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Monterey Bay Aquarium Conservation Messages Front-End Evaluation Report

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**Monterey Bay
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INTRODUCTION

The Monterey Bay Aquarium is planning to redesign some existing conservation-related interactives as well as add new experiences on the Aquarium floor. In preparation for this project, the Aquarium would like to gain a better understanding of visitors' awareness of and engagement in conservation-related actions and responses to conservation-related messaging.

The Aquarium contracted with MWA Insights to conduct a front-end evaluation study to help inform the planning for these conservation stations. Specifically, the evaluation sought to understand:

- Are visitors aware of issues affecting the ocean and actions they can take to help the ocean?
- What are visitors currently doing in terms of ocean conservation? What motivates them or prevents them from taking action? What actions do they perceive as feasible and impactful?
- How do visitors feel about the Aquarium's existing approaches to conservation messaging? What stands out to visitors—either positively or negatively—about the current messaging?
- How do visitors respond to potential approaches or messaging for articulating conservation actions? What do they find appealing or attention grabbing? What might they find off-putting?

METHODS

To answer these questions, MWA Insights and the Monterey Bay Aquarium staff collaborated to design two instruments.

Instrument 1: Conservation Action Card Sort (n=102)

A set of card sort activities were used to elicit information about which conservation actions visitors currently engage in (and why or why not), perceived feasibility of various actions and perception of the impact of various actions. See Appendix A for the full instrument.

Instrument 2: Concept Map and Messaging Framing (n=102)

The second instrument included 2 components:

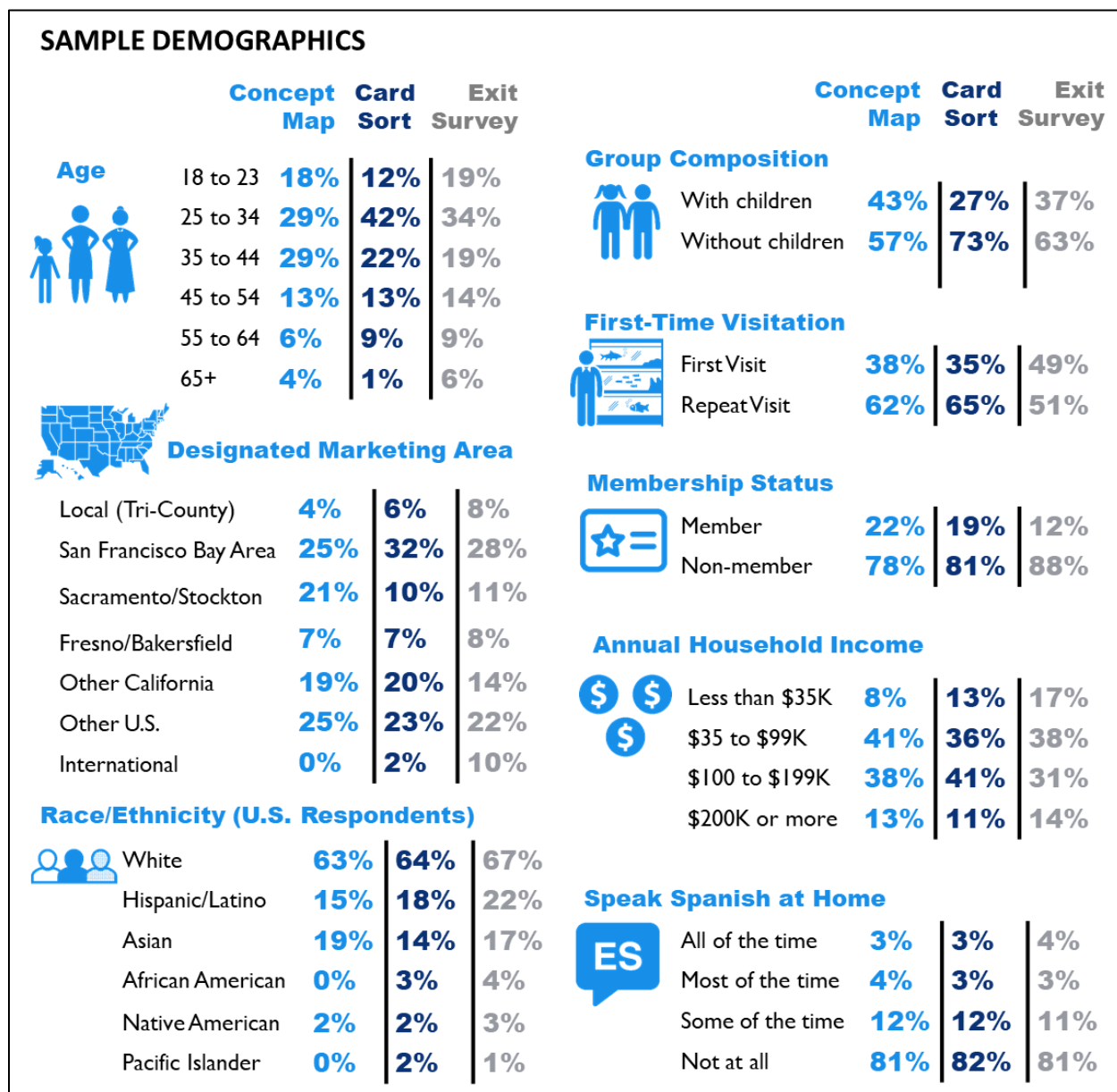
- A concept mapping activity was used to elicit information about visitors' awareness of ocean conservation actions.
- Visitors were asked to respond to potential messaging frameworks for articulating conservation actions.

See Appendix B for the full instrument.

Activities were often completed by groups of visitors together. As such, the total number of participants is larger than indicated above. In this case, n refers to the number of participating groups.

PARTICIPANT DEMOGRAPHICS

Both instruments were often completed by groups of visitors together. In these cases, one participant was asked to serve as the primary respondent and demographic information was collected for that visitor alone. The following chart shows the demographics for the primary respondent for each instrument as compared to the 2017 visitor exit survey data¹.



¹ Due to rounding, column percentages may add to 99 or 101%. Race/ethnicity was asked via an open-ended question and participants could be classified into more than one category.

SUMMARY OF FINDINGS

The following provides a summary of the key findings from the evaluation, organized by evaluation question:

Evaluation Question 1: Are visitors aware of issues affecting the ocean and actions they can take to help the ocean?

- Finding #1: Participants had very high awareness of plastic pollution as a threat to the ocean. Almost all participant groups mentioned actions related to plastic pollution (e.g., picking up litter, recycling, reducing plastic use) as something that they could do to help the ocean. Additionally, over one-half of participant groups identified plastic pollution as the largest threat to ocean health. Although climate change was the second most frequently mentioned threat to ocean health, participant groups were unlikely to identify climate change-related actions as things they could do to help the ocean. There was a sense among some visitors that climate change as a problem feels particularly difficult to address.

Evaluation Question 2: What are visitors currently doing in terms of ocean conservation? What motivates them or prevents them from taking action? What actions do they perceive as feasible and impactful?

- Finding #2: Reducing plastic use is a common action that most participants already engage in. For the most part, they're motivated to do so because they're aware of the threats to ocean health from plastic pollution. Many participants also engage in efforts to reduce their energy use. However, climate change concern isn't a motivation for these actions. Instead, participants engage in these actions because they offer financial or health benefits. Most participants reported never performing either of the two Seafood Watch actions (i.e., use the app/website; ask restaurants if they serve sustainable seafood).
- Finding #3: Barriers to engagement vary by action but include lack of awareness of the problems or solutions; lack of time; lack of interest; a lack of connection to the ocean or a feeling that other issues are higher priorities; lack of opportunity or a sense that the action is out of their control; perceptions that certain actions are financially inaccessible; and social discomfort.
- Finding #4: Participants perceived most of the conservation actions as easy to do, regardless of whether they'd actually tried the actions. Only two actions were perceived of as difficult by a majority of respondents: organizing and leading programs (due to time constraints and perceived lack of interest from others) and choosing restaurants that don't use plastic (due to lack of awareness and perceived lack of availability of these types of restaurants).
- Finding #5: Participants felt that actions that would have the most impact on the environment were those that seemingly have a direct and immediate impact that they can do themselves, without relying on others. They did, however, see the potential impact of legislative policy and conservation organizations. Participants struggled to see the direct connection between climate change actions and the ocean, and weren't sure if talking to friends and family would be impactful.
- Finding #6: Reiterating some of the earlier findings, participants were much more likely

to indicate that they would be likely to engage in individual actions (i.e., actions they could do on their own) versus community actions (i.e., actions where they would need to engage with other people, an organization or a larger community). Participants preferred actions where they were in control and didn't have to rely on others to take action. They also saw community-oriented actions as requiring more time and energy. Finally, some suggested they had a more introverted personality and preferred to engage on their own.

- Finding #7: Despite their strong preference for individual actions, almost all participant groups indicated that they participate in some type of community activities, such as volunteer work, sports or attending community events. Participants were mainly motivated to engage in these types of activities through an organization they are affiliated with (e.g., church, school, work), a desire to help others and give back, and a desire to support their children and serve as a role model for them.

Evaluation Question 3: How do visitors feel about the Aquarium's existing approaches to conservation messaging? What stands out to visitors—either positively or negatively—about the current messaging?

- Finding #8: The existing Aquarium messaging regarding plastic use and sustainable seafood stood out for participants. The most common locations where participant groups recalled seeing information related to ocean conservation actions were at the Ocean Travelers and through the Seafood Watch card (at various locations throughout the Aquarium) or Real Cost Cafe. Participants were also most likely to mention specific messages related to plastics and sustainable seafood. In contrast, very few visitors mentioned climate change-related exhibits or messages².
- Finding #9: Certain aspects of the current ocean conservation messaging were seen as effective. The plastic art in Ocean Travelers was appreciated for being visually impactful, while the Seafood Watch card was appreciated for raising awareness of an unfamiliar issue and providing easy and feasible solutions. Participants also mentioned that simply seeing the animals was motivational in making them want to protect them.
- Finding #10: The large majority of participants didn't have any negative responses to the current ocean conservation messaging in the Aquarium. However, a few did mention feeling sad or depressed about the issues facing the ocean, feeling negatively about seeing animals in captivity or feeling that there were insufficient conservation messages.

Evaluation Question 4: How do visitors respond to potential approaches or messaging for articulating conservation actions? What do they find appealing or attention grabbing? What might they find off-putting?

- Finding #11: Participants felt the "If we don't do something soon" message was most impactful. It resonated with how they perceive the situation and added a sense of urgency. They also liked the message focused on individual choices. Participants felt the message to support the Aquarium was the least impactful. They felt that donating money was a cop-out and some expressed lack of clarity about how the money would

² Visitors were recruited from the second floor Kelp Forest/penguins area. Only participants who had been at the Aquarium for at least an hour were recruited for the concept map activity. Thus, we might find different patterns if this study were conducted at the Aquarium's exit.

be used. Participants responded negatively to the “success story” message because they felt that it took the responsibility off them and implied that there wasn’t further work that needed to be done. They tended to be skeptical of the accuracy of this message.

- Finding #12: Many participants were open—and even expected and desired—to learn about how to help the ocean as part of their visit to the Aquarium. However, participants also saw a need to be intentional and careful about how to share these messages in order to make sure that visitors don’t feel judged or pressured.

IMPLICATIONS & RECOMMENDATIONS

MWA Insights hosted a brainstorming workshop with the Conservation Stations exhibit team to brainstorm possible implications and recommendations that emerged from these findings. The following summarizes the resulting discussion.

Ocean Conservation Issues

There were three primary ocean conservation issues that were emphasized in this study: plastic pollution, sustainable seafood and climate change. There were interesting differences in visitors’ awareness of these different issues and the actions that can be taken to address them that have important implications for the planning of the conservation stations and other projects.

The high awareness of the issue of plastic pollution and the fact that many visitors are already taking actions based on this awareness provides an opportunity for the Aquarium to move away from general messaging about plastic pollution and to instead take a deeper and more specific dive into this issue.

Visitors are aware of plastic pollution, see it as a significant threat to the ocean, and are familiar with and engaging in behaviors to address this issue. The existing messaging around this issue at the Aquarium is also strong. Visitors have good recollection of hearing about this issue through the current experiences at the Aquarium. The Aquarium can build on this existing awareness and commitment to think about how to engage visitors more deeply and specifically. The Aquarium can consider more targeted messaging, for example, addressing misconceptions about recycling as a sufficient way to address plastic pollution, focusing on more specific campaigns (e.g., Skip the Straw), emphasizing policy changes, encouraging visitors to engage in discussions around this issue or thinking about ways to make plastic reduction efforts easier for visitors (e.g., developing an app for crowd-sourced information about plastic-free restaurants). Because visitors have such high awareness, however, it may be necessary to think about how to approach this content in ways that visitors continue to find engaging. The visual impact of the current plastic art exhibits appears to be one impactful method.

There is a need for stronger climate change messaging to help visitors see how climate change is impacting the ocean, how actions they may already be doing for other reasons can play a role in addressing climate change and what the impact of potential actions could be.

Although visitors have some awareness of climate change as an issue affecting the ocean, they hold weak associations between climate change actions and ocean conservation. Visitors

perceive climate change actions as helping the environment generally but are unclear on how these actions might help the ocean specifically. In addition, many people who engage in climate change-related actions are doing so because of a personal benefit that this action provides to them (primarily financial or health related) rather than because of an environmental commitment.

The current messaging at the Aquarium around climate change is weak—very few visitors recall seeing messages related to climate change during their visits. The Aquarium should use tested methods—such as the framing recommendations made by the FrameWorks Institute³—to help visitors better connect climate change to ocean health, to help visitors understand how the actions they may already be taking are connected to climate change and to bridge to messages about community- and regional-level actions necessary for climate action⁴. Finally, it will be important to help visitors see community- or regional-level actions as something feasible for them to participate in.

Although visitors have lower awareness of the issues related to sustainable seafood, the current messages at the Aquarium related to this are strong. The Seafood Watch app may benefit from additional messaging. Visitors also likely need help in understanding why it's important to ask businesses if they serve sustainable seafood and in overcoming the social discomfort associated with doing so.

Visitors have lower awareness of issues surrounding sustainable seafood prior to visiting the Aquarium. However, the current messaging at the Aquarium is strong and many visitors indicate that the visit increased their awareness of both the issue and actions that can be taken to address it (e.g., using Seafood Watch recommendations). Many participants recall seeing the Seafood Watch guide and hearing messages about sustainable seafood during their visit. Visitors were less familiar with the app and website, so increasing messaging about the app specifically may be valuable. Additionally, more than three-quarters of visitors said they had never asked restaurants if they served sustainable seafood. The Aquarium should invest in understanding how to make this action more appealing to visitors, perhaps by helping them understand the importance of doing so.

Types of Actions

Consider starting with “low-hanging fruit” actions that visitors perceive of as both easy to do and impactful, but do not already do.

There were five actions that visitors perceived of as both easy to do and impactful, but that they do not already do. While these actions may not be the highest priority actions for the Aquarium, they potentially offer an easy starting point for getting visitors engaged. These actions included both actions related to sustainable seafood, as well as actions related to political action and organizational support:

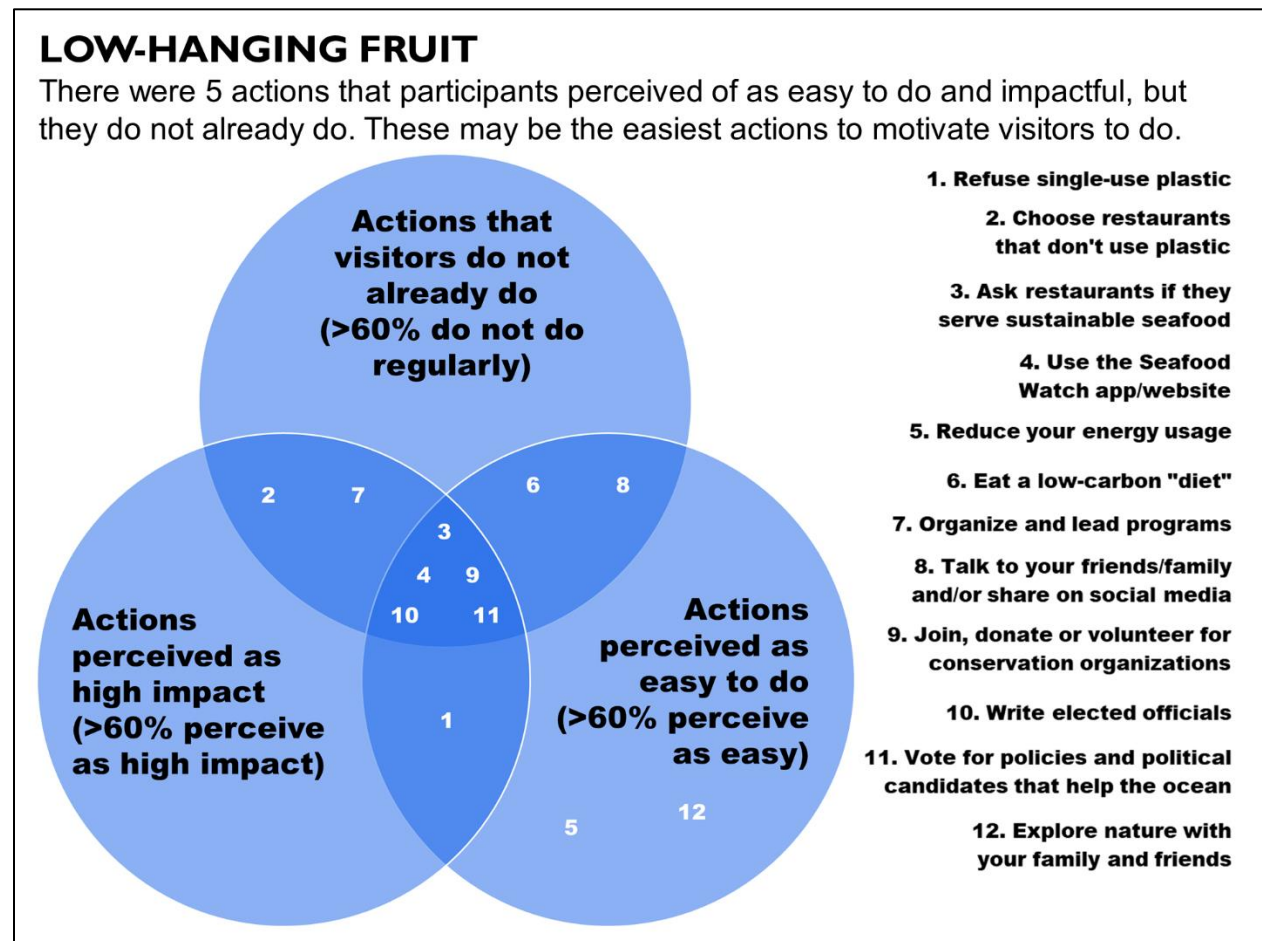
- Ask restaurants if they serve sustainable seafood;

³ E.g., <https://www.frameworksinstitute.org/climate-change-and-the-ocean.html>

⁴ Additional efforts are needed to better understand how to frame community-level actions in ways that overcomes visitors' tendency to think individualistically about solutions.

- Use the Seafood Watch app/website;
- Join, donate or volunteer for conservation organizations;
- Write elected officials;
- Vote for policies and political candidates that help the ocean.

Consider ways that the Aquarium can support people in engaging in these actions on site as a starting point for greater involvement.



Offer visitors individual actions while also working on changing perceptions of community-oriented actions.

Visitors have a strong preference for actions that they see as within their control. In contrast, visitors perceive many barriers to community-oriented actions (e.g., too much work, too much reliance on the actions of others). However, visitors' current involvement in community experiences (e.g., volunteer work, community events, sports) suggests that there is the potential to move them toward more community-oriented actions. In order to engage visitors, it will be important to continue to promote individual actions that can be seen as within the control of the individual and having a direct and immediate impact on the ocean.

At the same time, shifting visitors toward community actions over the long-term will require shifting perceptions around community and collective actions. Visitors tend to conceptualize collective action as the impact of lots of people doing small, individual actions instead of people

working together to change systems and policies. While it will be important to make it easier for visitors to engage in community actions (e.g., making it easy for them to write letters to their legislators), it's also important to offer visitors opportunities to practice skills that may lead to community action (e.g., talking to others about issues of concern) and for the Aquarium to experiment with other ways to shift visitors' perceptions.

Offer opportunities within the Aquarium for visitors to practice skills and gain comfort with aspects of ocean conservation actions that make them uncomfortable.

There exist negative social norms around certain conservation-related activities. In particular, some visitors are uncomfortable with talking to others about issues related to the environment because they don't want to be perceived as being pushy or high-maintenance. The Aquarium may be able to play a role in increasing visitors' comfort with engaging in conversation about environmental issues. The card sort activities used as part of the front-end study were highly engaging to visitor groups, who participated in extended discussions about the feasibility and impact of various actions. There may be an opportunity to incorporate similar activities into the Conservation Stations to offer visitors a safe space to engage in discussions about conservation.

In addition to addressing social discomfort, the Aquarium is well positioned to raise awareness of issues and help visitors see connections between themselves and the ocean (even if they don't live near one). Promoting realistic actions that don't require significant output of time or money—or developing tools to make actions easier—can help to address other perceived barriers.

Some of the barriers to conservation action (e.g., lack of interest, opportunity, and time) are difficult for the Aquarium to impact. However, there are other barriers to action that the Aquarium is well positioned to address. The Aquarium is already doing a good job of raising awareness of unfamiliar issues, particularly related to sustainable seafood, and this can be expanded to other issues such as climate change. The Aquarium can help visitors understand how they impact and are impacted by the ocean, even if they don't live near the ocean. Emphasizing actions that don't require significant time or money to engage in will help overcome some key barriers. The Aquarium can also think about tools that might help make certain actions easier (e.g., access to legislator information, sample letters) as well as alternative actions (e.g., providing more ways to "join" the Aquarium that don't require time or money).

Messaging Frameworks

Test the motivational effectiveness of messages that emphasize the urgency of the situation while also articulating the potential impact of individual actions to make change.

There were clear preferences regarding the messaging frameworks that visitors found most motivating. A combination of the "If we don't do something soon" and the impact of individual action messages may be particularly effective, but it will be important to test specific messages to make sure that the urgency of the "If we don't do something soon" message doesn't cross the line and become too overwhelming or fear-inducing. It may be valuable to test the effectiveness of other frameworks currently being used by the Aquarium. For example, are more specific success stories more effective than the general statement provided as part of the

study? If not, what could be done to make the “success story” messages more effective? For the “join us” message, the Aquarium should consider ways to clearly articulate how donations are spent/invested and how this is impacting ocean conservation. The Aquarium should also consider differences in message effectiveness based on the conservation problem in question (e.g., plastic pollution versus climate change).

Exhibit Design

Consider ways to build on aspects of the current experience that visitors find inspiring by looking for ways to emphasize the visual impact of environmental issues and tie conservation actions directly to Aquarium animals.

There are a few findings that may be useful in thinking about the design of the Conservation Stations. The visual impact of the plastic art in Ocean Travelers was often cited as something that visitors found impactful in inspiring them to take action. Could this be used as a model for visually representing other issues? Visitors also found the animals themselves inspiring. Considering ways to directly connect the Conservation Stations to the animals may be an effective approach to engaging visitors.

DETAILED FINDINGS

Evaluation Question 1: Are visitors aware of issues affecting the ocean and actions they can take to help the ocean?

Awareness of Threats and Conservation Actions

Finding #1: Participants had very high awareness of plastic pollution as a threat to the ocean. Almost all participant groups mentioned actions related to plastic pollution (e.g., picking up litter, recycling, reducing plastic use) as something that they could do to help the ocean. Additionally, over one-half of participant groups identified plastic pollution as the largest threat to ocean health. Although climate change was the second most frequently mentioned threat to ocean health, participant groups were unlikely to identify climate change-related actions as things they could do to help the ocean. There was a sense among some visitors that climate change as a problem feels particularly difficult to address.

Participant groups who engaged in the concept map activity were asked to reflect on what they feel is the biggest threat to the ocean currently. Plastic pollution was the most commonly mentioned threat, cited by more than one-half of participant groups. There were an additional 11% of participants who mentioned pollution in general as the largest threat. Although these participants didn't specify plastic in their responses, it's likely that many of them were also referring to plastic pollution.

- “Garbage in the ocean. Animals eating it or getting stuck in it. Garbage affecting their habitat.”
- “Pollution. Just the amount of trash in the ocean.”
- “Definitely plastic. Plastic is a huge problem worldwide in our oceans. So much that it is actually getting into the food that we consume from the ocean.”

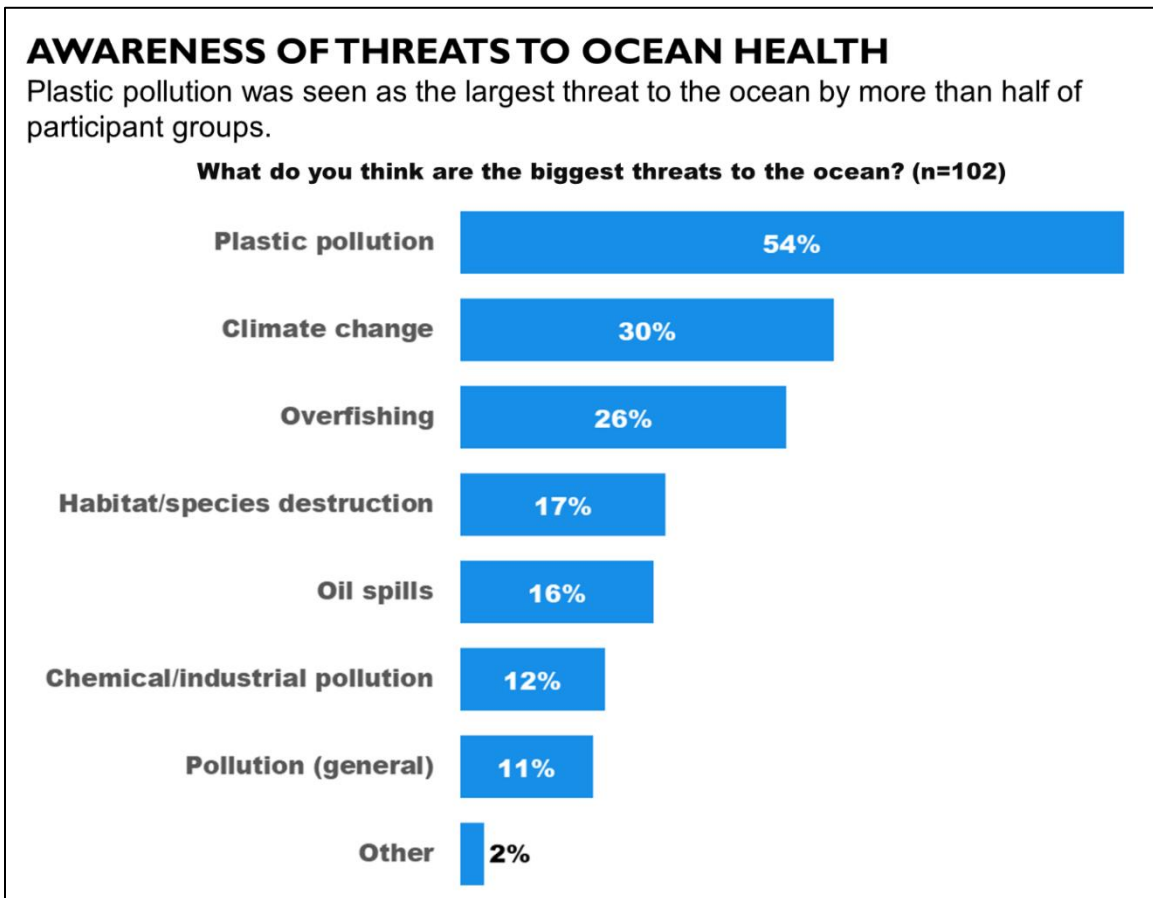
Climate change was the second most commonly mentioned threat, cited by just under one-third of participant groups. Participants who spoke about climate change mentioned rising water temperatures, ocean acidification and the destruction of coral reefs.

- “I’m actually the most concerned about global warming because it’s causing a lot of different types of impacts, like migration patterns are changing, like food sources are dying or moving, there are just so many things that are changing, the water levels are rising.”
- “I guess either the acidification or the changing temperature of the ocean because that has much broader implications globally.”
- “The effects of global warming. I know warming temperatures...are just destroying the reefs ‘cause they’re not sustainable at that temperature for the life on there.”

About one-quarter of participant groups mentioned overfishing as a large threat to the ocean.

- “Overfishing, in my opinion, is a main threat to wildlife in the ocean.”
- “The fish population in a lot of countries, especially outside of Japan, dropped significantly because of overfishing.”

Other threats mentioned included general habitat and species destruction, oil spills and chemical/industrial pollution.



(Some participant groups provided more than one response. As a result, percentages don't total 100%.)

The concept map activity was used to determine visitors' awareness of actions that they could take to help the ocean. In this activity, participants were presented with a blank sheet of paper with a prompt written in the center: "Things I can do to help the ocean." They were then asked to write down any words, thoughts, feelings, ideas or questions that came to mind when they saw the prompt. The responses were then used as the starting point for an open-ended interview where the participants were asked to elaborate on what they wrote. Both participants' initial written responses and their follow-up interview responses were coded on the concept maps. A set of seven overarching categories of conservation actions were established based on visitor responses. Not surprisingly, the most frequently mentioned overarching category was actions related to plastic pollution (including picking up litter, recycling and reducing plastic use). This category was included on nearly every concept map, suggesting broad awareness of both the threat and actions that can be taken to help address it.

In contrast, despite the fact that climate change was the second most commonly mentioned threat to the ocean, participant groups rarely articulated specific actions that they could do to address it. Climate change and oil spills were the only categories for which more participant groups mentioned them as threats than mentioned actions to address them. For example, while only 54% of participants mentioned plastic pollution as one of the biggest threats to ocean health, 98% mentioned actions they could do to address that issue. Similarly, only 26% mentioned overfishing as a threat, but 60% mentioned actions related to sustainable seafood. Similar patterns were seen with habitat destruction and chemical/industrial pollution. Climate change and oil spills went in the opposite direction, with fewer participants articulating actions that could address these issues.

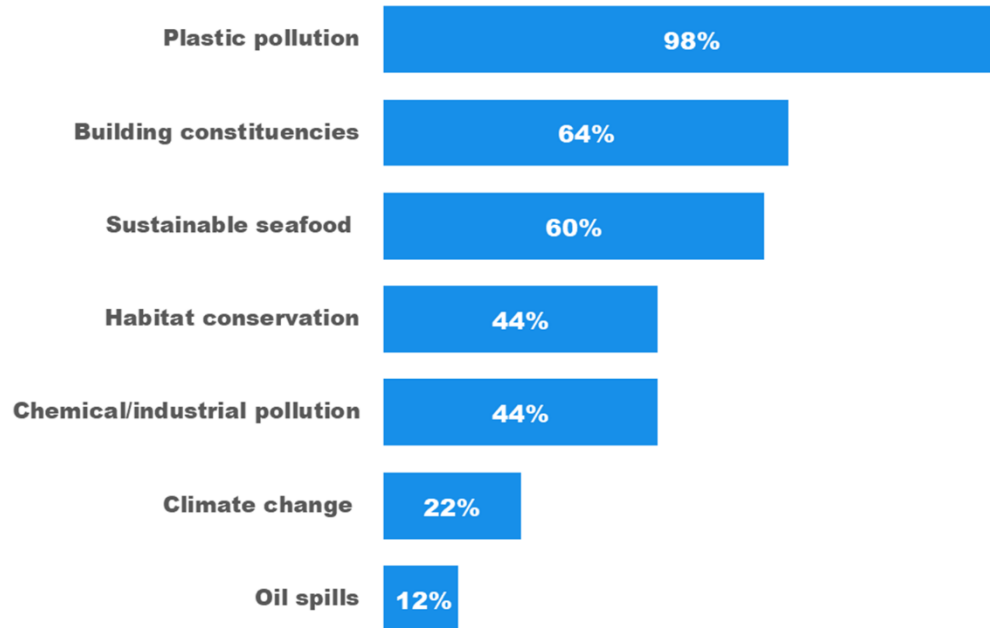
One possible explanation for this is that participants may be less aware of personal actions they can take to address these issues or may find these problems to be particularly difficult to address. Several participants who spoke about climate change as a threat commented that this problem feels particularly overwhelming, more so than other problems, such as plastic pollution.

- "The trash is a big concern, but I honestly think bigger than that is things that are a lot harder to control, is the global warming."
- "We can pick up trash and we can not litter ourselves, but it's hard to stop people from emitting these harmful gases because of how easily available it is for people to do that, to use cars and emit these gases. I think that's the hardest part to stop or hardest part to limit."
- "There's not really much we can do to stop it because we are too far behind the damage that we've done. We would have to stop driving completely, stop polluting the air completely, in order for it to maybe be better in ten years . . . I don't know how you adequately combat that."

AWARENESS OF OCEAN CONSERVATION ACTIONS

Nearly all participants mentioned actions related to plastic pollution (e.g., picking up litter, recycling, reducing plastic use) as actions they could take to help the ocean. Climate change actions were only infrequently mentioned.

Primary categories of conservation actions mentioned on concept maps (n=101)



(Nearly all participant groups mentioned more than one category. As a result, percentages don't total 100%.)

Each of the seven overarching categories was also coded into different subcategories of specific actions suggested by the participants. In general, for each category there were a mix of participants who described the problem or issue, who offered personal actions that they could take to address the problem, or who offered broader societal or systematic changes that could be taken to address the problem. The tables below show the frequency with which each subcategory was mentioned.

Within the category of plastic pollution, 65% of participant groups mentioned actions related to reducing plastic use (e.g., using reusable bags or water bottles, declining plastic straws), while the remainder mentioned only actions related to disposal of existing plastic (e.g., throwing away litter, recycling). Cutting up plastic rings from six-packs was mentioned by 10% of participant groups, although this issue has largely been addressed through packaging modifications.

Conceptual Category		Examples from Concept Maps	%
Reducing Plastic Pollution			98%
Mention issue/problem	“Islands of trash in the ocean” “All trash that floats around in ocean/beaches, like plastic, is not good for animals/anyone.”	75%	
Don't litter/pick up trash	“Pick up trash from others” “Picking up after yourself, take whatever trash home.”	68%	
Reduce/Reuse Plastics	“Use less plastic” “Reusable bags” “Reusable water bottles” “Don't use straws” “Avoid single-use plastics” “Avoid plastic straws. Use paper straws, water bottles, forks, knives.”	65%	
Recycle	“Make sure plastic gets recycled.”	52%	
Cut six-pack rings	“Cut soda plastic”	10%	
Mention systematic solutions to problem	“Research better ways to deal with garbage.” “Business sponsored clean-up of ocean/waste in ocean” “More laws for waste, strict fines”	6%	

Within the category of building constituencies around ocean conservation, the most common action was educating yourself and others. Other actions included donating to ocean conservation organizations, volunteering, making consumer choices that are better for the ocean, voting or advocating for laws that protect the ocean and spending time in nature.

Conceptual Category		Examples from Concept Maps	%
Building constituencies around ocean conservation			64%
Educate self/others/spread awareness	“Research about ocean to be more aware of what you are doing to oceans.” “Educate how we can help animals.”	39%	
Support organizations that work on sustainability	“Donate to explore and help the ocean like buying tickets to MBA” “Donate to conservation efforts.”	29%	
Volunteer	“Beach clean ups.” “Volunteering at aquariums.”	26%	
Consumer choices	“Buying from eco-friendly mindsets.” “Eco tourism.” “Cloth [illegible] for babies instead of diapers.” “Choosing earth-friendly sunscreen.”	10%	
Advocacy/voting/support legislation	“Advocate for gov't laws for ocean protection.” “Talk to government leaders about conservation efforts.” “Help make environmental laws stronger to protect ocean.”	10%	

Spend time in nature	“Visiting ocean.” “Important to appreciate and see the ocean.”	5%
Other	“Pressure big corporations to use \$\$ for good.”	2%

Most participant groups who mentioned actions related to sustainable seafood spoke about making appropriate food choices, while others mentioned fishing practices.

Conceptual Category	Examples from Concept Maps	%
Sustainable seafood		60%
Choose sustainable seafood options	“Eating fish that are not endangered.” “Eat local, sustainable fish.” “Shop sockeye versus farm raised.”	36%
Reduce fishing/overfishing	“Fish only in appropriate season.” “Less mass fishing.”	27%
Mention issue/problem	“Irresponsible fishing practices.” “Overfishing and reduction in fish population by ways of farming & bycatch.”	22%
Safe fishing practices	“NOT trawl fishing.” “Dispose of fishing line.”	16%
Eat less fish	“Eat less fish/seafood.”	1%
Difficult to address	“Not easy to know where food comes from.”	1%

Participants who mentioned general conservation of species and habitats (not specifically related to one of the other categories) spoke broadly about protecting animals and habitats and also mentioned specific actions, such as being careful in nature and not feeding wildlife.

Conceptual Category	Examples from Concept Maps	%
Habitat Conservation (general)		44%
Protect habitats/animals (general)	“Care/protect endangered species.” “Stop whaling.” “Protect coral reefs.” “Limit # of people on beaches.”	29%
Take care in natural environments (personal actions)	“Watch where and what you step on.” “Being cautious of animals’ surroundings in beach, give them space.” “Don’t disturb wildlife.”	17%
Mention issue/problem	“Humans have kicked other species out for our own enjoyment and polluted those locations.”	9%
Don’t feed wild animals	“Don’t give them people food. Affects their hunting habits. Could be toxic. Creates bad habits.”	3%
Reduce development	“Stop overbuilding on beach/coastal areas” “Stop overdevelopment of beach area homes & nearby marshes.”	3%

Chemical and industrial pollution, both from household waste and agriculture and industry, came up as an issue. Actions mainly focused on not dumping hazardous materials down the drain and properly disposing of chemicals.

Conceptual Category		Examples from Concept Maps	%
Chemical/industrial pollution			44%
Mention issue/problem	“Pesticides from agriculture washes off into the ocean. Whales with DDT from this.” “People use gutters as disposals. Leftover soap from car washing. Uninformed about how to properly dispose.”	28%	
Don’t dump in sewer/ Proper disposal of chemicals	“Don’t dump litter in storm drains.” “Properly dispose of chemicals.”	24%	
Regulate agricultural/ industrial waste	“Farming responsibly, reducing runoff, sediment.” “Regulate hormones for farm animals because their poop ends up in ocean.”	8%	
Reduce use of household chemicals	“Choose soaps/cleaning chemicals that are biodegradable.”	6%	
Water conservation	“Reduce water usage.”	6%	
Mention systematic solutions	“City gutter filtering.”	4%	

As outlined above, actions related to climate change were mentioned infrequently, only by about one-fifth of participant groups. Among these groups, the most common actions were generally reducing carbon use, driving less and using renewable energy sources.

Conceptual Category		Examples from Concept Maps	%
Climate Change			22%
Mention issue/problem	“Carbon affecting oceans.” “Ocean absorbs carbon—leads to acidification, which is harmful.”	8%	
Reduce carbon footprint (general)	“Reduce carbon footprint.” “Reduce carbon dioxide emissions.”	8%	
Reduce driving/use public transit	“Drive less (public transit better).” “Have efficient vehicles.”	7%	
Renewable energy sources	“Renewable energy.” “Clean energy.”	5%	
Other action	“Go vegan.” “Stop using AC (limit).” “Buy local made goods (less shipping).”	4%	
Difficult to address	“Work to decrease impacts of climate change (but have to admit little hope here).”	2%	

Actions related to oil spills were also infrequently mentioned and mainly included actions at a broader, societal level, rather than personal actions that participants could take themselves.

Conceptual Category	Examples from Concept Maps	%
Oil Spills		12%
Oil/drilling regulation	“Stricter regulations for oil refineries.”	9%
Mention issue/problem	“BP oil spill and the damage it caused.”	7%

A few visitors articulated a lack of clarity about what they could do to help.

Conceptual Category	Examples from Concept Maps	%
Not sure how can help		3%
Not sure how can help	“How to fix?” “For people that want to help, we should have more options for what they can do day-to-day to help.”	3%

Although participant groups weren’t asked to reflect on their experience at the Aquarium as part of the concept mapping exercise, some participant groups spontaneously commented on something they had seen or learned about at the Aquarium.

Conceptual Category	Examples from Concept Maps	%
Mention MBA experience		16%
Seafood Watch/Real Cost Cafe	“Sustainability in seafood choices (Seafood Watch).”	9%
Other MBA experience	“Learning even today about one of the sea otters they have.” “In gift shop, turtles made out of recycled plastic.”	5%
Plastic art	“Saw an exhibit with artwork made from plastic and our love-hate relationship with it.”	4%

Evaluation Question 2: What are visitors currently doing in terms of ocean conservation? What motivates them or prevents them from taking action? What actions do they perceive as feasible and impactful?

Motivations for Ocean Conservation Actions

Finding #2: Reducing plastic use is a common action that most participants already engage in. For the most part, they're motivated to do so because they're aware of the threats to ocean health from plastic pollution. Many participants also engage in efforts to reduce their energy use. However, climate change concern isn't a motivation for these actions. Instead, participants engage in these actions because they offer financial or health benefits. Most participants reported never performing either of the two Seafood Watch actions (i.e., use the app/website; ask restaurants if they serve sustainable seafood).

Participants in the card sort activity were provided with cards featuring 12 different ocean conservation actions that they were asked to sort into different categories. The actions included:

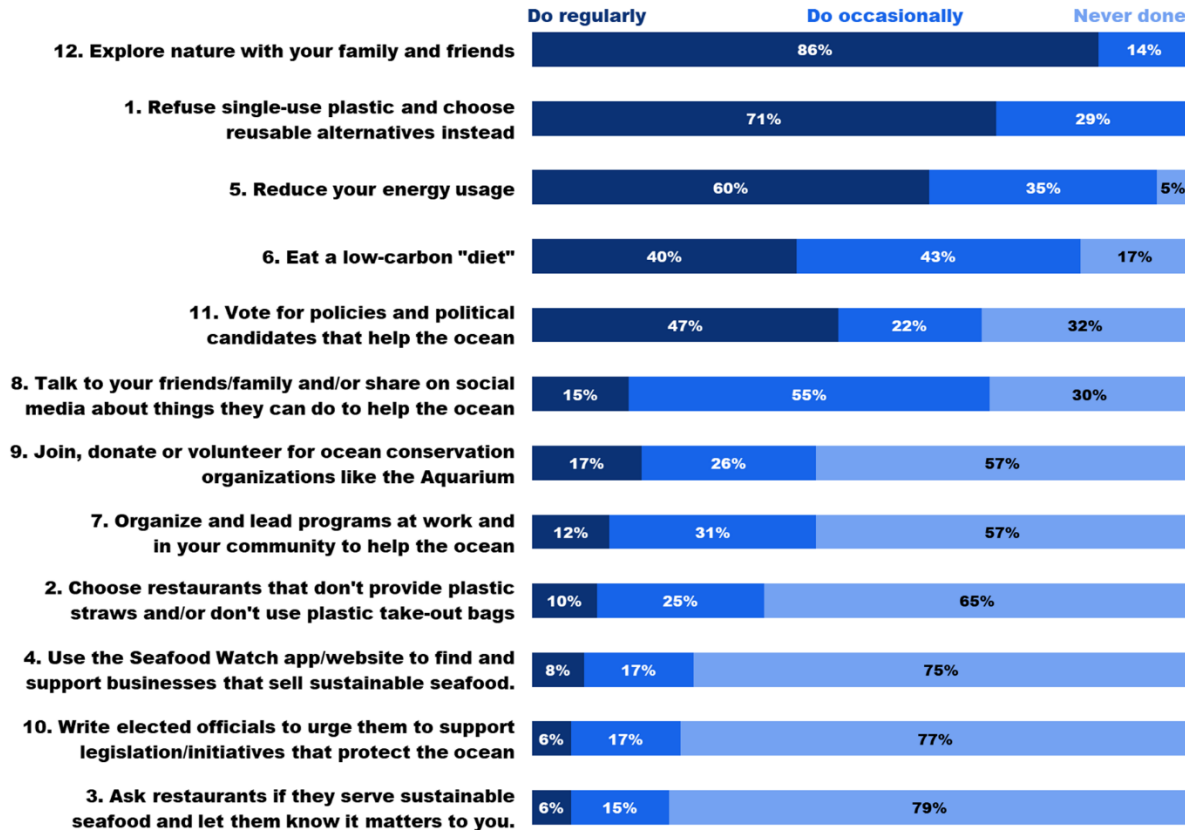
1. Refuse single-use plastic, and choose reusable alternatives instead (for example, bring your own bag to the store, use a refillable water bottle, skip the plastic straw).
2. Choose restaurants that don't offer plastic straws and plastic take-out bags.
3. Ask your favorite restaurants if they serve sustainable seafood and let them know sustainable seafood matters to you.
4. Use the Seafood Watch app or website to find and support businesses that sell sustainable seafood.
5. Reduce your energy usage (for example, walk, bike or carpool; install solar panels; choose energy-efficient products for your home).
6. Eat a low-carbon diet (for example, participate in "Meatless Mondays," eat more fruits and vegetables, eat seasonally and locally sourced foods).
7. Organize and lead programs at work and in your community to help the ocean (for example, start a "green team" at work, organize a park clean-up, organize a carpool to work or school).
8. Talk to your friends and family about what we can do to help the ocean, and/or share your ideas on social media.
9. Join, donate or volunteer for ocean conservation organizations like the Aquarium.
10. Write your elected officials and urge them to support legislation or initiatives that protect the ocean.
11. When it's time to vote, vote for policies and political candidates that help the ocean.
12. Explore nature with your family and friends (hike, visit a park, spend time at the beach).

The first card sort asked participants to sort the actions into actions they do regularly, actions they do occasionally or have done in the past and actions they have never done. As seen in the chart below, there were five actions that visitors indicated that they do regularly: explore nature with your family and friends; refuse single-use plastic and choose reusable alternatives instead; reduce your energy usage; eat a low-carbon diet; and vote for policies and political candidates that help the ocean. Beyond these five actions, there was a sharp drop in the number of participants who indicated they engage in any of the other actions regularly.

ENGAGEMENT IN CONSERVATION ACTIONS

There were five actions that visitors take fairly regularly: explore nature, reduce plastic use, reduce energy use, eat a low-carbon “diet,” and vote for ocean-friendly policies and candidates.

How frequently do you take each of the following actions? (n=102)



Participants were asked to select two behaviors that they do frequently and to describe what motivated them to start doing those behaviors. Although almost all participants indicated that they explore nature with their families and friends, the decision was made to not ask participants about their motivations for this particular behavior because it was so distinct from the other types of behaviors.

For the other frequently engaged in behaviors, interesting patterns emerged regarding motivation. About three-quarters of the participants who spoke about reducing their use of plastic (n=62) indicated that they did so because they were aware of the negative impact of plastic pollution on the ocean, including many who said that they had witnessed plastic pollution in their own lives (e.g., on beaches, when scuba diving).

- “We did this before we were mandated to. We always used reusable bags. And we were motivated to because it’s not good for the environment. We’re from the Central Coast on the beach and we always used to see trash everywhere.”
- “I don’t know if it was any one particular action, but just recognizing how much plastic waste was everywhere, plastic bags in trashcans, and seeing things ending up in the ocean, so making the more conscious decision to always carry a reusable bag, or finding

second uses for plastic, reusing a refillable water bottle, doing that pretty regularly as well.”

- “Hearing information about how the plastics pollute in the ocean . . . And once we were aware of it we wanted to be able to do, even in a small way, something that could be done. We have the refillable water bottles, we skip the straws whenever we can, and we almost always bring our bag. Because we want, in a small way, to be sustainable. And it’s one of the easiest ways to do.”

Although there were a variety of other motivators as well (e.g., plastic bag bans, convenience, financial benefit), these were mentioned significantly less often than a desire to help address the environmental issues caused by plastic.

Environmental concerns were also the top motivator for those who spoke about voting for policies and political candidates that help the ocean (n=19). Many spoke about wanting to preserve the ocean for the future and future generations.

- “Growing up around here . . . I like enjoying this stuff, and I’d like to keep enjoying this stuff.”
- “I think it’s the realization that we have children who are going to have to grow up in a world or an environment where we’re hoping that all the resources won’t be depleted. So, in an effort to try to think forward to what the world is going to be like for them, we have to make sure that the current policies are going to be beneficial to the future.”
- “I just like the ocean. It’s the one thing that’s still good in this world.”

In contrast, with the two climate change-related actions (i.e., reduce your energy use, eat a low carbon diet), personal benefits (e.g., financial, health, personal preferences) were mentioned much more frequently than environmental impacts. For reducing energy use, for example, almost 80% of participant groups who spoke about this action (n=46) mentioned some kind of personal benefit, compared to only 50% that mentioned environmental concerns (not climate change specific).

- “This has nothing to do with the ocean, so much as it does that I live in San Jose, and so it’s getting really, really crowded. So, I try to carpool with friends more, walk as far as I can for things, less car rides as possible.”
- “I think trying to keep costs down is what motivated us to buy more energy efficient products for our home.”
- “I have a bike. But it was health and gas prices.”
- “Where I live it’s worth it to have the solar panels and it’s very, very energy efficient, like a \$400 bill down to a \$46 bill.”

Similarly, among participant groups who spoke about their motivations for eating a low-carbon diet (n=32), personal benefits (e.g., health, personal preference, financial benefits) were again the most frequently mentioned motivator (mentioned by 66% of participant groups).

- “Just to be more healthy in general.... We don’t eat a lot of meat in general.”
- “Just wanting to be healthy overall.... It’s more for health and not, I guess, an environmental motivator.”
- “I just think seasonal fruits and vegetables taste so much better.”
- “It’s a lot cheaper to just eat vegetables.”

In contrast, environmental concerns were mentioned by 41% of participant groups. However, only a couple participants spoke specifically about climate change concern. Animal rights concerns were mentioned by a little more than one-quarter of participant groups and supporting local businesses and religious practices were also mentioned as motivators.

Barriers to Ocean Conservation Actions

Finding #3: Barriers to engagement vary by action but include lack of awareness of the problems or solutions; lack of time; lack of interest; a lack of connection to the ocean or a feeling that other issues are higher priorities; lack of opportunity or a sense that the action is out of their control; perceptions that certain actions are financially inaccessible; and social discomfort.

Participants were also asked to select two actions that they do infrequently and to reflect on what prevents them from engaging in these actions. Because participants chose to speak about different actions, the sample sizes for any individual action were fairly small (ranging from three to 28). As such, it doesn't make sense to look at barriers to each action individually; rather, it is more useful to look across the range of actions to identify the most common barriers to engaging in ocean conservation actions. Although the frequency of mention of these barriers varied by action, there were several common barriers that came up in relation to multiple actions: lack of awareness of the problems or solutions; lack of time; lack of interest; lack of connection to the ocean or a feeling that other issues are higher priorities; lack of opportunity or a sense that the action is out of their control; perceptions that certain actions are financially inaccessible; and social discomfort.

Lack of Awareness

Lack of awareness of both the problem and potential solutions came up particularly frequently in regard to the actions related to sustainable seafood. Some participants indicated that they only became aware of environmental problems related to fishing during their visit to the Aquarium that day. Many also said they were unaware of the Seafood Watch app, although some were familiar with the card. Several participants also commented that issues with plastic straws had only entered their consciousness fairly recently. Lack of awareness of the issues facing the ocean in general also came up with regard to talking to friends/family/sharing on social media or writing to legislators. Participants felt that they needed a greater understanding of the issues in order to take on these actions. Even in terms of voting, participants often felt unaware of politicians' stance on issues that affect the ocean.

- “We don't really know what sustainable seafood is or the idea of seafood being not sustainable, because you kind of think, ‘Oh, there's a lot of fish in the sea. Blah blah blah.’ You don't really think about [how] fishing them in the first place might affect our environment in any way since there's so much of them.” [Action 3: Ask restaurants if they serve sustainable seafood.]
- “I didn't even realize there was an app for the Seafood Watch. I know last time we were here we saw about it and we saw there were brochures, but I didn't realize there was an app for it.” [Action 4: Use the Seafood Watch app/website.]
- “The plastic straws thing, I just recently heard it was an issue. I just have never thought about it.” [Action 2: Refuse single use plastics.]

- “I’m just not always aware. You have to have a certain awareness and passion for really talking to people about it on a regular basis.” [Action 8: Talk to friends/family/share on social media.]
- “Very few of them [are] actually expressing their views about it. Why would they? It’s not a campaign issue for them. The campaign issues generally are pocketbook issues for people.” [Action 11: Vote for policies/candidates that support the ocean.]

Lack of Time

Lack of time or energy to take on actions came up particularly frequently in relation to organize and lead programs and join, donate to or volunteer for ocean conservation organizations.

- “This one, the organize and lead programs, is just the idea of time in the sense of working full time and then doing other stuff. I would be more inclined to join a group that does it than necessarily starting one up.” [Action 7: Organize and lead programs.]
- “I guess for join, donate or volunteer, time is definitely the challenge. Not having enough time to be able to devote to those kinds of activities.” [Action 9: Join, donate or volunteer for ocean conservation organizations.]

Lack of Interest

Some participants indicated that they didn’t engage in conservation actions simply because they didn’t want to. This came up particularly frequently in relation to eating a low-carbon diet (participants indicated that they simply prefer a meat-based diet) and reducing energy usage (participants felt that public transportation and carpooling were inconvenient when compared to using a car), although it also came up for a range of other actions.

- “I like meat. I enjoy the way it tastes. I recognize it’s bad for the environment, or whatever, but I just enjoy it. Come up with a salad that has the toothiness of steak, then I’ll jump on board.” [Action 6: Eat a low-carbon diet.]
- “I think this one is just laziness. I’m not real big on riding a bike or walking to places if the car is more convenient.” [Action 5: Reduce your energy usage.]
- “Well something like this single-use plastic, like bottles, is just so convenient. So inexpensive. I think it makes it easy.” [Action 1: Refuse single-use plastics.]
- “I just eat where I like to eat and don’t really think about . . . this sort of environmental impact of plastic straws and things like that.” [Action 2: Choose restaurants that don’t use plastic.]
- “I guess when we go out we’re more in it for the food than making an environmental statement, so switching places or asking them to change how they’re serving stuff is just not a contributing factor to our food choice.” [Action 3: Ask restaurants if they serve sustainable seafood.]

Lack of Ocean Connection/Other Priorities

For actions such as sharing on social media, donating to organizations that help the ocean and engaging with politicians or the political process, a lack of connection to the ocean (or simply having other priorities to focus on) was a common barrier. Some participants stressed this was because they didn’t live near an ocean, but others simply felt that other issues or concerns were of greater importance to them currently.

- “I don’t think that it's a major concern of many urban city dwellers, who might be concerned more about other things.” [Action 8: Talk to friends/family/share on social media.]
- “My parents live in the Midwest, and all my friends live in the Midwest, so the ocean isn’t relevant to their lives.” [Action 8: Talk to friends/family/share on social media.]
- “Maybe I think if the community was closer to the ocean, I think seeing the effects that it would have on the animals, the environment, I think it would make more of an impact, maybe? But from where we’re at, a lot of these things, unfortunately, people don’t really talk about them.” [Action 9: Join, donate or volunteer for ocean conservation organizations.]
- “I think there’s just so many other things happening right now in the world that I feel like if I’m contacting elected officials, it’s usually because some other awful thing is happening, so I guess it’s just like [the] current political climate has been taking precedence.” [Action 10: Write to elected officials.]
- “There’s usually priorities higher on my list, and if their views coincide with what I consider the higher priorities in my life, then yeah, I’ll support them. But, I don’t use that as . . . a deciding factor.” [Action 11: Vote for policies/candidates that support the ocean.]

Lack of Opportunity

Certain behaviors felt out of the control of participants. This was particularly true of choosing restaurants that don’t use plastic items, but also applicable to other actions, such as installing solar panels or taking public transit.

- “People just hand you stuff all the time before you can even say anything.” [Action 1: Refuse single-use plastics.]
- “This one we don’t have a lot of opportunity to choose the option. It’s lack of opportunity completely.” [Action 2: Choose restaurants that don’t use plastic.]
- “We’re renters, so we don’t have the option to install solar panels.” [Action 5: Reduce your energy usage.]
- “There’s one bus anywhere near where we live, and it comes at six in the morning and then six at night. That’s it . . . We’re very rural. There’s no system in place where we live for things like that.” [Action 5: Reduce your energy usage.]

Perception of Privilege

There was a perception that certain conservation actions aren’t financially accessible. Even though many participants cited finances as a motivation for reducing their energy usage, others perceived the up-front costs of these actions as financial barriers. Financial barriers also came up for dietary-related actions. Some participants perceive sustainable food options to be more expensive.

- “A lot of energy efficient products are just still very expensive that are on the market, so things like solar panels are very pricey . . . Even cars, the hybrid cars are still more expensive than regular gasoline cars. So, I think for that one it’s really just finance.” [Action 5: Reduce your energy usage.]
- “Fresh produce can be more expensive, and especially if it’s locally [sourced], farmer’s market style produce.” [Action 6: Eat a low-carbon diet.]

- “We feel like maybe we don’t have the luxury to maybe choose something that’s more sustainable.” [Action 3: Ask restaurants if they serve sustainable seafood.]
- “I eat a lot of salmon, but I just choose the cheapest option . . . I do things based off price, not based off of where it’s coming from.” [Action 4: Use the Seafood Watch app/website.]

Social Discomfort

Actions that involved sharing personal opinions with others (e.g., telling restaurants that you care about sustainable seafood options, sharing on social media), often elicited feelings of social discomfort. Participants didn’t want to impose their views on others or be perceived as pushy or judgmental. Participants described these types of actions as being “preachy,” “evangelical,” “holier than thou,” “annoying,” “weird,” “sham[ing],” “awkward,” “pick[ing] a fight,” “invasive,” “snotty,” “confrontational,” etc.

- “It’s like you’re still that person who’s taking time out of their day to tell them what they’re doing wrong. And people don’t like that.” [Action 2: Choose restaurants that don’t use plastic.]
- “You might be with friends, and you don’t want to create a scene or have your friends get upset with you because you’re being so weird.” [Action 2: Choose restaurants that don’t use plastic.]
- “I feel like it’s an awkward conversation to bring up. You’re at a restaurant, you’re trying to order your meal, and you’re like, ‘Wait, hold on. Is it sustainable before I order?’ If it’s not, do you end up walking out of that restaurant?” [Action 3: Ask restaurants if they serve sustainable seafood.]
- “We’re not really preachy people, so if people want to make bad choices, it’s partially up to them.” [Action 8: Talk to friends/family/share on social media.]

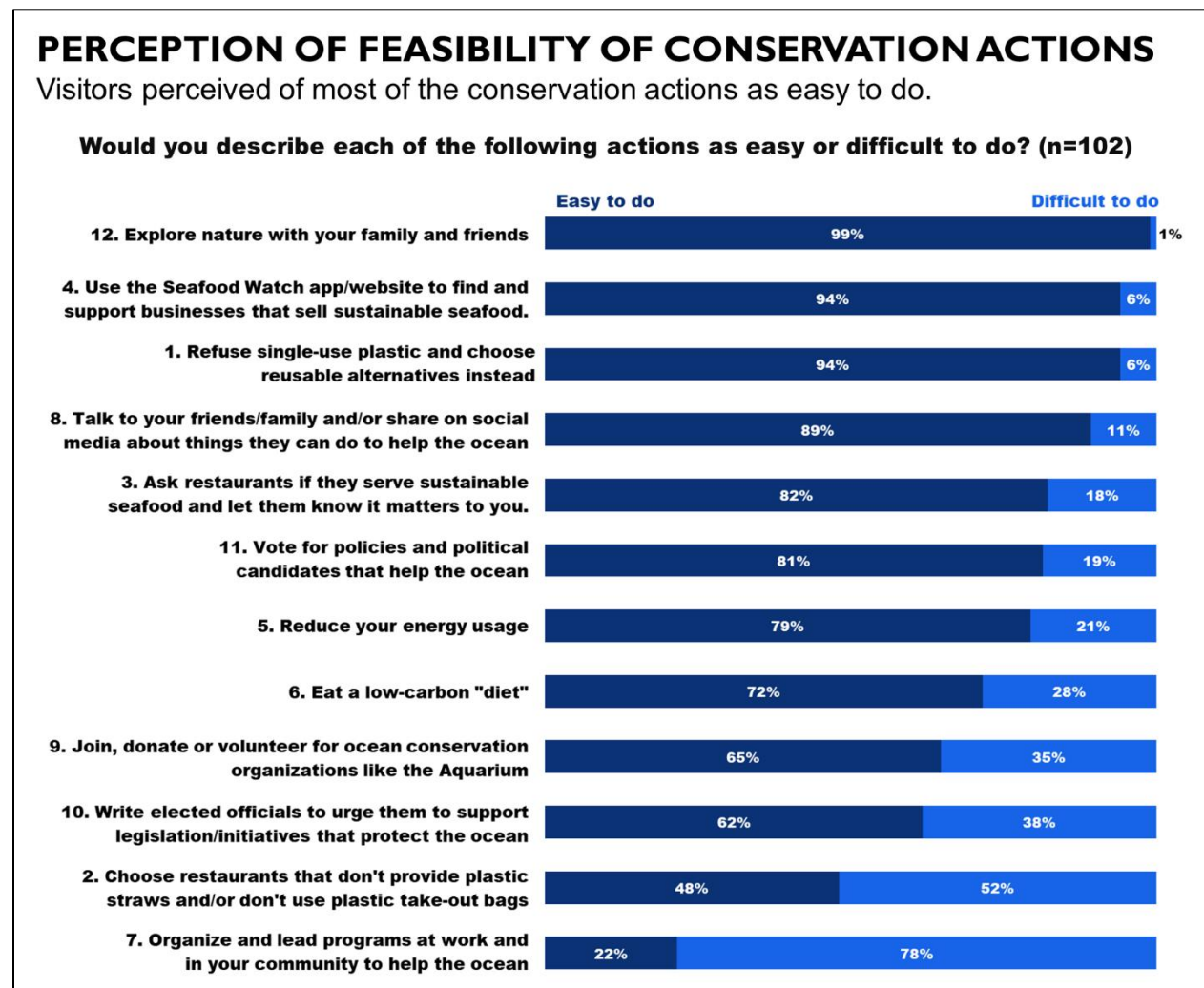
There were several other barriers that came up infrequently or in relation to single actions only. For example, in relation to refusing single-use plastics, participants spoke about the need to change their ingrained habits. In relation to both sustainable seafood actions (Actions 3 and 4), some participants said they did not eat seafood. In relation to organizing and leading programs, many participants said it wasn’t their personality to lead programs or that there wouldn’t be interest from others in their community. In relation to writing to legislators, participants expressed a lack of faith that this action would make a difference.

Perceived Feasibility of Ocean Conservation Actions

Finding #4: Participants perceived most of the conservation actions as easy to do, regardless of whether they’d actually tried the actions. Only two actions were perceived of as difficult by a majority of respondents: organizing and leading programs (due to time constraints and perceived lack of interest from others) and choosing restaurants that don’t use plastic (due to lack of awareness and perceived lack of availability of these types of restaurants).

The second card sort activity asked participants to sort the same 12 ocean conservation actions into two piles: actions that are easy to do and actions that are difficult to do (regardless of whether they actually do them or not). In general, almost all of the actions were perceived of as being easy to do by a majority of participants. There were only two actions that were perceived of as difficult to do by a majority of participants. These included organizing and leading

programs (Action 7) and choosing restaurants that don't use plastic (Action 2). Two additional actions were perceived as slightly more difficult (with more than one-third of participant groups describing them as difficult). These included joining, donating to or volunteering for ocean conservation organizations (Action 9) and writing to elected officials (Action 10).



Participants were asked to select two actions that they find difficult and to describe why those actions seem difficult to them. In general, there was a lot of overlap between the barriers people mentioned for doing particular actions and the reasons why they found the actions difficult.

For participant groups who spoke about organizing and leading programs (Action 7, n=56), the two most common reasons why participants felt this action was difficult were the time and energy it would take to do and the fact that it can be challenging to motivate other people who are busy with their own lives and concerns. Each of these reasons was mentioned by about half of the participant groups who elected to speak about this action.

- “It can be a little nerve-wracking to try and put yourself out there and say this is important to me . . . ‘Cause if nobody responds then you feel bad.”

- “You can’t really dictate what a person will do or not do, so you can advertise, but you can’t guarantee that your community will respond to you if you did organize a program.”
- “I guess not everyone sees your point of view, so it’s sometimes hard to get that across. Because of different people’s ideas and morals. So, maybe they’re not so pro-green.”
- “This one is a lot of energy and time investment, and also brain power investment. I have to think about it, I have to figure out how I would do this particular thing. Specifically, the first words are ‘organize’ and ‘lead’; those are things that a vast amount of people don’t do. They don’t have time to do it, they don’t want to do it.”
- “To lead a program at work, I think, takes a ton of effort, a ton of resources, a ton of connections to help you support a program.”

Other reasons mentioned by fewer participant groups included lack of knowledge of how to organize a group, a more introverted or follower personality, lack of resources, etc.

For participant groups who spoke about choosing restaurants that don’t use plastic (Action 2, n=41), the lack of availability of these types of restaurants was the primary reason why this action was seen as difficult. This was mentioned by about 75% of participant groups who chose to speak about this action.

- “I just feel our choices would be extremely, extremely limited as to where we could eat if we only chose restaurants that didn’t offer plastic straws.”
- “I didn’t even know that existed, to be honest. I feel like everywhere has at least a plastic straw.”

Participants also commented that even when there are restaurants that don’t use plastic, there is no way to find out about them other than happenstance.

- “There’s no easy way to look up what restaurants don’t have any plastic or disposable products.”
- “We’re new here, so we don’t [know] which restaurants don’t offer plastic bags for takeout and such. This is going to sound trendy or whatever, but if they had a little badge in the window that said they didn’t or something, that could help.”
- “Yelp or those restaurant guides don’t say whether the restaurant is offering or not offering the plastic straws or not. There’s no information about this.”

Many participants who reflected on this action indicated that it is easier for them to take the individual action of refusing the straw or take-out bag, rather than trying to find restaurants that don’t use these things.

- “The easier thing to do than choosing the restaurants, is to just not get the plastic bag. Just refuse that. Or not use the straw.”
- “This needs to be just us making a difference and not using straws.”

Among groups that spoke about writing to elected officials (Action 10, n=16), the main reasons this was considered difficult was lack of knowledge—both of the process of how to go about writing to your elected official and the issues—as well as lack of faith that this action would make a difference. Each of these reasons was mentioned by about half of the participants groups who spoke about this action.

- “I wouldn’t know where to start because I have very little information about our current politicians. I don’t really know what the resources are to even contact them. I’m sure I could just research it, but I don’t know which ones are really supporting the ocean initiatives.”
- “Probably just because we wouldn’t know where to start with trying to write to our elected officials. I mean we could probably Google it, but I don’t even know what I would say.”
- “You feel like if you write your elected official, they probably just wouldn’t read it or wouldn’t care.”
- “We don’t know what the impact really is. And if you have a finite amount of time in the day, you do things that have more impact.”

Groups that spoke about joining, donating to or volunteering for ocean conservation organizations (Action 9, n=15) mainly spoke about the difficulty of finding time for volunteering, but also commented about financial difficulties, as well as lack of knowledge of the organizations and what they do.

- “I feel like joining or donating is easy, but then actually volunteering is difficult because you have to figure out what activity you want to do and where and finding the time to do that amongst all the other things you [do].”
- “Donating can be pretty easy but you don’t always know . . . where that money is going to go.”
- “Some people don’t have money, or they are using their money for other causes.”

Perceived Impact of Ocean Conservation Actions

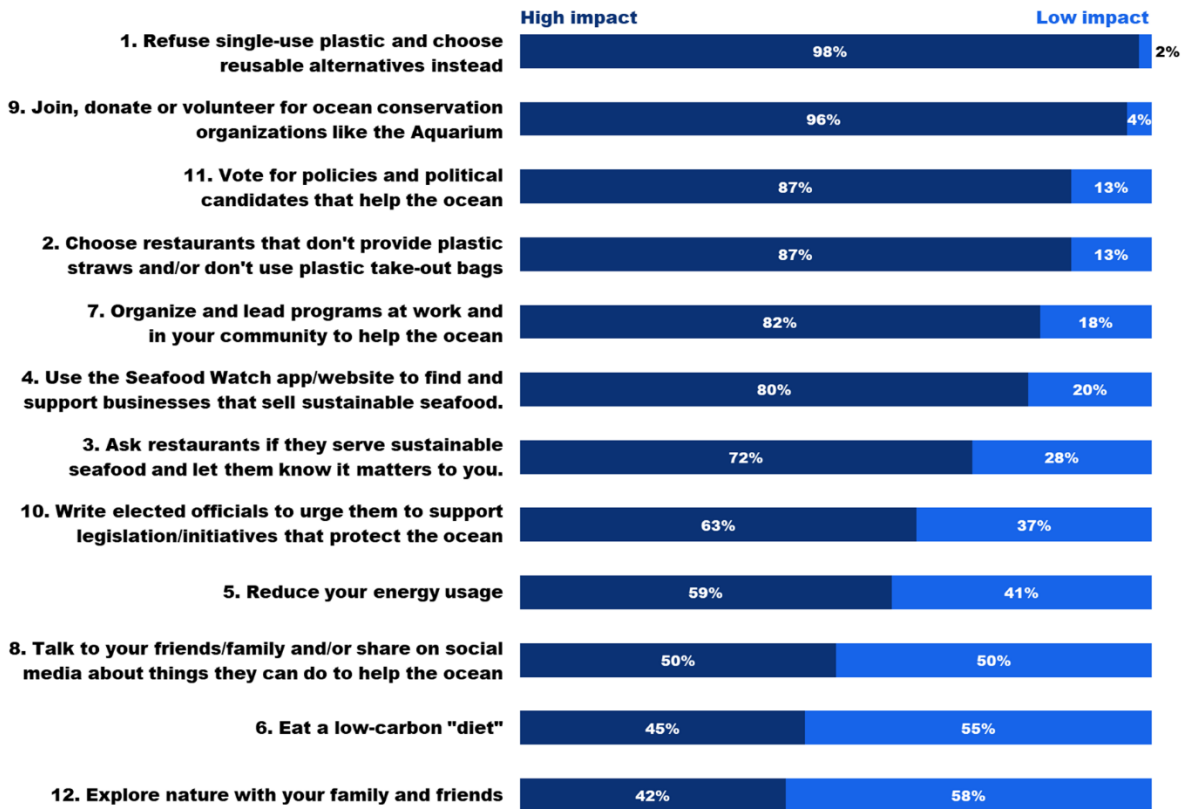
Finding #5: Participants felt that actions that would have the most impact on the environment were those that seemingly have a direct and immediate impact that they can do themselves, without relying on others. They did, however, see the potential impact of legislative policy and conservation organizations. Participants struggled to see the direct connection between climate change actions and the ocean, and weren’t sure if talking to friends and family would be impactful.

For the final card sort activity, participants were asked to sort the same 12 cards into actions they felt would have a large impact on helping the ocean and actions they felt would have a low impact on helping the ocean. Not surprisingly, given the high awareness of the issue of plastic pollution, actions related to this issue were seen as high impact. Additionally, supporting legislators, policies and organizations that work to conserve the ocean was seen as high impact. Visitors had lower understanding of how climate change-related actions would impact the ocean. They also generally saw actions that relied on talking to others (e.g., writing elected officials, talking to restaurants about sustainable seafood, talking to friends and family) as lower impact. Additionally, spending time in nature was seen as low impact—and potentially even harmful to the ocean.

PERCEPTION OF IMPACT OF CONSERVATION ACTIONS

Visitors had lower understanding of how climate change-related actions could help the ocean. Other actions perceived as lower impact included exploring nature and talking to family and friends.

How much impact do the following actions have on helping the ocean? (n=102)



Rather than asking participants to reflect on the impact of specific actions, participants were asked to share the general themes that they used to sort the cards. The following themes emerged:

Direct vs. Indirect Impact

Participants perceived certain actions as having a more direct and immediate impact on the ocean. Actions related to plastic pollution and sustainable seafood were perceived as more directly related to the ocean, and plastic pollution in particular was seen as something where your actions might have an immediate impact. Actions such as organizing and leading programs to help the ocean were also seen as more directly and immediately impactful.

- “We just thought what would have more of an impact on the ocean specifically, rather than just the environment as a whole, and then we also thought about what would actually yield results.”
- “I was thinking in terms of the most directly effective behaviors. Whereas, asking a restaurant if they have food and going, ‘Hey, I think you guys should have better food’ may not have any effect at all, whereas directly going to a beach with your friends and cleaning up would be a higher impact than just that conversation.”

- “More instant result with that, like if you choose not to use a straw, or you bring your own bag to the grocery store, it’s one less thing that you’re throwing into the garbage can that’s going into the landfill . . . You walk up to the dirty beach, you clean it up, and you leave, and it’ll be clean.”
- “Plastic waste, especially, cause it’s very visual and it’s very easy to see the effect of.”
- “You see all these videos about all these plastic things in the ocean and so the obvious ones to me were the ones where I can make a difference with that . . . where I’m not using it or where I’m trying to clean up or whatever, those kind of things that, to me, seems like, ‘Yeah, I’m making a change and making an impact.’”

In contrast, the actions related to climate change were perceived as only indirectly related to the ocean. Participants struggled to see how these actions were related to the ocean.

- “Reducing energy, walk, bike, carpool, solar panels, that doesn’t seem ocean-related to me . . . Eating low carb, Meatless Mondays, more fruits and vegetables, I don’t know if that’s gonna help the ocean either.”
- “I view these as more of an indirect impact, because the diet one, I don’t see that having a direct relationship with protecting the ocean.”
- “I could see how this is good for your health, but not really for the environment, necessarily.”
- “I think the biggest theme is if you blatantly say ocean conservation, that’s what will open people’s eyes and people start to listen. Again, when you start mixing it with other initiatives, while it may indirectly help the ocean, I don’t think that’s people’s number one reason why they do those things.”
- “We have lower energy usage, low carbon diet, I’m not sure it’s a direct impact on the ocean. It’s more, especially with energy, it’s more environmental.”

Exploring nature was seen as least impactful and potentially even having a negative impact on the ocean.

- “Because humans, we bring stuff to these locations and we leave it there. Never makes it back home with us. Could be beer bottles or bike tire[s], or anything. Unless someone actively goes to these locations to clean, they are either going to keep it the same way it was or make it worse.”
- “It’s good to reconnect so that you support it, but the more people out there, the more ruined it becomes.”
- “If anything, it could have a negative impact if you’re hanging out at the beach and leave trash behind.”

Individual Actions vs. Reliance on Others

Generally speaking, participants also saw actions that they could do themselves as more impactful, rather than actions that relied on convincing others to do something.

- “These ones I feel are actually more things that you do. And you can actually make an impact with, little by little. At least, if nothing else, then you’re just policing yourself, which is a start.”
- “These are generally more things you can do yourself.”
- “The ones that we picked over here, we’re not depending on the government to do stuff. We are taking actions into our own hands.”

- “Things that you personally can do that will have an effect, rather than slower long-term.”
- “It all starts with the individual, and it all starts with getting individual people to change the way that they look at things one at a time.”

Many commented on the difficulty of changing other people’s behaviors.

- “People just don’t really care, whether it be politicians, or the people that I know in my personal life. It’s hard to get them motivated.”
- “Then the plastic straws and plastic takeout bags, it’s kind of like it’s more the restaurant’s responsibility what they do with that and we can’t really affect how they dispose of their recyclables.”
- “My friends and family are not listeners.”
- “I don’t think they have any meaningful impact because talking with friends and family or just even getting people at work to do stuff, it doesn’t make them actually change as individuals. And it’s the same with politicians.”
- “I guess these ones seem to be defined by pessimism about the resulting actions of other people.”
- “It’s not always easy to talk to other people and then inspire them to also wanna make a change.”

Power of Organizations and Elected Officials

Despite the emphasis for many participants on individual actions, there were some collective actions that were seen as impactful. Voting for elected officials and policies that support the ocean and supporting conservation organizations were seen as impactful in making broader systemic changes.

- “The things I put in here for politicians, like voting, writing letters, those can have an impact by focusing all of that energy of all of those people into the single person who has power in that moment, which is the politician; it’s the one who makes the policies.”
- “A lot of these involve voting and talking to the officials, ‘cause I think that they’re the people that can kinda make the rules and try to actually make a change.”
- “I was thinking of . . . bigger impact in terms of governmental officials, people who have the power to make decisions to protect areas or take away protections.”
- “It’s good to conserve energy in your home and reuse stuff but that’s not going to make the difference in global warming. Voting people into power that can actually make changes in our nationwide policy is what’s going to improve things.”
- “Organizations that are already doing things, so they already know how to do things . . . or have a bigger impact to things.”

Preference for Individual vs. Community Actions

Finding #6: Reiterating some of the earlier findings, participants were much more likely to indicate that they would be likely to engage in individual actions (i.e., actions they could do on their own) versus community actions (i.e., actions where they would need to engage with other people, an organization or a larger community). Participants preferred actions where they were in control and didn’t have to rely on others to take action. They also saw community-oriented actions as requiring more time and energy. Finally, some suggested they had a more introverted personality and preferred to engage on their own.

Participants were asked whether they would be more likely to engage in individual actions (i.e., actions they could do on their own) versus community actions that would require them to engage with a larger community. Participants overwhelmingly indicated that they preferred individual actions. Seventy-seven percent (77%) of participants indicated that they would be more likely to engage in individual actions, compared to 14% who selected community actions, and 9% who said they would do both.

There were two primary reasons for selecting individual actions. The first reason—mentioned by a little more than half of participants who selected individual actions—was that they felt that it's easier to control their own actions and they didn't want to have to convince others to make changes or do something.

- “I would engage in more individual type of actions because I have more control of the situation . . . I don't have to depend on anyone else to really do something.”
- “I would be more likely to probably do something on my own. Because I like it done my way. Well, I'm being honest. I can make a plan of attack. I can make that plan of attack happen. So, then I'm not depending on other people that are gonna bow out on me type of a thing.”
- “I think individual because it only requires my buy-in and nobody else. I have that control to make those decisions and make changes in my own life.”
- “I guess because if we want something done, when we do it, we know it's getting done.”

Several participants also mentioned that they don't live in a community that is particularly concerned about issues that affect the ocean, which makes trying to convince others to engage even more difficult.

- “It's not super easy to find like-minded people where we are . . . Some people don't believe in global warming or if you want to talk to about it, it's bringing up politics and it's rude.”
- “I live in a small town, small city. I feel like not a lot of people care about these types of things. So, I feel like finding people with similar mindsets doesn't really happen.”

Participants also perceived individual actions as being easier to engage in and requiring less time, energy and commitment. About half of participants who preferred individual actions mentioned this as a reason.

- “I think it's definitely easier to engage in the individual actions . . . It's a lot less time-consuming too, to be honest. Getting a reusable bag maybe costs a dollar, and you just have to take it with you. But organizing a community event takes a lot more time and effort.”
- “Some of the other things, while they might have a greater impact, it would be harder to, you would need a bigger . . . endeavor to actually make it happen.”
- “I would say it's also time. If it's an individual action, you can do it when you're available to do. If it's community, there is some kind of time commitment that is structured by others.”

About one-fifth of participants mentioned that their personality makes them more likely to engage in individual actions, describing themselves as introverted or shy.

- “For community stuff, you have to be engaged in groups and stuff. You gotta be social, which is not that great.”
- “I’m not really much for community anything. I’m kind of a hermit.”
- “I’m just really introverted and even things that are causes I believe in, [being in] a gathering of people that have those same values is just exhausting.”
- “I think I’m just too afraid or shy to go into a community or organization and try to do things with other people.”

Current Participation in Community Activities

Finding #7: Despite their strong preference for individual actions, almost all participant groups indicated that they participate in some type of community activities, such as volunteer work, sports or attending community events. Participants were mainly motivated to engage in these types of activities through an organization they are affiliated with (e.g., church, school, work), a desire to help others and give back, and a desire to support their children and serve as a role model for them.

Participants were also asked about the types of community activities that they already engage in. Interestingly, despite their strong preference for individual actions, most participants articulated that they do participate in some type of community action, including volunteer work, community sports, activities related to their children’s school or activities organized by their work, school or church. Some also spoke about attending community events, festivals and farmers markets. Only 14% were unable to articulate any community activity that they engage in.

When asked about what motivated them to engage in these types of activities, several common themes emerged. A little more than one-third indicated that they were motivated by an organization that they are involved with, particularly their work, school or church. Sometimes this motivation was a particular benefit (or requirement) associated with this organization (e.g., community service credit), but other times participants spoke about the fact that having this other organization that they were already affiliated with promote the activity made it easier to engage. Additionally, participants commented that engaging in these types of activities helps to build community within the sponsoring organization.

- “Community service work. Part of it’s based on it’s required for my school.”
- “Typically, it’s sponsored through work, meaning we’re raising money for a good cause. And then it is kind of a team building or community type of environment.”
- “It’s easily accessible. My work sends me an email and I respond. We don’t have to search for it; it comes right to us. It’s on the weekend. It’s close by home.”

Approximately 30% of participant groups mentioned a desire to give back and help others as a motivator.

- “Feeling like you’re doing something good for the community, to help others out.”
- “It was to help those who needed it more than I did.”
- “I feel like it will be very helpful for some families if they get help that they need. ‘Cause I know when my family came here many years ago, they were in the same position. And I feel like it’s time to give back.”

About one out of five participants mentioned their kids as a motivator for them to engage in community activities, both to provide opportunities for their kids and to model for their kids the kind of people they want them to be.

- “We involve the kids because we want them to learn those kinds of values as well.”
- “I’m just supporting our kids and the things that they’re doing.”
- “I think a lot of it’s for our kids . . . We want to make sure our kids are also seeing that it’s not just mom and dad that’s telling them these things, but it’s a part of a larger group that believes in this.”

Other reasons mentioned for engaging in community activities included valuing a social experience, personal interest in a particular activity, concern about a particular issue or problem and the feeling of satisfaction from helping others.

Evaluation Question 3: How do visitors feel about the Aquarium’s existing approaches to conservation messaging? What stands out to visitors—either positively or negatively—about the current messaging?

Recollection of Current Ocean Conservation Messaging at the Aquarium

Finding #8: The existing Aquarium messaging regarding plastic use and sustainable seafood stood out for participants. The most common locations where participant groups recalled seeing information related to ocean conservation actions were at the Ocean Travelers and through the Seafood Watch card (at various locations throughout the Aquarium) or Real Cost Cafe. Participants were also most likely to mention specific messages related to plastics and sustainable seafood. In contrast, very few visitors mentioned climate change-related exhibits or messages.

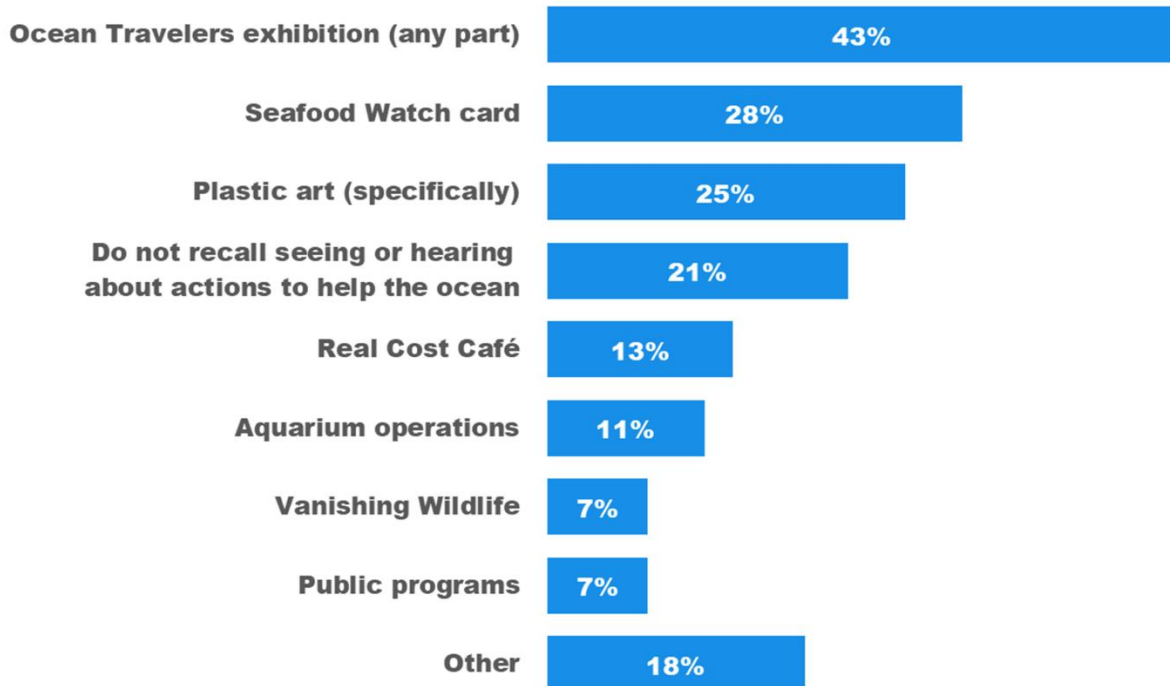
As part of the concept map activity, participants were asked whether they recalled seeing or hearing anything about actions they could take to help the ocean. Participants were recruited from the second floor Kelp Forest, near the penguin exhibit, and were thus presumed to be in the midst of their visit. We might see different patterns if visitors were asked this question at the Aquarium’s exit. Participants mentioned a variety of locations in the Aquarium where they recalled hearing or seeing something related to actions they could take to help the ocean. Most often, participants mentioned the Ocean Travelers exhibition, with many specifically calling out the plastic artworks. The Seafood Watch card was also frequently mentioned. Other specific exhibits mentioned included the Real Cost Cafe and Vanishing Wildlife. Public programs (including auditorium shows and feeding programs) were mentioned by 7% of participants.

Eleven percent of participant groups mentioned something related to Aquarium operations (e.g., signage regarding paper towel use in the restrooms, lack of paper brochures, lack of plastic packaging and bottles in the café, information about seafood options in the café, water bottle filling stations). In the “other” category, participants mentioned docent stations, the Play Your Part exhibition, the ¡Viva Baja! exhibition and other smaller individual exhibits throughout the Aquarium. Only 21 participant groups couldn’t recall seeing anything related to ocean conservation actions. Of these, six groups indicated that they had only recently arrived at the Aquarium.

CURRENT CONSERVATION MESSAGE LOCATIONS

Most often, participants recalled seeing or hearing about actions to help the ocean in the Ocean Travelers exhibition. The Seafood Watch card was also frequently mentioned.

Where do participants recall seeing or hearing about actions to help the ocean? (n=102)



(Some participant groups provided more than one response. As a result, percentages don't total 100%.)

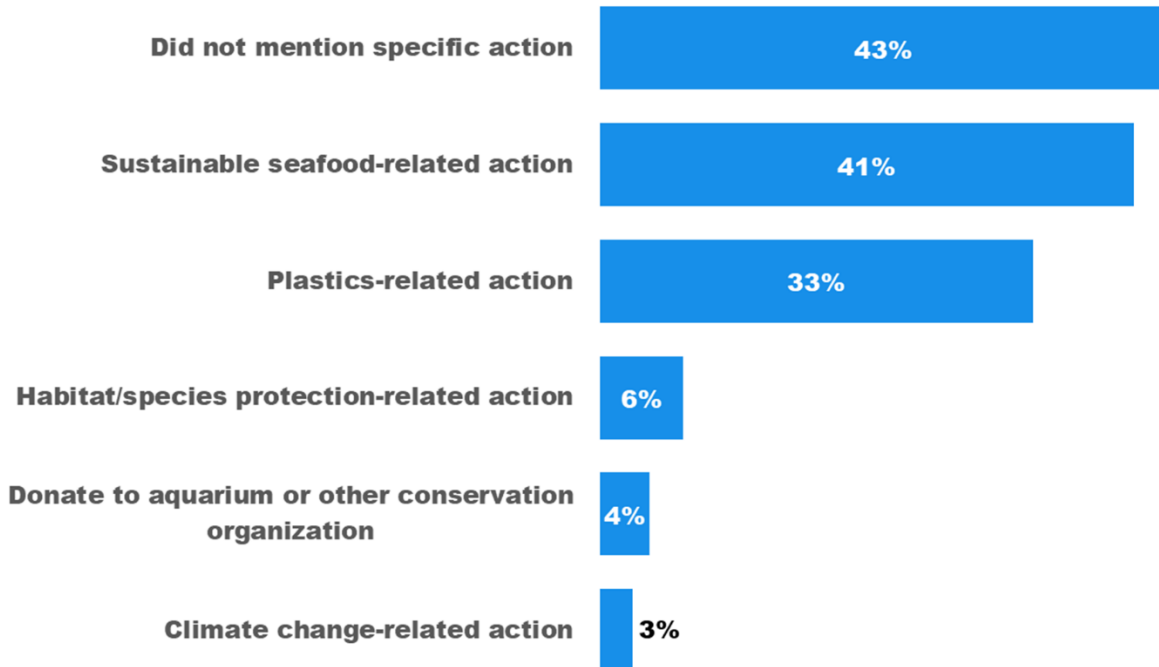
In addition to mentioning the location of where they had heard or seen information about actions they can do to help the environment, a little more than half of visitor groups articulated specific actions that they recalled hearing about. There was some inconsistency in the way this question was asked—some visitors were specifically asked if they could recall specific messages, while others were not. Some also spontaneously articulated messages without being asked.

Among the participant groups that said they did recall seeing or hearing something about actions they could do to help the ocean (n=79), just under 60% articulated specific messages. Not surprisingly given the locations where they recalled hearing these messages, most participants mentioned specific actions related to sustainable seafood and plastics.

SPECIFIC ACTIONS RECALLED

Not surprisingly, based on the locations cited by participant groups, participants were most likely to recall specific actions related to sustainable seafood and plastics.

What specific conservation actions do participants recall seeing or hearing about? (n=79)



(Some participant groups provided more than one response. As a result, percentages don't total 100%.)

Among those participants who mentioned sustainable seafood-related actions, almost all spoke about consumer choices in choosing sustainable seafood or specifically referenced the Seafood Watch card. Only a couple mentioned regulation of fishing practices. Several referenced not eating shark-fin soup specifically.

- “We have the little pamphlets to help us choose what type of fish to eat or not to eat . . . Just don’t buy things you know are being overfished or that are endangered.”
- “One of them was knowing where to get your seafood. You want to shop from places that they’re being mindful of where they’re fishing, where they’re getting their fish from.”
- “I vaguely recall the app that you can download, too, so you can see how your food’s being sourced.”
- “We were listening to a presentation downstairs about the great white shark and how since they’re being over-hunted for the fins we can help by choosing other things other than shark-fin soup.”

For the actions related to plastics, participants were about evenly divided (20% in each group) between those that mentioned recycling or proper disposal of trash and those who mentioned reducing plastic usage (some participant groups mentioned both).

- “Don’t throw your garbage into the sea.”

- “There was that one section where . . . it talks about all the pollution. There’s a big old thing of all the bottles and talked about [where] bottles thrown in the trash ends up. I think the thing that I got is recycle.”
- “Not using straws at all since you don’t really need to use them . . . As far as littering, just to recycle because then it’s not going to a dump or wherever it could somehow end up in the ocean.”
- “Don’t use plastic if you can avoid it. Try to use reusable bags and containers.”
- “Limit use or don’t use single-use plastic.”

Other specific actions mentioned far less frequently included actions related to protecting animals and habitats (e.g., don’t feed wild animals, leash your dogs, don’t step on living animals) and donating to the Aquarium or other conservation organizations. Just a couple of groups mentioned actions related to climate change (e.g., reduce carbon emissions, use renewable energy).

Motivational Experiences at the Aquarium

Finding #9: Certain aspects of the current ocean conservation messaging were seen as effective. The plastic art in Ocean Travelers was appreciated for being visually impactful, while the Seafood Watch card was appreciated for raising awareness of an unfamiliar issue and providing easy and feasible solutions. Participants also mentioned that simply seeing the animals was motivational in making them want to protect them.

Participants were asked if there was anything particularly inspiring or motivating about the conservation messages that they saw at the Aquarium (or if they did not notice any conservation messages, whether there was anything about their experience that they found motivating). There was some variation in how this question was asked, making it somewhat difficult to draw conclusions about which aspects of the experience participants found most inspirational or motivating, but there were some themes that emerged.

Participants mentioned finding the visual impact of the Ocean Travelers plastic artwork to be particularly impactful. Although participants often described the sculptures as beautiful, the visual impact of the large quantity of plastic in one place also elicited strong negative emotions, with participants describing the exhibit as alarming, shocking or daunting.

- “The big exhibit you had that was just filled with all kinds of plastic trash was appalling because it’s all in one place . . . When you see it all in one place it makes a really big impact . . . I think the visual aspect of it was kind of shocking.”
- “Visually seeing the different types of plastics that are found out in the ocean was really . . . alarming . . . Because it was something concrete to visually see the impact.”
- “That recycle sculpture thing was really daunting, ‘cause I know we know that a lot of plastic ends up in the oceans, but actually seeing that big old giant sculpture of all this plastic trash . . . it gives you a new perspective on what that really means.”
- “I think because it’s beautiful, number one, it’s interesting, and it’s enormous. You think I’m just going to throw away one water bottle, it’s not a big deal, but then when you see a bunch of the plastic together and you do more research and see how much is already in the ocean in certain areas, it really makes an impact that we’ve got to be really careful with what we’re doing with our trash and recyclables.”

- “When we saw those sculptures made out of all those plastic waste, that was also pretty inspiring. It’s sad to see it like that, but . . . it’s like a slap in the face that you kind of just see 'cause with how big those sculptures are, that’s a pretty good amount of plastic, and for them to pick up that much plastic to make that sculpture, it kind of shows you this is how much waste is in the ocean.”

Participants commented that the Seafood Watch program and Real Cost Cafe raised their awareness of an unfamiliar issue. They also perceived using the Seafood Watch card as being an action that is fairly simple and straightforward to do.

- “I thought this one was motivating because I eat salmon all the time and it says avoid eating salmon from Canada, Atlantic, Norway and Scotland, but I didn’t think about where the salmon came from or where the stores are getting it.”
- “I rarely eat fish, but now I’m more aware that there are different kinds of fish that are good and bad for the environment.”
- “I think it was a reasonable call to action. It’s something I can do . . . It’s really not a burden at all to select different seafood.”
- “Because I wasn’t aware, so the awareness factor I think was helpful. And it was motivational because it’s pretty simple.”

Participants also commented that simply seeing the animals made them want to work to protect them.

- “I think just being here in general, for me. Not that I saw anything specific, but every time I come to one of these places here, I am always kind of in awe of the species and everything that goes on. I always want to conserve the ocean, or conserve any part of the planet as I can.”
- “Well, every time I come, if you see a jellyfish or a fish, you see how pretty it is, you would wanna try to help it stay that way.”
- “I think just seeing the animals and . . . just how cute they are. I think that inspired me to [think] like, ‘Oh, I should keep a safe and habitable living environment for them, so they can keep living that way.’”
- “Just seeing . . . under the ocean, seeing the fish environment, aquatic environment just kind of reminds you that there’s a world down there.”

Negative Experiences at the Aquarium

Finding #10: The large majority of participants didn’t have any negative responses to the current ocean conservation messaging in the Aquarium. However, a few did mention feeling sad or depressed about the issues facing the ocean, feeling negatively about seeing animals in captivity or feeling that there were insufficient conservation messages.

Participants were also asked whether there was anything they saw or heard related to ocean conservation that they found negative or off-putting. The large majority (85%) said they didn’t experience anything as negative or off-putting. Among the remaining 15%, responses were fairly evenly divided in three categories. A few participants found some of the experiences to be sad or depressing.

- “It was pretty depressing going through, how much waste we generate. I think it’s sad that we’re losing the diversity in the ocean.”
- “I get depressed pretty easily, just knowing how bad it is already.”
- “There’s an exhibit on the other side of the Aquarium . . . that is probably less frequented, which is sort of like the sad exhibit. I mean honestly, I didn’t go there ‘cause I already know about it. And I know my kid just wants to see the fish and stuff.”

A few participants had negative response to seeing animals in captivity.

- “If there’s wildlife that’s not there because it’s being rescued; it’s just an animal that’s been captured to look at . . . I wouldn’t feel great about that.”
- “We saw the great white shark show . . . and, immediately to me, when I saw them being collected at sea and brought into the tank, that was kind of a turn off to me to see that.”
- “I did feel bad. The penguins wanted to escape today . . . I don’t know what happened with them, but they were not in a happy mood, attacking the glass. Poor guys.”

Finally, a few felt that there were insufficient conservation messages in the Aquarium.

- “I’d say doing more of it, making it more visible. Maybe for each exhibit, having something about how to preserve this creature, or threats to this creature.”

Evaluation Question 4: How do visitors respond to potential approaches or messaging for articulating conservation actions? What do they find appealing or attention grabbing? What might they find off-putting?

Response to Potential Messages

Finding #11: Participants felt the “If we don’t do something soon” message was most impactful. It resonated with how they perceive the situation and added a sense of urgency. They also liked the message focused on individual choices. Participants felt the message to support the Aquarium was the least impactful. They felt that donating money was a cop-out and some expressed lack of clarity about how the money would be used. Participants responded negatively to the “success story” message because they felt that it took the responsibility off them and implied that there wasn’t further work that needed to be done. They tended to be skeptical of the accuracy of this message.

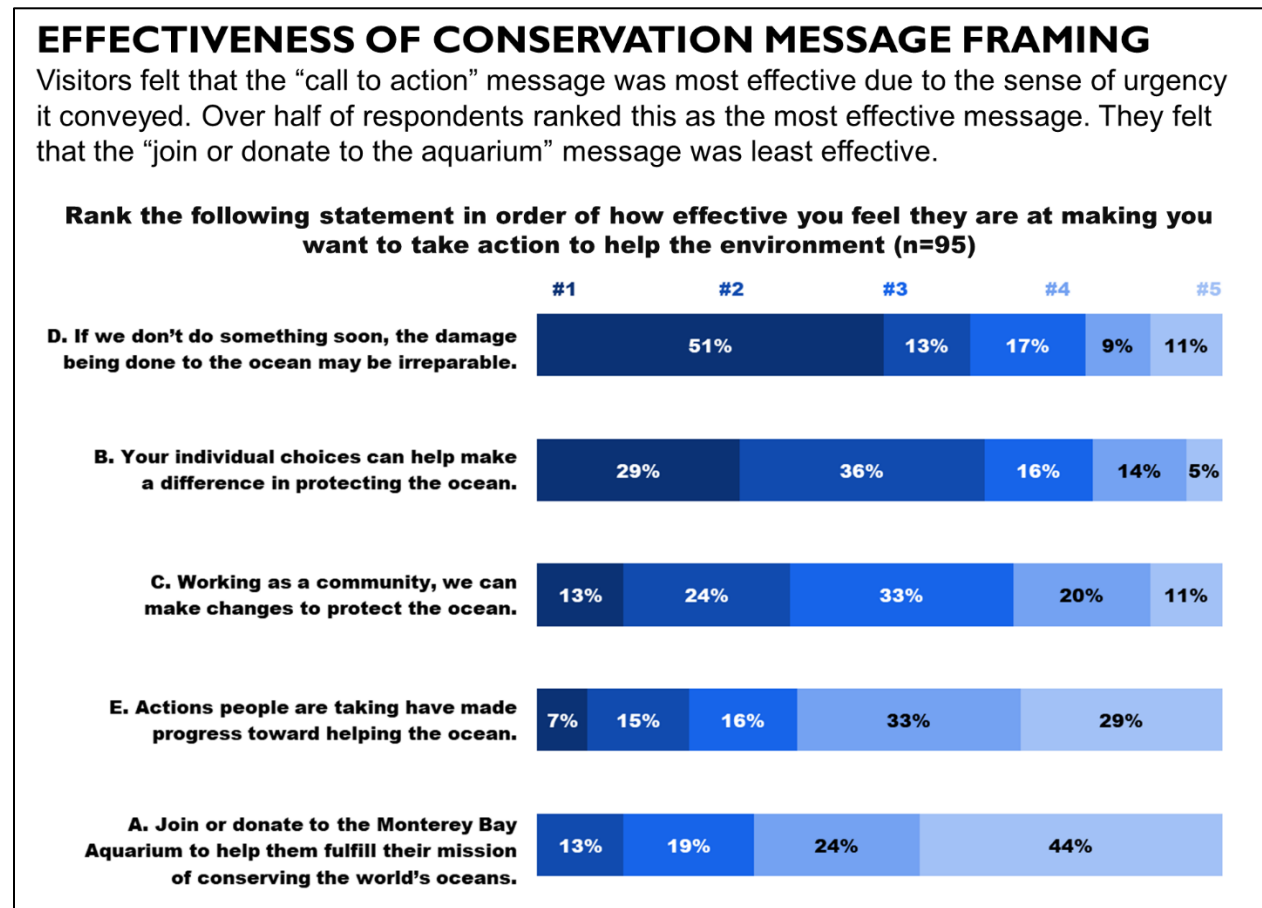
Participants in the concept map activity were also asked to respond to potential messaging frameworks for articulating conservation actions. Participants were presented with five message frameworks and asked to rank them in order of which ones would most likely motivate the participant to want to take action to help the ocean and which ones would be least likely to motivate them (ranked in order of 1 as most motivating to 5 as least motivating). The five frameworks included:

- A. Join or donate to the Monterey Bay Aquarium to help them fulfill their mission of conserving the world’s oceans.
- B. Your individual choices can help make a difference in protecting the ocean.
- C. Working as a community, we can make changes to protect the ocean.
- D. If we don’t do something soon, the damage being done to the ocean may be

irreparable.

E. Actions people are taking have made progress toward helping the ocean.

The following chart shows how participants ranked each of these messages.



Participants felt that Message D, the “if we don’t do something soon . . .” message was the most motivating to make them want to take action. Over one-half of participant groups selected this message as the most motivating message. When reflecting on why this message was motivating, participants commented that it had a sense of urgency that inspired them to take action.

- “It’s a call for action to scare people a little bit.”
- “I feel like it’s the most pressing.”
- “It has a sense of urgency.”

Participants also felt that this message resonated with how they view the situation. That is, they found it believable. Although many described the message as scaring them or inciting fear, most saw this as motivational rather than overwhelming or depressing.

- “It speaks to loss. It speaks to my son not seeing the world as I saw it, which is not the way my father saw it. And it strikes to fear. But mostly, probably, I have thought this to myself already, so it resonates.”
- “I think there’s the most evidence pointing to the statement being true ‘cause you see it every day how so many bad things are happening to the environment.”

- “When you say, ‘We’re so close to the end’ or ‘We’re so close to ruining it all. It’s done. It’s over,’ that hits home. That’s scary. It’s the truth.”

Participants also liked Message B, which focused on individual choices. They felt that this gave them some hope for addressing the threats they saw in Message D.

- “I just think that individual choices, even though it could be very small, but I think together we can make a big difference.”
- “I think a lot of times people think that [environmental] problems are problems that you need a whole big group of people to solve and that you, yourself, aren’t going to make a difference. Like you not using a plastic straw or bringing a reusable coffee mug is going to do something and I think that’s important to be reiterated.”
- “Because it reminds you that you as an individual can do something. Because if everyone does things on an individual basis, then we’re all doing it together in the end.”

As articulated throughout this study, participants also preferred individual-oriented messages to community-oriented messages because they see individual actions as something achievable and within their control.

- “It’s the one thing that I could do right now. I don’t have to wait or anything. There doesn’t have to be a group formed or conservation society. It’s just something you can do as part of your everyday life.”
- “Because I know what I could do on a personal level. I can’t always be responsible or accountable for others and what they choose to do, but I know that me, myself, can always make a difference.”
- “It’s recognizing your autonomy of choice, your freedom, your freedom to choose and that choices have consequences and that a decision you make can make a difference in protecting the ocean.”

Participants felt that joining or donating to the Monterey Bay Aquarium was the least motivating message. Nearly half ranked this as their last choice message and no participant groups ranked it first. Many participants articulated that throwing money at a problem felt like a cop-out, a way to pay lip service to a cause without actually making any personal changes or sacrifices.

- “Some people also might want to just throw money at it and don’t want to actually change anything with themselves. And you don’t get to just pay for something and still throw your plastic bag in the ocean.”
- “I also think that sometimes it’s easier just to give money to a cause, but you can give an organization as much money as possible, but if you don’t change your own habits . . .”
- “I understand there’s value in that, but to me, that’s the easiest way out for an individual, is to kind of feel bad for a moment, write a check, and then disappear.”

There was also a lack of clarity about how the money would be used.

- “We’re actually members, so I believe in it. I’m just not sure exactly what the activities are and how they relate beyond the Aquarium and the Monterey Bay itself.”
- “You don’t always know, unfortunately, nowadays where your money’s going to, what it’s being used for, and who’s using it, so it’s kind of like, yeah I could donate and feel good, but I don’t know the end results.”
- “Maybe be more vocal about what you guys are doing to help.”

Some also mentioned that they weren't local to the area, so they would be more likely to donate to an organization in their local area. Some also mentioned that not all visitors may have the financial means to donate, so it feels less accessible.

Participants were also skeptical of Message E, the success story. They felt that this message was less believable than some of the other messages. It didn't resonate with how they see the situation.

- "People are doing things, but there's not enough for it to make a difference because the damage is being done faster."
- "I don't think many people are taking as much actions as they should . . . I just don't know if people are putting forth that much of an effort."

Interestingly, many participants commented that this message was too vague. Because all the messages were intentionally vague, it's interesting that participants only called this out frequently for this message. This suggests that that visitors may be unaware of environmental success stories and, because that message doesn't resonate with what they believe, they may be more skeptical of it without specific and concrete examples supporting the message.

- "It's not that specific, like it doesn't tell me what actions people are taking, and what kind of progress has been made. It's not that specific, so not as motivating."
- "Maybe this leaves you wondering what progress has been made."
- "It's vague and it's not worded appropriately to encourage someone to help."

Participants also felt like this message made it too easy for visitors to decide not to take action because it suggests further work isn't needed. They felt this message doesn't have a call to action.

- "We're not doing it now, so this one gives people an out. So, if I were to see this as a slogan or a campaign like, 'Hey, action has already made progress,' you have a lot of people out there that would say 'Oh good, then I don't really have to do anything.'"
- "It's making it seem like . . . other people are handling it. It's not addressing that you, yourself, also can have an impact or that can have an effect. It places responsibility elsewhere."
- "If other people are doing it, you'd think that you don't have to contribute if it's already getting done."

Response to Being Asked to Take Action

Finding #12: Many participants were open—and even expected and desired—to learn about how to help the ocean as part of their visit to the Aquarium. However, participants also saw a need to be intentional and careful about how to share these messages in order to make sure that visitors don't feel judged or pressured.

Participants in the card sort activities were asked how they felt about being asked to change their behavior or take action to help the ocean. Many participants welcomed this type of message during their visit. About one-half of respondents had unequivocally positive responses to hearing this message at the Aquarium. These participants indicated that they see it as the Aquarium's role to engage visitors in this way and particularly appreciated that the Aquarium has the opportunity to engage children as the next generation who will face these challenges.

- “If I’m not gonna hear it here, where else will I hear it? This is the place it should be loudest.”
- “You learn it and then it’s passed on . . . Maybe our impact is not as great, but maybe the generation that’s after us might be greater than what we’re doing. It might motivate them to make a change.”
- “I agree that’s important because the Aquarium should be to educate people correctly about the animals that exist and how to preserve them.”
- “The environment stuff is actually almost better than the animals.”
- “I haven’t been to the Aquarium in a long time, and I was actually really kind of happy to see all that stuff about plastic, because I feel like sometimes I see all of that stuff on the internet, and I wonder, ‘How many people is this actually reaching?’ And so, it’s kind of cool that . . . you guys have that here.”
- “I think it’s really hard-hitting when you see all the animals and how they’re beautiful, and then you see the ways we’re kind of threatening their entire existence and it kind of punches you in the gut a little bit. But I think it’s completely effective and I think it should happen.”

There was another about 40% of respondents who felt that this message is appropriate in the Aquarium, but cautioned that a careful approach is needed to ensure that visitors don’t feel judged or pressured.

- “I think as long as it’s not political, I’m totally fine with it. If it starts to sound political or ‘You’re bad if you do this’ then I don’t wanna hear it.”
- “You don’t want to browbeat someone because then they’re going to be offended . . . Use it as education versus in-your-face type thing. Sneak it in subtly.”
- “I appreciate the education about it, I don’t appreciate the preachy-ness about it. I want to see actions that I can do, as opposed to just hearing people preach to me about how I should be doing something different.”
- “You don’t want to just throw it in their face and make them feel bad about it, but you want to engage and use the animals sort of as the ambassadors to go, ‘This is why we do the things we do.’”

Only about 5% of respondents had a somewhat negative reaction to the inclusion of these messages in the Aquarium.

- “I think that could backfire. I think the Aquarium speaks volumes for itself. It brings an appreciation to the wildlife, and I think if you add a little preaching on the guests, it might keep them away.”
- “For me, I just want to come in and enjoy the animals . . . Honestly, if I’m paying like a hundred bucks to come into an Aquarium . . . I want to enjoy it. I’m not trying to say, ‘time out and give me a metal straw.’”
- “It’s not the right environment . . . This is a touristy place where I would say half the people come here just to look at animals. They’re not here to learn about the ocean or anything like that.”

APPENDIX A

Conservation Station Front-End Instrument 1_Card Sort

Hi! My name is _____. Thank you for participating in our study!

Choosing Spokesperson

[If more than one adult is in group] Before we begin, I need one person in the group to serve as the spokesperson. The spokesperson is just who I will be directing my questions to, but they may check in with your group at times. Okay, which one of you would like to be the spokesperson for your group?

Asking to Record Conversation

May I record this conversation? It's faster than taking notes.

[If yes, turn on recorder]

[If no, take detailed notes]

Card Sort 1

[Cards should have been shuffled before recruiting; if you forgot, shuffle them now]

We are going to be doing a few different activities with these cards. I have a set of 12 cards that describe different actions that people can take to help the environment. I'd like you to read the cards and then sort them into three piles:

- Actions you do regularly
- Actions you do occasionally or have done in the past
- Actions you have never done

[Fill in card numbers on the table below]—**VERY IMPORTANT TO RECORD #s**

Actions you do regularly	Actions you do occasionally or have done in the past	Actions you have never done

[IMPORTANT NOTES FOR THE FOLLOW-UP QUESTIONS:

- We are trying to minimize explanation of #12. If the person has **3 or more actions in the "do regularly" pile**, ask them to explain their motivations for 2 actions that are **not #12**. -If they have only 1 or 2 actions they do regularly and #12 is one of them, it is ok for them to explain that one.
- If the visitor has only 1 or no actions they do regularly, ask them about motivations for actions they **do occasionally**. Then, for the barriers questions, ask them to choose from items they never do.]

Thinking about the actions that you do regularly, can you pick one action and tell me about what motivated you to start doing this action?

- [If the visitor is describing an action they do, but not explaining their motivation]
Specifically, can you recall what motivated or inspired you to start doing this action?
- [If the visitor has difficulty recalling a motivation]
What do you think motivates you to continue doing this action?

Action # _____

Can you pick one more action from that same pile and tell me about what motivated you to start doing it? [Use probes above if needed]

Action # _____

Thinking about the actions that you do occasionally or not at all, can you pick **one** action and tell me what gets in the way of you doing that action.

Action # _____

Pick one more action from that pile and tell me what prevents you from doing it.

Action # _____

Card Sort 2

Now, we are going to take this same set of cards and sort it into two different piles.

- Actions that are **easy** to do
- Actions that are **difficult** to do

It doesn't matter whether you do these actions or not, this is just asking you which actions you think would be easy to do and which would be difficult to do.

[Fill in card numbers on the table below]- **VERY IMPORTANT TO RECORD #s**

Easy to do	Difficult to do

For the actions that you indicated are difficult to do, can you pick one and tell me a little bit more about what makes it difficult?

Action # _____

And then can you pick one more and tell me why you think it is difficult?

Action # _____

Card Sort 3

Now, for our last activity with these cards, I'm going to ask you sort them into two piles again. This time the piles are.

- Actions that would have a **large impact** on helping the ocean. This is about the ocean specifically, not just the environment in general.
- Actions that you think would have **less impact** on helping the ocean specifically.

[Fill in card numbers on the table below]- **VERY IMPORTANT TO RECORD #s**

Large impact on helping the ocean	Less impact on helping the ocean

Can you tell me a little bit about why you put the cards in each pile? You don't have to explain each card, but just the big ideas or themes you were thinking about as you organized the cards.

Closing Questions

Thanks. I have just a couple more questions.

1) Some of the actions on these cards represent individual actions that you can do on your own and some represent more community-oriented actions where you would need to engage with a larger community. Which type of action (individual or community) do you think you are more likely to engage in? Why?

- What types of community activities do you participate in (doesn't have to be related to the environment)? What motivates you to engage in those activities?

2) In general, when you are at the aquarium, how do you feel about being asked to change your behavior or take action to help the ocean? Is that something you want to experience at the aquarium or would you rather just look at the animals?

3) Do you have any other thoughts you'd like to share?

[Hand demographic sheet and postcard. Turn off recorder]

APPENDIX B

Conservation Station Front-End Instrument 2_PMM

Hi! My name is _____. Thank you for participating in our study.

[If more than one adult is in group] Before we begin, I need one person in the group to serve as the spokesperson. The spokesperson is just who I will be directing my questions to, but they may check in with your group at times. Okay, which one of you would like to be the spokesperson for your group?

May I record this conversation? It's faster than taking notes.

[If no, take detailed notes]

Concept Map [ALL CONCEPT MAP NOTES SHOULD BE WRITTEN ON THE MAP]

First, we are going to do a quick activity. The purpose of this activity is to understand what people think of when they think about things they can do to help the ocean.

This is not a test and we aren't here to measure your knowledge; we're just trying to understand what is top-of-mind for you when you think about what you can do to help the ocean.

Here is a piece of paper with the words "things I can do to help the ocean" printed in the center. Please take a few moments to jot down any thoughts or ideas that come to mind when you think of things you can do to help the ocean.

You can write down words, phrases, ideas, or questions —basically anything that comes to mind—when you think about things you can do to help the ocean. (Gesture in a circular motion around the page as talking, to demonstrate that visitor can write anywhere on the page, in any fashion.) There are no right or wrong answers. We are just interested in what you think.

GIVE VISITOR A **BLACK** PEN

RESEARCHER USE A **BLUE** PEN

TURN RECORDER ON AFTER THEY FINISH WRITING, BUT BEFORE YOU START THE INTERVIEW

Do you feel finished? Great. I'm just going to make sure I can understand what you've written. (Ask for clarification on any words you cannot read or do not understand. Rewrite those words in blue so they are legible.)

- 1) Great. Now, I'd like us to take a few minutes to talk about what you have written here. Can you pick one of the ideas you wrote about and tell me a little more about what you were thinking?

(Use **blue** pen to write the additional comments from the visitor on the map. Number these comments #1.)

- 2) Great. Is there another idea you could expand on here?
 - [Probe if needed: Can you tell me a little more about what you were thinking when you wrote that one?]

(Use **blue** pen to write the additional comments from the visitor on the map. Number these comments #2.)

- 3) Okay. Let's pick one more idea to expand on.
 - [Probe if needed: Can you tell me a little more about what you were thinking when you wrote that one?]

(Use **blue** pen to write the additional comments from the visitor on the map. Number these comments #3.)

[If drawings are present and not discussed in the previous 3 questions] Can you tell me a little more about what you were thinking when you drew this?

- 4) Now, for the last part of this activity, I'd like you look at the things you wrote down and **circle** those actions that you already do on a regular basis.

Interview

1) Thinking about things happening that are negatively affecting the ocean, which issues are you most concerned about?

- Probe if needed: What do you think are the biggest threats to the ocean?

2) During your visit so far, do you recall seeing or hearing anything about actions that you can take to help the ocean?

Yes No

2b) If yes, what do you recall seeing or hearing?

3) **[If yes]** Of the things that you just mentioned, was there anything that you found particularly motivating or inspirational – something that you feel might inspire you to do something differently in terms of your own behaviors or actions? What was it?

[If no] During your visit today, was there anything you found particularly motivating or inspirational – something that you feel might inspire you to do something differently in terms of your own behaviors or actions? What was it?

3b) **If yes**, why do you think you found that particular experience motivating or inspirational?

4) Was there anything that you saw or heard today regarding ocean conservation that you felt negatively about? Anything that was ineffective or off-putting?

4b) If yes, why do you think you had that response?

5) Look at the following statements and rank them in order of which ones would most likely motivate you to want to take action to help the ocean and which ones would be least likely to motivate you. **Once participant is finished, confirm ranking out loud e.g., “Just so I understand”**

Ranking (1=Most Motivating to 5=Least Motivating)	Message
	A. Join or donate to the Monterey Bay Aquarium to help them fulfill their mission of conserving the world's oceans
	B. Your individual choices can help make a difference in protecting the ocean
	C. Working as a community, we can make changes to protect the ocean.
	D. If we don't do something soon, the damage being done to the ocean may be irreparable.
	E. Actions people are taking have made progress toward helping the ocean.

5b) For the one you selected as your top choice, why did you find that message more motivating?

5c) For the one that you selected as your bottom choice, why did you rank that message last?

6) Do you have any other thoughts you'd like to share?