



# **Strategies to Inspire Stewardship of the Lake Champlain Watershed**

**Voices for the Lake  
Telephone Survey Report**

Prepared For: ECHO Lake Aquarium & Science Center

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# Executive Summary

The Voices for the Lake initiative aims to raise awareness and build community around Lake Champlain stewardship. This survey project contributes to that effort by identifying the ways people are likely to take action to improve water quality, determining how they get information about their communities and use social media, and establishing what outreach methods would be most effective to educate the public about water quality issues and encourage lake stewardship.

Results from a seven-county representative telephone poll show that the majority of respondents are concerned about the water quality in Lake Champlain. Almost 70 percent attributed their concerns about the lake to pollution, run-off, and algae. However, respondents were less unified when it came to solutions. The top two categories of responses were research/education and regulation/government action, followed by clean-up action at the pollution source.

Respondents showed a high level of personal responsibility related to water quality, which indicates they are inclined to take action. A majority said that property owners are responsible for the quality of the water running off their properties, that they believed they could change their neighbors' behaviors through leading by example, and that businesses should pay their employees for community service volunteer time.

The types of action respondents said they were most likely to take were split between personal and community efforts. A large majority said they were likely to make changes in their personal habits to conserve water and make improvements to their property to protect water quality (92% and 81%, respectively). Meanwhile, about 60 percent said they were likely to participate in a community service project, attend an evening meeting on improving water quality in their community, volunteer to help collect water samples in their community, and/or talk to a neighbor about water quality in their community.

The answer to the key question of what strategies will inspire Vermonters to take these actions is rooted in how they access information and their stated preferences for learning about environmental issues. Respondents said they preferred to learn about stormwater management and improving water quality through brochures and web sites. When asked where they would look for information about environmental issues in their communities, respondents' cited the Internet, newspapers, and municipal sources.

Roughly an equal percentage of respondents said they received general information about news and events in their communities from newspapers as from television. However, when asked to identify their *primary* source of information, almost double the number of people said newspapers than said television.

The majority of respondents use e-mail. Slightly more than 70 percent of these respondents said they pass along online content that they like to other people and 83.8 percent said they typically view online content passed along from other people. Slightly more than a third of respondents used online social networking sites (mostly Facebook) and watched videos online (mostly through YouTube). The most common ways that respondents found videos of interest to them were through search engines and being sent to them from other people. Very few respondents had ever posted a video online or used Twitter.

The data suggest that online outreach campaigns designed to be spread through e-mail and tied in with print campaigns may be effective in inspire stewardship of the Lake Champlain watershed.

# Introduction

Voices for the Lake (VFL) is an ECHO Lake Aquarium and Science Center initiative to inspire Champlain Basin stewardship through social media and digital storytelling. The goal of the project is to raise awareness and build community around lake stewardship by using real stories from people who feel passionate about Lake Champlain.

The VFL outreach program includes the following online components: a Web site at [www.echovermont.org/ourmission/vfl.html](http://www.echovermont.org/ourmission/vfl.html); a blog at [voicesblog.echovermont.org](http://voicesblog.echovermont.org); a Facebook page at [www.facebook.com/VoicesfortheLake](http://www.facebook.com/VoicesfortheLake); a dedicated YouTube channel at [www.youtube.com/user/echovermont](http://www.youtube.com/user/echovermont); and a Twitter feed at [twitter.com/VoicesVT](http://twitter.com/VoicesVT)

As part of the project, the Center for Rural Studies at the University of Vermont implemented telephone and online surveys to learn more about Vermonter's thoughts and ideas about Lake Champlain, how they use social media, get information, and spend their time.

The objectives of the surveys are to identify the ways that people can take action to improve water quality, determine how they get information about their communities and use social media, and establish what outreach methods would be most effective to educate the public about water quality issues and encourage lake stewardship.

This report is based on the results of the telephone survey.

- **Section 1: Lake Issues** discusses respondents' opinions about the most serious issues facing Lake Champlain in the coming decade and what they think should be done to address these issues, as well as their opinions about responsibility with respect to water quality.
- **Section 2: Taking Action** outlines the measures people have taken and the measures they are likely to take to promote lake stewardship.
- **Section 3: Information** details how people choose to get information about their communities, use social media, and spend their time.
- **Section 4: Respondent Profile** describes the demographic makeup of the survey respondents.

# Methods

The data used in this report were collected by the Center for Rural Studies from Oct. 5 to Oct. 15, 2009. The telephone polling was conducted from the University of Vermont between the hours of 10 a.m. and 9 p.m. on weekdays using computer-aided telephone interviewing (CATI). A random sample for the poll was drawn from a Vermont phone list that is updated quarterly. Vermont residents over the age of 18 from Addison, Chittenden, Franklin, Grand Isle, Lamoille, Rutland, and Washington counties were interviewed.

There were 448 respondents to the survey. The results based on a sample of this size have a confidence interval of 95 percent with a margin of error of plus or minus 4.5 percent. This means that 95 percent of the time, Vermonters will answer any question from this survey within a 9 percent total range of the response.

The survey contained 53 content questions and 15 demographic questions. See Appendix 1 for the complete survey script. Quantitative data were analyzed using Microsoft Excel 2007 and the Statistical Package for the Social Sciences (SPSS) 17.0. P values less than or equal to .10 were deemed significant. Qualitative (open-ended) data were categorized and collapsed by two independent coders. text frequency analysis was performed using an online text analysis utility ([www.online-utility.org](http://www.online-utility.org)).

This telephone survey is a statistically representative of households with landline telephones. According to recent estimates, only 5.1 percent of Vermont households have at least one wireless cellular phone, but no landline telephone. As a state, Vermont has the lowest level of "wireless-only" households in the country.<sup>1</sup>

The responses from each county were roughly in line with the ratios of each county's population. For example, there was a higher number of respondents from Chittenden County, Vermont's most populated county, than from Grand Isle county. See Appendix 2 for a summary of the sample distribution from each county.

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<sup>1</sup> Blumberg et al. (2009). Wireless Substitution: State-level Estimates from the National Health Interview Survey, January - December 2007. National Health Statistics Report, 14.

# Section 1: Lake Issues

The majority of respondents cited environmental concerns as the most serious issue facing Lake Champlain in the coming decade. More than half of respondents disagreed with the statement “Lake Champlain is clean.” Less than a third agreed (see Table 1).

**Table 1**  
Lake Champlain is clean.

	Frequency	Percent
Strongly Agree	3	.7
Agree	120	27.6
Neither Agree nor Disagree	83	19.1
Disagree	186	42.8
Strongly Disagree	43	9.9
Total	435	100.0

(N=448)

Almost 70 percent attributed their concerns about the lake to water quality (pollution, run-off, and algae). The second highest concern was invasive species. Table 2 and Chart 1 show a primary breakdown of the responses. Two thirds of the respondents who said water quality was the biggest issue indentified pollution as the cause and 15 percent identified runoff, with 5.5 percent mentioning agriculture and another 10 percent citing runoff in general. Twelve respondents specifically mentioned phosphorous or phosphates (see Table 2a).

A word frequency analysis for the question showed that the most common content-based word used in the responses was “pollution” with 210 instances, followed by “clean” with 52 instances, and “runoff” with 35 instances. See Appendix 3 for the detailed text analysis.

Respondents were less unified when it came to solutions and slightly more than a quarter said they didn’t know. The top two categories of responses were regulation and government action (17%) and individual/source action (13%).

About 12% of respondents said the solution was simply to “clean it up,” but didn’t offer any suggestion for ways to do so. Similarly, some respondents alluded to work being done by unnamed entities (“They are doing something already, aren't they?") or expressed skepticism about proposed solutions (“I really don't know. I hear a ton of ideas from environmentalists; none of them make enough sense or solve the problem. It seems that it's just to give a lot of people jobs.”).

Of those who identified regulation or other government action as a solution, 12% suggested coordination with New York state (and a few of these also mentioned Quebec) for clean-up and policy work.

Meanwhile, about 10 percent identified research as a solution and about eight percent identified education. Eight percent of respondents mentioned farms. A few said that farmers have been unfairly

targeted and that they need more support. The rest of the farm mentions were split between controlling agricultural runoff and enacting/enforcing agricultural regulations. See Table 3 and Chart 2 for response categories.

The following quotes illustrate the broad range of responses:

- "If we properly educate people around the area, then we will take care of [the lake]. I don't think scare tactics work – people ignore that – we just need education on what we can do to help."
- "More action, less studies. Spending too much time and money on the studies and not enough on the action."
- "Collaboration between state officials, local watershed groups, and people who live and recreate on the lake and on the watersheds."
- "I don't think it's possible. First of all, I think that farmers have been targeted too much. And I think that more attention should be paid the cities, towns and residential."

**Table 2**

What do you feel is the most serious issue facing Lake Champlain in the coming decade?

Issue	Frequency	Percent
Water Quality	311	69.4
Invasive Species	70	15.6
Development and Overuse	14	3.1
Fish/Wildlife Issues	7	1.6
Other	20	4.5
Don't know	26	5.8
Total	448	100.0

(N=448)

**Table 2a**

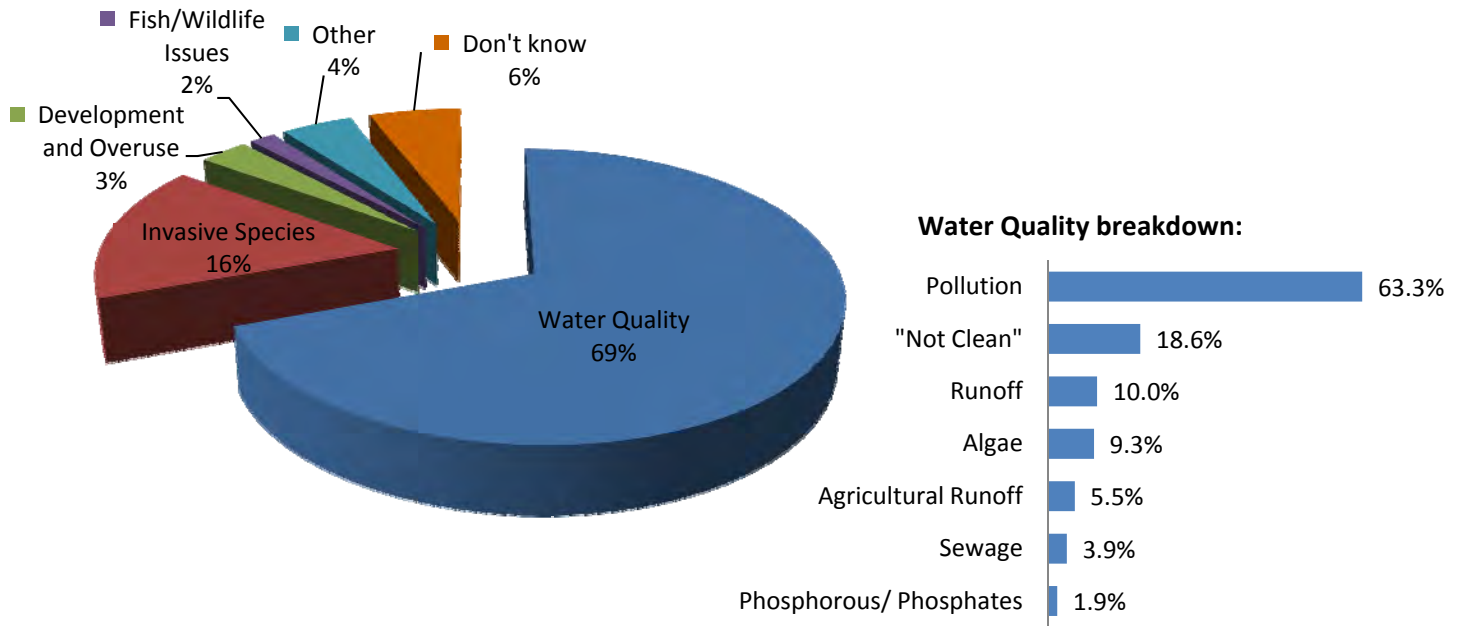
Water quality response detail

Issue	Frequency	Percent of Water Quality Responses	Percent of Total Responses
Pollution	197	63.3	44.0
“Not Clean”	58	18.6	12.9
Runoff	48	15.5	10.7
Algae	29	9.3	6.5
Phosphorous	12	3.9	2.7
Sewage	6	1.9	1.3
Other	4	1.3	0.9

*Some respondents identified more than one issue; these results contain primary and secondary responses.*

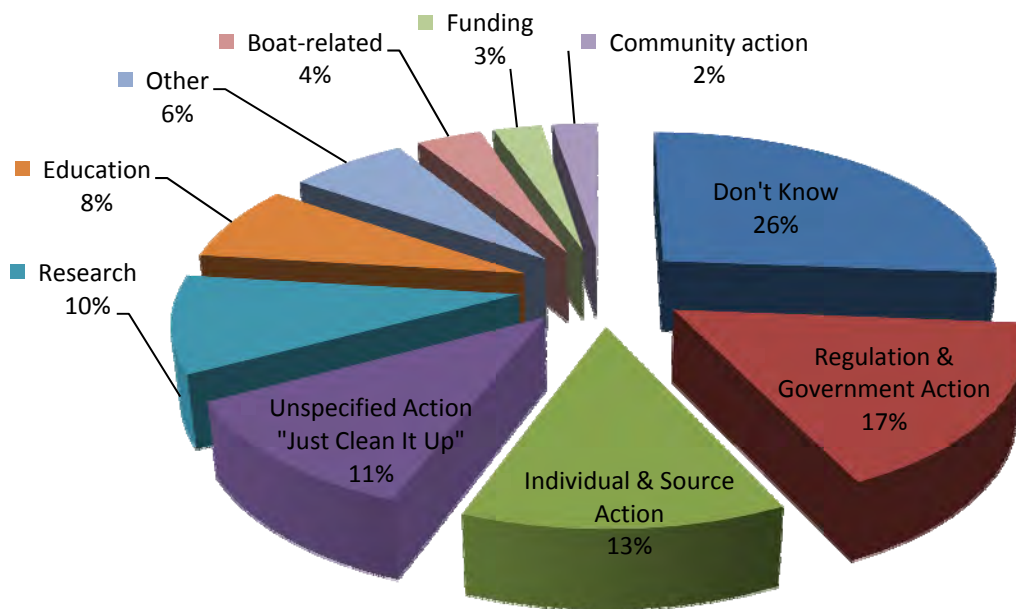
**Chart 1**

**What do you feel is the most serious issue facing Lake Champlain in the coming decade?**



**Chart 2**

**What do you think should be done to address this issue?**





**Table 3**

What do you think should be done to address this issue?

Solution	Frequency	Percent
Regulation & Government Action	74	17.0
Individual & Source Action	56	12.7
Unspecified Action “Just Clean It Up”	51	11.5
Research	43	9.7
Education	34	7.7
Boat-related	16	3.6
Community Action	11	2.5
Funding	11	2.5
Other	29	6.6
Don't know	116	26.2
Total	442	100.0

(N=448)

Respondents were asked their opinions about responsibility with respect to water quality. These questions set a baseline for the public’s opinion about their personal, business, municipal, and state responsibilities with respect to water quality.

About 10 percent of respondents said that property owners are not responsible for the quality of the water running off their property and almost 60 percent said they could change their neighbor’s behavior through leading by example (see Tables 4 and 5).

Sixty percent said businesses should offer paid community service volunteer time to their employees; slightly more than a third of respondents said towns should charge residents a fee to pay for stormwater runoff management; and 71 percent said the state should ban the use of lawn fertilizers containing phosphates (see Tables 6-8).

**Table 4**

Property owners are not responsible for the quality of the water running off their property.

	Frequency	Percent
Strongly Agree	6	1.4
Agree	38	8.7
Neither Agree nor Disagree	25	5.7
Disagree	200	45.7
Strongly Disagree	169	38.6
Total	438	100.0

(N=448)

**Table 5**

I can change my neighbors' behaviors through leading by example.

	Frequency	Percent
Strongly Agree	64	14.4
Agree	201	45.4
Neither Agree nor Disagree	68	15.3
Disagree	85	19.2
Strongly Disagree	25	5.6
Total	443	100.0

(N=448)

**Table 6**

I think businesses should offer paid community service volunteer time to their employees.

	Frequency	Percent
Strongly Agree	71	16.3
Agree	190	43.7
Neither Agree nor Disagree	57	13.1
Disagree	99	22.8
Strongly Disagree	18	4.1
Total	435	100.0

(N=448)

**Table 7**

Towns should charge residents a fee to pay for stormwater runoff management

	Frequency	Percent
Strongly Agree	14	3.2
Agree	152	35.2
Neither Agree nor Disagree	92	21.3
Disagree	131	30.3
Strongly Disagree	43	10.0
Total	432	100.0

(N=448)

**Table 8**

The state should ban the use of lawn fertilizers containing phosphates.

	Frequency	Percent
Strongly Agree	94	21.8
Agree	213	49.3
Neither Agree nor Disagree	67	15.5
Disagree	48	11.1
Strongly Disagree	10	2.3
Total	432	100.0

(N=448)

# Section 2: Taking Action

## *Action Taken*

Respondents said they had performed a variety of activities related to water quality, ranging from 82.6 percent who said they had limited the length of a shower to conserve water to 25.7 percent who said they had attended a meeting about water quality. The following list shows the percent of respondents who said that they had done each activity.

**Limited the length of a shower to conserve water:** 82.6%

**Washed a car on a lawn or at a commercial car wash instead of a driveway:** 71%

**Performed a water-quality improvement project (rain garden, planting trees):** 50%

**Talked to a neighbor about water quality:** 34.6%

**Collected water samples:** 27.5%

**Attended a meeting about water quality:** 25.7%.

**Used a phosphate-based fertilizer on your lawn:** 14.3%.

Responses were cross referenced with the respondents' education and income levels, their gender, county of residence, and whether they live in a rural, suburban or urban environment. The following describes which groups took action in each category. All the results listed below are statistically significant<sup>2</sup> unless noted.

### **Limited length of shower to conserve water**

- Women limited the length of their showers more likely than men.
- Respondents in higher income levels were less likely to limited the length of their showers to conserve water.

### **Washed car on lawn or at carwash rather than in driveway**

- No significant differences.

### **Performed a water quality improvement project**

- Responses were split fairly evenly across all demographic groups.
- Urban residents had performed fewer water quality improvement projects than rural and suburban residents.
- Higher income respondents had performed fewer water quality improvement projects than those with lower income.

### **Talked to neighbor about water quality**

- For the most part, respondents had not talked with a neighbor about water quality.
- Those with higher levels of education had talked more, but not significantly so.
- Respondents in Grand Isle had talked with a neighbor about water quality more than those in other counties.

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<sup>2</sup> Results are statistically significant if P-values are less than .10, which means there is high probability that sample data adequately represent the population from which they were drawn. Results that are not significant represent how people responded to the survey, but can't be generalized to the broader population.

### **Collected water samples**

- The vast majority of all groups did not collect water samples.
- Urban residents were least likely to collect water samples.

### **Attended a meeting about water quality**

- Respondents with lower incomes had less attendance than those with higher income.
- Less than half of respondents in each county had attended a meeting.
- Females attended less than males.

### **Used phosphate-based fertilizer on lawn**

- Respondents with higher education used phosphate-based fertilizer (not significant and likely related to higher income).
- Chittenden and Franklin counties had the highest percentage of phosphate-based fertilizer use (20% and 23%, respectively).
- Suburban residents had the highest number of phosphate-based fertilizer use (22%).
- Respondents with higher incomes used more phosphate-based fertilizer than those with lower income.

## ***Likely to Take Action***

In contrast to the previous section, which detailed *actual actions*, respondents were also asked *how likely they would be to take action* in the future. Respondents were given a list of activities related to water quality and were asked to state how likely they were to do each activity.

Roughly 60 percent said they were likely or very likely to participate in a community service project on a Saturday, attend an evening meeting on improving water quality in their community, volunteer to help collect water samples in their community, and/or talk to a neighbor about water quality in their community (see Tables 9-12).

Slightly more than half of respondents said they would be likely or very likely to install a rain garden on their property to help treat stormwater runoff and/or participate in a community rain garden building project. About 15 percent said they would be likely or very likely to give a presentation about water quality in their community (see Tables 13-15).

Meanwhile, 92 percent said they would be likely or very likely to make changes in their personal habits to conserve water and 81 percent said they would be likely or very likely to make improvements to their property to protect water quality (see Tables 16-17).

Responses were cross referenced with the respondents' education and income levels, their gender, county of residence, and whether they live in a rural, suburban or urban environment. The following describes which groups were more likely to take action in each category. All the results listed below are statistically significant<sup>3</sup> unless noted.

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<sup>3</sup> Results that are not significant represent how people responded to the survey, but can't be generalized to the broader population.

**Service project on a Saturday**

- Within all groups, the majority were either likely or very likely to participate in a service project on a Saturday.
- The only group less likely were people with incomes of less than \$25,000.

**Attend an evening meeting on improving water quality**

- Rural respondents were more likely.
- Males were more likely.
- Respondents with higher incomes were more likely (not significant).

**Volunteer to collect water samples**

- Those with higher levels of education were more likely.
- Males were more likely than females (not significant).

**Talk to a neighbor about water quality**

- No significant differences and answers were all across the board.

**Install a rain garden**

- No significant differences.

**Participate in a community rain garden project**

- Nearly half of the respondents in Rutland and Franklin counties were likely.
- Suburban and urban residents were more likely than rural residents (not significant).
- Those with higher incomes were more likely.

**Give presentation about water quality**

- No significant differences; across all demographic categories, the majority of people were unlikely or very unlikely to do so.

**Make changes in personal habits to conserve water**

- Across every demographic category, the majority of all groups said they were likely or very likely to do so.

**Make improvements to property**

- No significant differences among demographic groups.
- Across every demographic category, the majority said they were likely or very likely.

**Table 9**

Participate in a community service project on a Saturday.

	Frequency	Percent
Very Likely	67	15.1
Likely	216	48.6
Neither Likely nor Unlikely	51	11.5
Unlikely	79	17.8
Very Unlikely	31	7.0
Total	444	100.0

(N=448)

**Table 10**

Attend an evening meeting on improving water quality in your community.

	Frequency	Percent
Very Likely	59	13.3
Likely	204	46.0
Neither Likely nor Unlikely	43	9.7
Unlikely	110	24.8
Very Unlikely	27	6.1
Total	443	100.0

(N=448)

**Table 11**

Volunteer your time to help collect water samples in your community.

	Frequency	Percent
Very Likely	68	15.4
Likely	205	46.4
Neither Likely nor Unlikely	33	7.5
Unlikely	101	22.9
Very Unlikely	35	7.9
Total	442	100.0

(N=448)

**Table 12**

Talk to a neighbor about water quality in your community.

	Frequency	Percent
Very Likely	74	16.7
Likely	201	45.5
Neither Likely nor Unlikely	47	10.6
Unlikely	96	21.7
Very Unlikely	24	5.4
Total	442	100.0

(N=448)

**Table 13**

Install a rain garden on your property to help treat stormwater runoff.

	Frequency	Percent
Very Likely	73	16.9
Likely	156	36.2
Neither Likely nor Unlikely	69	16.0
Unlikely	98	22.7
Very Unlikely	35	8.1
Total	431	100.0

(N=448)

**Table 14**

Participate in a community rain garden building project.

	Frequency	Percent
Very Likely	57	13.0
Likely	172	39.3
Neither Likely nor Unlikely	59	13.5
Unlikely	122	27.9
Very Unlikely	28	6.4
Total	438	100.0

(N=448)

**Table 15**

Give a presentation about water quality in your community.

	Frequency	Percent
Very Likely	15	3.4
Likely	50	11.3
Neither Likely nor Unlikely	36	8.2
Unlikely	203	46.0
Very Unlikely	137	31.1
Total	441	100.0

(N=448)

**Table 16**

Make changes in your personal habits to conserve water.

	Frequency	Percent
Very Likely	206	46.4
Likely	205	46.2
Neither Likely nor Unlikely	10	2.3
Unlikely	14	3.2
Very Unlikely	9	2.0
Total	444	100.0

(N=448)

**Table 17**

Make improvements to your property at your own cost to protect water quality.

	Frequency	Percent
Very Likely	142	32.3
Likely	216	49.1
Neither Likely nor Unlikely	53	12.0
Unlikely	22	5.0
Very Unlikely	7	1.6
Total	440	100.0

(N=448)



# Section 3: Information

## *Outreach Preferences*

In order to determine what outreach methods may be effective to inform people about water quality issues and encourage them to take action, respondents were asked how they prefer to learn about stormwater management and improving water quality.

The most popular choice for learning about stormwater management was a brochure (26.4%), followed by web site (17%) and then a field trip, online video, presentation, and home video (13.2%-10.9%) (see Tables 18 and 19). However, combining all online options brought that category up to the top choice.

The ranking was fairly similar for learning about changes respondents could make in their homes or on their properties to improve water quality (see Tables 20 and 21).

Responses were cross referenced with the respondents' education and income levels, their gender, county of residence, and whether they live in a rural, suburban or urban environment. All the results listed below are statistically significant<sup>4</sup> unless noted.

### **Top choice for how to learn about stormwater management**

- Almost a third (29%) of Grand Isle respondents preferred presentations.
- All demographic categories predominantly preferred brochures or online options (website, online video). Percentages for each were roughly equal across groups with brochure generally scoring higher.

### **Top choice for how to learn about household changes**

- All demographic categories predominantly preferred brochures and online options (website, online video) percentages for each were roughly equal across groups with brochure generally scoring higher.
- Respondents with higher education levels preferred online options.
- Women preferred brochures more than men did.
- Those with lower incomes preferred brochures, those with higher incomes preferred online options.

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<sup>4</sup> Results are statistically significant if P-values are less than .10, which means there is high probability that sample data adequately represent the population from which they were drawn. Results that are not significant represent how people responded to the survey, but can't be generalized to the broader population.

**Table 18**

Of the following options, what is your top choice for how you would like to learn about stormwater management in your community?

	Frequency	Percent
Brochure	116	26.4
Website	76	17.3
Field Trip	58	13.2
Online Video	58	13.2
Presentation	52	11.8
Home video	48	10.9
Home Visit	6	1.4
Other	18	4.3
None	8	1.8
Total	440	100.0

(N=448)

**Table 20**

Of the following options, what is your top choice for how you would like to learn about changes you could make in your home or on your property to improve water quality?

	Frequency	Percent
Brochure	132	30.1
Website	77	17.5
Online Video	54	12.3
Home video	47	10.7
Presentation	45	10.3
Home Visit	30	6.8
Field Trip	27	6.2
Other	18	4.1
None	9	2.1
Total	439	100.0

(N=448)

**Table 19**

Other methods

OTHER	Frequency	Percent
In-person visit	3	18
Local television	3	18
All of the above	2	12
Brochure	2	12
Newspaper	2	12
Education system	1	6
Interactive video	1	6
None	1	6
Other	1	6

(N=18)

**Table 21**

Other methods

OTHER	Frequency	Percent
Newspaper	3	19
Brochure	2	13
None	2	13
TV Program	2	13
All of the above	1	6
Book	1	6
Email list	1	6
Interactive Video	1	6
School Programs	1	6
State Extension	1	6
Workshop	1	6

(N=18)

## Information sourcing

Respondents were asked where they get information about news and events in their communities. Roughly an equal percentage mentioned newspapers as television (75.2% and 76.3%, respectively), with slightly fewer mentioning radio (71%). However, when asked to identify the *primary* source of information about what's going on in their communities, almost double the number of people said newspapers than said television (see Tables 22 and 23).

When asked where they would look for information about environmental issues in their communities, respondents cited the Internet (36.6%), newspapers (22.5%), and municipal sources (20.5%) as the top three sources (see Table 24).

Responses were cross referenced with the respondents' education and income levels, their gender, county of residence, and whether they live in a rural, suburban or urban environment. All the results listed below are statistically significant<sup>5</sup> unless noted.

### Primary source of information about community

- Respondents with higher levels of education used newspapers (in print) as their primary source of information about what's going on in their communities, followed by the radio; those with lower levels of education use television as their primary source of information.
- All else being equal, urban residents listen to the radio more and suburban and rural residents watch more news on television.
- All else being equal, women use television as their primary source of information and men chose other news sources.
- Those with higher incomes tend to use print newspapers as their primary source of information.

**Table 22**

During a typical week, which of the following Vermont media sources do you access to get information about news and events?

SOURCE	Percent
Vermont television news on TV	76.3
Vermont newspaper in print	75.2
Vermont radio news over the airwaves	71.0
Vermont newspaper online	13.0
Vermont television news online	34.8

(N=448)

<sup>5</sup> Results are statistically significant if P-values are less than .10, which means there is high probability that sample data adequately represent the population from which they were drawn. Results that are not significant represent how people responded to the survey, but can't be generalized to the broader population.

**Table 23**

Primary source of information

<b>SOURCE</b>	<b>Frequency</b>	<b>Percent</b>
Newspaper in Print	185	42.0
Television News on TV	103	23.4
Other (word of mouth, general media, etc.)	71	16.1
Radio News Over the Airwaves	48	10.9
Newspaper Online	22	5.0
Television News Online	6	1.4
None	4	.9
Radio News Online	2	.5
<b>Total</b>	<b>441</b>	<b>100.0</b>

(N=448)

**Table 24**

If you wanted information about local environmental issues, where would you look?

	<b>Frequency</b>	<b>Percent</b>
Internet	164	36.6
Newspaper	101	22.5
Municipal source (town hall, town web site, town official, town board)	92	20.5
Community members, community groups	21	4.7
Television	9	2.0
State source (Agency of Ag., Agency of Natural Resources, other state resource)	7	1.6
Library	6	1.3
University/Extension	6	1.3
Environmental or conservation organization (VYCC, VPIRG, VNRC, LCBC)	5	1.1
Bulletin board	4	0.9
Radio	3	0.7
Yellow pages	3	0.7
ECHO	3	0.7
Other	10	2.2
Not sure	14	3.1

(N=448)

## Social media

Since the Voices for the Lake initiative is driven by social media, it was important to understanding the general public's use of e-mail, online video, and social networking tools such as Facebook, MySpace, and Twitter. The majority of respondents (73.7%) said they used a computer for e-mail; Facebook, MySpace, or other social networking; Twitter or other blogging; or watching videos. This percentage is fairly even across all demographic categories, with higher education and income correlated with Internet use. *The rest of the social media subsection refers to the 74 percent who are online.*

Slightly more than 70 percent of respondents said they pass along online content that they like to other people and 83.8 percent said they typically view online content passed along from other people.

Slightly more than a third of respondents (115 people) who used computers said they watched videos online. The majority used YouTube to view the videos. The most common ways that respondents found videos of interest to them were through search engines and being sent to them from other people. There was no significant difference between demographic groups. (Rural residents said they watch fewer online videos, but that may be related to Internet availability and speed.)

Only 26 respondents (22.8% of those who are online) had ever posted a video online. The most common place to post was YouTube. There was no significant difference between demographic groups. (However, suburban residents created fewer videos, and men created more.)

Only 15 respondents (4.6% of those who are online) used Twitter. The maximum number of tweets per day was 30 and the average was 3.13.

Slightly more than a third of respondents (125 people) use Facebook and 9.7 percent use another social networking site (mostly LinkedIn). The overwhelming majority (89.6%) use Facebook for family and friend connections (see Table 25).

**Table 25**

Which of the following is the most important reason you use Facebook?

REASON	Frequency	Percent
Family and friend connections	112	89.6
Marketing business or organization	6	4.8
Work and professional connections	3	2.4
Organization connections	2	1.6
Other	2	1.6
Total	125	100.0

(N=125)

## Time use

In order to determine how people are spending their time, respondents were asked approximately how many hours they spend each week doing a variety of activities. Table 26 shows how many respondents reported spending *any* time in each of the activities.

**Table 26**  
Spend time in any of the following activities

ACTIVITY	Frequency	Percent
Relaxing and socializing	423	94.4
Outdoor recreation	366	81.7
Working for pay	280	62.5
Other physical fitness	274	61.2
Volunteering	238	53.1
Education	232	51.8
Community meetings and events	156	34.8
Faith-based meetings and events	148	33.0
Town or city government meetings	79	17.6
Workshops	69	15.4
Political meetings and rallies	46	10.3

(N=448)

Of those who spent at least some time, Table 27 shows the average time spent in each activity. Nine outlier respondents were removed from the calculations because their total hours spent added up to more than 144 hours per week, indicating a potential error in reporting.

**Table 27**  
Average number of activity hours per week

ACTIVITY	Average Hours/Week
Working for pay	37.9
Relaxing and socializing	12.8
Outdoor recreation	8.3
Education	8.1
Volunteering	5.7
Other physical fitness	5.0
Workshops	3.4
Town or city government meetings	2.9
Faith-based meetings and events	2.4
Community meetings and events	2.1
Political meetings and rallies	1.2

(N=439)

# Section 4: Respondent Profile

The general demographic characteristics of the respondents are roughly in line with those of the state as a whole, although the respondents were generally of a higher age and education level than the general population.<sup>6</sup>

The age of the respondents ranged from 19 to 90, with a median age of 56. This is 15 years higher than the median age of Vermonters, 41 years. More women than men answered the survey (63.5% female, 36.5% male). Statewide, the population is 50.8 percent female and 49.2 percent male.

Respondents reported an average of 2.6 household members, with a range of one to 14, and the average number of household members under the age of 18 of .6, with a range of zero to eight. The average household size for the state is 2.4 people.

The total number of years respondents reported having lived in Vermont, including all earlier periods, ranged from less than one to 90 years, with an average of 38.3 years.

Almost all the respondents (96.6 percent) had graduated high school and 51.5 percent had a Bachelor's or higher degree (see Table 28). According to the U.S. Census, 90.3 percent of Vermonters aged 25 and older are high school graduates and 33 percent have Bachelor's or higher degree.

**Table 28.** Education level

	Frequency	Percent
<9th grade	4	.9
9-12 grade (no diploma)	11	2.5
High school graduate (incl. GED)	93	21.2
Some college (no degree)	55	12.5
Associates/technical	50	11.4
Bachelor	127	28.9
Post-graduate/professional	99	22.6
Total	439	100.0

(N=448)

<sup>6</sup> Source: U.S. Census Bureau, 2006-2008 American Community Survey.

The majority of respondents (61.2 percent) had household incomes above the median for Vermont; 38.9 percent of respondents had household incomes equal to or lower than the median household income<sup>7</sup> for Vermont (see Table 29). Just under 10 percent of respondents (9.4%) said that their jobs were related to water quality.

**Table 29.** Income

	Frequency	Percent
<\$25,000	50	13.0
\$25,000-\$49,999	100	25.9
\$49,999-\$74,999	94	24.4
\$75,000-\$99,999	70	18.1
>\$100,000	72	18.7
Total	386	100.0

(N=448)

Respondents were spread throughout the sampling area, roughly in line with the population for each county. The majority of respondents said they lived in rural areas (62.5%), compared with 21.4 percent in a suburban areas and 13.3 percent in urban areas (see Tables 30 and 31).

**Table 30.** Respondent town of residence by county

COUNTY	Frequency	Percent
Addison	64	14.4
Chittenden	180	40.6
Franklin	57	12.9
Grand Isle	17	3.8
Lamoille	14	3.2
Orleans	1	.2
Rutland	38	8.6
Washington	72	16.3
Total	443	100.0

(N=448)

**Table 31.** Do you live in a rural, suburban, or urban area?

	Frequency	Percent
Rural	272	62.5
Suburban	105	24.1
Urban	58	13.3
Total	435	100.0

(N=448)

<sup>7</sup> Source: Source: U.S. Census Bureau, 2006-2008 American Community Survey (\$51,704 with a +/- \$682 margin of error of, 2008 inflation-adjusted dollars).



# Appendix 1

## Survey Questions

### Q: Intro1

Hello, my name is \_\_\_\_\_ and I'm calling from the University of Vermont on behalf of the ECHO Lake Aquarium & Science Center. ECHO is asking Vermonters to share their ideas and opinions as part of its Voices for the Lake initiative.

Your household was randomly selected for our research study.

The survey will take about 10 minutes and your participation is completely voluntary. Do you have time to answer some questions?

- 1.Yes
- 2.No

### Q: Intro2

Are you a Vermont resident 18-years-old or older?

- 1.Yes
- 2.No

### Q: q1

Thank you for agreeing to participate! All of your answers will remain strictly confidential and the survey should take about 10 minutes.

What do you feel is the most serious issue facing Lake Champlain in the coming decade?

[OPEN RESPONSE]

### Q: q2

What do you think should be done to address this issue?

[OPEN RESPONSE]

### Q: q3- 8

Now I'm going to read you a list of statements. Please state your level of agreement with each statement:

- Lake Champlain is clean.
  - Property owners are not responsible for the quality of the water running off their property.
  - The state should ban the use of lawn fertilizers containing phosphates.
  - I can change my neighbors' behaviors through leading by example.
  - I think businesses should offer paid community service volunteer time to their employees.
  - Towns should charge residents a fee to pay for stormwater runoff management.
- 1.Strongly agree
  - 2.Agree
  - 3.Neither agree nor disagree
  - 4.Disagree
  - 5.Strongly disagree
  - 6.Don't know [DO NOT READ]
  - 7.Refused [DO NOT READ]

### Q: q9-17

Next I'm going to read you a list of activities. Please state how likely you would be to do each of the following:

- Participate in a community service project on a Saturday.
- Attend an evening meeting on improving water quality in your community.
- Volunteer your time to help collect water samples in your community.
- Make changes in your personal habits to conserve water.

- Make improvements to your property at your own cost to protect water quality.
- Install a rain garden on your property to help treat stormwater runoff.
- (A rain garden is a bowl-shaped garden designed to capture and absorb rainfall and snowmelt.)
- Participate in a community rain garden building project.
- Talk to a neighbor about water quality in your community.
- Give a presentation about water quality in your community.
  1. Very likely
  2. Likely
  3. Neither Likely nor Unlikely
  4. Unlikely
  5. Very unlikely
  6. Don't know [DO NOT READ]
  7. Refused [DO NOT READ]

**Q: q18**

Now please say yes if you have ever done any of the following activities:

- Performed a water-quality improvement project (rain garden, planting trees).
- Attended a meeting about water quality.
- Collected water samples.
- Limited the length of a shower to conserve water.
- Used a phosphate-based fertilizer on your lawn.
- Washed a car on a lawn or at a commercial car wash instead of a driveway.
- Talked to a neighbor about water quality.
- Gave a presentation about water quality.

**Q: q19**

Stormwater runoff is rainfall that does not soak into the ground, but instead flows over hard surfaces like roofs and parking lots into a storm drain or the nearest water body. This can be a problem because stormwater carries pollution and can affect water quality.

Of the following options, what is your top choice for how you would like to learn about stormwater management in your community?

1. Attend a presentation
2. Go on a field trip
3. Read a brochure
4. Read information on a web site
5. Watch a video on a web site
6. Watch a video that was sent to your home
7. Have someone visit your home
8. Other (specify)
9. None [DO NOT READ]
10. Don't know [DO NOT READ]
11. Refused [DO NOT READ]

**Q: q20**

Of the following options, what is your top choice for how you would like to learn about changes you could make in your home or on your property to improve water quality?

1. Attend a presentation
2. Go on a field trip
3. Read a brochure

4. Read information on a web site
5. Watch a video on a web site
6. Watch a video that was sent to your home
7. Have someone visit your home
8. Other (specify)
9. None [DO NOT READ]
10. Don't know [DO NOT READ]
11. Refused [DO NOT READ]

**Q: q21 -31**

Now I'm going to ask you a question about how you spend your time.

- During a typical week, approximately how many HOURS do you spend doing the following activities?
  - Working for pay
  - Volunteering
  - Outdoor recreation
  - Other physical fitness (indoor exercise, fitness classes, etc.)
  - Relaxing or socializing
  - Education
  - Workshops
  - Town or city government meetings (selectboard, local commission, etc)
  - Community meetings and events (non-government)
  - Faith-based meetings and events
  - Political meetings or rallies
- [# OF HOURS]

**Q: q32**

The next questions are related to how you get information about your community.  
If you wanted information about local environmental issues, where would you look?  
[OPEN RESPONSE]

**Q: q33**

During a typical week, which of the following Vermont media sources do you access to get information about news and events? Just say yes if you access any of these.

- Vermont newspaper in print
- Vermont newspaper online
- Vermont television news on TV
- Vermont television news online
- Vermont radio news over the airwaves
- Vermont radio news online

**Q: q34**

What is your PRIMARY source of information about what's going on in your community?

1. Newspaper in print
2. Newspaper online
3. Television news on TV
4. Television news online
5. Radio news over the airwaves
6. Radio news online
7. Other (please specify)
8. None [DO NOT READ]
9. Don't know [DO NOT READ]
10. Refused [DO NOT READ]

**Q: q35**

Now I have some questions for you about your computer use. Do you use a computer for any of the following: E-mail; Facebook, MySpace, or other social networking; Twitter or other blogging; or watching videos?

1. Yes
2. No
3. Don't know [DO NOT READ]
4. Refused [DO NOT READ]

IF (q35>1) SKIP TO d0

**Q: q36-40**

During a typical DAY, approximately how many MINUTES do you spend doing the following activities?

- Checking and responding to e-mail
- Using Facebook
- Using MySpace
- Using Twitter
- Using YouTube  
[# OF MINUTES]

**Q: q41**

Do you watch videos online? (NOT including movies or television shows)

1. Yes
2. No
3. Don't know [DO NOT READ]
4. Refused [DO NOT READ]

**Q: q42**

What web sites do you typically use to view videos?

- YouTube
- Facebook
- Myspace
- Yahoo! Video
- Flickr
- Other (specify)

**Q: q43**

How do you find videos of interest to you?

- Search engine (google, yahoo,MSN, etc.)
- Search on video site
- Through Facebook
- Web surfing
- Sent to me by other people
- Word of mouth
- Other (specify)

**Q: q44**

Have you ever created and posted a video online?

1. Yes
2. No
3. Don't know [DO NOT READ]
4. Refused [DO NOT READ]

**Q: q45**

Where have you posted your video or videos?

- YouTube
- Facebook
- Myspace
- Yahoo! Video
- Flickr
- Other (specify)

**Q: q46**

Do you use Twitter?

1. Yes
2. No
3. Don't know [DO NOT READ]
4. Refused [DO NOT READ]

**Q: q47**

During a typical day, how many tweets do you post?  
[# OF TWEETS]

**Q: q48**

Do you use Facebook?

1. Yes
2. No
3. Don't know [DO NOT READ]
4. Refused [DO NOT READ]

**Q: q49**

Which of the following is the most important reason you use Facebook?

1. Friend and family connections
2. Work and professional connections
3. Organizational connections
4. Marketing your business or organization
5. News and information
6. Other (specify)
7. Don't know [DO NOT READ]
8. Refused [DO NOT READ]

**Q: q50**

Which of the following is the secondary reason you use Facebook?

- 1.Friend and family connections
- 2.Work and professional connections
- 3.Organizational connections
- 4.Marketing your business or organization
- 5.News and information
- 6.Other (specify)
- 7.Don't know [DO NOT READ]
- 8.Refused [DO NOT READ]

**Q: q51**

Do you use any other online social networking?

- 1.Yes (specify)
- 2.No
- 3.Don't know [DO NOT READ]
- 4.Refused [DO NOT READ]

**Q: q52**

Do you pass along online content that you like to other people?

- 1.Yes
- 2.No
- 3.Don't know [DO NOT READ]
- 4.Refused [DO NOT READ]

**Q: q53**

Do you typically view online content passed along to you from other people?

- 1.Yes
- 2.No
- 3.Don't know [DO NOT READ]
- 4.Refused [DO NOT READ]

**DEMOGRAPHICS**

Finally, I have just a few demographic questions to ask you. All of your responses will be kept strictly confidential.

**Q: d1**

What is the highest level of education that you have completed?

- 1.<9th grade
- 2.9-12 grade (no diploma)
- 3.High School graduate (incl. GED)
- 4.Some college (no degree)
- 5.Associates/technical
- 6.Bachelor
- 7.Post graduate/professional
- 8.Don't Know [DO NOT READ]
- 9.Refused [DO NOT READ]

**Q: d2**

How many members are there in your household?

#

98 DON'T KNOW [DO NOT READ]

99 REFUSED [DO NOT READ]

**Q: d3**

How many people in your household are under the age of 18?

#

98 DON'T KNOW [DO NOT READ]

99 REFUSED [DO NOT READ]

**Q: d4**

How many years have you lived in Vermont, including any earlier periods?

#

998 DON'T KNOW [DO NOT READ]

999 REFUSED [DO NOT READ]

**Q: d5**

In what year were you born?

#

9998 DON'T KNOW [DO NOT READ]

9999 REFUSED [DO NOT READ]

**Q: d6**

In what city or town do you live?

[OPEN RESPONSE]

**Q: d7**

In what county is that?

- 1.Addison
- 2.Bennington
- 3.Caledonia
- 4.Chittenden
- 5.Essex
- 6.Franklin
- 7.Grand Isle
- 8.Lamoille
- 9.Orange
- 10.Orleans
- 11.Rutland
- 12.Washington
- 13.Windham
- 14.Windsor
- 15.Don't know [DO NOT READ]
- 16.Refused [DO NOT READ]

**Q: d8**

Do you live in a rural, suburban, or urban area?

1. Rural
2. Suburban
3. Urban
4. Don't know [DO NOT READ]
5. Refused [DO NOT READ]

**Q: d8a**

Is your job related to water quality?

1. Yes [DO NOT READ]
2. No [DO NOT READ]
3. Don't have a job [DO NOT READ]
4. Don't Know [DO NOT READ]
5. Refused [DO NOT READ]

**Q: d9**

Was your household's TOTAL income in 2008 more or less than \$50,000?

1. More
2. Less
3. Don't Know [DO NOT READ]
4. Refused [DO NOT READ]

IF (d9 = 1) SKIPTO d11  
IF (d9 = 3) SKIPTO d13  
IF (d9 = 4) SKIPTO d13

**Q: d10**

Was it more or less than \$25,000?

1. More
2. Less
3. Don't Know [DO NOT READ]
4. Refused [DO NOT READ]

IF (d10 = 1) SKIPTO d13  
IF (d10 = 2) SKIPTO d13  
IF (d10 = 3) SKIPTO d13  
IF (d10 = 4) SKIPTO d13

**Q: d11**

Was it more or less than \$75,000?

1. More
2. Less
3. Don't Know [DO NOT READ]
4. Refused [DO NOT READ]



IF (d11 = 2) SKIPTO d13  
IF (d11 = 3) SKIPTO d13  
IF (d11 = 4) SKIPTO d13

**Q: d12**

Was it more or less than \$100,000?

1. More
2. Less
3. Don't Know [DO NOT READ]
4. Refused [DO NOT READ]

**Q: d13**

Now, I have two quick questions regarding your ethnicity and race.

First, are you one of the following: Hispanic, Latino, or of Spanish origin?

1. Yes
2. No
3. Don't Know [DO NOT READ]
4. Refused [DO NOT READ]

**Q: d14**

Next, listen to the following list and indicate the race category with which you identify.

1. White
2. Black or African American
3. American Indian or Eskimo
4. Asian or Pacific Islander
5. Something else (specify)
6. Don't know [DO NOT READ]
7. Refused [DO NOT READ]

**Q: d15**

And finally, please state your gender?

1. Male
2. Female
4. Don't Know [DO NOT READ]
5. Refused [DO NOT READ]

**Q: End1**

That was my final question. Thank you for your time. If you would like to learn more about Voices for the Lake, you can visit the ECHO web site at [www.echovermont.org](http://www.echovermont.org)

# Appendix 2

## Sample Disposition

**Table 32**  
Sample Disposition

<b>5,720</b>	<b>Total Numbers Dialed</b>
1,145	Not in Service
654	Business, Fax, or Other Not-Eligible
3,921	Working numbers
<b>68.5%</b>	<b>Working Rate</b>
1,062	Refused
273	Terminated
454	Completed Survey
1,789	Total Contacted (2,132 No Answer or Busy)
45.6%	Contact Rate
<b>454</b>	<b>Completed Survey</b>
273	Incomplete
727	Cooperating numbers
40.6%	Cooperation Rate
<b>25.4%</b>	<b>Completion Rate</b>

**Table 33**  
Sample Disposition by County

County	Population over 18 (2000 Census)	Percent of total pop. for 7 counties	Survey Response Percent	Completed	Refused	Terminated	No Service	Not Available	Other	TOTAL NUMBERS
Addison	27,025	9.4%	13.00%	59	120	24	83	196	98	<b>580</b>
Chittenden	112,058	39.0%	41.85%	190	436	92	460	771	281	<b>2230</b>
Franklin	32,658	11.4%	13.00%	59	138	53	141	251	43	<b>685</b>
Grand Isle	5,189	1.8%	3.52%	16	15	3	24	53	5	<b>116</b>
Lamoille	17,588	6.1%	3.08%	14	54	23	80	175	25	<b>371</b>
Rutland	44,403	15.4%	9.25%	42	140	42	181	326	69	<b>800</b>
Washington	48,661	16.9%	16.30%	74	159	36	176	360	133	<b>938</b>
<b>TOTAL</b>	<b>287,582</b>	<b>100.0%</b>	<b>100.0%</b>	<b>454</b>	<b>1062</b>	<b>273</b>	<b>1145</b>	<b>2132</b>	<b>654</b>	<b>5720</b>
PERCENT				7.94%	18.57%	4.77%	20.02%	37.27%	11.43%	

## Content Analysis

The following tables detail the word frequencies in responses to the questions: “What do you feel is the most serious issue facing Lake Champlain in the coming decade?” and “What do you think should be done to address this issue?” There were 1,879 words in the issue response set and 4,637 in the solution response set. Non-content words such as “and,” “in,” “the,” etc. were removed, as were verbs and content neutral words such as “water,” “life,” etc. Some words, such as “farm,” “farmer,” and “farming” were combined and marked with an asterisk.

**Table 34**

What do you feel is the most serious issue facing Lake Champlain in the coming decade?

Wordcount	Occurrences	Percentage of total words
<b>pollution</b>	210	11.18%
<b>clean*</b>	52	2.77%
<b>runoff</b>	50	2.66%
<b>invasive*</b>	35	1.86%
<b>algae</b>	31	1.65%
<b>zebra mussels*</b>	28	1.49%
<b>lamprey</b>	24	1.28%
<b>fish</b>	17	0.90%
<b>milfoil</b>	15	0.80%
<b>phosphorous*</b>	15	0.80%
<b>farm*</b>	13	0.69%
<b>quality</b>	13	0.69%
<b>sewage*</b>	8	0.43%
<b>boats</b>	7	0.37%
<b>weeds</b>	7	0.37%
<b>development</b>	5	0.27%
<b>agricultural</b>	3	0.16%
<b>eels</b>	3	0.16%
<b>fertilizer</b>	3	0.16%
<b>toxins</b>	3	0.16%
<b>overpopulation*</b>	3	0.16%
<b>agriculture</b>	2	0.11%
<b>infestation</b>	2	0.11%
<b>motorboats</b>	2	0.11%
<b>nitrogen</b>	2	0.11%
<b>alewives</b>	1	0.05%
<b>bacteria</b>	1	0.05%
<b>chestnut</b>	1	0.05%
<b>coli</b>	1	0.05%
<b>exotic</b>	1	0.05%
<b>frog</b>	1	0.05%
<b>garbage</b>	1	0.05%
<b>gunk</b>	1	0.05%
<b>lichens</b>	1	0.05%
<b>poop</b>	1	0.05%
<b>salamanders</b>	1	0.05%
<b>snot</b>	1	0.05%
<b>toad</b>	1	0.05%

**Table 35**

What do you think should be done to address this issue?

Wordcount	Occurrences	Percentage of total words
lake	88	1.90%
farm*	46	0.99%
water	40	0.86%
clean	39	0.84%
people	32	0.69%
boat*	31	0.67%
runoff	27	0.58%
pollution*	25	0.54%
educate*	24	0.52%
state	22	0.47%
sewage*	21	0.45%
research*	20	0.43%
control	19	0.41%
regulation*	16	0.35%
government	13	0.28%
study*	12	0.26%
species	11	0.24%
funds	10	0.22%
invasive	10	0.22%
chemicals	9	0.19%
money	9	0.19%
monitor*	9	0.19%
waste	9	0.19%
fertilizer	8	0.17%
lamprey*	8	0.17%
ny	8	0.17%
public	8	0.17%
stricter	8	0.17%
vt	8	0.17%
agricultural	7	0.15%
communities	7	0.15%
treatment	7	0.15%
action	6	0.13%
camps	6	0.13%
enforcement*	6	0.13%
fish	6	0.13%
industrial	6	0.13%
rivers	6	0.13%

**The following words appeared five times:** Algae, Champlain, development\*, everyone, land, lawns, local, manure, phosphorous\*, science\*, Vermont. **The following words appeared four times:** Agencies, awareness, creek, federal, legislate\*, mussels, pesticides, plants, residents, rules, tourist\*. **The following words appeared three times:** Canada, cities, conservation, drainage, dumping, erosion, fields, law, measures, milfoil, municipalities, policies, prevention\*, restrictions, shore, streams, towns, watershed, zebra. **The following words appeared two times:** Answers, ChemLawn, costs, cows, discharged, endangered, gardens, grassroots, guidelines, habitat, houses, incentives, initiatives, media, political, protect, quality, salt, ski, soil, spend, terms, testing, traffic, treating, volunteers, waters. **The following words appeared once:** Alburg, analyze, budget, bufferzones, businesses, busy, cars, citizens, climate, communication, compost, construction, cottages, drinking, echo, ecosystem, eel, enforced, eradicate, facts, filth, gasoline, generations, GreenLawn, harvest, hatcheries, highways, humans, individual, landowners, learn, littering, loggers, love, mandatory, nitrates, nitrogen, nonpoint, observations, officials, poison, proactive, professors, Quebec, representatives, resources, sailors, salamanders, screening, scum, seaweed, stormwater, St. Albans, strict, taught, tax, teach, technical, trash, vehicles, Vermonters, waterfront, weeds, Winooski, zoning.