INTERAGENCY
VISITOR USE MANAGEMENT
COUNCIL

— ESTABLISHED 2011 —

Strategic Behavior Change

Applying Social Marketing To Visitor Use Management

September 2026

Contributing Paper

Prepared for the Interagency Visitor Use Management Council

September 2026

Katie Abrams, PhD, Professor, Department of Journalism and Media Communication, Colorado State University

Kirsten Leong, PhD, Social Scientist, NOAA Pacific Islands Fisheries Science Center; Current affiliation: Department of Natural Resources and Environmental Management, University of Hawai'i at Mānoa; and Nature x Culture

Sara Melena, Public Affairs Specialist, Department of the Interior

CONTENTS

EXECUTIVE SUMMARY **3**

INTRODUCTION **5**

Managing Visitor Behavior on Public Lands and Waters 6

Social Marketing and Conservation Marketing 7

Social Marketing and Visitor Use Management Strategies 7

Role of Human Dimensions and Applied Social Science 9

SOCIAL MARKETING FRAMEWORK **11**

Foundation: Adopt a Visitor-Centered Approach 13

Step 1. Selecting the Behavior and Audience 13

Diagnostic Question 1: What Specifically Do You Want People to Do? 13

Diagnostic Question 2: Who Needs to Do This Behavior? 14

Diagnostic Question 3: What Are the Priority Audience-Behavior Pairings? 16

Case Study: Aquatic Invasive Species 17

Step 2. Identify Behavioral Benefits and Barriers 18

Diagnostic Question 4: What Benefit Will Visitors Gain from Adopting the Desired Behavior? 19

Diagnostic Question 5: What Prevents Visitors from Adopting the Desired Behavior? 20

Case Study: Reef Safe Sun Protection 22

Step 3: Develop the Strategy 23

Diagnostic Question 6: What Strategies Will Influence the Behaviors? 25

Case Study: Promoting Respectful and Sustainable Sea Turtle Viewing 29

Step 4. Pilot and Step 5. Implement and Evaluate 31

Diagnostic Question 7: How Will Success be Measured? 31

Case Study: Keep it Crumb Clean and Changes in Population of an Endangered Species 33

CONCLUSION **35**

REFERENCES **37**

APPENDIX A: RESOURCES FOR BEHAVIOR CHANGE STRATEGIES **43**

This page intentionally left blank.

EXECUTIVE SUMMARY

Each year, millions of people visit and recreate on public lands and waters. Though visitors come seeking positive experiences, their interactions with natural and cultural resources sometimes result in unintended negative impacts. From wildlife selfies gone wrong to trampled meadows, littering, vandalized cultural sites, or dogs off leash, the volume and type of visitor use can harm the very resources people seek to experience. Concurrently, managers face an intricate puzzle: how to balance visitor experience with resource protection. Engineering (physical site design), information and education, and regulations and enforcement represent the broad categories of actions managers can take to modify visitor behavior within the context of the Visitor Use Management Framework. However, these categories have inherent limitations. Engineering can be costly, education depends on highly motivated individuals willing to learn, and enforcement requires substantial staffing to compel compliance. A more sophisticated understanding of human behavior — drawing from psychology, marketing, and social sciences — offers promising new approaches toward a more comprehensive set of management tools.

Behavior change experts encourage incorporating approaches that consider how subconscious decision making is influenced by choice presentation, cognitive biases, emotions, social networks, and other largely automatic processes that affect behavior. Social marketing applies behavioral insights to shape strategies that support meaningful visitor experiences on public lands and waters in exchange for enhanced visitor stewardship. These strategies influence behavior by removing barriers, while increasing motivation to do the desired behaviors. Social marketing is the best return on investment when people like the idea of a behavior but need help to do it (Lee 2018).

Public health agencies have long employed social marketing to encourage people to stop smoking, improve heart health, and increase vaccination rates. The sustainability community applies it to encourage recycling, conserve water and energy, and increase the use of alternate transportation. More recently, social marketing strategies have been applied successfully to resource management challenges on public lands and waters through initiatives that influence safe wildlife viewing distances, proper food storage, and prevention of the spread of aquatic invasive species. However, employing social marketing strategies to resource management challenges is not yet widespread.

This guide introduces social marketing in the context of visitor use management and presents steps for developing a social marketing initiative that can be applied to management issues involving broad-scale human behavior change. The introduction presents social marketing as a strategy to encourage desired visitor behaviors, including the role of human dimensions and social science in understanding visitor motivations and barriers to action. The second section presents the practical steps for designing a social marketing strategy. Each step presents diagnostic questions and principles managers can use to develop, implement, and evaluate social marketing strategies to support their conservation and resource management goals. Throughout, there are case studies that demonstrate social marketing steps in action, as well as resources for those wanting to learn more.

INTRODUCTION

People visit public lands and waters for many different reasons, and federal agencies have missions that require them to balance visitor experiences with resource protection. This can be challenging to achieve because visitor use can harm resources if left unmanaged. Visitor behaviors can result in social trails, negative human-wildlife interactions, noise, removing resources from parks, invasive species introduction, littering, dogs off leash, and other issues. A component of visitor use management seeks to reduce behaviors that negatively affect resources and encourage behaviors that protect resources (Burn and Winter 2008).

Visitor use and conservation may seem conceptually at odds but use and conservation can also be considered a mutual exchange. Federal land and water managers create recreational opportunities and settings for memorable experiences in nature in exchange for various types of public support, such as stewardship, while visiting public lands (Lai et al. 2009). The exchange of "things-of-value" between two parties is a core concept of marketing (Kolter 1972). The marketing goal could be to elicit an exchange for a good or service; support for organizations, people, or ideas; or adoption of behaviors, such as exchanging better health and longevity for smoking cessation, or keeping safe distances from wildlife in exchange for a safe and fulfilling experience with wild animals.

Managers can support this exchange with the application of new and evolving tools and approaches to influence voluntary visitor behaviors that protect resources and support conservation. Social marketing provides a framework for addressing perceived tension between visitor use and conservation. It complements traditional resource management tools like education, enforcement, and engineering (physical site design) by focusing on changing visitor behaviors to eliminate impacts at a root cause level. Through social marketing, managers can develop strategies that simultaneously deliver memorable visitor experiences and protect resources from unacceptable impacts.

This paper provides guidance from the field of social marketing in the context of visitor use management. It introduces social marketing as a strategy to encourage desired visitor behaviors and presents framework(s) managers can use to develop, implement, and evaluate social marketing strategies to support their conservation and resource management goals. Throughout, there are case studies that demonstrate social marketing steps in action, as well as resources and references for those wanting to learn more.

> **"conservation is a goal that can only be achieved by changing behavior."**
>
> (Shultz 2011, 1080)

MANAGING VISITOR BEHAVIOR ON PUBLIC LANDS AND WATERS

In 2016, Dietsch et al. (2016) presented an adaptive management approach to managing non-compliant behaviors in parks. They defined non-compliant behaviors as "behaviors that are in violation of … rules and regulations (whether or not their existence is known by the perpetrator)" (1). They included behaviors such as failure to stay on authorized trails or roads; taking of, killing, or destroying resources; incompatible uses (e.g., dogs off leash); and inappropriate human-wildlife interactions (e.g., approaching wildlife too closely, feeding wildlife). The review described two types of approaches used by managers to address non-compliant behaviors: direct and indirect management actions. Direct management actions, such as restricting access and using enforcement, aim to stop the behavior from occurring. Indirect management actions, such as information and education, persuasion, and social marketing, are targeted at factors that lead to the decision to perform the behavior (Manning, Anderson, and Pettengill 2012).

> **"...the real problem [of wildlife management] is not how we shall handle the animals…the real problem is one of human management."**
>
> (Aldo Leopold 1943, quoted in Meine 2010, 444)

A growing body of examples demonstrates how social marketing and behavioral science can improve visitor compliance. For example, at Redwoods National and State Parks, researchers developed strategies to protect endangered marbled murrelets by changing camper behavior to reduce Stellar's jay predation on eggs and chicks (Ward et al. 2011). In other studies, Abrams et al. (2020; 2023; 2025) demonstrated how social marketing can encourage safer wildlife viewing distances and proper food storage. Similar approaches have proven effective across various conservation challenges: the Minnesota Department of Natural Resources (n.d.) used social marketing to prevent the spread of aquatic invasive species, researchers reduced off-trail hiking by posting signs suggesting staying on marked paths was the common, approved behavior (Winter 2006), and behavior change strategies were implemented to help visitors choose reef-safe sunscreens (Akerlof et al. 2023a).

SOCIAL MARKETING AND CONSERVATION MARKETING

The International Social Marketing Association defines social marketing as a process that "seeks to develop and integrate marketing concepts with other approaches to influence behaviours that benefit individuals and communities for the greater social good" (International Social Marketing Association, European Social Marketing Association, Australian Association of Social Marketing 2013). Public health agencies have long employed social marketing approaches to encourage people to stop smoking, improve heart health, and increase vaccination rates. The beneficial societal outcomes include less strain on the healthcare system from preventable diseases.
More recently, the sustainability community began implementing social marketing initiatives to encourage recycling, conserve energy, and increase the use of alternate transportation. In 2014, the Society of Conservation Biology established the Conservation Marketing and Engagement Workgroup to "advance the study and practice of using marketing techniques to advance conservation goals." The workgroup defines a subset of social marketing focused on conservation issues as "the ethical application of marketing strategies, concepts and techniques to influence attitudes, perceptions and behaviours of individuals, and ultimately societies, with the objective of advancing conservation goals" (Conservation Marketing & Engagement n.d.).

SOCIAL MARKETING AND VISITOR USE MANAGEMENT STRATEGIES

The 2016 Visitor Use Management Framework (Interagency Visitor Use Management Council 2016) provides managers with a process to manage various aspects of the visitor experience using different strategies and tools to achieve and maintain desired resource conditions and visitor experiences. The framework describes three categories of visitor use management actions to achieve desired resource conditions:

1. **ENGINEERING:** Site design, construction, and maintenance are commonly employed to modify the location and spatial distribution of use and to increase the ability of sites to withstand use.

2. **EDUCATION:** Information and education are commonly employed to modify visitor behavior, adjust visitor attitudes and expectations, and alter the spatial and temporal distribution of use. Common examples include interpretive panels, signs, and visitor contacts.

3. **ENFORCEMENT:** Regulations with enforcement can be used to implement all management strategies. Examples include restricting or prohibiting access to specific locations, access at particular times, certain types of behavior, particular activities, equipment or modes of travel, length of stay, and group size.

Park managers have often relied on rules and education to influence visitor behavior. However, research in conservation psychology shows that people make many decisions subconsciously, influenced by choice presentation, cognitive biases, emotions, and social networks (Bujold et al. 2020). Understanding these automatic decision-making processes gives managers a broader set of tools to effectively shape visitor behavior.

Engineering can influence visitor behavior through thoughtful design of the physical environment. For example, specially shaped openings on recycling bins help visitors quickly identify what items go where, while strategic placement of brush or rope along trails naturally guides visitors to stay on designated paths (Hocket 2017).

Education and information strategies raise awareness about the impacts of use, teach people how to engage in the desired behaviors, or persuade them to act. These strategies can be effective when people are motivated to act and had otherwise lacked either awareness or the required skills to do so (Lee and Kotler, 2019). However, these strategies rely on the assumption that people would make rational decisions if they knew more and cared more (Bujold et al. 2020).

Enforcement strategies focus on sanctions for going against rules related to access, use, activities, etc. They can be effective because people generally have a preference to conform to the rules and defer to authority (Bujold et al. 2020). Enforcement can be necessary to gain compliance by those that are not motivated by conservation (Lee and Kotler 2019) or when other motivations override their conservation motivations. However, when rules and regulations are not enforced, subconsciously, people may think that the rules are not important or do not apply universally. As a result, rules and regulations can inadvertently have the reverse effect when it is clear those who do not follow the rules are not held accountable (Keizer 2011).

Figure 1. A reinterpretation of Everett Roger's Diffusion of Innovation adoption curve. It demonstrates what approaches can influence behavior. In this conceptualization, when most people like the idea of the behavior but need some help when it comes to adopting it, social marketing is the often best approach. Source: adapted from Lee and Kotler (2019)

The strategies employed in social marketing initiatives may include engineering, education, information and persuasive messaging, and enforcement. More specifically, they focus on **helping** people engage in the desired behavior, making the desired behavior easy to do, and socializing the change (Figure 1).

In *Behavior Change for Nature: A Behavioral Science Toolkit for Practitioners* (Rare and The Behavioural Insights Team 2019), the authors encourage designers of behavior change strategies to think about behavior as distinct from awareness, attitudes, and intentions. They emphasize that behavior includes subconscious decision-making processes (e.g., habit, aversion to the unfamiliar), as well as the setting of the behavior, such as the social setting and how choices are presented. Strategies for encouraging behavior change can include promoting desirable norms, gathering commitments for action, providing reinforcing feedback, and modeling the desired behavior.

ROLE OF HUMAN DIMENSIONS AND APPLIED SOCIAL SCIENCE

The field of human dimensions applies social science to help us understand how people perceive and interact with resources and how they are affected by or may react to potential resource management actions (Decker et al. 2012). As such, it is uniquely positioned to help understand the role of subconscious decision-making processes in designing social marketing initiatives. It is becoming more common for agencies and organizations to employ social scientists who ensure access to the best available social science to inform agency decisions that affect visitors and the public. However, there are *many* social science disciplines, theoretical frameworks, philosophical approaches, and methods that can be applied to conservation issues in different contexts and at different scales (see Bennett et al. 2016; Moon and Blackman 2014). Agency social scientists or human dimensions specialists are often generalists by necessity because they are expected to provide social science advice on a wide range of natural resource issues and audiences. As core functions, they need to be versed in methods that broadly describe characteristics, such as visitor preferences, motivations, and satisfaction. They may or may not have expertise in the disciplines required to develop targeted social marketing initiatives. However, they can help identify appropriate social science partners for specialized applications like social marketing.

The subset of social sciences that specifically focus on understanding and affecting drivers of human behavior are fundamental in designing and evaluating effective social marketing initiatives. These include disciplines such as behavioral economics or psychology. Understanding psychological influences within the social and cultural context of social-ecological systems can be used to suggest design nudges (subtle environmental or interface changes that gently steer people toward specific choices without restricting their freedom) and social norm messaging, and affect risk perception. Bujold et al. (2020) developed an illustration of the relationship between the behavioral sciences and broader social sciences (Figure 2).

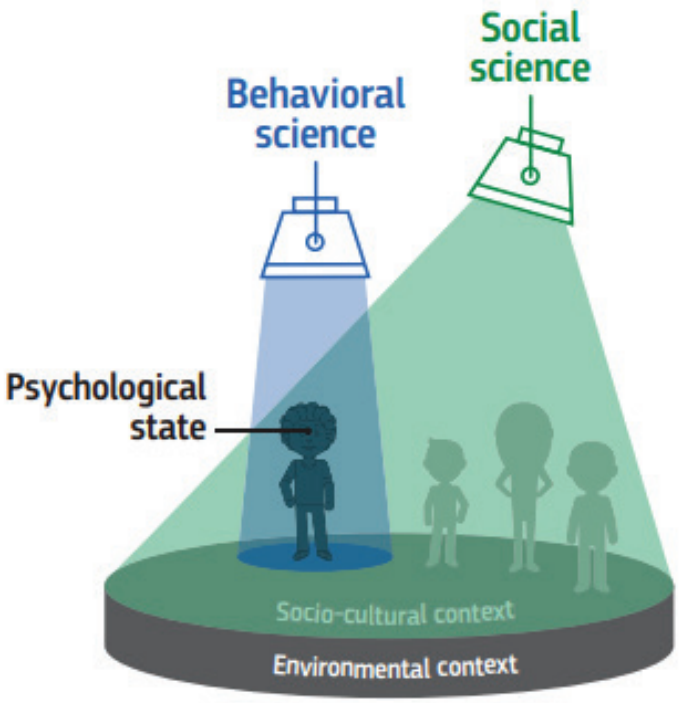


Figure 2. Conceptual diagram illustrating how behavioral science and social science illuminate individual psychological states within broader socio-cultural and environmental contexts. Diagram source: Bujold et al. 2020

While social sciences are necessary to understand human behavior, social marketing is an applied discipline, and it is important to consider management goals and objectives as part of the broader socio-cultural context for the desired behavior. Desired human behaviors may not be explicitly articulated in natural resource management goals and objectives, although they are often implied or assumed. For example, the success of a goal to reduce human-wildlife interactions relies heavily on affecting the human behavior that causes the interactions. Goals may need to be reframed to make the desired human behavior explicit. In the previous example, it would be clearer to set a human behavior goal, such as, "visitors maintain the minimum viewing distance to wildlife."

The following questions can serve as signals that human behavior may be impeding conservation goals:

- Why do people not … store their food properly? Stay on trails? (i.e., do the desired behavior)
- What would motivate people to start doing the desired behavior?
- Why are people … approaching wildlife? Using lead fishing tackle? Entering restricted areas? Picking wildflowers? (i.e., doing an undesirable behavior)
- What would motivate people to stop doing the undesired behavior?

Behavioral science research questions focus on identifying perceived benefits and barriers of engaging in a behavior, likelihood of uptake, and ultimately measure the expression of behavior as the metric of success. As such, social marketing efforts that are designed using the appropriate social science disciplines not only ensure that the best available social science is applied but also set up the initiative for evaluation.

SOCIAL MARKETING FRAMEWORK

Social marketing is a process for designing behavior change interventions. Drawing from marketing, behavioral economics, and communication theory, it creates initiatives that encourage behaviors, benefiting both individuals and society (Lee and Kotler 2019). Due to its roots in marketing, many initially view the framework in a limited way, thinking it is only about tools and techniques in communication, advertising, or even more limitedly, in social media. While the right messaging and channels are critical to success, they are not often successful alone. Social marketing's potential is maximized when strategies beyond communication are considered. Within the visitor use management context, the social marketing framework requires integrating education, enforcement, and engineering. It targets specific visitor behaviors in ways that support visitor experience and resource conservation. Though education, enforcement, and engineering may not drive every strategy, managers should begin by considering how all three create the conditions and context for behavior change, and ensure all three work as an integrated force that shapes visitor behavior and, ultimately, conservation.

Various frameworks exist for developing social marketing and behavioral change strategies (Mckenzie-Mohr 2011; Lee and Kolter 2019; Rare and The Behavioural Insights Team 2019; ideas42 n.d.; Van Leuvan et al. 2022). While these frameworks differ in their details, they share five key elements.

The elements are (1) identifying a specific, measurable target behavior that will achieve the desired outcome and can be implemented at scale. This work is closely intertwined with (2) defining the target audience, and (3) analyzing what motivates or prevents people from adopting the desired behavior. Based on these insights, practitioners (4) design, test, and implement effective strategies, and throughout the process, (5) evaluate the effectiveness of their efforts and adjust approaches based on results.

As Andreasen (1994) summarizes, successful behavior change requires making the desired behavior socially desirable, easy to do, and clearly beneficial.

> **"Frame behaviors around what people already want—make them fun, easy, and popular—rather than trying to change what people believe."**
>
> (Marketing for Change n.d.)

To help managers design effective strategies to encourage visitor behaviors that benefit their experience and protect resources, the following section presents a synthesis of common frameworks, diagnostic questions, and corresponding principles that guide the analysis of the situation. The diagnostic questions are organized around steps found in many social marketing frameworks with a foundational principle of adopting a visitor-centered approach. Insights of personnel and partners representing different expertise benefits strategy development so that design is considered from all angles. For additional resources that provide more detailed guidance, consult the appendix.

Table 1. Management steps with corresponding diagnostic questions and principles.

Management Steps	Diagnostic Questions	Principles	Step Outcome
Foundation: Adopt a Visitor-Centered Approach	NA	NA	NA
Step 1. Select Behavior and Audience	**1. What specifically do you want people to do?**	**General requests won't change specific behaviors.**	**A long list of potential behaviors that you want to encourage.**
	2. Who needs to do this behavior?	**Target the specific audience that will have the greatest impact.**	**A list of potential audiences that need to actively be a part of the solution.**
	3. What are the priority audience-behavior pairings?	**Prioritize the audience and behavior combination with the greatest potential for change.**	**A list of priority behaviors and audiences to focus on when conducting barrier/benefit analysis.**
Step 2. Identify Behavioral Benefits and Barriers	**4. What benefits will visitors gain from adopting the desired behavior?**	**Know your audience – learn, don't guess. Conservation may not be their motivation.**	**A list of barriers and benefits for both the desired and undesired behaviors.**
	5. What prevents visitors from adopting the desired behavior?	**Lack of knowledge and awareness are rarely the (only) reason audiences are not doing the desired behavior.**	**A list of barriers and benefits for both the desired and undesired behaviors.**
Step 3. Develop Strategies	**6. What strategies will influence the desired behavior?**	**Match the tools of change to the specific behavior.**	**Strategies that have the greatest likelihood to influence your audience and achieve the desired outcome.**
Step 4. Pilot **Step 5. Implement and Evaluate**	**7. How will success be measured?**	**Good data makes good management decisions.**	**Data on what strategies are most effective in influencing visitor behavior.**

FOUNDATION: ADOPT A VISITOR-CENTERED APPROACH

Like marketing, social marketing is tightly focused on its audiences. Social marketing frameworks consider who the audience is, what shapes their behavior, and how that audience's behavior impacts the shared good, in this case, the natural resource(s). Visitors have personal motivations and desired outcomes for their experience. It is important to remember that these motivations may overpower their conservation values and managers should design their approach so that visitors achieve their desired outcomes without harming the resources they came to see.

A common mistake is to assume what motivates managers will motivate visitors. Why would they not want to protect this place for future generations? They probably do, but in the moment, the immediate experience of getting close to wildlife or going off-trail to see an amazing view may prevail over a far-off ideal.

Rather than design the strategy around the agency's conservation goals, focus on how to help visitors meet their own desired outcomes in a way that does not conflict with conservation goals. In other words, adopt a visitor-centered approach. Being attuned to the visitor's goals can help shed light on why they engage in behaviors seen as undesirable and identify ways to help them engage in the desired conservation behaviors.

STEP 1. SELECTING THE BEHAVIOR AND AUDIENCE

Carefully analyze the environmental problems or protection goals, the potential audiences, and the desired behaviors. Prioritize what audience-behavior pairing will have the greatest impact on the target problem and can be successfully influenced by the organization. Managers should expect to revisit the behavior, audience, and even the goal, to refine or change them as each element is analyzed.

Diagnostic Question 1: What Specifically Do You Want People to Do?

The aim is to identify an outcome-producing behavior change. If the desired behavior is adopted, a direct impact on the resource (e.g., the behavior supports desired resource condition outcomes and visitor use management objectives) will be evident. Begin by considering the desired outcome when successfully changing people's behavior. It can be concrete and measurable, such as preventing wildlife access to human food, or broad and lofty, such as preserving natural resources.

Depending on the scope of the outcome, people may need to take a variety of actions. Examine the range of behaviors that could help achieve that outcome. Ask, what do people need to do? And of all the possible actions, which ones are most important for achieving the desired resource condition and outcome?

Principle: **General** *requests won't change* **specific** *behaviors.*

Selecting one discrete, indivisible behavior that directly affects the desired outcome is the starting point for the social marketing process. An indivisible behavior is one that cannot be further divided into others. For example, "keep wildlife wild" or "be bear aware" are principles that encompass many different behaviors like feeding, securing trash, maintaining safe viewing distances, making noise, safe driving, and following physical safety measures. Each of those behaviors have distinct motivators and potentially different target audiences. For instance, while wildlife feeding may be identified as the root cause of problems in an area, focusing on specific behaviors (disposing of all crumbs in secure receptacles and securing all scented items in food storage boxes/lockers) and their contexts (picnic areas, campsites, and hiking trails) enable you to design more effective strategies.

When asking people not to do something, it inevitably asks them to do something else. For example, "do not approach wildlife" implies people should "maintain a specific distance from wildlife." If an undesired behavior can quickly and clearly be identified, consider reframing it in terms of what visitors need to do instead. This is referred to as a replacement behavior. It should support visitors' desired experience and align with resource management goals.

To help select which specific behaviors to focus on, answer these questions:

- What specific behaviors are you trying to encourage or discourage?
  - » If you can easily identify what you do not want people to do, what are you asking them to do instead (i.e., the replacement behavior)?
- Which behaviors will have the greatest impact on your conservation goal?
  - » Document the frequency with which people are engaging in the undesired behavior to confirm assumptions about the scale of the issue.
  - » Determine the ecological impact of the desired behavior change.

Outcome

The result of evaluating this diagnostic question will be a long list of potential behaviors to encourage.

Diagnostic Question 2: Who Needs to Do This Behavior?

Focusing attention on a specific audience is another key to success. Like the importance of selecting the most impactful behaviors, identifying specific audiences who need to do the specific behavior will help determine how best to allocate resources for the greatest impact. Ideally, all visitors perform the desired behavior, but a family group and a group of college-age friends, for example, will typically experience and interact with the site differently. One audience will likely have the greatest impact on the resource or be more likely to adopt the desired behavior. Different audiences will also have different motivations for engaging in the behavior.

Principle: Target the specific audience that will have the greatest impact.

When selecting the audience, consider what characterizes the people most responsible for that behavior. Van Luevan et al. (2002, 57) emphasized, "Different audiences and behaviors have different barriers and motivators, which require different strategies and tools to successfully shift behaviors." It is likely that certain segments of the site's population differ in terms of the types of recreational activities they engage in. For example, where they choose to go, their familiarity with an area or a particular natural resource, and even their attitudes towards compliant behaviors such as staying on-trail, food storage, and safe distance viewing.

Consider audience-specific characteristics when identifying unique audience segments. An audience segment is a group of people that share similar characteristics based on selected criteria relevant to the desired behavior change (Dolnicar et al. 2018).

Examples of categories of variables that could be used in audience segmentations:

- SOCIO-DEMOGRAPHIC VARIABLES: Demographics, including gender, education, age, ethnicity, income, and place of residence, help locate relevant segments of the population and deliver social marketing messages directly to them (Wedel and Kamakura 2000). These attributes can speak to communication preferences and needs, economic constraints, and recreational interests.
- RECREATION USE PATTERNS OF VISITORS: It is helpful to determine if specific recreation activities are associated with the desired behavior change. Doing so allows for easy segment identification (e.g., hikers, kayakers, photographers, backpackers, etc.), as well as determining place-based tactics and the most relevant and trusted communication sources and channels.
- EXPERIENCE PREFERENCES FOR USE: Certain experience preferences, such as enjoying nature, learning, and connecting as a group of family or friends, are associated with preferences for management of natural resources (Galloway 2002). Understanding the benefits that visitors pursue allows use of those benefits in exchange for compliance.
- BEHAVIORAL ATTITUDES, PERCEIVED BENEFITS/BARRIERS: See Step 2.

When segmenting and defining audiences, do so based on meaningful and practical characteristics. Meaningful characteristics are those most likely to influence how people respond to a social marketing approach. Practical characteristics are those for which an organization has the capacity to develop and deliver targeted interventions (Van Leuvan et al. 2021). These two criteria often involve tradeoffs. For example, digital channels allow meaningful selection and target tailored communication based on audience data tracked through their digital footprints. However, leveraging this data may not be practical. It can be costly and may require more time and resources to develop.

Outcome

The result of evaluating this diagnostic question will be a list of potential audiences to engage through a social marketing strategy.

Diagnostic Question 3: What Are the Priority Audience-Behavior Pairings?

Diagnostic Questions 2 and 3 have helped identify a list of behaviors and audiences to target to reach the desired outcome. The next step will help evaluate and prioritize audience-behavior pairings.

Principle: Prioritize the audience-behavior pairing with the greatest potential for change.

Various criteria have been developed by different experts in social marketing to help guide the selection of target audiences and behaviors. We compiled the most relevant prioritization criteria for visitor use and natural resource management from Van Leuvan et al. (2022) and Smith et al. (2020):

- IMPACT: Evaluate how large the effect the audience and behavior will have on the goal in the short and long term.
- LIKELIHOOD OF SUCCESS: Evaluate the probability of adoption of the behaviors among the target audience and the organizational ability to develop, implement, and maintain the effort.
- MARKET POTENTIAL: Evaluate the total number of people that could be influenced to adopt the behavior. If a behavior is beneficial but already practiced by most visitors, the market potential for change is low. Conversely, if only a small group of visitors currently practice the behavior, the market potential for change is high.
- UNDUE BURDEN: Evaluate whether asking audiences to change certain behaviors might be placing an undue burden on them, such as financial costs, physical limitations, or time constraints (Van Leuvan et al. 2021). For example, requiring backcountry campers to purchase bear-resistant canisters ($60-100) may be cost-prohibitive for some visitors.
- EVALUATION POTENTIAL: Determine how behavior changes and/or environmental impacts on the desired environmental outcome will be measured.

Quantify these criteria by assigning scores on a numerical scale. Decide whether all criteria are equal contributors to the total score or weighted differently based on importance to the organization or context. Ideally, the scoring process should involve a discussion among multiple individuals with diverse expertise and perspectives related to the behavior, ensuring a comprehensive evaluation of each criterion.

From this process, use the highest scores to select no more than four or five possible audience-behavior pairings on which to proceed in Step 2.

Outcome

Evaluation of this diagnostic question should produce a list of priority behaviors and audiences to focus on when conducting barrier/benefit analysis.

Case Study

Aquatic Invasive Species

Minnesota Department of Natural Resources (DNR) (2019) aimed to "better promote the adoption of desirable aquatic invasive species (AIS) prevention behaviors and create positive social norms around AIS prevention in Minnesota." After conducting a literature review identifying 150 discrete behaviors to manage AIS, they identified five behavioral domains most relevant to the state:

1. Recreational watercraft
2. Live bait
3. Gear and equipment
4. Retail plant trade
5. Retail aquarium trade

Diagnostic Question 1: What Specifically Do You Want People to Do?

A panel of experts representing different scales and types of jurisdictions for AIS conducted a rating and prioritization exercise of 80 potential target behaviors and audiences within each domain. According to Minnesota DNR (n.d.), each behavior was scored on a 5-point scale based o

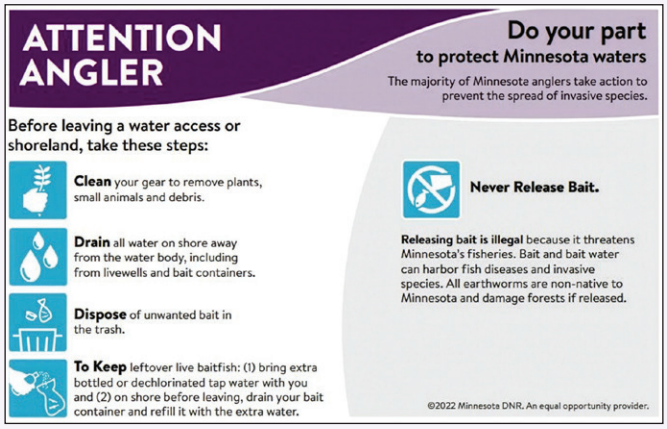
- **Impact:** A measure of effectiveness in preventing the spread of AIS in Minnesot
- **Uptake:** Likelihood of the behavior being adopted by the target audience.
- **Market Potential:** Opportunity for growth in the number of people performing the behavior.

All three criteria rankings were multiplied together and rankings from all panel members were averaged to give a single, overall ranking, for each behavior.

Diagnostic Questions 2 and 3: Audience-Behavior Pairings

From this process, the top-ranked audiences and associated behaviors were selected for additional research to understand more about the potential target audiences and assess their perceived benefits and barriers to the desired actions (part of Step 2). They selected:

- **Aquarium and aquatic plant trade stakeholders:** Purchase and sell low-risk species and dispose of high-risk species
- **Anglers:** Proper disposal of live bait, and clean and drain watercraft
- **Shoreline residents:** Clean water-related equipment and dry for 21 days before putting them into another body of water



Learn more at Minnesota DNR: https://www.dnr.state.mn.us/invasives/ais/prevention/behavior-change.html

Figure 3. Minnesota Department of Natural Resources (DNR) public outreach materials, promoting actions anglers can take to prevent the spread of aquatic invasive species. Source: Minnesota Department of Natural Resources 2022

STEP 2. IDENTIFY BEHAVIORAL BENEFITS AND BARRIERS

At this stage, there should be one or a few high-priority audience-behavior pairings identified to investigate further with an analysis of the behavioral benefits and barriers people might encounter when deciding whether to do the desired or undesired behavior. Knowing your audience is a key tenet of communication and is critical to social marketing. Social marketing strategies are interested in what motivates audiences, since those motivations may not always align with the agency's mission. What do they gain by engaging in the undesired behavior, and what would be the benefit of doing the behavior we want to promote? Related, it is also important to understand what barriers might be implemented to discourage the undesired behavior and what barriers might be removed to make it easier to do the desired behavior.

Social scientists can help with audience research design. This can be as simple as a literature review, field observations, or expert interviews of those close to the problem, or can be more involved like organizing audience surveys or focus groups. The aim is to uncover unexpected barriers and motivators and ensure resources are spent on the most influential drivers (Van Leuvan et al. 2022).

To identify the benefits and barriers, examine both the behavior the audience should stop doing and the behavior they should start doing. This will provide the most complete picture to inform future strategies. Benefits and barriers may be internal to the person, such as a high thrill-seeking drive or prior experiences with wildlife. They can also be external, such as worn social trails that cue hikers to use them, the availability and desirability of off-leash dog areas, or the social setting, for example, when everyone around them is close to an animal they came to see.

To complicate matters further, people cannot always pinpoint these benefits and behaviors accurately. It is easy to make false assumptions about others' behaviors. People tend to view themselves as fully rational and typically above average compared to others, yet in reality, behavior is shaped by a web of influences sometimes beyond conscious awareness or honest acknowledgment (see Schluter et al. 2017). People may more readily blame external circumstances or others and provide more socially acceptable explanations when reflecting on why they do or do not engage in conservation behaviors.

Identifying the behaviors competing with the desired behavior is a useful way to begin uncovering benefits and barriers. Framing the behavior change this way often reveals the complex web of influences to design around. Competing behaviors could stem from habit, social norms, immediate gratification, price, or easier alternatives. For example, the desire to keep the appropriate distance from wildlife may be in competition with the desire to take good pictures of wildlife. Understanding the competing behaviors can help conceptualize design strategies that support the desired behavior.

Diagnostic Question 4: What Benefit Will Visitors Gain from Adopting the Desired Behavior?

Identify the potential benefits or rewards associated with adopting the desired behavior. These benefits can be personal, social, economic, or environmental. It is important to consider the benefits most relevant to the target audience and identify more relevant and timely benefits that could be created or aligned with the desired behavior (see Step 3).

> *Principle: Know your audience – learn, don't guess. Conservation may not be their motivation.*

Natural resource managers frequently rely on organizations' conservation missions as the reasons people should act in a certain way. They also rely on regulations to shape behavior. However, achieving conservation outcomes may not be the primary benefit a visitor desires. It is important for natural resource managers to consider what else motivates people to engage in the desired behaviors, and to remember that a conservation ethic does not have to be a prerequisite for behavior change (Heffner 2024). Motivations can generally be grouped into a few key types of benefits that visitors consider.

PERSONAL BENEFITS: Personal benefits refer to the advantages that individuals may experience on a personal level when adopting the desired behavior. These benefits can include increased personal satisfaction, enhanced well-being or health, greater convenience, or a sense of accomplishment. It is helpful to learn about your audience through observation, literature reviews, or with the assistance of a social scientist because visitors' perceptions of benefits may be different from those that would motivate managers. Sample questions to ask audiences compiled from Van Leuvan et al. (2022, 112, 117, 120) include:

- What do you see as personally beneficial about [behavior]?
- In your opinion, what are (or might be) the advantages/positive consequences of [behavior]?
- Which of the following are the most important benefits of [behavior]?
- How effective do you think [behavior] is at helping to solve [problem]? (rating scale of effectiveness)
- How important is [problem] compared to other environmental problems? (rating scale of importance)
- Which of the following do you identify with most strongly? (list of options such as hiker, climber, parent, environmentalist, hunter, and an option to fill in others not listed)

SOCIAL BENEFITS: Social benefits encompass the advantages associated with behavior change that impact social relationships and interactions. These benefits may involve strengthening social connections, fostering a sense of belonging, or gaining social recognition. For example, in the case of promoting Leave No Trace principles, social benefits can include being seen as environmentally responsible by peers, contributing to the sustainability of natural areas, or setting a positive example for others. Sample questions to ask audiences compiled from Lan Leuvan et al. (2022, 116) include:

- Who are the people most or least in favor of your practicing the behavior?

- To what extent do you agree with the following statements? (Rating scale of agreement)
  - » Making this change would be criticized by those around me.
  - » I would be letting certain people down if I made this change.
  - » I'm worried that my friends would disapprove if I made this change.

ECONOMIC BENEFITS: Economic benefits focus on the financial advantages or savings that can result from adopting the desired behavior. These benefits are particularly relevant when behaviors involve cost considerations. For instance, if the target behavior is proper food storage among backcountry hikers and campers, a bear canister rental system that is free or low-cost offers a cost-saving option rather than requiring visitors to purchase their own.

ENVIRONMENTAL BENEFITS: Environmental benefits relate to the positive impacts that behavior change can have on the natural environment. These benefits are particularly significant for behaviors that aim to reduce resource consumption, waste generation, or negative environmental impacts. For example, if the desired behavior is drying out water equipment, environmental benefits include protecting ecosystems and fisheries from aquatic invasive species.

Outcome

Review of this diagnostic question should produce a list of benefits for both the desired and undesired behaviors.

Diagnostic Question 5: What Prevents Visitors from Adopting the Desired Behavior?

Similarly, audience research should identify the barriers or obstacles that may prevent individuals or communities from adopting the desired behavior. Barriers can be psychological, social, economic, or logistical in nature. Some common barriers include lack of awareness or knowledge, low perceived susceptibility to or severity of consequences, perceived inconvenience, perceived high costs, social norms, or lack of infrastructure.

> *Principle: Lack of knowledge and awareness are rarely the (only) reason audiences are not doing the desired behavior.*

Many conservation initiatives focus on education, information, and raising awareness about an issue. Raising awareness can lead people to adopt the easiest behaviors (Rare and The Behavioural Insights Team 2019) and education can be effective in equipping people that are already motivated with the knowledge on how to do the requested behavior (Lee and Kotler 2019). They emphasize the role of conscious decision-making and employ an information deficit model of behavior change. Information and education are important tools in changing behavior but are not always effective when used alone. Social marketing also considers the role of subconscious decision-making and harnesses it to influence behavior.

Examples of common types of barriers include:

PSYCHOLOGICAL BARRIERS

- Perceptions that individual actions have little impact on the overall preservation of natural resources
- Resistance to changing established behaviors or practices due to a perceived inconvenience or disruption of routines
- Lack of awareness or understanding about the ecological importance of natural areas/ resources and the need for conservation

SOCIAL BARRIERS

- Conflicting interests, such as commercial activities or tourism development, that prioritize economic gains over conservation goals
- Social norms or recreational behaviors that disregard conservation principles, such as social trails, leaving mementos like painted rocks or cairns, or wildlife disturbance

ECONOMIC AND EFFICIENCY BARRIERS

- Budget constraints for potentially limited or one-time use equipment for their visit
- Inadequate economic incentives for local communities to participate in sustainable tourism practices or support conservation efforts
- Dependence on revenue-generating activities within the park, which may conflict with conservation objectives in the larger visitor-use environment

LOGISTICAL BARRIERS

- Inconvenience, time, and hassle factors
- Insufficient infrastructure or resources
- Challenges in managing visitor flow and minimizing human impacts or undesired interactions with wildlife or other natural resources (e.g., turf grass or water sources attracting wildlife)

REGULATORY AND POLICY BARRIERS

- Inadequate enforcement of regulations and policies related to the behavior, particularly those viewed as minor crimes or challenging to enforce
- Limited coordination and collaboration among different divisions and third parties responsible for park management and conservation

Outcome

Review of this diagnostic question should produce a list of barriers for both the desired and undesired behaviors.

Case Study

Reef Safe Sun Protection

The National Park Service Ocean and Coastal Resources Branch determined that chemicals in sunscreens posed a threat to coral reefs and other aquatic ecosystems. To address this issue, a project focused on encouraging oceanside park visitors to wear sun protective clothing and use mineral-based sunscreens (Diagnostic Question 1). A subsequent survey at two national parks allowed researchers to segment audiences into four behavioral profiles (Diagnostic Questions 2–3) (Akerlof et al

Diagnostic Questions 4 and 5: Uncover Behavioral Benefits and Barriers

Through a literature search and workshops involving park staff and partners, the project team identified over 50 barriers that might contribute to visitor adoption of environmentally friendly sun protection. By the end of the process, they identified 10 barriers that were grouped into four categories: information complexity, unsupportive social norms, missing information at the time of decision, and failures of behavior spillover (Akerlof et al. 2023a). More specifically:

1. Unclear information about sunscreen ingredients and their impact on health and the environment (psychological barrier)
2. Lack of social support for using eco-friendly sun protection like mineral sunscreens or protective clothing (social barrier)
3. Timing mismatch between making sun protection decisions and learning relevant information (logistical and economic barriers)
4. Associating specific sun protection behaviors only with certain places, like coral reef areas (psychological

From these behavioral barriers, a "Playbook of Ideas" was developed for parks to review and select strategies best suited for their context. Each intervention idea included a description of the barriers to action and the behavioral solution (see Akerlof et al. 2023a).

At Kaloko-Honokōhau National Historic Site, rangers host sunscreen exchanges. Visitors can exchange their sunscreen for a reef-friendly mineral sunscreen. Sunscreen exchanges help people who have already purchased sunscreen (logistical and economic barriers) make a better choice while visiting. It limits their financial loss and provides a prompt in the form of preferable sunscreen for the next time they make a purchase.

Figure 4. A National Park Service ranger staffs an information table that features interpretive materials on sun protection and reef-safe sunscreen at Kaloko-Honokōhau National Historic Site. Source: K.L. Ackerlof

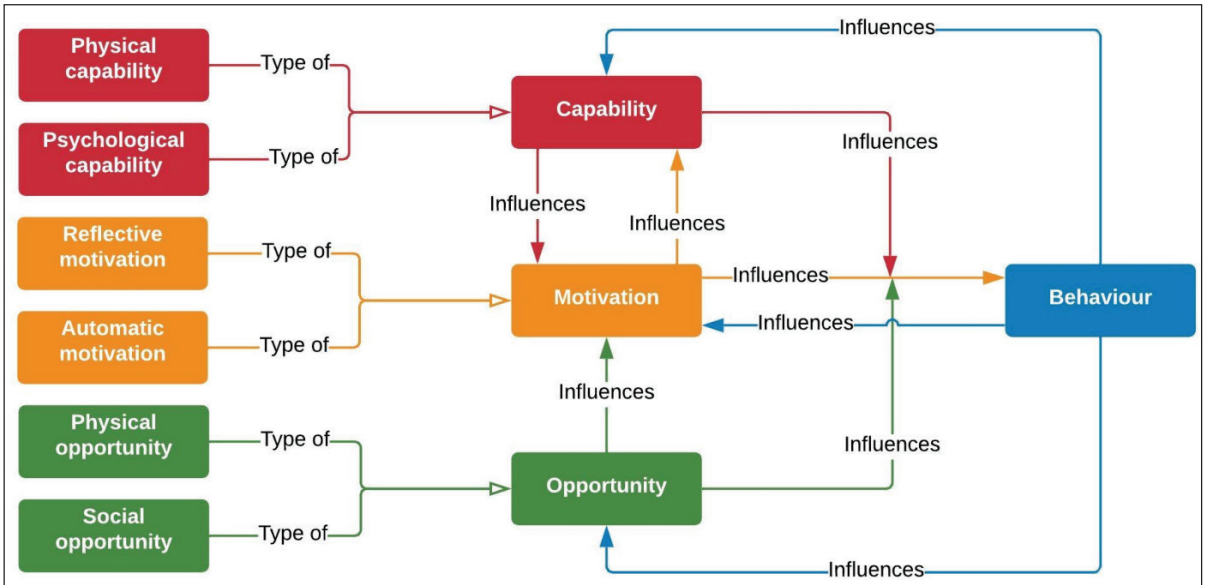
STEP 3: DEVELOP THE STRATEGY

Once the behavior and the specific audience are selected, and the behavioral barriers and benefits for that audience are understood, it is time to use those insights to develop the social marketing strategy. Using a behavior change theory or model can help determine the various factors that might influence behavior, align assumptions with established theories, consider environmental constraints, and spur ideas.

Consult the Behavior Institute's web page for figures and brief explainers of some of the most used models and theories (https://besci.org/c/models). The COM-B model of behavior change (West and Michie 2020) and the EAST framework (Behavioural Insights Team 2014) are two models that fit well with frameworks commonly used in visitor use management and conservation behaviors. Both are helpful for practitioners to efficiently understand and apply the 30+ behavior change theories that informed their development. Below is a summary of some of the most important points.

COM-B

The COM-B model illustrates that a behavior will generally occur when the person has the capability, opportunity, and motivation over any other behavior to do it (Figure 5). Additionally, these behavioral forces interact with one another (see summary in McLeod et al. 2015; West and Michie 2020). Of note is the importance of capability and opportunity in amplifying the influence of motivation on the behavior. For example, managers may want people to put their trash in a wildlife-resistant dumpster, but if they cannot easily locate one or understand how to open it (capability, opportunity) or if they see that other people have left trash unsecured without obvious consequences (social opportunity), it will decrease their motivation to do so.



Physical capability	is capability that involves a person's bodily or physical abilities (e.g., balance, strength, dexterity).
Psychological capability	is capability that involves a person's mental functioning (e.g., understanding, memory, attentional capacity).
Reflective motivation	is motivation that involves conscious thought processes (e.g., plans and evaluations, identity, attitudes).
Automatic motivation	is motivation that involves habitual, instinctive, drive-related, and affective processes (e.g., desires and habits, biases).
Physical opportunity	is opportunity that involves inanimate parts of the environmental system and time (e.g., natural forces, infrastructure, financial and material resources).
Social opportunity	is opportunity that involves other people and organizations (e.g., culture, social norms, governance).
Capability	is an attribute of a person that together with opportunity makes a behavior possible or facilitates it.
Motivation	is an aggregate of mental processes that energize and direct behavior.
Opportunity	is an attribute of an environmental system that together with capability makes a behavior possible or facilitates it.

Figure 5. COM-B Model of Behavior. Source: Graphic adapted from West and Michie 2020

EAST FRAMEWORK

The EAST framework suggests a behavior is more likely to occur if it is made easy, attractive, social, or timely (Behavioural Insights Team 2014).

- **EASY:** Make a desired behavior the default option, reduce hassle factors, or simplify the message.
- **ATTRACTIVE:** Draw attention, make it vivid, design rewards and sanctions carefully (and think beyond financial ones).
- **SOCIAL:** Show how peers are adopting the desired behavior, use networks, or urge participants to make promises to their peers or publicly.
- **TIMELY:** Prompt individuals when they are most receptive, focus on immediate costs and advantages, and help people plan their approach, especially their initial step.

The aim is to combine the insights learned about the behaviors, audiences, barriers, and benefits with a theory of behavior change to develop strategy and tactics that will support the desired conservation behavior and visitor experience. Involve personnel and others representing different expertise to create the conditions necessary for the desired behavior. The social marketing strategy may involve creating or enforcing guidelines or policies, communication/information design, facilities, and concessionaires or other third-party operators. It's helpful to have various insights and support available as it is designed. To ensure success, engage members of potential target audiences early and often to understand their reactions to the potential strategy elements. Recognize personal biases, then collaborate with those affected by the issue. This approach provides valuable perspectives throughout the process and deepens understanding of the behavioral challenge before crafting solutions.

While working through each of the diagnostic questions in Step 3, consider what can be done from all angles. While communication is important to any part of development, more information and awareness only target the rational decision-making process. Social marketing is enhanced when solutions involving multiple behavioral shifters are considered. Include strategies that influence subconscious decision-making processes (e.g., habit, aversion to the unfamiliar), the physical and social setting of the behavior, and how choices are presented.

Diagnostic Question 6: What Strategies Will Influence the Behaviors?

The following example uses the COM-B framework to select and design strategies that influence capability, opportunity, and motivation. Each strategic element is explained but may not all apply. The aim is to select the strategic elements in combination with what is known about the audience and the behavioral benefits and barriers.

Principle: Match the tools of change with the behavior.

COM-B STRATEGIC ELEMENT 1: SUPPORT PEOPLE'S CAPABILITY TO DO THE BEHAVIOR

To support people's psychological and physical capabilities to do the behavior, consider how to make the desired behavior easier. According to Michie et al. (2011) and Van Leuvan et al. (2022), this means:

- Ensuring they understand what the behavior is and how to do it:
  - » Make it the default choice
  - » Reduce number of choices
  - » Reduce number of steps
  - » Make the desired, specific behavior clear, visual, and vivid
- Developing guidelines or policies and spaces/infrastructure for the behavior with a spectrum of people's capabilities in mind:
  - » Designing spaces and infrastructure for the behavior using universal design principles
  - » Designing around natural elements and forces that could hinder people's capabilities (e.g., heat or rust impacting the operability of wildlife-resistant food storage)
- Enhancing people's self-efficacy (i.e., their belief in their capabilities):
  - » Model desired behavior
  - » Provide opportunities to practice
  - » Provide positive and constructive feedback
- Considering that for some visitors the challenge of a behavior could be enticing (West and Michie 2020).

Overall, make the environmental behavior "obvious, convenient, enjoyable, affordable, and accessible, so that less motivation is required" (Van Leuvan et al. 2021, 278).

COM-B STRATEGIC ELEMENT 2: CREATE OPPORTUNITIES FOR THE BEHAVIOR

Consider how the physical and social environment can create opportunities to support visitors' conservation behaviors. The physical opportunity is the extent to which the environmental factors like time, place, infrastructure, financial costs, natural resources and forces, and governance foster the behavior. In the context of visitor use management to promote conservation behaviors, factor in management of the resources to help shape human behavior. Bark Ranger Gracie in Glacier National Park is an example of a solution that works on both of those angles. With their highly trained herding dog, a handler moves and detours wildlife herds from dense visitor use areas and creates a compelling and attractive opportunity for visitors to learn about respectful and safe wildlife viewing. Social opportunity is the extent to which the social, cultural, and political environment foster the behavior; in other words, there is social proof for the behavior. People may want to fit in with others, do what others expect of them, or sometimes, perform better than others (Cialdini 2009).

Adapting from and adding to what Michie et al. (2011) and Van Leuvan et al. (2022) summarize, creating opportunities for the behavior means:

- Increasing means and lowering barriers in the environment in which the behavior needs to occur:
  - » Access to necessary infrastructure that is easy to identify and use properly
  - » Make desired behavior safer, more affordable, and/or more convenient (e.g., Rocky Mountain National Park's Elk Bugle Corp of volunteers and time-area closures help people identify good elk viewing opportunities while maintaining distance)
  - » Make undesirable behaviors less convenient, more costly (add friction)
  - » Use rewards/incentives carefully
- Targeting communication at multiple decision points relevant to the behavior:
  - » Reach people *before* their visit if they need to prepare or plan differently. It should increase the ease of the behavior once they're at the destination (e.g., use of Recreation.gov or agency webpages to share how to pack wildlife attractants together in bins/bags for a camping trip, bringing binoculars to see wildlife)
  - » Use cues, reminders, and nudges
- Design guidelines and policies that fit with constraints on the behavior caused by the environment. For example, in Hawai'i, many of the beaches are narrow, so the viewing guideline for basking sea turtles (i.e., sea turtles sleeping, not nesting, on the beach) is 10 feet, whereas in other states where beaches are wider and turtles may be nesting, the suggested guidance is typically 50 yards.
- Highlight proof of social norms:
  - » Emphasize or show how people in or like the target audience are changing or already doing the desired behavior
  - » Model norms through stories
  - » Choose the right messengers to spread the norm through social networks
  - » Signal social proof through policies

COM-B STRATEGIC ELEMENT 3: MOTIVATE PEOPLE TO DO THE BEHAVIOR

When the capability and opportunity conditions are in place, individuals must also be motivated to perform the behavior. Motivation can be reflective and automatic. The dual processing theory suggests more often than not, brains operate using automatic, fast ways of thinking, combined with less frequent but more deliberative thought (Evans and Stanovich 2013). Wanting to take an action stems from perceptions about the consequences and the associated severity and susceptibility of any risk, perceived social acceptability, one's identity and values, perceived responsibility, and perceived action efficacy (i.e., a belief that it will make a difference in the outcomes they care about). One of the challenges in social marketing for the protection of natural resources is often that the benefits of action or harm of inaction are distant, impersonal, or seemingly doomed anyway. Conservation may be a motivation, but it can also be overshadowed by motivation driven by immediate opportunity. Motivations for immediate survival and emotional fulfillment conflict with motivations to prevent collective or future problems (Marshall 2015). Some of the ways to enhance visitors' motivations include (Van Leuvan et al. 2022; Behavioural Insights Team 2014):

- Making the behavioral outcomes timelier and more attractive (see EAST model)
  - » Use strategic messaging to associate the behavior with goals visitors care about and are more readily or directly experienced
  - » Promote an alternative behavior that is equally or more enjoyable to replace the undesirable one.
- Align the behavior with relevant values and identity
- Fit the behavior within a habit or routine
- Develop their intention to do the behavior (e.g., commitments, pledges)
- Use optimistic messaging to enhance action efficacy

Ultimately, the aim is to develop a strategy that ensures people believe the benefits of engaging in the desired behavior are worth any costs or sacrifices involved (Andreasen 1994). In other words, they will still achieve their desired visitor experience if they engage in the conservation behavior.

Outcome

Review of this diagnostic question should produce a list of strategies that have the greatest likelihood to influence the audience and to achieve the desired outcome. Appendix A presents resources that can guide strategy selection for the desired outcome.

Case Study

Promoting Respectful and Sustainable Sea Turtle Viewing

National Oceanic and Atmospheric Administration (NOAA) Fisheries Pacific Island Region and partners examined how social marketing could complement their regulatory and education efforts to encourage Hawai'i tourists to follow the 10-foot viewing distance guideline for basking Hawaiian green sea turtles (i.e., sea turtle sleeping/resting on the beach). They first conducted over 100 hours of observations to characterize and select the target behavior and locations (Diagnostic Questions 1–3).

To understand the audiences and behavioral benefits and barriers, they conducted a literature review and primary research via interviews with various partners and those close to the issue. A key takeaway was that tourists view sea turtle encounters as a noteworthy, yet often brief, part of their desired vacation experience. For many, the primary goal is to capture a good photo of this encounter, rather than engaging in deeper observation or learning about the turtles (Diagnostic Questions 3–5).

Diagnostic Question 6: What Strategies Will Influence the Behavior?

The resulting "Amazing from Afar" intervention employs the EAST framework to encourage respectful sea turtle viewing, balancing conservation needs with tourists' desire for memorable experiences. Pilot testing and subsequent implementation across two locations demonstrated remarkable success, with observed compliance rates increasing from 56% to as high as 98% (Diagnostic Question 7) (Abrams et al. 2023).

Easy:

- Simplified distance estimation by comparing 10 feet to a compact vehicle
- Provided clear visual guidance through an infographic-style display of distance
- Offered a straightforward replacement behavior (forced perspective photography)

Attractive:

- Used the positive hook "Amazing from Afar" instead of restrictive language
- Aligned desired behavior with audience motivations for unique experiences
- Promoted new poses for photography as a fun, creative alternative to up-close viewing
- Offered stickers as a tangible reward and form of commitment

Social:

- Collaborated with tour operators to reinforce the message
- Encouraged sharing photos on social media to establish social proof
- Used identity-evoking statement "thank you for being a respectful viewer"
- Aimed to change social norms around wildlife viewing

Timely:

- Provided information at the point of decision-making (viewing area)
- Made behavioral outcomes more immediate through photography

Figure 6. National Oceanic and Atmosphere Administration Fisheries Pacific Islands Region public outreach material, promoting the "Amazing From Afar" campaign, which highlights respectful sea turtle viewing in Hawai'i. Source: Abrams et al. 2023

STEP 4. PILOT AND STEP 5. IMPLEMENT AND EVALUATE

At this point, there should be a set of tools identified for influencing behavior change to overcome the behavioral barriers and enhance the motivations of the target audience. There may be some strategies in mind for executing these tools, such as creating communication materials, collaborating with strategic partners, establishing new guidelines, and making infrastructure adjustments. In this final step, aim to start small with a pilot, gather data and insights to evaluate through all phases, and then scale up the social marketing initiative toward a successful outcome. What follows is more helpful details, options, and examples summarized from McKenzie-Mohr (2011), Van Leuvan et al. (2022), and Lee and Kotler (2019).

Diagnostic Question 7: How Will Success be Measured?

The success of a campaign is measured by its effectiveness in influencing the target behavior. Piloting, implementing, and evaluating are crucial components for determining the initiative's strengths, weaknesses, and effectiveness. They allow for iterative learning and continuous improvement of behavior change strategies based on real-world implementation and evaluation data.

Principle: Good data helps make good management decisions.

PILOT: During the pilot phase, a small-scale test of the behavior change strategy is conducted. This allows refinement and fine-tuning of the approach before full-scale implementation. The pilot typically involves selecting a subset of the target population or community and implementing the intervention on a smaller scale to assess its effectiveness and feasibility. During this phase, collecting data and insights on both the implementation process and impacts is helpful. This data can include participant feedback, behavior change measurements, and other relevant indicators. The insights gained from the pilot help identify any areas that require refinement or changes to ensure better results "before investing significant resources in full-scale implementation." It can also build broader acceptance and support before full implementation, as participants in the pilot model the new behavior to their peers (Van Leuvan et al. 2022, 203).

IMPLEMENT: Once the pilot phase is complete and any necessary adjustments have been made, the intervention is ready for full-scale implementation. This involves deploying the behavior change approach across the entire target audience. During implementation, monitor the process to ensure fidelity to the intervention design and address any unforeseen challenges or barriers that may arise. Effective communication, audience engagement, and coordination are essential to successful implementation.

EVALUATE: Evaluation should occur throughout both pilot and implementation phases. Ideally, it should occur via formative, process, and summative techniques. Formative evaluations occur throughout the design process to determine which aspects of the strategy work well or not, and why. A process evaluation examines how well a program or intervention was carried out. It looks at factors like program reach, whether the intended components were delivered and received, fidelity to the original plan, any necessary adaptations, and participant reactions. A summative evaluation aims to assess the effectiveness and impact of the implemented intervention to understand whether the objectives have been achieved or what progress has occurred.

Evaluation involves collecting data and measuring key indicators to determine whether the desired behavior change has occurred and to what extent. Evaluation methods may include surveys, interviews, observational studies, field experiments, or analyzing existing data sources. In natural resource management, leverage existing data collection and monitoring efforts to evaluate the impact of the initiative on resource condition. After, there are two options: either use the existing data as-is or enhance it with additional components. For example, pair campground reservation data with citations and warnings/contacts to determine if duration of stay, party size, and/or dwelling relates to violation types or trends for a formative or summative evaluation. The goal is to gather accurate information about desired behavior changes, or, as the case study illustrates, the natural resource conditions impacted by that behavior.

When evaluating communication or training efforts, measuring only the number of people reached or the number of materials distributed does not provide an evaluation of whether meaningful change has occurred. Consider including brief surveys, interviews, and/or observations to gauge whether the desired behavior change occurs within those audiences. As covered in Step 2, be aware of bias in self-report data and ground truth or triangulate these methods if feasible. The evaluation process helps to identify areas of success, areas for improvement, and informs future iterations or adaptations of the intervention. Some guidance and examples can be found in the Interagency Visitor Use Management "Monitoring Guidebook"(https://visitorusemanagement.nps.gov/VUM/Framework), including a sample data collection protocol that was used to evaluate a social marketing approach that encouraged safe wildlife viewing in national parks (Abrams et al. 2020).

Over time, people change, and initiatives must adapt. Managers need to regularly evaluate and refresh the initiative to ensure that it meets its intended outcomes.

Outcome

The result of this step will be a clear picture supported by data on what strategies are most effective in influencing visitor behavior.

Case Study

Keep it Crumb Clean and Changes in Population of an Endangered Species

The "Keep it Crumb Clean" initiative addressed the problem of Steller's jays predating on endangered marbled murrelet eggs and chicks in Redwood State and National Parks. The initiative aimed to reduce accidental feeding of jays by visitors in high-use areas that overlapped with nesting areas of the marbled murrelet.

Survey, interview, and observation research determined that, for the most part, visitors were not intentionally feeding the jays and needed the skills and infrastructure to prevent jays from accessing human food (Diagnostic Questions 1–5, Ward et al., 2011).

Designers developed a strategy that coordinated engineering, education, and enforcement (Diagnostic Question 6):

- **Engineering:** Animal-proof food storage lockers, trash cans, and grates over drains.
- **Education:** Skills- and behavior-focused message "Keep it Crumb Clean," shared via reservation videos, commitment pledges, stickers, signage, and roving interpreters.
- **Enforcement:** Ticketing for leaving food out overnight.

Diagnostic Question 7: How They Measured Success

The initiative was implemented in 2012 in Redwood State and National Parks. Compared to the 2007-2011 time-period, the data from 2012-2016 indicated that the average number of Steller's jays detected within 50 meters of campgrounds decreased by at least 50% (Redwood National and State Parks, 2016). Implementation and evaluation were replicated in seven campgrounds at Big Basin Redwoods State Park starting in 2014. Data showed a decrease in adult jay density, fewer juveniles produced, and less human food in jay diets when the initiative was in place (Brunk et al., 2021).

The evaluation process relied on an existing species monitoring effort, providing an excellent opportunity for summative evaluation that efficiently and cost-effectively integrated conservation and visitor management goals.

Learn more at California Department of Parks and Recreation Crumb Clean Campaign

Figure 7. California Department of Parks and Recreation public outreach material, promoting the "Keep It Crumb Clean" campaign, which promotes proper food storage and clean campsite practices. Source: California Department of Parks and Recreation

This page intentionally left blank.

CONCLUSION

As illustrated throughout, the social marketing framework can help improve visitor use management on public lands and waters. It provides a way to link enforcement, engineering, and education, and more specifically focus on modifying visitor behaviors in a specific time and place. Social marketing strategies influence behavior by both removing barriers and stimulating motivation to perform beneficial behaviors. Barriers could be physical or knowledge-dependent, socially driven, subconsciously influenced, or stem from different moral values and belief systems.

While social marketing shows promise for improving conservation outcomes, there are also limitations. Like traditional marketing, social marketing initiatives typically address relatively large audiences where there may be few opportunities for one-on-one interaction or follow-up. Social marketing initiatives can benefit from understanding how different moral values or belief systems affect behavior. However, changing moral values or belief systems through these brief engagements should not be an intended or expected outcome. As such, social marketing is not an appropriate tool to address value or identity conflicts related to natural resource management, such as poaching or disagreements over how to control wildlife populations. Even though these types of management issues are often framed as needing to change behaviors, if behavior change initiatives hinge on changing the other party's values, they may exacerbate conflicts rather than resolve them (Leong et al. 2020). Similarly, behavior change approaches should not be expected to develop stewardship ethics among visitors. As noted by Lee and Kotler (2019) for many conservation issues, target audiences simply need help to engage in the behaviors that support management. Those are the situations that benefit most from social marketing.

Even when the situation is fitting for social marketing, there are reasons it can fall short of conservation goals. Recent research has identified why this happens:

- Overreliance on communication and awareness-raising, without addressing the broader environmental and structural factors influencing visitor behavior (Akbar et a., 2021; Cook et al. 2020).
- Short-changing time and funding for proper formative research to fully understand audiences' motivations and barriers, leading to ill-fitting strategies or objectives (Akbar et a. 2021; Cook et al 2021).
- Pushing for quick results rather than supporting the longer-term work for sustained behavior change (Akbar et al. 2021).
- Relatively limited evaluation research connecting behavior change to conservation impacts (Thomas-Walters et al. 2022).

Being aware of these limitations can help teams develop more realistic initiatives while taking steps to address common pitfalls in the planning process.

Following the steps, diagnostic questions, and principles synthesized in this paper can help people new to social marketing navigate the growing body of literature that applies social marketing to conservation practice. Initiatives should be designed with the visitor's desired experience in mind, and the time and resources spent on each step should be commensurate with the scale of the problem addressed. Investing resources in audience research, pilot testing, and evaluation allow designers to make confident decisions about the approach and update the initiative over time. Successful development of social marketing is strengthened by input from an interdisciplinary team. Combined expertise from resource management, law enforcement, facilities, public affairs, interpretation and education, and the social sciences lead to comprehensive strategies that address the complex interplay between human behavior and environmental conservation. When resources are limited, careful consideration of each of the diagnostic questions and input from subject matter experts will improve the initiative's outcomes.

Social marketing offers a proven approach to behavior change that has been applied across fields to support and promote behaviors that benefit individuals, communities, and the greater social good. Adopting social marketing strategies to support conservation on public lands and waters can help natural resource managers achieve their conservation goals and deliver the benefits of conservation to their visitors.

REFERENCES

Abrams, Katie M., Alia Dietsch, and Channing Bice.

2025 "Shaping camper behavior to protect wildlife: Effects of a social marketing approach in national parks." Environmental Communication 19 (8): 1467–87. https://doi.org/10.1080/17524032.2025.2483280.

Abrams, Katie M., Amanda L. Molder, Paige Nankey, and Kirsten Leong.

2023 "Encouraging respectful wildlife viewing among tourists: Roles for social marketing, regulatory information, symbolic barriers, and enforcement." Social Marketing Quarterly 29 (1): 67–86. https://doi.org/10.1177/15245004231153085.

Abrams, Katie M., Kirsten Leong, Sara Melena, and Tara Teel.

2020 "Encouraging safe wildlife viewing in national parks: Effects of a communication campaign on visitors' behavior." Environmental Communication 14(2): 255-270. https://doi.org/10.1080/17524032.2019.1649291.

Akbar, Bilal M., Liz Foote, Clidna Soraghan, Rachael R. Millard, and Fiona Spotswood.

2021 "What Causes Social Marketing Programs to Fail? A Qualitative Study." Social Marketing Quarterly 27(2): 99-116. https://doi.org./10.1177/15245004211010202.

Akerlof, K. L., E. Sherman, C.A. Downs, S. Melena, D. Belman, O. Medina, and C.A. Lipsky.

2023a "Diagnosing sun protection behavioral barriers and identifying interventions for public health and the environment." Coastal Management,51(5–6): 377–394. https://doi.org/10.1080/08920753.2023.2291862.

Akerlof, K. L., J. Loevenich, S. Melena, and C.A. Lipsky.

2023b "Behaviorally segmented audiences for managing sunscreen chemical pollution risk in protected coastal natural resource areas." Risk Analysis, 44(2):349-365.

Andreasen, Alan R.

1994 "Social marketing: Its definition and domain." Journal of Public Policy & Marketing, 13(1): 108-114. Behavioural Insights Team. 2014 EAST: Four simple ways to apply behaviorual insights. Available from https://www.bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights/.

Bennett, Nathan J., Robin Roth, Sarah C. Klain, Kai Chan, Patrick Christie, Douglas A. Clark, Georgina Cullman, Deborah Curran, Trevor J. Durbin, Graham Epstein, Alison Greenberg, Michael P. Nelson, John Sandlos, Richard Stedman, Tara L. Teel, Rebecca Thomas, Diogo Veríssimo, and Carina Wyborn.

2017 "Conservation social science: Understanding and integrating human dimensions to improve conservation." Biological Conservation, 205: 93-108. https://doi.org/10.1016/j.biocon.2016.10.006.

Brunk, Kristin M., Elena H. West, Zachariah M. Peery, and Anna M. Pidgeon.

2021 "Reducing anthropogenic subsidies can curb density of overabundant predators in protected areas." Biological Conservation 256: 109081 Bujold, Philipe M., Katie Williamson, and Erik E. Thulin.

2020 The Science of Changing Behavior for Environmental Outcomes: A Literature Review. Rare Center for Behavior & the Environment and the Scientific and Technical Advisory Panel to the Global Environment Facility.

Burn, Shawn M. and Patricia L. Winter.

2007 Environmental Intervention Handbook for Resource Managers: a Tool for Pro-environmental Behavior Change. 2nd ed. United States Department of Agriculture, Forest Service.

2008 "A behavioral intervention tool for recreation managers." Park Science 25(1): 66-68.

Cialdini, Robert B.

2003 "Crafting normative messages to protect the environment." Current Directions in Psychological Science 12(4): 105-109. https://journals.sagepub.com/doi/10.1111/1467-8721.01242

2009 Influence: Science and practice (5th ed.). Pearson. Conservation Marketing and Engagement. n.d. What is Conservation Marketing? https://www.consmark.org/about/. Retrieved July 24, 2024.

Decker, Daniel J., Shawn J. Riley, and William F. Siemer, Eds.

2012 Human Dimensions of Wildlife Management. Johns Hopkins University Press.

Dietsch, Alia, Mike Gavin, Tara Teel, Kristen M. Leong, Melinda M. Clarke, and Bret Meldrum.

2016 Towards an Adaptive Management Approach to Non-Compliance in National Park Service Units. Natural Resource Report NPS/NRSS/BRD/NRR—2016/1125. National Park Service.

Dolnicar, Sara, Bettina Grün, and Friedrich Leisch.

2018 Market Segmentation Analysis: Understanding It, Doing It, and Making It Useful. Springer. https://doi.org/10.1007/978-981-10-8818-6.

Evans, Jonathan S. B. and Keith E. Stanovich.

2013 "Dual-process theories of higher cognition: Advancing the debate." Perspectives on Psychological Science 8(3): 223-241. https://doi.org/10.1177/1745691612460685.

Galloway, Graeme.

2002 "Psychographic segmentation of park visitor markets: Evidence for the utility of sensation seeking." Tourism Management, 23(6): 581-596. https://doi.org/10.1016/S0261-5177(02)00025-0.

Heffner, Katie.

2024a Social Marketing & Levers of Behavior Change. Conference presentation at the

2024b Multi-Sector Summit to Address Light Pollution & Bird Collisions, Shepherdstown, WV, United States.

Hockett, Katie S., Jeffrey L. Marion, and Yu-Fai Leung.

2017 "The efficacy of combined educational and site management actions in reducing off-trail hiking in an urban-proximate protected area." Journal of Environmental Management 203: 17-28.

Ideas42.

n.d. How we work. https://www.ideas42.org/services/. Retrieved July 24, 2024.

Interagency Visitor Use Management Council.

2016 Visitor Use Management Framework A Guide to Providing Sustainable Outdoor Recreation. Edition 1. https://visitorusemanagement.nps.gov/Content/documents/lowres_VUM%20Framework_Edition%201_IVUMC.pdf.

International Social Marketing Association (iSMA), European Social Marketing Association (ESMA), Australian Association of Social Marketing (ASMA).

2013 The iSMA, ESMA and AASM Consensus Definition of Social Marketing. https://smana.org/wp-content/uploads/2017/04/iSMA-Consensus-definition-of-Social-Marketing-Oct-2013.pdf.

Juvan, Emil, and Sara Dolnicar.

2014 "The attitude-behaviour gap in sustainable tourism." Annals of Tourism Research, 48: 76-95. https://doi.org/10.1016/j.annals.2014.05.012.

Lai, Po-Hsin, Michael G. Sorice, Sanjay Nepal, and Chia-Kuen Cheng.

2009 "Integrating Social Marketing into Sustainable Resource Management at Padre Island National Seashore: An Attitude-Based Segmentation Approach." Environmental Management 43: 985-98. https://doi.org/10.1007/s00267-009-9293-9.

Lee, Nancy R.

2018 Policymaking for Citizen Behavior Change: A Social Marketing Approach. Routledge. https://doi.org/10.4324/9781315525655.

Lee, Nancy R. and Philip Kotler.

2019 Social marketing: Behavior change for social good. SAGE Publications.

Leong, Kristin M., Ashley R. Gramza, and Christopher A. Lepczyk.

2020 "Understanding conflicting cultural models of outdoor cats to overcome conservation impasse." Conservation Biology, 34: 1190-1199. https://doi.org/10.1111/cobi.13530.

Manning, Robert E., Anderson, L.E., and P.R. Pettengill.

2012 Managing Outdoor Recreation: Case Studies in the National Parks. 1-243. 2nd ed. CABI Publishing

Marshall, George.

2015 Don't even think about it: Why our brains are wired to ignore climate change. Bloomsbury Publishing.

McKenzie-Mohr, Doug.

2011 Fostering sustainable behavior: An introduction to community-based social marketing. New Society Publishers.

McLeod, Lynette J., Donald W. Hine, Patricia M. Please, and Aaron B. Driver.

2015 "Applying behavioral theories to invasive animal management: towards an integrated framework." Journal of Environmental Management, 161: 63-71. https://doi.org/10.1016/j.jenvman.2015.06.048.

Meine, Curt.

2010 Aldo Leopold: his life and work. University of Wisconsin Press.

Michie, Susan, Maartje M. van Stralen, and Robert West.

2011 "The behaviour change wheel: a new method for characterising and designing behaviour change interventions." Implementation Science, 6: Article 42. https://doi.org/10.1186/1748-5908-6-42.

Minnesota Department of Natural Resources.

n.d. Preventing aquatic invasive species through behavior change. Retrieved from https://www.dnr.state.mn.us/invasives/ais/prevention/behavior-change.html.

2019 Aquatic invasive species community-based social marketing project: Expert panel session #1 summary. Available from https://www.dnr.state.mn.us/invasives/ais/prevention/behavior-change.html.

Minton, Elizabeth A., Abigal M. Sisneros Kidd, and Christopher Monz.

2020 "'Minor crimes' against wildlife: Small offenses, lasting impact, and a proposed solution." Psychology & Marketing, 37(12): 1708-1719. https://doi.org/10.1002/mar.21412.

Moon, Katie and Debra Blackman.

2014 "A guide to understanding social science research for natural scientists." Conservation Biology, 28(5): 1167-1177. https://doi.org/10.1111/cobi.12326.

Nuno, Ana and Freya A.V. St. John.

2015 "How to ask sensitive questions in conservation: A review of specialized questioning techniques." Biological Conservation, 189: 5-15. https://doi.org/10.1016/j.biocon.2014.09.047.

Otak, Inc. and Others.

2024 2023 National Technical Report: Socioeconomic Research of National Park Service Visitors: Report on 2023 Data Collection. National Park Service.

Rare's Center for Behavior & the Environment.

2025 "The BE.Center's 6 behavioral levers." https://behavior.rare.org/behavioral-levers/.

Rare and The Behavioural Insights Team.

2019 Behavior Change For Nature: A Behavioral Science Toolkit for Practitioners. Rare.

Reddy, Sheila M.W., Jensen Montambault, Yuta J. Masuda, Elizabeth Keenan, William Butler, Jonathan R.B. Fisher, Stanley T. Asah, and Ayelet Gneezy.

2017 "Advancing conservation by understanding and influencing human behavior." Conservation Letters, 10(2): 248-256. https://doi.org/10.1111/conl.12252.

Redwood National and State Parks.

2016 Forest Corvid Monitoring and Management Trail and Backcountry Management Plan Implementation 2015 Annual Progress Report. US Fish and Wildlife Service Biological Opinion Reference #: 8-14-2003-1517.

Schlüter, Maja, Andres Baeza, Gunnar Dressler, Karin Frank, Jürgen Groeneveld, Wander Jager, Marco A. Janssen, Ryan R.J. McAllister, Birgit Müller, Kirill Orach, Nina Schwartz, and Nanda Wijermans.

2017 "A framework for mapping and comparing behavioural theories in models of social-ecological systems." Ecological Economics, 131: 21-35. https://doi.org/10.1016/j.ecolecon.2016.08.008.

Smith, Robert J., Gabby Salazar, Joseph Starinchak, Laura A. Thomas-Walters, and Diogo Veríssimo.

2020 "Social marketing and conservation. In W. J. Sutherland, P. N. M. Brotherton, Z. G. Davies, N. Ockendon, N. Pettorelli, & J. A. Vickery (Eds.)," Conservation Research, Policy and Practice (pp. 309–322). Cambridge University Press.

Schultz, P. Wesley.

2011 "Conservation means behavior." Conservation biology, 25(6): 1080-1083.

2013 "Strategies for promoting pro-environmental behavior: Lots of tools but few instructions." European Psychologist 19(2):107. https://doi.org/10.1027/1016-9040/a000163.

Thomas-Walters, L., McCallum, J., Montgomery, R., Petros, C., Wan, A. K. Y., & Veríssimo, D.

2022 "Systematic review of conservation interventions to promote voluntary behavior change." Conservation Biology, 37, e14000. https://doi.org/10.1111/cobi.14000.

Van Leuvan, Nya, Lauren Highleyman, Rod Fujita, and Ashleigh Kellerman.

2022 Making shift happen: Designing for successful environmental behavior change. New Society Publishers.

Van Rooij, Benjamin and Adam Fine.

2022 "Behavioral jurisprudence: Law needs a behavioral revolution." Behavioral Scientist. Retrieved from https://behavioralscientist.org/behavioral-jurisprudence-law-needs-a-behavioral-revolution/.

Ward, Carolyn, Jennifer Taylor, and Steven Martin.

2011 Evaluation of communication strategies to mitigate visitor use impacts on Marbled Murrelets. Humboldt State University.

Wedel, Michel, & Wagner A. Kamakura.

2000 Market segmentation: Conceptual and methodological foundations. Springer Science & Business Media.

West, Robert and Susan Michie.

2020 "A brief introduction to the COM-B Model of behaviour and the PRIME Theory of motivation." Qeios. https://doi.org/10.32388/WW04E6.

Winter, Patricia L.

2006 "The impact of normative message types on off-trail hiking." Journal of Interpretation Research 11 (1): 35-52.

APPENDIX A:
RESOURCES FOR BEHAVIOR CHANGE STRATEGIES

Strategies for Promoting Pro-environmental Behavior: Lots of Tools but Few Instructions (2013) organizes common interventions by their utility when barriers and benefits of a behavior are low or high.

Schultz, P. Wesley.

2013 "Strategies for promoting pro-environmental behavior: Lots of tools but few instructions." European Psychologist 19(2):107. https://doi.org/10.1027/1016-9040/a000163

The Environmental Intervention Handbook for Resource Managers: A Tool for Pro-environmental Behavior Change (2007) outlines steps resource managers can take to design strategies that support pro-environmental behaviors. It includes worksheets to help walk through many of the considerations outlined above. Step 3 – Design Interventions includes suggested strategies for barriers associated with competing social norms; attitudes, values, or motives; setting design; ignorance and misinformation; and bad habit.

Burn, Shawn M. and Patricia L. Winter.

2007 Environmental Intervention Handbook for Resource Managers: a Tool for Pro-environmental Behavior Change. 2nd ed. United States Department of Agriculture, Forest Service.

Fostering Sustainable Behavior (2011) introduces social marketing to influence environmental behaviors at a community-level. The chapter on strategies introduces tools that can be used to influence behavior change.

McKenzie-Mohr, Doug.

2011 Fostering sustainable behavior: An introduction to community-based social marketing. Gabriola Island, BC: New Society Publishers.

Making Shift Happen (2022) features guidance on how to design a behavior change initiative from choosing the right audience and uncovering what drives their behavior, to designing, prototyping, testing, and implementation. The second half of the book includes one of the most comprehensive summaries of various research-backed techniques to encourage behavior change.

Van Leuvan, Nya, Lauren Highleyman, Rod Fujita, and Ashleigh Kellerman.

2022 Making shift happen: Designing for successful environmental behavior change. Gabriola Island, BC: New Society Publishers.

Social Marketing: Behavior Change for Good (2023) includes a section on Developing Marketing Intervention Strategies.

Lee, Nancy R. and Philip Kotler.

2019 Social marketing: Behavior change for social good. Thousand Oaks, CA: SAGE Publications.

Levers of Behavior Change: A Guide to the Science and Applications (2024) describes a framework of six behavior change levers that include emotional appeals, social influences, choice architecture, information, material incentives, and rules and regulations. The guide explains how the levers work, when they are most effective, and how to know when to use them.

Rare's Center for Behavior & the Environment.

2025 "The BE.Center's 6 behavioral levers." https://behavior.rare.org/behavioral-levers/.

This page intentionally left blank.

Strategic Behavior Change: Applying Social Marketing To Visitor Use Management

September 2026