
KAZAN RIVER
CHRS TEN YEAR REVIEW

Prepared for:
Dept. of Sustainable Development
Iqaluit, Nunavut

Prepared by:
Bruce K. Downie
PRP Inc., Victoria, BC

March, 2000

TABLE OF CONTENTS

1.0 Purpose of the Report	1
2.0 Background	
2.1 Nomination Process	2
2.2 Overview of the Thelon River Corridor	2
2.3 Basis of Nomination	4
2.4 CHRS Resource Frameworks	6
2.5 New Nomination Basis for the Thelon	6
3.0 Ten Years in the CHRS: 1989 - 1999	
3.1 Natural Resources	8
3.2 Cultural Resources	11
3.3 Recreation	11
3.4 Administration and Management	12
3.5 Thelon Wildlife Sanctuary Management Plan	14
4.0 Management Plan	
4.1 1989 Highlights	15
4.2 Community Response	17
4.3 Recommendations	17
Appendix 1: Contacts	23
Appendix 2: References	25
Appendix 3: Water Data	26
Appendix 4: Summary Table of Status of Heritage Values	29

TABLE OF CONTENTS

1.0 Purpose of the Report	1
2.0 Background	
2.1 Nomination Process	2
2.2 Overview of the Kazan River Corridor	2
2.3 Basis of Nomination	4
2.4 CHRS Resource Frameworks	5
2.5 New Nomination Basis for the Kazan	6
3.0 Ten Years in the CHRS: 1989 - 1999	
3.1 Natural Resources	8
3.2 Cultural Resources	10
3.3 Recreation	11
3.4 Administration and Management	12
4.0 Management Plan	
4.1 1989 Highlights	14
4.2 Community Response	15
4.3 Recommendations	16
Appendix 1: Contacts	21
Appendix 2: References	23
Appendix 3: Water Data	24
Appendix 4: Summary Table of Status of Heritage Values	27

KAZAN RIVER 10 YEAR REVIEW

1.0 PURPOSE OF THE REPORT

The Canadian Heritage Rivers System (CHRS) has adopted a policy of ten year reviews for rivers within the system. The intention of the review is to assess the integrity of the values for which the river was originally nominated and to ensure that the river remains a viable and meaningful component of the CHRS. In addition, the Government of Nunavut has an interest in reviewing the status of the management plan for the Kazan River and the progress that has been made in its implementation.

This report documents the review undertaken to address both of these tasks. A review of the background document, nomination document and management plan done for the Kazan River in 1989 provided the basis for comparison. A wide variety of sources were then explored to determine the nature and extent of change in the areas of significance to the river's Heritage River status. These sources included published reports, resource people in government agencies with responsibilities for relevant aspects of the river's resource base, other contacts within groups and organizations with an interest in the watershed, and public contacts within the community of Baker Lake.

In addition to recognized changes in the resource base, attention was also paid to concerns regarding the management of the watershed and the expectations of the local people regarding the benefits and opportunities associated with Heritage River status. Recommendations for updating the heritage river management plan for the river have also been developed in this review.

In summary the purpose of this report can be stated as:

- * to update the Heritage River status of the Kazan River according to the prevailing heritage value assessments;
- * to document changes in the heritage values over the ten years that the river has been designated within the CHRS; and,
- * to recommend changes in management direction for the river on the basis of current heritage value status and regional circumstances.

2.0 BACKGROUND

2.1 Nomination Process

In September of 1988, the Government of the NWT with the support of Parks Canada began a community based initiative to research and prepare documentation of the Heritage River values of the Thelon and Kazan Rivers. This was an initiative undertaken at the request of the community of Baker Lake and stemming from the earlier system analysis of potential CHRS candidates with the NWT (Baker, 1984). A major emphasis was placed on gathering information from local residents and ensuring a high level of community awareness and support.

Background reports and nomination documents were prepared for both rivers over the winter and were tabled with the CHRS Board in 1989. The formal nominations were made by three cooperating parties - the Municipality of Baker Lake, the Government of the NWT and the Department of Indian Affairs and Northern Development (DIAND). The nomination was officially accepted by the Board on June 15th, 1989. A management plan for the Kazan was subsequently submitted to the CHRS Board in 1990 to fulfill designation requirements.

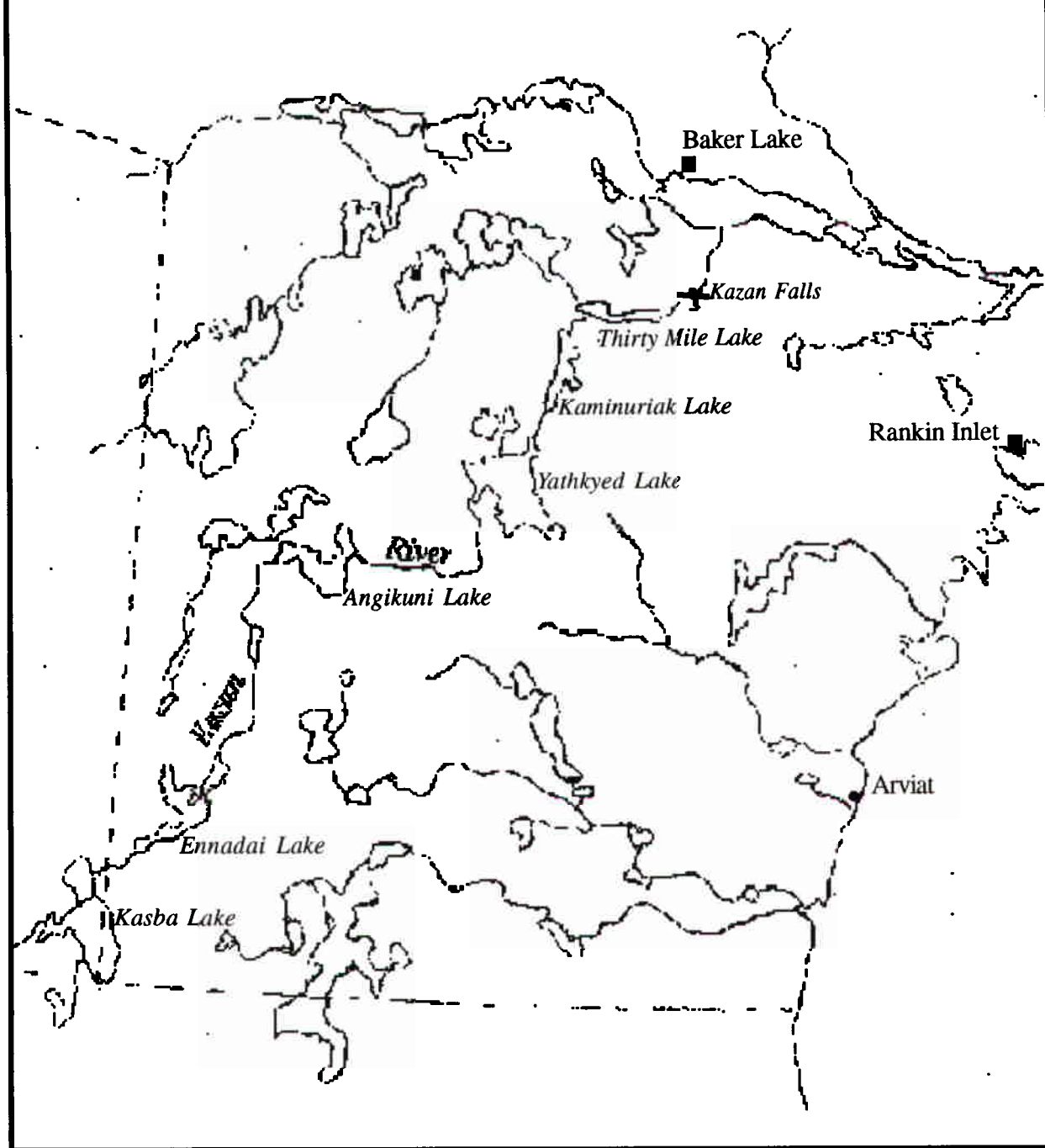
Throughout the process a wide array of groups, organizations and individuals contributed to and supported the nomination. Locally these included the Hamlet Council, the Hunters and Trappers Association (HTA) and Qilautimiut Elders group in Baker Lake as well as the Arviat Hamlet Council and the Lutsel K'e Dene Band Council. Regional organizations such as the Kivalliq Inuit Association (KIA) and the Keewatin Wildlife Federation (KWF) were also involved along with territorial and national level organizations such as the Inuit Tapirisat of Canada (ITC), Nunavut Tungavik Inc. (NTI), and the Inuit Cultural Institute (ICI). Of course a number of departments within both territorial and federal governments also provided a great deal of background information and assistance. Finally private sector interests in the tourism business and in the mining industry were also contacted and supported the initiative. Letters of support are contained as an appendix to the original plan documents.

2.2 Overview of the Kazan River Corridor

The Kazan River flows for 850 km northwards from Kasba Lake near the northern border of Saskatchewan to the south shore of Baker Lake. This 5,000 km² drainage basin lies in the heart of the mainland portion of the Nunavut Territory. The upper reaches of the river traverse the transition zone between the boreal forest of black spruce and tamarack and the treeless tundra adding significantly to the diversity of the biological character of the river corridor. Below Ennadai Lake the landscape is characterized by rocky hills and plains, now rebounding from their glacial past at one of the highest rates in the world. The river course combines large lakes with wide meandering sections, narrow swift sections and waterfalls.

Most prominent of the wildlife associated with the river corridor are the caribou of the Kaminuriak herd and to a lesser extent of the Beverly herd. On their annual migration route, the Kazan lies just to the west of the one of the major calving areas of the Kaminuriak herd. Other notable species in the area include the muskox which appears to be expanding its range from the core area of the Thelon Wildlife Sanctuary to the northwest and increasing their numbers in the central and southern portion of the Kazan River corridor. Of course, the river corridor along with much of the mainland tundra areas is also

Kazan River, Nunavut



significant for a wide variety of waterfowl species and trout, grayling and whitefish are among the resident fish species.

The richness of the area, especially the relationship of the caribou to the river, accounts for the Kazan's significance to the Inuit people. The Caribou Inuit adapted their lifestyle to the seasonal movements of the caribou and took particular advantage of the herds' river crossing points to harvest this important source of food, clothing and shelter. Evidence of the Inuit presence is found throughout the length of the corridor and the abundance of caribou allowed them to sustain themselves inland the year round. Similarly, Dene from the south extended their activities into the southern reaches of the river corridor although this use declined significantly by the 18th century. It wasn't until the late 1800's that white missionaries and explorers arrived in the region and began to record the extent of Inuit and Dene activity. Specific archaeological surveys followed in the early part of the 1900's, specifically the Fifth Thule Expedition and in most recent times Operation Raleigh (1988).

Because of both its cultural significance and its wild and captivating natural characteristics, the Kazan River has also been attractive as a destination for wilderness river users. Because of its remoteness and the length of the trip from natural starting points such as Kasba and Ennadai Lake to the terminus at Baker Lake, the numbers have not been high but have remained relatively steady during recent years. Such trips have incredible value as a way to appreciate the life of the early inhabitants of the area, to experience the vast and remote wilderness of the tundra and are also rich in scenery and opportunities for the appreciation of wildlife, vegetation and the subtle characteristics of the natural landscape.

2.3 Basis of Nomination

At the time (1989) the CHRS nomination framework was based on a series of guidelines within each of the categories of natural heritage values, human heritage values and recreation values. The ability of the river to meet these guidelines was assessed as a measure of its suitability for CHRS status. The Kazan River met: two of the four natural heritage value guidelines; four of the five human heritage value guidelines; and both of the recreation value guidelines. The highlights of the assessment are noted in point form below.

Natural Heritage Values

- * outstanding example of evolutionary history
 - this guideline was not met
- * outstanding example of ongoing fluvial, geomorphological and biological processes
 - this guideline was not met
- * unique, rare or outstanding examples of natural phenomena, features or areas of exceptional natural beauty
 - beauty of the Canadian shield on the treeless tundra
 - Kazan Falls and gorge
 - Three Cascades
- * habitats of rare or endangered species or outstanding concentrations
 - nesting of peregrine falcons
 - wolverine said to be numerous, although nationally classified as rare
 - tundra swans molt along the Kazan River
 - outstanding concentration of caribou

Human Heritage Values

- * outstanding importance in historical development of Canada or major influence in its region
 - vital significance to the evolution of the Caribou Inuit culture
 - caribou crossings which made year round inland occupancy possible
- * strongly associated with persons, events or ideas of Canadian significance
 - Samuel Hearne explorations
 - Joseph Tyrrell; scientific exploration and mapping
- * unique or rare historical or archaeological structures
 - this guideline was not met
- * concentrations of historical or archaeological structures representative of major themes
 - outstanding concentration of archaeological sites representative of the Caribou Inuit
- * integrity of the visual experience within the river environment
 - undisturbed
 - clean, clear, unpolluted state

Recreation Values

- * capability for outstanding recreational experiences
 - enjoyable canoeing and kayaking opportunities; many areas of white water
 - remote location; strong sense of wilderness
 - excellent fishing
 - enjoyable and accessible off river hiking
 - sufficient water flow for navigability
 - diversity of landscape and scenic vistas
 - easy opportunity to appreciate historical use of the river corridor
- * capable of supporting recreational use without loss of heritage values
 - supports non-consumptive use; wilderness users tend to value low impact activities
 - remoteness and access limits user numbers to relatively low levels

2.4 CHRS Resource Frameworks

During the 1990's considerable effort was aimed at upgrading the framework for Heritage River nomination. Focus was still on the significance of candidate rivers within the three general areas of natural heritage values, human heritage values and recreational values. However, systematic frameworks were developed for natural and cultural heritage that greatly exceeded the sophistication of the earlier models. The final reports in these areas provide a thematic framework with much greater detail and are now being used as the basis for assessing all new nominations to the CHRS.

The Natural Values Framework is based on the traditional hydrological cycle. Six thematic areas (Hydrology, Physiography, River Morphology, Biotic Environments, River Vegetation, River Fauna) are divided into varying numbers of subthemes. River candidates

identify the characteristics that are of special significance within each of the subtheme areas as a way of documenting their overall natural heritage value. The new framework has been linked back to the original Natural Heritage Guidelines to assist jurisdictions in relating currently designated rivers to the more detailed and systematic view of rivers within the CHRS.

Similarly the Cultural Framework seeks to develop a more systematic basis for placing a river in its national context and for assessing the significance of the cultural values it represents. This is done through the identification of seven themes of human activity related to rivers (Resource Harvesting, Water Transport, Riparian Settlement, Hydraulic Power Generation, Culture and Recreation, Jurisdictional Use, Environmental Regulation). As with the Natural Values Framework, these themes are divided into varying numbers of subthemes which attempt to specifically describe significant values.

2.5 New Nomination Basis for the Kazan

A brief review of the resource documentation for the Kazan River used in its original nomination and in the current review identified the basis for CHRS status according to the new natural and cultural thematic frameworks. The following table highlights the primary values that support the Kazan's continued status within the CHRS. It is important to recognize that the frameworks tend to be more descriptive in many subthemes, i.e. drawing out the characteristics of the river corridor rather than highlighting only those features which are outstanding or of relative significance. Thus some characteristics will be recognized here that were not considered significant in the original nomination. The recreation values identified in the original documentation remain valid.

Natural Values Themes

Theme 1: Hydrology		Theme 4: Biotic Environments	
Water content	x	Aquatic ecosystems	x
Seasonal variation	x	Terrestrial ecosystems	x
Drainage basin	x		
River size	x		
Theme 2: Physiography		Theme 5: River Vegetation	
Hydrogeology		Significant plant communities	
Geological events	x	Rare flora	
Physiographic region	x		
Topography	x		
Theme 3: River Morphology		Theme 6: River Fauna	
Valley types	x	Significant animal populations	x
Lakes and ponds	x	Rare fauna	
Waterfalls and rapids	x		
Fluvial landforms			

Cultural Values Themes

Theme 1: Resource Harvesting		Theme 5: Culture and Recreation	
Fishing	x	Spiritual and symbolic uses	x
Hunting and trapping	x	Artistic expression	x
Resource gathering	x	Pioneering or early recreation	
Water extraction			
Theme 2: Water Transport		Theme 6: Jurisdictional Use	
River navigation	x	Exploration and route surveys	x
Onshore services		Military uses	
Surface bulk transportation		Boundary delineation	
Theme 3: Riparian Settlement		Theme 7: Environmental Regulation	
Siting of dwellings	x	Early flood control structures	
Community adaptations to rivers	x	Pioneering improvements to water quality	
River crossings		Pioneering improvements to aquatic	
ecosystems		Pioneering access and use regulation	
Theme 4: Hydraulic Power Generation			
Direct-drive water power			
Innovative hydro-electric power			

Recreation Themes

A restructuring of the framework for documenting recreational values has not taken place. The qualities recognized within the original nomination document remain valid as originally described.

3.0 TEN YEARS IN THE CHRS: 1989 - 1999

3.1 Natural Resources

Landscape

The significant landscape features of the Kazan River valley are related to major events and processes. The Canadian Shield bedrock formation, glaciation, and isostatic rebound following glaciation are examples of the scale of features recognized for their significance to the Kazan landscape. Not only did these examples not warrant recognition within the original Heritage River nomination but they also are not subject to short term change.

While generally speaking little change naturally occurs related to such resources, land use activities such as mining can potentially significantly alter landscapes. Mining activity has been an important economic activity in the region and there remains significant potential for further exploration and development. However, areas of interest have not led to significant levels of activity within the Kazan River CHRS corridor.

The major aspect of the landscape that was recognized as a value upon which the CHRS nomination was made related to the beauty and special character of the Kazan River landscape and particularly special features such as the Kazan Falls and gorge. These qualities have not been diminished since the time of the original nomination. Land use activities have been minimal in the corridor and visitor numbers have been low. As a result very little perceptible change has occurred in the visual character of the corridor.

Vegetation

Very little attention was given to the vegetation patterns throughout the watershed at the time of nomination. Baseline data is therefore not available. Only now is vegetation beginning to become a focus of research activity. This has been made possible through advances in the interpretation of satellite imagery and in data presentation and storage technology. A pilot project is currently underway aimed at mapping vegetative communities in 10 different classes. The focus of such an effort is largely towards understanding caribou habitat. The pilot project still requires ground truthing which is expected to be complete during the 2000 field season. Final completion of the pilot study is targeted for early 2001. Once proven successful, the approach will be extended over the rest of the Kivalliq region. Currently the pilot project covers a rectangular area south and east of Baker Lake and including only a relatively small segment of the lower Kazan River. The focal point of the pilot study area is the calving area of the Kaminuriak caribou herd.

Water

Water flow regimes for the Kazan River have been monitored throughout the past ten years and beyond. The data in Appendix 2, show the monthly record as taken on the first day of each month for survey stations on both the upper and lower reaches of the river. The upper Kazan station is located at the outlet of Ennadai Lake while the lower station is located above Kazan Falls.

Water flows, on the other hand, have shown a marked change during the past decade. Whether or not this represents a cyclical change that will not be significant over the long term is presently not known. Local input has supported the data indicating that river levels are unusually low and that the impact is mostly seen in changes to the vegetation along the river banks.

Water quality data is also available for the past decade (see Appendix 2) and beyond for one site on the Kazan River above Kazan Falls. This site has been sampled opportunistically on an attempted quarterly basis for a few decades.

The data shows no significant change in any of the water quality parameters over the past ten years. Activity within the watershed has remained virtually constant at a very low level and there is very little potential for degradation of water quality.

Wildlife

The dominant wildlife feature of the Kazan River CHRS corridor is the presence of the Kaminuriak caribou herd. According to a 1994 survey, the approximately 496,000 animals (+/- 105,400) make up the 2nd largest herd on the planet. This represents a strong and healthy population that has increased in recent years. Surveys of the population are usually planned on a six year rotation, although another survey will not likely be undertaken until 2001 due to fiscal restraints. The long term research program studying herd movements using satellite collars remains ongoing and research efforts are also looking to identify areas that are critical in supporting the herd.

Muskox populations also remain healthy and indeed are growing. Surveys were conducted in 1985, 1988, 1991, & 1999 and populations and range appear to be expanding to the southeast, although the core areas also appear to shift. The expansion of the population regionally has resulted in animals moving into the Kazan River area where numbers have traditionally been low. However, muskox are not a primary species within the Kazan River CHRS corridor as their major populations exist to the west and north of the Kazan.

Another relatively plentiful species with an important role in the region is the wolf. While there is no population data available, the take numbers show high levels of harvest regionally - 670 wolves taken in the Arviat area last year (1998-99). Wolves are inextricably associated with the caribou herd and the impact of the high take numbers is unknown but could be significant (either positively or negatively).

From a wildlife perspective there are no pressing concerns within the Keewatin. Caribou and marine mammals remain the key priorities for the region. There are large numbers of the major species and populations appear healthy. Edge species are certainly more precarious in terms of numbers but that is logically related to the fact that they are on the extreme edge of their range and should not be expected to have high populations in this region (e.g. grizzly, black bear, wolverine, moose).

Contrary to indications presented in the original CHRS documentation for the Kazan River, it is questionable whether wolverine could be considered to be locally abundant. No concrete data was presented in the original reports and no data is available on animal numbers presently. As with the other edge species their presence is not common and in addition they are enthusiastically hunted on sight. There is no evidence to suggest that this situation has changed over the past ten years. Rather it is assumed that previous interpretations of anecdotal evidence drew more significance from the information than might be reasonably expected.

The grizzly bear, however, is a species that appears to be on the increase. Reported observations by long term regular users of areas within and near the river corridor indicate increasing numbers. While hunting quotas are low a significant number of animals are taken in personal defense and this supports what might be seen as increased numbers and interactions between grizzlies and human activity. However, research on grizzly populations is difficult because of the relatively high harvest rate. A study begun in 1994

collared 4 animals. Of the 4, 1 collar malfunctioned; 2 animals were killed; 1 collar recovered. In the muskox survey this past summer 8 grizzlies were sighted, although there may have been only 6 animals with the possible double counting due to animal movements.

The nomination of the Kazan River to the CHRS also recognized the natural heritage value of protecting the then endangered peregrine falcon. However, current information suggests that peregrine falcon research has not been conducted on the Kazan River. It was reported that no survey work has been done inland or in other areas in the region with the exception of a one time study of the Wager Bay area in the late 1970's or early 1980's. A long term study has been carried out in the immediate coastal area of Rankin Inlet since 1982 and is still continuing. Research funding however, is increasingly difficult since the peregrine falcon was removed from the endangered species list. In the Rankin Inlet study populations were always healthier than in other areas of southern Canada. Although pesticide impacts on falcons would be widespread generally, the study area is dealing with a different subspecies which migrates to different locations and would have different population pressures. Over the period of the study to date a relatively healthy 1982 population of 20 territorial pairs has now increased to 29 pairs, although production rates have remained constant. The population seems to be significantly coastal and sightings in the Kazan River corridor are not common with the exception of the Kazan Falls area where one recorded nest has been regularly occupied. It is considered by this review that with the removal of the species from endangered status and with little evidence of the corridor's habitat potential, that peregrine falcon habitat and success is not a resource value that should be seen as contributing to CHRS status.

Many species of waterfowl collectively were also significant in the original Kazan River nomination. Waterfowl populations in the region are very healthy, and with populations such as the snow goose, perhaps even overabundant although detailed surveys have not been conducted. Efforts in the south to encourage growth of waterfowl populations are being so successful that there is increasing potential for habitat destruction on the tundra through overpopulation. Cutting back on habitat restoration and conservation in the south has been suggested as the most effective solution as increasing harvest appears to be incapable of addressing the problem. Snow goose populations are concentrated more in coastal areas while Canada geese are more prevalent inland. The Kazan River corridor is not unique in its capacity to support waterfowl populations. Habitat is widely dispersed throughout the region and not significantly threatened by anything but the waterfowl populations themselves.

3.2 Cultural Resources

The Kazan River corridor has been a major traditional territory and ancestral home of the Harvaqturmiut, now living in Baker Lake. Archaeological evidence of living sites and hunting activity are plentiful along the entire length of the river - tent rings, qajaq stands, caches, hunting blinds and butchering sites. Special recognition has been given to a prominent portion of this cultural landscape along the lower Kazan River - an area between the Kazan Falls and the east end of Thirty Mile Lake. The area was designated the Fall Caribou Crossing National Historic Site in August, 1995. The area is an important crossing area in both spring and fall on the migration route of the Kaminuriak caribou herd.

Along with this designation there has been considerable effort by Parks Canada and other agencies and individuals to undertake research into the cultural resources, recollections, place names and stories of the areas. Significant archaeological studies have been carried out over the past ten years including the following:

- * the results of the 1988 archaeological survey along the shores of the Kazan River between Angikuni Lake and Baker Lake provided an overview of human occupation along the lower Kazan River. While dominated by remains of Caribou Inuit (Paallirmiut; Harvaqtuurmiut) camps from the last century or two, older Palaeo-Eskimo camps were also recorded dating to about 3000 years before present.
- * in 1993 an oral history and mapping project focused on surface archaeological features at a fall caribou-crossing site (Piqqiq ~ KjJx-8) near Kazan Falls on the lower Kazan River.
- * in 1996 and 1997 an archaeological survey was conducted of the Fall Caribou Crossing National Historic Site area on the lower Kazan River (lower Thirty Mile Lake and river at and above Kazan Falls). This project was coordinated with oral history and place name recording.

Coordinated through the Harvaqtuuq Historic Site Committee, these research efforts have also contributed to the success of the Baker Lake Heritage Centre, a project undertaken to celebrate, preserve and present the cultural history of the Inuit of the Baker Lake region.

Other aspects of site protection, management and operation as well as the presentation strategies for the heritage values of the site are contained in the Fall Caribou Crossing National historic Site: Conservation and Presentation Report prepared in 1997 by the Harvaqtuuq Historic Site Committee and Parks Canada. The plan has been actively followed since its preparation and many elements of the plan have been initiated or completed.

The site is a major recognition of the cultural significance of the Kazan River and underscores the cultural heritage values that formed the basis of the river's CHRS nomination. Protection and presentation of these values in the lower reaches of the river under the status of a national historic site goes a long way to achieving the goals set out in the CHRS management plan for the river.

3.3 Recreation

The level of recreational activity on the Kazan River has remained relatively constant over the past ten years. Wilderness canoeing is the major activity utilizing the river corridor and numbers of parties using the river each year are low. An interesting assemblage of trip notes has collected in the cairn at the Kazan Falls. Due to the potential for loss or destruction of this valuable record, the notes were removed and published in 1991 ("Kazan Falls Canoeists' Cairn 1974 - 1991"). The original scraps of paper have been mounted in an album which was put on display in the Baker Lake Visitor Centre and a waterproof copy was returned to the cairn.

Detailed records of wilderness canoeing use are not kept. The RCMP in Baker Lake serve as the registering authority for people using the river and they are confident that virtually all users register their trip with a detachment (usually in Yellowknife) and that these visitors also come by the Baker Lake office on the completion of their trip. Long term records are not kept and no details on each party (other than the number of people) is recorded. In addition to the river travelers, a segment of the river is now used by a nearby fishing lodge operation. Ferguson Lake Lodge has developed an out camp along the Kazan River on Yathkyed Lake. The lodge operation has similarly recorded relatively consistent visitor use over ten past ten years although the out camp is a more recent development which has introduced additional activity to the Kazan River corridor itself.

Local use of the river corridor is also very low. Winter season hunting activity is widespread closer to Baker Lake but activity diminishes significantly with distance from town. Activity in the river corridor also originates in Arviat as hunters move westward from the coast into the Kazan watershed. Summer activity is virtually non-existent although some boating activity below the falls has been reported.

Public interest in and awareness of the Kazan River has been stimulated through publications that have come out during the past decade. In addition to producing the canoeists records mentioned earlier, David Pelly also published "The Kazan: Journey into an Emerging Land" in 1991.

3.4 Administration and Management

The 1990's have been an extremely significant period in the evolution of the northern territories. After many years of discussion and negotiation, the Nunavut Land Claim Agreement (NLCA) was finalized in 1993. The agreement not only addressed concerns around land, natural resource management and financial resources but also embraced all aspects of Inuit culture and re-drew the political map of Canada's northern region. The new territory of Nunavut came into being in 1999, bringing with it a new management and administrative regime for areas such as the Kazan River.

The NLCA changed the roles of government in environmental protection. It recognizes the value and desirability of Parks and Conservation Areas, and further defines an approach to the establishment of protected areas within Nunavut - which includes meaningful community involvement, management, and impact and benefit measures related to protected areas. Meeting these obligations must be completed prior to the consideration of a strategy for Protected Areas, and is a necessary first step in establishing existing and proposed Parks and Conservation Areas.

Article 9 of the NLCA defines Conservation Area as any Conservation Area in existence at the date of ratification of the agreement. This definition includes, among other areas, Canadian Heritage Rivers. It is further suggested that, in addition to parks, other areas that are of particular significance for ecological, cultural, archaeological, research and similar reasons require special protection, and that Inuit shall enjoy special rights and benefits with respect to these areas. Specific recognition of the provisions of the Agreement is important for Heritage Rivers in the following areas:

- * any changes to Conservation Area boundaries, which includes additional sections of Canadian Heritage Rivers, is subject to approval of the Nunavut Wildlife Management Board (NWMB), and the Minister of the Department of Sustainable Development (DSD);
- * conservation areas are subject to Land Use Planning, Development Impact, Water Management, and Inuit Water Management Rights articles in the NLCA;
- * if requested, Government and Inuit are obligated to negotiate an Inuit Impact and Benefit Agreement (IIBA) with respect to any Conservation Area, including Canadian Heritage Rivers. Generally, IIBA's do not apply to a Conservation Area if that area does not raise any matter that would have a detrimental impact on Inuit, or could not reasonably confer a benefit on Inuit.

In general terms, within the Nunavut Territory, the Nunavut Government has taken over the responsibilities of the former NWT government (which now retains jurisdiction on

lands of the remaining of the former territory west and south of the new Nunavut boundary). In addition, the Inuit organization NTI is the organization through which local interests and control in land and resources is realized. Regional Designated Inuit Organizations (DIO's) administer matters on behalf of NTI through their direct connections to the communities. These responsibilities are focused on Inuit owned lands, whether such ownership is of surface rights only or includes sub-surface rights as well. The federal government, through DIAND, still controls land allocation and land use activities on the lands of the Nunavut Territory as it has in the past.

Specific to the Kazan, these changes are reflected in the following administrative and management regime:

1. The Nunavut Dept. of Sustainable Development is now the agency that carries responsibility for the recognition and monitoring of rivers within the CHRS. It performs the functions previously handled by the Dept. of Economic Development and Tourism including territorial park development and management, wildlife regulation and research, commercial tourism interests, etc.
2. The Government of Canada, DIAND, still retains interests in land and water use and controls land use activities on federal crown land throughout the Territory.
3. The Government of Canada, Dept. of Canadian Heritage - Parks Canada,, has an interest in the Fall Caribou Crossing National Historic Site in an area of the lower reaches of the river between Kazan Falls and Thirty Mile Lake.
4. The Kivalliq Inuit Association (KIA) is the DIO for the Kazan River CHRS corridor and has specific interests in land and resource use on Inuit owned lands. The extent of Inuit owned lands in the Kazan River corridor is significant. These lands involve surface rights only. The general areas where these lands are located are:
 - Ennadai Lake - most of the east shore and the west shore of the north end of the lake
 - Yathkyed Lake - outlet of the lake both shores and a stretch of the river below the outlet (half the way to Kaminuriak Lake
 - Kaminuriak Lake - northeast shore and outlet
 - Thirty Mile Lake to Baker Lake - north side of lake and the majority of both sides of the river

In addition, intergovernmental bodies such as the Nunavut Planning Commission (NCP) and the Nunavut Wildlife Management Board (NWMB) are significant bodies established to assist in the co-management of land and resources with government. An example of the role of these bodies and their impact on CHRS corridors within Nunavut is the land use planning conducted by the NCP. As part of the transition to independent territorial status for the Nunavut Territory, the Keewatin Regional Land Use Plan was reviewed and revised by the NCP to conform to the NLCA. The plan was submitted for Ministerial approval in December or 1998. The contents of the plan also support and are consistent with the intentions and proposals of the CHRS management plan for the Kazan River and no changes in either of these plans is required. The Keewatin Regional Land Use Plan also underscores the process for ongoing development proposals and monitoring procedures that will ensure integrity of the land and resources of the region into the future. Any proposals for new initiatives associated with the CHRS corridor will naturally be subject to such processes.

4.0 MANAGEMENT PLAN

4.1 1989 Highlights

As part of the CHRS designation process, a management plan was prepared for the Kazan River. The plan was a fairly low key document that acknowledged the existing roles of government agencies for resource protection and management. It included a few specific proposals for action that added new dimensions to the monitoring and management function and that also added to the visitor support that would be provided as part of the river experience. The highlights of the plan, that is those elements that added new dimensions to the existing management environment, are noted in point form below:

Resource Management

- | | |
|--|----------|
| <ul style="list-style-type: none"> * resource management through existing agencies <ul style="list-style-type: none"> - policy and enforcement | ongoing |
| <ul style="list-style-type: none"> * monitoring of conditions in the corridor <ul style="list-style-type: none"> - outfitters and river users requested to report on conditions - investigators (Baker Lake residents) regular survey of camping areas (every 2 years) unless use increases to warrant every year - prepare inventory sheets for this purpose | not done |
| <ul style="list-style-type: none"> * research <ul style="list-style-type: none"> - encourage archaeological research - gather oral histories - use archival information to develop interpretive materials - continued wildlife research by Renewable Resources | ongoing |

Visitor Activities and Facilities

- | | |
|---|----------|
| <ul style="list-style-type: none"> * monitor visitor use <ul style="list-style-type: none"> - registration with Travel Arctic; registration form, information | not done |
| <ul style="list-style-type: none"> * staff and/or emergency shelters <ul style="list-style-type: none"> - located near Ennadai Lake - service point for the corridor | not done |
| <ul style="list-style-type: none"> * territorial park <ul style="list-style-type: none"> - located in the area of Kazan falls or mouth of the Kazan R. | not done |
| <ul style="list-style-type: none"> * Territorial campsite within the municipal boundary <ul style="list-style-type: none"> - tent platform, picnic table and outhouse - to serve travelers arriving in Baker Lake from river trips on the Thelon and Kazan Rivers | done |

Public Education and Promotion

* visitor Centre in Baker Lake - information - interpretation - registration and check out for trips on the Kazan & Thelon	done
* CHRS plaque - located at Baker Lake - also located on the river; perhaps at Kazan Falls	done
* other interpretive materials - guidebook for canoeists on the river - waterproofed map or map series	partial

Corridor Boundary

* consider corridor extension in response to Nunavut boundary	not done
---	----------

Note: The plan also made specific reference to the anticipated formation of the new territory of Nunavut. This was in relation to the actual length and boundary delineation of the corridor designated under CHRS status. It was stated in the plan that the current segment of the river was conservatively selected but with specific reference to its possible extension to the northern outlet of Kasba Lake dependent on the outcome of Nunavut boundary negotiations. It is unclear as to why a conservative position was taken, given the expressed support from others beyond the community of Baker Lake for the designation. However, the strong emphasis on Baker Lake as the community taking a leadership role in the nomination may have suggested that a designated corridor that would be entirely within Inuit territory would be most appropriate.

Priorities

The priorities of the plan were seen to be:

1. developing an interpretive centre in the community of Baker Lake;
2. developing a Territorial park/campground within the municipal boundary; and,
3. developing cooperative agreements for management of heritage resources and river monitoring

4.2 Community Response

There is a distinct feeling in the community that the Heritage River status has not filled its expectations. People reflected on this concern in terms of what they were told would be the benefits of CHRS designation. The first benefit was to be recognition and profile. People feel that aside from a plaque, there has been little effort on the part of the CHRS to promote the Kazan. Indeed the management plan was virtually silent on any specific actions aimed at widespread promotion of the river and its values. Education elements tended to focus on visitors once they were there, not at strategies to attract them. It was also noted that television productions, for example, promoted many other areas but not the Kazan and the people feel this shows an attitude of neglect on the part of the CHRS.

The second, and related, benefit was economic spin-offs from tourism development. This too is perceived to have been inadequately addressed. It was reported that little effort was made to support local initiatives for tourism development and that the community needed

the interest and support of government to undertake such activities. People were not necessarily specific on how the expectations in this area could be met. Their inexperience in initiating such enterprises and understanding the requirements and benefits accounts for this ambiguity. They simply had the clear expectation from the CHRS designations 10 years ago that tourism would increase as a result, there would be a measure of employment in the community that would accompany such increases and there would be economic benefits. They are disappointed in the reality and feel let down by government.

4.3 Recommendations

It is natural to be sympathetic to the community's concerns and feelings, however, at the same time it should be acknowledged that their expectations may be unrealistic. CHRS status does not necessarily translate into major tourism initiatives without a concerted effort and usually the additional recognition of specific features or areas within the river corridor such as park designations. This is partly true because the CHRS status does not bring with it a significant level of single agency responsibility and control. Realizing the community's expectations requires a concerted effort towards cooperative ventures that build a significantly attractive experience for a wide potential audience.

Consider the situation Baker Lake faces with the Kazan as a Heritage River. The nomination is predominantly based on two marketable characteristics: the heritage values of the area as Inuit homeland; and, the wilderness recreational river experience of very high quality. The first characteristic has not been marketed to any extent and competition is intense across the Arctic to capture tourist interest in each community. The establishment of the Fall Caribou Crossing National Historic Site provides a major opportunity to raise the profile and attractiveness of the Kazan River as a destination yet little has been done to take advantage of this important status.

The second characteristic has been at least passively marketed but the audience is very limited. The proportion of the tourism market that can pay for the access and are able and interested in canoeing down the Kazan for two or three weeks is naturally very small. Also there is significant competition from other areas across the Arctic for the same tourist sector, focusing on other rivers or other types of wilderness trips.

Addressing this situation for the benefit of Baker Lake would seem to require activity in two areas: developing a broader base of activity and services associated with the river corridor; and, marketing the experiences effectively. Each of these areas is discussed in more detail below and recommendations concerning how to take action are made. In addition, a summary of the previous plan elements that should be maintained is also included.

Activities

The current activity base for visitors to the Kazan is essentially two activities: wilderness canoe trips that are essentially unsupported by facilities or services; and fishing from the base of a wilderness fishing lodge. The logical extension to these activities is in the area of interpreting the Inuit culture and its historical connection to the land. Also by expanding the service base for both the existing and potential activities, it is possible to expand the visitor market segment that could be attracted to all activities within the river corridor.

One means of expanding the market sector can be achieved through providing options for visitors. Instead of requiring visitors to be self sufficient for long periods of time to enjoy and appreciate the natural environment of the river corridor, provide the alternative of variable lengths of time from a more comfortable and serviced base, i.e. a lodge or hostel

facility. To encourage greater appreciation of the cultural significance of the river, some options might be to provide guiding services either as day or overnight trips from the community or as longer stays in a camp or lodge facility.

Another important possibility would be really capitalize on the meaning behind the National Historic Site and develop a community event around the 'fall crossing'. Cultural activities, crafts, games and competitions could be the basis of the event but it could build as a tourist attraction to include trips to the crossing to see the caribou and explore the traditional site and ways of living on the land. Trips could be short or longer depending on the scale of the event and the abilities of the community to support such an activity. A traditional camp could be used to accommodate visitors for a few days on the land.

In developing facilities and programs aimed at what will be a relatively high end tourism market segment in a competitive marketplace, quality products and services are essential. There will be a need for well planned strategy for both training and development drawing on expertise in the field that will be able to assist the community with such developments and their operation. In each of the specific suggestions discussed below, the developments and services should be undertaken by private sector ventures and not by government agencies. However, there may be a very important and significant role for government as a stimulus in the initiation of such ventures. It would be highly desirable for government to assist in the capitalization or development of facilities. Cooperative planning of appropriate ventures is needed for successful long-term investment and benefits to the community.

The following suggestions might well be discussed in the community to determine the nature and level of interest and the potential for such initiatives to be successfully undertaken.

- * develop a hostel-type shelter on a lake shore just off the river. It should be a location that ideally would be not visible from the river but at less than 2 km distance. It should be a facility that provides shelter for a maximum group size of about 15 people based on platform sleeping arrangements. Basic facilities such as outhouse, cooking area, eating table and oil heater would be necessary. The facility should be available on a rental basis not as an exclusive rental but as an individual accommodation per night basis, shared as necessary with other groups to a pre-determined capacity. Ideally it would be accessible to both river travelers and those who might fly in by float plane. There could be more than one of these facilities along the length of the Kazan River corridor.
- * develop a lodge facility on a lake shore just off the river. The location criteria would be the same as the hostel shelter. The facility would have a central eating and lounge shelter but have separate sleeping units for two or four people. The maximum capacity of the operation should be in the order of 16 people. The facility would have staff on site and as required or for the season and staff accommodation would also be required. Service facilities such as outhouses and lounge facilities would be simple but of high quality. Meals would be provided to guests and guiding services and boat transport would be available as needed. The emphasis would be on guests arriving specifically to the lodge site itself, although river groups that had reserved ahead would be welcomed for the period of their booking.
- * develop additional campsites and associated facilities at key locations to encourage use in appropriate areas where impacts can be minimized and the visitor experience can be enhanced.

- * develop a guiding service to the area of the lower Kazan from Baker Lake. Visitors from town should be able to take a boat to accessible areas of the lower reaches of the river and camp out or day hike before returning to the community. Local guides would be able to control their activity and enrich their experience of the cultural landscape of the Historic Site and adjacent areas.
- * develop an event around the 'fall caribou crossing'. This would be a festival of celebration that incorporated a wide range of cultural activities, games and competitions and also provided opportunities for visitors to visit the area and appreciate the significance of this natural event and its relationship to the cultural identity of the Inuit people. Visitors would be able to enjoy the community festival and also take trips out to the Kazan River area to witness the caribou migration. They would be guided by local people and camp out on the land. It may be possible to construct permanent shelters in key locations that could be used from year to year especially on longer trips or as part of longer trips depending on the visitors' interests.
- * develop a small scale, high quality, seasonal tourist lodge adjacent to the community (or within the municipal boundary). This facility would be a support facility for tourist activity originating in the community. For visitors coming for the festival or to go on guided trips out along the lower Kazan, a high quality accommodation facility, developed on a scale of about a 20 person capacity, would be an asset.

Marketing

The product being developed and the marketing needed to make it work are inextricably linked. In the present tourism market, product quality must be high regardless of what level of service is being provided, otherwise no amount of marketing will sustain the operation. On the other hand, even the best facility will fail if the marketing effort is inadequate. The products discussed are targeting an international market. Typically there is simply not the capacity in local communities to develop an effective marketing strategy for a local business. The solution would be to seek joint ventures with private interests in the south that can provide advice and complementary services to the scope of the community business capacity. Business planning and management, marketing, and staff training are examples of typical areas of need. Marketing in particular demands such understanding of and access to international markets that it is usually the biggest stumbling block to small businesses requiring such a wide exposure. Plugging into regional and territorial marketing organizations such as Nunavut Tourism, is also recommended as a parallel effort but will not replace the need to link with key private sector companies internationally. The intention is to go beyond the individual business image and become part of a larger internationally recognized brand image that will sustain the business in the long-term in an increasingly competitive marketplace.

Beyond the joint venture concept aimed at the large international market, there are a whole series of other public awareness and educational initiatives that would contribute to raising the exposure of the Kazan River and add to its marketability. At the same time these kinds of initiatives would also provide interested members of the public and those who are planning a visit to the Kazan to learn more about the area - its natural features, its cultural history and its regional context. Books, brochures, magazine articles, web sites, films, and videos are all examples of what could be done to address the present gaps. While anything in this list would be useful, some deliberate consideration should be given as to what can be encouraged versus what should be undertaken directly, what should be done now, versus what could be done more efficiently later, and what needs to be started now in order to complete it later.

As stated for the recommendations in the previous section, the following suggestions might well be discussed in the community to determine the nature and level of interest and the potential for such initiatives to be successfully undertaken. Of particular concern will be the links between these undertakings and the activity and facility interests discussed previously. Like the previous recommendations, those below relating to marketing and business development should be undertaken by private sector ventures and not by government agencies. However, there is potentially a much greater government agency role in the public awareness and education initiatives associated with the Kazan River CHRS corridor.

- * develop business concepts for new activity interests in the Kazan River corridor and then seek out joint venture partners to link up with and who then will assist in the business planning and development.
- * develop a public awareness and education strategy that will lay out the purpose, nature, scope, priorities, scheduling and resourcing of a host of communications techniques including the specific suggestions of books, brochures, magazine articles, web sites, films, and videos.
- * identify/assemble the necessary funds to begin the process and undertake the priority items as defined in the previously developed public awareness and education strategy.

Previous Plan Elements

A number of plan elements have been implemented during the period since the original plan was developed. Those particularly related to specific facilities, have not been addressed here. However, those activities which are ongoing (especially related to management activities) have been discussed briefly as an acknowledgment of their contribution to the management context of the river corridor.

- * resource management through existing agencies - heritage, natural resources
 - clearly, the intent for heritage rivers to managed under the program mandates of existing agencies and organizations is consistent with the nature of the CHRS. Management of wildlife, cultural resources, visitor activities, etc. is addressed within the normal structures of existing agencies and their relationship to the local community. It is not the intent of the plan for the river corridor to establish new mechanisms to deal with such issues.
 - continued efforts are being made and should be expanded to raise public awareness of the importance of the integrity of cultural resources at sites all along the river corridor. Prevention against disturbance by visitors is critical to ensuring the integrity of these resources and enforcement, although important, is always too late
- * monitoring of resource conditions and visitor use in the corridor
 - similarly, research and monitoring activities are carried out on a regular basis by key agencies. The implication of CHRS status is to ensure that the river corridor is recognized as a priority area for specific monitoring needs related to the facilities and issues recognized within the corridor

- it is also relevant to ensure in the planning for such monitoring activities that consideration is given to the role of the local community in benefiting from the skill development and employment potential related to such activities
 - mechanisms for supporting such monitoring need to be carefully planned and developed to be both practical and cost-efficient. Visitor registration and information addressed specifically in the original plan has not been adequately implemented in large measure because the proposed system was too ambiguous and possibly impractical. This needs to be specifically addressed if there is to be a significant base of visitor information upon which to base future plans for the corridor.
- * research
 - research programs should continue and be encouraged to address river concerns and to involve local people
 - * other related park lands
 - the creation of the National Historic Site in the corridor has replaced the original suggestion for a new territorial park in the Kazan Falls area. However, it has clearly increased the need for cooperation and coordinated planning for activities and facilities that satisfy both historic site and CHRS interests.
 - * visitor Centre in Baker Lake
 - there needs to be greater cooperation and linkages formed between the Visitor Centre and the Baker Lake Heritage Centre. The two facilities need to be interrelated in the same way that the historic site and heritage river corridors are.

Length of the Kazan CHRS Corridor

The previous plan identified the potential for extending the corridor once the Nunavut boundary was confirmed. The outlet of Kasba Lake was mentioned specifically as the possible terminus of the corridor. However, it seemed evident that maintaining the corridor within a single jurisdiction was intended. The boundary now excludes Kasba Lake from Nunavut as well as a segment of the river downstream. It is therefore recommended that:

- * the CHRS corridor be extended upstream to the point where the Nunavut/NWT boundary crosses the Kazan River, a distance in excess of 100 kms

APPENDIX #1: Contacts

Published data on which to base such an assessment was reviewed to the extent possible but was generally limited (see Appendix #2). This project relied heavily on a consultative approach to the review of conditions on the Kazan River currently compared with those at the time of the river's nomination to the CHRS.

Personal contacts were made in three ways:

1. meetings were arranged with a variety of individuals in agencies and organizations with responsibility for various aspects of resource management within the region of the river corridor. Where meetings were impossible, follow-up was made by either telephone or e-mail.
2. a response form and covering letter was sent out to a mailing list of individuals, organizations and companies requesting information and opinion regarding the changes in circumstances and resource values along the river corridor
3. facilitators were hired in the community of Baker Lake to set up, lead and record meetings with key community organizations and individuals that would be best able to contribute to the objectives of the review.

The following list of contacts has resulted from the combination of these three approaches.

S.P. Ahuja
Vice President Exploration
PNC Exploration (Canada) Co. Ltd.
Vancouver, BC

Mark Bradley
Wood Buffalo National Park
Fort Smith, NWT

Mitch Campbell
Regional Biologist, Dept. of Sustainable Development
Arviat, Nunavut

Rhoda Cunningham
Canadian Museum of Civilization
Ottawa, Ontario

Ferguson Lake Lodge
Rankin Inlet, Nunavut

Alex Hall
Canoe Arctic Inc.
Fort Smith, NWT

Doug Halliwell
Atmospheric & Hydrologic Sciences Division
Meteorological Service of Canada

Lucie Johanis
Inuit Heritage Trust
Iqaluit, Nunavut

David Morrison
Canadian Museum of Civilization
Ottawa, Ontario

David Pelly
Cambridge Bay, Nunavut

RCMP Detachment
Baker Lake, Nunavut

Ron Roach
Superintendent, Dept. of Sustainable Development
Rankin Inlet, Nunavut

Tungola Sandy, Hugh Nateela, Luis Manzo
Kivalliq Inuit Association
Rankin Inlet, Nunavut

Andrew Stewart
Consulting Archaeologist
Toronto, Ontario

Randy Wedel
Environment Canada
Yellowknife, NWT

Eric Yaxley
Dept. of Resources, Wildlife and Economic Development
Yellowknife, NWT

Baker Lake Residents

Silas Aitauq
Eric Anautalik
Edwin Evo
Thomas Isarulik
Thomas Mannik
Margaret Narkjaangirk
Barnabas Piryuq
Dennis Settler
Basil Tuluqtu
James Ukpagaq
David Webster

David Aksawnee
Norman Attungala
Jacob Ikinilik
Joedee Joedee
Glen McLean
Debra Niegro
Betty Piryuq
David Toolooktook
Hugh Tularialik
Debbie Webster

APPENDIX #2: References

Baker, William. 1984. Heritage Rivers of the Northwest Territories - A System Planning Study. Prepared for Division of Tourism and Parks, GNWT and ARC Branch, Parks Canada, Ottawa.

Canadian Heritage Rivers Board Secretariat. 1997. A Cultural Framework for Canadian Heritage Rivers. Dept. of Canadian Heritage, Ottawa.

Canadian Heritage Rivers Board Secretariat. 1998. A Framework for the Natural Values of Canadian Heritage Rivers. Dept. of Canadian Heritage, Ottawa.

Dept. of Sustainable Development. 1999. Heritage River Files. Iqaluit, Nunavut.

Dept. of Sustainable Development. 1999. Review of Conservation Area Legislation in Nunavut. Iqaluit, Nunavut.

Economic Development & Tourism, GNWT. 1992. "Kazan Falls Canoeists' Cairn 1974 - 1991"

Economic Development & Tourism, GNWT. 1989. Background Document for Nomination of the Kazan River, Northwest Territories to the Canadian Heritage River System. Economic Development & Tourism, GNWT. Yellowknife.

Economic Development & Tourism, GNWT. 1989. Canadian Heritage River System: Nomination Document for the Kazan River, Northwest Territories. Economic Development & Tourism, GNWT. Yellowknife.

Economic Development & Tourism, GNWT. 1990. Canadian Heritage River System: Management Plan for the Kazan River, Northwest Territories. Economic Development & Tourism, GNWT. Yellowknife.

Keith, D. 1997. Fall Caribou Crossing National Historic Site: Conservation and Presentation Report. Prepared by Harvaqtuuq Historic Site Committee and Parks Canada. Baker Lake, Nunavut.

Nunavut Planning Commission. 1998. Keewatin Regional Land Use Plan. Nunavut Planning Commission. Cambridge Bay, Nunavut.

Pelly, D. 1991. The Kazan: Journey into an Emerging Land. Outcrop, Yellowknife, NWT.

APPENDIX #3: Water Data

Water Flow

Water flow regimes for the Kazan River have been monitored throughout the past ten years and beyond. The data (see Tables) show the monthly record as taken on the first day of each month for survey stations on both the upper and lower reaches of the river. The upper Kazan station is located at the outlet of Ennadai Lake while the lower station is located above Kazan Falls.

Water Quality

Water quality data is available for the Kazan River at one site (above Kazan Falls). The site has been sampled opportunistically/quarterly for a few decades. Recent (i.e. post-1995) budget cuts have affected Nunavut water quality sites disproportionately, such that the site has not been recently sampled. There has been analysis for physical, nutrient, major ion, and trace metal water quality variables (see Table).

Some provisional water quality data has also collected during the 1991-1997 Arctic Environmental Strategy (Green Plan) from the Kazan River at Kazan Falls. This data has not been completely validated and verified.

Upper Kazan																	
MM/DD	1983	1984	1985	1986	1987	1988	1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
01--01	92.9	123	120	154	100	106	126	146	109	103	152	90.2	92.7	111			
02--01	77.1	98	109	139	93.4	93.6	115	130	101	94.1	147	79.3	78.6	103			
03--01	64.5	81	102	132	88.2	84	107	117	94.5	100	151	79.6	77.6				
04--01	53.9	69	97	117	84.4	75.7	104	105	90.1	112	142	72.1	79.9				
05--01	81.7	76	94		95.5	73.1	101	96.2	90	105	112	70.7	76.2				
06--01	90.3	231	202		163	96.5	125	171	201	166	171	175	88.3	92.6	233		
07--01	273	284	221		343	413	237	197	279	293	329	290	217	282	202		
08--01	228	234	214		233	328	224	174	234	228	241	218	206	219	166		
09--01	200	206	190		181	240	182	155	167	172	199	160	307	160	124		
10--01	187	195	217		146	192	200	140	161	165	160	133	278	148	124		
11--01	182	185	197		126	170	193	129	135	173	137	127	218	125	170		
12--01	151	149	173		110	149	164	118	114	160	110	106	179	109	160	170	118
Lower Kazan																	
MM-DD	1983	1984	1985	1986	1987	1988	1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
01--01	167	169	190	231	193	185	213	202	145	165	145	139	186	182			
02--01	122	127	140	179	148	136	146	157	99.5	131	105	98.2	140	126			
03--01	102	105	109	169	132	113	117	134	79.8	119	94.5	85	122	118			
04--01	101	106	98.8	192	129	103	110	124	79.6	119	96.5	87.4	117	158			
05--01	121	152	122	190	137	133	135	127	109	133	118	113	127	250	156		
06--01	162	239	248	258	171	184	198	152	214	155	220	185	156	334	247		
07--01	1240	1600	1220	1660	2120	1590	1420	1100	2060	1570	1700	884	1120	637	901		
08--01	1070	1300	1310	1200	1490	1480	1210	1030	1340	1190	1650	778	968	625	708		
09--01	831	869	928	781	905	932	759	872	744	781	1010	569	759	584	611	522	
10--01	667	660	737	513	585	643	515	631	603	512	654	579	772	724	415	461	
11--01	410	373	439	356	390	441	374	354	359	325	371	462	567	444	284		
12--01	254	264	306	260	266	306	273	225	229	213	220	282	313	274	180		

Kazan River: Water Quality Survey Data

Date Sampled	Parameter	Temp	pH	Cond	pH	Sp.Con.	Turbid	Colour	Sus.Sol	Res.ids	Phos.-dis	Ca-dis	Mg-dis	Hard.	Alkal	Nitrog	Flur
6/23/92	1	6.5	10	7.1	23.4	0.44	10	L1			0.002	2.5	0.86	9.783	8.4	0.11	
9/10/92	7	6.1	20	6.16	21.6	0.48	10	L1			0.004	2.18	0.79	8.696	7.8	0.1	
6/12/93	2	6.78	10	6.85	26.1	1.4	6	3	27		L0.002	2.34	0.81	9.178	ND	0.193	
9/1/93				5.66	1.2	0.1	L5	L3	24		0.005	L0.1	L0.1		0.3	L0.014	0.03
6/13/94	1.5	6.64	10	6.59	24.1	1.2	8	L3	24		0.006	2.41	0.79	9.270	8	0.217	0.08
8/30/94	9	6.58	20	7.09	23	0.5	7	L3	17		0.005	2.26	0.79	8.896	7.6	0.125	0.09
6/24/95	6	6.89	11.9	6.81	19.5	0.6	10	4	L10		0.007	1.7	0.68	7.044	8.4	0.223	0.07
9/6/95	8	6.42	20.8	7.18	22.6	1	5	4	14		0.007	2.2	0.84	8.952	L0.1	0.236	0.11
6/17/96	6	6.73	17.5	7.08	20.1	1.4	5	L3	NA		0.004	2.08	0.75	8.282	6.5	0.479	0.09
8/28/96				5.92	0.9	0.2	L5	L3	L10		0.003	L0.05	L0.01		L0.1	0.008	0.01

APPENDIX #4: SUMMARY TABLE OF STATUS OF HERITAGE VALUES

Natural Values Themes	Theme	Recognized Characteristic Supporting Nomination	Changes During 10 Years Since Nomination
Theme 1: Hydrology	Water content	x - clear water: 0-50 mg/litre	- water content category unchanged: no significant changes in adjacent land use activity
	Seasonal variation	x - summer melt	- 'permanent' landscape characteristic
	Drainage basin	x - Hudson Bay Basin (4. Other major basins)	- 'permanent' landscape characteristic
	River size	x - large rivers (85 - 500 m ³ /sec)	- recommendation to extend the existing length of the river corridor designated within the system; proposed added length does not affect the length category within the system classification
Theme 2: Physiography	Hydrogeology	x - glacial rebound	- 'permanent' landscape characteristic
	Geological events	x - Canadian Shield Kazan Region	- 'permanent' landscape characteristic
	Physiographic region	x - moderate gradient (1.3 - 2 m/km)	- 'permanent' landscape characteristic
Theme 3: River Morphology	Valley types	x - ill-defined valleys	- 'permanent' landscape characteristic
	Lakes and ponds	x - large lake dominated	- 'permanent' landscape characteristic
	Waterfalls and rapids	x - waterfalls (>10 meters) - Kazan Falls	- 'permanent' landscape characteristic
Fluvial landforms			

Theme	Recognized Characteristic Supporting Nomination	Changes During 10 Years Since Nomination
Theme 4: Biotic Environments Aquatic ecosystems	x - lowland zone river system; oligotrophic lakes	- 'permanent' landscape characteristic
Terrestrial ecosystems	x - Southern Arctic; Taiga Shield	- 'permanent' landscape characteristic
Theme 5: River Vegetation Significant plant communities Rare flora		
Theme 6: River Fauna Significant animal populations	x - caribou populations	- caribou populations are large and healthy; these herds are very significant; monitored regularly; research efforts aimed at understanding movement and identifying key areas for sustaining populations; support continued local food harvest - populations of wolverines not found to be significant; edge species that while periodically seen are heavily hunted and not particularly common; no population data only anecdotal reporting; no evidence of significant change since original nomination yet this species was identified as significant in the nomination rationale
Rare fauna	- wolverine; falcons	- populations of falcons not found to be significant; no population data within the river corridor; anecdotal reporting seems to have focused on very limited numbers but in a key and regularly visited location on the river; a significant peregrine falcon population along the coast of Hudson Bay has been studied consistently over the past twenty years and has shown to be strong and increasing; peregrine falcons have been removed from the endangered list since the time of the original nomination

Cultural Values Themes

Theme	Recognized Characteristic Supporting Nomination	Changes During 10 Years Since Nomination
Theme 1: Resource Harvesting Fishing	x - aboriginal fishing camps; domestic consumption	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor; the value remains and Inuit use of the area for the same reasons continues
Hunting and trapping	x - hunting of caribou at crossing places; hunting of waterfowl	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor; the value remains and Inuit use of the area for the same reasons continues although with modern mechanized means (power boats in the lower reaches of the river and by snow machine in the winter months throughout the length of the river corridor; some 'commercial' harvest of wildlife is also present in the hunting and trapping of fur bearing animals as well
Resource gathering	x - collection of plants for food, medicines, etc.	
Water extraction		
Theme 2: Water Transport River navigation	x - aboriginal transport (canoes/kayaks); associated with life cycle activities (hunting/fishing) and movement of people	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor; the value remains; Inuit use of the area for the same reasons continues but with modern means of transport and mostly in the lower reaches of the river below the falls; snow machine access to the entire length of the river is common in the winter months
Onshore services Surface bulk transportation		
Theme 3: Riparian Settlement Siting of dwellings	x - shoreline seasonal camps associated with life cycle activities	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor
Community adaptation to rivers	x - archaeological evidence of aboriginal communities especially associated with key caribou crossing points	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor; the sites are still important both because of their family significance but also as areas of significant hunting activity
River crossings		

Theme	Recognized Characteristic Supporting Nomination	Changes During 10 Years Since Nomination
Theme 4: Hydraulic Power Generation Direct-drive water power Innovative hydro-electric power		
Theme 5: Culture and Recreation Spiritual and symbolic uses	x - sites of recurring spiritual activity; burial grounds	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor; ; the sites are still important because of their family significance for people now living in Baker Lake
Artistic expression	x - stories in oral tradition	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor; ; the sites are still important both because of their family significance for people now living in Baker Lake
Pioneering or early recreation		
Theme 6: Jurisdictional Use		
Exploration and route surveys	x - exploring parties	- original value of the river for appreciating this cultural element has been unaffected by land use activities along the corridor
Military uses		
Boundary delineation		
Theme 7: Environmental Regulation		
Early flood control structures		
Pioneering improvements to water quality		
Pioneering improvements to aquatic ecosystems		
Pioneering access and use regulation		

Recreation Values

Theme	Recognized Characteristic Supporting Nomination	Changes During 10 Years Since Nomination
<p>capability for outstanding recreational experiences</p>	<p>x - enjoyable canoeing and kayaking opportunities; many areas of white water</p> <p>- remote location; strong sense of wilderness</p> <p>- excellent fishing</p> <p>- enjoyable and accessible off river hiking</p> <p>- sufficient water flow for navigability</p> <p>- diversity of landscape and scenic vistas</p> <p>- easy opportunity to appreciate historical use of the river corridor</p> <p>x - supports non-consumptive use; wilderness users tend to value low impact activities</p> <p>- remoteness and access limits user numbers to relatively low levels</p>	<p>- original value of the river for providing outstanding recreational experiences has been unaffected during the last ten years. Other land use activity has not been significant and visitor numbers have remained relatively constant along the corridor</p> <p>- original capability of the river for supporting recreational use without loss of heritage values has been unaffected during the last ten years.</p>

