



Tap Take Back

Awareness Surrounding
Dalhousie University's Drinking
Water Pledge and Implications
for the Dalhousie Community

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1.0 Executive Summary

It has been postulated that as we attempt to move towards a collective sustainable future, universities can be seen as leaders in setting this example. Universities are often at the forefront of sustainability initiatives, however universities often at the same time have significant carbon footprints. In this sense, it is clear there is room for improvement. There is a significant body of research from a multitude of disciplines focused on the environmental impacts associated with producing and consuming single-use plastic water bottles. As a result of increased information on the adverse impacts plastic has on the environment and the increasing rate at which human society has been producing and consuming plastic, some universities have imposed bans on the sale of plastic disposable water bottles in an attempt towards increasing campus sustainability. Though banning seems to be the most obvious means of reducing plastic waste this is not always seen as a viable option for universities, or is not immediately possible.

The research team Go Green or Go Home originally sought to investigate what support existed in the Dalhousie community surrounding the potential implementation of a campus-wide ban on single-use plastic water bottles. Once directed to concentrate our efforts on Dalhousie’s current initiative surrounding public water infrastructure and bottled water, the research team shifted focus to the Dalhousie University Drinking Water Pledge, a document signed in April 2013 that promises to promote and improve campus sustainability surrounding public and bottled water consumption. April 2018 marks 5 years since the Dalhousie Drinking Water Pledge was signed. Our research question seeks to explore what awareness of the Pledge exists in the Dalhousie community, and our goal is to infer from these findings if any significant impact insofar as reduced consumption and campus attitudes toward sustainability has been realized as a result of the Pledge. Using the research method of systemic sampling, we distributed a survey to students and staff at various locations on Dalhousie’s main campus – particularly in high-traffic locations on campus where bottled water is sold, and where public

water infrastructure exists. 118 random students and staff at the Student Union Building (SUB), Killam Library, Sexton Library, and Mona Campbell Building were canvassed. Out of all participants, only 8.5% were aware of the Pledge. Of the participants surveyed 86% support the Pledge. 32% of participants indicated that they believe the Pledge could be improved through increased education and awareness. The research team recommends

2.0 Introduction

2.1 Background

The research team Go Green or Go Home originally sought to investigate what support existed in the Dalhousie community surrounding the potential implementation of a campus-wide ban on single-use plastic water bottles. Once directed to concentrate our efforts on Dalhousie's current initiative surrounding public water infrastructure and bottled water, the research team shifted focus to the Dalhousie University Drinking Water Pledge, a document signed in April 2013 that promises to promote and improve campus sustainability surrounding public and bottled water consumption.

The genesis of the research began when the team began investigating what research existed with regard to a bottled water ban at Dalhousie. Among some petitions and op-ed style articles that had been written to the Dal Gazette in the past 5 years, a research project from 2011 was discovered that covered the details of student support for a campus-wide ban on bottled water. In 2011, a research team in Dalhousie's Environmental Problem Solving II: Campus as a Living Laboratory class produced a report entitled *Diagnosis of the Level of Student Support for Campus-wide Removal of Bottled Water* focused on campus-wide opinions on a ban on the sale of single-use disposable plastic water bottles. Originally, our research project goal was to build off this research by investigating the current scope of this campus issue, and examining what current initiatives and awareness exists within the Dalhousie community related to the issue of bottled water, plastic consumption and accessibility to public water infrastructure. However, our research team's focus was redirected to examine existing documentation of Dalhousie's water infrastructure and bottled water reduction initiatives, as suggested by Rochelle Owens, Executive Director of the Office of Sustainability at Dalhousie.

This led the research team to discover the Dalhousie University Drinking Water Pledge that was signed in 2013. Surprised when no members of the research team, all senior ESS students and involved in the Dalhousie community, had never heard mention of the Pledge before, we revised our original research question to focus on the Pledge itself and whether or not we could infer it as having made any significant impact.

The Dalhousie University Drinking Water Pledge, signed in April 2013 by the Vice President of Finance and Administration on behalf of the University, pledges several improvements to Dalhousie's existing water infrastructure and to reduce consumption of individually-size single-bottled water. The document outlines 4 areas in which Dalhousie pledges to improve with regard to bottled water and public water. Specifically, Dalhousie pledges to: continue the systematic assessment and improvement of Dalhousie's public water infrastructure, equipment, and buildings systems; to terminate the sale of office-sized cooler bottled water on all Dalhousie University campuses; to reduce consumption of individually-sized single-bottled water; and to engage in education and projects that promote the importance of healthy and sustainable public water infrastructure (Dalhousie, 2013). The Pledge specifically states that "Dalhousie University will actively build a culture of awareness and responsibility with regard to bottled water and water sustainability through organizations such as the Dalhousie Office of Sustainability," (Dalhousie, 2013). It is this tenet of the Dalhousie's pledge that the research team focused on investigating; is there in fact a culture of awareness and responsibility with regard to bottled water and sustainability in the Dalhousie community?

2.2 Goals and Objectives

Generally, the research team's focus from the beginning of the project was to investigate awareness surrounding water infrastructure in the Dalhousie community, that is, what campus sustainability initiatives are focused on bottled water and reducing plastic consumption on Dalhousie campuses today? Are students and staff at Dalhousie University aware of such efforts, and can we infer that they are having any impact thereof? To connect these broader campus issues to the participants at an individual level, we created a survey that began by asking questions such as individuals' motivations behind using or not using a reusable water bottle, or choosing to purchase disposable plastic water bottles on campus. The survey

then progressed into posing the question of whether participants were aware of the Pledge, if they could share any details in its regard, and whether or not they felt it was adaptable to individual lifestyles or would be impactful in the Dalhousie community.

Furthermore, the research goal in answering the question of how much awareness exists in the Dalhousie community with regard to bottled water and reducing environmental impact in this area is to hold Dalhousie accountable to its Pledge. With time continuing to pass since the Pledge was signed, now 5 years and counting, the research team hopes the submission of this report brings about a sense of accountability to the university and its Office of Sustainability to initiate tangible action in the Dalhousie community, as is outlined in the Pledge. Holding Dalhousie's initiatives accountable is important in ensuring documents like the Dalhousie University Drinking Water Pledge falls under the category of action, rather than simply just being part of the institution's due diligence and more so a placeholder for action.

2.3 Purpose of Research

Being four senior undergraduate students in ESS at Dalhousie, the research team members were all surprised when none of us were previously familiar with the existence of the Pledge prior to investigating the subject matter surrounding this project. Moreover, we believed that if we were unaware of this document pledging a more sustainable campus environment with regard to water access and attitudes, that there would be a significant portion of the Dalhousie population that would also be unaware of the Pledge. The purpose of the research is thus to create awareness and engagement around the issue of public water infrastructure and foster attitudes of sustainable consumption and living in the Dalhousie community. At minimum, the purpose of surveying students and staff was to stimulate conversation on the topic, and inspire the community to at least check in with themselves at the individual level to make improvements in terms of sustainable attitudes and behaviour.

3.0 Methods

3.1 Description of Study Design

After receiving feedback from Professor Mui and our team mentor Brittany Barber, Go Green or Go Home modified the original proposed methods. Originally, we planned to utilize an online survey to question as many students at Dalhousie as possible in the simple random method. In the simple random method, every member of the community at Dalhousie must have an equal chance of being selected and for that to be possible a complete list of enrolled students would have to be made available (Pennsylvania State University, 2018). Additionally, our survey was for the entire community at Dalhousie, including faculty and staff and therefore to be simple random a full list of faculty and staff names and contact information would have had to be made available as well. This was deemed outside the scope and feasibility of this research project. For these reasons, Go Green or Go Home decided to utilize a questionnaire and the systematic sampling technique in order to acquire the necessary information to inform our research question within the scope and time frame of the research project. The systematic sampling was utilized by selecting every fifth person to enter the building currently being surveyed in. Due to time and transportation constraints, the buildings chosen to distribute the questionnaire were selected based on feasibility for the group of Go Green or Go Home as well as on each buildings “hub” like usage, i.e. campus locations that host the most traffic throughout any given school day. The buildings selected were the Student Union Building, the Killam Library, the Sexton Library and the Mona Campbell. Furthermore, the research team selected these campus buildings based on the existence of public water infrastructure within them (i.e. water fountains and water bottle refill stations), as well as the accessibility to purchase bottled water at each of these locations.

3.2 Justification for Measurement Choices

Go Green or Go Home decided to utilize a questionnaire over the face to face interview technique for multiple reasons. The questionnaire can be seen in appendix -The first reason is the nature of the set of questions themselves. There was an open ended question in the survey in which participants were asked “What changes if any would you suggest to make the

Dalhousie University Drinking Water Pledge more effective?” Additionally, there were two other semi-open questions where participants were asked “Can you share any details about the Pledge?” as well as the question “why?” after asking the participant if they support this Pledge. Because of these open ended questions and the noise level associated with the buildings selected, Go Green or Go Home decided it would be optimal to allow participants to record their answers to the questions themselves with a pen or pencil. In a few cases, participants preferred to have the questions read to them and have their answers recorded for them. The second reason for selecting a questionnaire over an interview was time constraints on both participants and members of Go Green or Go Home. Student participants were always entering these buildings with some other task in mind, and to save time, Go Green or Go Home decided it would be more efficient for participants to read and answer the questions themselves rather than conduct an interview in a noisy environment where people are constantly entering and exiting. Additionally, if conducting an interview, it would be extremely difficult to maintain the systematic sampling of every fifth person to enter the building. In the event that participants asked to have the questions read and recorded for them, members of Go Green or Go Home would wait until that survey was complete before beginning to count the people entering the building for fifth person.

3.3 Procedures

Members of Go Green or Go Home would enter their selected building and wait at the entrance. Upon arriving inside the building the member would begin to count people as they entered the building. When the fifth person entered the building they would be approached by a Go Green or Go Home group member and asked if they would be willing to participate in a quick 2 minute questionnaire about sustainable water usage at Dalhousie. If the student/faculty/staff agreed to participate the member of Go Green or Go Home would go slightly off to the side and distribute a questionnaire and a pen or pencil if necessary. Depending on the volume of traffic of the building, while the participant filled out the questionnaire, the member of Go Green or Go Home would begin to count people entering the building and approach the fifth person. In some cases it was not possible to approach the exact

fifth person to enter the building after distributing the questionnaire, due to the large volume of traffic entering and exiting the building. In the event that participants asked to have the questions read and recorded for them, members of Go Green or Go Home would wait until that survey was complete before beginning to count the people entering the building for fifth person.

3.4 Limitations

Due to the nature of this project and the environment of school at this time of year, there was a considerable time constraint. Especially since, after the proposal, Go Green or Go Home had to make significant changes to the research question, as well as the sample method. This delayed Go Green or Go Home group members from surveying, in an already short amount of time to survey. Go Green or Go Home began surveying on March 13th, and finished surveying on March 27th. This time constraint resulted in a need to pick convenient locations for the group members of Go Green or Go Home to survey at. Another constraint was transportation combined with availability. To be able to survey to the extent that was needed, Go Green or Go Home picked locations for each member that were feasible for them when taking into account other commitments and transportation. This could result in some bias, as not all students have an equal opportunity of being asked to participate, and certain buildings that were selected, like the Mona Campbell for instance, may attract a certain type of student or possess a distinct culture since it is the College of Sustainability. Future research could avoid this bias by extending the data collection period. Also, there had been no prior research done on Dalhousie's 2013 Water Pledge, and therefore no data to base any hypothesis on. Because of this, the nature of the research was inductive, with the aim being to gather enough data to have an accurate representation of the Dalhousie communities' awareness and support level in regards to the Pledge. Future research could focus on improvements on the awareness and willingness to participate in the Pledge. In retrospect, a question that could have been included in the survey is "if applicable please identify what academic department you belong too" in order to identify possible correlations between certain academic cultures and support/awareness of the Pledge. This is something that could be done in future research, possibly exclusively for

students, with the aid of a student enrollment list in order to help participants remain completely anonymous. This research would be helpful because it would identify certain areas at Dalhousie where efforts to make the Pledge known are lacking and allow the school to address these areas.

4.0 Results

Based on the feedback we received, participants felt that the 6th question in the survey was redundant depending on the answer to question 5. For this reason the results of question 6 will be omitted from our results. Upon further discussion we decided that by omitting question 6 we will not be negatively impacting the results of the survey.

For this section all figures will be showing the results of the survey questions when responses that were 'Left Blank' are omitted. By removing responses that were left blank a better representation of the data can be observed. For a comprehensive representation of the data collected through the surveys including the responses that were left blank please see Appendix 2. The tables in Appendix 2 also contain percentages that have been calculated with the inclusion of the left blank responses.

118 surveys were completed by participants. The demographic of participants was 84% students, 9% faculty and 6% staff. Of the participants 94% owned a reusable water bottle, and 88% actually utilize it while on campus. Participants indicated that the reason they utilize their reusable water bottle was based on preference (32%), to reduce plastic waste (33%), reduce environmental impact (24%), convenience (4%) and to save money (5%). When asked whether they purchase bottled water while on campus 6% of participants responded yes, and 78% said no with 17% indicating that they occasionally do. 90% of participants did not know about Dalhousie University's Water Pledge. A Likert scale revealed that more than 40% of participants felt that the pledge has a beneficial impact on Dalhousie's plastic and environmental footprint. Of the 118 participants 86% support the Pledge. 32% of participants indicated that they believe the Pledge can be improved through increased education and awareness.

5.0 Discussion

5.1 Purpose of the Research

Numerous studies from a multitude of disciplines have been conducted that detail the environmental impacts of producing and consuming single use plastic water bottles. As a result of the increased information on this impact plastic has on the environment and the increasing rate at which human society has been producing and consuming plastic, some universities have imposed bans on the sale of plastic disposable water bottles in an attempt towards increasing campus sustainability. Though banning seems to be the most obvious means of reducing plastic waste this is not always seen as a viable option for a University or is not immediately possible. This is observed at Dalhousie University whose approach to decreasing their carbon footprint from plastic bottled water was in the form of a drinking water pledge. This pledge titled Dalhousie University Drinking Water Pledge April 2013 (See Appendix 4) was as the name suggests signed in April 2013 and agrees to (1) continue to improve the University's public water infrastructure, equipment, and buildings systems (2) to terminate the sale of office-sized cooler bottled water on all Dalhousie University campuses (3) reduce consumption of individually sized single-bottled water and (4) to engage in education and projects that promote the importance of healthy and sustainable public water infrastructure. The effectiveness of this pledge is thus of utmost importance as it is Dalhousie's first step in reducing plastics from bottled water on campus. It was from this standpoint that the research group Go Green or Go Home formulated their project with the goal of elucidating campus wide perspective on the pledge and through that the pledge's effectiveness at fostering "a culture of awareness and responsibility with regard to bottled water and water sustainability" (Dalhousie University, 2009).

5.2 Overview of Significant Findings

From the analysis of our survey results we were able to elucidate the Dalhousie community's level of awareness regarding the water pledge. From the results in Figure 5 (Appendix 3), 91.5 % of the 118 survey participants had not heard of the pledge itself with 8.5% having heard of it. The 8.5 % who had heard of the pledge specified that they had heard it

either through Rochelle Owens or through a report they had done themselves on the subject. Though our sample size was not representative of the entire University the fact that the majority of students surveyed were in SUST or ENV5 programs (inherent bias as the members of Go Green or Go home were more likely to survey people we knew or in places we frequent) and had not heard of it is illuminating. It is generally assumed that students and faculty in those programs would be more aware of actions Dalhousie has taken towards reducing plastic waste so the fact that the majority had not is perhaps indicative of the rest of Dalhousie's population. However, since we did not record what faculty each participant was from we cannot quantify this information and are rather theorizing. Further study on this subject would thus benefit from this information.

From Figure 6 (Appendix 3) the question of whether participants believe that the pledge would have any impact towards reducing Dalhousie's plastic/environment footprint is depicted with 35.1% saying "Likely" and 30.7% replying "Not likely" on the Likert scale. As most of the participants who took the survey did not know what the pledge was, their opinion and understanding of the pledge was based solely on its title and so we decided to remove question 6 from our results as it was not illustrative. Figure 7 (Appendix 3) shows the percent of participants who support the pledge with an overwhelming 91.1% of participants in support of it. This information can be used to further improve the pledge since although the majority of participants had not heard of it, they were in support of it. This indicates that the pledge is a platform through which Dalhousie could continue to seek to further improve their environmental footprint as well as campus-wide environmental awareness.

Awareness seems to be the biggest issue surrounding the water pledge as shown in Figure 9 (Appendix 3) showing the most popular responses to question 9 of our survey with 50% of participants indicating education and awareness as being their top concern. Suggestions were made to increase awareness including advertisements of the pledge near vending machines and campus food vendors as well as many responses indicating that Dalhousie should stop selling bottled water entirely. More infrastructure was suggested by 22.6% of participants followed by 19% indicating that Dalhousie should dissuade the purchase of bottled water altogether. Previous studies on banning bottled water at Universities will be further discussed in Section

5.4 of this report. Furthermore 8.3% of participants indicated that accountability was a concern which is compatible with the fact that pledge's effectiveness relies mainly on awareness in order to be held accountable.

Upon further reading of the Pledge it was clear that Dalhousie has been sticking to some of their promises while slacking on others. An example where Dalhousie has kept to the pledge is in point 1.1 which states "Dalhousie University Facilities Management will carry out public water infrastructure improvement deemed necessary through consultation with the Environmental Health and Safety Office to ensure easy and safe accessibility of public water on Dalhousie University campuses" (Dalhousie University, 2009). On the Dalhousie University website under the Office of Sustainability the water initiatives that Dalhousie has and is currently undergoing is listed. It includes "Supporting reduction of bottled water through activities such as passing of water pledge, installing new water fountains that have easy access to reusable bottles, holding bottle-free events, testing potable water, and promoting water jugs in catering" (Dalhousie University).

However, one point where they seem to be slacking due to lack of accountability is in point 4.2 which states "Dalhousie University will encourage campus food and beverage vendors to offer tap water free of charge and without pressure to purchase food or other beverages" (Appendix 4). However, on campus vendors do not seem to be affected by this promise as shown at both the Tim Hortons cafe and Pete's ToGo in the Student Union Building where the upselling of bottled water can be seen.

5.3 Implications for Theory or Practice

This report could be used by other Universities who are seeking to improve their campus environmental awareness or at Dalhousie itself to further improve the pledge. Generally, our report elucidates the need for more awareness and accountability regarding the pledge but also demonstrates that the population we sampled supports it. Educating the students and faculty about this pledge would set a precedent from which the campus population can follow to achieve a higher standard of sustainability in the Dalhousie community.

5.4 Consideration of the Findings considering Existing Research Studies

As discussed in the Introduction our original research project surrounded perspectives on Dalhousie's campus regarding a ban of bottled water. A similar report had already been done in 2011 titled *Diagnosis of the level of student support for campus-wide removal of bottled water* which found that 70% of a representative sample of students and faculty supported a ban (Abercrombie et al., 2011). As it has been nine years since this report we hypothesized that the support for a ban would have increased as environmental awareness has increased significantly in the last nine years.

Although certain universities sometimes focus on different concepts, most include the same basic reasons for a ban; the environmental issues associated with the sale of disposable plastic bottles, including but not limited to: marine life being affected, bio-accumulation, carbon footprint of campus, landfill plastic accumulation, the cost of bottled water versus clean tap water (2 dollars per liter of bottled water vs 2 dollars per 1000 liters of fountain water in the case of Ottawa University, rates will not be exactly the same) and in some cases the issues associated with water privatization and the ethics behind paying for a basic human necessity (Wilfrid Laurier).

However, some of the bans that have been put into place have been met with controversy and have experienced "ban backlash" in which the ban had unforeseen results that negatively affected the universities, the students and the environment itself. An important factor that pertains to the relatively small amount of backlash is that many universities that have implemented the ban of the sale of plastic water bottles have not provided studies that prove the environmental benefits to the campus or the general reception by the community, post-ban. Some of the universities that have produced post-ban studies have seen mixed results. One of these universities is the University of Vermont, where a study was done prior to the ban and post ban (Johnson, 2015). In this case, the study found that students did not start using reusable water bottles and taking advantage of the 100,000\$ implementation of water re-fill stations but instead purchased more, less healthy, plastic bottled beverages (Johnson, 2015). The percentage of plastic bottles shipped per capita increased by 6%, leaving the University of Vermont with more plastic waste than before the ban took effect (Johnson, 2015). Professors at

the university point out that even though the ban was successfully implemented, it does not guarantee that it will have the desired effect on student behaviour, which is to drink equally clean, cheaper, more environmentally friendly tap water (Johnson, 2015). Another university that has produced a post-ban study is the University of Canberra, a small regional university from Australia. This study found that there were some positive outcomes such as the increase of water refill station usage but also, some negative outcomes such as; population drinking less water, substituting bottled water with less healthy bottled alternatives and the restrictions on freedom of choice.

It seems that a change in behaviour may be a more effective way of approaching the bottled water issues on university campuses. Perhaps if the Pledge was more widely known so Dalhousie could be held accountable to a higher standard this could be achieved.

6.0 Conclusion

In terms of progress, the Pledge has not been completely unmet by action. The instalment of water fountains all over campus where individuals can refill water bottles is significant. This gives the Dalhousie community autonomy in their choice of access to water, in that people may choose to purchase bottled water from various campus food vendors or use a reusable bottle and refill it at one of these fountains free of charge. This is important in reducing plastic consumption and waste on campus and in promoting sustainable attitudes and behaviours.

Based on the survey results, it is recommended that Dalhousie focus more of its efforts on promoting the Pledge through the university community. Given the fact that our results show 89.9% of participants being unaware this Pledge even existed, awareness or promotional campaigns in some form would be beneficial in spreading the message and truly attempting to foster this environment of sustainability in the Dalhousie community. This could come in the form of blog posts on Dalhousie's websites, campus events, or simply posters or campus-wide email blasts focused on spreading awareness of the cause and its goals. Furthermore, several respondents mentioned that awareness or promotional campaigns were lacking in the Dalhousie community, and thereby Dalhousie's efforts with regard to this part of the Pledge – to engage in education and projects that promote the importance of healthy and sustainable

public water infrastructure – is concluded to be inadequate in execution. With more effort focused on reviving the Pledge’s promises, the research team concludes that Dalhousie could in fact achieve a campus that revolves around sustainable attitudes and behaviours.

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8.0 Acknowledgements and Appendices

Go Green or Go Home would like to thank our participants in the study who we surveyed, as well as Professor Mui and our mentor Brittany Barber for guiding our team in forming the base for the research project.

8.1 Appendix 1: Survey Questions

ENVS/SUST 3502 Dalhousie Water Pledge Survey

****disclaimer:** by completing this survey I consent and acknowledge that the anonymous information I provide here will be used for research project purposes, and will not be used beyond the scope of the assignment.

1. Which is the following best describes your affiliation with Dalhousie University?
 - a) Student
 - b) Faculty
 - c) Other (please specify) _____

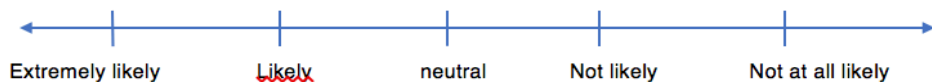
2. Do you have a reusable water bottle? Yes No
 - a) If you answered yes: Do you use your reusable water bottle on campus?
Yes No
 - b) If answered no: What is your alternative to a reusable bottle?

3. What is your reason motivating you to use a reusable water bottle? (Circle all that apply)
 - a) Preference
 - b) To reduce plastic waste
 - c) To reduce environmental footprint
 - d) Other (please specify) _____

4. Do you buy bottled water on campus?
 - a) If so, why? _____

5. Are you aware of Dalhousie University's Water Pledge made in 2013 to reduce bottled water on campus?
Yes No
 - a) If Yes, can you share any details about the pledge? _____

6. Do you think this pledge has any impact towards reducing Dalhousie's plastic/environmental footprint, or improving campus sustainability?

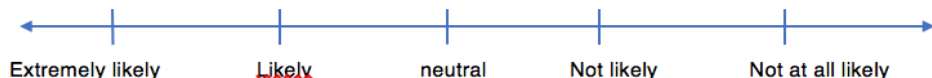


7. Do you support this pledge?

Yes No

a) Why? _____

8. How likely are you to support this pledge and apply it to your own lifestyle at Dalhousie?



9. What changes, if any, would you suggest to make the Dalhousie University Drinking Water Pledge more effective?

Thank you for completing our survey! 😊

8.2 Appendix 2: Frequency Tables of Results

Table 1: Demographics of Survey Participants

Which of the following best describes your affiliation with Dalhousie?	Frequency	Percent
Student	100	84
Faculty	11	9.2
Staff	7	5.9

The first question asked of participants was to identify their affiliation with Dalhousie University as student, staff, or other. If selecting other participants were asked to specify.

Table 2: Participants who own a reusable water bottle

Do you have a reusable water bottle?	Frequency	Percent
Yes	111	94.1
No	7	5.9

Participants were asked whether they owned a reusable water bottle. Of the 118 participants only seven did not own a reusable water bottle.

Table 3: Reusable water bottles on campus

Do you use your reusable water bottle on campus?	Frequency	Percent
Left Blank	1	0.8
Yes	104	88.1
No	13	11

To determine whether participants actually used their reusable water bottles they were asked if they do.

Table 4: Why do participants use reusable water bottles?

What is your reason for using a reusable water bottle?	Frequency	Percent
Left Blank	3	1.4
Preference	71	32.3
Reduce Plastic Waste	73	33.2
Reduced Environmental Impact	53	24.1
Convenience	9	4.1
Save Money	11	5

By asking this question researchers were able to gauge what the reason is that participants choose to use a reusable water bottle.

Table 5: How many participants buy disposable water bottles?

Do you buy bottled water on campus?	Frequency	Percent
Left Blank	16	13.6
Yes	7	5.9
No	78	66.1
Occasionally	17	14.4

While participants may own a reusable water bottle, they are still at liberty to purchase bottle water while on Campus. Researchers aimed to determine how many participants in the survey still purchase bottled water while owning a reusable water bottle.

Table 6: Community Awareness

Are you aware of Dalhousie University's Water Pledge made in 2013 to reduce bottled water on campus?	Frequency	Percent
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Left Blank	1	0.8
Yes	10	8.4
No	107	89.9

Of the 118 participants who took the survey, only 10 knew about the pledge. Highlighted in the table above is our most significant finding, proving that awareness surrounding the Dalhousie Drinking Water Pledge has room for improvement.

Table 7: Impact of the Pledge

Do you think this pledge has any impact towards reducing Dalhousie's plastic/environmental footprint, or improving campus sustainability?	Frequency	Percent
Left Blank	4	3.4
Extremely Likely	7	5.9
Likely	40	33.9
Neutral	32	27.1
Not Likely	35	29.7
Not At All Likely	0	0

In an attempt to understand whether participants actually felt that the pledge is making a difference they were asked to answer a Likert Scale.

Table 8: Support for the Pledge

Do you support this pledge?	Frequency	Percent
Left Blank	6	5.1
Yes	102	86.4
No	10	8.5

This question was developed to help researchers identify any support within the community regarding the pledge.

Table 9: Reasons for Supporting the Pledge

Why do you support the pledge?	Frequency	Percent
Left Blank	42	35.6
Lack of awareness	7	5.9
Environmental Concerns	64	54.2

It is not enough	5	4.2
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Participants were asked to justify their answer to a prior question in regards to why they do or do not support the pledge.

Table 10: Adaptability to Lifestyle

How likely are you to support this pledge and apply it to your own lifestyle at Dalhousie?	Frequency	Percent
Left Blank	5	4.2
Extremely Likely	46	39
Likely	47	39.8
Neutral	13	11
Not Likely	5	4.2
Not At All Likely	2	1.7

The beginning of the question is redundant since it was asked in a prior question, however it supports the prior questions regarding general interest in the pledge.

Table 11: Improving the Pledge

What changes if any would you suggest to make the Dalhousie University Drinking Water Pledge more effective?	Frequency	Percent
Left Blank	47	35.9
More Accountability	7	5.3
Education & Awareness	42	32.1
Dissuade Purchase	16	12.2
More Infrastructure	19	14.5

Participants were asked how they would improve the pledge.

8.3 Appendix 3: Charted Results

Figure 1. Breakdown of affiliation with Dalhousie University

Which of the following best describes your affiliation with Dalhousie?

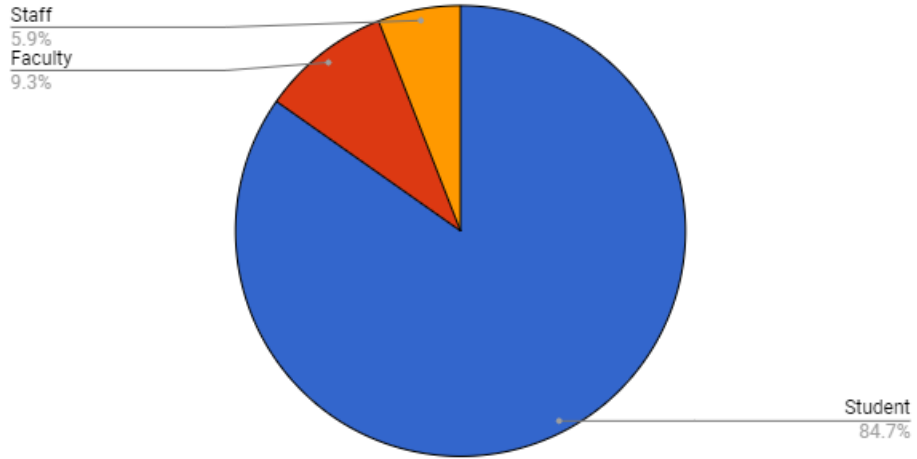


Figure 2. Percentage of participants who own a reusable water bottle

Do you have a reusable water bottle?

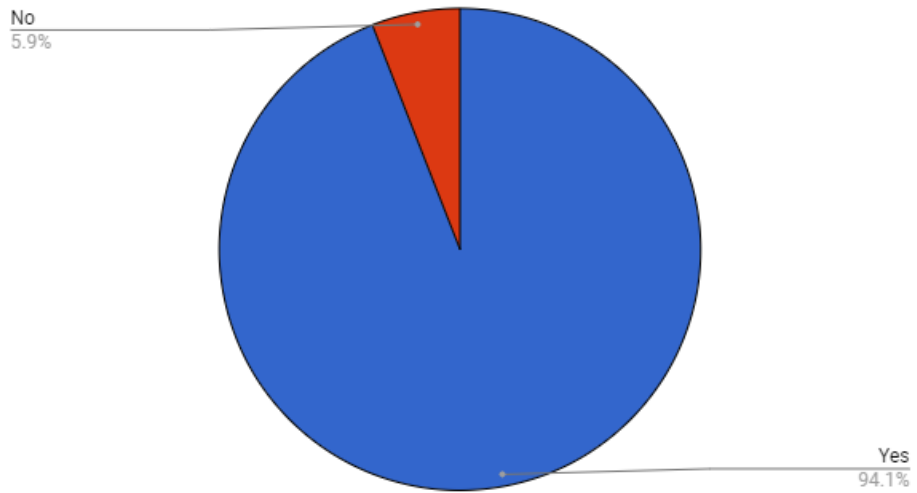


Figure 3. Reusable water bottle use on campus

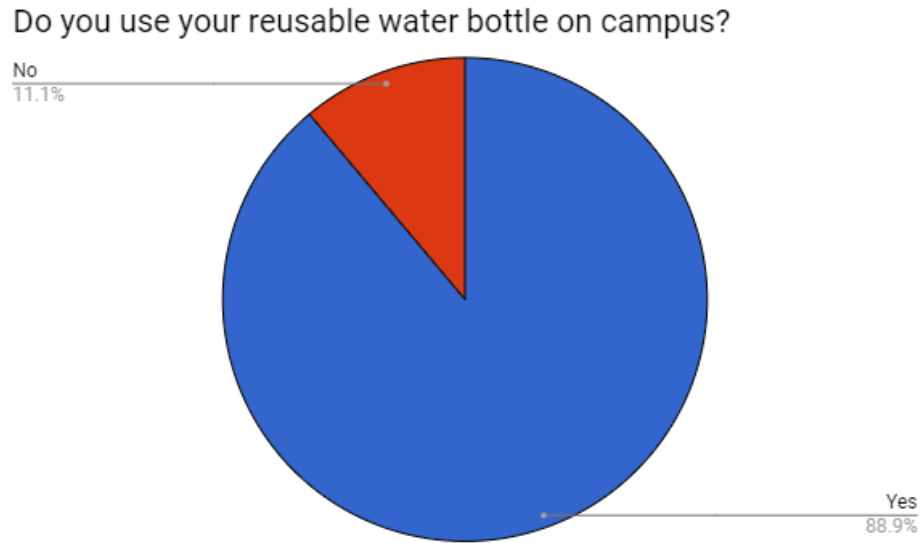


Figure 4. Percentage of participants who buy bottled water

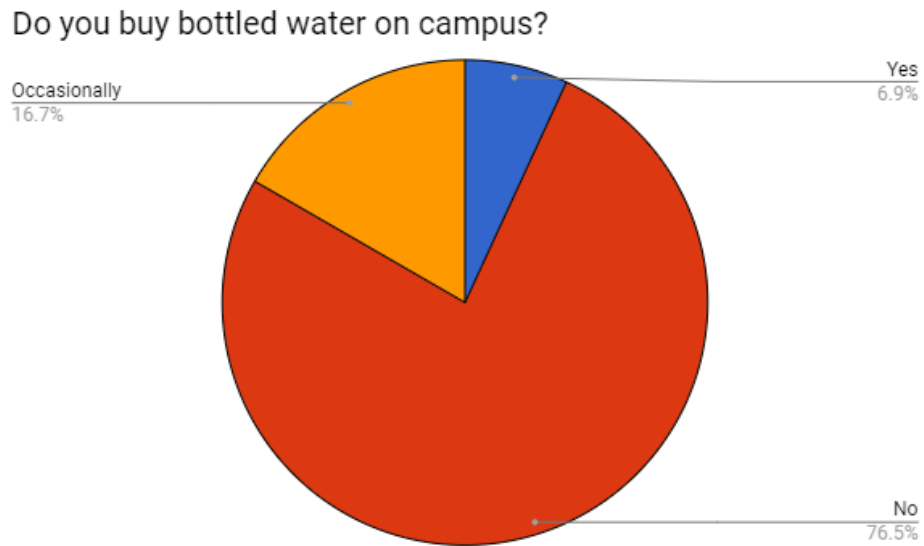


Figure 5. Awareness of pledge

Are you aware of Dalhousie University's Water Pledge made in 2013 to reduce bottled water on campus?

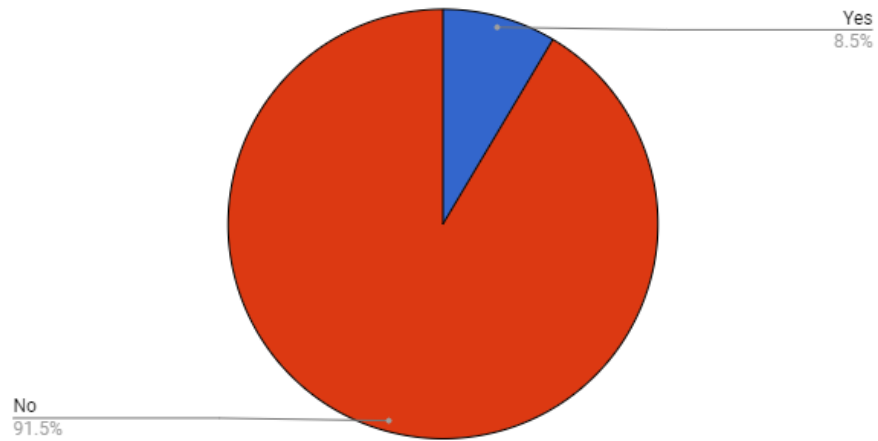


Figure 6. Impact of pledge towards reducing Dalhousie's plastic/environmental footprint, or improving campus sustainability

Do you think this pledge has any impact towards reducing Dalhousie's plastic/environmental footprint, or improving campus sustainability

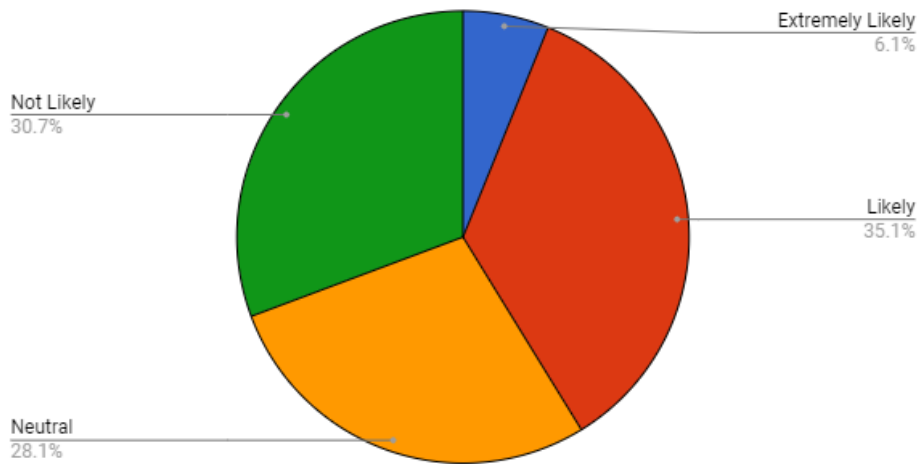


Figure 7. Support of pledge

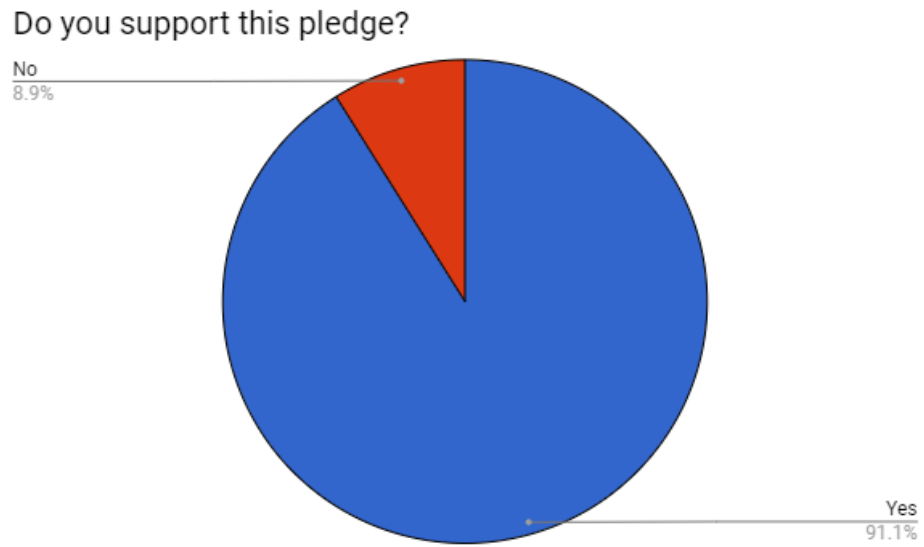


Figure 8. Reasons for supporting pledge

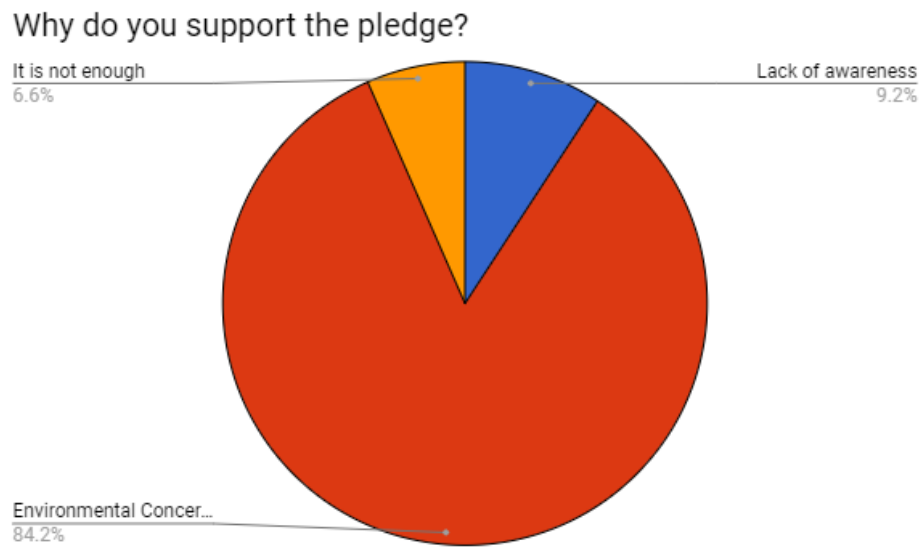


Figure 9. Adaptability of Pledge to lifestyle

How likely are you to support this pledge and apply it to your own lifestyle at Dalhousie?

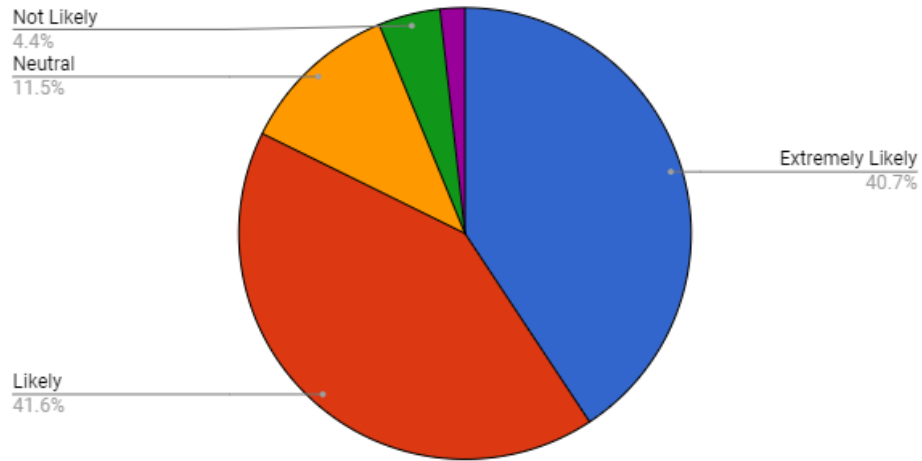
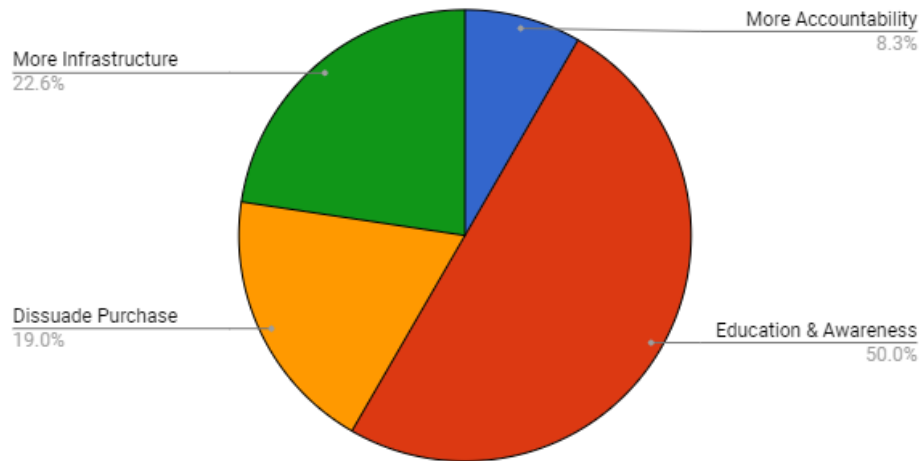


Figure 10. Suggested changes to Pledge to improve effectiveness

What changes if any would you suggest to make the Dalhousie University Drinking Water Pledge more effective?



8.4: Appendix 3 Dalhousie University Drinking Water Pledge April 2013



Dalhousie University Drinking Water Pledge April 2013

Definitions:

- **“Bottled water”** means still water or naturally carbonated water as packaged for sale. Bottled water is inclusive of, but not limited to, individually-sized servings, bulk cases of individual servings, and office cooler-sized jugs. Bottled water does not include products such as Vitamin water.
- **“Dalhousie University”** means the administration of Dalhousie University.
- **“Public water”** means water available to the public through fountains and taps on Dalhousie University campuses.

1. **Pledges to continue the systematic assessment and improvement of Dalhousie University’s public water infrastructure, equipment, and buildings systems.**

- 1.1 Dalhousie University Facilities Management will carry out public water infrastructure improvement deemed necessary through consultation with the Environmental Health and Safety Office to ensure easy and safe accessibility of public water on Dalhousie University campuses.
- 1.2 Dalhousie University Facilities Management will maintain public water infrastructure at the level deemed necessary by regulatory bodies and the University standards.
- 1.3 No fountain, if in use, will be decommissioned without the construction of a replacement.
- 1.4 Any new fountain installed on Dalhousie University campuses will be wheelchair accessible and encourage easy refill of reusable water containers.
- 1.5 Dalhousie University Facilities Management will ensure public water infrastructure at Dalhousie meets relevant specifications as outlined by Health Canada.
- 1.6 Dalhousie University Facilities Management and the Office of Sustainability will actively pursue water conservation and efficiency projects to reduce the Universities’ water baseline.

2. **Pledges to terminate the sale of office-sized cooler bottled water on all Dalhousie University campuses.**

2.1 Dalhousie University will not purchase office-water cooler units and/or cooler bottled water for student or employee use. Notwithstanding, offering office-sized cooler bottled water will be permitted when necessary during emergency situations and where no water facilities are easily accessible such as during large group and outdoor events.

3. Pledges to reduce consumption of individually-sized single-bottled water.

3.1 Dalhousie University will work with major campus beverage provider and on-campus food providers to reduce bottled water in catering, and at on-campus food service locations.

3.2 Dalhousie University will work with faculties, departments, student societies and other campus groups to reduce bottled water at campus events.

4.0 Pledges to engage in education and projects that promote the importance of healthy and sustainable public water infrastructure.

4.1 Dalhousie University will actively build a culture of awareness and responsibility with regard to bottled water and water sustainability through such organizations as the Dalhousie Office of Sustainability.

4.2 Dalhousie University will encourage campus food and beverage vendors to offer tap water free of charge and without pressure to purchase food or other beverages.

4.3 Dalhousie University will work with faculties, departments, student societies and other campus groups to phase out the provision of bottled water at campus events through the use of education and promotional campaigns.

4.4 Dalhousie University will make annual upgrades to existing drinking water fountains by installing retrofits or new drinking water fountains that support re-usable water bottles.

4.5 Dalhousie University will explore the subsidized sale of re-usable water bottles in snack vending machines.

Signed on behalf of Dalhousie University:



**Ken Burt, Vice President Finance and Administration
Dalhousie University**

Date:

April 22/13