



Saskatchewan
Environment

Final Report Economic Evaluation of Saskatchewan's Commercial and Non-Outfitted Sport Fishing

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Executive Summary

Study Purpose and Methodology

This economic impact evaluation was undertaken by the Department to provide a basis of information in ongoing policy and decision making processes. This study acknowledges the environmental and social externalities associated with the industry and provides some context and analysis on these impacts. The methodology utilized throughout this economic evaluation was discussed with Department of Finance staff in the Economic and Fiscal Policy Branch. This study will be used in conjunction with existing information as a performance measure and as a method of comparing the impacts of various activities on the economy.

This study focuses on the primary theme of economic impact and secondarily on the social and environmental impacts of non-outfitted sport fishing and commercial fishing in the province. As well, analysis of fishing trends, elasticity of demand regarding license fees, and an inter-jurisdictional analysis of fishing license structures were undertaken. Three populations were identified for study including:

- Saskatchewan residents who fished without the services of an outfitter.
- Non-Saskatchewan non-outfitted sport anglers who fished in the province.
- Commercial Fishers¹

A survey was developed and administered to sport fishers that had purchased a fishing license in the province in 2005. The survey asked fishers to respond to questions regarding their fishing patterns, expenditure data, attitudinal data, demographic information, and travel patterns. As well, a series of stakeholder interviews were held with commercial fishers, regulatory bodies, tourism representatives, regulators, fishing industry organizations, and others.

Two other reports were commissioned by Saskatchewan Environment. These reports utilized the same methodology found in this report in evaluating the impacts of the outfitting industry and the non-outfitted hunting industry in the province. The results of these reports have been included in this report wherever relevant. Together, these reports provide a complete picture of the components of the hunting and fishing industry in the province. Each study includes an analysis of the marginal expenditure impact, GDP impact, and employment impact. The studies also identify relevant information such as regional and rural impacts, average trip expenditures, and total expenditures.

¹ Some analysis of aquaculture in the province is provided in this report, however, aquaculture has not been included as part of the economic impact of commercial fishing.

Economic Impacts

Non-Outfitted Sport Fishing

The total expenditures generated by non-outfitted fishing in Saskatchewan are \$156.7 million of which \$63.9 million are a marginal benefit² to Saskatchewan. Non-outfitted sport fishing as an industry has remained relatively stable over the last 10 years in terms of resident license sales. The total expenditures data for sport fishing was based on extensive survey data as well as existing licensing data.

Saskatchewan resident, Canadian resident and non-resident license holders were surveyed separately to determine the individual details regarding their relative expenditures in the province. This information provided the basis for the total expenditures generated.

Anglers were surveyed on the types of expenditures made. Based on these categories, an economic impact model was used to generate the total GDP created by the respective industry expenditures. GDP calculations remove double counting and calculate only expenditures that have an impact within Saskatchewan. This is done by removing any of the imported goods or services, as well as only counting the primary impact of expenditures.

As well, the induced GDP impact was calculated separately. The induced impact was calculated separately primarily so the resulting GDP analysis can easily be compared to other models calculating both economic direct/indirect GDP impacts as well as models that have included the induced impacts.

The induced impact analysis is not always included in GDP analysis as it is not as widely accepted as part of an economic impact model. Where the direct/indirect GDP analysis is widely acknowledged in industry and all levels of government, the induced impacts have been open to a variety of interpretations in the past. The induced impact in this model was developed by Statistics Canada and as such has a high degree of credibility. Induced impacts calculate the impact of the labour expenditures paid through direct and indirect employment. Essentially, induced impacts calculate the impact of the employment generated in terms of their purchasing power in the local economy. Again, only expenditures made by individuals employed by the direct and indirect impact are calculated, to avoid any double counting of expenditures.

The following table shows the total economic and employment impacts of non-outfitted sport fishing in Saskatchewan.

Total GDP Impact			
	Direct and Indirect Impacts	Induced Impact	Total GDP Impact
GDP Generated	\$23,256,150	\$6,020,053	\$29,276,203
Total Employment	\$14,702,624	\$6,635,084	\$21,337,708
Total Jobs (FTE)	698.6	216.7	915.3

² Expenditures that would be lost if not for the sport fishing industry.

To benchmark this level of economic activity the NFTC Air Force Base in Moose Jaw creates 1,132 jobs (FTEs) in Saskatchewan and generates \$52 million in direct and indirect GDP annually³ (compared to \$29.2 million for non-outfitted fishing). Fishing is of a similar size to the province's growing film industry. The film industry has average annual production valued at \$45 million and employment of 651 full-time positions⁴.

Outfitted and Non-Outfitted Fishing Impacts

To establish a complete picture of the sport fishing industry in Saskatchewan, both outfitted and non-outfitted fishing expenditures must be considered together. Utilizing the findings of another similar report completed regarding the outfitted fishing industry the total industry impact can be calculated.

The marginal impact of non-outfitted fishing in the province is \$63.9 million when only out of province and import substitution expenditures are included. For outfitted fishing the marginal net impact of expenditures is \$43.2 million. The total marginal direct expenditure on fishing in Saskatchewan is \$107.1 million.

Based on the direct expenditure of \$107.2 million the total direct and indirect GDP impact of outfitted and non-outfitted fishing is \$53.7 million. If induced impacts are considered with the direct and indirect impacts, the total GDP impact rises to \$70.3 million. Because the majority of outfitted expenditures are made directly to outfitters and the high labour component of outfitting operations, they have a higher than average GDP impact.

Impacts of Outfitted Non-Outfitted Fishing				
	Gross Expenditure	Marginal Expenditure	Total GDP Impact	FTE Employment
Outfitted Fishing	\$ 43,218,079	\$ 43,218,079	\$ 30,411,020	818.0
Non-Outfitted Fishing	\$ 156,662,588	\$ 63,947,739	\$ 23,256,150	698.6
Total Impacts	\$ 199,880,667	\$ 107,165,818	\$ 53,667,170	1,516.6

³ An Economic Assessment of the Economic Benefits Resulting from Operations of the NATO Flying Training in Canada (NFTC) Program at Moose Jaw Saskatchewan, DMCA, November 2002.

⁴ Economic Impact Statement for the Province's Film and Video Industry, DMCA, 2004.

Commercial Fishing

The total economic activity in the commercial fishing sector, including processing, is \$4.8 million, all of which is considered new money to the province. The expenditures are considered new money because they are either triggered by exports from the province or are a form of import substitution. Commercial fishing expenditures were determined using a combination of survey data and interviews with stakeholders.

Commercial Fishers' Gross Expenditures	
Expenditure Type	Expenditures
Commercial Fishers ⁵	\$ 3,764,539
Fish Packing Plant	465,000
Fish Process Facility	594,000
Subsistence Consumption	104,194
Gross Expenditures	\$ 4,927,733

According to the economic model used in this study commercial fishing triggers \$2.8 million in direct and indirect GDP and \$3.4 million if the induced impacts are considered. In total 104.6 full-time positions are needed to fill the needs of the industry. The actual count of employment generation conducted as part of the survey indicates that 200 full-time-equivalent positions are created. The actual jobs created are much higher as the majority of these jobs are seasonal. For instance, helpers, on average, will work only three weeks and some of the commercial fishing seasons for individual lakes can last less than a week.

Total GDP Impact of Commercial Fishing			
	Direct and Indirect Impacts	Induced Impact	Total GDP Impact
GDP Generated	\$ 2,753,001.10	\$ 636,220.13	\$ 3,389,221.23
Total Employment	\$ 1,553,824.43	\$ 350,609.39	\$ 1,904,433.82
Total Jobs (FTE)	93.1	11.5	104.6

The average income in Northern Saskatchewan is much lower than in the remainder of the province. As such, the impact of the seasonal income received from fishing is more significant to those who receive income from the industry. While there are 200 full-time equivalent positions attributed to the commercial fishing industry, due to the seasonal nature of the industry this actually equates to an estimated 1,200 direct positions.⁶ If you consider

⁵ Includes licensing fees.

⁶ Based on surveys, interviews, and FFMC data.

only those employed, **14% of the northern workforce⁷ receives some income derived from the fishing industry.** Many of those consider that income to be a significant part of their annual income.

There are three primary components to the commercial fishing industry; commercial fishing, fish packing, and fish processing. The bulk of the industry is in commercial fishing as Saskatchewan does not have a federally inspected fish processing facility that can export processed fish.

Fishing Patterns

Sport Angling

There were 160,475 fishing licenses sold in Saskatchewan in 2004, a quarter of which were sold to non-Saskatchewan residents.

Canadian fishing visits were primarily drawn from Alberta. 81.6% of fishing visits were made by Alberta residents. Manitoba, British Columbia, and Ontario comprised the remainder of the major visitation sources.

Non-residents were dominated by American visitation and again, proximity was key. North Dakota was the most significant source of visitation comprising 20.6% of all visits. Other significant sources of visitation included Montana (16.2%), Minnesota (10.0%), and Colorado (9.4%).

Total Trips and Average Per Trip Expenditures⁸			
	Saskatchewan Residents⁹	Canadian Residents	Non-Residents
Average Trip Expenditure¹⁰	\$114.95	\$582.67	\$838.83
Annual Average Number of Trips	8.52	2.85	1.53
Trips	1,029,250	41,487	12,312

⁷ The effective workforce of Northern Saskatchewan is 21,090. Given the participation rate of 53% and unemployment rate of 24% the actual working population is 8,500.

⁸ A fishing trip is defined as any excursion to fish, a tourist fishing trip is any trip that exceeded 80 km.

⁹ Saskatchewan respondents were surveyed on both annual trip expenditures and per trip expenditures. This table is based on annual expenditure data from the surveys broken down to per trip expenditures.

¹⁰ Not including license fees.

Commercial Fishing

There are approximately 613 licensed commercial fishers in the province assisted by 270 helpers. Commercial fishers will work on average 49.6 days annually and helpers will work an average of 14.5 days annually. Based on surveys and industry interviews the following data provides an overview of commercial fishing patterns.

Commercial Fishing Overview	
Seasonality	Commercial fishing is primarily a winter industry with 71% of the fishing taking place in the winter.
Peddling	20.7% of commercial fishers peddle some part of their catch to consumers.
Aboriginal	88.7% of commercial fishers are of Aboriginal ancestry. Similarly, processing and packing facilities are staffed primarily by Aboriginal people.
Alternative Employment	72.4% of commercial fishers have alternative employment and helpers have a second job 62.5% of the time.
Impact on Fishers	52.8% of the time fishing provides the largest part of a commercial fishers yearly income
Types of Second Jobs	Fire fighting, forestry, and labour positions are the typical second incomes for fishers.
Fishermen's Cooperative	77.6% of fishers belong to a fishermen's cooperative.

Inter-Jurisdictional Comparisons

Fees

Saskatchewan's annual license fees are higher than the Canadian average. Resident fees are 32.6% above the average, Canadian resident fees are 53.5% above average, and the non-resident fees are 51.6% above the average. However, it should be noted that few of the other jurisdictions have the vast resource and relatively small tax base that Saskatchewan has.

Survey respondents were asked whether or not they would consider purchasing a conservation fishing license at a reduced rate. There was interest by both Saskatchewan and non-Saskatchewan anglers. 59.1% of Saskatchewan anglers indicated interest in a conservation license compared with 60.6% of non-Saskatchewan residents.

Quality

Survey respondents rated the quality of Saskatchewan's fishing product quite highly relative to other jurisdictions. 42.1% of visitors to Saskatchewan found their Saskatchewan trip to be better or much better than their most recent trip elsewhere in Canada. This compares with 15.9% who found their Saskatchewan trip to be worse or much worse. When asked why the trip was better respondents indicated that the fishing, lakes, and atmosphere were the most important aspects.

Comparing their most recent Saskatchewan fishing trip with their most recent fishing trip in the United States 47.4% of visitors felt that their Saskatchewan fishing trip was better or much better. This compares with 5.6% who felt that the most recent Saskatchewan trip was worse or much worse.

Environmental and Social Impacts

Environmental Impacts

Sport Angling

Fishing in Saskatchewan creates both positive and negative externalities. When properly managed, fishing is largely a symbiotic relationship with both the environment and lakes. While all consumptive activities have a negative impact on the environment, they also have positive impacts. The more important positive environmental impact fishing has on the environment is that it fosters a vested interest in the protection of fisheries and habitat preservation that may not otherwise exist.

Fishing interests coincide with environmental objectives and foster an attachment to the environment. When asked about paying additional fees for fishing licenses to fund the Fish and Wildlife Development Fund 77.4% of Saskatchewan anglers and 82.4% of non-Saskatchewan anglers indicated that they would be willing to pay additional fees. Anglers also indicated that increased fisheries enhancement activities, such as stocking and habitat improvement, were the most important regulatory change that government could make with regards to fishing.

Fishing is a relatively energy intensive pastime when compared to other leisure activities. There are significant transportation costs associated with both traveling to and from destinations as well as boat fuel costs. The fishing, hunting, and trapping sector, relative to other leisure time activities such as arts, entertainment and recreation; scenic and sightseeing transportation; and accommodation and food services has far greater energy demands.

While monitored, there remains the danger of over-fishing and harming the fish stocks. Alberta has had issues with over-fishing and is now contending with those issues. Close monitoring is required to avoid such environmental issues.

Commercial Fishing

Some analysis of the environmental impacts of commercial fishing is required to fully consider the economic impacts. Commercial fishing, like all food production, has an impact on the environment. The environmental impact of Saskatchewan's commercial fishing industry has, however, declined in recent years. Saskatchewan's fishery resource once supported a much larger commercial fishing industry. The industry has gone from a peak of 6 million kg of production, 3,500 fishing licenses, and several major processing facilities to 3.3 million kg in production, 1,500 licenses and very little processing.

Commercial fish quotas are allocated based on sustainable harvests. Similar to sport fishing, commercial fishing can have a largely symbiotic relationship with fish stocks. Commercial fishing is actually a relatively straightforward industry to manage when compared to other industries reliant on wild resources. The number of fishers, the quantity allocated, and the final harvest numbers are all known variables, with the exception of illegal activity. Other industries, such as sport fishing and hunting cannot track the total harvest as easily as in the commercial fish sector.

The management of individual lakes becomes more difficult and more risks are posed when lakes are utilized for both sport fishing and commercial fishing. Sport fishing is more difficult to monitor as sport fishers are allocated a daily limit with no limit on the number of anglers or angling days. As access to specific lakes improves, the number of sport anglers on a specific lake may increase. The total sustainable harvest from that lake may have to be adjusted accordingly.

It is also important to consider the impacts of competing fish harvest methods. Canadians cannot forgo food production. In terms of environmental impact analysis, it is a matter of analyzing food production methods and their relative impacts on the environment. Aquaculture, for example, produces a similar product to that of the commercial fishing sector, but has different impacts on the environment. Fish farms pose no direct risk to over-harvesting the wild fish resource as the fish are self-contained and do not rely on the wild resource. Fish farms do, however, pose some risk to the habitat such as the risk of disease. Because of the density of the fish, disease can spread more easily through the stock. Once spread through the aquaculture stock, disease can also be spread to the host lake or river. Disease can be controlled through antibiotics and other additives to the food but long-term use of antibiotics can themselves pose risks to the surrounding habitat. There are also risks associated with waste food and feces entering the host habitat. While aquaculture can have negative impacts on the environment, these impacts can be mitigated by proper regulating and enforcement.

Social Impacts

Sport Angling

Fishing is a significant part of Saskatchewan's sports and recreation industry. Of Saskatchewan residents over the age of 16 and under the age of 65, 14.8% have a fishing license. The most important attributes for sport anglers are being outdoors, camaraderie with friends and or relatives, and as a form of relaxation.

Fishers were not as avid about their sport as hunters. To gauge the importance of fishing in people's lives, respondents were also asked to rate the importance of fishing relative to other leisure time activities. Non-resident anglers rated fishing much higher (6.7/10 on average) in terms of their other leisure time activities as compared to Saskatchewan anglers (5.6 on average).

Commercial Fishing

The social impacts of commercial fishing are significant in terms of both employment and cultural significance. Without the employment and employment income created by commercial fishing there would be significant social consequences that are associated with unemployment and lower incomes. Over 14% of workers in the Northern Administrative District derive some part of their income from commercial fishing. A significant portion of the northern population is impacted by commercial fishing revenue, particularly when the families of the commercial fishers are considered as well.

There is also a strong sense of attachment to fishing in terms of the cultural and traditional significance. Fishing is also seen as part of the family tradition. Similar to farming, fishing is a family business that is handed down through generations.

1.0 Introduction

This report has been prepared for Saskatchewan Environment (SE). It has been developed in response to SE's request for an independent assessment of the economic impact resulting from non-outfitted sport fishing and commercial fishing within Saskatchewan. This report will primarily provide analysis of the economic impacts of sport and commercial fishing with some analysis of the social and environmental impacts. The analysis considers the impacts of the following populations:

- Canadian residents (including Saskatchewan residents) sport fishers.
- Non-resident¹¹ sport fishers.
- Commercial fishers

The sample population was drawn from provincial license sales for Saskatchewan resident, Canadian resident, and non-resident sport fishers. Regarding the commercial fishing survey the sample was drawn from individuals holding provincial commercial fishing licenses. The sample does not include Aboriginal or subsistence fishing. Aboriginal fishing rights and subsistence fishing are broad and complex areas of research that would warrant separate analysis.

Two other reports were commissioned by Saskatchewan Environment. These reports utilized the same methodology found in this report in evaluating the impacts of the outfitting industry and the non-outfitted hunting industry in the province. The results of these reports have been included in this report wherever relevant. Together, these reports provide a complete picture of the components of the hunting and fishing industry in the province. Each study includes an analysis of the marginal expenditure impact, GDP impact, and employment impact. The studies also identify relevant information such as regional and rural impacts, average trip expenditures, and total expenditures.

1.1 Study Purpose and Objectives

This work was undertaken by the Department in order to inform the ongoing policy and decision making processes in conjunction with a broader evaluation of environmental and social impacts. The methodology utilized throughout this economic evaluation was discussed with Department of Finance staff in the Economic and Fiscal Policy Branch.

This study focuses primarily on the economic impacts of non-outfitted sport fishing and commercial fishing. This report also contains some analysis of the social and environmental impacts of the two industries, but only to the extent to provide context for the economic impacts. Outfitted fishing was assessed in a separate study on outfitting but the numbers are included here to provide a full picture of the economic impact of fishing in Saskatchewan.

¹¹ Non-resident includes all non-Canadian fishers.

Also included in this report is an analysis of long-term fishing trends, elasticity of demand regarding license fees, a comparative analysis of sport license pricing, as well as some contextual analysis of the commercial fishing industry.

Some analysis of aquaculture in the province is provided in this report, however, aquaculture has not been included as part of the economic impact of commercial fishing. While both aquaculture and commercial fishing are components of the commercial fish industry, they function in very different ways. It would not be useful to analyze the industries together as they have very different impacts on the province and economy.

The economic analysis will focus on the actual GDP generated by fishing activities, as well as other factors such as labour expenditures and employment created. The social aspects of fishing will focus on the level of emotional and cultural attachment to both commercial and sport fishing. The environmental aspects of fishing will be analyzed in terms of both the positive and negative environmental impacts.

1.2 Methodology

Survey Methodology

Sport Fishing

To determine the economic and social impacts of non-outfitted sport fishing in Saskatchewan research was required to detail the types of expenditures made by fishers. A survey of individuals purchasing a fishing license in Saskatchewan was undertaken. Three populations were identified including Saskatchewan resident, Canadian resident and non-resident fishers.

A telephone survey was chosen as the optimal methodology for gathering data on social and economic impacts as it would yield the most statistically relevant data within a reasonable period of time. Internet surveys lack the response rate required for relevant data. Mail-in responses have a slow turnaround time and have the potential to be unrepresentative.

The survey itself gathered information on four main areas including: fishing patterns, expenditure data, attitudinal data, and demographic data. Additional information was also gathered through the survey of fishers on some regulatory issues. The complete surveys have been appended.

Standard survey methodology was utilized to determine the survey sample sizes. It was determined that there were three distinct populations as identified above. Because information was required at a regional level the sample sizes are larger than would be required to simply establish expenditure patterns for fishers in Saskatchewan. For each of the following populations the reliability is far greater than the standard confidence level of 95% and margin of error of 5%.

Table 1.1 – Total Survey Sample		
	Projected Sample Size	Completed
Saskatchewan Resident Fishers	1,000	1,000 ¹²
Canadian Fishers	500	500
Non-Resident Fishers	500	500
Total	2000 Respondents	2000 Respondents

Sport Fishing Follow-Up Survey

After the initial survey of 1,000 sport fishers, there was a follow up survey of 150 of the original respondents. After reviewing the data from the initial survey it was apparent that there was an issue related to the saliency of the respondents regarding their last trip. Respondents were asked to recall the expenses on their last fishing trip, but appeared to be recalling only significant fishing trips. After consulting tourism expenditures experts and existing trip expenditure data it was determined that there was an issue with trip expenditures. While this data was valuable in establishing the expenditure patterns, it was not as useful in determining the total annual expenditure. Consequently, 150 of the 1,000 respondents to the original survey were re-surveyed and asked further questions on their fishing trip expenditures.

The results of the re-survey yield results that were in line with existing data on tourism and sport fishing expenditures. To avoid the issue of memory recall respondents were asked to report the total trip expenses for the year in question, as opposed to only the expenses incurred on their last trip. This, combined with the number of trips reported, yielded a per trip expenditure number. As a control, respondents read back the per trip expenditures calculation based on the number of trips they took and the total annual expenditure on fishing trips. Respondents were then given the opportunity to adjust their total annual expenditures if they felt that the number was either high or low.

The re-survey results provided far more realistic trip expenditure results as the sample was no longer overly represented by major fishing trips that the sport fishers were recalling in favour of smaller day trips. The sub-sample had a confidence interval of 7.3% and a confidence level of 95%. As the re-survey results were consistent with the body of existing knowledge and expertise this is considered a highly confident sample.

Commercial Fishing

In 2005, there were 1,474 commercial fishing licenses sold in Saskatchewan. As little was known about the number of active fishers in the province the total population of commercial

¹² 150 respondents were re-surveyed to gather additional data on annual expenditures as opposed to per trip expenditures.

fishers was considered to be the number of licenses sold. As such a sample size of 310 fishers was determined. At the time this was determined it was acknowledged that the actual number of fishers may be much smaller than the number of licenses sold and that the methodology would be adjusted accordingly as more was learned about the industry. Essentially, not being able to fill the quota was a finding in and of itself.

Obtaining the quota for fishers proved quite difficult for several reasons. The most significant of which was the actual number of active fishers being 613, as opposed to the total number of commercial fishing licenses, 1,474. The primary cause for the difference in the number of licenses and the number of fishers is the fact that commercial fishers generally will fish more than one lake and are required to have a license for each lake they fish.

The actual 613 fishers were also difficult to survey as issues such as language barriers and the remote location of the fishers made telephone contact difficult. A total of 62 commercial fishers were surveyed. The survey data was supplemented by an extensive interview process detailed later in this section. Data from the Freshwater Fish Marketing Corporation (FFMC) was also valuable as it provided the weight and value of all the fish sold to the corporation by Saskatchewan fishers. The vast majority of commercially caught fish in the province is sold to FFMC, which is the only entity that has the mandate to export fish out of the province. The following table shows the primary research undertaken regarding commercial fishing.

Table 1.2 – Commercial Fisher Sample		
	Projected Sample Size	Completed
Commercial Fisher Surveys	310	62
Commercial Fishing Industry Interviews ¹³	10	44
Total	320 Respondents	99 Respondents

Stakeholder Interviews

Sport Fishing

Interviews were held with several stakeholders in the sport fishing industry to gather relevant background, regulatory, expenditure, and fishing pattern information. Some of the stakeholder interviews included Tourism Saskatchewan, Saskatchewan Wildlife Federation, Saskatchewan Environment, Statistics Canada, Heritage Canada, Canadian Sport Tourism Alliance, Saskatchewan Association of Rural Municipalities as well as sport anglers.

¹³ Includes stakeholders and analysts as well as commercial fishers.

Commercial Fishing

Stakeholder interviews were critical in the evaluation of commercial fishing. As such, the interview program was far more extensive than originally called for in the methodology. Interviews took place with the following organizations with multiple individuals interviewed in the majority of organizations and industries: Human Resource and Skill Development Canada (1), Department of Fisheries and Oceans (2), Statistics Canada (5), Revenue Canada (1), commercial fishers (8), fish processors (7), Freshwater Fish Marketing Corporation head office (3), Freshwater Fish Marketing Corporation plant operators (6), Saskatchewan Environment (4), Saskatchewan Northern Affairs (2), Saskatchewan Agriculture and Food (2), Saskatchewan Wildlife Federation (1), aquaculture operators (1), Saskatchewan Association of Rural Municipalities (1), and Saskatchewan Cooperative Fisheries Limited (3).

Economic Impact Model

Input-Output Tables – The economic impact model is based on Statistics Canada’s input-output tables. These tables look at the inter-relationships between Canada’s industries through the system of national accounts. The model projects the level of economic activity being stimulated in various parts of the economy based on the initial demand placed on the economy by the expenditures being analyzed. For instance, in the case of tourism expenditures, the model would produce an estimate of the related economic activity required to supply the demand created by \$1 million in transportation related expenditures.

The model also estimates the level of economic activity actually occurring within Saskatchewan. Factors of production imported to Saskatchewan to meet the industrial demand within Saskatchewan are removed, as they are economic impacts associated with other jurisdictions. This is necessary because economic activity translates into economic impacts very differently based on the type of industry, as well as location. As an example, we can compare two businesses and their respective impacts on the economy, a car dealership and a hotel operation located in Saskatchewan. Both the car dealership and the hotel did \$10.0 million in business last year, net of taxes.

Car Dealership – The car dealership has a 20% markup on the cars that they import from Ontario (Saskatchewan does not supply any of the cars). The 20% or \$2.0 million markup is the gross profit over and above the cost of importing the cars. The \$2.0 million is used to pay sales staff wages, operating costs, and amortization with the remainder as profit for the Saskatchewan-based owners. Of the operating expenditures, 50% (\$1.0 million) will be labour expenditures. Because the employees are all Saskatchewan-based, the entire \$1.0 million would remain in Saskatchewan.

A total of \$400,000 will be spent on operational goods and services, half of which (\$200,000) will be supplied within the province. \$300,000 in amortization will also be allocated, 50% of which was originally paid to out-of-province suppliers. The remaining \$300,000 is profit for the Saskatchewan-based owners. The input-output tables would calculate, from the total \$10 million in economic activity, the actual economic impact in Saskatchewan. In this example, the actual economic impact is \$1.65 million based on the level of car importation (\$8.0 million) and \$350,000 in other out-of-province imports.

Hotel Operation – The hotel operation is operating at operational margins of 40% labour, 40% operating expenditures, 10% amortization, and 10% profit. The 40% labour expenditure, or \$4 million, is paid entirely to Saskatchewan-based employees and, therefore, remains in Saskatchewan. Of the 50% operating expenditures (which include a wide assortment of goods and services ranging from plumbing to sheets) approximately 50% will be supplied by Saskatchewan businesses and therefore remain in Saskatchewan. Of the 10% amortization, half was originally paid to out-of-province suppliers with the other half remaining in the province as a provincial economic impact. \$1.0 million is profit for the Saskatchewan-based owners.

As such, the total economic impact of \$10.0 million in hotel expenditures is \$7.5 million, compared to the \$1.65 million for the car dealership. In general, the economic impact of service-based industries is much higher because they have a low cost of goods sold and higher labour expenditures. The following table shows the different levels of economic impacts.

Table 1.3 – Sample Economic Impacts for Car Dealership and Hotel Operation				
	Car Dealership		Hotel	
	Total Expenditure	Saskatchewan Economic Impact	Total Expenditure	Saskatchewan Economic Impact
Labour	\$ 1,000,000	\$ 1,000,000	\$ 4,000,000	\$ 4,000,000
Cost of Goods Sold ¹⁴	\$ 8,000,000			
Operational Expenditures	\$ 400,000	\$ 200,000	\$ 4,000,000	\$ 2,000,000
Amortization	\$ 300,000	\$ 150,000	\$ 1,000,000	\$ 500,000
Profit	\$ 300,000	\$ 300,000	\$ 1,000,000	\$ 1,000,000
Total	\$ 10,000,000	\$ 1,650,000	\$ 10,000,000	\$ 7,500,000

While this is a highly simplified assessment of the economic impacts, it does give a general overview of how differently expenditures can impact the economy. If the economic impact were being done on a Canada-wide basis, it would be much higher for the car dealership because it would include the economic activity spurred within the Ontario auto industry, as well as goods produced in other provinces.

Open Model – The model described here is termed an open model. The open model includes only the direct and indirect effects generated by a specific economic activity, excluding induced or spin-off effects. This model calculates only the value added within the economy being analyzed and does not include any induced or spin-off effects.

¹⁴ Because the hotel is primarily selling a service, there are no costs of goods sold as in the case of the raw goods required for a manufacturing or sales company. While individual hotels would likely report the cost of goods sold in their profit and loss accounts, for the sake of simplicity we are assuming that the costs are all reported as operational expenditures such as marketing and administration.

The Parks Economic Impact Model (PEIM), developed by Canadian Heritage and Statistics Canada, was used to assess the impact of the sport fishing expenditures at a provincial level. Because PEIM utilizes Statistics Canada input-output tables as the basis for calculating economic impacts, it is a very accurate and broadly accepted way of calculating economic impacts. PEIM generates the GDP, employment expenditures, and employment impacts.

Because commercial fishing is such a unique industry with little existing economic data a special run was made by Statistics Canada to determine the GDP impacts. The model will be directly comparable with data from the PEIM model as they are both based on the Statistics Canada Input-Output Tables. The resulting direct and indirect GDP impacts were inputted into the induced impact formula to determine the induced impacts. Again, these results are directly comparable with the results of the other analysis for other sport fishing and hunting impacts.

Expenditure data, collected in the form of transportation, vehicle rentals, other vehicle, accommodation, food and beverage, recreation and entertainment, and retail/other expenditures, was input into the respective models to simulate impacts on the economy. A separate impact analysis was run for each of these categories. The resulting data was the direct and indirect impacts. The models yielded the direct and indirect gross domestic product (GDP), employment expenditures, employment positions, as well as identifying some federal tax revenues for the respective industries.

Using the Statistics Canada Input-Output tables as the base for both models yields results that are very beneficial as it is extremely accurate in terms of its assessment of the GDP and employment created. It also is consistent and comparable with the previous economic assessment of Saskatchewan's Provincial Parks. However, both models are lacking in two ways. First, the models only estimate some federal taxes. Second, the models do not calculate any of the induced impacts created by economic activity via labour expenditures.

Induced Impacts and the Closed Model – While economists, including Statistics Canada, have been reluctant in the past to include induced impacts, there has been some reconsideration on this front. Induced impacts, while being acknowledged, have long been regarded as somewhat inaccurate and misleading. However, Statistics Canada is now considering adding back into their calculations the induced impacts. A formula generated by Statistics Canada was utilized to calculate the induced impacts of commercial and sport fishing. A model calculating the induced or spin-off activities, as well as the direct and indirect impacts, is termed a closed or partially closed model (as opposed to the open model described earlier).

Determining the spin-off or induced impacts involves calculating the total labour expenditures generated through the direct and indirect expenditures and determining the impact the labour expenditures have. This is done by first determining the level of taxation and saving to determine the propensity to consume. Actual consumption is determined by the total propensity to consume times the typical basket of goods purchased by a wage earner. Once the actual expenditures have been assessed, the provincial expenditure model is run again based on the typical expenditures made by a wage earner in Saskatchewan.

Final Results – The direct and indirect impacts are reported separately from the induced impacts for two reasons. Firstly, it is important to identify the direct and indirect GDP impacts, as these impacts can easily be compared to other industries for which a similar

model (the open model) has been applied. These results will compare easily with other economic impact assessments for which no induced impact was calculated.

Second, it will also be important to have the induced impacts reported separately as these results are not as generally accepted as the direct and indirect impacts. However, with growing acceptance, it may be important in the future to include the induced impacts in order to be comparable to other economic impact analyses.

Taxation Impacts – Additional work was done to assess the tax impacts of sport and commercial fishing. The Conference Board of Canada has developed an economic impact model for the Canadian Sport Tourism Alliance based on Statistics Canada input output data. The taxation portion of this model calculates tax at the federal, provincial, and municipal levels. Because of the breadth of this model it was utilized to calculate the total tax impacts.

The Sports Tourism Economic Assessment Model (STEAM) assesses the impact of sport related tourism expenditures. The taxation portion of this model was adapted to identify the tax revenue generated by sport and commercial fishing related expenditures. The STEAM model was used because it has the reliability of being constructed by the Conference Board, and provides a level of detail in the taxation impact not provided in other economic impact models. To ensure consistency, the tax impacts were calculated based on the GDP impact calculated in the PEIM model, with the tax impact structure from the STEAM model. Because this model is being applied to the GDP impacts alone the relative impacts of the respective industries have already been determined. Based on this the model was used for both commercial and sport fishing taxation impacts.

Social and Environmental Analysis

The social and environmental impacts are far more difficult to assess as they are not typically quantifiable, as in the case of economic impacts. In terms of the social impact of non-outfitted sport fishing and commercial fishing, survey questions were used to create a level of quantification of respondents' sentiments towards fishing. Respondents were asked to rate the importance of various factors related to fishing. Respondents were also asked to rate fishing in relation to other leisure sport activities. In terms of financial commitments, respondents were also asked to predict changes in fishing behaviour when faced with increased licensing costs.

The social analysis contained within this report, as indicated above, is largely based on responses from the survey questions and conversations with key stakeholders. A broader understanding of social and environmental factors associated with this resource management is required in order to give Government decision makers the fullest understanding of the impact of their decisions.

The environmental impact of sport and commercial fishing was assessed through stakeholder interviews and an analysis of existing research. This analysis provides some context for the economic impacts and is not a complete environmental impact assessment.

As part of the environmental analysis sport fishing is considered in terms of other forms of tourism and their relative impacts.

2.0 Background

2.1 Historic Licence Sales

Sport fishing license sales in Saskatchewan have remained relatively constant over the past ten years. The most significant change in the percentage of non-Saskatchewan fishing licenses being sold is actually based on a regulatory change. In 2000 a Canadian fishing license was introduced. Previous to 2000, Canadian residents purchased the same licenses as Saskatchewan residents. There has been a decline in the number of fishing licenses sold from 1995 to present, however, the decline has not been steady with the number of fishing licenses fluctuating largely within a specific range.

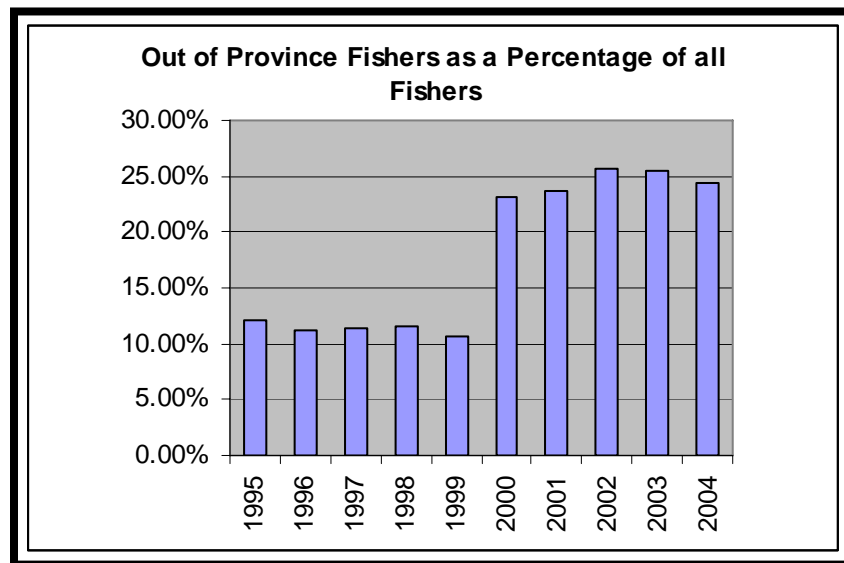
Table 2.1 – Saskatchewan Fishing License Sales										
License Type	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total SK Licenses	162,013	156,101	156,684	175,473	179,855	141,505	140,583	129,279	136,043	121,238
Total Canadian Licenses						21,561	23,537	24,565	25,981	20,358
Total Non-Resident Licenses	22,213	19,643	20,136	23,100	21,471	20,941	19,873	20,183	20,350	18,879
% Out-of-province	12.06%	11.16%	11.37%	11.62%	10.66%	23.10%	23.59%	25.71%	25.40%	24.45%
Total License	184,226	175,744	176,820	198,573	201,326	184,007	183,993	174,027	182,374	160,475

The 8.3% drop in 2000 may have been impacted by price hikes in that year. Saskatchewan residents saw their license fee increase from \$15 to \$25, Canadian residents saw a price increase from \$15 to 40, and non-residents saw a price increase from \$30 to \$50.

A further license hike in 2004 may have led to the decrease in that year. Saskatchewan resident licenses were increased from \$25 to \$30, Canadian resident from \$40 to \$60 and non-resident licenses from \$50 to \$60. Further analysis of fishing license price analysis follows in subsequent sections. Further analysis included both a sensitivity analysis and an inter-provincial comparative analysis of licensing fees for sport fishing licenses.

The market for Saskatchewan's fishing product has declined slightly in recent years. American fishing trends have seen an 8% decline in fishing participation. In the United States in 1991 there were 31.9 million freshwater fish participants. This dropped to 29.7 million in 1996 and 28.4 million in 2001. The decline is greater when the growing American population is considered.

Saskatchewan does, however, appear to be attracting a growing percentage of a shrinking market. The following graph shows out-of-province angler licenses as a percentage of total angler licenses.



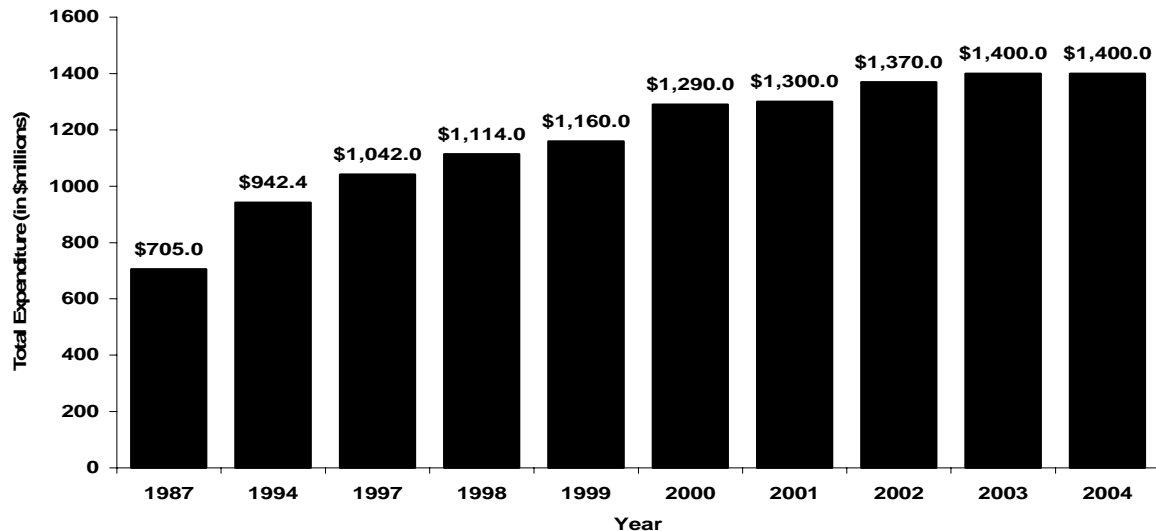
2.2 Tourism and the Saskatchewan Economy

The economic impact associated with sport fishing in the province is based on the tourism expenditures triggered by the out-of-province visitation as well as some inclusion of what is estimated to be the import substitution effect. As such it is important to assess the impact tourism has on the Saskatchewan economy. Tourism is a significant and growing part of the Saskatchewan economy. Tourism has grown to become Saskatchewan's fourth largest export according to Saskatchewan Industry and Resources. The industry directly employs 22,000 people through 3,400 tourism-related businesses making it one of the largest employers in Saskatchewan.

Tourism in Saskatchewan generated \$1.4 billion in expenditures in 2004, of which \$1.177 billion were made by visitors to or within the province¹⁵, and \$225 million were made by Saskatchewan residents on departure fares. Tourism expenditures in Saskatchewan have doubled over the last 15 years as the following graph shows.

¹⁵ Of the \$1.77 billion, \$0.664 billion was made by Saskatchewan residents. Saskatchewan residents are considered tourists if they have traveled over 80 kilometres.

Figure 2.1 – Tourism Revenue in Saskatchewan – 1987 to 2004



Source: Tourism Saskatchewan and the Canadian Travel Survey.¹⁶

Visitor tourism expenditures are comprised of four broad market segments. Expenditures by Saskatchewan residents include only expenditures made by residents traveling over 80 kilometres¹⁷.

Table 2.2 – Saskatchewan Tourism Expenditures	
Visitor Source	Expenditures (millions)
Saskatchewan	\$ 664.4
Other Canada	\$ 357.6
USA	\$ 128.5
Overseas	\$ 27.2
Total Visitor Expenditures	\$ 1,177.7
Departure Expenditures	\$ 225.0
Total Expenditures	\$ 1,402.7

¹⁶ There have been significant changes in the way tourism expenditures are tallied over the years. While this is an excellent account of the general pattern of tourism expenditures in Saskatchewan, the year-to-year totals may not be entirely comparable.

¹⁷ The 80 kilometre range set out in the Canadian Travel Survey is currently being revised and will likely be reduced to 40 kilometres, with some other qualifying variables.

The bulk of total Saskatchewan tourist expenditures are generated by Saskatchewan residents. Expenditures by out-of-province visitors totaled \$513 million in 2004. It is the \$513 million that accounts for export revenues, and is also representative of the actual increase in revenues to the province.

In terms of non-Saskatchewan resident tourist expenditures, non-outfitted fishing expenditures comprised \$25.5 million. Outfitted fishing tourist expenditures are \$43.2 million. Combined, the total non-Saskatchewan resident fishing trip expenditures are \$68.7. This equates to 13.4% of the \$513.0 million¹⁸ in out-of-province tourist expenditures for all Saskatchewan out-of-province visits.

While the tourism expenditures made by Saskatchewan residents traveling do not have incremental economic impacts for the province's GDP, they are important primarily to the rural communities in which the expenditures are made. While these expenditures fall outside the realm of a typical economic impact assessment, they are impacts regardless. This report will look at the type of impacts generated by intra-provincial tourism. For comparative purposes the following table shows the typical visitation levels to other major Saskatchewan tourism attractions.

Table 2.3 – Attractor Levels – Comparative Visitation Between Fishing and Other Saskatchewan Attractions			
	Total Visitation	Local Visitation	Tourist Visitation
Gaming (SIGA and SGC)	4,000,000	2,716,000	1,284,000
Saskatchewan Fishing	1,100,000¹⁹	623,000	477,000²⁰
Regina Exhibition Park	1,000,000	790,000	210,000
Prairieland Exhibition Park	1,000,000	700,000	300,000
Saskatchewan Hunting	535,000 ²¹	355,000	180,000 ²²
Saskatchewan Roughriders	264,000	185,000	79,000
National Parks ²³	191,000	10,000	181,000
Mendel Art Gallery	178,000	142,400	35,600
McKenzie Art Gallery	88,000	n/a	n/a

¹⁸ Includes other Canada, United States, and overseas visitation.

¹⁹ Total sport fishing trips generated, including outfitted fishing visits (17,000 trips).

²⁰ Includes out-of-province visitation as well as Saskatchewan residents that have traveled over 80 kilometres.

²¹ Total hunting trips generated, including outfitted hunting (11,000 trips).

²² Includes out-of-province visitation as well as Saskatchewan residents that have traveled over 80 kilometres.

²³ Includes averages for Prince Albert National Park and Grasslands National Park.

Average Per Trip Expenditures

The following table shows the average per tourist trip (over 80 kilometres) expenditures for visits in Saskatchewan that contain at least one outdoor activity. While the fishing trip expenditures detailed later in this report include all trip, including those under 80 kilometres, the following table does provide some reference for standard trip expenditures.

Table 2.4 – Average Expenditures per Person per Visit – Overnight or Longer Visits with at Least One Outdoor Activity ²⁴								
	Total	Southwest	Southeast	Regina	West Central	Saskatoon	East Central	North
All Origins	\$237.95	\$204.32	\$121.40	\$193.02	\$132.00	\$288.18	\$174.61	\$281.57
Canadians	\$183.51	\$209.76	\$97.65	\$188.38	\$118.73	\$230.94	\$112.96	\$157.87
US Visitors	\$748.67	\$157.43	\$365.99	\$153.78	\$267.01	\$729.52	\$943.49	\$1,680.56
Overseas Visitors	\$387.36	\$178.69	\$222.56	\$332.09	\$300.77	\$653.16	\$173.67	\$201.67

Competitive Fishing Tournaments

While the economic impact of competitive fishing tournaments have been captured in the fisher expenditures, it is important to highlight the tournaments because they are a significant part of sport fishing in Saskatchewan. There were 133 licensed tournaments in 2003 with an estimated additional 130 unlicensed tournaments. These tournaments attract on average 80 participants. Tournaments will likely draw over 10,000 entrants in a year.

Annually there are approximately five major competitive tournaments with sizeable prizes and sponsorship. These competitions contribute to the tourism economy as they draw competitors from outside Saskatchewan. While these expenditures have already been captured in the average expenditures by fishing visits to the province, it is helpful to see how those expenditures are entering the Saskatchewan economy.

There is an environmental impact to these tournaments. The majority of the tournaments are catch and release but, generally speaking, there is a 10% mortality rate for fish that are released back into the water.

²⁴ 2004 Canadian Travel Survey data.

3.0 Survey Overview and Results

Each respondent was asked to respond to a series of questions relating to their respective fishing habits, expenditures, attachment to fishing, and some comparative situational questions. The following is an overview of the findings of the surveys for both sport fishing and commercial fishing.

3.1 Sport Fishing Patterns

3.1.1 – Distance Travelled and Repeat Visitation

Saskatchewan residents tend to fish close to home when they are fishing within the province. Of the average 8.52 fishing trips taken in a year by an angler 4.73 trips (55.5%) will be within 80 km of their home and 83.2% of trips will be under 200 km. The average license purchaser will travel over 200 km to fish 1.39 times.

Table 3.1 – Distance Traveled by Saskatchewan Residents		
	Times Fishing	%
Under 80 km	4.73	55.5%
80 km to 200 km	2.41	28.3%
Over 200 km	1.39	16.3%
Total Trips	8.52	100.0%

Canadian fishing visits were primarily drawn from Alberta. 81.6% of fishing visits were made by Alberta residents. Manitoba, British Columbia, and Ontario comprised the remainder of the major visitation sources.

Non-residents were dominated by American visitation and again, proximity was key. North Dakota was the most significant source of visitation comprising 20.6% of all visits. Other significant sources of visitation included Montana (16.2%), Minnesota (10.0%), and Colorado (9.4%).

Canadian and non-resident anglers had high levels of repeat visitation to the province. 73.6% of Canadian visitors had traveled to the province to fish previously while 71.2% of Americans had traveled to Saskatchewan previously to fish. Canadians had a much greater number of previous visits with the average respondent reporting 27.5 previous fishing trips to the province. Non-resident visitors had traveled to Saskatchewan previously to fish an average of 9.9 times.

3.1.2 – Species Preference

Walleye is the preferred species for both visitors to the province as well as Saskatchewan residents. Visitors to the province had a slightly stronger preference for northern pike with visitors listing northern pike as a preference 47.1% of the time and Saskatchewan residents only listing northern pike 39.5% of the time as the species the fish for. Saskatchewan residents were, however, twice as likely to fish for perch with 21.7% of respondents indicating that was the particular species of fish they were fishing for.

Figure 3.1: Species Preference by Saskatchewan Residents

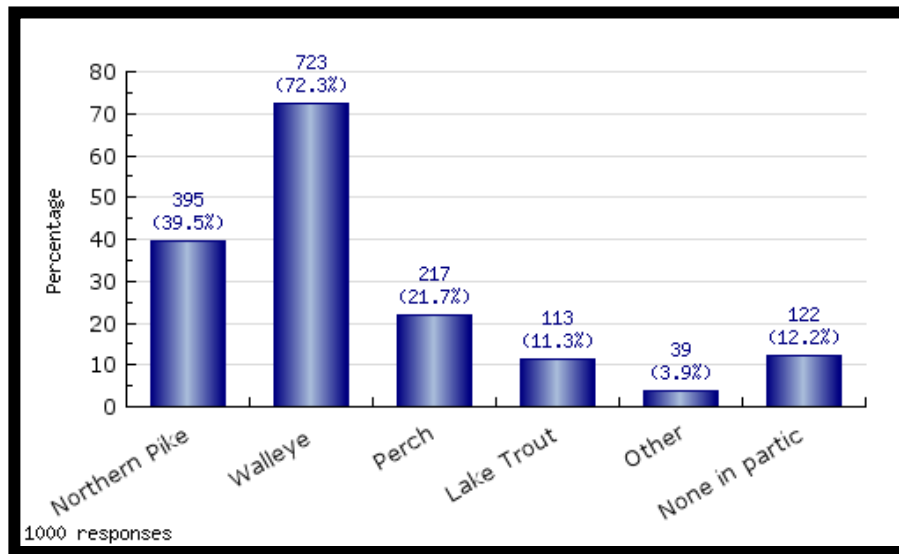
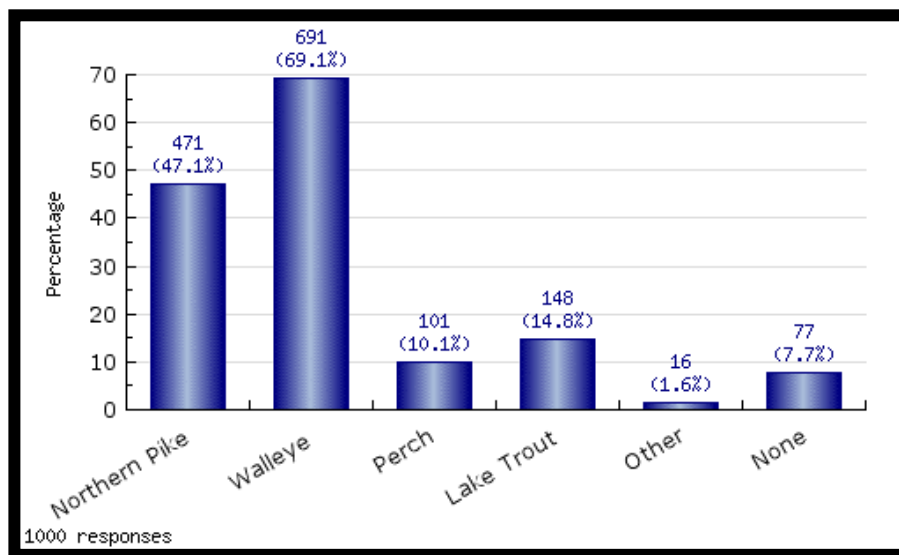


Figure 3.2: Species Preference by Out-of-Province Visitors to Saskatchewan



3.2 Survey Comments and Issues

Saskatchewan Resident Comments

Respondents were asked two questions soliciting comments on the fishing industry. The first question asked respondents to indicate what they felt was the most important issue facing the industry today was. The second question simply asked respondents if they had any further comments regarding the fishing industry.

Respondents did not focus on any particular issue with no issue ranking over 17.0%. The main issues respondents identified for the fishing industry were concern for the environment and fish stocks. The number one concern for Saskatchewan residents was over-fishing (16.9%) followed closely by protection and maintenance of the fish stocks (14.3%) and better enforcement of regulations (12.7%). Other issues such as license fees, angling limits, and size limits were not top of mind for most respondents.

Net fishing, particularly by Aboriginal people, was a concern to 9.5% of the population. Concerns regarding net fishing primarily involved a perception that there was a lack of regulations and a subsequent danger to fish stocks. There may be a perception that Aboriginal net fishing is not as regulated based on Aboriginal fishing rights.

Table 3.2 – Saskatchewan Residents Survey Responses – Most Important Issue Facing Sport Fishing		
	Total #	% of Responses
Over-fishing	145	16.9%
Protection and Maintenance of the Fish Stocks	122	14.3%
Better Enforcement of Fishing Regulations	109	12.7%
Conservation	93	10.9%
Net Fishing	81	9.5%
Commercial Fishing	48	5.6%
Control Angling Limits	47	5.5%
License Fees	32	3.7%
Other Comments	31	3.6%
Tourism	17	2.0%
Improve Access	16	1.9%
Size/Slot Limits	12	1.4%
No Comment	103	12.0%
Total	856	100.0%

Respondents were also asked a more open ended question to capture general comments regarding fishing in Saskatchewan. Respondents chose to make further comments 58.7% of the time. Increased law enforcement was the most top- of-mind comment with 11.8% with commercial fishing mentioned 8.5% of the time.

While license costs rated quite low in terms of the main issues facing fishing, license fees rated third in terms of comments in the other comments section.

Table 3.3 – Saskatchewan Residents Survey Responses – Other Comments		
	Total #	% of Responses
Better Enforcement of Fishing Regulations	78	11.8%
Cutback on Commercial Fishing and Netting	56	8.5%
Lower Fees or More License Options	48	7.3%
Simplify/Implement Fishing Regulations	46	7.0%
Greater Habitat Protection	34	5.2%
More Artificial/Natural Restocking of Lakes	32	4.8%
Control Angling Limits	27	4.1%
Generally Satisfied	17	2.6%
Implement Sport Fishing/Catch and Release	12	1.8%
Implement Size Limits on all Species	11	1.7%
Improve/Increase/Promote Tourism/Improve Access	10	1.5%
Other Comments	25	3.8%
No Comment	264	40.0%
Total	587	100.0%

Non-Saskatchewan Resident Comments

Again, those coming from outside the province to fish did not focus overwhelmingly on any particular issue with the greatest number of mentions for any given issue being 11.1%. Similar to Saskatchewan residents, out-of-province anglers felt that over-fishing (11.1%), protection of the fish stocks (8.6%), and fishing regulations (7.5%) were the most important issues.

Again, net fishing was a concern. Aboriginal net fishing was again mentioned frequently as an issue with the concern being over-fishing and a lack of adherence to regulations. There appears to be a general culture among a segment of sport fishers that is opposed to, or has limited knowledge of, commercial fishing. Concerns with net fishing were voiced by both Saskatchewan and non-Saskatchewan residents. And again, in both cases, commercial fishing was also closely associated with the Aboriginal community, likely because the vast majority of commercial fishers are of Aboriginal ancestry.

There may be some level of confusion within this segment regarding Aboriginal subsistence and fishing rights, and the regulated commercial fishing industry. The comments reflected a sense that the industry was largely unregulated and that there were inherent dangers to the fish stock based on the industry. The impact of commercial fishing on sport fishing and the fish stocks in general is monitored and regulated. It should be noted that one of the primary components of commercial fishing is whitefish, which are not a game fish pursued by sport fishers. The only species for which there is major competition are walleye and northern pike.

Table 3.4 – Non-Saskatchewan Residents Survey Responses – Most Important Issue Facing Sport Fishing		
	Total #	% of Responses
Over-fishing	96	11.8%
Protection and Maintenance of the Fish Stocks	75	9.2%
Better Enforcement of Fishing Regulations	65	8.0%
Net Fishing	60	7.4%
Conservation	59	7.2%
Other Comments	58	7.1%
Control Angling Limits	58	7.1%
License Fees	58	7.1%
Commercial Fishing	31	3.8%
Tourism	29	3.6%
Overall Satisfied	28	3.4%
Size/Slot Limits	28	3.4%
Improve Access	17	2.1%
No Comment	152	18.7%
Total	814	100.0%

Almost half of out-of-province anglers did not have any further comments. High license fees were the most mentioned comment. Fees were a far greater issue for out-of-province anglers than for Saskatchewan residents. 8.4% of respondents reported that they were generally satisfied.

The remaining comments primarily involved concerns with management of the fish stocks. Better enforcement of fishing regulations (8.1%), angling limits (7.3%) and more conservation officers (6.8%) were the most mentioned comments.

Table 3.5 – Non-Saskatchewan Residents Survey Responses – Other Comments		
	Total #	% of Responses
Lower Fees/More License Options	71	11.8%
Overall Satisfied	51	8.4%
Enforcement of Fishing Regulations	49	8.1%
Control Angling Limits/Set Limits	44	7.3%
More Conservation Officers	41	6.8%
Implement Size/Slot Limits on All Species	34	5.6%
Improve/Increase/Promote Tourism/Improve Access	20	3.3%
More Conservation/Protecting Habitat	17	2.8%
More Artificial/Natural Restocking of Lakes	17	2.8%
Other Comments	15	2.5%
Catch and Release	9	1.5%
No Comment	275	45.5%
Total	604	100.0%

3.3 Commercial Fishing

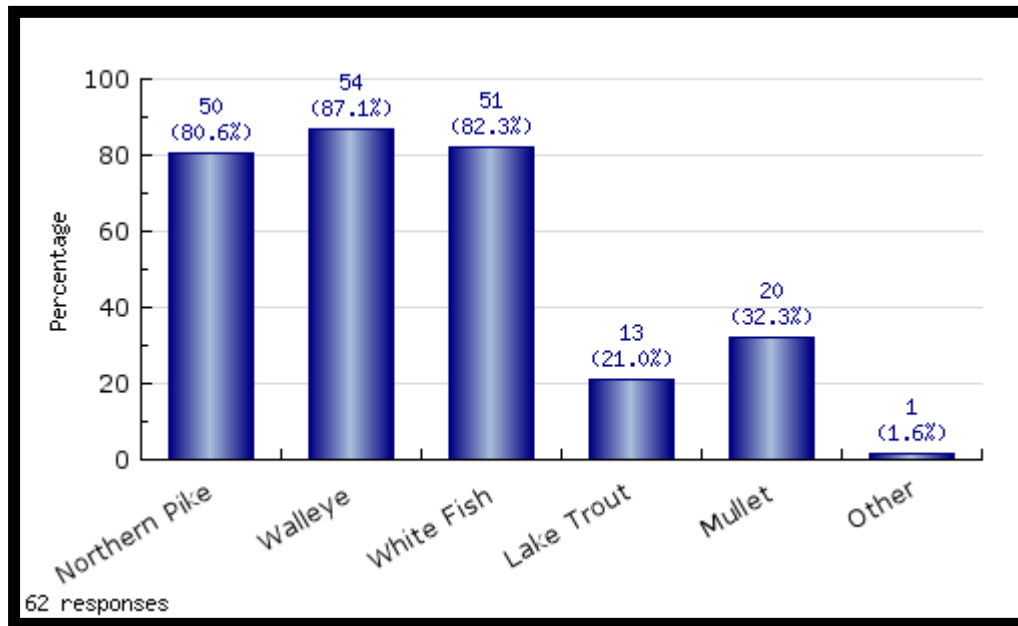
Commercial Fishing Patterns

There are approximately 613 licensed commercial fishers in the province assisted by 270 helpers. Commercial fishers will work on average 49.6 days annually and helpers will work an average of 14.5 days annually. Based on surveys and industry interviews the following data provides an overview of commercial fishing patterns.

Table 3.6 – Commercial Fishing Overview	
Seasonality	Commercial fishing is primarily a winter industry with 71% of the fishing taking place in the winter.
Peddling	20.7% of commercial fishers peddle some part of their catch to consumers.
Aboriginal	88.7% of commercial fishers are of Aboriginal ancestry. Similarly, processing and packing facilities are staffed primarily by Aboriginal people.
Alternative Employment	72.4% of commercial fishers have alternative employment and helpers have a second job 62.5% of the time.
Impact on Fishers	52.8% of the time fishing provides the largest part of a commercial fishers yearly income
Types of Second Jobs	Fire fighting, forestry, and labour positions are the typical second incomes for fishers.
Fishermen's Cooperative	77.6% of fishers belong to a fishermen's cooperative.

Commercial fishers were consistent about the type of fish pursued. Walleye, being the most valuable fish harvested in Saskatchewan lakes, is also the most sought after by fishers. While walleye is the most valuable, white fish and northern pike received nearly as many mentions. Typically, licenses will carry quotas for several species, all of which have value. Fishers will typically try to maximize their catch by catching all their quota in each species before going over their quota in any particular one species. The following table shows the mentions for various species of fish sought after by commercial fishers.

Figure 3.3 – Species Fished For



While the species fished for were predominantly northern pike, walleye, and white fish at similar levels the species actually caught were slightly different. Whitefish dominates the total fish harvest comprising 36.6% of all fish caught, almost twice the harvest of any other species. The following table shows the species sold to FFMC by Commercial fishers in Saskatchewan.

Table 3.7 – Species Delivered to FFMC by Saskatchewan Fishers Percentage of Total Kilograms – 2005/2006					
White Fish	Mullet	Pickrel	Northern Pike	Lake Trout	Other
36.6%	18.7%	18.1%	13.8%	12.6%	0.2%

Commercial Fisher and Fish Processor Interviews and Open-Ended Survey Question Results

Interview Results – Interviews with commercial fishers indicated a general level of dissatisfaction with the direction of the industry. Fishers felt that the costs of commercial fishing were rising and that the prices for commercial fish were decreasing, leaving them with less and less profits. When asked if fishers felt commercial fishing was a profitable industry only 54.8% said yes.

The majority of fish processors interviewed indicated that there was a need to be able to export processed fish outside the province. There was less agreement, however, when individuals were asked what role the Freshwater Fish Marketing Corporation should play in the exporting of fish from Saskatchewan. FFMC has a mandate to purchase all species from commercial fishers. It is unclear to some fishers whether the proposed processing facility at Prince Albert would have a similar mandate. Some felt that FFMC needed to retain a presence in the province to guarantee a market for all fish while others felt that Saskatchewan could find a market for all of its fish.

The Saskatchewan Cooperative Fisheries Limited (SCFL) has been working on the development of a fish processing facility at Prince Albert. This project was widely supported by the commercial fishers contacted during stakeholder interviews. As well, there have been significant financial investments by individual commercial fishers into this project again indicating the level of support for the concept of a fish processing facility. Discussions with SCFL indicated that while this project is being worked on currently, the structure of the market and the role of FFMC remain an issue. If these issues can not be adequately addressed the project will not succeed. It is likely that a project of this scope would require a restructuring of the timing for fish harvests to ensure that the plant had a steady supply of fresh fish.

Some of the smaller processors in the province felt that there was a need for smaller processors to have export rights so they could export processed fish to other jurisdictions. Exporting fish outside the province would require a federal inspection, however. Currently, FFMC has the exclusive export license in Saskatchewan through their fishing packing facilities located throughout the province. The idea of an inter-provincial trade agreement with Alberta to export provincially inspected fish had some support.

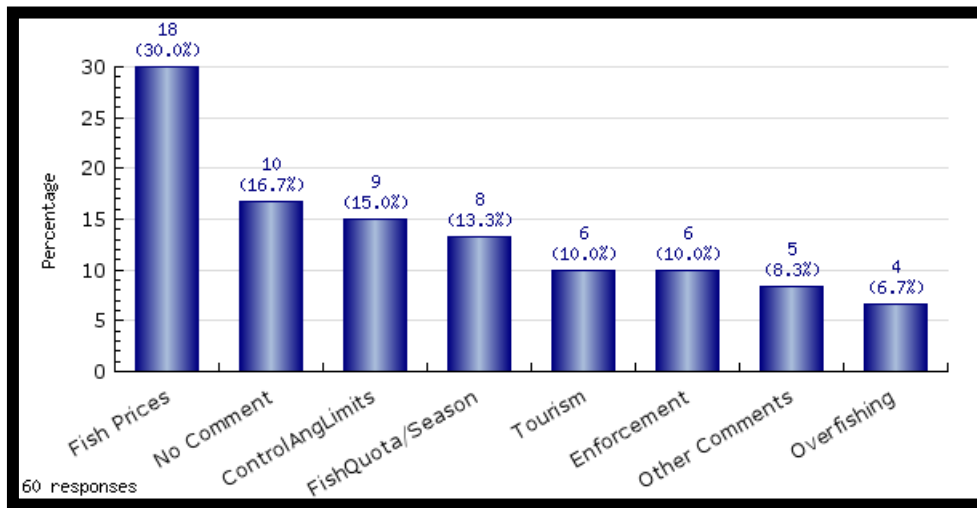
Survey Results – Throughout the survey, commercial fishers were asked some open-ended questions regarding the most important issues facing the industry and input for the management of the fishery. The most often mentioned response for the most important issue facing the industry was fish prices. This perception was borne out by the actual fish prices received by fishers through FFMC. Fish prices have remained stable for ten years while other costs have risen. In some cases fish prices have actually declined, as in the case of whitefish. The following table shows the average per kilogram payments (including all fish) made by FFMC to Saskatchewan fishers for the past 6 years. The decline in payments to fishers is a combination of fish prices and the total catch as some fish are more valuable than others. Regardless of the cause, the net impact to fishers is lower returns for fish coupled with increasing costs.

Table 3.8 – Average Payment per Kilogram of Fish – FFMC Average Payment per Kilogram of Fish – FFMC Saskatchewan 1999-2005							
Year	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05
Average Payment	\$1.72	\$1.63	\$1.58	\$1.52	\$1.57	\$1.45	\$1.31

Note: the prices are not adjusted for changes in the value of the dollar

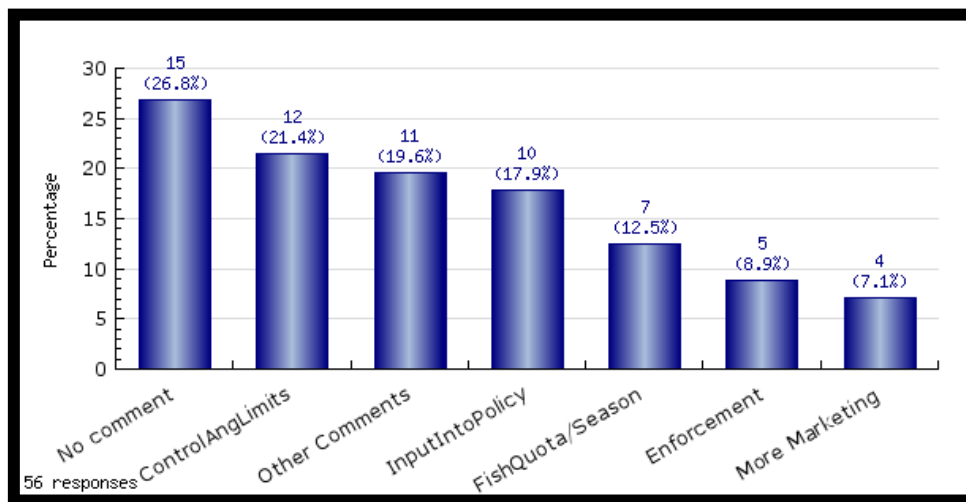
Fishers also indicated that both angling limits and fish tourism were issues facing the industry. Similar to sport fishers, they saw other forms of fishing as negatively impacting the fish stocks. There was also some concern that the fish quotas were not large enough and that the seasons were not long enough to make a profit.

Figure 3.4 – Most Important Issue for Industry



When asked for comments on managing the industry fishers again indicated that controlling angling limits was a real issue. Input into policy was also a suggestion by several fishers.

Figure 3.5 – Improving Saskatchewan Fishery Management



4.0 The Economic Impact of Non-Outfitted Fishing

The first step in determining the economic impact is to perform an expenditure analysis. The expenditure profiles can be generated from raw or existing data. To determine the average expenditures for non-outfitted fishing trips primary research was undertaken in the form of an extensive survey of Canadian, non-Canadian, and Saskatchewan fishers who purchased a Saskatchewan fishing license. From the survey data a detailed expenditure profile was developed for both each fishing population.

The actual number of fishing trips was also determined based on license sales and survey data indicating the number of Saskatchewan trips taken by license holders. As the total number of license holders included individuals who used the services of an outfitter, outfitted fishing trips were removed from the total trips to identify only non-outfitted fishing trips. The fishing trip expenditures, combined with the per trip expenditure levels, render the gross expenditures.

The gross expenditure is the basis for forming the economic impact. The gross expenditures in various sectors of the economy have various impacts on the economy and, as such, are analyzed separately. From the gross expenditures the GDP, labour expenditures, and employment are identified. GDP is used as the measure of economic activity because it is the most precise measure of economic activity specific to Saskatchewan.

4.1 Key Assumptions

Several key assumptions were made in the generation of the economic impact as outlined below:

- ***New Money*** – With the exception of the import substitution impact, the economic impact of non-outfitted fishing in Saskatchewan has been calculated on the basis of new money being injected into the economy. It is the new monies brought into the province by other Canadian and non-resident visitors that provides a true net addition to the province's wealth. Surveys were designed to solicit information on expenditures made within the province of Saskatchewan.
- ***Import Substitution*** – Import substitution has been considered as part of the economic impact relative to the extent to which Saskatchewan residents would leave the province to consume a fishing product if none were available in Saskatchewan.
- ***GDP Impact Calculation*** – The economic impact analysis is being calculated based on the GDP generated by the gross economic activity. The GDP analyzes the value added within Saskatchewan and provides a precise measure of the economic activity stimulated within Saskatchewan. The employment positions and expenditures were also calculated relative to only new positions created within Saskatchewan.
- ***“With versus Without” Framework*** – This economic impact analysis (and economic impact analyses in general) utilizes a “with versus without” framework. Essentially, what is the economic impact of having fishing in Saskatchewan versus not having fishing within Saskatchewan? If a fishing product was not available in Saskatchewan, would

there be a significant outflow of expenditures to other regions where a fishing product was available?

4.2 Gross Economic Activity

Gross economic activity triggered by non-outfitted fishing is a factor of trip expenditures and the total number of non-outfitted fishers. The total trip expenditures determine the amount and type of expenditures made within Saskatchewan. Average trip expenditures are a function of both the average number of trips as well as the annual trip expenditure.

4.2.1 – Average Trip Expenditures

Average trip expenditures were identified through survey data. Removed from the expenditure profile are any costs associated with transportation to and from Saskatchewan as only expenditures within Saskatchewan are included in the economic impact. As well, the cost of license fees has been removed from the expenditure profile to be added back in using actual Saskatchewan Environment license sales data. Actual data from SE regarding license sales will be used instead of survey data as it is more accurate. Licensing revenue impacts to Saskatchewan will also be analyzed separately in terms of their economic impacts. The following table shows the respective expenditure profiles. Non-resident fishers have the highest level of expenditures while Saskatchewan resident fishing trips generate the lowest trip expenditures.

Table 4.1 – Average Per Trip Expenditures²⁵			
	Saskatchewan Residents	Canadian Residents	Non-Residents
Transportation within Saskatchewan	\$40.52	\$145.69	\$222.83
Food/Beverage	\$32.40	\$153.71	\$174.24
Guiding services	\$0.12	\$1.88	\$12.13
Boat Rental	\$2.64	\$17.07	\$21.70
Other boat costs	\$10.42	\$45.82	\$64.70
Recreation and entertainment	\$6.57	\$31.75	\$17.38
Lodging, accommodation, or camping	\$14.41	\$134.96	\$259.55
Retail expenditures	\$0.91	\$26.83	\$38.42
Other fishing related expenses	6.96	\$24.95	\$27.88
Total²⁶	\$114.95	\$582.67	\$838.83

²⁵ Respondents were surveyed on both annual trip expenditures and per trip expenditures. This table is based on annual expenditure data from the surveys broken down to per trip expenditures.

²⁶ Not including license fees.

4.2.2 – Determination of the Number of Trips Generated

Determining the number of trips generated is a critical step in determining the economic impact of sport fishing. Working from Saskatchewan Environment licence sales, combined with the survey results, the total number of fishers was determined.

The total number of non-outfitted fishing trips generated was calculated based on surveys and stakeholder interviews. Survey respondents indicated that they traveled 8.52 times annually to fish. Licenses sold to outfitted fishers have been removed based on previous analysis regarding the economic impact of outfitted fishing. The following table shows the number of non-outfitted fishing trips relative to the licenses sold.

Table 4.2 – Total Non-Outfitted Fishing Trips		
Fisher Origin	Total Licenses Sold²⁷	Total Trips Generated
Saskatchewan Resident Fishers	120,804	1,029,250
Canadian-Resident Fishers	14,557	41,487
Non-Resident Fishers	8,047	12,312
Total Licenses	143,408	1,083,049

4.2.3 – Total Expenditure Generated

Based on the total trips generated and the average trip expenditure derived from the survey combined the total fishing trip expenditures were identified. The following table shows the total trip gross expenditures generated by non-outfitted fishing trips in Saskatchewan.

Table 4.3 – Total Annual Tourist Expenditures for Non-Outfitted Fishers			
Fisher Origin	Number of Non-Outfitted Fishing Trips	Expenditure²⁸ Per Trip	Gross Annual Expenditures
Saskatchewan Resident Fishers	1,029,250	\$114.95	\$118,312,287.50
Canadian-Resident Fishers	41,487	\$582.67	\$24,173,230.29
Non-Resident Fishers	12,312	\$838.83	\$10,327,674.96
License Fees			\$3,849,395.00
Total Expenditures	1,083,049		\$156,662,587.75

²⁷ Based on Saskatchewan Environment Data.

²⁸ Not including license fees.

Saskatchewan residents were also asked to estimate their non-trip related fishing expenses. While these expenditures cannot be added to the marginal economic impact, it is still important to identify the total economic activity that takes place. Respondents were also asked to estimate what percentage of their purchases was used for fishing.

The \$119.1 million in expenditures may not have a marginal impact on the province as a whole, however, they do have a significant impact on the community in which the expenditures are made. These communities tend to be the larger centres that can support significant retail. The following table identifies the average non-trip expenditures associated with sport fishing in Saskatchewan based on the percentage utilized for fishing.

Table 4.4 – Non Trip Fishing Expenditures by Saskatchewan Residents	
Fishing equipment	\$ 6,229,499.87
Boats and boating equipment	\$ 36,820,908.20
Camping equipment	\$ 2,813,144.63
Special vehicles such as ATVs, campers, snowmobiles, or trucks	\$ 29,834,661.87
Land or buildings such as cabin or ice fishing shack	\$ 36,593,826.88
Cabin/lodge annual maintenance and utility costs	\$ 5,348,476.30
Other expenditures	\$ 1,466,560.56
Total	\$ 119,107,078.31

4.3 Economic Impact Analysis

Tourism Expenditures

While there were trip expenditures of \$118.3 million and \$119.1 million in fishing related expenses by Saskatchewan residents, only the expenditures having a marginal impact on the Saskatchewan economy are included in the actual economic impact. Strictly speaking only new money to the economy is included in an economic impact analysis. However, if we consider the impact of not having sport fishing available in the province, it is clear that there would be additional residents leaving the province to consume sport fishing products in other jurisdictions.

In keeping with previous work, Saskatchewan residents having traveled over 200 km during their fishing trip will be included in the economic impact. It is assumed that residents having traveled over 200 kilometres to fish would also be likely to leave the province to fish in another jurisdiction if no fishing product were available in Saskatchewan. The following table shows the expenditures by categories including Saskatchewan resident travel over 200 km. Of the 8.52 annual trips 1.56 trips will be over 200 km²⁹.

Table 4.5 – Total Marginal Expenditures Generated by Non-Outfitted Fishing			
Fisher Origin	Number of Non-Outfitted Fishing Trips	Gross Annual Expenditures	Marginal Expenditure Impact to Saskatchewan
Saskatchewan Resident			
Total Saskatchewan	1,007,505	\$ 122,161,682.50	\$ 27,318,921.58
Canadian Resident			
Total Canadian	41,487	\$ 24,172,815.42	\$ 24,172,815.42
Non-Resident			
Non-Resident Total	12,312	\$ 10,327,674.96	\$ 10,327,674.96
Totals		\$ 156,662,172.88	\$ 61,819,411.96

Again, expenditures made by Saskatchewan residents on fishing equipment have an economic impact, however, it is not a marginal increase in net impacts for Saskatchewan as a whole. Regionally certain areas do increase in economic benefit, but this is at the cost of other regions.

Licence Revenue

License revenues were removed from the tourist expenditures and analyzed separately. License revenue goes into the General Revenue Fund, however, there are specific government departments that are most closely associated with fish and wildlife management. For instance, 30% of the licence revenue goes to fund the Fish and Wildlife Development Fund for fish management and habitat management. As such, the government revenues will be analyzed relative to the expenditures of those departments.

Only license fees paid by out-of-province travellers and Saskatchewan residents travelling over 200 km are counted in the economic impact. As such, only the license fees paid by out-of-province visitors and Saskatchewan residents travelling over 200 km can be included in the economic impact. The total license fees paid by out-of-province visitors and Saskatchewan residents travelling over 200 km are **\$2,128,327.00**.

²⁹ Expenditure profiles for individuals traveling over 200 km was utilized for an accurate assessment of the level of expenditure likely to leave the province.

Table 4.6 – Total Expenditures on License Fees for Non-Outfitted Fishers	
License Fees Paid Resident Fishers	\$ 2,915,543
License Fees Paid Canadian Residents	\$ 640,847
License Fees Paid by Non-Residents	\$ 399,982
Total License Fees	\$ 3,956,372
Total Marginal License Fees	\$ 2,128,327

Based on the survey information the total expenditures for all three populations were calculated. Because various expenditures impact the economy differently the expenditures have been allocated to their respective categories. The following table shows the total gross expenditures calculated as the basis for the economic impact and GDP impact.

Table 4.7 – Total Expenditures by Impact Category	
Category	Expenditures
Transportation within Saskatchewan	\$17,989,340.31
Food/Beverage	\$15,961,922.68
Guiding services	\$227,340.12
Boat rental	\$1,767,191.53
Other boat costs (gas, maintenance)	\$4,878,257.98
Recreation and entertainment	\$3,303,791.73
Lodging, accommodation or camping	\$12,789,500.76
Retail expenditures	\$1,785,737.73
Other fishing related expenses (bait, mounting, hooks, etc.)	\$3,116,329.13
Total Trip Expenses	\$61,819,411.97
License Fees	\$2,128,327.00
Total Impact	\$63,947,738.97

4.3.1 – Determination of Direct and Indirect GDP and Employment Impact

The determination of the direct and indirect GDP impact was based on the Parks Economic Impact Model (PEIM). The model, created by Heritage Canada, utilizes Statistics Canada Input-Output Data to simulate the impact of tourist and operational expenditures on the Saskatchewan economy. Because the model uses Statistics Canada Input-Output Data it is highly accurate in terms of GDP and employment generation. As GDP is the most comparable assessment of economic impacts, this model was the most appropriate for assessing the economic impact of fishing. Through this analysis, the direct GDP, indirect GDP, and employment impacts can be determined.

GDP measures the actual value added by Saskatchewan businesses within the province. The value added is the sum of all economic activity less the inputs required that were supplied extra-provincially. The total direct and indirect GDP generated by \$63.9 million in expenditures is \$23.3 million.

Table 4.8 – GDP Impact				
	Direct Expenditure³⁰	Direct GDP³¹ Impact	Indirect GDP Impact	Total GDP Impact
Impacts	\$63,947,738.97	\$15,594,482	\$7,661,699	\$23,256,150

The direct and indirect employment generated by tourist expenditures associated with non-outfitted fishing generated 698.6 full-time equivalent positions in the province with \$14.7 million in labour income. It should also be noted that these are full-time equivalent jobs, while in reality many of the workers employed in the tourism service industry are part time employees. The actual employment created would be greater than the amount estimated here.

Table 4.9 – Employment Impact			
	Direct Employment Impact	Indirect Employment Impact	Total Employment Impact
Total Expenditure	\$10,954,309	\$3,748,314	\$14,702,624
Total Jobs (FTE's)	563.9	134.6	698.6

³⁰ Includes both license fees as well as tourism expenditures.

³¹ Gross Domestic Product (GDP) is the measure of the value of the total outputs of an industry less the total inputs.

This model is very beneficial as it is extremely accurate in terms of its assessment of the GDP and employment created. It also is consistent and comparable with the previous economic impact assessments for parks, hunting, and outfitting. However, the model is lacking in two ways. First, the model only estimates federal taxes. Second, the model does not calculate any of the induced impacts created by economic activity.

4.3.2 – Determination of Induced GDP and Employment Impact

While widely acknowledged, economists have been reluctant in the past to include induced impacts in calculations as they are open to interpretation, as well as inflation. Induced impacts have long been regarded as somewhat inaccurate and misleading, as well as open to exaggeration. Increasingly, however, induced impacts are gaining acceptance, provided they are calculated based on reliable modeling.

Statistics Canada is considering adding back into their calculations the induced impacts of economic activity. A formula generated by Statistics Canada was utilized to calculate the induced impacts of non-outfitted fishing. The formula essentially assesses the impact labour expenditures have on the economy.

Table 4.10 – Induced GDP Impact				
	Direct Expenditure	Direct GDP Impact	Indirect GDP Impact	Total Induced GDP Impact
Induced Impacts	\$12,717,769.76	\$4,854,881.43	\$1,165,171.54	\$6,020,052.97

The following table totals the direct, indirect, and induced impacts of fishing in Saskatchewan. The direct and indirect impacts have been calculated separately so the impacts can easily be compared to other economic impact assessments that have been done, whether they have included an induced impact or not.

Table 4.11 – Total GDP Impact			
	Direct and Indirect Impacts	Induced Impact	Total GDP Impact
GDP Generated	\$23,256,150	\$6,020,053	\$29,276,203
Total Employment	\$14,702,624	\$6,635,084	\$21,337,708
Total Jobs (FTE)	698.6	216.7	915.3

4.3.3 – Employment Created

The majority of the 915.3 full-time equivalent jobs created would be in the service sector. The expenditures triggered by non-outfitted fishers would be tourism expenditures, primarily made in the service sector and other supporting industries.

As well, the \$1.7 million in licensing revenue will create employment within government. Some of the government services related to fishing are habitat management and resource management.

4.3.4 – Determination of Tax Impacts

The Parks model also lacks the type of tax information that would be useful at the provincial level. As such, a separate tax model was utilized. The Sport Tourism Economic Assessment Model (STEAM), developed by Statistics Canada, the Conference Board of Canada, and the Canadian Sport Tourism Alliance provides more detailed analysis of the tax modeling. To ensure that the tax analysis was consistent with the previous findings the tax impact was generated relative to the direct and indirect GDP activity already calculated. Non-outfitted fishing creates the following marginal tax impacts, based on the previous GDP impact estimates.

Table 4.12 – Total Tax Impact			
	Federal	Provincial	Municipal
Tax Impacts	\$4,463,401.60	\$4,158,178.81	\$1,012,977.41

4.4 Total Impact of Outfitted and Non-Outfitted Fishing in Saskatchewan

To establish a complete picture of the fishing industry in Saskatchewan outfitted and non-outfitted fishing industries must be considered together. The total marginal impact of outfitted fishing expenditures in the province are \$43.2 million. The marginal impact of non-outfitted fishing in the province is \$63.9 million when only out-of-province and import substitution expenditures are included. For outfitted fishing, all expenditures are included as the vast majority of expenditures are made by out-of-province visitors. Any Saskatchewan expenditures on outfitting are considered import substitution. The total marginal expenditure on fishing in Saskatchewan is \$107.1 million.

Based on the direct expenditure of \$107.2 million the total direct and indirect GDP impact of outfitted and non-outfitted fishing is \$53.7 million. If induced impacts are considered with the direct and indirect impacts the total GDP impact rises to \$70.3 million.

Comparatively, the combined impacts of outfitted and non-outfitted hunting are \$63.8 million for the marginal impact and \$36.5 for the GDP impact.

4.13 Combined Impacts of Outfitted Non-Outfitted Fishing				
	Gross Expenditure	Marginal Expenditure	Total GDP Impact	FTE Employment
Outfitted Fishing	\$ 43,218,079	\$ 43,218,079	\$ 30,411,020	818.0
Non-Outfitted Fishing	\$ 156,662,588	\$ 63,947,739	\$ 23,256,150	698.6
Total Impacts	\$ 199,880,667	\$ 107,165,818	\$ 53,667,170	1,516.6

Because the majority of outfitted expenditures are made directly to outfitters and the high labour component of outfitting operations, outfitted fishing actually has a higher GDP impact than non-outfitted fishing.

Sport fishing, as an industry, has a significant level of employment at 1,517 direct full-time equivalent positions. The total labour expenditure is \$38.0 million.

4.5 Economic Impact of Provincial and Rural Expenditures

Traditional economic impacts regarding tourist expenditures treat only “new money” to the economy as part of the economic impact. However, there is also a significant intra-provincial impact that takes place through the transference of expenditures from urban³² to rural jurisdictions. While this does not have an impact at the provincial level, there is a significant impact on the communities in which the expenditures are made.

Of the 120,804 fishers in Saskatchewan 76,952 (63.7%) are based in urban centres according to survey respondents. Sport fishers made on average 8.52 fishing trips annually, however, only 44.5% of those trips were over 80 kilometres³³. The total number of fishing trips that were over 80 kilometres taken by urban residents was 291,756.

³² Respondents were deemed to be urban if they listed their home as one of the province’s cities.

³³ Only trips over 80 kilometres are considered to have actually impacted rural areas. Expenditures on trips shorter than 80 kilometres would still be primarily felt within the urban areas they originated in.

The average trip expenditure includes expenditures on transportation, food/beverage, lodging, recreation and entertainment, and retail.

Table 4.14 – Rural Impact of Urban to Rural Trips Generated			
Total Saskatchewan Fishers	Urban Based Fishers	Fishing Trips Generated	Total Urban Expenditures in Rural Areas
120,804	76,952	291,756	\$ 33,537,352

There is a symbiotic relationship between urban and rural jurisdictions. Healthy rural economies support urban economies, while healthy urban economies lead to expenditures in rural areas, as evidenced here. Urban sport anglers supporting rural businesses leads to a stronger regional economy. While the majority of these expenditures will eventually wind their way through the retail economy back to the major centres, it is an excellent illustration of the symbiotic relationship between rural and urban centres in Saskatchewan.

Similarly, out-of-province expenditures in Saskatchewan’s rural regions have a positive impact on the urban economies of the province. Melfort and Prince Albert are excellent examples of how rural expenditures in urban settings can drive the retail economy.

Table 4.15 – Per Capita Retail Purchases - 2004	
Location	Retail Sales per Capita
Melfort	16,585
Prince Albert	16,294
Weyburn	15,461
Yorkton	14,409
Moose Jaw	13,532
North Battleford	13,202
Humboldt	12,021
Swift Current	11,567
Estevan	10,895
Regina	10,256
Saskatoon	10,214
Canada	10,404
Saskatchewan	9,570

Table 4.14 demonstrates that the retail sales are being drawn into the urban settings. Expenditures are being made by fishers in rural settings, supporting rural businesses. However, the goods and services required to run those businesses are being acquired, in part, in urban areas. The residents employed by the rural businesses, are also making their major purchases in urban settings, helping to drive up the average retail sales in urban settings. Clearly, strong retail expenditures in rural regions of Saskatchewan result in economic activity in urban Saskatchewan.

4.6 Regional Impacts

Regional impacts are based on the destination of Saskatchewan fishers, as well as the destinations for out-of-province visitation. There are 9 fishing regions in the province. Respondents to the survey were asked to indicate the regions in which they had fished. From these responses an image emerged as to the fishing destinations.

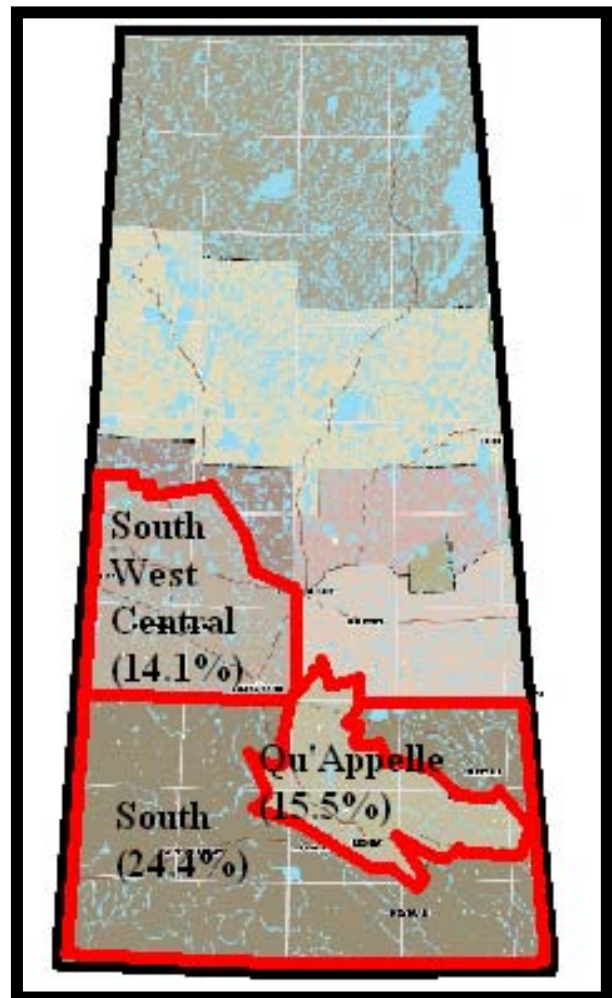
Fishing destinations for the three respective populations were quite different. The only region frequently visited by all three populations is the South West Central Region. The following table shows the respective destinations for fishing visits by population. A complete map of Saskatchewan's fishing regions is appended (Appendix 3).

Table 4.16 – Relative Visitation to Saskatchewan Fishing Regions			
	Saskatchewan	Non-Resident	Canadian Resident
North	2.3%	7.4%	2.9%
North Central	11.5%	35.6%	24.6%
North East Central	12.2%	1.0%	4.2%
North West Central	9.5%	1.4%	26.9%
Qu'Appelle	15.5%	7.6%	2.9%
South	24.4%	21.1%	8.8%
South East Central	6.9%	4.2%	2.9%
South West Central	14.1%	17.5%	23.3%
Tobin Lake	3.6%	4.4%	3.3%
	100.0%	100.0%	100.0%

Saskatchewan Visitation

The map on the right shows the fishing regions most impacted by Saskatchewan residents. Saskatchewan angler visitation is the most evenly distributed of the three fishing populations. Because fishers are not typically travelling long distances to fish, the distribution of the fishing destinations was largely relative to the population distribution of the province. The map on the right shows the three most significant fishing destinations.

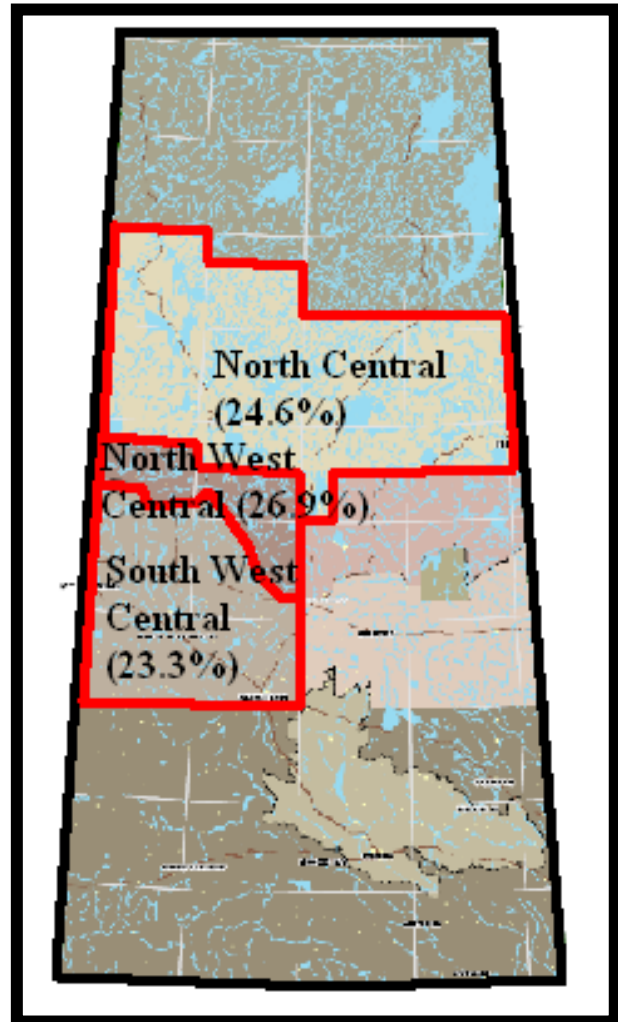
Saskatchewan Visitation Map



Canadian Visitation

Canadian fishing visits are dominated by Alberta residents and the significant areas of visitation reflect that. The most significant areas of visitation are on the west central side of the province with this section receiving three-quarters of all visitation.

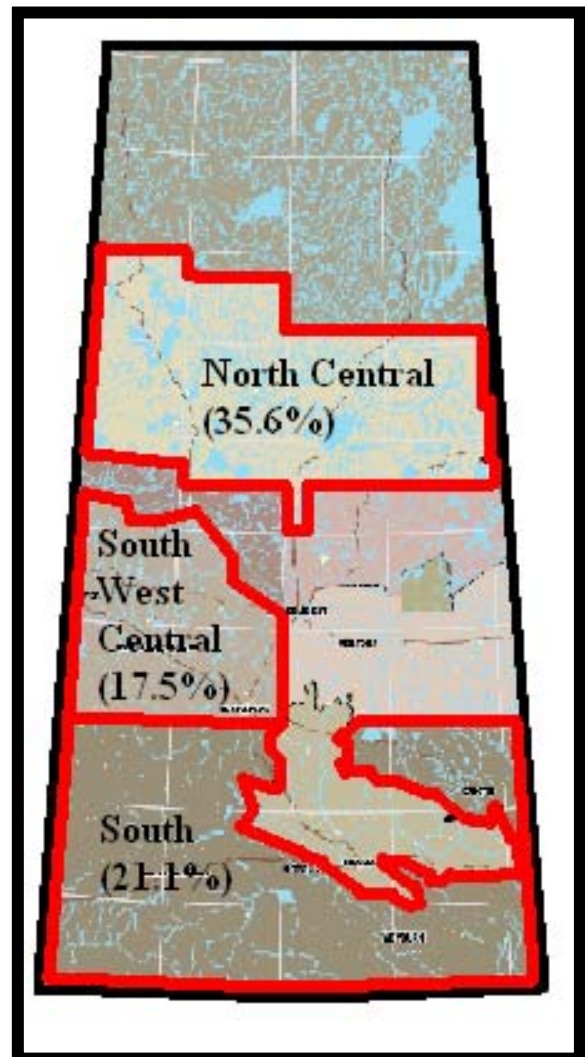
Canadian Visitation Map



Non-Resident Visitation

Non-resident visitation is dominated by American fishing trips. The largest concentration of visitation is to the North Central Region of the province. The other two significant areas of visitation are the South West Central and South Regions. It is likely that the southern visitations tend to be trips from the proximate US states. The northern visitation to the North Central Region is more likely to be a destination visit from a broader region of the US.

Non-Resident Visitation Map



5.0 Environmental and Social Impacts

5.1 Environmental Impact of Fishing

Fishing in Saskatchewan creates both positive and negative externalities. While it is not an actual public good,³⁴ fishing does create non-market benefits to society such as supporting natural habitat, protecting lakes and providing monitoring. When properly managed, fishing is largely a symbiotic relationship with both the environment and lakes. While all consumptive activities have a negative impact on the environment, they also have positive impacts. Both sport and commercial fishing have a positive impact on the environment because they foster a vested interest in the protection of fisheries and habitat preservation.

Environmentally Focused Reference Group and Natural Habitat Preservation

Fishing interests coincide with environmental objectives and foster an attachment to the environment. Thirty percent of fishing and hunting license fees in Saskatchewan go into a Fish and Wildlife Development Fund (FWDF) which is used to secure, monitor and improve both fish and wildlife habitat throughout Saskatchewan. This money is then used directly, and through third party agencies, to secure the existence of natural wildlife habitats.

The body of active fishers also has strong ties to the environment. As part of the survey, some regulatory questions were asked regarding fishers' attitudes towards specific regulatory changes. Three of these questions elicited data relative to the fishers' attitudes towards the environment. Respondents were asked if they would be willing to pay more for a fishing license if 100% went to the Fish and Wildlife Development Fund. 77.4% of Saskatchewan anglers and 82.4% of non-Saskatchewan anglers indicated that they would be willing to pay additional fees if it went to the fund.

As the following table shows, habitat maintenance and regulatory enforcement are of concern for anglers.

For anglers there was also some support for barbless hooks indicating an overall concern for the fish stocks. On a scale of 1 to 10 making barbless hooks mandatory on all lakes rated 5.8 for Saskatchewan residents and 5.9 for non-Saskatchewan residents.

Fish stock monitoring is also a beneficial function performed by fishers in the province. Anecdotal information from fishers can alert fishery managers to potential problems.

While fishing can act as a form of first response, there remains the potential for over-fishing. Similar to hunting, strong environmental stewardship is required to ensure that over-fishing does not lead to depletion. For example, Alberta has lost a significant portion of its fish stocks in recent years.

³⁴ Public goods are goods or services that are non-excludable and non-rival in consumption. They are said to have positive externalities that benefit society.

Table 5.1 – Relative Importance of Changes to Fisheries Management				
	Saskatchewan Residents		Non-Saskatchewan Residents	
	Average	Rank	Average	Rank
Increased fisheries enhancement activities, such as stocking and habitat improvement	7.7	1	7.0	1
Increase enforcement	6.4	3	5.8	4
Increased fisheries monitoring and research	6.9	2	6.9	2
Make barbless hooks mandatory on all lakes	5.8	4	5.9	3
Simplify fishing regulations	5.7	5	5.6	5
Control road access to remote northern lakes	5.2	6	5.3	6
Regulate technology usage such as GPS, fish finders and underwater cameras	4.5	7	4.3	7

Consumption Impacts of Fishing on the Environment

Virtually all human activity has some impact on the environment. It is important to understand the impact activities have relative to other potential activities. Statistics Canada rates the environmental impacts of various sectors of the economy. While the analysis does not go to the level of fishing itself, it is broken down to the level of fishing, hunting, and trapping.

The activities of hunting and fishing do not have significant energy demands, however, there are energy demands associated with the travel required for these activities.

The following table rates the relative emissions and energy usage by industry. Energy use is measured in gigajoules with the intensity of production measured as direct plus indirect energy use per thousand dollars of production (in current dollars). Direct energy use is that associated with the industry's own production; indirect use is that associated with the production of the goods and services that are used by the industry.

The greenhouse gas emissions are measured as direct plus indirect emissions per thousand dollars of production (in current dollars). Direct emissions are those associated with the industry's own production; indirect emissions are those associated with the production of the goods and services that are used by the industry.

Table 5.2 – Canadian Environmental Sustainability Indicators: Socioeconomic Information – 2005 ³⁵		
	Energy Use Intensity/\$1,000 in Production	Greenhouse Gas Emissions/\$1,000 in Production
Fishing, hunting and trapping	14.2	1.0
Scenic and sightseeing transportation and support activities for transport	6.5	0.4
Arts, entertainment and recreation	5.1	0.3
Accommodation and food services	6.5	0.5
Travel and entertainment	14.6	1.1
Crop and animal production	15.5	3.0
Forestry and logging	10.8	0.8
Support activities for agriculture and forestry	11.7	0.8
Oil and gas extraction	17.6	1.6
Coal mining	17.2	1.8
Meat product manufacturing	12.5	2.0
Wood product manufacturing	9.4	0.6
Pulp, paper and paperboard mills	24.9	1.1
Pesticides, fertilizer and other agricultural chemical manufacturing	36.3	5.2
Primary metal manufacturing	27.5	1.5
Retail trade	6.8	0.4
Air transportation	23.1	1.6
Truck transportation	14.8	1.3
Transit and ground passenger transportation	13.1	0.9
Average	14.41	1.30

The fishing, hunting and trapping sector has slightly below average energy use and greenhouse gas emissions than other industries located in Saskatchewan. However, fishing, hunting, and trapping relative to other leisure time activities (arts, entertainment and recreation; scenic and sightseeing transportation; and accommodation and food services) has far greater energy demands. The travel and entertainment sector is more comparable in terms of environmental impacts.

³⁵ Statistics Canada, <http://www.statcan.ca/english/freepub/16-253-XIE/2005000/bfront2.htm>.

Environmental Impacts to Non-Fishers

Fishing clearly has direct impacts on the fishing population; however, fishers are not the only population impacted by fishing activity. Fishing has both positive and negative externalities for the remainder of the population.

Positive Externalities	
Animal Monitoring	Fish stock monitoring is also a beneficial function performed by fishers in the province. Anecdotal information from fishers can alert fishery managers to potential problems. The general public benefits from the environmental stewardship provided by anglers.
Environmentally Focused Reference Group	Over 12% of Saskatchewan's population obtained a fishing license in 2005. With over 120,000 anglers in the province relying on the health of the fish population for fishing activity, the sport fosters an interest in the environment that anglers might not otherwise have had.

Negative Externalities	
Possible Over Fishing	While there are safeguards in place, the possibility remains that over-fishing could negatively impact the fish populations.
Energy Consumption	Fishing generates a significant number of car trips annually. There are significant energy demands associated with fishing and transportation.

5.2 Social Impacts of Sport Fishing

Of the residents aged 16 to 65 years of age, 14.8% of residents purchased a fishing license. Fishing plays a major role in terms of how Saskatchewan residents spend their leisure time. With 100,000 lakes³⁶ containing several desirable fish species the resource is also a major attraction to other jurisdictions.

Respondents were asked to rate the importance of various fishing attributes in order to gauge the social impact of the sport. It was clear that the social component was a significant part of the experience. Fishing was, however, not overly considered a cultural or traditional experience. The following table shows the importance of the various fishing attributes.

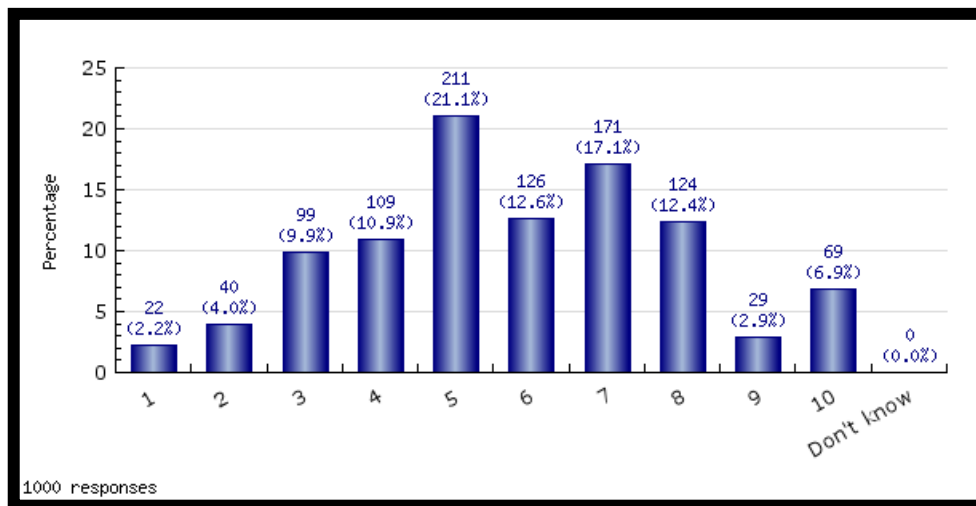
³⁶ Only 50% are actually fish bearing.

Table 5.3 – Importance of Fishing Attributes				
	Saskatchewan Residents		Non-Saskatchewan Residents	
	Average	Rank	Average	Rank
Being outdoors	9.0	1	9.0	1
Camaraderie with friends and/or relatives	8.8	2	9.0	1
As a form of relaxation	8.7	3	8.9	2
The preference for fish as a food	6.4	4	6.5	6
To experience privacy and solitude	6.4	5	7.0	3
The value of the fish	6.2	6	6.6	5
The satisfaction of self sustenance	5.1	7	5.7	7
Fishing is a part of your culture, lifestyle or tradition	5.1	8	6.8	4
Fishing is a competitive activity to allow for trophy opportunities	2.5	9	3.3	8

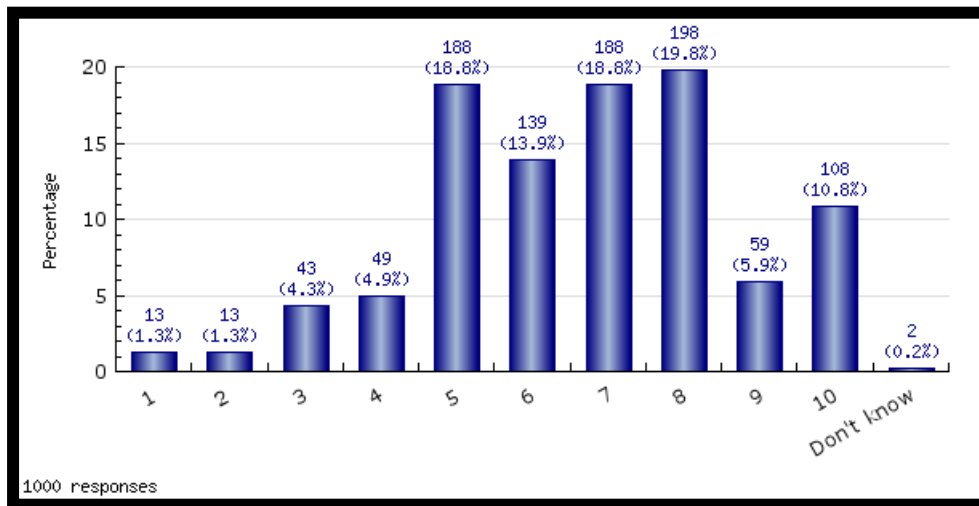
To gauge the importance of fishing in people’s lives, respondents were also asked to rate the importance of fishing relative to other leisure time activities. Non-resident anglers rated fishing much higher (6.7 on average) in terms of their other leisure time activities as compared to Saskatchewan anglers (5.6 on average). This is not surprising given the distance traveled for non-Saskatchewan resident fishers.

Non-outfitted anglers tend to be less avid about their sport than hunters or even outfitted anglers. The following figures show the breakdown of responses.

Saskatchewan Resident Anglers



Non-Saskatchewan Resident Anglers



6.0 Inter-Jurisdictional Licensing Comparisons and Analysis

6.1 Annual License Fees

Saskatchewan's annual license fees are higher than the Canadian average. Resident fees are 28.6% above the average, Canadian resident fees are 49.4% above average, and non-resident fees are 48.3% above the average. However, it should be noted that few of the other jurisdictions have the vast resource and relatively small tax base that Saskatchewan has. As an example, Ontario has a population of 12 million and fishing license sales of 1.6 million relative to Saskatchewan's population of one million and fishing license sales of 160,000. While Ontario is a larger province,³⁷ they have ten times the licensing base and 12 times the population.

Table 6.1 – Annual License Fees for Canadian Provinces (Including GST)			
	Resident	Canadian Resident	Non-Resident
British Columbia	\$38.52	\$58.85	\$85.60
Alberta	\$24.07	\$24.07	\$61.50
Manitoba	\$17.00	\$40.00	\$55.00
Saskatchewan	\$30.00	\$60.00	\$80.00
Ontario	\$29.00	\$29.00	\$64.00
Quebec ³⁸	\$15.12	\$48.37	\$48.37
New Brunswick ³⁹	\$23.00	\$63.25	\$63.25
Nova Scotia	\$24.13	\$54.74	\$54.74
PEI ⁴⁰	\$30.00	\$42.16	\$42.16
Newfoundland and Labrador	No License Required	\$15.00	\$15.00
NWT	\$10.70	\$21.40	\$42.80
Yukon	\$15.00	\$25.00	\$35.00
Average	\$23.32	\$40.15	\$53.95

³⁷ Saskatchewan is 65% of Ontario in terms of size.

³⁸ Does not include salmon fishing.

³⁹ Does not include salmon fishing.

⁴⁰ Total cost including \$18.70 Wildlife Conservation Fund Fee.

License fees also remain a small portion of the total cost of fishing in a year. The following table shows average annual expenditures for sport fishing trips, relative to the licensing fees. For Canadian residents coming to Saskatchewan to fish, the average cost of a fishing license is 2.65% of their total annual expenditure in the province. License fees represent only a small part of the annual expenditure made by sport fishers as the following table shows.

Table 6.2 – Licensing Fees as a Percentage of annual Expenditures			
	Resident	Canadian Resident	Non-Resident
Total Annual Expenditure	\$ 979	\$ 1,661	\$ 1,283
Fishing License Fee⁴¹	\$ 24.13	\$ 44.02	\$ 49.71
Percentage of Total Expenses	2.46%	2.65%	3.87%

6.2 Senior's License Fees

Of the 13 jurisdictions seven, including Saskatchewan, offer free fishing licenses to resident seniors. Only two jurisdictions offer free licenses to Canadian resident seniors. In keeping with the remaining of the jurisdictions, non-resident seniors are charged a regular rate in Saskatchewan.

Table 6.3 – Senior's Annual Fishing Licenses (65 and older)			
	Senior Resident	Senior Canadian Resident	Senior Non-Resident
British Columbia	\$5.00	\$55.00	\$80.00
Alberta ⁴²	Free	\$22.50	\$61.50
Manitoba	Free	\$40.00	\$55.00
Saskatchewan	Free	\$60.00	\$80.00
Ontario ⁴³	Free	Free	\$64.00
Quebec	\$11.30	\$45.21	\$45.21
New Brunswick	\$5.75	\$63.25	\$63.25
Nova Scotia	\$5.75	\$54.74	\$54.74
PEI ⁴⁴	\$12.26	\$39.40	\$39.40
Newfoundland and Labrador	No License Required	\$15.00	\$15.00
NWT	Free	Free	\$40.00
Yukon	Free	\$25.00	\$35.00
Average	\$8.01	\$40.01	\$52.76

⁴¹ Based on average fees paid by fishers including three day licenses.

⁴² Does not include mandatory purchase of \$8.00 5-year Wildlife Identification Number (WIN).

⁴³ Includes one year Outdoor Card Fee.

⁴⁴ Discount Wildlife Conservation Fund Fee only.

6.3 Youth License Fees

No jurisdiction in Canada charges resident youth for licenses and only Newfoundland and Labrador charge non-provincial residents.

Table 6.4 – Youth (Under 16 years of age) Annual License Fees⁴⁵			
	Youth Resident	Youth Canadian Resident	Youth Non-Resident
British Columbia	Free	Free	Free
Alberta	Free	Free	Free
Manitoba	Free	Free	Free
Saskatchewan	Free	Free	Free
Ontario ⁴⁶	Free	Free	Free
Quebec ⁴⁷	Free	Free	Free
New Brunswick ⁴⁸	Free	Free	Free
Nova Scotia	Free	Free	Free
PEI	Free	Free	Free
Newfoundland and Labrador	No License Required	\$15.00	\$15.00
NWT	Free	Free	Free
Yukon	Free	Free	Free

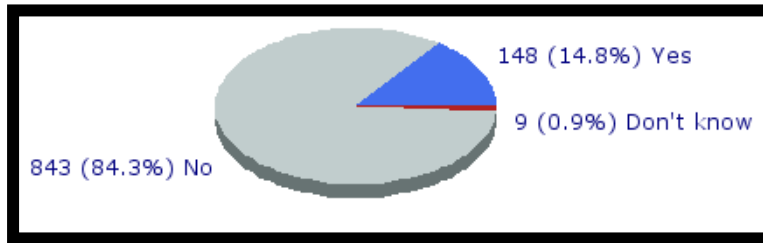
Survey respondents were also asked their opinion on youth fishing licenses. Survey respondents were asked if youth under 16 years of age should be required to purchase a fishing license. Saskatchewan residents largely rejected the idea with 84.3% of respondents indicating that they would not want youth under 16 to pay for fishing licenses. Similarly, non-Saskatchewan anglers were largely against the concept with 85.3% saying no.

⁴⁵ Regulations regarding youth licenses and fishing limits vary from jurisdiction to jurisdiction.

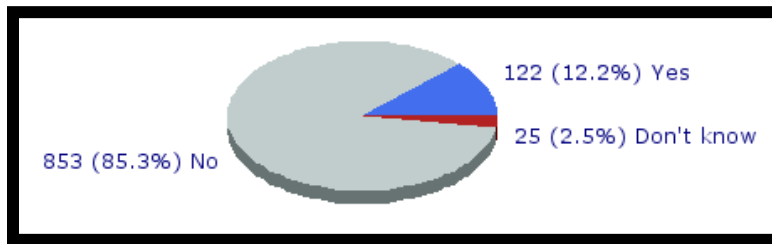
⁴⁶ Youth is considered to be under 16 years of age.

⁴⁷ Requires Junior Angler licenses awarded after completion of fishing initiation activity. A Junior Angler is considered to be under 18 years of age.

Saskatchewan Resident Response to Under 16 License Fees



Non-Saskatchewan Resident Response to Under 16 License Fees



It is also likely that fishing industry stakeholders would be highly opposed to a fee for youth fishing licenses. Free youth fishing licenses are seen by the industry as a way to initiate youth into the sport. Given the lack of growth in the industry over the last ten years and the older profile of anglers today the primary concern is how to get more youth into the sport. Lowering the age for youth or eliminating the youth class would be contrary to these objectives.

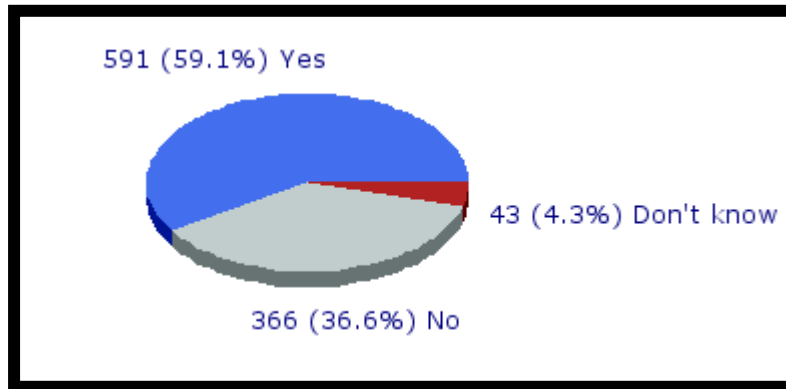
6.4 Conservation License

Ontario and Manitoba are the only two jurisdictions in Canada that offered conservation fishing licenses in 2005. Conservation licenses are licenses that have a lower fish limit and are less expensive than regular licenses. The following table shows the jurisdictions offering conservation licenses.

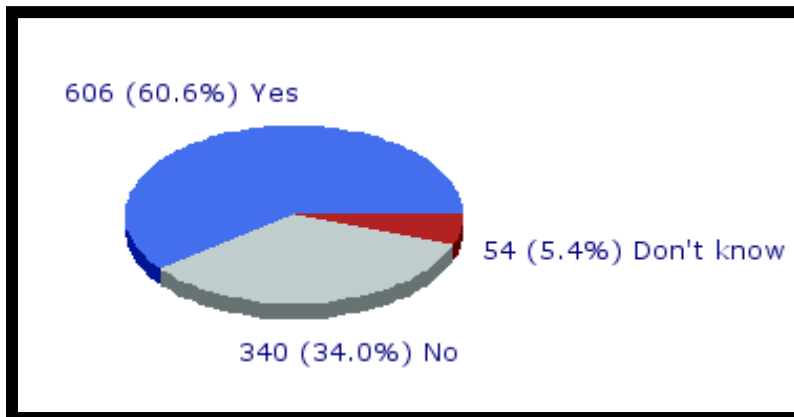
Table 6.5 – Conservations License Availability	
British Columbia	No
Alberta	No
Manitoba	Yes
Saskatchewan	No
Ontario	Yes
Quebec	No
New Brunswick	No
Nova Scotia	No
PEI	No
Newfoundland and Labrador	No
NWT	Only for Salmon license

Survey respondents were asked whether or not they would consider purchasing a conservation fishing license at a reduced rate. There was interest by both Saskatchewan and non-Saskatchewan anglers. 59.1% of Saskatchewan anglers indicated interest in a conservation license compared with 60.6% of non-residents.

Saskatchewan Residents' Interest in Conservation Licenses



Non-Saskatchewan Residents' Interest in Conservation Licenses



7.0 Inter-Jurisdictional Quality Comparison

As part of an inter-jurisdictional comparison survey respondents were asked if they had fished in other jurisdictions in the past two years. Respondents were then asked to compare their most recent Saskatchewan fishing experience to their fishing experiences elsewhere.

7.1 Comparison to Other Canadian Jurisdictions

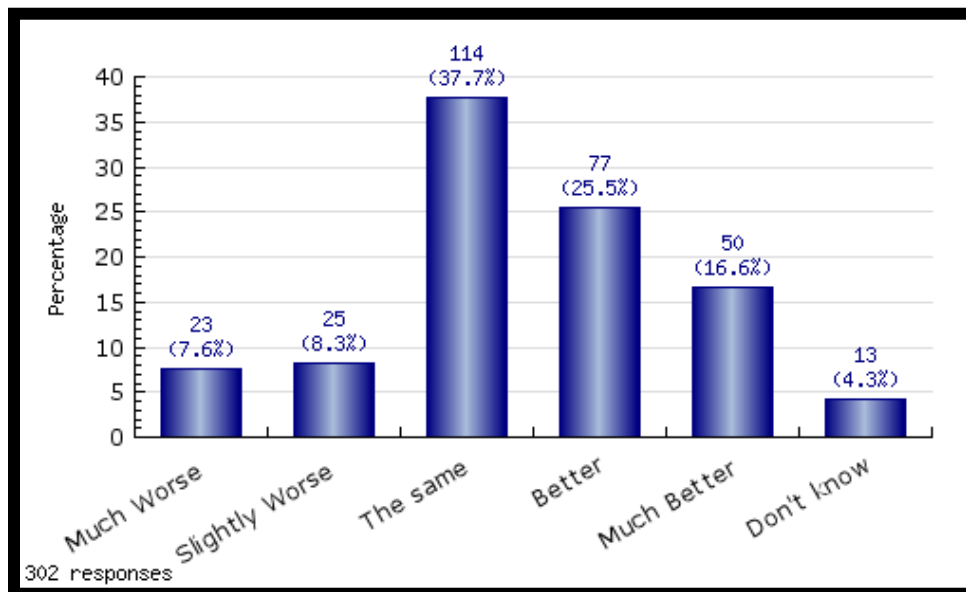
Saskatchewan Residents

Only 13.6% of Saskatchewan anglers had taken a fishing trip outside the province in the past two years. Saskatchewan residents largely did not find significant differences between their fishing trip in Saskatchewan as compared to other trips in Canada.

Non-Saskatchewan Anglers

48.8% of non-Saskatchewan anglers had been to another jurisdiction to fish in the past two years. The majority, 61.9% of the visits to other jurisdictions were to other Canadian locations. As the following graph shows, Saskatchewan's fishing product compared favorably with other Canadian fishing trips.

Comparison of Saskatchewan Fishing Trip with Most Recent Fishing Trip Elsewhere in Canada



42.1% of respondents found their Saskatchewan trip to be better or much better compared with only 15.9% who found their Saskatchewan trip to be worse or much worse. When asked why the trip was better respondents indicated that the fishing, lakes, and atmosphere were the most important aspects.

7.2 Comparison to Other American Jurisdictions

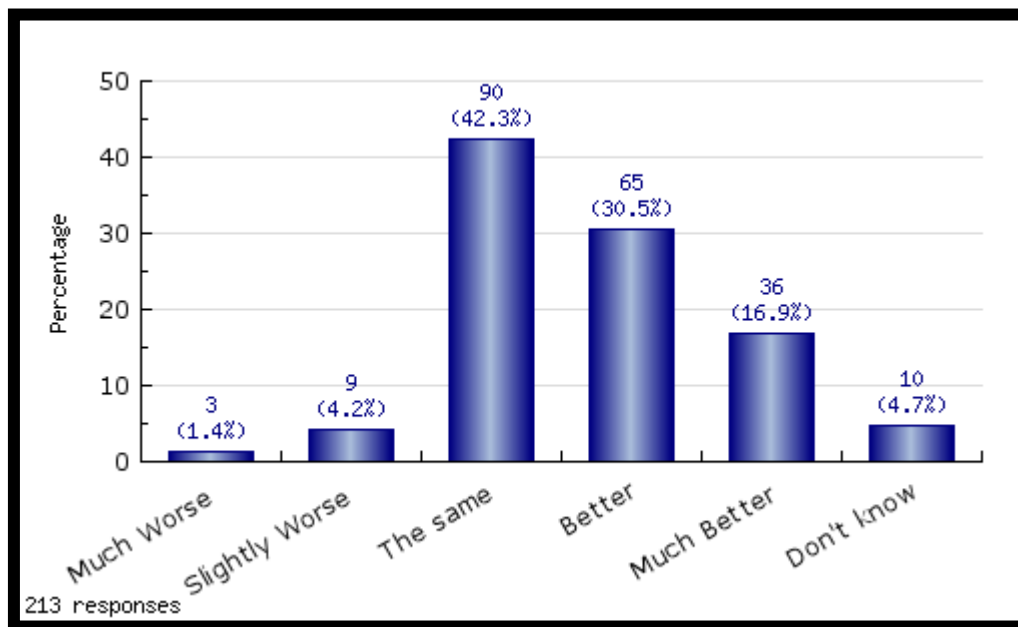
Saskatchewan Residents

Very few Saskatchewan residents took fishing trips in the US in the past two years. Of those who did, however, 90% found their most recent Saskatchewan fishing trip to be the same or better than their most recent US trip.

Non-Saskatchewan Anglers

47.4% of non-Saskatchewan respondents felt that their most recent Saskatchewan fishing trip was better or much better than their most recent US fishing trip. This compares with 5.6% who felt that the most recent Saskatchewan trip was worse or much worse. Fishing, people, staff and service were listed as the most important variables making one trip better than another. The following table shows the comparison between Saskatchewan and US fishing trips.

Comparison of Saskatchewan Fishing Trip with Most Recent Fishing Trip Elsewhere in US

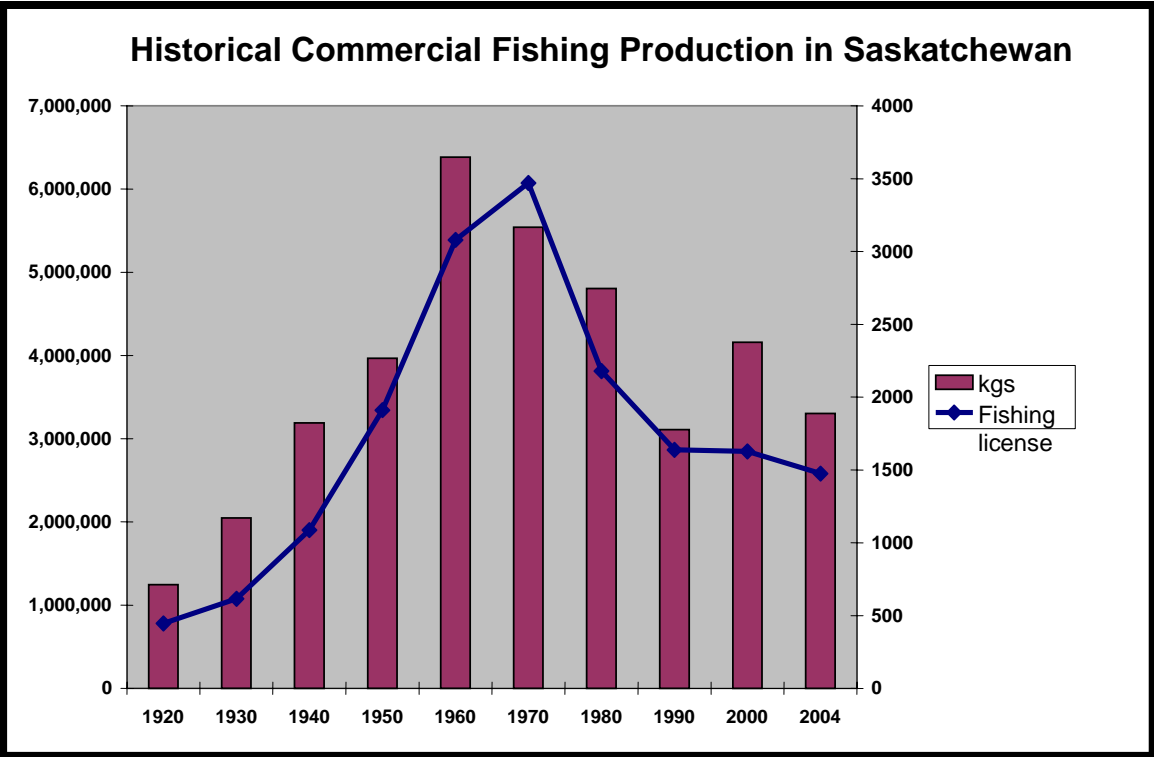


8.0 Commercial Fishing Background

8.1 Industry Background and History

While subsistence fishing has existed in Saskatchewan for centuries, commercial fishing began in Saskatchewan in the later part of the 19th century. The roots of commercial fishing began with the harvesting of fish for sale to the early fur traders. In 1885 commercial fishing began in the Qu'Appelle lakes. In the 1920s commercial winter fishing began to take place in Northern Saskatchewan on lakes such as Lac la Ronge, Dore, and Montreal. Since then commercial fishing has grown to be a significant part of the Northern economy as well as retaining a presence in Southern Saskatchewan.

The commercial fishing industry in Saskatchewan has, however, been generally declining both in terms of processing capacity and fishing capacity since the 1960s. While there were as many as a dozen significant processing facilities in the province, there are now only small scale fish processors in the province. The following graph shows the annual weight of fish caught in Saskatchewan on the left and total commercial fishing licenses in the province on the right.



Source: Saskatchewan Environment

As the above graph shows, the ratio of fish caught in relation to fishers has remained relatively constant throughout the years even though fishing ground apparently remain unchanged and the number of fisher went down. This may indicate that technology and other advances have not dramatically improved the productivity of fishers. Fishers today are catching roughly the same amount, per person, as they did in the 1920s. With wild resource commercial fishing increasingly competing directly with fish farms for market share, productivity may become an issue for commercial fishers.

The above graph also records the gradual decline of fishing activities over recent years, which is caused by number of reasons as identified by fishers. Decline of real price of fish over time (Table 3.8), the increase of input prices, lack of angling limit, lake quota and limited fishing seasons (Fig. 3.4 & Fig 3.5) are among those causes.

8.2 Canadian Freshwater Fish Supply and Demand

Freshwater Fish Demand

The demand for freshwater fish in Saskatchewan has doubled over the past ten years. As Saskatchewan commercial fishing can typically produce nearly 3 million kilograms of fish Saskatchewan must export fish for the industry to survive. FFMC is the only export mechanism currently available for commercial fishers.

Table 8.1 – Saskatchewan Demand for Freshwater Fish				
Year	Demand ⁴⁹ (kgs per person)	Population	Total Demand (kgs)	Estimated Landed Demand (kgs)
1995	0.25	1,014,172	253,543	440,944
1996	0.30	1,019,459	305,838	531,892
1997	0.36	1,022,020	367,927	639,873
1998	0.32	1,024,908	327,971	570,384
1999	0.42	1,025,720	430,802	749,222
2000	0.46	1,023,636	470,873	818,909
2001	0.47	1,017,100	478,037	831,369
2002	0.43	1,011,800	435,074	756,650
2003	0.53	1,007,758	534,112	928,890
2004	0.51	995,058	507,480	882,573

It should be noted that the Saskatchewan commercial fishers produce 2.8 million kg of fish at landed weight. After processing this would likely equate to 1.5 million kg of processed fish. Saskatchewan residents have a demand for 882,573 kg of freshwater fish annually. Saskatchewan does not have the demand to consume the fish produced within the province.

⁴⁹ Cansim Table 002-0011 – Apparent per capita food consumption in Canada, annual (kilograms per year in edible weight).

The Saskatchewan commercial fishing industry needs to export fish out of the province to remain at even for the current levels of production.

Freshwater Fish Marketing Corporation Backgrounder

In 1969 the Freshwater Fish Marketing Corporation (FFMC) was set up to process and market fish on behalf of Canadian fishers. FFMC is a self-sustaining federal Crown corporation with a similar structure and purpose to that of the Canadian Wheat Board. FFMC has a mandate to:

- purchase all fish lawfully fished and offered for sale; create an orderly market;
- promote international markets;
- increase fish trade; and increase returns to fishers.

FFMC purchases fish from Manitoba, Saskatchewan, Alberta, the Northwest Territories and Northwestern Ontario.

FFMC purchases the majority of fish produced in Saskatchewan. If fish is to be exported outside of Saskatchewan, it must be done through FFMC. FFMC, as part of their mandate, purchases all the fish that Saskatchewan fishermen wish to sell to the company.

8.3 Structure of Saskatchewan Industry

Table 8.2 – 2004-2005 Fisheries in Saskatchewan			
Fish Plant	Weight (kgs)	Location	Weight (kgs)
Churchill Fisheries	644,378	Beaver Lake	81,882
		La Ronge	373,752
		Pelican Narrows	188,744
Deschambault Lake Fisheries	125,664	Deschambault	
FFMC – The Pas, Manitoba	3,815	The Pas, MB	
Kinoosao Co-op	303,089	Co-op Point	
Hunter Fish Agencies	747,239	Big River	15,833
		Canoe Lake	25,730
		Dore Lake	5,250
		Isle a la Crosse	293,376
		Patuanak	12,937
		Pinehouse	170,103
		Wollaston	224,010
J. Waite Fisheries Inc.	592,252	Buffalo Narrows	
Northwest Co-operative Fisheries	10,825	Leaf Rapids, SK	
West Boundary Fish Co-op	22,975	Pierceland	
Totals	2,450,236		

9.0 Economic Impact of Commercial Fishing

The first step in determining the economic impact is to perform a revenue and expenditure analysis. To determine the total economic activity attributed to commercial fishing, surveys, stakeholder interviews and existing data analysis was utilized. The Freshwater Fish Marketing Corporation provided a significant level of information relating to the revenue to fishers as well as the total number of active fishers. To determine the other forms of revenue to fishers and other forms of employment generated by the fishing industry survey work as well as interviews were undertaken.

Once the gross revenue to fishers was determined, commercial fishing expenditures were assessed. Because commercial fishing is a very labour intensive industry, the GDP impact is higher than in other industries.

The gross expenditure is the basis for forming the economic impact. The various forms of expenditures were broken into areas such as retail, transportation, and labour expenses. From the gross expenditures the GDP, labour expenditures, and employment are generated. GDP is used as the measure of economic activity because it is the most precise measure of economic activity specific to Saskatchewan.

9.1 Key Assumptions

Several key assumptions were made in the generation of the economic impact as outlined below:

- ***New Money*** – The economic impact of commercial fishing in Saskatchewan has been calculated on the basis of new money being injected into the economy. It is the new monies brought into the province by other Canadian and non-resident visitors that provides a true net addition to the province’s wealth. Surveys were designed to solicit information on expenditures made within the province of Saskatchewan.
- ***GDP Impact Calculation*** – The economic impact analysis is being calculated based on the GDP generated by the gross economic activity. The GDP analyzes the value added within Saskatchewan and provides a precise measure of the economic activity stimulated within Saskatchewan. The employment positions and expenditures were also calculated relative to only new positions created within Saskatchewan.
- ***Regional Analysis*** – The calculation of the economic impact of commercial fishing on the province of Saskatchewan does not include regional expenditure impacts stimulated by Saskatchewan residents within the province.
- ***“With versus Without” Framework*** – This economic impact analysis (and economic impact analyses in general) utilizes a “with versus without” framework. Essentially, what is the economic impact of having commercial fishing in Saskatchewan versus not having commercial fishing within Saskatchewan? In terms of the processing component of the commercial fishing industry, would there be an outflow of expenditures to other regions to replace the fish that is consumed within Saskatchewan?

9.2 Commercial Fishing Profile

Commercial fishers have three primary means of selling their product: (1) selling to FFMC, (2) peddling the product to consumers, and (3) selling to processing facilities in the province. FFMC purchases the majority of the fish harvested in the province. As stated previously, FFMC is the federal Crown corporation that purchases and processes fish in Western Canada and is the only operation that is mandated to market or transport fish inter-provincially. The fish that are not being sold to FFMC must be consumed within the province. FFMC also has a mandate to purchase all of the fish offered for sale by Saskatchewan fishers.

Another outlet for fishers to sell their product is through peddling. Peddling is the commonly used industry term for selling fish to consumers directly. There are two forms of peddling. A commercial fishing license carries with it the right to peddle or sell fish to consumers. It is common for fishers to sell a small portion of their total catch to consumers while selling the remainder to FFMC or a processor. Only a small percentage of fishers will sell a large percentage of their catch through peddling.

The second type of peddling is done through a middle salesperson. An independent person can obtain a license to purchase and re-sell fish within the province. A common way of carrying this out is through direct sales such as door-to-door selling. Licensed peddlers can purchase fish directly from the fishers, or from a processing facility.

There are also some small provincially-licensed processing facilities in the province. In general there are around 10 to 12 of these processing facilities operating in the province at any given time. They are family operations employing one to six people. Some of the processing facilities are operated by fishermen that process their own, or their families' catch. Some processing facilities purchase product from fishers.

The following table estimates revenue to fishers from each of these sources.

Table 9.1 – Total Commercial Fishing Income			
	Value	Kilograms	% of Value
FFMC	\$ 3,198,050	2,450,234	84.95%
Peddling	\$ 260,489	145,094	6.92%
Processing Facilities	\$ 306,000	200,000	8.13%
Total	\$ 3,764,539	2,795,328	100.00%

Commercial fishing directly employs approximately 613 licensed fishers and approximately 280 helpers.⁵⁰ FFMC reports that there are 588⁵¹ Saskatchewan fishers that are delivering fish to the Corporation. While fishers that sell all or part of their fish account for the majority of commercial fishers in the province, there are a small number of fishers that are not counted in this total. Based on surveys and interviews there are also another estimated 10 fishers that peddle 100% of their fish to consumers. There are another estimated 15 fishers that sell fish exclusively to non-FFMC processing facilities. As such, the number of total commercial fishers in the province is 613.

Based on the number of commercial fishers, there were approximately 280 helpers. To determine the total number of helpers Manitoba Water Stewardship (MWS) commercial fishing employment data was utilized. Manitoba has a larger commercial fishing industry than Saskatchewan, however, fish harvesting techniques are very similar and have similar labour requirements.

MWS tracks the total number of commercial fishers and the total number of helpers. From this total fishers acting as both commercial fish license holders and helpers to other commercial fishers have been counted as commercial fishers only. Using the ratio of commercial fishers to helpers Saskatchewan's 613 commercial fishers require 280 helpers. Again, the total number of helpers does not include licensed commercial fishers acting as helpers to other operations. As well, helpers are counted only once, regardless of how many commercial fish operations they worked on.

Including helpers, commercial fishing directly employs 883 individuals. After accounting for the seasonality of the industry there are 112 full-time equivalent positions created through commercial fishing. This does not include positions created in supporting industries such as transportation, sales, and processing.

Including product sold to FFMC, processors, and consumers, the average licensed fisher sold \$6,141 worth of fish in 2004-05. From this gross income commercial fishers must pay operational, capital, and labour costs. Helpers on average earned \$1,553.

⁵⁰ While the majority of commercial fishers require at least one helper many of these helpers are assisting with more than one commercial fishing operation. Commercial fish license holders also often act as helpers to other commercial fishers.

⁵¹ 2004-05 FFMC data.

9.3 FFMC Fish Packing Plants Profile

There are currently six FFMC packing plants in the province with 14 locations that receive fish for the plants. The fisheries receive approximately \$465,000 in revenue and employ approximately 55 individuals on a seasonal basis. This results in 18 full-time equivalent positions. The table on the right shows the purchases by individual fish processing plants.

Table 9.2 – 2004-2005 FFMC Fish Packing Plants Profiles	
Churchill Fisheries	644,378
Beaver Lake	81,882
La Ronge	373,752
Pelican Narrows	188,744
Deschambault Lake Fisheries	125,664
FFMC – The Pas, MB	3,815
Kinoosao Co-op	303,089
Hunter Fish Agencies	747,239
Big River	15,833
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Dore Lake	5,250
Isle a la Crosse	293,376
Patuanak	12,937
Pinehouse	170,103
Wollaston	224,010
J. Waite Fisheries Inc. (Buffalo Narrows)	592,252
Northwest Co-operative Fisheries (Leaf Rapids)	10,825
West Boundary Fish Co-op (Pierceland)	22,975
Totals	2,450,236

9.4 Fish Processing Plants Profile

Fish processing in the province is comprised of operations which are owner-operated with a small number of employees. The fish processing industry purchases approximately 200,000 kgs of fish annually at a price of \$306,000. Sales for the fish processors are estimated at \$900,000. There are approximately 40 individuals employed in the fish processing industry equating to 35 full-time equivalent positions. On average, there are approximately 10 fish processing plants operating in the province.

9.5 Subsistence Consumption

The value of the amount of fish consumed by fishers and helpers was calculated in a 1989 commercial fishing study by I.D. Systems Limited⁵². The report calculated the value of fish consumed by commercial fishers to be \$81.00 per person. Given the cost of living increase the value to the average fisher today would be \$118.00. With 883 fishers and helpers the value of the food consumed would be \$104,194. This displaces the need for individuals to obtain food from other sources such as beef or poultry. As meat products are typically not processed in Saskatchewan, this consumption is displacing a typically imported product and should therefore be included as an import substitution with a positive economic impact.

9.6 Gross Revenue and Expenditures for Commercial Fishers

Commercial Fishing Revenue and Expenditures

Revenue to commercial fishers in Saskatchewan totaled \$3.76 million in 2004-05 or \$6,141.17 per fisher. This number represents the total revenue to fishers. From this revenue the fishers must pay labour, operational, and capital expenses in order to operate.

Because fishing is typically a second job lasting less than two months of the year, many individuals involved with the industry do not report themselves as being fishers in census or revenue data. As such, there is not a significant body of available income data for Saskatchewan commercial fishers. Some primary qualitative and quantitative research was undertaken in order to determine the income and expenditure patterns for commercial fishers in Saskatchewan. While the total annual income to commercial fishers of \$3.76 million is reliable, it is the expenses and net income that is not well documented.

As fish are sold to the FFMC the corporation issues commercial fishing T4F forms to commercial fishers for tax purposes. Revenue Canada has estimated the non-labour expenditures to be 25% of the total revenue from fish sold to the corporation. Revenue Canada therefore issues the T4F forms for the net income, less the estimated 25% in operating costs. On top of the 25% deduction, fishers are to deduct the labour costs such as those paid to helpers.

Based on increasing costs, survey data, and interviews⁵³ the total costs associated with fish harvests are estimated to be 45% of the total value of the catch including labour, capital, and operational costs. Fish prices have remained relatively constant over the past ten years with actual declines in some years. Input costs, such as fuel and labour on the other hand, have been rising. This has increased the total expenses relative to fisher income. The average costs associated with commercial fishing have been adjusted accordingly. Based on average commercial fishing revenue of \$6,141.17 the following expenses were identified.

⁵² An analysis of the Economic Impact of the Saskatchewan Commercial Fishing Industry, I.D. Systems Ltd. 1989.

⁵³ This included interviews with HRSDC, Fisheries and Oceans, Statistics Canada, Revenue Canada, Service Canada, fishers, fish processors, FFMC, SE, Northern Affairs, and FFMC plant operators.

Table 9.3 – Commercial Fishing Expenses	
	Cost
Total Operational Expenses	\$ 2,110.99
Total Capital Expenses	\$ 786.61
Average Net Income After Expenses	\$ 3,243.57
Total Operational Expenses	\$ 6,141.17

The two most significant operational costs for commercial fishers are helpers and fuel. In interviews and surveys, fishers reported that fuel costs were having an impact on their ability to be profitable.

Table 9.4 – Operational Commercial Fishing Expenses	
	Cost
Helpers	\$ 679.25
Gas for both trucks, skidoos, and Bombardiers⁵⁴	\$ 481.47
Maintenance and repairs for equipment such as boats, nets, or trucks used for fishing	\$ 371.22
Any travel costs, such as cost of delivering fish	\$ 186.85
Nets	\$ 169.10
License fees	\$ 32.63
Royalties	\$ 134.07
Any other day to day expenses	\$ 56.40
Total Operational Expenses	\$ 2,110.99

Capital investments were not significant for fishers. The most significant investment, relative to the amount used for fishing, was boats. Commercial fishing operations are run on a very tight budget. It is difficult to recover the investments in capital items limiting the amount of investment.

⁵⁴ A specific style of snow machine similar to a skidoo.

Table 9.5 – Capital Commercial Fishing Expenses	
Skidoos	\$ 152.93
Buildings or docks	\$ 89.37
Boats	\$ 161.86
Motors	\$ 113.66
Other related vehicles	\$ 147.66
Trucks for fishing	\$ 115.51
Other major purchases	\$ 5.62
Total Capital Expenses	\$ 786.61

After operational and capital expenditures the average commercial fisher will take home \$3,243.57 income annually from commercial fishing. This works out to a daily salary of \$65.44 based on an average of 49.56 working days annually⁵⁵.

Table 9.6 – Net Income to Fishers	
Average Net Income After expenses	\$ 3,243.57

9.7 Expenditures by Sector

To better assess how commercial fishing expenditures are entering the economy, this section shows the total expenditure by sector.

Commercial Fishing

The following tables show the total expenses paid by commercial fishers in Saskatchewan. This is again based on \$3,764,539 in gross commercial fishing revenues from all sources with the costs set at 45% of revenue.

⁵⁵ Based on fisher interviews and surveys.

Table 9.7 – Commercial Fishing Expenses	
Helpers	\$ 416,386.13
Maintenance and repairs for equipment such as boats, nets, or trucks used for fishing	\$ 227,555.97
Gas for both trucks, skidoos, and Bombardiers	\$ 295,141.99
Any travel costs, such as cost of delivering fish	\$ 114,536.88
Nets	\$ 103,655.71
License fees	\$ 20,000.28
Royalties	\$ 82,185.00
Any other day to day expenses	\$ 34,574.22
Total Operating Expenses	\$ 1,294,036.25
Total Capital Expenses	\$ 482,191.36
Total Income Revenue to Fishers	\$ 1,988,311.40
Gross Revenue to Fishers	\$ 3,764,539.01

While the gross revenue to fishers from the sale of fish is \$3.76 million, the net revenue was \$2.0 million. The total operational expenses paid by commercial fishers is \$1.29 million annually with capital expenses of \$0.48 million annually. Net income revenue to fishers is \$2.0 million annually or \$3,243.57 per fisher.

Fish Packing Plants

Fish packing plants, fish processing plants, and the value of the fish consumed by fishers all have positive economic impacts that must be added to the total economic impacts. Fish packing plants are paid by FFMC to operate over and above what the packing plants pay to fishers. Fish packing plants have revenues of \$465,000. Based on FFMC's cost of sales portion of the Statement of Operations and Retained Earnings for 2005 the following expenditures were made by the fish packing plants in Saskatchewan.

Table 9.8 – Fish Packing Plant Expenditures	
Labour	\$ 190,911.60
Packaging and Storage Expenses	198,450.51
Utilities and Property tax	27,966.36
Amortization	27,560.07
Repairs and maintenance	11,850.15
Other	8,261.25
Total	\$ 465,000.00

Fish Processing Facilities

Fish processing facilities have sales of \$900,000 annually. Parts of these expenses are the payments made to fishers for the fish that has already been accounted for through the analysis of commercial fishing revenue. As such, the \$306,000 must be removed from the expenditure analysis for fish processing facilities. After removing payments to fishers there is \$594,000 in other expenditures. While this is not new money to the economy it is included in the economic impact because it is a good that would otherwise have to be imported. Provincial fish processing is an import substitution. A more complete explanation of import substitution follows in this section.

Based on an expenditure profile for a small scale fish processing facility⁵⁶ the following expenses would be incurred.

Table 9.9 – Fish Processing Facility Expenditures	
Labour	\$ 386,431.23
Utilities	39,747.21
Supplies	48,579.93
Interest	22,081.78
Amortization	75,078.07
Licenses	350.00
Insurance	21,731.78
Total	\$ 594,000.00

Subsistence Consumption

Subsistence consumption is essentially a form of income. As such the \$104,194⁵⁷ value for subsistence consumption will be assessed as labour income for the purposes of the GDP analysis.

Licence Revenue

License fees paid by commercial fishers and fish processors are \$20,350.28. As well, fishers also paid \$82,185 in royalty fees. License and royalty revenues go into the General Revenue Fund, however, there are specific government departments that are most closely associated with fish and wildlife management.

⁵⁶ University of Florida Fisheries and Aquatic Sciences Department.

⁵⁷ Based on value estimate from I.D. Systems Limited.

Table 9.10 – License and Royalty Fees	
License Fees Paid Commercial Fishers	\$ 20,000.28
License Fees Paid Fish Processors	\$ 350.00
Royalties Paid	\$ 82,185.00
Total Fees to Provincial Government	\$ 102,535.28

Total Direct Impact of the Commercial Fishing Industry

The total impacts of commercial fishing are included in the table below. This includes expenditures and labour income in the commercial fishing, processing, and packing industries.

Table 9.11 – Total Gross Expenditures by Commercial Fishers in Saskatchewan	
Expenditure Type	Expenditures
Commercial Fishers ⁵⁸	\$ 3,764,539
Fish Packing Plant	465,000
Fish Process Facility	594,000
Subsistence Consumption	104,194
Gross Expenditures	\$ 4,927,733

⁵⁸ Includes licensing fees.

Table 9.12 – Gross Commercial Fishing Expenditures	
Expenditure Type	Expenditure
Labour	\$ 3,086,234.41
Repairs and Maintenance	239,406.12
Utilities	67,713.57
Transportation	409,678.87
Transportation Equipment	423,961.41
Professional Services	43,813.56
Capital Amortization	160,868.09
Licensing and Royalties	102,535.28
Other Operating	393,521.62
Total Expenditure	\$ 4,927,732.93

9.7.1 – Determination of Direct and Indirect GDP and Employment Impact

The expenditure profile for the commercial fishing industry was identified in the previous section. The Statistics Canada input-output analysis services were utilized to determine the direct, indirect, and induced economic impact of commercial fishing based on the revenue and expenditures of the Saskatchewan commercial fishing industry. GDP measures the actual value added by Saskatchewan companies within the province. The value added is the sum of all economic activity less the inputs required that were supplied extra-provincially.

Similar to other commercial fishing economic impacts studies done in Canada⁵⁹ it was found that commercial fishing has a significant economic impact relative to the expenditures. The primary reason for this is the large labour component to commercial fishing as labour income is counted as nearly 100% GDP when calculating the direct GDP impact. The GDP generated is generally much lower than the total economic activity. For instance, the typical GDP generated from \$100,000 in expenditures in Saskatchewan is \$47,000 or 47%. The GDP impact for commercial fishing is 55.9% of the original expenditure. An industry with such a high labour component is rare, and as such it has a higher than average GDP impact. As the following table shows the total GDP impact of commercial fishing is \$2.8 million annually.

⁵⁹ Department of Fisheries and Oceans Canada – Ocean Economy Economic Impact, Commercial Fishing. <http://www.mar.dfo-mpo.gc.ca/pande/ecn/ns/e/ns15-e.asp>

Table 9.13 – GDP Impact				
	Direct Expenditure	Direct GDP⁶⁰ Impact	Indirect GDP Impact	Total GDP Impact
Impacts	\$ 4,927,733.00	\$ 1,915,231	\$ 836,770	\$ 2,753,001

The direct and indirect employment generated by commercial fishing is 91.0 full-time equivalent positions in the province with \$1.5 million in labour income. It should also be noted that the economic impact model is generating the employment impact based on standard freshwater commercial industry statistics. Saskatchewan’s commercial fishing industry is more labour intensive than standard commercial fishing industries. Based on primary research, the total labour impact would likely be higher at 190 FTE positions. While the GDP impact does not change, the component of the GDP impact that is labour income is higher.

Table 9.14 – Employment Impact			
	Direct Employment Impact	Indirect Employment Impact	Total Employment Impact
Total Expenditure	\$ 1,051,510.71	\$ 502,313.72	\$ 1,553,824.43
Total Jobs	65.5	27.6	93.1

This model is very beneficial as it is extremely accurate in terms of its assessment of the GDP and employment created. It also is consistent and comparable with the previous economic assessment of Saskatchewan’s Provincial Parks. However, the model is lacking in two ways. First, the model only estimates federal taxes. Second, the model does not calculate any of the induced impacts created by economic activity.

9.7.2 – Determination of Induced GDP and Employment Impact

While widely acknowledged, economists have been reluctant in the past to include induced impacts in calculations as they are open to interpretation, as well as inflation. Induced impacts have long been regarded as somewhat inaccurate and misleading, as well as open to exaggeration. Increasingly, however, induced impacts are gaining acceptance, provided they are calculated based on reliable modeling.

Statistics Canada is considering adding back into their calculations the induced impacts of economic activity. A formula generated by Statistics Canada was utilized to calculate the induced impacts. The formula essentially assesses the impact labour expenditures have on the economy. The previous analysis shows that the total labour expenditure generated is \$1.55 million. After accounting for taxes and savings, the \$4.32 million in labour expenditures generates \$1.34 million in induced expenditures. These expenditures are run

⁶⁰ Gross Domestic Product (GDP) is the measure of the value of the total outputs of an industry less the total inputs.

through the economic impact model again, based on the typical basket of goods purchased by a wage earner in Saskatchewan.

These induced expenditures create an additional \$0.64 million in GDP. The following tables show the total induced GDP impact generated from the induced labour expenditures.

Table 9.15 – Induced GDP Impact				
	Direct Expenditure	Direct GDP Impact	Indirect GDP Impact	Total GDP Impact
Induced Impacts	\$ 1,344,058.13	\$ 513,080.75	\$ 123,139.38	\$ 636,220.13

The following table totals the direct, indirect, and induced impacts of commercial fishing and processing in Saskatchewan. The direct and indirect impacts have been calculated separately so the impacts can easily be compared to other economic impact assessments that have been done, whether they have included an induced impact or not.

Table 9.16 – Total GDP Impact			
	Direct and Indirect Impacts	Induced Impact	Total GDP Impact
GDP Generated	\$2,753,001.1	\$ 636,220.13	\$ 3,389,221.23
Total Employment	\$1,553,824.43	\$ 350,609.39	\$ 1,904,433.82
Total Jobs (FTE)	93.1	11.5	104.6

The total direct, indirect, and induced impact of commercial fishing and processing in Saskatchewan is \$3.3 million generating 104.6 full-time equivalent positions. The total labour income generated is \$1.9 million or \$18,240 per position. Again, the economic impact model is underestimating the total labour component. The total FTE positions created would likely be 200 when the induced impacts are considered.

9.7.3 – Employment Created

There are four primary areas in which commercial fishing creates employment: commercial fishers, processors, packing plant workers, and transportation. Beyond the primary employment additional employment is stimulated in various sectors of the economy that support fishing. While not 100% of the jobs are created in the north, it should be noted that the average wage for a northern resident is \$17,961, much lower than the provincial average. The average full-time equivalent wage for commercial fishers is \$18,240 per person.

While commercial fishing creates 200 full-time equivalent positions the actual positions created would be far greater given the seasonal nature of the work. Based on the survey and interview results alone there are 1,200 people directly employed by commercial fishing. However, many of these are short-term positions. Helpers for example only work on average three weeks of the year in their fishing job.

9.7.4 – Determination of Tax Impacts

The Parks model also lacks the type of tax information that would be useful at the provincial level. As such, a separate tax model was utilized. The Sport Tourism Economic Assessment Model (STEAM), developed by Statistics Canada, the Conference Board of Canada, and the Canadian Sport Tourism Alliance provides more detailed analysis of the tax modeling. To ensure that the tax analysis was consistent with the previous findings the tax impact was generated relative to the direct and indirect GDP activity already calculated. Commercial fishing creates the following marginal tax impacts, based on the previous GDP impact estimates.

Table 9.17 – Total Tax Impact			
	Federal	Provincial	Municipal
Impacts	\$ 528,365.59	\$ 492,234.13	\$ 119,913.57

9.8 Import Substitution

Import substitution is a concept that looks at the extent to which supplying goods or services within a jurisdiction prevents individuals from importing those goods or services from other jurisdictions. In other words, if there were no commercial fishing in Saskatchewan, would there be a similar rise in the import of fish and other similar food products? Because the commodity is essential, it is likely that if there were no fish processing in the province, Saskatchewan residents would be forced to find a similar replacement product. With no fish processors present in the province this would mean increased imports.

9.9 Regional Impacts

Saskatchewan’s commercial fishing is primarily (over 95%) situated in Northern Saskatchewan. Consequently, the majority of the economic impact is felt in Northern Saskatchewan. The impacts on Northern Saskatchewan are broad impacting a number of communities.

Other regions impacted by the commercial fishing industry include the urban centres to which commercial fishers travel to make their major purchases. The following table compares the locations where fishers reported making their day-to-day purchases compared

with where they make their major purchases. The day-to-day purchases are made in smaller communities such as Turnor Lake, Canoe Lake and Flin Flon. Major purchases are made at larger centres such as Meadow Lake, Prince Albert, and La Ronge.

Locations of Commercial Expenditures	
Day-to-Day Expenditures	Major Expenditures
(10) Turnor Lake	(20) Meadow Lake
(9) Canoe Lake	(20) Prince Albert
(5) Flin Flon	(6) La Ronge
(5) La Ronge	(3) Cold Lake
(4) Meadow Lake	(2) Saskatoon
(3) Deschambault Lake	(1) Battleford
(3) Dillon	(1) Big River
(3) Kinoosao	(1) Buffalo Narrows
(3) Pierceland	(1) Canoe Lake
(3) Wollaston Lake	(1) Edmonton
(2) Ile-a-la-Crosse	(1) Kinosao
(2) Pine House	(1) Pierceland
(1) Air Ronge	(1) Thompson
(1) Beauval	
(1) La Loche	
(1) No comment	
(1) Patuanak	

Economic activity in Northern Saskatchewan strengthens the province's economy. While the majority of the income from commercial fishing is drawn in remote northern communities it is the cities and larger centres feel the majority of the impacts in terms of expenditures.

9.10 Social Impacts

The social impacts of commercial fishing are significant in terms of both employment and cultural significance. Without the employment and employment income created by commercial fishing there would be significant social consequences that are associated with unemployment and lower incomes.

Map of Northern Administrative District



The vast majority of commercial fishing takes place in the Northern Administrative District (NAD). The industry directly employs 883 helpers and fishers, of which 88.7% are Aboriginal. Of the 37,000 Northern Saskatchewan residents 86.3% are Aboriginal⁶¹. This compares to a provincial average of 13.3%. It is also important to note the forecasted growing need for employment in the NAD. Birth rates in the Aboriginal community are 1.5⁶² times that of the non-Aboriginal community. With rapid population growth expected it is critical to have the economic activity to employ the growing population.

The population of Northern Saskatchewan is 37,000 with 57% being of working age. The effective workforce is 21,090. Given the participation rate of 53% and unemployment rate of 24% the actual working population is 8,500. While the economic impact analysis indicates that the industry should employ 200 full-time equivalent positions the reality is that commercial fishing directly employs 1,200 people on a seasonal basis. This indicates that 14% of those employed in the north are drawing some income from the commercial fishing industry.

⁶¹ Saskatchewan Health Covered Population 2005.

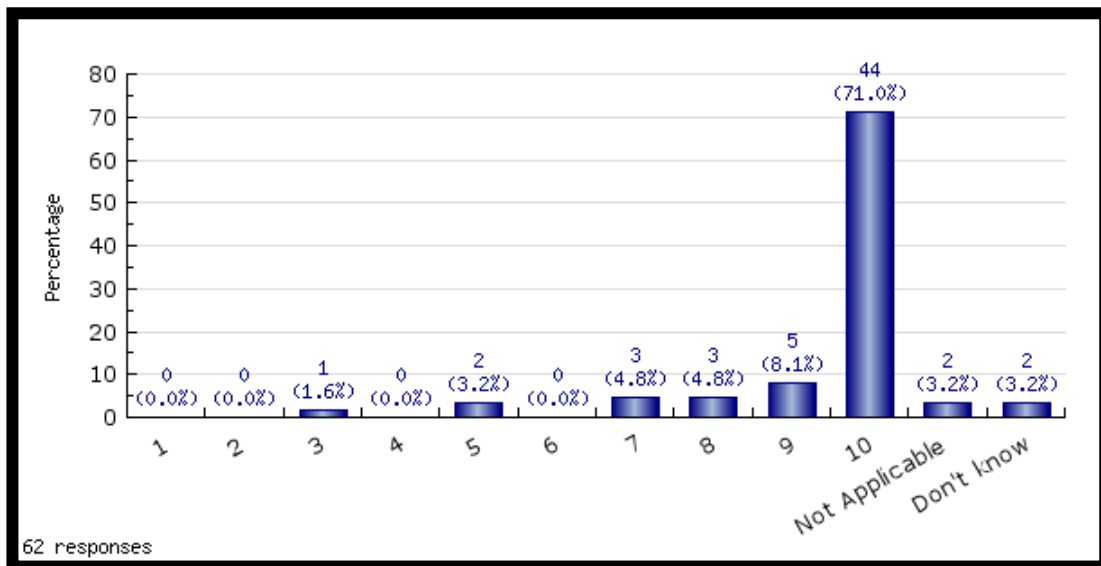
⁶² Northern Saskatchewan Regional Training Needs Assessment – 2006/2007.

Commercial fishing is generally a second income for fishers with 72.4% of commercial fishers surveyed holding a second job. Of those surveyed, however, 62.1% indicated that the money they made from fishing was a large part of their annual income. It should be noted that the average family income in the NAD is \$27,323 compared with \$49,264 for the province making commercial fishing income relatively more important for northern residents. If commercial fishing were to cease to exist it would create financial challenges for at least 10% of the employed population of Northern Saskatchewan and the families they support.

Aside from the social impact that commercial fishing income has on northern residents there are also important cultural and historic aspects to commercial fishing. Fishers who were surveyed were asked to rate, on a scale of 1 to 10, the importance of various attributes of commercial fishing.

Respondents had a highly correlated positive response to questions regarding the significance of fishing. When asked on a scale of one to ten how important fishing was as a part of culture, lifestyle or tradition, respondents had an average response of 9.4. The following graph shows the distribution of responses to that question.

Cultural, Lifestyle, and Traditional Significance of Fishing



Given the level at which fishers rated the importance of fishing in terms of their culture, lifestyle, and tradition it is likely that fishing also plays a role in the fishers' identity. While other jobs in the north create employment, these are primarily self-employed positions that create a variety of skills that come with running a small business.

The following table shows respondents ratings of other attributes of fishing. Commercial fishing’s importance in terms of providing food for the family underscores the impact commercial fishing revenue and sustenance in the family home.

Table 9.18 – Respondents Ratings of Other Attributes of Fishing	
Fishing is a part of your culture, lifestyle, or tradition	9.4
Food for family	9.3
Carrying on the family business	9.3

Carrying on the family business also rated very high in terms of importance. The drive to carry on the tradition of fishing could outweigh the economic value of participation in the industry. When asked if fishers felt commercial fishing was a profitable industry only 54.8% said yes.

9.11 Environmental Impacts

Some analysis of the environmental impacts of commercial fishing is required to fully consider the economic impacts. This section is not a complete environmental impact assessment, it is meant to provide some context to the economic impacts.

Commercial fishing, like all food production, has an impact on the environment. Arguably, the two most significant impacts of commercial fishing on the environment come through the use of fossil fuels and the impacts of the industry on fish stocks.

Scope of the Industry

The environmental impact of Saskatchewan’s commercial fishing industry has, however, declined in recent years. Saskatchewan’s fishery resource once supported a much larger commercial fishing industry. As the industry has declined over the years, so has the environmental impact. On some lakes the existing quota set by Saskatchewan Environment is not even being met. In the majority of cases, the quotas for all species are not being fished as fishing must cease (in most cases) as soon as the quota for one species is met.

The industry has gone from a peak of 6 million kg of production, 3,500 fishing licenses, and several major processing facilities to 3.3 million kg in production, 1,500 licenses and very little processing. This reduction in production has meant an overall reduction in the impact to lakes and the environment as a whole.

The reduction in fish harvests has meant that the fishery as a whole now has to support less harvesting, but it also means that only the most profitable lakes are now harvested. While the fishery as a whole obviously has some excess capacity in terms of what it could support in terms of fish harvesting, there remain risks to the lakes that are being fished.

Potential Impacts on Fish Stocks

Commercial fish quotas are allocated based on sustainable harvests. When properly controlled, commercial fishing has a largely symbiotic relationship with fish stocks. Commercial fishing is actually a relatively straightforward industry to manage when compared to other industries reliant on wild resources. The number of fishers, the quantity allocated, and the final harvest numbers are all known variables, with the exception of illegal activity. Other industries, such as sport fishing and hunting cannot track the total harvest as easily as in the commercial fish sector.

The management of individual lakes becomes more difficult and more risks are posed when lakes are utilized for both sport fishing and commercial fishing. Sport fishing is more difficult to monitor as sport fishers are allocated a daily limit with no limit on the number of anglers or angling days. As access to specific lakes improves, the number of sport anglers on a specific lake may increase. The total sustainable harvest from that lake may have to be adjusted accordingly.

Over fishing is not the only danger posed by commercial fishing. Other potential risks include fishing in spawning grounds, not adhering to size restrictions, and fishing out of season (particularly during spawning). These are, however, regulatory issues that, when properly regulated and enforced, can be kept in check.

Commercial fishing also has significant fossil fuel demands, however, it is the fossil fuel consumption relative to other food production industries that is the most relevant. The harvesting of commercial fish requires fossil fuel consumption in terms of both transportation as well as the actual harvesting process itself. Both trucks and boats are utilized extensively in the fish harvesting process. Fuel costs were a concern for fishers as fuel comprises a large part of their respective operational budgets. An extensive environmental impact study would be required to assess the environmental impacts from commercial fishing relative to other food production industries. Because no existing comparison has been made it is difficult to assess the relative impact of commercial fishing.

Potential Impacts of Competing Fish Production Methods

Again, Canadians cannot forgo food production. In terms of the broader environmental impact analysis, it is a matter of analyzing food production methods and their relative impacts on the environment. Aquaculture, for example, produces a similar product to that of the commercial fishing sector, but has different impacts on the environment. Fish farms, for example, pose no direct risk to over-harvesting the wild fish resource as the fish are self-contained and do not rely on the wild resource.

Fish farms pose some risk to the habitat such as the greater risk of disease. Because of the density of the fish, disease can spread more easily through the stock. Disease can also be spread to the host lake or river. Disease can be controlled through antibiotics and other additives to the food. Long-term use of antibiotics, however, can pose risks to the surrounding habitat. There are also risks associated with waste food and feces entering the host lake.

Aquaculture and fish farms can have negative impacts on the environment. Similar to commercial fishing, however, these impacts can be mitigated by proper regulation and enforcement.

Other Considerations

A problem often associated with commercial fishing industries is the disposal of waste, and specifically, by-catch waste. In Saskatchewan this is not as significant of an issue as the vast majority of species harvested in Saskatchewan have some value. Currently FFMC⁶³ must purchase all fish harvested by Saskatchewan commercial fishers, reducing the level of what would be considered by-catch. This could become a more significant issue in the future if FFMC were to change its mandate to purchase all fish harvested in Saskatchewan or if FFMC were to cease operating in the province without being replaced by a processor with a similar mandate.

9.12 Aquaculture Industry

Aquaculture is a growing industry in Saskatchewan and has actually surpassed commercial fishing in terms of dollar sales. Globally, aquaculture has surpassed wild resource farming as the means of providing food for human consumption. Currently, 65% of freshwater fish consumed worldwide come from fish farming⁶⁴.

In 2002 Statistics Canada estimated the value of the aquaculture industry at \$4.6 million. Given the growth in the industry since 2002 it is likely that aquaculture has surpassed the \$4.8 million commercial fishing sector in terms of dollar value. Aquaculture does not produce the same level of fish in terms of weight but because of the value added in the sector, aquaculture has a higher dollar value. Aquaculture achieves far greater value per pound of fish harvested as all of the harvest is processed before it is exported.

⁶³ It should be noted that while FFMC does have a mandate to purchase all fish, they have the latitude to set prices for each species, impacting the economics of bringing some fish to market.

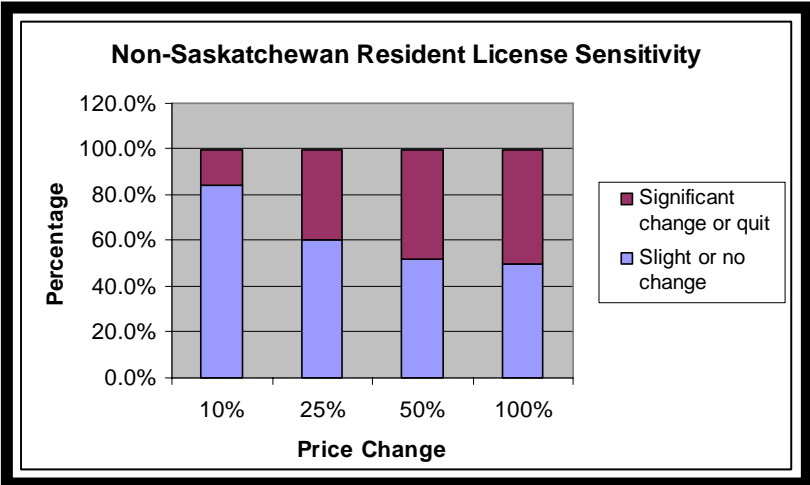
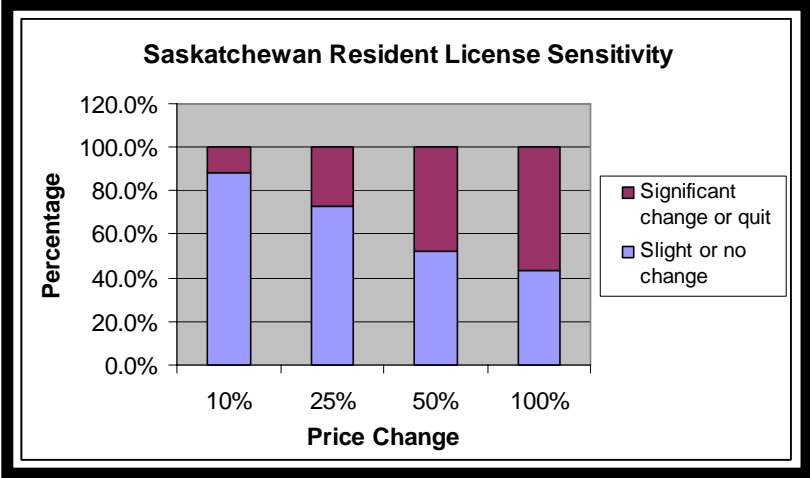
⁶⁴ HRSDC Backgrounder – fishing industries.

Appendix 1 – Sport Fishing Survey Results

As part of the fishing survey several additional regulatory and policy questions were asked. The following is a summary of the results. The following breaks down the responses to those questions.

License Price Elasticity

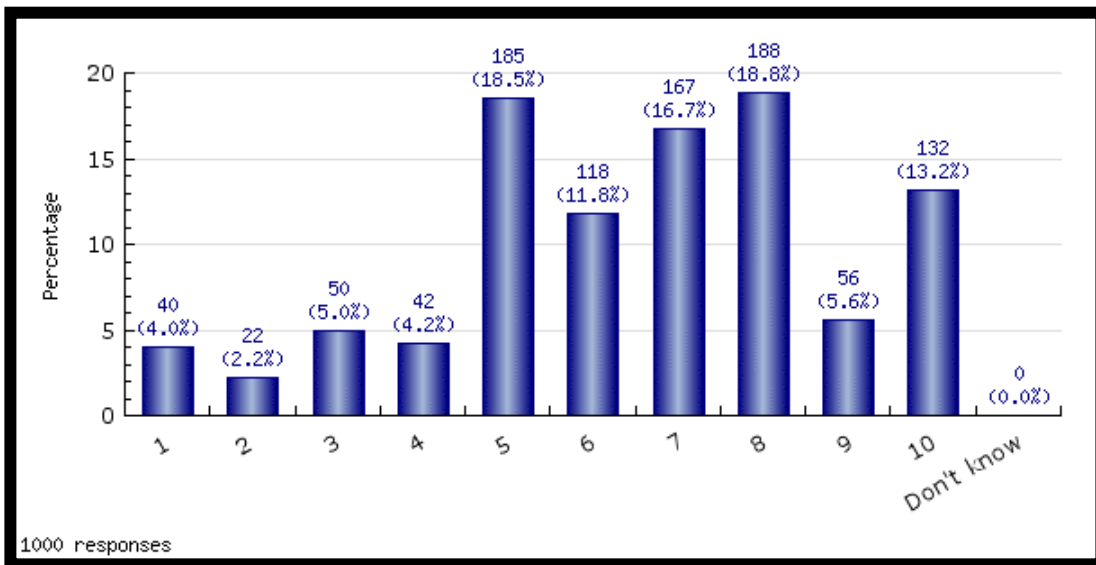
Respondents were asked to gauge their reactions to various price increases. Respondents were given a scenario in which they were faced with between 10% and 100% price increases. Respondents were given four options for their projected reaction; no change, slight change, significant change or quit fishing in the province. The following tables show the results of those questions for Saskatchewan and non-Saskatchewan residents.



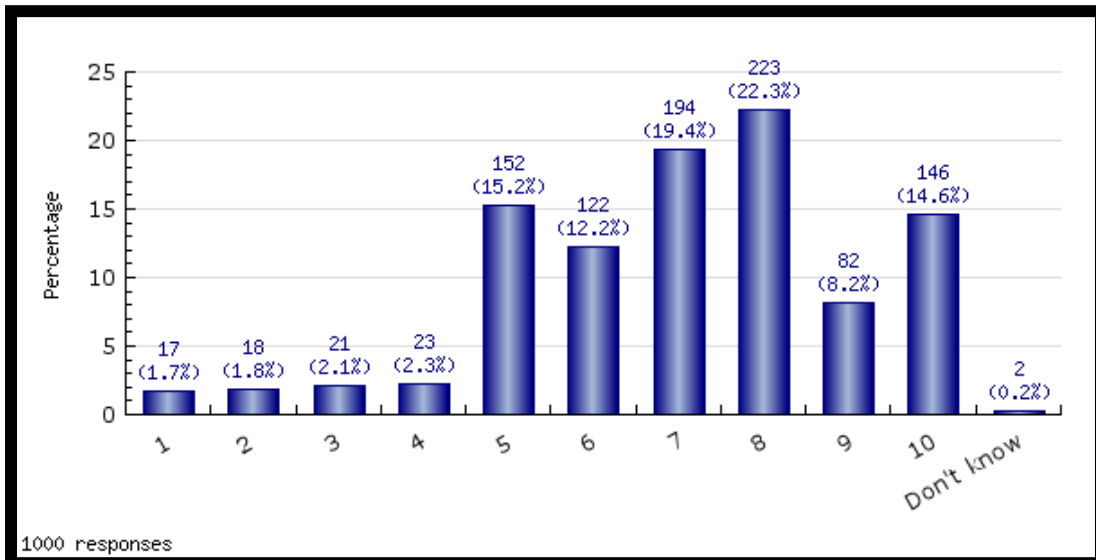
Importance of Fishing Success

The level of fishing success often varies from season to season and lake to lake. On a scale of 1 to 10, with “1” being not at all important and “10” being very important, how important is it to you to be at a location that has a high rate of success in terms of catching large amounts of fish?

Importance of Fishing Success – Saskatchewan Residents



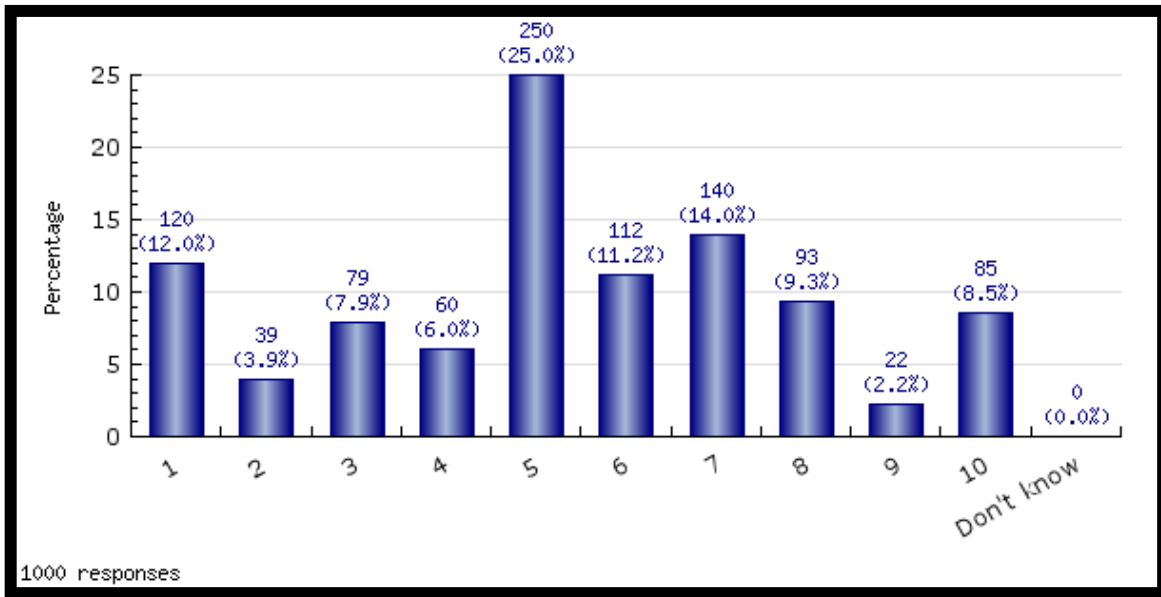
Importance of Fishing Success – Non-Saskatchewan Residents



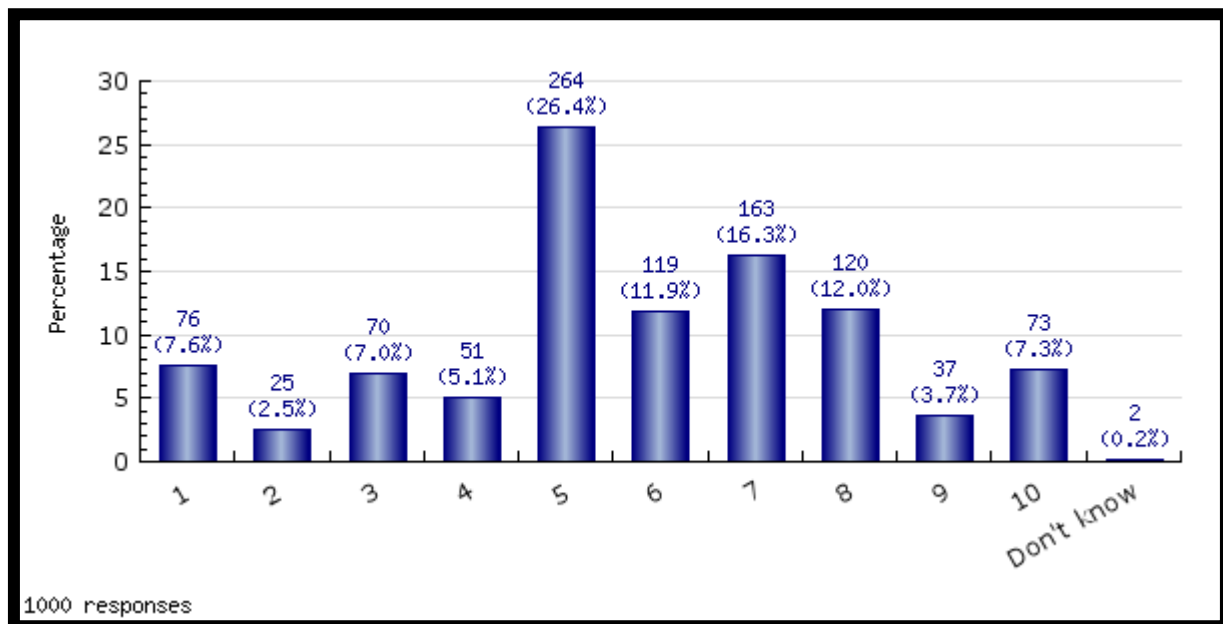
Importance of Fishing Success

On a scale from 1 to 10, how important is the number of fish you catch to the quality of your fishing experience, with "1" being *I don't need to catch fish to have a good experience*, and "10" being *The greater the number of fish the better the experience*?

Importance of Fishing Success Relative to Good Time – Saskatchewan Residents



Importance of Fishing Success Relative to Good Time – Non-Saskatchewan Residents



Fees for Fish and Wildlife Maintenance

Currently 30% of Saskatchewan fishing license fees goes to the province's Fish and Wildlife Development Fund to support fish habitat management and stocking. Would you be willing to pay more for your fishing license if 100% went to the Fish and Wildlife Development Fund?

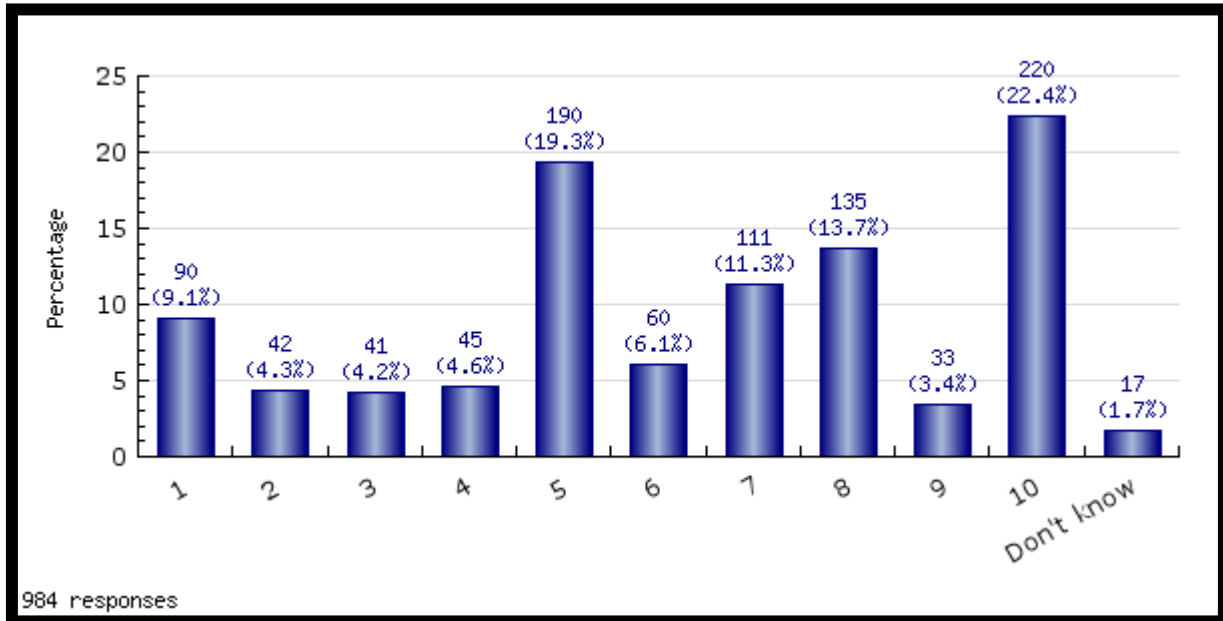
If the province were to increase the cost of licenses while dedicating all of the additional revenue to the Fish and Wildlife Development Fund which funds habitat and stocking programs, how much more would you be willing to pay for a fishing license?

Willingness to Pay More for Fishing Licenses If 100% Went to the Fish and Wildlife Development Fund		
Saskatchewan Residents		
	Yes	No
\$10 increase	77.4%	22.6%
\$20 increase	46.5%	53.5%
\$40 increase	17.8%	82.2%
\$60 increase	11.4%	88.6%
Non-Saskatchewan Residents		
	Yes	No
\$10 increase	82.4%	17.6%
\$20 increase	50.8%	49.2%
\$40 increase	21.6%	78.4%
\$80 increase	9.8%	90.2%

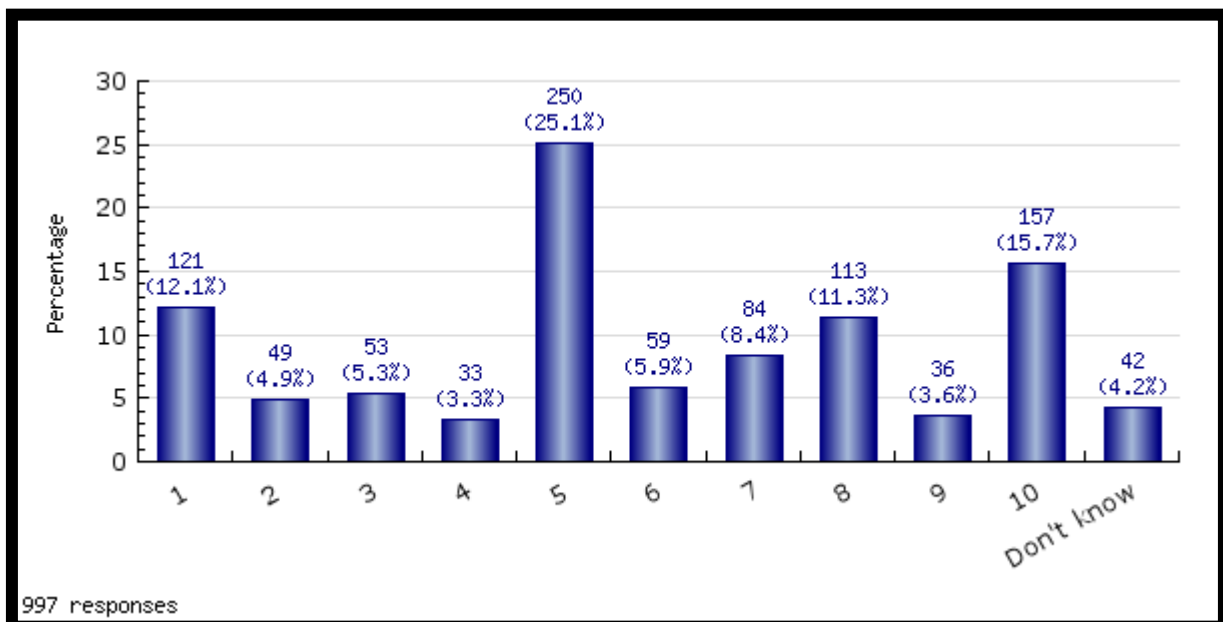
Increase to Law Enforcement

Where “1” is not at all important and “10” is very important would you like to see an increase to enforcement?

Importance of Increased Enforcement – Saskatchewan Residents



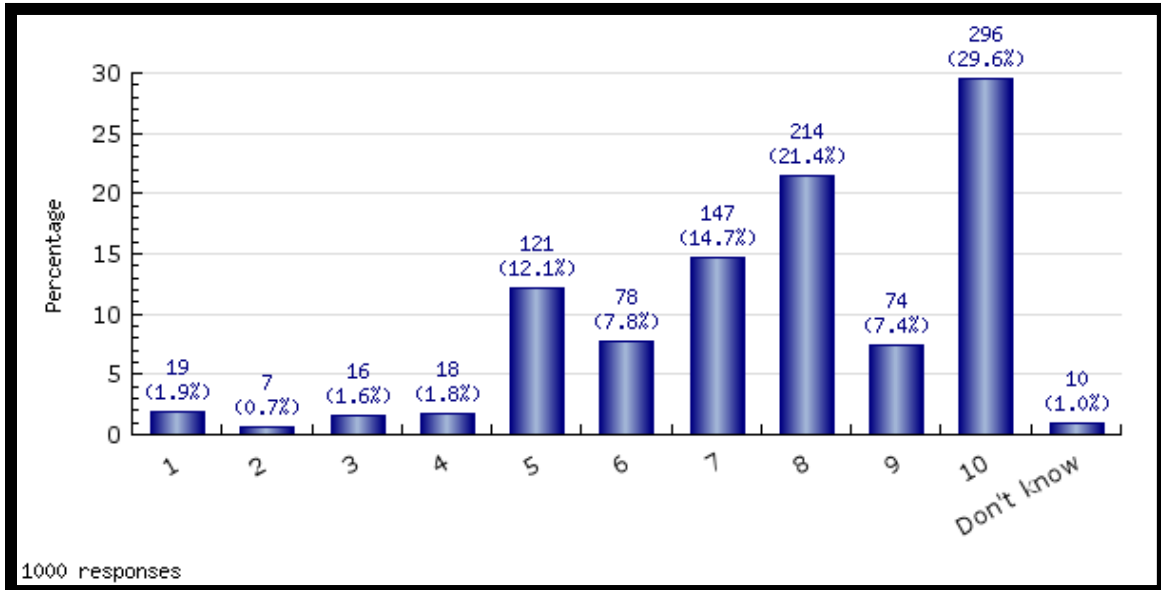
Importance of Increased Enforcement – Non-Saskatchewan Residents



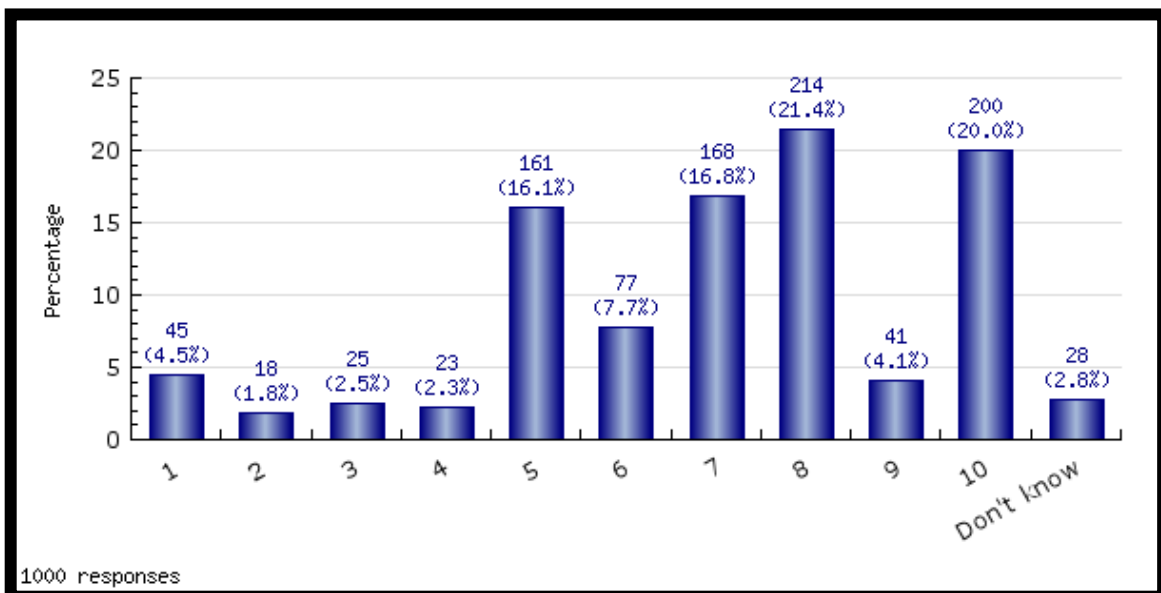
Enhanced Habitat Protection

Where “1” is not at all important and “10” is very important how important is it to have enhanced habitat protection?

Importance of Enhanced Habitat Protection – Saskatchewan Residents



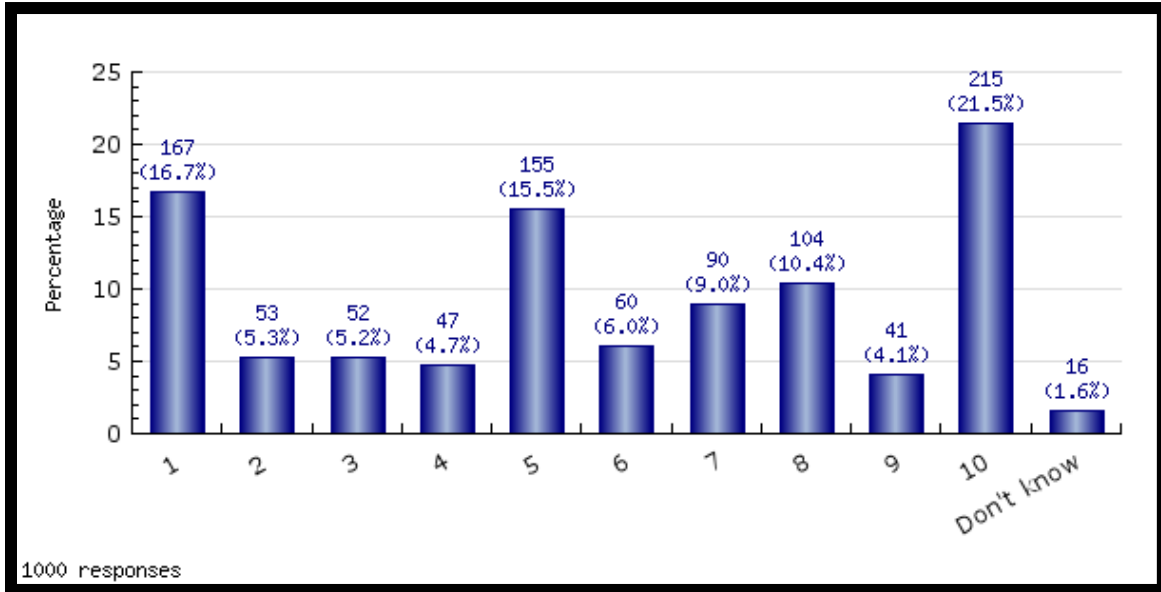
Importance of Enhanced Habitat Protection – Non-Saskatchewan Residents



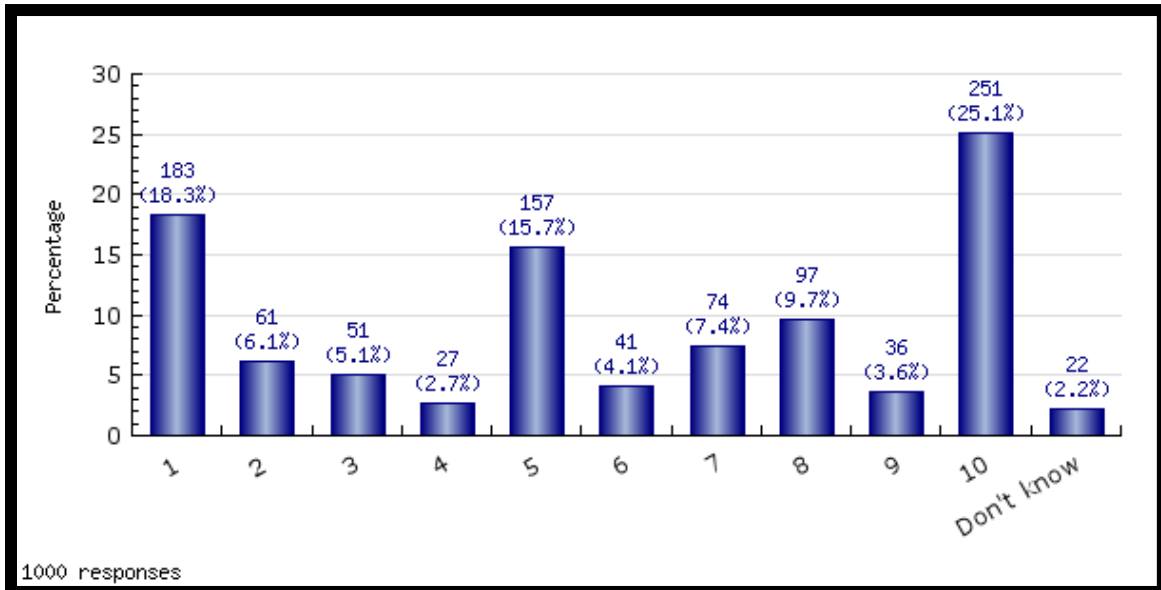
Importance of Barbless Hooks

Where “1” is not at all important and “10” is very important, how important is it to have barbless hooks mandatory on all lakes?

Importance of Barbless Hooks – Saskatchewan Residents



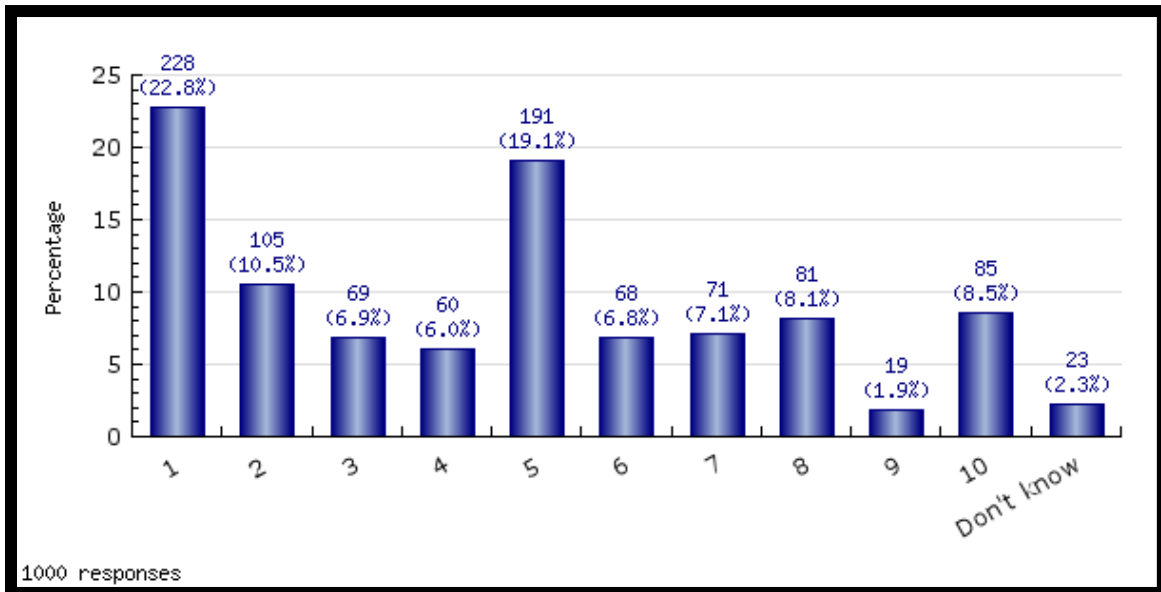
Importance of Barbless Hooks – Non-Saskatchewan Residents



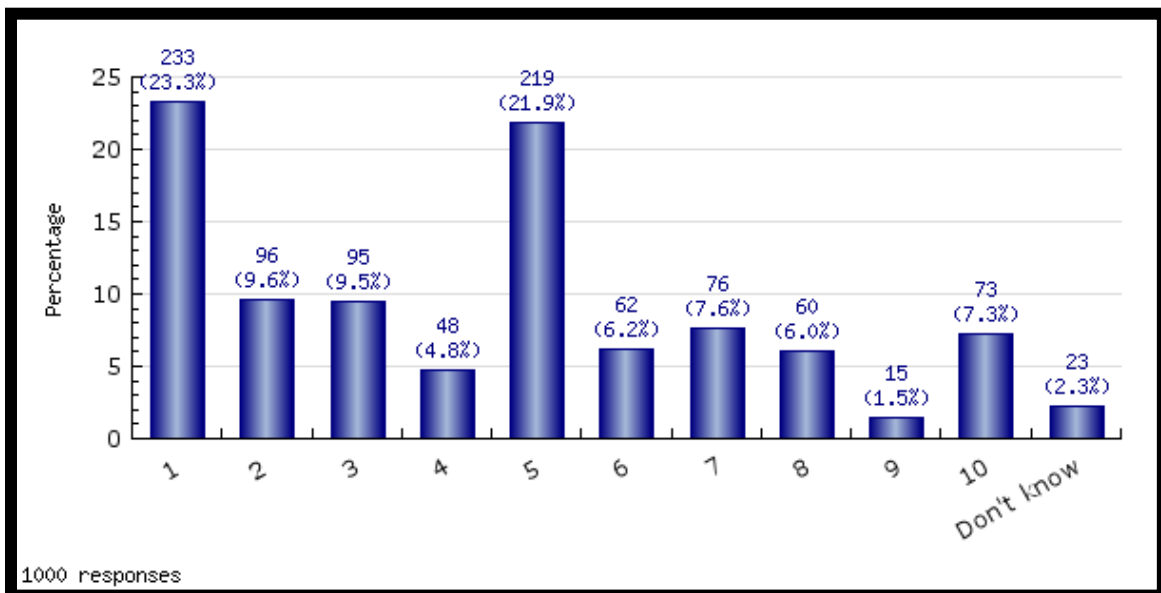
Regulate Technology

Where “1” is not at all important and “10” is very important how important is it to **Regulate Technology Usage** such as GPS, fish finders and underwater cameras?

Importance of Enhanced Habitat Protection – Saskatchewan Residents



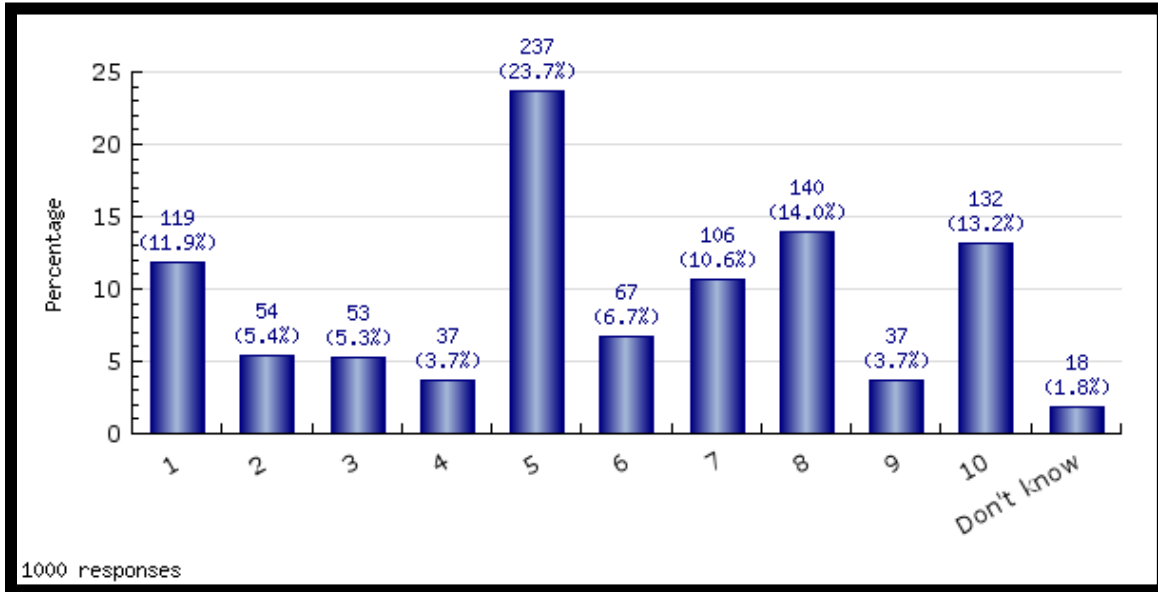
Importance of Enhanced Habitat Protection – Non-Saskatchewan Residents



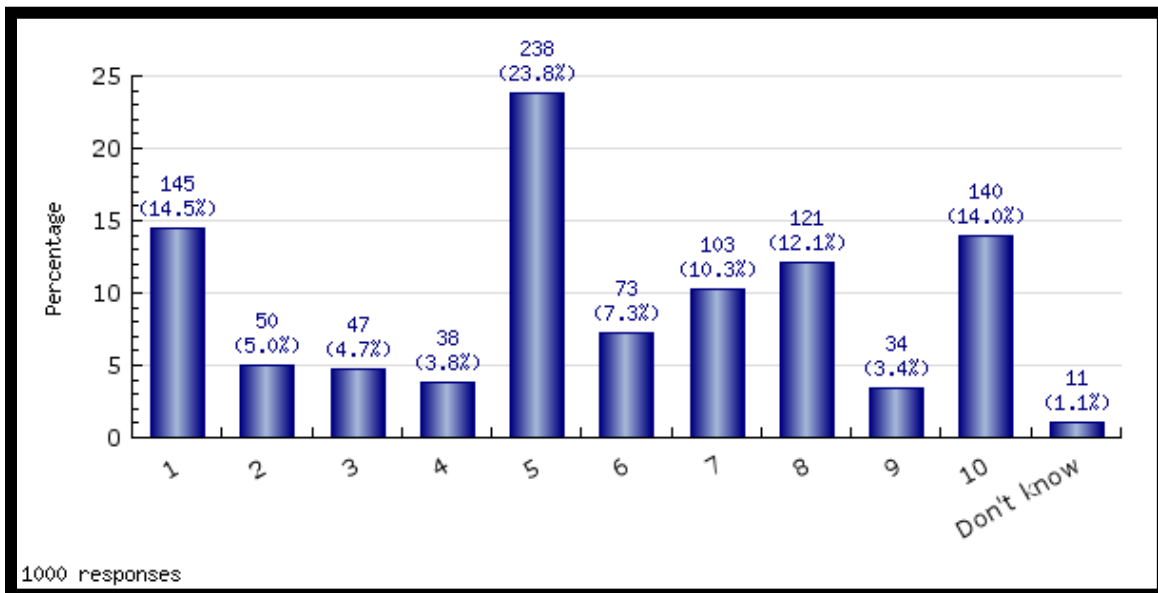
Simplify Regulations

Where “1” is not at all important and “10” is very important how important is it to **simplify fishing regulations**?

Importance of Simplifying Regulations – Saskatchewan Residents



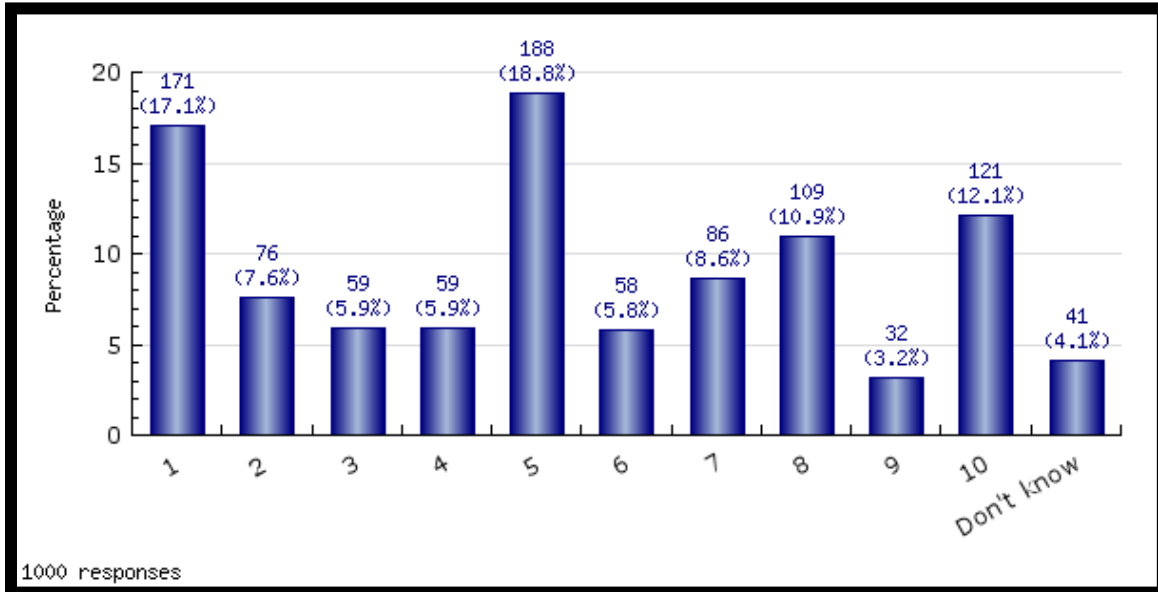
Importance of Simplifying Regulations – Non-Saskatchewan Residents



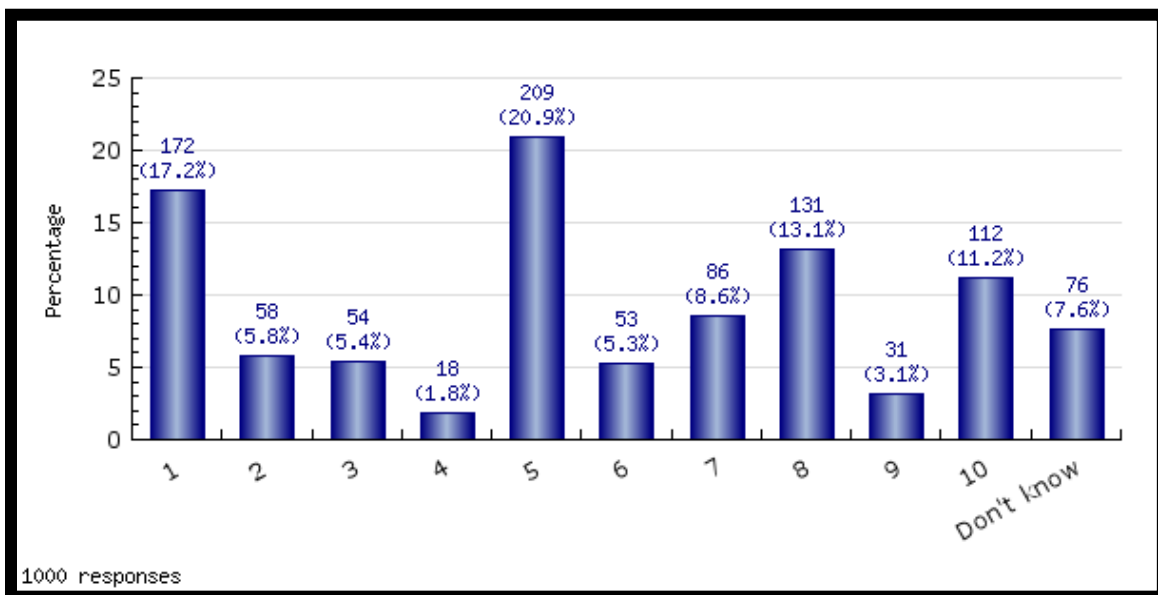
Access to Northern Lakes

Where “1” is not at all important and “10” is very important how important is it to control road access to remote northern lakes?

Access to Northern Lakes – Saskatchewan Residents



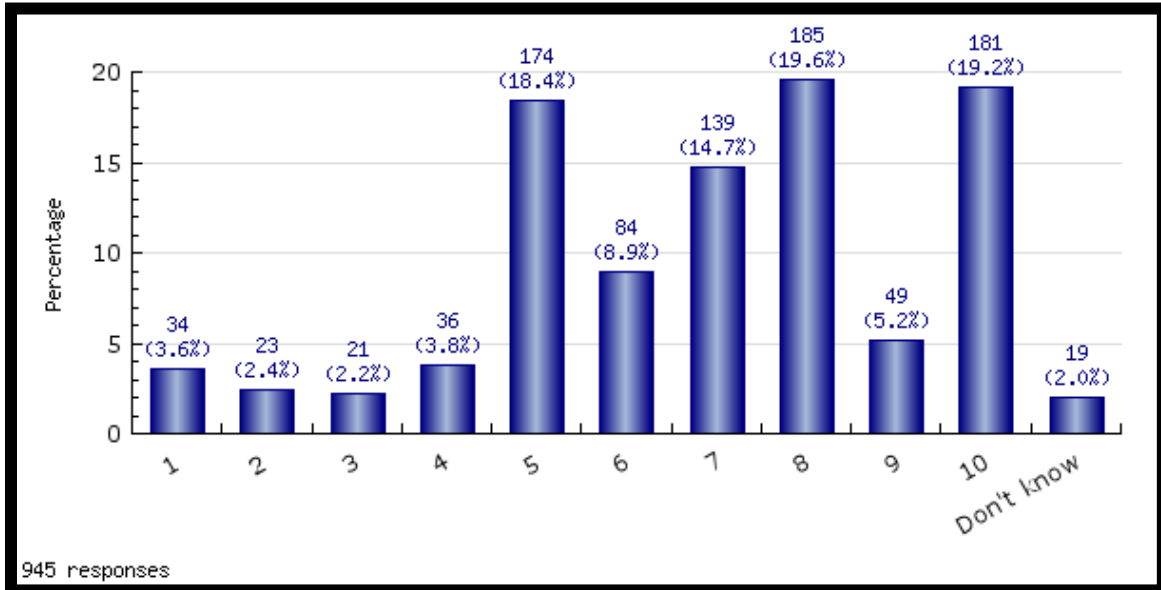
Access to Northern Lakes – Non-Saskatchewan Residents



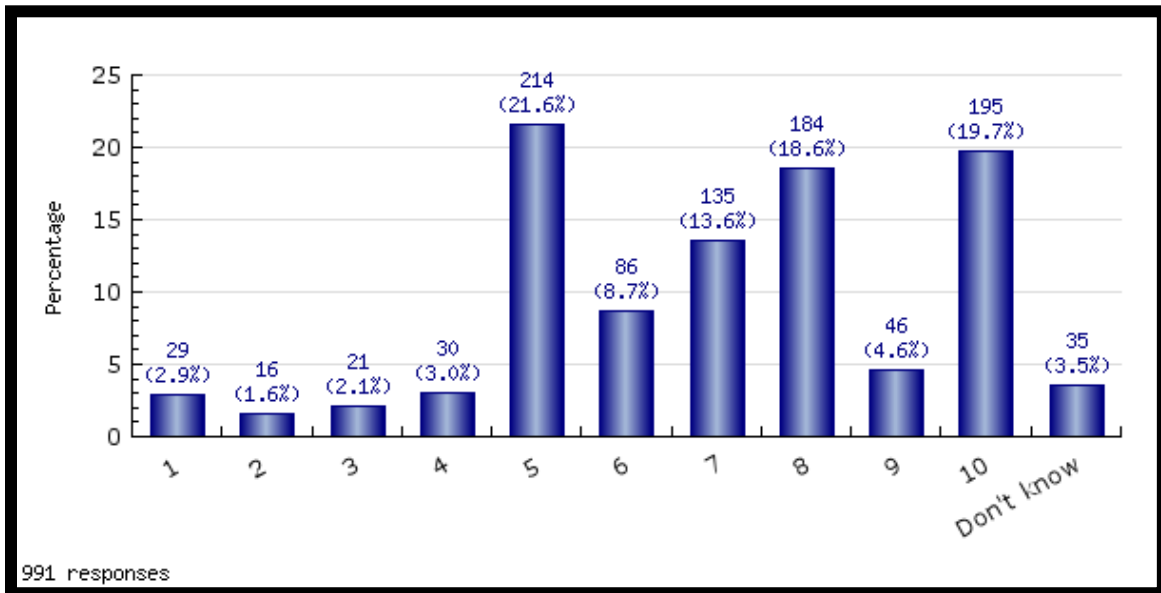
Increased Fisheries Monitoring and Research

Where “1” is not at all important and “10” is very important how important is it to increase fisheries monitoring and research?

Increase Fisheries and Monitoring Research – Saskatchewan Residents



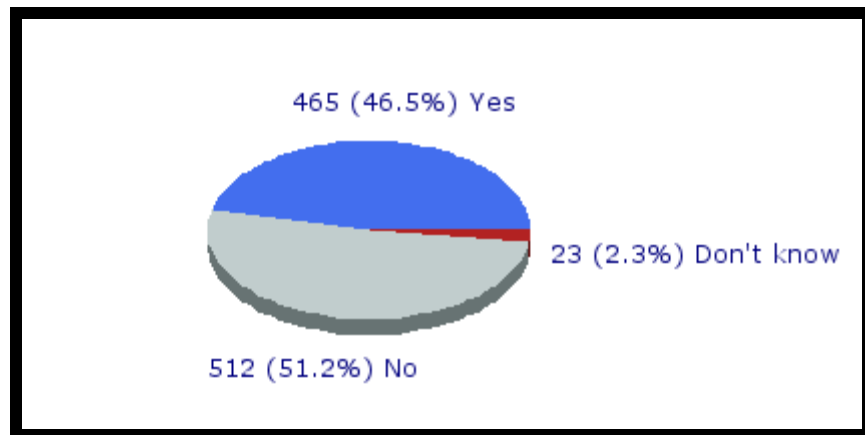
Increase Fisheries and Monitoring Research – Non-Saskatchewan Residents



Importance of Naturally Occurring Fish Stocks

Is it important to you that the fish stock is naturally occurring for the region, as opposed to being artificially stocked?

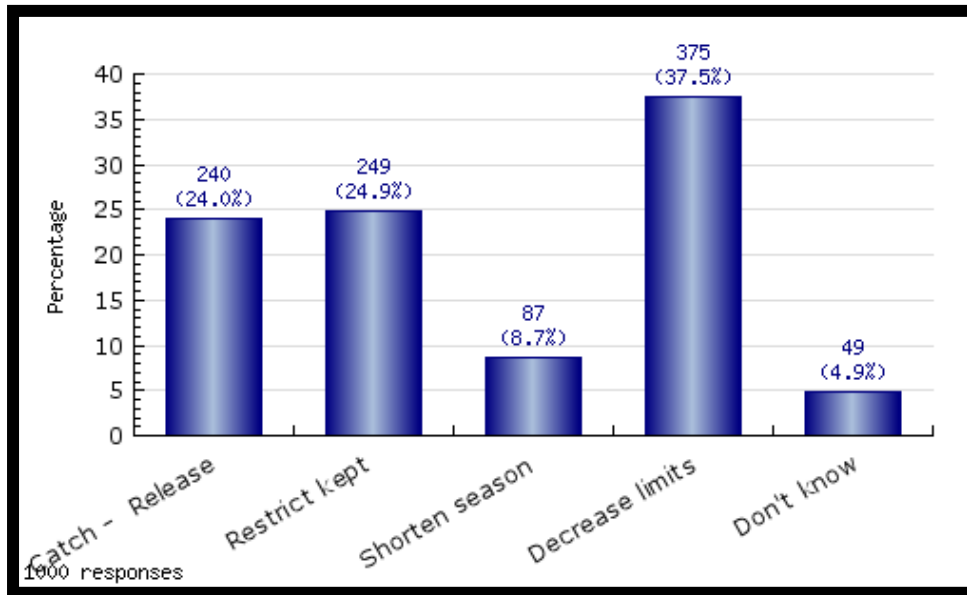
Importance of Naturally Occurring Fish Stocks – Saskatchewan Residents



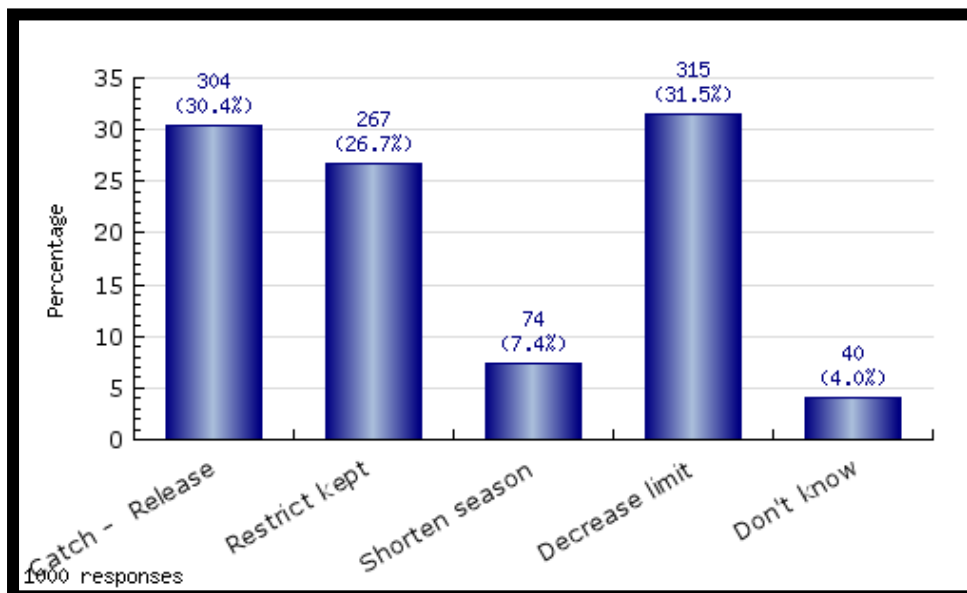
Preferred Method for Limiting Fish Harvest

If the fish stocks came under extreme pressure and in danger of depletion, what would be your preferred method for limiting the fish harvest?

Preferred Method for Limiting Fish Harvest – Saskatchewan Residents



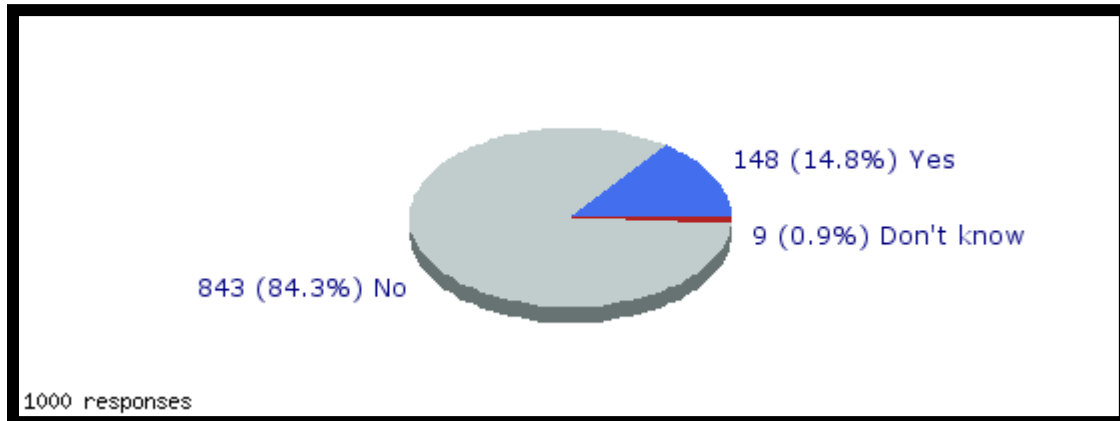
Preferred Method for Limiting Fish Harvest – Non-Saskatchewan Residents



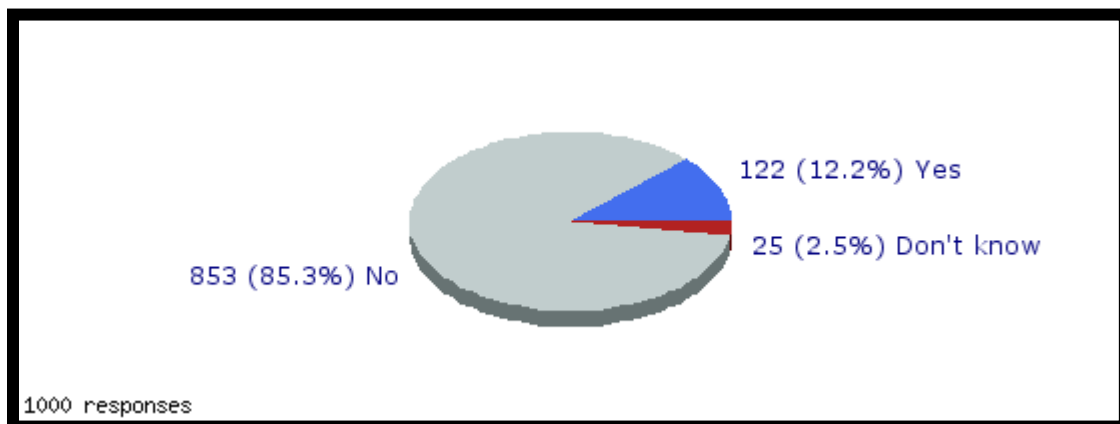
Youth Fishing License

Currently at the age of 16 a person must purchase an angling license. Should there be a requirement for angling licenses to be purchased at a younger age?

Youth Fishing License – Saskatchewan Residents



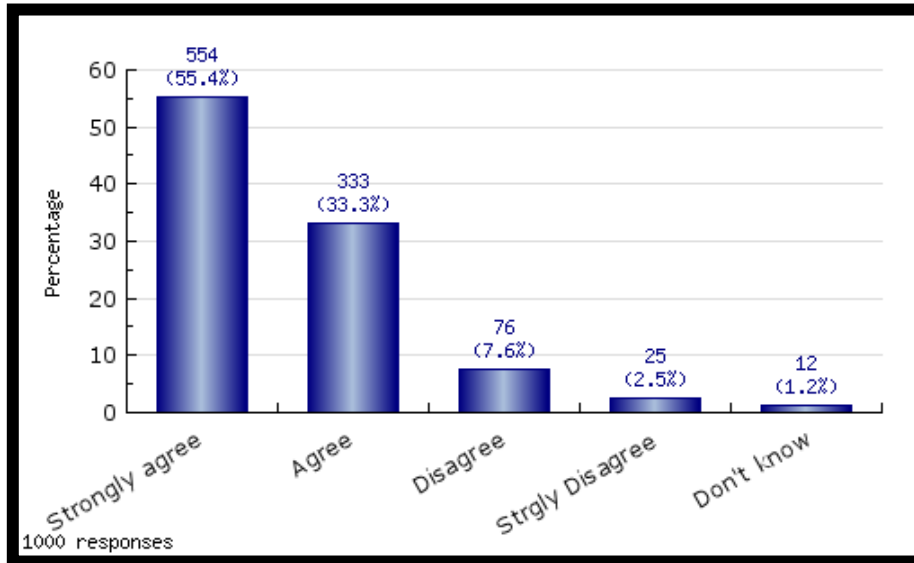
Youth Fishing License – Non-Saskatchewan Residents



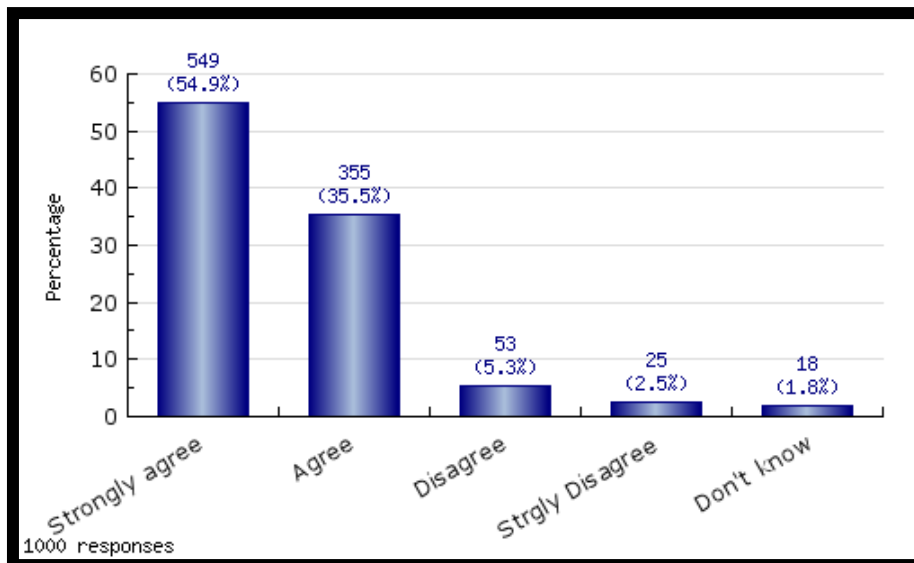
Environmental Accountability

Indicate your level of agreement with the following: “People and business that profit directly from the fisheries resource should have greater accountability for the conservation, protection, and sustainable use of these resources.”

Environmental Accountability – Saskatchewan Residents



Environmental Accountability – Non-Saskatchewan Residents



Appendix 2 – Commercial Fishing Survey Results

Some additional attitudinal, industry, and policy-related questions were asked of fishers. It should be noted that the survey quota was not met impacting the statistical relevance of the data. While this data is useful and has value in terms of insights into the industry, it does not have the statistical confidence of the other data collected in this report. 62 fishers were surveyed, just over 10% of all commercial fishers. Because of the size of the industry, it is very difficult to get a statistically confident sample.

License Price Elasticity

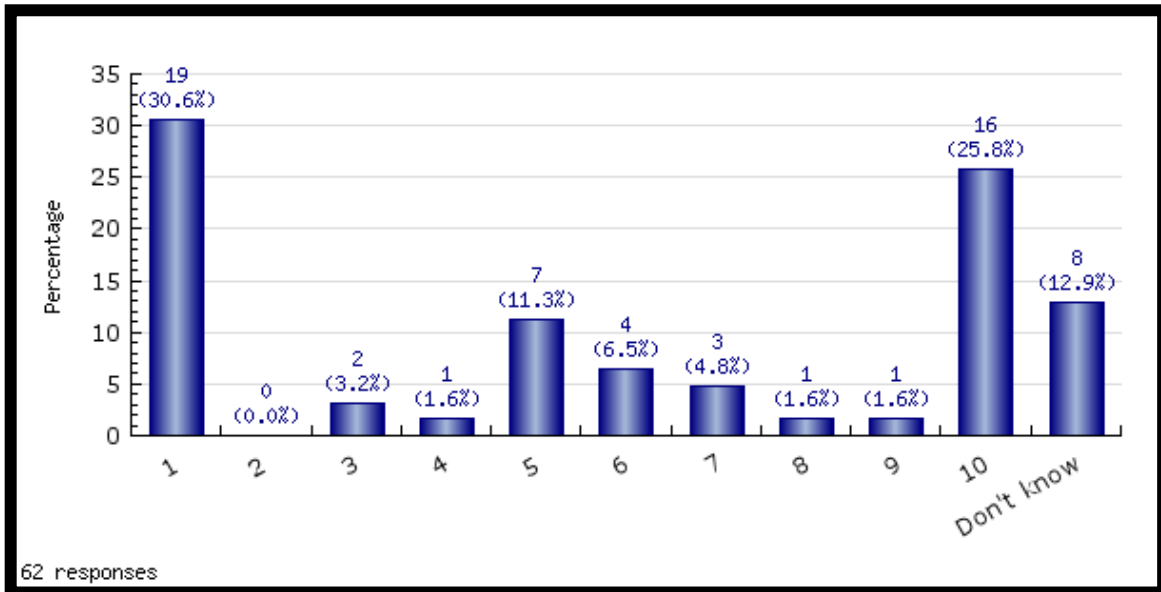
If the province were to increase the cost of licenses while dedicating all of the additional revenue to the Fish and Wildlife Development Fund which funds habitat and stocking programs, how much more would you be willing to pay for a commercial fishing license?

Willingness to pay additional licensing fees if directed to Fish and Wildlife Development Fund		
	Yes	No
\$3 increase	69.4%	30.6%
\$5 increase	54.8%	45.2%
\$10 increase	37.1%	62.9%
\$20 increase	22.6%	77.4%

Regulatory and Environmental Questions

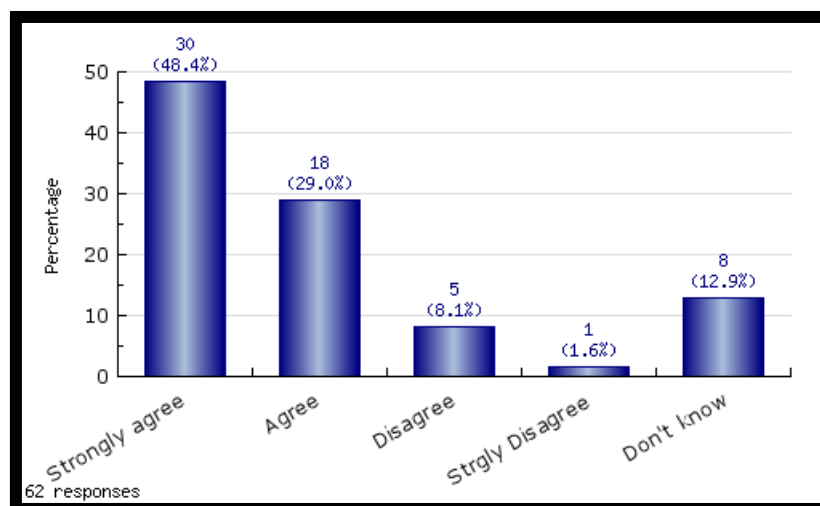
On a scale of 1 to 10, what should the overriding principle be when managing the fish stocks, where "1" is **absolute protection of the fish stocks with little economic benefits** and "10" is **minimal protection of the fish stocks with maximum economic benefits**.

Relative Importance of Protection of the Fish Stocks vs. Economic Value

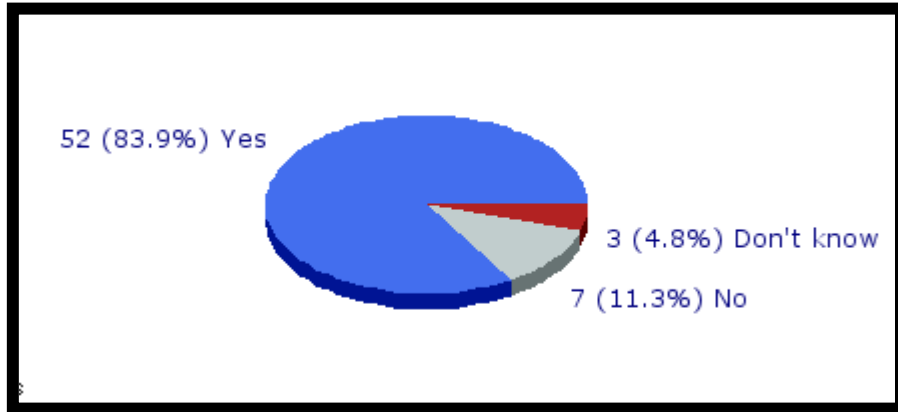


“People and business that profit directly from the fisheries resource should have greater accountability for the conservation, protection, and sustainable use of these resources.”

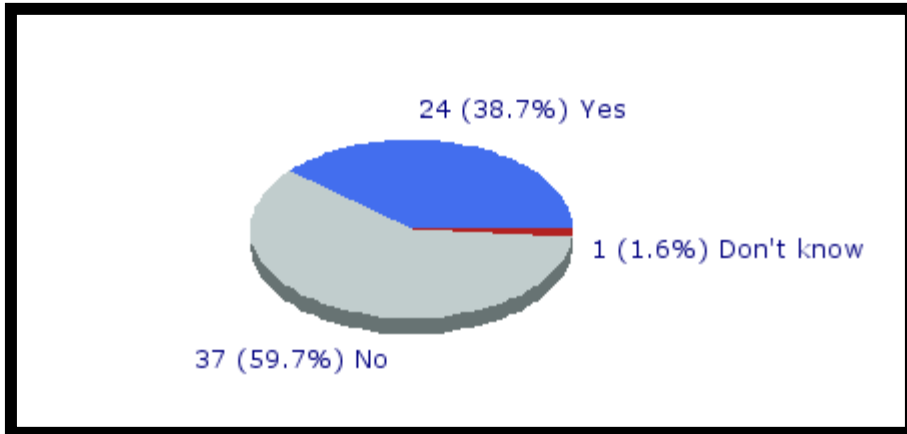
Accountability for Sustainable Use of Resources



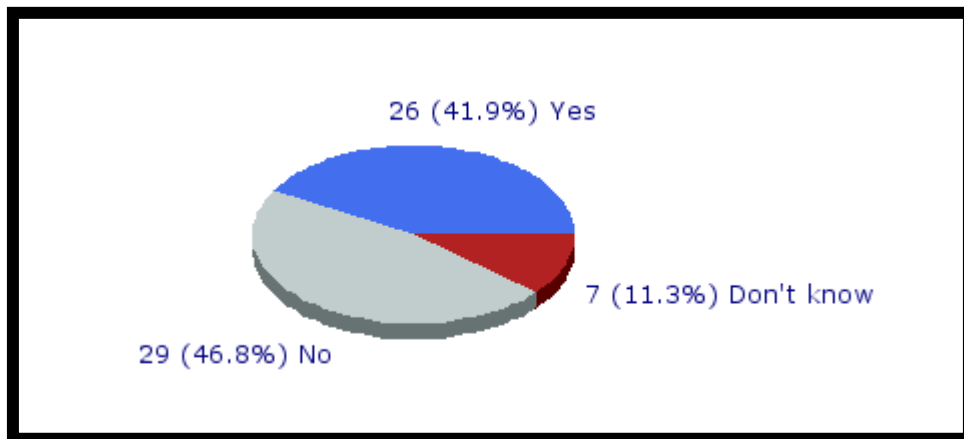
Are fishing regulations easy to understand?



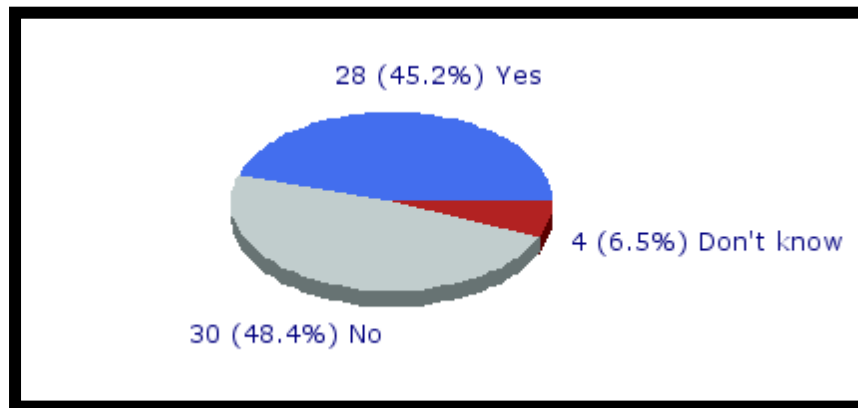
Are fishing regulations a barrier to expanding your business?



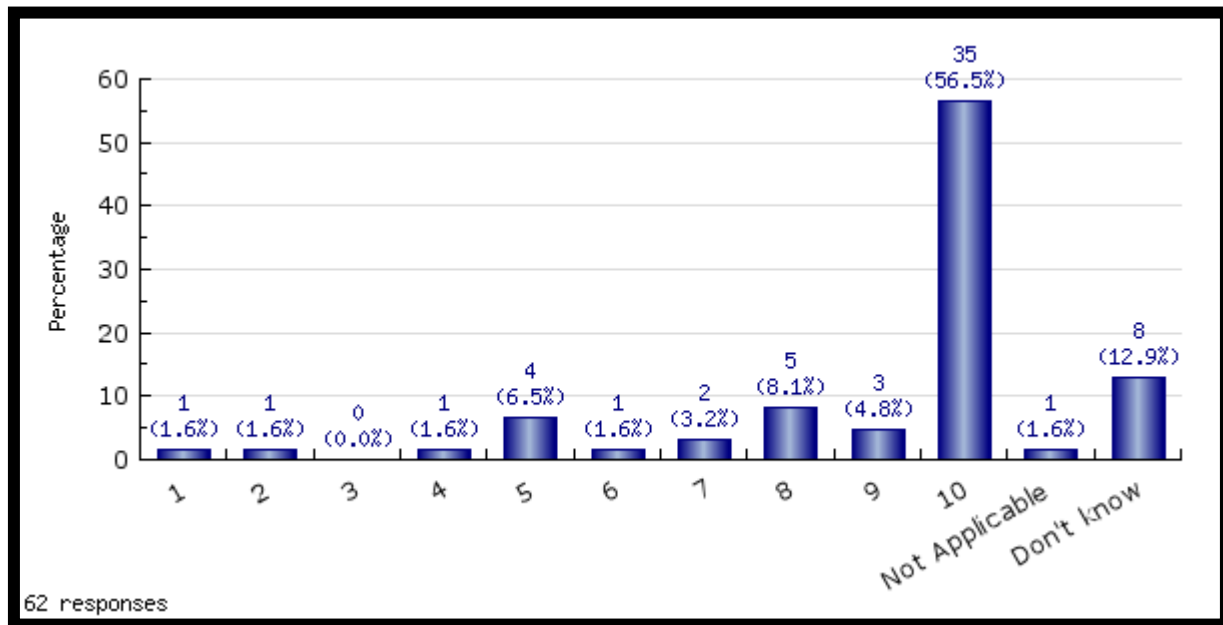
Do fishing regulations provide too much protection of the fish stocks?



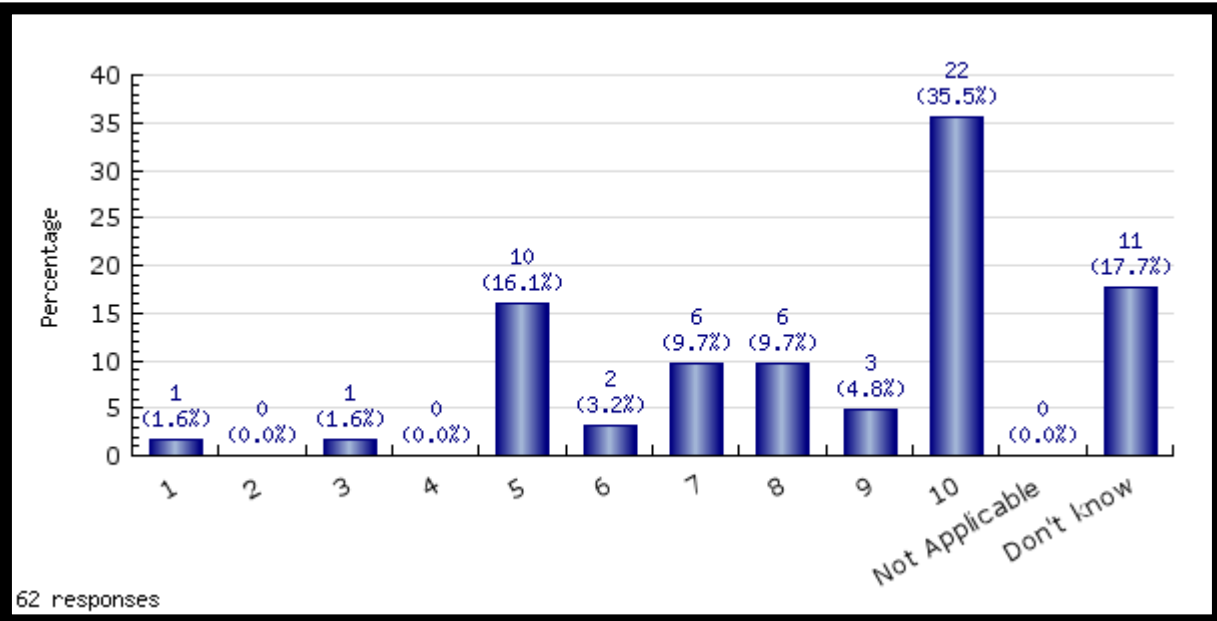
Are fishing regulations enforced regularly enough?



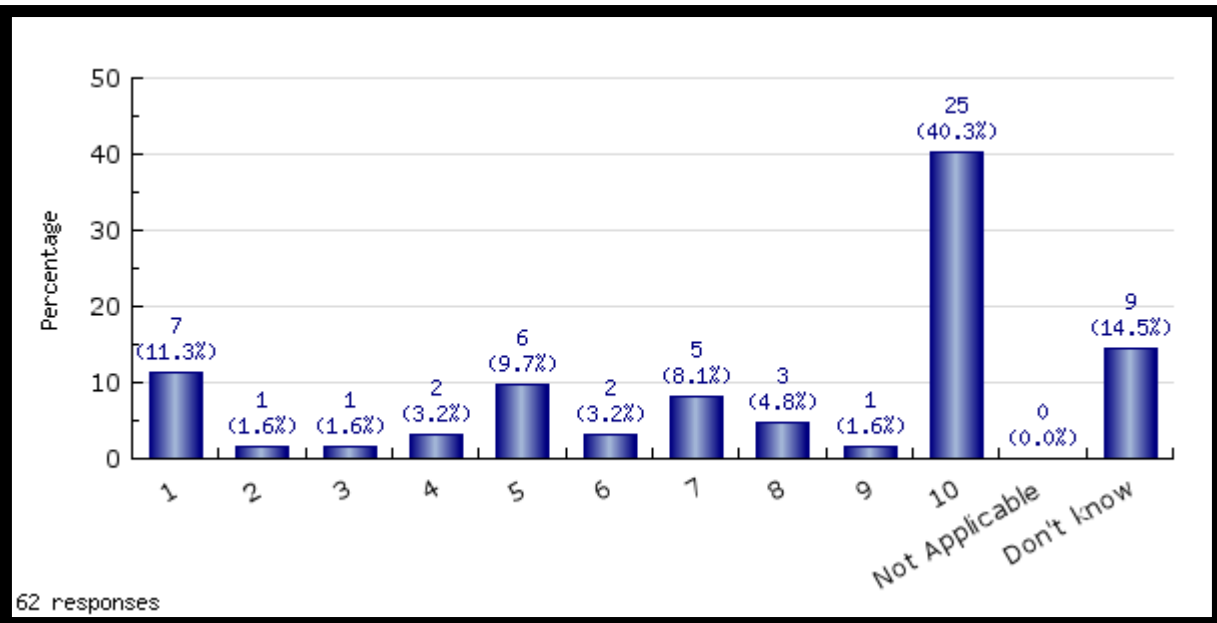
On a scale of 1 to 10 what do you feel is the importance of the local Fishermen's Cooperatives



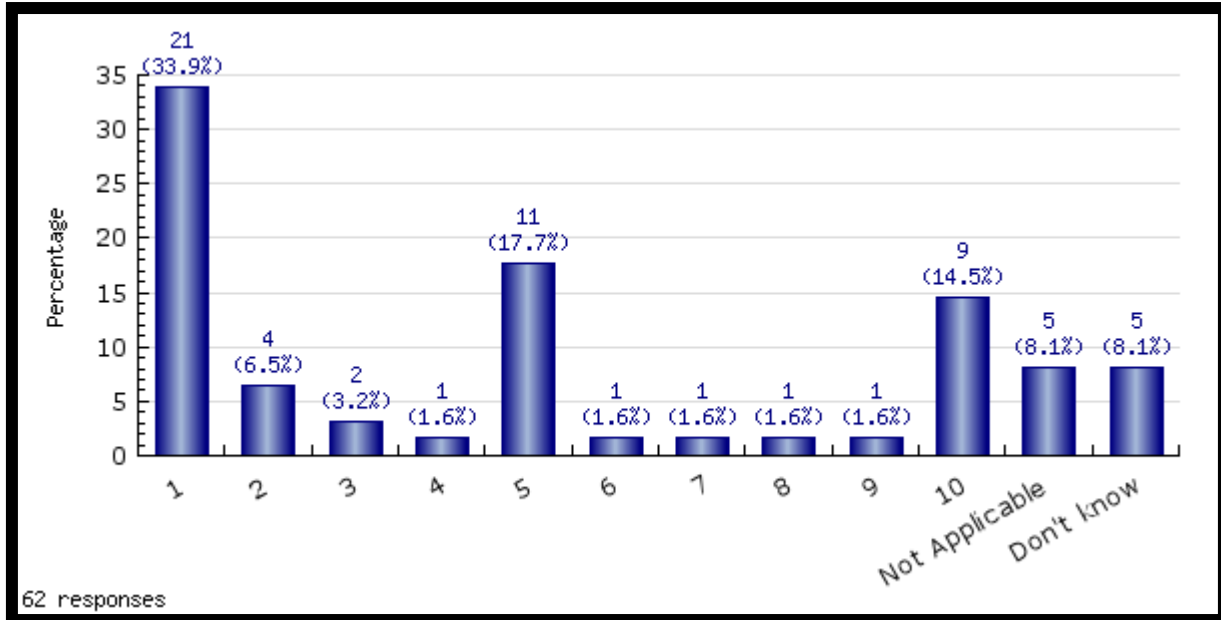
On a scale of 1 to 10 how important is it to simplify the fishing regulations



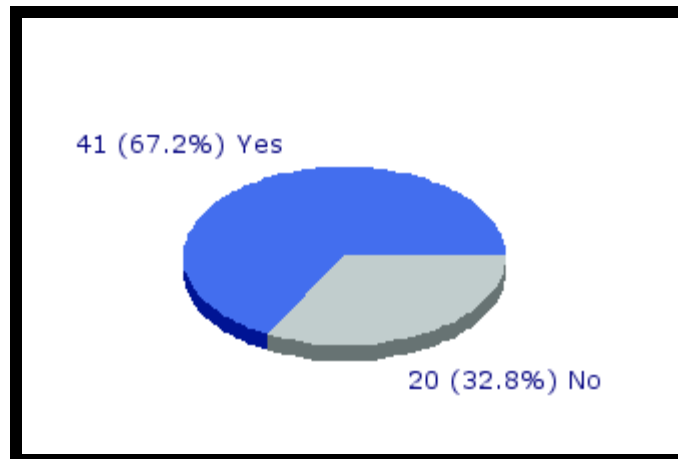
On a scale of 1 to 10 how important is it to control road access to remote northern lakes



On a scale of 1 to 10 how important is it to regulate technology usage such as fish finders and underwater cameras?

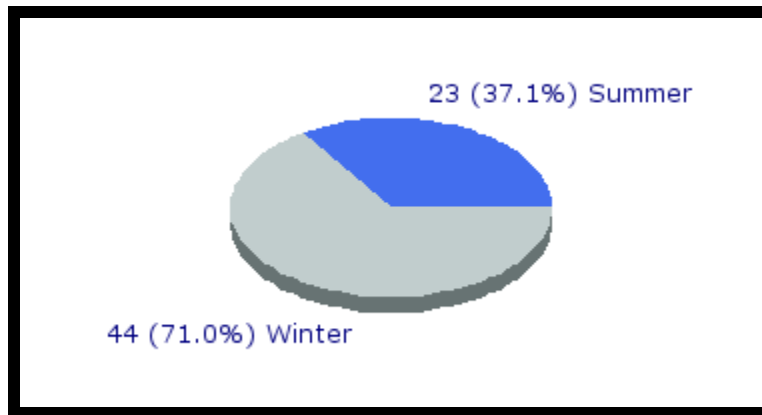


Would you like to have your own individual quota as opposed to the current lake quota method?

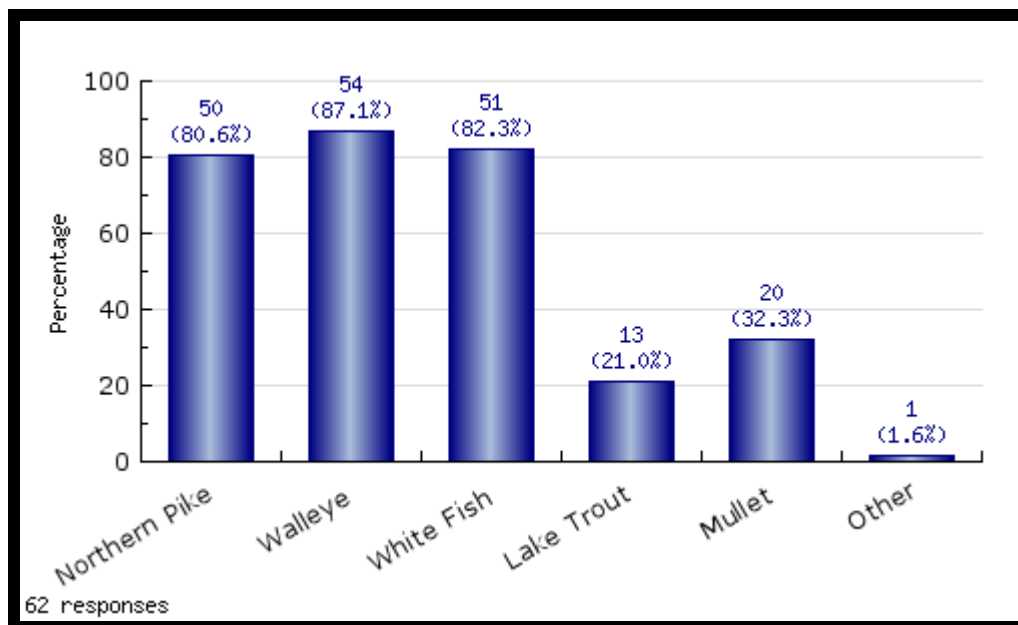


Industry Overview

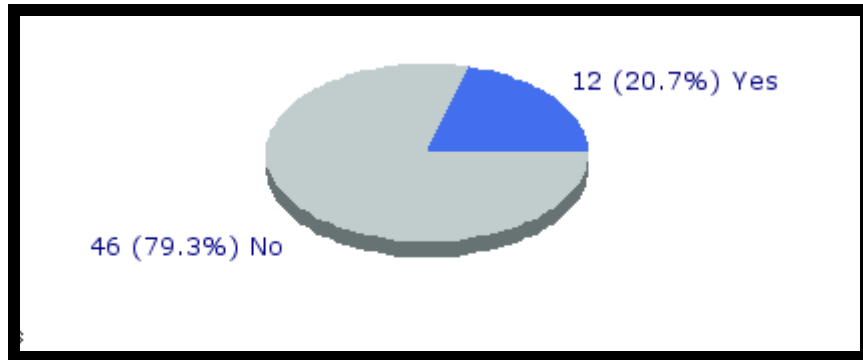
At what time of year do you fish?



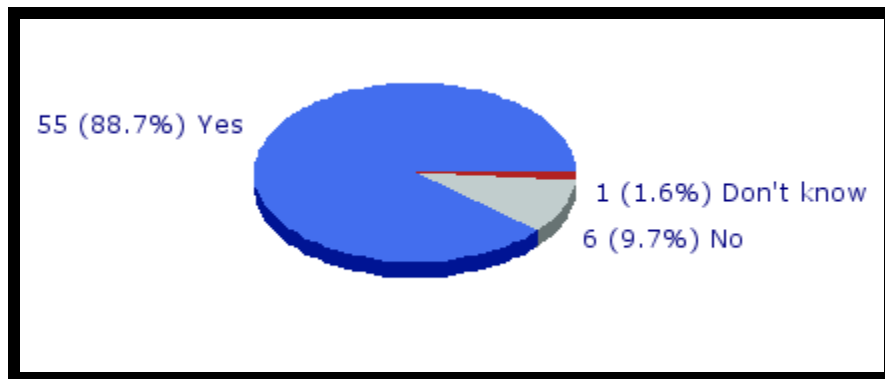
What type of fish are you targeting?



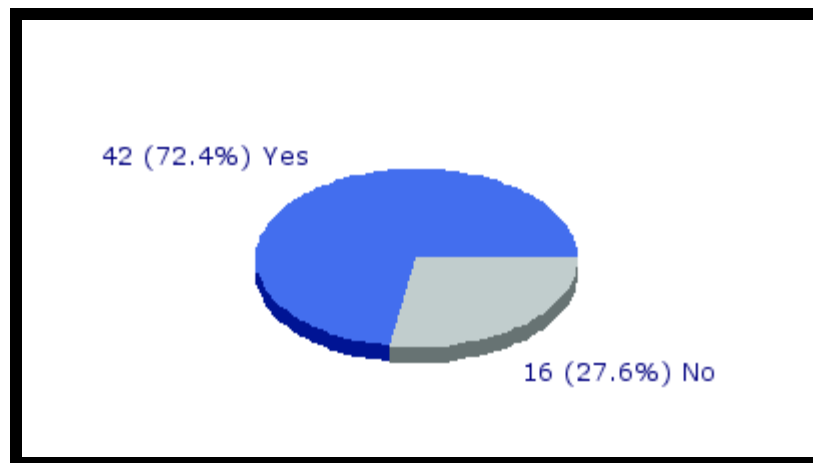
Do you peddle any portion of your fish catch?



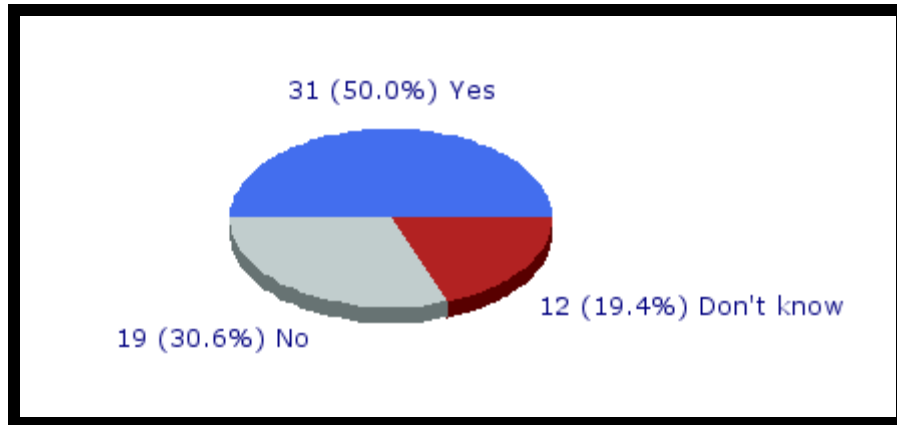
Are you of Aboriginal or Métis Ancestry?



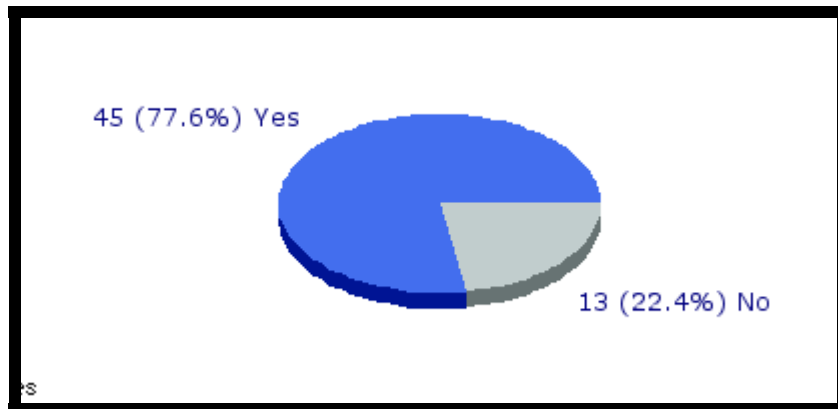
Do you have a second job when you are not fishing?



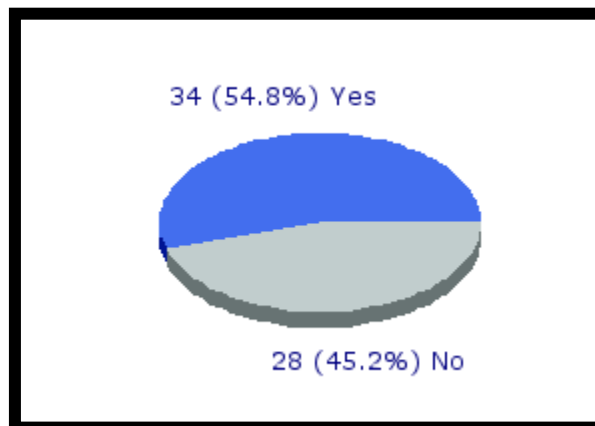
To the best of your knowledge do your helpers hold a job in the off-season?



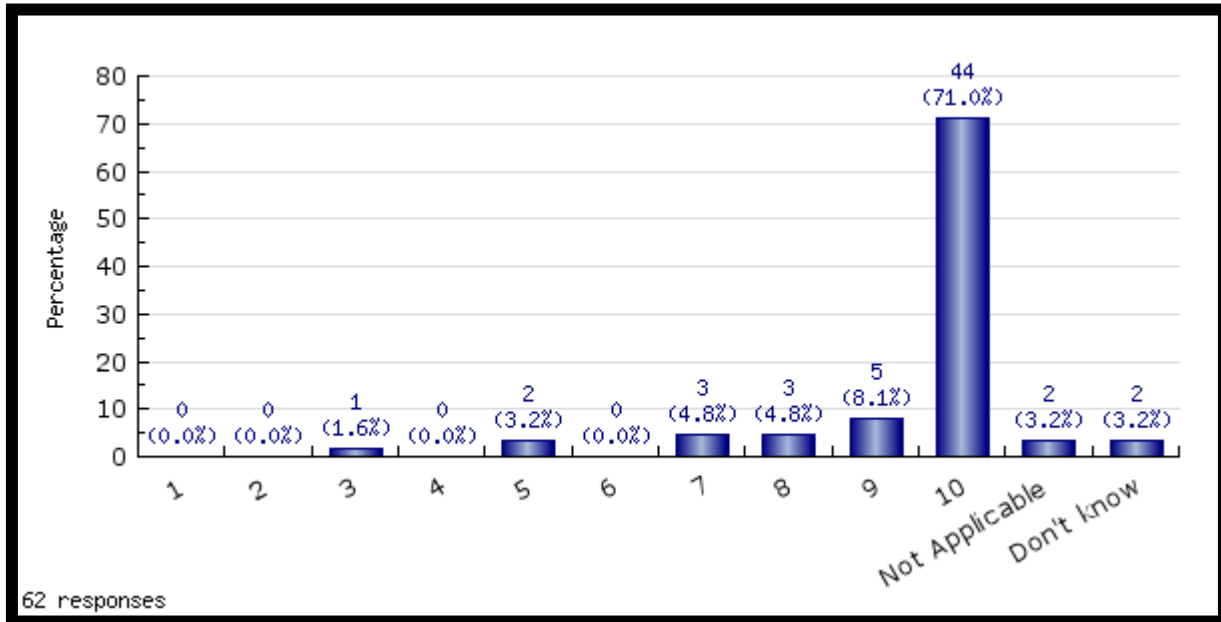
Do you belong to a fishermen's cooperative?



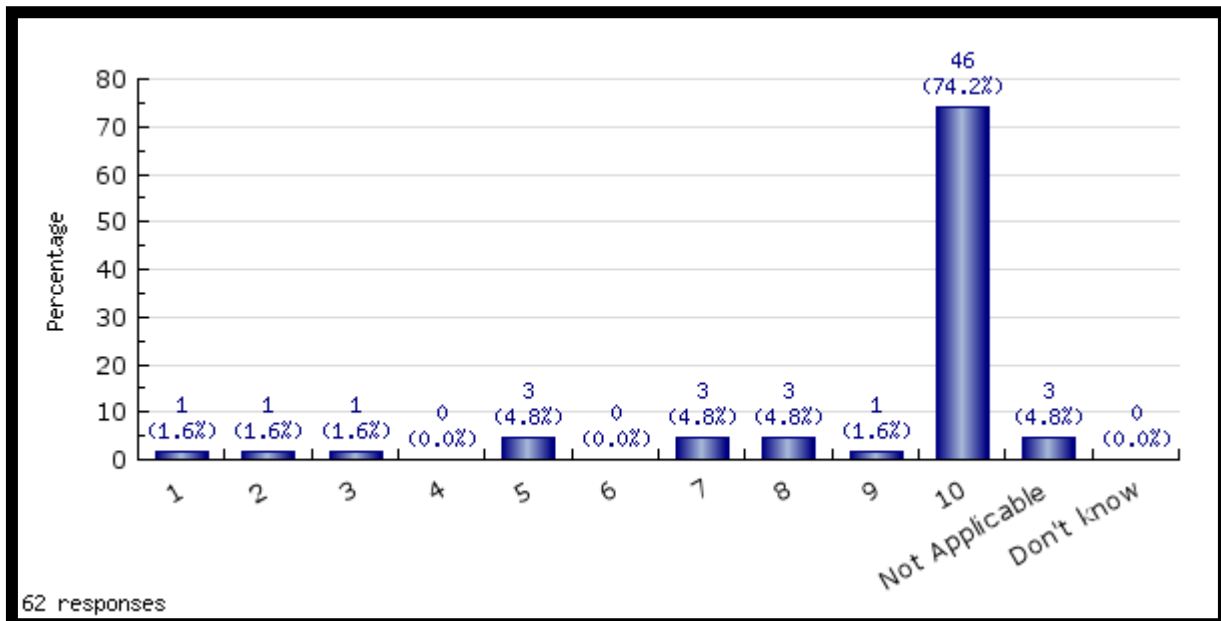
Do you feel fishing is a profitable industry?



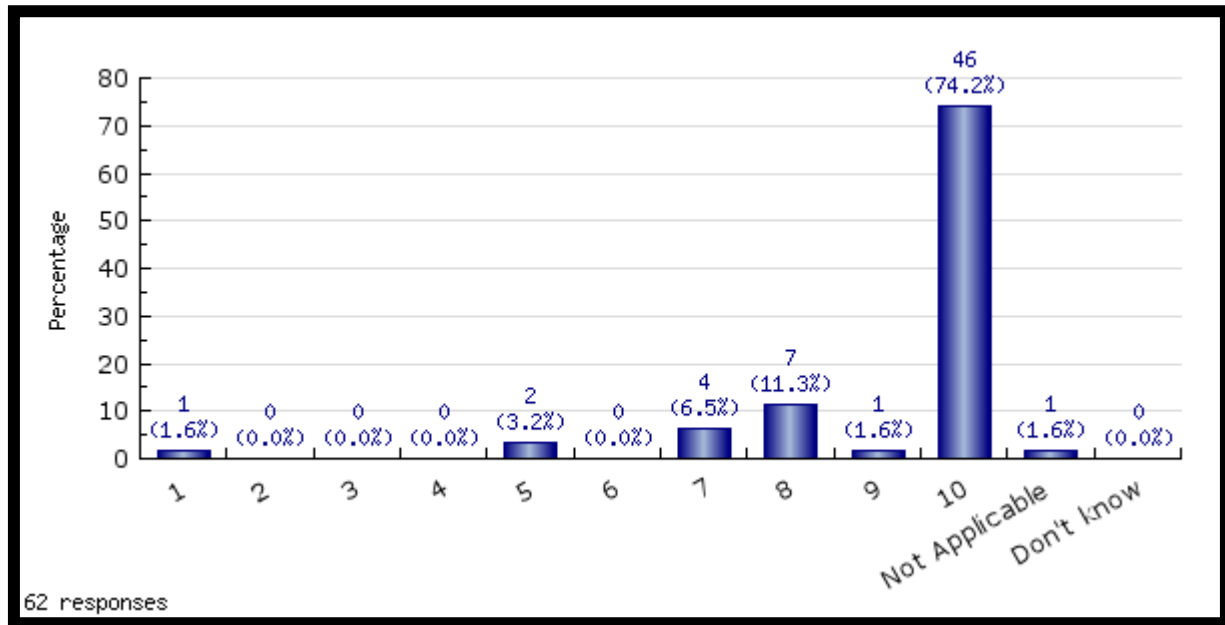
On a scale of 1 to 10 how important is fishing as a part of your culture, lifestyle or tradition?



On a scale of 1 to 10 how important is fishing in terms of carrying on the family business?



On a scale of 1 to 10 how important is fishing with regards to providing food for your family?



Appendix 3 – Fishing Region Map

