limited development within the watershed which has contributed to the values within the CHR corridor remaining unchanged from 2001 to 2011. WRD has reported no degradation of water quality within the CHR; however, with real-time water quality monitoring ceasing in 2011, the quarterly water quality monitoring will be unable to detect short term water quality changes post 2011. No mineral exploration or timber harvesting has occurred within the CHR corridor and with the formation of the WPP and SMA, the natural values have been protected into the future. The only known industrial anthropogenic disturbance within the CHR corridor has been DNR's treatment of a portion of the SMA with BtK in 2008 and 2009 in response to severe defoliation by hemlock looper. Although BtK is a natural biological control agent, the influence on the natural disturbance regime within the old growth forests is unclear.

Outside of the CHR corridor, in 2001 and 2004, CBPPL completed several modified (non-clearcut) timber harvests ensuring the views in the neighbouring CHR corridor were retained. In 2011, CBPPL released all their land tenure within the Main River watershed back to the Province and as of February 2011, DNR has indicated there are no industrial timber harvesting planned within the watershed. In addition to industrial forestry activities outside the CHR corridor, limited mineral exploration has occurred along the southern watershed boundary. The current mineral exploration activities do not appear to threaten the Main River CHR values.

With the natural and recreational values being maintained along the nominated corridor, recreationalists continue to visit Main River for its wilderness characteristics; although, promotion and uptake of the available recreational opportunities has been limited. Some of the challenges, faced by the communities within the Main River area, are related to the small populations, low numbers of individuals traveling through the area and reduced visitor services compared to other more popular destinations in the province. Regardless of the challenges that may exist, PNAD staff have been continually improving the visitor experience to the Main River CHR through the creation of designated backcountry tenting sites, maintenance of hiking trails, promoting a “leave only footprints” policy, establishing signage on key trails, monitoring visitor experiences and visitor expectations, and performing garbage cleanup projects when and where needed.

Based on the findings presented in this 10-year monitoring report, Main River continues to meet all the CHRS integrity guidelines upon which it was originally nominated. Currently (as of February 2011) there are no known threats to the Main River CHRS integrity guidelines and the current mechanisms in place (MRWPP, SMA, Federal Species at Risk Act, Provincial Endangered Species Act, Provincial Environmental Assessment Act and the MRMAC) will ensure the CHRS integrity guidelines and heritage values will be maintained into the future.

Complementing this 10-year review of Main River CHR, we have established several recommendations on the future management of the CHR corridor to address potential knowledge gaps regarding the CHR, clarify the future management direction of the CHR, and to enhance/promote the river to the public.

Recommendations

The following recommendations are not numbered based on importance or relevancy, but are purely the authors’ recommendations to PNAD:

1. The “*Management Plan for Main River as a Canadian Heritage River*” (PNAD, 2001) should be reviewed to reflect the current situation within the Main River CHR corridor and the remainder of the watershed. The establishment of MRWPP and SMA now provides the legislative protection measures that the CHR designation alone does not provide. The recent transfer of timber rights within the entire Main River watershed from CBPPL back to the Province has resulted in numerous goals and objectives within the initial management plan becoming not applicable to the situation post 2011. Considering these points and the information of this 10-year monitoring report, a review of the management plan for the Main River CHR should be undertaken.
2. To clarify the concerns around the possible increase in helicopter use within the Main River CHR corridor, a monitoring program conducted by PNAD staff, in partnership with the helicopter companies, should be established. The benefits of such a monitoring program will provide multiple benefits: opening lines of communication among PNAD staff and helicopter companies, facilitate education on PNAD policies, promotion of Main River CHR, acquiring data on helicopter use to assist in the management of the CHR corridor, and evaluating visitor experience and satisfaction.
3. The idea of having the CHR divided into a “Preservation Zone” and a “Natural Environment Zone”, as indicated in the management plan, has not been undertaken. The preservation zone was to be centred on the Big Steady complex as it was believed to contain “critical wildlife habitats (i.e. breeding and spawning sites), sites of special

fragility, and special ecosystems of that portion of the river valley”. The idea of two zones within the CHR should be reviewed; however, the carrying capacity of the CHR should be a critical component when determining if two management zones are necessary. Considering that the highest use area is the lower 2-3km of the Big Steady (mainly snowmobilers), an evaluation of the carrying capacity of this area should be undertaken before other portions of the CHR are evaluated. Although the vegetation within the Big Steady floodplain tends to be resilient to the yearly ice scouring and flooding, there is a possibility that certain user behaviours pose a threat to the natural values in a few select areas. Two particular activities that should be evaluated as part of the carrying capacity undertaking are the repetitive use of tenting sites, potentially resulting in damage to grasses and sedges at the site, and the preference of snowmobilers to use the lower branches of spruce trees for fuelwood and positioning campfires underneath the trees, potentially damaging root systems and disfiguring the trees (Micheal Burzynski, personal communication, March 19, 2012). We recommend that these two specific practices be evaluated during the determination of the carrying capacity of the CHR and appropriate management actions taken (education/signage/access controls) as needed.

4. Water quality continues to be monitored on a quarterly basis, but real-time water quality ceased in 2011. With the absence of real-time water quality data post 2011, PNAD and WRD must be conscientious that there is little ability to detect short-term water quality changes.
5. Commencing prior to 2001 (Harvey Horwood, personal communication, June 19, 2012), DFO utilizes a self reporting system, instead of having human river monitors on Main River, to determine “rod-days” per year and catch-per-unit-effort (CPUE). PNAD may want to consider implementing a monitoring process to supplement the data currently being collected by DFO. Closely monitoring CPUE over time will allow PNAD to work closer with DFO in ensuring the health of the wild Atlantic salmon populations are maintained at the levels that have made the Main River one of the top salmon fishing rivers in insular Newfoundland.
6. As a mechanism to disseminate information on the natural and recreational heritage values of the Main River CHR and to promote the river to people traveling in the area, the Main River Gateway should continue to be pursued. The proposed site of the gateway project is located near the entrance to Main River road, but it is recommended that a cooperative agreement be sought to establish the gateway within the property of Sop’s Arm Campground. Placing the gateway within Sop’s Arm Park will provide better visibility and a more appropriate location due to its proximity to the river (located on an island within the mouth of the river).
7. To further facilitate getting information to the public regarding activities within the Main River CHR, a page on the PNAD website should be established, showcasing all activities and research that have occurred within the corridor and watershed. Resources for visitors should be readily available online and in a format that lends itself to being downloaded and printed. Having access to detailed maps online will provide users with the required information to explore the CHR.
8. Enabling the local communities to form an organization “Friends of the Main River” will empower the communities to be more involved in the management of the CHR corridor and may increase the tourism profile of the river. PNAD may need to act as the catalyst during the organization’s inception by sourcing a “local champion” to lead the group.

Works Cited

- CHRS. (2001). *A Framework for the Natural Values of Canadian Heritage Rivers, Second Edition*. Canadian Heritage Rivers System.
- CHRS. (2011). *About the Canadian Heritage Rivers System*. Retrieved March 13, 2012, from The Canadian Heritage Rivers System: <http://www.chrs.ca/en/mandate.php>
- DFO. (2011). *Newfoundland and Labrador Angler's Guide 2011-2012*. St. John's: Fisheries and Oceans Canada, Communications Branch, Newfoundland and Labrador Region.
- Environment and Conservation. (2009, August 28). *News Releases*. Retrieved March 14, 2012, from Government of Newfoundland and Labrador - Canada: <http://www.releases.gov.nl.ca/releases/2009/env/0828n04.htm>
- Foray Newfoundland and Labrador. (2011). *Mushroom Census*. Foray Newfoundland and Labrador.
- LeDrew, Fudge and Associates Limited. (LFA). (1989). *Background Report: Main River - Canadian Heritage River System*.
- Lewis, K. P., Fifield, D. A., & Jedrey, E. L. (2004). *A Survey of the Avifauna of Main River*. St. John's: Programme in Cognitive and Behavioural Ecology, Memorial University of Newfoundland.
- Memorial University of Newfoundland. (2005). *Sops Island*. Retrieved March 15, 2011, from Maritime History Archive: http://www.mun.ca/mha/resettlement/sops_island_1.php
- PNAD. (2011, October). *Heritage Rivers: Main River*. Retrieved February 27, 2012, from Main River: <http://www.env.gov.nl.ca/env/parks/rivers/mainriver/index.html>
- PNAD. (2001). *Management Plan for Main River as a Canadian Heritage River*. St. John's: Department of Tourism, Culture And Recreation, Parks and Natural Areas Division.
- PNAD. (2009). *Research and Monitoring at Main River Canadian Heritage River*. Deer Lake: Department of Environment and Conservation, Parks and Natural Areas Division.
- TCR. (2002, November 15). News Release: Main River commemorated as Canadian Heritage River. *NLIS 5*. St. John's, Newfoundland and Labrador, Canada: Government of Newfoundland and Labrador.
- Wildlife Division. (2011). *2011-2012 Hunting & Trapping Guide*. St. John's: Department of Environment and Conservation, Wildlife Division.
- Wildlife Division. (2010). *Recovery Plan, American marten (Martes americana atrata) in Newfoundland*. St. John's: Department of Environment and Conservation, Wildlife Division.

Appendix A: Stakeholder Interviews and Communications

Name and Position	Representing Organization	Date
Jeri Graham, Manager Natural Areas Paul Taylor, Natural Areas Planner	Newfoundland and Labrador Department of Environment and Conservation, Parks & Natural Areas Division	January 16, 2012
Damien Morrissey, Land Management Specialist	Newfoundland and Labrador Department of Environment and Conservation, Crown Lands Division	January 17, 2012
Peter Deering, Manager, Resource Conservation	Western Newfoundland and Labrador Field Unit, Parks Canada	January 24, 2012
Jana Fenske, Ecosystem Management Ecologist	Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division	January 25, 2012
Colin Davis, Main River Manager	Newfoundland and Labrador Department of Environment and Conservation, Parks & Natural Areas Division	February 9, 2012
Eli Bishop, Chair & local resident	White Bay South Development Association	February 27, 2012
Lem Mayo, Retired; Main River Planner	Newfoundland and Labrador Department of Environment and Conservation, Parks & Natural Areas Division	March 9, 2012
Tina Leonard, Protected Areas Ecologist	Newfoundland and Labrador Department of Environment and Conservation, Parks & Natural Areas Division	March 12, 2012
Brad LeDrew, Main River Park Technician	Newfoundland and Labrador Department of Environment and Conservation, Parks & Natural Areas Division	March 12, 2012
Dan Lavigne, Supervisor of Insect and Disease	Newfoundland and Labrador Department of Natural Resources, Forest Engineering and Industry Service	March 13, 2012
Craig Parsons, Vegetation Control Specialist	Newfoundland Hydro	March 15, 2012

Name and Position	Representing Organization	Date
Jim Price, chair of the Main River Management Advisory Committee and owner operator of Eastern Edge Outfitters	Eastern Edge Outfitters	March 15, 2012
Michael Burzynski, Ecosystem Scientist	Western Newfoundland and Labrador Field Unit, Parks Canada	March 19, 2012
Donnie O'Keefe, Executive Director	Newfoundland and Labrador Snowmobile Federation	March 20, 2012
Mike McGrath	Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division	March 20, 2012
Leona Hyde	Newfoundland and Labrador Department of Environment and Conservation, Water Resources Division	March 20, 2012
Ross Payne, Owner Operator	Four Ponds Outfitting	March 20, 2012
Emily Herdman	Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division	March 21, 2012
Brian Hearn, Forest Wildlife Ecologist	Natural Resources Canada, Canadian Forest Service	March 21, 2012
Randy Parsons, Owner Operator	Heritage River Outfitters	March 21, 2012
Bruce Rodrigues, Ecosystem Management Ecologist (biodiversity)	Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division	March 27, 2012
Harvey Horwood, Area Chief, Conservation & Protection	Fisheries and Oceans Canada, Springdale Detachment	June 19, 2012

Appendix B: List of research studies occurring in, partially in, or in close proximity to Main River, Canadian Heritage River from 2001 to 2011

Year Published	Authors	Study Title
2004	McCarthy, J.W.T.	Natural disturbance and structure in two primary boreal forests of Western Newfoundland
2005	Powell, K.G.	Songbird Movement, Relative Abundance, and Species Composition in Natural and Managed Forest Landscapes in Western Newfoundland
2009	Chin, K.S. and Taylor, P.D.	Interactive effects of distance and matrix on the movements of a peatland dragonfly
2004	Lewis, K.P., Fifield, D.A., and Jedrey, E.L.	A Survey of the Avifauna of Main River
2008	Whitaker, D., Warkentin, I., and Taylor, P.D.	Survival of adult songbirds in boreal forest landscapes fragmented by clearcuts and natural openings
2006	Campbell, L.J., and Laroque, C.P.	Decay progression and classification in two old-growth forests in Atlantic Canada
2004	Hanel, C.	A Botanical Survey of the Proposed Main River Waterway Provincial Park
2008	Dalley, K.L., Taylor, P.D., and Shutler, D.	Nest-site characteristics and breeding success of three species of boreal songbirds in western Newfoundland, Canada
2008	Leonard, T.D., Taylor, P.D., and Warkentin, I.G.	Landscape Structure and Spatial Scale Affect Space Use by Songbirds in Naturally Patchy and Harvested Boreal Forest
2009	Dalley, K.L., Taylor, P.D., and Shutler, D.	Success of Migratory Songbirds Breeding in Harvested Boreal Forests of Northwestern Newfoundland
2010	Mitchell, G.W., Taylor, P.D., and Warkentin, I.G.	Multiscale Postfledging Habitat Associations of Juvenile Songbirds in a Managed Landscape
2009	Mitchell, G.W., Warkentin, I.G. and Taylor, P.D.	Movement of Juvenile Songbirds in Harvested Boreal Forest: Assessing Residency Time and Landscape Connectivity
2010	Mitchell, G.W., Warkentin, I.G. and Taylor, P.D.	Assessing the Function of Broad-Scaled Movements Made by Juvenile Songbirds Prior to Migration