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***The Economics Of Rivers Recreation And  
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THE ECONOMICS OF RIVERS RECREATION  
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THE ECONOMICS OF RIVERS RECREATION AND PRESERVATION

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## EXECUTIVE SUMMARY

The Canadian Heritage Rivers System (CHRS) is a co-operative program established between the federal government and - to date - 9 provincial and territorial governments to designate rivers of national recreational and heritage significance. Currently, 5 rivers have been designated while another 9 have been nominated and are being evaluated. Recognizing that economic arguments have been used in instances such as the recently announced South Moresby National Park to accelerate similar designation processes, the CHRS commissioned this study to investigate the relative benefits experienced by local economies from rivers designation. However, subsequent literature review and contact with key figures in the rivers industry, government, and academia around North America soon revealed that no data yet existed to enable this question to be answered. In fact it became apparent that little information had yet been compiled on an even more fundamental question: "What are the economic values of rivers recreation and heritage"? This study therefore has focussed on gathering answers to this question.

From the recreational standpoint, information gathered from the commercial sector indicates the economic significance of the rivers resource. Some salient findings include:

- Canada's recreational river resource can be classified as to its character: Wilderness (e.g. Nahanni), Semi-wilderness (e.g. Coulonge) and Front-country (e.g. Madawaska), depending on the degree of development that has occurred in the vicinity of individual waterways.
- Canadian rivers can be categorized as to market draw and significance: International (e.g. Tatsenshini), National (e.g. Missanaibi), Regional (e.g. St. Croix), and Intensive Use (e.g. Ottawa). Landscape quality, environmental integrity, recreational experience, heritage values and accessibility are factors which determine such rivers significance.

Initial investigation into the Canadian rivers recreational industry reveals the following:

- river rafting is focussed on central Canada: 140,000 user days of service (one person recreating for one day = 1 user day) for annual direct revenues of \$9.5 million; and British Columbia: 50,000 user days; \$3.4 million. The sector is solely day use oriented in central Canada, whereas in the west it offers a mix of day and multi-day trips. Participants on day use trips are drawn mainly from within a 5 hour drive market whereas multi-day packages attract a majority of international customers. Rafting can cater to people of virtually all fitness, skill, and age levels. This accounts for the high revenue and usage levels associated with the sector. Growth in central Canada is constrained by a shortage of suitable accessible rivers. In the west, quality rivers abound but smaller proximate market populations restrict growth rates.
- the commercial canoeing sector is much smaller than rafting due to the need for a degree of participant skill and fitness. Operators are dispersed in small numbers across Canada in prime river touring territory. Central Canada provides the focus for shorter trips whereas longer expedition-style trips emphasize the Territories as well as the Shield country in northern Ontario, Manitoba, Saskatchewan. Since the industry is currently unorganized no overall use and expenditure data

is available for the canoeing sector. Nevertheless, some specific statistics can be cited: One of the largest trip operators provides 4800 user days of service for an estimated annual direct revenue of \$360,000. Another key operator who focusses more on canoe skills training provides 2600 user days of service for an annual direct revenue of \$197,000.

- kayaking is an even smaller industry given the level of participant competence required. Only a few kayak skills training schools operate across the country. These are small operations providing about 1000 user days of service for annual direct revenues of about \$80,000.

- figures derived from the U.S. rafting industry give insight as to the value of the rivers industry in that country. There some 500 outfitters provided 2.5 million user days of service and generated \$500 million in revenues in 1986. And whereas traffic levels in the U.S. will always well exceed those in Canada (due to relative size of markets and favourable climate) it is important to note that upper usage levels on U.S. rivers are in place: in the east 100% of capacity has been reached, there is no room for further commercial growth; in the west the industry is at 80% of available capacity. The implication is that spill-over of U.S. rafting demand into Canada can be expected.

- studies undertaken to identify the impact of the rivers industry on local economies cite cases where the annual value is \$16 - 20 million per year (e.g. the Gauley in West Virginia; the Arkansas in Colorado). Multiplier factors vary from a low of 1.3 in the Nahanni region of the Canadian north to average values of 2.6 in individual U.S. states. The size of the multiplier relates to the degree of services available in the local economy in which direct expenditure rivers industry dollars can be recirculated.

- since front country or intensive use rivers will typically generate more expenditure dollars than their wilderness counterpart - because usage levels are higher and the multipliers for well-developed local economies are at least twice those of remote frontier communities - evaluation of a river's value simply on the basis of expenditures is misleading. Of concern is the fact that this approach overlooks the heritage or preservation values. Since rivers vary in their preservation value (e.g. a wilderness river likely has more preservation value as compared to an intensive use river), a classification system for the CHRS is desirable (such as the one associated with the U.S. Wild Rivers Act). Not only will a classification system help ensure appropriate economic evaluation, it will also ensure that individual rivers are managed in a fashion consistent with the intent for which they were designated, and too it will help clarify to the public the uses which are acceptable on specific rivers.

As noted, the CHRS has a mandate not only to designate for recreational values but also for preservation and heritage concerns. Economists in the U.S. have shown that assessing rivers just on the basis of recreationists expenditures may result in a river - or river system - being undervalued by 80%! They note that the Preservation Value of the river to society must also be considered. Preservation Value is comprised of:

Option value - the benefit that accrues to the individual from knowing he has the choice to use a river recreationally in future;

**Existence value** - the benefit that accrues to the individual by simply knowing a river is retained in its natural state; and

**Bequest value** - the benefit that accrues to those in future generations who may choose to use the river.

In order that the CHRS may in fact designate rivers for both retreational and heritage reasons, a key recommendation of this report advocates that a study be undertaken to evaluate Canadian Heritage Rivers using this Economic Valuation method. For only by this approach can economics be used to help objectively assure that the twin mandates of CHRS are balanced.

Other recommendations of this report are:

- that CHRS and member government agencies endeavor to develop a standardized rivers classification system;
- that standardized user and expenditure data be gathered for CHRS rivers to enable ongoing monitoring and Economic Valuation;
- that the means of establishing optimum use levels consistent with ecological and experiential carrying capacities be investigated for CHRS rivers;
- that a comparative case study be undertaken to gather the necessary data on the impact of rivers designation on local economies;
- that an inventory and profile of the commercial rivers industry be undertaken to provide further economic base data for CHRS rivers.

## 1.0 BACKGROUND

### 1.1 INTRODUCTION

In June 1987, Ethos Consulting - an Adventure Tourism consulting firm - was invited by the Board of the Canadian Rivers Heritage System (CHRS) to undertake an overview study regarding the economic arguments which might be associated with rivers designation. The CHRS is a co-operative program established in 1984 by the federal government and, to date, seven provinces (Newfoundland, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan] and the two territories. The objectives of the CHRS are to give national recognition to the important rivers of Canada and to ensure long-term management which will conserve their natural, historical and recreational values for the benefit of Canadians, now and in the future. To date, 5 rivers have been designated under the system while another 9 are nominated and currently under evaluation. (see Table 1).

For many years the desire to protect outstanding Canadian rivers and waterways has been a strong feature of this nation's environmental concern. Yet while progress has been made, still many superlative areas remain inadequately managed and in jeopardy. Traditionally, rivers in the CHRS have been nominated and designated on the basis of natural, historical and recreational heritage criteria. Recently the CHR Board has recognized that economic arguments may be a significant justification for including rivers in the CHRS. Finding the economic means to enhance the rivers designation process is important given the fact that many outstanding Canadian waterways are already under such diverse development pressures that their natural and cultural attributes could be irreversibly eroded unless they soon receive more management attention.

At the time of commissioning of this study it was the hope of the CHR Board that experiences from around North America could be compiled to reveal the local economic impacts that accrue once a river is officially designated. Unfortunately, review of the literature and discussions with individuals in the rivers industry, government and academia indicate that it is as yet too early to attain such results. In Canada particularly (but in the U.S. as well) the economics of river recreation and heritage values - regardless of whether or not they are associated with a designated waterway - has been little known. The Americans have only begun to investigate this area in the last few years whereas in Canada minimal data has been compiled. Consequently this study has had to be refocused to ask the fundamental question: What are the economic values of rivers recreation and heritage? Answering this will then lead to a much better understanding of the application to which such economics information might be put to enhance the rivers designation mandate of the CHRS.

That economics can help designation is seen at South Moresby, British Columbia, the most recent addition to the Canadian National Parks system. Here over the course of a decade advocates have argued for protection by citing the area's incredible biologic and heritage values. But it was only when the British Columbia Government came to understand the economic tourism benefits to be gained through National Parks status that it agreed to set South Moresby aside.

TABLE 1: CANADIAN HERITAGE RIVERS SYSTEM (as of July, 87)

1. DESIGNATED RIVERS

<u>River</u>	<u>Province</u>	<u>Nomination Values</u>	<u>Length</u>
French	Ontario	All: i.e. Natural; Historical; Recreational.	110 km
Alesk	Yukon	Natural	90 km
Clearwater	Saskatchewan	Al 1	187 km
South Nahanni	Northwest Terr.	Natural; Recreation	300 km
Bloodvein	Manitoba	Al 1	200 km
TOTAL			887 km

2. NOMINATED RIVERS

<u>River</u>	<u>Province</u>	<u>Nomination Values</u>	<u>Length</u>
Athabaska	Alberta	Al 1	168 km
St. Croix	New Brunswick	All	185 km
North Saskatchewan	Alberta	All	49 km
Missinaibi	Ontario	Al 1	426 km
Kicking Horse	British Columbia	Al 1	67 km
Bloodvein	Ontario	Al 1	106 km
Boundary Waters	Ontario	Al 1	250 km
Seal	Manitoba	Natural; Recreation	160 km
Jacques Cartier	Quebec	All	177 km
TOTAL			1,588 km

## 1.2 METHODOLOGY

This report sets out to, first provide an insight into the economically identifiable river recreation values and then next to consider the heritage or preservation values associated with rivers. Dealt with in the concluding sections, the heritage/preservational aspect discusses the work being done by the leading American economists in the field.

As for recreational values, the study focuses on commercial rather than private river recreation use. Pragmatics require this; the amount of useable economic data available on non-commercial recreational rivers use is minimal. That which does exist is inadequate to provide meaningful insight into national usage and expenditure trends. What's more, experience with other recreational sectors reveals that the major use and expenditure figures are associated with commercial rather than private activities. Therefore, in seeking to identify economic arguments, the most apparent and persuasive trends will be found to be associated with commercial users.

Commercial rivers recreational use is referred to in this report as Rivers Adventure Tourism. Not only is the term appropriate to the activities offered by the commercial operators, but too it links this analysis of rivers usage to the broader field of tourism. Information on Rivers Adventure Tourism and economics is currently scarce; little has been published. Therefore synoptic interviews with selected Canadian commercial river operators have been undertaken to identify the major trends. Discussions with U.S. operators and associations have also been pursued: experiences and trends encountered there provide useful insights into patterns that can be anticipated to likely also develop in Canada. Contacts have been made with key governmental officials. As well, any pertinent literature has been reviewed.

Interviews often required the provision of commercial operator financial statistics. Out of concern for confidentiality, interviewees were assured that specific reference would not be made to individual companies. Hence the sometimes vague source citation in the text. Source footnotes have been compiled for the CHR Board but it is asked that in the interests of company confidentiality, these be excluded in the event that this report is circulated publicly.

Finally, given the overview nature of this study, statistics cited in this study should be considered as 'order of magnitude' figures. They are derived from the estimates given by individuals interviewed, unless a specific literature reference is otherwise specified. More precise and detailed data will have to await the undertaking of in depth and comprehensive industry research.

## 1.3 WHAT IS ADVENTURE TOURISM"?

Adventure Tourism is the name given to a newly emerging group of natural environment activities which place an emphasis on the experiential. Adventure Tourism is currently the fastest growing segment of the U.S. travel industry; it accounted for between 5 and 10% of the \$275 billion spent by Americans on tourism in 1985.<sup>1</sup> In Canada the growth



potential that Adventure Tourism offers to the economy is only just beginning to be recognized. Speaking in generalities, Adventure Tourism caters to an affluent market: a twelve day rafting trip (e.g. on B.C.'s Tatsenshini River) presently sells for \$2,225 (not to mention the ancillary monies spent in pre/post trip airfares, accommodations, purchases, etc.).<sup>2</sup> Not only is Adventure Tourism a segment characterized by higher per tourist expenditures but as well it is associated with high tourist:staff employment ratios. What is more, the diminishing supply of quality wild environments world-wide ensures that the values associated with this type of travel will increase. The demand for such tourism seems strong, open-ended and associated with a national and international clientele.

## 2.0 THE CANADIAN RECREATIONAL RIVERS RESOURCE

### 2.1 WHAT IS A RECREATIONAL RIVER?

By geographical area, Canada is the second largest nation on Earth. It has a correspondingly large portion of the planet's fresh water, especially free-flowing fresh water. Indeed rivers could be considered to be one of our nation's premier attributes. However, such an endowment does not necessarily suggest that from an Adventure Travel standpoint, all these waterways are equally significant. In fact it's quite the reverse. Although we have a wealth of rivers, only a portion of them are of interest. Accordingly, for the purposes of this study a recreational river is considered to be a river supporting, or capable of supporting an economically viable level of commercial raft, canoe or kayak usage.

### 2.2 CATEGORIES OF RECREATIONAL RIVERS

Recreational rivers can be categorized by their environmental integrity and by the management policies that are applied to governing their usage. Such classification of recreational rivers is essential when considering the issue of economics. This is because rivers which offer different levels of environmental quality, or allow varying intensity of usage will have different market values and be associated with different expenditure levels, multiplier factors, etc.. (This topic is dealt with in Section 7.) A definition of the three categories used in this study is offered below:

1) Wilderness Rivers: - rivers in this category flow through a wilderness landscape, a landscape which retains its natural character, is affected mainly by the forces of nature with the imprint of modern man essentially unnoticeable. Wilderness rivers therefore flow free and unregulated and are remote from road and rail access. From a management perspective wilderness rivers ideally would be restricted to unmotorized craft. A key attribute of wilderness is solitude and for this reason wilderness rivers will (and likely should continue to) be associated with comparatively low levels of human usage. (This category is similar to the U.S. 'Wilderness River' designation under that nation's Wild and Scenic Rivers legislation.) Examples of Canadian rivers that would fall under this category include: Nahanni, Tatsenshini, Coppermine, Bloodvein and the Missinaibi.

2) Semi-wilderness Rivers - rivers in this category flow through landscapes which substantially appear to be in wild and natural condition but which have experienced some limited levels of human development. Occasional railroad or secondary road access, occasional and limited cottage, logging, farming etc. development would be encountered in this zone. Rivers in this zone might have historically had their flow regimes affected by small scale dams, etc. From a management perspective, a mix of non-motorized craft can be expected, with emphasis being on the non-motorized. Ideally usage levels should be limited to moderate traffic levels. (This category is similar to the U.S. 'Scenic River' designation.) Examples of rivers in this category include: Chilko/Chilcotin, Blackwater, and the Coulonge.

3) Front-country Rivers - rivers in this category flow through landscapes, which though rural in character, have been significantly and noticeably altered by human action. Despite such alteration, still it is important that management of these river corridors ensure that scenic quality be retained. Front-country rivers may have their flows regulated by modern and sizeable dams. Usage of front-country rivers will again be both motorized and non-motorized; however in the case of this category the emphasis of use would be oriented to the motorized. Traffic usage levels may still require that upper limits be set so as to retain the quality of recreational experience; however, in this category, high and intensive usage would be allowed for in the management policy. Front-country rivers would typically be located in the settled areas of the nation. They might be paralleled by highways and/or railways, and would often be proximate to urban centres. (This category is similar to the U.S. 'Recreational River' designation.) Examples of rivers in this category include: Kicking Horse, Madawaska, Ottawa and the Rouge.

### 2.3 MARKET SIGNIFICANCE CRITERIA FOR CANADIAN RECREATIONAL RIVERS

From a commercial recreation standpoint, the most valued rivers are those ones which provide a high quality experience. Numerous studies agree that Adventure Tourism focusses on the experiential; it is what the customer is primarily paying for: whether he goes on a photo-safari in Africa, a Himalayan trek in Nepal, or canoe expedition in Arctic Canada. The 'thrill' provided in rafting a whitewater section, the scenery (especially mountain scenery), the environmental quality (is it free-flowing; are the shorelines natural), and - in the case of a back-country expedition - the sense of wildness; these are the qualities which make for a higher value river.

Therefore, in addition to the environmental/management criteria cited above (in Section 2.2), from an Adventure Tourism perspective the significance of Canada's recreational rivers can also be classified as to their relative market significance. This suggested classification deals with rivers of: International, National, and Regional, Intensive-use Adventure Tourism significance. Examples of each are cited below:

1. International Significance: Key rivers in British Columbia (e.g. Stikine, Tatsenshini), the Yukon (e.g. Firth) and the Northwest Territories (e.g. Nahanni, Mountain) run through scenic mountain

wilderness that is world class in appeal (e.g. it is on a level of significance with areas such as the Arizona canyonlands, Denali National Park in Alaska, etc.). As well, certain exceptional and lengthy rivers traverse the Barrens of the Northwest Territory, once again offering an experience that can consistently draw travelers world-wide. (e.g. Coppermine, Mara). Internationally significant rivers cater to the Adventure Tourism canoe and raft expedition trade.

**2. National Significance:** Several long and exciting rivers in the Boreal forest zone offer prolonged wilderness experiences that epitomize Canada's expansive geography and fur trade heritage. The Bloodvein, the Missinaibi, the Clearwater, the rivers that flow to Hudson Bay, the Quetico area; all are examples of rivers that are Nationally significant. What differentiates them from the International calibre is the fact that they lack the especially dramatic scenery associated with the mountains or the tundra. While National significance rivers still have appeal to overseas and certainly American enthusiasts, they don't have the degree of draw that the International significance rivers do. However, National significance rivers offer high calibre wilderness tripping experiences and are less remote than the International significance rivers to the urban populations of Canada (and the northern U.S.), Accordingly, they promise to play a key role in attracting the involvement of Canadians in rivers Adventure Tourism. Rivers in the National significance category will cater to wilderness expedition use. They will be more oriented to canoe-tripping rather than rafting - although rafting may be a lesser activity on a few suitable rivers. ▢

**3) Regionally Significant Rivers:** Whereas ease of access is not an over-riding criterion in either the International or National calibre wilderness rivers, it is increasingly so for rivers of Regional significance. These waterways (e.g. Algonquin, Temiskaming, St. Croix, Madawaska) offer wilderness or semi-wilderness experiences within week-end access from major urban population centres, especially those of Central Canada and North-eastern U.S.A.. A few key rivers in British Columbia (e.g. Chilliwack) also fall into this category. Adventure Tourism use on these waterways is geared to shorter canoe trips and canoe and kayak white-water training. Some rafting may also be done. Whitewater schools and resorts are associated with these rivers.

**4) Intensive Use Rivers:** A number of key front-country rivers are important for intensive white-water rafting use. The most notable central Canada rivers are: the Ottawa, Rouge, Magnetawan, Lachine Rapids in the St. Lawrence. In British Columbia, waterways in this category include: the Fraser, Thompson, Harrison, Elaho and Kootenay. High traffic, predominantly 1-day raft trips are associated with these rivers. Intensive Use Rivers all feature exciting white-water and are easily accessible from major urban areas (less than 5 hours drive). From an expenditure standpoint, these are the most important recreational rivers in Canada.

### 3.0 RIVERS ADVENTURE TOURISM IN CANADA

While a wide variety of commercial recreational activities can be associated with rivers (e.g. river fishing camps, riverfront motels), for the purposes of this report the recreational rivers industry will be defined as commercial recreational activities involved with river transport. Specifically, rafting, canoeing, and kayaking are the activities which have been reviewed.

#### 3.1 RAFTING

Far and away the largest component of the industry relates to rafting, both in the number of people carried and the associated expenditure levels. Rafting is focussed on two regions of Canada: central Canada, principally in southern Ontario and Quebec; and the mountain portion of the west (principally British Columbia, with limited activity in Alberta, Yukon and the western Northwest Territories].

In central Canada there are 12 companies, the majority of which are organized together to form the Eastern Canada River Outfitters Association. Typically, these are large operations. The largest one, Wilderness Tours, employs 400 persons in the summer season (May to September, with emphasis on July and August) and 35 full-time. The average company size would likely be closer to 70 seasonal and 6 full-time employees. Together these eastern raft companies do about 140,000 user days of business. Given an average per day user expenditure of \$68 this translates into an annual direct revenue of \$9,520,000. Central Canada rafting companies focus their activities on a few key and reliable-flow rivers that are proximate to major urban centres. The most heavily used river is the Ottawa. Here 8 companies together carry 70,000 user days of traffic for an annual direct revenue value of \$4,760,000. Other key rivers include: the Rouge (in Quebec: 30,000 user days; \$2,000,000 annual direct revenue), the Magnetawan, the Batiscan and the Jacques Cartier.<sup>7</sup>

According to one Ottawa River operator, Central Canada rafting operations focus on the 18-25 age group clientele. The major market is from Toronto and southern Ontario, Montreal & southwest Quebec, increasingly, the neighbouring U.S.. In all, these rafting companies have a market of approximately 20 million people within a 5 hour radius. Consequently the trend in this section of the industry has been to build strong, comparatively large and competitive businesses. Many companies try and derive maximum revenue by operating rescrts/campgrounds in association with their raft operations. The intention is to encourage patrons to net only buy a raft ticket but to spend accomodation, food dollars on site. According to one operator, 99% of his participants arrive the night before the trip and the majority of these stay at his facilities. Clearly, the benefits of such an integration strategy seem strong. Given the mass marketing approach of Central Canadian operators, many of the raft companies link in with travel agents and bus tours for marketing. In fact one operator noted that he specifically structures his raft trip sizes in tour bus lots (4 rafts/bus and up to 3 bus loads (12 rafts) in one trip) so as to better tie in with these tours.<sup>8</sup>

The British Columbian River Rafting industry is markedly different from

its eastern counterpart. Currently there are about 60 members in the River Rafting Association of B.C., although the bulk of these are very small 'hobby' raft operations, which may employ only a couple of people and which are run not so much for profit as for lifestyle considerations. It is estimated that out of this sizeable membership perhaps 6 companies do 80% of the business. What's more, it's likely that the number of river rafting operators in B.C. will plummet in the near future with the recent drownings that plagued the industry this summer. Up until now, B.C. river rafting has been virtually unregulated (unlike the American rafting industry). With the safety problems, the B.C. Government is moving to bring in certification and safety standards. These will likely result in the weeding out of smaller, less adequately equipped and capitalized operators. 2

By central Canada standards, even the large B.C. operators are small. A larger operator in the west would employ about 20 people on a seasonal basis, and only a couple full-time. Such an operator would carry about 5,000 user days of traffic. Together the B.C. raft industry provides about 50,000 user days of service. At a typical daily trip expenditure of \$68, this translates into average annual direct revenues of \$3,400,000. (Revenues and usage are currently in steep decline due to this summer's deaths. Industry spokesmen believe that it will take at least two years for 1986 traffic levels to be again approached. )

British Columbian river rafters operate on smaller rivers than their central Canadian counterparts. But given the excellent range of rivers available, their operations are more dispersed in B.C.. B.C. river rafters have a much smaller market available to them (5 million people with 5 hours drive of southern rivers) than the operators in Ontario and Quebec. This is a key reason for the smaller size of companies.

The bulk of rafting business done is on a 1-day trip basis. A large portion of this business (up to 50%) is booked as groups (by associations; business organizations, companies, etc.). Beyond such front-country short trip traffic, one feature unique to the B.C. river rafting industry is the operation of multi-day wilderness and semi-wilderness packages. Trips up to 12 days in length are operated on rivers such as the Tatsenshini, Stikine, Chilko-Chilcotin, Firth (in the Yukon) and Nahanni (in the NWT) by B.C. based operations. These multi-day trips are of international significance. Not surprisingly, 70% of the customers on these packages are drawn from the U.S. and Europe with the remainder being Canadian. (By contrast the origin of the 1 day duration trips clientele is approximately 83% Canadian, 15% U.S., 2% European.) As well, the long wilderness trips attract an older participant: the average age is 40, compared with an average age of 25 for the day trip component of the industry. 10

During the past 15 years river rafting growth has boomed, both in B.C. and central Canada. The first rafting company was established in 1972 in central Canada (on the Ottawa) and provided 500 user days of business. In British Columbia rafting was initiated the same year (on the Chilcotin) when 450 user days were recorded. 11 By comparison, in 1986 the central Canadian and B.C. companies together provided an estimated industry total of 190,000 user days of traffic. Opinion within the industry has it that the boom period is likely over and a maturing of the rafting sector is

occurring. Growth potential in central Canada is considered to be limited. Here, the good whitewater rivers that have a reliable season-icing water flows are already being intensively used. (There is a relative scarcity of accessible whitewater rivers with good season-long flows in this part of Canada). One operator considers that over-use may already be occurring, particularly on the Ottawa. He suggests that just as in the U.S., here in Canada too, river quotas will have to be set if the recreation experience being marketed is not to decline. Such limits will likely serve to constrain that rafting growth potential which still remains in this part of Canada.

In British Columbia, a study on the B.C. River Rafting industry in 1979 forecast that use levels could rise to as high as 182,000 user days by 1990.<sup>12</sup> This represents a 350% increase from 1986 levels and currently seems unrealistically high. Nevertheless such a forecast at least suggests the degree of growth potential that may exist for rafting in the west. Such potential relates to the fact that B.C. possesses numerous rivers with consistent flows and good gradients. The limiting factor in this province however is the size of the available market. Compared to central Canada, the B.C. operators have only 1/4 the market to draw on. Nevertheless growth potential would seem to be especially available to the industry if the American market in the Seattle-Tacoma area were more intensively pursued. Such potential notwithstanding, currently B.C. rafting operators are not as concerned about long term growth as they are about maintaining their viability as the industry copes with the adverse repercussions of this summer's drownings.<sup>13</sup>

### 3.2 CANOEING

Information for canoeing is less available than for rafting. The industry is much smaller and no commercial organization of operators has been formed. Presently no statistics on the number of commercial canoeing operators is available for Canada. Three types of basic canoe services are offered: canoe rentals, canoe trip guiding and canoe skills training. Often an individual operator will provide a combination of services.

The number of canoe rental outlets is very difficult to estimate. So too is the size of operation: they range from small local outfitters stores to regional (and even nation-wide services) such as Blackfeather. Generally too, canoe outfitters are located in key canoeing country e.g. Quetice, Algonquin, Temagami.

Canoe guiding services are focussed on central Canada, particularly the Ottawa, Toronto, Montreal and hinterland areas. The number of companies offering this service does not appear to be large. The largest operation appears to be Blackfeather Wilderness Adventures. This company offers canoe tour packages all over Canada. Shorter trips and training clinics are focussed on south-central Ontario and southwest Quebec. Rivers of note are the: Magnetawan, Spanish, Madawaska, Coulonge, and Dumoine, as are the lake/river areas of Temagami, and Algonquin. More remote trips in northern Ontario and Quebec are offered on the Albany, Severn, Missinaibi, Mistassibi, and Moisie. The company offers expedition trips on Arctic rivers such as: the Nahanni, Mountain, Coppermine, Hood, Burnsides, and Mar a.

Another company in Canada offers the diversity of trips that Blackfeather does. Much of the reason for Blackfeather's success seems to be related to its integration with 4 canoeing retail stores (under the name of Trailhead). These stores provide a marketing access and ready clientele for Blackfeather trips. Blackfeather also integrates its short canoe skills training program (in southern Ontario) with its longer more adventurous trips. By this means, the company ensures a steady clientele of paddlers who are skilled enough to meet the demands of northern whitewater trips.<sup>14</sup>

Beyond the central Canada area, a few guide services are scattered across the country. Areas of note are in the St. Croix area in New Brunswick, the Quetico, Lake of the Woods, and Albany, Attawapiskat, Winisk, Severn areas of northwestern Ontario, the Bloodvein area on the Manitoba-Ontario border, the La Ronge area in northern Saskatchewan, the Clearwater area in Alberta, the Bowron Lakes area in British Columbia, the Yukon River in the Yukon, and the Nahanni in the Northwest Territories.

As far as direct revenue levels are concerned, the values associated with canoeing are small compared with the rafting sector. By way of example, Blackfeather, the largest canoe outfitter in Canada estimates it services 400 people per year for an estimated annual user day level of 4800. If an average daily figure of \$75 is used, this translates to direct revenues of \$360,000. The figures for other operators are not presently compiled.

The third type of canoe business relates to canoe instruction. While a lot of instruction is offered across the country through camps, community and non-profit groups, commercial instruction is only provided by a few operators: Blackfeather, Madawaska Kanu Camp, Temagami Wilderness Centre in Ontario and the Blue Lake Centre and Rocky Mountain Canine School in Alberta are notable examples. Generally, canoe instruction is provided in concert with other services: raft trips, kayak instruction, canoe trips, etc. To give a feel for scale, one of the above mentioned operators provides 150 program days of instruction over 16 courses for an average course length of 3.75 days. He estimates he trains 700 people on average per year for a total of 2625 user days. At an average day rate of \$75 this suggests a direct revenue of about \$197,000.<sup>15</sup>

The canoeing market seems to relate strongly to where advertising is done. One operator notes that his clientele is focussed on southern Ontario, particularly Toronto. (Presently it seems that southern Quebec is under-represented for him and he intends to attempt to increase customer involvement from this region.) He reports very little American participation. By contrast, another operator states that as much as 50% of his customers come from the U.S.. The implication would seem to be that Americans are indeed willing to come north to canoe, but that they have to be enticed to do so. Without information they are likely not to be very aware of the canoeing potential that exists north of the border.

As for the arctic rivers, marketing is broader based but still essentially targetted on Canada. This accounts for the fact that 60 - 80% of participants on trips on the Nahanni, for example, are Canadians. Again, better projection of advertising efforts beyond Canada would seem to be hold promise.<sup>16</sup>

Canoeing represents a much smaller business than rafting simply because it requires a certain participant skill and exercise level. By comparison, rafting customers essentially come along for a ride; consequently anyone of most any age or fitness level can enjoy it. Because of this difference, it can be expected that the river canoe industry will never really rival rafting, either in terms of number of user days or expenditure levels. Rather canoeing will remain a somewhat specialized recreation. Staff costs also would seem to be higher for canoe (and kayak) operators than for their rafting counterparts. In general it appears one guide or instructor is required for each 5 to 6 canoe (or kayak) customers. By comparison a raft guide is required for each 10 to 12 customers. Given that per day fees between the rafting and canoe (and kayak) sectors are similar (e.g. \$68 for 1 day raft trip in central Canada compared to \$75 for 1 day canoe instruction or short trips in the same geographical area), staffing costs could be almost double those of the rafting industry.

Given such realities of smaller market and higher operating costs, it seems that the canoe guiding and instruction sector will likely continue to be predominantly characterized by smaller companies. Owners of such businesses will likely continue to be motivated in large part out of a concern for lifestyle rather than for developing a large commercial enterprise. Unlike the rafting business - particularly in central Canada (but increasingly too in B.C. where government regulation will increasingly tend to discourage the very small 'lifestyle' operations) - canoe operations would seem to be of lesser interest to Adventure Tourism investors seeking to build up a sizeable operation so as to achieve a good return on their money. Nevertheless, strong relative growth in this sector can be anticipated given the quality and diversity of Canada's wilderness rivers. People will increasingly come from across the nation, the U.S. and around the world to experience canoe tripping. However it is doubtful that numbers will ever be sufficient to justify river protection on the basis of canoe traveller expenditures alone.

### 3.3 KAYAKING

Just as the canoe sector is radically smaller than river rafting, so too kayaking represents yet a lesser segment of the rivers industry. This is due to the even more demanding skill and fitness levels associated with this sport. Only a couple of centres provide commercial kayak instruction in Canada, namely: Madawaska Kanu Camp in Ontario, The Schaffers Whitewater Institute in Alberta, and Geoff Evans Kayak Centre in British Columbia. (Other centres offer kayaking as one component of a broader outdoor recreation training program - e.g. Strathcona Park Outdoor School in British Columbia - but do not specialize in kayaking per se.)

Participant numbers in kayaking are correspondingly smaller. One of the above-mentioned centres for example trains about 130 participants a year for an average annual user day level of 1080. At a daily expenditure level of \$75, the direct revenues associated with such a school are \$81,000 annually. Such a school provides only part-time employment for 3 people (about 10 person months). The school is run by a couple; their income is supplemented by other Adventure Travel activities (e.g. sea kayak tours to foreign locations). Growth opportunities are available in the kayaking segment, however a concern for lifestyle has resulted in the owners



choosing to limit the operation's size. With 50% of the clientele coming from the U.S. a market would seem to be available which could encourage other small-scale companies to get into the business. Difficulty of securing liability insurance (a problem for all Rivers Adventure Tourism areas, but especially so for kayaking) seems to be constraining such entry by new operators however. 17

Kayaking will likely remain a small commercial enterprise. Certainly with many good whitewater rivers in Canada, the limiting factor to growth of this sector will not be related to the availability of the resource so much as it will be to market and insurance considerations. .

#### 4.0 THE U.S. EXPERIENCE

In order to better understand the prospects for Canada's river industry, a quick profile of the U.S. situation would seem to be useful.

From an organizational standpoint, the rafting industry is divided into an eastern and western component. By far the largest portion is located in the 12 western states of: Washington, Oregon, California, Idaho, Utah, Nevada, Arizona, Montana, Wyoming, Colorado, New Mexico, and Alaska. Here in this region 450 guide outfitters (along with another 50 equipment suppliers and manufacturers) have grouped together to form the Western River Guides Association. According to Jerry Mallett, Executive Director for the Association, together these outfitters will do about 2,000,000 user days of service in 1987. The revenues associated with this business is valued at \$450 - 500,000,000. (All figures in this section cited in U.S. dollars.) Almost all of this money is derived from rafting. California and Colorado are the most important states: California companies provide 425,000 user days of service for a value of \$75 - 80 million direct revenues; Colorado accounts for 370,000 user days for a value of \$65 - 75 million annual 1 y. On average, throughout the 12 states, the river recreation industry is annual 1 y worth about \$45 - 50 million per state. In all about 250 different rivers are being run within the western region.

The values associated with individual rivers is impressive. The Arkansas River in Colorado for example, was associated with 135,000 user days of recreational activity and generated \$20 million of revenue in 1986 during a 4 month season. This expenditure level represented 30% of that valley's economy. An intensive use front-country river with a high carrying capacity, the estimate is that traffic will triple on this river over the next 5 years. Currently 66 operators work the river: small ones providing 2,000 user days of service, the larger one providing 40,000 user days.

According to the Western River Guides, the price of an average 1 day raft trip ticket in Colorado is \$35 - 40. (With indirect/induced expenditures factored in, this increases to \$150 - 165.) By comparison, in California where demand to use the resource is higher this day value is \$80 - 100. Increasing trip value is likely in the west U.S. since most rivers are at or reaching their level of recreational capacity. Many recreational rivers in the region are located on federal lands and are regulated either by the Forest Service, National Parks, or the Bureau of Land Management. These agencies have established a policy of setting upper use levels on rivers

so as to preserve environmental quality and recreational experience. Throughout the west - with the exception of Alaska (where slack: still remains) - rivers recreational usage is already at 75 - 80% of capacity. Once the limits are reached (which will likely be within the next 5 years), no new opportunities for increasing recreational levels will exist. Rather the high demand for existing opportunities will cause per trip values to increase.

Many western rivers have long hit capacity, some already have a 1 1/2 to 2 year waiting list. On the Middle Fork of the Salmon, in Idaho - America's first designated wilderness river - only 7 - 8 launches are permitted per day. The traffic on this river has been limited to 45,000 user days (28,000 are allocated to commercial operators and 17,000 are reserved for private parties.)<sup>19</sup> On the Selway only 1 launch per day is permitted; the waiting period for a private (non-commercial) boater to raft this river is now said to be 30 years! On the Grand Canyon traffic has been limited for years to around the 165,000 user day level. (At \$150/user day expenditure level (with indirect revenues included), the value of this recreational level is 24,750,000; still a considerable sum!) The official waiting time for a private party to get a chance to run this section of the Cell. oradct varies between 2 and 4 years. Some commercially guided parties are now also experiencing waiting periods too: generally about 1 year in length.<sup>19</sup>

In the east, the industry is much smaller. About 53 rafting outfitters (along with another 20 equipment suppliers and manufacturers) are organized together in the Eastern Professional River Outfitters Association (EPRO). They operate on 21 eastern seaboard rivers, only half of which have enough flow to allow all-summer use. The eastern rivers are generally calmer than their western counterparts and lack the degree of white water drama. EPRO outfitters together provide 400-600,000 user days of service - about the same size as the central Canada industry. This usage is entirely associated with day trips. The overall value EPRO industry in direct revenues was about \$20,000,000 in 1986.<sup>20</sup> As in the west, the rafting sector represents the most valuable aspect of the recreational river industry, although canoeing is also an important revenue earner.

As far as growth in the eastern U.S. is concerned, all rivers have reached capacity. No opportunity for expansion exists which means that per trip prices can be expected to rise.

#### 5.0 RELATING THE U.S. EXPERIENCE TO CANADA

It should be obvious that some of the situations cited above for the U.S. may not be directly applicable to Canada. Accordingly the figures should be used with care when making comparisons. Still, the U.S. situation will often suggest meaningful trends. For example, it's valuable to be aware that river usage has grown so rapidly in America, that the key usable rivers are reaching their recreational capacity. A spill-over of demand can be anticipated and it is reasonable to expect that much of that spill-over can be satisfied on Canadian rivers. As well, some U.S. experiences will be directly relevant to Canada, particularly for our more intensively-used southern rivers in Ontario, Quebec and British Columbia

(e.g. Ottawa, Rouge, Chilcotin). Nevertheless, it should be recalled that much of the U.S. river recreational activity takes place on warm climate, longer season streams e. g. in the American Southwest. Obviously total user day figures for such locations are going to be higher there than can be anticipated for even the most popular Canadian rivers.

There will be another major difference. While Canada is not as blessed by climate as the southern U. S., it has a greater availability of quality wilderness. Northern wilderness expedition trips will be much more a feature of the rivers industry in Canada than it will be in the U.S.

## 6.0 THE IMPACT OF THE RECREATIONAL RIVERS INDUSTRY EXPENDITURES ON LOCAL ECONOMIES

A key issue in addressing the economics associated with rivers recreation relates to determining the expenditures effects (direct, indirect, induced) that the industry has on local areas. Some examples around North America can be cited where a valuation of this kind of impact has been measured. Yet while such statistics are available, upon review the striking aspect is the variability that is reported from river to river and area to area.

### 6.1 U.S. Examples

An analysis undertaken by the U.S. Corps of Army Engineers of the Gauley River in West Virginia in 1985 showed that the average day ticket cost for rafting was \$75. When the indirect revenues were calculated in as well (accommodation, transportation, food, etc.) the trip value rose to \$220. The over-all expenditure value (direct & indirect) was calculated to be \$16 million.<sup>21</sup>

On the Nantahala River in North Carolina, a study undertaken by the North Carolina Department of Natural Resources found that river rafting on that river yielded \$1,900,000 in white water expenditures. This represented 8% of the Swain County economy (within which the Nantahala is located). Of the 8 rafting businesses analyzed that operated on the river, the study found 295 people to be employed; 44 permanently, 38 from April to November, the remainder from May to October. Together these employees represented 4.8% of the Swain County employment pool and drew an annual payroll of \$1,100,000. The 8 businesses were found to contribute 8% of the County's sales tax.<sup>22</sup>

In the western U.S., as noted the Arkansas River rafting industry in Colorado is estimated to be worth \$20,000,000 annually in expenditures (direct/indirect/induced) representing 30% of the economic base for the valley area.<sup>23</sup>

### 6.2 A Canadian Example: the South Nahanni

To cite a Canadian example, in 1984 on the Nahanni River, Parks Canada reports that Nahanni National Park generated over \$900,000 in direct tourism expenditures related to recreational pursuits in the park. The bulk of this was related - in some aspect or another - to the river

resource of the area. Some 31% or \$280,000 are direct expenditures to Northwest Territories services and businesses. In addition to direct expenditures by visitors to Nahanni National Park, there are secondary and induced effects on the economy of the Northwest Territories. It is estimated that these benefits amount to an additional \$85,000 annually. The present estimated employment effects due to Nahanni National Park visitation are between 25 and 43 person-years annually. This is broken down to 11 person-years in the tourism sector and 14 to 32 person years in other sectors.<sup>24</sup>

Discussions with Nahanni commercial operators provides further detail. One outfitter states that about 42% of the money spent on a river trip by his clients remains in the northern economy. He breaks down the revenues received from a customer's trip payment in the following fashion:

- restaurant; pre/post accomodation	5%	- stays in ' local ' * economy
- air charter flight	30%	- " " " "
- groceries - purchased in north	5%	- " " " "
"                                " south	5%	
- wages	20%	- usually exported after season (assume 10% of wages 2% overa ll remains locally)
- equipment	10%	
- marketing	12%	
- miscellaneous	3-8%	
- profit	5-10%	25

(\* - in this case, ' local ' means northern economy)

Discussions with another Nahanni River operator indicate that between 35 and 38% of the customer trip cost expenditure remains in the north. This compares with the above-mentioned Parks Canada estimate of 31% local expenditures retention.<sup>25</sup>

All Canadian operators questioned in the course of this study indicated that it was their policy to buy locally whenever feasible. Availability of quality goods and services determined the degree to which this was possible. Generally in northern operations the items indicated in the foregoing chart : air charter, pre/post trip accommodation and restaurant meals, some groceries, ground transport and vehicle repair and maintenance were related to expenditures that were made locally. Equipment purchase and marketing represented out of region expenditures. In almost all cases with the exception of some front-country rafting operation positions - staff were not hired locally due to a lack there-abouts of individuals with suitable white water skills.

Many front-country operators even choose to locate their business headquarters in the region, maintaining only a marketing presence in key near-by urban centres. The payroll associated with some of these eastern firms - where the employment pool may range from 70 - 400 seasonal employees - is substantial but as yet unquantified.

### 6.3 Multiplier Values

In order to determine the scale of indirect and induced expenditures associated with direct recreation revenues case study expenditure patterns are analyzed and a multiplier identified. Review of literature and discussion with various individuals however has suggested a range of possible multiplier values for river recreation. Economist Richard Walsh a leading researcher in the field states that the multiplier range for a dollar spent in recreation in individual U.S. counties varies from 1.4 - 2.4. He notes that multipliers on a statewide (vs county) basis are somewhat high with an average value being 2.6. (By comparison the B.C. Government cites a 1.6 multiplier for recreational tourism in that province).

A study undertaken of the whitewater industry in California in 1984<sup>27</sup> would seem to confirm this value. A multiplier of \$2.64 is cited for that state. Nevertheless great variability exists on this item. In West Virginia, the Gauley River exceeds this level with a 2.9 multiplier. By contrast, the figure calculated by Parks Canada for the Nahanni is a low value of 1.3. The reason for this difference relates to the nature of the local economy: there simply is less opportunity for a recreating-generated dollar to be re-spent on goods and services in the Northwest Territories than in the much more developed local economies of California, or West Virginia.

According to the U.S. Western River Guides the recreational rivers multiplier maybe still higher for the rafting industry in that region. The Association cites a total direct/indirect /induced expenditure value of US\$150 - 165 for each US\$35 - 40 river trip ticket sold.<sup>28</sup> This would seem to suggest an amazingly high multiplier of about 4. 1. What the Guides Association seem to be finding is that in their experience people come for a one day trip on the river intent on making a mini-holiday out of the excursion. So that, while their actual river ride is not expensive (due to either market under-valuing or heavy competition), they spend a considerable amount on pre and post trip accomodation, food, entertainment and driving. In fact, river guides in the western U.S. are finding out just how lucrative this multiplier can be, and just how they might benefit. Many operators for example, are now apparently branching into customer clothing and equipment sales as a means of enhancing revenues.

## 7.0 A RIVERS CLASSIFICATION SYSTEM IS REQUIRED BEFORE APPLYING THE ECONOMICS ARGUMENT

### 7.1 Wilderness / Front Country Disparities:

#### 7.1.1 - Direct Expenditures:

As noted at the outset, the mandate of the CHRS is to ensure the national recognition and long-term management of important Canadian Rivers. Unfortunately the CHRS does not specify either the level of environmental integrity or management policy to be associated with rivers incorporated in the system. So it is not clear - from the publicly distributed informational materials at least - whether the CHRS will be restricted to Wilderness rivers, or include to Intensive Use Front-country rivers as

well. Currently all designated CHRS rivers are wilderness in quality. Some of the nominated rivers are not (the Kicking Horse River, the St. Croix and the French); they are close to highways and/or railways. Some of the rivers being considered for nomination in southern Ontario (even the Humber has been mentioned), would likely fall into a front-country category. 'o

This issue of river integrity and classification is a crucial consideration when the question of economics is being addressed. For while wilderness rivers are generally characterized by a high quality environment, their remoteness (and often management policy e.g. non-motorized use) results in lower usage levels. And although wilderness user per capita expenditures are higher, 'front country' rivers generate higher expenditure levels due to the much greater numbers of people who use them.

By way of example, the Nahanni River ranks as perhaps Canada's finest wilderness river; indeed, given its spectacular canyon scenery, it has received recognition as a World Heritage Site. According to the outfitters questioned, last year this river experienced 4900 user days at a typical user per capita direct expenditure level of \$135/day. Simple arithmetic suggests a river industry annual direct expenditure level in the neighborhood of \$661,500.<sup>31</sup>

On the Ottawa River, 8 companies participate in an intensive industry to carry 70,000 user days of traffic each year. At an estimated average per capita direct expenditure of \$68/day, the annual direct expenditure value of the Ottawa is \$4,760,000, 7 times that of the Nahanni.

To use an American example, the Selway River in Idaho, is considered to offer one of that nation's finest wilderness river experiences. To preserve this quality, Government managers limit traffic to 1 launching per day. The demand for this river experience is such that reservations are booked several years in advance. The expenditure level on the Selway is only \$80,000.<sup>32</sup> By comparison, as previously noted, the Arkansas River in Colorado is a front country river that carries an annual rafting traffic load of 135,000 user days for a direct revenue value of \$20,000,000. Clearly, in expenditure terms alone, this front country river far exceeds the values associated with the wilderness Selway.

#### 7.1.2) Indirect / Induced Expenditures

The foregoing discussion relates only to disparities in Wilderness/Front - country rivers direct expenditure levels (e.g. the money paid by river recreation participants to actually run a river). It does not refer to the indirect and induced (or multiplier) values to be experienced in the local economy once those direct expenditures cycle through. If a total local economic impact is considered however, it's apparent that the expenditure differential between Wilderness and Front-country rivers is only going to be further emphasized.

By definition, Wilderness rivers flow through wilderness. Consequently, there is little local economy for Adventure Tourism direct dollar expenditures focussed here to be recycled through. Of course it's true

that money will be spent in proximate small communities through the transportation and expediting of a river expedition party out to, and back from the put-in and take-out points. And certainly, given the generally small size of such communities, the relative 'in-town' worth of such expenditures may be locally significant. However even allowing for this, it's apparent that small isolated communities simply do not have the services that equivalent Front-country local economies do. The comparison made above for the Nahanni and the Gauley Rivers makes it clear: a dollar spent in a Front-country community will cycle through more hands - creating more dollar and employment spin-off benefits - than it does in its back-country counterpart. The result is a higher Front-country multiplier as opposed to the back-country/wilderness situation.

And too, with many more user days being associated with Front-country recreational rivers than for their Wilderness counterparts, the scale of rivers-related expenditure impacts on local economies will be much larger in the Front-country.

## 7.2 A Rivers Classification System Enables Appropriate Economic Evaluation, Designation and Management

In the United States, such expenditure and usage levels disparities between Back-country and Front-country rivers (for example) hasn't tempted led to an abandonment of Wilderness rivers for intensive use. Rather it's quite the reverse. The U.S. Wild and Scenic Rivers Act provides a clearly defined classification system under which rivers in that country may be designated either as Wild, Scenic, or Recreational Areas.. The Act defines the characteristics of each as follows:

- 1) Wild River Areas: - those rivers or section of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and water unpolluted.
- 2) Scenic River Areas: - those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- 3) Recreational River Areas: - those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines and that may have under gone some impoundment or diversion in the past.

These categories are similar to the Wilderness, Semi-wilderness and Front-country definitions proposed earlier in this study. Such a classification system ensures that the attributes of each type of river are distinguished from each other. It ensures that rivers are appropriately designated. This is important for a couple of reasons:

- 1) Management: - appropriate classification ensures that a river will be managed in a fashion consistent with the intent of the decision-makers who designated it into the system. As well, such classification will help clarify in the public's mind the uses which are acceptable for a specific river.

2) Economic Evaluation: - appropriate classification ensures that a river will be correctly valued as to its societal economic significance. For example, such classification would help to ensure that intensive use Front-country direct expenditure values were not unknowingly used as justification to develop Wilderness rivers, thereby destroying key but 'financially intangible' heritage values. (Note: The economic valuation of the heritage (or preservation) aspect is discussed below in section 8.2)

Indeed, it is advocated that if the CHRS chooses to economically value rivers proposed for designation it do so only after a rivers classification system is in place. Otherwise wilderness and intensive use river values could become confused in the minds of decision-makers and the public. This could lead to inappropriate designation and management prescriptions for high calibre Canadian rivers. The result could be the loss of key heritage and recreational values.

## 8.0 EXPENDITURE VALUATION IS NOT ECONOMIC VALUATION

### 8.1 VALUING A RIVER'S RECREATIONAL RESOURCE

Dollar expenditure figures tend to distort reality in the mind of the perceiver. This is because expenditures do not represent the real worth of a river's recreational resource, but rather only that portion of it which can be priced in the marketplace. A leading researcher in the rivers economics field: John B. Loomis notes in "Economic Information in River Recreation Management" that :

"The economic benefits of rivers and river recreation go beyond market prices to reflect the benefits to rafters, to anglers, and to citizens who enjoy knowing the rivers exist. [Therefore,] the first fallacy the recreation planners and managers often face in identifying and evaluating rivers related values is the difference between economic values and financial values. Financial [or expenditure] values reflect only revenues or sales received by firms (e.g. boating guides) or public agencies (e.g. recreation fees collected). The revenues to rafting companies [for example] reflect only a portion of the economic value society receives from rafting opportunities. Economic values are much more inclusive. In fact financial values [i.e. expenditures only] are a subset of economic values. . .

The financial value of river recreation reflects a portion of the social benefits (defined in willingness to pay) of recreational and commercial uses of rivers. Even in the cases of commercial guided rafting trips, the economic benefits received by the consumer exceed the net revenue or income (i.e. financial values) received by the firm. This 'Consumer Surplus' must be taken into account in the Benefit-Cost Analysis to provide accurate recommendations about the change of social well-being associated with a management action."



In other words, to simply value a river by the dollars paid by recreationists in the marketplace - i.e. expenditures - is going to result in the undervaluing of a river resource. This is because the recreationist enjoys a benefit of experiencing the river that exceeds just the cost of using it (e.g. trip ticket, food accomodation, etc.). If this weren't the case, if trip costs equal led enjoyment benefits, recreators would be ambivalent about running rivers at all. Just as businesses seek profits after their production costs have been paid, so too consumers seek benefits in excess of their consumption costs. To put it simply, Consumer Surplus is the demand side equivalent to producer surplus, or what is called Profits on the supply side of the economic equation. Consumer Surplus represents the after-costs enjoyment benefits experienced by recreators.

As Loomis says the recreational resource of a river is going to equal the sum of expenditures (the costs) and the Consumer Surplus. Valuing this resource by expenditures alone is an underestimate of the actual worth of the river to the recreator. The implication of this should be clear. If a river proposed for inclusion in the CHRS system is to be economically evaluated for its recreational benefits, such valuation should calculate the entire worth of this resource, utilizing both expenditure and Consumer Surplus figures. (Note: Methods (endorsed by the U.S. Water Resources Council) exist to calculate Consumer Surplus for activities such as rivers retreation. (i.e. Travel Cost Method: Bid Price Method))

## 8.2 VALUING A RIVER'S PRESERVATIONAL RESOURCE

Rivers have economic value beyond just that which is experienced by those persons actually involved in recreating upon them. Recreational rivers have value to society at large. Together referred to as Preservation Values, economists have identified 3 key societal values for recreational rivers: Option value, Existence value, Bequest value. They are defined accordingly:

"Option value refers to an individual's willingness to pay to maintain the current river dependent recreation activities in the face of potential irreversible losses. Option value can be thought of the insurance premium people would pay to ensure future availability of free flowing rivers for their recreational use. (In other words, individuals in society are willing to pay a certain Option value to ensure that the river's recreational experience would remain available to them in the event that they might choose to recreate on the river at some time in the future. 1"

"Existence value is the economic benefits received [by members of society] from simply knowing that free flowing rivers exist.

"Bequest value is the willingness [members of society] will pay for economic benefits of providing free flowing rivers to future generations. " 24

Walsh, Loomis, and Sanders in Wild and Scenic River Economics: Recreation Use and Preservation Values go on to detail the methods used to economically value a river not just for Recreation Value (i.e. expenditure and Consumer Surplus] of the individuals who actually run the river, but also for the Preservation Value (i.e. Option, Existence, and Bequest values) of that river for a region's society as a whole. In this fashion they believe that they are valuing the true worth of the river.

The dollar values from this type of evaluation are impressive. Walsh et al found for example that in 1985, residents households in Colorado were each willing to pay \$95 (all figures are U.S. dollars) annually or \$112.6 million to protect 11 wilderness or scenic rivers. Of this \$21.3 million was associated with Recreational Value (i.e. willingness to pay by recreators); Option Value: \$17.8 million; Existence Value: \$32 million; and Bequest Value: \$41.5 million.

What is clear from these figures is that Recreational Value - which includes Consumer Surplus and therefore exceeds the direct revenue figures usually reported as recreationists expenditures - accounts for only a fraction (19%) of the value Coloradans ascribe to their wild rivers. This is extremely important to note when considering using economics to enhance rivers preservation. To put it simply

If recreationist expenditure figures are merely used to value rivers, the actual economic worth of those rivers to society may be under-valued by over 80%. This will be especially the case for quality wilderness rivers which have high Option, Existence and Bequest values and accordingly merit preservation.

Therefore, the need to introduce true Economic Valuation (i.e. Recreational and Preservation Values) of recreational rivers into Canadian resource management is paramount if bodies such as CHRS are going to attempt to use economics to accelerate designation of quality resources.

### 8.3 EXPENDITURE VS. ECONOMIC VALUATION: SOME CASE EXAMPLES

In the past, Economic Valuations of natural heritage resources have often focussed solely on expenditures figures. What Walsh's team indicates is that such recreation expenditures are only part of the overall value. Recreation and preservation values form a continuum which together represent the worth of a river resource. Yet it would be surprising if a recommendation suggesting that true Economic Valuation supplant the more simplistic Expenditures Valuation of rivers would be immediately adopted. For concepts like Consumer Surplus, and Option, Existence and Bequest Value may seem obscure to many people. And too Expenditures valuation dines have some limited merits as Loomis explains:

"Expenditure information is useful for certain kinds of policy decisions requiring knowledge of community dependency as opposed to the benefit and economic efficiency."<sup>35</sup>

Putting it another way he says:

"Recreationists expenditures are useful for quantifying the income and employment gains to local towns, but are not themselves direct measures of net economic value to the nation. "

However, for an agency such as CHRS, whose mandate relates in part to the preservation of rivers on the basis of national significance, the Expenditure approach could at times be mis-applied so as to seriously underestimate the societal values associated with particular Wilderness rivers. It could suggest for example that certain rivers - regardless of their heritage significance - should be developed so as to increase recreationalist direct revenues - and thus the expenditures flowing to individual communities - at the expense of irreplaceable preservationist values. In effect then, the Expenditure argument could in fact confuse rather than clarify the decision-making process for CHRS.

A good case in point on this is available on the Nahanni. As noted, this river is recognized to be a national and indeed world treasure. A major reason for this perceived value comes from the river being in a spectacular wilderness state. The 350 expedition-style visitors who currently travel the back country area each year are carried in canoe or paddle rafts - vessels whose passage does not impair the wilderness quality of the river.

Recently, some locals have suggested that jet boat tours of the river should be permitted. They believed that this would enhance the local economy, and likely it would. A jet boat business can carry more passengers per season than would an equivalently sized raft or canoe operation. It's feasible to expect therefore that comparatively greater direct revenues could be earned with this type of transport. Using the Expenditure approach it's possible that the case could be made to allow jet boating on the river. However, such a decision would not be a valid Economic decision as it would fail to value the worth that the wilderness Nahanni represents to Canada and globally, now and in the future.

To put it more bluntly, if Expenditure arguments alone were used as the criteria, it's possible that we would not even have a Nahanni National Park. Indeed the Canadian National Parks system would only be a skeleton of its present scale. For it is precisely those preservation-oriented Economic Values (Option Value, Existence Value and Bequest Value) which are overlooked by Expenditures assessment, that relate to the reason why our people choose to preserve areas of the national landscape.

Another example, this time from the United States: the Grand Canyon. Surely this section of the Colorado must be considered to be one of the most important river heritage areas on the planet. To retain the primitive quality, the National Parks Service limits recreational use. The waiting list to get on the Grand for non-commercial boaters is up to 4 years. (1 year for commercial passengers). If expenditures were the sole criteria, more people should be permitted on the river. And likely a lot more users would be willing to endure heavier traffic levels to experience the Canyon's white water. But what would be the impacts on the other non-recreational, yet preservational values of the Grand Canyon"? And how

could they be quantified? This is question set often posed by and to National Parks managers around the world: How can the twin and often contradictory National Parks mandates of recreation and preservation be balanced? It would seem that true Economic Valuation, analysis that includes not just expenditures, but Consumer Surplus, Option, Existence and Bequest Values may be the means.

#### 9.0 ECONOMICS AND PRESERVATION: THE RECORD TO DATE

The traditional approach to achieve preservation of a natural area has been to extoll its biologic and heritage virtues in an unquantified fashion. In recent years pressures associated with competing resource demands have retarded preservation programs. The need to attempt to quantify preservation values has developed with the initial emphasis being focussed on the Adventure Tourism expenditures to be anticipated if an area was protected. The case of South Moresby is perhaps the best known example of this: current Adventure Tourism revenues at \$1 , 365, 000/year ; forecast to rise to in excess of \$10,000,000 over the next decade).<sup>36</sup> Similarly, Height of the Rockies Wilderness - a wilderness area of 73,000 Ha located on the southern boundary of Banff National Park - was established this summer (1987) in large part out of recognition of backcountry tourism potentials. Analysis undertaken on that area forecast annual Adventure Travel expenditures of \$1,250,000 - a value 5 times greater than would be received were the area to be loqqed.<sup>37</sup>

As far as rivers preservation in Canada goes, economic arguments have yet to be used in any substantial way. At present they cannot be easily formulated. For according to parks planners in various provinces, little statistical data on use levels and expenditure levels have yet been compiled. (Indeed this report likely represents the first attempt in Canada to seriously consider the economic implications of river recreational use, and the data contained herein is only of a preliminary over view nature).

In the U. S., the findings of the Walsh study on the Recreation and Preservation Values of Coloradoan rivers has contributed to the preservation of the first river in that state - the Cache La Poudre River - under the Wild and Scenic Rivers Act. Following on this lead, environmental organizations and appropriate government agencies are applying Economic Valuations to lobby for the protection of 11 other rivers, most notably the Arkansas, the Gunnison and the Dolores. In California Economic Valuation of rivers is being used to retain full and free-flowing rivers in the face of intense pressure to develop them. Most notably, economics arguments have been used in the effort to maintain the American and Kings River in their natural state.

#### 10.0 ECONOMIC VALUATION AS IT APPLIES TO THE CANADIAN HERITAGE RIVERS SYSTEM

established to designate a system of heritage rivers of national significance for the twin purposes of recreational use and preservation, the CHRS has to develop the means of balancing these two mandates.

Clearly, Economics Valuation as developed by Walsh et al does just that :

$$\text{Economic Value} = \text{Recreation Value (Expenditures + Consumer Surplus)} \\ + \text{Preservation Value (Existence + Option + Bequest)}$$

And while such Economic Valuation studies done to date by Walsh's team in Colorado have focussed on valuing the recreation/ preservation status quo for say, a rivers resource, it seems possible that the technique could be extended to include a forecast element. Were this to be so, then not only would it be possible to determine the relative value assigned to recreation and preservation by society for a river in its current state, but too it might be possible as to predict how the mix of these values might change if, for example, the river was managed to provide for more or less recreational use and/or development.

## 11.0 RECOMMENDATIONS

While expenditure and usage data provide some insight into the relative scale of the recreational resource on individual rivers, Consumer Surplus, and the Preservation Values of: Option, Existence and Bequest must also be determined. Only by doing such comprehensive Economic Valuation can the true worth to society of a river - or rivers system - be known. And as mentioned, Economic Valuation would seem to be the ideal technique for a body such as the CHRS to use to gain insight as to how it can objectively balance off its recreation and preservation mandates. Therefore it is recommended:

1) A STUDY SHOULD BE UNDERTAKEN TO COMPREHENSIVELY VALUE THE RECREATION VALUE AND THE PRESERVATION VALUE OF DESIGNATED CANADIAN HERITAGE RIVERS. THIS STUDY SHOULD BE MODELLED AFTER THE ONE UNDERTAKEN BY WALSH ET AL. IN COLORADO.

Review of CHRS literature and discussions with Various officials and out fitters suggest that the concept of just what the CHRS is supposed to represent seems somewhat vague: are only Wilderness and perhaps Semi-wilderness rivers to be designated, or Front-country and Intensive Use ones as well? Assuming that a range will be represented, then a means is required for differentiating between rivers of varying levels of environmental integrity and associated management policies (either along the lines of the one suggested in this report, or perhaps using the U.S. criteria or some other suitable alternative.) Such classification would clarify the intent of the CHRS in the public's mind, assist in efforts to market the tourism aspects of Canadian Heritage Rivers, ensure appropriate management on individual rivers and assist in the proper economic valuation of individual rivers nominated for designation. Therefore it is recommended that:

2) THE CHRS IN CONCERT WITH MEMBER GOVERNMENT AGENCIES SHOULD ENDEAVOR TO DEVELOP A STANDARDIZED RIVERS CLASSIFICATION SYSTEM FOR CHRS RIVERS.

Very little hard data is yet available on recreational rivers usage and expenditures levels. Without this, meaningful development of economic arguments is impossible. Information required could include:

- # of persons using a particular river per day
- trip length/user
- trip cost - direct trip 'ticket' cost
  - ancillary purchases (e.g. en route expenditures)

Therefore it is recommended that:

3) A STANDARDIZED METHODOLOGY FOR RECORDING RECREATIONAL RIVERS USAGE AND EXPENDITURES SHOULD BE DEVELOPED BY THE CHRS TO ENSURE THAT COMPARABLE DATA IS GATHERED BY MEMBER GOVERNMENTS ACROSS CANADA. EXPERIENCES OF U.S. AGENCIES AND RIVER ASSOCIATIONS SHOULD BE CONSIDERED WHEN DEVELOPING THIS METHODOLOGY SO AS TO TAKE ADVANTAGE OF LESSONS ALREADY LEARNED THERE.

4) ONCE A STANDARDIZED DATA GATHERING APPROACH HAS BEEN AGREED TO, MEMBER GOVERNMENTS SHOULD PROCEED TO COMPILE USE/EXPENDITURE FIGURES ON DESIGNATED CHRS RIVERS.

Experience in the U.S. has shown that unless usage capacities are established for heavily used and/or environmentally sensitive rivers, recreational overuse can occur. It is suggested by some in the Canadian industry that overuse levels may be being approached or exceeded on some of our rivers. Therefore it is recommended that:

5) CHRS SHOULD INVESTIGATE THE MEANS OF ESTABLISHING OPTIMUM USE LEVELS FOR CHRS RIVERS SO AS TO AVOID POSSIBLE IMPACTS THAT COULD BE EXPERIENCED IN THE CASE OF OVERUSE (i.e. use in excess of experiential and/or ecological carrying capacity). IN SO DOING, EXPERIENCES OF U.S. RIVER MANAGEMENT AGENCIES SHOULD BE CONSIDERED.

The original hope for this study was that a comparative assessment of the impact upon local economies of undesignated versus designated rivers could be undertaken. As indicated in the introduction, the lack of data on this subject presently precludes such analysis. However, were the CHR Board to have an ongoing interest in this subject, a case study of 2 comparable rivers - one designated, the other not - could be undertaken to provide the needed information. Accordingly, it is recommended that:

6) A COMPARATIVE CASE STUDY SHOULD BE UNDERTAKEN TO PROVIDE DATA ON THE RELATIVE IMPACT OF RIVERS DESIGNATION ON LOCAL ECONOMIES.

If a meaningful economic argument is to be made for rivers designation in general, a detailed and comprehensive inventory of the Canadian Rivers Adventure Tourism industry needs to be compiled. Such an inventory should not just list operators but should also provide a detailed profile of the industry and its segments. This study should incorporate data on:

- numbers of customers served per season (in user days)
- trip/program packages offered (type; duration; maximum/average # of participants)

- customer expenditure levels
- season length
- employment levels
- facilities
- distribution of outfitter expenditures: local/non-local
- client profile (e.g. age; origin; income level; education level;etc. )
- marketing strategies
- etc.

Such an inventory would be undertaken using mailouts. Best results would be gained if it could be done with CHRS sponsorship and with participation from appropriate industry associations (e.g. Eastern Canada River Outfitters Association) as this would assist in achieving good survey returns from individual industry operators. Therefore it is recommended that :

7) A RIVERS ADVENTURE TOURISM INVENTORY AND INDUSTRY PROFILE SHOULD BE UNDERTAKEN TO DETAIL THE NATURE AND VALUE OF COMMERCIAL RECREATION ON CHRS RIVERS.

## 12.0 CONCLUSION

Many of Canada's recreational rivers are of international as well as national and regional significance. They are important both in terms of their preservational values as well as from the recreational standpoint. The time available to assure priority management and to protect the quality of many of our high calibre rivers and waterways is limited, especially in the more developed parts of the country. Failure to move quickly enough in designating them onto the CHRS could result in unnecessary and unfortunate impacts. Examples in the U.S. (where pressures are even more intense than here) are showing that economic arguments can be used to hasten rivers protection, but only if quality data is available and if proper valuation techniques are used.

The Canadian Heritage Rivers System maybe in its infancy but already it is growing rapidly. To accelerate the pace of this designation process, economics should be used as a means of further encouraging decision-makers and the public to safeguard our nation's rivers legacy.

Ric Careless  
Ethos Consulting  
October, 1987

## NOTES

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4. Outdoor Recreation Council of B. C. , Adventure Tourism Survey and Market Analysis.
5. concepts for the rivers market classification system come from discussion with several operators in the field but most notably Wally Schaber - Blackfeather Wilderness Adventures.
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8. " " , Joe Kowalsky and Herman Kerckhoff.
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14. " " , Wally Schaber.
15. " " , Herman Kerckhoff.
16. " " , Neil Hartling - Nahanni River Adventures, Wally Schaber.
17. " " , Geoff Evans - Geoff Evans Kayak Centre.
18. " " , Ted Anderson - River Manager, U.S. Forest Service.
19. " " , Jerry Mallett - Western River Guides.
20. " " , Dave Brown - Eastern Professional River Outfitters.
21. " " " " " " " " " " " "
22. " " " " " " " " " " " "
23. " " , Jerry Mallett.
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## 2. PERSONAL COMMUNICATION

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Joe Kowalsky. President, Wilderness Tours. Ottawa, Ontario.

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Rick Phillips. Parks Planner. Ontario Ministry of Natural Resources.  
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Ann Pollack. Consultant, Tourism Research Group. Vancouver, B.C..

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# ECONOMIC IMPACT OF CANADIAN HERITAGE RIVER DESIGNATION

## TERMS OF REFERENCE

### 1. Background on Wilderness/Adventure Tourism

Wilderness/Adventure Tourism is the name given to a newly emerging group of natural environment activities which place an emphasis on the experiential.

Wilderness/Adventure Tourism is the fastest growing segment of the U.S. travel industry. It accounted for between 5 and 10% of the \$275 billion spent by Americans on tourism in 1985. In Canada, the growth potential that Wilderness/Adventure Tourism offers to the economy is only just beginning to be recognized.

Wilderness/Adventure Tourism caters to an affluent market: a twelve day river rafting trip (e.g. on British Columbia's Tatsenshini River) presently sells for \$2,225 (not to mention the ancillary monies spent in pre/post trip airfares, accommodation? purchases? etc.) . Not only is Wilderness/Adventure Tourism a segment characterized by higher per tourist expenditures but as well it is associated with higher tourist: staff employment ratios. What is more, the diminishing supply of wilderness environments world-wide ensures that the values associated with this type of travel will increase. The demand for such tourism seems strong, open-ended and associated with a national and international clientele.

## 2. Wilderness/Adventure Tourism and Preservation

As far as river adventure travel is concerned, growth in this area is especially promising: for example, where **15 years ago only one river-raft** company operated in B.C., now there are 50. Wilderness rafting rivers in the U.S. can each generate \$60 million in income per year, and given the quality of Canadian rivers, comparable revenues may well be possible here.

**Obviously** the economics associated with Wilderness/Adventure Tourism can be utilized as a powerful argument to justify the protection of wilderness areas. This has been accomplished recently in British Columbia. Here, information gathered on wilderness tourism values proved instrumental in successfully achieving protection for the **Valhallas and Height** of the Rockies Wilderness Parks. At South Moresby, the economics associated with Wilderness/Adventure Tourism proved to be the critical argument which finally convinced the Provincial Government that this area should be considered as a National Park.

For many years the desire to protect outstanding Canadian heritage **rivers** and waterways has been a strong feature of this nation's environmental concern. Progress has been made but many superlative areas remain unprotected and endangered. Indeed, in many cases development pressures are mounting so rapidly that unless protective status can be achieved soon, high **calibre** water corridors **may** be irreversibly impacted. This being so, it would seem that information on Wilderness/Adventure Tourism as it applies to river/

**waterways use and potential should be gathered and then used to accelerate the preservation process. The study herein described would initiate this.**

### 3. Statement of Work

An assessment will be undertaken of **Wilderness/Adventure** Tourism as it pertains to river/waterway usage. Given that the Wilderness/Tourism sector is so young, little published information yet is available on this area. Consequently, this study will compile data - on a preliminary overview basis - from **operators in the** business. Wilderness/Adventure Tourism experiences in both Canada **and** the U.S. will be compiled. This information will be presented in a concise report which will be available to the Canadian Heritage Rivers Board for consideration at their January 1988 meeting. The material gathered by this study will:

- identify the scale, nature and growth potential associated with the Wilderness/Adventure Tourism river industry in Canada.
- incorporate statistics that demonstrate the scale of economic impact associated with Wilderness/Adventure Tourism river use.
- cite case studies where the economic impact of river use has been measured, with special reference to the economic impact of designating rivers to a conservation system.
- generally assess the implications of designating rivers to the Canadian Heritage Rivers System with particular reference to the economic impact of increased use on the local economics.

- cite situations (and pertinent arguments) where Wilderness/Adventure Tourism considerations have been key in accomplishing rivers/waterways protection.
- identify types of data which should be collected in future to assess the economic Wilderness/Adventure Tourism on impact of existing and potential Canadian heritage rivers.

#### **4. Study Schedule**

A draft of the final paper will be presented to Environment Canada, Parks by September 11, 1987.

Following review by the CHRS Secretariat and other staff of Environment Canada, Parks, by September 30, the contractor will provide a final version of the paper by October **31, 1987.**

Environment Canada, Parks will be responsible for the reproduction of all copies of drafts and the final version.