

Economic Benefits of British Columbia's Provincial Parks

September, 2001

**British Columbia
Ministry of Water, Land and Air Protection**



ECONOMIC BENEFITS OF BRITISH COLUMBIA'S PROVINCIAL PARKS

EXECUTIVE SUMMARY

The province of British Columbia has a diverse system of protected areas.¹ These areas achieve two important goals - they protect large areas containing representative examples of the broad range of ecosystems in our province and they also protect those special features - natural, cultural, historic, and recreational - that are unique to British Columbia. In the past decade, government designations of new protected areas and additions to existing areas has meant both the number and hectares of protected lands managed by British Columbia Parks has almost doubled.

British Columbia's protected areas system provides residents with a wide range of benefits that contribute to the social, environmental, and economic well-being of the province. British Columbia's Ministry of Water, Land and Air Protection and Dr. Paul Opryszek of PricewaterhouseCoopers have undertaken a study of the economic benefits of the provincial protected areas system. The study consists primarily of a quantitative analysis of economic impacts associated with government and visitor expenditures related to British Columbia's protected areas, particularly the provincial parks system.

This report updates three previous studies conducted by Marvin Shaffer and Associates Ltd. in 1985, and Coopers & Lybrand in 1995 and 1996. As in the previous reports, this study concludes that British Columbia's protected areas system continues to be a major source of economic activity for the province. These economic benefits are in addition to the primary value of the protected areas system in contributing to the environmental and social well-being of the province. Highlights from the report on the extent of this economic activity are as follows:

- Total expenditures related to provincial parks approximated \$533 million in 1999.
- Visitor expenditures on parks were estimated to represent over 90% of total expenditures. For each dollar invested by government in the protected areas system, there were about \$10 dollars in visitor expenditures.
- Almost one-third of visitor expenditures, \$148 million, are made by out-of-province residents. That makes the provincial parks equivalent to a significant export industry.
- Economic activity generated by the park system sustains about 9,100 direct and indirect person-years of employment every year.

¹ In this document, protected areas refer to those parks and recreation areas (designated under the *Park Act*), ecological reserves (designated under the *Ecological Reserve Act*) and protected areas (designated under the *Environment Land Use Act*) administered by BC Parks.

- Overall, the park system is estimated to contribute about \$521 million to the provincial Gross Domestic Product (GDP).
- The economic benefits of parks are widely distributed across British Columbia's communities and regions. Over one-half of these benefits occur outside of the Lower Mainland and Victoria regions.
- Parks generate about \$219 million in tax revenues for the federal and provincial governments.

Information on the provincial park system and summary of economic impacts are presented respectively in Exhibit A and Exhibit B:

Exhibit A

PARK SYSTEM SUMMARY STATISTICS, 1999	
LAND AND FACILITIES	
Number of Park Areas	767 park areas
Total Park Area in hectares	9.7 million hectares
Percent of British Columbia's land base	10.0 %
Number of Campsites	11,500 campsites
Kilometers of Trails	2,897 km
Total Recorded Attendance	24.2 million visits
EXPENDITURES	
BC Parks Operations ²	\$47 million
Visitor Expenditures	\$486 million
Total Expenditures	\$533 million
ECONOMIC MEASURE	
Direct Expenditures	\$533 million
Total Provincial GDP	\$521 million
Employment	9,100 person-years
Federal and Provincial Tax Revenue	\$219 million

² Note: Includes \$31.4 million direct British Columbia Parks operations, \$10.6 million contractor expenditures and \$4.7 million from Youth Employment (or Environment Youth Team) program.

Exhibit B

Summary of Economic Impacts

	Expenditures			Economic Impacts		
District	Expenditures to Operate Parks	Visitor Expenditures	Youth Employment Program	Total GDP	Employment (Person-Years)	British Columbia Tax Revenue
Strathcona	\$4.6 M	\$80.5 M	\$0.40 M	\$63.3 M	1,200	\$11.6 M
Malahat (incl. HQ)	\$9.2 M	\$63.4 M	\$0.92 M	\$68.1 M	1,330	\$12.2 M
L. Mainland	\$4.6 M	\$85.6 M	\$1.02 M	\$167.9 M	2,780	\$31.6 M
Garibaldi	\$2.9 M	\$46.2 M	\$0.23 M	\$35.4 M	690	\$6.6 M
Thompson R	\$3.6 M	\$49.9 M	\$0.61 M	\$40.6 M	680	\$7.7 M
Okanagan	\$3.8 M	\$61.6 M	\$0.77 M	\$57.0 M	960	\$10.8 M
Kootenay	\$3.7 M	\$38.4 M	\$0.33 M	\$32.1 M	540	\$6.0 M
Skeena	\$2.9 M	\$12.8 M	\$0.20 M	\$11.5 M	200	\$1.9 M
Cariboo	\$2.5 M	\$20.2 M	\$0.00 M	\$17.4 M	280	\$3.2 M
Pr. George	\$2.3 M	\$15.7 M	\$0.21 M	\$16.3 M	270	\$3.0 M
Peace Liard	\$1.9 M	\$11.8 M	\$0.04 M	\$11.6 M	170	\$2.1 M
Total	\$ 42.0 M	\$ 486.1 M	\$ 4.73 M	\$ 521.2 M	9,100	\$96.7 M

This table summarizes the range of different values associated with BC Parks. It is not appropriate to add across the columns of this table to derive a composite measure.

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1. INTRODUCTION

British Columbia has the greatest biological and physical diversity of any province in Canada. The province is also renowned for its outdoor recreation opportunities, unparalleled scenic landscapes, vast tracts of wilderness, rugged mountains, and extensive freshwater and marine waterways.

Since 1991, the total protected area system managed by the province has almost doubled with government designating an additional 6.5 million hectares of land for protection, representing 457 new protected areas or major additions to existing parks. As of April 30, 2001, BC Parks managed a total of 807 protected areas totaling more than 11.35 million hectares and representing 11.8% of the provincial land base.

BC Parks, a division of the Ministry of Water, Land and Air Protection, is the provincial body responsible for the stewardship of a system of protected areas located throughout the province. These parks are dedicated for environmental preservation and the use, inspiration, and enjoyment of the public.

BC Parks' authority is drawn from four pieces of legislation, the *Park Act*, the *Ecological Reserve Act*, the *Environmental Land Use Act* and the *Protected Areas of British Columbia Act*, along with their associated regulations, policies, and agreements.

British Columbia's provincial parks provide a diversity of high-quality and safe outdoor recreation opportunities, while working to ensure the integrity and protection of the natural and cultural heritage for the benefit of future generations. Tourism is an important part of the provincial economy, and provincial parks play an important role in providing outdoor recreational opportunities for the enjoyment of both British Columbians and their visitors. British Columbia's provincial parks are managed to complement and strengthen tourism by providing world-class recreation opportunities. British Columbia's provincial parks are the single largest provider of overnight accommodation in the province.

This report assesses the economic benefits associated with British Columbia's protected areas. The report updates previous studies conducted by the ministry and Coopers & Lybrand in 1995 and 1996.³

³ *Economic Benefits of British Columbia Parks* April, 1995 and *Current and Future Economic Benefits of British Columbia Parks, Update*, April, 1996

As in the previous studies, estimates of economic benefits are derived from an input/output model based on BC Parks' expenditures, visitation levels, and survey information about visitor expenditure patterns. When estimating dollar values, conservative assumptions and approaches were selected. The implication of this approach is that this report provides a conservative estimate of economic benefits.

This report estimates the economic impacts by region and park district basis and then aggregates impacts to a province-wide basis. The intent of the report is to provide British Columbians with a sense of the scale and the importance of the provincial parks system in economic terms. In the absence of this information on park benefits, it is quite possible for market-based economic impacts of a not-for-profit public good, such as provincial parks, to be quite invisible at both the local and provincial level.

While the focus of this report is on the economic benefits of British Columbia's park system, the benefits of protecting land and water are many. These areas:

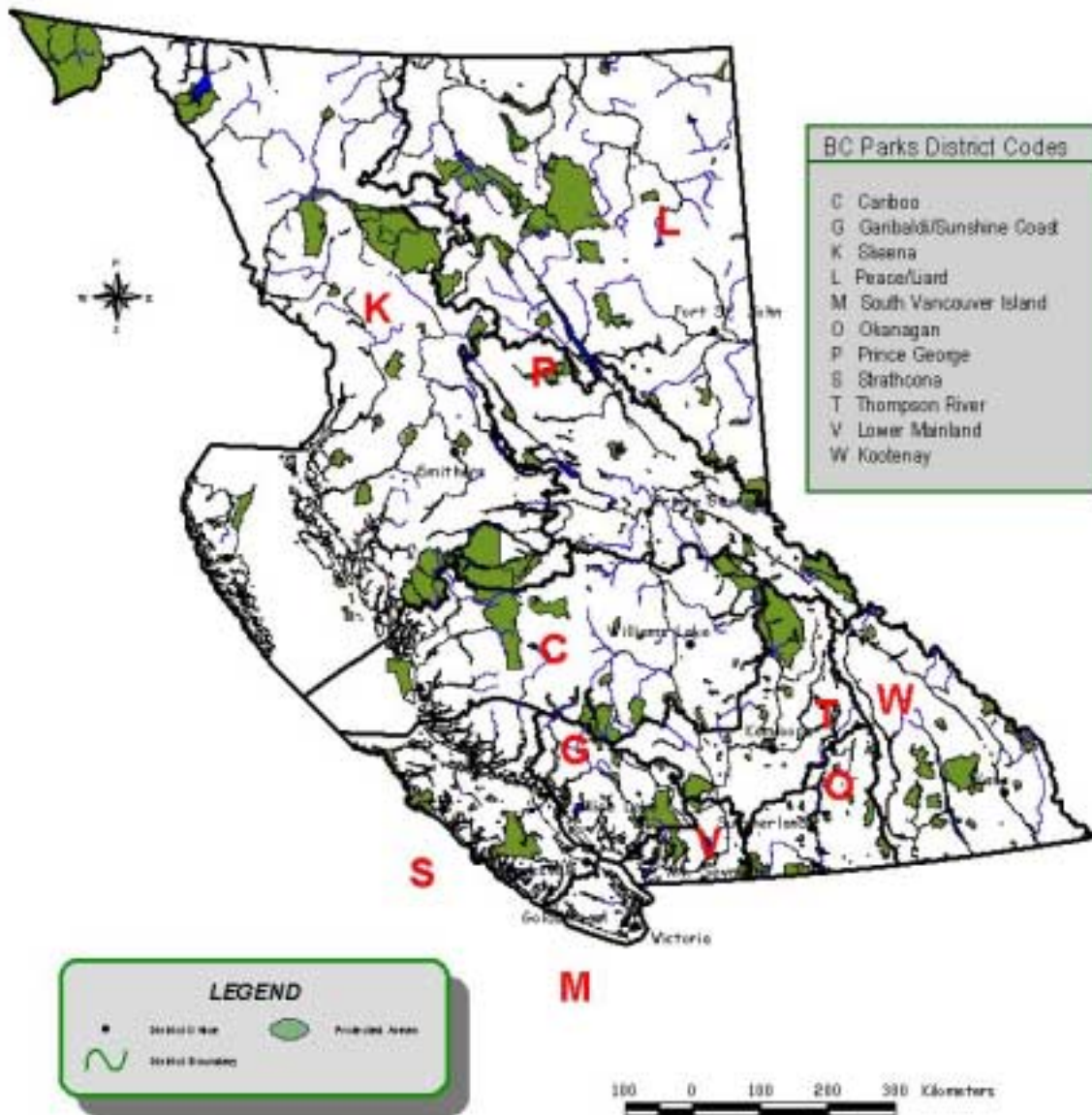
- Contribute to the preservation of natural and biological diversity;
- Provide natural benchmarks for scientific research;
- Contribute to the preservation and understanding of our cultural heritage;
- Provide outdoor classrooms for all British Columbians;
- Contribute to the long-term growth of our tourism industry;
- Contribute to the diversification of our economy; and
- Provide a place for a variety of recreation activities.

Research shows that park visitors derive significant benefits from the recreation activities beyond the value of market-based transactions. As well the economic value of ecological services provided by protected areas is large. These non-market economic benefits, although significant and potentially larger than market-based valuations, have not been quantified in this study.⁴

⁴ Environmental economists have recently estimated that the average value of the world's ecosystems in terms of their services, per hectare, is around \$1100. The total world value of ecosystem services is estimated to be \$33 trillion annually. (Constanza R, et al. (1997) The value of the world's ecosystem services and natural capital. *Nature*, Vol. 387)

Fig 1-1

BC Parks Protected Areas And District Boundaries - 2001



2. TYPES OF ECONOMIC IMPACTS

British Columbia's protected areas generate several types of economic impacts. This chapter presents an overview of the indicators that were used to measure these impacts and their associated benefits. Appendix A provides a more detailed explanation of the indicators.

It should be noted that the survey of park visitors, used to estimate visitor spending, measures expenditures directly associated with park visits. It captures some but not all accommodation and travel costs incurred to reach parks. (Neither does it capture expenditures associated with visits to National parks administered by the federal government.) For this reason, the estimates of current economic impact are conservative in the sense that they deal with a subset of all benefits accruing from British Columbia's parks and ecological reserves. Furthermore, this report does not include benefits from the recreational uses (particularly hunting, camping, boating, and hiking) that take place on provincial Crown lands outside provincial parks.

The British Columbia's provincial park system contributes to provincial economic activity directly and through a series of secondary impacts. The public and private sector expenditures associated with the parks represent the direct effects. The ensuing ripple effects upon the provincial economy represent secondary economic effects.

DIRECT EFFECTS

Direct effects measured on an expenditure basis are equal to the sum of:

- the purchases made by park visitors on goods and services; and
- the government's purchases of goods and services to support the operating and capital needs of the park system.

Direct expenditures are the gross or "face value" of a transaction related to the park system.

DIRECT EFFECTS ON A GDP BASIS

In contrast to the direct effects measured on an expenditure basis, direct effects measured on a provincial Gross Domestic Product (GDP) basis reflect only the value added by British Columbia businesses and workers. The value of goods and services imported from outside the province is subtracted, and there is no "double counting" in the case of goods that pass through several stages before purchase as final demand by consumers.

SECONDARY EFFECTS: INDIRECT AND INDUCED

Direct expenditures by government and park visitors generate secondary expenditures throughout the economy.

- Indirect effects reflect the spending on inputs used to produce the goods and services which are purchased by park visitors and the ministry. An example of indirect spending associated with the purchase of a restaurant meal by a park visitor would be the wages paid to the restaurant employees, the expenditures on raw food products, heat and lighting, etc.
- Induced impacts reflect expenditures that flow from direct and indirect spending. An example would be employees of the restaurant who in turn spend part of their wages on other goods and services.

Secondary benefits are also calculated and stated on a GDP basis to avoid double counting.

EMPLOYMENT IMPACTS

As economic activity is generated through direct, indirect, and induced expenditures, workers are required to produce the desired goods and services. The input/output model used in this study estimates the employment impacts associated with the specific pattern of tourism and government expenditures.

TAX REVENUE

The economic activity generated through direct, indirect, and induced spending also generates tax revenue for governments. Using the major transaction types, the model that was used for this research applies tax rates to commodity (goods and services) and income streams. In this manner it generates estimates of the revenue collected by government for both the British Columbia provincial government and the Federal government.

INPUT/OUTPUT MODEL

The major tool used in estimating the economic impacts for the provincial parks is a model that incorporates production-factor input and goods-and-services output data from Statistics Canada, along with additional data concerning employment and tax flows from other government sources. The model is essentially a complex recipe specifying the production relationships for a large number of economic sectors, based on observed relationships.

In order to use the model, direct expenditure data were coded to correspond to transaction categories that match the input/output framework. The model was then used to transform direct transactions into a GDP basis, and to calculate indirect and

induced impacts. The input/output model also contained additional features to allow for estimates of both employment impacts and total tax revenue.

3. ECONOMIC IMPACT RESULTS

In addition to the other environmental and social benefits they offer, British Columbia's provincial parks are a major source of economic activity for the province. Key measures of economic activity attributable to the provincial parks are presented and discussed here.

DIRECT EFFECTS

Exhibit 3-1 indicates that the total direct effect of British Columbia's provincial parks is estimated to be about \$533 million in 1999. This represents the combined effects of visitor expenditures and the Ministry's operational budget for the parks system. Total direct spending related to parks was up by \$70 million, or 15%, compared to previous results for 1994. Most of the increase is attributable to increases in visitor spending. The combined total for Park Operations and Contractor related expenditures of \$42 million is slightly lower than the previous Operations and Contractor expenditure total of \$44.2 in 1994. Consideration of a Youth Employment Program, which creates Parks-related seasonal jobs, adds about \$4.7 million to wages. About \$486 million, or over 90% of the total direct expenditures, were generated by the spending of park visitors.

For the purposes of estimating economic impacts, expenditures were allocated to detailed commodity and service categories, corresponding to the input categories for the input-output model used in the study. These allocations provide useful information about the pattern of parks-related spending and are a necessary step in estimating secondary economic impacts. The largest component of operating expenditures is the \$31 million provincial budget for the parks system. It is worth noting that this is less than six percent of the total direct spending generated by the park system. Another \$10.6 million is related to contractor operations and reflects in-park visitor fees retained by private park facility operators to offset the cost of providing park services.

Just under \$25 million of operations-related expenditures were spent on wages. Labour is the most important single input in terms of maintaining the parks system. After wages, the next most significant item is the upkeep required for facilities, which includes housekeeping and maintenance, construction and road maintenance.

Visitor expenditures continue to represent over 90% of the direct impacts, or \$486 million. Estimates of these expenditures are derived mainly from survey data, which report both total expenditures and major expenditure categories. As shown

Exhibit 3-1

**Provincial Level Impact of British Columbia's Provincial Parks – Direct Effects, 1999
On an Expenditure Basis, in Millions of 1999 Dollars**

	Effects Related To: Park Visitors					Effects Related To: BC Parks Operations, Contractor Operations, and Youth Employment Program							Total	
BC Parks Districts	Groceries	Vehicle Fuel	Other recreational services	Meals	Repair Services	Vehicle Fuel	Maintenance (road, & bridge type)	Business Services type exp.	Building Maint. Type exp.	Office type supplies	Wages and Salaries	Youth Employment Program		
Strathcona	\$20.7	\$16.6	\$14.8	\$22.9	\$5.5	\$0.2	\$0.2	\$0.2	\$1.3	\$0.2	\$2.5	\$0.403	\$ 85.5	
S. Van. Isl.	\$16.3	\$13.1	\$11.6	\$18.0	\$4.4	\$0.4	\$0.4	\$0.4	\$1.8	\$0.4	\$5.7	\$0.916	\$ 73.4	
L. Mainland	\$22.0	\$17.7	\$15.7	\$24.3	\$5.9	\$0.2	\$0.2	\$0.2	\$1.4	\$0.2	\$2.3	\$1.022	\$ 91.1	
Garibaldi	\$11.9	\$9.5	\$8.5	\$13.1	\$3.2	\$0.1	\$0.1	\$0.1	\$0.7	\$0.1	\$1.7	\$0.234	\$ 49.2	
Thompson R	\$13.3	\$13.5	\$8.0	\$10.6	\$4.5	\$0.1	\$0.1	\$0.1	\$1.0	\$0.1	\$2.2	\$0.606	\$ 54.1	
Okanagan	\$16.4	\$16.7	\$9.8	\$13.1	\$5.6	\$0.1	\$0.1	\$0.1	\$1.2	\$0.1	\$2.3	\$0.767	\$ 66.3	
Kootenay	\$10.2	\$10.4	\$6.1	\$8.2	\$3.5	\$0.1	\$0.1	\$0.1	\$1.0	\$0.1	\$2.2	\$0.327	\$ 42.3	
Skeena	\$3.3	\$3.5	\$2.5	\$2.3	\$1.2	\$0.1	\$0.1	\$0.1	\$0.6	\$0.2	\$1.7	\$0.201	\$ 15.8	
Cariboo	\$5.1	\$5.6	\$3.9	\$3.7	\$1.9	\$0.1	\$0.1	\$0.1	\$0.6	\$0.1	\$1.5	\$0.000	\$ 22.7	
Pr. George	\$4.0	\$4.4	\$3.0	\$2.9	\$1.4	\$0.1	\$0.1	\$0.1	\$0.5	\$0.1	\$1.4	\$0.210	\$ 18.2	
Peace Liard	\$3.0	\$3.3	\$2.3	\$2.1	\$1.1	\$0.1	\$0.1	\$0.1	\$0.5	\$0.1	\$1.0	\$0.042	\$ 13.7	
	\$126.20	\$114.30	\$86.20	\$121.20	\$38.20	\$1.60	\$1.60	\$1.60	\$10.60	\$1.70	\$24.50	\$4.728		
												TOTAL	\$ 532.3	
	For Parks Operations expenditure (excluding fees) estimate:						\$31.4							
	Contractor related expenditures (fee related) estimate:						\$10.6							
	Total Operations Expenditure estimate:						\$ 42.0							

in Exhibit 3-1, the largest single visitor expenditure category is related to food, which is mainly accounted for by groceries for self-prepared meals. The next largest single expenditure category is for meals prepared by others (mainly restaurants or accommodations that include food service). Combining these two largest categories accounts for about \$247 million of direct visitor spending.

TOTAL PROVINCIAL IMPACTS ON A GDP BASIS

Exhibit 3-2 shows the estimated direct impacts, and the combined total for direct, indirect, and induced impacts, of park expenditures on a Gross Domestic Product (GDP) basis. Direct effects on an expenditure basis can include a substantial portion of inputs from areas outside of the province or even outside of Canada. Expenditures on a GDP basis are a measure of the economic activity generated in British Columbia by workers and businesses, taking into account economic leakages out of the province.

The \$42 million of direct operations expenditures generates \$35 million of direct effects on a GDP basis for British Columbia. This indicates that the kind of expenditures involved in operations have inherently low import content (probably dropping as exchange rate movements have made imports less attractive to Canadian buyers). Visitor expenditures (with \$486 million in direct visitor spending) result in direct effects on a GDP basis of about \$158 million. In total, for direct expenditures only, the parks system generates a direct effect of \$197 million on a provincial level GDP basis. While this is substantial, it represents only a portion of the entire economic impact story.

Exhibit 3-2 shows the total economic effects of the parks on a GDP basis, including direct, indirect, and induced effects (see Appendix A for definitions and more details). The indirect and induced economic effects that result from direct GDP effects are very substantial. Both supply relationships within the province, and re-spending of wages by workers have very strong effects within the British Columbia economy.

The overall impact of British Columbia's provincial parks is \$521 million on a GDP basis. For a publicly provided service that is justified primarily for its contribution to the general state of the public well being, this is a very substantial economic impact.

As shown in Exhibit 3-2, a significant percentage of visitors and their spending originate from outside of the province. For the province as a whole, non-residents account for about 31% of visitor expenditures. This level is consistently high across all park districts. For British Columbia as a whole, parks generate

Exhibit 3-2

Provincial Level Impact of British Columbia's Provincial Parks On a GDP Basis, 1999 Millions of 1999 Dollars

	Direct Expenditures	Direct Effects Only Restated to a GDP Basis for British Columbia Allowing for imports (from out of province) needed to supply the directly purchased goods and service				Total GDP Includes direct, indirect & induced effects for British Columbia				Visitor Expenditures from out of Province	
		Total	Park Visitors	Park Operations and Contractor Operations	Youth Employment Program	Total	Park Visitors	Park Operations and Contractor Operations	Youth Employment Program	Total	%
BC Parks Districts											
Strathcona	\$85.5	\$27.7	\$3.7	\$0.40	\$ 31.8	\$56.4	\$6.2	\$0.7	\$ 63.3	30%	\$24.1
S. Van. Isl.	\$73.4	\$21.8	\$7.6	\$0.92	\$ 30.3	\$54.1	\$12.3	\$1.7	\$ 68.1	30%	\$19.0
L. Mainland	\$91.1	\$29.5	\$3.7	\$1.02	\$ 34.2	\$151.8	\$13.7	\$2.4	\$ 167.9	30%	\$25.7
Garibaldi	\$49.2	\$15.9	\$2.4	\$0.23	\$ 18.5	\$31.2	\$3.8	\$0.4	\$ 35.4	30%	\$13.8
Thompson R	\$54.1	\$14.8	\$3.1	\$0.61	\$ 18.5	\$34.6	\$4.9	\$1.1	\$ 40.6	32%	\$16.0
Okanagan	\$66.3	\$18.3	\$3.3	\$0.77	\$ 22.4	\$49.6	\$5.9	\$1.5	\$ 57.0	31%	\$19.1
Kootenay	\$42.3	\$11.4	\$3.1	\$0.33	\$ 14.8	\$26.7	\$4.8	\$0.6	\$ 32.1	32%	\$12.3
Skeena	\$15.8	\$3.8	\$2.4	\$0.20	\$ 6.4	\$7.7	\$3.4	\$0.4	\$ 11.5	30%	\$3.8
Cariboo	\$22.7	\$6.1	\$2.1	\$0.00	\$ 8.2	\$14.3	\$3.1	\$0.0	\$ 17.4	31%	\$6.3
Pr. George	\$18.2	\$4.7	\$1.9	\$0.21	\$ 6.8	\$12.9	\$3.0	\$0.4	\$ 16.3	30%	\$4.7
Peace Liard	\$13.7	\$3.5	\$1.5	\$0.04	\$ 5.0	\$9.3	\$2.2	\$0.1	\$ 11.6	30%	\$3.5
	\$ 532.3	\$ 157.5	\$ 34.8	\$ 4.7	\$ 197.0	\$ 448.6	\$ 63.3	\$ 9.3	\$ 521.2	Ave. 31%	\$148.3

activity equivalent to a major export industry, in terms of bringing in significant amounts of income from other provinces, the United States, and the rest of the world.

Non-residents' parks expenditures are particularly important in rural regions of the province, where the regional economic base is relatively narrow. Expenditures associated with provincial residents also have a significant import-export dimension. Clearly, behavioural data indicate that British Columbia residents value park experiences strongly enough to pay market prices for all the logistics involved in getting to the parks and using them. If this market demand cannot be satisfied locally, the presumption is that these consumers would go elsewhere to get the parks-related products and services that they desire. In the absence of a provincial parks system, a significant portion of the \$338 million of resident parks expenditures could leave the province, to areas like Alberta and the US Pacific Northwest.

TOTAL EMPLOYMENT IMPACTS

Employment related to the parks system is shown in Exhibit 3-3. In total, British Columbia's provincial parks are a source of employment to about 9,100 persons on an annual basis. This is calculated on the basis of Full Time Equivalents (FTE's). This means that these job benefits are spread across many more individuals than indicated purely by the FTE number, allowing for patterns of seasonal and part time work. Government and contractor FTEs have remained approximately stable over the last several years. The regional level economic model used for these calculations⁵ provides a detailed indication as to where job creation occurred in the economy. Employment levels in total are lower than previous estimates (9,100 versus 9,500 jobs)⁶. This is largely due to structural shifts within the economy. While expenditures have risen, job creation has not fully kept pace. One possible interpretation of this data is that the efficiency of the provision of Parks' services has increased, but at the same time Parks may also be accumulating a backlog of maintenance and infrastructure investment that have been put on longer replacement or depreciation cycles.

It is apparent that the provincial park system is a major employer, on the scale of a large industrial operation in any particular region. Considering the substantial subsidies that are sometimes offered to bring industrial employers into a region, the importance of the parks system as a local employer over time becomes clear.

⁵ EcoTec Consultants regional level input-output model, which was matched to an 11 district aggregation used administratively by BC Parks.

⁶ *Current and Future Economic Benefits of British Columbia Parks*, Update, April 1996

Exhibit 3-3

Provincial-Level Impact of British Columbia's Provincial Parks – Employment, 1999

Employment in Full Time Equivalent Jobs⁷

District	Effects Related To:						Total
	Park Visitors Total FTE dependent on visitor spending	BC Parks Operations and Contractor Operations			Youth Team		
		BC Parks FTE	Contractor FTE	Est. Indirect & Induced	Youth Team FTE	Est. Indirect & Induced FTE	
Strathcona	1,072	35	31	51	14	1	1,204
S. Van. Isl.	1,075	92	25	91	36	9	1,328
L. Mainland	2,514	30	33	145	40	16	2,778
Garibaldi	609	25	18	28	9	2	691
Thompson R	558	27	37	36	20	5	683
Okanagan	806	25	45	48	33	8	965
Kootenay	431	31	28	34	17	3	544
Skeena	133	31	9	23	7	1	204
Cariboo	222	21	15	20	0	0	278
Pr. George	208	22	11	21	7	2	271
Peace Liard	125	16	8	16	1	0	166
Total	7,753	355	260	513	184	47	9,112

⁷ Improvements in data and model structure enabled more detailed calculations for employment to be carried out by district for this report. As the economy evolves due to shifts in consumption patterns, inter-industry linkages, and shifts in import leakages patterns of economic impacts also shift.

Compared to other economic sectors that have experienced sharp declines in output and employment, the ability of the parks system to maintain a substantial level of economic activity can be viewed as a valuable stabilizing contributor to the provincial economic picture. The sustainable nature of parks-derived economic activity is a direct consequence of the stewardship mandate of BC Parks, which should help to ensure that stable and rising levels of economic activity surrounding parks should be available to future generations year after year.

Regional impacts are indicated in each Exhibit presented for this section, but are especially easy to interpret in relation to the creation and distribution of full-time equivalent jobs across the province. What is conspicuous is that the economic impacts generated by the park system are widely distributed among British Columbia's regions. The less-urban districts outside Vancouver and South Vancouver Island, which account for one quarter of the province's population, represent about 55% of total employment generated, and about 69% of direct expenditures (both visitor and operations related).

TAX REVENUE

The economic impacts estimated in previous sections generate incomes and transactions that are subject to taxation, both by the province and by the federal government. As indicated in Exhibit 3-4, the province of British Columbia obtains about \$97 million in revenue from the operation of its provincial parks system, much larger than the cost of funding the system. Most of this revenue is derived from expenditures by park visitors, which are by far the dominant force driving this result: about \$87 million of provincial revenues is derived from economic activities initially generated by park tourism.

Largely as a result of out-of-province economic impacts (related to supply linkages), the Federal government is also a major tax beneficiary of British Columbia's parks system. It is estimated that total Federal government tax revenues are about \$122 million.

While the parks system shows up in the provincial accounting system as a "cost", the revenue that is attributable to the parks is recorded as "income" elsewhere in the system. The balance between expenditures and tax revenues (that are derived from the parks) does not become visible unless economic calculations, such as those done for this research, are carried out. The information, in a sense, exists in widely-separated finance and accounting databases, but it is not in a form that would be practical to compile with existing financial or accounting systems.

Exhibit 3-4

Provincial Level Impact of British Columbia's Provincial Parks – Tax Revenues, 1999 Millions of 1999 Dollars⁷

District	Effects Related To: Park Visitors		Effects Related To: BC Parks Operations and Contractor Operations		Effects Related To: Youth Program		Totals	
	Provincial	Federal	Provincial	Federal	Provincial	Federal	District Totals	
Strathcona	\$10.8	\$13.7	\$0.8	\$1.2	\$0.0	\$0.0	\$ 26.5	
S. Van. Isl.	\$10.4	\$13.1	\$1.6	\$2.2	\$0.2	\$0.4	\$ 27.9	
L. Mainland	\$29.4	\$36.7	\$1.9	\$2.6	\$0.3	\$0.5	\$ 71.4	
Garibaldi	\$6.0	\$7.6	\$0.5	\$0.7	\$0.1	\$0.1	\$ 15.0	
Thompson R	\$6.8	\$8.3	\$0.7	\$0.9	\$0.2	\$0.2	\$ 17.1	
Okanagan	\$9.8	\$11.9	\$0.8	\$1.1	\$0.2	\$0.3	\$ 24.1	
Kootenay	\$5.3	\$6.4	\$0.6	\$0.9	\$0.1	\$0.1	\$ 13.4	
Skeena	\$1.5	\$1.8	\$0.4	\$0.6	\$0.0	\$0.1	\$ 4.4	
Cariboo	\$2.8	\$3.4	\$0.4	\$0.6	\$0.0	\$0.0	\$ 7.2	
Pr. George	\$2.5	\$3.1	\$0.4	\$0.6	\$0.1	\$0.1	\$ 6.8	
Peace Liard	\$1.8	\$2.2	\$0.3	\$0.4	\$0.0	\$0.0	\$ 4.7	
Total Provincial	\$ 87.1		\$ 8.4		\$ 1.2		\$96.70	
Total Federal		\$ 108.2		\$ 11.8		\$ 1.8	\$121.80	
Total								\$218.50

⁷ The move to a regional model provides some more detail in the calculation of Provincial and Federal tax flows, and embodies more detailed assumptions than previously possible in earlier studies

COMPARISON OF BRITISH COLUMBIA'S PROVINCIAL PARKS EFFECTS, 1993, 1994, 1999

A comparison of the estimates of this study with those of previous years is indicated in Exhibit 3-5. Values that are higher for 1999 are mostly due to higher visitor spending levels. Government/operations overall employment related to Parks (direct, indirect, and induced employment) has exhibited a downward trend over time. Employment related to visitor spending has fluctuated within a general range of 7,600 – 8,000 jobs.

Exhibit 3-5
Comparison of British Columbia's Provincial Parks Effects, 1993, 1994, 1999

<i>Economic Measure</i>	1993	1994	1999
Direct Expenditures	\$432 million	\$462 million	\$533 million
Total Provincial GDP	\$402 million	\$419 million	\$521 million
Employment from, Operations	1,700 jobs	1,500 jobs	1,350 jobs
Employment from, Visitor Spending	7,600 jobs	8,000 jobs	7,750 jobs
Tax Revenue, (Federal and Provincial)	\$162 million	\$171 million	\$219 million

4. SUMMARY

The overall benefits of parks and ecological reserves are multidimensional. Some have very visible "hard dollars" attached to them, while others are more qualitative. While qualitative statements about benefits are based on individual value judgements, broad trends in the literature clearly support the notion that these benefits are substantial and have worth to both society and the environment. Studies in other jurisdictions using opinion surveys and travel cost data have concluded that park users place a value on their recreational experiences which is higher than the direct costs incurred. Although not measured in this report, the two previous reports on the economic benefits of British Columbia's provincial parks indicate that the environmental and social values generated by the parks system are significant. In all of their diverse aspects, parks and ecological reserves are a significant contributor to the quality of life within British Columbia.

In addition to its qualitative values, the results of this report confirm that the protected areas system continues to be a major source of economic activity for the province. Expenditures on parks totaled \$533 million in 1999, 90% of which was generated by the spending of park visitors. A significant portion (nearly one-third) of this expenditure was made by out-of-province residents. Overall, the park system contributed \$521 million to provincial GDP and sustained 9,100 jobs (on a full-time-equivalent basis) in British Columbia. As well, it accounted for about \$97 million in provincial tax revenue for British Columbia and about \$122 million in Federal tax revenues. The economic and employment impacts of parks are distributed across the province as communities outside of the lower mainland and Victoria regions account for over one-half of both the GDP and the jobs generated by the parks system.

APPENDIX A: ADDITIONAL DETAILS OF ECONOMIC MEASURES

The BC Parks system affects the provincial economy both **directly**, through an initial set of transactions, and also through a series of **secondary** impacts. A good analogy for the economy is an automobile engine. Because much of what happens in an engine is out of view, various meters and indicators have been devised over time to describe its internal state or performance level.

One way of thinking about measures of economic impact is to think of them as if they were selective meters or "dipsticks" for our "economic machinery". In the example of an automobile engine, one indicator might directly measure the oil level, while another might indirectly indicate distance traveled. Economic measures do not seek to capture every detail about the functioning of an economy or the value of an activity; what they **do** accomplish is to provide useful information for judging the "speeding up" or "slowing down" of the economy as a result of a particular type of economic activity -- in this case parks. This appendix presents and describes the indicators of economic impact that were used.

DIRECT EFFECTS

Immediately visible transactions are the **direct effects** that begin a chain of economic activity. Two sub-categories of direct transactions were estimated for the purposes of this study: **operational expenditures** by the parks system, and **visitor expenditures**. Direct expenditures are the gross or "face value" of a transaction related to the park system. They can be restated on a value added basis in order to discuss **direct effects on a GDP basis**, which eliminates problems related to import content.

DIRECT EFFECTS FROM GOVERNMENT OPERATIONAL EXPENDITURES

Actual budget expenditure levels for the parks system are recorded in managerial reports and financial information system items. Each line item in a financial report indicates a transaction description (or a series or group of related transactions), with its associated dollar value. These records report in considerable detail the direct expenditures of public funds on the commodities and wages required to operate the parks system. (Because public money is the source for these transactions, they are both a "cost", in the sense of a benefit/cost comparison, and a "benefit", in the sense that each transaction represents an opportunity for suppliers and workers to make a sale to a purchaser who, in this case, is the government.)

In order to become useful in combination with other economic data, it is essential to match:

- dollar values from transaction/purchase line item categories (at an appropriately detailed level) in financial reports; with,
- the different categories that make up the commodity/industry classification system used for economic calculations.

This matching function is the essential link between transaction types as recorded for financial purposes and economic commodity types as required for economic calculations.

DIRECT EFFECTS FROM VISITOR EXPENDITURES:

Visitors to parks are the source of the largest direct economic effects of the system. In future efforts to assess economic impacts of the parks, further study of visitor expenditures are clearly worth the largest proportion of effort. BC Parks compiles estimates of the numbers of visitors to each region (the number of travel parties is the most comprehensive count, by region). In addition, survey data provides estimates of the amount of money spent by park visitors. Since both average per party expenditures and visitation estimates are available with a regional and seasonal breakdown, it is possible to estimate visitors' total direct expenditures, by region. As an additional level of detail, both visitation numbers and average expenditure estimates are available broken down into separate estimates for both British Columbia residents and non-residents. Visitors' spending is reported by major categories as part of the survey-based expenditure estimates. This makes it possible to match visitor spending aggregates with commodity classification categories for the same system used in consolidating government expenditure estimates. The combinations of numbers of residents/non-residents, season, region, and average expenditures by category type are amenable to a chain of estimation. (As in the previous situation, the logic is straightforward, but the logistics involved in how the data are stored, classified, retrieved, and matched are a challenge).

The most all-inclusive estimate possible, for the direct economic effects of the parks system on the British Columbia economy, is produced by adding together both government expenditures and visitation expenditures, once they have been converted to a common commodity basis. This is the starting point for a deeper understanding of how the parks system affects the economy.

DIRECT EFFECTS ON A GDP BASIS

Direct effects are only one measure of economic effects of the parks system. While this indicator is easy to think about and discuss, it is not necessarily the best measure to use for certain purposes. For a business asking questions about potential sales, direct effects *are* a good measure of the size of the market of initial transactions. For other questions about what these transactions mean for British Columbia residents, other measures need to be used.

In terms of understanding economic activity within British Columbia, direct effects measured as the gross value of a set of transactions have two major potential problems: imports and the cost of goods sold. For each commodity sold, economists track and compile estimates of the market share captured by each industry that can supply such goods (and services), and the proportion of each item that is normally imported. To the extent that certain transactions are filled with imports, very little if any of the face value (or gross amount) of the purchase stays in the local (or national) economy.

The cost of goods sold (or "inputs") is another issue, especially when supplies originate from outside the province. An example of the input issue might be purchases of gasoline. In order to deliver a tank of gasoline to a British Columbia consumer, a business needs many inputs. Some of these inputs would include wages paid to local labour, local electricity, and rent (or other business accommodation type purchases). A substantial fraction of the cost of a "fill-up" would be the wholesale cost of the refined gasoline itself, however. To the extent that the crude petroleum and refining may have taken place in Alberta (or elsewhere), that portion of the face value of the initial transaction does not genuinely benefit British Columbia residents or businesses.

Direct expenditures within the province can be converted to another distinct measure of economic activity, one that makes it easier to identify local activity and benefits. This alternative measure is known as direct effects, on a provincial GDP basis. When direct impacts, as compiled on a gross or face value basis, are translated onto a provincial GDP basis, it is common for the dollar amounts indicated to be a fraction of the value of gross starting values. The reason that dollar values are smaller on a GDP basis is that import substitution and out-of-province supplies are removed from the amounts indicated. This process spotlights local content in a purchase.

INDIRECT AND INDUCED EFFECTS

Secondary economic effects are a combination of indirect and induced economic effects. They are most carefully calculated by an economic model (in this case, an input/output model was used, although an econometric model with sufficient detail can be used for the same purpose). They include indirect and induced economic effects. Indirect economic impacts are created by the economic process of producing the goods or services that are sold in direct impact transactions; this includes ordering supplies, and hiring workers. Indirect impacts are supply relationships that can be attributed to a "direct impact" transaction. An example of an indirect transaction would be a merchant who needs to restock inventory or otherwise purchase inputs in order to support a transaction triggered by a direct impact. Induced impacts are related to the spending of workers' wages. The workers who prepare goods involved in a "direct impact" transaction, are themselves paid wages. They, in turn, can take their income and spend it, typically on consumer goods, housing, or other transactions. Workers receive income both from firms directly involved in an impact related transaction, and further downstream in the economy as other suppliers pay workers in order to bring inputs to the "direct effects" merchants in the economic front line of an impact generating situation.

There are some complications to be avoided in working through the estimation of secondary effects. Double counting is always a pitfall to be avoided in economic calculations. For example, selling a glass of milk to a tourist's child involves a chain of economic transactions: milk may be sold by the dairy farmer to a dairy; the dairy may add value by pasteurization, bottling, transportation, and wholesale supply transactions; a restaurant may then provide food services to the tourist in a retail transaction. Notice that even in this simple example, a simple sum of transactions would count the original milk three times: 1) an original sale, 2) the wholesale supply sale, and 3) the final retail sale. This is why estimates that are based on a GDP measure of economic impacts are particularly useful. As noted previously, the very definition of GDP involves isolating the "value added" of a transaction, which nets out any problems with double counting. Other impact estimation problems concern import content, either international imports or inputs coming into British Columbia from outside of the province. The use of a comprehensive model, which carries out its internal accounting on a GDP basis, eliminates confusion related to double counting and import content.

SUPPLEMENTARY MEASURES OF ECONOMIC ACTIVITY

Once the overall force or magnitude of economic impacts have been estimated in the broadest sense on a GDP basis, there are other economic questions that can be

asked. Just as for an automobile engine where one gauge may indicate RPM (revolutions per minute), other gauges may reveal other aspects of what is required to produce that basic output, such as the engine temperature, oil pressure, and whether or not the battery is charging. These other attributes of the state of the engine are not numbers that would be "added to" the basic indicator of output (i.e. rpm in this example); they describe other dimensions of the engine's operation that occur simultaneously in the process of producing that general level of activity.

Employment and tax revenue are two additional economic measures presented in Chapter 3. As an economic model arrives at a simultaneous reconciliation of "new" demand with historical supply relationships and importation requirements, a model "puts people to work" in order to support production, and it applies tax rates to commodity transactions, and income flows. Tax revenue that would accrue to the British Columbia provincial government is indicated. This can be compared to the direct cost of operating the parks, although this by itself would be a very narrow view of the impact of public service provision.

What is usually problematic is that an expenditure in one part of the economy may trigger not-necessarily-obvious tax flows elsewhere in the province. Often the bureau or department that incurs an expense does not see directly the tax flow related to its activities. Tax flows that are dependent upon one department actually are routed through large scale general revenue mechanisms, such as personal income tax, or sales tax flows. Typically a revenue department gets visible "credit" in an accounting system for the money coming in, while the activity that supports these transactions typically appears as an "expense" elsewhere in the government's financial books.

Matching expenditures of tax dollars against tax inflows is therefore a major reason for carrying out an impact analysis. In a net sense, comparing expenditures minus tax revenues indicate the real cost of supporting a particular line of government expenditure. Some tax supported activities are required as a matter of public policy; they may lead to recapture of only a very small fraction of their costs in later tax inflows. Other activities come close to "breaking even", or running a "profit", even if one leaves aside the questions about benefits for other parts of society. The balance between expenditures and tax flows is indicated in the tables presented. In addition, tax flows that work to the benefit of the Federal government are available. While they are not directly of interest to the provincial government, they do indicate a contribution by the province to the national well-being and the province's role in federal fund raising.

Finally, there is always broad interest in the number of jobs created. Large, abstract dollar amounts can be difficult to interpret, and it is useful to restate them in order to bring their meaning down to a more human scale. The production of goods as estimated through a model requires workers to create them. The indication of jobs presented is actually "person years of employment", or full time year long employment. In actual fact, some sectors of the economy operate with seasonal employment and part time workers, so that the employment values estimated here could be spread across a larger number of part-time and seasonally employed persons.