Lake Manitoba Stewardship Board
- A Residents' Survey of Development Surrounding Lake Manitoba, Lake Pineimuta and Lake St. Martin -

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1.0 BACKGROUND AND RESEARCH METHODOLOGY

The Lake Manitoba Stewardship Board (LMSB) commissioned Probe Research Inc. to conduct a survey of property owners within a one mile radius of Lake Manitoba, Lake Pineimuta and Lake St. Martin. The objective of the survey was to determine a baseline documentation of current land use and development activities along the shores of these lakes. These results will provide attitudinal and behavioural insight to better understand how this usage will impact on water quality and the future health of these lakes.

A telephone survey was conducted among eligible property owners[1] from March 6th to March 24th, 2009. The survey instrument was designed by Probe Research Inc. in close consultation with representatives from the LMSB. With a sample of 228 completed surveys, these results are accurate to within ±6.49 percent (19 times out of 20). The compliance rate among respondents was 30 percent, which is considerably higher than the typical rate achieved in general population surveys.

In order to obtain the survey sample, a notice of intention signed by the LMSB was distributed to Rural Municipalities (R.M.s) and First Nations that border these lakes. The purpose of the letter was to introduce the survey to these officials, as well as to outline the objectives of the study and request that these R.M.s and First Nations' communities provide Probe Research with a listing of property holders from their region who reside within one mile of the lakes. A copy of this letter can be found in the Appendices of this report.

Probe Research contacted each municipality and First Nations Reserve to ensure they had received the letter and to encourage compliance. Only the R.M.s of Coldwell, Portage la Prairie, Eriksdale and Siglunes responded with a list of their eligible property owners. It should be noted that many municipalities mentioned they were simply unable to provide this list of residents within such a short time frame during their budgeting process period.

Every effort was made by Probe Research to include property owners from all R.M.s surrounding Lake Manitoba, Lake St. Martin and Lake Pineimuta. In light of inadequate levels of co-operation from municipalities and First Nations communities, Probe Research Inc. requested the most current property ownership maps (from Repromap[2] in Dauphin, Manitoba) of all municipalities adjacent to the lakes and compiled a listing of eligible property owners from these maps. These names were then cross-referenced to a telephone directory in order to obtain the most recent telephone listings. This information has been recorded in a database[3] Additionally, LMSB obtained lists of the Delta Beach Cottage Owners Association and the Woodlands Cottage Owners Association as well as several farmers in the R.M. of Woodlands which were used to complement the map-based sample lists.

[1] "Eligible property owners" are those that reside within one mile of Lake Manitoba, Lake Pineimuta or Lake St. Martin.

[2] Repromap Inc. is a private corporation providing detailed mapping services in rural Manitoba. The company depends upon municipalities to provide them with changes/additions to their municipal land rolls. Therefore, updates are done on a continuous basis throughout the year as the information is provided.

[3] Multiple property owners were only recorded once in the database.

Although the intention of the study was to obtain a representative sample of the universe of property owners within one mile of Lake Manitoba, Lake Pineimuta and Lake St. Martin, it is acknowledged that sample limitations and exclusions have resulted in the omission of certain sub-groups of populations (such as all eligible residents within First Nations Communities as noted below, and a limited number of new subdivisions for which no property ownership maps/lists could be provided). As well, it is acknowledged that, due to the seasonality of some of the residents within the sampling region, some potential respondents were not accessible.

It is also acknowledged there may be limitations to the information provided by Repromap Inc as they are dependent upon updated information supplied by municipalities. For example, in the R.M. of Alonsa, a new subdivision located in Township 20 has not been included in the sample, due to the lack of information provided to Repromap from the R.M. Additionally, property owners in the Deighton Beach Cottage Corporation (R.M. of Grahamdale); the Narrows Cottage Development (R.M. of Siglunes), Taylor's Point (R.M. of Eriksdale) were also not included in this sample due to the lack of available information from Repromap Inc..

A "north/south" regional quota for Lake Manitoba was applied. Those Rural Municipalities and regional areas included in the "northern" region were: R.M. of Alonsa, R.M of Coldwell, R.M. of Eriksdale, R.M. of Grahamdale, R.M. of Lawrence, R.M. of Siglunes, Waterhen Area, Crane River Area, Homebrook-Peonan Point. The "southern" region included: R.M. of Lakeview, R.M. of Portage la Prairie (including Delta Beach), R.M. of St. Laurent (including Laurentia Beach and Twin Lakes Beach), R.M. of Westbourne, and R.M. of Woodlands.

First Nations Communities included Ebb and Flow, Crane River, Dog Creek, Fairford, Sandy Bay, The Narrows and Little Saskatchewan. These seven First Nations communities located along the lakes were mailed a self-administered survey on March 13th, with a return date of March 23rd. The survey form was accompanied by a self-addressed stamped envelope with the return address of Probe Research. A copy of this survey can be found in this report's appendices. A $100 incentive was offered to these First Nations communities to complete and return the survey within the specified timeframe in order to enhance response rates. Only one survey was sent to each community with the request that one appropriate official from each First Nations Community complete the survey on behalf of their residents living within one mile of the lakes. No First Nations communities responded to the survey.

Attempts were also made to contact managers/supervisors of private and government run campgrounds along Lake Manitoba, using a slightly modified telephone survey instrument to reflect the land use realities of these seasonal recreational operations. The following campgrounds participated in the survey: Manipogo Provincial Park; Watchorn Provincial Park, Lundar Provincial Park, St. Ambroise Provincial Park and Steep Rock Beach Campground. Results from these surveys are included only as a sub-set of the reviews of the results, and are not included in the dataset representing the "total" number of respondents. It should be noted that the only other campgrounds identified as being eligible to be included in the survey, Lynch's Point Campground and Shallow Point Campground, are not included in the results due to the inability to contact a respondent.

As outlined in the table below, there was appropriate representation from all municipalities included in the survey population and as such, no statistical weighting has been applied to the data.

The following table reveals the sample breakdown of respondents who participated in the survey.

	Number of Respondents	% of Entire Telephone Sample	% of Total Number of Respondents
LAKE MANITOBA			
Northern Region			
R.M. of Alonsa	17	4%	7%
*R.M. of Coldwell	31	9%	14%
*R.M. of Eriksdale	0	<1%	0%
R.M. of Grahamdale (including Steep Rock)	20	8%	9%
*R.M. of Siglunes	25	12%	11%
R.M. of Lawrence (including Toutes Aides)	5	3%	2%
Waterhen Area	6	2%	3%
Crane River Area	1	1%	<1%
Homebrook-Peonan Point	1	1%	<1%
Total "North" Region	**106**	**41%**	**46%**
Southern Region			
R.M. of Lakeview	1	1%	<1%
*R.M. of Portage la Prairie (including Delta Beach)	24	12%	11%
R.M. of St. Laurent	34	22%	15%
R.M. of St. Laurent (Laurentia Beach)	9	5%	4%
R.M. of St. Laurent (Twin Lakes Beach)	29	11%	13%
R.M. of Westbourne	1	1%	<1%
R.M. of Woodlands (including farms & Cottage Association)	12	4%	5%
Total "South" Region	**110**	**56%**	**48%**
TOTAL LAKE MANITOBA #	**216**	**97%**	**95%**
LAKE PINEIMUTA			
R.M.of Grahamdale	4	1%	1%
LAKE ST. MARTIN			
R.M. of Grahamdale	8	2%	4%
GRAND TOTAL	***228***	***100%***	***100%***
*Provided list of property owners; ** including Google Earth, Repromaps, Client Supplied			

Probe Research Inc. used a state-of-the-art computer assisted telephone interviewing (CATI) system to gather all data. Analysis was performed using SPSS statistical analysis software.

It should be noted that 75 percent of respondents participating in this current survey agreed to be re-contacted in the future by Probe Research, to participate in any further research on the topics discussed in the survey.

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2.0 PROFILE OF RESPONDENTS

		REGION		TYPE OF RESIDENCE	
	Total	North	South	Permanent	Seasonal
	(n=228) (%)	(n=118) (%)	(n=110) (%)	(n=81) (%)	(n=107) (%)
Waterfront property	68	66	70	47	84
Children at home	26	31	21	22	28
GENDER					
Men	63	70	55	67	58
Women	37	30	45	33	42
AGE					
18-34	3	3	5	4	3
25-34	2	1	4	4	1
35-44	15	20	9	15	12
45-54	27	25	29	26	32
55-64	29	35	23	23	30
65+	25	17	35	33	24
Average Age	***56 years***	***54 years***	***58 years***	***57 years***	***56 years***
ANNUAL HOUSEHOLD INCOME					
<$20K	7	7	8	7	6
$20-$29K	10	10	10	10	7
$30-$59K	29	28	30	46	17
$60-$74K	10	11	10	13	11
$75-$99K	18	21	14	13	21
$100K+	26	24	28	10	38
Average Household Income	***$70,244***	***$70,208***	***$70,283***	***$57,014***	***$81,885***
EDUCATION					
Some high school or less	19	20	19	28	7
Graduated high school	29	32	25	31	29
Some college/tech	4	4	5	6	3
Graduated college/tech	15	14	17	15	17
Some university	8	7	9	6	12
Completed university	24	23	26	14	32
PROPERTY OWNERSHIP:					
Average # of years owned property	***20 yrs***	***20 yrs***	***20 yrs***	***24 yrs***	***17 yrs***

3.0 RESEARCH RESULTS

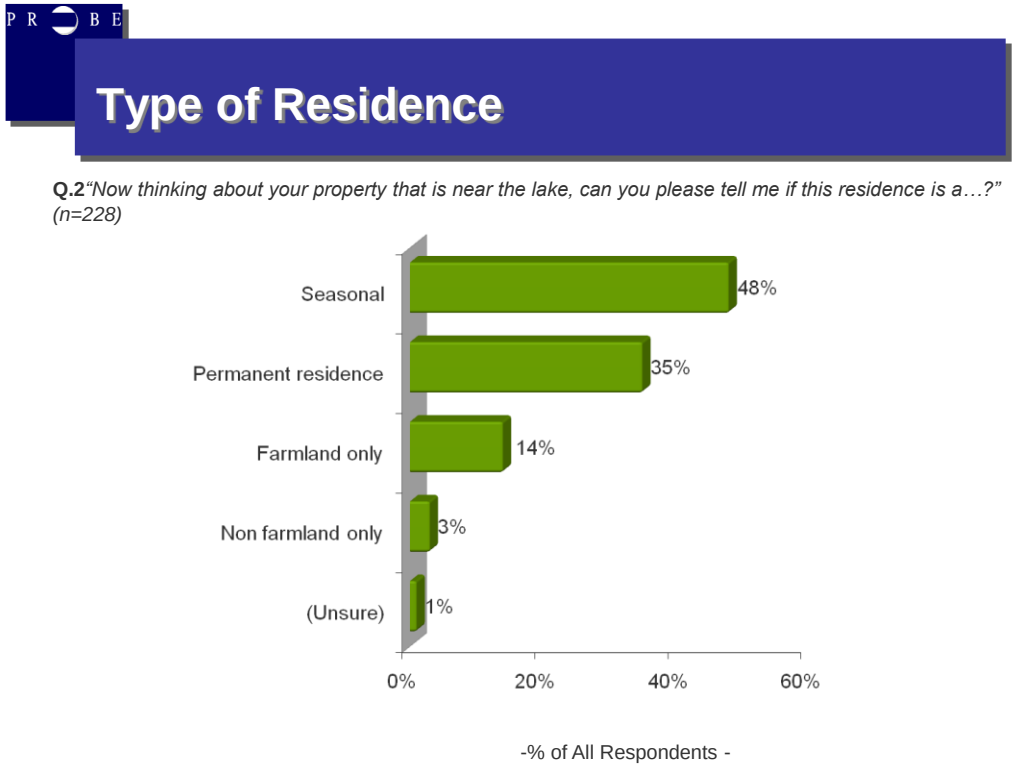
The following section of the report details the study's main areas of enquiry. Specifically, a detailed look at the property owners including the number and type of permanent and seasonal residences as well as farmland usage in the selected area; water and wastewater options; conservation practices; fertilizer and pesticide usage as well as erosion-prevention methods; and, observed changes to the lake and beaches. Finally, awareness of, and unaided priorities for, the LMSB are reviewed.

3.1 An Overview of Property Owners

Types of residences and occupancy rates are detailed below.

3.1.1 Types of Residences

While a significant minority of respondents in the survey area (48%) are seasonal property owners (including 33% seasonal cottage, 10% year-round cottage, 3% seasonal mobile home and 1% travel trailer), one-third (35%) are permanent home owners. Seventeen percent reported there was no residence on the property adjacent to the lake, including 14 percent who said it was farmland and three percent who reported this was non-farming land only.



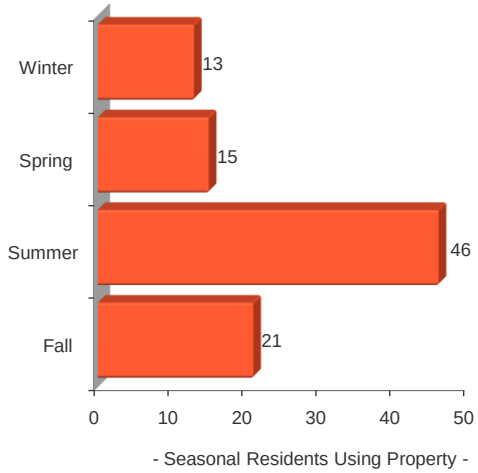
- Residents in the southern region of Lake Manitoba were significantly more likely than those in the north to have a seasonal cottage on the lake (50% versus 17%).
- Permanent home owners were more likely to be long-time residents (owned property for more than 20 years - 53%), to not have property directly on the waterfront (65%) and to come from households earning less than $60K annually (46%).

3.1.2 Occupancy Rates

Respondents were asked to indicate, on average, how many days their recreational residence was occupied during each season. Not surprisingly, summer was the busiest time of year for visiting the cottage (46 days), followed by the fall (21 days). Both spring (15 days) and winter (13 days) had far lower occupancy levels.

Average Seasonal Residence Occupancy
- Number of Days -

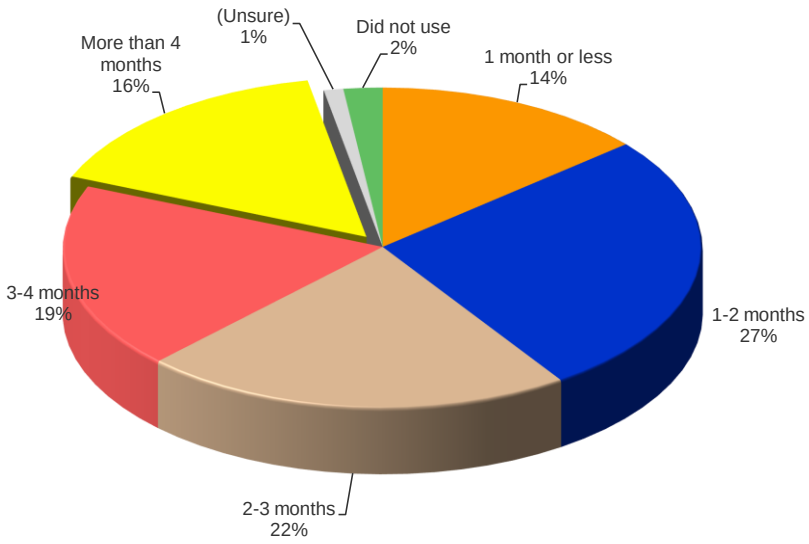
Q.4a, 5a, 6a, 7a *"Thinking about this (season), approximately how many days did you or someone else occupy your (cottage/travel trailer/mobile home) during this time period?" (n=109)*



The graph below reveals a summary of annual seasonal property occupancy.

Annual Summary of Seasonal Use

Q.4a, 5a, 6a, 7a *(n=109)*



On average, seasonal residences were occupied by users for 83 days last year.

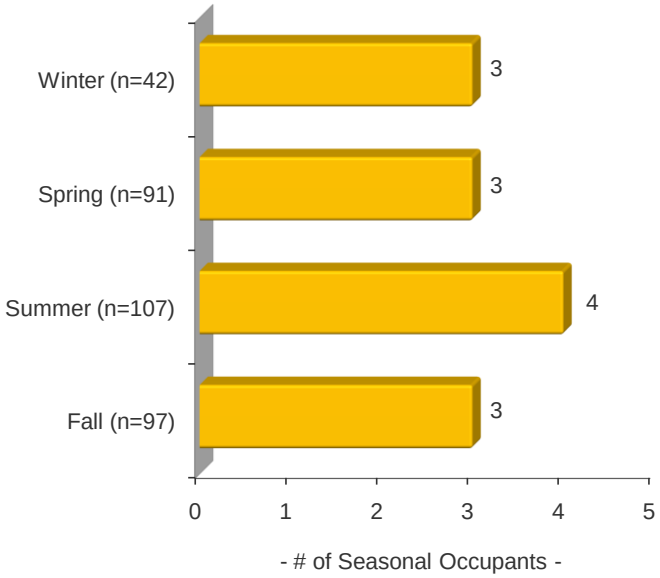
More frequent users included:

- Residents from the southern region (92 days versus 69 days northern region)
- Long time property owners (owned property over 20 years - 93 days)
- Those from lower income households (<$60K annually - 92 days)
- Those with lower levels of education (high school or less - 95 days)

In addition, respondents were then asked to indicate the average number of people that occupied this residence daily during each season.

Average Number of Seasonal Residents

Q.4b, 5b, 6b, 7b*"And when it was occupied this (season), on an average day, how many people occupied this residence?"*



Among seasonal property owners, an average of four people occupied this residence daily during use in the summer, while the other seasons saw an average daily occupancy of three people.

There was virtually no difference in the occupancy level among sub-groups.

3.2 Specific Water and Wastewater Item Usage and Lake Activities

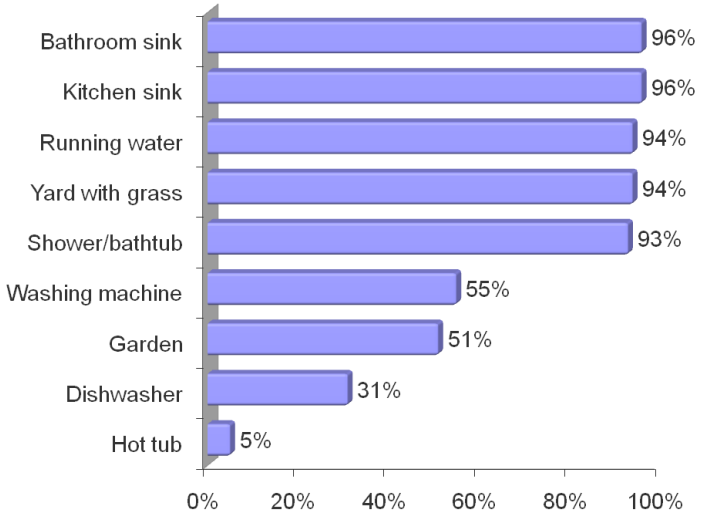
Respondents with residences within one mile of the lake were presented with a list of items and were asked to indicate if they had them at this residence. The purpose was to gauge the potential level of water and waste/wastewater usage.

3.2.1 Water Consumption

The graph below reveals the percentage of residential respondents who have or use the following selection of water-consuming amenities.

Water Consumption Amenities

Q.10*"Now I'm going to read you a list of things that you may or may not have at this residence. Do you have/use a….?" (n=190)*



-% of All Residential Respondents -

With nearly all respondents reporting their residence had a bathroom sink (96%), kitchen sink (96%), running water (94%), shower/bathtub (93%) and a yard with grass (94%), the potential consumption of water appears high. In addition, more than half of respondents indicated they had a washing machine (55%) and a garden (51%). Appliances such as dishwashers (31%) and hot tubs (5%) which were used by far fewer residents.

Usage and ownership of water-related items varied greatly among sub-populations:

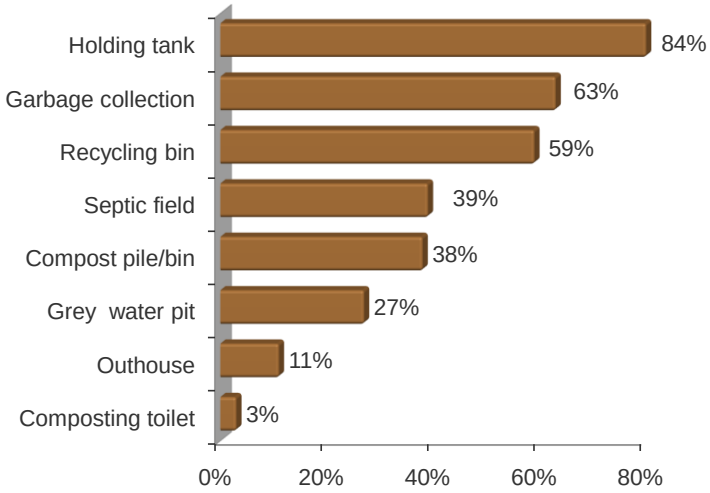
- Although a large majority of residential respondents indicated their residence has **running water**, (94%), this number rises to 97 percent among heavy seasonal users (compared to 80% among those who use their seasonal cottage less than 60 days last year).
- Not surprisingly, permanent home owners tended to have a **washing machine**, compared to those who were seasonal property owners (98% versus 24%). Those who did not own waterfront property were also far more likely than those directly on-shore to be equipped with washing machines (75% versus 46% among those that do).
- Eighty-one percent of permanent home owners had a **garden** (compared to 29% of seasonal residents) as did long-time property owners (71% versus 38%).
- More than one-half of permanent residents (54%) also owned a **dishwasher** (compared to only 14% of seasonal owners).

3.2.2 Waste and Wastewater Disposal

On the waste and wastewater front, a large majority of respondents indicated they used a holding tank for their wastewater at the residence that is located within one mile of Lake Manitoba.

Waste/Wastewater Disposal Options

Q.10*"Now I'm going to read you a list of things that you may or may not have at this residence. Do you have/use a….?" (n=190)*



Indeed, 84 percent of respondents reported they had a holding tank, compared to 39 percent who relied on a septic field. Just better than one-quarter of these residents (27%) had a grey water pit, eleven percent used an outhouse and a mere three percent who used a composting toilet.

Nearly two-thirds of respondents said they had garbage collection (63%) while nearly as many reported they used a recycling bin (59%). More than one-third (38%) reported that they have a compost pile or bin at this property.

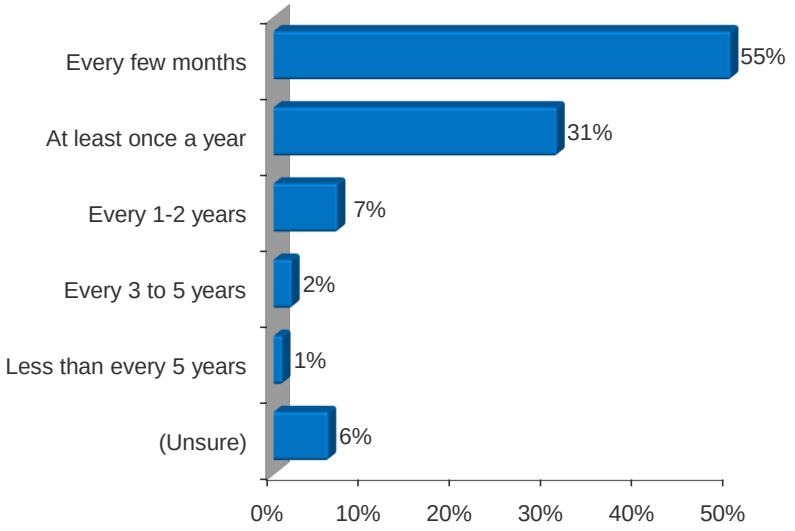
Variations in usage among sub-populations were most pronounced among the following:

- Respondents identified as "heavy seasonal users" (more than 60 days/year at the lake) were more likely to have **holding tanks**, compared to those who visit this residence less frequently (97% versus 78%).
- Southern region respondents (80% versus 43% northern area), seasonal residences (81% versus 38% permanent) and those with waterfront property (75% versus 37% without) all were more likely to report they have **garbage collection** at this lakeside property.
- A **recycling bin** was most likely to be found among seasonal residences than permanent ones (70% versus 47% respectively), and those who are heavy cottage users (77%).
- Permanent residents were more likely than their seasonal counterparts to have a **septic field** at their residence (60% versus 23%), as were long term residents (51% versus 31%) and those without waterfront property (55% versus 32% among those who have).
- An **outhouse** was used more frequently by seasonal cottage owners than permanent residents (17% versus 1%), and by those who used their cottage less than 60 days last year (24%).

Of the 84 percent of respondents who have a holding tank, one-half said they had it pumped out every few months (55%).

Frequency of Holding Tank Disposal

Q.19 *"Approximately how often is your holding tank pumped out?" (n=183)*



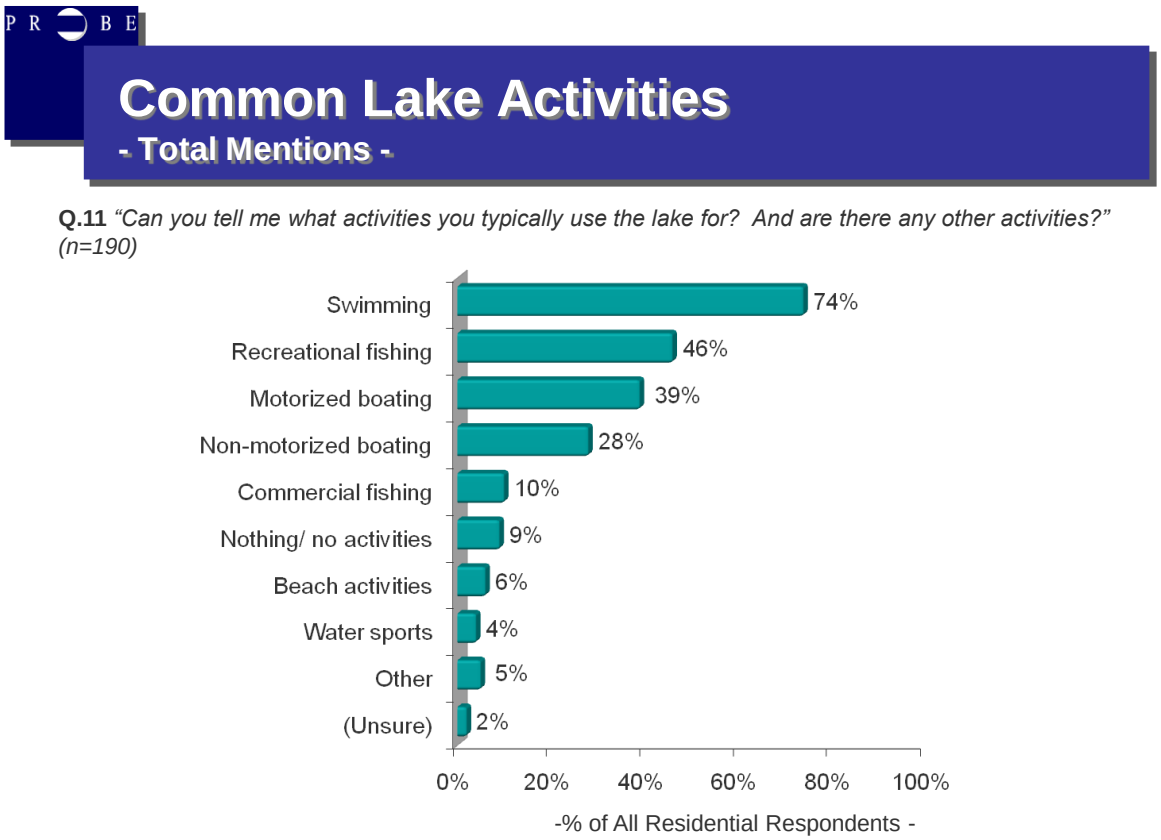
-% of Septic Field and Holding Tank Owners -

Three-in-ten (31%) respondents reported they had their septic/holding tanks pumped at least once a year. About one-in-ten (10%) said they had their tank pumped out less frequently than once a year (7% every 1-2 years; 2% every 3-5 years; 1% less than every 5 years).

- Six-in-ten respondents from the southern area of Lake Manitoba reported they had their septic/holding/ tank pumped out every few months (62% versus 46% in the northern region).

3.2.3 Residents and Patterns of Lake Recreation Activities

Swimming (74%) was the most common recreational activity that residents participated in at their lakeside residence.



Fewer than one-half of respondents reported they went fishing (46%) or boating (39% motorized and 28% non-motorized). One-in-ten indicated they used the lake for commercial fishing (10%) although nearly as many said they did not use the lake for any recreational purposes (9%).

- Twenty percent of permanent residents surveyed indicated they used the lake for **commercial fishing**. Furthermore, 16 percent these residents said they did not use the lake for any activity.
- **Non-motorized boating** was slightly more popular among those with waterfront property (35%).
- **Swimming** was most popular among those with waterfront property (81%) and those in the southern region of Lake Manitoba (80%).
- **Motorized boating** was mentioned more often as a popular lake activity by those from higher income households (48% $60K+ versus 26% <$60K).

3.3 Awareness of Water Sources and Areas of Concern

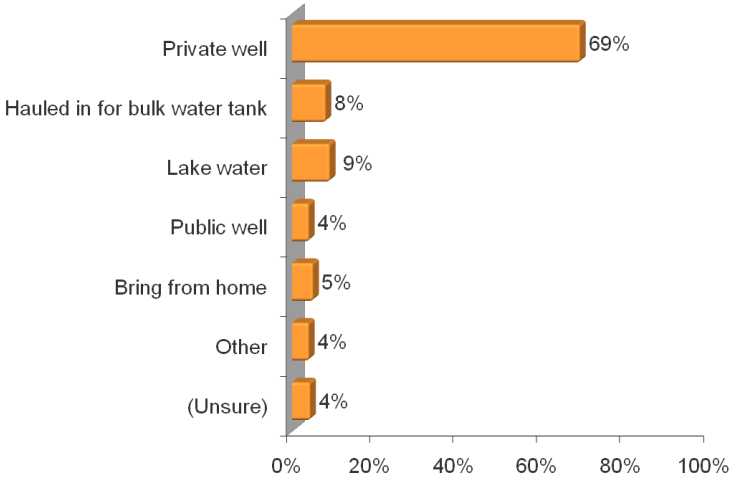
The section of the report details awareness of drinking and non-drinking water sources. Drinking water concerns of these residents were also contrasted with those of the province and country using Probe's National Syndicated study: *"A Clear Perspective on Water"* to those of the nation and province. The incidence of water testing and well shocking are also discussed below.

3.3.1 Non-Drinking Water Sources

Most respondents (73%) report they use a well for their non-drinking water needs (including 69% using a private well and 4% using a public well).

Main Sources of Non-Drinking Water

Q.13 *"What is the main source of non-drinking water that you use for this residence?" (n=190)*



-% of All Residential Respondents -

Only nine percent of respondents indicated they use "lake water" as a source of non-drinking water for this residence and even fewer cited other sources for their non-drinking water, such as having this hauled in for a bulk water tank (8%) or that they bring water from home (5%).

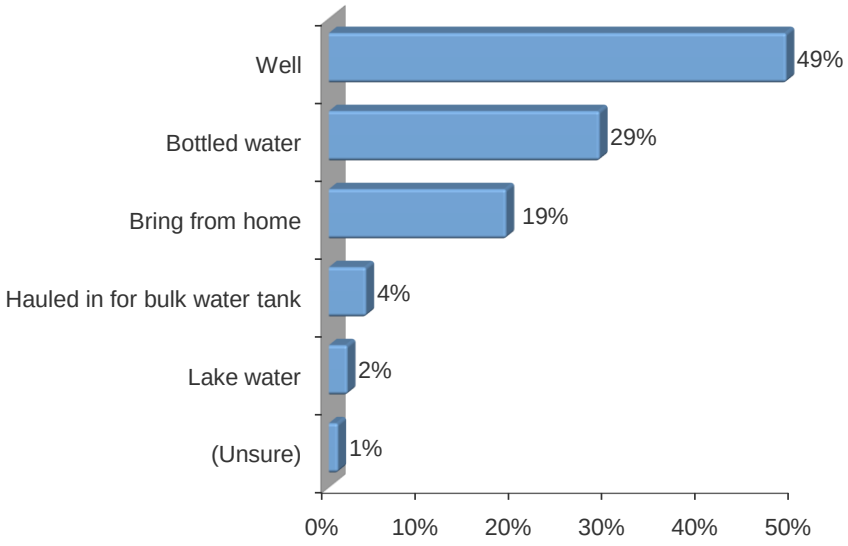
- Permanent residents were significantly more likely than their seasonal counterparts to indicate they obtain their non-drinking water from a **private well** (81% versus 62%).
- Twenty-two percent of residents who use their cottage less than 60 days per year said they used **lake water** for non-drinking purposes.

3.3.2 Awareness of Drinking Water Source

While around one-half of respondents use a well for their drinking water (49%) fewer than three-in-ten reported they used "bottled water" (29%) or brought water from another residence (19%). A very small number of respondents indicated they hauled in water for a bulk water tank for drinking water (4%) and only two percent used lake water as a source of drinking water.

Main Sources of Drinking Water

Q.14 *"What is the main source of drinking water that you use for this residence?" (n=190)*



-% of All Residential Respondents -

- Respondents from the northern area of Lake Manitoba were more likely than those from the south to indicate the source of their drinking water was a **well** (63% versus 38%), as were permanent residents (69% versus 36% seasonal), men (59% versus 33% women) and those without waterfront property (70% versus 40%).
- Women were somewhat more likely to say that they consumed bottled water while at the lake (39% versus 23% among men).
- For their part, around three-in-ten seasonal respondents said they **brought water from home** (28%), as did those with waterfront properties (25%).

3.3.3 Drinking Water Concerns – A Comparative Report

While most respondents indicated they had no concerns about the drinking water in their residences adjacent to the lake (65%), this compares to 47 percent of Manitobans (and Canadians) who expressed this in a national Probe Research survey, taken in May 2008.

CONCERNS ABOUT DRINKING WATER
- A National and Provincial Comparison -

		2008 Probe National Syndicated Study*	
	LMSB Study	**Canadians**	**Manitobans**
(Unweighted bases)	**(n=190)**	**(n=2260)**	**(n=200)**
	(%)	(%)	(%)
Nothing, no concerns	65	47	47
Contaminants (general)	12	14	12
Hard water	6	1	1
Purity/cleanliness	5	11	14
Taste	5	7	13
Minerals	5	1	-
Sewage	4	-	-
Bad smell	1	4	8
Chlorine in water	-	4	2
Bacteria	2	7	6
E. Coli	2	2	1
Discoloured	2	2	3
Fluoride levels	-	2	1
Mercury in water	-	2	-
Water scarcity	-	1	-
Source of water	-	1	2
Other	3	5	2
(Unsure)	1	6	3

Based on Probe Research Inc. Syndicated Study: *A Clear Perspective –Canada 2008 National Drinking Water Survey (May 2008)*

Around one-in-ten respondents were, however, concerned about “contaminants” in their drinking water (12%) while far fewer indicated a concern for “hard water” (6%), “purity”, “taste” and “minerals” (5% each) or “sewage” (4%).

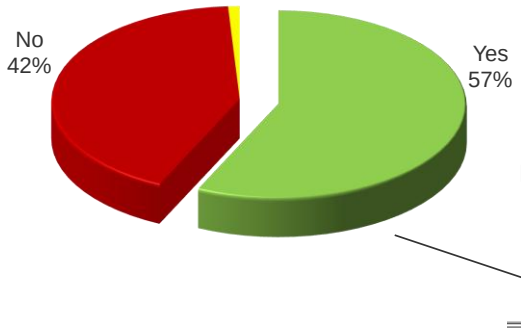
More than twice as many Manitobans reported concern over the taste of their water, compared to residents around Lake Manitoba (13% versus 5% respectively). The “bad smell” (8% versus 1%) and purity of the water was also seen to be a concern for a larger number of Manitobans in general, than those living in this select area (14% versus 5%).

3.3.4 Incidence and Frequency of Water Testing

More than one-half of respondents (57%) report they test their drinking water for bacteria, compared to 42 percent who do not. Of those who do test, around one-half (46%) say they do this at least annually (38% annually and 8% more than once per year).

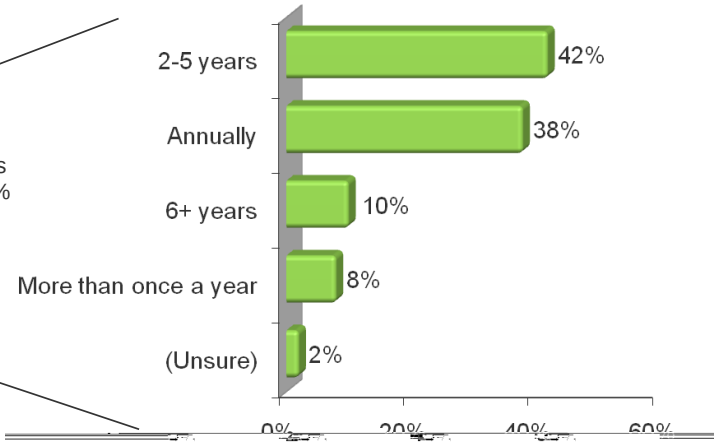
Incidence and Frequency of Water Testing

Q.16 *"Do you ever test your drinking water for bacteria?" (n=190)*



- % of Residential Respondents -

Q.17 *"How often do you test this water" (n=109)*



- % of Respondents Who Test Their Water-

Thirty-eight percent of those who test their drinking water for bacteria report they annually test their drinking water for bacteria and a further eight percent say they do this more frequently. Less frequent testing is conducted by 42 percent of respondents (every 2-5 years) while those who report only infrequent testing (6+ years) represents 10 percent of respondents.

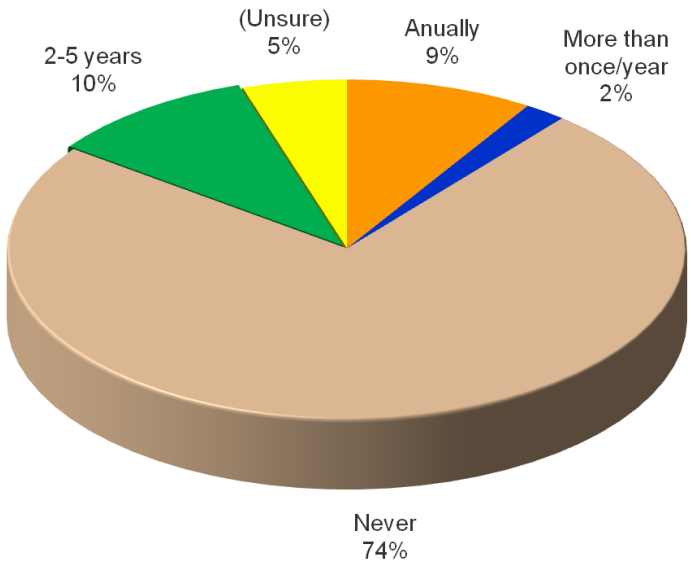
- Permanent residents are more likely than their seasonal counterparts to report they test their drinking water for bacteria (70% versus 49%).

3.3.5 Well "Shocking"

The vast majority of respondents with a well do not shock it to kill bacteria (74%).

Frequency of Well "Shocking"

Q.18 *"How often do you shock your well?" (n=94)*



- % of Well Users -

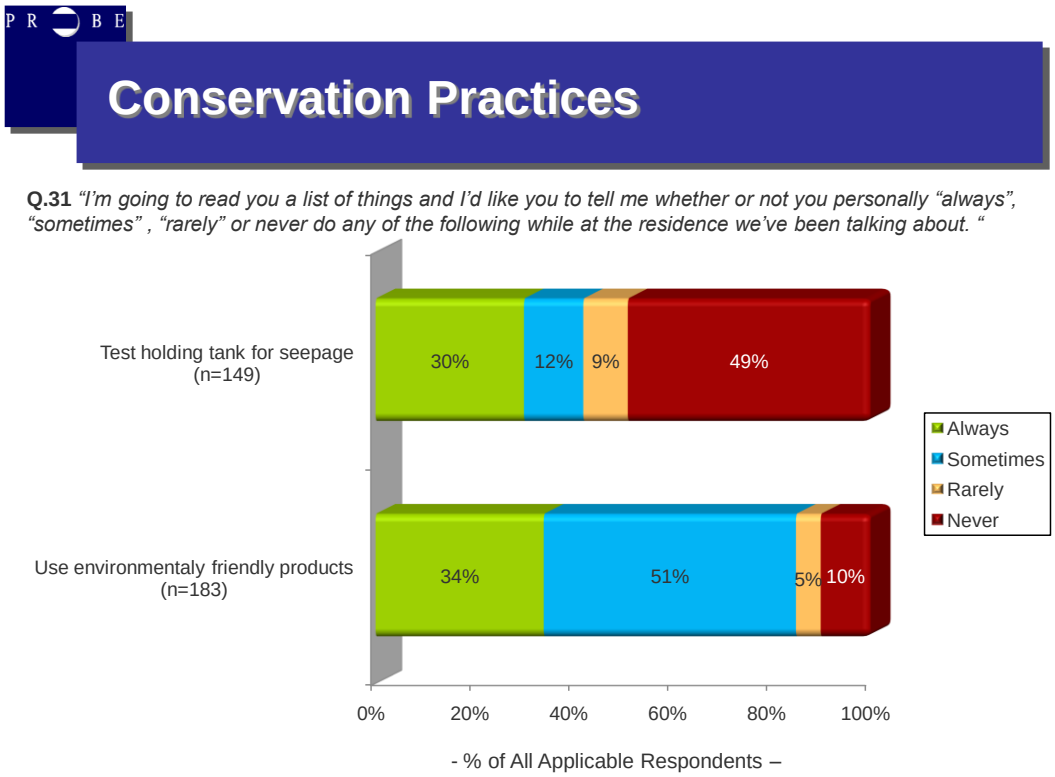
More frequent shocking of the well was mentioned by 10 percent of respondents who said they do this every two to five years, while nearly as many said this is something they do annually (9%) to kill bacteria in their water. A mere two percent said they shock their well more than once a year and five percent were unsure as to the frequency of this task.

3.3 Conservation Practices

Respondents were asked to indicate the frequency of their participation in selected conservation practices at their residence adjacent to the lake.

3.4.1 Specific Conservation Practices

Respondents were asked about their conservation practices in a national survey conducted by Probe Research in May, 2008. Two specific areas from this survey were included for comparative purposes as noted in the graph below.

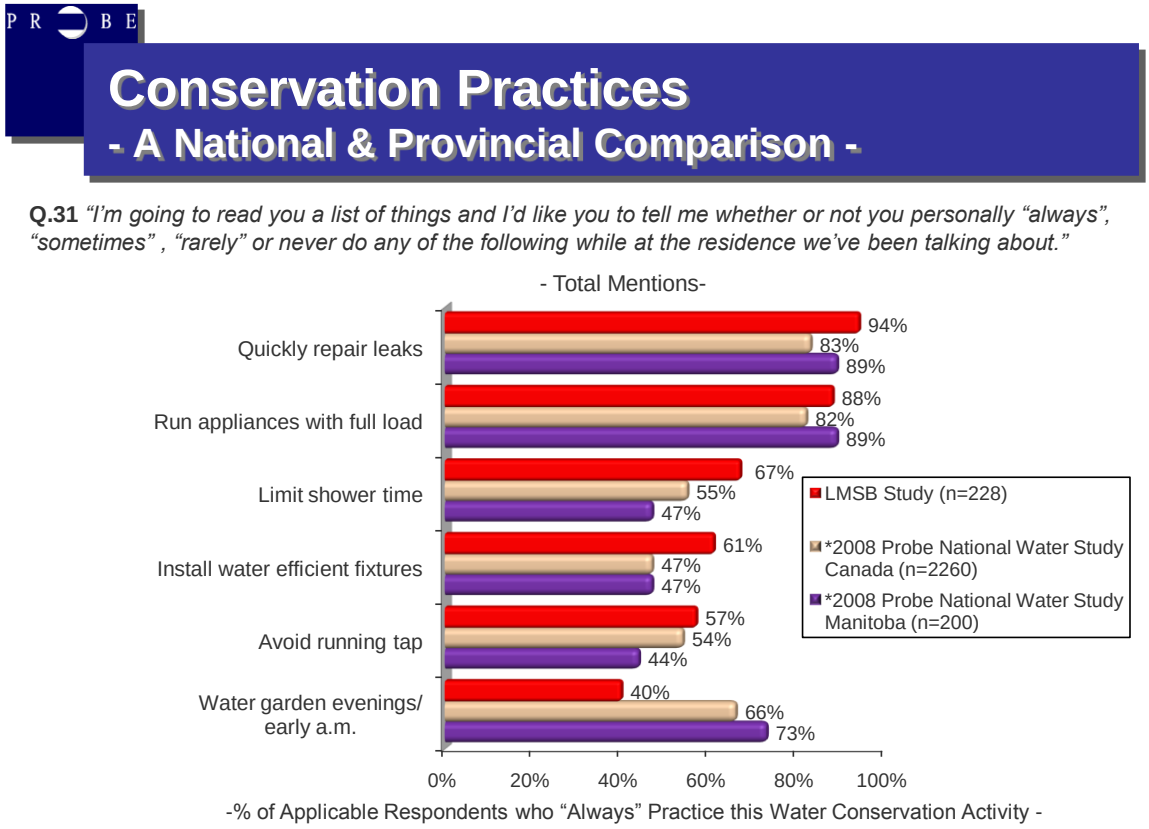


One-third of respondents said they "always" use environmentally friendly products for cleaning and personal care at this residence (34%). This figure was bolstered by an additional 51 percent who report they at least do this "sometimes". This is in contrast to 15 percent who indicate they "rarely" (5%) or "never" (10%) use these types of environmentally friendly products.

While 42 percent of respondents with a holding tank say they "always" (30%) or at least "sometimes" (12%) test their tank for seepage, this is in contrast to 58 percent who report they "rarely (9%) or "never" (49%) inspect their tanks for leaks.

3.4.2 A National and Provincial Comparison of Conservation Practices

The vast majority of valid respondents[4] report they "always" quickly repair any leaky toilets or faucets at their residences adjacent to the lake (94%) and a solid number of washing machine and dishwasher owners said they wait until these appliances are full before using them (88%).



Probe Research Syndicated Study: *A Clear Perspective-Canada 2008 National Drinking Water Survey* May 2008

About two-thirds of respondents with a shower/bathtub said they limit their shower time to eight minutes or less (67%) while six-in-ten of those respondents said they install water efficient fixtures like a water-saving toilet or showerhead (61%). Fifty-seven percent of respondents who have a bathroom or kitchen sink said they avoid running the tap while brushing their teeth, washing their hands or shaving. Only 40 percent of respondents with a garden said they always watered it in the evenings or early morning.

[4]Valid Respondents = Only respondents who indicated earlier in the study that they had a bathroom or kitchen sink, shower/bathtub, washing machine, or garden were asked the appropriate follow-up question. Therefore, bases for each question vary.

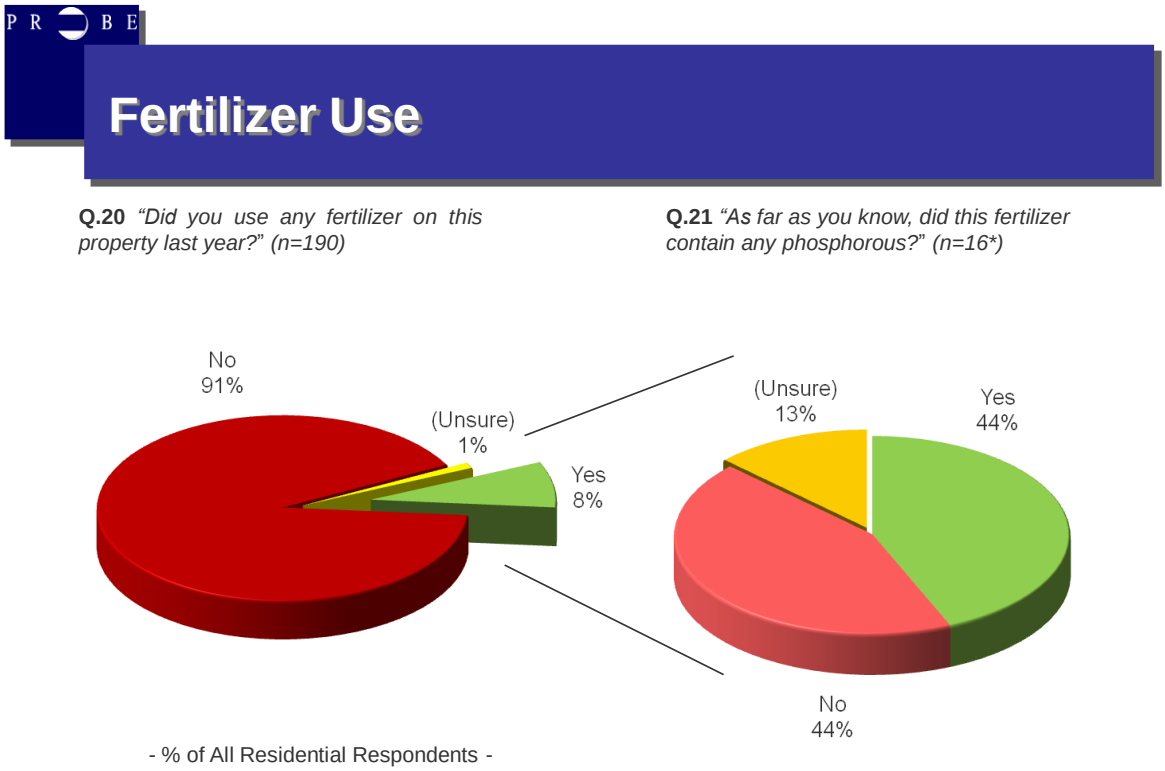
There was a significant difference in responses among these lake dwellers, compared to Manitobans on average for several responses, namely: limiting their shower time (67% respondents versus 47% Manitobans overall) and installing water efficient fixtures (61% respondents versus 47% Manitobans overall). Conversely, Manitobans with gardens were far more likely than their Lake Manitoba counterparts to indicate they *always* water their garden in the evenings or early morning (73% versus 40%).

3.4 Fertilizer and Pesticide Usage and Erosion-Prevention Methods

Below, residents reveal their use of fertilizers and pesticides on their lakeside property, as well as their method of protecting their property from lake erosion in this section of the report

3.5.1 Fertilizer Use

Very few respondents with residences on or near the lakeshore report the use of fertilizer on their property last year (8%). Of the few respondents who did, four-in-ten (44%) said the fertilizer they used contained phosphorous while as many (44%) used phosphorous-free fertilizer and 13 percent were unsure.

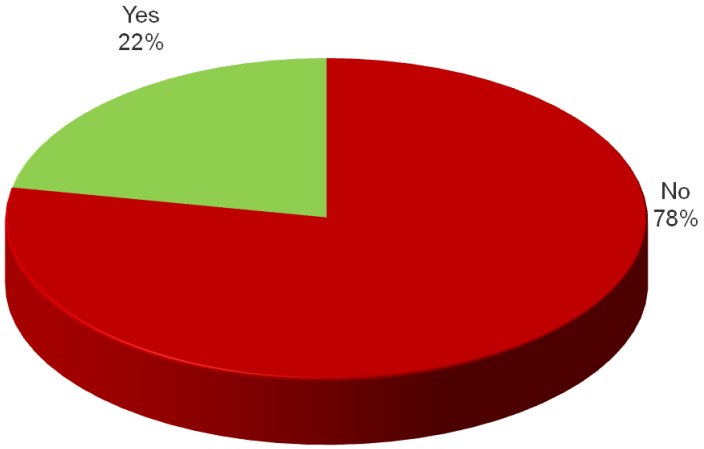


3.5.2 Weed Control Methods

Nearly one-quarter of respondents with residences along the lake said they had used something on their property to control weeds last year (22%), compared to 78 percent who had not.

Prevalence of Weed Control Efforts

Q.22 *"Did you use anything to control weeds on your property last year?" (n=190)*

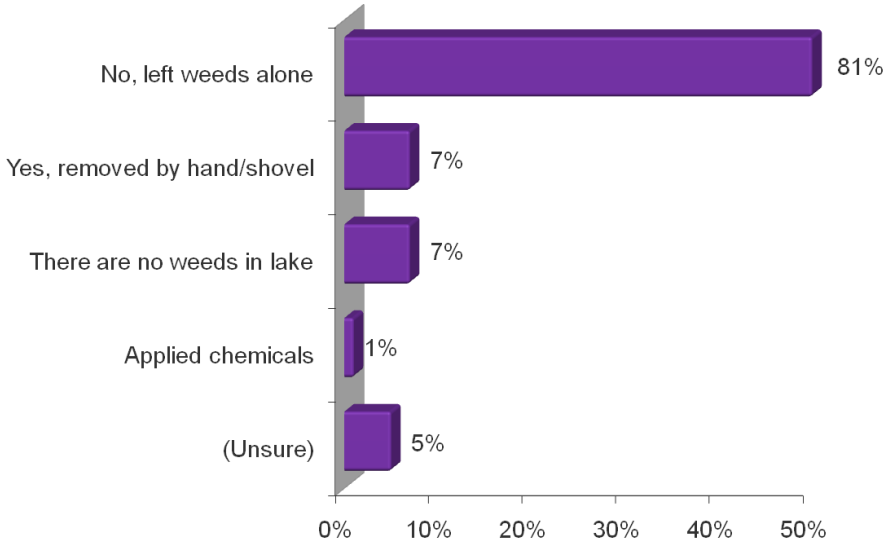


- % of All Residential Respondents -

The vast majority of respondents did not attempt to control the weeds along the shoreline last year (81%), compared to only around one-in-ten who either manually removed weeds (7%) or used some other method (1%).

Shoreline Weed Control Methods

Q.23 *"Did you use any methods to control the weeds that are in the water right along your shoreline last year?" (n=190)*



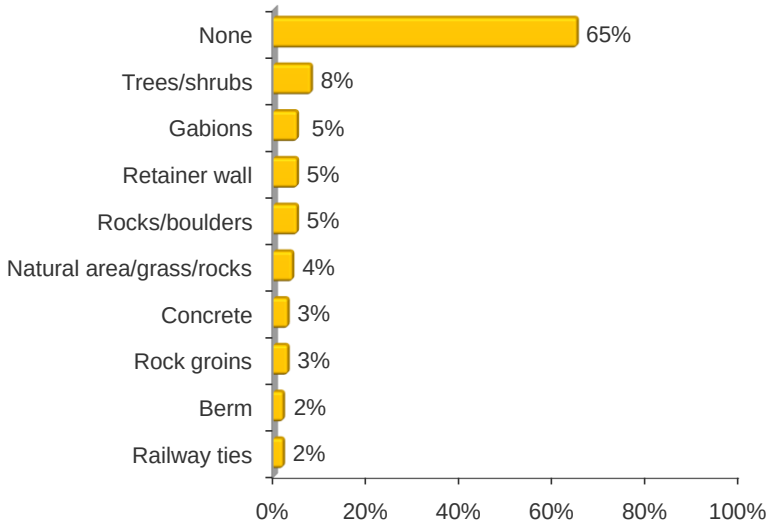
-% of All Residential Respondents -

3.5.3 Erosion Protection Methods

Two-thirds of respondents with property on the lake do not employ any measures to protect their property from lake erosion (65%).

Main Method to Prevent Property Erosion

Q.24 *"What is the main method of protection from lake erosion that you use for your property?" (n=130)*



-% of All Waterfront Property Owners -

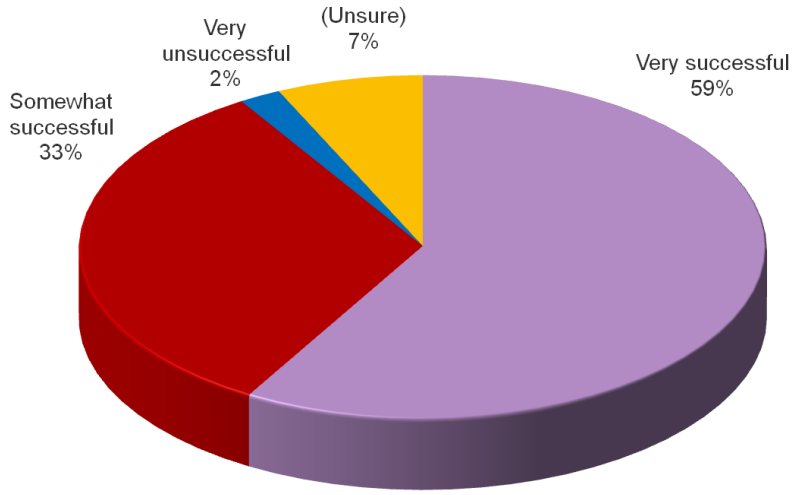
Fewer than one-in-ten respondents who own waterfront property said they used "trees/shrubs" as their main method of protection from erosion from the lake (8%), "gabions", "retainer wall" or "rocks/boulders" (5% each), "natural grass/rocks" (4%), "rock groins" and "concrete" (3% each) or a "berm" or "railway ties" (2% each).

- More than eight-in-ten waterfront property owners in the northern region reported they took no measures to protect their property from erosion, compared to those in the south (84% versus 49%).

Of the few residents reporting using some means of protection for their property, more than one-half (59%) felt their efforts were "very" successful and a further one-third (33%) said their efforts were "somewhat" successful. Only two percent felt their attempts to protect their property from erosion from the lake were "very" unsuccessful.

Perceived Success of Erosion Protection Methods

Q.25 *"How successful would you say your main method of erosion protection is?" (n=46*)*



*Caution: Small Base

- % of All Waterfront Property Owners with an Erosion Protection Method -

3.5 Changes to Lake

Residential respondents were presented with a list of sixteen potential qualities or conditions of the lake and beach area and were asked if they had noticed an increase, a decrease or no change in each.

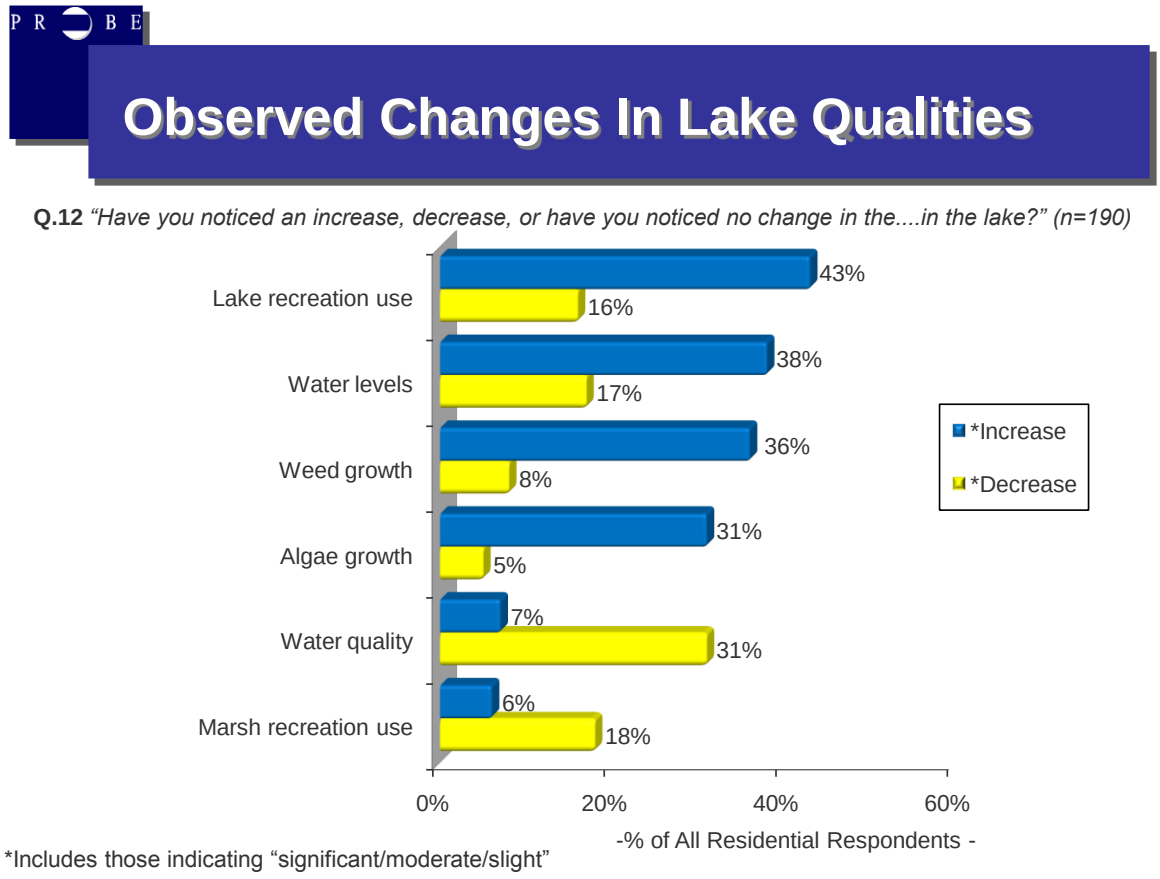
3.6.1 An Overview of Observed Changes

The table below reveals residential respondents' observations regarding specific qualities at their lake and highlights the "significant" differences noted by them.

	Significant Increase	Moderate Increase	Slight Increase	No Change	Slight Decrease	Moderate Decrease	Significant Decrease	Unsure	N/A
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Severity of storm damage	20	12	12	49	2	1	1	3	2
Water levels	15	12	11	33	6	6	5	4	8
Beach erosion	14	10	11	54	4	2	2	1	4
Weed growth	13	9	13	51	4	2	3	4	1
Use of beach area	13	15	13	41	5	4	5	2	3
Lake recreation use	12	21	11	39	5	6	5	1	1
Beach muck	10	10	8	53	4	2	2	7	5
Algae growth	9	8	14	54	2	2	1	7	3
Noise levels	6	11	14	62	1	2	1	2	1
Wildlife populations	5	8	9	53	7	7	6	5	1
General water quality	4	3	1	60	13	11	8	2	-
Beach trees/shrubs	3	6	6	54	9	12	8	1	1
Size of beach area	3	6	8	46	5	10	12	3	7
Bird populations	3	4	11	56	8	8	7	3	-
Fish populations	3	5	7	22	8	13	16	24	3
Marsh recreation use	2	2	3	41	5	6	8	17	17

3.6.2 Observed Changes in Lake Qualities

As the graph below illustrates more residential respondents have noticed an increase in "lake recreation use" (43%), "water levels" (38%), "weed growth" (36%) and "algae growth" (31%) compared to a decrease noted in "water quality" (31% *decrease*) and "marsh recreation use" (18% *decrease*).



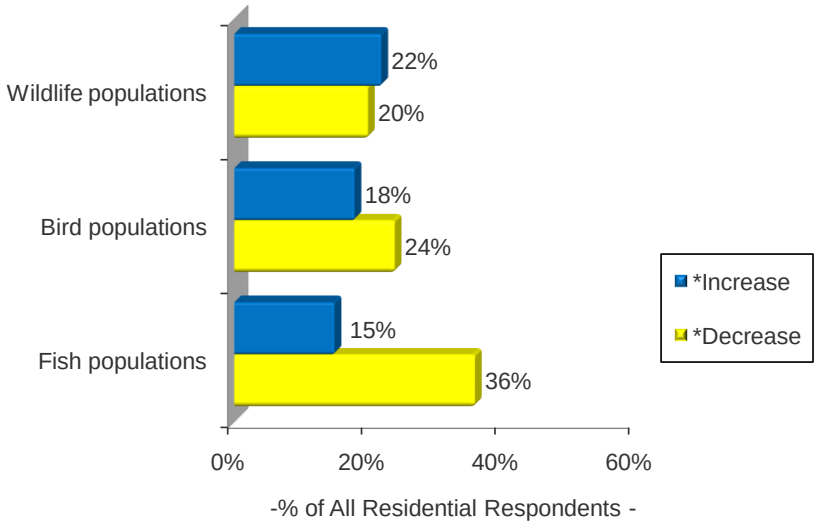
- Significant differences between respondents from the northern region of Lake Manitoba and the southern region exist in terms of the observation of an increase in algae growth (39% south versus 21% north).

3.6.3 Changes in Animal Populations

Only around two-in-ten respondents felt there had been a noticeable decrease in "wildlife" (20% decrease versus 22% increase) and "bird" populations (24% decrease versus 18% increase) around the lake, compared to more than one-third who reported an observable decrease in "fish" populations (36% decrease, versus 15% "increase").

Observed Changes In Animal Populations

Q.12 *"Have you noticed an increase, decrease, or have you noticed no change in the....in the lake?" (n=190)*



*Includes those indicating "significant/moderate/slight"

3.6 Beach Changes

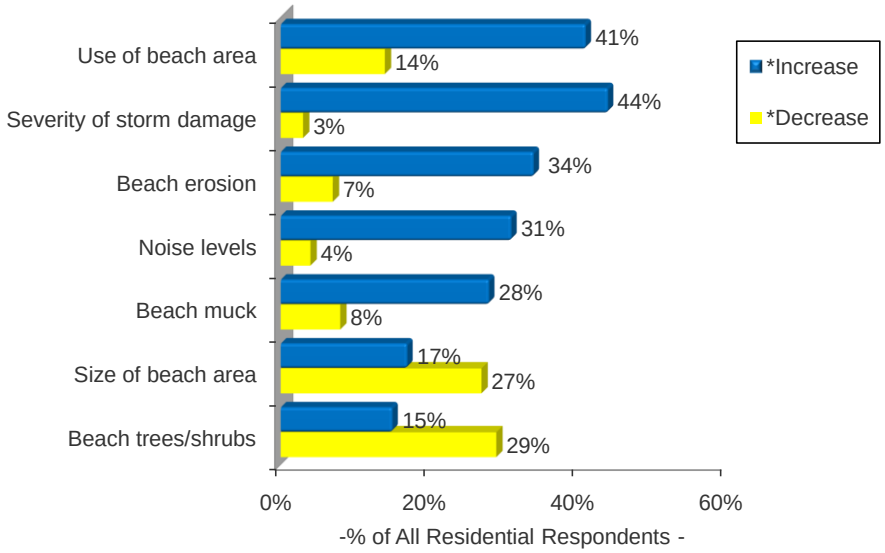
This section of the report reveals observed changes to beach areas, as well as a detailed analysis of changes to the *quality* of the beach.

3.7.1 Observed Changes to Beach Area

Residential respondents were more likely to say they have noted an increase, rather than a decrease in the use of the beach area (41% versus 14%), the severity of storm damage (44%), beach erosion (34%), noise levels (31%) and beach muck (28%). On the other hand, more respondents were likely to say the size of their beach area (27%) and the number of beach trees and shrubs (29%) had decreased, rather than increased.

Observed Changes to Beach Area

Q.12 *"Have you noticed an increase, decrease, or have you noticed no change in the....in the lake?" (n=190)*



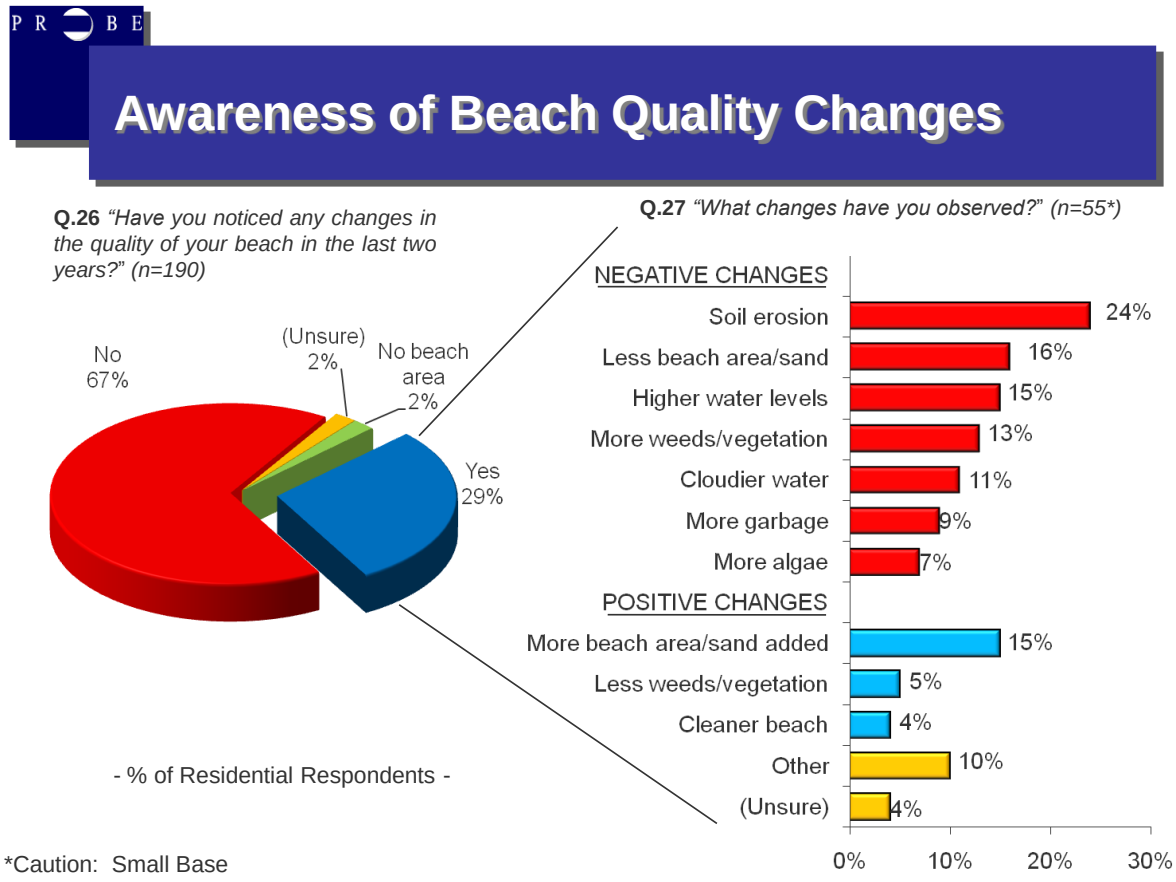
*Includes those indicating "significant/moderate/slight"

Respondents from the southern region of Lake Manitoba were significantly more inclined than their northern counterparts to notice changes to their beach in the following areas:

- **Decreased amount of beach trees/shrubs** – (38% in the south versus 20%) in the north
- **Decreased size of beach area** – (41% in the south versus 10% in the north)
- **Increased severity of storm damage** – (66% in the south versus 16% in the north)
- **Increased beach erosion** – (51% in the south versus 14% in the north)

3.7.2 Awareness of Beach Quality Changes

Nearly three-in-ten residential respondents said they were aware of changes in the quality of their beach in the last two years (29%), while two-thirds indicated they did not notice any differences (67%).



*Caution: Small Base

Of the few respondents who had noticed changes in the quality of their beach, negative changes that were mentioned included: "soil erosion" (24%), "less beach/sand" (16%), "higher water levels" (15%),"more weeds/vegetation" (13%)",cloudier water" (11%), "more garbage" (9%) and "more algae" (7%).

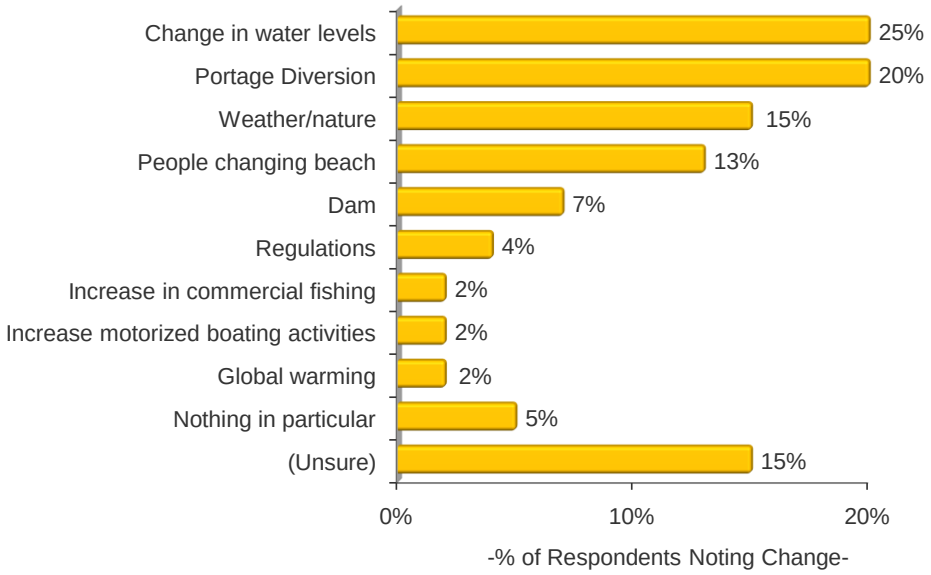
Positive changes included: "more beach/sand" (15%), "less weeds/vegetation" (5%) and a "cleaner beach" (4%)

3.7.3 Rationale for Beach Quality Changes

Respondents who had noticed a change in the quality of their beach were asked if they could offer a reason as to why the quality of their beach had changed in the past two years. One-quarter pointed to the "change in water levels" (25%) and nearly as many pointed to the "Portage Diversion" (20%) as a cause of beach deterioration.

Rationale for Beach Quality Changes

Q.28 *"Do you know what has caused these changes?" (n=55*)*



*Caution: Small Base

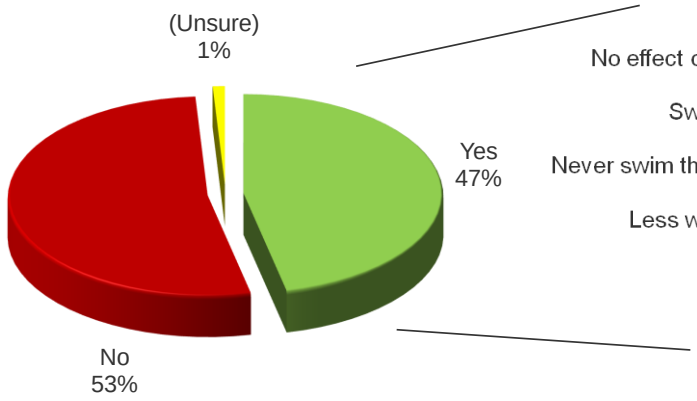
"Weather/nature" was mentioned by 15 percent of respondents as a reason for recent changes to the beach, followed by "people making changes to the beach" (13%), "dam" (7%), "regulations" (4%), "increase in commercial fishing", "increased motorized boating activities" and "global warming" (2% each). Fifteen percent were unsure what had caused these changes to their beach in the last two years.

3.7.4 Concern Over the Presence of E. Coli Bacteria at Beach

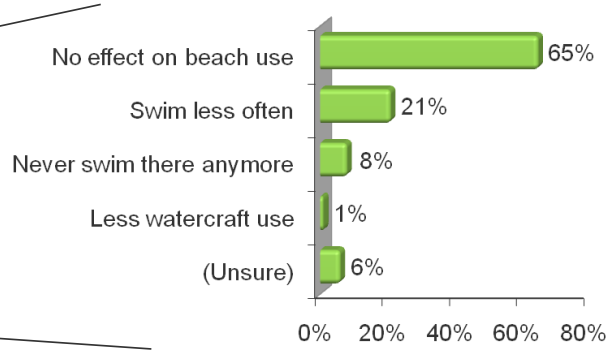
Nearly one-half of residential respondents said they were concerned about the possible effects of E. coli bacteria or algae toxins at their beach (47%) while nearly as many said they did not have any concerns about these contaminants (53%). Respondents from the southern region of Lake Manitoba were significantly more likely to indicate they were concerned about these toxins at their beach than those from the north (57% versus 35%).

Concern About E. Coli Bacteria

Q.29 *"Are you concerned about the possible effects of E.coli bacteria or algal toxins at your beach?" (n=190)*



Q.30 *"How has this concern affected your use of the beach?" (n=89*)*



- % of Residential Respondents -

*Caution: Small Base

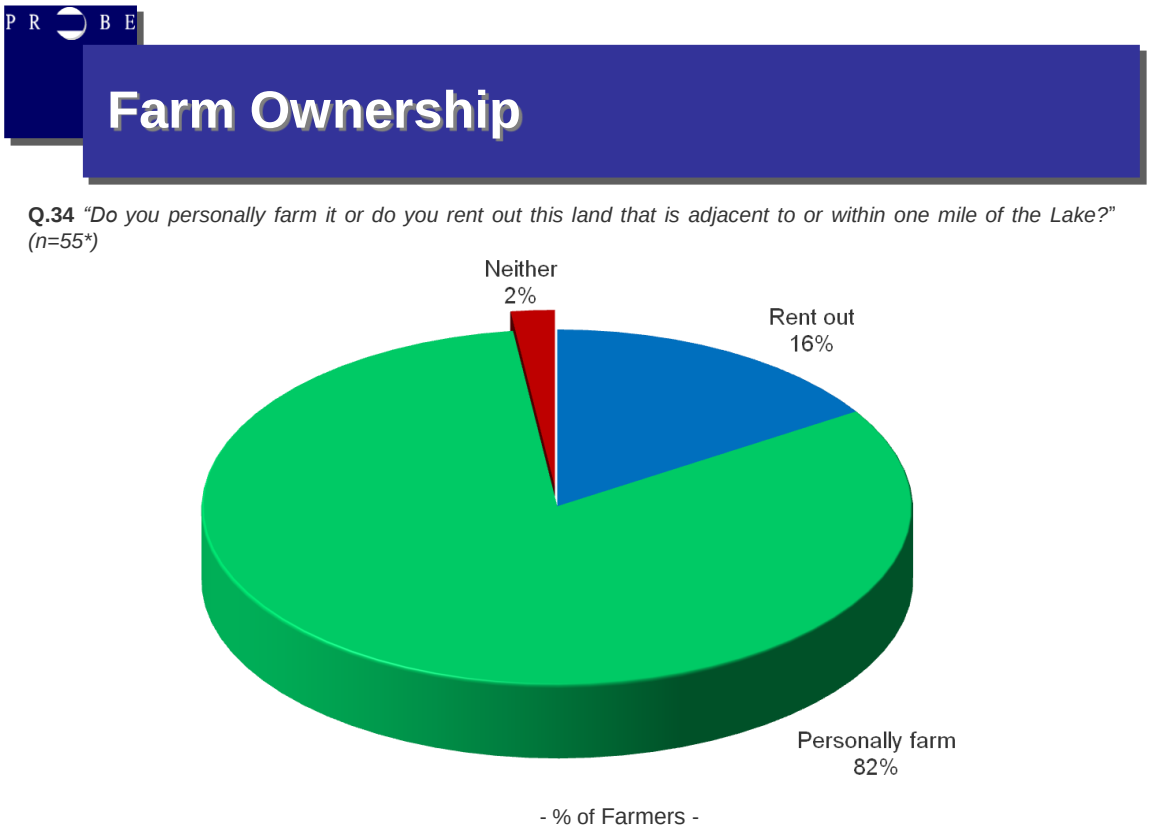
When asked to describe the effects of their concern, most said it had no effect on their use of the beach (65%). Around two-in-ten said it had affected the amount they swim there (21% less often and 8% never swim there anymore).

3.7 Focus on Farm Practices

This section of the report reveals the incidence of farm ownership among respondents, the nature of their farming operations as well as their awareness of the Environmental Farm Plan.

3.8.1 Incidence of Farm Ownership

Eight-in-ten respondents (82%) who own land within one mile of Lake Manitoba said they personally farm it, compared to sixteen percent who lease this land to third-party farmers.



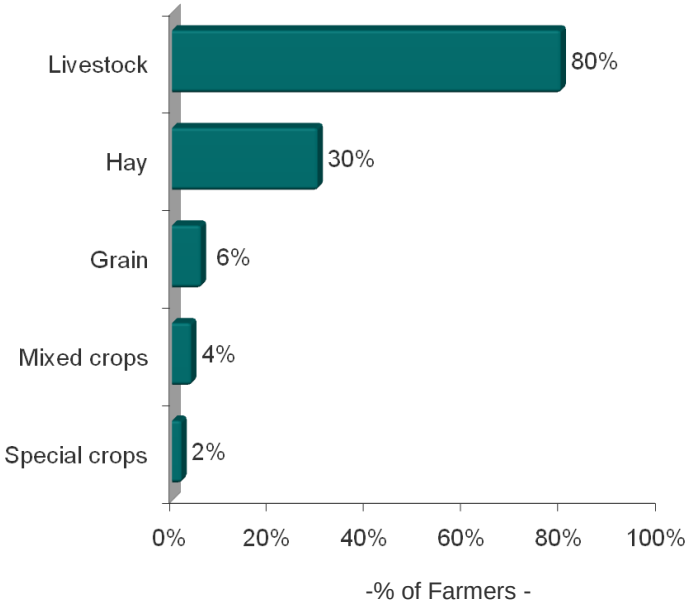
*Caution: Small Base

3.8.2 Nature of Farming Operations

The majority of farmers in the study indicated they raised "livestock" on their farmland adjacent to the lake (80%). Far fewer farmers said this land was in "hay" (30%) or some other type of crop (6% grain, 4% mixed crops and 2% special crops).

Nature of Farming Operations

Q.36 *"What is the nature of your farming operation in that area?" (n=54*)*



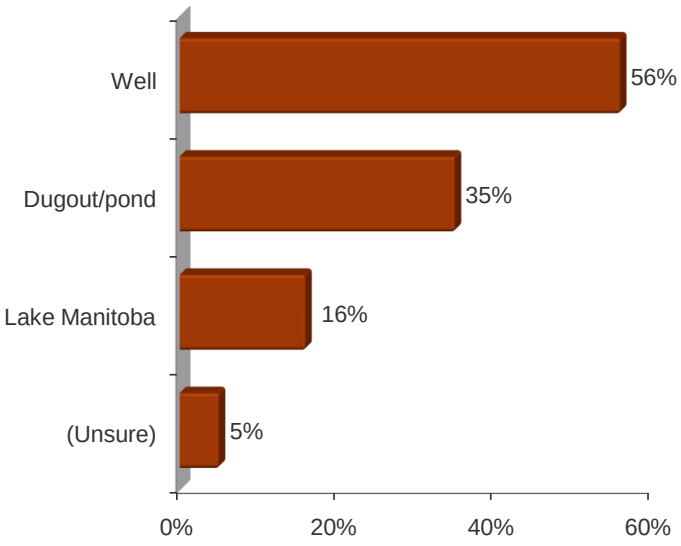
*Caution: Small Base

3.8.3 Source of Drinking Water for Livestock

The majority of farmer respondents who operated livestock on this land, reported they provided water for these animals from a well (56%) although nearly three-in-ten said a dugout/pond was the source of water for their livestock (35%). Sixteen percent said they drew water from Lake Manitoba for their cattle.

Main Source of Livestock Drinking Water

Q.37 *"What is the main source of drinking water for your livestock?" (n=43*)*

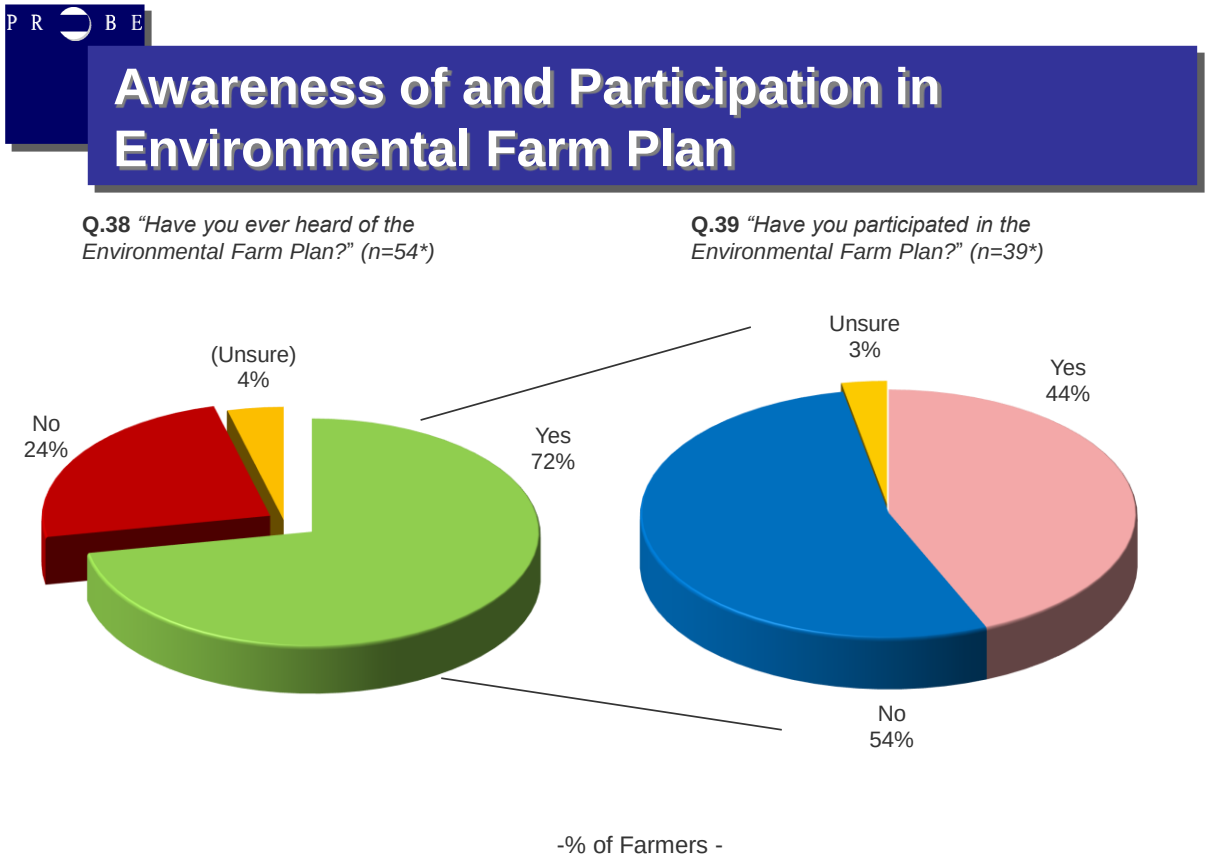


*Caution: Small Base

-% of Farmers -

3.8.4 Environmental Farm Plan

Farmer respondents were asked if they were aware of the Manitoba Government's Environmental Farm Plan (EFP)[5]. The majority (72%) had heard of the EFP, while only 24 percent had not and four percent were unsure.



*Caution: Small Base

Of the 72 percent of farmer respondents who were aware of the EFP, 44 percent said they had participated in it, compared to 54 percent who had not.

[5] *Environmental farm planning is a voluntary, confidential, self-assessment process designed to help farm managers identify environmental strengths and weaknesses of their operations. The planning process results in the development of an action plan to reduce any identified environmental risks on Manitoba farms. Producers attend two facilitated workshops where they will receive an introduction to environmental farm planning, assistance in completing an EFP workbook and help developing a customized farm action plan. Manitoba Government* website: http://www.gov.mb.ca/agriculture/soilwater/farmplan/fpp00s01.html

3.8 Lake Manitoba Stewardship Board

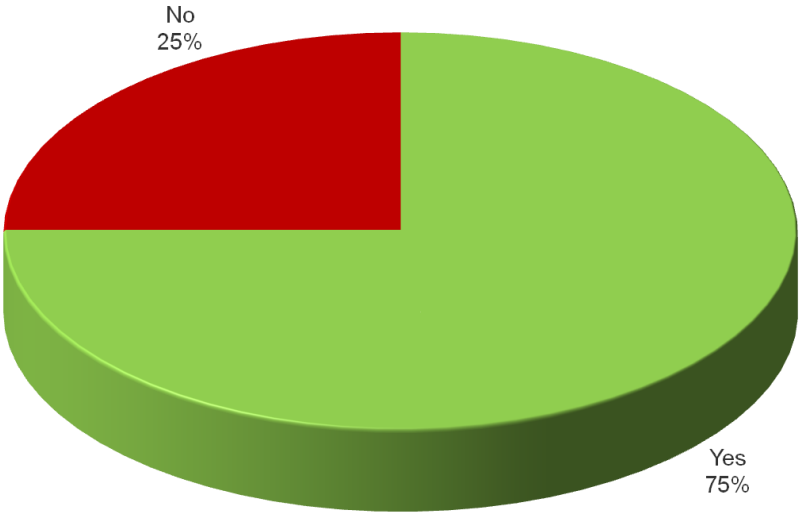
Below, respondents reveal their levels of awareness of the Lake Manitoba Stewardship Board (LMSB), its mandate as well as suggestions for priorities for this Board and the best way to communicate with them.

3.9.1 Awareness of the LMSB

Awareness of the LMSB was high among respondents. Indeed, three-quarters of respondents (75%) said they were aware of the Lake Manitoba Stewardship Board while one-quarter (25%) were not.

Awareness of the Lake Manitoba Stewardship Board

Q.40 *"Have you ever heard of the Lake Manitoba Stewardship Board?" (n=228)*



- % of All Respondents -

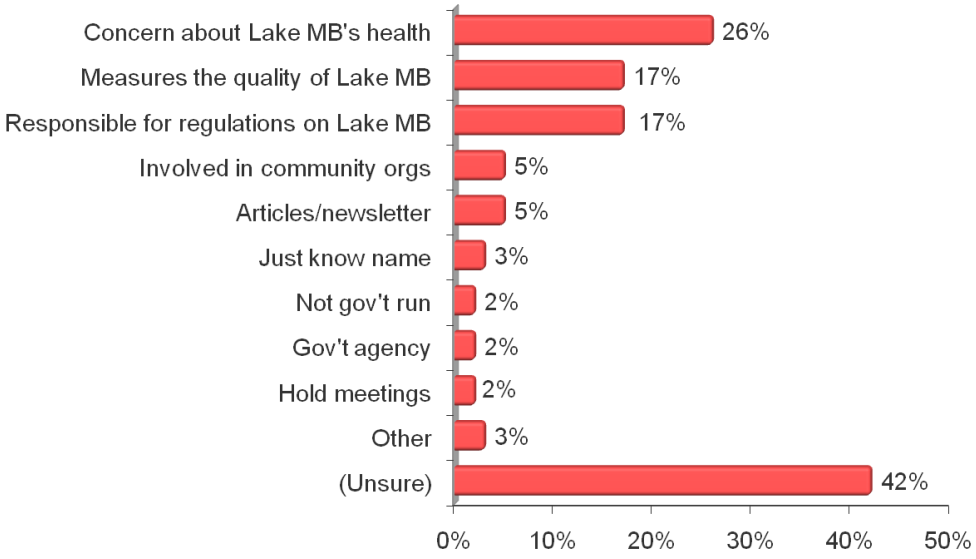
There were no significant differences in awareness of this organization among all sub-populations.

3.9.2 Unaided Recall of LMSB

Respondents were less able to recall what specifically they had heard about this organization (42% "unsure").

Unaided Recall of LMSB

Q.41 *"What have you heard about this organization?" (n=172)*



-% of Those Aware of LMSB -

One-quarter (26%) of respondents said they had heard LMSB was "concerned about Lake Manitoba's health", 17 percent said it "measures the quality of Lake Manitoba" and the same number felt it was "responsible for regulations on Lake Manitoba" (17%).

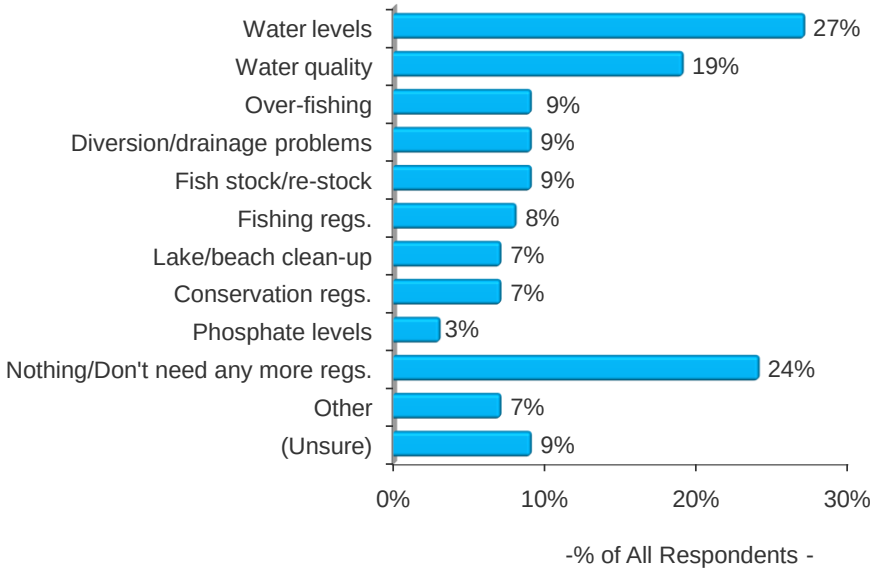
Far fewer respondents offered a variety of things associated with LMSB including: "involved in community organizations" and "articles/newsletter" (5% each), "just know their name" (3%), "not government run" (2%), "government agency" (2%) and "they hold meetings" (2%).

3.9.3 Suggested Areas of Attention for LMSB

While one-quarter of respondents (24%) did not feel the need for additional LMSB oversight due to the number of regulations currently in place for Lake Manitoba, those who did offer suggestions as to where the Board should focus its attention included "water levels" (27%), "water quality" (19%), "over-fishing", "diversion/draining problems", "fish stock/re-stock" (9% each), "fishing regulations" (8%), "lake/beach clean-up" and "conservation regulations" (7% each). Other areas of priority mentioned by far fewer respondents included "phosphate levels" and "limit recreation development" (3% each).

Suggested Priorities for LMSB

Q.42 *"The Lake Manitoba Stewardship Board was formed in 2007. It is a committee of Manitobans who have been asked to provide advice to the provincial government on such issues as water level regulation, water quality and fisheries pertaining to Lake Manitoba, lake Pineimuta and Lake St. Martin. Is there anything you would like to see them focus their efforts on in particular?" (n=228)*



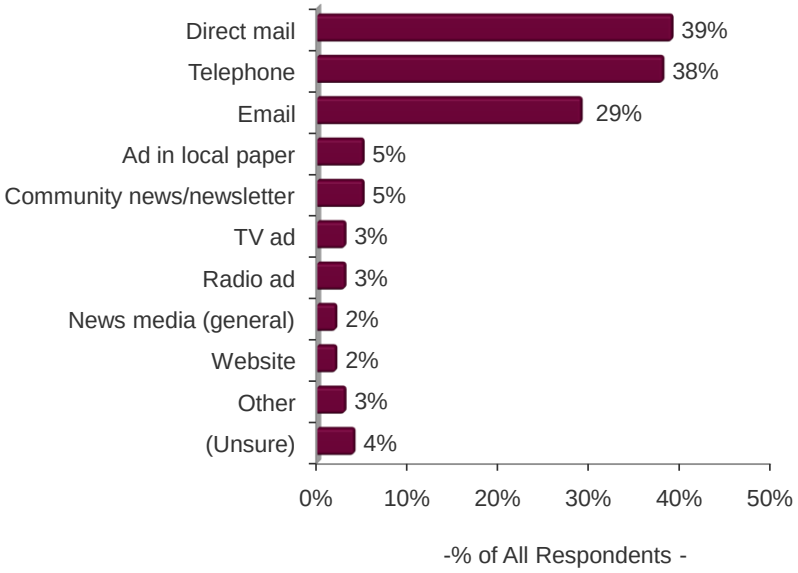
- **Over-fishing** was seen to be more of a priority for LMSB to respondents from the northern region of Lake Manitoba, than the south (14% versus 4%).

3.9.4 Communication Delivery

All respondents were asked to indicate the best way to reach them with important information concerning the lake.

Preferred Communication Vehicles

Q.44 *"What would be the best way to reach you with important information concerning the lake?" (n=228)*



Respondents mentioned "direct mail" (39%) most often as their preferred delivery method for information concerning the lake, followed by "the telephone" (38%) and "email" (29%). Use of the media was mentioned in its many forms such as the "local newspaper" (5%), "community news/newsletter" (5%), "TV ad" (3%), "radio ad" (3%) or "media in general" (2%), by far fewer respondents. Two percent of respondents felt the LMSB website would be a good source of delivery for any information about Lake Manitoba.

3.9 Future Plans and Desired Services

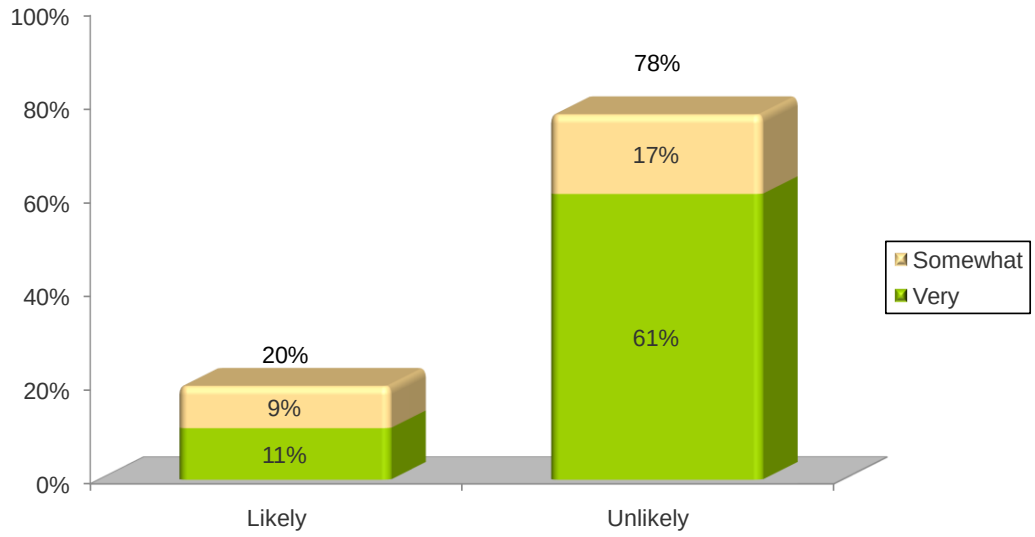
The likelihood of becoming a permanent resident in the next five years is explored in this final section of the report, along with an unaided listing of desired services.

3.10.1 Future Plans

Although it does not appear that there will be an influx of permanent residents in this region in the next five years (78% "unlikely"), one-in-five seasonal respondents report it is likely they will become a permanent resident in the near future (20%).

Likelihood of Becoming Permanent Resident in Near Future

Q.33 *"How likely or unlikely is it that you would become a permanent resident sometime in the next five years?" (n=109)*



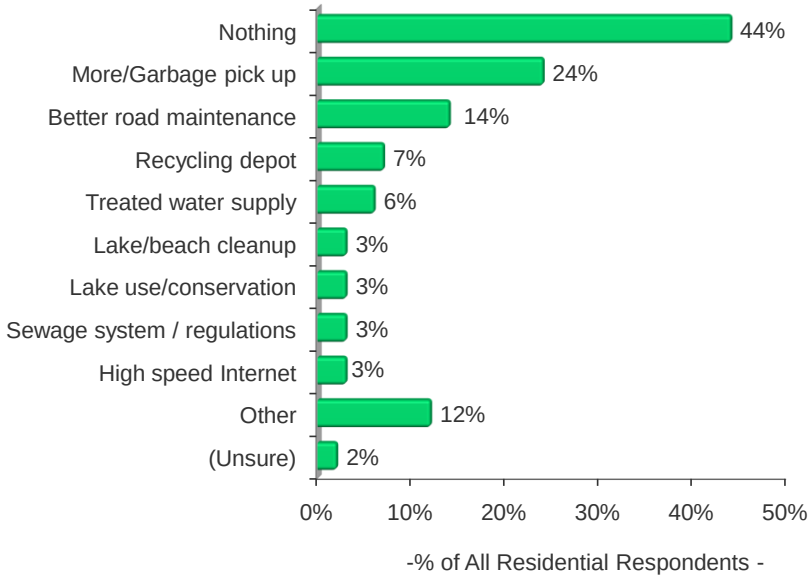
- % of Current Non-Permanent Residents –

3.10.2 Desired Services

Respondents were provided an opportunity to point to desirable service enhancements that could be provided by their local government or community.

Desired Services

Q.32 *"Is there any service that is important to you, that could be supplied by your community or municipality that are not presently available?" (n=190)*



Although a significant number of respondents could not offer any suggestions (44%), one-quarter said they would like "a new or increased garbage pick-up service" (24%) and more than one-in-ten would like to see "better road maintenance" (14%). Fewer respondents pointed to things like "recycling depot" (7%), "treated water supply" (6%) or "lake/beach cleanup", "lake use/conservation" "sewage/regulations" and "high speed internet" (3% each).

3.10 An Overview of Campgrounds

This section of the report reveals modified survey results from four provincial and one private campground on Lake Manitoba.

Manitoba Conservation was contacted in order to determine general information regarding four provincial campgrounds bordering Lake Manitoba, namely: Manipogo Provincial Park, Watchorn Provincial Park, Lundar Provincial Park and St. Ambroise Provincial Park. In addition, two district supervisors, one assistant resources officer and a clerk from these provincial parks were interviewed by telephone in order to provide more specific information. A manager from a private campground (Steep Rock) was also interviewed by telephone.

In all cases, the campgrounds were open from May until September.

The following table outlines information provided:

	PROVINCIAL CAMPGROUND				PRIVATE CAMPGROUND
	Manipogo	Watchorn	Lundar	St Ambroise	Steep Rock
TYPES OF SITES					
Permanent	0	0	0	0	152
Seasonal	17	10	8	7	
Casual/nightly	90	47	33	115	48
Other					5 cottages in park; 1 rented out cottage
LEVEL OF SERVICE					
Water/sewer serviced	0	0	0	0	170; provide sewer service for seasonal campers; 85 gal above ground sewer; 50 seasonal
Basic (no power)	57	25	7	93	30
Electric	33	22	26	22	170
OCCUPANCY LEVELS					
Per season	6,180	9,008	13,780	5,072	Average: 40 people/week; 150/weekend

.....continued

	PROVINCIAL CAMPGROUND				PRIVATE CAMPGROUND
	Manipogo	Watchorn	Lundar	St Ambroise	Steep Rock
WASTE DISPOSAL					
Compost pile/bin	No	No	No	Unsure	No
Recycling bin	No	Yes	Yes	Unsure	Yes
Garbage collection	No	Yes	Yes	Yes	Yes
WASTEWATER DISPOSAL					
Septic field/lagoon	1	No	No	No	2
Composting toilet	No	No	No	1	No
Outhouses/washrooms	3 5 modern washrooms	4	2 old 1 modern	2; 6 semi-modern	4 modern
Holding tanks	3	1	5	9	7
Frequency of pump-out	1/year	Unsure	74/season	Approx. every 2 weeks	1/week
WATER					
Source of drinking water	Well	2 artesian wells	Well	Hauled in for bulk tank	Public well
Taps/running water	22 taps	2 artesian wells	Unsure	6	172; 10 showers; laundry facility
Source of non-drinking water	Hand pump well/boil water	2 artesian wells	Well	Hauled in for bulk tank	Public well
Frequency of water testing	1/week	1/week	Daily	Daily	Weekly
Frequency of "Shocking" well	1/year or if major failure	Unsure	No	N/A	1/year (Spring)
FERTILIZER/WEED CONTROL/EROSION PROTECTION					
Fertilizer use	No	No	No	No	No
Property weed control	Spot	Unsure	No	Unsure	No
Shoreline weed control	No	Weed snipper	Harrows	No	No
Erosion protection	None	None	Trees/shrubs	Unsure	None

Changes in Beach / Lake Quality:

Observed changes in the quality of the beach itself ranged from none to a concern over the increase in the geese populations and the increase in the number of people using the beaches. Moreover, several noted a concern regarding E. Coli bacteria that could perhaps come from the large number of cottages in the area, as well as a large number of cattle who use the lake for drinking. However, this concern did not translate into any observable changes in the use of the beach.

General observations regarding qualities of the lake in their area include

- Manipogo: Slight increases noted in water levels, use of lake for recreation; Moderate increase in fish populations and use of beach area.
- Watchorn: Slight increases observed in use of lake for recreation, wildlife populations, severity of storm damage and beach erosion; Moderate increase in use of lake for recreation and use of beach area. A slight decrease was noted for the size of beach area.
- Lundar: Moderate increases noted in water levels, and use of beach area; Significant increase noted in use of lake for recreation
- St. Ambroise: No comments
- Steep Rock: Slight increase in trees/shrubs; Moderate increase in bird populations; weed growth in lake and severity of storm damage; Significant increase in use of lake for recreation and use of beach area. Significant decrease in fish populations, moderate decrease in water levels and noise levels.

Activities:

Lake activities at campgrounds varied to some degree, but for the most part included swimming, a variety of water sports, fishing and boating.

Drinking Water Concerns:

Although most had no concerns about their drinking water, a few noted they were concerned about bacteria in the water.

Awareness of and Support for LMSB:

All of the campground respondents had heard of LMSB. One noted that he recalled a report that was out “a little while ago”, while another felt this organization was responsible for cleaning up Lake Manitoba.

Issues that respondents felt should be priorities for LMSB included: maintaining higher water levels for fish stocks and recreation; reduce/remove cattle from the northwest basin of the lake; reduce the number of drains that go into the lake and ditches; remove/reduce the amount of sewage along the lake coming from private cottages.