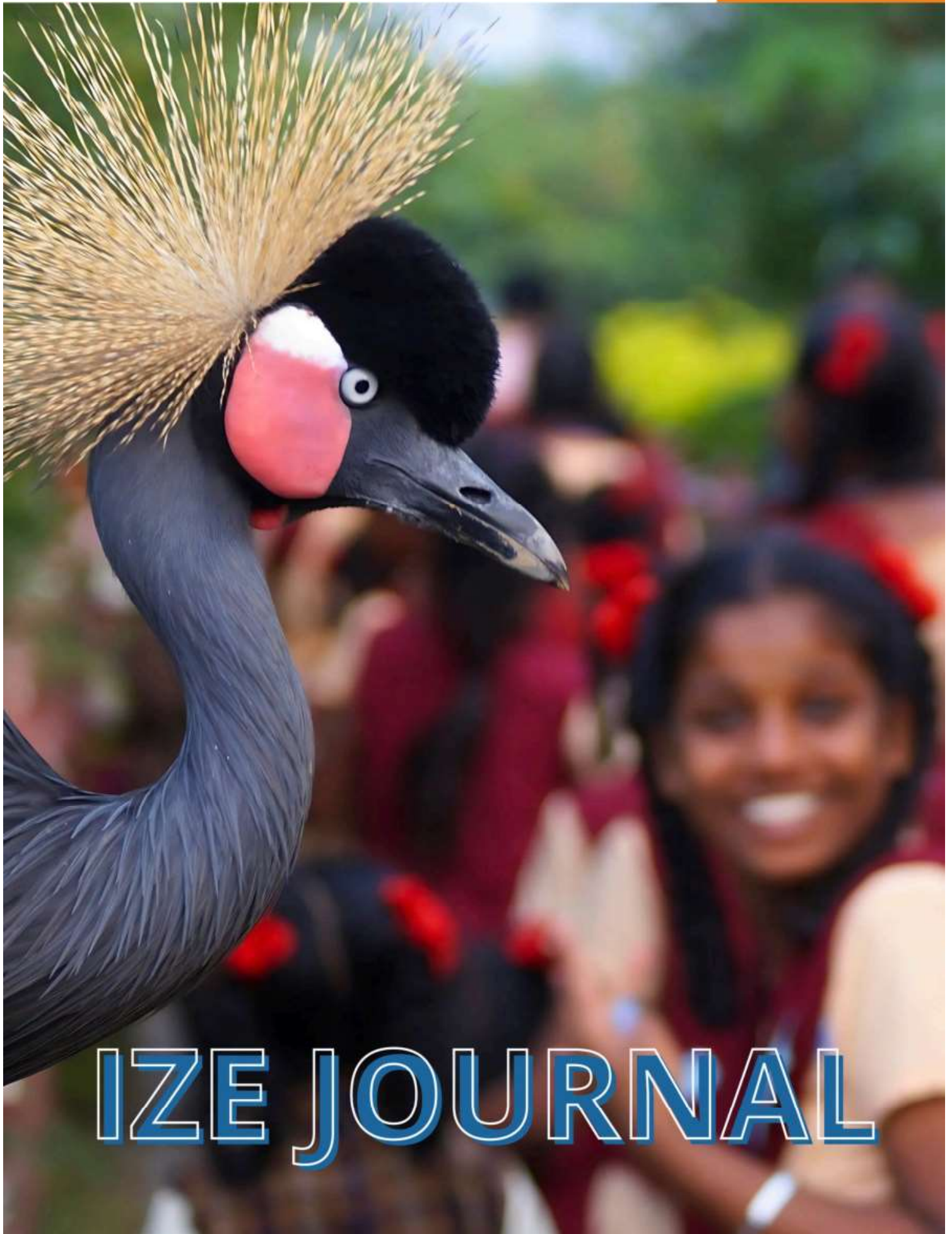




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MOBILISING HIGH SCHOOL VOLUNTEERS AS CONSERVATION AMBASSADORS

Krystal Krucik, Joelle Vallejo, Samantha Martinez and Adam Ratner
The Marine Mammal Center, United States of America.

Abstract

As the impacts of environmental degradation become more intense and evident, and a lack of agency to address climate change increases amongst youth, a focus on youth empowerment and effective scientific communication skills is critical to mitigate climate anxiety and promote environmental actions. In 2024, high school volunteers at The Marine Mammal Center, USA, engaged in a service-learning program, putting them on the frontlines of communicating about marine mammal threats and conservation actions in their local communities. Youth Crew members learned the science of climate change and sustainable seafood, and logged their conservation actions through an interactive, custom mobile application (GetGreen), allowing them to track their carbon emission offsets. Through interactive exhibits at the public-facing hospital, Youth Crew members engaged with over 7,400 visitors and encouraged nearly 600 pledges for conservation actions. In total, the over 1,700 recorded actions equated to a reduction of 18 metric tonnes of carbon dioxide being released into the atmosphere. Evaluative surveys showed that youth significantly increased their comfort and frequency of environmental conversations in their personal lives, their belief that they could have a positive impact through their own actions, and increased communication about these critical environmental topics to others.

INTRODUCTION

Climate anxiety and distress are widespread amongst youth and adolescents, with over 50% expressing sadness, anger, and helplessness (Lewandowski, et al., 2024; Whitlock, 2023; Hickman et al., 2021). Youth have insufficient models of productive climate conversations with 66% of adult Americans rarely discussing climate change, perpetuating a 'spiral of silence' that hinders action (Leiserowitz et al., 2023). Despite this, people are worried about climate change and are looking for ways to help (Leiserowitz et al., 2024). Studies show that people view aquariums, zoos, and informal science settings as one of the most trustworthy sources of knowledge, and visitors to these institutions want to act on environmental issues such as climate change, providing an impactful forum for addressing this 'spiral of silence' (Dilenschneider, 2023; Geiger et al., 2017; Luebke et al., 2012; The Ocean Project, 2009).

The Marine Mammal Center, USA, addresses marine mammal health, science and conservation, operating the world's largest hospital for sick and injured marine mammals. The Center sees about 50,000 visitors annually and is uniquely positioned to lead ocean conservation education, seeing effects of environmental degradation first-hand in their patients. Public discourse on climate change, and stories of rescued marine mammals, can motivate meaningful action for marine and environmental conservation (Ratner, 2018).

The Center offers an opportunity for youth to be leaders of environmental discourse and inspire action in their visitors. Youth Crew is an immersive eight-month animal care and public engagement program for 15 to 18 year olds interested in becoming conservation leaders (Figure 1).



Figure 1: Twenty-eight youth volunteers join the Youth Crew program at The Marine Mammal Center (photo credit: The Marine Mammal Center).

The program's first six months focuses on marine mammal rehabilitation, in which Youth Crew members complete a weekly animal care shift alongside adult volunteers and staff. In the last two months of the program, members transitioned to focus on visitor engagement and education, sharing stories and resources with the public about human impact on environmental and marine mammal health. Empowering Youth Crew members as interpreters allows them to practice and hone their public speaking skills, as well as specialise in the science of environmental issues and the social science behind the best practices of communication. As part of the larger Center community, the network with other adult and youth volunteers, as well as staff, provides an additional element of social and emotional support that aids in building a sense of agency and empowerment to mitigate climate anxiety.



Figure 2: Participants explore theirs and animals' connections to climate change in a training (photo credit: The Marine Mammal Center).

METHODS

During a nine-week period in the summer of 2024, twenty-eight Youth Crew members engaged the public visiting the hospital. With two days of initial training, and ongoing mentorship from staff, members were introduced to the impact of climate change and sustainable seafood on marine mammals (Figure 2). The training provided communication strategies designed by the National Network of Ocean and Climate Change Interpretation (NNOCCI) and best practices of interpretation (Spitzer et al., 2020).

Youth Crew members utilised three interpretative stations in the public areas of the hospital. Each highlighted stories of successfully rehabilitated patients, the ailments that brought them to the hospital, and how visitors can take action to prevent this from happening in future. At each interpretative station, visitors were asked to take a pledge for an environmental action that was being highlighted (Figure 3).



Figure 3: A Youth volunteer, Mason, shares information about sustainable seafood with a visiting family (photo credit: The Marine Mammal Center).

All pledges were completed through an SMS text platform (EveryAction) which allowed the Center to quantify pledges and send a series of follow-up messages with guidance on taking environmental actions, strengthening our long-term impact. A key action communicated to the public, and through follow-up text communication, was encouraging visitors to utilise GetGreen (produced by Emerald Technology Group).

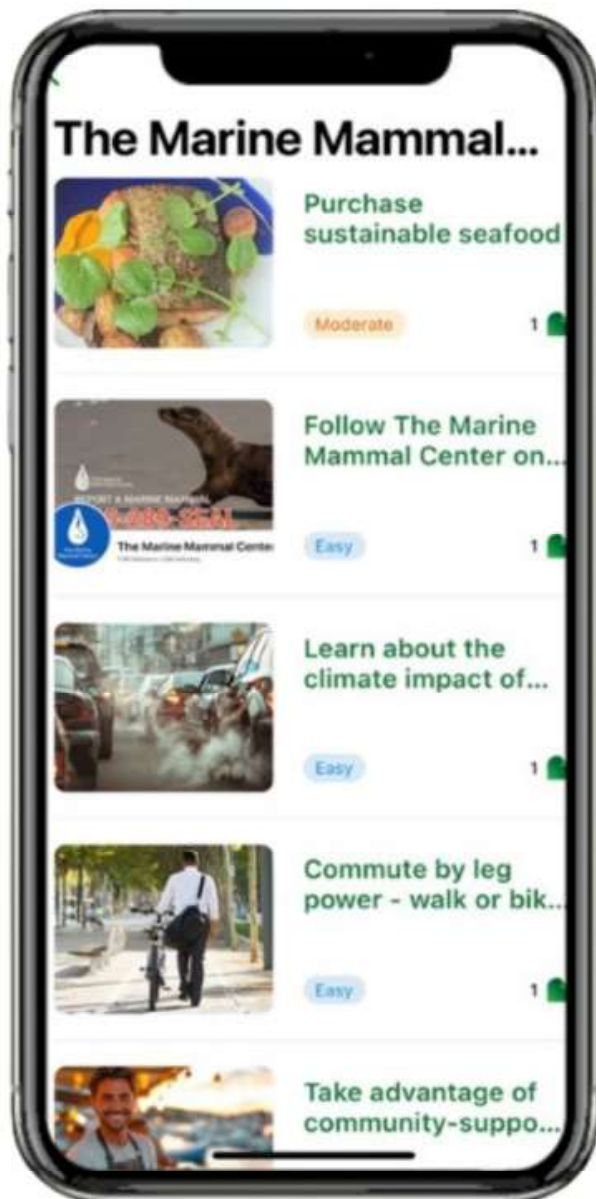


Figure 4: GetGreen's customised app interface for The Marine Mammal Center (photo credit: The Marine Mammal Center).

GetGreen is a mobile application (app) platform that drives climate action by engaging users in sustainable behaviours and allows users to identify and quantify the impact of their specific conservation actions.

GetGreen created a customised version of their app for the Center, focused on actions that help preserve the ocean, encourage climate change education, and combat climate change directly (Figure 4). The app was shared and utilised amongst the Youth Crew members themselves, and promoted to the visitors at the interpretation stations, allowing tracking of behaviours occurring outside of the Center's footprint.

Surveys were administrated through Google Forms to the Youth Crew members at three stages throughout the summer (pre-training, post-training and post-summer experience). The surveys measured their attitudes and behaviours around ocean health topics (on a scale of 1-5), and their willingness to talk and act on these ocean health topics in their personal lives. A Welch's t-test was used to examine changes between pre- and post-training attitudes and behaviours. All Youth Crew members provided qualitative data throughout the experience through informal daily check-ins and a more formal exit interview at the end of the program.

Quantitative data was recorded for the number of visitors who engaged with Youth Crew members, as well as the numbers of text pledges (through EveryAction platform) and GetGreen pledges (through the GetGreen app) for both Youth Crew members and visitors.

RESULTS

Twenty-eight Youth Crew members committed an aggregate of over 777 volunteer hours, engaged 7,408 visitors about climate change and sustainable seafood and inspired 593 pledges for conservation action from the visiting public. Following the program, members revealed an increase in their knowledge about climate change and sustainable seafood, and confidence in addressing environmental harms. In addition, members experienced a decrease in their level of anxiety and feelings of hopelessness around conservation issues.

"Before I had a pessimistic view of conservation, but being around people who care so much and connect with the public made me so optimistic." – Youth Crew member

A significant increase was observed in self-reported knowledge and understanding of climate change (4.04 to 4.56, out of 5, Welch's t-test p-value <0.001), and sustainable seafood (3.21 to 4.56, out of 5, Welch's t-test p-value <0.001) (Figure 5). Similarly, confidence in communicating on these topics effectively saw significant gains, with climate change (3.82 to 4.41, out of 5, Welch's t-test p-value <0.001), and sustainable seafood (3.29 to 4.52, out of 5, Welch's t-test p-value <0.001) (Figure 6).

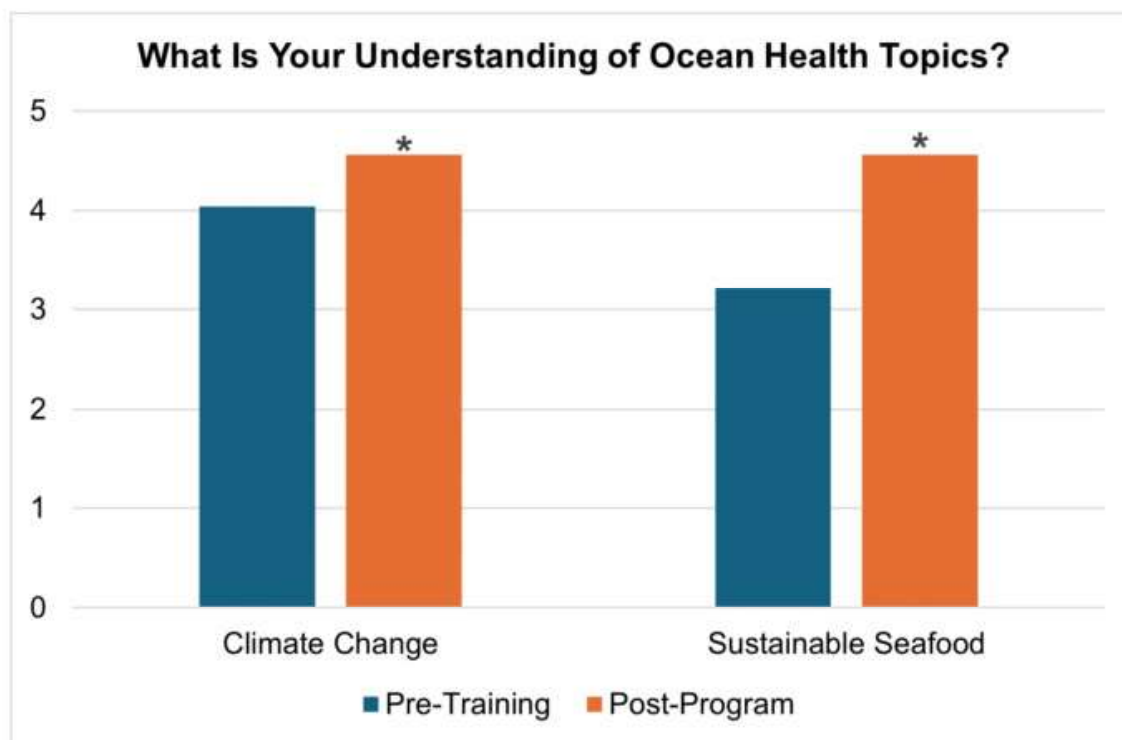


Figure 5: Mean values of participant knowledge and understanding of climate change and understanding before and after the program. * denotes p-value <0.001 using Welch's t-test (unequal variance t-test) (n=28 for pre-training, n= 27 for post-program).

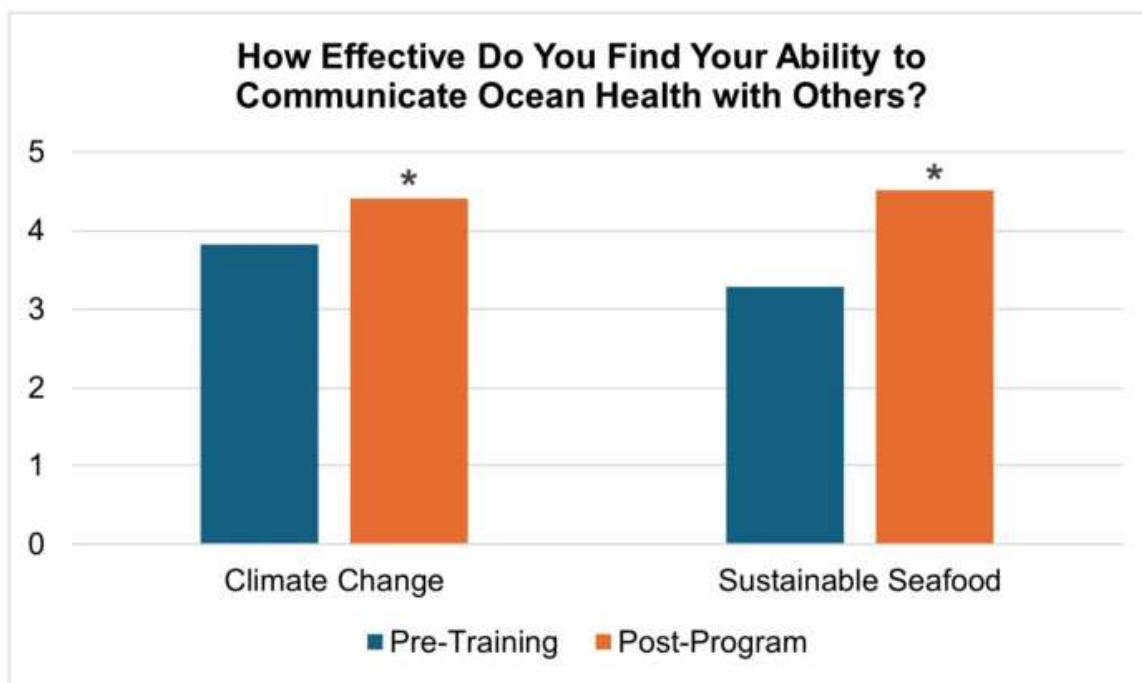


Figure 6: Mean values of participant perception of communication effectiveness before and after the program.
 * denotes p-value < 0.001 using Welch's t-test (unequal variance t-test) (n=28 for pre-training, n=27 for post-program).

The Youth Crew members reported that they used this new confidence by talking about climate change more frequently. There was a 60% increase in youth talking about climate change more than thirty times a month with friends and family compared to pre-training data, extending these messages beyond the Center's direct work. Additionally, they reported a 45% increase (climate change) and a 55% increase (sustainable seafood) in the belief that discussing these ocean health topics with others will have a positive impact on combating environmental degradation. By the end of the program, 100% of Youth Crew members either agreed or strongly agreed that they themselves can make a positive difference regarding climate change.

All 28 of the youth participated in the GetGreen app which allowed them to track their carbon impact and find new conservation actions. In total, 52 people utilised the GetGreen app (28 Youth Crew members and 24 staff and visitors), completing 1,179 environmental actions. GetGreen reports that these actions mitigated an estimated 18 metric tonnes of carbon, equivalent to taking 3.9 cars off the road for a full year.

When asked to consider the entirety of the Youth Crew program (six months focusing on animal care and two months focusing on public engagement), on their experience, and impact on their personal actions, almost 100% of Youth Crew members said that their experience in animal care helped them better understand and communicate on these ocean health topics with others. Specifically, over 40% responded to the question 'did your experience present a new or different way of thinking or acting to care for our ocean and marine mammals?' with an emphasis on the importance of learning to talk with others about conservation.

Following the eight-month program, over 40% of Youth Crew identified that they were now always purchasing sustainable seafood and 89% frequently or always utilising carpooling, public transportation and/or biking/walking. Over 60% of participants also reported new behaviours as a result of the program, including more conscientious purchases of food and goods.

DISCUSSION

As a result of nine weeks of intensive training and public engagement, Youth Crew members increased their confidence in communicating on environmental topics and increased pro-environmental behaviours. While participants entered the program already with a strong sense of understanding of climate change, the resources and training provided, along with the opportunity and platform to communicate with thousands of visitors, allowed them to further their understanding and significantly increase their confidence in being a leading voice for environmental change. A community of support, amongst the staff and volunteers and within the Youth Crew program itself, provided emotional and social support as they navigated through feelings of anxiety and a lack of agency and empowerment.

Results show the potential for shifting attitudes and behaviours amongst high school youth, even with a limited time for engagement. The program highlighted an opportunity to leverage youth voices as conservation messengers, with promising results on reach and initial pledges for behaviour changes from their audiences. Further research is needed to better understand the impact these messages had on the visitors, with an opportunity to utilise apps like GetGreen to develop a robust tracking system for environmental actions well after their initial interaction at an informal science center.

Exit interviews identified the unique experience of hands-on engagement in wildlife rehabilitation as a critical component of building understanding of and confidence in communicating on issues faced by marine mammals. Developing opportunities for high school youth to build skills and experience across multiple aspects of conservation and education is critical in helping further a sense of agency and empowerment amongst this younger audience.

Looking at the larger Youth Crew program encompassing both animal care and public engagement components, a more strategic evaluation plan to measure the youth experience is needed. With a focus on leadership competencies, evaluations can expand beyond knowledge and skills, and begin to focus on aspects of confidence and sense of community and belonging within the larger conservation field. Surveying program alumni over the program's history can identify both the long-term impact of the program on their career trajectory and existing barriers for completing pro-environmental actions.

CONCLUSION

Youth Crew members serve an important role as environmental stewards. Through the program, members grew in confidence and understanding of climate change and sustainable seafood, as well as developed skills to have conversations about these topics with others in a productive way, garnering support for environmental actions.

With youth adolescents experiencing heightened levels of climate anxiety and both a real and perceived sense of limited agency to address environmental harms, programs such as Youth Crew can help empower high-school aged students with concrete pro-environmental actions and provide the necessary skills to lead impactful environmental conversations within their personal networks.

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CORRESPONDING AUTHOR EMAIL:

Krystal Krucik, KrucikK@tmmc.org

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