

UP2U: A REDESIGNED COMMUNITY SYSTEM FOR
CLEANER MARINE ENVIRONMENTS

by

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DEDICATION

This thesis is dedicated to my role model and biggest supporter, my mom, for always pushing me to achieve success in and out of the classroom. If it wasn't for her encouragement and support, I would not be the woman I am today. I owe all of my successes to the advice and counsel that she has provided me. To my significant other, who has been my emotional support and best friend from day one in college. And to my professors and mentors who have shaped me into the student I am today. Finally, to all those who have been there for me along the way and have supported my goals and aspirations, thank you so much for all that you have done for me.

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ABSTRACT

Marine litter has been a problem in the South Texas Coastal area. A non-profit known as the Nueces River Authority has created a campaign, known as *Up To You* (Up2U), whose mission is to involve more participation in cleanups, distribute their yellow mesh reusable trash bags, and educate the community and visitors about marine environments on littering. The purpose of this research is to reevaluate their current outreach system to communicate not only to residents but visitors as well, in order to increase involvement in the current program.

Using human-centered design techniques, this research produced a new system of distribution for these bags by evaluating areas of interaction that all beachgoers and fishers come across by creating a map of events that showed a visitor's typical journey. By identifying this commonality, planning and designing the new look of the campaign led to a prototype that resulted in increased potential for education and involvement. To test the effectiveness of this new distribution system and campaign, a pre-evaluation survey was collected among people that have visited or live in the Corpus Christi area. The questions were structured around the *Transtheoretical Model of Change* in order to measure their current level of involvement in keeping the marine environments clean during their visit. After collecting this initial survey, four respondents were randomly selected for user acceptance testing; the new solution was presented to them and then a post-evaluation survey was collected. The participants' post-evaluation survey answers and verbal comments during user acceptance testing were compared to their responses in their pre-evaluation survey. Results suggested that the new Up2U campaign system,

designed for this thesis, showed potential success in improving distribution of the litter bags and increasing awareness about marine littering.

I. INTRODUCTION

Background on the Up2U Campaign

Marine pollution has become a topic of interest in recent years, with solutions such as beach cleanup events, floating trash collectors, and other mid-ocean trash collecting contraptions, as ways to alleviate the problem. In the South Texas Coastal areas, the current cleanup effort, the Up To You (Up2U) campaign, was created by a non-profit organization known as the Nueces River Authority, whose mission is to “cultivate a sustainable behavior-changing litter prevention program and includes distribution of Up2U litter bags, education and outreach, and community cleanups” (CBBEP, 2020, para. 1). The most recognizable element of this campaign is a yellow mesh bag with the messages on the bag saying “Litter is Pollution,” “Litter is Ugly,” “Litter Stinks,” and “Litter Hurts.” These bags are located at the access roads and entrances on Corpus Christi beaches and Nueces river waterways, and serve as a tool for trash removal, trash prevention, and outreach.

Though the campaign has been visible on the South Texas coast for 10 years, as of this writing, these efforts take a passive approach to distribution with these bags hanging on access road signs and being placed in boxes for people to come by and pick them up if they so choose. Some current residents know about the campaign, but the estimated 550,000 people visit the area every year, do not (CBBEP, 2020, para. 5).

Objective

In order to determine how this research project can help improve the distribution, awareness, and efficacy of this campaign, this research will explore possible solutions to improve the current Up2U system. The primary goal will be to evaluate a re-designed, easy-to-use outreach system aimed at increasing resident and visitor involvement in the current program and, ultimately, keeping coastal areas cleaner. Mapping out user participation will help determine a way to communicate more effectively to the target audience. By comparing how other litter prevention campaigns tackle the issue of pollution, those systems could provide insight on alternative ways to motivate people to participate in a similar mission. Researching human behavior and how people are motivated will aid in creating an environmental health campaign that will educate individuals on how to be more litter conscious than they currently are while spending time at the beach. Human-centered design research methods will be used to analyze this research in order to discover possible solutions for expanding their user participation and knowledge of the program.

II. PRELIMINARY RESEARCH

To begin evaluating the current system in place for the Up2U campaign, this research project will look into the current system distribution and education strategies using a SWOT Analysis, which can help in evaluating the places where a system can succeed or need improvement. Another analysis technique that will be used is a Zag Analysis, which consists of a series of thought-provoking questions that evaluate the current brand and its processes. This section will also explore similar case studies in regards to litter prevention and ethics for recreating in outdoor environments.

Current Up2U System

Up2U litter trash bags are biodegradable yellow mesh bags that hold approximately 1/3rd yard of litter and serve as a tool for trash removal, trash prevention, and outreach.

Currently, these bags are distributed by municipalities, but are not widely dispersed or prominently displayed. The current distribution locations have these bags hung on a PVC pipe attached to beach warning signs (See Figure 1). These signs are located at various beach access road entrances, but there are no directions or prompts to direct people to use these bags other than their bright color that would attract those already familiar with these efforts. The Nueces River Authority and other non-profit groups that have adopted this campaign have information about the Up2U litter bags on their website but the campaign itself does not have its own website dedicated to this mission.



Figure 1: Up2U trash bags hang on access road signs.



Figure 2: City trash cans on the beach with riptide signage attached to post

During peak tourist season, beaches and river parks are littered with trash from visitors even though these bags are supposed to promote responsible trash disposal in these coastal areas. Their lack of active use in these areas and lack of a clear call to action—what to do with them if a person does use the bag (See Figure 2)—makes their current implementation ineffective and in need of improvement. The current messaging—in English and Spanish—on these bags features negative headlines such as “Litter is Pollution,” “Litter is Ugly,” “Litter Stinks,” and “Litter Hurts” (See Figure 3). Beneath each headline there are contrasting positive messages of nature and beauty.



Figure 3: Label messaging on the current Up2U yellow trash bags.

Information about the location and purpose of the yellow mesh bags is difficult for the user to understand because the campaign has a lack of online presence and media attention, while also having a passive distribution system. With a limited presence, this leaves these litter bags that are dispersed along the beach to be the only visible evidence of this campaign, and there is no follow-up or physical remarks that identify these litter bags' purpose. Visitors who frequent these local marine environments are familiar with these bags, but visitors or uninformed locals, may not be aware of this campaign. The Environmental Protection Agency recently (May 2020) awarded the campaign a grant to expand their project which presents an opportunity to design a new solution to make the best use of the funds.

With research on how other litter prevention campaigns tackle the issue of pollution, the Up2U campaign could gain insight on alternative ways of creating a

community engaged solution to help alleviate the problem of marine litter. User experience mapping, which is another way of describing a user's journey and the sequence of events that lead up to a certain event, can help bring insight into how to get the community involved in the campaign. With a branding overhaul, where the campaign's strengths and weaknesses are evaluated in order to determine how to fix or build upon existing structures specifically this campaign, locals and visitors could be better informed and educated on their efforts to assist in the mission of the campaign in order to drive a lasting message that will have an impact on their future actions.

A successful solution to the Up2U campaign could result in a more well-known community engagement program that includes both visitors and locals in order to promote litter prevention in the coastal areas in order to have cleaner and safer marine environments. These efforts could potentially help with the ultimate goal of reducing marine litter not only in the Corpus Christi coastal areas, but could potentially be used across the state and beyond in State or municipal parks and other public spaces.

Analysis

In order to better evaluate the current system of the Up2U campaign, multiple analysis methods were chosen to guide and determine what is working and what is not. The first analysis method used is a Zag Analysis based on Marty Neumeier's book *Zag* (2007). The purpose of this analysis is to evaluate the current brand and its processes. The next way to analyze the current system was created by Albert Humphrey and it is called a SWOT Analysis chart. This chart helps to evaluate the strengths, weaknesses, opportunities and threats (SWOT) associated with the campaign. This method helps to

best understand where a group might improve or take advantage of strategic points, while also discussing the pitfalls or issues that can become a part of the campaign. Lastly, evaluating case studies from other campaigns will help to develop an understanding of how other campaigns with similar missions have tackled these environmental issues.

Zag Analysis. The current topic of environmental protection and advocacy has many voices. Existing solutions that are currently being used either encourage participation from everybody, or solutions that do not involve the vast majority of people. Local community organizations, companies, service groups, and schools “adopt” a section of the beach. A few local volunteers clean the beach themselves. Cities implement anti-plastic laws in the hopes of reducing waste. However, what all these solutions fail to recognize is that there will always be people who want to help; yet, there will always be a group of people who either do not care or are less inclined to participate because they do not see the benefit for themselves.

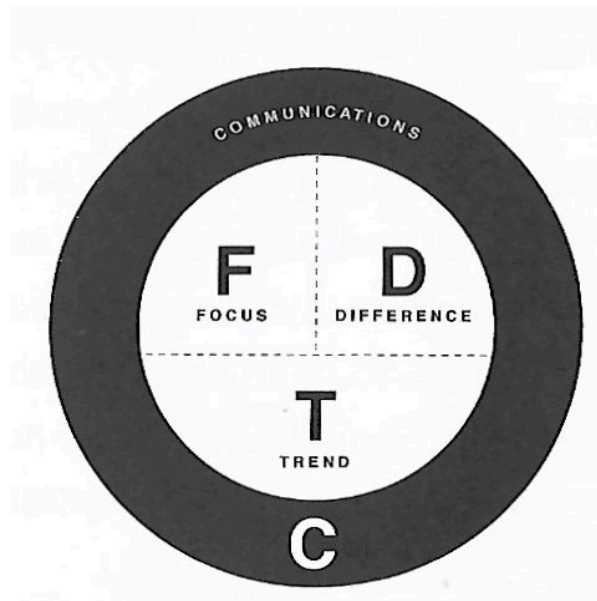


Figure 4: Neumeier's four key elements of a zag (2007, p. 48)

Neumeier's Zag Analysis is a 17-question process that "addresses one of the four key elements—differentiation, focus, trend, and communications" (Neumeier, 2007, p. 48) (See Figure 4). Accordingly, this research project will attempt to create a solution that evaluates current trash removal efforts and suggest a solution "when everybody zigs, zag" (Neumeier, 2007). Neumeier's Zag Analysis will help to simplify the evaluation process of the current campaign by following his series of thought-provoking questions.

The following are built around the basic questions used in the Zag Analysis method. These questions serve to generate a basic understanding and foundation from which to develop a strong and well thought out campaign. Most of the questions seem simple but have a greater purpose, aimed at revealing how to proceed and build momentum within the campaign. The questions are italicized below to show the beginning of each phase of the Zag Analysis.

Who are you? Up2U is a "homegrown social marketing campaign that advocates personal responsibility for environmental protection, especially litter prevention," (Up2U Litter Prevention Campaign). The Nueces River Authority started the Up2U campaign that stretches from the headwaters of the Nueces River Basin and was brought to the Gulf Coast by the Coastal Bend Bays and Estuaries Program.

What do you do? Up2U's purpose is to keep the Gulf Coast and surrounding marine environments clean.

What's your vision? Eventually, the beaches will be trash free. Beach and river goers have mutual respect for the areas that they visit by being mindful and cleaning up after themselves. With biodegradable trash bags and disposal stations for these bags, the beaches would be properly picked up after and trash would be out of sight and out of the

marine environments. Every visitor with a beach set-up would include at least one Up2U trash bag per group so that trash can be effectively and properly disposed of.

What wave are you riding? With green-thinking on a rise, more people are moving towards an eco-friendly lifestyle that involves changes such as reusable containers, biodegradable products, renewable or electric energy sources, recycling plastics and other materials to make textiles, and so many more. With younger generations becoming more environmentally conscious, the trend of “saving our planet” is a current conversation in today’s world. This trend has helped motivate people to take action and start thinking about how they can affect change in their everyday life.

Who shares the brandscape? Nueces River Authority was the first to introduce this type of system of providing biodegradable trash bags for everyone to use and dispose of their trash within the area of the Nueces River headwaters all the way down to the Gulf Coast. In recent years, the City of Corpus Christi introduced their own version of these trash bags that are larger in size and have their own blue box that they are hidden in, but the information and education about this system is lacking. Their more affiliation to the City and sub-departments of the City allows for them to have more press and recognition, but their efforts are merely those that copy this project model of the Up2U campaign.

What makes you the only? Up2U is the only marine litter prevention campaign in the Nueces River area that provides the means and opportunity to help keep the marine environments cleaner through the use of the yellow mesh trash bags and information regarding marine litter and waste.

What should you add or subtract? Currently, the only brand elements for this campaign consist of a dated and hidden webpage among the Nueces River Authority’s

website and the yellow trash bags themselves. The current system of the trash bags provided in the areas of human use allows for users to have the means and opportunity to clean these areas but this system is lacking the means and opportunity to keep these beaches clean with proper disposal. It is critical to add information to educate these users, as well as clear guidance for steps to properly get involved, including disposal recommendations and further engagement in the campaign.

Who loves you? Those who support the Up2U campaign, are environmentally-conscious individuals who support having clean marine environments that involve proper disposal of foreign human waste in these environmentally sensitive areas. Other beneficiaries of this campaign include infrequently considered groups, such as the tourism industry and waste management workers. These groups often find that they can best be served when helped by the general public in various ways including campaigns for litter prevention and beautification of heavily-trafficked areas.

Who's the enemy? There are not necessarily enemies to our mission, but there is an uninformed or apathetic audience that undermines the efforts of those who are actively participating in the campaign. This creates a negative movement against the campaign. The inanimate enemy though, ultimately, is trash in these marine environments.

What do they call you? The Up2U campaign was created by the Nueces River Authority. Currently, the Coastal Bend Bays and Estuaries Program is the non-profit organization who expanded this campaign to the Gulf Coast and continues to support it. However, the Up2U name has been consistently used to advertise as an initiative across all organizations that have currently supported it. The current name of Up2U is written out using an up arrow instead of the word “up”.

How do you explain yourself? A human engaged marine litter solution for the environment.

How do you spread the word? The current means of communication is word of mouth and the physical trash bags located at beach entrances. It is smart to plan future communications that are mindful of their mission by not creating more physical waste items to be put in their bags. Communication would need to invoke digital mediums that reduce the carbon footprint. Their trash bags and their pick-up and drop-off sites could also feature more information since the bags are biodegradable and the pick-up and drop-off sites are permanent environmentally conscious installations.

How do people engage with you? Users engage with the Up2U campaign currently by utilizing the yellow trash bags for waste collection, but the gap in their solution is getting people to use these bags without direction or information about these bags. It is with this in mind that brainstorming solutions on how to direct people to the campaign would be beneficial to the cause. Possible future engagement could start with social media marketing, local news features, spot ads, and proper web presence.

What do they experience? Potential users learn about the campaign by word-of-mouth, passing by the installations, local ads, email subscription, social media, editorial coverage, or onsite learning programs. Enrolling people into the campaign would involve exposing them to the idea of cleaning up after oneself in a volunteerism manner. From this, their campaign involvement might lead to loyalty by association and by pride in oneself and their efforts. Competition with the City could cause confusion between the two similar efforts, thus causing the Up2U campaign to be dismissed. If the Up2U campaign was adopted by the City then this partnership would greatly help both sides

while continuing under one identity. The parks and recreation, waste management, and beach patrol departments could assist the Up2U campaign with the manpower behind the efforts, while the supporting organizations could provide the resources and supplies to further the cause.

How do you earn their loyalty? The first step in establishing loyalty to a solely volunteer-based effort is recognizing that guilt or shaming people is not going to motivate them to join the cause. Instead, it is critical to embrace these volunteers, as having more people involved likely equates to a more successful change mission. Creating a loyalty program could provide some benefits to keep people involved in clean-up efforts, but it is important to keep in mind that a reward program could just cause people to only volunteer for the incentives and not actually change people's behaviors long-term.

How do you extend your success? With the local non-profit Coastal Bend Bays and Estuaries overseeing and implementing this campaign throughout the Coastal Bend area, it is important to implement the rebranding and changes in stages so as to not overwhelm those who are new to the process and the task at hand. At the current moment, their most well-known area of recognition is along the beachfronts. After establishing a strong and successful presence, the campaign could then extend back upriver to the headwaters and all the branching streams of recreation along the Nueces River. This strategy would allow for continued adaptation and success of their campaign into other areas of the region.

How do you protect your portfolio? The current mission of the campaign can be extended and adapted to other coastal areas. The overall mission will always be valuable

because most people can agree that having clean water and environments around them is important, but what makes the whole campaign stronger is the addition of more parts being added to the whole.

From following Neumeier's steps, critical information about how the current system operates and communicates were evaluated. Improvements that could be made include revising information in order to be communicated concisely and sustaining continued involvement. Knowing these areas of improvement will allow me to attend to basic areas of improvement first, while maintaining successful aspects of this campaign such as partnerships and support from local municipalities and organizations. This analysis provided a clear idea on how a person naturally interacts with this campaign and explored the current campaign, including areas that are working and not working.

SWOT Analysis. A SWOT Analysis can help in evaluating the places where a system can succeed or need improvement. Thus, the analysis allows for observations of the strengths, weaknesses, opportunities, and threats of the campaign. Acknowledging these aspects of a campaign or business can help by building on success and being proactive on potential problems. Strengths can identify positive ideas and behaviors that should continue. Weaknesses can allow for growth by improving and changing ideas that can potentially be less constructive to the mission. Finding opportunities preemptively can allow campaigns the chance to plan and seize their opportunity when the moment is right. Threats can be assessed and used to find a solution to get past these challenges. Below is a list of observations based on the current Up2U system:

Strengths	<ul style="list-style-type: none"> ● Environmentally sound practice ● Local resident participation ● Non-profit status creates a sense of authenticity in their mission
Weaknesses	<ul style="list-style-type: none"> ● Lack of awareness among visitors and the uninformed ● Lack of a public presence and guidance ● Lack of manpower to enforce and/or promote this campaign ● Poor online presence ● No follow-up/loyalty program
Opportunities	<ul style="list-style-type: none"> ● Donations as a non-profit ● More partnerships with municipalities and local businesses ● Expansion of educational material ● Creation of a new experience with these bags ● Improve the bags themselves
Threats	<ul style="list-style-type: none"> ● High levels of tourism w/o participation ● Uninformed audience not aware of needed support ● More waste coming into these environments

Table 1: SWOT Analysis

Conducting this SWOT Analysis further validates some of the areas of improvement that were previously addressed in the Zag Analysis including:

- Improving online presence could lead to more awareness
- Creating a loyalty program could engage interest of more users
- Potential partnerships with businesses could provide support to the campaign
- Educating new users can bring in continued support and awareness by word-of-mouth

Increasing the number of partnerships could allow for the Up2U campaign to spread to more people across the Coastal Bend area. With these partnerships with businesses near or in these marine environments, this could help to improve the impact of this mission and would address the areas for potential growth to visitors in the area and education of the existence of this program.

Environmental Campaign Case Studies

The Zag and SWOT analyses evaluated the current Up2U program by identifying what the campaign's current positions is while also finding areas of growth and improvement. Another way to gain perspective on the current system is by reviewing case studies of other campaigns similar to the one proposed in this thesis. This section will allow for a series of case studies that include other marine litter campaigns, general litter prevention, and alternative methods for litter cleanup and prevention.

“Don’t Mess With Texas” started out as a Department of Highways and Public Transportation campaign to dissuade those from littering, and it has been a successful campaign since 1986 (See Figure 5). Since its inception, it has become a sort of rallying

cry for Texans across the state. Texans identify with the slogan and use it as a sense of state pride. *Texas Monthly*'s Katharyn Rodemann (2011) sat down with Austin based advertising agency GSD&M's cofounder Tim McClure to talk about the process to come up with an attention-grabbing slogan, "Don't Mess With Texas." McClure stated that when the idea finally struck him, he said, "Texans wouldn't call this litter. The only time I'd ever used the word 'litter' was with puppies and kittens. Instead, I was reminded of what my mom used to say about my room growing up. Real Texans would call this a mess" (Rodemann, 2011, p. 112).



Figure 5: Texas Department of Transportation's "Cans Across Texas" campaign trash barrels

What makes this campaign so memorable is that it taps into an empowering reflex with the Texan identity. Their Texan audience now has something they can stand behind, not

only for littering, but in their everyday lives. Seeing the success behind this campaign can help with identifying a solution for the marine environments within the Coastal Bend area and potentially finding something that not only residents in the area can identify with but also visitors. As shown in *Figure 4*, another avenue to potentially explore is making the vessel for disposal educational in itself. The current system for the Up2U campaign has users placing their trash in these sun-beaten blue trash cans that line the beach, but there is no messaging that is relevant to waste disposal or effects of marine litter.

Keep Texas Beautiful's Adopt-A-Beach program taps into a similar empowering mindset, in that it gives volunteers a sense of responsibility for a certain stretch of a beach that they go and clean up. Around the same time in 1986 is when the Adopt-A-Beach program started. Similar to Adopt-A-Highway, volunteers come together for beach cleanup events to help pick up trash that is washed up or left behind by others. These events have had success by providing a clear means to people who want to get involved and volunteer to clean up beaches along the Texas coast. The only downside to this campaign is that it is not proactively reducing litter, but instead cleaning up the trash that is left behind. This community involved structure will help to influence a potential solution for the Up2U campaign by looking at how they recruit and keep involvement as people are the driving force behind keeping these beaches clean. Instead, there should be a solution that involves people cleaning up, but rather as they are creating waste, and not an afterthought once the damage has been done.

Corpus Christi's Cleaner Beach Initiative was implemented in 2014 in response to the 50 tons of trash that were left on their beach during the 2013 Spring break season. Their improvements involved placing more trash receptacles and having employees

actively handing out the yellow bags in order to encourage those to clean up after themselves. This initiative occurred from Spring Break through to Labor Day, which is peak time for visitors to the beach, but at the same time this solution involved an authority that forced people to engage in these efforts and punished them with a \$2,000 fine if they did not. This punitive approach could lead to a negative association with this campaign, which could be counterintuitive to the mission. Tactics that dissuade people from participating would be detrimental so it is important to keep in mind that when creating our solution, punishment should not be a means to get people involved.

The Leave No Trace Center for Outdoor Ethics is a non-profit that communicates their mission with seven principles. Leave No Trace's namesake speaks to their mission of, "educating people—instead of costly restoration programs or access restrictions—as the most effective and least resource-intensive solution to land protection" (Protect the outdoors). Their seven principles have been adopted by various parks and organizations in order to inspire people to enjoy outside places responsibly (See Figure 6). The seven principles that they communicate are (Protect the outdoors): (1) plan ahead and prepare, (2) travel and camp on durable surfaces, (3) dispose of waste properly, (4) leave what you find, (5) minimize campfire impacts, (6) respect wildlife, and (7) be considerate of other visitors.



Figure 6: Leave No Trace 7 Principles Card, front and back

Their third principal speaks to littering prevention while enjoying outdoor environments. A common mantra that they feature is “Pack it in, Pack it out” which essentially means any trash that enters the natural area should also be removed upon departure (Protect the outdoors). They advise against burying and burning trash as these methods do not necessarily ensure that the trash is completely gone and can still be traced and affect the natural wildlife in the area. Potentially adopting these principles for this organization could help in creating a simplified message for visitors, but the task at hand is to create a method of communication that reaches also visitors.

These case studies have allowed for insight on other similar campaigns in the state of Texas and elsewhere in the world that are on a mission to treat the earth or more specifically marine environments with respect. Identifying aspects of these campaigns that are working and not working can be beneficial when structuring a method of communication later in the process. Overall, some of the more successful aspects of these campaigns are when they utilize verbiage that is easily digestible and can resonate with a target group of people.

II. STATEMENT OF THE PROBLEM

The current problem of marine pollution as indicated by the UN Environment Programme, “results from human behaviour, whether accidental or intentional” (n.d.). Change has to start with individuals and in order for that to happen, there needs to be ways and means that are accessible for all to join in and make a difference. A majority of pollutants come from the primary target of this thesis: Visitors recreating in or near marine environments, as it is the group of people who are most likely to change behavior when educated (Ocean pollution, 2020). These individuals create waste and do not realize the damage that is being caused when they unintentionally neglect their waste that then becomes part of the marine ecosystems.

As mentioned previously, the current Up2U campaign uses a passive approach to distributing and advertising their campaign. With the Nueces River Authority’s only presence of these trash bags being on PVC poles at the access road entrances to the beach, and with no follow-up or physical remarks that bring forth its presence, the campaign lacks a recruitment of participation process as well as a continued involvement program. This passive approach of providing bags for people to take at their own will, does not actively recruit individuals to utilize the tools that this campaign is providing and thus is not reaching the audience of people coming to these locations.

There are several groups of people that could benefit positively by cleaner beaches and rivers such as tourism, municipalities, as well as fishing and shipping industries in the area. The issue of litter and pollution in these environments can have negative impacts on these industries, but with change and assistance from those who

utilize these beautiful natural areas, a mutual respect between humans and the environment could change the course of environmental health in marine ecosystems.

Potential

Having a recognizable campaign brand is the first step in creating an effective movement in the right direction. Giving the campaign an identity would help in creating a public image. From there, user mapping will shed light on how to get people to engage with the Up2U campaign in a natural constructive way, and will help mold the rebrand of the campaign by using health communication strategies implemented for the environment's health. By continuing a campaign that keeps environmentally-conscious practices in mind, utilizing digital mediums will help in aiding the marine ecosystem's current and future health by being a vessel for education without creating more litter. By rebranding the Up2U campaign that is produced by the Nueces River Authority, the campaign can begin to thrive with a reimagined system built on having beachgoers actively participate in the mission of keeping these marine environments clean during their visits. With a strong health campaign foundation, the rebrand and reimplementation of this program could become successful by choosing a strategy that will work to educate and increase participation. To implement a long-term change in behavior for people recreating on these beaches, adopting the Transtheoretical Model of Change that is used in human behavioral health changes will bring a social sciences approach to creating lasting changes to the people this campaign comes across.

Hypothesis

By applying behavior-change theories along with design thinking techniques, this research will produce an updated prototype system that should result in an improvement to the distribution, awareness, and efficacy of this litter prevention campaign in the Corpus Christi area.

IV. METHOD

Environmental Health Campaign Planning

The main goal is to be able to create a campaign that resonates with people in a way that encourages involvement in the environment's health. Behavior change strategies for human health campaigns will be used so that this campaign can communicate effectively to people. This method of planning will allow for people to engage with the Up2U campaign in a way that will help implement an environmental health solution. This solution uses human health communication strategies to suggest improvements for the environment during visits to these locations.

Step 1: Defining the Situation and Potential Benefits. The first step in creating a campaign that will result in improving the quality of these marine environments is to look at the potential benefits for creating a campaign that increases human involvement for litter prevention (du Pré, & Cook Overton, 2021). The potential benefits of this research project include: (1) informing visitors of marine littering could increase awareness, (2) providing accessible information on how visitors can get involved to increase participation, (3) increasing participation in the Up2U campaign could result in less litter in marine environments, and (4) educating litter in these environments spurs a cycle of mutual respect in keeping these environments clean in order to ensure for a safe, future visit.

These benefits can now be used to evaluate the current situation in these marine environments in order to determine a way to achieve these benefits eventually. As mentioned previously, it is estimated that 550,000 visitors visit the area for various

reasons. A popular tourist destination in the area are the various beaches that visitors can enjoy. With the current existence and presence of the Up2U campaign, this research hopes to build upon the current system and make necessary improvements to the communication of this program in order to better achieve these benefits listed above. With the preliminary research that was addressed earlier, we can now figure out who this research is reaching out to.

Step 2: Analyzing and Segmenting the Audience. Knowing who this campaign will be targeted towards will facilitate the process of designing messages that are consistent with audience segmentation and analysis (du Pré, & Cook Overton, 2021). People who are already environmentally conscious will feel inclined to participate in a new solution that supports keeping environments healthy. This research will put its efforts toward reaching the type of visitor who may know that marine littering has negative impacts on these environments, but maybe does not have the education or solution that would make participating easier. By identifying this group of people, it becomes apparent that environmentally conscious people would become more active if given an easier path to involvement. Targeting the messaging to this group will help to potentially increase involvement and will change this group of individuals who are on the edge of becoming regular participants in this campaign.

Step 3: Establishing Campaign Goals and Objectives. By stating the benefits and identifying the group of people that could increase the number of participants in this campaign, establishing goals and objectives for the campaign will help to narrow in the

range of this campaign (du Pré, & Cook Overton, 2021). The goals and objectives will shape the campaign design. There are three questions that should be considered in identifying campaign goals and objectives:

(1) What do we want people to start/stop/continue doing? Knowing exactly the actions we want our target audience to take will help in deciding how this research will inform these individuals into doing a desired action. This research hopes to increase education in order to encourage people to partake in litter prevention methods, stop the increase of litter in marine environments and continue to enjoy these recreational areas in a responsible manner.

(2) If we hope to encourage a particular behavior, when (and for how long) should it occur to be of benefit? Planning is important when it comes to distributing resources effectively. The environments where this campaign would be active are used year-round, but often have higher seasonal use during peak tourist seasons. Using a seasonal strategy of advertising will be most helpful in pushing this campaign during the time of March to September when these areas are most visited. This time-frame was selected due to March being the start of the Spring Break season and visitors increase throughout the summer and begin to decrease around September after Labor Day. The spring and summer seasons are typically when visitors frequent these areas due to the association of several holidays and the temperature of this area throughout the year to enjoy being in outdoor spaces. Driving the campaign message more so around the popular holidays will also help to reach a wider audience of visitors with the hopes of increasing participation and education.

(3) How will we know if our campaign has been successful? Health behavior change methods were adopted to measure changes associated with this environmental health campaign. As mentioned previously, this research is aimed at increasing education in order to encourage people to partake in litter prevention methods. To measure this change in willingness to participate, the Transtheoretical Model of Change will be utilized to structure our testing.

The Transtheoretical Model of Change is a theory of health behavior change that addresses individuals' complicated decision-making processes, the Transtheoretical Model explains that "we may not proceed directly from thinking about a problem to changing our behavior" (Holtgrave, Tinsley, & Kay, 1995; Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992, as cited in du Pré, & Cook Overton, 2021, p. 324). This theory outlines 5 stages of behavior change: precontemplation (not aware of a problem), contemplation (thinking of a problem), preparation (deciding to take action), action (making a change), and maintenance (sticking to the change for six months or more). These stages are not always sequential (i.e., people can skip a stage or regress to a previous stage).

Acknowledging an individual's current stage may provide useful insight into the willingness and awareness of a problem with that person, as well as the messages that are most likely to resonate with them (du Pré, & Cook Overton, 2021, p. 324). Creating messaging that would appeal to an individual in the precontemplation stage would need to be more straightforward and educational about marine littering in order to bring awareness to the problem. For individuals who are in stages where they are ready to take

action or are taking action, educational messaging would still be important, but having informing them on how to get involved in marine littering would play a bigger role in the stage that they are at. Educating people on ways to get involved in litter prevention in a way that appeals to their comfort and efficacy levels is key to sustaining continued progress in their level of involvement.

There are four theoretical constructs that suggest how people progress or regress through the stages (Romain, Horwarth, & Bernard, 2018, as cited in du Pré, & Cook Overton, 2021): (1) decisional balance, or the perceived pros and/or cons of changing a behavior; (2) temptation, or the urge to enact particular behaviors or habits, especially during difficult situation; (3) self-efficacy, or how confident people are in their abilities to carry out new behaviors; and (4) processes of change, or strategies people use when actively changing their behaviors, such as substituting or rewarding for positive behavior. This behavior change model will help to evaluate user acceptance, progression, or regression through these stages and will allow for there to be measured change. This measured change will then indicate whether this campaign is successful by providing data through comparative surveys and interviews through pre-test and post-test surveys that will go more in depth in the testing section.

Step 4: Selecting Channels of Communication. The last step before designing the actual campaign is choosing the channel of communication that this campaign will communicate through (du Pré, & Cook Overton, 2021). There are three things to consider when planning out what channel a campaign will use and those are reach, specificity, and impact (du Pré, & Cook Overton, 2021). It is important to reach the group of visitors that

are receptive to getting involved in marine litter efforts and just need an avenue to get involved and not the broader aspect of everyone because creating messaging that speaks to everyone may not communicate at all. Creating messaging that speaks to the target audience will have more of an impact in trying to encourage people to engage in the behavior intended.

When considering the impact of a message through its communication channel, there are two factors that play into the effectiveness of the message: arousal and involvement. Arousal is simply how a person emotionally responds to words and images (Schooler et al., 1998, as cited in du Pré, & Cook Overton, 2021). Involvement is the “amount of mental effort required to understand a message” (du Pré, & Cook Overton, 2021). For this research, involvement will play a large part in communicating the message as this information will require that the target audience to read, process, and act on the message given. The type of visitor that this research is targeted towards are those who may know that marine littering has negative impacts on these environments, but are maybe not aware of solutions that would make participating easier. These individuals will need to be informed of this litter prevention solution which will involve high involvement such as reading campaign materials that provide instructions for getting involved according to the “elaboration likelihood model” (Briñol & Petty, 2006; Petty & Cacioppo, 1981, as cited in du Pré, & Cook Overton, 2021, p. 313).

With the target audience being those who are aware of the problem and are looking for a way to make a difference on the problem that is marine littering, messaging that provides simple instructions will allow for potential participants to understand how easy it could potentially be to get involved. This model also points out that messages that

are tailored and more personal lends itself to individuals paying closer attention since the material appears more relevant to them. Tailoring messages can be based on these five most common strategies: sociocultural, constituent-involving, linguistic, evidential, and peripheral (Torres-Ruiz, Robinson-Ector, Atkinson, Trotter, Anise, & Clauser, 2018, as cited in du Pré, & Cook Overton, 2021, p 314). It is said that using multiple strategies can actually help tailor a message more effectively, so for this research the strategies that will be considered will be:

- Constituent-involving: Soliciting input from members of the target community to aid/improve messaging tailoring. This will allow for this research to narrow its input into people who actively visit these areas.
- Linguistic: Translating messages into the targeted group's preferred language, or using iconography to communicate pictorially will allow for users to understand the instruction clearly. This is currently in effect with the Up2U campaign as the regional area that they currently serve also includes a prominent Spanish-speaking community.
- Evidential: Using evidence to show how the issue/topic is relevant to members of the target audience and why they should pay attention.

Connecting why humans should be involved in the environment by using this strategy will be key in encouraging visitors to change their behavior.

Currently, where some of these environments are located, there are multiple channels that can be utilized such as the yellow mesh bags that the campaign already uses. These yellow mesh bags could be redesigned to have more effective messaging, but the channel itself puts the message in the hands of the user. Another channel of communication could

be physical signage located in these locations. Another channel of communication could potentially be at businesses in the area that visitors engage with such as grocery stores, convenience stores or public facilities to name a few. In the next section these channels will be explored in more depth by using various exercises that will investigate ways to improve the current campaign.

Design Sprint

Moving forward into the creation of the campaign, this next section will be based upon a series of Design Thinking exercises that are included in *Sprint: How to solve big problems and test new ideas in just five days*, a book written by Google Ventures employees. Their instructed exercises are widely used in the design industry, and will provide a day-to-day guide that will stimulate brainstorming in order to generate thought provoking questions and create meaningful solutions (Knapp, Zeratsky & Kowitz, 2016). The five-day process starts by taking a challenge or problem and taking it through evaluation, testing, and ultimately land with a successful campaign in this instance (See Figure 7).

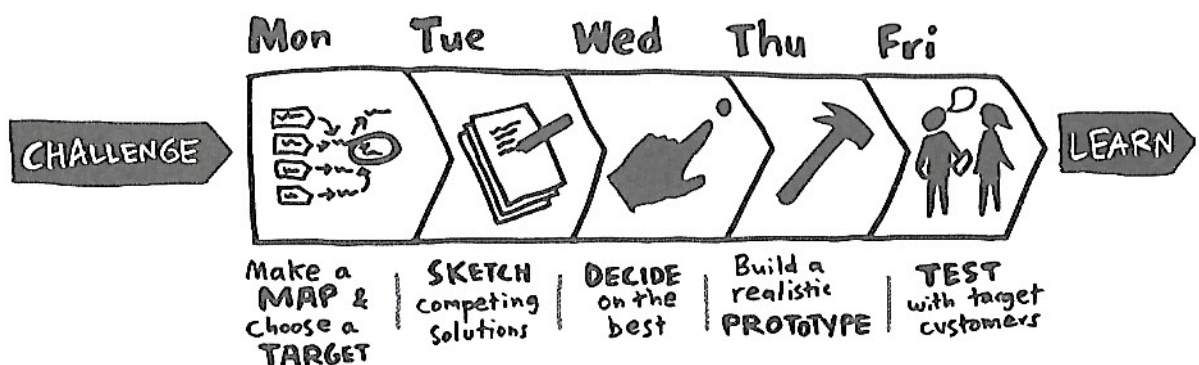


Figure 7: An overlook of the Sprint day-by-day tasks (Knapp, Zeratsky & Kowitz, 2016, p. 17).

Monday: At the start of the week, this method begins with looking at the end. In the previous section, objectives and goals were established, and those goals will help inform the framework of where the sprint needs to start. Just like before, in order to provide direction, looking at the desired end result will help to structure this research in reaching the end goal. This first day will then start by mapping out those goals and developing a path to meet those goals.

The first step when starting the sprint on Monday is to set a long-term goal. The long-term goal of this project is to increase education and participation in litter prevention methods, stop the increase of litter in marine environments and enjoy these recreational areas in a responsible manner. Keeping in mind the long-term goal that has just been set, creating “sprint questions” will allow for this sprint process to stay focused on the long-term goal. Sprint questions are goal-oriented questions that help to organize and direct the flow of ideas and information to reach the how, when thinking about the goal. The questions this sprint will explore are:

- How will visitors learn about the campaign?
- What will make disposing of trash easier and more effective?
- Will visitors adopt these methods of managing their trash more responsibly?

Exploring possible answers to these questions will help in identifying solutions that will improve distribution, awareness, and efficacy of the campaign. Moving forward, mapping a visitor's journey will help create a greater understanding of the process to reach the end goal. This map will show people's involvement and intended progress towards the long-term goal (See Figure 8). The map starts by listing people involved in the journey like

beach visitors, beach patrol, and sanitation workers. While it lists the involved parties, it also lists the desired end goal of having a clean beach.

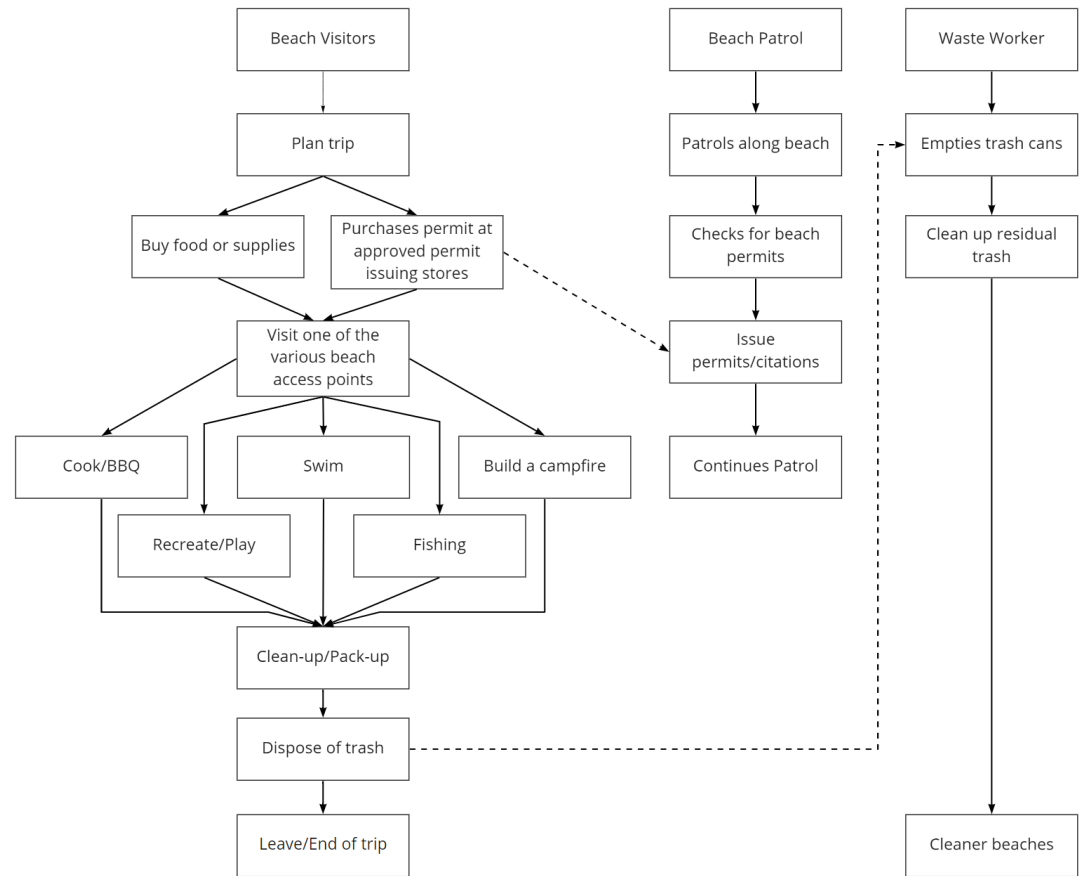


Figure 8: A user map connecting involved parties with keeping beaches clean

A vital step in the Sprint is the “How Might We...” questions (HMW...), in which the researcher asks questions that come to mind when thinking about the user map above in order to best determine how this research can explore potential opportunities for improvement. These questions are generated in a brainstorming session where questions are written out to be later used to plan out where they will be addressed in the user

journey. Figure 9 depicts the HMW... questions that were generated during this brainstorming exercise:

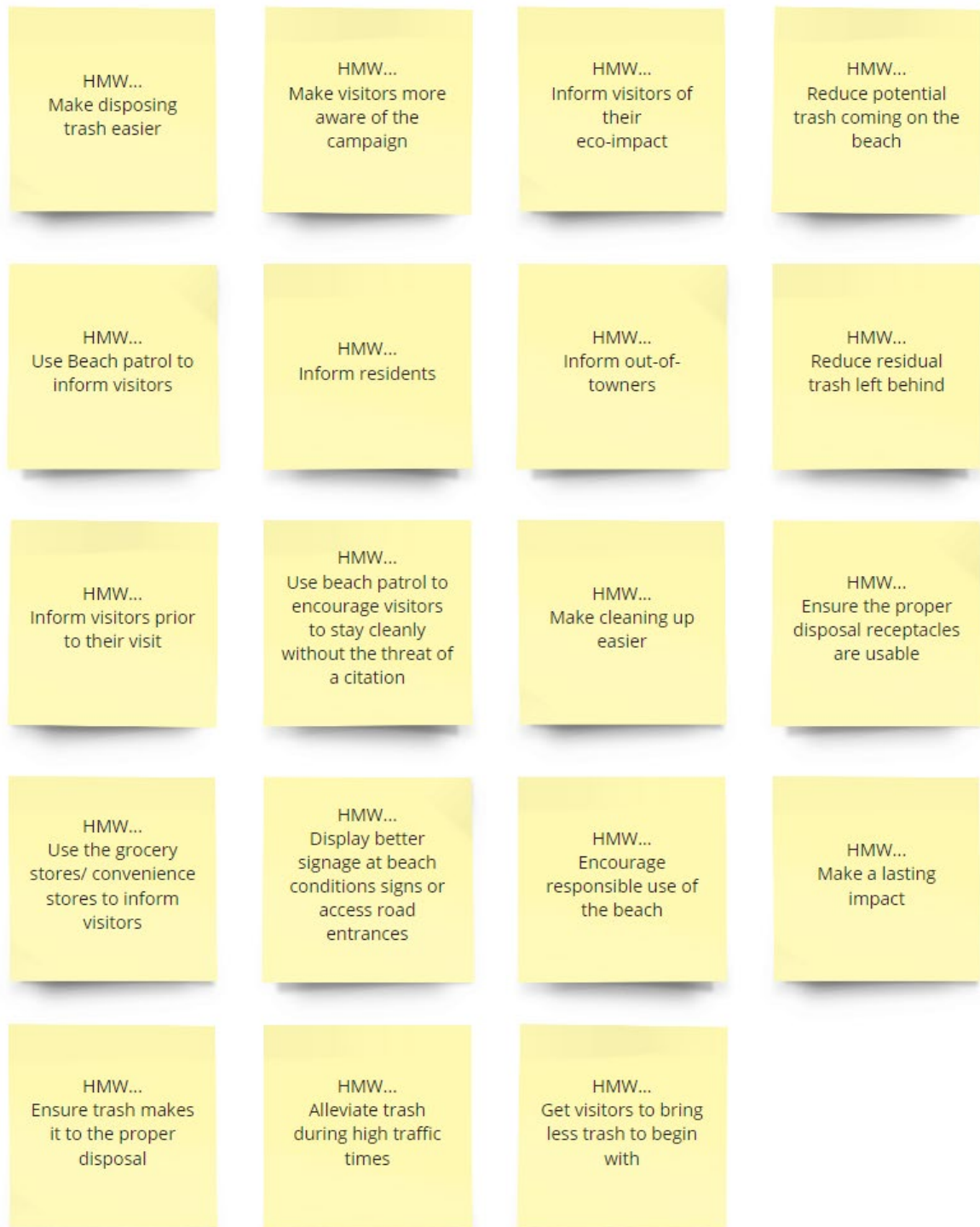


Figure 9: HMW... questions for the user map

These questions give the process a depth that covers more than just surface level ideas. Keeping these questions in mind, they are then filtered through to be placed in the user journey map where these questions could best be answered. For this research, the questions selected and placed in the journey map were based on questions that aligned with the sprint questions that were listed previously (See Figure 10).

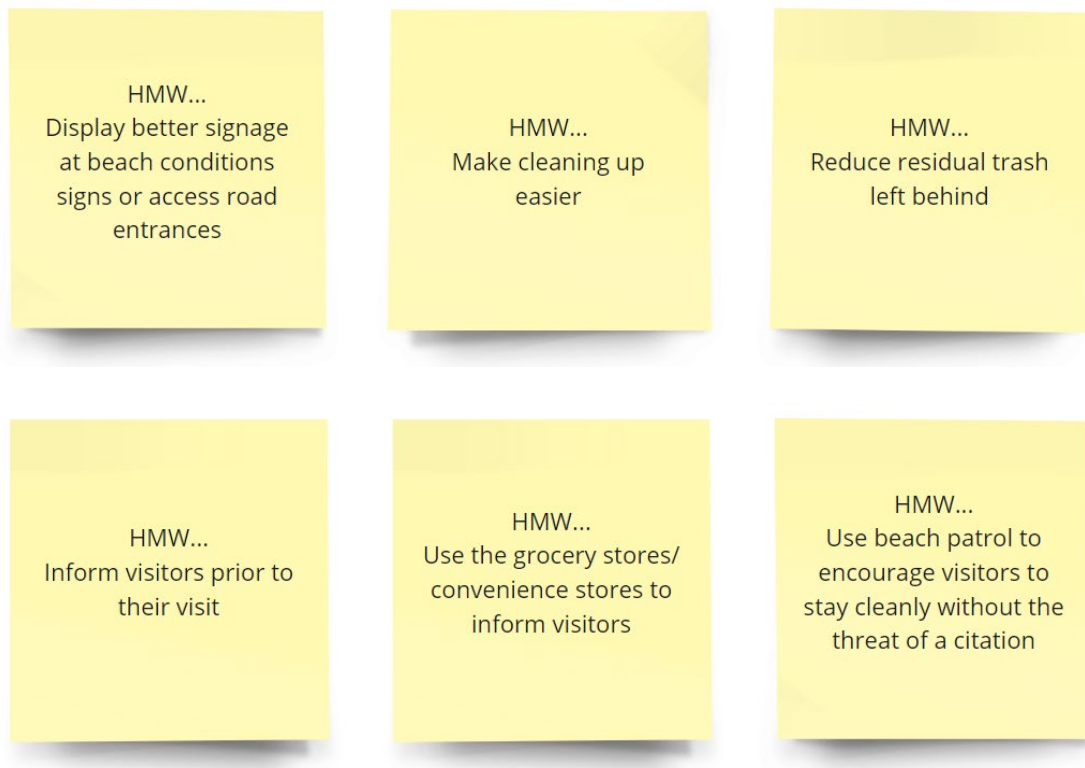


Figure 10: HMW... Notes included on the user map in Figure 10

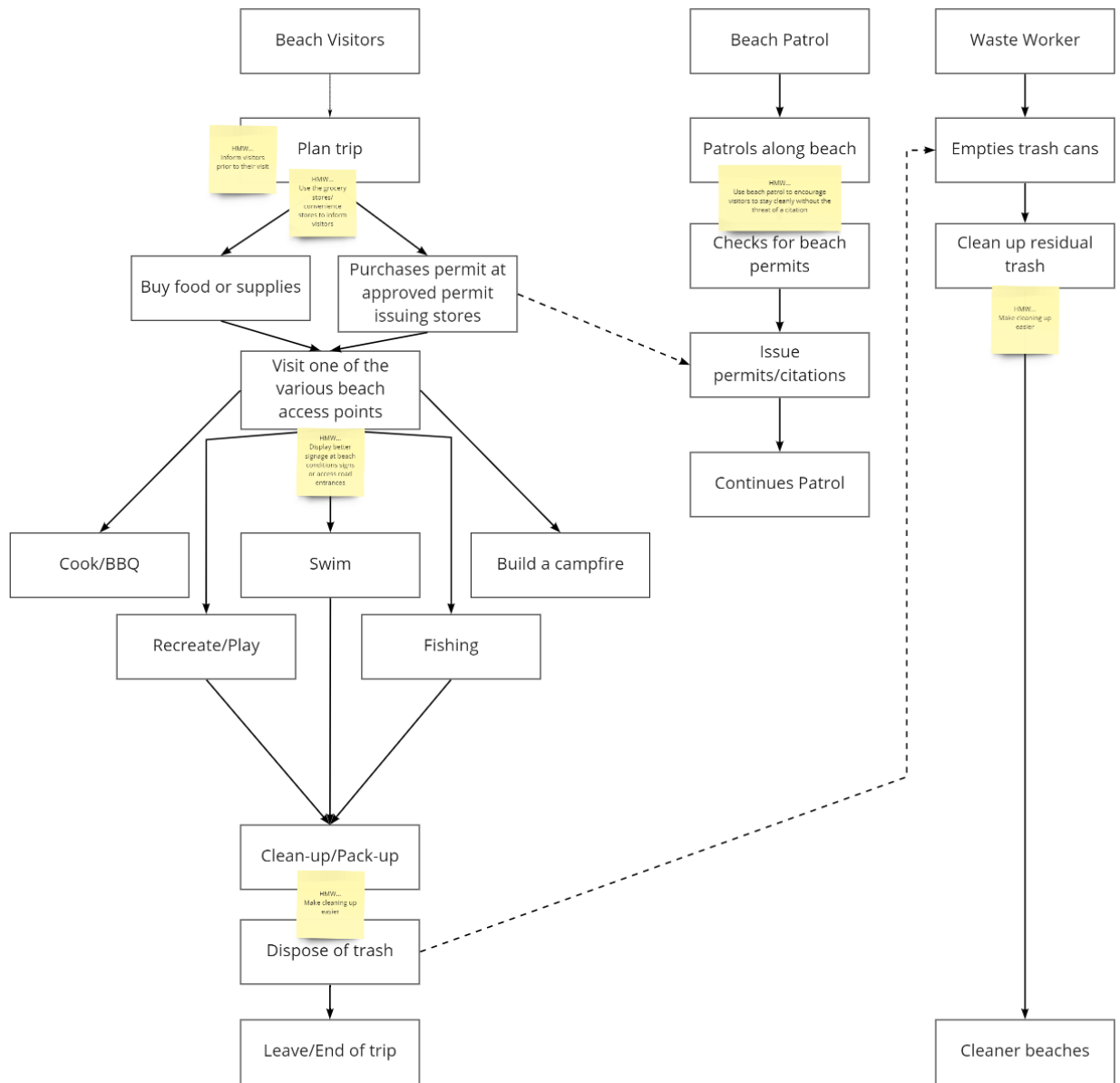


Figure 11: A user map connecting involved parties with keeping beaches clean that features “How Might We...” questions relevant to the user journey

The final exercise of the Monday sprint is to pick a target audience that will be impacted by the campaign going forward to help make a lasting impact. During this sprint, it was evaluated that beach visitors have the most areas of interaction with the HMW...

questions. Keeping beach visitors in mind as the target audience, this research will move forward in exploring the questions asked that will be directly involved with beach goers' actions (See Figure 11).

Tuesday: Moving forward to the second day in this sprint process, these exercises will piece together components of existing solutions that this research can use to inspire a new solution. In the preliminary research section, select environmental campaigns were studied in order to provide insight on what solutions are already in practice in the area and world. Similarly in this exercise, looking at what is working will help to piece together a solution that is adapted to fit the needs of this campaign's mission.

The Lightning Demos sprint exercise is a quick presentation of ideas that helps build a foundation of ideas that each step in this section of the Sprint's process will continue to build upon. The basis of this first step is to explore quick ideas that have been adapted from current solutions in order to preliminarily brainstorm how something similar could be used to address the questions asked in the previous section in regards to this system. Below are the components of existing solutions that have been researched and quickly modified and sketched out to brainstorm preliminary components that will build up to creating a new solution for this mission (See Figures 12-21).

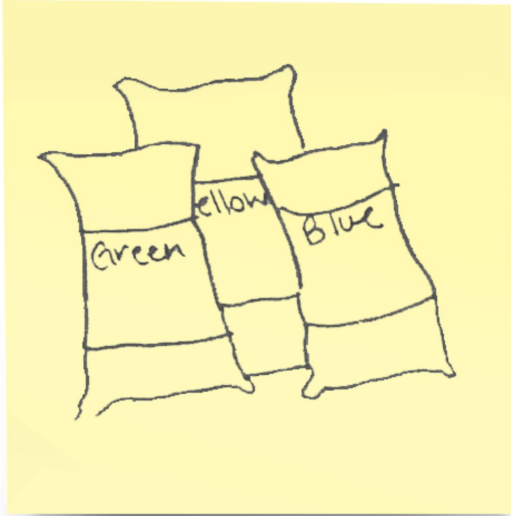


Figure 12: A color coded bag system similar to trash bins to separate trash types such as recycle, trash, or compost.

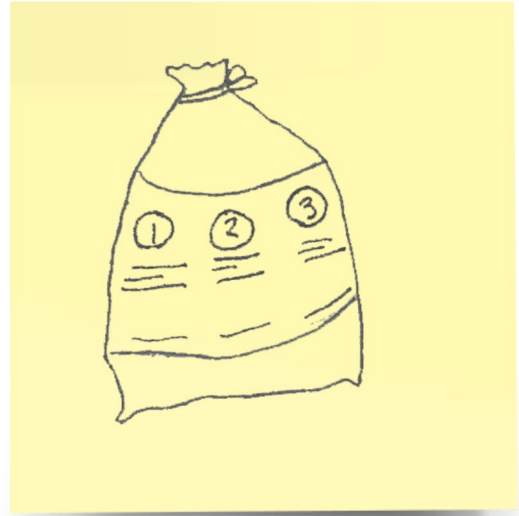


Figure 13: An instructional label on the bags to make a simple 1, 2, 3 system.

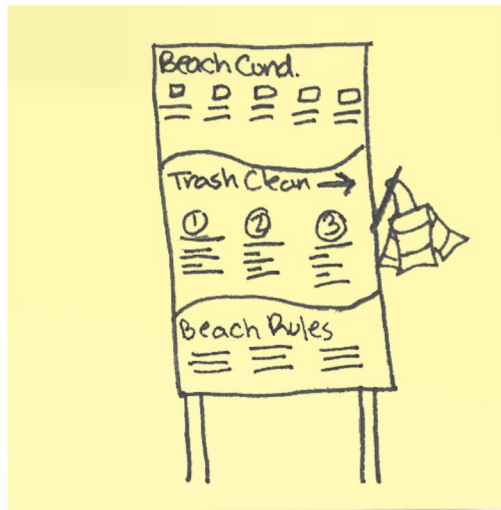


Figure 14: Beach access road entrance signs that cover beach conditions, trash system, and beach rules



Figure 15: Directional signs similar to trail signs that point in the direction of receptacles or trash disposal locations

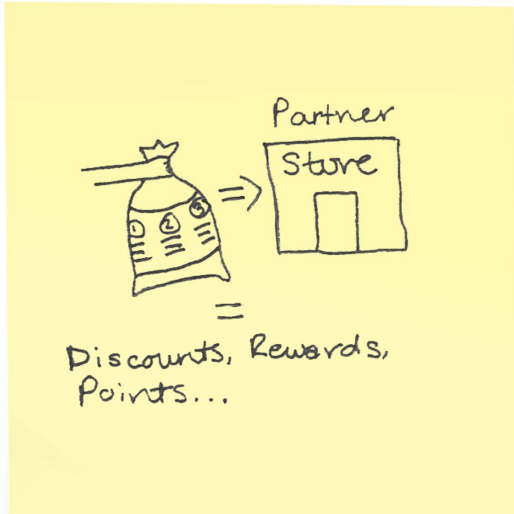


Figure 16: Partnership system with local stores to offer a reward for disposing of trash at a partnered location.

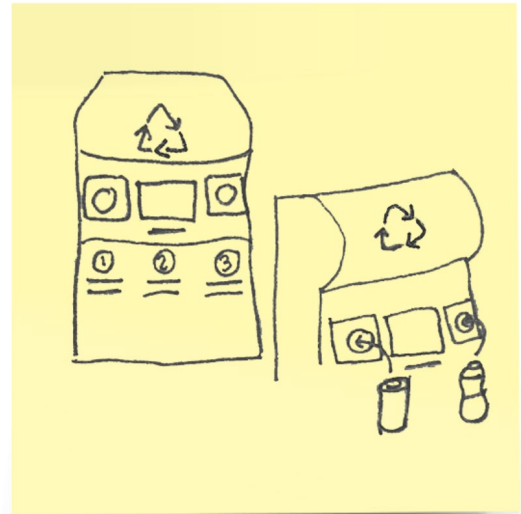


Figure 17: Reverse vending machines to give compensation or rewards based on a point system used when properly recycling.



Figure 18: A driveby drop-off station for visitors to dispose of their trash on their drive off of the beach.

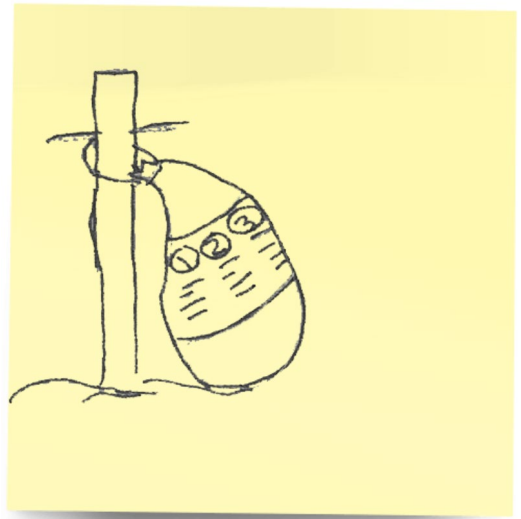


Figure 19: Stakes could be planted along the beach so that visitors participating with reusable bags could anchor their trash bag



Figure 20: Beach permit package where every permit comes with a reusable bag and beach tips cards.

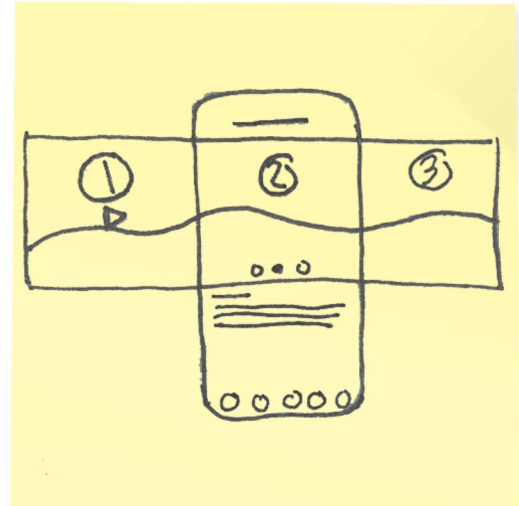


Figure 21: A social media campaign that engages with people by posting informational photos and videos.

These quick sketches were inspired by specific components of a campaign or system used by other nature areas, clean-up programs, waste management departments, recycling programs, or conservation organizations that could be reworked to fit the potential solution emerging from this research. The next step will involve taking these components and sketching out preliminary solutions.

At this point in the Sprint process, there has been a lot of brainstorming, mapping, questioning, and sketching that provided useful information that can now be fused to start working on more complete solutions. Thus far, the long-term goal, sprint questions and HMW... questions have been established. By looking at the journey that beach visitors go through and inquiring about others tackling issues related to marine littering, we can start to see that there are 3 stages in a visit that can be reached in order to keep the beaches as clean as when they first arrived. These three stages include: before arriving, while

visiting, and packing up. Figure 22 explains these three stages of a person's visit to the beach and also "gain points" and "pain points" at each action. Gain points identify possible advantages or strengths that are present at each service or amenity during a person's journey to the beach. Pain points identify possible disadvantages or weaknesses that are present at each service or amenity during a person's journey to the beach. For example, in Figure 22 in the "before arriving" stage, individuals must go to the store to buy supplies for their trip to the beach. The gain point at this part in their journey is that they have to buy a permit to have access to the beach and thus provides a common action that every beachgoer has to do and is identified as a potential distribution hub for materials related to this campaign. The pain point though, is that while at the store, most food and supplies that this person will buy will be in some sort of packaging which would bring potential litter to the beach.

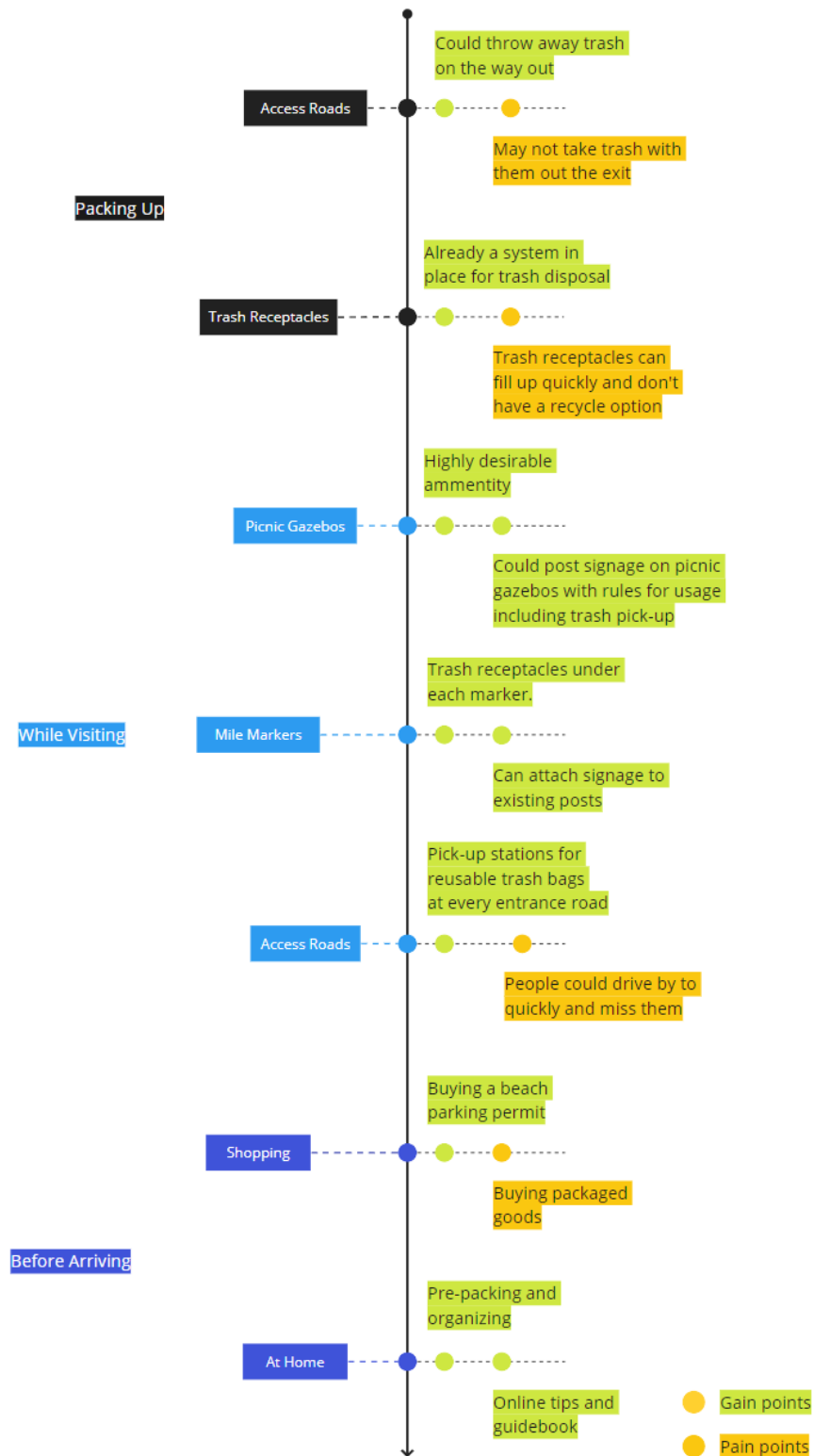


Figure 22: A visitor's three stages of their visit including gain and pain points.

An initial observation is that keeping the ground and water trash-free involves preventing these items from coming to these environments in the first place. The “before arriving” stage addresses the solution of keeping potential litter at home. If a person does not receive any messaging before arriving, it is crucial to inform them about managing their trash responsibly in the “while visiting” stage, when they are visiting these locations. The final stage is the “packing up” stage, which is already associated with the task of cleaning up; the hope is that responsible visitors will continue to dispose of or take their trash upon departing from their visit, and that visitors who did not previously dispose of their trash properly will learn to do so. The transtheoretical model is key in understanding people’s current behavior and messages that may aid in achieving the goals of reducing trash in the marine environments.

Before Arriving

In the preliminary research section, the current system for the Up2U campaign that the Nueces River Authority oversees features yellow reusable mesh bags that visitors to marine environments can use in order to store their trash. The current system uses a passive “it’s here if you want to take one” approach but does not actively put these reusable bags in the hands of every visitor that recreates in these natural areas. If they could increase the number of people with a Up2U campaign reusable trash bag, that bag could have simple educational instructions emblazoned on the bag instead of just the logo. To get these bags in the hands of as many people as possible, looking into the “before arriving” stage of visiting these marine environments could allow for distribution to be at already existing partnered stores that sell beach parking permits and hunting and

fishing permits (See Figure 23). The campaign could spread its distribution to partnerships with state and national beach parks when visitors pay the park fee upon arriving. With visitors required to already purchase or pay a fee to access these spaces, there are various avenues that a person could take that would result in placing a reusable mesh trash bag in their hands.

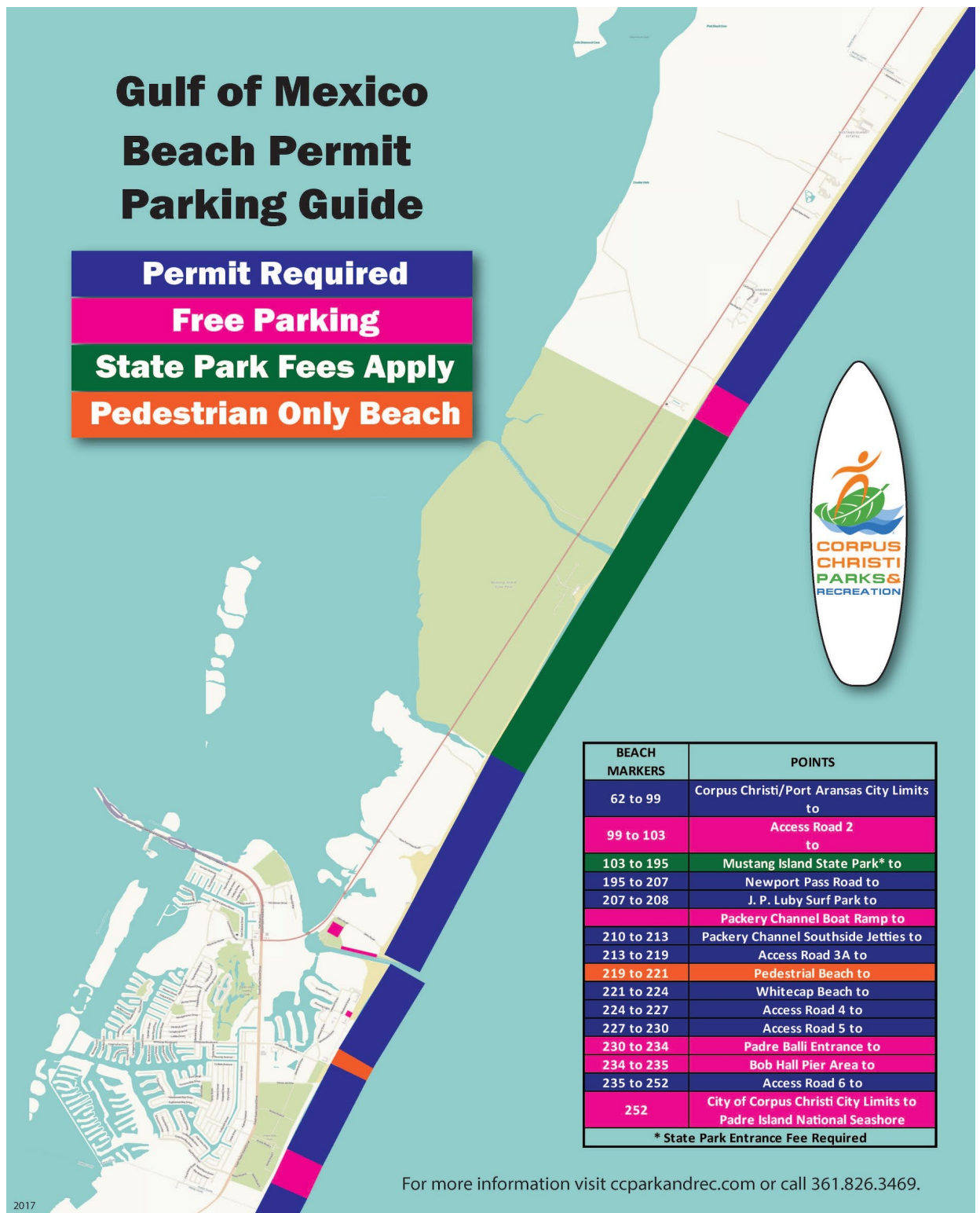


Figure 23: Corpus Christi Beach Parking Permit Map showing areas that require payment.

A person wanting to visit or recreate in these environments must be in possession of a permit of some sort or pay a park fee to enter. To purchase permits, visitors are directed to the local grocery stores, convenience stores, or public offices. It is with these already existing partnerships that the Up2U campaign could work to improve distribution of these bags at these existing partnerships to reach their designated audience of beachgoers and fishers. To build on these partnerships, planning potential purchasing locations could allow for the Up2U campaign to have their reusable trash bags and educational material distributed with every permit purchased (See Table 2). Similarly, at parks that require an entrance fee, the reusable mesh trash bags could be distributed with every entering visitor when they pay the fee to gain access to the park. This partnership between businesses, local, state and national authorities could allow for a mass distribution amongst visitors to encourage participation in keeping these environments clean. Reaching the target audience before they reach their intended location, will help to improve awareness of the brand, and also inform those who may be in the precontemplation or contemplation stage on the issue that is marine littering. To plan out the different avenues that a visitor might come across receiving one of these bags are grouped together below with the type of permit or fee along with what they would receive in their package associated with their bag.

Beach Permit Package	\$12 Yearly Parking Sticker - Green Up2U reusable trash bag - Bag with instructional label
Hunting and Fishing Package	\$40 Yearly Fishing Permit and Tags - Yellow Up2U reusable trash bag - Bag with instructional label
Mustang Island State Park Fee Package	\$5 Daily Entrance Fee (per person over the age of 12) - Blue Up2U reusable trash bag - Bag with instructional label
Padre Island National Seashore Fee Package	\$45 Yearly Parking Pass - Blue Up2U reusable trash bag - Bag with instructional label

Table 2: Permit Pricing and bag included

The recreation environments and activities described above will determine a specific color bag that will be distributed to the visitor/purchaser that corresponds with the different types of waste. Based on the local Corpus Christi solid waste department's color system: Green is for trash and blue is for recycling. For this system, the existing yellow will be repurposed as a third color in order to meet a category that encompasses hazardous materials that are associated with fishing. The various color bags are distributed based on the activities associated with these environments or activities (i.e. beach camping, beach picnics, fishing, etc) and detail the materials that should be disposed of in each respective color bag or receptacle (See Table 3).

Green Bags/Receptacles	Blue Bags/Receptacles	Yellow Bags/Receptacles
<p>The green bags and receptacles are for garbage and beach waste. Garbage includes:</p> <ul style="list-style-type: none"> - Food waste - Packaging - Non-recyclable products 	<p>The blue bags and receptacles are for recyclable materials. Recycled items includes:</p> <ul style="list-style-type: none"> - Paper - Plastic - Metals 	<p>The yellow bags and receptacles are for hazardous items that include:</p> <ul style="list-style-type: none"> - Hooks - Spearheads - Lures/Weights - Fishing line

Table 3: Color-coded system for reusable bags and the correlating receptacles

With a plan in order for distribution, sketching out solutions will give a visualization to what the elements of this package of items would potentially look like. With color-coded bags and receptacles correlating with the type of trash collected, as well as the partnered stores that sell parking permits and park passes, this system will start to visually come together.

Wednesday: The next step in the process in order to develop the prototype is to sketch out the chain of events in a storyboard format. Storyboarding the ideal process that a person would go through in order to come across the campaign will help to plan out the final details for the working prototype system in the end. Figure 24 depicts the chain of events for how a person would come across the Up2U campaign, from start to finish, where users go through the process of following the instructions to completing the intended goal of picking up their trash and being incentivized from sponsors to the campaign.

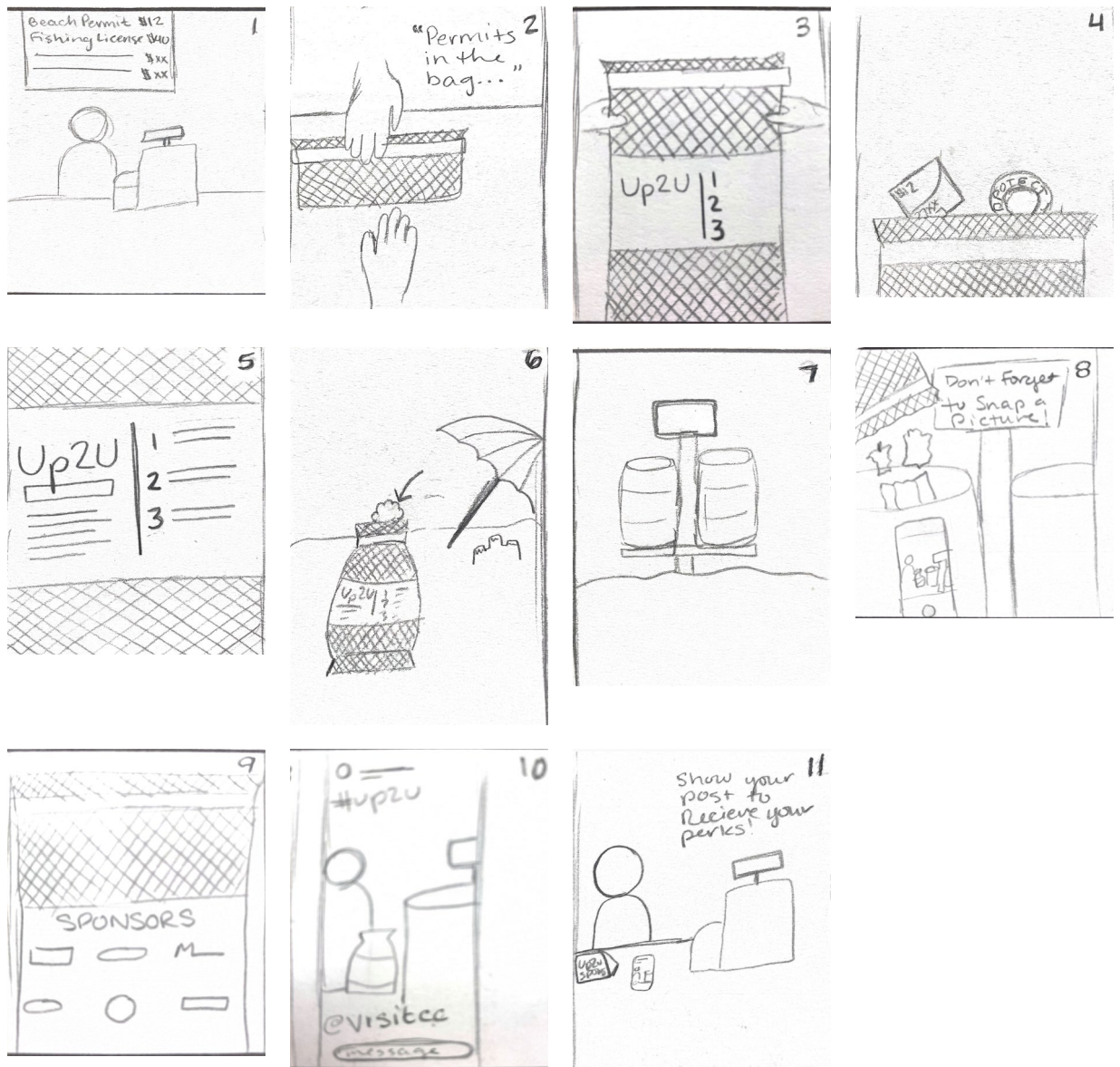


Figure 24: Storyboard of events for a person interacting with the Up2U Campaign

While Visiting

As explained on the Beach Parking Permit Map, the majority of locations with access to the beach require a beach permit or pass to gain access to the beach. To obtain a permit or pass, visitors must purchase a permit at participating locations or a pass at select park

entrances. The idea for this solution will result in visitors receiving a Up2U beach trash bag during the purchase of one of these permits or passes. This ensures that any beachgoer is handed a reusable trash bag to take with them on their trip. These bags would be the method of delivery for these permits or passes for visitors and would inform them of how to participate in the clean-up program during their visit. With the new bag, a revised label would provide clear instructions that provide action steps that direct a person of what to do with this bag that they were given. Providing a solution for getting involved in disposing of trash, visitors in the preparation stage would be able to have a plan of action for getting involved and potentially progress to the action stage if they so choose. This process would be a simple 3-step process of using the trash bag to fill with their trash, taking a picture of proper disposal for social media, and then showing the photo with the hashtag at select partnered locations to receive an incentive. For the proper filling of these bags, the color-coded system would be explained and would allow for visitors to also be informed of other locations to pick up the various types of bags (See *Figure 23, frames 1-6*).

Packing Up

For the disposal step of the trash, it is important that users take a picture of their participation and share it on social media in order to prove their involvement in this campaign. At this point in the process, users would have successfully proved their progression into the action stage of the Transtheoretical Model of Change while also spreading awareness of the campaign through social media. With proof of involvement posted on social media, the social impact could potentially spread to their following and

also allow for others participating to create an online social media campaign to view others involved. This sense of online community will help to empower more people to spread the message of this environmental campaign with the hope that eventually visitors will continue to reuse their bags at every visit. Proof of involvement will also allow for visitors to opt in to an incentive with select partners if tagged on social media. This will allow not only the campaign to receive attention but for businesses that have become sponsors for these efforts to also gain media attention in a positive light (See *Figure 23, frames 7-11*). This campaign provides a mutual benefit for both sponsors, the Up2U campaign and these environments as these visitors create and share their contributions online.

Online media can be used as a powerful tool if users are given a direction. According to du Pré and Cook Overton (2021), people are “not likely to change behavior unless the recommended behaviors are compatible with people’s beliefs and are supported within their social networks” (p. 298). With these beach users being incentivized by potential rewards at select businesses and also sharing a good deed on their behalf to others on these platforms, visitors could potentially begin to create habits and a sense of responsibility to progress to the final stage of the Transtheoretical Model of Change, maintenance, which would have them consistently contributing to create a clean environment for them and others to enjoy by receiving support from their social networking platforms. Referring back to the long-term goal, this campaign hopes to increase education and participation in litter prevention methods, stop the increase of litter in marine environments, and enjoy these recreational areas in a responsible manner. After walking through the ideal visitor's journey of interacting with the various campaign

elements, the next step will allow for actually creating digital renditions of the campaign elements, such as a redesigned bag label, the educational cards, and various signage associated with the social media campaign.

Thursday: In the final day of the process before testing, it is important to be able to visualize and connect the research and decisions into solidified prototypes. Visualizing the final solutions in a clear and understandable presentation will be key to communicating the new revised system from beginning to end. To best explain this new system, following along the steps of a journey map will provide the steps for how a person gets involved and completes the intended solution.

Prototype System

As mentioned previously, every beach goer or fisherman has to purchase a permit or pay a fee in order to recreate in these marine environments. In order to increase involvement with the Up2U campaign, this research project reevaluated the current distribution system to design a new distribution plan starting at permit issuers and park fee stations in order to ensure that these bags are actively being distributed to visitors. Grocery stores, convenience stores, bait and fishing stores that are permit issuers will be given stickers to place on the window of their businesses explaining that they have these free reusable litter bags and to ask for a bag inside the store (See Figure 25). These stickers would improve awareness and distribution of the campaign by having an identifiable mark at stores to establish their presence in the community.



Figure 25: Storefront sticker, indicating that patrons can pick up free bags at this location

Depending on the store's preferences, a store could distribute one or all three of the new color-coded bag systems that represent the different types of trash. The green bag would be intended for general non-recyclable trash such as food and other non-recyclable items. The blue bag would be intended for any recyclable trash items such as paper, plastics and some metals. The yellow bag would be intended for any hazardous materials that can be associated with fishing such as hooks, fishing line, bobbers, weights, and spears that can turn out to be harmful if not properly disposed of. Each bag would have a unique label speaking to the type of trash that it should be filled with as well as the three-step process for getting involved in this campaign (See Figure 26). The labels would also

feature messaging that would speak to the responsibility that is placed in the participants in this campaign. By giving participants a responsibility, these labels would prompt them to be more self-aware of their actions and thus improve the efficacy of the litter bags. Each bag starts with “Its Up2U to...” and then inserts a responsibility action that is intended for the participant to take on, such as: restore, renew, and protect. This messaging speaks to the idea that in order to stop trash from ending up in these marine environments, it is up to people to be responsible for their waste. This evidential messaging speaks to the environmental health that depends on the actions of people to improve these areas (Torres-Ruiz, Robinson-Ector, Atkinson, Trotter, Anise, & Clauser, 2018, as cited in du Pré, & Cook Overton, 2021).

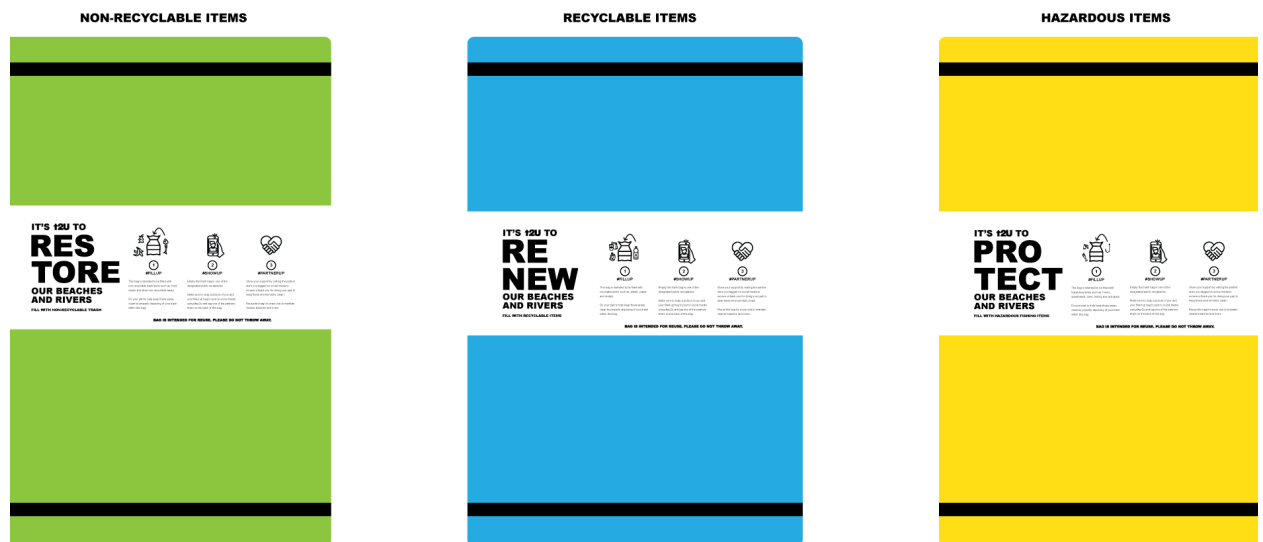


Figure 26: The three reusable bags color coded for different litter-types.

The three steps for getting involved are #FILLUP, #SHOWUP, and #PARTNERUP. For the first step #FILLUP, users are guided with the type of items that the bag should be filled with. It also depicts iconography of the items that should go into the bag. Providing the instructions with pictorial icons above each step will help to

linguistically bridge the gap amongst non-English speakers in order to be inclusive of their participation (Torres-Ruiz, Robinson-Ector, Atkinson, Trotter, Anise, & Clauser, 2018, as cited in du Pré, & Cook Overton, 2021). Each bag features a unique #FILLUP instruction icon that depicts imagery of what kind of trash needs to be disposed of in this bag. The #SHOWUP step features a phone taking a picture of a person to infer that a participant needs to take a picture of themselves participating. The #PARTNERUP stage features hands shaking in the shape of a heart in order to depict an agreement between participants and partner stores and how their mutual appreciation for the beaches will help to keep these environments cleaner.

Giving a beach goer or fisherman a bag allows for them to do their part in keeping the environment clean during their visit. The second step is #SHOWUP; at this step, the user of this bag becomes an active user in the social campaign. Users are asked to take a picture of themselves properly disposing of their bag and post on social media using #Up2U. The steps are also formatted in hashtags to encourage use if a social media chooses to use them. With users sharing the picture online using the hashtag #Up2U allows the campaign to have an identity on online platforms where any post using the hashtag would be curated on the platform to view all the people getting involved online and thus spreading the message online. Below is the labels for the bags and the content that is written for each step:

1. #FILLUP:

- a. Restore/Trash/Green Bag: This bag is intended to be filled with non-recyclable trash items such as: food waste and other non-recyclable waste.

Do your part to help keep these areas clean by properly disposing of your trash within this bag (See Figure 27).

b. Renew/Recycle/Blue Bag: This bag is intended to be filled with recyclable items such as: plastic, paper and metals. Do your part to help keep these areas clean by properly disposing of your trash within this bag (See Figure 28).

c. Protect/Hazardous/Yellow Bag: This bag is intended to be filled with hazardous items such as: hooks, spearheads, lures, fishing line and glass. Do your part to help keep these areas clean by properly disposing of your trash within this bag (See Figure 29).

2. #SHOWUP: Empty this trash bag in one of the designated public receptacles. Make sure to snap a picture of you and your filled up bag to post to social media using #up2u and tag one of the partners that's on the back of this bag.
3. #PARTNERUP: Show your support by visiting the partner store you tagged on social media to receive a thank you for doing your part to keep these environments clean! Reuse this bag for every visit to maintain cleaner beaches and rivers.

By taking on the first step of #FILLUP, participants would show progression into the action stage of the Transtheoretical Model of Change as they contribute to the mission of getting involved in marine litter restorative efforts.



Figure 27: Non-recyclable trash bag label

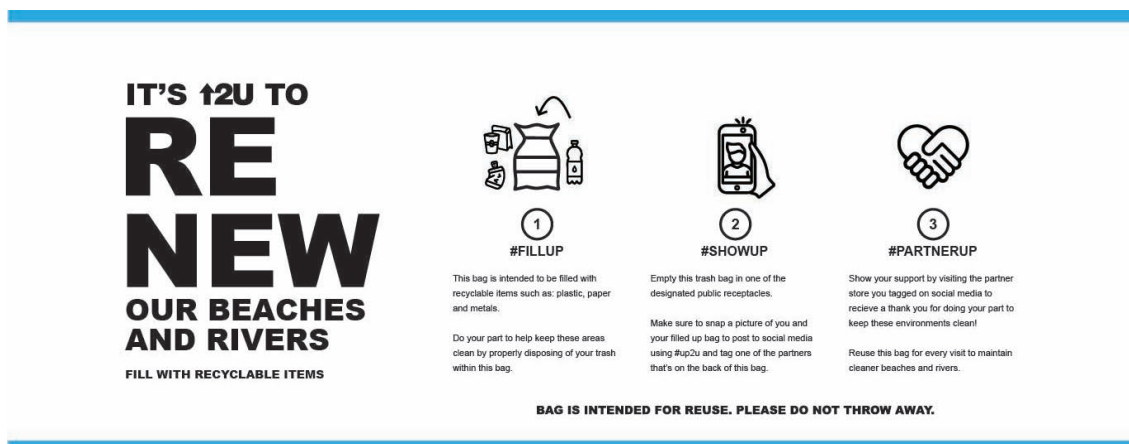


Figure 28: Recyclable trash bag label

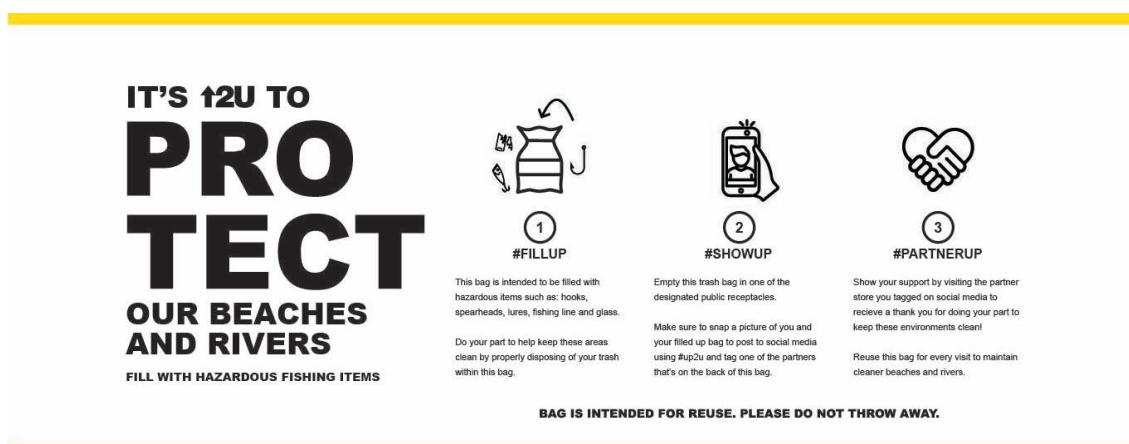


Figure 29: Hazardous materials trash bag label

Once a person has actively used the Up2U bags during their visit, Step 2 or #SHOWUP instructs that the bag be emptied into its corresponding trash receptacle (See Figure 30). Color-coding these barrels to align with the bags will allow for recycling to be brought to the beaches as well as it would feature matching branding that a person would see when passing by. This would allow for the Up2U campaign to be big, bold and frequently in the eye of visitors so they are reminded to do their part by keeping up with their trash during their visit.



Figure 30: Color-coded trash receptacles for non-recyclable, recyclable, and hazardous materials that match with reusable bags

Currently, these trash receptacles are secured to wooden posts with a sign above (See Figures 31-32). To utilize the current sign space with messaging that is instructional and relevant for next steps at this campaign will allow for a user to have detailed steps on getting involved in the #SHOWUP step in order to receive the incentive in the #PARTNERUP step.



Figure 31: Trash receptacles on wooden post with #SHOWUP and #PARTNERUP instructions

IT'S UP2U TO SUPPORT OUR BEACHES AND RIVERS



TAKE A SELFIE. SHOW YOUR SUPPORT.

- ① Take a selfie of you emptying a filled up Up2U trash bag in the proper receptacle.
- ② Post your picture to social media using **#UP2U** and tag one of the partners that's on the back of the bag.
- ③ Show your social media post to the tagged partner to receive a reward for your contribution to keeping marine environments clean.

BAGS ARE INTENDED FOR REUSE. PLEASE DO NOT THROW AWAY.

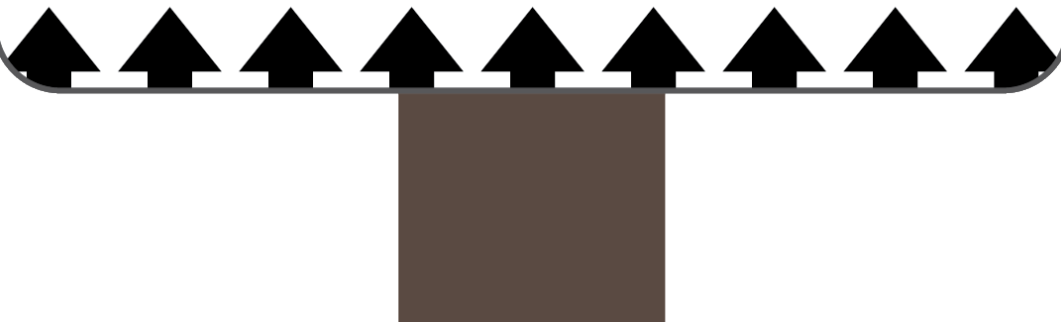


Figure 32: Trash receptacle sign for how to get involved in next steps

When a person who is ready to dispose of the trash in their bag, they will go to their nearest trash receptacle station where there will be a sign displayed (See *Figure 29*) that illustrates how to show their support on social media. A user would take a picture or video with their filled-up bags being properly disposed of and post that picture on to their social media platform with the campaign hashtags.

By posting their picture users become actively engaged in step three #PARTNERUP. Using social media engages participants on a digital platform, but also allows them to have their own voice within the campaign. With this type of constituent-involving messaging strategy, participants will help to improve awareness of the campaign on social media. Users who wish to share their support and show their contribution to keeping these areas clean would post to social media and use the #Up2U tag on their post as well as they will tag one of the partnered sponsors that they can receive a reward from. The partners will be featured on the back side of the bag's label with their social media handle in order to make tagging their partner store easier (See *Figure 33*). By partnering with local businesses, people who want to engage in this system will be able to share their contributions to their friends and family on social media while also spreading the word about local businesses who endorse this mission.



Figure 33: Back of the bag label with social media handles for partnered stores

This new process involves receiving rewards for taking a selfie because the Zag Analysis suggested that support from organizations would help create loyalty from users and also extend our success by bringing in support from local businesses. With proof of their involvement in the campaign, participants can then show their social media posts to partnered businesses to receive a reward. Rewards are unique to each store as each partner store can provide a discount or a free small product or service. Participants can choose their partner store so that they get to choose the type of reward they want to opt-in to. This allows for personalization within the reward system so that it is not a one-reward-satisfies-all, and users can choose the store that they would want to go to, based on their preferred rewards.



Figure 34: Storefront sticker, indicating that patrons can receive a reward from this store for participating in the Up2U campaign.

Stores that wish to partner with the Up2U campaign would be given storefront stickers to place on the window or door of their business so that they can be identified as a partner store to receive a reward for participating (See Figure 34). This branding would allow for visitors to recognize which local businesses support keeping the beaches clean and also rewards any person who can prove their contribution and thus allowing users to get involved in keeping the beaches clean, and supporting local businesses on social media.

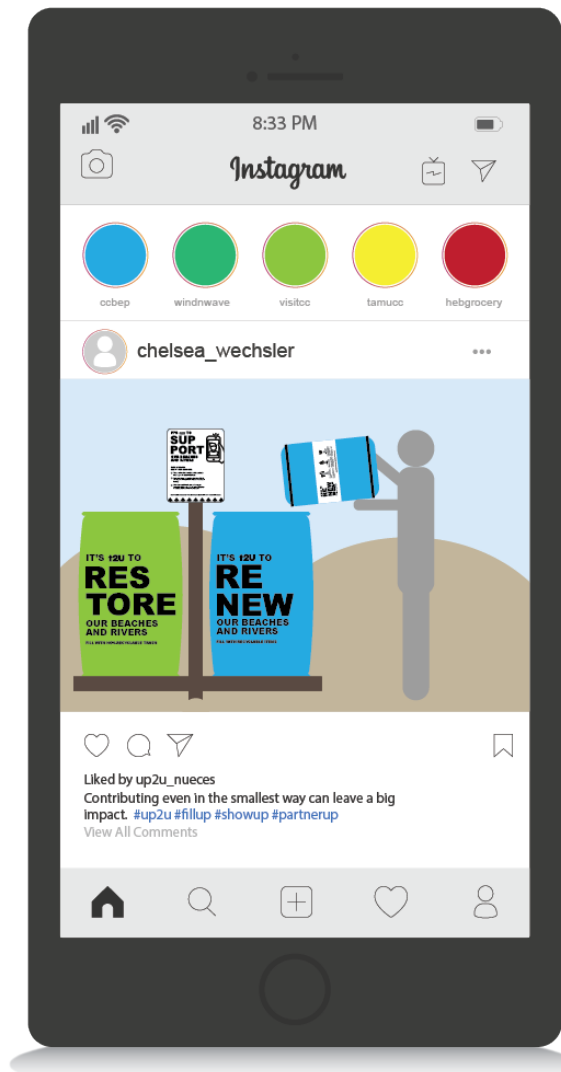


Figure 35: Social media post illustration

Social media plays a key part in the follow up or loyalty program that will encourage users to continue to stay involved even for future visits. With these businesses in the community partnering up with this campaign and participants, they are the motivating factor to get more people involved and have them progress to maintenance with long-term involvement. “Research shows that some community members are opinion leaders who have credibility by virtue of their expertise or social standing,” and it is through these credible, local businesses that would be a part of this reward program, that they would share their support and posts from participants that tag them on their social media platforms (du Pré, & Cook Overton, 2021, p 315). Spreading awareness of the campaign would correlate with informing individuals who may be in the precontemplation or contemplation stage of the Transtheoretical Model of Change. Social media has become a large part of how people connect with each other. Using social media allows users to get involved and share the campaign, and it also allows them to receive validation and praise from their friends and family for participating in a positive environmental cause. When users show their post to the partner store, participants will receive that store’s specific reward, as well as the stores will give stickers that correlate with the brand, which allows these participants to promote their contribution whether that be on their car, their ice chest, or their reusable water bottles and thermoses (See Figure 36). These stickers would feature the roles as partner or supporter, as well as some general stickers that display the messaging featured on the label of the reusable bag. Having the campaign brand on these stickers would also help to improve awareness by establishing the campaign’s presence in the community through personal items.



Figure 36: Various stickers for different positions in the campaign

After walking through how the new system is supposed to operate, it is important to understand the decisions behind planning out the steps in this new system. Creating an environmental health campaign requires that this system resonates with the intended audience. Whether a person chooses to get involved because they want to help out the environment, have a clean space to recreate in, or even wants to do something positive so they can share it with the world, it starts by providing an outlet for these people to make that positive change of doing an extra thing during their visit to these recreational areas that they currently are not. Referencing back to the target audience that was decided on

earlier in the environmental health campaign planning section, there is a group of people that may know that marine littering has negative impacts on these environments, but does not have the education or an easily identifiable solution available for them to get involved. This group of people are more likely to change their behavior since they are already indicating that they acknowledge the problem. Taking this group of people from “I know marine littering is problematic” to “currently involved in marine litter restorative efforts” is where this research provides a bridge of ease for people to get involved in taking care of the environment’s health. The goals that were established earlier in the environmental health campaign planning section were to:

- Distribute resources that would be available year-round, but more specifically during the time of March to September when visitors frequent these areas.
- Increase awareness in order to encourage people to partake in litter prevention methods, stop the increase of litter in marine environments, and continue to enjoy these recreational areas in a responsible manner.
- Improve the efficacy by measuring the acceptability of this new system using the behavior-changing method known as the Transtheoretical Model of Change (TTM) used in health communication campaigns

These goals were met by creating this system that actively distributes these bags at pre-visit hotspot locations, and engaging users of this campaign with simple, empowering messaging that educates them about how to get involved.

The Transtheoretical Model of Change, as discussed before, is a behavior change model that is represented in those five stages: precontemplation, contemplation, preparation, action and maintenance. The focus of this research is on bringing people

who are in the contemplation and preparation stages and progress to the action stage, thereby increasing their participation in this campaign. Creating a system that works to help progress a person through these stages will need to appeal to a person using at least three of the four constructs that suggest how a person would make the leap to becoming an active user that identifies with the statement “currently involved in marine litter restorative efforts.” The three constructs that this system builds on are (Romain, Horwarth, & Bernard, 2018, as cited in du Pré, & Cook Overton, 2021): (1) self-efficacy, or how confident people are in their abilities to carry out new behaviors; (2) processes of change, or Strategies people use when actively changing their behaviors such as substituting or rewarding for positive behavior; and (3) decisional balance, or the perceived pros and/or cons of changing a behavior

Making the reusable mesh bag accessible is the first step to getting people actively involved. Providing tools and instructions to a person allows them to be encouraged to get involved in because they know what they are supposed to do and are given the means to do so (du Pré, & Cook Overton, 2021). To encourage people to take the leap once they are in possession of these litter bags, the campaign messaging materials include uplifting words such as: restore, renew, protect, and support. Once a person utilizes the bag they are given at the receptacles, there is the sign shown in *Figure 29* that walks a person through how to take a picture in order to document their efforts for their reward with a partner business. Having this picture document their efforts will be a reminder to them of their positive contribution, but the act of having people post it on social media also works by facilitating praise and validation from friends and family on these platforms using a positive emotional appeal (du Pré, & Cook Overton, 2021).

Ensuring that every post using the #Up2U hashtag that successfully demonstrates a person getting involved in a positive manner receives a like from the campaign's social media account will reinforce these positive behaviors through this personalized recognition. People tend to be social and so any opportunity where this campaign can reach out to people at least on the digital level will help to keep people motivated from praise and will thus build their confidence in their capability #SHOWUP and do their part.

The processes of change construct speaks to the #PARTNERUP steps in the process with individuals posting on social media and then tagging a business from the list of sponsors that they get to choose to opt-in to for a reward. Rewarding a person for doing the intended positive behavior in this system is one of the motivating factors that could progress a person into becoming an active user in this system. By creating a reward system that has the option for personalization for each person allows for a person to also feel in control of their efforts and thus makes the reward more meaningful since the user was given the opportunity to choose.

With the option to choose, this aspect of the system aims to create a loyal relationship between continued users, partnered businesses, and the Up2U campaign. The balance in these relationships allows for mutual benefits between the three parties, thus creating a triangle model of mutual benefits between everyone. The decisional balance of weighing the pros and cons of getting involved have more pros than cons as the major con against getting involved is that it requires a more effort and involvement, but with motivating factors such as rewards and praise as well as the mutual benefits between

people and the Up2U campaign and businesses outweighs the con of having to do something extra.

V. TESTING

To collect data on the effectiveness of this proposed prototype for keeping the beaches clean during beachgoer's visits, a survey was conducted with adults over the age of 18 that live near or have visited the Texas coast in the past 5 years. A pre-test, post-test design was used, wherein participants completed a pre-test questionnaire addressing their visits to these marine environments and their current level of involvement, based on the five stages of change outlined in the Transtheoretical Model (see Appendix). In addition, these participants indicated whether they would be willing to participate in an intervention. If they agreed to participate, they were contacted for a follow-up presentation of the new prototype system. Participants who completed the intervention also completed a post-test questionnaire, which was identical to the pre-test questionnaire. This design allowed for the comparison of responses and evaluation of overall change in willingness to participate in these litter prevention systems. No identifiable information was collected in the initial part of the survey.

Initial Survey

The survey used to measure the change in level of willingness to get involved in litter prevention methods was structured around the 5 stages of the Transtheoretical Model of Change. In order to narrow down participants to those who have visited the area, participants were asked if they have ever visited the area. Users who reported visiting the area moved on to the next section, which collected information on the familiarity and experience with the locations that they visited. After collecting an overall opinion on the various places a person could have visited in the area, participants were asked to choose

one of the following statements that most reflected their current position in regards to marine littering:

1. I don't have much knowledge about marine littering and/or haven't thought much about marine littering being problematic (TTM Stage 1, Precontemplation).
2. I think marine littering is problematic, but have not given it much thought beyond that. (TTM Stage 2, Contemplation).
3. I know marine littering is a problem, and want to get involved in restorative efforts (TTM Stage 3, Preparation).
4. I am currently involved in marine litter restorative efforts (TTM Stage 4, Action).
5. I have been involved in marine littering restorative efforts for at least 6 months (TTM Stage 5, Maintenance).

These filter questions allowed for the initial measurement of participant involvement (i.e., TTM stage assignment), which then determined which set of follow-up questions they would be directed towards. For example, participants in the precontemplation stage responded to a different set of questions about marine littering than participants in the action stage.

The top three Corpus Christi area marine environments visited by the sample from the initial survey ($N = 106$) were Mustang Island, Whitecap/Padre Island Beach, and Padre Island National Seashore. The majority of participants acknowledged that marine littering is a problem. Specifically, 38.83% of survey participants aligned with the statement that they “think marine littering is problematic, but have not given it much thought beyond that.” The largest group of people—39.81% of survey participants—

aligned with the statement that they “know marine littering is a problem, and want to get involved in restorative efforts.” These numbers indicate that a significant number of visitors know that marine littering is a problem. These people could potentially be frequent users in this newly designed system if education and/or improvements in the existing system were made to encourage wider use.

User Acceptance Testing

In order to test whether this new system would be adopted by visitors, four participants from the initial survey who indicated they would be open to being contacted for follow-up information were randomly selected and contacted for user acceptance testing of the prototype system ($N = 4$). User acceptance testing was structured by introducing the current system in place and then walking these users through the new proposed system in a presentation format. Once the presentation was concluded, users were asked if they had any questions regarding anything thus far that might need clarity. Some of the questions included:

- Can stores that distribute bags also be partner stores that have rewards and vice versa?
 - Currently this system is focusing on making these bags actively distributed at permit and fee station locations to ensure that at least every vehicle going to the beach has at least one bag per vehicle, but there is a potential to expand to other stores after successful implementation at these locations.
- Where will the hazardous trash receptacles be located?

- As illustrated there are the blue and green bins secured to the wooden post on the beaches, and the idea is that the yellow receptacles would be interspersed between these posts but their primary location would be at marinas, fishing piers, jetties, and other popular fishing locations.

After all questions were answered, survey participants were instructed to complete the post-test questionnaire, but this time they were instructed to answer based on their alignment towards the issue of marine littering if this system was to be implemented.

Once they completed the post-test questionnaire, respondents that displayed progression to or remained at least the action stage in the Transtheoretical model as identified by the statement “I am currently involved in marine litter restorative efforts,” were asked: How confident are you that you will maintain your involvement with litter prevention in the future if this was a solution?

Results

User A initially selected “I am currently involved in marine litter restorative efforts” as the statement that best reflected their current position in regard to marine littering. After the new solution was presented, User A’s post-test response indicated that they would still be “currently involved in marine litter restorative efforts.” In other words, they started at the action stage and remained neutral at that stage after the intervention (i.e., stayed at stage 4).

User B initially selected “I know marine littering is a problem, and want to get involved in restorative efforts” as the statement that best reflected their current position in regard to marine littering. After the new solution was presented User B’s post-test

response indicated that they would be “currently involved in marine litter restorative efforts for at least 6 months.” This participant started at the preparation stage and progressed to the maintenance stage after the intervention (i.e., moved from stage 3 to 5).

User C initially selected “I know marine littering is a problem, but have not given it much thought beyond that.” as the statement that best reflected their current position in regard to marine littering. After the new solution was presented User C’s post-test response indicated that they would be “currently involved in marine litter restorative efforts.” This participant started at the contemplation stage and progressed to the action stage after the intervention (i.e., moved from stage 2 to stage 4).

User D initially selected “I know marine littering is a problem, and want to get involved in restorative efforts” as the statement that best reflected their current position in regard to marine littering. After the new solution was presented User D’s post-test response indicated that they would be “currently involved in marine litter restorative efforts.” This participant started at the preparation stage and progressed to the action stage after the intervention (i.e., moved from stage 3 to stage 4).

The post-test questionnaire results demonstrated that all participants either remained at or progressed to the action stage or higher. All users were asked the same question: How confident are you that you will maintain your involvement with litter prevention in the future if this was a solution? The users were given the options ranking from very confident, somewhat confident, neutral, somewhat unlikely, very unlikely. All users selected that they would be very confident if this solution was implemented, and that they would maintain involvement. During user acceptance testing, interviewees identified areas of the campaign that they most liked. User A identified the concept of

partnering with businesses for a reward as being “a smart idea to get people motivated to get involved.” User B identified the recycling option as “helpful” as they “use a lot of plastic bottles and canned drinks and would like to recycle them if possible while at the beach.” User C and D both identified that they had seen the current yellow trash bags before but never knew where they came from, so the concept of distributing the bags at grocery and convenience stores was a “convenient” and “clearly visible” way to distribute these bags to beachgoers.

VI. CONCLUSION

This research project documented the process of redesigning a community-involved clean-up system for keeping marine environments clean, known as the Up2U campaign, by using health campaign planning, design-thinking exercises, and behavior-change theories to create a prototype system aimed at increasing participation in this campaign.

Effectiveness

After administering an initial survey, presenting this new solution for user acceptance testing, and comparing the results of their post-surveys to their initial surveys, it has been indicated that this new solution for the Up2U campaign could potentially be successful in increasing involvement in coastal area litter prevention. With a 75% increase in users getting involved in this litter prevention campaign, and the other 25% maintaining involvement, this research suggests that this campaign could increase the number of litter bag participants. This system would provide a more direct distribution of the Up2U litter bags as well as it would provide informative steps for how to get involved in the full process for disposal and the reward system. Also, with this system in place, it would bring an identity of this campaign to social media, and would interact with users and spread awareness in a digital space to which it would suggest that it would maintain involvement from users. Additionally, the new Up2U system was indicated to be successful in improving awareness to beachgoers, fishermen, and boaters to keep the areas they recreate in clean during their visits while also supporting local businesses that reward participants in this campaign.

Future Research

With the indicated acceptability of this preliminary prototype of the Up2U campaign, future research should include further and more extensive user-testing of a higher number of visitors to determine if the campaign reaches visitors from out of town as well as local residents. Also, to further make improvements to this prototype, in-depth user testing should be done to test the messaging and readability throughout this campaign. With the question brought up during the user acceptance testing in regards to the difference between distribution stores and partner stores, revising the verbiage to more clearly communicate the difference between distributors and partners could provide a better understanding of the two different roles. As for the question about where hazardous disposal receptacles will be located, further redesigns to the bag and other signage could provide more clear instruction on the intended locations for disposal. To further expand this system, research and planning into creating a mobile-friendly website that would provide the locations of litter distribution partners, trash receptacles, and reward partner stores could help to improve the efficacy of the campaign when it comes to disposal of trash.

With this concept of providing litter bags to visitors of these marine environments being replicated by the local municipality, this campaign could potentially be adopted by the City as the official litter bag campaign, thus minimizing confusion regarding the litter bags being distributed in these marine environments. If an agreement can be made with the primary municipality and private partners on which this research focused, future research could work towards expanding to other coastal or marine municipalities within the state of Texas. Reaching out to potential corporate partners that would play a major

role in distribution will also help to add to the level of support that this campaign could receive.

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APPENDIX

Appendix A: Initial Survey Report

Are you a resident of Corpus Christi or a surrounding city?

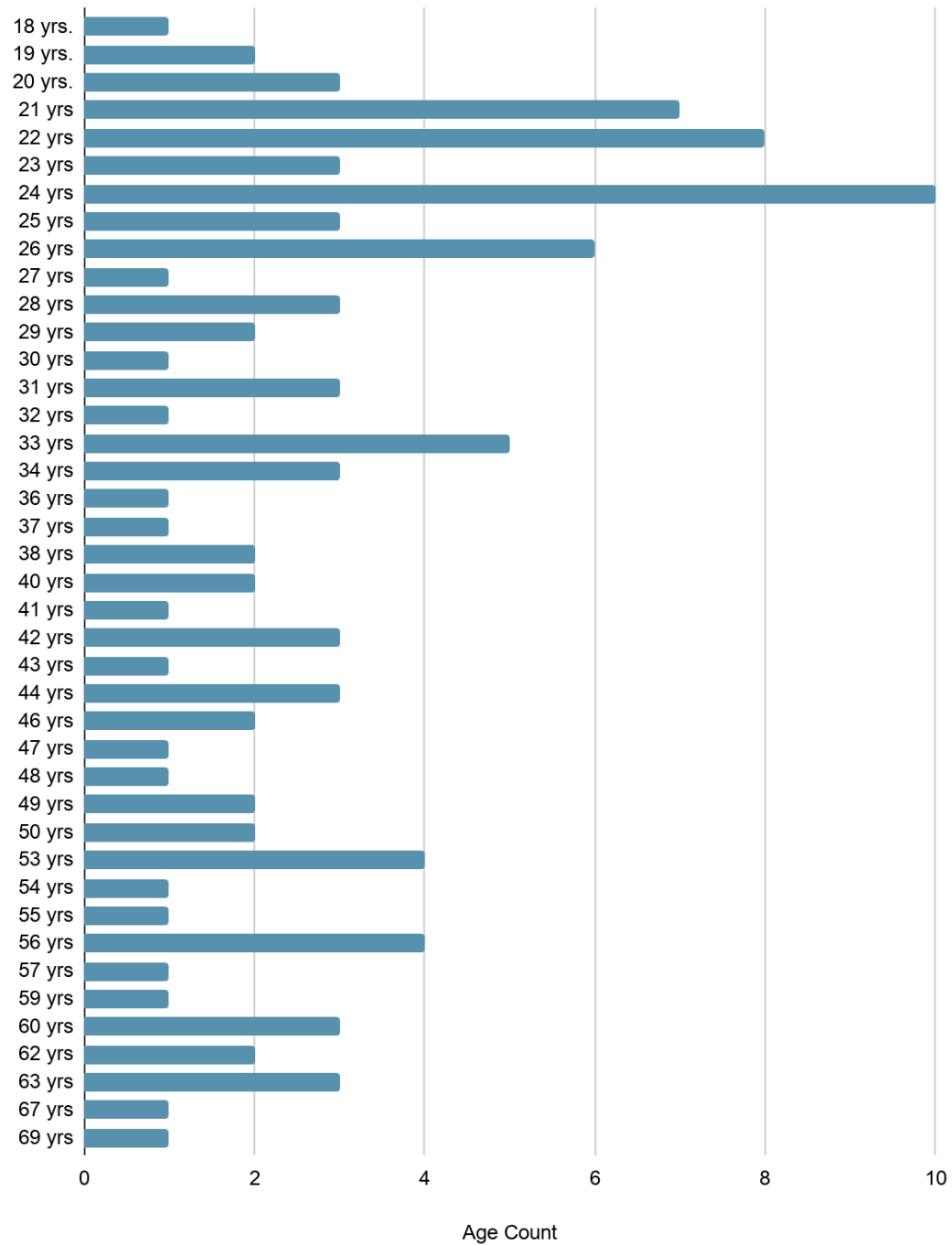
#	Answer	%	Count
1	Yes	73.58%	78
2	No	26.42%	28
	Total	100%	106

Have you ever visited Corpus Christi or a surrounding city with a marine recreational area?

#	Answer	%	Count
1	Yes	97.17%	103
2	No	2.83%	3
	Total	100%	106

How old are you?

Age of Respondents



Have you ever been to any of the following locations before? If so, select all that apply.

#	Answer	%	Count
1	McGee Beach/Bayfront Beach Corpus Christi, Tx	7.61%	65
2	North Beach Corpus Christi, Tx	9.84%	84
3	Whitecap Beach/Padre Island Corpus Christi, Tx	10.42%	89
4	Mustang Island Corpus Christi, Tx	10.77%	92
5	Padre Island National Seashore Corpus Christi, Tx	10.19%	87
6	Packery Channel Corpus Christi, Tx	7.73%	66
7	Laguna Madre Corpus Christi, Tx	7.49%	64
8	Oso Bay Corpus Christi, Tx	7.85%	67
9	Nueces River Corpus Christi, Tx	5.50%	47
10	Nueces Bay Corpus Christi, Tx	5.50%	47
11	Corpus Christi Bay Corpus Christi, Tx	8.31%	71
12	Lake Corpus Christi Mathis, Tx	5.85%	50
13	Choke Canyon Reservoir Three Rivers, Tx	2.93%	25

	Total	100%	854
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When visiting the locations above, how clean do you think the area was?

#	Answer	%	Count
1	No visible trash	0.97%	1
2	Some trash	38.83%	40
3	Visible Trash	47.57%	49
4	Clumps of Trash	7.77%	8
5	Large Amount of Trash	4.85%	5
	Total	100%	103

When visiting the locations selected above, how have you disposed of your trash? Check all that apply.

#	Answer	%	Count
1	Public trash receptacles	34.68%	86
2	Personal trash bags	30.65%	76
3	Burned trash	2.42%	6
4	Yellow mesh trash bags	15.73%	39
5	Motor vehicle (i.e. car, truck, RV, golf cart, ATV, boat, etc)	14.92%	37
6	I did not have any trash.	0.00%	0
7	I left my trash on the ground	0.81%	2
8	Other	0.81%	2
	Total	100%	248

TEXT - Other

Took trash back home

I have a rule to everyone that comes with me to the beach. We walk 20 steps away from our area and pick up any trash walking back to the vehicle on the beach.

Please read through the following options and select the option that most reflects your current position with regard to marine littering:

#	Answer	%	Count
1	I don't have much knowledge about marine littering and/or haven't thought much about marine littering being problematic.	4.85%	5
2	I think marine littering is problematic, but have not given it much thought beyond that.	38.83%	40
3	I know marine littering is a problem, and want to get involved in restorative efforts.	39.81%	41
4	I am currently involved in marine litter restorative efforts.	6.80%	7
5	I have been involved in marine littering restorative efforts for at least 6 months.	9.71%	10
	Total	100%	103

Select all of the following activities that you have participated in:

#	Answer	%	Count
1	Organized Beach Cleanup (Adopt-A-Beach, Up2U, Local Aquarium, etc)	20.21%	38
2	Independent Beach Cleanup	18.62%	35
3	Use of Up2U Yellow Mesh Trash Bags	18.09%	34
4	Brought my own trash bags to clean other's trash	32.45%	61
5	None	10.64%	20
	Total	100%	188

How likely would you clean up found trash on the beach that wasn't yours?

#	Answer	%	Count
1	Very Likely	52.43%	54
2	Somewhat Likely	34.95%	36
3	Maybe	6.80%	7
4	Somewhat Unlikely	2.91%	3
5	Very Unlikely	2.91%	3
	Total	100%	103

To what extent are you aware of the problem that is marine littering?

#	Answer	%	Count
1	Fully Aware	0.00%	0
2	Somewhat Aware	0.00%	0
3	Neutral	60.00%	3
4	Somewhat Unaware	0.00%	0
5	Completely Unaware	40.00%	2
	Total	100%	5

Do you clean up your trash before you leave marine areas?

#	Answer	%	Count
1	Always	40.00%	2
2	Most of the time	20.00%	1
3	About half the time	0.00%	0
4	Sometimes	20.00%	1
5	Never	20.00%	1
	Total	100%	5

When out at the beach and/or the river, have you ever seen and picked up trash that wasn't yours?

#	Answer	%	Count
1	Yes, I have.	60.00%	3
2	No, I haven't.	40.00%	2
3	I have never seen trash that wasn't mine.	0.00%	0
	Total	100%	5

Have you ever thought about how much trash you potentially bring with you as you're preparing for a beach trip?

#	Answer	%	Count
1	A great deal	0.00%	0
2	A lot	0.00%	0
3	A moderate amount	60.00%	3
4	A little	20.00%	1
5	None at all	20.00%	1

	Total	100%	5
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Have you ever thought about how much trash you potentially bring with you as you're preparing for a beach trip?

#	Answer	%	Count
1	A great deal	12.50%	5
2	A lot	17.50%	7
3	A moderate amount	27.50%	11
4	A little	32.50%	13
5	None at all	10.00%	4
	Total	100%	40

Before arriving at the beach, do you bring your own trash bags or do you depend on on-site trash receptacles or bags to dispose of your trash?

#	Answer	%	Count
1	I bring my own trash bags.	77.50%	31
2	I use on-site trash receptacles.	20.00%	8

3	I use publicly provided trash bags.	2.50%	1
4	I don't use any of these.	0.00%	0
	Total	100%	40

How conscious are you of your own trash disposal at the beach?

#	Answer	%	Count
1	Fully Aware	95.00%	38
2	Somewhat Aware	5.00%	2
3	Neutral	0.00%	0
4	Somewhat Unaware	0.00%	0
5	Completely Unaware	0.00%	0
	Total	100%	40

Does the distance to the trash receptacles from where you are set up affect your decision to throw away your trash properly?

#	Answer	%	Count
1	A great deal	15.00%	6
2	A lot	2.50%	1
3	A moderate amount	7.50%	3
4	A little	7.50%	3
5	Not at all	67.50%	27
	Total	100%	40

Do you think there are enough trash receptacles located along the beach?

#	Answer	%	Count
1	There could be more trash receptacles.	76.92%	30
2	There are enough trash receptacles	23.08%	9
3	There needs to be less receptacles.	0.00%	0
	Total	100%	39

Have you researched litter prevention efforts that you can apply to your own visits?

#	Answer	%	Count
1	I have done an extensive amount of research.	2.44%	1
2	I have done some research.	19.51%	8
3	I know some from experience.	43.90%	18
4	I haven't done any research.	34.15%	14
	Total	100%	41

Would you consider going out of your way (i.e. bringing reusable containers, reducing the amount of single-use packaging, taking your trash home with you, etc.) to ensure that you leave the beach cleaner than the way you found it?

#	Answer	%	Count
1	I would go out of my way to ensure the beach was cleaner than I found it.	68.29%	28
2	I will ensure that my personal trash gets cleaned up.	29.27%	12
3	I might do a few things to ensure less trash is on the beach.	2.44%	1
4	I am not going to go out of my way,	0.00%	0
	Total	100%	41

Have you made plans for your future visits to the beach to be more litter conscious of your trash?

#	Answer	%	Count
1	Yes, I have made changes to my plans.	68.29%	28
2	Not yet, but I plan on it.	29.27%	12
3	No, and I don't intend on changing.	2.44%	1

	Total	100%	41
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How committed to making changes to your beach routine will you be to stay involved in preventing litter during your visits?

#	Answer	%	Count
1	Completely Change	36.59%	15
2	Mostly Change	39.02%	16
3	Somewhat Change	21.95%	9
4	Small Changes	0.00%	0
5	No Change	2.44%	1
	Total	100%	41

Will you keep track of how much trash you pick up during each visit to the beach?

#	Answer	%	Count
1	A great deal	26.83%	11
2	A lot	21.95%	9
3	A moderate amount	29.27%	12
4	A little	19.51%	8
5	None at all	2.44%	1
	Total	100%	41

Select all of the following methods of litter prevention that you actively use when visiting the beach:

#	Answer	%	Count
1	Bringing reusable containers	7.89%	3
2	Reducing the amount of single-use packaging	7.89%	3
3	Taking your trash home with you	18.42%	7
4	Using yellow mesh trash bags provided on the beach	7.89%	3
5	Bringing your own trash bags for clean-up	13.16%	5
6	Don't bring any trash with me	2.63%	1
7	Bringing biodegradable items	2.63%	1
8	Properly disposing of trash in designated receptacles	18.42%	7
9	Picking up others trash left behind	18.42%	7
10	None of these	0.00%	0
11	Other	2.63%	1
	Total	100%	38

TEXT - Other

Brining only what I will use on my trip. Walking 20 steps away from our spot in all directions and picking any trash up on the way back.

Q25 - Do you pre-plan your trips to the beach to ensure that you are engaged with the litter prevention methods you selected above?

#	Answer	%	Count
1	Yes, I pre-plan my trips.	50.00%	3
2	No, I don't pre-plan.	50.00%	3
	Total	100%	6

What are some challenges that you have faced while trying to be litter conscious during your visits to the beach?

#	Answer	%	Count
1	Time and effort for preparation and packing	8.33%	1
2	Expenses for items that don't produce as much litter	0.00%	0
3	Walking distance to proper trash receptacles	41.67%	5
4	Pre-existing trash that was there when you arrived	50.00%	6
5	Other	0.00%	0
	Total	100%	12

What motivated you to get involved in marine litter prevention efforts?

Studying at college

I get outdoors as often as I can

Fishing line kills birds and turtles - I pick up line and plastic to save coastal animals

Danger to wildlife and our oceans

I love the planet.

I moved to the area and was saddened by the trash left on the beaches

I've never been one to litter anywhere. But once I took an interest and learned more about the damage plastics and fishing lines inflict on animals this was a no-brainer. To take a more active role was no longer an option for me. But it came with 'accidental' edu, honestly.

Because I love my beaches, our earth, and our animals. ;)

I grew up around beaches so they have always been important to me. Over the years I've witnessed first hand the rapid increase in visible trash and decrease of marine life.

How confident are you that you will maintain your involvement with litter prevention in the future?

#	Answer	%	Count
1	Very Confident	100.00%	10
2	Somewhat Confident	0.00%	0
3	Neutral	0.00%	0
4	Somewhat Uncertain	0.00%	0
5	Very Uncertain	0.00%	0
	Total	100%	10

Do you still have to remind yourself to be litter conscious?

#	Answer	%	Count
1	Yes, I still have to remind myself.	0.00%	0
2	Yes, but it's become easier.	0.00%	0
3	No, I've incorporated it as part of my life.	100.00%	10
	Total	100%	10

Appendix B: Post User Acceptance Test

Please read through the following options and select the option that most reflects your current position with regard to marine littering:

#	Answer	%	Count
1	I don't have much knowledge about marine littering and/or haven't thought much about marine littering being problematic.	0%	0
2	I think marine littering is problematic, but have not given it much thought beyond that.	0%	0
3	I know marine littering is a problem, and want to get involved in restorative efforts.	0%	0
4	I am currently involved in marine litter restorative efforts.	75%	3
5	I have been involved in marine littering restorative efforts for at least 6 months.	25%	1
	Total	100%	4

How confident are you that you will maintain your involvement with litter prevention in the future if this was a solution?

#	Answer	%	Count
1	Very Confident	100.00%	4
2	Somewhat Confident	0.00%	0
3	Neutral	0.00%	0
4	Somewhat Uncertain	0.00%	0
5	Very Uncertain	0.00%	0
	Total	100%	4