

# **Freshwater Sport Fishing in British Columbia**

**Sending Ripples through the Provincial Economy**

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## **PREFACE**

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This report was prepared under contract for the Freshwater Fisheries Society of BC (FFSBC). The BC Ministry of Environment (MOE) also served on the Steering Committee.

The contractor benefited from discussions with FFSBC, MOE and others. Notwithstanding this assistance, the contractor has final responsibility for the analysis and conclusions of the study.

## SUMMARY

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**Introduction.** British Columbia's lakes, rivers and streams support a wide variety of quality recreational angling opportunities for tens of thousands of provincial residents and visitors alike. Freshwater angling is an integral part of the province's culture and heritage. Close to half of all adult British Columbians have bought an angling licence at some point during their lifetime. Angling can be enjoyed at any age, by any demographic or ethnic group, regardless of ability. It provides an escape from the stresses of modern life and a chance to connect with family and friends through shared outdoor experiences.

Freshwater angling is not just an enjoyable pastime or outdoor thrill, but also a powerful economic engine in many regions of BC. Despite this important fact, the sector remains little known and underappreciated. A major reason for the inadequate public understanding is the lack of accessible information on the sport fishery's economic dimensions and importance.

This report provides a profile of freshwater angling activity, catch, expenditures and associated economic impacts in the province. The analysis is based primarily on the 2005 Survey of Freshwater Sport Fishing in British Columbia ("2005 Survey").

**Angling Profile.** Freshwater sport fishing is a year-round recreation activity. BC contains more than 200,000 lakes and 750,000 km of streams and rivers offering 24 popular species of game fish. Angling occurs from the shore, beach, pier or boat and anglers use lures, bait, flies and set lines as gear. The sport fishery takes place throughout the province, which is divided into nine resource management regions.

In 2005, the B.C. freshwater sport fishery had (see Summary Attachment):

- licence sales of 319,400,
- 4 million angler-days of activity,
- \$480 million in angler expenditures, and
- 8.2 million fish caught, of which 3/4 were released.

The average angler spent \$120 per day and caught 2.1 fish per day, a good fishing success rate. Guided days were much more valuable, at an average \$480.

Rainbow trout is the backbone of the industry, with close to half of BC's total angler-days, fish caught and angler expenditures. Salmon is the next most prominent species in terms of angler interest and spending. However, the full range of game fish is important as it ensures opportunities throughout the year, across the province, and in lake, river and stream environments.

**Economic Impacts.** The total economic impacts (direct industry plus multiplier effects) from \$480 million in initial angler expenditures in 2005 were:

- Gross Domestic Product of \$210 million
- Wages and Benefits of \$120 million
- Employment of 3,875 person-years
- Tax Revenues of \$125 million

The \$125 million in tax revenues were split \$72 million federal and \$53 million provincial. For each \$1 spent by anglers, the federal government earned 15 cents in tax revenue and the provincial government earned 11 cents in revenue, for a total of 26 cents.

**Fish Stocking Benefits.** The Freshwater Fisheries Society of BC (FFSBC) is responsible for delivering the provincial stocking program in partnership with the BC Ministry of Environment. Many of the province's lakes do not naturally support fish populations because of a lack of spawning habitat or other limitations. For these lakes, annual stocking is the only effective means to provide productive fisheries that support recreational activity.

The Province's stocking program is unique in North America because it depends on "wild-type" brood fish as an egg source for the hatchery programs. Stocking programs elsewhere in Canada and the US use primarily domesticated broodstocks for their eggs. BC is at the forefront in developing sterile forms of stocked kokanee, cutthroat and rainbow trout. The use of sterile fish in selected lakes provides more large fish for anglers and also limits interactions with any wild fish populations.

Over the last five years, FFSBC has released an average of 7 million fish annually. An estimated \$168 million in angler expenditures were associated with angling for stocked fish in 2005, with \$141 million of this total or 84% attributable to rainbow trout stocking. The annual cost of the stocking program is about \$8 million.

Every \$1 invested in stocking gives rise to about \$21 in angler expenditures.

**Other Benefits.** The benefits of angling extend well beyond the money spent. In fact, anglers value the experience not only as a source of recreation and food, but also for the tranquillity and relaxation it provides and the opportunity to connect with friends, family and the natural world.

Anglers are good conservationists, as exemplified by their extensive volunteer efforts with organizations like fish and game clubs and their co-management efforts. The Habitat Conservation Trust Foundation, which is funded by a portion of angler licence fees, sponsors fish and habitat conservation and restoration projects across BC.

**Potential for Growth.** BC's freshwater fishery enjoys a number of unique advantages, including the diversity of fishing opportunities, the large size of fish available, and magnificent natural surroundings. Angling and its economic benefits occur in all regions of the province, with the bulk of angler expenditures occurring in rural areas.

Unlike most other resource industries, sport fishing offers significant opportunity for growth in BC. The basic research on angler motivations and needs has been done, and an action plan to increase angler participation has been formulated and piloted. The industry could grow to \$640 million (in current dollars) in angler expenditures by the year 2020, if the necessary measures are implemented.

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## Summary Attachment - British Columbia Sport Fishing Profile 2005

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Region	Active Anglers '000	Angler-Days '000	Fish Caught			Angler Expenditures \$ millions
			Kept	Released ... '000 ...	All	
1. Vancouver Island	32.2	461	154	675	829	39.6
2. Lower Mainland	49.5	711	238	858	1,096	94.0
3. Thompson-Nicola	64.9	702	395	902	1,297	84.8
4. Kootenay	47.3	645	489	1,311	1,800	58.7
5. Cariboo	45.9	440	248	734	982	75.5
6. Skeena	26.3	321	138	486	624	43.2
7A. Omineca	25.1	273	220	491	711	32.4
7B. Peace	6.1	69	34	118	152	7.1
8. Okanagan	35.4	<u>362</u>	<u>224</u>	<u>478</u>	<u>702</u>	<u>44.6</u>
British Columbia	270.8*	3,984	2,140	6,053	8,193**	479.9

\* The sum of anglers over regions does not equal the provincial total since an individual may fish more than one region.

\*\* Catch by species ('000 of fish) - 3,930 rainbow trout, 914 cutthroat trout, 135 steelhead trout, 149 brook trout, 538 other trout such as lake trout and bull trout, 481 kokanee, 1,064 salmon, and 982 non-salmonids such as bass, walleye and perch.

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## **1.0 Introduction**

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The lakes, rivers and streams of British Columbia support a wide variety of quality recreational angling opportunities for tens of thousands of provincial residents and visitors alike. The diversity of opportunities reflects the large numbers of species available and the varied geographic features of the Province including its topography and climate.

Freshwater angling is an integral part of British Columbia's culture and heritage. Close to half of all adult British Columbians have bought an angling licence in their lifetime. Angling can be enjoyed at any age, provides an escape from the stresses of modern life, and provides an opportunity to connect with family and friends through shared outdoor experiences.

The quality of freshwater angling in BC is exceptional. The Province has a significant and varied fisheries resource including a variety of species of wild fish that has been protected and valued by British Columbians through the generations. This resource base has been augmented by a world class stocking program. The Province has an unparalleled environmental setting which is a significant attribute and draw to resident anglers and those from around the world.

### **1.1 The Challenge**

Freshwater angling is not just an enjoyable pastime but it is an important engine of the economy in many regions of the Province. This notwithstanding, the sector is little known and little appreciated. A major reason for the sector's lack of profile is the lack of accessible information on the sport fishery's economic dimensions and importance. The economic importance of the fishery is not well understood and, to a large extent, the industry is getting eclipsed by other business sectors that can more coherently demonstrate their stature.

The report provides a profile of freshwater angling activity, catch, expenditures and associated economic impacts in the Province. The intent of this study for the Freshwater Fisheries Society of BC (FFSBC) is to elicit greater understanding of this important recreation activity and its economic importance to the Province of British Columbia.

The analysis is based primarily on the 2005 Survey of Freshwater Sport Fishing in British Columbia ("the 2005 Survey"), the most recent results from a survey conducted every 5 years by Canada Department of Fisheries & Oceans (DFO) in cooperation with the BC Ministry of Environment (MOE).

### **1.2 The 2005 Survey & Information Collection**

The 2005 Survey was a comprehensive survey of licenced anglers in British Columbia. The survey was conducted by mail and had questions under several headings:

- Licence Information
- Fishing Activities & Regions
- Assessment of the Fishing Experience
- Expenditures on Recreational Fishing
- Recreational Boat Ownership & Boating Activities
- Household Profile



There were separate survey questionnaires for BC residents and non-residents of BC. A followup questionnaire mailing for non-respondents to the initial survey package was conducted. The 2005 survey resulted in 3,021 useable responses.

This level of survey completions results in a Coefficient of Variation or CV in the range of 2% to 4% of the estimates for major activity measures, such as days fished or fish caught, at the provincial level (the CV is the standard error of the estimate divided by the estimate) - see DFO 2007. This in turn implies that 95% Confidence Intervals would be  $\pm$  4% to 8% around the estimate. The precision of regional estimates would be less.

In addition to the survey data, we accessed and used a variety of other information including: 1) MOE information on numbers of licences sold and on numbers of licenced guides, 2) FFSBC information on their fish stocking program, 3) BC Tourism information on visitor queries, and 4) several other reports and publications (see Bibliography).

We also conducted an interview program with MOE regional officials, FFSBC staff and others.

### **I.3 MOE Regions**

Angling takes place throughout the Province which is divided into nine (9) resource management regions - see map in Exhibit I.

1. Vancouver Island (VI)
2. Lower Mainland (LM)
3. Thompson-Nicola (TN)
4. Kootenay (KO)
5. Cariboo (CA)
6. Skeena (SK)
- 7A. Omineca (OM)
- 7B. Peace (PE)
8. Okanagan (OK)

This study profiles BC freshwater angling activity at the regional level as well as the provincial level.

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**Exhibit 1: Map of MOE Management Regions**

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## 2.0 Provincial Profile of Freshwater Angling

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Angling also called sport fishing or recreational fishing is a year-round recreation activity. The province has over 200,000 lakes and 750,000 km of streams and rivers and offers 24 popular species of sport fish. Angling occurs from shore, beach, pier or boat, and anglers use lures, bait, flies and set lines as gear.

In 2005 the freshwater fishery of British Columbia had licence sales of 340 thousand, 3,984 thousand angler-days of activity, \$480 million in angler expenditures and 8,193 thousand fish caught, of which three quarters were released. Angling is an important source of recreation and recreation spending for provincial residents and visitors alike.

Although there is great diversity in angling opportunities among regions and there are important regional differences, this section focuses on profiling angling from a provincial perspective. Section 4 to follow presents a regional profile.

### 2.1 Legislative Responsibility for the BC Freshwater Fishery

There is overlapping federal and provincial jurisdiction of freshwater fisheries in the Province. The BC Ministry of Environment (MOE) is the lead provincial agency.

*The Ministry has, through delegated authority under the federal Fisheries Act, responsibility for the Province's non-salmon freshwater fisheries which also includes sea-run steelhead, cutthroat and Dolly Varden. In this capacity, the Ministry has the lead on freshwater fish governance, conservation and recreation. The licensing of freshwater recreational fishing is enabled under the Province's Wildlife Act. The Freshwater Fisheries Society of BC (FFSBC) was established by the Ministry to deliver the Province's freshwater stocking program and take the primary role in the promotion and education related to recreational fishing. The provincial government has primary responsibility for land and water use decisions on Crown lands and utilizes a variety of statutes to sustainably manage fish habitat and other environmental values.*

*The federal Department of Fisheries and Oceans (DFO) is responsible for First Nation fisheries, commercial and recreational fisheries in tidal waters, salmon fisheries in non-tidal waters and has the lead responsibility for fish habitat protection (MOE 2007).*

The provincial and federal governments consult and coordinate on fisheries matters in part through the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM).

The federal government also cooperates with the Province through federal hatchery programs for salmon and steelhead which produce fish for both saltwater and freshwater anglers.

### 2.2 Angler Motivations

To catch a fish is one of many reasons why people fish recreationally.

The 2005 Survey indicates that the top three reasons why people fish in BC freshwater are: 1) “To Enjoy Nature”, 2) “For Relaxation”, and 3) “To Get Away” - see Exhibit 2. Catching fish is not the primary reason for fishing. However, fish are important for without fish there would be no angling.

## 2.3 Angler Licences

Anglers 16 years of age or older must have a fishing licence. Anglers also must:

- abide by restrictions on allowable gear,
- obey minimum or maximum size limits on fish that they catch and keep,
- observe fishing seasons,
- adhere to water-specific closures,
- observe restrictions on bag limits of fish that they can catch.

**Types of Licences.** Basic Licences are either annual, 8 day or 1 day licences allowing BC residents, other Canadians, or non-Canadians to fish in BC freshwater (separate fee structures exist for each category). There are also annual licences for BC residents who are disabled or 65 years of age or older.

The number of Basic Licences sold declined from approximately 400,000 annually in the early 1990s to 319,400 in 2005/06 - but sales have increased to 340,200 over the last three years (see Exhibit A.1).



**Conservation Surcharge.** Conservation Surcharge stamps are supplementary licences required to fish for steelhead, or retaining salmon or specific stocks of trout or char. A conservation surcharge stamp for sturgeon was introduced in 2008.

The Habitat Conservation Trust Foundation (HCTF) initiated in 1981 is directly supported by surcharges on hunting, fishing, trapping, and guide-outfitting licences. The HCTF administers, implements and delivers a wide variety of conservation related projects. HCTF Projects in 2008/09 included:

- Kootenay Lake Gerrard Trout Conservation,
- BC Family Fishing Weekend
- Campbell River Estuary Restoration
- Thompson River Steelhead Stock Assessment, and
- Okanagan River Restoration Initiative.

**Classified Waters.** The Province introduced in 1990/91 a Classified Waters management system. Under the system, 42 highly productive trout and steelhead streams have been designated as Classified Waters (7 Class 1, 35 Class 2). These Classified Waters require an additional licence.

Class 1 waters are remote, pristine, wilderness waterbodies with significant fisheries values which are largely accessible only by boat or aircraft. Class 2 waters are more accessible but still offer quality fishing experiences.

Freshwater angling guides must be licenced (there is no licensing requirement for saltwater angling guides). Section 5 profiles the angling guide industry and its regulatory regime.

Exhibit 3 presents a summary profile of freshwater angling from the 2005 Survey of Freshwater Sport Fishing in British Columbia. More detailed information is given in Exhibit A.2, Appendix A.

## 2.4 Angler Demographics

The 2005 Survey gives an estimate of 270,800 active licences from the 304,700 individuals holding an angling licence. The 304,700 licence holders is less than the 319,400 Basic Licences sold in 2005/06 since an individual may purchase more than one licence e.g., two 1-day licences.

Section A of Exhibit A.2, Appendix A presents a snapshot of angler demographics by residence of angler from the 2005 Survey:

- 13% of anglers are under 25 years of age whereas 40% are over 55 years of age,
- 83% of anglers are male,
- 25% of anglers have household income under \$40,000 and 34% have household income of \$80,000 or greater.

The non-Canadian angler was older on average than the BC resident angler and had higher household income.

The 2005 Survey results demonstrate that individuals of all ages fish recreationally, and that angling appeals to individuals from a wide variety of economic circumstances. Moreover, there appears to be source for growth in the female angler segment.

## 2.5 Angler Activity

Angling is a form of outdoor recreational activity. Three main components of the angling activity are:

- catching fish - regardless of whether the fish is harvested or kept,
- harvesting fish - for those anglers who are allowed to choose to do so,
- aesthetic experience - derived from the natural environment.

**Angler Days.** In view of these distinct components, angling activity is measured not in units of fish caught or harvested, but in “angler days”. An angler day is a measure of angler use representing one person fishing for any part of a day.

The 270,800 active anglers in 2005 fished 3.984 million days or 14.7 days on average overall - 17.0 days for BC resident anglers, 7.4 days for other Canadian anglers, and 6.2 days for non-Canadian anglers (see Exhibit 3). The bulk of angling occurs on lakes.

<u>Location</u>	<u>Days Fished '000</u>	
On Open Water Lakes	2,442	61%
On Rivers	1,375	35%
Under Lake Ice	<u>167</u>	4%
	3,984	

Two thirds of angler days by BC residents occur in the MOE region in which they live - see Exhibit A.3, Appendix A.

The days fished figures exclude the 66,700 youth under 16 years of age who fished 336,100 days in 2005.

**Angling Experiences.** Two broad types of angling experiences exist:

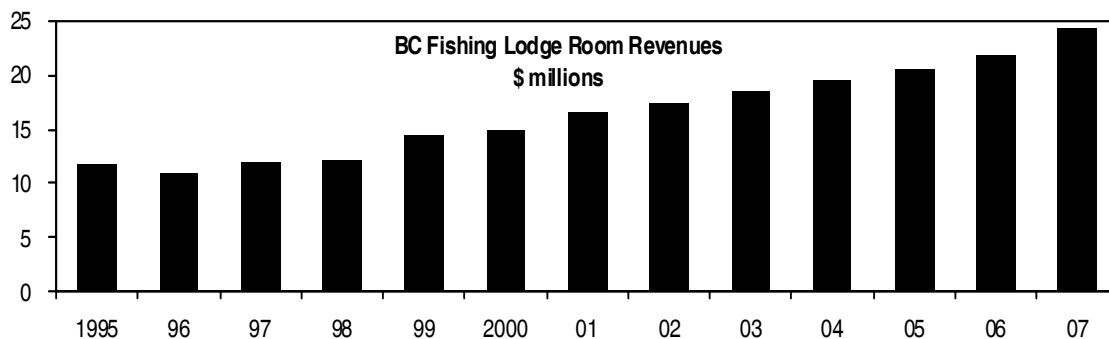
- independent anglers - pursue their own fishery experience and assume responsibility for their fishing gear, boat and fuel (if required), accommodation, meals and transportation,
- guided/lodge anglers - hire a third party to package one or more of accommodation, meals, guiding services, boat, equipment and transportation to facilitate the angling experience.

The 2005 Survey estimates that 8,230 households purchased 9,230 fishing packages. Moreover, anglers used a guide for 61,650 angler-days or 1.5% of the total angler-days. Many fishing packages include a fishing guide but in other cases angler clients hire a guide directly.

Most of the guided angling activity occurs on rivers rather than lakes. Angling occurs throughout the year but 2/3 of activity takes place in the four summer months June through September.

The number of anglers using a fishing lodge, resort or camp was estimated at 41,720 - many anglers staying at such facilities do not purchase a package but use the facility as an accommodation base only.

Room revenues at BC fishing lodges have more than doubled since the mid 1990s. In fact, room revenues per property and per room have increased faster for fishing lodges than for other accommodation types (see Exhibit C.3, Appendix C).



Additional details on guided angling activity and fishing lodges is presented in Section 5 and Appendix C.

## 2.6 Angler Catch

Total angler catch in 2005 was an estimated 8,193 thousand fish of which 2,140 thousand were kept and 6,053 thousand were released (from 3,984 thousand angler-days):

		2005 Catch '000 of fish			%
		Kept	Released	Total	Released
Trout	- Rainbow	1,086	2,844	3,930	72%
	- Cutthroat	99	815	914	89%
	- Steelhead	15	120	135	89%
	- Brook	46	103	149	69%
	- Other	119	419	538	78%
Kokanee		350	131	481	27%
Salmon (Non-Tidal)		237	827	1,064	78%
Non-Salmonids		<u>188</u>	<u>794</u>	<u>982</u>	81%
<b>TOTAL</b>		2,140	6,053	8,193	74%

The average catch rate of 2.1 fish per angler-day represents good fishing success.

Close to three quarters of all fish caught are released. Cutthroat trout and steelhead, in particular, have very high release rates.

## 2.7 Angler-Dependent Businesses

Anglers spend substantial sums of money to pursue their recreation activity. Angling requires fishing equipment and transportation to get to the angling location. Often anglers require overnight accommodation. Anglers also spend money on food in restaurants, food stores etc and on fishing supplies such as lures and raingear.

Many anglers fish from a boat which in turn requires expenditures for the purchase cost as well as ongoing costs for fuel, maintenance, insurance etc. Some anglers also purchase special vehicles and properties to access fishing opportunities.

In total, thousands of businesses in British Columbia have anglers as customer clients.

BC Tourism has constructed a partial list of businesses by MOE region that potentially cater to anglers. Exhibit 4 lists 1,157 entries - but the list must be considered incomplete. Exhibit 4, however, does demonstrate that businesses dependent on angling customers exist in all regions of the province.

## 2.8 Angler Expenditures

Fishing often is viewed as a leisure activity or pastime that does not really leave an imprint on the economy. This is incorrect. Fishing actually is an important economic generator to the Province and especially its rural regions.

The 2005 Survey results give a total freshwater angler expenditure of \$480 million - \$205 million in trip expenditures such as accommodation & food, supplies & services, travel & boat costs, and fishing packages and \$275 million in capital expenditures on equipment, boats and other durable items (see Exhibit 3 and Exhibit A.2, Appendix A).

	Angler Residence			
	BC	Rest of Canada	Outside Canada	All
Expenditures \$ millions	387	53	40	480
Days Fished '000	3,582	208	194	3,984
\$ per Day Fished	\$108	\$255	\$205	\$120

The result is an average angler day cost of \$120 with anglers from outside BC spending substantially in excess of \$200 per day.

In fact, there is a great diversity of experiences within each category with some high end guided angling trips in remote settings costing close to \$1,000 per day. In contrast, there are a wide variety of angling experiences close to major population centres that cost less than \$25 per day.

### A “Typical” Fishing Trip

Many businesses and workers from all areas of the province either depend directly on sport fishing or count anglers among their clientele.

Consider a “typical” fishing trip for Joe Smith. On Saturday morning, he rises early and fills his car with gas and loads his boat onto a trailer for the 80 km drive to his favourite fishing spot. On the way, he stops and buys some line and lures at a local tackle shop and picks up a drink and sandwiches at the grocery store next door. Arriving at the lake, he uses the boat ramp to launch his boat.

Joe may not realize it, but his dollars are rippling out through the local economy, just like the effect on water from a leaping trout. The purchase of gear helps the tackle shop owner pay his employee, lighting bill, and property taxes. The grocery clerk spends part of her wages on rent and a movie. This rippling or “multiplier” effect continues as more purchases are made and earnings are respent.

On average, a BC angler spends around \$120 a day, or more than \$1,700 a year on his recreational interest. Although the daily costs of an angler may seem small, the total spending is in fact very large when added up over all anglers and days fished. Expenditures on freshwater angling amount to almost half a billion dollars province-wide.

## 2.9 Rainbow Trout - The Backbone of the Industry

Rainbow trout is the backbone of the industry with close to half of angler-days, fish caught, and angler expenditures attributable to the species.



<b>Freshwater Angler Activity 2005</b>			
<b>Target Species</b>	<b>Angler-Days '000</b>	<b>Catch '000 of fish*</b>	<b>Angler Expenditures \$ millions</b>
Trout - Rainbow	1,929	3,930	231
- Cutthroat	387	914	30
- Steelhead	137	135	33
- Brook	129	149	12
- Other	278	538	24
Kokanee	236	481	22
Salmon (non-tidal)	658	1,064	100
Non-Salmonids	<u>230</u>	<u>982</u>	<u>28</u>
<b>Total</b>	3,984	8,193	480

\* includes kept and released fish, includes non-directed catch.

Source: GSGislason estimates based on 2005 Survey and MOE interviews.

Salmon is the next most prominent species in terms of angler interest and angler expenditures.

The full range of species, however, is important as they provide opportunities throughout the year, throughout the province, and in both lake and river or stream systems.

## 2.10 Comparison to Other Activities

It is instructive to compare the economic dimensions of freshwater angling in BC to that of angling in Canada as a whole. It is also useful to compare freshwater angling to other recreation activities such as golf, BC Parks visitation, and cruise ship tourism, all high profile activities.

<b>Activity</b>	<b>\$ millions Expenditures</b>	
	<b>BC</b>	<b>Canada</b>
Angling (2005)	480	5,052
BC Provincial Park Visitors (1999)	486	NA
Golf (2008)	1,318	9,589
Cruise Passenger Spending (2005)	270	NA
Downhill Ski Equipment Sales (2005)	8	44
Tourism (2005)	13,800	62,700

Source: 2005 Survey, Strategic Networks Group (2009), and GSGislason (2007) Table G.4 in Appendix G, *Tourism BC "Downhill Skiing and Snowboarding Product Overview" (April 2009)*, and BC Ministry of Water, Land & Air Protection (2001).

Freshwater angling expenditures in British Columbia compare favourably to expenditures in many other recreation or vacation activities. The \$480 million in sport fishing expenditures in 2005

- are 10% of all angling expenditures in Canada,
- are larger than cruise ship tourism in BC,
- are about the same size as spending by visitors to BC Parks,
- are over 1/3 of golfing expenditures in BC, but
- are a relatively minor component of BC tourism expenditures.

BC freshwater angler expenditures on fishing equipment and new boats of \$55 million greatly exceeds the \$8 million that BC downhill skiers spent on equipment in 2005 (according to the Canadian Ski Council as reported by Tourism BC, “Downhill Skiing and Snowboarding Product Overview”, 2009).

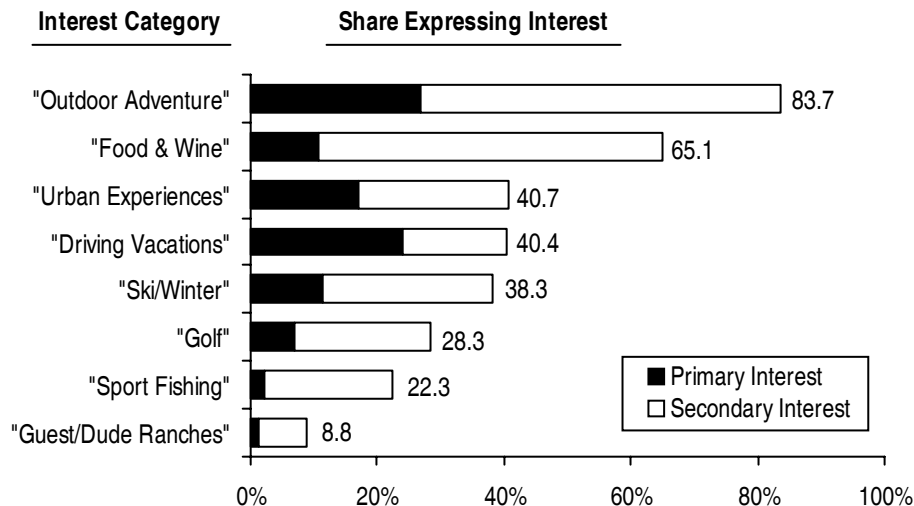
## 2.11 Importance to Tourism

Out-of-province freshwater anglers took 93,500 fishing trips and spent 542,300 nights on fishing trips to British Columbia in 2005. Angling does generate tourism traffic.

Nevertheless, our investigations in this and previous work suggest that sport fishing - freshwater or saltwater - is not fully integrated into tourism marketing and product development in some regions of the Province. For example, many tourism brochures do not list angling as one of the product offerings available. Greater linkages to mainstream tourism marketing material is needed.

Many visitors to the province do not know that there are exceptional angling opportunities over a wide range of experiences that can be undertaken. There is opportunity for tourism product diversification with packaging fishing products with horseback riding, wildlife viewing, whitewater rafting and a variety of other outdoor activities. Many visitors are seeking a variety of experiences on a multi-day trip to the Province. Angling can provide one component of this multi-faceted experience.

### Visitor Interests\*



\* "Hello BC" Tourism BC records 2007, 2008 & 2009 up to August.

The Tourism BC “Hello BC” tourism information service reports that:

- 2.1% of consumers indicated that Sport Fishing was their primary interest for travelling to BC for a vacation, but that
- a much larger 22.3% of consumers indicated that Sport Fishing was a primary or secondary interest.

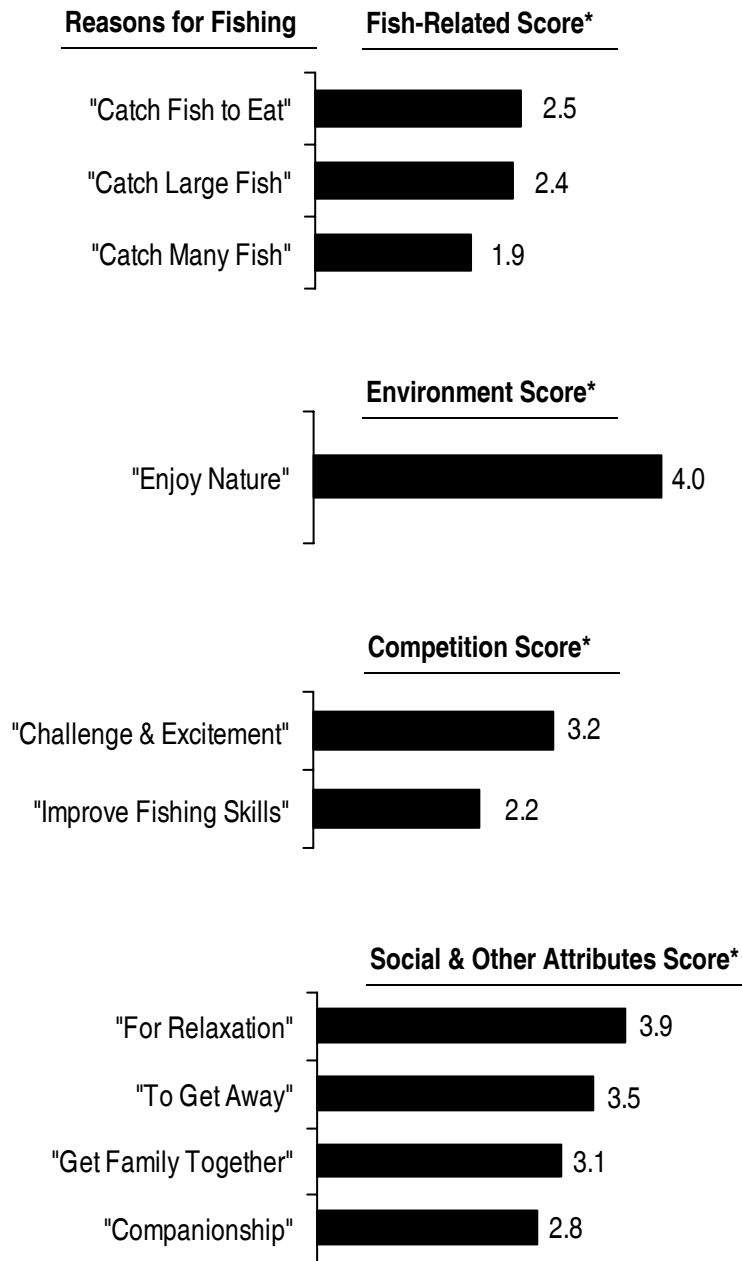
Most individuals choosing Sport Fishing as an interest also chose Outdoor Adventure as well.

So although sport fishing presently is a small component of the tourism mix, there is opportunity for growth. There is significant interest in sport fishing as a tourism activity, especially when combined with other opportunities.

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**Exhibit 2: Reasons for Freshwater Fishing in BC**

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Source: 2005 Survey of Recreational Fishing in BC.

\* Average scores from 1 to 5 scoring system with 1 = Not Important, 2 = Somewhat Important, 3 = Important, 4 = Very Important, and 5 = Extremely Important. An average score of 2.5 would be Neutral.

### Exhibit 3: Freshwater Angling Profile 2005 - Province of British Columbia

#### Activity Measures

<u>A. Activity by Angler Residence</u>	<u>Active Anglers</u>	<u>Angler-Days</u>	<u>Guided Days</u>	<u>Packages Purchased<sup>1</sup></u>	<u>Expenditures \$000</u>
BC	211,310	3,582,260	28,780	3,980	387,080
Rest of Canada	28,210	208,030	9,630	750	53,080
Outside Canada	<u>31,230</u>	<u>194,080</u>	<u>23,240</u>	<u>4,500</u>	<u>39,730</u>
<b>TOTAL</b>	<b>270,750</b>	<b>3,984,370</b>	<b>61,650</b>	<b>9,230</b>	<b>479,890</b>

#### B. Angler Expenditures

#### Angler Expenditures by Category \$000

<u>Trip</u>	<u>Capital</u>	<u>Expenditures \$000</u>
- Packages <sup>1</sup>	- Fishing Equipment	18,430
- Accommodation & Food	- Boating Equipment : New	43,380
- Travel	: Used	34,390
- Owned Boat Costs	- Camping Equipment	47,980
- Licence Fees	- Vehicles	55,370
- Guide Services <sup>1</sup>	- Land & Bldgs	69,770
- Fishing Supplies	- Other	<u>5,860</u>
- Fishing Services		Subtotal
		275,180
Subtotal	<b>Total Trip &amp; Capital Expenditures</b>	<u>479,890</u>

#### C. Angler Catch

#### Catch Disposition

	<u>Kept</u>	<u>Released</u>	<u>Total</u>
Trout - Rainbow	1,085,560	2,844,050	3,929,610
- Cutthroat	98,780	814,790	913,570
- Lake	60,380	121,920	182,300
- Steelhead	15,140	120,230	135,370
- Brook	46,060	102,700	148,760
- Dolly Varden/Bull Trout	32,410	237,930	270,340
- Other	25,630	59,760	85,390
Kokanee	349,780	130,890	480,670
Salmon	237,330	827,080	1,064,410
Walleye (Pickerel)	26,210	39,710	65,920
Arctic Grayling	2,720	29,580	32,300
Whitefish	36,100	73,840	109,940
Perch	65,040	261,400	326,440
Bass	22,180	213,000	235,180
Northern Pike	5,440	19,660	25,100
Other	<u>30,710</u>	<u>156,500</u>	<u>187,210</u>
<b>TOTAL</b>	<b>2,139,470</b>	<b>6,053,040</b>	<b>8,192,510</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit 4: Businesses Potentially Catering to Anglers by Region

Business Category	No. of Businesses by Region									All
	1. VI*	2. LM*	3. TN	4. KO	5. CA	6. SK*	7A. OM	7B. PE	8. OK	
Accommodation - Lodge/Resort	72	41	36	2	31	43	8	0	3	236
- Other	24	13	32	5	20	3	0	0	8	105
Angling Charters/Guides	243	153	21	24	14	81	14	2	6	558
Marinas/Boat Services	52	37	10	2	1	4	0	1	5	112
Sport Fishing Retail - Tackle	8	11	1	3	1	4	2	0	1	31
- Other	17	22	8	11	6	14	2	3	5	88
Transportation - Boat	5	5	5	0	0	2	0	0	1	18
- Other	<u>2</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>9</u>
<b>TOTAL</b>	423	284	113	48	73	154	26	6	30	1,157

\* Several of these businesses would focus on saltwater angling

Source: BC Tourism Inventory

Note: The list is incomplete e.g., several guides are missing, the retail sector is underrepresented ("big box" stores are excluded), restaurant & food establishments are excluded.

Legend:

- VI - Vancouver Island
- LM - Lower Mainland
- TN - Thompson Nicola
- KO - Kootenay
- CA - Cariboo
- SK - Skeena
- OM - Omineca
- PE - Peace
- OK - Okanagan

## 3.0 Provincial Economic Impacts

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The freshwater sport fishery of British Columbia makes an important contribution to the provincial economy especially to the many rural regions of the province. The sport fishery creates wages and employment to workers and income to business owners through angler expenditures. The sport fishery also creates tax revenues to the various levels of government.

For each \$1 spent by anglers, the federal government earns 15 cents in tax revenue and the provincial government earns 11 cents in tax revenue, a total of 26 cents.

### 3.1 Impact Indicators

The key indicators for the economic impact analyses are: 1) Gross Angler Expenditures, 2) Gross Domestic Product (GDP), 3) Wages & Benefits (or Labour Income), 4) Employment (measured in person-years or PYs), and 5) Tax Revenues.

GDP is the best measure of the contribution of an industry or activity to the economy as it measures the unduplicated value of production. GDP represents the value added from the industry or activity, or equivalently, the sum of incomes earned - wages & benefits to workers and operating surplus (pre-tax profits, depreciation, interest paid) to business owners - plus an adjustment for indirect taxes on sales and purchased inputs less subsidies. GDP represents a “net” measure of economic impact whereas the initial expenditure is a “gross” measure of economic impact.

### 3.2 Freshwater Angling Impacts

**Direct Impacts.** The direct economic impact to the province from the \$479.9 million in angler expenditures in 2005 is estimated to be \$131.5 million in GDP, \$75.1 million in wages, 2,500 person-years of employment and \$83.3 million in taxes paid to senior levels of government (\$45.7 million federal, \$37.6 million provincial) - see Exhibit 5. The 2,500 person-years or full time equivalents of employment is equivalent to about 7,500 jobs since most employment is seasonal or part time.

The tax revenues to government include personal income tax, corporate income tax, commodity taxes such as PST and GST (Provincial Services Tax and Federal Goods & Services Tax), and angler licence fees.

**Total Impacts.** In addition to direct impacts, the freshwater sport fishery has impacts on the economy through backward linkages to suppliers of goods and services (called indirect impacts), and through the respending of household wage incomes earned at the direct and indirect stages (called induced impacts). That is, spending by businesses supplying the angler sector and spending by workers in the direct and indirect supply sectors generate further “multiplier” effects on the economy.

Total provincial impacts from freshwater angling, including indirect and induced multiplier effects, then are:

- \$210.4 million in GDP,
- \$120.2 million in Wages & Benefits,
- 3,875 person-years of Employment, and
- \$125.1 million in Tax Revenues (\$71.7 million federal, \$53.4 million provincial).

That is, for each \$1 spent by anglers, the federal government reaps 15 cents in tax revenue and the provincial government reaps 11 cents in tax revenue, a total of 26 cents.

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## Exhibit 5: BC Provincial Economic Impacts from Freshwater Angling 2005

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Impact Indicator	Impact Stage		
	Direct	Indirect & Induced	Total
Expenditures \$ millions	479.9	NA	NA
Gross Domestic Product (GDP) \$ millions <sup>1</sup>	131.5	78.9	210.4
Wages & Benefits \$ millions <sup>2</sup>	75.1	45.1	120.2
Employment person-years or PYs <sup>3</sup>	2,500	1,375	3,875
Taxes Paid \$ millions			
- Personal Income Tax <sup>4</sup>	12.0	7.2	19.2
- Corporate Income Tax <sup>5</sup>	3.8	2.3	6.1
- Commodity Taxes <sup>6</sup>	56.4	33.8	90.2
- Licence Fees <sup>7</sup>	<u>9.6</u>	<u>0</u>	<u>9.6</u>
	81.8	43.3	125.1
Taxes Paid \$ millions			
- Federal	44.8	26.9	71.7
- Provincial	<u>37.0</u>	<u>16.4</u>	<u>53.4</u>
	81.8	43.3	125.1

Source: GSGislason estimates based on BC Stats multipliers and other sources.

- Notes:
1. Direct GDP - estimated as 35% of angler expenditures (excluding payments for used boats and land & buildings).
  2. Direct Wages & Benefits - estimated as 20% of angler expenditures (excluding payments for used boats and land & buildings).
  3. Direct Employment - derived from an estimated \$30,000 per person-year (direct jobs would be about 3 times this or 7,500 since most jobs are seasonal).
  4. Personal Income Tax - estimated as 16% of Direct Wages & Benefits (approximately 70% federal tax, 30% provincial tax).
  5. Corporate Income Tax - estimated as 1% of angler expenditures excluding payments for used boats and land & buildings (approximately 2/3 federal tax, 1/3 provincial tax).
  6. Commodity Taxes - estimated as 15% of angler expenditures excluding payments for used boats and land & buildings (approximately 60% federal, 40% provincial).
  7. Provincial Licence Fees.
  8. The direct impact ratios are generally consistent with those from BC Stats (2007).



## 4.0 Regional Profile & Impacts

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There is substantial regional diversity in angling opportunities and activity across the province. These differences reflect differences in geology and climate, distance to major population centres, and other factors.

Freshwater recreational fisheries in BC often take place in spectacular settings that surround lakes and streams. BC offers a wide range of fishing opportunities from urban lakes to totally pristine and wild lakes and streams. BC offers something for every angler, from the most ardent and experienced fly fisherman to the novice.

BC recreational fisheries provide the opportunity to capture a wide variety of sport fish species each bringing with them their own distinctive experience whether it is fishing for large sturgeon in the lower Fraser River, to trophy rainbow in an interior lake, to kokanee in Kootenay Lake. As well, anglers can choose the experience that they want in the setting that they want - from catching large numbers of fish in a popular interior lake to holding out for that once in a life time opportunity to catch a large trophy-sized fish in a remote setting.

This section explores the differences in angling activity and associated economic activity in the nine MOE regions. Exhibit 6 summarizes the results by region. Appendix B contains detailed one page snapshots for each region.

### 4.1 Regional Activity

The three largest regions in terms of angling angler-days are the Lower Mainland, Thompson-Nicola, and Kootenay which in total comprise more than half of total provincial activity - but no one region comprises more than 20% of total activity (see Exhibit 6).

Rainbow trout is the major species of angling interest and the major species of fish caught in the province - the rainbow trout catch represents about half of the total 8.2 million fish caught (Exhibit 6). There is a significant fishery for rainbow trout in all nine regions.

There are important regional differences in angling focus and catch. Some differences are:

- Vancouver Island - multitude of fishing opportunities for rainbow and cutthroat on small lakes many of which are close to urban centers as well as river fishing opportunities for salmon and steelhead.
- Lower Mainland - salmon and steelhead fishing opportunities in rivers including Fraser River tributaries as well as a unique opportunity to catch and release large sturgeon on the Fraser Mainstem. The region also boasts significant opportunities for catching rainbow in urban lakes such as Lafarge (see next page).

### Lafarge Lake - A New Urban Fishery

Lafarge Lake is 5 ha in size and located in the City of Coquitlam part of Greater Vancouver and Region 2 Lower Mainland. The urban “Fishing in the City” pilot program was launched at Lafarge Lake three years ago. A new dock was also built. In 2008 over 10,000 rainbow trout were stocked.

On-site angler surveys and on-site digital time-lapse cameras were deployed to measure angler effort and angler satisfaction (the camera took images every hour during daylight hours). Total angler visits from April through early October were an estimated 6,500 or about 1,300 per ha - this unit traffic volume is much higher than at Interior BC lakes.

The top three reasons surveyed anglers gave for fishing the lake were: 1) close proximity to home (in most cases a 15 minute drive or less), 2) social reasons e.g., fishing with friends or family, and 3) the lake is well-stocked/success rates are high. A significant immigrant population was attracted to the fishery. As well, many of the anglers were first time or novice anglers.

- Thompson Nicola - this interior region offers world famous fishing opportunities for rainbow trout in numerous small lakes, many of which are supported by the Provincial stocking program.
- Kootenay - extensive fisheries for rainbow and cutthroat in small lakes as well as renowned opportunities to catch large-lake rainbow trout and kokanee in Kootenay and Arrow lakes and wild cutthroat in rivers such as the Elk. This region attracts significant effort from both BC and Alberta.
- Cariboo - large and small lakes support angling opportunities for both wild and stocked rainbow and kokanee. World famous rivers (e.g., eg Dean) offer opportunities to catch wild steelhead.

### Sheridan Lake - A Unique Fishery in the Cariboo

Sheridan Lake is 1,660 ha in size with many shoals and is located in Region 5 Cariboo, around 30 km from 100 Mile House. The lake is the most heavily stocked lake in the Province with about 250,000 - 300,000 fish stocked annually.

Access and infrastructure are good - there is a paved road off Highway 24 to the lake, and three full service resorts are situated on its shores with over 40 cabins and 200 campsites available. The lake has almost no natural recruitment and therefore is dependent on stocking. There has been over 30,000 angler-days of activity annually in recent years and interest in fishing the lake is growing.

Besides the good access and infrastructure, the lake offers large rainbow trout in excess of 3 kg. These large fish are attributable to the FFSBC stocking program. The rainbows can be caught on both fly and conventional gear in a magnificent environmental setting. The fishery attracts anglers from the local area, the Lower Mainland, and the US.

The lodge owners and local residents engage in environmental stewardship through releasing water flow that encourages fish to spawn (their stewardship group is informally known as the “FOSLS” or Friends of Sheridan Lake Society).

- Skeena - Represents one of the last major Pacific drainages where record size chinook and summer-run steelhead can be found. The watershed is unique in the diversity of species available, the large size of fish, the fly fishing opportunities and its pristine setting.
- Omineca - large and small lakes and rivers support angling opportunities for wild and stocked rainbow and kokanee, many in pristine settings.
- Peace - supports angling for a diverse array of species including walleye, northern pike, rainbow and Arctic grayling. This region provides easy access to anglers from Alberta and those travelling the Alaskan Highway.
- Okanagan - numerous opportunities to catch rainbow and brook trout in small lakes as well as large-lake rainbow and kokanee in Okanagan Lake.

Exhibit 7 presents estimates of angling activity and catch from the 2005 Survey for a variety of waterbodies across the Province (note that the precision of the estimates by waterbody in Exhibit 7 is much less than for the MOE regions in Exhibit 6).

## **4.2 Regional Impacts**

Exhibit 6 also gives provincial direct economic impacts arising from angling activity in each region. The impact figures represent impacts on the provincial economy and not the fishing region.

Much of the direct expenditures such as package costs, accommodation, and fuel could be made in the fishing region but many capital/equipment costs in rural regions outside the Lower Mainland and Vancouver Island may be made in larger population centres. Nevertheless, all regions benefit from the availability of angling opportunities.

## Exhibit 6: Freshwater Angling Profile 2005 - Regions of British Columbia

	Fishing Region									
	1. VI	2. LM	3. TN	4. KO	5. CA	6. SK	7A. OM	7B. PE	8. OK	All
<b>A. Activity</b>										
Active Anglers '000	32.2	49.5	64.9	47.3	45.9	26.3	25.1	6.1	35.4	270.8 <sup>2</sup>
Angler-Days '000	461.2	710.9	702.2	645.1	440.4	320.8	272.7	69.4	361.7	3,984.4
Fishing Packages Purchased	1,065	1,495	1,850	1,595	1,420	1,465	85	30	225	9,230
<b>B. Expenditures \$ millions</b>										
Trip - Packages & Guides	1.2	1.6	1.8	2.2	4.1	5.3	0.5	0.1	0.2	17.0
- Accommodation & Food	6.9	10.6	15.2	12.4	10.2	6.4	5.1	1.2	6.9	74.9
- Travel	5.2	9.3	10.4	8.7	8.0	6.0	5.2	1.0	5.9	59.6
- Boat Costs	1.5	2.9	3.1	3.5	2.6	1.4	2.2	0.4	2.1	19.8
- Licence Fees	1.0	1.7	1.5	1.5	1.3	1.1	0.6	0.2	0.8	9.6
- Supplies & Services	2.3	4.1	3.9	3.5	2.6	1.5	1.3	0.3	4.3	23.8
Capital - Fishing Equipment	2.2	4.7	3.6	2.1	1.8	1.5	0.7	0.2	1.6	18.4
- Boats	4.2	17.3	12.3	7.9	10.5	9.0	7.9	1.9	6.8	77.8
- Camping Equipment	5.0	6.4	11.1	6.3	5.1	1.6	3.9	1.2	7.5	48.0
- Special Vehicles	6.0	10.0	12.8	4.0	10.0	5.2	2.3	0.6	4.6	55.4
- Land & Buildings	3.4	23.3	8.2	6.1	18.7	3.9	2.6	0	3.6	69.8
- Other	<u>0.9</u>	<u>1.9</u>	<u>1.0</u>	<u>0.6</u>	<u>0.6</u>	<u>0.3</u>	<u>0.2</u>	<u>0.1</u>	<u>0.3</u>	<u>5.8</u>
<b>TOTAL</b>	<b>39.6</b>	<b>94.0</b>	<b>84.8</b>	<b>58.7</b>	<b>75.5</b>	<b>43.2</b>	<b>32.4</b>	<b>7.1</b>	<b>44.6</b>	<b>479.9</b>
<b>C. Catch '000 Fish<sup>1</sup></b>										
Trout - Rainbow	212.1	202.2	1,067.0	543.6	767.4	191.9	504.0	39.9	401.5	3,929.6
- Cutthroat	286.4	59.3	1.4	450.1	12.0	85.2	17.3	0.8	1.1	913.6
- Steelhead	34.3	44.2	4.0	0	7.4	45.3	0	0	0.2	135.4
- Brook	7.3	2.9	19.5	26.2	24.3	8.7	26.3	3.1	30.5	148.8
- Other	76.1	43.6	57.8	116.3	70.9	67.2	64.5	5.9	35.7	538.0
Kokanee	2.0	12.8	47.8	294.5	44.2	7.0	25.6	0	46.8	480.7
Salmon (Non-Tidal)	130.0	666.6	14.5	2.1	40.5	193.7	3.4	0.2	13.3	1,064.3
Non-Salmonids	<u>80.3</u>	<u>64.6</u>	<u>85.1</u>	<u>367.0</u>	<u>15.0</u>	<u>24.8</u>	<u>70.3</u>	<u>102.0</u>	<u>173.0</u>	<u>982.1</u>
<b>TOTAL</b>	<b>828.5</b>	<b>1,096.2</b>	<b>1,297.1</b>	<b>1,799.8</b>	<b>981.7</b>	<b>623.8</b>	<b>711.4</b>	<b>151.9</b>	<b>702.1</b>	<b>8,192.5</b>
<b>D. Provincial Economic Impacts<sup>3</sup></b>										
Gross Domestic Product (GDP) \$ millions	18.8	32.5	41.3	27.4	29.8	21.1	15.0	3.0	21.5	210.4
Wages & Benefits \$ millions	10.7	18.6	23.6	15.6	17.1	12.1	8.6	1.7	12.2	120.2
Employment Person-Years	345	600	760	505	550	390	275	55	395	3,875
Taxes Paid \$ millions <sup>4</sup>	11.3	19.5	24.1	16.5	17.7	12.7	8.9	1.8	12.6	125.1

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia, economic multipliers from BC Stats and GSGislason estimates.

<sup>1</sup> Kept or released.

<sup>2</sup> Anglers may fish more than one region so the sum of anglers does not equal the provincial total.

<sup>3</sup> Impacts are total impacts i.e., direct industry plus indirect supplier plus induced consumer responding.

<sup>4</sup> Includes personal income tax, corporate income tax, commodity taxes on sales & licence fees.

## Exhibit 7: Freshwater Angling Profile 2005 - Selected Waterbodies in BC

Region	Waterbody									
	Elk Lake	Cowichan River	Fraser River	Chilliwack-Vedder	Harrison River	Chehalis River	Shuswap Lake	Loon Lake	Kootenay Lake	Elk River
	1	1	2	2	2	2	3	3	4	4
<b>Angler-Days</b>	29,600	34,900	254,600	180,000	9,500	9,700	78,700	34,300	103,400	33,900
<b>Catch Total*</b>										
Trout - Rainbow	16,600	12,100	6,700	5,300	100	0	30,200	58,300	44,500	19,000
- Cutthroat	5,000	3,700	11,600	2,800	600	1,100	100	4,600	13,100	210,300
- Steelhead	300	8,100	5,800	31,800	0	1,900	0	0	0	0
- Brook	0	3,000	0	2,000	0	0	0	0	700	200
- Other	6,000	4,800	2,000	6,500	0	100	8,900	6,700	22,500	18,200
Kokanee	0	200	0	0	0	0	2,800	0	65,600	3,600
Salmon (Non-Tidal)	0	7,400	356,800	184,000	19,400	5,200	0	900	0	0
Non-Salmonids	<u>35,300</u>	<u>1,800</u>	<u>63,000**</u>	<u>2,300</u>	<u>0</u>	<u>0</u>	<u>2,500</u>	<u>0</u>	<u>7,400</u>	<u>22,600</u>
<b>ALL</b>	63,200	41,100	445,900	234,700	20,100	8,300	44,500	70,500	153,800	273,900
<b>Catch Kept</b>										
Trout - Rainbow	4,700	900	5,400	900	0	0	4,500	33,300	20,400	0
- Cutthroat	200	400	300	300	0	0	0	900	300	1,800
- Steelhead	0	400	800	4,900	0	500	0	0	0	0
- Brook	0	500	0	0	0	0	0	0	600	0
- Other	3,900	0	0	500	0	0	1,400	3,700	9,600	500
Kokanee	0	0	0	0	0	0	1,700	0	57,700	3,100
Salmon (Non-Tidal)	0	300	115,700	29,200	2,000	1,600	0	500	0	0
Non-Salmonids	<u>3,900</u>	<u>0</u>	<u>14,700</u>	<u>200</u>	<u>0</u>	<u>0</u>	<u>1,100</u>	<u>0</u>	<u>2,900</u>	<u>11,700</u>
<b>ALL</b>	12,700	2,500	136,900	36,000	2,000	2,100	8,700	38,400	91,500	17,100

\* Kept or released.

\*\* Many of these would be sturgeon.

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia (there can be significant errors/lack of precision in estimates at the small area waterbody level - the intent of this Exhibit is to highlight the diversity of angling experiences on different waterbodies around the province).

continued

## Exhibit 7: Freshwater Angling Profile 2005 - Selected Waterbodies in BC (cont'd)

	Waterbody								
	Columbia River	Sheridan Lake	Bridge Lake	Babine Lake	Skeena River	Kitimat River	Francois Lake	Charlie Lake	Okanagan Lake
<b>Region</b>	4	5	5	6	6	6	6	7B	8
<b>Angler-Days</b>	73,700	37,200	26,300	18,900	81,300	67,000	25,300	14,000	47,200
<b>Catch Total*</b>									
Trout - Rainbow	127,600	34,100	3,000	18,700	1,100	4,600	32,900	0	26,300
- Cutthroat	100	0	200	0	1,500	9,300	0	0	0
- Steelhead	100	0	0	0	7,000	9,200	0	0	0
- Brook	0	0	0	4,200	0	0	1,800	0	0
- Other	3,800	1,200	12,400	0	9,000	4,700	3,500	0	2,700
Kokanee	7,600	1,000	5,500	0	0	0	500	0	4,900
Salmon (Non-Tidal)	200	0	0	2,000	58,000	60,100	0	0	0
Non-Salmonids	<u>24,500</u>	<u>0</u>	<u>0</u>	<u>2,100</u>	<u>4,500</u>	<u>1,200</u>	<u>700</u>	<u>29,300**</u>	<u>14,500</u>
<b>ALL</b>	163,900	36,300	21,100	27,000	81,100	89,100	39,400	29,300	48,400
<b>Catch Kept</b>									
Trout - Rainbow	20,700	12,500	1,500	5,900	200	500	16,400	0	9,900
- Cutthroat	0	0	0	0	500	1,400	0	0	0
- Steelhead	0	0	0	0	400	1,000	0	0	0
- Brook	0	0	0	1,300	0	0	1,800	0	0
- Other	1,100	200	1,800	0	1,500	1,500	1,900	0	800
Kokanee	3,100	800	4,900	0	0	0	500	0	1,300
Salmon (Non-Tidal)	0	0	0	1,100	18,800	12,600	0	0	0
Non-Salmonids	<u>17,700</u>	<u>0</u>	<u>0</u>	<u>1,600</u>	<u>600</u>	<u>0</u>	<u>500</u>	<u>7,300**</u>	<u>0</u>
<b>ALL</b>	42,600	13,500	8,200	9,900	22,000	17,000	21,100	7,300	12,000

\* Kept or released.

\*\* Mainly walleye (pickereel).

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia (there can be significant errors/lack of precision in estimates at the small area waterbody level - the intent of this Exhibit is to highlight the diversity of angling experiences on different waterbodies around the province).

## 5.0 Angling Guide Profile

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An important component of the BC freshwater fishery is the guided angling experience where an angler hires a third party to guide him or her to fishing locations and to demonstrate angling techniques. Often the guide services are packaged with one or more of meals, accommodation, transportation, equipment, and other goods and services. The third party guided angler experience has a much higher price or cost point than the self-guided angler experience.

Our analysis shows that the average guided angler spends \$480 per day or four times the \$120 average daily expenditure of all freshwater anglers in the Province.

### 5.1 Guide Regulation

Angling guides are subject to provisions of the *Wildlife Act*. Clients of angling guides are subject to applicable sections of the *Wildlife Act* and federal *Fisheries Act*.

To be an angling guide you must:

- be a Canadian citizen or permanent resident of Canada;
- be at least 19 years of age;
- have public liability insurance of at least \$2 million;
- successfully complete an exam that tests knowledge of fish species, safety procedures and relevant components of the *Wildlife* and *Fisheries Acts* (assistant guides are also required to complete a written exam).

Angling guides who operate on Classified Waters (Class 1 or Class 2) are allocated rod days which represent the maximum number of rod days that they are allowed to guide anglers on these waters - one rod-day is one rod fishing any part of one day.

At year-end, the guide must deliver a completed angler report detailing the number of anglers guided (BC resident, other Canadian, non-Canadian); species, number, and location of fish caught; and the Classified Waters licence number of each guided angler on the Classified Water.

There are annual fees for guide licences, assistant guide licences, and rod-day allocations for Classified Waters.

In 2008/09 there were 325 licensed angling guides and 460 licenced angling assistant guides in the Province - see regional distribution in Exhibit C.1.

### 5.2 Guided Client Profile

The angling guide business is primarily an export business with over half of guided anglers coming from other provinces or other countries. Many German, Austrian and Swiss tourists visit European-style fishing lodges on the Lower Skeena River. Many Americans use guides to fish wild steelhead on the Upper Skeena and rainbow trout in the Cariboo. A survey of angling guides on the Fraser River, who mainly target sturgeon, suggests that three quarters of Fraser River clients come from out-of-province (GSGislason 2005).

The 2005 Survey of Recreational Fishing in BC results indicates that:

- 75% of guided clients were male with 25% being female (a higher female percentage than the angler population at large).
- 21% of guided angler activity occurred on lakes with 79% occurring on rivers and streams (in contrast to 65% of activity on lakes and 35% on rivers/streams for the total angler population).
- 2/3 of total guided activity occurs in three regions - Lower Mainland, Cariboo and Skeena - whereas angling in general is more distributed across the Province.

The guided angler population differs from the general angler population in significant ways.

### 5.3 Guide Business Profile

Angling guides and guide businesses occur throughout the nine (9) MOE resource management regions. The majority of businesses are small, often family-owned and operated. Most businesses are seasonal.

Most steelhead fishing and all sturgeon fishing by guided anglers is “catch and release” fishing, and “catch and release” is common for other species as well.

There are approximately 300 active angling guide businesses with a revenue base of \$18.5 million and an employment base of 900 seasonal jobs - see Exhibit 8.

These businesses pay wages of \$6.5 million and generate 225 person-years or full time equivalents of employment.

Guided anglers also spend substantial sums of money, in addition to payments to guide businesses, for accommodation, meals, transportation and the like. This amounts to an estimated \$180 per day or \$11.1 million in total.

Total expenditures by guided anglers for the 61,700 guided days then is:

	<b>Angler Expenditures</b>
to Guide Businesses	\$18.5 million
to Other Businesses	<u>11.1 million</u>
	\$29.6 million

This corresponds to \$480 in total per guided angler day or four times the \$120 spent by the average freshwater angler.



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**Exhibit 8: BC Freshwater Angling Guides - An Economic Profile for 2005**

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**Activity**

Number of Operations	300
Guided Angler-Days <sup>1</sup>	61,700
Revenues	\$18.5 million

**Labour**

## Positions/Jobs

Guides & Assistant Guides <sup>2</sup>	700
Other <sup>3</sup>	<u>200</u>

**Total** 900

**Employment & Wages**

Person-Years	225
Wages	\$6.5 million

**Government Revenues**

Guide Fees & Rod-Day Fees	\$0.4 million
Angler Licences & Stamps	<u>2.0 million</u>
	\$2.4 million

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Source: GSGislason estimates based on 2005 Survey

- Notes:
1. Approximate distribution of the 61,700 guided days among regions - 4,000 Vancouver Island, 18,000 Lower Mainland, 6,000 Thompson-Nicola, 6,000 Kootenay, 10,000 Cariboo, 14,000 Skeena, 2,000 Omineca, 1,000 Peace, and 700 Okanagan.
  2. Assumed that only 85% of the 354 licenced guides and 474 assistant guides in 2005 were active.
  3. Other workers e.g., cooks, housekeeping staff etc.

## 6.0 Fish Stocking Benefits

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The Province of British Columbia has operated a hatchery fish production program for several decades. In 2003, the Freshwater Fisheries Society of BC (FFSBC) was created as a non-profit society to deliver fish culture services, in partnership with the BC Ministry of Environment.

For every \$1 invested in the stocking program, there is \$21 in angler expenditures. The FFSBC stocking program is spurring new anglers, new angler-days and new economic activity.

### 6.1 The Freshwater Fisheries Society of BC

**Mandate.** FFSBC was created in 2003 as an independent non-profit society with a mandate to conserve and enhance the freshwater fish resources of British Columbia for the benefit of the public. The strategic objectives of the society include:

- to steadily increase the number of anglers.
- to have thriving recreational fisheries in BC.
- to be recognized as the leader in wild freshwater fish culture and technology, and
- to play a key role in the conservation and restoration of BC's wild fish populations.

**Activities.** The society operates five major fish hatcheries located in Duncan, Abbotsford, Summerland, Clearwater and Cranbrook as well as a trout distribution centre in Prince George, nine egg collection facilities located in various locations in the province, a fish health laboratory in Duncan and a research office at the University of BC.

The society is organized around three major functions. Operations Division is responsible for delivery of the stocking program, Science Division is responsible for research and program evaluation and Sportfish Development Division is responsible for building provincial sport fisheries and delivery of the Angling Market Development Program.

Participation in recreational fisheries has been in decline in British Columbia and across North America. The Society's goal is to halt the decline and increase participation rates by the year 2017 by 30% over the 2005 level. This would return participation rates to 1990 levels.

A Situational Analysis was conducted and a ten year Angling Market Development Plan was developed:

- to halt the long term declines in participation and achieve gradual increases,
- to increase participation by lapsed, occasional and youth anglers, and
- to increase the number of anglers visiting from outside BC.

Participation will be increased by removing the barriers to going fishing (e-licences and simplified regulations), improving fishing access (docks and piers, community fishing ponds), providing information on how and where to go fishing, developing communication and promotion programs to raise the profile of angling, and ensuring that stocking programs meet the needs of anglers.

**Funding.** The revenues to the Society to deliver services to anglers have averaged approximately \$9 million over the past 5 years. These revenues accrue from three sources:

<u>Revenue Source</u>	<u>Revenue Amount</u>
Angler Licence Fee Contribution	\$6.8 million*
MOE Contributions for Conservation & Infrastructure	1.6 million
Partnerships & Other Agreements	<u>0.6 million</u>
	\$9.0 million

\* The FFSBC gets 54% of fees and surcharges from angler licence payments.

The costs of delivering the stocking program alone is the \$6.8 million plus a portion of the funding from the Province and from partners, an estimated \$8 million in total.

## 6.2 The Stocking Program

**The Rationale for Stocking.** Some lakes in BC do not support natural fish populations because of a lack of spawning habitat or other limitations. For these lakes, annual stocking is the only effective means to provide productive fisheries that support recreational activity. Less than 5% of BC's 200,000 lakes are stocked. However, this modest number of lakes attracts almost 50% of the angling activity that takes place on lakes.

Of the lakes that are not stocked, many contain wild populations of fish. Wild fish populations tend to be fragile and generally cannot support high intensity fisheries and harvest. Stocking lakes provide an opportunity for anglers to harvest fish thus offering some protection for wild stocks.

**A Unique Program.** The BC stocking program is unique in North America because it depends on "wild-type" brood fish as an egg source for the hatchery programs. Stocking programs elsewhere in Canada and the USA use primarily domesticated broodstocks as their source of eggs. BC is blessed with healthy stocks of wild fish that provide the attributes that anglers seek.

BC is at the forefront in the development of sterile forms of stocked kokanee, cutthroat and rainbow. Use of sterile fish in selected lakes ensures that more large fish are available for the anglers creels. Stocking sterile fish also limits interactions with any wild fish populations.

**Stocking Numbers.** Over the last 5 years from 2004/05 to 2008/09, the FFSBC has released an average of 6,653 thousand fish into 837 waterbodies annually:

	<u>No. of Stocked Fish '000</u>	
Rainbow Trout	4,458	67%
Cutthroat Trout	221	3%
Brook Trout	516	8%
Steelhead	648	10%
Kokanee	<u>810</u>	12%
	6,653	

Appendix D presents the detailed annual stocking figures by MOE region. Two thirds of stockings are rainbow trout. The cutthroat trout stocking number is the sum of three components - anadromous, non-anadromous, and west slope. Apart from steelhead, which are released into rivers, all other species are stocked into lakes.

### **6.3 Costs & Benefits of Stocking**

The benefits or angler expenditures associated with the stocking program are dependent upon:

- the directed angling effort and expenditures per angler day for each stocked species, and
- the share of angling effort by species that can be attributable to the stocking program.

For the latter, we use estimates of the share of stocked fish in the total catch of each species as a proxy.

Exhibit 9 displays our results. The parameter estimates are based on our interview program with MOE officials of each region. Exhibit D.2, Appendix D outlines our methodology.

An estimated \$168 million in angler expenditures are associated with angling for stocked fish in 2005:

- \$141.2 from rainbow trout stocking,
- \$4.1 million from cutthroat stocking,
- \$6.9 million from steelhead stocking,
- \$11.4 million from brook trout stocking, and
- \$4.4 million from kokanee stocking.

Rainbow trout comprises over 80% of the stocking benefits.

The \$168 million in angler expenditures result from the \$8 million in FFSBC stocking program costs. That is, for every \$1 invested in the stocking program there are \$21 in angler expenditures. This is an extraordinary Return on Investment.

Our interviews with MOE officials and others indicate that the majority of the angler-days and dollars associated with fishing stocked fish populations are new or incremental angler activity that would not occur otherwise. The FFSBC stocking program is spurring new anglers, new angler days and new economic activity.

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## Exhibit 9: Angler Expenditures Associated with the FFBC Stocking Program 2005

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	'000 Angler Days	Angler Expenditures \$ millions	Share of Coastwide Expenditures Attributable to Stocking	Value from Stocking \$ millions
	(1)	(2)	(3)	(4) = (2) x (3)
Trout - Rainbow	1,929	231	61%	141.2
- Cutthroat	387	30	14%	4.1
- Steelhead	137	33	21%	6.9
- Brook	129	12	95%	11.4
- Other	278	24	0	0
Kokanee	236	22	20%	4.4
Salmon (non-Tidal)	658	100	0	0
Non-Salmonids	<u>230</u>	<u>28</u>	0	<u>0</u>
<b>All</b>	3,984	480	35%	168.0

- 
- Source: 1. 3.984 million angler-days from 2005 Survey.  
2. Shares of directed effort and stocked fish in catch based on our Interview Program with MOE officials in each of the 9 regions (results were weighted to come to provincial figures).  
3. Angler expenditures by directed species day are GSGislason estimates (regional results were weighted to come to provincial figures).

## 7.0 Benefits & Costs of Freshwater Angling

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The freshwater sports fishery of BC provides large and varied benefits to British Columbians. Some of these benefits are tangible, other benefits are not. These tangible and intangible benefits greatly exceed the combined costs of fish stocking and fish management for recreational fisheries.

### 7.1 Tangible Economic Impacts

The major focus of this study is the \$480 million in angler expenditures and associated impacts on incomes, wages, employment and tax revenues. As noted in Sections 3 and 4, these are substantial at both the provincial and regional levels.

Total economic impacts on the Provincial economy are:

- Gross Domestic Product      \$210 million
- Wages & Benefits              \$120 million
- Employment person-years    3,875 person-years
- Tax Revenues                    \$125 million

Total impacts are the sum of direct plus multiplier effects. The \$125 million in tax revenues are split \$72 million federal and \$53 million provincial.

### 7.2 Intangible Economic Benefits

**Angler Satisfaction Benefits.** These are also other less tangible but still important benefits from sport fishing. Angler surveys consistently report that anglers are willing to pay substantial monies to go fishing, in addition to the monies that they actually do spend.

In the case of the BC freshwater fishery, these are likely to be much higher than \$25 a day or over \$100 million in total. These satisfaction or angler surplus benefits, although not tallied in a cash register, are a significant portion of the “value” or “benefits” of the sport fishery.

**Conservation & Stewardship Benefits.** BC sport fishing also contributes directly to fish and habitat stewardship through the licence fees and surcharges paid by anglers. A 25% portion of these fees are earmarked to support conservation and restoration projects sponsored by the provincial Habitat Conservation Trust Foundation (HCTF).

In rural communities, stewardship projects help raise public awareness and involve local citizens in resource protection. Anglers are the backbone of the volunteer effort that is directed at habitat restoration and clean-up. The result can be more local jobs and business revenues in addition to the economic impacts from sport fishing itself.

Consequently, through financial contributions and their own stewardship ethic, anglers are fuelling local economies and environmental conservation at the same time. To the sport fishing industry, good habitat means good business.

**Benefits from the User Pay Model.** Anglers have embraced the concept of “user pay”.

The 54% of licence fees that go directly to fund FFSBC stocking and promotion activities and the 25% of licence fees that go to the HCTF provide direct benefits to anglers through increased fish and improved habitat (the remaining 21% of licence fees goes to the Province which in turn funds MOE activities related to the freshwater fishery).

The freshwater sport fishery and the angler community of British Columbia are at the vanguard of innovative sport fish management in North America.

### **7.3 Costs vs Benefits**

These tangible and intangible benefits from the sport fishery of course come at a cost. As noted in Section 6, FFSBC costs of service delivery to anglers have been approximately \$9 million annually.

The cost of the BC Ministry of Environment freshwater fishery program, while not available at time of publication, are likely in the \$3 to \$6 million range. These costs refer to regional fish biologists and the headquarters staff in Victoria whose time is dedicated to recreational fisheries service delivery, as well as investments in activities such as stock assessment and inventories related to managing recreational fisheries.

These MOE costs imply that the combined costs of MOE and FFSBC attributable to the freshwater recreational fishery in BC are in the \$12 to \$15 million range with the lower end of the range more likely.

The benefits of the recreational fishery - from the \$480 million in angler expenditures, satisfaction benefits to anglers over and above these expenditures, conservation and stewardship activities, community volunteerism etc. – are substantially greater than the FFSBC and MOE costs combined.

## 8.0 Potential for Growth

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The freshwater fishing industry of British Columbia was very significant in 2005 with a revenue base or turnover of \$480 million from 319,400 licences sold and 3,984 thousand angler days. The industry has since grown.

There is significant room for further growth if several initiatives planned and piloted by the Freshwater Fisheries Society of BC move forward. The Society has identified 29 activities or tactics in its Angling Market Development Plan (AMDP), to stimulate industry growth, under three broad categories:

- product development e.g., stocking programs, infrastructure and access improvements,
- promotion e.g., marketing programs, and
- performance measurement & evaluation.

Several of these activities have been piloted and evaluated over the past three years. These programs have proven successful at increasing angler activity, and much of the additional activity has come from new and lapsed anglers. The package of initiatives is proven for implementation.

### 8.1 Industry Growth

**Industry Growth 2005 to 2008.** The industry has grown significantly from 2005 to 2008 - an increase in licence sales from 319,400 to 340,200, an estimated increase in angler-days from 3,984 thousand to 4,150 thousand, and an estimated increase in angler-expenditures from \$480 million to \$530 million.

Much of this growth is attributable to the success of FFSBC projects and initiatives (Roger Barnes “Learn to Fish - 2006 Program Evaluation”, Roger Barnes “Learn to Fish - 2007 Program Evaluation”, Stacey Webb “Fishing in the City” 2009).

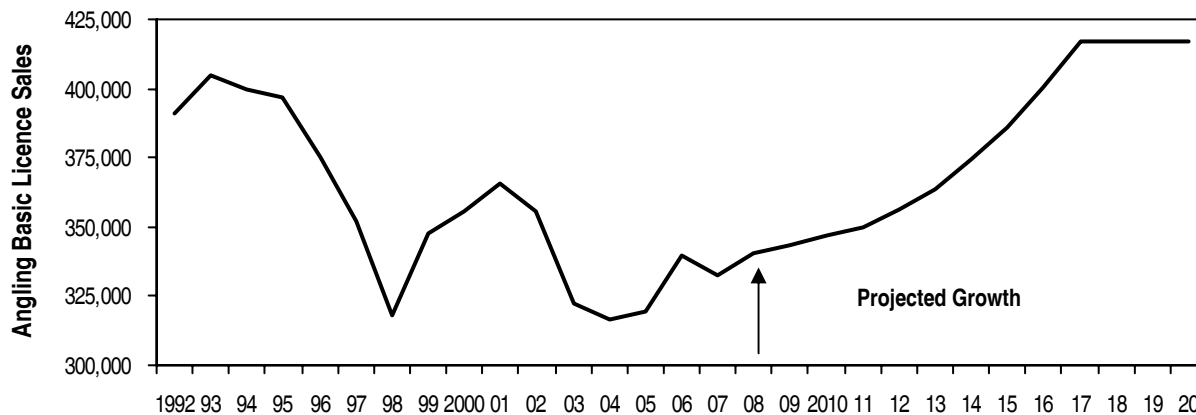
**Future Growth Potential.** The industry can build on this initial success.

Freshwater angling licence sales of Basic Licences can increase by 76,500 from a 2008 base of 340,200 to 416,700 in 2017 with implementation of the ADMP proposed initiatives (GSGislason 2008). This represents about a 30% increase from the 2005 Basic Licence sales figure.

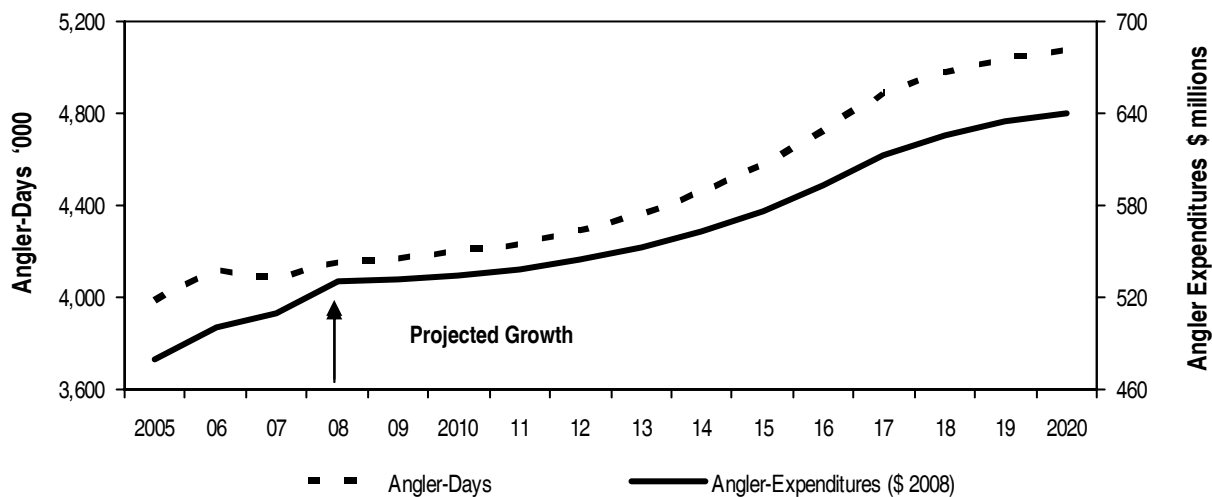
This projection appears realistic as BC freshwater angling licence sales exceeded 400,000 in the early 1990s but have declined since that time i.e., the projection represents a return to past licence sales volumes. Moreover, the United Kingdom realized a 40% increase in angler participation through targeted initiatives.

As noted in Section 2, there is significant interest in sport fishing as a tourism activity, especially when combined with other outdoor activities. The promotion of sport fishing requires greater linkages with mainstream tourism marketing initiatives.





This increase in licence sales results in a projected increase in angler-days to 5,070 thousand in 2020 and an increase in angler expenditures by \$110 million to \$640 million in 2020 (GSGislason 2008).



## 8.2 Significant Rural Benefits

A significant share of the above additional angler expenditures and associated economic impacts would accrue to the rural regions of the province, many of which have been hurt by the downturn in the forest industry.

It is estimated that 60% or more of the \$110 million additional angler expenditures, or \$60 million plus, would occur in rural regions of the province outside the Lower Mainland and Greater Victoria. Stimulating the freshwater fishery can form one part of a multi-faceted approach to revitalizing rural communities.

## 9.0 Conclusions

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The freshwater sport fishery is an important but little known engine of the economy, especially in rural areas. Its revenue base of \$480 million in 2005 is significant and compares favourably to spending from higher profile activities such as alpine skiing and cruise ship and provincial park visitation.

The intent of this exercise has been to inspire much greater appreciation of the economic and social importance of the freshwater sport fishery to BC. This importance underlies the need to devote more attention and effort to the upcoming BC Sport Fishing Survey. The 2010 survey and its results are an invaluable, comprehensive source for profiling this major industry.

BC's freshwater fishery has several unique advantages, including the diversity of fishing opportunities, the large size of fish available, and the magnificent natural surroundings. Angling and its benefits occur in all reaches of the province, with the bulk of angler expenditures occurring in rural areas.

Another unique feature is the stocking program delivered by the Freshwater Fisheries Society of BC, which produces an annual 6 to 8 million rainbow, cutthroat, brook and steelhead trout and kokanee for stocking. The stocking program results in \$21 in angler expenditures for every \$1 in stocking costs, an exceptional return on investment.

The benefits of angling extend well beyond the dollars spent. Indeed, anglers value the experience not only as a source of recreation and food, but also for the tranquillity and relaxation it provides and the opportunity to connect with friends, family and the natural world. Anglers are good conservationists, as exemplified by their extensive volunteer efforts with organizations like fish and game clubs and their co-management efforts.

Unlike most other resource industries, sport fishing offers significant opportunity for growth in BC. The basic research on angler motivations and needs has been done, and an action plan to increase angler participation has been formulated and piloted. The industry could grow to \$640 million (in current dollars) in angler expenditures by the year 2020, if the necessary measures are implemented.

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# Appendix A

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## BC Sport Fishing Profile

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## Exhibit A.1: BC Angling Licence Sales

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	No. of Basic Angling Licences Sold <sup>1</sup>				Gross Revenue <sup>2</sup>
	BC Resident	Other Canadian	Non-Canadian	Total	\$ millions
1992/93	313,291	38,504	38,967	390,762	6.6
93/94	326,580	39,340	38,730	404,650	7.7
94/95	320,758	36,898	42,195	399,851	9.0
95/96	317,582	36,526	43,004	397,112	9.3
96/97	301,258	32,676	41,423	375,357	8.8
97/98	282,992	29,918	38,757	351,667	10.6
98/99	286,869	30,915	41,435	317,784	10.8
99/00	274,902	31,071	41,676	347,649	10.5
2000/01	278,646	31,969	44,884	355,499	10.9
01/02	285,517	35,731	44,201	365,449	11.2
02/03	275,554	37,001	42,867	355,422	11.1
03/04	252,945	31,023	38,379	322,347	13.2
04/05	248,052	30,922	37,406	316,380	12.9
05/06	251,993	31,439	35,931	319,363	13.0
06/07	266,961	37,269	35,575	339,805	13.8
07/08	262,307	37,488	32,858	332,653	13.3
08/09	273,762	37,792	28,672	340,226	13.6

Source: BC Ministry of Environment.

<sup>1</sup> Basic Licences are 1 Day, 8 Day or Annual licence (Basic Licences for BC residents include licences for the disabled and those 65 years of age plus).

<sup>2</sup> Gross revenues include commissions paid plus the HCTF surcharge but do not include GST. Gross revenues include payments for Basic Licences plus Conservation Surcharges, Classified Water Surcharges etc.

## Exhibit A.2: BC Freshwater Fishing Profile 2005

	Angler Residence			
	BC	Rest of Canada	Outside Canada	All
<b>A) Angler Demographics</b>				
No. Licenced Anglers	241,350	30,800	32,510	304,650
No. Active Anglers	211,310	28,210	31,230	270,750
Age - <25 Years of Age	3.4%	5.4%	3.9%	3.7%
- 25 to 34	9.7%	8.1%	10.8%	9.7%
- 35 to 44	18.2%	26.8%	15.5%	18.7%
- 45 to 54	29.2%	27.6%	21.0%	28.1%
- 55 plus	39.5%	32.1%	48.8%	39.8%
- Average Age in Years	50.5	48.2	52.3	50.5
Sex - Male	81.2%	86.9%	89.7%	82.8%
- Female	18.8%	13.1%	10.3%	17.2%
Household Income - <\$20,000	9.4%	6.2%	8.7%	9.0%
- \$20,000 to \$39,999	18.8%	7.7%	8.4%	16.4%
- \$40,000 to \$59,999	22.4%	12.2%	16.0%	20.6%
- \$60,000 to \$79,999	20.4%	23.8%	16.5%	20.3%
- \$80,000 plus	29.0%	50.1%	50.4%	33.7%
<b>B) Angling Activity</b>				
No. Days Fished - on Open Water Lakes	2,188,930	135,430	117,610	2,441,970
- on Rivers	1,232,830	67,150	75,100	1,375,080
- under Lake Ice	160,500	5,450	1,370	167,320
- Total	3,582,260	208,030	194,080	3,984,370
Av. Hours Fished per Day	4.5	5.0	5.8	4.7
No. Days Fished Using Guide	28,780	9,630	23,240	61,650
No. Who Stayed at Fishing Lodge, Camp, etc.	29,170	2,950	9,600	41,720
No. Who Purchased Packages	3,510	660	4,060	8,230
No. Packages Purchased	3,980	750	450	9,230
No. Days Fished by Children <16 Years	288,740	26,290	21,070	336,100
No. of Years Fished in BC Freshwater	27.0	9.9	8.2	23.0
Fishing Trips - Total	NA	46,090	47,390	93,480
- No. Day Trips	NA	4,550	5,810	10,360
- No. Nights Spent	NA	224,190	318,080	542,270

*continued*

## Exhibit A.2: BC Freshwater Fishing Profile 2005 (cont'd)

	Angler Residence			
	BC	Rest of Canada	Outside Canada	All
<b>C) Angler Expenditures \$000</b>				
Trip - Packages	3,670	2,180	8,970	14,820
- Acc & Food : Accommodation	6,890	2,760	6,950	16,600
: Camp Fees	8,040	1,260	880	10,180
: Food	36,900	5,400	5,830	48,130
- Travel : Vehicle	41,750	5,310	4,690	51,750
: Ferry	1,780	200	380	2,360
: Air	1,160	1,180	1,630	3,970
: Other	900	480	100	1,480
- Owned Boat Costs	18,100	1,270	390	19,760
- Licence Fees	6,670	1,120	1,780	9,570
- Fishing Supplies	14,670	1,020	1,060	16,750
- Guides	810	270	1,120	2,200
- Fishing Services : Rentals	1,480	340	770	2,590
: Access Fees	450	80	120	650
: Other	<u>3,830</u>	<u>10</u>	<u>60</u>	<u>3,900</u>
- Subtotal	147,100	22,880	34,730	204,710
Capital - Fishing Equipment	16,310	1,600	520	18,430
- Boating Equipment : New	43,050	100	230	43,380
: Used	27,170	7,190	30	34,390
- Camping Equipment	46,880	1,010	90	47,980
- Vehicles	55,060	150	160	55,370
- Land & Building	46,410	19,580	3,780	69,770
- Other	<u>5,100</u>	<u>570</u>	<u>190</u>	<u>5,860</u>
- Subtotal	239,980	30,200	5,000	275,180
Total Trip & Capital Expenditures	387,080	53,080	39,730	479,890
Amount Solely Attributable to Ice Fishing				
- Trip Expenditures	2,460	60	80	2,600
- Capital Expenditures	9,280	5	5	9,290
- <b>Total</b>	11,740	65	85	11,890

*continued*



**Exhibit A.2: BC Freshwater Fishing Profile 2005 (cont'd)**

	Angler Residence			
	BC	Rest of Canada	Outside Canada	All
<b>D) Angler Catch</b>				
Angler Catch (Kept & Released)				
Trout - Rainbow	3,305,860	184,640	439,110	3,929,610
- Cutthroat	628,050	124,530	160,990	913,570
- Lake	148,820	16,440	17,040	182,300
- Steelhead : Hatchery	38,290	2,160	710	41,160
: Wild	74,880	10,320	9,010	94,210
- Brook	127,840	6,330	14,590	148,760
- Dolly Varden/Bull	222,400	29,620	18,320	270,340
- Other	69,930	3,180	12,280	85,390
Kokanee	403,490	59,440	17,740	480,670
Salmon	917,220	64,640	82,550	1,064,410
Walleye (Pickeral)	58,730	3,310	3,880	65,920
Arctic Grayling	19,720	1,890	10,690	32,300
Whitefish	99,330	4,790	5,820	109,940
Perch	308,780	17,320	340	326,440
Bass	202,580	27,720	4,880	235,180
Northern Pike	16,990	7,630	480	25,100
Other	165,700	9,820	11,690	187,210
<b>Total</b>	<b>6,808,610</b>	<b>573,780</b>	<b>810,120</b>	<b>8,192,510</b>
Angler Catch (Kept Only)				
Trout - Rainbow	976,820	38,790	69,950	1,085,560
- Cutthroat	92,320	4,870	1,590	98,780
- Lake	53,620	3,560	3,200	60,380
- Steelhead : Hatchery	9,630	0	140	9,770
: Wild	4,860	0	510	5,370
- Brook	43,850	710	1,500	46,060
- Dolly Varden/Bull	25,220	4,820	2,370	32,410
- Other	22,080	60	3,490	25,630
Kokanee	295,730	44,700	9,350	349,780
Salmon	223,120	6,990	7,220	237,330
Walleye (Pickeral)	24,450	60	1,700	26,210
Arctic Grayling	970	530	1,220	2,720
Whitefish	34,730	1,230	140	36,100
Perch	55,470	9,230	340	65,040
Bass	19,680	1,650	850	22,180
Northern Pike	2,420	2,590	430	5,440
Other	28,100	1,890	720	30,710
<b>Total</b>	<b>913,070</b>	<b>121,680</b>	<b>104,720</b>	<b>2,139,470</b>

### Exhibit A.3: Regional Pattern of BC Freshwater Angler Days 2005

	Angler Days by Fishing Region									
	1. VI	2. LM	3. TN	4. KO	5. CA	6. SK	7A. OM	7B. PE	8. OK	All
<b>A. Angler Residence</b>										
<b>British Columbia</b>	440,080	684,260	647,320	532,050	364,580	261,550	245,660	57,270	349,490	3,582,260
1. Vancouver Island (VI)	415,630	9,490	15,440	6,310	14,350	12,020	4,090	810	6,220	484,360
2. Lower Mainland (LM)	17,140	656,640	264,740	15,200	134,760	13,870	13,580	1,810	41,310	1,159,050
3. Thompson-Nicola (TN)	0	3,030	302,450	22,220	37,960	3,030	8,010	1,020	19,420	397,140
4. Kootenay (KO)	610	1,910	1,750	445,610	3,670	3,160	11,510	0	6,480	474,700
5. Cariboo (CA)	180	1,630	3,630	0	141,250	2,820	4,740	0	200	154,450
6. Skeena (SK)	0	0	510	1,830	1,940	171,800	7,040	100	710	183,930
7A. Omineca (OM)	3,770	3,600	2,850	1,020	14,880	41,770	186,090	16,690	760	271,430
7B. Peace (PE)	0	210	2,600	710	90	200	3,560	36,740	0	44,110
8. Okanagan (OK)	2,750	7,750	53,350	39,150	15,680	12,880	7,040	100	274,390	413,090
<b>Rest of Canada</b>	8,330	7,470	18,430	85,320	16,640	34,140	19,930	11,210	6,560	208,030
<b>Outside Canada</b>	<u>12,810</u>	<u>19,220</u>	<u>36,440</u>	<u>27,690</u>	<u>59,190</u>	<u>25,110</u>	<u>7,080</u>	<u>880</u>	<u>5,660</u>	<u>194,080</u>
<b>Total</b>	461,220	710,950	702,190	645,060	440,410	320,800	272,670	69,360	361,710	3,984,370

e.g., there were 461,220 angler-days of activity in Region 1 Vancouver Island - 415,630 days by Region 1 residents (90% of total), ...

	Share of Regional Days									
	1. VI	2. LM	3. TN	4. KO	5. CA	6. SK	7A. OM	7B. PE	8. OK	All
<b>B. Angler Residence</b>										
Own BC Region	90%	92%	43%	69%	32%	53%	68%	53%	76%	66%
Rest of BC	5%	4%	49%	14%	51%	28%	22%	30%	21%	24%
Rest of Canada	2%	1%	3%	13%	4%	11%	7%	16%	2%	5%
Outside Canada	<u>3%</u>	<u>3%</u>	<u>5%</u>	<u>4%</u>	<u>13%</u>	<u>8%</u>	<u>3%</u>	<u>1%</u>	<u>1%</u>	<u>5%</u>
<b>Total</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia

# Appendix B

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## BC Sport Fishing Profiles by Region

## Exhibit B.1: Freshwater Angling Profile 2005 - Region #1 Vancouver Island

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	27,390	440,080	700	32,860
Rest of Canada	1,140	8,330	30	1,350
Outside Canada	<u>3,640</u>	<u>12,810</u>	<u>335</u>	<u>5,440</u>
<b>TOTAL</b>	<b>32,170</b>	<b>461,220</b>	<b>1,065</b>	<b>39,650</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	890	<b>Capital</b>	- Fishing Equipment	2,150
	- Accommodation & Food	6,930		- Boating Equipment : New	1,510
	- Travel	5,220		: Used	2,700
	- Owned Boat Costs	1,480		- Camping Equipment	4,960
	- Licence Fees	970		- Vehicles	6,010
	- Guide Services <sup>1</sup>	300		- Land & Bldgs	3,370
	- Fishing Supplies	2,030		- Other	<u>870</u>
	- Fishing Services	<u>260</u>		Subtotal	21,570
	Subtotal	18,080	<b>Total Trip &amp; Capital Expenditures</b>		<u>39,650</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	56,810	155,310	212,120
- Cutthroat	62,030	224,360	286,390
- Lake	7,570	13,790	21,360
- Steelhead : Hatchery	2,240	10,790	13,030
: Wild	710	20,550	21,260
- Brook	2,000	5,270	7,270
- Dolly Varden/Bull Trout	1,090	36,540	37,630
- Other	820	16,240	17,060
Kokanee	100	1,900	2,000
Salmon	14,280	115,750	130,030
Walleye (Pickerel)	0	0	0
Arctic Grayling	0	0	0
Whitefish	0	0	0
Perch	810	6,040	6,850
Bass	5,300	62,510	67,810
Northern Pike	0	0	0
Other	<u>100</u>	<u>5,550</u>	<u>5,650</u>
<b>TOTAL</b>	<b>153,860</b>	<b>674,600</b>	<b>828,460</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.2: Freshwater Angling Profile 2005 - Region #2 Lower Mainland

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	42,340	684,260	660	61,570
Rest of Canada	2,550	7,470	60	29,110
Outside Canada	<u>4,600</u>	<u>19,220</u>	<u>75</u>	<u>3,300</u>
<b>TOTAL</b>	<b>49,490</b>	<b>710,950</b>	<b>1,495</b>	<b>93,980</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	960	<b>Capital</b>	- Fishing Equipment	4,730
	- Accommodation & Food	10,570		- Boating Equipment : New	4,780
	- Travel	9,310		: Used	12,560
	- Owned Boat Costs	2,940		- Camping Equipment	6,390
	- Licence Fees	1,650		- Vehicles	10,040
	- Guide Services <sup>1</sup>	680		- Land & Bldgs	23,340
	- Fishing Supplies	3,600		- Other	<u>1,880</u>
	- Fishing Services	<u>550</u>		Subtotal	63,720
	Subtotal	30,260	<b>Total Trip &amp; Capital Expenditures</b>		<u>93,980</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	38,690	163,550	202,240
- Cutthroat	7,840	51,410	59,250
- Lake	1,200	4,890	6,090
- Steelhead : Hatchery	5,720	12,450	18,170
: Wild	1,820	24,190	26,010
- Brook	380	2,570	2,950
- Dolly Varden/Bull Trout	1,900	24,490	26,390
- Other	2,710	8,450	11,160
Kokanee	8,620	4,170	12,790
Salmon	159,800	506,770	666,570
Walleye (Pickerel)	0	0	0
Arctic Grayling	0	0	0
Whitefish	3,060	4,990	8,050
Perch	610	0	610
Bass	1,330	2,140	3,470
Northern Pike	0	0	0
Other	<u>4,240</u>	<u>48,250</u>	<u>52,490</u>
<b>TOTAL</b>	<b>237,920</b>	<b>858,320</b>	<b>1,096,240</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.3: Freshwater Angling Profile 2005 - Region #3 Thompson-Nicola

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	56,980	647,310	1,110	77,740
Rest of Canada	2,340	18,430	0	1,590
Outside Canada	<u>5,550</u>	<u>36,440</u>	<u>740</u>	<u>5,440</u>
<b>TOTAL</b>	<b>64,870</b>	<b>702,180</b>	<b>1,850</b>	<b>84,770</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	1,750	<b>Capital</b>	- Fishing Equipment	3,560
	- Accommodation & Food	15,160		- Boating Equipment : New	9,330
	- Travel	10,390		: Used	2,940
	- Owned Boat Costs	3,120		- Camping Equipment	11,080
	- Licence Fees	1,540		- Vehicles	12,780
	- Guide Services <sup>1</sup>	80		- Land & Bldgs	8,150
	- Fishing Supplies	2,760		- Other	<u>1,000</u>
	- Fishing Services	<u>1,130</u>		Subtotal	48,840
	Subtotal	35,930	<b>Total Trip &amp; Capital Expenditures</b>		<u>84,770</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	314,910	752,100	1,067,010
- Cutthroat	100	1,350	1,450
- Lake	11,920	16,470	28,390
- Steelhead : Hatchery	100	820	920
: Wild	0	3,110	3,110
- Brook	9,200	10,280	19,480
- Dolly Varden/Bull Trout	2,050	5,780	7,830
- Other	7,130	14,450	21,580
Kokanee	28,750	19,030	47,780
Salmon	7,570	6,910	14,480
Walleye (Pickerel)	0	0	0
Arctic Grayling	0	0	0
Whitefish	2,950	9,320	12,270
Perch	8,560	45,550	54,110
Bass	0	0	0
Northern Pike	0	0	0
Other	<u>1,670</u>	<u>17,050</u>	<u>18,720</u>
<b>TOTAL</b>	<b>394,910</b>	<b>902,220</b>	<b>1,297,130</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.4: Freshwater Angling Profile 2005 - Region #4 Kootenay

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	30,580	532,050	540	41,530
Rest of Canada	10,990	85,320	175	9,510
Outside Canada	<u>5,770</u>	<u>27,690</u>	<u>880</u>	<u>7,680</u>
<b>TOTAL</b>	<b>47,340</b>	<b>645,060</b>	<b>1,595</b>	<b>58,720</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	1,530	<b>Capital</b>	- Fishing Equipment	2,110
	- Accommodation & Food	12,400		- Boating Equipment : New	4,160
	- Travel	8,680		: Used	3,700
	- Owned Boat Costs	3,520		- Camping Equipment	6,250
	- Licence Fees	1,460		- Vehicles	3,980
	- Guide Services <sup>1</sup>	680		- Land & Bldgs	6,120
	- Fishing Supplies	2,030		- Other	<u>620</u>
	- Fishing Services	<u>1,480</u>		Subtotal	26,940
	Subtotal	31,780	<b>Total Trip &amp; Capital Expenditures</b>		<u>58,720</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	135,560	408,050	543,610
- Cutthroat	12,300	437,760	450,060
- Lake	2,150	3,640	5,790
- Steelhead : Hatchery	0	0	0
: Wild	0	0	0
- Brook	4,370	21,810	26,180
- Dolly Varden/Bull Trout	18,460	79,110	97,570
- Other	4,450	8,510	12,960
Kokanee	228,190	66,290	294,480
Salmon	410	1,750	2,160
Walleye (Pickerel)	17,610	5,420	23,030
Arctic Grayling	0	0	0
Whitefish	22,580	30,370	52,950
Perch	27,400	101,610	129,010
Bass	10,070	136,230	146,300
Northern Pike	200	0	200
Other	<u>5,030</u>	<u>10,460</u>	<u>15,490</u>
<b>TOTAL</b>	<b>488,780</b>	<b>1,311,010</b>	<b>1,799,790</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.5: Freshwater Angling Profile 2005 - Region #5 Cariboo

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	35,310	364,580	385	64,560
Rest of Canada	2,540	16,640	0	1,640
Outside Canada	<u>8,100</u>	<u>59,190</u>	<u>1,035</u>	<u>9,270</u>
<b>TOTAL</b>	<b>45,950</b>	<b>440,410</b>	<b>1,420</b>	<b>75,470</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	4,010	<b>Capital</b>	- Fishing Equipment	1,800
	- Accommodation & Food	10,180		- Boating Equipment : New	7,020
	- Travel	8,000		: Used	3,450
	- Owned Boat Costs	2,550		- Camping Equipment	5,140
	- Licence Fees	1,280		- Vehicles	10,000
	- Guide Services <sup>1</sup>	120		- Land & Bldgs	18,730
	- Fishing Supplies	1,900		- Other	<u>560</u>
	- Fishing Services	<u>730</u>		Subtotal	46,700
	Subtotal	28,770	<b>Total Trip &amp; Capital Expenditures</b>		<u>75,470</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	182,750	584,650	767,400
- Cutthroat	2,540	9,480	12,020
- Lake	9,290	35,050	44,340
- Steelhead : Hatchery	180	0	180
: Wild	2,480	4,730	7,210
- Brook	4,920	19,360	24,280
- Dolly Varden/Bull Trout	1,600	21,460	23,060
- Other	1,290	2,190	3,480
Kokanee	35,270	8,920	44,190
Salmon	6,310	34,230	40,540
Walleye (Pickerel)	0	0	0
Arctic Grayling	0	0	0
Whitefish	810	8,170	8,980
Perch	0	0	0
Bass	0	0	0
Northern Pike	0	0	0
Other	<u>850</u>	<u>5,130</u>	<u>5,980</u>
<b>TOTAL</b>	<b>248,290</b>	<b>733,370</b>	<b>981,660</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.



## Exhibit B.6: Freshwater Angling Profile 2005 - Region #6 Skeena

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	17,550	261,550	405	31,280
Rest of Canada	5,110	34,140	455	5,680
Outside Canada	<u>3,620</u>	<u>25,120</u>	<u>605</u>	<u>6,240</u>
<b>TOTAL</b>	<b>26,280</b>	<b>320,810</b>	<b>1,465</b>	<b>43,200</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	5,210	<b>Capital</b>	- Fishing Equipment	1,510
	- Accommodation & Food	6,400		- Boating Equipment : New	7,370
	- Travel	5,980		: Used	1,600
	- Owned Boat Costs	1,410		- Camping Equipment	1,610
	- Licence Fees	1,080		- Vehicles	5,180
	- Guide Services <sup>1</sup>	130		- Land & Bldgs	3,900
	- Fishing Supplies	1,370		- Other	<u>310</u>
	- Fishing Services	<u>140</u>		Subtotal	21,480
	Subtotal	21,720	<b>Total Trip &amp; Capital Expenditures</b>		<u>43,200</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	58,860	133,030	191,890
- Cutthroat	8,940	76,290	85,230
- Lake	8,230	15,040	23,270
- Steelhead : Hatchery	1,530	7,130	8,660
: Wild	360	36,260	36,620
- Brook	1,900	6,770	8,670
- Dolly Varden/Bull Trout	4,710	37,460	42,170
- Other	510	1,250	1,760
Kokanee	5,350	1,670	7,020
Salmon	42,120	151,620	193,740
Walleye (Pickerel)	0	0	0
Arctic Grayling	1,620	7,010	8,630
Whitefish	270	2,830	3,100
Perch	0	0	0
Bass	0	0	0
Northern Pike	0	260	260
Other	<u>3,390</u>	<u>9,410</u>	<u>12,800</u>
<b>TOTAL</b>	<b>137,790</b>	<b>486,030</b>	<b>623,820</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.7: Freshwater Angling Profile 2005 - Region #7A Omineca

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	19,660	245,660	0	28,820
Rest of Canada	4,180	19,930	0	2,560
Outside Canada	<u>1,310</u>	<u>7,080</u>	<u>85</u>	<u>1,000</u>
<b>TOTAL</b>	<b>25,150</b>	<b>272,670</b>	<b>85</b>	<b>32,380</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	290	<b>Capital</b>	- Fishing Equipment	730
	- Accommodation & Food	5,140		- Boating Equipment : New	4,980
	- Travel	5,150		: Used	2,940
	- Owned Boat Costs	2,250		- Camping Equipment	3,860
	- Licence Fees	630		- Vehicles	2,270
	- Guide Services <sup>1</sup>	90		- Land & Bldgs	2,570
	- Fishing Supplies	1,170		- Other	<u>190</u>
	- Fishing Services	<u>120</u>		Subtotal	17,540
	Subtotal	14,840	<b>Total Trip &amp; Capital Expenditures</b>		<u><u>32,380</u></u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	157,440	346,510	503,950
- Cutthroat	4,180	13,110	17,290
- Lake	12,370	22,130	34,500
- Steelhead : Hatchery	0	0	0
: Wild	0	0	0
- Brook	9,020	17,330	26,350
- Dolly Varden/Bull Trout	800	23,700	24,500
- Other	3,360	2,130	5,490
Kokanee	14,990	10,600	25,590
Salmon	540	2,900	3,440
Walleye (Pickerel)	0	0	0
Arctic Grayling	200	14,180	14,380
Whitefish	2,850	2,950	5,800
Perch	0	0	0
Bass	0	0	0
Northern Pike	0	0	0
Other	<u>14,020</u>	<u>36,120</u>	<u>50,140</u>
<b>TOTAL</b>	<b>219,770</b>	<b>491,660</b>	<b>711,430</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.8: Freshwater Angling Profile 2005 - Region #7B Peace

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	4,430	57,260	0	5,890
Rest of Canada	1,310	11,210	30	1,130
Outside Canada	<u>400</u>	<u>880</u>	<u>0</u>	<u>60</u>
<b>TOTAL</b>	<b>6,140</b>	<b>69,350</b>	<b>30</b>	<b>7,080</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	50	<b>Capital</b>	- Fishing Equipment	200
	- Accommodation & Food	1,190		- Boating Equipment : New	120
	- Travel	960		: Used	1,770
	- Owned Boat Costs	400		- Camping Equipment	1,200
	- Licence Fees	160		- Vehicles	580
	- Guide Services <sup>1</sup>	50		- Land & Bldgs	0
	- Fishing Supplies	280		- Other	<u>80</u>
	- Fishing Services	<u>40</u>			
				Subtotal	3,950
	Subtotal	3,130	<b>Total Trip &amp; Capital Expenditures</b>		<u>7,080</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	13,290	26,580	39,870
- Cutthroat	200	620	820
- Lake	620	1,770	2,390
- Steelhead : Hatchery	0	0	0
: Wild	0	0	0
- Brook	1,270	1,850	3,120
- Dolly Varden/Bull Trout	290	2,360	2,650
- Other	100	750	850
Kokanee	0	0	0
Salmon	120	100	220
Walleye (Pickerel)	8,610	34,080	42,690
Arctic Grayling	900	8,390	9,290
Whitefish	410	10,140	10,550
Perch	2,610	10,690	13,300
Bass	0	0	0
Northern Pike	5,240	19,400	24,640
Other	<u>100</u>	<u>1,430</u>	<u>1,530</u>
<b>TOTAL</b>	<b>33,760</b>	<b>118,160</b>	<b>151,920</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.9: Freshwater Angling Profile 2005 - Region #8 Okanagan

A. Activity by Angler Residence	Activity Measures			
	Active Anglers	Angler-Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	32,510	349,490	180	42,860
Rest of Canada	1,490	6,550	0	500
Outside Canada	<u>1,440</u>	<u>5,660</u>	<u>45</u>	<u>1,280</u>
<b>TOTAL</b>	<b>35,440</b>	<b>361,700</b>	<b>225</b>	<b>44,640</b>

B. Angler Expenditures	Angler Expenditures by Category \$000				
<b>Trip</b>	- Packages <sup>1</sup>	130	<b>Capital</b>	- Fishing Equipment	1,630
	- Accommodation & Food	6,940		- Boating Equipment : New	4,100
	- Travel	5,870		: Used	2,730
	- Owned Boat Costs	2,100		- Camping Equipment	7,480
	- Licence Fees	800		- Vehicles	4,550
	- Guide Services <sup>1</sup>	70		- Land & Bldgs	3,600
	- Fishing Supplies	1,610		- Other	<u>350</u>
	- Fishing Services	<u>2,680</u>		Subtotal	24,440
	Subtotal	20,200	<b>Total Trip &amp; Capital Expenditures</b>		<u>44,640</u>

C. Angler Catch	Catch Disposition		
	Kept	Released	Total
Trout - Rainbow	127,250	274,270	401,520
- Cutthroat	660	400	1,060
- Lake	7,020	9,130	16,150
- Steelhead : Hatchery	0	200	200
: Wild	0	0	0
- Brook	13,000	17,460	30,460
- Dolly Varden/Bull Trout	1,500	7,050	8,550
- Other	5,260	5,790	11,050
Kokanee	28,520	18,300	46,820
Salmon	6,180	7,060	13,240
Walleye (Pickerel)	0	200	200
Arctic Grayling	0	0	0
Whitefish	3,160	5,080	8,240
Perch	25,040	97,510	122,550
Bass	5,500	12,100	17,600
Northern Pike	0	0	0
Other	<u>1,290</u>	<u>23,130</u>	<u>24,420</u>
<b>TOTAL</b>	<b>224,380</b>	<b>477,680</b>	<b>702,060</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

## Exhibit B.10: Freshwater Angling Profile 2005 - Province of British Columbia

### A. Activity by Angler Residence

### Activity Measures

	Active Anglers	Angler-Days	Guided Days	Packages Purchased <sup>1</sup>	Expenditures \$000
BC	211,310	3,582,260	28,780	3,980	387,080
Rest of Canada	28,210	208,030	9,630	750	53,080
Outside Canada	<u>31,230</u>	<u>194,080</u>	<u>23,240</u>	<u>4,500</u>	<u>39,730</u>
<b>TOTAL</b>	<b>270,750</b>	<b>3,984,370</b>	<b>61,650</b>	<b>9,230</b>	<b>479,890</b>

### B. Angler Expenditures

### Angler Expenditures by Category \$000

Trip	Capital	
- Packages <sup>1</sup>	14,820	- Fishing Equipment
- Accommodation & Food	74,910	- Boating Equipment : New
- Travel	59,560	: Used
- Owned Boat Costs	19,760	- Camping Equipment
- Licence Fees	9,570	- Vehicles
- Guide Services <sup>1</sup>	2,200	- Land & Bldgs
- Fishing Supplies	16,750	- Other
- Fishing Services	<u>7,140</u>	
		Subtotal
	Subtotal	
	204,710	<b>Total Trip &amp; Capital Expenditures</b>
		<u>479,890</u>

### C. Angler Catch

### Catch Disposition

	Kept	Released	Total
Trout - Rainbow	1,085,560	2,844,050	3,929,610
- Cutthroat	98,780	814,790	913,570
- Lake	60,380	121,920	182,300
- Steelhead : Hatchery	9,770	31,390	41,160
: Wild	5,370	88,840	94,210
- Brook	46,060	102,700	148,760
- Dolly Varden/Bull Trout	32,410	237,930	270,340
- Other	25,630	59,760	85,390
Kokanee	349,780	130,890	480,670
Salmon	237,330	827,080	1,064,410
Walleye (Pickerel)	26,210	39,710	65,920
Arctic Grayling	2,720	29,580	32,300
Whitefish	36,100	73,840	109,940
Perch	65,040	261,400	326,440
Bass	22,180	213,000	235,180
Northern Pike	5,440	19,660	25,100
Other	<u>30,710</u>	<u>156,500</u>	<u>187,210</u>
<b>TOTAL</b>	<b>2,139,470</b>	<b>6,053,040</b>	<b>8,192,510</b>

Source: 2005 Survey of Freshwater Sport Fishing in British Columbia.

<sup>1</sup> Guide services are included in many fishing trip packages.

# Appendix C

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## Angling Guide & Fishing Lodge Data

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## Exhibit C.1: Numbers of BC Angling Guides & Assistant Angling Guides

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	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Guides</b>					
1. Vancouver Island	35	39	42	42	39
2. Lower Mainland	100	92	92	92	88
3. Thompson Nicola	23	38	43	45	45
4. Kootenay	60	56	55	54	56
5. Cariboo	48	56	55	61	58
6. Skeena	102	103	100	96	97
7A. Omineca	23	28	27	26	31
7B. Peace	12	13	13	14	16
8. Okanagan	5	10	14	15	17
No. of Distinct Guides <sup>1</sup>	NA	354	344	344	325
<b>Assistant Guides</b>					
1. Vancouver Island	48	52	51	55	57
2. Lower Mainland	102	100	98	124	116
3. Thompson Nicola	27	47	65	55	52
4. Kootenay	82	88	83	75	94
5. Cariboo	83	110	110	101	85
6. Skeena	143	168	154	187	174
7A. Omineca	24	26	27	28	22
7B. Peace	8	12	12	17	10
8. Okanagan	2	4	25	11	11
No. of Distinct Assistant Guides <sup>1</sup>	NA	474	453	471	460
<b>Total Guides &amp; Assistant Guides<sup>1</sup></b>	NA	828	797	815	785

Source:

<sup>1</sup> Guides and Assistant Guides may be licenced in more than one region so that the sum over regions does not equal the total.

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## Exhibit C.2: BC Tourism Room Revenues by Tourism Region 2005

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	Fishing Lodges			All Accommodation Properties		
	Revenues \$ 000	Properties	Rooms	Revenues \$ 000	Properties	Rooms
1. Vancouver Island/Coast*	10,607	59	863	310,195	625	18,611
2. Mainland/Southwest**	NA	NA	NA	902,633	541	41,859
3. Thompson/Okanagan	1,889	29	285	251,869	625	19,796
4. Kootenay	NA	NA	NA	77,314	303	7,813
5. Cariboo	917	24	219	52,172	209	5,547
6. North Coast	3,247	15	206	20,773	97	2,234
7. Nechako	590	21	139	10,152	77	1,512
8. Northeast	NA	NA	NA	63,236	90	4,573
Unallocated Sum (2) + (4) + (8)	3,330	12	149	0	0	0
<b>Total BC</b>	<b>20,580</b>	<b>160</b>	<b>1,861</b>	<b>1,688,343</b>	<b>2,567</b>	<b>101,945</b>

\* The Greater Victoria Capital Region comprises 56% of Revenues, 35% of Properties and 49% of Rooms for the Vancouver Island/ Coast Region.

\*\* The Fraser Valley & Greater Vancouver comprise 81% of Revenues, 72% of Properties and 80% of Rooms for the Mainland/Southwest Region.

Source: BC Stats, "Tourism Room Revenues", 2005.



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**Exhibit C.3: BC Tourism Room Revenues**


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	Fishing Lodges			All Accommodation Properties		
	Revenues \$ 000	Properties	Rooms	Revenues \$ 000	Properties	Rooms
1995	11,707	154	1,886	999,453	2,216	79,127
96	10,920	158	1,897	1,093,399	2,252	80,044
97	12,117	162	1,952	1,157,585	2,245	81,684
98	12,255	161	1,917	1,206,090	2,271	84,783
99	14,563	177	2,079	1,329,347	2,321	88,115
2000	14,963	167	1,859	1,442,901	2,422	93,729
01	16,476	168	1,859	1,474,160	2,473	97,016
02	17,493	168	1,862	1,506,360	2,493	97,340
03	18,426	165	1,920	1,485,670	2,499	96,922
04	19,504	159	1,843	1,590,956	2,553	100,315
05	20,580	160	1,861	1,688,343	2,567	101,945
06	21,880	157	1,836	1,815,312	2,542	102,556
07	24,322	159	1,958	1,967,921	2,501	100,714

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Source: BC Stats, "Tourism Room Revenues", Annual.

# Appendix D

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## FFSBC Stocking Summary

## Exhibit D.1: FFBC Stocking Summary

Region/Species	Number of Fish Stocked				
	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Region 1 Vancouver Island</b>					
Rainbow Trout	183,600	229,700	190,500	93,100	148,200
Cutthroat Trout - Anadromous	44,600	65,800	33,900	38,600	50,800
- Non-Anadromous	107,700	118,300	46,300	53,500	34,000
- West Slope	0	0	0	0	0
Brook Trout	0	0	0	0	0
Steelhead	457,500	420,900	204,000	248,200	219,600
Kokanee	0	0	0	0	0
<b>Total</b>	<b>793,400</b>	<b>834,700</b>	<b>474,700</b>	<b>433,400</b>	<b>452,600</b>
No. of Waterbodies Stocked	105	129	93	86	98
<b>Region 2 Lower Mainland</b>					
Rainbow Trout	110,000	81,800	71,500	81,500	80,700
Cutthroat Trout - Anadromous	52,100	35,600	35,900	28,700	25,300
- Non-Anadromous	28,000	15,300	23,100	12,600	29,600
- West Slope	0	0	0	0	0
Brook Trout	0	0	0	0	0
Steelhead	314,500	278,400	334,000	195,500	292,500
Kokanee	50,000	0	0	0	0
<b>Total</b>	<b>554,600</b>	<b>411,100</b>	<b>464,500</b>	<b>318,300</b>	<b>428,100</b>
No. of Waterbodies Stocked	56	57	54	57	52
<b>Region 3 Thompson Nicola</b>					
Rainbow Trout	1,124,500	1,091,500	1,111,900	1,071,700	1,146,000
Cutthroat Trout - Anadromous	0	0	0	0	0
- Non-Anadromous	0	0	0	0	4,000
- West Slope	0	0	0	0	0
Brook Trout	164,600	151,300	142,600	133,400	156,300
Steelhead	0	0	0	0	0
Kokanee	165,300	170,000	172,000	108,600	147,000
<b>Total</b>	<b>1,454,400</b>	<b>1,412,800</b>	<b>1,426,500</b>	<b>1,313,700</b>	<b>1,453,300</b>
No. of Waterbodies Stocked	182	176	181	180	178

continued

## Exhibit D.1: FFBC Stocking Summary (cont'd)

Region/Species	Number of Fish Stocked				
	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Region 4 Kootenay</b>					
Rainbow Trout	409,000	321,400	447,700	347,800	574,700
Cutthroat Trout - Anadromous	0	0	0	0	0
- Non-Anadromous	0	0	0	0	0
- West Slope	43,700	46,300	6,500	6,300	39,000
Brook Trout	35,000	31,000	37,500	32,000	30,000
Steelhead	0	0	0	0	0
Kokanee	<u>56,000</u>	<u>102,000</u>	<u>102,200</u>	<u>102,300</u>	<u>102,100</u>
<b>Total</b>	543,700	500,700	593,900	488,400	745,800
No. of Waterbodies Stocked	130	111	119	117	139
<b>Region 5 Cariboo</b>					
Rainbow Trout	1,871,100	1,474,800	1,512,200	1,285,500	1,743,300
Cutthroat Trout - Anadromous	0	0	0	0	0
- Non-Anadromous	0	0	0	0	0
- West Slope	0	0	0	0	0
Brook Trout	132,500	127,500	131,500	82,400	80,800
Steelhead	0	0	0	0	0
Kokanee	<u>525,500</u>	<u>611,800</u>	<u>462,800</u>	<u>445,000</u>	<u>727,700</u>
<b>Total</b>	2,529,100	2,214,100	2,106,500	1,812,900	2,551,800
No. of Waterbodies Stocked	101	88	93	89	91
<b>Region 6 Skeena</b>					
Rainbow Trout	52,500	33,000	34,000	52,600	35,700
Cutthroat Trout - Anadromous	8,300	4,400	2,500	13,100	2,300
- Non-Anadromous	10,000	11,000	10,000	8,000	8,000
- West Slope	0	0	0	0	0
Brook Trout	28,000	20,000	20,000	27,400	20,000
Steelhead	69,400	47,000	72,400	39,700	48,300
Kokanee	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total</b>	168,200	115,400	138,900	140,800	114,300
No. of Waterbodies Stocked	23	16	16	18	15

*continued*

## Exhibit D.1: FFBC Stocking Summary (cont'd)

Region/Species	Number of Fish Stocked				
	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Region 7A Omineca</b>					
Rainbow Trout	309,700	267,700	265,000	242,700	204,800
Cutthroat Trout - Anadromous	0	0	0	0	0
- Non-Anadromous	0	0	0	0	0
- West Slope	0	0	0	0	0
Brook Trout	101,000	101,500	95,800	95,300	95,700
Steelhead	0	0	0	0	0
Kokanee	200	200	100	0	0
<b>Total</b>	<b>410,900</b>	<b>369,400</b>	<b>360,900</b>	<b>338,000</b>	<b>300,500</b>
No. of Waterbodies Stocked	59	58	59	53	54
<b>Region 7B Peace</b>					
Rainbow Trout	41,300	43,300	41,000	41,100	40,400
Cutthroat Trout - Anadromous	0	0	0	0	0
- Non-Anadromous	0	0	0	0	0
- West Slope	0	0	0	0	0
Brook Trout	12,000	10,000	12,000	10,300	12,000
Steelhead	0	0	0	0	0
Kokanee	100	0	0	0	0
<b>Total</b>	<b>53,400</b>	<b>53,300</b>	<b>53,000</b>	<b>51,400</b>	<b>52,400</b>
No. of Waterbodies Stocked	22	21	19	16	16
<b>Region 8 Okanagan</b>					
Rainbow Trout	788,300	769,600	657,700	685,100	879,100
Cutthroat Trout - Anadromous	0	0	0	0	0
- Non-Anadromous	0	0	0	0	0
- West Slope	0	0	0	0	0
Brook Trout	85,900	108,100	119,500	55,400	80,900
Steelhead	0	0	0	0	0
Kokanee	0	0	0	0	0
<b>Total</b>	<b>874,200</b>	<b>877,700</b>	<b>777,200</b>	<b>740,500</b>	<b>960,000</b>
No. of Waterbodies Stocked	192	195	190	190	193

*continued*

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**Exhibit D.1: FFBC Stocking Summary (cont'd)**


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Region/Species	Number of Fish Stocked				
	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Total Province</b>					
Rainbow Trout	4,890,000	4,312,800	4,331,500	3,901,100	4,852,900
Cutthroat Trout - Anadromous	105,000	105,800	72,300	80,400	78,400
- Non-Anadromous	145,700	144,600	79,400	74,100	75,600
- West Slope	43,700	46,300	6,500	6,300	39,000
Brook Trout	559,000	549,400	558,900	436,200	475,700
Steelhead	841,400	746,300	610,400	483,400	560,400
Kokanee	<u>797,100</u>	<u>884,000</u>	<u>737,100</u>	<u>655,900</u>	<u>976,800</u>
<b>Total</b>	7,381,900	6,789,200	6,396,100	5,637,400	7,058,800
No. of Waterbodies Stocked	870	851	824	806	836

Source: FFBC

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## **Exhibit D.2: Benefits of Stocking - An Eight (8) Step Estimation Procedure**

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- (1) for each region get total angler-days (from the 2005 survey).
  - (2) estimate share of angling effort at 8 species groups with the condition that they add to 100%.
  - (3) = (1) x (2) multiply by regional angler days to come to directed angler days by target species for the region.
  - (4) estimate share of the catch of each species that come from FFSBC-stocked fish (the stocked shares for other trout, salmon and non-salmonids are zero since the FFSBC does not stock these species).
  - (5) = (3) x (4) multiply this catch share by the number of angler-days by target species to estimate angler-days attributable to the stocking program for each species.
  - (6) estimate the average angler expenditure per angler-day for each target species (generally salmon and steelhead days have higher values than the other species).
  - (7) = (5) x (6) multiply angler-days attributable to stocking by average expenditure per angler-day to come to angler expenditures attributable to stocking each species.
  - (8) add the expenditures attributable to stocking over all the species to come to total angler expenditures attributable to stocking.
-