

FROM CARING TO ACTION

A Unified Framework for Audience Conservation Engagement



January 2021



From Caring to Action: A Unified Framework for Audience Conservation Engagement

The first in a set of two, this report is intended as a brief introduction to principles of effective audience conservation engagement. A companion document, **From Theory to Practice: The CARE Conservation Engagement Roadmap** provides a practical guide to applying the principles to practice.

Written by Emily Routman, Principal, Emily Routman Associates

Graphic Design: Bill Reuter, ReuterDesign; Cristina Basulto, WanderBee Design

Editor: Eileen Campbell, Farallon Media

Expert Advisor: P. Wesley Schultz, Professor of Psychology and Dean of Graduate Studies and Research, California State University, San Marcos

Writing assistance, Roadmap Part 2 (Conservation Engagement Worksheet):
Grayson Ponti, Dallas Zoo

Acknowledgements

The author would like to thank the following individuals for their invaluable contributions to this project.

San Diego Zoo Global

Robin Keith

Drive Action Strategic Initiative teams years 2018 and 2019 (in alphabetical order): Robyn Badger, Jenn Beening, Charlie de la Rosa, Debra Erickson, Victoria Garrison, Jenny Glikman, Kym Harvey, Travis Hughes, Stacey Johnson, Ted Molter, Lisa Peterson, Michelle Pierce, Maggie Reinbold, Adam Ringler, Andy Schucker, Dwight Scott, Jeff Spitko, Bob Wiese, Kelly Wilgus, Joy Wolf, and Karen Worley

Tricia Campanella

The many additional San Diego Zoo Global team members who participated in planning workshops and pilot testing.

Professional Colleagues

The zoo and aquarium professionals and academic researchers across the globe whose work to advance understanding of our impact on our audiences formed the basis for this project.

Cynthia Vernon and Jackie Ogden, thought partners throughout development of these documents and long before, when only a small but committed cadre of professionals recognized conservation psychology as core to our practice.

The many members of the professional community who reviewed and commented on drafts, with special thanks to Ben Jones of Dallas Zoo and Terry O'Connor of Terry O'Connor Consulting for their detailed and thoughtful input.

Dedicated to the memory of Carol Saunders, who knew long ago that the field of psychology offered insights that someday would become the foundation of our success as agents of conservation change.

All photos this document ©San Diego Zoo Global (Roadmap credits listed separately)

©2020 San Diego Zoo Global and Emily Routman Associates

Reproduction of this publication for educational, training, planning, or other non-commercial purposes is permitted provided the source is fully acknowledged.
Reproduction of this publication for resale or other commercial purposes is prohibited without prior written permission of the copyright holder.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION.....	2
THE FRAMEWORK PART 1: FROM TWO PERSPECTIVES TO ONE.....	4
Behavior Is a Balance	4
Environmental Education—Understanding and Inspiration	4
Social Marketing—Targeting Behavior	6
Two Perspectives Coming Together	7
Long Term vs. Short Term	10
THE FRAMEWORK PART 2: ONE SIZE DOES NOT FIT ALL	11
Our Audiences Represent a Spectrum	11
The Right Outcomes for Each Audience	11
Putting It Into Practice	14
THE FRAMEWORK PART 3: VISUALIZING A UNIFIED APPROACH	15
A Visual Model.....	15
OVERVIEW AND APPLICATION	17
Summary of the Principles	17
An Acronym for the Unified Framework: CARE.....	18
Using the Framework.....	19
CONCLUSION	20
REFERENCES CITED.....	21
APPENDIX 1	23
APPENDIX 2	28

EXECUTIVE SUMMARY

A framework for conservation action

This report presents a framework that unifies two different approaches to inspiring conservation among zoo and aquarium visitors: environmental education and targeted behavior change campaigns. It was developed as a tool to help San Diego Zoo Global make decisions about where to focus future efforts at mobilizing audiences. From its inception, it has been seen as a resource to be shared with the zoo and aquarium professional community, with the aim of promoting progress and collaboration.

At the core of the framework is a basic principle of behavioral psychology: that people act based on an interplay of factors that promote a given behavior (*motivation*) and those that oppose it (*barriers*). We can move the needle on conservation attitudes and action by increasing motivation to act and reducing barriers to action.

Motivation and facilitation

Traditionally, zoos and aquariums have taken an environmental education approach, working to increase caring about wildlife, understanding of how nature works, awareness of conservation issues, and knowledge about how to help. All of these increase motivation to take action, working on one side of the behavior equation. To move people to immediate action, social marketing techniques are emerging as valuable additions to our toolkit. In a social marketing approach, a specific audience and action are defined and steps are taken to boost motivation and reduce barriers for those targeted behaviors. The two approaches work in complementary ways. While social marketing is effective in changing behavior, environmental education builds preparedness for action in the long term: It is easier to move people to action if they care about the environment. Together, they offer the tools for a unified approach that considers both immediate calls to action and long-term changes in caring and understanding.

Considering different audiences

Not everyone comes to the zoo with the same level of environmental citizenship. When defining conservation behavior goals and measuring outcomes, it is useful to segment the audience. For people who already care about nature and the environment—a significant percentage of zoo and aquarium audiences—appeals to action are effective and appreciated. For visitors who are only moderately interested, the primary goal is to increase pro-environmental attitudes and encourage repeat visits, setting the stage for incremental change over time. Children and youth are a special audience. Their values are still forming, and we have a chance to influence their choices and attitudes long-term. By building caring connections to nature among our youngest visitors and fostering self-efficacy in older youth, we can lay a foundation for future action.

INTRODUCTION

Awaken a global audience to take personal responsibility for the future of wildlife.

This Key Strategic Goal, adopted by San Diego Zoo Global in 2015, expresses the organization's commitment to move the millions of people the organization reaches each year toward a more caring and sustainable relationship with nature.



In a society that is increasingly disconnected from nature, zoos and aquariums bring people and wildlife together. With audiences numbering in the hundreds of millions globally, zoos and aquariums have come to recognize an unparalleled opportunity—and responsibility—to leverage those relationships for conservation. Early on, we thought that meant telling people about environmental problems and offering a multitude of recommendations for what they should do about them. As it turned out, prodding the public to do the right thing wasn't particularly effective. Now, through decades of experience and study, often working in partnership with academic researchers, we're beginning to get a sense of what does work and to take a more insightful, holistic approach. **With better attention to the nature of human behavior, we're making real progress, learning how we can affect people in meaningful ways to make a difference for the future of wildlife.**

One key to our growing success has been the integration of psychology and social science principles into our programs. People are complicated. They have deeply held beliefs and multifaceted motivations, and they often act in ways that can't be attributed to rational decision-making. Reason does factor into human behavior, but there are many other influences. Learning to recognize and address those influences on behavior is one of the most powerful emerging practices in our profession.

With all the progress we've made, we're gaining traction. Now it's important to develop a common understanding of what we've learned and its implications for our work so we can move forward together with greater confidence and competence. Part of this understanding is to think of the two principle approaches to inspiring conservation—environmental education and targeted behavior change campaigns¹—as components of a whole. There is a growing recognition that the two approaches are complementary and especially powerful when used in tandem.

This report presents a framework that outlines how these two approaches work together and take advantage of our unique relationship with our audiences. It's intended as a concise, accessible guide to findings from a great volume of research and practice into how to engage our audiences. It has been developed as a tool to help San Diego Zoo Global (SDZG) make decisions about where to focus future efforts. We hope that this unifying perspective will also facilitate learning and collaboration across the professional community.

Learning to recognize and address those influences on behavior is one of the most powerful emerging practices in the profession.



THE FRAMEWORK PART 1: FROM TWO PERSPECTIVES TO ONE

Behavior Is a Balance

A core tenet of behavioral psychology is that people's behavior results from a balance between factors that promote an action (*motivation*) and factors that oppose it (*barriers*). What might motivate a person to do something—perhaps a new awareness of how important it is? Once they decide to act, what barriers might stand in their way? Is it inconvenient? Too difficult? Do they forget? Changes in behavior happen when the balance is altered: motivation goes up, barriers go down, or both.

This idea, that behavior represents a balance between motivation and barriers, is key to understanding how environmental education and direct behavior change campaigns complement each other in an integrated approach to moving zoo visitors toward conservation action. Let's look at what zoos have traditionally done, at new approaches that target behavior, and at how both fit into a unified framework.



Environmental Education—Understanding and Inspiration

Zoos and aquariums typically take an *environmental education* approach, with the goal of moving visitors toward a more sustainable relationship with nature and a more caring ethic about wildlife. The components of those pro-environmental attitudes fit into three categories:

- *Affective*, or emotional, including things like loving wildlife or nature, feeling empathy for wildlife, and feeling a personal sense of connection to nature.
- *Cognitive*, or knowledge, e.g., understanding how nature works and the benefits of a healthy environment, being aware of environmental problems, and knowing what individuals can do to help.
- *Behavioral*, or intent to take action.

As we mature as a profession, we're getting better at addressing all of these. We're learning how to create wildlife experiences that have an emotional impact and communication tools that are at once engaging, relatable, and educational. These tools and experiences—exhibits, demonstrations, programs, volunteer carts, educational media, websites, social media, and the like—are known as *interpretation*, defined as the ways an organization connects visitors emotionally and intellectually with its resource in order to advance its mission. Excellence in interpretation is a win-win, because these same experiences are what our audiences come to us for. They make a day at the zoo (or a visit to the website) fun and rewarding—and worth coming back for. That puts us in a remarkable position: **If we excel at our job of connecting people with nature, and do so with attention to both our audiences' interests and our mission, we can inspire conservation action and delight our audiences at the same time.**^{2,3}

Is it working? The evidence is encouraging. Numerous studies have shown that a significant portion of our audiences come away from a visit changed. They may know more about biodiversity, feel more connected to nature^{4,5}, or see conservation issues as more personally relevant. Not all experiences are equal, though. Exhibits and programs that foster empathy have been shown to increase the desire to help, and awe-inspiring animal experiences are associated with a variety of positive effects, from enhanced learning outcomes to greater appreciation for wildlife and willingness to take action.^{6,7,8}



These effects have been measured, for the most part, at the end of a visit or program, or soon thereafter. They fade over time, which brings us back to the importance of making sure to delight our audiences. We have the greatest opportunity to influence them if they come back—and the more frequently, the better.

For all of this to have a conservation benefit it must translate into action, either in the moment or later. Not surprisingly, there's a

correlation between pro-environmental attitudes and environmentally responsible actions such as contacting legislators or planting pollinator-friendly gardens.⁹ The challenge is that studies have not found a strong correlation between environmental education and people taking a particular recommended action.

There's good news. It turns out that under the right circumstances zoos and aquariums can influence behavior. Some people choose sustainable seafood after a visit to an aquarium or make a donation to support field conservation projects after seeing a keeper demonstration of animals in action. What are those “right” circumstances? And how can we move our guests to take action while keeping their experience enjoyable? The answer is, it depends. **There is no one approach that works the same for every audience.** Before looking at how our efforts can and should reach our diverse audiences in a variety of different ways, let's look at another approach to moving people toward conservation action: community-based social marketing.

Awe-inspiring animal experiences are associated with a variety of positive effects, from enhanced learning outcomes to greater appreciation for wildlife and willingness to take action.

Social Marketing—Targeting Behavior

The field of social marketing addresses how to bring about behavior changes that are beneficial to society. Community-based social marketing, or CBSM, is a type of social marketing that targets conservation behaviors and focuses on a group of individuals who share a common connection, such as geographic communities, hotel guests, or zoo visitors.

Just as zoo and aquarium efforts to move people to take action by telling them what to do haven't been very successful, other behavior change campaigns based on information alone (don't litter; use less water) have been shown time and time again to be ineffective. **CBSM outlines a proven process that uses techniques for changing the balance of motivation and barriers in order to encourage a specific behavior in a defined audience.**¹⁰

CBSM offers techniques for increasing motivation for a specific action that are based on individual and social psychology, and don't rely on an intrinsic interest in doing good. These include:

- Getting individuals to express a commitment, for example by making a public pledge or wearing a button.
- Depicting the desired behavior as the norm rather than the exception, e.g. "Our guests tell us they would like to save energy by re-using their towels" as opposed to "If you would like to save energy by re-using your towel..."
- Using a credible, trusted spokesperson.
- Encouraging a conservation self-identity, e.g. reminding people of something environmentally responsible they've done recently.
- Using positive messaging such as encouragement and praise, including statements about cumulative impact.
- Introducing tangible benefits such as rebates, incentives, or performance-based competition prizes.

But even among motivated people, barriers can get in the way. As with motivation, removing barriers and facilitating action may require addressing intrinsic psychological considerations. For zoo visitors, top barriers include not knowing what they can do and not believing that their individual actions matter.¹¹

- When lack of awareness is a barrier, information—presented in an accessible, memorable way—is part of the solution.
- Showing the impact of collective action and telling stories of successes can fend off feelings of futility.
- People may lack confidence or skills, in which case online resources or programs that provide training can offer the needed boost in self-efficacy.
- When remembering is a challenge, prompts at the point of action help, e.g. a "pack reusable bags" car window stat.
- When an action is not naturally enjoyable, it can be incorporated into an entertaining event or program.

It's also essential to identify and address external factors. How can an action be made easier, more convenient, or more affordable? For example, to encourage composting, some cities distribute free composting bins. Beach clean-up events turn what could be a dreary task into a fun family outing. Fishing line recycling bins make it easier for anglers to discard used fishing line responsibly.

The specific motivation and facilitation techniques will depend on the audience and the action. **Developing an approach begins with performing the necessary research to determine what will motivate the audience, as well as what the barriers are and how to mitigate them.**

Two Perspectives Coming Together

The two methods are not mutually exclusive; in fact, they form a natural, complementary pairing. Here's how it all comes together.

First, consider the two sides of the behavior change model and social marketing: increasing motivation and reducing barriers. The kinds of experiences zoos and aquariums offer are tailor-made to increase feelings of connection to wildlife and understanding of conservation issues, both of which contribute to motivation to take action. **For conservation-related behaviors, a pro-environmental attitude is a major component of motivation.** It's not the only one—there are also social factors and practical things like possible material gain—but it's a big one. *The big one.*

Of course, we have an asset that most social marketing campaigns don't have: our animals. When we connect people with animals in ways that arouse emotions and foster empathy, we can increase their interest in making a difference for wildlife.¹¹ In addition, our audiences like us, trust us, and see us as reliable sources of information about wildlife and conservation.² Our staff and volunteers serve that role of credible, trusted spokesperson, and personal interactions with our guests significantly increase the conservation-related outcomes of a visit¹³. It's a powerful combination, setting the stage for real results.

We can add to this mix social marketing techniques that address motivation—most of which are a natural fit for zoos and aquariums. Persuasive communication tools including social norms, using a trusted messenger, keeping messaging positive and encouraging, and eliciting public pledges are all excellent approaches for conservation interpretation.

Likewise, there are things zoos and aquariums can easily do to tackle barriers to action—the other essential component of a social marketing approach. Table 1 (following page) provides examples of how zoos and aquariums can use interpretive experiences and social marketing techniques to address some of the most common types of motivating factors and barriers. Well-crafted interpretive programs and media can fill in knowledge gaps, raising awareness of an issue and providing clear guidance for what actions to take. Fun family workshops can build requisite confidence and skills, and web pages can offer instructions and links to resources. Some barriers, however, will be more difficult to diagnose and resolve, which means that fully integrating social marketing requires venturing into new territory and committing resources to a more involved effort.

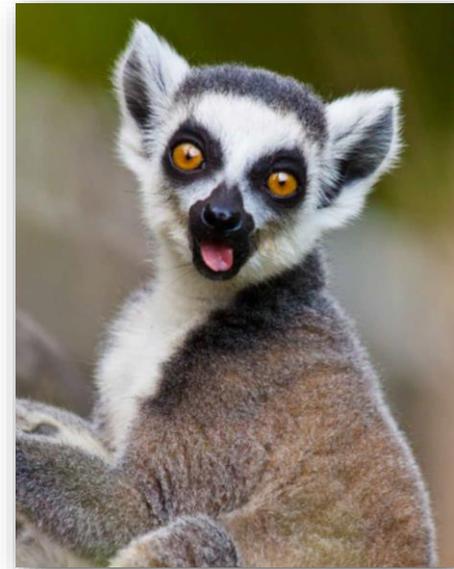


TABLE 1 To move audiences toward action, increase motivation (*motivate*) and reduce barriers (*facilitate*). These charts describe some of those motivating factors and barriers from the perspective of the individual, along with zoo/aquarium techniques for addressing them.

MOTIVATE (INCREASE INTENT)	
FACTOR	TECHNIQUE
INTRINSIC/PERSONAL: I think it's the right thing to do	
Caring: <i>I feel a connection to nature or wildlife; I feel affection</i>	Exhibit experiences, programs, and media that increase connection, appreciation and empathy
Understanding: <i>I understand the value of nature; I understand how this affects me; I understand the problem</i>	Accessible, relatable, and memorable information through exhibits, programs, and media
Optimism: <i>I can make a difference</i>	Encouragement; cumulative impact; positive feedback; highlight successful examples
INTRINSIC/SOCIAL: It's what others expect of me	
Belonging: <i>People like me do it</i>	Positive social norms
Social persuasion: <i>Someone I admire convinced me</i>	Trusted and admired spokesperson
Consistency: <i>I said I would do it; it's the kind of thing I do</i>	Durable public pledges; refer to previous action; small ask leading to larger
Acknowledgement: <i>Someone I respect appreciates it</i>	Recognition or public acknowledgement
EXTRINSIC: I get something out of it	
Incentives: <i>I get something I value</i>	Rewards, e.g. coupons; discounts; points toward a prize
Competition: <i>I want to win or get a high score</i>	Competitions; gamification
Entertainment: <i>It's fun</i>	Entertaining games, events or programs
FACILITATE (REDUCE BARRIERS)	
BARRIER	TECHNIQUE
INTRINSIC/PERSONAL: Am I able to do it?	
Knowledge: <i>I didn't know about the problem/ what I can do</i>	Describe a specific action and how it helps alleviate a problem
Self-efficacy: <i>I don't have confidence that I can do it</i>	Depict role models succeeding; provide training and practice (e.g. programs w/conservation action component); provide tools (e.g. app)
Ability: <i>I don't know how</i>	Resources; training; practice; tools; app; action kiosk (e.g. send a message to a legislator)
Immediacy: <i>I forget about it</i>	Prompts (e.g. stickers); email reminders
Perceived impact: <i>I don't think it makes a difference</i>	Describe cumulative impact; express partnership (we can do this together)
Avoidance: <i>It's depressing; I don't want to think about it</i>	Encouragement; examples of successes; emphasize solutions
INTRINSIC/SOCIAL: Will I fit in?	
Behavior norm: <i>It's not for people like me</i>	Positive social norms; role models
EXTRINSIC: How difficult is it?	
Ability: <i>It's not possible</i>	Address contextual factors, e.g. availability of a sustainable product
Convenience: <i>It takes too much time and effort</i>	Make it easy/fun; do it with them; provide opportunity to act during visit

Monterey Bay Aquarium's Seafood Watch sustainable seafood program is an example of how these two approaches can come together. The Aquarium brings people into contact with ocean environments and species in a way that forges an emotional connection. Visitors see a bluefin tuna bulleting through the water and never again think of it as just sushi. Nearby exhibits and programs convey that seafood consumption is a major threat to tuna and other ocean species. The hard part for someone who cares and wants to make the right choices is how to know what those right choices are. To overcome that barrier The Aquarium created the Seafood Watch pocket guide and mobile app. **Not only do people use these resources, but in doing so they put pressure on seafood purveyors to provide sustainable seafood.** Ultimately, that has made it possible for the Aquarium to advocate successfully for changes up the supply chain, starting with restaurants and reaching all the way to international fisheries and aquaculture practices.¹⁴

Zoos Victoria in Australia has also been proving the value of blending environmental education with social marketing, applying a model they call Connect-Understand-Act. In an ongoing series of conservation action campaigns, they have demonstrated the value of combining compelling experiences with ambassador species with engaging and clear messaging and social marketing techniques. Convincing visitors to recycle cellphones, switch to recycled toilet paper, and replace party balloons with bubbles, they've had numerous measurable successes. They've become experts at targeting a specific audience and a single action that has meaningful conservation impact, crafting memorable and fun learning experiences, using motivating techniques such as social norms and pledges, and removing barriers to action.^{15,16}

As agents of change in conservation attitudes, knowledge and behavior, zoos and aquariums are in a remarkable position because much of our audience already cares about nature. Most of our visitors look to us for information about conservation and appreciate learning what they can do.² We must offer it in a way that's not pushy or alarming but instead helpful and encouraging, and of course it must be enjoyable, since that's what attracts our audiences. While many of our visitors want to learn or want their children to develop an appreciation for wildlife, above all they want to spend time in a way that is fun and personally rewarding.

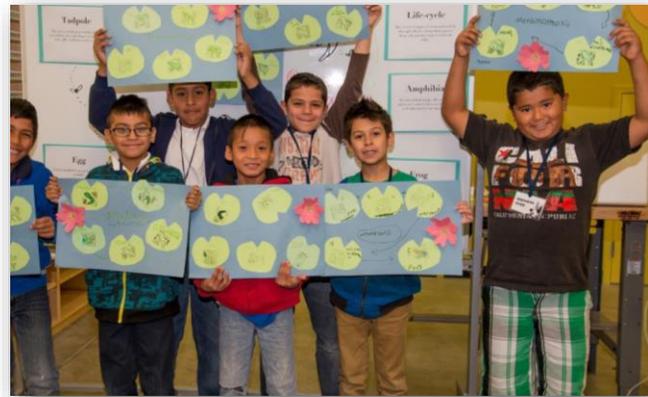
As agents of conservation change, zoos and aquariums are in a remarkable position because much of our audience already cares about nature.

Long Term vs. Short Term

Environmental education and social marketing work on different timeframes. **The first aims to change the person, with potentially long-term effects, while the second focuses on the behavior, with a more immediate conservation benefit.** Environmental education builds the caring, understanding and awareness that make a person more likely to make environmentally responsible decisions or to take action when the circumstances are right. The effects are incremental and dependent on multiple engagements to be of significant magnitude, but they can last a lifetime and have broad impacts on a person's choices. Social marketing sets up the circumstances that translate that intent to action.

Do zoos and aquariums foster the type of long-term change environmental education promotes? Studies confirm short-term effects, and theory supports the notion that some of this change may be cumulative and lasting. Long-term effects are hard to measure, however, and evidence is mostly in the form of correlation. Over a long span of time many different influences come into play and it can be difficult, some say impossible, to tease apart what causes specific outcomes. As a result, there is still some debate about the value of zoo environmental education to conservation. Either it is an essential underpinning because of its contributions to creating a sustainable society, or it is merely a sidebar, with effects that are too diffuse and slow to be of value in the face of immediate and critical challenges. This is considered by many to be one of the most important areas of research into the conservation value of zoos and aquariums.⁸

Social marketing, on the other hand, is a reliable approach for changing behavior. When there is an urgent need for action, it offers tools that work. As a short-term tactic it can be very



effective, but it doesn't necessarily have a lasting effect on an individual's values and knowledge.

Which is more valuable? Clearly there is a need for both. **There is an emerging understanding, just beginning to be represented in practice, that the two approaches work extremely well together.** Already, there have been many promising successes, several of which are detailed in the Appendix to this report. The results have been impressive, and as an unexpected bonus, have in most cases resulted in an increase in overall visitor satisfaction, with the majority of participants reporting greater appreciation for the organization and enjoyment of their visit.¹⁸ There is no longer any question that we can move people to action while at the same time fostering an environmental ethic—all in the course of providing entertainment and educational experiences—and that our audiences appreciate us even more as a result.

THE FRAMEWORK PART 2: ONE SIZE DOES NOT FIT ALL

Our Audiences Represent a Spectrum

We can now say that we have the tools to move our visitors to action, but at the same time we have to accept that not every visitor is going to take that step. Our audiences run the spectrum of interest in wildlife and caring for the environment, from passionate to disinterested. **How people process experiences and information is strongly influenced by their starting beliefs and values, so individual members of our audience will be affected in very different ways by the same experiences.**

Should we ignore those who are less interested, since we're not likely to change their behavior? What about young children, who aren't in a position to vote or to drive the market for sustainable products? Of course not. We can work to increase all the elements of motivation—*affective, cognitive, and behavioral*—and count that as a partial success. In fact, that's what environmental education has always focused on. Remember that for conservation action, pro-environmental attitudes are the main element of motivation, and motivation is one side of the behavior equation. It's much easier to get a person with a high level of appreciation for nature to make environmentally responsible choices¹⁸. And for children, developing a love for animals and an affinity for nature can be the beginning of a lifetime of curiosity, interest, and learning¹⁹. Some zoos and aquariums consider this our primary goal, and devote most of their educational resources to it. With our animals and our expertise, it's a role zoos and aquariums are perfectly suited for—more so than any other type of conservation organization.

If we keep this range of starting conditions in mind when constructing our conservation engagement goals and approaches, we'll not only be more successful but also will have a clearer understanding of the results (Table 2, following page). Segmenting

audiences makes it possible to target outcomes that are appropriate for each group, and also increases our ability to detect changes that occur only in some subsets of our audience.^{2,21,22}

The Right Outcomes for Each Audience

Highly motivated: *Facilitate action*

Consider our highly-motivated audience, people who already care deeply about wildlife and nature. They're a significant percentage of our visitors. For that group, if we tried to measure success in terms of a stronger environmental ethic, we'd have trouble detecting a difference. They already want to do the right thing. They appreciate our guidance and assistance, so build those into your strategy and look for an action outcome. At the very least, aim for an increased intent to do something specific—for example, to avoid unsustainably-sourced palm oil. Although harder to track, a more reliable measure of conservation benefit is to determine if they take action, for example change their purchasing habits or encourage local stores to stock environmentally-friendly products.

To get people to take that next step may require addressing barriers for a particular action. Before advocating for a behavior, it's important to identify the barriers—which takes research—and then devise ways to reduce or eliminate them. If that's not possible, it's not the right behavior to target. If you want visitors to choose FSC-certified lumber, make sure it's available. If it's not, you could instead prompt visitors to contact their lumber supplier to let them know they want FSC-certified wood. And find ways to help them do it, for example by setting up an email kiosk that sends a pre-loaded message on their behalf.

TABLE 2 Segmenting audiences makes it possible to define specific outcomes that are appropriate for each group. Bold outlines indicate primary target outcomes.

	AUDIENCES	OUTCOMES		
		Increased motivation	Increased intent	Action
FACILITATE	HIGH intrinsic motivation <i>Pro-environmental attitudes. Well represented in z/a audience.</i>	NO <i>Already at or close to maximum, so won't see a measurable change. If included in sample, reduces ability to detect changes in less motivated audiences.</i>	YES <i>Increase awareness and self-efficacy; look for increases in intent. Correlates to action, but not a strong predictor.</i>	YES <i>Top priority outcome. Audience is amenable. Identify and address barriers. Enhance motivation with pledges, recognition, etc. Provide easy on-site opportunities, and tools for post-visit action.</i>
MOTIVATE	MODERATE intrinsic motivation <i>Most likely outcomes are not end-state; some controversy about value</i>	Short-term, during and immediately after visit YES	YES <i>During visit</i>	MAYBE <i>Not requiring high motivation level; incorporated into fun program or activity; take advantage of temporary spike in connectedness/caring</i> <i>Long-term, from single interaction NO</i>
		Long-term, over multiple interactions (e.g. visits) YES	Long-term, over multiple interactions (e.g. visits) YES	
		Long-term, single interaction NO	Long-term, single interaction NO	
ACCOMMODATE	LOW intrinsic motivation <i>Not connected with nature; don't value nature</i>	MAYBE <i>Look for small increase in connectedness and caring. Focus primarily on motivating them to return, increasing potential impact.</i>	NO	NO <i>Incentives and competitions work for this group, but not good fit for z/a</i>
CULTIVATE	CHILDREN <i>Early developmental stage; potential to influence family</i>	YES <i>Top priority outcome. Build empathy, understanding of value of nature, and connectedness</i>	YES <i>Also look for increase in interest/curiosity; return visits; repeated participation; increased level of connection to organization</i>	YES <i>Especially as part of programs or on-site experiences. Develops conservation self-efficacy and self-identity. Provide positive reinforcement, e.g. rewards (sticker; pin; coupon) and recognition.</i>

Moderately motivated: Increase motivation

In marketing lingo, this group has been called the “Moveable Middle.” This audience is made up of people who like animals or nature but aren’t particularly passionate or concerned. They are receptive to learning experiences that fit their immediate goals; for example, that spark fun social interactions with friends or family. They also respond emotionally to stirring experiences—seeing exciting animals in action or looking into the eyes of an animal that’s just a few inches away. In the course of a fun and stimulating visit they may be moved to take simple actions, such as signing a postcard to encourage a company to sell sustainable products. However, a single visit won’t result in dramatic change and the effects fade over time, so attracting them back and getting them more involved is one of your targets. If you can turn these audiences into loyal repeat visitors, or members, or induce parents to sign kids up for more extensive programs, you magnify your potential to impact this group. Over time, they may form increasingly strong pro-environmental attitudes, and possibly even move into the more highly motivated group.

Unmotivated: Accommodate their interests

How about our least motivated audience, people who aren’t particularly interested in wildlife or nature at all, and go to the zoo or aquarium just for a recreational experience? It may not be realistic to expect measurable changes in conservation-related motivation or behavior in this group. Although a few may feel a glimmer of interest that wasn’t there before, these visitors are the least likely to come away with a significant change in attitudes or understanding^{21,22}. The best outcome might be to make the visit so enjoyable that they become repeat visitors, in which case there may be a chance to increase motivation over successive visits. Whatever the personal outcome, they still contribute to your mission with their admission fees, purchases, and coins they put in your cleverly-designed donation devices, which help make the rest of your conservation work possible.

Children and youth: Cultivate environmental citizens

Children represent a special audience because they’re early in their development. We have the potential to have a real impact on their affections, values, and self-identity. And we offer rich opportunities that meet their needs through the stages of their lives, from shared family experiences like zoo visits and weekend workshops, to pre-school classes, summer camp, and for teens, volunteer opportunities and internships. At each stage, and in particular through extended involvement, we can build the foundation of a caring ethic, a conservation self-identity, and confidence that they can make a difference. For young children this means loving animals, becoming curious to learn more, and enjoying being out in nature. Older children begin to understand how the natural world works and discover that they can help wildlife and the environment. Teens can learn how to tackle environmental problems with creativity, confidence, and teamwork—skills that will serve them throughout their lives. As a bonus, children and youth carry these attitudes home and may influence their families.



Putting It Into Practice

To make use of the knowledge that our audiences' environmental values affect what they take away from their experiences, it's essential to invest in audience research. For programs requiring enrollment, that can be as simple as including a few survey questions with registration. Do participants support any other conservation organizations? Enjoy spending time in nature? Care about conservation issues? When you know something about your audience's interests in advance, you can adjust your messaging, experiences, and goals accordingly.

For evaluation studies conducted after a program or visit, including questions that are indicators of environmental values makes it possible to understand the conservation impact of a visit with more precision. In a study combining tracking-and-timing observations with post-visit surveys, Monterey Bay Aquarium found that visitors with stronger environmental values spent more time at conservation-themed exhibits, and not surprisingly, learned more about conservation.¹³ Studies at SeaWorld Parks and Entertainment theme parks revealed that their more environmentally oriented guests came away with a better understanding of specific conservation issues, while those who were there mainly for the rides didn't learn much but reported a slight increase in empathy toward animals. The findings helped the organization plan a new penguin exhibit, with elements targeted to each segment of their audiences.²²

Studies of representative samples of audience segments can provide valuable baseline information. Brookfield Zoo, for example, found that their members were more conservation minded than nonmember visitors.²¹ With an understanding of these audience segments at your institution, you can better tailor your conservation communications and goals for members

versus the general public. And by combining metrics about environmental attitudes of audience subsets with attendance data, you can get a rough idea of the conservation-relevant make-up of visitors at any given time. Imagine if weekday mornings during the school year bring a high percentage of adult members with preschool children, while summer weekday crowds are mostly non-member tourists coming as families. With survey research you can find out if one of these types of visitor is more interested in helping wildlife than the other, and offer more in-depth conservation learning activities when the more receptive audience is there.

As recreational and educational organizations that serve a wide range of audiences, we know that our success depends on creating experiences that everyone can enjoy. That serves our conservation mission as well because it increases our chances to reach everyone in some way—while recognizing that results will vary. **The better we understand our audiences, the better we can plan effective experiences, measure outcomes, and determine how and when to invest our conservation engagement resources.**

To make use of the knowledge that our audiences' environmental values affect what they take away from their experiences, it's essential to invest in audience research.

THE FRAMEWORK PART 3: VISUALIZING A UNIFIED APPROACH

A Visual Model

A helpful way to visualize the relationship between motivation and facilitation is to think of water in a reservoir, where the water represents motivation, the dam represents barriers, and water flowing over the dam represents action¹⁹. To promote action, increase the water level (motivation), reduce the height of the dam (barriers), or both (Figure 1). The construct provides a mental model that makes the dual nature of influences on behavior easy to grasp. It can be used as an aid in communicating conservation engagement concepts or plans, or as a visual hook for prompting and capturing ideas in planning sessions.

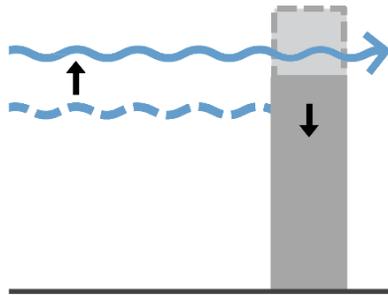


FIGURE 1

Behavior change can be visualized as water flowing over a dam, triggered by an increase in the water level (motivation), a decrease in the height of the dam (barriers), or a combination.

Figure 2 uses this metaphor to show the combined effects of environmental education and social marketing techniques in the unified framework.

- Environmental education-based practices build motivation by cultivating feelings of connection to nature and an understanding of our relationship to the natural world.
- Social marketing techniques nudge motivation up another notch, increasing enthusiasm and commitment enough that some will take action.
- The most successful behavior change campaigns also lower barriers to action, both psychological and practical.

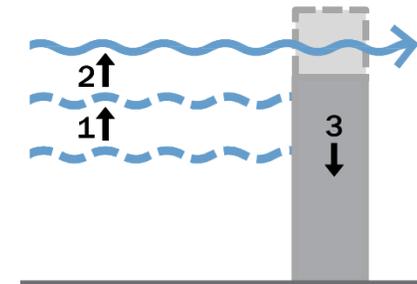


FIGURE 2

The combined effects of environmental education (1) and social marketing (2 and 3).

The metaphor can be used to schematically illustrate approaches and outcomes for specific issues and audiences. Figure 3 is an example of a scenario for moving a highly motivated audience to take action when the behavior is easy and doesn't require facilitation, for example bringing reusable bags when shopping.

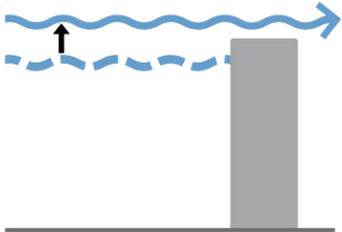
Audience: Highly motivated (strongly pro-environmental attitudes)	
Condition	Barrier is low
Goal	Action
Approach	Increase motivation specifically relevant to the action
Techniques (examples)	Frame the action as the social norm Have guests make a pledge

FIGURE 3

An example of a scenario for moving highly motivated audiences to action when barriers to the specific action are low.



Appendix 2 provides additional sample diagrams for a range of approaches and outcomes for all three principal audience groups: highly motivated (pro-environmental), moderately motivated, and children/youth. Each scenario gives an overall goal, describes a general approach and provides examples of techniques.

OVERVIEW AND APPLICATION

Summary of the Principles

The elements of the framework can be summarized with the following concepts.

Principle 1 Behavior can be understood as the result of a balance between factors that promote a behavior and those that oppose it (*motivation* and *barriers*, respectively). **Both sides of the equation should be kept in mind when thinking about moving audiences toward a more sustainable relationship with nature.**

- The customary zoo and aquarium approach, based on environmental education, aims to increase caring, understanding, awareness, and intent to act (collectively, *pro-environmental attitudes*). It addresses the motivation side of the equation—an individual's intrinsic interest in protecting the environment.
- Community-based social marketing takes a more direct approach to moving people to action: identify a target audience and a specific action, then take steps to increase motivation (*motivate*) and reduce barriers (*facilitate*).
- The two approaches can be blended into a single framework. For conservation action, pro-environmental attitudes are a significant component of motivation. Social marketing brings into play additional motivators based on human nature, such as social reinforcement and extrinsic rewards, and adds facilitation of action.
- With environmental education having potential long-term effects and social marketing targeting immediate action, they are complementary, and both are important.

- Many social marketing techniques, such as persuasive communication and eliciting commitments, are a natural fit for zoo and aquarium interpretation. Others require developing new competencies and capacity. By adding these practices to their toolkits, zoos and aquariums can become more successful at moving audiences to action.

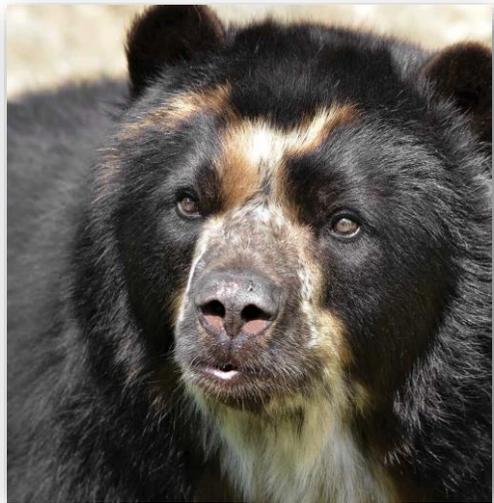
Principle 2 An individual's starting level of motivation is a major variable affecting their response to any potentially influential factor. **When defining conservation behavior goals and measuring outcomes, it is beneficial to segment the audience by the degree to which they have pro-environmental attitudes, rather than expecting the same result from everyone.**

- A significant percentage of zoo and aquarium audiences already care about nature and want to make a difference, and will take action if barriers are removed.
- For those only moderately interested, the primary goals should be to increase pro-environmental attitudes and encourage repeat visits.
- Children and youth are a special audience. They are at an earlier developmental stage where their values are still forming, and they may come back regularly throughout their youth or get involved in extensive programs. In addition to being affected personally, they have the potential to influence their families.

An Acronym for the Unified Framework: CARE

The acronym **CARE** captures the key engagement elements of the unified framework. C, A and R represent the combination of environmental education and social marketing, and E introduces a strategic consideration.

- **C** stands for *cultivate caring*: Use animal experiences and related learning elements to build a conservation ethic based on environmental knowledge and values.
- **A** is for *amplify intent*: Use social marketing-based techniques to bump up enthusiasm for taking action and commitment to follow-through.
- **R** is for *remove barriers*: Facilitate action by identifying and addressing factors that stand in the way.
- **E** stands for *expand impact*: Whatever you do to engage your guests, also strategize how you can maximize the conservation value of those efforts (see box).



Expanding Impact

The greatest conservation benefits result from efforts that go beyond effects on individuals in the moment and aim for change at a larger scale.

- *Extend* the duration of impact by establishing a relationship with your audience that helps them to maintain new behaviors over time and encourages them to remain involved, for example by creating an online community offering helpful information, progress updates, and celebrations of successes.
- *Elevate* impact by leveraging individual action for change at higher levels. Instead of just capturing guest comments or equipping them to make sustainable choices, use those guest actions as one element in your advocacy strategy, a tool for motivating legislators and businesses to change.
- *Scale up* impact by multiplying the audience. Engage not just individuals but also groups such as companies, schools, and neighborhoods. Combine forces with partner institutions to share conservation engagement tools and resources and reach a much larger audience.

Using the Framework

The framework was created to make it easier to comprehend the spectrum of opportunities we have for moving the people we reach toward a more sustainable relationship with nature. While the role is core to our mission, it's complicated, and the professional and academic knowledge that is coming together to inform our work is still not widely known. The framework is intended to help everyone start from a common understanding, to benefit internal and external communication and planning.

- As a quick reference, it can be used to orient staff, volunteers, and board members on the value of the work, the thinking behind our approaches to engaging our audiences, and the importance of their own roles.
- For strategic planning, it provides a perspective that can help the organization evaluate options and chart a course for the future. When considering our relationship with our audiences, what are the best opportunities to advance conservation and contribute to the field? How does audience engagement relate to other aspects of the organization's work, such as conservation, research, and marketing?
- In planning specific projects, such as exhibits, educational programs, or organization-wide initiatives, it can help map out effective strategies. What are the project's conservation goals? What audiences will we target, and what are the hoped-for outcomes for each? How will we achieve those outcomes, and how will we measure success?
- For the professional zoo and aquarium community, it could help us get better at talking about—and thinking about—audience conservation engagement as a shared

endeavor. It could augment current efforts to identify priorities for moving our audiences, set a collective research agenda, and define areas of common interest for collaboration.

The framework provides a perspective that can help the organization evaluate options and chart a course for the future.



CONCLUSION

As agents of conservation learning, zoos and aquariums are in a remarkable position. Millions of people come through our gates each year: almost 200 million to AZA institutions and more than 700 million to accredited institutions around the world. **In a society that's increasingly separated from nature, we bring people and wildlife together, fostering emotional connections and opening the door to caring, learning, and action.** The types of experiences we offer to inspire conservation align with our audiences' motivations, whether they come to enjoy a family outing or hope to develop their child's appreciation for animals and nature. And while we attract a diverse cross-section of the public, many of our visitors care about wildlife and nature and appreciate learning from us what they can do to help.

Inspiring conservation is often described in terms of two different approaches.¹ Rather than thinking of them as separate, it is beneficial to recognize how they are intertwined and complementary. This framework provides such a unified perspective. Environmental education develops citizens who care enough and know enough to take action when need aligns with opportunity. However, if we devote our work only to creating caring citizens we will be missing a vital opportunity to mobilize our audiences to take immediate action in support of urgent conservation issues. Even people who care about wildlife and understand the issues will sometimes stop short of taking that next step. With our guidance and help, they are ready to make a difference for wildlife.



REFERENCES CITED

1. Monroe, M. C. (2003). Two avenues for encouraging conservation behaviors. *Human Ecology Review*, Vol 10 (2), 113-125.
2. Falk, J.H., Reinhard, E.M., Vernon, C.L., Bronnenkant, K., Deans, N.L. and Heimlich, J.E. (2007). *Why zoos and aquariums matter: Assessing the impact of a visit*. Silver Spring, MD: Association of Zoos and Aquariums.
3. Fraser, J. and Sickler, J. (2008). Measuring the cultural impact of zoos and aquariums *International Zoo Yearbook 2008*, 1-10
4. Bruni, C. M., Fraser, J., and Schultz, P. W. (2008). The value of zoo experiences for connecting people with nature. *Visitor Studies*, 11(2), 139-150.
5. Schultz, P. W., and Tabanico, J. J. (2007). Self, identity, and the natural environment: Exploring implicit connections with nature. *Journal of Applied Social Psychology*, 37, 1219–1247.
6. Clayton, S., Fraser, J., and Saunders, C. (2009). Zoo experiences: Conversations, connections, and concern for animals. *Zoo Biology* 28, 377–397.
7. Myers, Jr. O.E., Saunders, C.D., and Bexell, S.M. (2009). Fostering empathy with wildlife: Factors affecting free-choice learning for conservation concern and behavior. In *Free-Choice Learning and the Environment*, J.H. Falk, J.E. Heimlich and S. Foutz (Ed). AltaMira Press, Lanham, MD, pp. 39-55.
8. Routman, E., Ogden, J. and Winsten, K. (2010). Visitors, conservation learning, and the design of zoo and aquarium experiences. In *Wild Mammals in Captivity* (2nd ed.) D.G. Kleiman, K.V. Thompson and C.K. Baer (Eds.) Chicago, Illinois: The University of Chicago Press, pp. 137-150.
9. Grajal, A., Luebke, J. F., Fraser, Kelly, L.D., Matiasek, J., Clayton, S., Karazsia, B.T, Saunders, C., Goldman, S.R., Mann, M.E., and Stanoss, R. (2016). The complex relationship between personal sense of connection to animals and self-reported proenvironmental behaviors by zoo visitors. *Conservation Biology*, 31(2), 322-350.
10. McKenzie-Mohr, D. (2013). Fostering sustainable behaviour: An introduction to community-based social marketing. Retrieved from www.cbsm.com.
11. Luebke, J.F., Kelly, L.D., and Grajal, A. (2014). Beyond facts: The role of zoos and aquariums in effectively engaging visitors in environmental solutions. *WAZA Magazine* 15, 27-19.
12. Clayton, S. and Myers, Jr. O.E. (2015). Chapter 3: Managed nature: Zoos, aquariums and public parks. *Conservation Psychology: Understanding and Promoting Human Care for Nature*, pp. 41-59. John Wiley & Sons, West Sussex, UK.
13. Vernon, C.L. and Ferguson, A. (2014). Inspiring ocean conservation: Using visitor research to measure impact. *WAZA Magazine* 15, 31-35
14. Vernon, C.L. (2018). Leveraging individual behavior change for real conservation impact. *Presented at Association of Zoos and Aquariums Annual Conference*, Seattle WA.

REFERENCES CITED (CONTINUED)

15. Lowry, R. (2009). Visitor-based conservation campaigns. *International Zoo Educator* 45, 11-14.
16. Zoos Victoria, Research Theme: Community conservation and visitor engagement. Retrieved from www.zoo.org.au/fighting-extinction/research/research-theme-community-conservation-and-visitor-engagement.
17. Grajal, A., Luebke, J.F. and Kelly, L.D. (2018). Why zoos have animals: Exploring the complex pathway from experiencing animals to pro-environmental behaviors. In *The Ark and Beyond: The Evolution of Zoo and Aquarium Conservation*. B.A. Minteer, J. Maienschein and J. P. Collins (Eds.) Chicago, Illinois: University of Chicago Press, pp. 192-203.
18. The Ocean Project, Advice from the Innovators: A summary of lessons learned in public engagement from year three of the Innovative Solutions Grants + Program. Retrieved from <http://theoceanproject.org/2016/11/advice-from-the-innovators-a-summary-of-lessons-learned-in-public-engagement-from-year-three-of-the-innovative-solutions-grants-program-isg/>.
19. Schultz, P. W. (2014). Strategies for promoting proenvironmental behavior: Lots of tools but few instructions. *European Psychologist*, 19, 107-117.
20. Sobel, D. (1995). *Beyond Ecophobia: Recovering the Heart in Nature Education*. Orion Society, Great Barrington, MA.
21. Luebke, J.F. (2015). Assessing mission performance. Presented at Visitor Studies Association Annual Conference, Indianapolis, IN.
22. Street, W. (2014). Conservation education impact research at SeaWorld Parks. *WAZA Magazine* 15, 36-40.

APPENDIX 1 AUDIENCE ENGAGEMENT EXAMPLES

The following initiatives represent a sampling of zoo and aquarium approaches to moving audiences toward environmentally responsible attitudes and behavior. They were selected because of their relationship to dimensions of the framework* and the amount of detail available in published reports. Several show how environmental education and behavior change approaches work in combination. All had goals aimed at conservation action, increasing pro-environmental attitudes, or both.

**Because few organizations collect data on starting levels of conservation-related motivation in visitors, in most cases it wasn't possible to identify specific audience segments based on this characteristic.*

Monterey Bay Aquarium¹

Seafood Watch (first five years)

Goal: Select sustainably sourced seafood

Audience: Adult visitors with pro-environmental attitudes (self-identified in post-visit surveys)

Approach

- Increase knowledge and motivation relating to sustainable seafood.
- Remove barrier of difficulty of identifying good choices.

Techniques

- *Motivate:* Address sustainable seafood issue with consistent messaging in multiple formats throughout facility, including in Open Ocean feeding presentation, Real Cost Café multimedia exhibit, docent stations, and café menu and signage; Seafood Watch guide handed out at each venue where possible.

- *Motivate:* Emphasis on solutions-based messaging.
- *Facilitate:* Seafood Watch guide to sustainable seafood, in the form of a wallet card. (A mobile app and website were added after this study.)

Outcomes

- Visitors were more knowledgeable about conservation problems associated with the seafood industry.
- Visitors reported feeling inspired to take action.
- Approximately 40% of visitors surveyed either took a card or already had one; in follow-up interviews 76% of respondents reported using it regularly to select sustainable seafood.
- 50% of people who took a card talked to others about sustainable seafood, including their social groups and sellers of seafood (e.g. restaurants, markets).

Other Findings

- Visitors appreciated information about how to help.
- Exposure to the same conservation messages in multiple exhibits or programs, attending feeding presentations, and one-on-one interactions with staff or volunteers increased the likelihood of visitors taking action.
- Follow-up studies revealed that seafood purveyors' lack of knowledge about whether their products were sustainable was a significant barrier to consumers, leading the Aquarium to develop outreach programs for providers.
- Since the inception of the program in 1999, more than 56 million printed copies of the guide have been distributed and the app has been downloaded over 1.8 million times.

Point Defiance Zoo and Aquarium²

Nature recreation-themed Wildlife Theatre show

Goal: Increase participation in outdoor nature activities

Audience: Zoo visitors/families

Approach

- Increase motivation to participate in outdoor nature activities.
- Facilitate action by providing how-to information regarding nature activities and relevant conservation action.

Techniques

- *Motivate:* Wildlife theater animal show: entertaining, uplifting presentation; audience participation; active animals
- *Motivate:* Interactive pre-show presentation with family-friendly conservation messaging
- *Facilitate:* Interpretive staff provided printed resources about nature activities and conservation action after the program and engaged visitors in one-on-one conversations.

Outcomes

- Visitors reported increases in: interest in an outdoor activity, love for animals, and motivation to protect the environment.
- One year later, visitors reported that as a result of the program 56% had participated in an outdoor nature activity and 44% had completed a conservation action described in the program.

Other Findings

- Visitors described overwhelmingly positive emotional responses to the program, including feeling entertained and inspired.
- Materials requested after the program revealed programs and conservation actions visitors were most interested in, which informed future development of the program and the selection of materials made available.

Saint Louis Zoo³

#byetobags

Goal: Increase use of reusable bags instead of plastic bags

Audience: Zoo visitors/families

Approach

- Increase knowledge about impact of plastic pollution on wildlife.
- Increase motivation through a pledge.
- Facilitate use of reusable bags.

Techniques

- *Motivate:* Teen interpreters engaged visitors at tabletop activity.
- *Motivate:* Visitors signed pledges to use reusable bags.
- *Facilitate:* Free reusable bags given to people who pledged.
- *Motivate:* Pledges were also solicited on social media platforms Facebook, Twitter, Tumblr and Instagram, and on website.

Outcomes

- 90% of visitors approached by the teens signed the pledge and provided their email address.
- 1669 reusable bags were given away.
- Use of plastic bags in gift shop went down 9% and sale of reusable bags increased 65%.
- Approximately 3% of people who pledged later shared the pledge through social media, generating additional pledges.

Other Findings

- Visitors were happy to participate and expressed appreciation for being given the opportunity to do something for conservation.
- In hours of work involved, teen interpreters on site were twice as effective in eliciting pledges as social media platforms.
- Largest age group filling out pledges on site was 31-45 years and online was 12-18 years.

Brookfield Zoo⁴

Nature Swap in Hamill Family Play Zoo

Goal: Increase connection to and curiosity about nature

Audience: Children (average age 8.6 years)

Approach

- Provide extrinsic rewards to motivate children and guardians to spend more time exploring and learning about nature.

Techniques

- *Motivate:* Children bring in a found natural object, tell a staff member a story or relay information about the object, and optionally, show a journal entry.
- *Motivate:* Rewarded with points that can be traded for other natural objects.

Outcomes

- Children developed goal-oriented interest in self-directed exploration of nature and in learning about nature.
- Children developed increased attention to natural surroundings.
- Children saw nature and natural objects as exciting and valuable.

Other Findings

- The social aspect of the activity was found to be a significant positive factor, including family members working with children on searching for objects and preparing the object for swapping and interaction with staff in the swap process.
- Some of the positive outcomes relating to appreciation for nature were also reported in adult guardians.
- Intrinsic rewards included feelings such as joy (for receiving rewards) and increased confidence, adding to the positive memories associated with nature exploration.

Monterey Bay Aquarium⁵

Watsonville Area Teens Conserving Habitats (WATCH)

Goal: Develop pro-environmental attitudes and self-efficacy

Audience: High school students

Approach

- Increase understanding of conservation issues and science behind them
- Increase connectedness to nature
- Increase confidence and skills as advocates for conservation

Techniques

- *Motivate and facilitate:* School-year course, as part of which students design and implement a conservation-related, field-based research project
- *Motivate:* In two-week field-based summer program, students learn about the watershed and associated environmental issues
- *Motivate:* \$1,000 scholarship for students who complete the program and enroll in higher education
- *Motivate and facilitate:* Option to participate in an alumni group focusing on conservation activities in the community

Outcomes

- Participants developed a stronger feeling of connection to nature and increased knowledge about conservation and the environment.
- Participants reported increases in communication skills, confidence, and professional skills.
- Alumni more frequently took the environment into consideration in their daily lives, making more responsible decisions in areas such as purchasing, resource use, and waste disposal.
- Alumni reported that family, teachers, and friends come to them for information about the environment and conservation.

Other Findings

- Over half of alumni reported that family and friends were engaging in more environmentally conscious behaviors since the alumni participated in the program.
- The program was well-regarded within the public education and city government sectors of Watsonville, especially in terms of increasing college attendance.

Cincinnati Zoo⁶

Family Community Service

Goal: Engage people in local wildlife conservation projects

Audience: Nature-loving families and adults

Approach

- Facilitate action by making meaningful local conservation projects fun, easy and social.

Techniques

- *Facilitate:* Engage participants in conservation projects such as habitat restoration, building bat boxes and citizen science.
- *Motivate:* Enhance enjoyment: zoo staff work side-by-side with participants; wrap-up celebration at each event; special elements such as live animals.
- *Motivate:* Foster social interaction and a sense of community: encourage conversation and teamwork; take a group photo.
- *Motivate and facilitate:* To foster continued interest: follow-up thank-you; summary of what was accomplished at each event; photos from the event, prizes for hours worked; invitations to future events.

Outcomes

- First year accomplishments included propagating and planting hundreds of native plants, collecting thousands of pounds of trash from local rivers and neighborhoods, and contributing to citizen science projects on frogs, bees and birds.

- Over 90% rated the experience as superior or excellent; close to 90% said they would be interested in participating in future events and would recommend the experience to friends.
- Participants reported enjoyment of the social nature of events, appreciation for the educational value and the opportunity for a shared family experience, and satisfaction in having helped the local environment.

Consortium of Zoos in Australia and New Zealand⁷

Don't Palm Us Off campaign

Goal: Engage public to promote sustainable palm oil

Audience: Adults

Approach

- Increase awareness and motivation.
- Provide tools for action.

Techniques

- *Motivate:* Clear, consistent and action-oriented messaging about palm oil issues in emotionally-engaging animal exhibits and keeper talks and a multimedia-based simulated supermarket.
- *Facilitate:* Tools for contacting companies to urge clear labelling and use of sustainable palm oil (CSPO): petitions; kiosk for sending email; addressed and stamped postcards.
- *Motivate:* Positive framing; identify not just companies to pressure for change but also those to thank for their commitment.
- *Facilitate:* Campaign-branded shopping lists to assist in responsible purchasing.

Outcomes

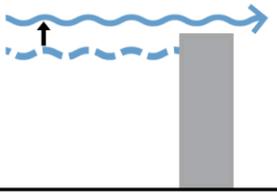
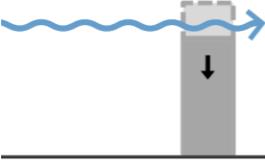
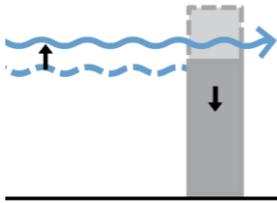
- 163,000 people signed petitions in support of clear labelling.
- Palm oil labelling legislation was passed.

- At Melbourne Zoo, visitors' awareness of palm oil issue rose from 53.4% to 97%.
- 38,000 emails and postcards were sent to companies urging them to commit to using 100% CSPO palm oil.
- Eight companies made commitments to use 100% CSPO.

APPENDIX 1 REFERENCES

1. Quadra Planning Consultants Ltd. And Galiano Institute for Environmental and Social Research (2004) *Seafood Watch Evaluation Summary Report: Monterey Bay Aquarium's Seafood Watch Program*. Prepared for Monterey Bay Aquarium, Monterey CA.
2. Povey, K., and Spaulding, W. (2005) Message design for animal presentations: A new approach. *Presented at American Zoo and Aquarium Association Annual Conference*.
3. ISG+ Final Report: Say #byetobags with the Saint Louis Zoo! Retrieved from <http://theoceanproject.org/2016/09/isg-final-report-say-byetobags-with-the-saint-louis-zoo/>.
4. Price, E.A., Vining, J., and Saunders, C.S. (2009) Intrinsic and extrinsic rewards in a nonformal environmental education program. *Zoo Biology* (28) 361-376.
5. Word Craft (2017) *Monterey Bay Aquarium Teen Alumni Study 2017: Final Report*. Prepared for Monterey Bay Aquarium, Monterey, CA.
6. Bray, S. and Werts, J (2018) Bringing people together to make a positive difference for wildlife in Cincinnati. *Presented at Association of Zoos and Aquariums Annual Conference, Seattle, WA*
7. Dunstan, E., Fairbrother, B., and Van Sluys, M. (2016) Empowering citizens to effect change: A case study of zoo-based community conservation. *Pacific Conservation Biology* 2016 (22) 90-97

APPENDIX 2 AUDIENCE-STRATEGY DIAGRAMS

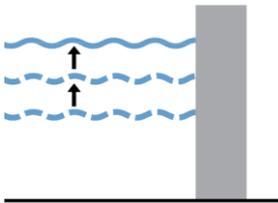
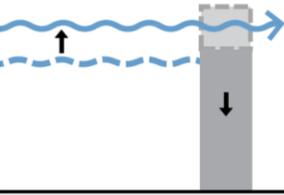
	Scenario 1	Scenario 2	Scenario 3
Highly motivated audience (strongly pro-environmental attitudes)			
Condition	Barrier low	Barrier low	Barrier high
Goal	Action	Action	Action
Approach	Increase motivation specifically relevant to the action	Reduce barrier(s) to taking action	Reduce barrier(s) significantly (may require a few steps) Increase motivation as needed
Techniques (examples)	Describe the benefits of the action Frame the action as the social norm Have guests make a pledge	Raise awareness (when this is main barrier, e.g. plastic straws) Create immediate opportunity, e.g. station to contact legislator or company; donation box or link Provide post-visit tools, e.g. Seafood Watch app; sustainable palm oil app; email citizen science sign-up links	Incorporate conservation action into programs, e.g. build bird houses; Coastal Clean-up Include public pledge and recognition to increase motivation Offer opportunities for community-based action, e.g. schools, neighborhoods

Highly motivated audience

Scenario 1: If the behavior is easy (barriers are low), it may not take much to give guests with a strong environmental ethic a sufficient bump in motivation to move them to action. It could be enough to depict the specific action as the social norm or to have them make a public pledge—or both.

Scenario 2: Another possibility is to further reduce the barrier. The barrier may be lack of awareness: Just knowing, for example, that plastic straws are a significant cause of ocean pollution may be sufficient to prompt many of them to forego straws at restaurants. Make actions that would be difficult for guests to do on their own easier by providing opportunities on site, for example a kiosk for sending a message to policy-makers, or by providing informational resources that can be used after the visit, such as a sustainable seafood app.

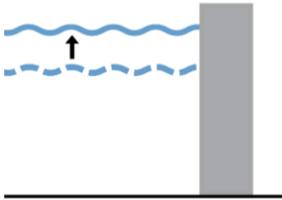
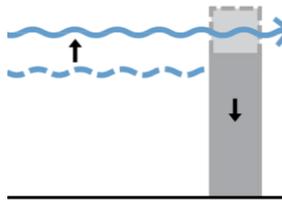
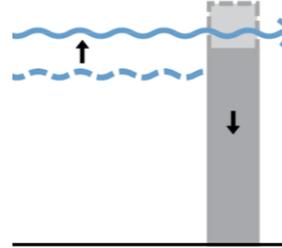
Scenario 3: Under the right circumstances, this group can be asked to take on some challenging actions. It requires careful attention to both motivations and barriers, and may take multiple steps, each with a unique set of motivation and facilitation techniques tailored to the situation. Creating programs for community groups (e.g. schools, neighborhoods) adds a social benefit and support structure that can contribute to success, and maintaining a connection with the audience can sustain momentum and interest.

	Scenario 1	Scenario 2
Moderately Motivated Audience (the “Movable Middle”)		
Condition	Barriers irrelevant (high or unknown)	Barrier low
Goal	Increased motivation (short-term) Extend relationship, e.g. return visits, membership With repeat visits or contacts, incremental motivation increase that builds over time.	Increased motivation Action that is easy and on-site Possible increase in conservation self-identity as a result of taking action
Approach	Increase connectedness, understanding, and awareness Motivate repeat visits or contacts	Increase connectedness, understanding, and awareness Take advantage of the temporary increase in motivation and provide easy opportunities for action
Techniques (examples)	Memorable experiences with animals Perspective-taking/empathy Interactions with staff or volunteers Enjoyable, engaging learning experiences	Memorable experiences with animals Perspective-taking/empathy Interactions with staff or volunteers Enjoyable, engaging learning experiences Donation or other conservation action as part of fun programs

Moderately motivated audience

Scenario 1: For this audience the primary goal is to increase motivation as measured by changes in connectedness, knowledge, awareness, and intent. Excellent interpretation greatly increases the learning outcomes: experiences that connect visitors emotionally with the animals, engaging and memorable programs and media, and personal interactions with staff and volunteers. As the increases will fade over time, it's also valuable to encourage repeat visits, creating the opportunity to increase motivation incrementally.

Scenario 2: For actions with low barriers, this group may be moved to take action on-site during the peak in motivation that results from positive emotional experiences, for example making a donation after a keeper talk.

	Scenario 1: Young Children	Scenario 2: Children and Youth	Scenario 3: Youth
Children and Youth			
Condition	<i>Barriers irrelevant</i>	<i>Barrier low</i>	<i>Barriers high</i>
Goal	Increased affective component of motivation Repeated (ideally long-term) engagement	Increased affective component of motivation Repeated (ideally long-term) engagement Action Development of conservation identity and self-efficacy	Increased motivation Action Development of conservation self-identity Leadership skills
Approach	Build empathy and connectedness	Build empathy and connectedness Reduce barriers	Build connectedness, understanding and self-efficacy
Techniques (examples)	Interaction with animals Perspective-taking Involvement in care Time in nature Arts	Interaction with animals Perspective-taking Involvement in care Time in nature Arts Gamification of action Action as part of program	Meaningful responsibilities and action Leadership development Interaction with animals Involvement in care Time in nature Arts Gamification of action

Children and youth

Scenario 1: For young children, the goal is to increase feelings of empathy and affection for wildlife and connectedness to nature, with a secondary goal of encouraging repeat visits. Interactions with animals, perspective-taking, caring for animals (real or pretend), time in nature and the arts can evoke positive emotions and foster connectedness.

Scenario 2: Older children can begin to understand how the natural world works and develop a sense of themselves as having the potential to help wildlife. To build self-efficacy and a conservation self-identity, engage them in conservation projects as part of activities and programs. They also respond to gamification, earning points, badges or honors for actions.

Scenario 3: As interns, volunteers, or participants in extended programs, teens can take on some real challenges, such as crafting an audience engagement campaign, advocating for policy, or participating in field projects. In doing so they can develop confidence and leadership skills, and come to believe in themselves as being able to make a real contribution to conservation