

Upper Arrow Seeding and Recreation Study

August 2001



Photo courtesy of Wendy Beauchamp

Prepared by: Marc Pedersen, BC Hydro Research Services

Prepared for: BC Hydro Strategic Environmental Initiatives Program
Evaluation of the Ancillary Benefits of Upper Arrow
Reservoir Drawdown Zone Revegetation Project

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APPENDIX – Telephone Survey

In 1998, BC Hydro through its Strategic Environmental Initiatives Program (SEIP) initiated a three-year project to examine ancillary benefits that have accrued due to revegetation efforts in the Upper Arrow Reservoir, south of Revelstoke dam. The goals of this project are:

- ❑ To document and quantify (where possible) the benefits of reservoir shoreline revegetation to fish, wildlife and recreational users.
- ❑ To provide recommendations on designing a revegetation strategy that will provide maximum benefits to fish, wildlife and recreational users.

Several component studies have been undertaken as part of the overall project including an analysis of vegetation and soils in the revegetated areas of the Upper Arrow reservoir, plant colonization mapping, fish utilization and benthic invertebrate production and bird use of the revegetated areas. Recreation use of the reservoir is one of the areas being investigated.

Environmental Issues in the Revelstoke Region

In listening to the residents of Revelstoke via 400 telephone interviews with them, there does not appear to be any environmental issues or concerns in the region that are weighing on their minds significantly more so than any others. In fact, the single largest group of individuals – three in ten – have no particular worries at all. While seven in ten individuals do table a variety of specific concerns, it is not until after these concerns are grouped together that a clear picture develops. Broadly speaking, of what worries residents do have, most relate to the reservoir's water level, water pollution, fish & wildlife habitat, air pollution, and logging practices. Please see Section 4.1 for a detailed account of the findings.

Seven in ten residents are at odds in naming any environmental issues that have subsided from being a front and center concern five to ten years ago. Only a relatively small proportion of residents point to air pollution (8%) as having settled down from being a major issue. While it is encouraging to note that it is specifically dust and dust storms that are perceived to be less troublesome than they once were, it is surprising to find that more residents do not identify this. Other residents feel that the logging practices in the region are now less worrisome than they were before, as well as issues relating to the drinking water, the dam, fish habitat, and slash-burning.

Attitudes of the Area Around the Upper Arrow Reservoir

Before engaging survey respondents in a dialogue about the Upper Arrow seeding program, they were first asked to think about the current reservoir system and its surroundings between Revelstoke and Shelter Bay on a number of different dimensions, and to what extent those dimensions may have changed over the past five to ten years. As detailed herein, it is pleasing to note that it was the respondents themselves who brought the seeding program into the discussion.

With the preface in mind, the majority of residents rate the shoreline areas around the Upper Arrow Reservoir between Revelstoke and Shelter Bay as either “excellent” or “good” (75%) rather than “fair”, “poor” or “very poor” in terms of the *amount of its green plant vegetation*. This positive sentiment is further complemented by the finding that the largest segment of individuals – 46 percent – believe that the amount of green plant vegetation has “improved” over the past five to ten years rather than “stayed the same” (37%) or “deteriorated” (9%). Among residents who believe there has been a considerable improvement in this regard, about nine in ten of them name the seeding program and re-growth – on an unaided basis – as being the primary reason for what they perceive to be a positive change.

Seven in ten residents rate the areas in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay as either “excellent” or “good” in terms of their *looks being pleasing to the eye* (70%). While the largest proportion of residents believe that the aesthetics of the area have stayed much the same (42%) over the past five to ten years, the balance of individuals are significantly more likely to feel that they have improved (34%) rather than worsened (16%). Among individuals feeling that the look of the areas are much better than they once were, close to eight in ten of them point to the seeding program as the impetus behind the change.

Nearly two in three residents assess the *air quality* in the Revelstoke area as either “excellent” or “good” in terms of *being free of pollution and dust* (64%). While 54 percent of them feel current air conditions are much the same as they were five to ten years ago, almost three times as many believe they have “improved” rather than “deteriorated” (31% versus 12%). Once again, among those who feel the air quality in the Revelstoke region has improved a great deal during this time, about eight in ten of them point to the seeding program and re-growth as being the main reason for the turnaround. Presumably, these residents understand the theory behind the seeding program and how it works to mitigate dust pollution when the reservoir level is low.

About six in ten residents rate the areas in or around the edges of the Upper Arrow Reservoir between Revelstoke and Shelter Bay favourably in terms of the *ability to participate in outdoor recreational activities* (59%). While 61 percent of individuals believe there has been no change over the past decade in the recreational opportunities the areas afford, twice as many feel there has been an improvement in this regard rather than a deterioration (24% versus 12%). Unlike the previous three dimensions investigated, no one reason stands out by itself as to why some residents feel the ability to participate in recreational activities in these areas has improved a great deal. Instead, these individuals point to a number of different reasons or even outcomes – easier access to the reservoir, more boat launches, the seeding program, a cleaner lake, and more recreational users. Please Section 4.2 for the complete findings.

The consensus among Revelstoke residents drops to under one-half in terms of the proportion rating *the quality of fish & wildlife habitat* in and around the Upper Arrow Reservoir as either “excellent” or “good” (47%). And while the largest segment of them believe that the quality of fish & wildlife habitat has “stayed the same” (39%) over the past five to ten years, this is the first dimension in which more residents believe it has “deteriorated” (33%) rather than “improved” (17%).

Though not referenced with the same overwhelming frequency as on some of the other dimensions, the seeding program and re-growth emerges once again at the top of the list of reasons why a few individuals believe the fish & wildlife habitat has improved.

Public sentiment weakens somewhat specifically in regards to the *water level on the Upper Arrow Reservoir being suitable for recreational activities*. While the largest group of residents do rate the water level as either “excellent” or “good” (38%), the total proportion rating it as “poor” or “very poor” (30%) is not too far behind and, in fact, is larger than the proportion rating it as “fair” (24%). In comparing the suitability of the water level to what it was about a decade ago, just over one-half of residents believe it has stayed the same (53%). Others, however, are twice as likely to say that it has worsened rather than improved (28% versus 13%). Among the very few individuals who feel that the water level has become more conducive to recreational activities, about one-half attribute it to the dam’s operations and efforts to better stabilize the reservoir’s water level.

Awareness of the Upper Arrow Seeding Program

While only about one in ten residents are able to name the shoreline seeding program as an environmental initiative currently underway in their region that relates to the Upper Arrow Reservoir between Revelstoke and Shelter Bay, awareness does shoot to eight in ten on an aided basis. These residents do not need to be reminded, however, of the program’s primary purpose – eight in ten of them knowing that it is to help mitigate dust storms that can occur when the reservoir’s water level is low. Further to this, it is pleasing to note that nearly two in three of those aware of the seeding program name BC Hydro, unaided once again, as its main sponsor.

Perceived Benefits of the Upper Arrow Seeding Program

When asked to think about the impact of the seeding program on the Upper Arrow Reservoir between Revelstoke and Shelter Bay, an overwhelming majority of residents are in agreement that it has *improved the aesthetics of the areas in that they are now more pleasing to look at* (89%), and that it has been *effective in controlling for dust storms* (87%). While the consensus in opinion does weaken somewhat, many are also in agreement that the seeding program has *improved the quality of outdoor recreational activities* in and around the reservoir system (71%), and that it has *improved the fish & wildlife habitat values* in and around it (63%). Of course, the specific level of agreement on these last two dimensions does vary from person to person, depending on which types of outdoor recreational activities they use the area for.

For each of the four dimensions, individuals not in agreement are significantly more likely to be neutral in their opinion rather than critical or contentious of the program's success.

Recreational Usage of the Upper Arrow Reservoir

About three in four Revelstoke residents make use of the areas in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay to participate in outdoor recreational activities – most doing so with other family members or friends. While they enjoy many different outdoor pursuits in and around the system, troll fishing, hiking/walking, shoreline fishing, camping, cycling, fly fishing and canoeing/kayaking are among the most popular. Other major activities are swimming, power boating, hunting and cross country skiing. Please see Section 4.5 for the complete findings.

While those who participate in outdoor recreational activities in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay make use of many of its different areas, three emerge as being most widely popular. Indeed, approximately seven in ten of these individuals each report that they typically go to 12 Mile, 6 Mile or Blanket Creek to participate in their recreational activities of choice. Nearly two in three individuals who make use of the Upper Arrow system often visit the area around the airport, while fewer visit Cartier Bay, Montana Slough, Machete Island or Shelter Bay. Rounding out the top ten list of favourite recreational sites are Begbie Falls and Akolkolex. Of course, some outdoor pursuits are more popular at certain sites – as detailed in Section 4.5.

It appears as though the Upper Arrow Reservoir between Revelstoke and Shelter Bay has become more popular and heavily used among area residents over the past five to ten years. Although just under one-half of current users say their recreational usage of the area has stayed the same during this time, many more say they are visiting the areas more often (33%) rather than less often (18%).

Individuals using the areas more often than they have in the past frequently reason that they have had a lifestyle change and are now more interested in such activities, that they now have more free time to participate in such activities, and that there is now easier access to the areas – some having moved closer to them. Those using the areas less often than they did five to ten years ago comment that they have had less time to do so, or that they are less interested, believe that they are getting too old, or feel that the water level of the reservoir has been less than optimal for their specific activities of interest.

Arrow Lake Reservoir was created in the 1960s and 1970s as a result of the construction of the Hugh Keenleyside Dam near Castlegar. While the reservoir plays a prominent role as one of three flood control and energy storage facilities built under the Columbia River Treaty, it also serves the communities around it by way of the many different outdoor recreational activities it affords. With the Upper Arrow Reservoir's adjacency to Revelstoke, it has provided that city's residents an outdoor playground for a host of different pursuits such as fishing, boating, swimming, hiking, cycling, and wildlife viewing – just to name a few.

The Upper Arrow Reservoir's proximity to Revelstoke has, however, presented a unique problem in the past to the region and its residents – namely, dust storms. To facilitate flood control and power generation under the terms of the Columbia River Treaty, the reservoir is drawn down annually from about November to June, with water levels at their lowest in the spring before snowmelt and runoff. During these times, exposed shorelines that do not support natural vegetation have been subject to severe dust storms when windy conditions have arisen.

Having observed this dust storm phenomena from its onset in the 1970s, BC Hydro took steps to mitigate them by seeding the exposed reservoir areas with fall rye. By doing so, plant vegetation grows in the areas where at one time was only dirt, helping to prevent dust and dirt becoming airborne when the reservoir water level is low. A more formal dust control program was implemented in 1986 which sees the annual seeding of the most vulnerable shoreline areas of the reservoir system – particularly those between Revelstoke and Shelter Bay.

With this background in mind, BC Hydro's environmental management teams believe it is important to survey Revelstoke residents on two main fronts – their awareness and attitudes of the seeding program, and their recreational usage of the area. The primary objectives of this study are to:

- ☐ Gain an insight into residents' top of mind environmental concerns in the Revelstoke area;
- ☐ Gain an insight into residents' perceptions of the reservoir system – both as it is now and how it may have changed over the past five to ten years;
- ☐ Measure awareness of the seeding program, understanding of its purpose, and its sponsor;
- ☐ Measure the perceived impact of the seeding program on the areas in and around the reservoir;
- ☐ Measure recreational usage of the area, participation rates in the different outdoor activities, and what specific areas are most commonly visited.

A total of 400 telephone interviews were conducted with a random sample of adult residents of Revelstoke.

The sample for this study was randomly drawn from telephone listings provided by Canadian Survey Sampler, offering the most advanced and up-to-date sampling methods available. This method provides an up-to-date list of all Revelstoke residential telephone numbers, including a special listing of possible unlisted numbers. As such, it ensures the correct proportion of listed and unlisted telephone numbers are indicated in the sample. Within each selected household, interviews were conducted with the person having the next birthday, minimizing any inherent response bias. A rigorous callback appointments system for households and selected individuals also ensured response bias was kept to a minimum.

Quotas were applied by gender and age in an effort to ensure the sample was representative of Revelstoke based on current Statistics Canada data. However, to correct for an under-representation of 18 to 35 year olds, the data was weighted at the tabulation stage such that the sample did truly reflect the area's age composition.

Interviewing was conducted during the afternoons and evenings between July 12th and July 24th, 2001, by MarkTrend Research in Vancouver.

Margins Of Error

At the 95 percent level of confidence, the maximum margin of error for the total sample size of 400 is +/- 4.9 percent. This is based on a 50/50 split in consensus to any given question. As the level of consensus on a question increases, the margin of error decreases. For example, for the total sample size of 400, if 90 percent of residents respond a particular way to a question, then the margin of error at the 95 percent level of confidence decreases to +/- 2.9 percent.

5.1 Environmental Issues in the Revelstoke Region

There does not appear to be any environmental issues in the Revelstoke area that can be singly deemed to be most pressing or in greatest need of mitigation. Instead, residents point to an array of different concerns that can be categorized into one of five broad groups – the reservoir water level, water pollution, air pollution, fish & wildlife habitat, and logging practices. Interestingly, few residents mention dust or dust storms as an environmental issue – either currently, or as one that has subsided over the past five to ten years.

Most Important Environmental Issue Currently in the Region

When Revelstoke residents are asked, on an unaided basis, what they feel is the most important environmental issue facing their region of the province, no one single issue emerges to be head and shoulders above the rest. In fact, the largest segment of residents – nearly three in ten – either feel there are no particular pressing environmental issues, or are simply unable to think of any. Of what specific concerns area residents do table, most can be categorized into one of five broader groups - water levels, water pollution, fish & wildlife habitat, air pollution and logging practices.

About one in five residents make references to the **reservoir water level** (19%) as the most important environmental issue facing their region of the province. While some of these individuals specifically allude to only low water levels as being troublesome, others see the problem as being fluctuating water levels, and specifically because of the reservoir and dam operations. Interestingly, it is not a few specific groups of residents who identify water levels as an issue – it springs up fairly consistently among all the demographic groupings, including both those who do and do not participate in outdoor recreational activities in the area.

Again, about one in five residents feel that **water pollution** (18%) is the most critical environmental issue facing their area of the province. While some individuals have only general concerns in this regard, others specifically cite worries around drinking water pollution, chlorine in the water, or water pollution due to logging. Please reference the table on the following page for the specific findings.

Roughly one in six residents point to **fish & wildlife habitat** (17%) as being the most important environmental issue in the Revelstoke area. Those who participate in outdoor recreational activities in or around the reservoir, particularly fishermen, are significantly more likely than others to have concerns of the fish and wildlife populations.

About one in six residents also make various references to *air pollution* (16%) as the most serious environmental issue in their region of the province. Their specific concerns relate to air pollution from sawmills such as dust and ash, vehicle emissions, and dust storms.

Table 5.1-1
Most Important Environmental Issue in the Region
- unaided mentions -

Base	Total 400 %
<u>Net Reservoir Water Level</u>	19
Low water levels	10
Reservoir/dam water levels & fluctuations	9
<u>Net Water Pollution</u>	18
Water pollution (general)	9
Drinking water pollution	5
Chlorine in the water	3
Water pollution – logging	2
<u>Net Fish & Wildlife Habitat</u>	17
Fish habitat/population	10
Wildlife habitat/population	9
<u>Net Air Pollution</u>	16
Air pollution - sawmills/dust/ash	10
Air pollution (general)	4
Dust/dust storms	2
Air pollution – vehicles	1
<u>Net Logging Practices</u>	11
Responsible/sustainable logging practices	4
Clear-cutting	3
Over-logging	3
Restrictions on logging	2
<u>Other</u>	
Selling out water to the U.S.	4
Garbage/landfills	3
Other	8
Nothing in particular	23
Don't know	5

Roughly one in ten Revelstoke residents feel that *logging practices* (11%) is the most important environmental concern in their area. They want to see the adoption of sustainable and restricted logging practices to alleviate what clear-cutting and over-logging has done in the past. While references to logging practices are most prevalent among those at least 35 years old, they also step up through the education brackets, registering highest among those who have earned university degrees.

Important Environmental Issues of the Past that have Abated

Residents of Revelstoke appear to be hard-pressed in naming any environmental issues that have subsided from what may have been a front and center concern five to ten years ago. Indeed, a total of seven in ten individuals fail to identify any environmental concern of the past that has since gone away. Of course, there can be two different interpretations made of this. Perhaps there were not any major environmental concerns in the region five to ten years ago, or perhaps there were but those issues have failed to be alleviated during this time. Then again, findings from the previous section suggest that there is not one critical issue currently facing the region.

Table 5.1-2
Important Environmental Issues of the Past that have Abated
 - unaided mentions -

Base	Total 400 %
<u>Net Air Pollution</u>	8
Dust/dust storms	7
Air pollution - sawmills/dust/ash	2
<u>Net Logging Practices</u>	8
Clear-cutting	4
Responsible/sustainable logging practices	3
Reforestation	2
<u>Other</u>	
Drinking water pollution	6
The Dam	3
Fish habitat/population	2
Slash-burning	1
Other	4
Nothing in particular	60
Don't know	10

Only a relatively small proportion of residents point to air pollution (8%) as having subsided quite considerably over the past five to ten years. While it is encouraging to note that it is specifically dust and dust storms that are perceived to have been diminished over this time, it is surprising to find that more residents have not recognized this. Other residents feel that the logging practices (8%) in the region are now less worrisome than they once were, as well as issues relating to the drinking water (6%), the dam (3%), fish habitat (2%) and slash-burning (1%).

5.2 Attitudes of the Area Around the Upper Arrow Reservoir

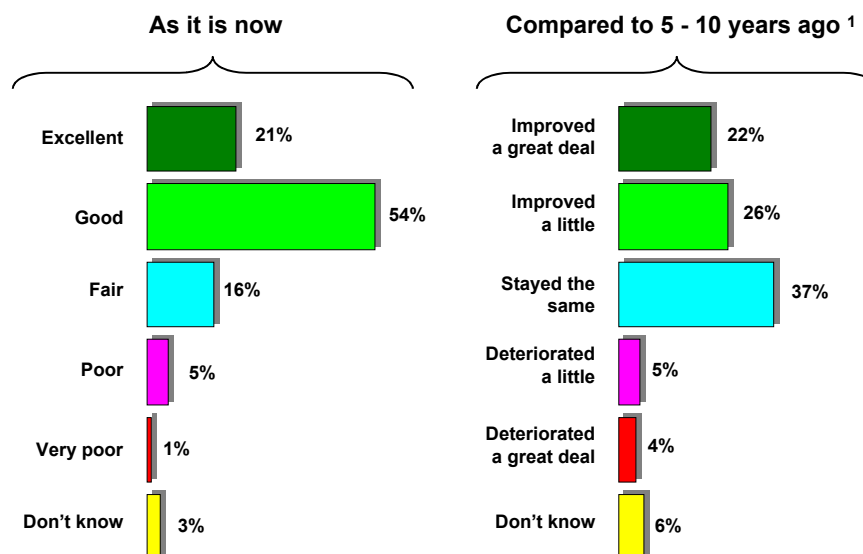
The majority of Revelstoke residents speak favourably of the air quality in their region, and with particular reference to the Upper Arrow Reservoir between Revelstoke and Shelter Bay, favourably of the amount of its green plant vegetation, its aesthetics, and the recreational opportunities it affords the community. It is particularly pleasing to find that among those believing that the area has improved on these fronts, most point to the seeding program and re-growth as being the reason for the change. On the other hand, significantly fewer individuals are keen on the quality of the reservoir's fish & wildlife habitat, or the suitability of its water level for recreational activities – three in ten believing that they have deteriorated over the past decade.

Amount of Green Plant Vegetation

The majority of residents, three in four, evaluate the shoreline areas around the Upper Arrow Reservoir between Revelstoke and Shelter Bay as either “excellent” (21%) or “good” (54%) in terms of the *amount of their green plant vegetation*. While this is very good news, it is even more pleasing to note that these findings reflect a perceived change to the area, with the largest segment of residents believing that the amount of green plant vegetation has either “improved a great deal” (22%) or “improved a little” (26%) over the past five to ten years.

Figure 5.2-1

Amount of Green Plant Vegetation around the Edges of the Upper Arrow Reservoir



¹ Excludes those who have lived in Revelstoke for less than 5 years

It is encouraging to note that the total proportion of those believing that there has been an increase in green plant vegetation climbs to 51 percent among those who participate in outdoor recreational activities in the area – arguably, those who are in the best position to make such a judgement.

Because men are considerably more likely than women to engage in such outdoor activities (as detailed in Section 4.5), they too are more likely than their female counterparts to believe the shoreline edges have become greener during this time (56% versus 30%). Residents who have lived in the Revelstoke area for at least 15 years are more likely than those who have lived in the region for fewer years to believe the shoreline areas of the Upper Arrow Reservoir have greened up over the past decade.

Table 5.2-2
Amount of Green Plant Vegetation around the Edges of the Upper Arrow Reservoir

	Unweighted Base		As it is now			Compared to 5 – 10 years ago		
			Excellent/ Good	Fair	Poor/ Very Poor	Total Improved	Stayed the same	Total deteriorated
Total	400	%	75	16	6	48	37	9
<u>Gender</u>								
Men	211	%	76	17	6	56	29	9
Women	189	%	74	15	5	30	47	10
<u>Years in Revelstoke</u>								
Less than 5 years	35	%	84	9	6	n/a	n/a	n/a
5 to 9 years	56	%	69	19	10	34	43	10
10 to 14 years	51	%	81	11	2	39	42	11
15 to 24 years	75	%	73	16	5	54	30	10
25 years or more	183	%	73	18	6	53	37	8
<u>Participate in Outdoor Rec. Activities</u>								
Yes	290	%	77	15	7	51	35	9
No	110	%	70	17	3	27	44	10
<u>Type of Outdoor Enthusiast</u>								
Light user	60	%	72	18	8	47	42	8
Moderate user	169	%	79	13	7	48	35	10
Heavy user	59	%	75	19	5	59	29	9

Although “heavy outdoor recreational enthusiasts” (defined in Section 4.5) evaluate the amount of current green vegetation much the same as “moderate” and “light” enthusiasts, they are more likely than them to say that it has improved over the past five to ten years.

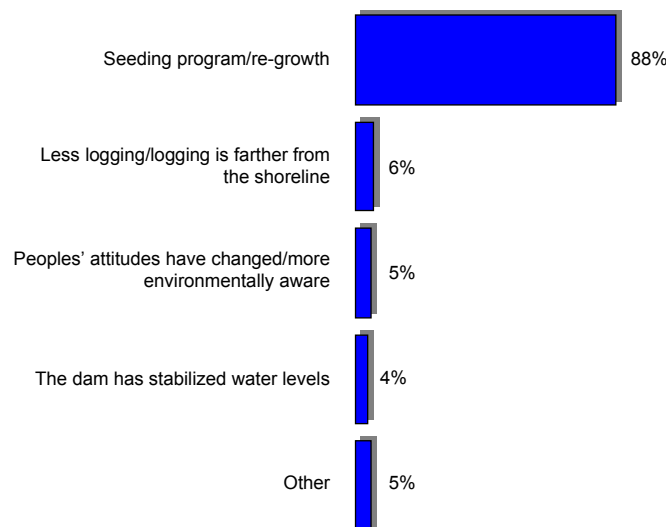
Reasons for saying “Improved A Great Deal”

Among those who believe the amount of green plant vegetation around the shoreline areas of the Upper Arrow Reservoir between Revelstoke and Shelter Bay has improved a great deal, the overwhelming majority of them point to the seeding program and re-growth as being the reason behind the change (88%). This one finding is among several important pieces of evidence of the seeding program’s success, largely because of the consensus in opinion, but also because the seeding program is referenced on an unaided basis. Again, outdoor recreational enthusiasts and men are significantly more likely than their counterparts to believe the seeding program is responsible for the greening of the area.

Figure 5.2-3

Reasons for Believing the Amount of Green Plant Vegetation has Improved a Great Deal

- unaided mentions -



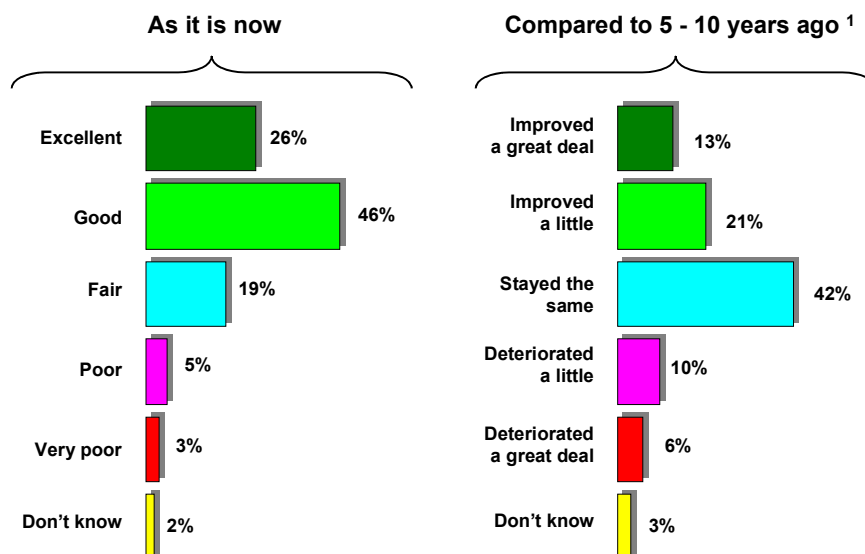
Relatively few residents who believe that the shoreline areas of the Upper Arrow Reservoir have become ‘greener’ over the past five to ten years point to other reasons. Please reference the chart above for the complete findings.

Look of the Areas

Seven in ten residents rate the areas in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay as either “excellent” (26%) or “good” (46%) in terms of their *looks being pleasing to the eye*. Evidence suggests that this may have not always been the case as about one in three individuals feel the areas’ aesthetics have either “improved a great deal” (13%) or “improved a little” (21%) over the past five to ten years. However, the largest segment of residents – about four in ten – believe that the look of the areas has stayed much the same over this time.

Figure 5.2-4

Look of the Areas in and around the Upper Arrow Reservoir



¹ Excludes those who have lived in Revelstoke for less than 5 years

For the most part, current evaluations of the aesthetics of the areas in and around the Upper Reservoir are much the same among the different demographic and classification groups. The exceptions are that those less than 35 years old and “heavy” or “moderate” outdoor enthusiasts are more likely than others to grade the areas favourably in this regard.

In terms of the perceived change in the areas' aesthetics, the proportion of residents believing they have improved steps up somewhat with age, from 27 percent among those less than 35 years old to 37 percent among those 55 years old or older.

Table 5.2-5
Look of the Areas in and around the Upper Arrow Reservoir

	Unweighted Base		As it is now			Compared to 5 – 10 years ago		
			Excellent/ Good	Fair	Poor/ Very Poor	Total Improved	Stayed the same	Total deteriorated
Total	400	%	72	19	8	34	42	16
<u>Gender</u>								
Men	211	%	74	17	8	35	43	18
Women	189	%	71	20	9	29	50	13
<u>Age</u>								
18 – 34	73	%	85	13	2	27	50	13
35 – 54	224	%	67	22	10	32	45	17
55 +	103	%	68	20	9	37	44	15
<u>Years in Revelstoke</u>								
Less than 5 years	35	%	79	11	6	n/a	n/a	n/a
5 to 9 years	56	%	68	25	7	23	51	20
10 to 14 years	51	%	81	10	5	38	48	11
15 to 24 years	75	%	78	12	8	33	49	14
25 years or more	183	%	66	24	8	38	43	17
<u>Participate in Outdoor Rec. Activities</u>								
Yes	290	%	71	19	8	35	42	18
No	110	%	75	17	5	24	57	10
<u>Type of Outdoor Enthusiast</u>								
Light user	60	%	65	23	9	40	51	7
Moderate user	169	%	73	18	8	38	39	18
Heavy user	59	%	73	19	7	25	45	28

Individuals that participate in outdoor recreational activities in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay are significantly more likely than others to feel that the areas' aesthetics have improved over the past five to ten years in terms of being pleasing to the eye. Among these enthusiasts, however, the proportion sharing this sentiment steps down with usage, decreasing from 40 percent among "light" users to 25 percent among "heavy" users. In fact, among the "heavy recreational enthusiasts", there is a higher proportion of those who feel that the look of the areas in terms of being pleasing to the eye has deteriorated rather than improved. While there is not any evidence to explain the reason for their sentiment, it is important to be especially cognizant of the views of "heavy" users as they likely know the region better than their counterparts.

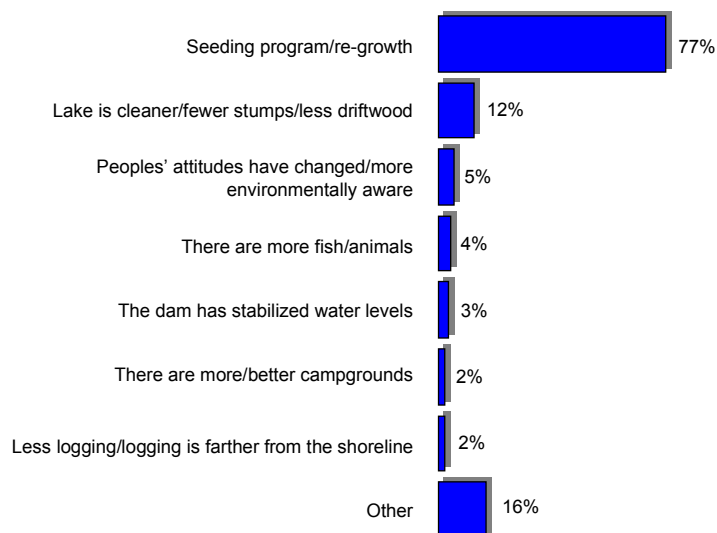
Reasons for saying “Improved A Great Deal”

Very much similar to opinions of the areas’ green plant vegetation, the majority of those believing that the look and aesthetics of the Upper Arrow area have improved a great deal over the past five to ten years point to the seeding program and re-growth as being the main reason for the change (77%). Those who use the area to participate in outdoor recreational activities are significantly more likely than others to say the area is more pleasing to the eye because of the seeding and re-growth.

Figure 5.2-6

Reasons for Believing the Look of the Area has Improved a Great Deal

- unaided mentions -



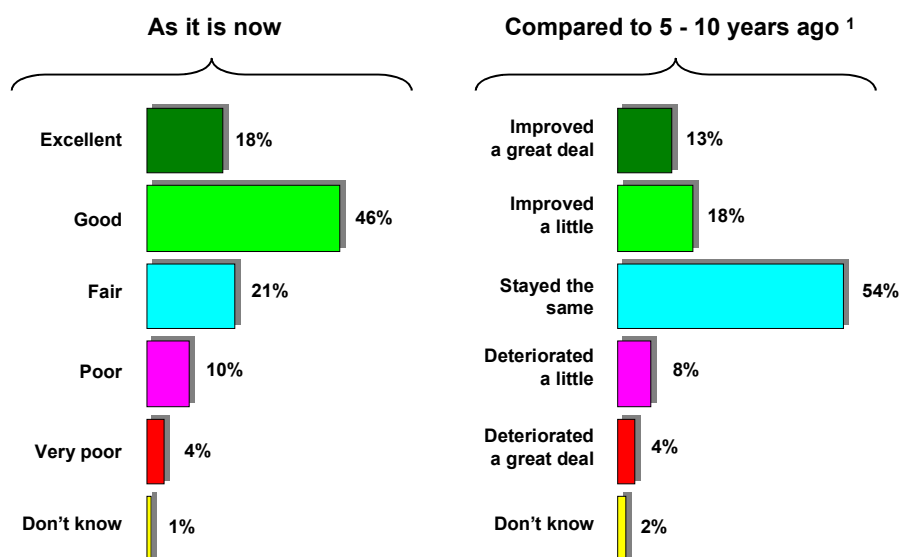
Just over one in ten residents believe that the look of the area between Revelstoke and Shelter Bay has improved a great deal over the past five to ten years because the lake is cleaner, and without as many stumps and driftwood (12%). Fewer reason that people have become more environmentally responsible in using the area (5%), that the dam has stabilized water levels (3%), or that logging practices have changed (2%). Others simply comment that there are more fish and animals in the area, or that there are more campgrounds and better campgrounds.

Air Quality

The majority residents, nearly two in three, assess the *air quality* in the Revelstoke area as either “excellent” (18%) or “good” (46%) in terms of *being free of pollution and dust*. While just over one-half of them feel current air conditions are much the same as they were five to ten years ago, those believing they have either “improved a great deal” or “improved a little” outnumber those who believe they have “deteriorated a little” or “deteriorated a great deal” by a two to one margin (31% versus 12%).

Figure 5.2-7

Air Quality in the Revelstoke Area



¹ Excludes those who have lived in Revelstoke for less than 5 years

As detailed in the table on the following page, men are significantly more likely than women to rate the air quality in the Revelstoke area favourably. In doing so, they also convey a broader belief that the air quality has improved over the past five to ten years. Unlike the two previous dimensions investigated, however, the differences in opinion here do not seem to be a function of outdoor recreation participation. Indeed, opinion among those who do make use of the areas around the Upper Arrow Reservoir for recreational purposes is not that different from opinion among those who do not.

Individuals at least 55 years old are significantly more likely than their younger counterparts to rate the current air quality of the Revelstoke area as either “excellent” or “good.” Further to this, many more of them feel that air conditions have improved rather than deteriorated over the past five to ten years (39% versus 4%). While the majority of those less than 35 years old feel the air quality has stayed the same over recent years, the balance of them are more likely to feel it has deteriorated than improved.

Interestingly, those who have lived in the Revelstoke area for less than 5 years are almost evenly divided in their opinion – one-third rating the air quality in the region favourably, about one-third neutral, and about one-third critical of it. Given their sentiment is so much different than longer-time residents, one can only presume that these newer residents had moved to Revelstoke from a relatively cleaner environment. Individuals who have lived in the Revelstoke area for at least ten years are significantly more likely than others to feel that the air quality has improved over the past five to ten years. In all likelihood, this finding reflects the fact that these residents have lived in the area long enough to have experienced the air pollution, namely the dust and dust storms, at its worst.

Table 5.2-8
Air Quality in the Revelstoke Area

	Unweighted Base		As it is now			Compared to 5 – 10 years ago		
			Excellent/ Good	Fair	Poor/ Very Poor	Total Improved	Stayed the same	Total deteriorated
Total	400	%	64	21	14	31	54	12
<u>Gender</u>								
Men	211	%	70	20	10	34	53	10
Women	189	%	57	23	19	24	52	16
<u>Age</u>								
18 – 34	73	%	66	19	15	16	53	23
35 – 54	224	%	56	26	18	33	52	15
55 +	103	%	78	15	7	39	54	4
<u>Years in Revelstoke</u>								
Less than 5 years	35	%	33	37	30	n/a	n/a	n/a
5 to 9 years	56	%	72	17	1	13	68	14
10 to 14 years	51	%	58	23	19	29	57	13
15 to 24 years	75	%	69	14	17	29	52	18
25 years or more	183	%	67	22	9	39	50	9
<u>Participate in Outdoor Rec. Activities</u>								
Yes	290	%	64	21	13	31	52	12
No	110	%	63	20	15	25	54	16
<u>Type of Outdoor Enthusiast</u>								
Light user	60	%	66	22	13	40	53	4
Moderate user	169	%	67	19	12	27	51	14
Heavy user	59	%	55	26	19	34	56	11

Generally speaking, there are no differences in opinion between outdoor recreational participants and non-participants. Among the participants group, however, “heavy” users are relatively less favourable than others in their feelings of the air quality – both currently, and compared to five to ten years ago.

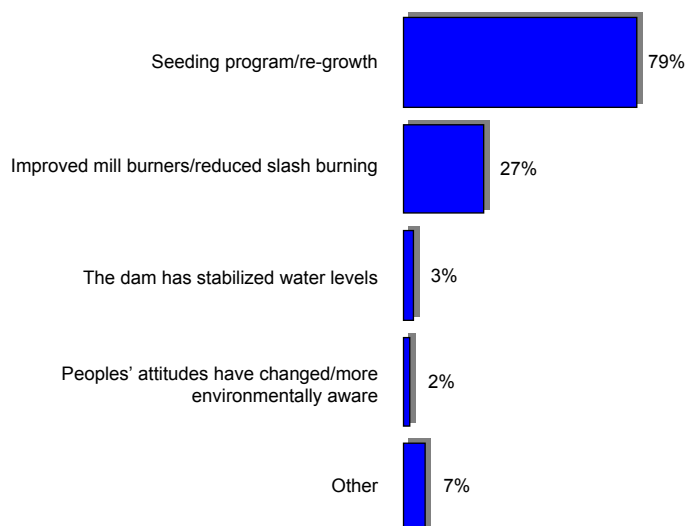
Reasons for saying “Improved A Great Deal”

For those who believe the air quality in the Revelstoke area has improved a great deal over the five to ten years, the majority continue to point to the seeding program and re-growth as being the main reason for the turnaround (79%). Presumably, these residents understand the theory behind the seeding program and how it works to mitigate dust pollution when the reservoir water level is low. As seen before, individuals who use the area to participate in outdoor recreational activities are significantly more likely than others to say the air quality has improved a great deal because of the seeding and re-growth.

Figure 5.2-9

Reasons for Believing the Air Quality in the Area has Improved a Great Deal

- unaided mentions -



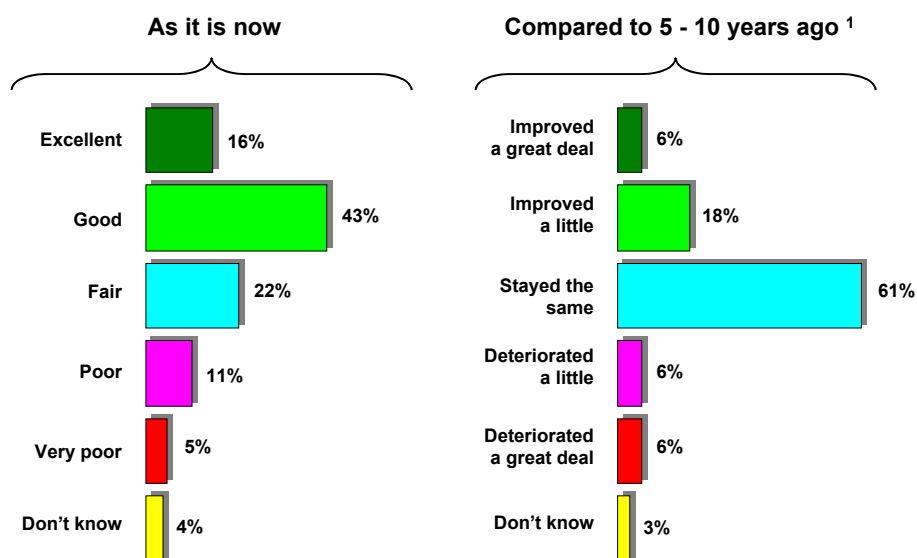
Just under three in ten residents feeling that the air quality has improved a great deal credit the change to improvements in mill burners and reduced slash burning (27%). Relatively few individuals believe that the stabilization of water levels (3%) or peoples' own environmental practices (2%) are behind what they perceive to be improved air conditions.

Ability to Participate in Recreational Activities

About six in ten residents evaluate the areas in or around the edges of the Upper Arrow Reservoir between Revelstoke and Shelter Bay as either “excellent” (16%) or “good” (43%) in terms of the *ability to participate in outdoor recreational activities*. In comparing the area to five to ten years ago, about six in ten individuals also believe that the opportunity to do so has stayed much the same. Among those feeling that there has been a change, twice as many feel the ability to make use of the area for recreational purposes has “improved” rather than “deteriorated” (24% versus 12%).

Figure 5.2-10

Ability to Participate in Recreational Activities in and around the Upper Arrow Reservoir



¹ Excludes those who have lived in Revelstoke for less than 5 years

Despite the fact that fewer women than men actually participate in recreational activities in or around the Upper Arrow Reservoir (as detailed later in Section 4.5), they are somewhat more likely than them to rate the area favourably in terms of the opportunities it currently affords such enthusiasts. By age, the total proportion rating this dimension favourably decreases from 76 percent among those less than 35 years old to just 47 percent among those 55 years old or older. These older residents, however, are significantly more likely than their younger counterparts to say that the area has improved over the past five to ten years in the opportunities that exist for recreational activities.

Partly reflecting findings related to age, individuals who have resided in Revelstoke for at least 25 years and those who have participated in recreational activities in the area for at least 25 years are significantly less likely than others to rate the area favourably in terms of its recreational opportunities. These residents, however, are more likely than others to feel that the opportunities to do so have improved over the past several years.

Table 5.2-11

Ability to Participate in Recreational Activities in and around the Upper Arrow Reservoir

	Unweighted Base		As it is now			Compared to 5 – 10 years ago		
			Excellent/ Good	Fair	Poor/ Very Poor	Total Improved	Stayed the same	Total deteriorated
Total	400	%	59	22	16	24	61	12
Gender								
Men	211	%	55	25	18	21	64	11
Women	189	%	61	18	13	26	52	13
Age								
18 – 34	73	%	76	11	10	17	59	13
35 – 54	224	%	53	25	19	22	59	12
55 +	103	%	47	27	18	33	56	9
Years in Revelstoke								
Less than 5 years	35	%	65	4	23	n/a	n/a	n/a
5 to 9 years	56	%	70	16	10	21	56	13
10 to 14 years	51	%	65	18	7	22	60	10
15 to 24 years	75	%	61	20	16	14	74	10
25 years or more	183	%	49	29	19	30	55	13
Participate in Outdoor Rec. Activities								
Yes	290	%	62	22	15	23	58	12
No	110	%	49	22	16	22	57	10
Type of Outdoor Enthusiast								
Light user	60	%	49	25	25	32	52	15
Moderate user	169	%	65	20	13	23	58	12
Heavy user	59	%	59	24	14	17	66	14
Years participated in Outdoor Rec. Activities								
Activities								
Less than 5 years	33	%	75	4	19	13	50	11
5 to 9 years	59	%	63	25	10	18	62	12
10 to 14 years	38	%	69	22	8	23	63	12
15 to 24 years	77	%	63	21	16	26	68	7
25 years or more	83	%	48	28	21	31	48	19
Activities Participate In ¹								
Bird watching	16	%	46	30	18	30	59	11
Dirt biking	10	%	70	19	12	21	71	8
Fly fishing	57	%	46	29	24	21	48	24
Wildlife viewing	16	%	74	5	15	32	51	-
4x4'ing	11	%	88	11	-	11	62	21

¹ Findings for "Activities Participate In" are not mutually exclusive as an individual can participate in more than one activity; not all activities are shown.

Not surprisingly, recreational participants are more favourable of the current opportunities in the reservoir areas than are non-participants. Then again, 12 percent of non-participants do not have an opinion in this regard.

Of course, opinions of the opportunity to participate in recreational activities in and around the Upper Arrow Reservoir do vary with each of the specific activities. Individuals who participate in wildlife viewing, 4x4'ing, or dirt biking are more likely than others to rate the area favourably while those who participate in bird watching or fly fishing are less likely than others. Despite the finding that the majority of them rate the area positively overall and believe things have stayed the same over the past five to ten years, it is interesting to note that twice as many 4x4'ing enthusiasts feel the opportunities for recreational activities in the area have deteriorated than improved (21% versus 11%). Residents who participate in fly fishing are the only other group that has more individuals believing things have worsened rather than improved.

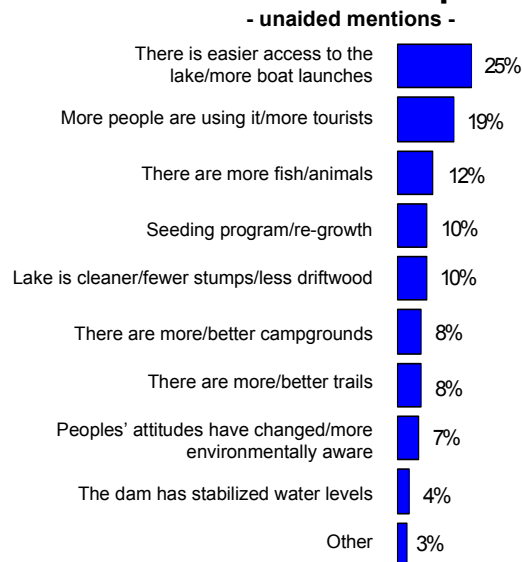
Reasons for saying "Improved A Great Deal"

Unlike the previous three dimensions investigated, no one reason stands out by itself as to why some residents feel the ability to participate in recreational activities in and around the Upper Arrow Reservoir has improved a great deal. Indeed, at the top of the list, only one in four reason that there is easier access to the lake and more boat launches than in years gone by.

Figure 5.2-12

There may be more informal "dirt" launches available, but the number of concrete ramps has not changed in some time. While some individuals simply observe that more people are using these recreational areas (19%) or that there are more fish and wildlife (12%), others reason that the seeding program (10%) and a cleaner lake with fewer stumps and driftwood (10%) have enhanced the recreational areas.

Reasons for Believing the Ability to Participate in Recreational Activities has Improved a Great Deal



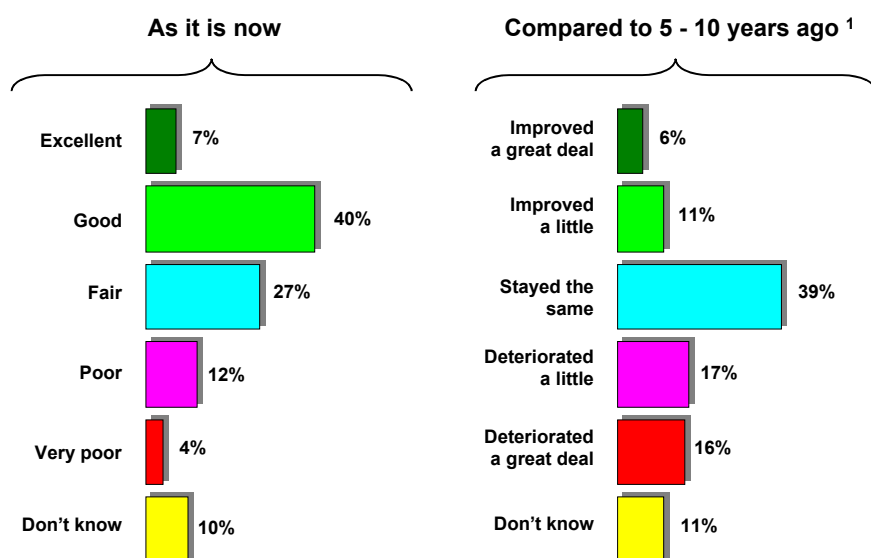
Less than one in ten individuals feeling there are now more opportunities to participate in recreational activities in or around the Upper Arrow Reservoir do so because there are more/better campgrounds (8%), because there are more/better trails (8%), because area users have become more environmentally conscientious (7%), and because they believe the dam has stabilized the reservoir water level (4%).

Quality of Fish & Wildlife Habitat

The consensus among Revelstoke residents drops to under one-half in terms of the proportion rating *the quality of fish & wildlife habitat* in and around the Upper Arrow Reservoir as either “excellent” (7%) or “good” (40%). The balance of individuals continue to be more likely to evaluate the quality of such habitat as “fair” rather than “poor” or “very poor.” However, while the largest segment of them believe that the quality of fish & wildlife habitat has “stayed the same” (39%), this is the first dimension in which more residents believe it has “deteriorated” (33%) over the past five to ten years rather than “improved” (17%) – and by a two to one margin.

Figure 5.2-13

Quality of Fish & Wildlife Habitat in and around the Upper Arrow Reservoir



¹ Excludes those who have lived in Revelstoke for less than 5 years

Women evaluate the quality of fish & wildlife habitat in and around the Upper Arrow Reservoir less favourably than men. Further to this, about as many women feel the quality has deteriorated over the past five to ten years as women who feel the quality has stayed the same. The proportion of positive ratings drops significantly through the age brackets, from a high of 61 percent among those less than 35 years old to just 34 percent among those 55 years old or older. In each of the age groups, however, there is a shared consensus that the quality of fish & wildlife has either stayed unchanged or worsened over the last several years. By length of residency, those who have lived in the Revelstoke area for more than 15 years are significantly more likely than others to feel that the area's habitat has changed for the worse.

Longer time recreational participants have relatively less favourable views of the current quality of the fish & wildlife habitat in and around the reservoir. In fact, among residents who have made use of the area for at least 15 years, the largest segment of them believe the quality of the habitat has deteriorated over the past decade.

Table 5.2-14
Quality of Fish & Wildlife Habitat in and around the Upper Arrow Reservoir

	Unweighted Base		As it is now			Compared to 5 – 10 years ago		
			Excellent/ Good	Fair	Poor/ Very Poor	Total Improved	Stayed the same	Total deteriorated
Total	400	%	47	27	16	17	39	33
<u>Gender</u>								
Men	211	%	52	27	15	18	40	30
Women	189	%	41	28	17	12	36	35
<u>Age</u>								
18 – 34	73	%	61	22	11	12	44	27
35 – 54	224	%	45	25	17	18	35	33
55 +	103	%	34	37	20	16	38	34
<u>Years in Revelstoke</u>								
Less than 5 years	35	%	52	28	8	n/a	n/a	n/a
5 to 9 years	56	%	49	22	17	17	44	23
10 to 14 years	51	%	42	35	7	13	50	25
15 to 24 years	75	%	54	21	18	11	39	38
25 years or more	183	%	43	30	19	21	35	36
<u>Participate in Outdoor Rec. Activities</u>								
Yes	290	%	48	30	16	17	37	34
No	110	%	41	21	14	11	42	28
<u>Type of Outdoor Enthusiast</u>								
Light user	60	%	40	32	18	20	38	32
Moderate user	169	%	52	30	15	15	38	33
Heavy user	59	%	51	25	18	22	33	35
<u>Years participated in Outdoor Rec. Activities</u>								
<u>Activities</u>								
Less than 5 years	33	%	56	30	6	11	39	20
5 to 9 years	59	%	55	26	15	16	43	26
10 to 14 years	38	%	49	33	11	17	47	32
15 to 24 years	77	%	48	29	19	21	31	42
25 years or more	83	%	40	32	23	19	32	40
<u>Activities Participate In ¹</u>								
Bird watching	16	%	21	57	23	35	26	31
Fly fishing	57	%	33	39	27	14	34	44
Hunting	34	%	42	27	29	20	38	39
Shoreline fishing	98	%	58	23	17	19	37	34
Troll fishing	138	%	54	29	16	18	35	39
Wildlife viewing	16	%	62	7	25	40	11	43

¹ Findings for "Activities Participate In" are not mutually exclusive as an individual can participate in more than one activity; not all activities are shown.

Of course, the best insight into the quality of fish & wildlife habitat of the area is gained by considering only the views of those who visit the area to view wildlife, or to fish or hunt.

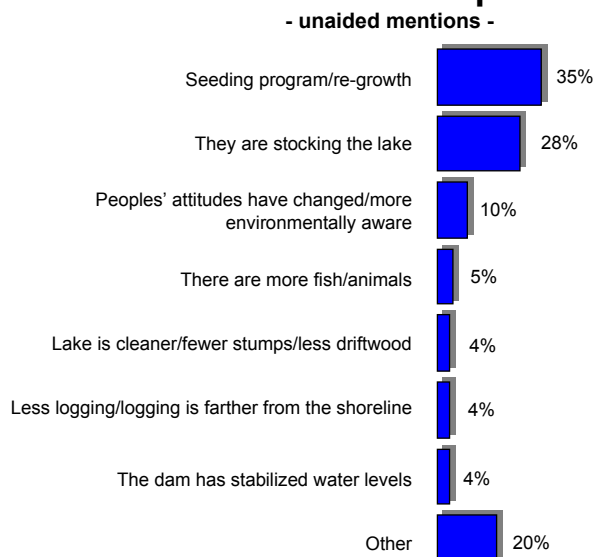
Residents who simply like to watch the wildlife are among the most positive in their current assessments of the habitat. However, they are very polarized in their opinions as to how it has changed over the past five to ten years – 40 percent feeling it has improved and 43 percent feeling it has deteriorated.

Those who participate in trolling or shoreline fishing between Revelstoke and Shelter Bay are fairly positive about the current quality of the fish & wildlife habitat in the area, but about as many as them feel it has deteriorated over recent years as those who feel it has remained unchanged. It is somewhat of a different story among those who fly fish in the reservoir. With reference to their evaluation of the habitat as it currently is, these individuals are roughly divided into three camps – about one-third rating it as excellent or good, just over one-third rating it as fair, and just under one-third rating it as poor or very poor. In looking back upon how the habitat has changed over the past five to ten years, however, these fishers are much more likely to believe that it has “deteriorated” (44%) than “stayed the same” (34%) or “improved” (14%).

Reasons for saying “Improved A Great Deal”

Though not referenced with the same overwhelming frequency as on some of the other dimensions already investigated, the seeding program and re-growth (35%) emerges once again at the top of the list of reasons why a few residents feel the fish & wildlife habitat in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay has improved a great deal over the past five to ten years.

Figure 5.2-15
Reasons for Believing the Quality of the
Fish & Wildlife Habitat has Improved a Great Deal



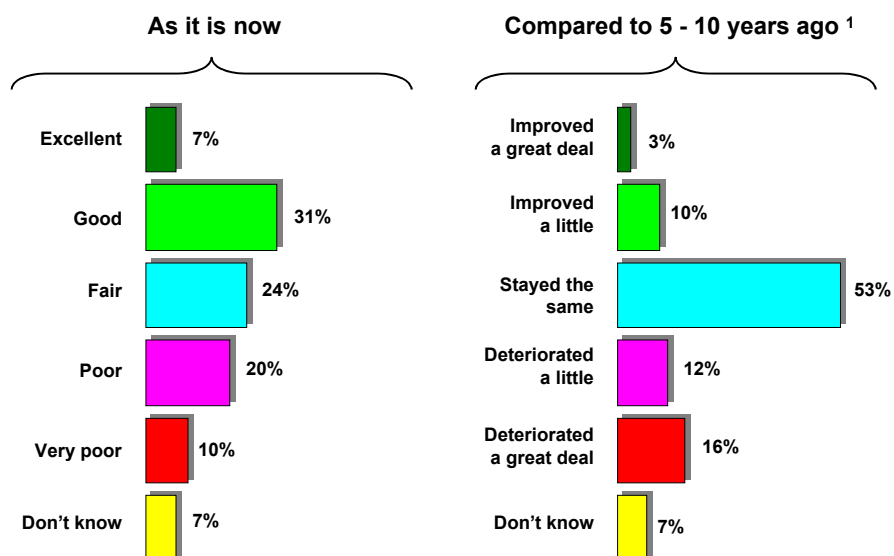
Just under three in ten individuals believing that the habitat has improved a great deal point to the stocking of the lake (28%) as providing the impetus behind the change, while relatively fewer reason that peoples' attitudes have changed over time and have become more environmentally aware and responsible (10%). Others argue that the fish and wildlife populations have benefited from a cleaner lake with fewer stumps and driftwood (4%), from improved logging practices (4%), and from a stabilization in water levels (4%).

Suitability of the Water Level

Public opinion in regards to *the water level on the Upper Arrow Reservoir being suitable for recreational activities* is markedly different than sentiment on the other dimensions. While the largest group of residents do rate the water level as either “excellent” (7%) or “good” (31%), the total proportion rating it as “poor” (20%) or “very poor” (10%) is not too far behind and, in fact, is larger than the proportion rating it as “fair” (24%). In considering how the water level of the reservoir being suitable for recreational activities compares to five to ten years ago, just over one-half believe it is much the same. Among the balance of residents, however, over twice as many individuals feel that things have “deteriorated” rather than “improved” over this time (28% versus 13%).

Figure 5.2-16

Suitability of the Water Level on the Upper Arrow Reservoir



¹ Excludes those who have lived in Revelstoke for less than 5 years

Women are significantly more likely than men to assess the water level of the reservoir favourably, but this is essentially a function of the fact that non-users of the areas around the reservoir are more positive than are users.

Individuals that are categorized as “heavy recreational enthusiasts” of the area are significantly more likely than “moderate” or “light” enthusiasts to feel that the suitability of the water level for recreational activities has worsened over the past five to ten years.

Individuals who fish on the Upper Arrow Reservoir are significantly less pleased than most others in regards to the current water level on the Upper Arrow Reservoir. In fact, the largest proportion of them rate it as poor or very poor. With particular reference to those who fly fish, not only are they most critical of the current water level, but not one of them feel that it has improved over the past five to ten years.

Table 5.2-17
Suitability of the Water Level on the Upper Arrow Reservoir

	Unweighted Base		As it is now			Compared to 5 – 10 years ago		
			Excellent/ Good	Fair	Poor/ Very Poor	Total Improved	Stayed the same	Total deteriorated
Total	400	%	38	24	30	13	53	28
<u>Gender</u>								
Men	211	%	34	24	39	13	51	30
Women	189	%	44	24	20	13	50	20
<u>Years in Revelstoke</u>								
Less than 5 years	35	%	40	24	32	n/a	n/a	n/a
5 to 9 years	56	%	45	26	18	3	56	29
10 to 14 years	51	%	44	28	13	16	48	25
15 to 24 years	75	%	38	19	37	16	52	28
25 years or more	183	%	33	24	34	14	54	27
<u>Participate in Outdoor Rec. Activities</u>								
Yes	290	%	37	25	33	13	46	32
No	110	%	44	22	21	12	62	12
<u>Type of Outdoor Enthusiast</u>								
Light user	60	%	35	22	36	14	49	30
Moderate user	169	%	35	27	33	15	45	29
Heavy user	59	%	43	22	34	8	48	41
<u>Years participated in Outdoor Rec. Activities</u>								
<u>Activities</u>								
Less than 5 years	33	%	36	31	30	10	35	29
5 to 9 years	59	%	40	32	22	12	50	29
10 to 14 years	38	%	46	18	24	26	34	26
15 to 24 years	77	%	37	15	45	13	50	34
25 years or more	83	%	28	29	37	10	51	35
<u>Activities Participate In ¹</u>								
Camping	85	%	35	24	43	9	38	43
Canoeing	51	%	31	37	32	15	42	31
Fly fishing	57	%	21	31	45	-	44	47
Other boating	14	%	12	53	30	-	29	53
Power Boating	43	%	40	21	38	17	42	36
Shoreline fishing	98	%	28	24	43	9	52	29
Troll fishing	138	%	35	24	37	14	48	30
4x4'ing	11	%	51	-	43	-	37	63

¹ Findings for "Activities Participate In" are not mutually exclusive as an individual can participate in more than one activity; not all activities are shown.

While residents who power boat or canoe on the reservoir are fairly divided in their opinions of the current water level, individuals who participate in other boating activities are more neutral in their opinion, but are far more likely to say that the level has worsened over recent years.

Opinion of the water level is fairly polarized among those who camp in the area, and especially those who participate in 4x4'ing activities. And among those who do use the area to do 4x4'ing, 63 percent feel that the water level has worsened in terms of being suitable for recreational activities.

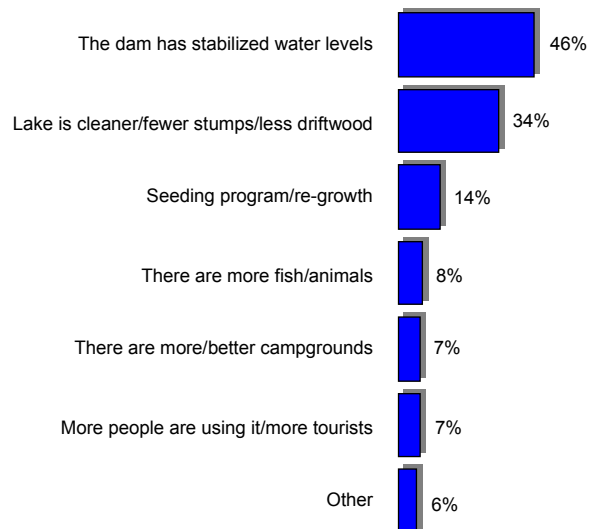
Reasons for saying “Improved A Great Deal”

Among the very few individuals who feel that the water level of the Upper Arrow has become more suitable for recreational activities over the past five to ten years, about one-half attribute it to the dam's operations and efforts to better stabilize the levels (46%). Others really do not point to a reason behind their belief, but more to what they see as the outcomes – a cleaner lake, more fish and animals, better campgrounds, and more users of the system's surroundings.

Figure 5.2-18

Reasons for Believing the Suitability of the Water Level has Improved a Great Deal

- unaided mentions -



5.3 Awareness of the Upper Arrow Seeding Program

While only about one in ten residents are able to name the shoreline seeding program as an environmental initiative currently underway that relates to the Upper Arrow Reservoir between Revelstoke and Shelter Bay, awareness does climb to eight in ten on an aided basis. Residents do not need to be reminded, however, of the program's primary purpose – most knowing that it is to help mitigate dust storms that can occur when the reservoir's water levels are low.

Awareness of Environmental Initiatives relating to the Upper Arrow Reservoir

In total, just under four in ten residents (38%) report being aware of any environmental initiatives or programs currently underway that relate to the Upper Arrow Reservoir between Revelstoke and Shelter Bay. Among all residents, 12 percent make unaided mentions of seeding programs – including 4 percent who specifically link BC Hydro as being the sponsor behind them.

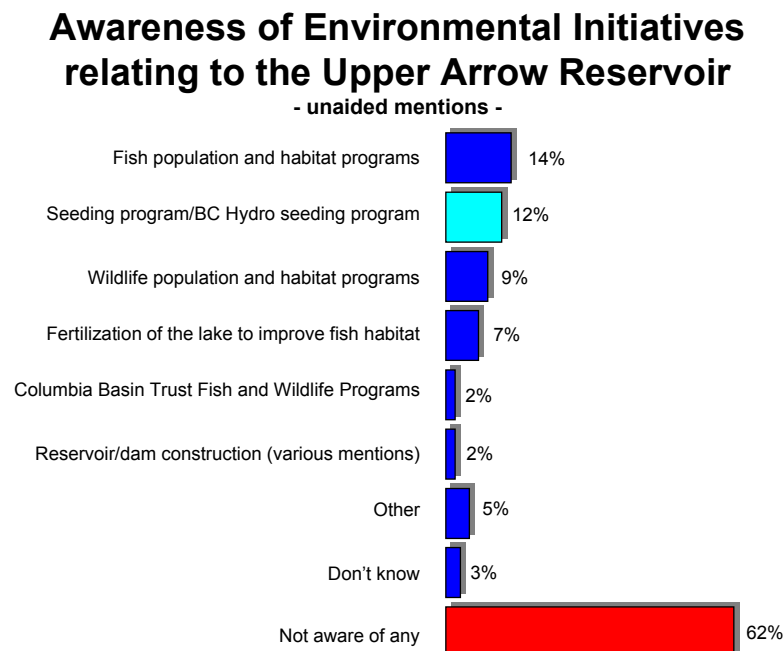


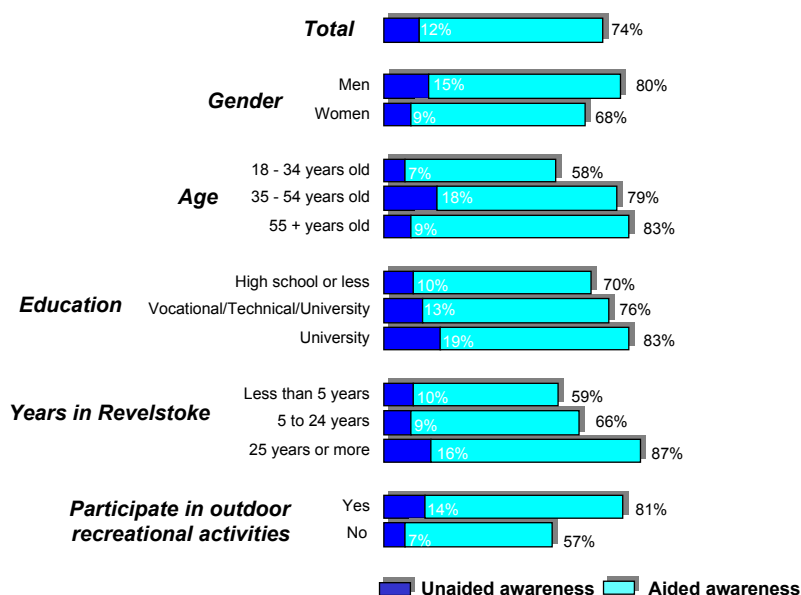
Figure 5.3-1

As illustrated in the chart above, other residents primarily recount being aware of various fish & wildlife population and habitat programs.

Intermediate Awareness of the Upper Arrow Seeding Program

Awareness of the Upper Arrow seeding program climbs to 74 percent upon informing residents that the shoreline areas between Revelstoke and Shelter Bay were first manually seeded with vegetation 15 years ago, and continues to receive seeding each year. As detailed in the chart below, both unaided awareness and total intermediate awareness of the program measures significantly higher among men than among women, and increases quite considerably with education, and length of residency in the Revelstoke area – particularly among those who have lived there at least 25 years. While unaided awareness registers highest among the middle aged, total aided and unaided awareness climbs through each of the three age brackets.

Figure 5.3-2
Intermediate Awareness of the Seeding Program
 - total aided and unaided awareness -

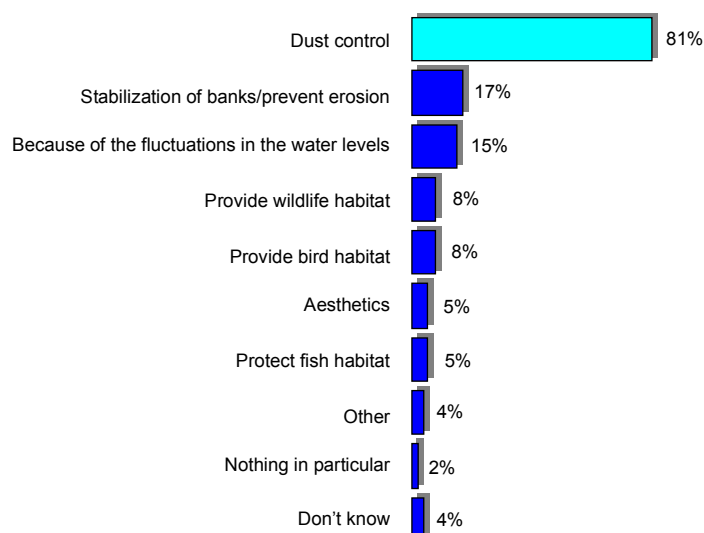


Individuals who participate in outdoor recreational activities in or around the Upper Arrow Reservoir are significantly more likely than their counterparts to be aware of the seeding program – both on an aided and unaided basis.

Perceived Reason for the Seeding Program

While the majority of Revelstoke residents do have to be reminded of the seeding program as an environmental initiative that has been underway around the Upper Arrow Reservoir for the past 15 years, they certainly do not need to be reminded or informed of its primary purpose. Among these individuals, it is very pleasing to note that eight in ten of them correctly identify dust control on an unaided basis as the main reason for the shoreline seeding and vegetation program. Perhaps remembering the dust storms at their worst, it is those who have resided in Revelstoke for at least 15 years who are among the most likely to know the intent behind the area's seeding.

Figure 5.3-3
Perceived Reason for the Seeding Program
- unaided mentions among those aware of the program -

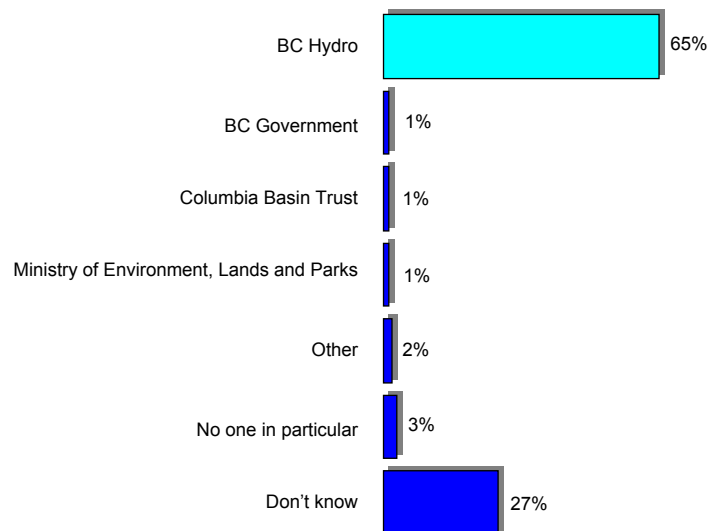


Less than one in five of those aware of the seeding program believe the rationale behind it is to stabilize the banks of the reservoir by preventing erosion (17%), or comment that the initiative is in place because of fluctuating water levels (15%). Fewer believe the intent of seeding the shoreline areas of the reservoir is to provide or enhance wildlife habitat (8%), bird habitat (8%), fish habitat (5%), or to make the area aesthetically pleasing (5%).

Awareness of the Seeding Program Sponsor

Among residents reporting to be aware of the seeding program, it is also encouraging to note that about two in three of them name BC Hydro (65%), on an unaided basis, as the main sponsor of the program. Other mentions, albeit very infrequent, include the BC Government (1%), the Columbia Basin Trust (1%) and the Ministry of Environment, Lands and Parks (1%).

Figure 5.3-4
Awareness of the Seeding Program Sponsor
- unaided mentions among those aware of the program -



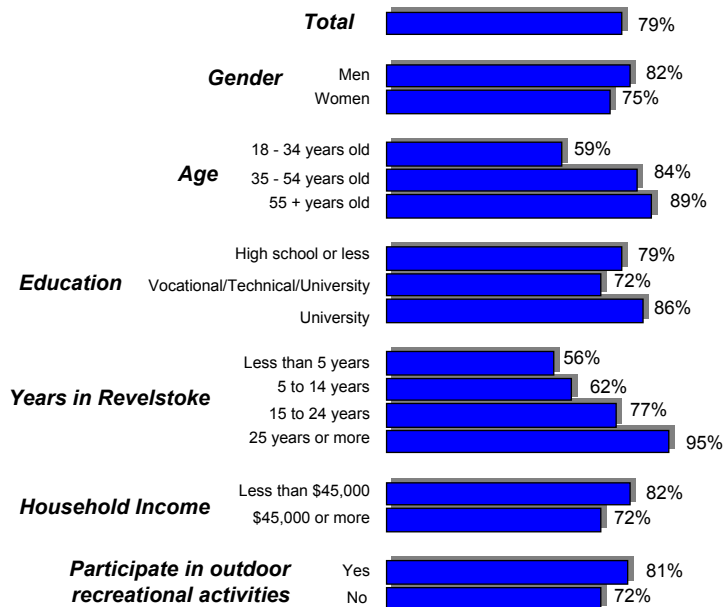
Awareness that BC Hydro is the sponsor of the seeding program measures significantly higher among men than women (69% versus 59%). Awareness also registers higher among residents with university education (72%), individuals at least 35 years old (73%), and those who have lived in the Revelstoke area for at least 15 years (73%).

Total Awareness of the Upper Arrow Seeding Program

Total awareness of the Upper Arrow Seeding Program nudges up from 74 percent to 79 percent upon informing residents of BC Hydro's sponsorship of it, and outlining the program's purpose. Specifically, study participants were explained that by seeding the shoreline areas, plant vegetation has grown in areas where at one time was only dirt. As a result, dust and dirt can not as easily become airborne causing poor air quality when the water level of the reservoir is low.

Figure 5.3-5

Total Awareness of the Upper Arrow Seeding Program



Closely reflecting intermediate awareness, total awareness of the Upper Arrow seeding program registers somewhat higher among men than women. Residents with university education and individuals with annual household incomes of at least \$45,000 are more likely than others to recall the program, as are those who are at least 35 years old and those who have lived in the Revelstoke area for at least 25 years. Again, residents who participate in outdoor recreational activities in or around the Upper Arrow Reservoir are significantly more likely than others to be aware of the seeding program.

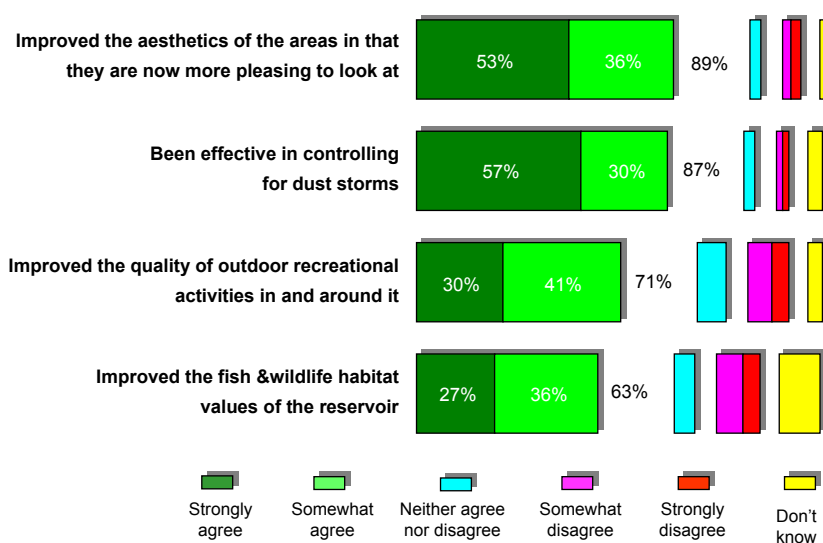
5.4 Perceived Benefits of the Upper Arrow Seeding Program

When pointedly asked about the benefits of the shoreline seeding program, nearly nine in ten residents agree that it has improved the aesthetics of the area in that it is now more pleasing to look at, and that it has been effective in controlling for dust storms. Although the consensus in opinion does drop, the majority of individuals also agree that the seeding program has improved the quality of outdoor recreational activities in and around the reservoir system, and that it has improved the fish & wildlife habitat values in and around it.

Figure 5.4-1

Attitudes towards the Upper Arrow Seeding Program

The seeding program of the shoreline areas surrounding the Upper Arrow Reservoir between Revelstoke and Shelter Bay has...



Aesthetics

The overwhelming majority of residents – about nine in ten – are in agreement that the seeding of the shoreline areas surrounding the Upper Arrow Reservoir between Revelstoke and Shelter Bay has *improved the aesthetics of the areas in that they are now more pleasing to look at*. With significantly more individuals “strongly agreeing” (53%) than “somewhat agreeing” (36%), the seeding program can be best described as receiving a standing ovation in this regard, not just polite applause. Agreement measures very highly across all demographic groupings, but is highest among those who have lived in the Revelstoke area for at least ten years.

Controlling for Dust Storms

Similar to the previous dimension, nearly nine in ten residents either “strongly agree” (57%) or “somewhat agree” (30%) that the Upper Arrow seeding program has been *effective in controlling for dust storms*. And with a similar distribution in views as before, residents are certainly not crediting the program temperately – there is firm belief that its impact has been substantial. Again, while this sentiment is widely shared, it is those who have resided in Revelstoke for at least 15 years who are the most likely to attest to the effectiveness of the seeding program on the mitigation of dust storms.

Table 5.4-2
Attitudes towards the Upper Arrow Seeding Program
- total percent agreeing with each statement -

	Unweighted Base		Improved the aesthetics	Effective in controlling for dust storms	Improved quality of recreational activities	Improved fish & wildlife habitat
Total	400	%	89	87	71	63
<u>Years in Revelstoke</u>						
Less than 5 years	35	%	81	63	71	63
5 to 9 years	56	%	80	85	70	65
10 to 14 years	51	%	97	84	68	68
15 to 24 years	75	%	90	90	74	67
25 years or more	183	%	90	93	69	61
<u>Participate in Outdoor Rec. Activities</u>						
Yes	290	%	89	89	72	67
No	110	%	87	81	65	53
<u>Activities Participate In ¹</u>						
Bird watching	16	%	n/a	n/a	84	56
Camping	85	%	n/a	n/a	78	79
Canoeing	51	%	n/a	n/a	63	73
Cross country skiing	34	%	n/a	n/a	78	62
Cycling	59	%	n/a	n/a	77	70
Dirt biking	10	%	n/a	n/a	87	86
Fly fishing	57	%	n/a	n/a	71	56
Hiking/walking	126	%	n/a	n/a	72	63
Hunting	34	%	n/a	n/a	72	68
Mountain biking	10	%	n/a	n/a	56	69
Other boating	14	%	n/a	n/a	37	53
Power boating	43	%	n/a	n/a	65	67
Shoreline fishing	98	%	n/a	n/a	77	69
Swimming	41	%	n/a	n/a	72	70
Troll fishing	138	%	n/a	n/a	71	75
Viewing wildlife	16	%	n/a	n/a	74	64
4x4'ing	11	%	n/a	n/a	82	87

¹ Findings for “Activities Participate In” are not mutually exclusive as an individual can participate in more than one activity.

Quality of Recreational Activities

While the consensus in opinion does drop quite considerably relative to the two previous dimensions, the majority of residents do either “strongly agree” (30%) or “somewhat agree” (41%) that the Upper Arrow seeding program has *improved the quality of outdoor recreational activities* in and around the reservoir system.

Given that individuals who currently make use of the areas in and around the reservoir between Revelstoke and Shelter Bay are the best critics of what it has to offer, it is pleasing to note that agreement is just as high among them.

The level of agreement that the seeding program has improved the quality of outdoor recreational activities in the area varies somewhat with the different types of activities people use the system for. While sentiment among most of the individual activity participants is close to the overall consensus, agreement is higher than average among those who participate in dirt biking, 4x4'ing, or bird watching. Agreement is comparatively low, however, among those who use the reservoir to go power boating, canoeing, and very low among those who do other kinds of boating.

Fish & Wildlife Habitat

Public opinion drops further in regards to the seeding program's benefit on the fish & wildlife population in the area. Having said this, just over six in ten residents do either "strongly agree" (27%) or "somewhat agree" (36%) that *the program has improved the fish & wildlife habitat values of the reservoir*. Positively, individuals who participate in outdoor recreational activities in the area are significantly more likely than others to agree that the seeding program has been beneficial in this regard. Among this participants group, total agreement is fairly high among those who troll fish, shoreline fish, or hunt, but relatively low among those who fly fish or bird watch.

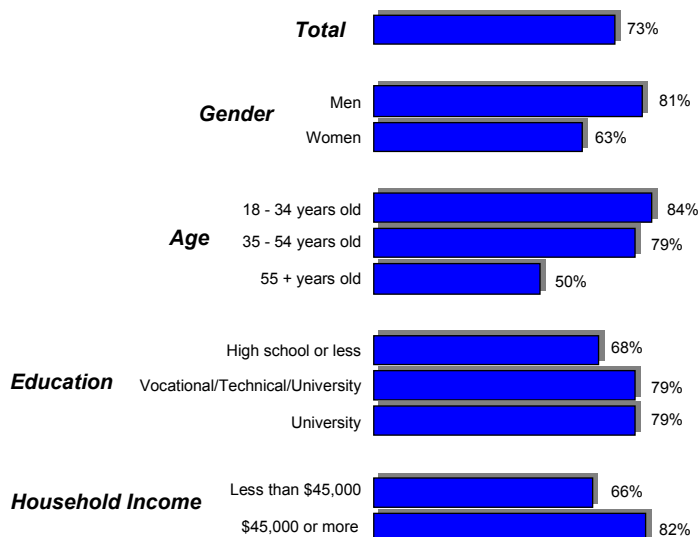
5.5 Recreational Usage of the Upper Arrow Reservoir

Approximately three in four Revelstoke residents make use of the areas in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay in their participation of outdoor recreational activities – fishing, hiking/walking, camping, cycling and canoeing/kayaking among the most popular. While these residents enjoy visiting many of the different locales that the reservoir system has to offer, 12 Mile, 6 Mile and Blanket Creek are among the most heavily trafficked areas.

Participation in Outdoor Activities in and around the Upper Arrow Reservoir

The majority of Revelstoke adults, about three in four, report that they do participate in outdoor recreational activities in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay. Participation does vary quite substantially by demographics relating to gender, age, education and household income.

Figure 5.5-1
Participation in Outdoor Recreational Activities in or around the Upper Arrow Reservoir



As detailed in the chart above, men are significantly more likely than women to participate in outdoor activities in or around the Upper Arrow Reservoir. In all likelihood, this finding probably reflects the fact that the area is very conducive to the types of activities that are typically more engaged in by men – especially fishing.

Participation in outdoor activities in the area decreases through the age brackets, registering at 84 percent among those less than 35 years old, 79 percent among individuals between 35 and 54 years old, and just 50 percent among those 55 years old or older.

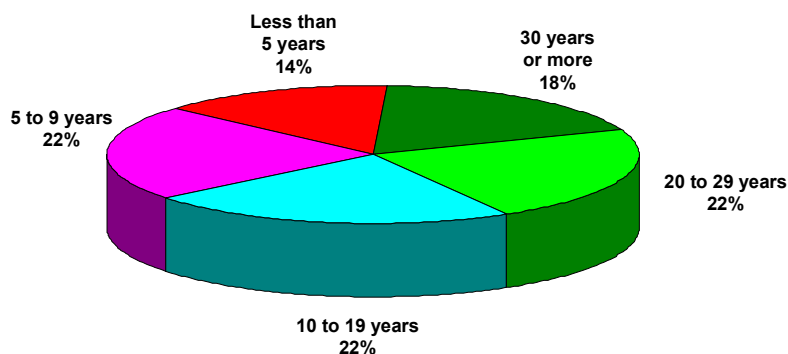
Participation also varies with education, measuring higher among those who have completed at least some post-secondary education than among those with no more than a high school diploma (79% versus 68%). Reflecting education, in part, residents with total household earnings of at least \$45,000 are significantly more likely than their counterparts in the lower bracket to take part in outdoor activities in or around the reservoir.

Years Participated in Outdoor Activities in or around the Upper Arrow Reservoir

The participation in outdoor activities in or around the Upper Arrow Reservoir is certainly not a new pastime among Revelstoke residents. Among those who do currently participate in such activities, they report on having done so no less than an average of 17 years. As one would expect, length of participation is directly correlated with age and length of residency in the area.

Figure 5.5-2

Years Participated in Outdoor Activities in or around the Upper Arrow Reservoir



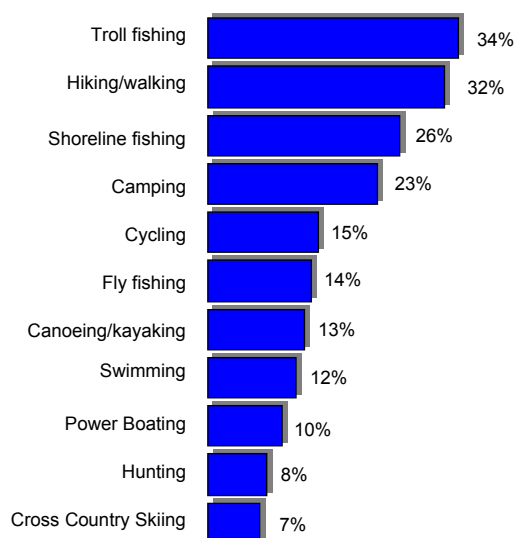
Outdoor Recreational Activities Participated In

One in three residents report that they participate in **troll fishing** (34%) in the Upper Arrow Reservoir between Revelstoke and Shelter Bay, with most doing so either twice a month (31%) or once a month (28%). Participation in troll fishing is significantly higher among men than women (45% versus 21%), and higher among those with household incomes of at least \$45,000 (41% versus 26%).

About one in three residents **hike or walk** (32%) in the areas of the Upper Arrow Reservoir between Revelstoke and Shelter Bay. This activity is among the most frequently participated in with about one-half doing so either on a daily basis (14%) or once each week (38%). While individuals less than 55 years old are twice as likely than their older counterparts to hike or walk (38% versus 14%), participation increases through the education brackets – from just 23 percent among those with only high school diplomas to 47 percent among those who have earned university degrees. There is not an appreciable difference in the participation of hiking or walking between men and women.

Figure 5.5-3

Outdoor Recreational Activities Participated In - major mentions among all respondents -



About one in four residents participate in **shoreline fishing** (26%) in the areas of interest, with most doing so either once a week (26%), twice a month (20%), or once a month (30%). While men are more than twice as likely than women to participate in this activity (36% versus 14%), participation also varies significantly with age, registering at 36 percent among those less than 35 years old and decreasing to 13 percent among those 55 years old or older.

Roughly one in four residents report that they **camp** (23%) in the areas along side of the Upper Arrow Reservoir between Revelstoke and Shelter Bay, with most doing so either once (23%) or twice (25%) each month. Participation in camping in these areas decreases significantly with age, measuring 40 percent among those less than 35 years old, 21 percent among those between 35 and 54 years old, and just 10 percent among those 55 years old or older.

Participation in camping is higher among those with no more than high school education than among those who have completed at least some post-secondary education (29% versus 18%) and reflecting this, higher among those with annual household earnings less than \$45,000 (30% versus 20%).

Table 5.5-4

Frequency of Participating in Outdoor Recreational Activities							
		Daily	Once every week	Twice every month	Once every month	Once every 2 months	< Once every 2 months
Troll fishing	%	-	20	31	28	5	15
Hiking/walking	%	14	38	19	16	6	6
Shoreline fishing	%	2	26	20	30	6	14
Camping	%	1	7	25	23	13	32
Cycling	%	22	39	22	5	7	6
Fly fishing	%	3	33	25	21	2	15
Canoeing/kayaking	%	2	9	25	20	7	37
Swimming	%	2	33	34	9	10	8
Power Boating	%	2	27	28	16	14	12
Hunting	%	12	38	15	6	6	20
Cross country skiing	%	8	44	18	12	3	15

Fifteen percent of residents report that they *cycle* in the areas around the Upper Arrow Reservoir between Revelstoke and Shelter Bay, with most doing so either daily (22%) or once every week (39%). Participation varies considerably with age, measuring 18 percent among those less than 55 years old and just 5 percent among those 55 years old or older.

Fourteen percent of individuals *fly fish* from the shoreline areas of the reservoir between Revelstoke and Shelter Bay, with most doing so either once every week (33%) or once every two weeks (25%). Like the other fishing activities already investigated, fly fishing is more widely participated in by men than women (19% versus 8%).

Thirteen percent of residents *canoe or kayak* in the Upper Arrow Reservoir between Revelstoke and Shelter Bay. Canoeing and kayaking in these areas is more widely participated in by those less than 55 years old than those who are older (16% versus 5%). Participation is nearly four times higher among those who have completed at least some post-secondary education than among those who have only attended high school (22% versus 6%).

In terms of frequency, the largest segment of those who do canoe or kayak do so either once (20%) or twice (25%) each month. However, 37 percent report that they canoe or kayak less than once every two months.

Just over one in ten individuals **swim** (12%) in the Upper Arrow Reservoir between Revelstoke and Shelter Bay, two in three doing so either about once a week (33%) or once every two weeks (34%). Swimming in these areas is more widely participated in by women than men (16% versus 8%). Participation decreases with age, measuring 21 percent among those less than 35 years old and just 3 percent among those 55 years old or older.

One in ten residents report **power boating** (10%) in the areas of interest of the Upper Arrow Reservoir, just over one-half doing so once a week (27%) or once every two weeks (28%). Given the relatively higher cost associated with this activity, it comes as no surprise that participation is double among those with annual household earnings of at least \$45,000 than it is among those in the lower income bracket (13% versus 6%).

Less than one in ten residents **hunt** (8%) in the areas around the Upper Arrow Reservoir between Revelstoke and Shelter Bay, with one-half doing so either on a daily basis (12%) or roughly once each week (38%). As one may expect, men are significantly more likely than women to participate in this outdoor activity (13% versus 2%).

Just a slightly smaller proportion of individuals participate in **cross country skiing** (7%) in the areas of interest, with six in ten doing so either once a week (38%) or once every two weeks (15%) when the sport is in season. Like swimming, cross country skiing is more widely participated in by women than men (11% versus 4%).

As detailed below, there is a long list of other outdoor recreational activities residents like to enjoy in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay.

■ Wildlife viewing (not bird) (4%)	■ ATV (all terrain vehicles) (3%)	■ Softball/baseball (1%)
■ Bird watching (4%)	■ Snowmobiling (3%)	■ Snowshoeing (1%)
■ 4x4'ing (4%)	■ Picnicking (3%)	■ Sailing (1%)
■ Boating (various/general) (4%)	■ Dog walking (2%)	■ Jogging/running (1%)
■ Dirt biking/motorcycling (3%)	■ Horseback riding (2%)	■ Sunbathing (1%)
■ Mountain biking (3%)	■ Water skiing (1%)	

Areas of the Upper Arrow Reservoir Typically Used

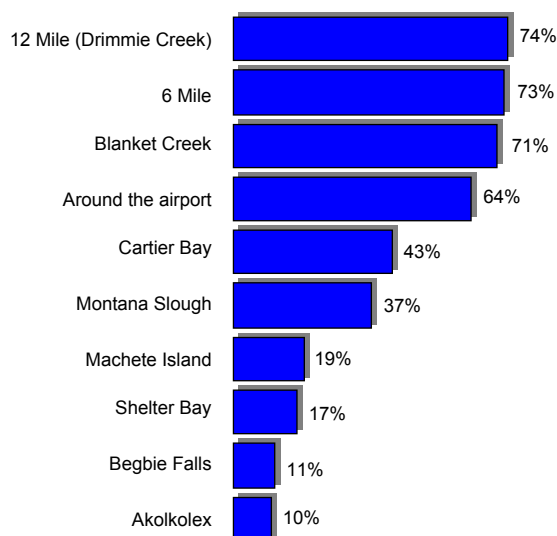
While those who participate in outdoor recreational activities in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay make use of many of its different areas, three emerge as being most widely popular. Indeed, at least seven in ten of these individuals report that they typically go to 12 Mile (74%), 6 Mile (73%) or Blanket Creek (71%) to participate in their recreational activities of choice.

With specific reference to 12 Mile, it appeals to those involved in all the different recreational activities, but visitation to the area is considerably higher among those who like to fly fish (89%), and those who like to go 4x4'ing (94%) or dirt biking (94%). 6 Mile also has a higher visitation from those

who like to go dirt biking (94%) or 4x4'ing (89%). Blanket Creek is used by many different outdoor enthusiasts, but has a wider visitation by those who enjoy wildlife viewing (94%), canoeing (90%) and, not surprisingly, swimming (87%) given that it is one of the few swimming beaches in the area.

Figure 5.5-5

Areas of the Upper Arrow Reservoir Typically Used for Recreational Activities - major mentions only -



Nearly two in three individuals who make use of the Upper Arrow system to participate in outdoor activities often visit the area around the airport (64%).

This area appears to be particularly appealing to those who like to go bird watching (100%) or cycling (90%).

Forming what one may call the third tier of reservoir areas typically used between Revelstoke and Shelter Bay, just over four in ten recreational participants often visit Cartier Bay (43%) while just under four in ten often visit Montana Slough (37%). While

Cartier Bay plays host to all the different outdoor recreational activities that residents enjoy, it seems to be a choice destination for those who like to mountain bike (77%), bird watch (66%), or cycle (58%). Montana Slough appears to be particularly liked by those who go bird watching (67%), 4x4'ing (59%), cycling (51%), canoeing (54%), fly fishing (53%) and shoreline fishing (49%).

Just under two in ten recreational participants each report that they typically visit Machete Island (19%) and Shelter Bay (17%) while participating in their outdoor recreational activities. Machete Island appears to attract an over-proportion of individuals who like to watch birds (61%) and other wildlife (33%), and those who like to fly fish (33%), cycle (33%) or canoe (31%). While Shelter Bay is not at all a favourite destination for bird watchers (0%), it does attract more than its share of power boaters (28%) due to the fact that it has a boat launch ramp.

Rounding out the top ten list of favourite recreational sites are Begbie Falls (11%) and Akolkolex (10%). For Akolkolex, visitation is higher among those who like to go 4x4'ing (37%), dirt biking (28%), fly fishing (22%), or cycling (21%).

Other less widely visited areas of the Upper Arrow Reservoir between Revelstoke and Shelter Bay are as follows:

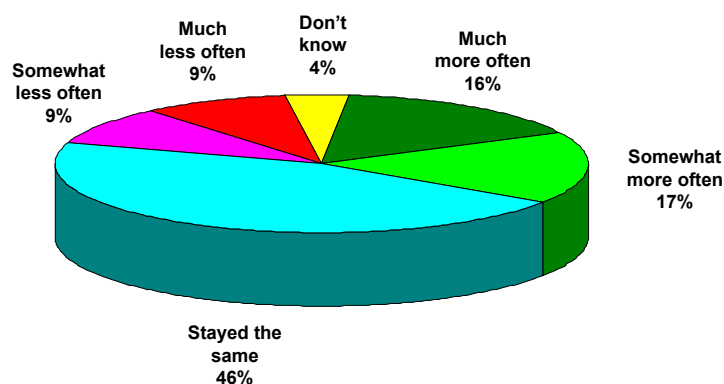
- | | |
|--------------------------------------|-------------------------|
| ■ Arrowhead (6%) | ■ Martha Creek (2%) |
| ■ Beaton Arm (4%) | ■ Christmas Island (2%) |
| ■ Eagle Bay (3%) | ■ Tum Tum (2%) |
| ■ Illecillewaet/Green belt area (3%) | ■ Crawford Creek (1%) |

Change in Frequency of Usage of the Upper Arrow Reservoir

It appears that the Upper Arrow Reservoir between Revelstoke and Shelter Bay has become more popular and heavily used among area residents over the past five to ten years. Although just under one-half of current users say their recreational usage of the area has stayed the same during this time, those reporting to visit the area “much more often” (16%) or “somewhat more often” (17%) outnumber those reporting to visit it “somewhat less often” (9%) or “much less often” (9%) by roughly a two to one margin.

Figure 5.5-6

Change in Frequency of Usage of the Upper Arrow Reservoir over the past 5 to 10 Years - among those who currently participate in outdoor activities -



As one may expect, the change in frequency of participation in outdoor recreational activities in or around the Upper Arrow Reservoir varies with age. Those less than 35 years old are more likely than their older counterparts to be using the area more often than they did five to ten years ago. While it is remarkable that one-half of those at least 55 years old are still using the area as frequently as they did five to ten years ago, this age group does have significantly more individuals than the other brackets using the area either “somewhat less often” (12%) or “much less often” (19%).

In this line of questioning, it is important to remember that survey respondents are asked whether their recreational usage of the areas has changed in a broad sense – not on an activity by activity basis. Although less informative, some insight can be gained by profiling *change in frequency* by *activity*. Findings are detailed on the following page.

Individuals who participate in either dirt biking or mountain biking are among the most likely to say that they are currently using the areas around the Upper Arrow Reservoir between Revelstoke and Shelter Bay more often than they were five to ten years ago. In fact, the proportion among them reaches one-half. Keep in mind, once again, that it can not necessarily be said that these individuals are using the area more often for these specific activities.

Individuals who like to go bird watching, swimming or 4x4'ing are also more likely than others to report on visiting the area more frequently than they did up to a decade ago.

Table 5.5-7
Change in Frequency of Usage of the Upper Arrow Reservoir
- among those who currently participate in outdoor activities -

	Unweighted Base		Total more often	Stayed the same	Total less often
Total	400	%	33	46	18
Age					
18 – 34	62	%	43	41	9
35 – 54	176	%	31	48	17
55 +	52	%	19	50	31
Activities Participate In ¹					
Bird watching	16	%	44	49	8
Camping	85	%	38	39	19
Canoeing	51	%	39	43	10
Cross county skiing	34	%	32	54	14
Cycling	59	%	36	41	16
Dirt biking	10	%	52	20	29
Fly fishing	57	%	30	47	18
Hiking/walking	126	%	35	47	12
Hunting	34	%	15	56	29
Mountain biking	10	%	50	50	-
Other boating	14	%	24	52	24
Power Boating	43	%	31	52	12
Shoreline fishing	98	%	29	49	19
Swimming	41	%	40	41	12
Troll fishing	138	%	31	46	21
Viewing wildlife	16	%	28	56	16
4x4'ing	11	%	41	44	16

¹ Findings for "Activities Participate In" are not mutually exclusive as an individual can participate in more than one activity.

While the majority of those who like to hunt in the areas of interest say that their usage as remained much the same over the past five to ten years, they have a higher proportion than others reporting that their visitation has decreased.

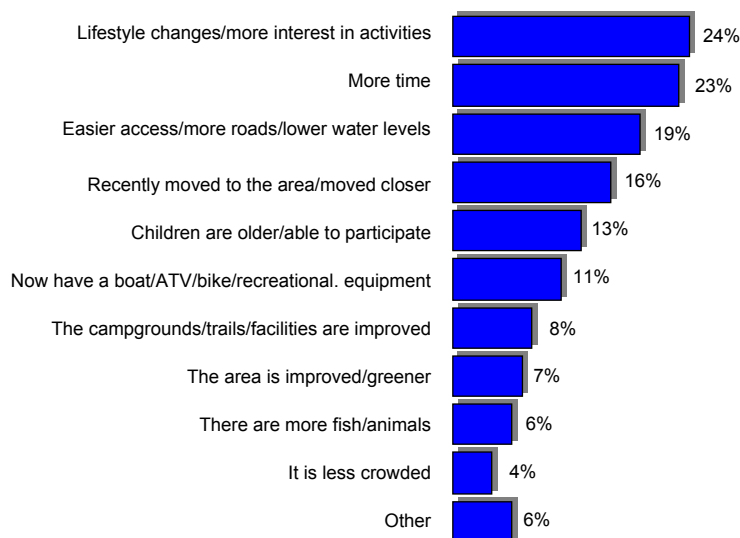
Reasons for Participating in Outdoor Activities in the Area More Often

Residents who are now participating in outdoor activities in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay more often than they did five to ten years ago are doing so for many different reasons. Essentially sharing top spot, about one in four of these individuals each report that they have had a lifestyle change and are now more interested in such activities (24%) or that they now have more free time to participate in such activities than they have had in the past (23%).

About one in five of those participating in outdoor recreational activities in the area more often believe there is now easier access to the areas of their choice (19%) – such as more roads or lower water levels to access the reservoir. Slightly fewer reason that they have recently moved to the area, or at least, closer to it (16%).

Figure 5.5-8

Reasons for Participating in Outdoor Recreational Activities in the Area More Often

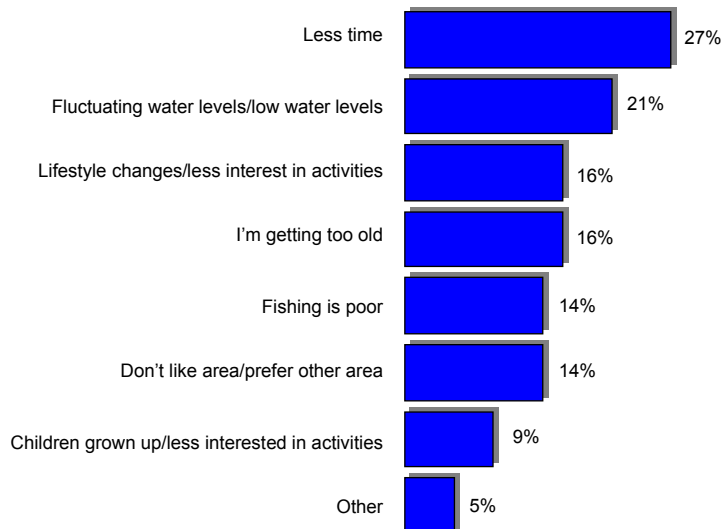


Roughly one in ten report participating in outdoor recreational activities in the area more often than they did five to ten years ago because their children are older and now more able to participate (13%) or because they now have recreational equipment (11%). Fewer are doing so more often because they feel the campground, facilities and trails have improved (8%), because they feel the area is greener (7%), because they believe there are more fish & wildlife (6%), or because they see it as being less crowded than it used to be (4%).

Reasons for Participating in Outdoor Activities in the Area Less Often

Residents who are currently participating in outdoor recreational activities in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay less often than they did five to ten years ago most frequently reason that they have less time to do so (27%). Others point to fluctuating water levels or low water levels (16%), reason that they are less interested in such activities (16%), or feel like they are getting too old to participate (16%).

Figure 5.5-9
Reasons for Participating in Outdoor Recreational Activities in the Area Less Often

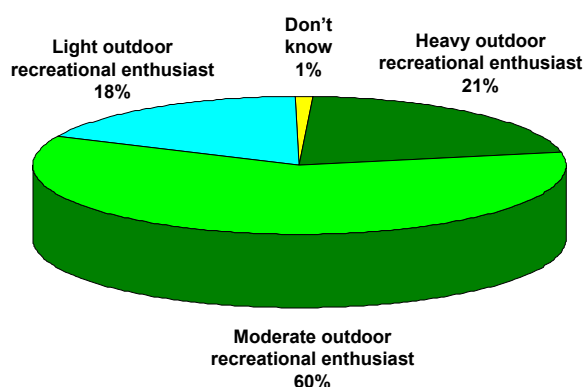


About one in seven of those making use of the area less often for recreational activities each comment that the fishing is poor (14%) or prefer other areas to visit (14%), while fewer reason that their children have grown up and are less interested in such activities (9%).

Type of Outdoor Recreational Enthusiast

In further profiling the users of the Upper Arrow Reservoir, survey participants were asked to think of how others would best describe their own recreational usage and habits. This approach is favoured because it tries to promote an objective view to what is otherwise quite a subjective evaluation. With this in mind, the majority of recreational users feel they would be described by their peers as being “moderate outdoors enthusiasts” (60%) while the balance of individuals are fairly equally divided in believing that others would describe them as being “heavy outdoors enthusiasts” (21%) or “light outdoor enthusiasts” (18%).

Figure 5.5-10
Type of Outdoor Recreational Enthusiast

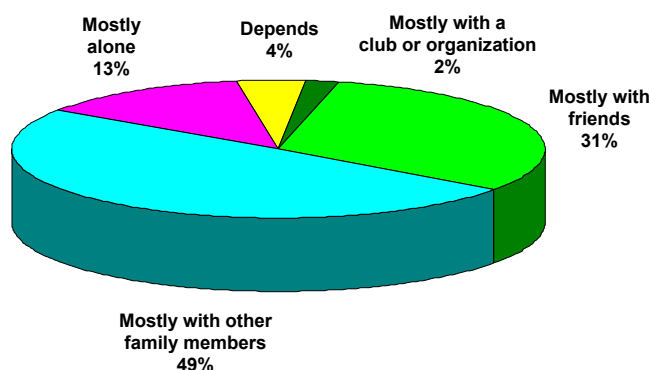


By gender, six in ten of each men and women say they would be described as being “moderate outdoors enthusiasts.” Among the balance of them, however, there is a greater proportion of men than women who are “heavy outdoor enthusiasts” (25% versus 16%). The largest segment of individuals in each of the three age brackets are also considered to be “moderate outdoor enthusiasts.” Again, however, the proportion who are self-proclaimed “heavy outdoor enthusiasts” does vary, registering at 26 percent among those less than 35 years old, 22 percent among those 35 to 54 years old and just 12 percent among those 55 years old or older.

Group Composition of Outdoor Recreational Users

As one may have expected, the majority of outdoor recreational enthusiasts who make use of the areas in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay indicate that they participate either “mostly with other family members” (49%) or “mostly with friends” (31%). The balance of individuals are more likely to make use of the recreational areas “mostly alone” (13%) rather than “mostly with a club or organization” (2%).

Figure 5.5-11
Group Composition of Outdoor Recreational Users



Looking deeper into the group compositions, women and those in the middle age bracket are significantly more likely than others to make use of the areas of interest mostly with other family members. With reference to specific recreational activities, those who enjoy boating (general) (70%), power boating (60%), cross country skiing (68%), or swimming (58%) are more likely than others to engage in them with family. Please see the table on the following page for the complete findings.

Men and especially those less than 35 years old are significantly more likely than others to use the recreational areas mostly with friends. Participating with friends is a more common occurrence among those who enjoy dirt biking (66%), 4x4'ing (64%), shoreline fishing (42%), and camping (39%).

Individual use of the reservoir areas for recreational purposes measures fairly evenly among the gender and age sub-groups. By activity, mountain biking (35%), cycling (27%), bird watching (30%), and wildlife viewing (28%) are the activities that are more likely to be enjoyed on an individual basis.

Table 5.5-12

Group Composition of Recreational Users

- major groups only -

	Unweighted Base		Mostly with other family members	Mostly with friends	Mostly with self
Total	400	%	49	31	13
<u>Gender</u>					
Men	170	%	41	37	14
Women	120	%	60	24	10
<u>Age</u>					
18 – 34	62	%	39	48	8
35 – 54	176	%	59	21	14
55 +	52	%	38	30	17
<u>Activities Participate In</u> ¹					
Bird watching	16	%	33	24	30
Camping	85	%	48	39	8
Canoeing	51	%	52	32	15
Cross county skiing	34	%	68	8	18
Cycling	59	%	38	27	27
Dirt biking	10	%	21	66	13
Fly fishing	57	%	40	32	14
Hiking/walking	126	%	50	26	18
Hunting	34	%	45	26	14
Mountain biking	10	%	31	34	35
Other boating	14	%	70	6	18
Power Boating	43	%	60	23	12
Shoreline fishing	98	%	40	42	11
Swimming	41	%	58	33	4
Troll fishing	138	%	57	27	7
Viewing wildlife	16	%	37	25	28
4x4'ing	11	%	26	64	5

¹ Findings for "Activities Participate In" are not mutually exclusive as an individual can participate in more than one activity.

APPENDIX

Upper Arrow Recreation Survey - Final

Hello. My name is _____ of MarkTrend Research, an opinion research firm located in Vancouver. Today/this evening, we are conducting a short survey about the Upper Arrow Reservoir, in particular the grass flats south of Revelstoke to Shelter Bay. The survey will take about 12 minutes to complete. May I please speak to the person 18 years of age or over in your household who had their birthday last.

REINTRODUCE YOURSELF IF NECESSARY. ARRANGE CALLBACK IF NOT AVAILABLE.

READ IF NECESSARY: I will be more than happy to inform you of the sponsor of this survey in just a few minutes. But I would like to ask you several questions first.

A. TOP OF MIND ISSUES OF CONCERN

- 1a. To begin, what do you consider to be the most important environmental issue or concern currently facing your region of the province? **PROBE FULLY**
- 1b. And can you think of anything that you might have considered to be an important environmental issue or concern in your region 5 to 10 years ago, but is no longer an issue or concern to you? **PROBE FULLY**
2. For each of the following items relating to the region in which you live, I am first going to ask you how you would rate it. Then I will ask you whether you think that item has improved over the past 5 to 10 years, stayed the same or deteriorated.

Let's start with....**(INSERT FIRST STATEMENT - RANDOMIZE)**

2.1 Would you currently rate it as excellent, good, fair, poor or very poor?

2.2 And compared to 5 to 10 years ago, would you say it has improved, stayed the same or deteriorated?

IF IMPROVED OR DETERIORATED THEN ASK:

And would you say it has (improved/deteriorated) a great deal or a little?

- a) the air quality in your area – that is, being free of pollution and dust
- b) the water level on the Upper Arrow reservoir in terms of being suitable for recreational activities
- c) the amount of green plant vegetation in and around the edges of the Upper Arrow reservoir between
Revelstoke and Shelter Bay
- d) the ability to participate in recreational activities in and around the edges of the Upper Arrow reservoir between Revelstoke and Shelter Bay
- e) the look of the areas in and around the Upper Arrow reservoir between Revelstoke and Shelter Bay in terms of being pleasing to the eye
- f) the quality of the fish and wildlife habitat in and around the Upper Arrow Reservoir between Revelstoke and Shelter Bay

FOR EACH ITEM IN 2.2 THAT HAS “IMPROVED A GREAT DEAL”, ASK Q.3

3. You said that (**insert item**) has improved a great deal over the past 5 to 10 years? Can you tell me what you think has caused it to improve a great deal? **PROBE FULLY**

REPEAT FOR EACH ITEM THAT RESPONDENT HAS SAID HAS “IMPROVED A GREAT DEAL”

B. PROGRAM AWARENESS

- 4a). Are you aware of any environment initiatives or programs currently underway that relate to the Upper Arrow reservoir between Revelstoke and Shelter Bay?

Yes

No **SKIP TO Q.5**

- 4b) What are these initiatives or programs? **PROBE FULLY**

Other (specify)

Nothing in particular

5. The shoreline areas surrounding the Upper Arrow reservoir, between Revelstoke and Shelter Bay were first manually seeded with vegetation about 15 years ago, and continues to receive seeding each year. Were you previously aware of this seeding program?

Yes

No **SKIP TO PREAMBLE BEFORE Q.8**

6. And can you tell me why the shoreline areas surrounding the Upper Arrow reservoir between Revelstoke and Shelter Bay have been seeded over this time? **PROBE FULLY**

7. Can you tell me the name of the main sponsor behind the seeding program? **DO NOT READ LIST**

BC Hydro

Environment Canada

BC Government

Parks Canada

Ministry of Environment, Lands and Parks

Other (specify)

READ TO ALL

As you may already know, the shoreline areas surrounding the Upper Arrow reservoir between Revelstoke and Shelter Bay have been seeded each year for the past 15 years by BC Hydro. By seeding the shoreline areas, plant vegetation has grown in areas where at one time was only dirt. As a result, dust and dirt can not as easily become airborne causing poor air quality when the water levels in the reservoirs are low.

8. Does this program sound familiar to you?

Yes

No

READ TO ALL – I can now tell you that the sponsor of this survey is BC Hydro. Should you have any concerns relating to the validity of it, you may contact Marc Pedersen, Research Coordinator at BC Hydro: telephone: (604) 623-4279.

Do you or any member of your household work for BC Hydro?

If YES – THANK AND TERMINATE

C. ATTITUDES TOWARDS THE RESEEDING PROGRAM

9. For each of the following statements, I would like you to tell me the extent to which you agree or disagree. **RANDOMIZE**

READ FIRST STATEMENT

Would you say you strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree?

a) the seeding program of the shoreline areas surrounding the Upper Arrow reservoir between Revelstoke and Shelter Bay has been effective in controlling for dust storms

b) the seeding program of the shoreline areas surrounding the Upper Arrow reservoir between Revelstoke and Shelter Bay has improved the quality of outdoor recreational activities in and around it

c) the seeding program of the shoreline areas surrounding the Upper Arrow reservoir between Revelstoke and Shelter Bay has improved the aesthetics of the area in that it is now more pleasing to look at

d) the seeding program of the shoreline areas surrounding the Upper Arrow reservoir between Revelstoke and Shelter Bay has improved the fish and wildlife habitat values of the reservoir

D. USAGE

READ TO ALL: This next part of the survey relates to recreational usage of the Upper Arrow reservoir.

10. Do you participate in any outdoor recreational activities in or around the Upper Arrow reservoir between Revelstoke and Shelter Bay?

Yes

No **SKIP TO DEMOGRAPHICS**

11. For how many years have you participated in outdoor recreational activities in this area? **RECORD ABSOLUTE**

12a. And what kind of outdoor recreational activities do you participate in this area? Any others? **DO NOT READ LIST – RECORD ALL MENTIONS**

4 x 4 'ing
ATV (All Terrain
Vehicle)
Bird watching
Camping
Canoeing/kayaking
Cross country skiing
Cycling
Dirt biking/motorcycling
Dog walking
Fishing – fly fishing
Fishing – shore fishing
Fishing – trolling
Guiding (fishing/hunting)
Hiking/walking
Horseback riding
Hunting
Jet skiing
Picnicking
Power boating
Sailing
Snowshoeing
Snowmobiling
Viewing (wildlife/nature)
(but not bird watching)
Other (specify)

FOR EACH ITEM IN WHICH THEY PARTICIPATE, ASK

- 12b. How often do you (**insert item**) in or around the Upper Arrow Reservoir between Revelstoke and Shelter Bay? Would you say daily, weekly, twice a month, once a month, once every two months, or less than once every two months? **NOTE: IF A SEASONAL ACTIVITY:** How often do you (**insert item**) during that season?

Daily
Weekly
Twice a month
Once a month
Once every two months
Less than once every two months

- 13a. Would you say you participate in outdoor recreational activities in and around the Upper Arrow reservoir between Revelstoke and Shelter Bay more often than you did 5 to 10 years ago, less often than you did 5 to 10 years ago, or would you say it has stayed about the same?

PROBE IF “MORE OFTEN” OR “LESS OFTEN”, THEN ASK:

Would you say a much (more often/less often) or somewhat (more often/less often)?

Much more often
Somewhat more often
Stayed the same
Somewhat less often
Much less often

SKIP TO Q14

- 13b. For what reasons would you say you participate (insert from q13a) in such outdoor recreational activities? **PROBE**

14. Thinking again about how often you currently participate in the different outdoor recreational activities in or around the Upper Arrow reservoir, do you think others would describe you as a heavy outdoor recreational enthusiast, a moderate outdoor recreational enthusiast, or a light outdoor recreational enthusiast?

Heavy outdoor recreational enthusiast
Moderate outdoor recreational enthusiast
Light outdoor recreational enthusiast

- 15a. I am going to read you a list of the different areas around the Upper Arrow reservoir between Revelstoke and Shelter Bay. For each one, please tell me whether you typically use that area when you participate in outdoor recreational activities? **READ LIST**

Around the airport (yes/no)
Cartier Bay (yes/no)
Machete Island (yes/no)
Montana Slough (yes/no)
6 mile (yes/no)
12 mile (also known as Drimmie Creek) (yes/no)

- 15b. Are there any areas that I have missed that you typically use? **PROBE FOR SPECIFICS**

Other (specify)
No

16. Do you participate in outdoor recreational activities around the Upper Arrow reservoir between Revelstoke and Shelter Bay mostly by yourself, mostly with other family members, mostly with friends, or mostly as part of a club or organization?

Mostly with self
Mostly with other family
Mostly with friends
Mostly with a club or organization

DNR Depends (on activity, season, who's available, etc)

E. DEMOGRAPHICS

I have just a few final questions about yourself to help us understand the data. Please ask me to skip any questions you're not comfortable with.

- A. **GENDER - OBSERVE**
MALE
FEMALE

B. Into which of the following age categories may I place you?

18 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 years and over

C. What is the highest level of school/education that you have completed? **DO NOT READ**

ELEMENTARY SCHOOL (GRADE 1 TO 8)
GRADUATED HIGH SCHOOL
VOCATIONAL/TECHNICAL/COLLEGE (CEGEP)
SOME UNIVERSITY
GRADUATED UNIVERSITY
POST GRADUATE

D. For how many years have you lived in the Revelstoke area?

RECORD ABSOLUTE

E. Which of the following groupings best describes your total annual household income per year before taxes?

Less than \$45,000
Is that:
Up to \$25,000
Up to \$35,000
Up to \$45,000
REFUSED/DON'T KNOW

or \$45,000 or more
Is that:
Up to \$55,000
Up to \$65,000
\$65,000 or more
REFUSED/DON'T KNOW

REFUSED/DON'T KNOW

F. POSTAL CODE

THANK AND CLOSE.