

THE CLEARWATER RIVER, SASKATCHEWAN

1986 - 1999

REPORT TO

THE CANADIAN HERITAGE RIVERS BOARD

ON THE STATE OF THE RIVER

PREPARED BY

SASKATCHEWAN ENVIRONMENT & RESOURCE MANAGEMENT

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FOREWORD

This report on the Clearwater River, Saskatchewan, was prepared by Saskatchewan Environment and Resource Management in fulfilment of the requirement stated in Appendix I, Section B(b) of the *Canadian Heritage Rivers System Objectives, Principles and Procedures: The [Canadian Heritage Rivers] Board will review each designation every ten years in conjunction with the responsible agency.* It is intended to permit the Canadian Heritage Rivers Board to review the present status of the Clearwater River as part of the CHRS and to record changes that have occurred to the river over its thirteen years in the System, from June, 1986 to June, 1999.

The information contained in the report pertains to the human and natural heritage, recreational opportunities, and integrity values which provided the basis for nomination of the river to the System. These are contained within the boundaries of the Clearwater River Provincial Park which comprises the “management area” for the Canadian Heritage River. The condition of values which lie outside the management area, and management activities affecting these values, are also addressed in this document where appropriate.

Brian Grimsey of the Canadian Heritage Rivers Secretariate supplied the template to complete this “10 Year Monitoring Report” for the Clearwater River, Saskatchewan. Debbie Headrick and Tangy Villeneuve, Meadow Lake Service Bureau, provided word processing expertise in the report. Bob Wilson, Park Management Specialist, prepared the report.

HIGHLIGHTS OF THE PERIOD 1986-1999

In the thirteen year period since the Clearwater River was dedicated as a Canadian Heritage River

(CHRS), there has not been significant change with either the Provincial Park or the river corridor. The natural and cultural resources for which the river was designated to the CHRS have remained intact and the integrity of the river remains at the same level as in 1986.

Management of the river by Saskatchewan Environment and Resource Management could be termed somewhat “hands off” by outside observers. No department staff are directly responsible for the river; however, District Conservation Officers and Regional Staff of the Department of Environment and Resource Management perform enforcement/investigation functions with ad hoc fly overs during fire patrols and other activities. Permit/licencing activities are carried out as need requires. There is no Park Office and the river users are not required to “check in/check out” with the District Office.

The lack of hard “management” has not negatively affected the Clearwater River; indeed one of the main “successes” in the decade occurred with the involvement of the Whitewater Raft operation in the maintenance of several of the campsites on the lower Clearwater River. As a matter of their operation they would control the litter and remove the garbage left by recreational canoeists. They acted as eyes and ears for the department during their operations. The second major success was the application of the Polar Model to determine visitor satisfaction. The study took two summers of activity to get sufficient data to be statistically valid and showed that in the eyes of the users the wilderness characteristics of the river were not deteriorating.

The shortfall of the review period would be that the economic impact of the Provincial Park and CHRS designation to the communities of La Loche and Clearwater River Dene Nation has not been what it was hoped it would be. However, last year the Clearwater River Dene Nation purchased controlling interest in the Raft Tour Company which in the future will provide economic diversity for the First Nation.

1.1 **Background**

The 187 km section of the Clearwater River from Lloyd Lake to the Alberta Border was nominated to the Canadian Heritage River System in June 1984 on the basis of its outstanding natural heritage, recreational and integrity values. Those values were identified in background research prepared by Johnson and Weichel, 1982. In 1986 Hilderman Witty Crosby Hanna and Associates prepared the Clearwater River Management Plan for the Saskatchewan Government. This plan provided the framework for the management of the area as a Provincial Park, the first wilderness classified provincial park in Saskatchewan, and allowed the CHRS to dedicate the Clearwater River a Canadian Heritage River - another Saskatchewan first.

1.2 **Purpose of the Report**

The Canadian Heritage River Board reviews designations to ensure that rivers still meet program guidelines every ten years. Managing governments are required to undertake a study of the conditions of their rivers' nomination values and to submit findings to the CHR Board for consideration.

The purpose of this report is to describe the condition of the natural and human heritage, recreational and integrity values for which the Clearwater River was nominated, as well as to document changes and management actions influencing their condition over the period 1986-1999.

1.3 **Overview of Clearwater River Management**

The legislative base for Saskatchewan's park land is provided by The Parks Act which was

passed in 1986. The Act established four classes of Provincial Parks, (the class indicating the type of park experience the public can expect) and guides park management and development.

The Clearwater River is Saskatchewan's first Wilderness Class Provincial Park and contains an area of 865.00 square miles or 224,035 ha. Wilderness parks protect large tracts of undisturbed lands which have a high potential for human powered wilderness recreation activities such as canoe tripping, back packing and cross country skiing. The management plan for the park has four activity zones: River Service Zone (bridge area crossing Warner Rapids), River Corridor Zone (varying in width following the river), Special Heritage Zone (Methye Portage area), and River Buffer Zone (varying in width). The zoneation allows river users to access the river and camp in undesignated campsites while restricting developments in the significant Heritage zone near the Methye portage.

The majority of the river users initiate their trips at the bridge. However, over the last couple of years there has been an increasing demand for the Lloyd Lake access to be upgraded. The "goat trail" that formerly existed into a Traditional Resource Use (TRU) cabin on the shore of Lloyd Lake was upgraded when it was used for a fireguard. More people have become aware of the fire guard trail and have started their trip from the shores of Lloyd Lake than pull out at the bridge. When the park was formed there was discussion with the Commercial Outfitter on Lloyd Lake that would see this lake remain as "Fly In" only. Thus the fireguard will not be improved.

When the park was formed the department also had discussions concerning traditional resource uses. With the revitalization of First Nation culture, the department has received several requests for TRU Permits. If the applicant is a bonafide trapper and has produced fur in previous years then the permit is issued. If the individual request is not for trapping then the permit is denied. Few cabins or developments are visible from water level.

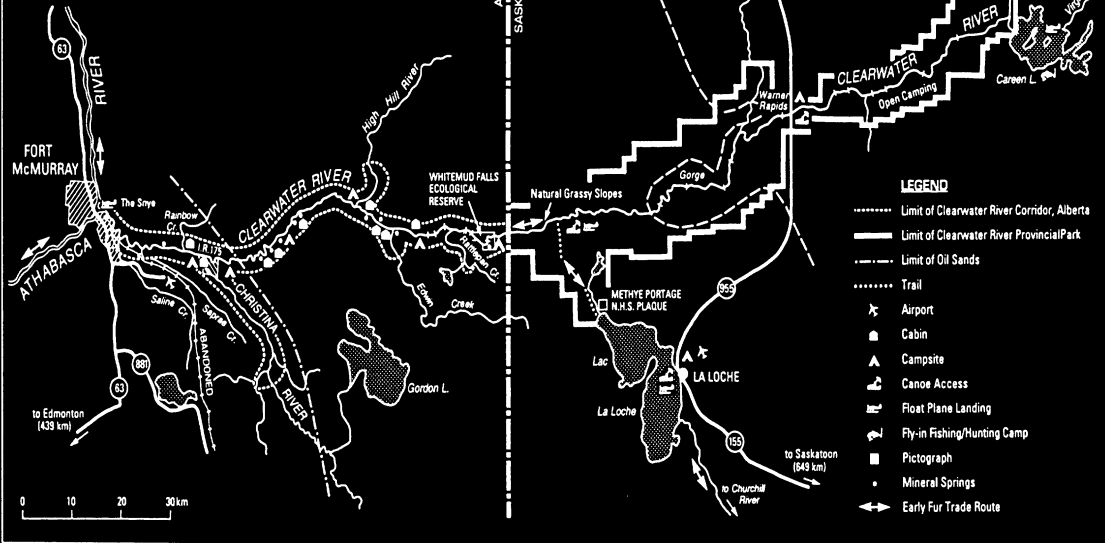
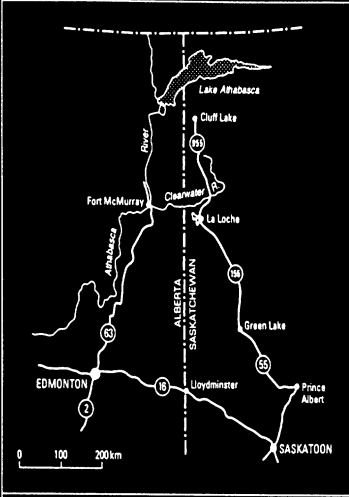


Figure 1: Clearwater River Provincial Park

2. **Changes, Activities and Management Challenges, 1986-1999**

It is important to note that the present condition of the nomination values for the Clearwater River do not significantly differ from their condition at time of dedication in 1986. This report therefore will focus on the minor changes that have occurred and the events that caused them; management activities that have contributed to the protection of the nomination values; and ongoing threats, constraints, and opportunities that may continue to challenge management and potentially affect nomination values.

The present section is an analysis of the events and management activities relative to the condition of nomination value. Section 3 will introduce the few new pieces of research that have been carried out on the river while Section 4 lists the nomination values in tabular form and notes events and management activities that have influenced their present condition.

2.1 Changes to Nomination Values

Minor changes have occurred over the past thirteen years to natural, recreational and integrity values upon which nomination of the Clearwater River to the CHRS was based. The changed values include forest ecosystems, wilderness recreation values and ecological integrity. All of the other values remain unchanged since designation.

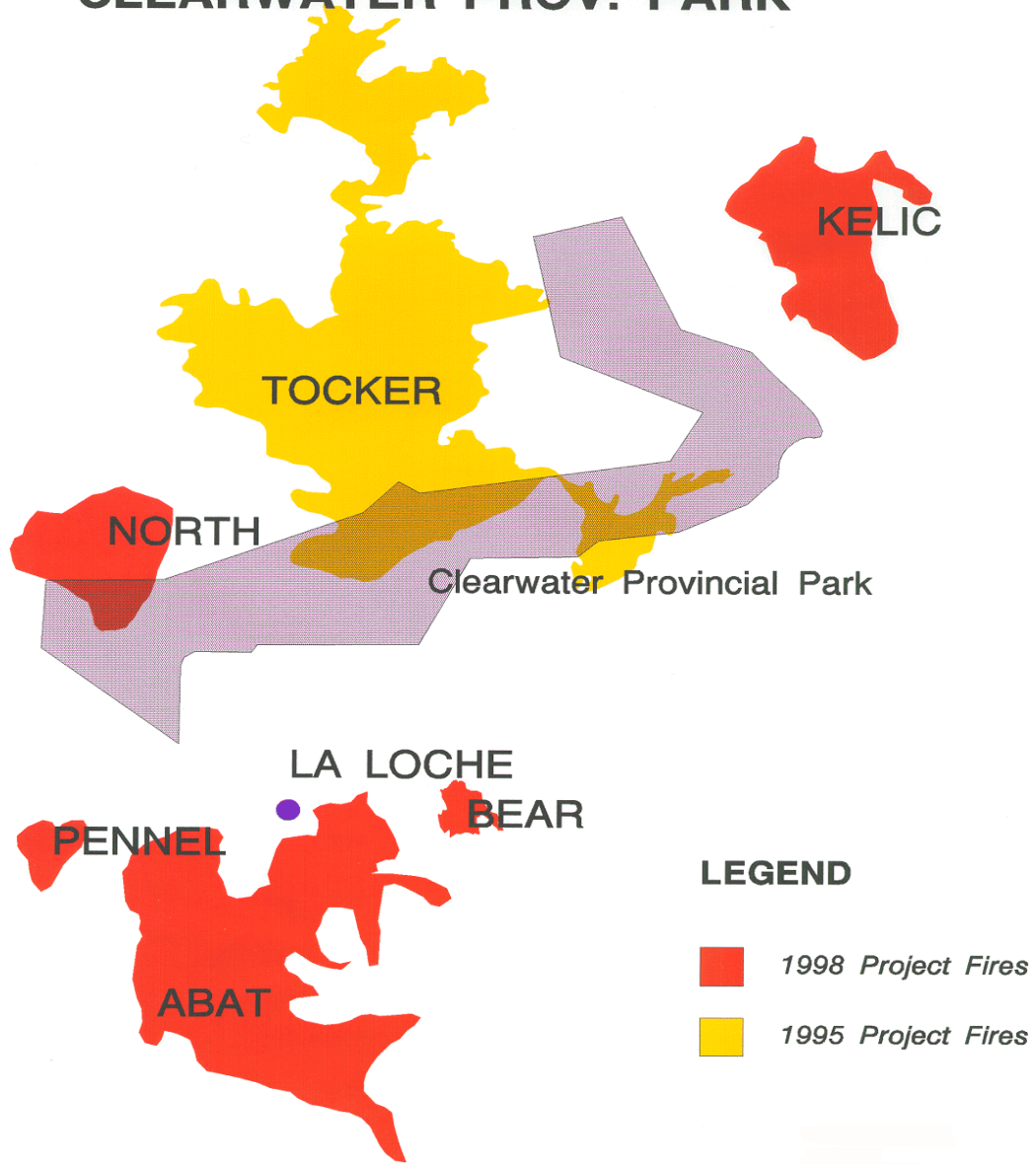
Forest Ecosystems

The area of the Clearwater River Valley has always been subject to natural fire occurrences and the review period was no exception; 1995 and 1998 were particularly heavy fire years, (see Figure Two). The Tocker Fire in 1995 burned approximately 37,850 ha. of the park while the North Fire in 1998 burned approximately 6,845 ha. of the park. In just two years, however, approximately 21% of the Park has been renewed.

The Clearwater River is north of the Forest Management Licence holder whose commercial interest in the forest would dictate the suppression of fire. In the park, however, the department has taken the approach of having a naturally evolving fire regime. The Fire Suppression Branch of the department has been directed not to directly suppress any wildfire in the river valley and not to create any new access with caterpillar lines while creating fireguards. Any of the active fires are closely monitored to ensure visitor safety.

Figure Two: Fire Map - Clearwater River Provincial Park

1998 and 1995 PROJECT FIRES CLEARWATER PROV. PARK



The visitor data for Clearwater River is not easily determined. There is no central reception area and no permit required to access the river. In 1995 and 1996 the department and Dr. Dave Fennell from the University of Regina used the Polar Model to review public opinion concerning the level of use and ecosystem health in Clearwater River Provincial Park. Based on the review, Fennell found that the level of use does not seem to be at a degree that would justify the imposition of use limits on either canoeists or whitewater rafters and that the park's environment has not deteriorated from use. The Executive Summary is included as Appendix 1.

While the data for recreational canoe visitors to the Clearwater River is difficult to obtain, the Clearwater Raft Tours are able to provide their client numbers as presented in the following table:

Year	Client
1998	18
1997	41
1996	24
1995	16
1994	20
1993	16
1992 - 89	data unavailable
1988	18

The years of 1994, 1995 and 1998 were major wildfire seasons in northwestern Saskatchewan. The fires created thick smoke and created a situation where the Raft Tour Company had to cancel booked trips.

The Clearwater River in northwestern Saskatchewan is not easily accessible; thus the low number of Whitewater Rafters and the results from the Polar Model. However, that is not to say that the Ecological Integrity of the river has not been challenged in the review period.

Prior to designation there were mineral leases sold by the Government of Saskatchewan to various hard rock mineral companies. One of the leases occurred in the Provincial Park, north and west of Careen Lake. In 1990 the department became aware that the lease holder had allowed the permit to lapse. Environment and Resource Management requested and received a Crown Mineral Reserve designation from the Department of Energy and Mines. Today there are no mineral leases and no exploration or development is allowed to occur.

On Careen Lake there are two commercial outfitters who are licenced to guide fishing trips. They are also licenced to guide black bear hunters in the area around Careen Lake and down to the Clearwater River. Typically the activity of black bear hunting involves the use of motorized vehicles, some form of bait (usually something exotic and somewhat noxious), and the construction of tree stands.

In 1998 the department approached both outfitters regarding the removal of their licenced bear area from the Provincial park because the activities did not conform with the designation of the Clearwater River Provincial Park. Subsequently, the areas that overlapped with the park were removed from their licence area in 1999.

The largest future challenge to the ecological integrity of the Clearwater River will occur when Alberta completes their portion of the La Loche - Fort McMurray road. Currently the Saskatchewan portion to Garson Lake is completed. When the portion from Garson Lake to Fort McMurray is completed one of the major impediments to accessing the Clearwater will be removed. It is anticipated that a significant number of people will then be able to use the river through the superior air and travel services available out of Fort McMurray.

3. **Studies**

There have been only two studies that pertain to the Clearwater River and CHRS: *Managing*

Recreational Use Of The Clearwater River and Postglacial Fish Dispersal From The Mississippi Refuge To The Mackenzie River Basin.

Managing Recreational Use of the Clearwater River by Dr. David Fennell from the University of Regina.

Dr. Fennel demonstrated that there was no conflict at this time between the two main users of the river (canoeists and whitewater rafters) and that the use limits/restrictions would not be immediately required. He also provided input concerning the management of fly overs, number of operators, size of groups, as well as comments concerning the development of a code of ethics, campsite restrictions, and fuelwood consumption.

Postglacial fish dispersal from the Mississippi refuge to the Mackenzie River Basin by L.L. Rempel and D.G. Smith from the University of Calgary.

In this study the authors demonstrated that fish species used the Clearwater River during the Wisconsin glacial refugia to move from the Mississippi glacial refuge into the Mackenzie River basin. They also found that fifteen species dispersed into the headwater of the Clearwater River during hydrologic linkage to Lake Agassiz and are now isolated above a 18.5 meter waterfall (Smoothrock Falls).

- 4. Summary of Condition of Nomination Values
- 4.1 Natural Heritage Values

Sub-theme Element Represented	Natural Heritage Value	Changes since 1986 and Threats to Condition	Actions and Related Research
1. Hydrology			
1.1.1 Water Content:	Moderate to heavy sediment 51-150 mg/litre.		Annual water sampling since 1991 has shown TDS to vary from 22-30 mg/litre Biocide Baseline Scan completed - not detectable.
1.2.2 Seasonal Variation: Late spring peak	Late Spring June/July - Muskeg Ice Release.		
1.3.6 Drainage Basin:	Mackenzie River Basin.		
1.4.4 River Size: Small River	Stream Order greater than 2.		
2. Physiography			
2.1.4 Hydrogeology:	Limestone, Dolomites to Glacial Till below Simonson Rapids.		
2.2 Geological Events			
2.2.7 Glacial Retreat	Upper Clearwater flows through Terminal Moraine.		
2.2.10 Glacial Melting	Oversized Channel Below Simonson Rapids.		
2.3.3 Physiographic Region	Canadian Shield - Kazan Region.		
2.4.6 Topography	Shallow gradient less than 1.3 m/km.		

4. Summary of Condition of Nomination Values (continued)

4.1 Natural Heritage Values (continued)

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Sub-theme Element Represented	Natural Heritage Value	Changes since 1986 and Threats to Condition	Actions and Related Research
3. River Morphology			
3.1 Valley Types	Vegetated slopes on the lower river reaches while a ill-defined valley exist below Lloyd Lake.		
3.2.4 Lake Balanced river system	Broach Lake, Lloyd Lake & Careen Lake all contribute.		
3.3 Waterfalls and Rapids			
3.3.2 Boulder Rapids 3.3.3 Cascading rapids 3.3.4 Chutes 3.3.8 Falls	Belby/Mackie Rapids Gould Rapids/ Simonson Rapids Skull Canyon Smoothrock Falls.		
3.4 Fluvial/ Erosional Landforms			
3.4.6 Incised Channels	Limestone Erosion.		
3.4.10 Caves & Sinkholes	Cut off Oxbow Lakes @ Methy Portage Area.		
3.4.11 Potholes	Abrasion of Riverbed @ Smoothrock Fall.		
3.4.12 Gorges	Flowerpot Island development continued development at Skull Canyon.		

4. Summary of Condition of Nomination Values (continued)

4.1 Natural Heritage Values (continued)

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Sub-theme Element Represented	Natural Heritage Value	Changes since 1986 and Threats to Condition	Actions and Related Research
4. Biotic Environments			
4.1 Aquatic Ecosystem			
4.1.2 Middle Zone River Zone	Sediment transport with seasonal fluctuation of temperature & discharge.		
4.1.10 Bogs & Fens	Lower Clearwater River Valley.		
4.2 Terrestrial Ecosystem			
4.2.8 Boreal Plain	Division occurs @ Simonson Rapids-west is Boreal Plain.		
4.2.9 Boreal Shield	Rapids-east is Boreal Shield.		
5.1 Significant Plant Communities			
5.1.6 Dynamic nature of community	Post glacial plant migration and distribution corridor.		Further research required in the area and extent calcareous plants.
5.1.7 Location of Community	Transition between Shield & Plain.		
6.1 Significant Animal Populations			
6.1.3 Exceptional population size - birds	Bald Eagle Great Grey Owl White Pelican.		

4.2 Human Heritage Values

Sub-theme Element	Cultural Heritage	Changes since 1986	Actions and Related
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Represented	Value	and Threats to Condition	Research
1. Resource Harvesting			
1.2 Hunting & Trapping	Remote cabins used for traditional trapping & hunting by local people.	New TRU Permits continue to be issued by department.	Department is initiating cabin location in all park lands.
2. River Navigation			
2.1.1 Navigable channel	Historic Portages, Methye Portage.		Plaque erection by Department - Zoned in Management Plan.
2.1.2 Human-powered freight	Fur Trade Route Aboriginal Travel.		
3. Riparian Settlement			
3.3.2 Steel Road Bridge	Highway 955 to Cluff Lake @ Warner Rapids.		
4. Hydraulic Power Generation			
5. Culture and Recreation			
5.2.2 Paintings of rivers and people	Aboriginal pictographs, depicting animal upstream from Virgin River confluence.		Need to be protected from human deterioration.

4. Summary of Condition of Nomination Values (continued)

4.3 Recreational Values

Recreational Value	Changes since 1986 and Threats to Condition	Actions and Related Research
Angling/Domestic Fishing	Native (local) food fishing in key locations (Net). River not renowned for fishing activities.	Provincial Regulations are enforced.
Boating	No boat launches for power boats - on Sask reach of Clearwater River. Rapids limit boat travel.	Alberta advised that no jet boats occur in Sask. Request no improvements upstream of Whitemud Falls to allow boat traffic through.
Canoeing/Kayaking	Lack of resources to hire staff to monitor activities on the river. Steady to small growing number of visitors. If road is completed to Ft. McMurray travel and use patterns will change dramatically.	Polar model showed wilderness attributes intact. Continued concern in quality of River Guide or trip tick.
White Water Raft	In operation since 1984 prior to designation.	Keep good communication.
Camping	Undesignated camping throughout the river corridor - lack of sanitation facilities throughout. Small campground at Warner Rapids Bridge.	Created Canoe Ethic Brochure - 1998. Continue to monitor campsites for deterioration.
Heritage Appreciation	Potential damage by visitors to native sites. Lack of resources to research and monitor native and fur trade sites.	
Wildlife Viewing	Hunting prior to park establishment and ongoing trapping continue to reduce fauna populations.	Removed overlap of outfitted black bear hunting area and Clearwater River Provincial Park 1998.
Hiking	A few hike annually on Methye Portage - no other hiking trail developments.	

4. Changes to Condition of Nomination Values (continued)

4.4 Integrity Values

Integrity Value	Changes since 1986 and Threats to Condition	Actions and Related Research
4.4.1 Natural Integrity Values		
Free flowing waters; no upstream or downstream impoundments; natural values not created by impoundments.	No changes proposed.	
Minimal human impact on key ecosystems	TRU Cabins authorized for locals who have demonstrated trapline livelihood.	Fire Program advised no firelines created in River Valley. 1995 - Energy & Mines complete withdrawal of Platinum mineral claim. Crown Mineral Reserve on all of provincial park.
Water quality suitable for continuation of original aquatic ecosystems	Concern in acid fallout from heavy oil upgrader @ Fort McMurray.	Continual annual water quality sampling. Secure funding for Dioxin/Furan Scan.
4.4.2 Human Heritage Integrity Values		
Same visual appearance as during period of historical importance	TRU cabins not visible from river.	
Artifacts unimpaired by human land uses		
Neighboring land uses do not affect historical experience		
Water quality suitable for non-contact recreation		
4.4.3 Recreational Integrity		
Water quality suited to nomination values	No limitations to contact recreation e.g. swimming.	No appreciable change in water quality or chemistry.

4. Changes to Condition of Nomination Values (continued)

4.4 Integrity Values (continued)

Integrity Value	Changes since 1986 and Threats to Condition	Actions and Related Research
4.4.4 General Integrity		
Sufficient size	Headwater not included in the park.	No threats present.
Ecosystem components	Narrow corridor through Boreal Shield/Plain.	
Water quality sufficient to enable continuation of nomination values		

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APPENDIX 1

- ◇ Rafters and canoeists differed with respect to their desirability towards certain environmental factors of the on-site experience. A “campsite to ourselves” and “some easy rapids” were more desirable to canoeists; however, “park staff enforcing rules”, “established campsites”, “firewood at camp”, “pit latrines”, “locational signs”, “seeing others on trails/portages”, “catching my limit”, and “encountering park staff” were all more desirable to the rafters.
- ◇ Apart from the presence of fire scars, there were few significant differences between canoeists and rafters on the disturbance to the river’s ecology. Canoeists found a higher incidence of hunting activities, human waste, and inappropriate behaviour, than did rafters.
- ◇ Responses were “non-committal” or average, on their responses to the following statements: “managers should act now to guard against more use of the river”, “recreationists should be more widely dispersed in the park”, and “the park should accommodate more recreational use of the river in coming years” by both groups. Both rafters and canoeists felt that their trip was not too costly and that the river was not overly crowded.
- ◇ In general, canoeists indicated the need to experience lower numbers of users of the river (e.g., float planes) than rafters based on the results of the survey. Over 90% of the canoeists said their trip was excellent, while 69% of rafters said the same. None of the respondents said that their trip was Poor or Fair.
- ◇ Based on this information the researcher found that the level of use does not seem to be at a degree that would justify the imposition of use limits, at this time. However, a number of recommendations are suggested in the final section of the document to aid in the management of the two primary activities for the future. It was found that two or three stated options for management would not be possible. Instead, each aspect of the Clearwater recreational experience is dealt with, with the aim of guiding management for the purpose of maintaining a thriving, healthy river environment.

