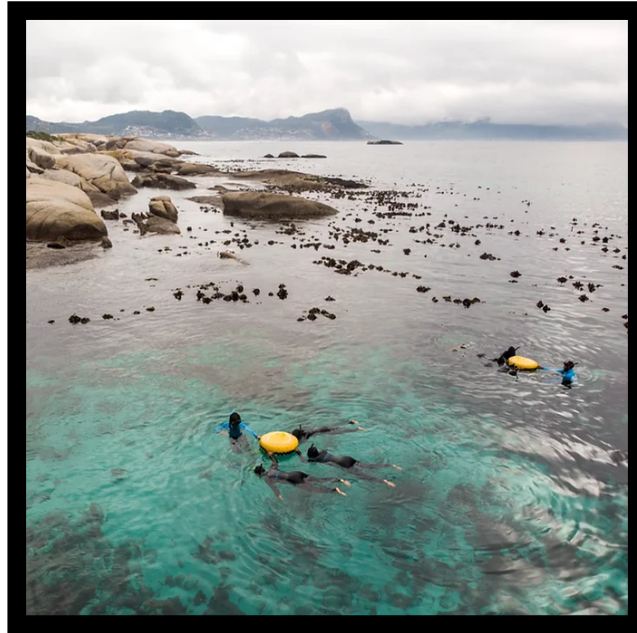


I AM WATER
OCEAN CONSERVATION



I AM WATER: Ocean Guardian Workshop

Program Evaluation Report 2023

University of North Carolina Wilmington

Ms. Hannah Bell and Dr. Troy Frensley

March 15th ,2024

Acknowledgments

We thank the I AM WATER staff, coaches, leadership team, and donors who have supported these program evaluation efforts. The program evaluation would not have been successful without their cooperation and input. We would like to acknowledge the students, teachers, chaperones, and staff of the participating schools, who attended the Ocean Guardian Workshop, completed the surveys, and provided us with insights into the program. Without the cooperation of participants, staff, and leadership team at I AM WATER, this program evaluation would not have been possible, thank you all.

Table of Contents

Introduction1

Survey Development2

 Outcomes Table3

Sampling and Data Collection9

Results11

 Short-term Outcomes11

 Longer-Term Outcomes13

 Combined Short- and Longer-Term Outcomes17

 Short- and Longer-Term Behavioral Outcomes21

 Open-ended Responses26

Conclusion48

 Short-Term Outcomes48

 Long-Term Outcomes48

 Short- and Long-Term Outcomes49

 Short- and Long-Term Behavioral Outcomes49

 Open-ended Responses49

Recommendations50

Appendices52

 Appendix A: Pre-Survey 202352

 Appendix B: Post-Survey 202354

 Appendix C: Follow-up Survey57

Introduction

I AM WATER: Ocean Conservation (I AM WATER) is a nonprofit located in greater Cape Town, South Africa. I AM WATER aims to share the importance of ocean stewardship with underprivileged students in nearby coastal communities through a two-day experiential learning experience called Ocean Guardian Workshop (OGW). The organization works with 7th-grade youth who attend schools located within 10km (about 6.21 mi) of the ocean. The OGW takes place at the following Marine Protected Area sites: St. James, Millers Point, Glencairn, and Windmill Beach. The OGW activities are led by I AM WATER coaches and participants rotate through the following activities on each of the two-day programs; yoga, ocean education presentations, rocky shore explorations, beach clean-up, snorkel station, and sharing circle.

In 2021, I AM WATER staff contacted Dr. Troy Frensley at the University of North Carolina Wilmington to conduct a thorough evaluation of the impacts of this OGW program on the middle school youth it serves. Dr. Frensley, UNCW assistant professor, and Hannah Bell, UNCW lecturer, led this program evaluation in partnership with numerous I AM WATER staff over three cycles of evaluation. The team started the process in 2022 by developing a logic model that represents the resources, outputs (activities and participants reached), and outcomes of participation in this program (short-, medium-, and longer-term outcomes). The creation of this logic model (see supplemental materials) allowed the team at UNCW to better understand the complexity of the OGW and develop a common and agreed-upon, set of outcomes with which to develop the evaluation instruments (see more details in methods below). Pre- and post-surveys were created and used to evaluate the program in two cycles in 2022. In addition to a pre- and post-survey, a follow-up survey was created in 2023 to measure outcomes from participants approximately four months after attending the OGW (see appendix). This final evaluation report summarizes the methods, findings, and implications from this expanded 2023 evaluation consisting of pre-, post, and follow-up measurements to understand the short-term and longer-term student outcomes associated with this OGW.

Survey Development

The UNCW team leveraged existing research and theory from environmental education, marine and coastal education, and informal STEM education to develop an evaluation instrument. We used an existing statistically validated survey called EE21¹ that has been used for diverse middle school programs across the United States as the foundation for the survey used in this evaluation along with other research focused on ocean literacy² to help inform our work. We then employed a participatory process with I AM WATER staff to create final pre and post surveys to evaluate the OGW in 2022 and a follow-up survey administered four months later for this 2023 evaluation. Table 1 summarizes the outcomes of interest and corresponding survey items measuring each outcome. Table 2 summarizes the additional outcomes measured in the follow-up survey that was new for 2023. Each outcome used a Likert-type scale, except for open-ended (written) responses on the post-survey and follow-up survey. An 11-point Likert-type scale was used to counter issues regarding positive-skew and lack of variability associated with ‘balanced’ bipolar Likert-type scales. 11-point scales are relatable to the pain scale youth often see when students visit the doctor's office, rating pain on a scale of 0-10.

¹ Robert B. Powell, Marc J. Stern, Brandon Troy Frensley & DeWayne Moore (2019) Identifying and developing crosscutting environmental education outcomes for adolescents in the twenty-first century (EE21), *Environmental Education Research*, 25:9, 1281-1299, DOI: [10.1080/13504622.2019.1607259](https://doi.org/10.1080/13504622.2019.1607259)

² Fauville, G., Strang, C., Cannady, M. A., & Chen, Y.-F. (2018). Development of the International Ocean Literacy Survey: Measuring Knowledge Across the world. *Environmental Education Research*, 25(2), 238–263. <https://doi.org/10.1080/13504622.2018.144038>

Outcomes Table

Table 1. OGW outcomes, definitions, and corresponding survey items for 2023.

Outcome	Definition	Survey Stem
*Enjoyment	Positive evaluation of the experience	How would you rate the workshop on a scale from 0 to 10?
*Place Connection	The development of appreciation for and positive personal relationships with the physical location and its story.	How much do you agree with the following statements about the place you just visited for this workshop? (anchors: not at all, some, totally) <ul style="list-style-type: none">• Knowing this place exists makes me feel good.• I want to visit this place again.• I care about this place.

*Learning	Knowledge regarding the interconnectedness and interdependence between human and environmental systems	<p>How much did you learn about each of the following things because of this experience? (anchors: nothing at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • How different parts of the environment interact with each other. • How people can change the ocean. • How changes in the ocean can impact my life. • How my actions affect the ocean.
*Meaning/ Identity	A heightened sense of self-awareness, critical reflection, and purpose.	<p>Did this workshop do any of the following things for you? (anchors: not at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • Taught me something that will be useful to me in the future. • Really made me think. • Made me realize something I never imagined before. • Made me think differently about the choices I make in my life. • Made me curious about something.
*Self-Efficacy	Belief in one's own ability to achieve one's goals and influence their environment.	<p>To what extent do you agree with the following statements? (anchors: not at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • I believe in myself • I feel confident I can achieve my goals • I can make a difference in my community.

<p>*Environmental Attitudes</p>	<p>Sensitivity, concern, and positive dispositions towards the environment</p>	<p>To what extent do you agree with the following statements? (anchors: not at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • I feel it is important to take good care of the ocean • Humans are a part of nature, not separate from it. • I have the power to protect the ocean.
<p>*Action Orientation</p>	<p>Intentions to perform behaviors relevant to the program’s content or goals.</p>	<p>As a result of this workshop, do you intend to do anything differently in your life? (yes/no).</p> <p>If yes, what will you do? (Write your answer in the space below.)</p>
<p>*Actions: Environmental Stewardship</p>	<p>Motivations to perform stewardship- related behaviors.</p>	<p>How likely are you to do any of the following things within the next year? (anchors: no more likely, somewhat more likely, way more likely)</p> <ul style="list-style-type: none"> • Help to protect the ocean. • Spend more time outside. • Make a positive difference in my community.
<p>**Ocean Literacy (Knowledge)</p>	<p>Understanding of the ocean’s influence on you and your influence on the ocean</p>	<p>How much did you learn about each of the following things as a result of this experience? (anchors: nothing at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • How people benefit from the ocean. (Link between ocean and humans) • How climate change is impacting the ocean. (global warming/climate chg.)

<p>Attitudes towards the Ocean</p>	<p>Sensitivity, concern, and positive dispositions towards the ocean</p>	<p>To what extent do you agree with the following statements? (anchors: not at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • I am more comfortable when I visit the beach. • I care about marine animals. • It is important to eat sustainably caught fish. • Marine Protected Areas are important. <p>Because of this workshop, do you feel differently about the ocean now? Yes or No. If yes, how have your feelings about the ocean changed? (Write your answer in the space below)</p>
<p>Actions: Ocean Stewardship</p>	<p>Motivations to perform ocean stewardship- related behaviors.</p>	<p>How likely are you to do any of the following things within the next year? (anchors: no more likely, somewhat more likely, way more likely)</p> <ul style="list-style-type: none"> • Visit a beach. • Learn more about the ocean. • Talk with others about ways to protect the ocean. • Pick up trash.
<p>Stress Management</p>	<p>Understanding the importance of breathing and ability to control breathing to reduce stress.</p>	<p>To what extent do you agree with the following statements? (anchors: not at all, a fair amount, a huge amount)</p> <ul style="list-style-type: none"> • Focusing on my breathing can help me stay calm. • I know how to control my breathing when I am stressed.

Actions: Stress Management	Motivations to perform stress-reducing behaviors	How likely are you to do any of the following things within the next year? (anchors: no more likely, somewhat more likely, way more likely) <ul style="list-style-type: none"> Control my breathing when I feel stressed. Use stretching to help me relax.
Knowledge: Marine Protected Areas	Increase knowledge and awareness of Marine Protected Areas.	To extent do you agree with the following statements? (anchors: not at all, somewhat agree, strongly agree) <ul style="list-style-type: none"> Marine Protected Areas make ocean ecosystems healthier.

Note: * Original EE21 outcomes and survey items used for this project.

Note: ** International Ocean Literacy Survey used for this project.

Table 2. OGW outcomes, definitions, and corresponding survey additions for Follow-up survey

Outcome	Definition	Survey Stem
Knowledge	Increase knowledge of marine science, ocean literacy, marine protected areas, and stress-reducing behaviors.	How much do you feel you learned from this experience, on a scale from 0 to 10? (anchors: Nothing at all, a huge amount) What was the most important thing you learned from this experience? (Write your answer in the space below)

Reflection of experience	Reflecting and sharing the most meaningful experience(s) from participating in the OGW	<p>What do you remember most about your Ocean Guardians Workshop experience? (Write your answer in the space below)</p> <p>Do you still remember your promise to the ocean on the final day of the workshop? (If yes, write your response below)</p>
Attitudes towards the Ocean	Sensitivity, concern, and positive dispositions towards the ocean	Because of this workshop, how do you feel about the ocean now? (Write your answer in the space below)
Actions: Ocean Stewardship	Self-reporting of performing ocean stewardship- related behaviors since the OGW	<p>Since the workshop, have you done any of the following things? (circle yes or no)</p> <ul style="list-style-type: none"> • Talk with others about ways to protect the ocean. • Visit a beach. • Learn more about the ocean. • Pick up trash. <p>Is there anything else you want to tell us about what you have done since the workshop? (If yes, please write in the space below)</p>
Actions: Stress Management	Self-reporting of performing stress-reducing behaviors since the OGW	<p>Since the workshop, have you done any of the following things? (circle yes or no)</p> <ul style="list-style-type: none"> • Control my breathing when I feel stressed. • Use stretching to help me relax.

*Actions: Environmental Stewardship	Motivations to perform stewardship- related behaviors.	<p>Since the workshop, have you done any of the following things? (circle yes or no)</p> <ul style="list-style-type: none"> • Help to protect the ocean. • Spend more time outside. • Make positive difference in my community.
Career Aspirations: Ocean	Increase in ocean related careers due to the workshop.	<p>As a result of this experience, do you want to have a job that involves protecting the ocean one day? (Please explain why or why not in the space below.)</p>

Program Evaluation Timeline

We use a pre-survey and post-survey approach whereby the pre-survey (25 questions) is administered the morning youth arrived on day one and the post-survey (48 questions) was administered the afternoon before youth departed on day two. For this 2023 evaluation, the follow-up survey (36 questions) was administered approximately four months after students participated in the OGW.

Sampling and Data Collection

We collected demographic-related information including participant’s initials, birth month, school, grade, race/ethnicity, and gender identity. These items were developed and refined with participation from I AM WATER staff. Student’s initials and birth month were used to link pre-survey, post-surveys, and follow-up surveys together for each individual student. Participants were asked to self-identify their gender identity as either male, female, or a write-in response. Youth could self-report race/ ethnicity information from the following options: Black, Coloured, White, Asian/India, or a write in response.

Table 3. Percent of gender identity youth responses for 2023.

Gender	Total	Percent
Male	107	40.4%
Female	158	59.6%

Table 4. Frequency and percentage of youth responses for race/ethnicity for 2023.

Race/Ethnicity	Frequency	Percent
Coloured	185	70.3%
Black	73	27.8%
White	4	1.5%
Other	1	0.4%

A total of 13 OGW programs were delivered to 378 youth by the I AM WATER team from March 2023- May 2023. Our pre- and post - survey was administered and completed by a total of 368 youth participants representing 97% of the total number of youths participating in all OGW programs. All survey data were entered by I AM WATER staff that received training and support from the UNCW evaluation team. Surveys were removed if the youth failed to complete greater than 50% of the questions on the pre, or post survey. The cleaning process resulted in the removal of 47 surveys from pre- and post- surveys.

During June 2022- October 2022, the follow-up survey was administered approximately four months later to 390 youth at the following schools: Kraaifontein AME Primary, Steenberg Primary, Caradale Primary, Portslands Primary, Downville Primary, Die Duine Primary, and St.Mary's Primary. I AM WATER staff administered all follow-up surveys to the schools within a four-month timeframe, except for St.Mary's Primary. A taxi strike occurred in Cape Town, South Africa, which closed schools, businesses, and limited traffic flow. I AM WATER staff were prevented from conducting the survey until the taxi strike ended. The follow-up survey administration for St.Mary's Primary was delayed by one week, outside of the four-month survey window. Data analyses showed no clear difference in the surveys completed at St.Mary's compared to all other schools due to the delay in administration and so they were retained in the larger analyses. I AM WATER staff administered the in person at all schools, except for Downville Primary. Due to gang violence occurring at the Downville Primary, I AM WATER staff could not attend in person to administer the survey. The follow-up survey for Downville Primary was administered via Zoom. Data analyses showed no clear differences in the survey data from Downville Primary compared other schools, so these surveys were retained for use in the full analyses. The cleaning process resulted in 334 clean follow-up surveys. Next, the I AM WATER and UNCW team matched individual student's pre-and post- surveys with their

follow-up surveys resulting in 322 total matched surveys. We then repeated the process of data cleaning, removing any student survey (pre, post, or follow-up) with less than 50% completion which resulted in a final sample of 266 students matched and cleaned pre, post, and follow-up surveys. This final sample of 266 youth was used for all analyses in this evaluation report, representing 79% of the total number of youths reached. This is a fantastic sample size, and we applaud the I AM WATER team for their diligence and efforts in administering these surveys and without their hard work, this sample size would not have been achieved.

Results

We have organized the results of the evaluation by outcomes of interest listed in Table 1. All data analyses were conducted using Statistical Packages for Social Sciences (SPSS) Software version 29 for data analysis and details for each analyses conducted are provided in the relevant results sections below.

Short-term Outcomes

We first report the outcomes measured on the post-program survey only. For each, we provide:

1. The definition for the outcome
2. An explanation of how to interpret these results
3. The survey stem which is the lead-in question for each survey item associated with that battery of questions for the outcome.
4. A table with the mean scores and standard deviation for the outcome index³ and then each individual survey item comprising that index/outcome.
5. A note under the table with the original Likert-type scale for these survey items

³ To determine if the individual survey items were related to each corresponding outcome of interest, we first conducted a bivariate correlation analysis and then a reliability analysis using Cronbach's alpha. If individual survey items were statistically significantly correlated with each other and had a Cronbach's alpha greater than 0.7, we aggregated these individual survey items together to create a holistic outcome index. This outcome index is representative of the average of each of the individual survey items measuring this outcome.

Enjoyment

Definition: Positive evaluation of the experience.

Explanation of Results: Youth report a highly positive mean score of 9.27, indicating overall extremely positive enjoyment of the program.

Survey Stem: How would you rate the workshop on a scale from 0-10?

Survey Item	Post Only Mean (SD)
How would you rate the workshop on a scale from 0-10?	9.27 (1.42)

Note: Likert –type scale 0-10, 0= Terrible, 10 = Excellent.

Place Connection

Definition: The development of appreciation for and positive personal relationships with the physical location and its story.

Explanation of Results: Extremely positive mean scores for all items associated with the Place Connection outcome. The students report a very strong connection to the marine protected areas (the places) visited in this program.

Survey Stem: How much do you agree with the following statements about the marine protected areas you have just visited for this workshop?

Individual Survey Items	Post Only Mean (SD)
Knowing these places exist makes me feel good	9.03 (1.70)
I want to visit these places again	9.30 (1.71)
I care about our local marine protected areas	9.11 (1.83)

Note: Likert-type scale 0-10, 0= not at all; 5= somewhat; 10= strongly.

Meaning/Identity

Definition: A heightened sense of self-awareness, critical reflection, and purpose.

Explanation of Results: A mean score 8.72 of for the Meaning/Identity index suggesting a positive impact on students with respect to all of these survey items when viewed together. Again, looking at each individual survey items measuring this index, all mean scores are very positive. Specifically, the item “taught me something that will be useful to me in my future” has a mean score of 9.09 indicating the students feel very strongly that this experience is very worthwhile.

Survey Stem: Did this experience do any of the following things for you?

Outcome Index	Post Only Mean (SD)
Meaning/Identity	8.72 (1.56)
Individual Survey Items	
Taught me something that will be useful to me in my future	9.09 (1.93)
Really made me think	8.67 (2.18)
Made me realize something I never imagined before	8.62 (2.14)
Made me think differently about the choices I make in my life	8.83 (1.86)
Made me curious about something.	8.37 (2.32)

Note: Likert-type scale 0-10, 0 = nothing at all; 5 = a fair amount; 10 = huge amount.

Longer-Term Outcomes

The next set of results are for the outcomes measured on both the post and follow-up survey. For these longer-term outcomes, we conducted a paired samples t-test to determine if there were any statistically significant changes in youth’s scores from the post-survey to the follow-up survey administered about four months later. You will note there may be instances where an individual survey item may not be statistically significantly difference from the post-survey to the follow-up survey, but the outcome index is. This is because aggregating multiple survey items into a single outcomes index can reduce some of the nuance in these data.

For each outcome, we provide:

1. The definition for the outcome.
2. An explanation of the results which focuses on the means comparisons of both cycles.
3. The survey stem which is the lead-in question for each survey item associated with the outcome.
4. A table with the post-survey and follow-up survey mean scores for the outcome index and then each individual survey item comprising that index. We also provide the p-value which is a measure of the statistical significance between the post-survey and follow-up survey mean scores.⁴ P-value is represented by +, meaning $<.05$ and ++, meaning $<.001$. Items are highlighted bold and a light blue color to show statistical significance.
5. A note under the table with the original Likert-type scale for these survey items.

⁴ There is a statistically significant difference between post-survey and follow-up survey mean scores if the p value is less than 0.05 and a highly significant difference if the p-value is less than 0.01. All statistically significant items are highlighted bold in light blue in the tables below. It is important to note items just because an item is not statistically significantly different from post- to follow-up, it doesn't mean that the results are negative. In looking at these data, items that are not statistically significant are a result of extremely positive post-survey scores that remained positive, or even slightly increased, on the follow-up survey. The common trend with follow-up data across decades of evaluation studies in relevant contexts are that follow-up scores will typically be lower than post-survey data as students return home and go back to their daily lives, particularly months (or even years) later.

Learning

Definition: Knowledge regarding the interconnectedness and interdependence between human and environmental systems.

Explanation of Results: Extremely positive mean scores for all items associated with the Learning index immediately after the program (post mean). A small decrease in mean scores from post to follow-up are expected but two individual items “how people’s actions can the ocean” and “how changes in the ocean can impact my life” had mean scores that were not statistically significantly different four months later. This finding is extremely exciting and means these two items in particular are remaining positive at a relatively stable level four months later. The index and two other individual items did statistically significantly decrease, but these resulting follow-up mean scores still remained very positive.

Survey Stem: How much did you learn about each of the following things as a result of this experience?

Outcome Index	Post Mean	Follow-up Mean
Learning Index	8.84	8.05+
Individual Survey Items		
How different parts of the environment interact with each other	8.65	7.96 ++
How people’s actions can change the ocean	8.68	8.76
How changes in the ocean can impact my life	8.67	8.47
How my actions affect the ocean	8.66	8.32+

Note: Likert-type scale 0-10; 0 = not at all; 5= somewhat, 10; strongly agree.

Ocean Literacy

Definition: Understanding the ocean’s influence on you and your influence on the ocean.

Explanation of Results: Extremely positive mean scores for all items associated with the Ocean Literacy index immediately after the program (post mean). A small decrease in mean scores from post to follow-up are expected but the overall Ocean Literacy Index (the average of all individual items) and two individual items “how people can benefit from the ocean” and “how marine protected areas help conserve the ocean” were not statistically significantly different four months later. These findings are extremely exciting. Only one individual item, “how climate change is impacting the ocean” statistically significantly decreased but the resulting follow-up mean score for this item remained very positive.

Survey Stem: How much did you learn about each of the following things as a result of this experience?

Outcome Index	Post Mean	Follow-up Mean
Ocean Literacy	8.55	8.43
Individual Survey Items		
How people can benefit from the ocean	8.56	8.45
How marine protected areas help conserve the ocean	8.44	8.42
How climate change is impacting the ocean	8.64	8.30 +

Note: Likert type scale 0-10, 0 = nothing at all; 5 = a fair amount; 10 = a huge amount.

Stress Management

Definition: Understanding the importance of breathing and ability to control breathing to reduce stress.

Explanation of Results: Extremely positive mean scores for the two survey items within the stress management outcome. These two individual items “I know how to control my breathing when I am stressed” and “focusing on my breathing can help me stay calm” had mean scores that were not statistically significantly different four months later. This finding is extremely exciting and suggests these positive outcomes are holding relatively stable four months later.

Survey Stem: To what extent do you agree with the following statements?

Individual Survey Item	Post Mean	Follow-up Mean
I know how to control my breathing when I am stressed	8.72	8.55
Focusing on my breathing can help me stay calm	8.99	8.90

Note: Likert-type scale 0-10, 0= not at all; 5 = somewhat; 10=strongly.

Combined Short- and Longer-Term Outcomes

The next set of results are for the outcomes measured on all surveys, pre-, post-, and follow-up surveys. For these outcomes, we conducted a paired samples t-test to determine if there were any statistically significant changes in youth’s scores from the pre-survey to the post- survey and from the pre-survey to the follow-up survey administered four months later. We did this for the outcomes indexes and the individual survey items comprising any indexes too. You will note there may be instances where an individual survey item may not be statistically significantly different from the pre-survey to the post-survey, but the outcome index is. This is because aggregating multiple survey items into a single outcomes index can reduce some of the nuance in these data. You may also notice that some mean scores on the follow-up survey are not statically significant when compared to the pre-survey. This does not mean the resulting impacts on these students are not positive, rather, they were just not statistically significantly different. For each outcome, we provide:

1. The definition for the outcome.
2. An explanation of the results which focuses on the means comparisons of all cycles.

3. The survey stem which is the lead-in question for each survey item associated with the outcome.
4. A table with the pre-, post- and follow-up survey mean scores for the outcome index and then each individual survey item comprising that index. We also provide the p-value which is a measure of the statistical significance between the post-survey and follow-up survey mean scores⁵. P-value is represented by +, meaning $>.05$ and ++, meaning $>.001$. Items are highlighted bold and light blue to show statistical significance.
5. A note under the table with the original Likert-type scale for these survey items.

Self-Efficacy

Definition: Beliefs in one’s own ability to achieve one’s goals and influence their environment.

Explanation of Results: The table below shows the mean scores for each self-efficacy survey item from the pre-survey (pre mean), post-survey (post mean), and follow-up survey four months later (follow-up mean). Only the item “I believe in myself” had mean scores that were statistically significantly higher immediately after the program (post-mean) compared to the pre-survey mean (pre-mean). This finding suggests the students confidence and self-efficacy increased immediately after this experience. There are no statistically significant differences between the pre-mean scores and the follow-up mean scores, which suggests the program is potentially serving to maintain longer-term outcomes for these students at least at the pre-survey levels. Considering the very high pre-survey mean scores for each item, this can be viewed as a positive impact. There are also many other factors outside of the I AM WATER program that likely influence students responses on these survey items, particularly on the pre-survey and follow-up survey four months later.

Survey Stem: To what extent do you agree with the following statements?

Individual Survey Items	Pre Mean	Post Mean		Pre Mean	Follow-up Mean
I believe in myself	8.97	9.77 +		8.96	8.98

⁵ There is a statistically significant difference between pre-, post-and follow-up survey mean scores if the p value is less than 0.05 and a highly significant difference if the p-value is less than 0.01. All statistically significant items are highlighted in bold and light blue in the tables below. It is important to note items just because an item is not statistically significantly different from pre-, post-, and follow-up, it doesn’t mean that the results are negative. In looking at these data, items that are not statistically significant may be a result of extremely positive pre-survey scores that remained high on the post- and follow-up surveys but that were just not different enough.

I feel confident I can achieve my goals	9.14	8.95		9.09	9.04
I can make a difference in my community	8.27	8.42		8.27	8.23

Note: Likert-type scale 0-10; 0 = not at all; 5 = somewhat; 10= strongly agree; Some of the pre-survey mean scores are different due to sample size changes when comparing the pre-survey to either the post-survey or follow-up surveys directly.

Environmental Attitudes

Definition: Sensitivity, concern, and positive dispositions towards the environment.

Explanation of Results: The table below shows the mean scores for the Environmental Attitudes index and the individual survey items from the pre-survey (pre mean), post-survey (post mean), and follow-up survey four months later (follow-up mean). The index (average of all individual survey items) was statistically significantly higher immediately after the program (post mean) and while not statistically significantly different in the follow-up survey, it was substantively more positive.

The mean scores individual item “Humans are a part of nature, not separate from it” was statistically significantly higher immediately after the program (post-mean) compared to before. The mean score for another item “I have the power to protect the ocean” was statistically significantly higher both immediately after the program (post mean) and four months later (follow-up mean) when compared to the student’s pre-mean scores. This is extremely exciting as it means that the students felt empowered to protect the ocean because of this experience and that feeling maintained, almost exactly as strong, four months later.

Survey Stem: To what extent do you agree with the following statements?

Outcome Index	Pre-Mean	Post Mean		Pre-Mean	Follow-up Mean
Environmental Attitudes Index	8.64	8.96 ++		8.55	8.75
Individual Survey Items					
I feel it is important to take good care of the ocean	9.29	9.30		9.26	9.26

Humans are a part of nature, not separate from it.	8.34	8.76 ++		8.33	8.34
I have the power to protect the ocean.	8.07	8.63 ++		8.03	8.58 ++

Likert-type scale 0-10, 0 = not at all; 5= somewhat; 10-strongly agree; Some of the pre-survey mean scores are different due to sample size changes when comparing the pre-survey to either the post-survey or follow-up surveys directly.

Attitudes towards the Ocean

Definition: Sensitivity, concern, and positive disposition towards the ocean.

Explanation of Results: The table below shows the mean scores for the Attitudes Towards the Ocean index and survey items from the pre-survey (pre mean), post-survey (post mean), and follow-up survey four months later (follow-up mean). The mean index score(average of all individual survey items) was statistically significantly higher immediately after the program (post mean) and four months later (follow-up mean) which suggests an extremely positive short-term and longer-term impact on these students. All individual survey items’ mean scores were statistically significantly higher immediately after the program (post mean) when compared to before (pre mean) and mean scores two items “It is important to eat sustainably caught fish” and “Marine protect areas make ocean ecosystems healthier” were also statistically significantly higher four months later. Given the OGW focus on eating sustainably caught fish and the value of marine protected areas, these results are particularly exciting.

Survey Stem: To what extent do you agree with the following statements?

Outcome Index	Pre-Mean	Post Mean		Pre-Mean	Follow-up Mean
Attitudes toward the Ocean	7.75	8.69 ++		7.89	8.27++
Individual Survey Items					
It is important to eat sustainably caught fish	6.57	7.91++		6.57	7.09 +

I care about marine animals.	8.37	8.92 ++	8.39	8.63
I am comfortable when I visit the beach.	8.18	8.77++	8.62	8.88
Marine protect areas make ocean ecosystems healthier.	7.99	8.68++	7.97	8.62 ++
Marine protected areas increase the number of fish within the area.	7.70	8.62++	7.72	7.90

Note: Likert-type scale 0-10; 0= not at all, 5= somewhat; 10= strongly agree. ++ = p-value < 0.01; Some of the pre-survey mean scores are different due to sample size changes when comparing the pre-survey to either the post-survey or follow-up surveys directly.

Short- and Longer-Term Behavioral Outcomes

The next set of results are for the outcomes measured on all surveys, pre-, post-, and follow-up surveys. For these outcomes, we conducted a paired samples t-test to determine if there were any statistically significant changes in youth's scores from the pre-survey to the post-survey. In the follow-up survey we asked if participants had completed any of these since attending the Ocean Guardian Workshop. We have listed the frequency of responses from the follow-up survey for each related item.

For each outcome, we provide:

1. The definition for the outcome.
2. An explanation of the results which focuses on the means comparisons from pre- to post-survey and the frequency of follow-up survey results.
3. The survey stems for the pre- and post-survey which is the lead-in question for each survey item associated with the outcome.
4. The survey stems from the follow-up survey which is the lead-in question for each survey item.
5. A table with the pre- and post- survey mean scores for each individual survey item. We also provide the p-value which is a measure of the statistical significance between the post-survey and follow-up survey mean scores⁶. P-value is represented by +, meaning

⁶ There is a statistically significant difference between pre- and post-survey mean scores if the p value is less than 0.05 and a highly significant difference if the p-value is less than 0.001. All statistically significant items are highlighted in bold and light in the tables below. It is important to note items just because an item is not statistically significantly different from pre-, and post-survey it doesn't mean that the results are negative. In looking at these data, items that are not statistically significant are a result of extremely positive survey scores on the pre-survey score.

>.05 and ++, meaning >.001. Items are highlighted bold and light blue to show statistical significance.

6. A note under the table with the original Likert-type scale for these survey items.

Actions: Environmental Stewardship

Definition: Motivations to perform behaviors relevant to the program’s content or goals.

Explanation of Results: The pre-mean and post-mean questions for each of these items were measuring students’ intentions to perform these behaviors within the following year and one item “Help to protect the ocean” had a mean scores statistically significantly higher immediately after the program. However, all mean scores for all individual survey items remained extremely positive suggesting most students had relatively strong intentions to perform behaviors related to these items. On the follow-up survey, we asked the students if they have done any of the following things (related to each item) and 70% or more of the students said they have indeed done something related to each of these items in just the four months since the workshop. This is extremely exciting.

Pre- and Post- Survey Stem: How likely are you to do any of the following things within the next year?

Follow-up Survey Stem: Since the workshop, have you done any of the following things? (Circle yes or no)

Individual Survey Items	Pre-Mean	Post Mean	Follow-up Frequency (N)
Help to protect the ocean	8.36	8.80 ++	Yes: 88.3% (233) No: 11.7% (31)
Make a positive difference in my community	8.29	8.44	Yes:69.5% (182) No: 30.5% (80)
Spend more time outside	8.12	8.36	Yes: 81.9% (213) No: 18.1% (47)

Note: Likert-type scale 0-10; 0= not at all, 5= somewhat likely; 10= very likely; ++ = p-value < 0.01; Sample sizes were different across each survey item.

Actions: Ocean Stewardship

Definition: Motivations to perform ocean stewardship-related behaviors.

Explanation of Results: The pre-mean and post-mean questions for each of these items were measuring students' intentions to perform these behaviors within the following year and one item "Talk with others about ways to protect the ocean" had a mean score statistically significantly higher immediately after the program. Again, all mean scores suggest a strong intention by the students to perform behaviors related to these individual items, regardless of statistical significance. On the follow-up survey, we asked the students if they have done any of the following things and 79% or more of the students said they have indeed done something related to each of these items in just the four months since the workshop. Of particular note are 89% of students self-reported picking up trash, visiting a beach, and learning more about the ocean! This is extremely exciting as the items relate to cleaning up the environment and visiting the ocean.

Pre- and Post- Survey Stem: How likely are you to do any of the following things within the next year?

Follow-up Survey Stem: Since the workshop, have you done any of the following things? (Circle yes or no)

Individual Survey Items	Pre-Mean	Post Mean	Follow-up Frequency (N)
Talk with others about ways to protect the ocean.	8.24	9.07++	Yes: 79.2% (210) No: 20.8% (55)
Pick-up trash.	8.25	8.62	Yes:88.5% (231) No: 11.5% (30)
Visit a beach.	8.74	8.72	Yes: 88.6% (234) No: 11.4% (30)
Learn more about the ocean.	8.92	8.86	Yes:88.6% (234) No:11.4% (30)

Note: Likert-type scale 0-10, 0 = not likely; 5 = somewhat; 10 = extremely likely. ++ = p-value < 0.01; Sample sizes were different across each survey item.

Actions: Stress Management

Definition: Motivations to perform stress-reducing behaviors.

Explanation of Results: The pre-mean and post-mean questions for each of these items were measuring students' intentions to perform these behaviors within the following year and both items had statistically significantly higher mean scores immediately after the program. On the follow-up survey, we asked the students if they have done any of the following things and 76% of students said they had used stretching to help them relax and 90% of students said they controlled their breathing when they felt stressed! These items suggest that these students are performing these stress reducing activities in their daily lives.

Pre- and Post- Survey Stem: How likely are you to do any of the following things within the next year?

Follow-up Survey Stem: Since the workshop, have you done any of the following things? (Circle yes or no)

Individual Survey Items	Pre-Mean	Post Mean	Follow-up Frequency (N)
Control my breathing when I feel stressed.	8.19	8.69 ++	Yes: 89.8% (238) No: 10.2% (27)
Use stretching to help me relax.	7.96	8.64++	Yes: 76.3% (200) No: 23.7% (62)

Note: Likert-type scale 0-10, 0= not likely; 5= somewhat; 10= extremely likely. ++ = p-value < 0.01; Sample sizes were different across each survey item.

Open-ended Responses

Youth participants on the post-survey were asked three open-ended questions and in the follow-up survey they were asked six open-ended questions. For some of the open-ended questions, youth were asked to respond and then, if relevant, were asked to write additional responses in their own words. We have them listed first by post-only responses, then follow-up responses.

Post Responses: Action Orientation

Definition: Intentions to perform behaviors relevant to the program’s content or goals.

Explanation of Results: A total of 261 youth responded to this question, with 183 youth self-reporting ‘yes’, they intend on doing something differently in their life. The student responses indicate that the program activities are impacting the students’ intentions to perform environmental behaviors, such as ‘picking up litter’.

Survey Stem: As a result of this workshop, do you intend to do anything differently in your life? *Yes or no*

Response	Post
Yes	183
No	54

Youth were asked if they answered Yes, “what will you do?” Table five summarizes the nine participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participants written responses are provided in Table five below. The full list of participant responses for this open-ended item can be found in the supplemental materials.

Table 5. Action codes for Action Orientation and frequency responses.

Action Codes	Description of Code	Frequency	Examples from participants

Pollution	Trash, litter, recycling, and any mention of cleaning the beach, oceans, or earth.	58	<p><i>“I would stop littering.”</i></p> <p><i>“Clean the ocean and stop litter.”</i></p>
Conservation	Expressed environmental awareness, desire to protect the ocean, importance of Marine Protected Areas, and appreciation for the environment.	24	<p><i>“I will look after the ocean.”</i></p> <p><i>“I would take care of the ocean.”</i></p>
Nature Experience	Outdoor activities, time spent outside, and traveling for outdoor activities.	24	<p><i>“Go hiking.”</i></p> <p><i>“I would like to spend more time in the ocean.”</i></p>
Career Aspirations	Discussing actions related to employment.	21	<p><i>“I will become a marine biologist.”</i></p> <p><i>“I would prefer to be a life guard.”</i></p>
Education	Willingness, desire, intention to talk with others about what they learned, or the intention to learn more about the ocean and environment.	16	<p><i>“I learned lot about ocean.”</i></p> <p><i>“Yes I want to learn more.”</i></p>

Wildlife	Desire to save, learn more, discuss, and have an interest in wildlife.	15	<p><i>“I would try to face my fears and save the sea animals from danger.”</i></p> <p><i>“I will se more sea animals.”</i></p>
Attitudes	Awareness and expression of one’s emotions.	9	<p><i>“I would try to face my fears and save the sea animals from danger.”</i></p> <p><i>“I love it.”</i></p>
Ocean Guardian Workshop	Discussing experience with the Ocean Guardian Workshop.	4	<p><i>“By working by I Am Water.”</i></p> <p><i>“Be a part of I Am Water and help our ocean.”</i></p>
Community	Expressing the desire to help the public.	3	<p><i>“Show the children what I experienced in doing this.”</i></p> <p><i>“Help people.”</i></p>

Note: The full list of youth written responses can be found in supplemental materials.

Post Responses: Attitudes towards the Ocean

Definition: Sensitivity, concern, and positive dispositions towards the ocean

Explanation of Results: A total of 228 youth responded to the survey prompt, with 186 responding “yes”, they feel differently about the ocean now. Students expressed more positive attitudes towards the ocean after attending and participating in the workshop.

Survey Stem: Because of this workshop, do you feel differently about the ocean now? *Yes or no.*

Response	Post
Yes	186
No	42

Youth were asked if they answered Yes, “how have your feelings about the ocean changed?” Table six summarizes the ten participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table six below. The full list of youth responses for this open-ended item can be found in the supplemental materials.

Table 6. Action codes for Attitudes towards the Ocean and frequencies.

Action Codes	Description of Code	Frequency	Examples from participant
--------------	---------------------	-----------	---------------------------

Positive Attitudes toward the Ocean	Behaviors and feelings that foster positive actions, and well-being towards the ocean.	53	<p><i>“Yes, I feel differently about taking care of the ocean and keeping it safe too.”</i></p> <p><i>“I like it more.”</i></p>
Overcoming Fear	Overcome a problem or feeling successfully, less fearful, coping with fear.	46	<p><i>“I was scared of the ocean and now I'm not.”</i></p> <p><i>“I am not scared of the ocean anymore and I feel safe.”</i></p>
Personal Attitudes	Awareness and expression of one’s emotions, behaviors, and feelings in a positive way.	22	<p><i>“yes definitely I feel more comfortable now.”</i></p> <p><i>“I feel very good.”</i></p>
Wildlife	Desire to save, learn more, discuss, and have an interest in wildlife.	19	<p><i>“We had seen a lots of different animals.”</i></p> <p><i>“To protect the animals.”</i></p>
Nature Experience	Outdoor activities, time spent outside, and traveling for outdoor activities.	19	<p><i>“yes I swim in the water.”</i></p> <p><i>“I saw lots of things.”</i></p>

Education	Willingness, desire, intention to talk with others about what they learned, or the intention to learn more about the ocean and environment.	11	<p><i>“I did learn more things of the ocean.”</i></p> <p><i>“It teached us about things we didn't know.”</i></p>
Negative Attitudes	Awareness and expression of one’s emotions, behaviors, and feeling in a negative way.	9	<p><i>“I feel very sad on the ocean.”</i></p> <p><i>“No becuas it was a bad view.”</i></p>
Pollution	Trash, litter, recycling, and any mention of cleaning the beach, oceans, or earth.	6	<p><i>“To keep the ocean clean.”</i></p> <p><i>“If feel people should stop litering.”</i></p>
Negative Attitudes towards the Ocean	Behaviors and feelings that are negative about the ocean.	2	<p><i>“I was worried that I would drown.”</i></p> <p><i>“yes I feel scared of the ocean.”</i></p>
Ocean Guardian Workshop	Discussing experience with the Ocean Guardian Workshop.	2	<p><i>“Yes because they told us a lot about it.”</i></p> <p><i>“That it fun.”</i></p>

Note: The full list of youth written responses can be found in supplemental materials.

Post-Responses: Attitudes towards Marine Protected Areas

Definition: Sensitivity, concern, and positive dispositions towards the Marine Protected Area.

Explanation of Results: A total of 162 students responded to the prompt, with 102 of those students responding “yes”, they feel differently about Marine Protected Areas because of this experience. Students expressed more positive attitudes towards Marine Protected Areas and towards conservation of Marine Protected Areas.

Survey Stem: As a result of this experience, do you feel differently about Marine Protected Areas?

Response	Post
Yes	102
No	60

Participants were asked if they answered Yes, “how have your feelings about Marine Protected Areas changed?” Table seven summarizes the six participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table seven below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 7. Action codes for Attitudes towards Marine Protected Areas and frequencies.

Action Codes	Description of Code	Frequency	Examples from participants
Positive Attitudes towards Marine Protected Areas	Behaviors and feelings that foster positive actions, well-being towards marine protected areas.	53	<p><i>“They did because they protected us while we were swimming along.”</i></p> <p><i>“I feel like marine life is also a place worth saving.”</i></p>
Marine Protected Areas Conservation	Expressed environmental awareness, desire to protect the ocean, importance of Marine Protected Areas, and appreciation for the environment.	46	<p><i>“They can protect the ocean.”</i></p> <p><i>“They are important for our ecosystem.”</i></p>
Marine Protected Areas Wildlife	Desire to save, learn more, discuss, and have an interest in marine wildlife.	39	<p><i>“That they are protecting the animals as well as us.”</i></p> <p><i>“yes, my feeling changed I want to protect marine life.”</i></p>
Knowledge of Marine Protected Areas	Awareness and increased understanding of Marine Protected Areas.	11	<p><i>“I learnt a lot about it.”</i></p> <p><i>“Yes, I learned a lot about Marine Protected areas.”</i></p>
Pollution	Trash, litter, recycling, and any mention of cleaning the beach, oceans, or earth.	8	<p><i>“It must stay clean.”</i></p> <p><i>“Do not litter.”</i></p>

Negative Attitudes towards Marine Protected Areas	Awareness and expression of one's emotions, behaviors, and feelings in a negative way towards marine protected areas.	7	<p><i>"I feel nothing much changed."</i></p> <p><i>"I thought it was full of rocks."</i></p>
---	---	---	--

Note: The full list of youth written responses can be found in supplemental materials.

Follow-up Response: Ocean Guardian Workshop Experience

Definition: Recall information about the overall experience.

Explanation of Results: Four months after attending the workshop, participants were surveyed and asked to recall their experience from the Ocean Guardian Workshop. A total of 234 participants responded, with many participants reporting remembering swimming, snorkeling, hiking, and seeing wildlife.

Survey Stem: What do you remember the most about your Ocean Guardian Workshop experience?

Table eight summarizes the seven participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct

participant written responses are provided in Table eight below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 8. Action codes for Attitudes towards Marine Protected Areas and frequencies.

Action Codes	Description of Code	Frequency	Examples from participants
Nature Experience	Outdoor activities, time spent outside, and traveling for outdoor activities.	92	<p><i>“The snorkeling experience.”</i></p> <p><i>“Is that we learn how to swim.”</i></p>
Wildlife	Desire to save, learn more, discuss, and have an interest in wildlife.	77	<p><i>“Teaching us about sea creatures. Me touching a star fish. I was scared to get in the water.”</i></p> <p><i>“I remember when we were holding little octopos and when we swam deep in the ocean.”</i></p>
Positive Attitudes toward the Ocean	Behaviors and feelings that foster positive actions, and well-being towards the ocean.	52	<p><i>“I remember that the ocean is important and we must take care of the ocean.”</i></p> <p><i>“To take care of the ocean.”</i></p>
Knowledge of the ocean	Awareness and increased understanding of Ocean Literacy.	25	<p><i>“They teached us how to swim and about water.”</i></p> <p><i>“I remember that the ocean is important and we must take care of the ocean.”</i></p>

Stress Management	Practice stress and anxiety reducing strategies, such as control breathing.	20	<p><i>“They are really supporting and calm you down.”</i></p> <p><i>“We had breathing exercises.”</i></p>
Positive Attitudes towards Ocean Guardian Workshop	Awareness and expression of one’s emotions, behaviors, and feelings in a positive way towards the Ocean Guardian’s Workshop.	8	<p><i>“I had a nice with I am water.”</i></p> <p><i>“When we got our certificate and badge and do you promise to the ocean.”</i></p>
Overcoming Fear	Overcome a problem or feeling successfully, less fearful, coping with fear.	2	<p><i>“I remember when I was scared to go underwater but one of the sins told me I could do it.”</i></p> <p><i>“Teaching us about sea creatures. Me touching a star fish. I was scared to get in the water.”</i></p>

Note: The full list of youth written responses can be found in supplemental materials.

Follow-up Response: Feelings towards the ocean

Definition: Sensitivity, concern, and positive dispositions towards the ocean.

Explanation of Results: Participants were asked four months after attending the if they feel differently about the ocean. A total of 257 participants responded to the prompt. Many participants reported maintaining positive attitudes towards the ocean as well as overcoming fears.

Survey Stem: Because of this experience how do you feel about the ocean now?

Table nine summarizes the nine participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table nine below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 9. Action codes for Feelings towards the ocean and frequencies.

Action Codes	Description of Code	Frequency	Examples from participant
Positive Attitudes toward the Ocean	Behaviors and feelings that foster positive actions, and well-being towards the ocean.	90	<p><i>“I believe it is an amazing place to be at.”</i></p> <p><i>“I feel safe and I enjoy being in ocean.”</i></p>
Overcoming Fear	Overcome a problem or feeling successfully, less fearful, coping with fear.	77	<p><i>“I feel comfortable because the life-guards were around me to guard me.”</i></p> <p><i>“I feel so relaxed and not afraid of water.”</i></p>
Personal Attitudes	Awareness and expression of one’s emotions, behaviors, and feelings in a positive way.	46	<p><i>“I very safe and happy.”</i></p> <p><i>“I feel very happy.”</i></p>

Pollution	Trash, litter, recycling, and any mention of cleaning the beach, oceans, or earth.	22	<p><i>“To go to the ocean often to the keep it clen.”</i></p> <p><i>“That we should always keep the ocean clean and do not liter.”</i></p>
Wildlife	Desire to save, learn more, discuss, and have an interest in wildlife.	18	<p><i>“I felt very happy because there were lots of fishs.”</i></p> <p><i>“That animals also have feeling for about their home.”</i></p>
Education	Willingness, desire, intention to talk with others about what they learned, or the intention to learn more about the ocean and environment.	8	<p><i>“I feel like I learnt a lot.”</i></p> <p><i>“Like I would go to it everyday I learned that the ocean has its on forest.”</i></p>
Ocean Guardian Workshop	Discussing experience with the Ocean Guardian Workshop.	6	<p><i>“I just wanna go back to the I Am Water.”</i></p> <p><i>“I feel very safe and proud to go under water and I have a courage because of I am Water.”</i></p>

Negative Attitudes towards the Ocean	Behaviors and feelings that are negative about the ocean.	5	<p><i>“I feel terrified of the ocean.”</i></p> <p><i>“I was scared of the ocean and I still am.”</i></p>
Nature Experience	Outdoor activities, time spent outside, and traveling for outdoor activities.	3	<p><i>“I bid feel happy about it and it was nice and it was a nice day to go.”</i></p> <p><i>“I would love to swim again.”</i></p>

Note: The full list of youth written responses can be found in supplemental materials.

Follow-up Response: Learning

Definition: Increase knowledge of marine science, ocean literacy, marine protected areas, and stress-reducing behaviors.

Explanation of Results: Participants were surveyed for four months after attending the workshop asking what the most important things they learned from their experience. A total of 255 participants responded to the prompt. Many participants reported that learning about pollution was the most important things they learned about.

Survey Stem: What was the most important thing you learned from this experience?

Table ten summarizes the nine participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table ten below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 10. Action codes for Learning and frequencies.

Action Code	Description of Code	Frequency	Examples from participant
Pollution	Trash, litter, recycling, and any mention of cleaning the beach, oceans, or earth.	122	<i>“We need to keep the ocean clean.”</i> <i>“I learned to not throw pegas.”</i>

Wildlife	Desire to save, learn more, discuss, and have an interest in wildlife.	78	<p><i>“I learned we must not hurt sea animals we must not let the ocean dirty.”</i></p> <p><i>“To respect and keep animals save.”</i></p>
Positive Attitudes	Behaviors and feelings that foster positive actions, and well-being towards the ocean.	42	<p><i>“How to take care of the ocean.”</i></p> <p><i>“That it is important to protect the ocean.”</i></p>
Nature Experience	Outdoor activities, time spent outside, and traveling for outdoor activities.	26	<p><i>“Well obvisioly how to snorkel.”</i></p> <p><i>“I learnt how to float, take care of the ocean.”</i></p>
Knowledge	Awareness and increased understanding of Ocean Literacy.	11	<p><i>“I learned about the animals and the nature and the ocean.”</i></p> <p><i>“What to do if you drown and safty facts.”</i></p>
Stress Management	Practice stress and anxiety reducing strategies, such as control breathing.	9	<p><i>“You mustn't panick when you see something that might harm you.”</i></p> <p><i>“That you shouldn't panic well in the ocean rather stay calm and breathe.”</i></p>

Overcoming Fear	Overcome a problem or feeling successfully, less fearful, coping with fear.	6	<p><i>“Don't be afraid of doing something new.”</i></p> <p><i>“To always feel safe at the water.”</i></p>
Self-Efficacy	Belief in one’s own ability to achieve one’s goals and influence their environment.	2	<p><i>“I believed in myself and the most is that we had much fun.”</i></p> <p><i>“I learned that you must not be scared just be brave.”</i></p>
Negative Attitudes	Awareness and expression of one’s emotions, behaviors, and feeling in a negative way.	1	<p><i>“I was scared of the water when a water.”</i></p>

Follow-up Response: Actions: Ocean Stewardship

Definition: Self-reporting of performing ocean stewardship-related behaviors since the OGW.

Explanation of Results: Four months after attending the Ocean Guardian Workshop, students were surveyed. A total of 200 participants responded to the prompt. Students were asked to share anything they have done since the workshop. Students reported on a variety of activities, with majority of the students reporting they have participated in pollution-oriented activities, such as picking up litter.

Survey Stem: Is there anything else you want to tell us about what you have done since the workshop?

Table eleven summarizes the seven participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table eleven below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 11. Action codes for Actions: Ocean Stewardship and frequencies.

Action Code	Description of Code	Frequency	Examples from participant
Pollution	Events related to picking up trash or cleaning up the environment.	65	<p><i>“I try to help pick up trash in any areas.”</i></p> <p><i>“I have been cleaning the ocean learning about the ocean so much more.”</i></p>
Stress management	Describing stress management techniques.	29	<p><i>“I have learn how to control my breathing when I feel stressed.”</i></p> <p><i>“I have passed my exam because I know how to control my breathing when I feel stressed.”</i></p>
Visit a Beach	Events related to visiting the ocean or beach.	26	<p><i>“I visit the ocean regularly.”</i></p> <p><i>“When I want to the beach last week saturday I was a sea whales.”</i></p>

Swimming/Snorkeling	Events related to swimming or snorkeling.	18	<p><i>“Swimming in the ocean.”</i></p> <p><i>“Swim at deep side of the beach.”</i></p>
Reflecting on the Ocean Guardian Workshop	Describes the activities and overall experience of the workshop.	17	<p><i>“yes the food was very good and the guardian was ver care and lernd.”</i></p>
Learn more about the ocean	Events related to gaining more knowledge about the ocean.	14	<p><i>“I did lern how to take care of the ocean.”</i></p> <p><i>“I have been learning a bit more about the ocean.”</i></p>
Told people about the experience	Describing teaching, telling, or communicating the experience to others.	12	<p><i>“Yes, I told my friend how to protect the ocean.”</i></p> <p><i>“I went to the beach and I saw a child throwing papers and I said she must not throw papers away.”</i></p>

Follow-up Response: Reflection of Experience

Definition: Reflecting and sharing the most meaningful experience(s) from participating in the OGW.

Explanation of Results: Participants were surveyed four months after the Ocean Guardians Workshop. Participants were asked to report if they remembered their promise, if so, to write their response. A total of 220 participants responded to the prompt. Many participants recall their promise relating to pollution, conservation, and wildlife regarding the ocean.

Survey Stem: Do you still remember your promise to the ocean on the final day of the workshop?

Table twelve summarizes the seven participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table twelve below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 12. Action codes for Reflection of Experience and frequencies.

Action Code	Description of Code	Frequency	Examples from participant
Pollution	Trash, litter, recycling, and any mention of cleaning the beach, oceans, or earth.	102	<p><i>“I promise the workshop that I will pick up trash and make our ocean clean.”</i></p> <p><i>“Yes I do. I promised to never litter again.”</i></p>
Conservation	Expressed environmental awareness, desire to protect the ocean, importance of Marine Protected Areas, and appreciation for the environment.	78	<p><i>“I promise to protect the ocean.”</i></p> <p><i>“Yes, I promised to protect the ocean and visit the beach again.”</i></p>

Wildlife	Desire to save, learn more, discuss, and have an interest in wildlife.	26	<p><i>“I promise to protect animals.”</i></p> <p><i>“Yes to protect all the animals in the ocean.”</i></p>
Place Connections	The development of appreciation for and positive personal relationships with the physical location and its story.	14	<p><i>“I promise I will come back again.”</i></p> <p><i>“I promise to visit the beach every weekend.”</i></p>
Reflection	Reflecting and sharing the most meaningful experience(s) from participating in the OGW	7	<p><i>“Yes I remember I promise to the ocean.”</i></p> <p><i>“Yes I do tall remember.”</i></p>
Stress Management	Control breathing, stress reducing activities	2	<p><i>“Yes I said I will help and protect the ocean and control my breathing.”</i></p> <p><i>“Yes, because they told me everything how to feel underwater.”</i></p>
Positive Attitudes	Behaviors and feelings that foster positive actions, well-being towards the experience.	1	<i>“Yes are you gonna keep the ocean good.”</i>

Follow-up Response: Career Aspirations: Oceans

Definition: Increase in ocean related careers due to the workshop.

Explanation of Results: Four months after the Ocean Guardian Workshop, participants were surveyed. Students were asked if they were interested in careers that involved protecting the ocean. A total of 208 participants responded to the prompt. A majority of the students responded that they wanted a job that involved protecting the ocean.

Survey Stem: As a result of this experience, do you want to have a job that involves protecting the ocean one day?

Table thirteen summarizes the three participant codes representing the range of youth responses. A description of each code, frequency of written responses for that code, and examples from direct participant written responses are provided in Table thirteen below. The full list of youth responses for this open-ended item can be found in supplemental materials.

Table 13. Participant written responses for Career Aspirations: Oceans summarized below.

Action Code	Description of Code	Frequency	Examples from participant
--------------------	----------------------------	------------------	----------------------------------

Positive Attitudes toward the ocean	Awareness and expression of one's emotions, behaviors, and feelings in a positive way towards the ocean or ocean related careers.	144	<p><i>"Yes I do. I care very much about the ocean and I loved that I loved that I learned how to swim."</i></p> <p><i>"yes, because I always wanted to be on the water and save people."</i></p>
Marine Biology	States a career in Marine Biology.	9	<p><i>"Absolutely I want to be a marine biologist."</i></p> <p><i>"Yes, because I want to become a marine biologist."</i></p>
Ocean Guardian Workshop Staff	States a career as an Ocean Guardian Workshop or I AM WATER staff member.	1	<i>"Yes, I will like to work at I AM WATER to help the children swim and to keep the ocean clean."</i>

Conclusion

Short-Term Outcomes

These outcomes were measured before the program and immediately following the program. The results of this program evaluation suggest that the Ocean Guardian Workshop resulted in extremely positive short-term outcomes for students who attended and were surveyed. We measured a wide range of diverse outcomes for interest and the results were consistently extremely positive.

Long-Term Outcomes

These outcomes were measured right after students completed the workshop and four months after completing the workshop. The long-term outcomes for the learning, ocean literacy, and stress management all were extremely positive for students who attended and were surveyed.

These outcomes indicate that students are retaining highly positive scores for most of the items measured four months after attending the program. This suggests that the Ocean Guardian Workshop is creating lasting impacts on students learning, ocean literacy, and stress management.

Short- and Long-Term Outcomes

These outcomes were measured before and after attending the workshop as well as four months after attending the workshop. Overall, these findings suggest both positive short- and longer-term student outcomes. We want to particularly call attention to the Attitudes towards the Ocean battery of questions. For this outcome, all post-survey items were statistically significantly higher immediately following the program. This suggests that students have an increase in positive attitudes towards the ocean, eating sustainably caught fish, the importance of marine protected areas, caring more about marine animals, and more. In the follow-up survey, the scores for the means scores for the Attitudes towards the Ocean Index (the average of all the individual survey items) and two other individual items remaining statistically significantly higher than the pre-survey. For all other individual items in this battery, the mean scores in the follow-up survey were substantively high than the pre-survey. These findings are incredibly exciting. Not only do students have more positive attitudes towards the ocean right after the program, they still have them four months later, even once they are back home and back to their normal daily lives.

Short- and Long-Term Behavioral Outcomes

Outcomes were measured before the program, after the program, and four months after the program. The results are extremely positive immediately after completing the program for students who attended and were surveyed. On the follow-up survey, students were asked if they had completed any of the behaviors since the workshop. For all outcomes, over 70% of students indicated they had performed a behavioral action since completing the workshop. Over 88% of students stated they had pick-up trash, visited a beach, and protected the ocean. These behaviors are related to environmental and ocean stewardship. The Ocean Guardian Workshop, based on these results, is creating a culture of positive ocean and environmental stewards for the youth that participated and were surveyed!

Open-ended Responses

The results of the open-ended responses allow participants to share in their own words the impact that the Ocean Guardian Workshop is making in their lives. Student responses highlight their intentions to reduce pollution by picking up litter at the beach, protecting the ocean through conservation, and overcoming their fear of the ocean through learning how to snorkel. Students wrote about the importance of Marine Protect Areas, and their positive attitudes to protecting Marine Protect Areas. These findings suggest that OGW's programming has a impact on participants attitudes towards the Marine Protected Areas in a positive way, increasing knowledge and the desire to conserve the Marine Protected Areas.

In the follow-up survey, students were asked six open-ended questions about their experience with the Ocean Guardian Workshop. Students were asked to reflect on what they remembered about the Ocean Guardian workshop four months later, with majority of the students indicating they remember the experience of snorkeling, interacting with marine wildlife, and being at the Marine Protected Area sites. Students indicated the biggest thing they learned was about pollution and its impact on the ocean ecosystem. Students recalled pick-up litter on the beach and continuing to pick-up litter four months after the Ocean Guardian Workshop. In the follow-up survey, students were asked to write about what they have done since the workshop. Student responses indicated that they have practiced stress management skills and picked up litter in their environment. Both actions are important programming aspects that the Ocean Guardian Workshop practices with students. It is incredible that four months after the workshop, students are continuing to practice the important skills. Lastly, students were asked if they remembered their promise to the ocean on their last day of the Ocean Guardian Workshop and if they could write their response. Many students stated they remembered their promise of incorporating efforts to reduce pollution in the ocean as well as protecting the ocean. These responses indicated that the Ocean Guardian Workshop's programming is creating a culture of ocean guardians for youth that participate in the program and were surveyed. What an important accomplishment for I AM WATER: Ocean Conservation and a lasting impact on the youth who participate in the Ocean Guardian Workshop!

Recommendations

In the adaptive management strategy, it is important to recognize that the process incorporates learning for the organization as well as for the program evaluators. The recommendations for the Ocean Guardian Workshop are inclusive of this learning process as well as considerations for future evaluation. The first recommendation is to revisit the Logic Model that was created in 2021 at the beginning of the project. In reflecting on the short-term, medium, and long-term outcomes first established in the Logic Model, we recognize that these outcomes might change after three years of evaluation. Updating the Logic Model will give the focus to outcomes that the organization desires measure. After the updated Logical Model, we recommend revising the survey to reflect the changes of the logic model, the addition of a follow-up survey, as well as eliminating items that are no longer measuring specific outcomes. We recommend more consistency across individual pre-survey, post-survey, and follow-up survey items to measure both short- and long-term changes in student outcomes for more diverse outcomes of interest. We also recommend in the redesign of a future survey to eliminate the self-determination outcomes and all items associated. Currently, the survey is not measuring this outcome well enough to give reliable results.

Lastly, we recommend that I AM WATER: Ocean Conservation, in continuation with their amazing work, start the process of identifying scientific journals, newsletters, and conferences they would like to publish in and present at. We recognize that the Ocean Guardian

Workshop, and this ongoing evaluation project, would not be possible without the hard work of their coaches and leadership staff, in this recognition, we find that it is important that their voices and perspectives are shared. We recommend they identify scientific journals, magazines, or other communications media, and communicate those to the evaluation team, so that we can expand our capacity to share these results and showcase positive impacts of the Ocean Guardian Workshop.

Appendices

Appendix A: Pre-Survey 2023



PRE-EXPERIENCE SURVEY

This survey asks questions about the upcoming two-day workshop. Your answers will help to us to improve future programs. This is not a test. There are no right or wrong answers. Answer with your honest opinions. Your participation is voluntary. Thanks for your time!

1. First two letters of your first name _____
2. Circle your birth month:
January February March April May June July August September October November December
3. Your school's name _____ Your grade level _____

4. To what extent do you agree with the following statements? Circle a number for each statement.

	Not at all	→							Somewhat agree	→			Strongly agree
I believe in myself.	0	1	2	3	4	5	6	7	8	9	10		
I feel it is important to take good care of the ocean.	0	1	2	3	4	5	6	7	8	9	10		
Humans are a part of nature, not separate from it.	0	1	2	3	4	5	6	7	8	9	10		
I have the power to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10		
Marine Protected Areas make ocean ecosystems healthier.	0	1	2	3	4	5	6	7	8	9	10		
I feel confident that I can achieve my goals.	0	1	2	3	4	5	6	7	8	9	10		
I can make a difference in my community.	0	1	2	3	4	5	6	7	8	9	10		
I am comfortable when I visit the beach.	0	1	2	3	4	5	6	7	8	9	10		
I care about marine animals.	0	1	2	3	4	5	6	7	8	9	10		
It is important to eat sustainably caught fish.	0	1	2	3	4	5	6	7	8	9	10		
Marine Protected Areas increase the number of fish within the area.	0	1	2	3	4	5	6	7	8	9	10		

5. How likely are you to do any of the following things within the next year?

	Not likely	→							Somewhat likely	→			Extremely likely
Help to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10		
Spend more time outside.	0	1	2	3	4	5	6	7	8	9	10		
Make a positive difference in my community.	0	1	2	3	4	5	6	7	8	9	10		
Visit a beach.	0	1	2	3	4	5	6	7	8	9	10		
Talk with others about ways to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10		
Learn more about the ocean.	0	1	2	3	4	5	6	7	8	9	10		
Pick up trash.	0	1	2	3	4	5	6	7	8	9	10		
Control my breathing when I feel stressed.	0	1	2	3	4	5	6	7	8	9	10		
Use stretching to help me relax.	0	1	2	3	4	5	6	7	8	9	10		

Turn over to continue . . .

6. What is your gender identity? (*Directions: circle one*) **Girl** **Boy** **Other:** _____

7. Which of the following best describes your racial or ethnic background? (*Check all that apply*)

White Indian/Asian Black Colored

Other/unspecified (*Please write in*) _____

Thank you for participating in our survey.

Contact Dr. Troy Frensley at frensleyb@uncw.edu
if you have any questions about this survey.



POST-EXPERIENCE SURVEY

This survey asks questions about the two-day workshop you just completed. Your answers will help to us to improve future workshop programs. This is not a test. There are no right or wrong answers. Answer with your honest opinions. Your participation is voluntary. Thanks for your time!

- 1. First two letters of your first name _____
- 2. Circle your birth month:
January February March April May June July August September October November December
- 3. Your school's name _____ Your grade level _____

- 4. How would you rate this experience on a scale from 0 to 10? *Circle a number.*
Terrible 0 1 2 3 4 5 6 7 8 9 10 Excellent

- 5. As a result of this experience do you intend to do anything differently in your life?
Circle one: Yes No
If yes, what will you do? *Write your answer in the space below.*

- 6. Because of this workshop, do you feel differently about the ocean now?
Circle one: Yes No
If yes, how have your feelings about the ocean changed? *Write your answer in the space below.*

- 7. How much do you feel you learned from this experience, on a scale from 0 to 10? *Circle a number.*
Nothing at all 0 1 2 3 4 5 6 7 8 9 10 A huge amount

Turn over to continue...

8. As a result of this experience, do you feel differently about Marine Protected Areas?

Circle one: Yes No

If yes, how have your feelings about Marine Protected Area's changed? Write your answer in the space below.

9. To what extent do you agree with the following statements? Circle a number for each statement.

	Not at all	→ Somewhat agree								Strongly agree	
	0	1	2	3	4	5	6	7	8	9	10
I believe in myself.	0	1	2	3	4	5	6	7	8	9	10
I feel it is important to take good care of the ocean.	0	1	2	3	4	5	6	7	8	9	10
Humans are a part of nature, not separate from it.	0	1	2	3	4	5	6	7	8	9	10
I have the power to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10
Marine Protected Areas make ocean ecosystems healthier.	0	1	2	3	4	5	6	7	8	9	10
I feel confident that I can achieve my goals.	0	1	2	3	4	5	6	7	8	9	10
I can make a difference in my community.	0	1	2	3	4	5	6	7	8	9	10
I am comfortable when I visit the beach.	0	1	2	3	4	5	6	7	8	9	10
I care about marine animals.	0	1	2	3	4	5	6	7	8	9	10
It is important to eat sustainably caught fish.	0	1	2	3	4	5	6	7	8	9	10
Marine Protected Areas increase the number of fish within the area.	0	1	2	3	4	5	6	7	8	9	10
I know how to control my breathing when I am stressed.	0	1	2	3	4	5	6	7	8	9	10

10. How much did you learn about each of the following things as a result of this experience?

Circle a number for each.

How much did you learn about . . .	Nothing at all	→ A fair amount								A huge amount	
	0	1	2	3	4	5	6	7	8	9	10
How different parts of the environment interact with each other.	0	1	2	3	4	5	6	7	8	9	10
How people's actions can change the ocean.	0	1	2	3	4	5	6	7	8	9	10
How changes in the ocean can impact my life.	0	1	2	3	4	5	6	7	8	9	10
How my actions affect the ocean.	0	1	2	3	4	5	6	7	8	9	10
How people can benefit from the ocean.	0	1	2	3	4	5	6	7	8	9	10
How Marine Protected Areas help conserve the ocean.	0	1	2	3	4	5	6	7	8	9	10
How climate change is impacting the ocean.	0	1	2	3	4	5	6	7	8	9	10
Focusing on my breathing can help me stay calm.	0	1	2	3	4	5	6	7	8	9	10

Turn over to continue...

11. Did this experience do any of the following things for you? Circle a number for each.

The workshop...	Nothing at all	→	A fair amount	→	A huge amount						
Taught me something <u>that will be useful to me</u> in my future.	0	1	2	3	4	5	6	7	8	9	10
Made me curious about something.	0	1	2	3	4	5	6	7	8	9	10
Really made me think.	0	1	2	3	4	5	6	7	8	9	10
Made me realize something I never imagined before.	0	1	2	3	4	5	6	7	8	9	10
Made me think differently about the choices I make in my life.	0	1	2	3	4	5	6	7	8	9	10

12. How likely are you to do any of the following things within the next year?

	Not likely	→	Somewhat likely	→	Extremely likely						
Help to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10
Spend more time outside.	0	1	2	3	4	5	6	7	8	9	10
Make a positive difference in my community.	0	1	2	3	4	5	6	7	8	9	10
Visit a beach.	0	1	2	3	4	5	6	7	8	9	10
Talk with others about ways to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10
Learn more about the ocean.	0	1	2	3	4	5	6	7	8	9	10
Pick up trash.	0	1	2	3	4	5	6	7	8	9	10
Control my breathing when I feel stressed.	0	1	2	3	4	5	6	7	8	9	10
Use stretching to help me relax.	0	1	2	3	4	5	6	7	8	9	10

13. How much do you agree with the following statements about the marine protected areas you have visited for this workshop? Circle a number for each statement.

How much do you agree?	Not at all	→	Somewhat agree	→	Strongly agree						
I want to visit these places again.	0	1	2	3	4	5	6	7	8	9	10
Knowing these places exist makes me feel good.	0	1	2	3	4	5	6	7	8	9	10
I care about our local Marine Protected Areas.	0	1	2	3	4	5	6	7	8	9	10

14. During this workshop I felt... Circle a number for each statement.

How much do you agree?	Not at all	→	Somewhat agree	→	Strongly agree						
Left out.	0	1	2	3	4	5	6	7	8	9	10
Free to follow my own interests.	0	1	2	3	4	5	6	7	8	9	10
Able to understand the lesson.	0	1	2	3	4	5	6	7	8	9	10

Contact Dr. Troy Frensley at frensleyb@uncw.edu
If you have any questions about this survey.

Thank you for participating in our survey.

Appendix C: Follow-up Survey

7. What was the most important thing you learned from this experience? Write your answer in the space below.

8. To what extent do you agree with the following statements? Circle a number for each statement.

	Not at all	→	Somewhat agree	→	Strongly agree						
I believe in myself.	0	1	2	3	4	5	6	7	8	9	10
I feel it is important to take good care of the ocean.	0	1	2	3	4	5	6	7	8	9	10
Humans are a part of nature, not separate from it.	0	1	2	3	4	5	6	7	8	9	10
I have the power to protect the ocean.	0	1	2	3	4	5	6	7	8	9	10
Marine Protected Areas make ocean ecosystems healthier.	0	1	2	3	4	5	6	7	8	9	10
I feel confident that I can achieve my goals.	0	1	2	3	4	5	6	7	8	9	10
I can make a difference in my community.	0	1	2	3	4	5	6	7	8	9	10
I am comfortable when I visit the beach.	0	1	2	3	4	5	6	7	8	9	10
I care about marine animals.	0	1	2	3	4	5	6	7	8	9	10
It is important to eat sustainably caught fish.	0	1	2	3	4	5	6	7	8	9	10
Marine Protected Areas increase the number of fish within the area.	0	1	2	3	4	5	6	7	8	9	10
I know how to control my breathing when I am stressed.	0	1	2	3	4	5	6	7	8	9	10

9. How much did you learn about each of the following things as a result of this experience? Circle a number for each.

How much did you learn about . . .	Nothing at all	→	A fair amount	→	A huge amount						
How different parts of the environment interact with each other.	0	1	2	3	4	5	6	7	8	9	10
How people's actions can change the ocean.	0	1	2	3	4	5	6	7	8	9	10
How changes in the ocean can impact my life.	0	1	2	3	4	5	6	7	8	9	10
How my actions affect the ocean.	0	1	2	3	4	5	6	7	8	9	10
How people can benefit from the ocean.	0	1	2	3	4	5	6	7	8	9	10
How Marine Protected Areas help conserve the ocean.	0	1	2	3	4	5	6	7	8	9	10
How climate change is impacting the ocean.	0	1	2	3	4	5	6	7	8	9	10
Focusing on my breathing can help me stay calm.	0	1	2	3	4	5	6	7	8	9	10

Continue on the next page...

10. Since your workshop, have you done any of the following things?

Circle one response for each item.

Help to protect the ocean.	No	Yes
Spend more time outside.	No	Yes
Make a positive difference in my community.	No	Yes
Visit a beach.	No	Yes
Talk with others about ways to protect the ocean.	No	Yes
Learn more about the ocean.	No	Yes
Pick up trash.	No	Yes
Control my breathing when I feel stressed.	No	Yes
Use stretching to help me relax.	No	Yes

11. Is there anything else you want to tell us about what you have done since the workshop? If yes, please write in the space below.

12. Do you still remember your promise to the ocean on the final day of the workshop? If yes, please write your promise in the space below.

13. As a result of this experience, do you want to have a job that involves protecting the ocean one day? Please explain why or why not in the space below.

Thank you for your participation!

Contact Dr. Troy Frensley at frensleyb@uncw.edu if you have any questions about this survey.