



Lesser Slave Watershed Council
A Vision for the Lesser Slave Watershed
2012 – 2013 IWMP Project

Step Two: On-line Survey
Survey Results

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LSWC On-line Survey Results

Summary Analysis of Survey Results

Introduction

The Lesser Slave Watershed Council (LSWC) requires broad input and support from residents and stakeholders for the development and implementation of its Integrated Watershed Management Plan (IWMP). The Lesser Slave IWMP is in its initial phase of development. The LSWC is conducting a visioning project to engage watershed residents and stakeholders to set the foundations for their continued involvement in the development and implementation of the IWMP.

The visioning project is gathering input from watershed stakeholders and residents in relation to their interests, needs, issues and priorities, and identifies gaps and perceived risks associated with watershed growth, development, and management. Input from watershed residents and stakeholders is being gathered through the following processes:

Step One: In-person interviews

Step Two: On-line survey

Step Three: Public meetings

This report analyses response to Step Two, the on-line survey conducted by the LSWC in November 2012. The survey builds upon the information collected in the in-person interviews with 23 stakeholders in the watershed (see the *What We Heard Report*, October 29, 2012).

The on-line survey was open November 4 to December 1, 2012. It was accessible through a link posted on the LSWC website and was promoted via the LSWC Facebook social media page. Posters advertising the survey were put up around coffee shops and other businesses in High Prairie and Slave Lake, and LSWC staff went on the local radio station morning show, talking about the project and encouraging people to take part in the survey. A feature story in the *Spotlight* section of the regional newspaper was also published. LSWC staff also spent an afternoon at the local grocery store giving out information sheets, brochures, and providing access to the survey through their laptops, encouraging people to complete the survey. As a result of this effort, fifty-three (53) individual responses to the on-line survey were received.

Following is a summary analysis to the six questions in the survey. The complete breakdown of responses is attached as Appendix A. The survey instrument is attached as Appendix B.

Question 1: Activities in the watershed

The first question asked respondents to rate the impact of a list of activities on the watershed. The scale was: Substantial negative impact, somewhat negative impact, neutral impact, somewhat positive impact, and substantial positive impact.

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Clear cutting as a primary forest harvesting technique was considered by most respondents to have the most **substantially negative** impact on the environment.

Respondents believe that the following activities had a **negative (substantial or somewhat negative) impact** on the watershed. Activities are ranked in order from higher to lower negative impact:

- *Cattle in the water*
- *Fertilizer & pesticide use in agriculture*
- *Using fresh water in oil & gas extraction*
- *Land clearing for farming and development*
- *Fertilizer & pesticide use in towns and villages*

The following activities were ranked as having **some negative (substantial negative, somewhat negative, and neutral) impact** on the watershed, with a significant minority of respondents ranking these activities as having neutral impact on the watershed. Activities are ranked in order from higher to lower degree negative impact:

- *Hanging culverts from resource road development*
- *Stream crossings from resource road development*
- *Increased subdivision of land: acreages; lake lots; river lots*

The following activities were generally rated as having somewhat negative impact on the watershed, but it is important to note that some (a minority) ranked these as having a positive impact on the watershed:

- *Recreational use of waterways*
- *Sewage treatment*

This survey does not allow for any further breakdown to help identify reasons for this larger response spread. For example, where respondents live may have influenced their response, and different types of sewage treatment in different areas may also be a source for this response spread. More research is needed to examine the reasons for this spread.

Question 2: Conditions in the watershed

The second question asked respondents to rank the impact of conditions on the watershed, using the same rating scale as Question 1 (substantial negative impact, somewhat negative impact, neutral impact, somewhat positive impact, substantial positive impact). Responses indicate that the following activities are viewed as having a **substantial or somewhat negative impact** on the watershed. Activities are ranked in order from higher to lower negative impact:

- *Algae blooms*
- *Increased sedimentation*
- *Lower water levels in lakes and rivers*

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Changes in groundwater levels was rated as having a **somewhat negative impact** on the watershed.

It is worth noting that 30% of the responses indicated that *climate change* had a neutral impact on the watershed. This indicates that from the point of view of the respondents, while the conditions listed above have a negative impact on the watershed, there is no strong support linking these conditions to climate change.

Question 3: Additions to the list of activities and conditions that impact the watershed

Respondents were then asked to identify other activities or conditions that impact the watershed (activities or conditions not listed in previous questions). The full list of 36 activities and conditions identified by 17 respondents is in Appendix A. A further qualitative analysis of the comments divided the responses into five categories:

- *Agricultural activities*
- *Oil and gas activities*
- *Development activities*
- *Water quality concerns*
- *Water supply concerns*

The comments listed under these categories generally expanded on or added clarity to the activities and conditions already identified through the in-person interviews. Three to four comments are listed under four of the categories, with the majority (12 comments) listed under water quality concerns.

The following comments, however, did not fall into these categories, and may be considered as “new” additions to the list of activities and conditions impacting the watershed:

- *Off- highway vehicles use, such as ATVs.*
- *Lack of consultation with First Nations.*
- *Air pollution, with a specific mention of burning old hay.*
- *Clean up of existing polluted sites, such as the pole yards in Faust and the Swans Hills Dangerous Goods Plant.*
- *Tracking (understood as monitoring).*
- *Education of our youth and general public.*

Question 4: Identifying Priorities

Respondents were then asked to identify the top three priorities that should be included in a watershed management plan (IWMP). Three issues emerged as priorities (ranked in order from higher to lower priority):

- *Using fresh water in oil and gas extraction*
- *Fertilizer and pesticide use in agriculture*

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- *Cattle in the water*

While these three priorities (particularly the first two priorities) ranked above all others, there was significant support for including the following issues as priorities (ranked in order of priority from higher to lower):

- *Land clearing for farming and development*
- *Clear cutting as a primary forest harvesting technique*
- *Algae blooms*
- *Sewage treatment*
- *Fertilizer & pesticide use in towns and villages*

There was less support for including the following (ranked in order of priority from higher to lower):

- *Increased subdivision of land: acreages; lake lots; river lots*
- *Lower water levels in lakes and rivers*
- *Increased sedimentation*
- *Recreational use of waterways*
- *Changes in groundwater levels*

The following were ranked as having the least highest priority for inclusion in an IWMP:

- *Stream crossings from resource road development*
- *Climate change*
- *Hanging culverts from resource road.*

Although there was space to add priorities if they were not on the list, no one responded to this option. This could be interpreted as the LSWC having good local knowledge based on the in-person interviews, as the list generated for the survey included all of the respondents' top three choices.

Question 5: Specific areas to be protected or preserved

The in-person stakeholder interviews identified some specific areas in the watershed that should be protected or preserved. For each area, respondents were asked to indicate whether they agreed or disagreed. Answer options included: strongly agree; agree; disagree; strongly disagree; and neither agree or disagree.

Respondents most **strongly agreed** with protecting or preserving *Buffalo Bay* (for fish spawning); followed closely by *Mud Creek*, *South Heart River* for fish spawning; and by *provincial parks*.

Respondents were more evenly divided between **strongly agreeing and agreeing that** the *Mouth of the Driftpile River* (for Pelicans), *Sawridge Creek* (for Artic Grayling) and *Joussard South Shore* (for Tundra Swans) should be protected, resulting in a somewhat lower ranking.

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Question 6: Additions to specific areas

Respondents were asked if there were any other specific areas in the watershed that they would like to add to the list that should be protected or preserved. Some specific areas included:

- *Hilliard's Bay Park*
- *Swan River Drainage for Arctic Grayling*
- *Marten River for grayling*
- *Joussard Little Grassy and Joussard Point*
- *Winagami Wildland Park*

Appendix A: Detailed Breakdown of Survey Results

Question 1: Activities in the watershed

Based on their experience and knowledge, respondents were asked to indicate the impact of each **activity** on the watershed. This was a closed response question. Respondents were asked to indicate their response based on the following choices (answer options):

- **Substantial negative** impact on the environment
- **Somewhat negative** impact on the environment
- **Neutral** impact on the environment
- **Somewhat positive** impact on the environment
- **Substantial positive** impact on the environment.

For the purposes of analysis, these choices were ranked on a scale of 1-5, with 1 being the most negative response and 5 being the most positive. **Table 1** below provides the following information:

- **Response count:** Total number of people who provided a response to each activity.
- **Average rating:** the sum of all individual responses (ranked on the scale of 1 to 5) for each activity divided by the number of respondents.
- **Rating scale:** is between the values of 1 and 5, the most negative impact being 1 and the most positive being 5, with a neutral impact rated as 3.

Key findings:

- The total response count ranged between 51 and 53, as not all respondents provided a response to every activity.
- The average rating for all activities ranged between 1.55 and 2.46, indicating that a majority of respondent felt that all activities had a **substantial to somewhat negative** impact on the environment.
- *Clear cutting as a primary forest harvesting technique* was considered by most respondents to have the most **substantially negative** impact on the environment (67.9%). Sixteen respondents thought this activity had somewhat negative (13.2%) or neutral (17%) impact, while one thought it had a positive impact on the environment.
- The following activities were considered by respondents to have a **substantial to somewhat negative** impact:
 - *Cattle in the water*
 - *Fertilizer & pesticide use in agriculture*
 - *Using fresh water in oil & gas extraction*
 - *Land clearing for farming and development*
 - *Fertilizer & pesticide use in towns and villages.*

A few respondents (between two and seven) felt the impact of each activity was neutral, with two or three others believing each activity positively impacted the environment.

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Table 1: Conditions in the Watershed

The following activities were identified as issues in the in-person interviews. For each of the following activities please indicate, based on your experience and knowledge, the impact of each activity on the watershed.							
Answer Options	Substantial negative impact	Somewhat negative impact	Neutral impact	Somewhat positive impact	Substantial positive impact	Rating Average	Response Count
Clear cutting as a primary forest harvesting technique	36 (67.9%)	7 (13.2%)	9 (17.0%)	0 (0.0%)	1 (1.9%)	1.55	53
Cattle in the water	27 (52.9%)	19 (37.3%)	2 (3.9%)	1 (2.0%)	2 (3.9%)	1.67	51
Fertilizer & pesticide use in agriculture	29 (54.7%)	17 (32.1%)	4 (7.5%)	1 (1.9%)	2 (3.8%)	1.68	53
Using fresh water in oil & gas extraction	29 (55.8%)	14 (26.9%)	7 (13.5%)	0 (0.0%)	2 (3.8%)	1.69	52
Land clearing for farming and development	23 (43.4%)	24 (45.3%)	3 (5.7%)	2 (3.8%)	1 (1.9%)	1.75	53
Fertilizer & pesticide use in towns and villages	17 (32.7%)	28 (53.8%)	4 (7.7%)	1 (1.9%)	2 (3.8%)	1.90	52
Hanging culverts from resource road development	16 (30.2%)	22 (41.5%)	14 (26.4%)	0 (0.0%)	1 (1.9%)	2.02	53
Stream crossings from resource road development	19 (36.5%)	16 (30.8%)	15 (28.8%)	0 (0.0%)	2 (3.8%)	2.04	52
Increased subdivision of land: acreages; lake lots; river lots	14 (26.4%)	26 (49.1%)	10 (18.9%)	2 (3.8%)	1 (1.9%)	2.06	53
Recreational use of waterways	8 (15.4%)	24 (46.2%)	15 (28.8%)	2 (3.8%)	3 (5.8%)	2.38	52
Sewage treatment	13 (25.0%)	18 (34.6%)	10 (19.2%)	6 (11.5%)	5 (9.6%)	2.46	52

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- There was a more equal distribution of opinion between **substantial negative, somewhat negative, and neutral** impact for the following activities:
 - *Hanging culverts from resource road development*
 - *Stream crossings from resource road development*
 - *Increased subdivision of land: acreages; lake lots; river lots*

Again, only a few respondents felt these activities had a somewhat or substantial positive impact on the environment.

- While the *recreational use of waterways* was generally considered to have a **somewhat negative** impact on the environment (46.2% of respondents), 15.4% of respondents felt that it had a substantial negative impact, and 28.8% though it had a neutral impact, while five respondents felt it had a somewhat (3.8%) or substantial (5.8%) positive impact.
- The most evenly distributed response was to *sewage treatment*. While 59.6% thought the activity had a **substantial (25%) or somewhat (34.6%) negative** impact on the environment, 19.2% felt the impact to be neutral, and 21.1% felt it had a somewhat (11.5%) or substantial (9.6%) positive impact.

Question 2: Conditions in the watershed

Following the same process as described above, and based on their experience and knowledge, respondents were asked to indicate the impact of each **condition** on the watershed (see Table 2).

Key findings:

- The total response count ranged between 51 and 52, as not all respondents provided a response to every condition.
- The average rating for all conditions ranged between 1.75 and 2.23, indicating that a majority of respondent felt that all conditions had a **substantial to somewhat negative** impact on the environment. None of the conditions were considered by anyone to have a substantially positive impact on the environment.
- *Algae blooms* were considered by most respondents to have the most **substantially negative** impact on the environment (51.9%). Fifteen respondents thought this condition had a somewhat negative impact (28.8%), and six respondents (11.5%) thought it had a neutral impact, while four respondents (7.7%) thought algae blooms had a somewhat positive impact on the environment.
- *Increased sedimentation* was also considered by most respondents to have a **substantially negative (47.1%) or somewhat negative (35.3%)** impact on the environment. Seven respondents (13.7%) thought it had a neutral impact. Only two respondents (3.9%) thought increased sedimentation had a somewhat positive impact on the environment.
- *Lower water levels in lakes and rivers* was also considered by most respondents to have a **substantially negative (38.5%) or somewhat negative (42.3%)** impact on the environment.

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Seven respondents (13.5%) thought it had a neutral impact. Three respondents (5.8%) thought lower water levels had a somewhat positive impact on the environment.

- *Changes in groundwater levels* was considered by half of respondents to have a **somewhat negative** impact on the environment (50.0%). A quarter of respondents (25%) thought this condition had a substantial negative impact, and eight respondents (15.4%) thought it had a neutral impact. Five respondents (9.6%) thought lower groundwater levels had a somewhat positive impact on the environment.
- The most evenly distributed response was to *climate change*. While twelve respondents felt it had a **substantial negative (23.1%)** impact, twenty respondents (38.5%) thought climate change had a **somewhat negative** impact on the environment, and sixteen respondents (30.8%) felt the impact to be neutral. Four respondents (7.7%) felt climate change had a somewhat positive impact on the environment.

Table 2: Conditions in the Watershed

The following conditions were identified as issues in the in-person interviews. Again, based on your experience and knowledge, rate the impact of the condition on the watershed.							
Answer Option	Substantial negative impact	Somewhat negative impact	Neutral impact	Somewhat positive	Substantial positive impact	Rating Average	Response Count
Algae blooms	27 (51.9%)	15 (28.8%)	6 (11.5%)	4 (7.7%)	0 (0.0%)	1.75	52
Increased sedimentation	24 (47.1%)	18 (35.3%)	7 (13.7%)	2 (3.9%)	0 (0.0%)	1.75	51
Lower water levels in lakes and rivers	20 (38.5%)	22 (42.3%)	7 (13.5%)	3 (5.8%)	0 (0.0%)	1.87	52
Changes in groundwater levels	13 (25.0%)	26 (50.0%)	8 (15.4%)	5 (9.6%)	0 (0.0%)	2.1	52
Climate Change	12 (23.1%)	20 (38.5%)	16 (30.8%)	4 (7.7%)	0 (0.0%)	2.23	52

Question 3: Additions to the list of activities and conditions that impact the watershed

Respondents were then asked if there were any activities or conditions that impact the watershed that should be added to the list developed through the Phase One Stakeholder Interview process.

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Key findings:

The following table lists 36 activities and conditions identified by 17 respondents, in random order:

Table 3: Activities and conditions added to the list

Education, of our youth & general public	Less use of housecleaners	Chlorination
Fluoridation	Oil and gas exploration	Fracturing (oil & gas)
Air pollution	Cleaning up old known pollutants in the water, such as in Faust	Fishing shacks on the lake (lack of sewage controls)
Marinas	Feedlots	Swan Hills Dangerous Goods Plant
Increasing demand for water	Changes in globe precipitation patterns	What are the minimum water levels (or flow) for ecosystem processes?
What are the effects of adding more control structures in the watershed?	Stopping the process of eutrophication	Sewage lagoons
Riparian Health - farming, ranching practices that do not maintain appropriate riparian buffers	Lakeshore development	Fish population health - collapse of fish populations and loss of apex predators has been correlated to declines in Water quality (Lac la Biche)
Lack of First Nation Consultation	Why are the 5 first nations not given seats at the LSLWC	Burning of old hay
Nitrates/nitrites	MD of Big Lakes building new lagoon without nutrient removal	Straightening river channels-faster runoffs, cutting off fish spawning streams from river
Phosphorous	Off-road vehicle use	Oil and gas
Cattle in water by Grouard bridge	Storm water run off from streets	Household cleaners
Water diversion from land development	Abandoned wells	Recreation (e.g. ATVs)

Qualitative analysis of newly identified activities and conditions

From this list of 36 additional activities and conditions, the consultants identified five main categories, or types, of activities and conditions that impact the watershed, and divided the responses into these categories:

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Table 4: Qualitative analysis of additional activities and conditions

Agricultural Activities	Oil and Gas Activities	Development activities	Water quality concerns	Water supply concerns
<ul style="list-style-type: none"> • Feedlots • Riparian Health - farming, ranching practices that do not maintain appropriate riparian buffers • Cattle in water by Grouard bridge 	<ul style="list-style-type: none"> • Oil and gas exploration • Fracturing (oil & gas) • Abandoned wells • Oil and gas 	<ul style="list-style-type: none"> • Marinas • Lakeshore development • Water diversion from land development • Straightening river channels- faster runoffs, cutting off fish spawning streams from river 	<ul style="list-style-type: none"> • Less use of housecleaners • Chlorination • Fluoridation • Fishing shacks on the lake (lack of sewage controls) • Stopping the process of eutrophication • Fish population health - collapse of fish populations and loss of apex predators has been correlated to declines in water quality (Lac la Biche) • Phosphorous • Nitrates/nitrites • MD of Big Lakes building new lagoon without nutrient removal • Storm water run off from streets • Household cleaners • Sewage lagoons 	<ul style="list-style-type: none"> • Increasing demand for water • Changes in globe precipitation patterns • What are the minimum water levels (or flow) for ecosystem processes? • What are the effects of adding more control structures in the watershed?

The comments listed under the above categories expand on or add clarity to the activities and conditions already identified through the in-person interviews with stakeholders. The following six comments, however, did not fall into these categories, and may be considered as “new” additions to the list:

- Off- highway vehicles use, such as ATVs.
- Lack of consultation with First Nations, with one respondent asking why the five First Nations were not given seats as the Lesser Slave Watershed Council board table.

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- Air pollution, with a specific mention of burning old hay.
- Clean up of existing polluted sites, such as the pole yards in Faust and the Swans Hills Dangerous Goods Plant.
- Tracking (understood as monitoring).
- Education of our youth and general public.

Question 4: Identifying Priorities

Respondents were asked to identify their top three (3) priorities from the list of activities and conditions that impact the watershed and should be addressed in an Integrated Watershed Management Plan (IWMP).

Key findings:

- The total response count for this question was 47, as not all respondents chose to answer this question.
- A total of 16 activities and conditions were listed to choose from (the same list of activities and conditions identified in Questions 1 and 2). Some respondents limited their choices to their top three priorities, while others chose to rank all of them from one to 16. The average rating (the sum of all individual responses (on the scale of 1 to 16) for each activity/condition divided by the number of respondents) ranged from 6.26 to 10.51, with the lowest numbers signifying the highest overall priorities.
- **Table 5** below lists the activities and conditions that should be identified in an Integrated Watershed Management Plan (IWMP) in order of priority. The top three priorities are:
 - *Using Fresh water in oil and gas extraction*
 - *Fertilizer and pesticide use in agriculture*
 - *Cattle in the water*

Table 5: Identifying priorities

Please identify your three (3) top priorities that should be addressed in the Integrated Watershed Management Plan.		
<i>Activity/condition</i>	<i>Rating Average</i>	<i>Response Count</i>
Using fresh water in oil & gas extraction	6.26	47
Fertilizer & pesticide use in agriculture	6.68	47
Cattle in the water	7.09	47

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The rest of the activities and conditions are listed in continuing order of priority:

Land clearing for farming and development	7.15	47
Clear cutting as a primary forest harvesting technique	7.43	47
Algae blooms	7.91	47
Sewage treatment	8.02	47
Fertilizer & pesticide use in towns and villages	8.4	47
Increased subdivision of land: acreages; lake lots; river lots	8.94	47
Lower water levels in lakes and rivers	9.15	47
Increased sedimentation	9.3	47
Recreational use of waterways	9.3	47
Changes in groundwater levels	9.62	47
Stream crossings from resource road development	10.04	47
Climate Change	10.21	47
Hanging culverts from resource road development	10.51	47

Although there was space to add priorities if they were not on the list, no one responded to this option. This could be interpreted as the LSWC having good local knowledge based on the in-person interviews, as the list they generated for the survey included all of the respondents' top three choices.

Question 5: Specific areas to be protected or preserved

The in-person stakeholder interviews identified some specific areas in the watershed that should be protected or preserved. For each area, respondents were asked to indicate whether they agreed or disagreed with protecting or preserving these areas.

Answer options:

- Strongly agree

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- Agree
- Disagree
- Strongly disagree
- Neither agree or disagree

For the purposes of this analysis, the **average rating** was calculated by assigning a rating scale between the values of 1 and 5, with “strongly agree” being 1, “strongly disagree” being 5, and “neither agree or disagree” assigned a value of 3. The sum of all individual responses for each activity was then divided by the number of respondents.

Key findings:

- The total response count ranged between 46 and 48, as not all respondents provided a response to every specific area (see Table 6 below).
- The average rating for all activities ranged between 1.23 and 1.77, indicating that a majority of respondent **strong agreed or agreed** that each of the specific areas identified should be protected or preserved.

Table 6: Specific areas to be protected or preserved

The in-person interviews indicated some specific areas in the watershed that should be protected or preserved. For each area, please indicate whether you agree or disagree.							
Answer Options	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Rating Average	Response Count
Buffalo Bay (for fish spawning)	37 (77.1%)	11 (22.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1.23	48
Mud Creek, South Heart River (for fish spawning)	33 (70.2%)	14 (29.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1.30	47
Provincial Parks	30 (63.8%)	15 (31.9%)	0 (0.0%)	2 (4.3%)	0 (0.0%)	1.45	47
Mouth of the Driftpile River (for Pelicans)	24 (52.2%)	20 (43.5%)	0 (0.0%)	2 (4.3%)	0 (0.0%)	1.57	46
Sawridge Creek (for Arctic Grayling)	22 (46.8%)	20 (42.6%)	3 (6.4%)	2 (4.3%)	0 (0.0%)	1.62	47
Joussard South Shore (for Tundra Swans)	22 (46.8%)	21 (44.7%)	2 (4.3%)	2 (4.3%)	0 (0.0%)	1.66	47

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- The majority of respondents **strongly agreed** that the following specific areas should be protected or preserved:

- *Buffalo Bay (for fish spawning)*
- *Mud Creek, South Heart River (for fish spawning)*
- *Provincial Parks*

The rest of the respondents all agreed that these specific areas should be protected or preserved, with the exception of two respondents (4.3%) who disagreed with protecting or preserving provincial parks.

- Support for the protection and preservation of the following three areas was more equally distributed between those who **strongly agreed and agreed**:

- *Mouth of the Driftpile River (for Pelicans)*
- *Sawridge Creek (for Arctic Grayling).*
- *Joussard South Shore (for Tundra Swans)*

Two respondents disagreed with protecting and preserving the Mouth of the Driftpile River.

Three respondents neither agreed or disagreed, and two respondents disagreed with protecting and preserving Sawridge Creek. Two respondents neither agreed or disagreed, and two respondents disagreed with protecting and preserving the Joussard South Shore.

Question 6: Additions to specific areas

Respondents were asked if there were any other specific areas in the watershed that they would like to add to the list that should be protected or preserved.

Key findings:

The following table lists comments made by 15 respondents, in random order:

Table 7: Other specific areas that should be protected or preserved

<ul style="list-style-type: none"> Hilliard's Bay Park 	<ul style="list-style-type: none"> Lakes and rivers banks (cattle)
<ul style="list-style-type: none"> Many people (Faust and Kinuso) drink the water from the Faust water plant, which tries to treat the polluted water. A major and final clean up needs to be completed of the Faust area (old pole treatment site on the water) 	<ul style="list-style-type: none"> Joussard Little Grassy nesting site; Joussard Point out from Keay Cove nesting site; northern pike spawning creek east of Shadow Creek marina site
<ul style="list-style-type: none"> The headwaters 	<ul style="list-style-type: none"> Little Grassy for gull and tern nesting, also pelicans
<ul style="list-style-type: none"> All tributaries in the West End conservation closure currently used on Lesser Slave Lake; Swan River Drainage for Arctic Grayling. 	<ul style="list-style-type: none"> Winagami Wildland Park (the jack pines, north of High Prairie)

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<ul style="list-style-type: none">• Joussard South Shore Gulls and shore birds Pike	<ul style="list-style-type: none">• Forest fire impact
<ul style="list-style-type: none">• River area by Buffalo Bay	<ul style="list-style-type: none">• Tributaries to Lesser Slave including East and West Prairie Rivers running through agricultural land.
<ul style="list-style-type: none">• Marten River for grayling	<ul style="list-style-type: none">• Our local rivers should be protected

The following specific areas were identified that should be protected or preserved:

- *Hilliard's Bay Park*
- *Swan River Drainage for Arctic Grayling*
- *Marten River for grayling*
- *Joussard Little Grassy and Joussard Point*
- *Winagami Wildland Park*

Appendix B: Survey Instrument

Lesser Slave Lake Watershed Council

Lesser Slave Lake Watershed Council - Integrated Watershed Management Plan

The Lesser Slave Lake Watershed Council is looking for broad input from residents and stakeholders in developing its Integrated Watershed Management Plan (IWMP).

The consultation has three phases: In-person interviews (23 key stakeholders were interviewed), this on-line survey, and public meetings scheduled for early 2013 to more comprehensively discuss identified issues and priorities.

This survey is an opportunity for citizens to provide input into the proposed IWMP being developed by the Lesser Slave Watershed Council.

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Activities in the watershed

The following activities were identified as issues in the in-person interviews. For each of the following activities please indicate, based on your experience and knowledge, the impact of each activity on the watershed.

	Substantial negative impact	Somewhat negative impact	Neutral impact	Somewhat positive impact	Substantial positive impact
Fertilizer & pesticide use in agriculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fertilizer & pesticide use in towns and villages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cattle in the water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Land clearing for farming and development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sewage treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased subdivision of land: acreages; lake lots; river lots	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using fresh water in oil & gas extraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stream crossings from resource road development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hanging culverts from resource road development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear cutting as a primary forest harvesting technique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreational use of waterways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Lesser Slave Lake Watershed Council

Conditions in the watershed

The following conditions were identified as issues in the in-person interviews. Again, based on your experience and knowledge, rate the impact of the condition on the watershed.

	Substantial negative impact	Somewhat negative impact	Neutral impact	Somewhat positive	Substantial positive impact
Climate Change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changes in groundwater levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased sedimentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lower water levels in lakes and rivers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Algae blooms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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The following issues were identified in earlier questions:

- Climate Change
- Changes in groundwater levels
- Increased sedimentation
- Lower water levels in lakes and rivers
- Algae blooms
- Fertilizer & pesticide use in agriculture
- Fertilizer & pesticide use in towns and villages
- Cattle in the water
- Land clearing for farming and development
- Sewage treatment
- Increased subdivision of land: acreages; lake lots; river lots
- Using fresh water in oil & gas extraction
- Stream crossings from road resource development
- Hanging culverts from road resource development
- Clear cutting as a primary forest harvesting technique
- Recreational use of waterways.

Are there any other activities or conditions that impact the watershed that should be added to this list?

1.	<input type="text"/>
2.	<input type="text"/>
3.	<input type="text"/>
4.	<input type="text"/>
5.	<input type="text"/>

LSWC On-line Survey Results

Lesser Slave Lake Watershed Council

Identifying Priorities

Please identify your three (3) top priorities that should be addressed in the Integrated Watershed Management Plan.

<input type="checkbox"/>	Fertilizer & pesticide use in towns and villages
<input type="checkbox"/>	Increased sedimentation
<input type="checkbox"/>	Recreational use of waterways
<input type="checkbox"/>	Land clearing for farming and development
<input type="checkbox"/>	Fertilizer & pesticide use in agriculture
<input type="checkbox"/>	Algae blooms
<input type="checkbox"/>	Stream crossings from resource road development
<input type="checkbox"/>	Increased subdivision of land: acreages; lake lots; river lots
<input type="checkbox"/>	Sewage treatment
<input type="checkbox"/>	Clear cutting as a primary forest harvesting technique
<input type="checkbox"/>	Lower water levels in lakes and rivers
<input type="checkbox"/>	Climate Change
<input type="checkbox"/>	Using fresh water in oil & gas extraction
<input type="checkbox"/>	Hanging culverts from resource road development
<input type="checkbox"/>	Cattle in the water
<input type="checkbox"/>	Changes in groundwater levels

If your top priorities are not in this list, please identify them here in order of priority.

1.	<input type="text"/>
2.	<input type="text"/>
3.	<input type="text"/>

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Lesser Slave Lake Watershed Council

Specific areas to be protected or preserved

The in-person interviews indicated some specific areas in the watershed that should be protected or preserved. For each area, please indicate whether you agree or disagree.

	Strongly agree	Agree	Disagree	Strongly disagree	Neither agree nor disagree
Sawridge Creek (for Arctic Grayling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Joussard South Shore (for Tundra Swans)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mouth of the Driftpile River (for Pelicans)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Buffalo Bay (for fish spawning)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mud Creek, South Heart River (for fish spawning)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provincial Parks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Specific Areas

Are there other specific areas in the watershed that should be protected or preserved not listed above?

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Lesser Slave Lake Watershed Council

Thanks for participating

Thank you for participating in this survey. Please watch this website if you would like information about the public meetings and the final draft plan.

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