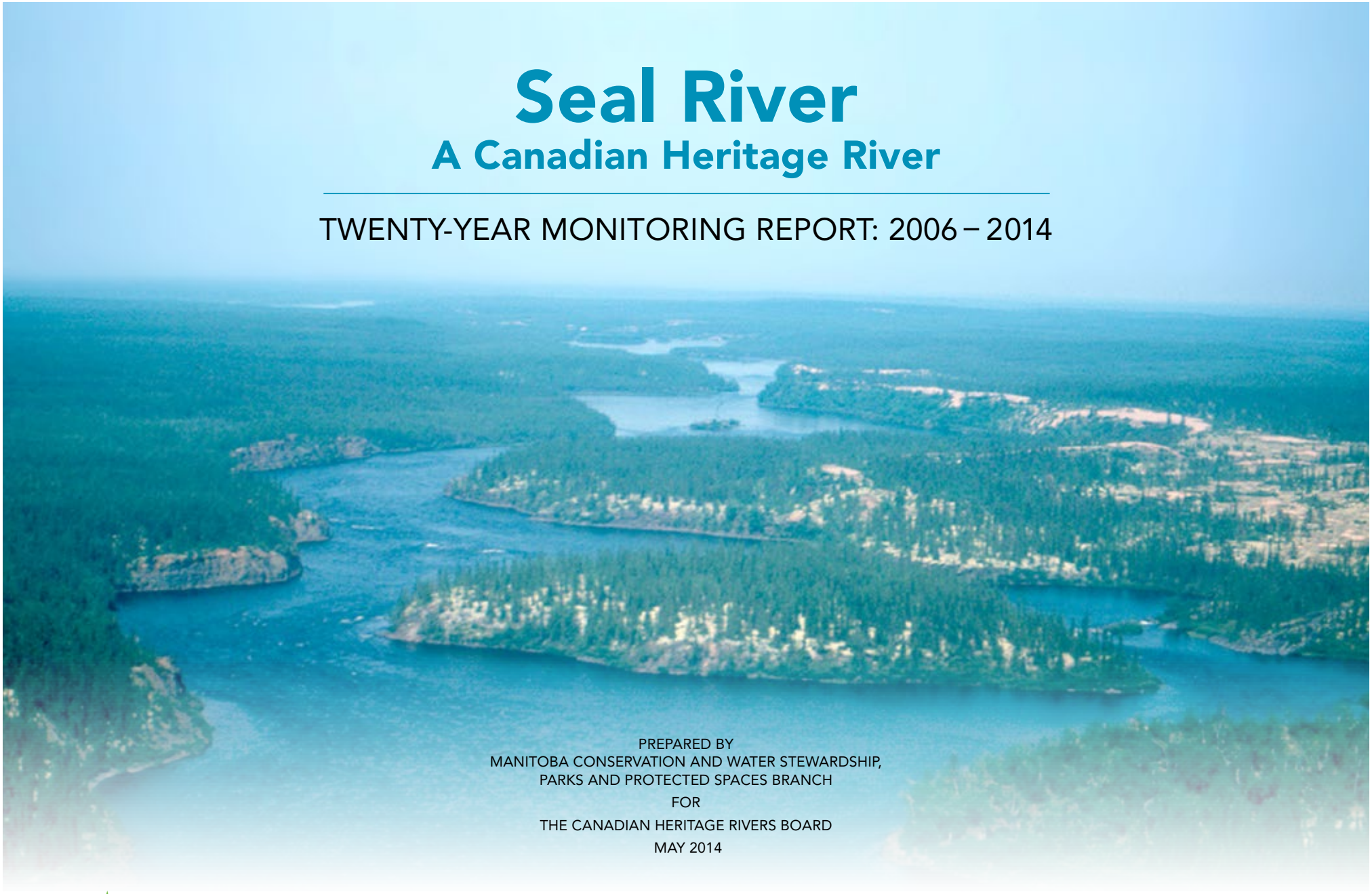
Seal River
A Canadian Heritage River

TWENTY-YEAR MONITORING REPORT: 2006 – 2014



PREPARED BY
MANITOBA CONSERVATION AND WATER STEWARDSHIP,
PARKS AND PROTECTED SPACES BRANCH
FOR
THE CANADIAN HERITAGE RIVERS BOARD
MAY 2014

MANITOBA Parks

Canadian Heritage Rivers System / Le Réseau de rivières du patrimoine canadien

Manitoba

EXECUTIVE SUMMARY

The Seal River is a unique and wild river in northern Manitoba, known for the natural beauty of the river corridor and surrounding landscape, as well as the challenging whitewater canoeing experience it offers. The river was designated to the Canadian Heritage Rivers System (CHRS) in 1992. The CHRS requires that a detailed monitoring report be prepared every ten years from designation to confirm that rivers continue to possess the natural, cultural and recreation values for which they were designated.

The first decadal monitoring report for the Seal River was prepared in 2006. This 2014 Twenty-Year Monitoring Report lists activities and events that have occurred on the Seal River since 2006, describes the current condition of the river's natural heritage values, cultural heritage values, recreation values and integrity values, and identifies any changes or threats to those values. The recommended management actions outlined in the management plan for the river are reviewed and the degree of achievement of those actions described. The benefits of CHRS designation are also listed.

As the Seal River is located in such a remote area and the surrounding lands contain little to no development, few activities have occurred within the river corridor since the previous decadal monitoring report was prepared in 2006. The only significant events constituting a change on the landscape were naturally occurring forest fires that burned portions of the river corridor in 2007 and 2013.

A limited amount of canoeing continues to take place on the river every summer, and other activities in the area have involved wildlife surveys and/or research, and a minimal amount of mineral exploration and sampling. The Parks and Protected Spaces Branch of Manitoba Conservation and Water Stewardship has also undertaken a few projects with the intention of informing the public about Manitoba's Heritage Rivers and improving the provision of information related to those rivers and their heritage values.

None of the activities that have occurred on the river since 2006 are considered to have caused a negative change or posed a threat to the river's natural, cultural or recreation values. The various research activities, either completed or underway, are noted as having contributed a positive change, as they have led to ongoing improvement in the understanding of some of the species and ecosystems that form part of the river's natural heritage values. A review of the management plan for the river shows that, while some of the recommended actions have been achieved or are ongoing, others are outdated and no longer relevant or practical in the current context. This suggests a need to update the management plan.

This report has determined that the natural heritage, cultural heritage and recreation values of the Seal River remain intact and for the most part unchanged since CHRS designation in 1992 and the subsequent 2006 decadal monitoring report. The conclusion of this report is that the Seal River is worthy of continued designation as a river of national significance within the Canadian Heritage Rivers System.

TABLE OF CONTENTS

INTRODUCTION

The Seal River in northern Manitoba is a unique example of a remote and un-dammed river that has remained largely unaltered by human activity over the course of time. Significant for its natural features, cultural heritage and the recreational opportunities it offers, the Seal River is appreciated as the last truly wild river in Manitoba. On the strength of its natural heritage, cultural heritage and recreation values, the Seal River was designated to the Canadian Heritage Rivers System (CHRS) in 1992.

The CHRS is a national river conservation program established in 1984 by the federal, provincial and territorial governments to help conserve and recognize Canadian rivers with exceptional natural, cultural and recreational heritage values. Rivers designated to the CHRS are the subject of annual reviews, as well as more in-depth monitoring reports conducted every ten years from the year of designation. The decadal reports are intended to review the state of the rivers and any changes or threats to the values for which they were nominated to the CHRS. In the case of the Seal River, the first decadal monitoring report was not written until 2006. In an effort to get back on track with the reporting schedule, this decadal, or Twenty-Year, report has been prepared eight years following the first.

The objectives of the Seal River Twenty-Year Monitoring Report are:

- To describe any significant events or changes that have occurred since the 2006 Ten-Year Monitoring Report was written.
- To review the natural, cultural and recreational values for which the river was nominated, identify any changes or threats to these values, and determine if the river continues to possess them.
- To review the integrity values of the river, identify any changes or threats to these values, and determine if the river continues to possess them.
- To identify any river conservation, stewardship, economic, cultural or other benefits that have arisen as a result of the Canadian Heritage River designation.
- To review the river management actions recommended in the designation document Toward a Management Plan for the Seal Heritage River and assess their level of achievement.

This report is for information purposes only and is meant to be a concise and informative evaluation.

BACKGROUND

The Seal River is located near the 59th parallel in northern Manitoba where it begins its course at Shethanei Lake, approximately 1,000 km north of Winnipeg. The river's watershed is the fourth largest in the province, draining 46,300 km^2, with its three largest tributaries being the North Seal, South Seal and Wolverine rivers. The entire length of the Seal River proper is designated to the CHRS, with the river flowing eastward 260 km to its estuary at Hudson Bay, 45 km northwest of Churchill. The closest community to the river is Tadoule Lake, which is situated just to the southwest of Shethanei Lake. The heritage river corridor begins at the west end of Shethanei Lake and encompasses the full length of the river and one kilometre on either side. The Seal River is not road-accessible, and the remote location and difficult environment has led to the river remaining undeveloped today.

The Seal River flows through a transition zone between the boreal forest and arctic tundra. The surrounding environment was shaped by prehistoric glaciation processes, leading to the formation of large eskers, drumlin and boulder fields, and other features. A variety of wildlife species inhabit the area in and around the river, including moose, caribou, wolves, black bears, fox and other smaller furbearers, and numerous waterfowl and songbirds. Polar bears can be observed toward the river's mouth within a few days paddle of Hudson Bay, and a population of harbour seals from the bay range upstream along the river. The Seal River estuary is also significant habitat for beluga whales.

Aside from the remarkable natural features of the river, the Seal is significant for its human heritage, with Aboriginal people known to have lived and travelled along the river several thousand years ago.

In more recent years, the river has become widely recognized for the outstanding whitewater canoeing experience it offers. However, the challenges posed by the river as well as the difficulty in accessing it mean that only a small number of paddlers make the trip each year.

The Seal River was nominated to the CHRS in 1987 and formally designated a Canadian Heritage River in 1992. Relevant documents prepared as part of that process include *The Seal River C.H.R.S. Background Study* (1986), *Seal River Nomination Document* (1987), and *Toward a Management Plan for the Seal Heritage River* (1990). *The Seal River Monitoring Report 1992-2006* was prepared in March 2006.

METHODOLOGY

Several methods were used to gather information for this report related to activities and changes on the Seal River since the 2006 monitoring report was prepared. These included:

- Review of the Seal River Annual Monitoring Reports prepared between 2006-2013
- Review of the Seal River nomination documents and 2006 Ten-Year Monitoring Report
- A literature review of relevant research, studies, articles and reports
- Discussions and interviews by phone and email with a variety of individuals and agencies with knowledge about activities on the river, including staff of Manitoba Conservation and Water Stewardship and other provincial departments, Environment Canada, researchers, outfitters, canoeists, members of Sayisi Dene First Nation, and others.

The information obtained was used to develop a table summarizing activities and events on the river since 2006. The existing tables from the 2006 report that were based on the CHRS natural heritage, cultural heritage and integrity frameworks, and the Manitoba recreational framework, were updated to reflect any new information, changes or threats discovered. The recommended management actions from the document *Toward a Management Plan for the Seal Heritage River* were reviewed and their degree of implementation assessed, and a new table was developed identifying the benefits of the Seal River's CHRS designation.

CHRONOLOGY OF EVENTS

Table 1 lists specific events, actions, research or studies that occurred in the Seal River area since 2006.

Table 1: Chronology of Events since 2006

Year	Significant Events, Actions, Research or Studies since 2006
2006-present	Water flow and level monitoring by Environment Canada continued at the "Seal River Below Great Island" station. Flow was recorded as higher than average in the spring of 2007 and 2012, and reached a record maximum in the summer of 2009. Water levels were recorded as low in 2010 and 2011.
2006-2013	Long-term aerial survey for Canada geese conducted. The survey has been ongoing annually since 1972.
2006	The mineral exploration company Western Warrior (now Whetstone Minerals) conducted drilling in the Eppler Lake area, approximately 5 km north of the Seal River.
2006	An airborne magnetic gradiometer survey was completed, providing a high resolution reconnaissance dataset for the mineral exploration licences in the Seal River area. This was the first survey conducted by De Beers in Canada using fixed wing platforms with low level flight capability, enabling the provision of higher quality data. The data was used to identify areas for further geophysical investigation.
2006-2009	In the summer of 2006, Fisheries and Oceans Canada deployed an acoustic recording device, the AURAL-M2, on a mooring system in the Seal River estuary. The sounds of interest for this project were those made by marine mammals in the area, including killer whales, belugas, bowhead, narwhal and seals. The device recorded continuously during the ice-free season (July-September) from 2006 - 2009. In 2009 a C-POD recording device was also attached to the mooring at the estuary. C-PODs record echolocation clicks produced by toothed whales that are used for navigation and prey detection. The 2006-2008 recordings were analyzed and it was found that marine mammal calls were detected every day during the deployments. However, further analysis revealed that there were many false positive detections, so more detailed analysis was planned. This research was intended to contribute to the understanding of the ecosystem effects of killer whale activity in Hudson Bay.
2007	A significant forest fire burnt an area approximately 19,740 ha along the Seal River corridor. The fire was located just west of Great Island and mostly on the north side of the river.

2007	The Nunavut-Manitoba Route Selection Study was completed in 2007. It identified a preferred corridor for an all-weather road from Gillam, MB to Rankin Inlet, NU. Due to the prohibitive cost of an all-weather road development, Manitoba Infrastructure and Transportation is now instead considering the feasibility of developing a winter road between Churchill and Rankin Inlet that would involve a Seal River crossing. The initial concept involves "engineered ice crossings" (not bridges) at all stream crossings. This is still at the preliminary study stage and determination of a final route has not been initiated.
2008-2012	The Manitoba Geological Survey's (MGS) Far North Geomapping Initiative was conducted in the Seal River area beginning in 2008. This Initiative aimed to provide modern geoscience information and to stimulate and support mineral exploration in northern Manitoba. It was undertaken in conjunction with the Geological Survey of Canada (GSC). The Great Island area was chosen due to the diverse geology in the area having the potential to host a variety of mineral deposits. 2008 - The MGS completed two weeks of reconnaissance mapping and bedrock sampling in the Great Island area. A GSC-funded aeromagnetic and gamma-ray spectrometric geophysical survey of the Great Island–Seal River area was conducted in the fall. 2009 - The MGS conducted detailed bedrock mapping in the Great Island–Seal River area. Geological observations, sampling of glacial sediments and/or measurements of ice-flow indicators were recorded at 95 sites. A reconnaissance survey of the surficial geology of the Great Island and Kellas Lake areas was completed and an airborne geophysical survey was also conducted. The MGS conducted a geological mapping course with members of Sayisi Dene First Nation at Tadoule Lake in the summer. 2010 - The area being mapped was extended south from near the Nunavut boundary to the North Knife River and west from the Hudson Bay coastline to the eastern boundary of Caribou River Provincial Park. 2011-2012 - A second multi-year collaboration to investigate the surficial geology in northern Manitoba was launched. Additional geology mapping and sampling work by MGS in the Seal River area continued. Geological observations, sampling of glacial sediments (till) and/or measurements of ice-flow indicators were recorded at 237 stations within an 8100 km^2 area.
2008	A research project entitled, "Analysis of Beluga and Killer Whale Vocalizations" was conducted. This looked at species behaviour in the Seal River and the Nelson River estuary and the potential effects of alterations to river flow resulting from Manitoba Hydro projects (in contrast with the Seal, there are a series of dams and hydroelectric power plants located along the Nelson River).
2010-2011	Manitor Minerals' Hearne Gold Property, located roughly 10 km south of Great Island, was prospected, sampled and mapped.
2010-2013	Canada geese banding at the mouth of the Seal River was conducted in August, as part of a harvest management program. The banding has occurred annually at the river since 2010, and sporadically before then. This is planned to continue annually.

2010	A coastal polar bear count was conducted in August between Churchill and Hubbard Point.
2011	A more comprehensive aerial survey of the Western Hudson Bay polar bear population was conducted in August.
2011	Manitoba Parks and partners produced a series of Heritage River posters, including one for the Seal River. The posters presented information about the rivers and were intended to help inform Manitobans on this aspect of the province's cultural and natural history. The posters were distributed to a variety of individuals and communities that have an interest in the rivers.
2011	Manitoba Parks developed a survey directed at Seal River canoeists. The survey was intended to collect information about people or groups canoeing the river (age, level of experience, etc.), trip details and logistics, and overall feedback about the experience. The surveys were sent to Manitoba's Churchill District for distribution. However, the remote nature of the river and lack of contact between canoeists and provincial department staff limited the amount of surveys distributed and rate of return.
2012	The first phase of the Northern Manitoba Remote Communities Transportation Study was completed. This study is focused on establishing preferred corridors for all-weather roads into 10 remote communities in Northern Manitoba including Tadoule Lake. Phase 1 involved gathering baseline data. The second and third phases will involve community engagement, corridor selection and economic analysis. This is still at the preliminary study stage and determination of final routes has not been initiated.
2012	The Manitoba Breeding Bird Atlas conducted point counts and general atlassing surveys at the Seal River Estuary Important Bird Area in late June and early July. 78 species in seven atlas grid squares (each 10km x 10km) were detected. These surveys provided excellent documentation of local breeding bird populations; however, due to the time of year could not be used to gauge the full extent of use of the estuary by arctic-breeding migratory species including some of those species for which the IBA was designated, such as black scoter. The rusty blackbird, a species of special concern, was observed during this survey.
2012	Oceans North Canada, in cooperation with Canada's Department of Fisheries and Oceans and the province of Manitoba, launched a multi-year beluga study to gather data on the western Hudson Bay population. Six belugas were tagged in the Seal River estuary in July. Data about their summer and winter migration patterns was transmitted for just under a year. The results showed that, other than one quick trip to the Churchill River by one beluga, the whales stayed in the Seal River area until the fall.
2012	A study was published concerning the habitat use of harbour seals in western Hudson Bay. The study analyzed the movement and distribution patterns of 18 harbour seals captured and tagged with satellite-linked transmitters in the Churchill River estuary in 2001 and 2002. The dive behaviour of 11 of the seals was also examined. The data was analyzed on a seasonal basis to determine how seals responded to differences between open water, the period of ice formation, almost complete ice cover and spring when the ice begins to break up. Several of the seals entered the Seal River, in one case travelling 30 km upriver for six days.

2013	Pilot waterfowl surveys were flown in the Seal and Knife River deltas in the spring. This was a cooperative effort between Manitoba Conservation and Water Stewardship and Ducks Unlimited and is planned to be undertaken again in spring 2014. The survey was intended to look at densities of nesting waterfowl relative to other northern habitats, with a particular interest in black scoters. Based on the results of this small survey, the number of scoters observed was not particularly unusual, but high densities of ducks, and great diversity in general, were observed.
2013	Manitoba Breeding Bird Atlas point counts and surveying was conducted along the Seal River corridor in June and July. Two counters covered 35 atlas squares and recorded 80 species. Additional atlassing was conducted at the estuary in July, during which an extremely rare sighting of a dovekie far offshore was recorded.
2013	The Oceans North Hudson Bay Beluga Project was expanded to include a boat-based survey to document beluga density and their use of habitat. The multi-day survey involved recording numbers, locations, and behaviour of whales observed from the boat along 10 transect lines extending 15 km offshore in the area most heavily used by belugas for feeding, nursing and resting. As of early 2014, the data from 2013 was still to be analyzed and plans for continuation in 2014 were to be determined.
2013	A study examining a hybrid zone between Canada geese and cackling geese was published. The researchers studied patterns of geographic variation in structural size and genetic characteristics of white-cheeked geese inhabiting coastal areas of southwestern Hudson Bay from northern Manitoba to southern Nunavut. The two species overlapped in a narrow zone between 59°N and 60°N latitude. The researchers suggested that the area of overlap represents a tension zone between Canada geese and cackling geese that is maintained by behavioral and ecological factors. The researchers concluded that the existence of a narrow hybrid zone between two otherwise evolutionarily distinct lineages should not preclude their recognition as distinct species.
2013	Bird Studies Canada partnered with Oceans North to survey shorebirds and other species using the Seal River estuary in fall. These surveys collected information regarding the ideal timing of fall surveys and related considerations, locations of high-tide roost sites and other locations for counting shorebirds, and evaluation of high-tide roosting versus low-tide foraging counts and stationary counts on the incoming tide. 16 shorebird counts were completed in five locations, with waterfowl counted at the same time. High counts will be used to update the Important Bird Area database and a final report on the survey identified recommendations for ongoing migratory bird monitoring in the Seal River estuary and within the IBA. It was noted that the high counts in very small areas provide strong evidence for the importance of the estuary as a staging area for at least 20 species of shorebirds. Species of special concern observed included horned grebe, buff-breasted sandpiper, short-eared owl, peregrine falcon and rusty blackbird.
2013	Two large fires burned a significant area along and north of the Seal River west of Great Island. One of those fires straddled the river corridor, burning approximately 15,180 ha. The other large fire was located just a few km further north. A smaller fire, approximately 530 ha, also occurred near the very western end of Great Island.

2013	Manitoba Conservation and Water Stewardship halted the provision of hard-copy information kits for canoeists considering paddling the province's Heritage Rivers as they were no longer being requested by the public.
2014	Manitoba Parks updated its Canadian Heritage Rivers webpage to provide more information on canoeing the Seal, Hayes and Bloodvein rivers. Details were added related to route access and egress, trip descriptions and topographic maps.
2014	Manitoba Conservation and Water Stewardship initiated preliminary discussions with several partners on the development of a beluga whale management strategy.

© Joshua Pearlman (photo taken north of Seal River at Baralzon Lake)

NATURAL HERITAGE VALUES

Background

As described in the 2006 Ten-Year Monitoring Report, the designation of the Seal River to the CHRS was based primarily on the following outstanding natural heritage features:

- The Seal is the largest remaining un-dammed river in northern Manitoba.
- The river valley contains excellent representation of the subarctic boreal forest of the Precambrian Shield, and the arctic tundra of the Hudson Bay Lowlands.
- The valley is habitat for approximately 30 species of plants which are rare in Manitoba, and supports some unusually large white spruce and tamarack.
- The corridor includes glacial features such as northern Manitoba's largest drumlin fields, extensive boulder fields, and 300 metre-wide eskers extending up to several hundred km in a north-south direction, sometimes as lake peninsulas or submerged landforms.
- The estuary area is rebounding from the weight of the glaciers at a rate of about 53 cm per century, among the fastest in the world.
- The area is undisturbed habitat for populations of moose, black bear, wolf, fox, snowshoe hare, ptarmigan, Canada goose, ducks, otter and beaver. Wolverine, golden and bald eagle, osprey, and polar bear are also found. The river's estuary is the calving and feeding grounds for thousands of beluga whales, part of the largest concentration in the world and the Seal is part of the winter range for the Qamanirjuaq caribou herd, which numbers over 400,000. Harbour seals travel up the river from Hudson Bay and can be observed as far upstream as Shethanei Lake.

©Trevor Gill and Christopher Paetkau for Oceans North Canada

Condition of Natural Values since 2006

As the Seal River is located in a remote area of northern Manitoba, little activity occurs within its corridor that has the potential to impact the river's natural heritage values. As was the case in the period between the river's CHRS designation in 1992 and the writing of the first decadal monitoring report in 2006, there have been no significant changes in the natural heritage values since 2006.

Of the limited amount of activity that occurs in and around the Seal River, the majority is for research and monitoring purposes. As illustrated by Table 1, a variety of wildlife-related research and surveying has been conducted since 2006. Much of the research is of an ongoing and/or information-gathering nature, and as such analysis of the results to date has not revealed significant changes in the natural values of the river. However, as these research projects are continued in future years and further analysis is conducted, they will offer the opportunity to improve understanding of the wildlife populations and ecosystems in the area. This may be important for the future assessment of the condition of the river's natural values, in particular in consideration of the possible impacts of climate change on the species and ecosystems in the area.

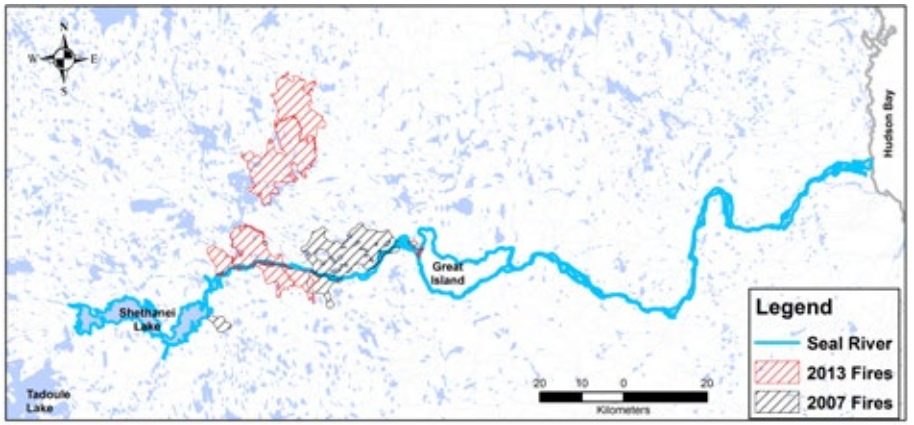
Research and surveying activities that have been conducted in the Seal River area since 2006 included Canada goose surveying and banding, and shorebird and waterfowl surveys at the Seal estuary, an Important Bird Area. Manitoba Breeding Bird Atlas point counts and atlassing activities were conducted along the Seal River in 2012 and 2013. Forest fire conditions as well as the shoreline characteristics and lack of campsites along the river posed challenges for conducting atlassing activities upstream of the estuary.

© Christian Artuso 2013.

Projects focused on marine mammals have included polar bear surveys, acoustic surveys of killer whales, belugas, bowheads, narwhals and seals, and investigation of the habitat use and behaviour of harbour seals. A multi-year beluga whale study was also launched by Oceans North Canada in 2012. These studies will all contribute to the understanding of marine mammal populations, behaviour and habitat use at a time when climate change is already beginning to lead to changes in marine mammal habitat use and distribution. A beluga whale management strategy, initiated in 2014 by Manitoba Conservation and Water Stewardship and partners, will also be important going forward.

Mineral exploration in the region has the potential to impact the river's natural values, but to date these activities have generally been undertaken several kilometres or more from the river corridor. However, some activity has been conducted closer to the river over the last ten years, including the Manitoba Geological Survey's Far North Geomapping Initiative. Activities conducted as part of this Initiative included reconnaissance mapping, bedrock and glacial sediment sampling, and geophysical surveys.

The most significant events impacting the river's natural values between 2006 and 2014 were multiple large forest fires which burned portions of the river corridor in 2007 and 2013. As any changes in vegetation and habitat resulting from these fires are the result of natural processes, these events are not considered threats to the values for which the river was designated a Canadian Heritage River. However, one canoeist/bird surveyor noted that the visual impact of the changes caused by fire activity was striking.



There has been no change in the status of the two Areas of Special Interest that were identified under the Manitoba Protected Areas Initiative along the Seal River corridor in 1999 and 2000, or with the Seal River Proposed Ecological Reserve that was nominated by Manitoba's Ecological Reserves Advisory Committee in 2002.

Table 2 summarizes the condition of Seal River Natural Heritage Values since 2006, with the framework themes and sub-themes and descriptions drawn from *A Framework for the Natural Values of the Canadian Heritage Rivers, 2nd Edition*, and the 2006 Ten-Year Report.

Table 2: Changes to Seal River Natural Heritage Values since 2006

CHRS Natural Framework (2001) Themes and sub-Themes	Seal River Natural Heritage Elements Description	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
1. HYDROLOGY			
1.1 Drainage Basins	Hudson Bay Basin. Stream number 1.	None.	None.
1.2 Seasonal Variation	Period of highest flow is June (summer melt); period of lowest flow is October-April.	Ongoing water flow and level monitoring by Environment Canada continued.	None.
1.3 Water Content	Upper Seal as insignificant sediment load (0-50 mg/l or <5.0 Jackson Unit) and lower Seal as minor sediment load (51-200 mg/l or 5.1-10.0 JU); entire river rated as low Total Dissolved Solids (0-50 mg/l).	None.	None.
1.4 River Size	Flow volume at lowest point of nomination – Medium river or 85-400 m^3/sec. Length <500 km.	Ongoing water flow and level monitoring by Environment Canada continued. Record maximum flow and level reached in 2009.	None.
2. PHYSIOGRAPHY			
2.1 Physiographic Regions	Canadian Shield – Kazan region and Hudson Bay Lowlands.	None.	None.
2.2 Geological Processes	Glacial transport, with typical features such as eskers, felsenmeer; glacial rebound, with typical features of incised channels, abandoned beaches and deltas.	Airborne magnetic gradiometer survey flown in 2006. Manitoba Geological Survey's Far North Geomapping Initiative conducted from 2008-2012. Bedrock mapping and sampling conducted in Great Island area. Limited amount of prospecting, drilling and sampling activities conducted several km outside of river corridor.	Results of surveying provided enhanced data resolution for geological mapping of the area. This work could encourage mineral exploration in the area but significant activity within the Seal River corridor is not anticipated and does not currently present a threat to nomination values.

CHRS Natural Framework (2001) Themes and sub-Themes	Seal River Natural Heritage Elements Description	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
2.3 Hydrogeology	Impervious shield bedrock with surficial unconsolidated materials of low porosity: fine grained clay and silt. Glacio-marine deposits in lower section.	Geological observations, sampling of glacial sediments (till) and/or measurements of ice-flow indicators were recorded at 237 stations within an 8100 km^2 area as part of the Far North Geomapping Initiative.	None.
2.4 Topography	Moderate gradient (1-2 m/km). Height above sea level 0-400 m.	None.	None.
3. RIVER MORPHOLOGY			
3.1 Valley Types	Not described at time of designation.	N/A	N/A
3.2 Channel Patterns	Large-lake affected river; thermokarst lakes; estuarine.	None.	None.
3.3 Channel Profile	White Water: cataract. Deaf Rapids; cascading rapids, typically long class 2 or short class 3, small chutes and ledges (e.g. prolonged rapids at Great Island).	None.	None.
3.4 Fluvial Landforms	Depositional landforms: deltas. Erosional landforms: gorges.	None.	None.
4. BIOTIC ENVIRONMENTS			
4.1 Aquatic Ecosystems	Riverine systems: Lowland zone and an estuarine system.	None.	None.
4.2 Terrestrial Ecosystems	Ecozones: Southern Arctic; Taiga Shield and Hudson Plains.	None.	None.

CHRS Natural Framework (2001) Themes and sub-Themes	Seal River Natural Heritage Elements Description	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
5. VEGETATION			
5.1 Significant Plant Communities	Trees: Extent of jack pine stands in lee of eskers.	Significant forest fires in 2007 and 2013.	Natural change: forest fire processes affected forest composition and/or extent of stands in some areas.
5.2 Rare Plant Species	28 provincially rare species at river mouth.	None.	None.
6. FAUNA			
6.1 Significant Animal Populations	Mammals: population size – barren ground caribou. Birds: location – cliff swallows. Amphibians: location – wood frog.	Long-term aerial Canada goose survey continued annually. Canada geese banding occurred at river mouth annually from 2010 on. Acoustic device deployed in Seal River estuary from 2006-2009 to record marine mammal sounds. Research project examined species behaviour and vocalizations in the estuary. Oceans North Canada launched multi-year beluga whale study in 2012 to gather data on the Hudson Bay population. Belugas were tagged in 2012 and a boat-based survey was conducted in 2013. Harbour seal habitat use in Western Hudson Bay was studied in 2001-02, with results published in 2012. Waterfowl surveys flown at Seal River delta in spring 2013. High densities of ducks and great diversity of species were observed. Research published in 2013 on the existence of a hybrid zone between Canada geese and cackling geese in the Seal River area. Shorebird survey conducted at Seal River estuary in fall 2013. Results of the counts provided strong evidence for the importance of the estuary as a staging area for at least 20 species of shorebirds. The Seal River estuary continues to be globally significant for migrating black scoters.	Geese populations continue to increase. Various research activities contributed positive change to nomination values, as understanding of species behaviour, habitat use and other factors has increased.

CHRS Natural Framework (2001) Themes and sub-Themes	Seal River Natural Heritage Elements Description	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
6.2 Rare Animal Species	Designated of Special Concern: wolverine, polar bear, Western Hudson Bay beluga whale population.	Polar bear surveys conducted in 2010 and 2011. Breeding Bird Atlas surveys/counts conducted in Seal River Important Bird Area in 2012 and 2013. Extremely rare sighting of a dovekie offshore of Seal River estuary was recorded in 2013. During fall 2013 shorebird survey, species of Special Concern observed included horned grebe, buff-breasted sandpiper, short-eared owl, peregrine falcon and rusty blackbird. Manitoba Conservation and Water Stewardship initiated preliminary discussions with partners on the development of a beluga whale management strategy in 2014.	There have been no changes to the nomination values but potential impacts of climate change pose a threat to some populations. Although noted as Endangered in the 2006 Ten-Year Monitoring Report, the correct listing for the Western Hudson Bay beluga whale population is species of Special Concern. This designation has been in place since 2004; it is possible that the listing of Endangered in the 2006 report was incorrectly based on the status of the Eastern Hudson Bay population.

© Christian Artuso 2013.

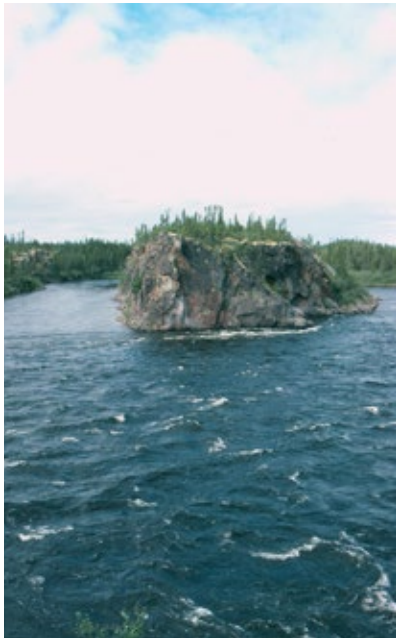
CULTURAL HERITAGE VALUES

Background

The river's nomination to the CHRS was not based primarily on its human heritage, but as described in the 2006 Ten-Year Monitoring Report, there are several historical features of interest along the river corridor:

- A large number of prehistoric artifacts and archaeological sites including fire rings, scrapers, flakes, projectiles and hammers, often exposed on the surface of eskers at campsites and along the caribou trails by the river between Tadoule Lake and Great Island. The age of these finds spans the Paleo-Indian peoples of 7,000 years ago, to the Taltheili Tradition of 1 A.D. to 1700 A.D.
- The remains of Dene and European trappers' cabins, and 100 year-old grave sites marked by picket fences on top of eskers, reflect more recent occupation.
- An association with the European explorer Samuel Hearne of the Hudson Bay Company. Hearne left Fort Prince of Wales, near Churchill, in February 1771, on his second of three attempts to locate the copper fields which were said to border the northern ocean. Hearne followed the Seal River inland on foot to Shethanei Lake.
- An abandoned mining camp on Great Island, which operated during the 1940's and 1950's. Well preserved log buildings, a dynamite storage shack, a drilling platform, and other remnants were scattered throughout the site at the time of designation. The mining camp has since burned down.

Condition of Cultural Heritage Values since 2006



Essentially no activity or other events that may have impacted the condition of the Seal River's cultural heritage values are known to have occurred since 2006. No research or archaeological investigations were undertaken and as such knowledge of cultural features and artifacts along the river remains the same. Forest fires in 2007 and 2013 may have destroyed some artifacts in the Heritage River corridor, but may also have exposed others that were previously hidden. From the perspective of the community closest to the river, Sayisi Dene First Nation at Tadoule Lake, no significant changes to the river have been observed since designation. The natural, cultural and recreational values of the Seal River were promoted in 2011 through the development and distribution of a poster featuring a mix of images and text. The text on the poster was written in English as well as Dene, the traditional language of Sayisi Dene First Nation. The poster was distributed to individuals and groups with an interest in the river.

Table 3 summarizes the condition of Seal River Cultural Heritage Values since 2006, with the framework themes and sub-themes drawn from *A Cultural Framework for Canadian Heritage Rivers, 2nd Edition*, and descriptions from the 2006 Ten-Year Report.

Table 3: Changes to Seal River Cultural Heritage Values since 2006

CHRS Natural Framework (2000)	Seal River Natural Heritage Elements Description	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
1. RESOURCE HARVESTING			
1.1 Fishing	Not described at time of designation.	N/A	N/A
1.2 Shoreline Resource Harvesting	Abandoned mining exploration camp on Great Island, c. 1950s. Trapper's cabin.	None.	Mining exploration camp destroyed in 1994 fire. Status of trapper cabin unknown.
1.3 Extraction of Water	Not described at time of designation.	N/A	N/A
2. WATER TRANSPORT			
2.1 Commercial transportation	Not described at time of designation.	N/A	N/A
2.2 Transportation Services	Not described at time of designation.	N/A	N/A
2.3 Exploration and Surveying	Exploration/Prospecting: Samuel Hearne (1770-71) in search of the Arctic copper mines (evidence of campsites).	None.	None.
3. RIPARIAN SETTLEMENT			
3.1 Siting of Dwellings	Aboriginal habitation sites (semi-permanent, prehistoric campsites), evidence of chips, flakes, scrapers, arrowheads, spear points, hammers, cutting stones, fire rings and cores attributed to the Archaic period.	None.	Fire, caribou and other natural events may have destroyed some artifacts but also possibly exposed others. Some loss of artifacts is possible due to travellers on the river removing them.
3.2 River-based Communities	Not described at time of designation.	N/A	N/A
3.3 River-influenced Transportation	Not described at time of designation.	N/A	N/A
4. CULTURE AND RECREATION			
4.1 Spiritual Associations	Aboriginal grave sites.	None.	None.

CHRS Natural Framework (2000)	Seal River Natural Heritage Elements Description	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
4.2 Cultural Expression	Not described at time of designation.	N/A	N/A
4.3 Early Recreation	Not described at time of designation.	N/A	N/A
5. JURISDICTIONAL USES			
5.1 Conflicts and Military Associations	Not described at time of designation.	N/A	N/A
5.2 Boundaries	Not described at time of designation.	N/A	N/A
5.3 Environmental Regulation	Not described at time of designation.	N/A	N/A

RECREATIONAL VALUES

Background

The Seal River's nomination to the CHRS was based in part on its ability to provide an outstanding wilderness river experience. The river is known as a premier whitewater paddling destination, and due to its remote nature, difficulty to access and the challenges it poses, the Seal is only paddled by a small number of groups each summer. The recreational features of the river include:

- A 260 km whitewater "trip of a lifetime" from Tadoule Lake to Hudson Bay involving 20 km of lake travel between Tadoule and Shethanei lakes; 40 km on Shethanei Lake, where waves and winds can be dangerous; 64 km through numerous rapids and a narrow, deep gorge; 28 km of intermittent whitewater along the scenic channel of Great Island, including a possible 3 km portage; 124 km of flat country, transitional subarctic tundra forest and boulder field rapids; 4 km through marshes, tidal flats, islands, shelves and reefs at the estuary, requiring timing with the tides; and ending with a float plane or motorboat pick-up. Notably, while informal campsites can be found along the western two-thirds of the river, the densely-willowed river banks closer toward Hudson Bay can make finding a suitable campsite a challenge.
- Trophy-size lake trout can be caught on Shethanei Lake, and large northern pike and grayling are present throughout the river.
- Hikes to the top of eskers and rocky knolls offer 360 degree vistas of a totally natural environment. Short hikes along eskers and beaches, or across Great Island, allow modern-day explorers to follow the timeless migration path of the barren-ground caribou. Visitors can also retrace the steps of Samuel Hearne by climbing the esker that was his vantage point on Shethanei Lake.

Condition of Recreational Values since 2006

The Seal River offered an exceptional whitewater paddling experience at the time of CHRS designation in 1992 and continues to offer the same today. Due to the remote location and the challenges associated with both accessing the river and successfully navigating the frequent sets of rapids, the river has a reputation as a high quality canoeing experience that only a limited number of people will undertake each year. These same characteristics cause it to be unlikely that the recreational values of the river will change. Reports from some canoeists suggest that some air carriers in Manitoba are reluctant to carry hard-shell canoes, making it more difficult to access the river for a canoe trip. However, for at least one air carrier and likely others, the issue is not reluctance but rather the canoes being too long for the type of aircraft used. Certain carriers remain capable of transporting boats for canoeists and so air travel continues to be a common component of the logistics for starting and/or completing a trip down the Seal River. Even if access to the river improves in the future with the potential development of an all-weather road to Tadoule Lake, the Seal will continue to remain a destination for experienced whitewater paddlers only.

Much of the reporting on recreational conditions on the river over the last ten years is anecdotal, provided by paddlers and outfitters. One outfitter reported that demand for guided trips on the river has dropped in recent years; however they continue to provide logistical and other assistance as requested. From 2010-2012, an individual who provides a pick-up service, transporting paddlers from the estuary to Churchill, reported picking up 30-40 paddlers each summer. In 2013 however, he only picked up one trip (one canoe only). He believed that the reason for this decline was based on economic factors and expected numbers to rebound in 2014. This operator also noted that a perceived increase in the number of polar bears around the Hudson Bay shoreline has made it increasingly difficult to camp in that area (whether for recreation or hunting or any other purpose). The Seal River Heritage Lodge, located near the estuary, indicated that they host approximately 150-200 guests per year, with one or two groups each year

arriving at the lodge after paddling down the river. This lodge continues to offer a variety of recreational experiences in the area around the Seal River estuary, including wildlife viewing, hiking, kayaking, marine tours and swimming with beluga whales.

The Seal River area continues to offer superb wildlife viewing opportunities, with the Seal River Heritage Lodge reporting that observations of polar bears, including mothers with cubs, seem to have increased. From the recreation perspective, water levels were reported as abnormally high in 2009. This is in line with the recordings taken at the Environment Canada monitoring station. High water on the Seal can create additional challenges when trying to find suitable campsites along the river. Reports indicate that canoeists have taken the opportunity to camp at the small Water Survey of Canada cabin located at the monitoring station below Great Island. The shack at the estuary also provides welcome refuge for paddlers waiting to be picked up and transported to Churchill by motorboat.

The Parks and Protected Spaces Branch of Manitoba Conservation and Water Stewardship (CWS) has undertaken several initiatives in recent years to promote the Seal River and the recreation opportunities it provides.

A Canadian Heritage River poster series was produced, with the Seal River poster distributed to CWS offices and to communities near the river for display and further distribution. In 2013 CWS stopped providing hard-copy information kits about paddling Manitoba's Heritage Rivers as the kits had become dated and were no longer being requested by the public. However, in an effort to improve accessibility to information about canoeing on the Seal and the other rivers, the CHRS page of the Parks and Protected Spaces Branch website was overhauled to provide significantly more information related to route access and egress, trip description, topographic maps and other details.

Table 4 summarizes the condition of Seal River Recreational Values since 2006, with the framework themes and sub-themes drawn from the 1997 document *Canadian Heritage Rivers System Systems Study of Rivers in Manitoba* and the 2006 Ten-Year Report. The descriptions of the current situation, provided in the second column, are taken from the 2006 report with modifications made where necessary.

Table 4: Changes to Seal River Recreational Values since 2006

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
1. BOATING			
1.1 Whitewater Canoe, Kayak and Raft 1.2 Extended Canoe Tripping	The Seal remains a high quality, remote and wilderness river. Numbers of recreational canoeists per year appeared to remain steady, with a small number of groups picked up near the mouth of the river each summer. A limited number of canoe outfitters continue to offer guided trips and/or logistical assistance.	Manitoba Conservation and Water Stewardship halted provision of hard-copy information kits for canoeists but increased the amount of information provided for paddlers on its CHRS webpage. A survey was also developed and intended for distribution to paddlers who have completed a trip on the Seal.	Interested canoeists now have an improved ability to find information online about paddling the Seal River. It is possible that the potential future development of an all-weather road into Tadoule Lake could improve access to the Seal River canoe route. However, the Northern Manitoba Remote Communities Transportation Study is still in the very preliminary stages and if such a road is to be developed it will not be for quite some time.
1.6 Commercial Tour Boats	The Seal River Heritage Lodge located near the Seal River estuary offers marine boating tours.	None.	None.
2. ANGLING			
2.3 Extended Angling Vacation	Lack of accommodation, difficulty and expense of access and availability of more accessible fishing areas elsewhere suggest that extended angling vacations will not occur on the Seal River.	None.	None.
2.4 Fly Fishing	Capability remains high; potential is unlikely to be realized due to the remoteness of the river.	None.	None.

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
2.5 Ice Fishing	The capability and use remains low, due both to the remoteness and ice conditions from the swift current.	None.	None.
2.6 Specific Fish Species	Fishing occurs as a secondary activity, primarily by canoeists.	None.	None.
3. WATER CONTACT			
3.1 Swimming	The remoteness, cold water and swift current keep this use low.	None.	None.
4. WATER-ASSOCIATED ACTIVITIES			
4.1 Trail Use	The Seal River Heritage Lodge offers hiking activities in the area near the Seal River estuary. Paddlers also frequently hike the eskers found along the river corridor.	None.	None.
4.2 Camping	Campsites found along the Seal vary in quality and are often rugged. Due to the limited amount of use they receive, impacts to existing campsites are relatively low. Campsites are difficult to find closer to Hudson Bay.	None.	None.
4.3 Hunting	Hunting use is low due to remoteness of the area.	None.	None.

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
5. WINTER ACTIVITIES			
5.1 Snowmobiling	Snowmobile use is low due to remoteness of the area.	None.	None.
6. NATURAL HERITAGE APPRECIATION			
6.1 Wildlife	Opportunity to see harbour seals, belugas, polar bears, various bird species and possibly caribou remains high. Bowhead whales and barren-ground grizzlies have also been observed in the past.	Natural forest fire processes in 2007 and 2013 altered some wildlife habitat, potentially affecting wildlife observations in some areas. Manitoba Breeding Bird Atlas surveyors combined recreational canoe trip with bird survey/counts in 2013.	Seal River Heritage Lodge indicated an increase in the number of polar bears observed, as well as geese.
6.2 Vegetation	Diversity of vegetation exists along the length of the river, from boreal forest through taiga to tundra.	The 2007 & 2013 fires impacted trees and vegetation in some areas.	Natural change due to fire.
6.3 Vistas/ Scenic Quality	Views from the eskers and the stark beauty of the sub-arctic landscape are stunning.	The 2007 & 2013 fires had a striking impact on the vista along some sections of the river.	Natural change due to fire.
6.4 Geological Features/ Water Features	Eskers, cliffs and whitewater features are frequent.	None.	None.
7. HUMAN HERITAGE APPRECIATION			
7.1 Historic Sites	Prehistoric artifacts and/or evidence of early prospecting/ exploration activities are found at some sites.	None.	None.

Recreational Capability Themes and Sub-themes	Description of Current Situation	Significant Actions, Research or Studies	Changes or Threats to Nomination Values
7.2 Cultural Landscapes	While the interpretive story of the tenuousness of existence in this landscape is strong, the opportunity to be exposed to this experience is low.	Seal River Heritage River poster was developed and distributed in 2011.	Poster provided the opportunity to increase appreciation of the river's human and natural heritage.

©Trevor Gill and Christopher Paetkau for Oceans North Canada

INTEGRITY GUIDELINES

In order to be designated a Canadian Heritage River, a river and its immediate environment must meet certain natural, cultural and recreational integrity values. Table 5 summarizes the condition of Seal River integrity guidelines since 2006, with the framework themes drawn from the *Canadian Heritage Rivers System – Principles, Procedures and Operational Guidelines* and the 2006 Ten-Year Report. The descriptions of the current situation, provided in the second column, are also taken from the 2006 report with modifications made where necessary.

Table 5: Changes to Seal River Integrity Values since 2006

CHRS Principles, Procedures and Operational Guidelines (2000)	Seal River Integrity Values	Changes or Threats to Integrity Values
1. NATURAL INTEGRITY VALUES		
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 value.	The Seal River is a pristine, remote river, and the largest undeveloped river in the province. It has unique features found in few other places in Manitoba. The two km wide corridor and the length of the river capture all or most of the key interrelated and interdependent features.	None.
1.2 The nominated area contains those ecosystem components required for the continuity of the species, features or objects to be protected.	The Seal River traverses three key terrestrial ecozones and the size of the corridor addresses this integrity value. The river has the representative diversity of wildlife and vegetation expected with its northern location, but also has populations of barren-ground caribou, polar bears, beluga whales and harbour seals.	None.
1.3 There are no human-made impoundments within the nominated area.	No impoundments on the river.	None.
1.4 All key elements and ecosystem components are unaffected by impoundments located outside the nominated area.	No impoundments on the watershed of the river.	None.
1.5 Natural values for which the river is nominated have not been created by impoundments.	No impoundments on the river or its watershed.	None.

CHRS Principles, Procedures and Operational Guidelines (2000)	Seal River Integrity Values	Changes or Threats to Integrity Values
1.6 The water of the nominated area of the river is uncontaminated to the extent that its natural aquatic ecosystem is intact.	While the water quality index for the river suggests fair quality, this is attributed to missing measurements for some of the characteristics. No local sources of contamination are known.	None. Increased activity along the Hudson Bay shoreline potentially poses a slight risk to the estuary only.
1.7 The natural aesthetic value of the river is not compromised by human developments.	Virtually no human developments exist along the river, and those away from the estuary are all historic. The Seal River Heritage Lodge near the estuary was built for eco-tourism purposes.	None. A potential winter road being considered for development between Churchill, MB and Rankin Inlet, NU might involve a Seal River crossing but no bridge. If a winter road is developed in the future, provided that there is no bridge or other permanent infrastructure involved, it may not compromise the natural aesthetic value of the river but could pose a threat to integrity values. This will need to be reassessed in future once further planning has been conducted.
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.	The Seal was not nominated primarily for its human heritage values. Within the corridor, artifacts from human occupation can be found, but a comprehensive evaluation has not been conducted.	None.
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.	The river's natural appearance reflects a period of occupation by Aboriginal people prior to European contact and the fur trade era. Several sites are associated with the explorations of Samuel Hearne.	None.
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.	No impoundments and little human land use occurred prior to the nomination.	None.

CHRS Principles, Procedures and Operational Guidelines (2000)	Seal River Integrity Values	Changes or Threats to Integrity Values
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.	Water quality does not detract from the cultural values.	None.
3. RECREATIONAL INTEGRITY VALUES		
3.1 The river possesses water of a quality suitable for contact recreational activities, including those recreational opportunities for which it is nominated.	The water quality of the river meets all recreational water quality standards. However, swimming capability is rated as low, given the water temperature and high flows.	None.
3.2 The river's visual appearance is capable of providing river travellers with a continuous natural experience, or a combined natural and cultural experience, without significant interruption by modern human intrusions.	The Seal River provides an outstanding recreational whitewater experience, including the aesthetics of the landscape. The aesthetic quality and integrity is based on the diversity of visual experience as well as the quality of the natural and cultural values.	None.
3.3 The river is capable of supporting increased recreational uses without significant loss of or impact on its natural, cultural or aesthetic values.	Current levels of recreational use are very low and there are no indications of impacts by recreational users.	None.

MANAGEMENT PLAN REVIEW

The Seal River designation document *Toward a Management Plan for the Seal Heritage River* was prepared in 1990. The document describes management goals and objectives for the river, and recommended actions to be implemented as part of the long-term management of the river. Table 6 lists those recommended management actions and reports on their degree of achievement through the work of the provincial government and/or other governments or agencies. It should be noted that the 2006 Ten-Year Monitoring Report for the river reported on the achievement of the goals and objectives listed in the designation document, rather than the recommended management actions. As the *Canadian Heritage Rivers System – Principles, Procedures and Operational Guidelines* calls for the decadal monitoring reports to report on the status of actions and management measures called for in the designation document, that is what forms the content of Table 6 in this report.

It is also important to note that, as the designation document/ management plan for the Seal River was prepared in 1990 and has not been updated since (potential revisions were discussed in the years immediately following designation but none were ever finalized), it is now outdated both in terms of current river management practices and in relation to departmental organization and terminology associated with Manitoba Conservation and Water Stewardship, the river's managing body. Certain management actions called for in the document would not be considered for implementation at the present date due to changes in commonly accepted management practices, existing priorities, and other factors. As such there is a need to update the management plan to reflect the current context and provide a more useful document for the management of the Seal River going forward.

©Jeremy Davies, The Pew Charitable Trusts

Table 6: Seal River Management Plan Recommendations and Current Status

Management Plan Recommendations (from "Toward a Management Plan for the Seal River", 1990)	Degree of Achievement	Actions / Notes
NATURAL HERTAGE RESOURCES		
• Work toward the classification of the Seal River, as well as North and South Seal and Wolverine rivers, as "Exceptional Value Waters" in order to provide for the long-term preservation of watershed integrity.	Not initiated*	• *Manitoba Water Quality Standards, Objectives and Guidelines* identify Canadian Heritage Rivers as being suitable for designation as Exceptional Value Waters
• Acquire baseline water quality information and establish a water quality monitoring and sampling procedure as a way of detecting changes to water quality over time.	Not initiated*	• Water quality was monitored by Environment Canada up until 2001. Flow and level continue to be monitored.
• Complete a preliminary assessment of fish ecology in order to better understand fish and seal ecology and the potential impacts of resource use and harvest.	Not initiated*	
• Consult with other governments and private agencies to develop cooperative management activities for the estuary.	Partially initiated	• Manitoba Conservation and Water Stewardship has entered into discussions with partners on a beluga whale management strategy. Waterfowl surveys are flown in cooperation with Ducks Unlimited.
• Identify sensitive areas, particularly along eskers, beaches and other sensitive landforms, and the habitats of rare, unique and endangered species or communities along the river.	Ongoing	• The Seal River Estuary Important Bird Area was identified by BirdLife International in 1999. • Under the Protected Areas Initiative, two Areas of Special Interest were identified on the Seal River corridor in 1999 and 2000. • The Seal River Proposed Ecological Reserve was nominated by Manitoba's Ecological Reserves Advisory Committee in 2002 to capture a representative sample of terrestrial, freshwater, riverine, estuary, tidal flat and marine ecosystems in a protected area. The nomination was supported by the presence of harbour seals in the river corridor, and a colony of cliff swallows that nests on Great Island at the northern limit of the species' range, which is the only known nesting location in Manitoba that is not on a human-built structure.

Management Plan Recommendations (from "Toward a Management Plan for the Seal River", 1990)	Degree of Achievement	Actions / Notes
• Conduct annual surveying/monitoring of sensitive areas.	Ongoing	• Some monitoring of activities occurs through permit review processes. Various wildlife surveys are conducted periodically, in some cases annually for certain species, and bird counts are undertaken for the Manitoba Breeding Bird Atlas.
• Rehabilitate or stabilize plant communities and landscapes altered by human activities to their naturally appearing form, or to a point where natural processes are re-established.	Not initiated*	• Rehabilitation/stabilization is not necessary to pursue at this time as few, if any, areas have been significantly altered by human activities.
• Work with federal and provincial wildlife agencies to determine distribution of seals in the watershed and their use of the river in terms of food, habitat and behaviour.	Partially initiated	• Non-government research has been conducted relating to harbour seal behaviour and habitat use.
• Encourage research on other significant heritage species within the corridor.	Ongoing	• Research on a variety of species, including beluga whale, polar bear, Canada goose and others, is regularly conducted by government agencies, non-profit organizations, universities and other organizations.
HUMAN HERITAGE RESOURCES		
• Complete an archaeological survey of the south shore Shethanei Lake esker and the Great Island north channel esker.	Partially initiated	• Work began with the 1986 Seal River Background Study and the 1988 Archaeological Survey of the Seal River.
• Salvage, analyze and record any significant artifacts which may be subject to illegal removal.	Partially initiated	• Cultural heritage features are listed in a provincial database.

Management Plan Recommendations (from "Toward a Management Plan for the Seal River", 1990)	Degree of Achievement	Actions / Notes
• Identify the cultural significance of Great Island by completing an ethnographic survey and make recommendations for the management of this area.	Not initiated*	
• Avoid direct locational reference to known archaeological remains and spiritual sites.	Ongoing	• Direct locational references to known archaeological sites have not been included in interpretive documents.
RECREATION RESOURCES		
• Establish a central registry to collect data on river users.	Partially Initiated	• No official registry has been established; however, post-trip pick-up service provided by a private operator provides unofficial monitoring of user/group numbers and other details. • The Seal River canoeist survey was developed to collect some of this information; however, no completed surveys have been returned to date.
• Prepare and circulate a brochure/poster aimed at the general public and potential river travellers, and a river guide that outlines paddling details and CHRS information.	Completed / Ongoing	• The book "Wilderness Rivers of Manitoba" (Wilson & Aykroyd, 1998), which includes a guide to paddling the Seal River, was published in 1998 and updated in 2004. • The Seal River poster was developed and distributed in 2011. • A hard copy information kit was developed and provided on request from 2002 until 2013. • The CHRS page of the Manitoba Parks website was updated in 2014 to provide more information on visiting/paddling the province's Heritage Rivers, in addition to existing information on the CHRS. • The Seal River continues to be promoted in Travel Manitoba's Outdoor Adventure Guide.
• Encourage active private sector involvement in the provision of outfitting and access service opportunities.	Ongoing	• A limited number of outfitter licences have been granted for activity on the river, and the Seal River Heritage Lodge at the estuary has been operated by Churchill Wild since 1993.

Management Plan Recommendations (from "Toward a Management Plan for the Seal River", 1990)	Degree of Achievement	Actions / Notes
• Develop a public safety plan which identifies evacuation procedures, registry points and provision of information.	Not initiated*	
• Permit establishment of a small-scale tourist outcamp/ mini-lodge establishment on Shethanei Lake.	Not initiated*	
• Construct a bear-proof camping and pick-up facility at the estuary.	Completed	• A bear-proof shelter (note: not a government facility) was constructed at the estuary in 1996.
• Promote a high-quality sport fishery.	Not initiated*	
• Promote no-trace camping.	Ongoing	• "Leave no trace" information is posted on Manitoba Parks' CHRS webpage.
• Mark primitive portages around major sets of rapids.	Not initiated*	• Some unofficial clearing and marking may have occurred over the years.
• Permit resident sport hunting at present levels of use.	Ongoing	
COMMERCIAL RESOURCE USE		
• Ensure that "Exceptional Value Waters" standards are the primary criteria for commercial resource use impact analyses where water quality may be affected.	Partially initiated	• Regular government review and consultation processes are utilized if proposals are received.
• Direct all mining and exploration activities away from areas directly adjacent to, or visible from, the river, and away from direct-source streams.	Ongoing	• With the exception of limited bedrock sampling and mapping activities, current mineral exploration activities occur several km or more from the Heritage River corridor.
• Prohibit disposal and treatment of domestic and industrial waste within the corridor.	Ongoing	

Management Plan Recommendations (from "Toward a Management Plan for the Seal River", 1990)	Degree of Achievement	Actions / Notes
REGIONAL INTEGRATION		
• Form an advisory group to provide input on tourism, outfitting, employment opportunities, research, traditional resource use, and protection and management issues.	Not initiated*	• Sayisi Dene First Nation is advised in advance of licences and/or permits being issued for activities on the Seal River.
• Tender an outfitting development opportunity for private operators in Tadoule Lake and Churchill.	Not initiated*	
• Ensure the protection of First Nations traditional resource use, access to land and land claim rights.	Ongoing	• Treaty and Aboriginal rights are protected through existing legislation, policy and programs.
PLAN IMPLEMENTATION AND ADMINISTRATION		
• Designate the corridor as a "Permanent Crown Land Reservation" under The Crown Lands Act.	Not initiated*	
• Establish a seasonal, two-person "river steward" patrol originating from Tadoule Lake.	Not initiated*	
• Establish the Northern Regional Planning Committee (Thompson) as the primary agency responsible for management of the river.	Not initiated*	• The river is managed jointly by the Parks and Protected Spaces Branch and the Northeast Region, particularly the Churchill District.

* These recommendations will be reviewed as part of the process to update the Seal River Management Plan.

BENEFITS OF DESIGNATION

A new requirement of the *Canadian Heritage Rivers System – Principles, Procedures and Operational Guidelines* is for decadal monitoring reports to report on conservation, stewardship, economic, and cultural benefits resulting from designation. As the Seal River is such a remote river that sees relatively little activity, concrete benefits of designation are somewhat difficult to realize or observe. Likely the greatest, and most important, benefit of designation is simply increased support for the protection and conservation of the Seal River and its surrounding environment. The Seal's CHRS designation helps to increase awareness of the river and will continue to be important in ensuring the river retains its unique qualities into the future.

Table 7 lists the various benefits of designation that have been identified for the Seal River.

Table 7: Benefits of Heritage River Designation

Type of Benefit	Description
Environmental Benefits	• Increased support for conservation of the river corridor, habitat and surrounding environment • Designation and potential impacts to Heritage River values are considered during the review of proposals for development or other activities along the river corridor
Cultural Benefits	• Increased support and/or awareness of the need to identify and protect archaeological resources and culturally significant sites or artifacts • Increased profile for the river in Manitoba and across Canada, leading to improved knowledge of and appreciation for the river's natural and cultural history and features • Designation provides rationale for the production of interpretive materials such as the Seal River poster
Recreational Benefits	• Designation may have slightly increased the number of people paddling the river as a result of its increased profile • Information on paddling the river that is available to potential canoeists has improved/increased • The river is promoted as a Canadian Heritage River on canoeing outfitter websites
Improved Knowledge	• Knowledge of vegetation, landscapes, wildlife, cultural history and other values has improved through the preparation of background documents and monitoring reports • By remaining un-dammed and free of other impoundments, unlike other rivers that have been modified for hydroelectric purposes, the Seal can be used as a "control" site for scientific research
Development of Communications Products	• The Seal Canadian Heritage River poster was developed in 2011 to present information on the river and communicate its CHRS designation • The Manitoba Parks website includes a page with information on the CHRS and Manitoba's Heritage Rivers

CONCLUSIONS

The Seal River is a unique river, offering stunning views of remote northern landscapes, unforgettable wildlife viewing opportunities, and an exceptional wilderness canoeing experience. The river has experienced very little change in the years since its designation to the CHRS in 1992. Primarily due its remote location in northern Manitoba and the challenges associated with accessing the river, activity on the Seal and in its surrounding corridor remains minimal. Of the activity that does occur, the vast majority involves either advanced whitewater canoeing in the summer or ongoing research into wildlife and ecosystems in the area, particularly in and around the Seal River estuary. In the twenty years since designation, the only significant changes that have occurred along the river have been the result of naturally occurring forest fires.

In coming years, the Seal River may face some degree of change due to potential future developments including a winter road ice crossing over the river, an all-weather road into Tadoule Lake, and further mineral exploration activities in the area. At this time though there are no planned activities or projects that constitute a threat to the river's heritage values, and the CHRS designation will continue to support conservation of those values. However, climate change does pose a threat to certain species and ecosystems in the river corridor. This, in part, is why continued research and cooperative management strategies will be important moving forward. In addition, updating the management plan for the Seal River will help to appropriately guide the management of the river and address any issues that may arise in the future.

The natural heritage, cultural heritage and recreation values of the Seal River remain intact and for the most part unchanged since CHRS designation in 1992 and the subsequent 2006 decadal monitoring report. Based on the findings of this report, the Seal River is worthy of continued designation as a river of national significance within the Canadian Heritage Rivers System.

REFERENCES

Research & Reports:

Artuso, C. 2014. Seal River Estuary Fall Migration Bird Survey 2013.

Bajzak, CE, Bernhardt, W, Mosnier, A, Hammill, MO, Stirling, I. 2013. Habitat use by harbour seals (Phoca vitulina) in a seasonally ice-covered region, the western Hudson Bay. Polar Biology. 36: 477–491.

Ferguson, SH, Higdon, JW, Chmelnitsky, EG. 2010. The rise of killer whales as a major arctic predator. In: Ferguson, SH, Loseto, LL, Mallory, ML, editors. A little less arctic: top predators in the world's largest northern inland sea, Hudson Bay. Springer. p. 117-136.

Leafloor, JO, Moore, JA, Scribner, KT. 2013. A hybrid zone between Canada geese (Branta Canadensis) and cackling geese (B. Hutchinsii). The Auk. 130(3):487–500.

Pereira, P. Improving kimberlite detectability through innovation [abstract]. In: Program, Manitoba Science, Technology and Mines, Manitoba Mining & Minerals Convention; 2006 November 20-22; Winnipeg, MB. Abstract available from the Bibliography of Manitoba Geology: http://www.manitoba.ca/iem/mrd/info/library/bmgintro.html

Stapleton, S, Atkinson, S, Hedman, D, Garshelis, D. 2014. Revisiting Western Hudson Bay: using aerial surveys to update polar bear abundance in a sentinel population. Biological Conservation. 170: 38-47.

Websites:

COSEWIC Committee on the Status of Endangered Wildlife in Canada [Internet]. 2014. Government of Canada. Available from: http://www.cosewic.gc.ca/

Environment Canada: Water Survey of Canada [Internet]. 2013. Government of Canada. Available from: http://www.ec.gc.ca/rhc-wsc/default.asp?lang=En&n=4EED50F1-1

Geological Survey Activity Tracker Northern Manitoba, Far North Geomapping Initiative: Great Island – Seal River area [Internet]. 2014. Province of Manitoba, Innovation, Energy and Mines, Mineral Resources Division. Available from: http://www.manitoba.ca/iem/mrd/geo/mgstracker/nmanitoba_geomapping_initiative.html

Geological Survey Activity Tracker Northern Manitoba, Far North Geomapping Initiative: Great Island – Seal River area – Quaternary [Internet]. 2014. Province of Manitoba, Innovation, Energy and Mines, Mineral Resources Division. Available from: http://www.manitoba.ca/iem/mrd/geo/mgstracker/nmanitoba_geomapping_great_island_seal_river_quaternary.html

Hudson Bay Beluga Project [Internet]. 2013. The Pew Charitable Trusts, Oceans North Canada. Available from: http://www.oceansnorth.org/hudson-bay-beluga-project

Manitoba Trip Reports [Internet]. 2013. Canadian Canoe Routes Inc. Available from: http://www.myccr.com/phpbbforum/viewforum.php?f=114

Background Studies:

Canadian Heritage River System. 2000. A Cultural Framework for Canadian Heritage Rivers: 2nd Edition.

Canadian Heritage River System. 2001. A Framework for the Natural Values of Canadian Heritage Rivers: 2nd Edition.

Canadian Heritage River System. 2014. Principles, Procedures and Operational Guidelines.

Canadian Heritage River System. 1987. Seal River Nomination Document.

Canadian Heritage River System – various annual reports.

Dodds, G. 1986. The Seal River C.H.R.S. Background Study.

Dodds, G. 1990. Toward a Management Plan for the Seal Heritage River.

Hilderman Thomas Frank Cram. 1997. Canadian Heritage Rivers System: Systems Study of Rivers in Manitoba.

Marr Consulting Services Ltd. 2006. Seal River Monitoring Report 1992-2006.

Individuals/Organizations Corresponded With:

American Museum of Natural History: Robert Rockwell

Bird Studies Canada: Christian Artuso, Ph.D., Manitoba Program Manager

Churchill Wild: Mike Reimer

Environment Canada: Kristina Farmer & Agnes Fojt

Fast Air Ltd.

Keewatin Air Charters

Manitoba Conservation and Water Stewardship:

- Frank Baldwin, Game Bird Manager, Wildlife Branch
  Conservation Data Centre
- Elvira Roberge, Protected Areas Resource Planner,
  Parks and Protected Spaces Branch
- Bill Watkins, Biodiversity Conservation Zoologist, Wildlife Branch
- Bob Windsor, District Supervisor, Northeast Region

Manitoba Hydro: Bill Brown & Allison Zacharias

Manitoba Infrastructure and Transportation: David B. Duncan,
Acting Director, Transportation Systems Planning & Development

Manitoba Innovation, Energy and Mines: Christian Böhm, Acting Director,
Manitoba Geological Survey

Oceans North Canada: Kristin Westdal

Red River Outfitters/Northern Soul Wilderness Adventures: Cameron White

Sayisi Dene First Nation: Chief Peter Thorassie

Don Tyerman (canoeist / Manitoba Breeding Bird atlasser)