Date: 03/27/2015

Project Title: FBW Trash Removal
Prepared by: Friends of Ballona Wetlands
Prepared for: The Bay Foundation and the US Environmental Protection Agency

Introduction:
Friends of Ballona Wetlands (FBW) have long been interested in addressing the accumulation of trash and debris along the Ballona Creek. While much of this trash originates throughout the 128-square mile watershed, there are also local sources of trash from recreational visitors to the creek, levee, and bike path, as well as a significant accumulation of trash along the fence line of the southern levee, directly adjacent to the saltwater marsh. To better understand and address the issue, FBW completed a two-part project. The first objective was to coordinate and implement a series of cleanup events and efforts along the southern levee of Ballona Creek to address a multi-decadal accumulation of trash in and around the Ballona Wetlands Ecological Reserve (Reserve). The second objective was to create a survey for visitors to the Creek area, including anglers, to identify recreational uses and gauge visitor perception of trash along the levee. These data will provide a baseline for future outreach opportunities, as well the need for more services and amenities to these important local constituents.

Part I: Cleanups Along the Ballona Creek's Southern Levee

Figure 1 - Location of cleanup

During this grant period, 17 cleanup events along the levee were held. A total of 624 volunteers worked with FBW staff and interns to remove almost 2,000 pounds of trash from the southern Ballona Creek levee and the adjacent Reserve (see Figure 1). The vast majority of the trash in this area was light-weight plastics such as Styrofoam and

cellophane, or bits of debris that were light enough to get picked up by the wind and trapped against the fence line. Additionally, heavier debris such as planks of wood (see Figure 6), metal pipes, and car parts were also occasionally removed.

After receiving permission from CDFW, staff worked with volunteers from Ecokai to install two access gates along the fence. Prior to installing these gates, access to this area was limited by a rusty and sharp chain-link fence, preventing FBW from bringing volunteers into the area. With the new gates installed, FBW began bringing volunteers out to the area to start the removal process.

While FBW staff knew this was a problem area, the extent of the build up was striking. Larger pieces of debris unveiled tinier pieces, which in turn unveiled even tinier pieces, often mixed in with leaf litter. At the top of the levee, some areas it was 3 to 5 inches deep. Further down, along the slope, it was 3 to 4 feet deep in some places. Removal of this under layer was slow and tedious, but tenacious volunteers made a substantial positive impact on the trash in this area.

Volunteers ranged from underserved middle school and high school youth to high-powered corporate groups. Many of the cleanups took place during our monthly volunteer days as well as our annual Coastal Cleanup Day and Earth Day events. Employees from RMC Water, Southern California Gas Company, Yahoo!, Google and YouTube, Lionsgate, and Ernst & Young participated. Other groups included students from Star Prep Academy, North Hollywood High School, Santa Monica College, staff and interns from The Bay Foundation, and volunteers from Go Eco Kids.

While we are proud of the total amount of trash removed, we feel the educational aspect was equally important. When volunteers saw the impact of 30+ years of trash accumulation, the reaction was immediate and profound. While some expressed anger at the destructive impacts of humanity, more often they were inspired to eliminate the use of Styrofoam and other plastics in their homes and offices.

<u>Access Improvements</u>:
FBW staff made multiple visits to the site, assessing the needed access modifications to the site to safely bring volunteers into the area. Two locations for new entrances were selected. Jim Burton and Carlos Carreon from EcoKai surveyed the site, took measurements, and assessed needed supplies. Patrick also did a site visit with the land

Figure 2 - Location of access gates

manager for California Department of Fish and Wildlife, Richard Brody, who approved the installations of the gates.

Supplies were purchased and the new gates were installed with the help of Jim and Carlos from EcoKai, whose labor was provided in-kind.

Figure 3 - Gate A

Figure 4 – Jim and Carlos with Gate B

Figure 5 – Thirty or more years of trash

Cleanup events:
After installing the gates, FBW staff and interns planned, coordinated, and completed 17 cleanups on the levee. Volunteers were provided with bags, gloves, trash grabbers, and rakes when needed. Loppers were used to trim back limbs of the non-native acacia where it was blocking our access. Great care was taken to protect native plant species such as pickleweed (*Salicornia pacifica*) as well as the birds that roost and forage in the flooded, tidal areas. Volunteers were prohibited from entering areas that were flooded or being used by wildlife.

Table 1 below provides a summary of the cleanups, including number of participants and total weight of the trash removed, as well as a summary of groups who participated in the cleanups.

Date	# of People	# of Bags	Weight (lbs)	Notes
04/19/14	71	21	165	Earth Day Event
06/06/14	30	13	109	Google
06/13/14	31	16	185	Lionsgate
07/26/14	25	8	42	July Restoration Day
08/08/14	22	10	139	Yahoo
08/23/14	15	15	35	August Restoration Day
09/19/14	55	26	351	Ernst & Young
09/20/14	70	31	122	Coastal Cleanup Day
10/11/14	27	12	75	Go Eco Kids
10/25/14	35	14	103	October Restoration Day
11/07/14	15	8	48	Google
11/10/14	52	21	63	Star Prep Academy
11/22/14	30	14	74	November Restoration Day
12/27/14	39	17	101	December Restoration Day
01/10/15	22	10	40	Go Eco Kids
01/24/15	55	22	115	January Restoration Day
02/28/15	30	10	58	February Restoration Day
TOTAL CLEANUPS: **17**	TOTAL PARTICPANTS: **624**	TOTAL BAGS: **268**	TOTAL WEIGHT (lbs): **1825**	

Participants of Note:	Google & YouTube employee volunteers RMC Water employee volunteers So Cal Gas employee volunteers Yahoo employee volunteers Google employees Lionsgate employee volunteers Ernst & Young employees Go Eco Kids volunteers The Bay Foundation staff & interns Star Prep Academy - middle school LMU Mesa - campus service group International Fullbright Scolars

Table 1: Cleanup results and participants of note

Figure 6 – Large debris like this plank of wood, while less common, were also removed

The extent of the trash along the levee was often hidden under layers of leaf litter, typically from the surrounding acacia trees. At other times it was partially hidden in the non-native weeds that grow on top of the levee. It wasn't until we started the removal process that the depth of accumulated trash and debris became apparent. In some places it was inches deep, with larger pieces of trash on top that and smaller pieces layered throughout.

Figure 7 – Close-up of trash mixed in with natural debris

Figure 8 – Trash layered in with leaf litter from *Acacia* trees

Earth Day (April 19, 2014)

Google & Youtube Employee Volunteer Day (June 6, 2014)

Lionsgate Volunteer Day (June 13, 2014)

Yahoo Volunteer Day with TBF (August 8, 2014)






Ernst & Young Volunteer Day (September 20, 2014)

Coastal Cleanup Day (September 21, 2014)

November Volunteer Day (November 22, 2014)

January Restoration Day with Internation Fullbright Scholars (January 28, 2015)

February Restoration Day with LMU Mesa (January 28, 2015)

Challenges:
As noted above, the extent of the trash - feet deep in some places - was greater than we expected. After removing the top layer, volunteers worked meticulously to sort through the leaf litter and get the smaller pieces. This was time-consuming and arduous, but even the smallest pieces were important to remove due to their potential negative impacts on the Reserve and adjacent Creek.

During a visit to the levee in October, Patrick Tyrrell, Program Director for FBW, spotted and photographed a Southern Pacific Rattlesnake. The presence of the snake forced us to limit groups cleaning the levee to older volunteers who, after learning of the presence of the snake during the safety talk, understood the risks and took great care while in the area.

Conclusion**:**
FBW plans to continue coordinating volunteer events to complete cleanups on the levee, when feasible. It was an eye-opening experience for all of us, and we feel the educational impact on the volunteers was also extremely valuable.

In the long-term, we hope that initiatives to reduce trash and debris in Ballona Creek will limit future build up in this area. City and countywide initiatives to capture storm water and prevent trash from entering Ballona Creek should continue to lessen the impact of trash on Ballona.

Ultimately, these cleanups were a huge success. Our volunteers left having not only having accomplished a lot, but with a much better understanding of how trash flows through our storm drains, into our creeks and rivers, where some of it will become trapped and slowly break into smaller and smaller pieces – pieces that will never disappear completely unless we do something about it.

Part II: Stakeholder Levee Use Survey

Satellite image of Ballona Creek, with yellow lines indicating survey area

FBW staff and interns designed a survey to gather basic baseline information about recreational users of the Ballona Creek jetties, including both the north and south sides of the Creek as well as the Pacific Avenue Bridge. The goal of the survey was to compile information to better understand an often overlooked demographic: those who use the area for recreational purposes, including fishing, biking, walking, running, and more. In particular, we were interested in their opinions on trash in and around the creek as well as how best to address the issue. Anglers and other recreational users of the Creek form

a key constituency and stakeholder group of this area, but as they are part of different recreational user sub-groups, they are often ignored.

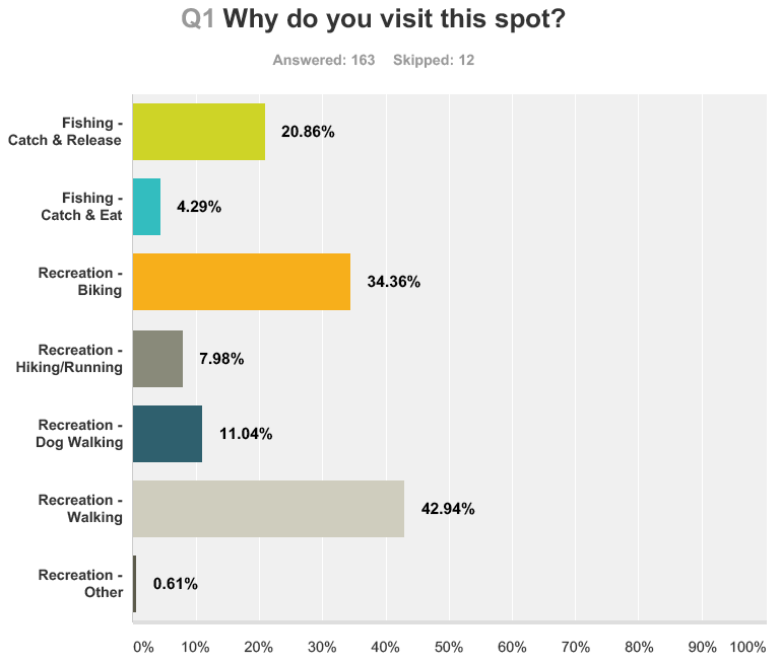
Our objective was to gauge the overall usage of the Ballona Creek levee, and Pacific Avenue Bridge area for recreational purposes, as well as to assess stakeholder perception of the trash in the area and the services (or lack there of) provided for recreational purposes. The survey data will provide a baseline for future outreach opportunities. Overall, we found that the recreational users of the Creek, while diverse, tend to be passionate about the area. They tend to be aware and concerned about the presence of trash, and interested in solutions to this problem. While non-point pollution will continue to be the primary contributor, our survey begins to engage these important constituents, identify needed services, and initiate discussions to implement the necessary changes..

Methods**:**
FBW's survey asked visitors along the Creek/levee about the purpose of their visit, the frequency of their visits, their opinions about trash in the area, and possible causes and solutions of littering. Staff and interns visited the creek/jetty on multiple occasions and collected 175 surveys. We had a high response rate for completing the survey, based on the ratio of number people asked to survey participants.

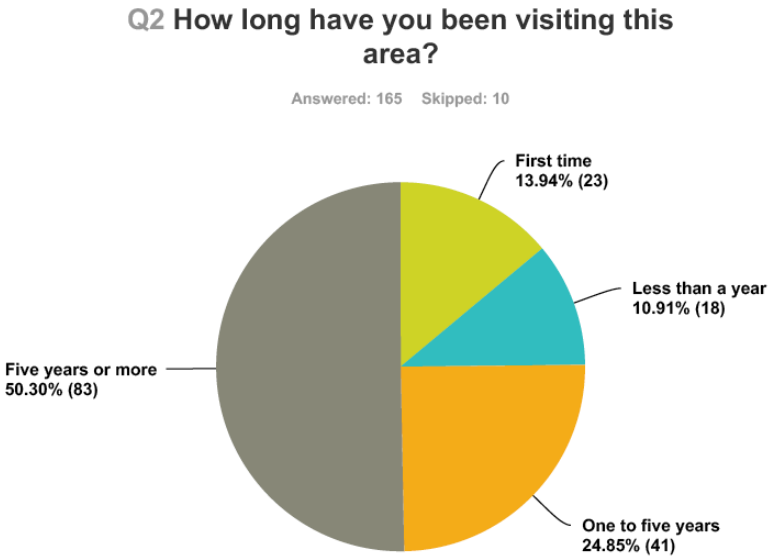
Most people encountered in the survey area were requested to complete the survey. However, only cyclists that were resting in the area were asked to answer the survey, since asking a cyclist in motion posed a safety threat. Additionally, we did not ask individuals that were on the phone or were engaged in argumentative or intimate conversation to avoid causing an inconvenience. Each interaction began with a positive greeting and a request for responses and ended by thanking the visitor for their time.

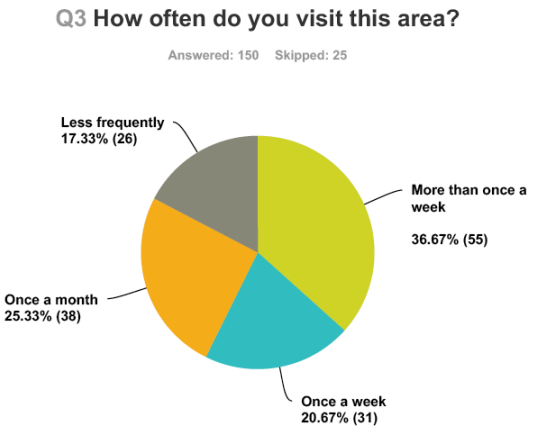
To save on paper, survey results were recorded on a data sheet that allowed for 12 surveys per sheet and than manually uploaded to SurveyMonkey.com for analysis.

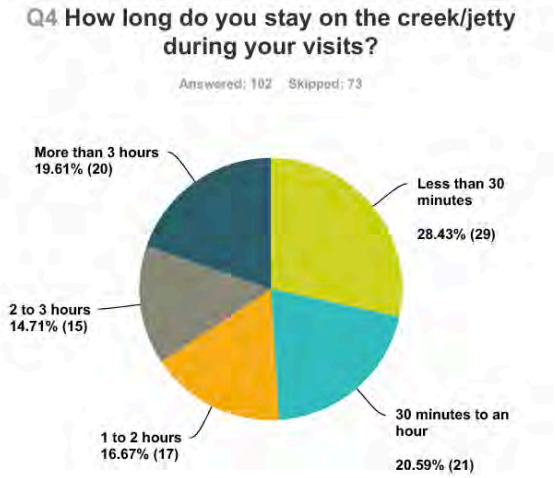
Results:
Results compiled from the survey respondents revealed that they utilized the creek for a variety of purposes: fishing, running, walking, biking, dog-walking, birdwatching, photography, and more. Most individuals were walking for recreation (42.94%). The second and third most popular activities were biking (34.36%) and catch and release fishing (20.86%).



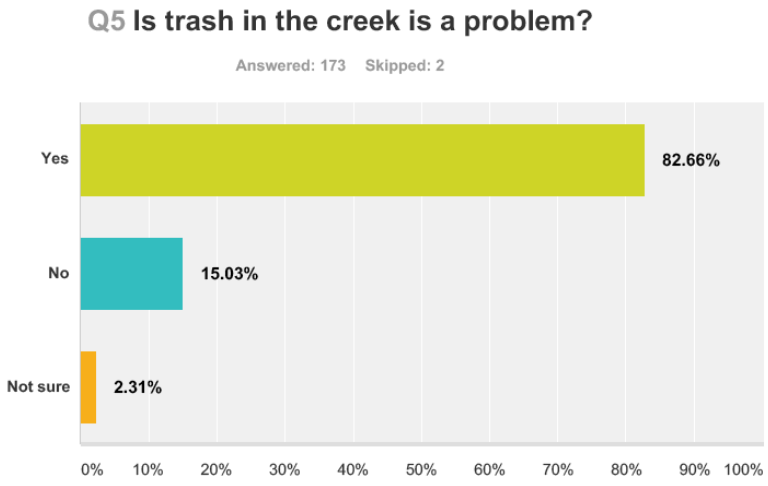
50.30% of surveyed individuals have been visiting the area for 5 years and a total of 57.34% visit once a week or more, showing that most of the visitors surveyed visit the area regularly and for many years. 13.94% were first time visitors, showing that we were able to survey individuals who were unaware of the appearance of the creek on a regular basis.



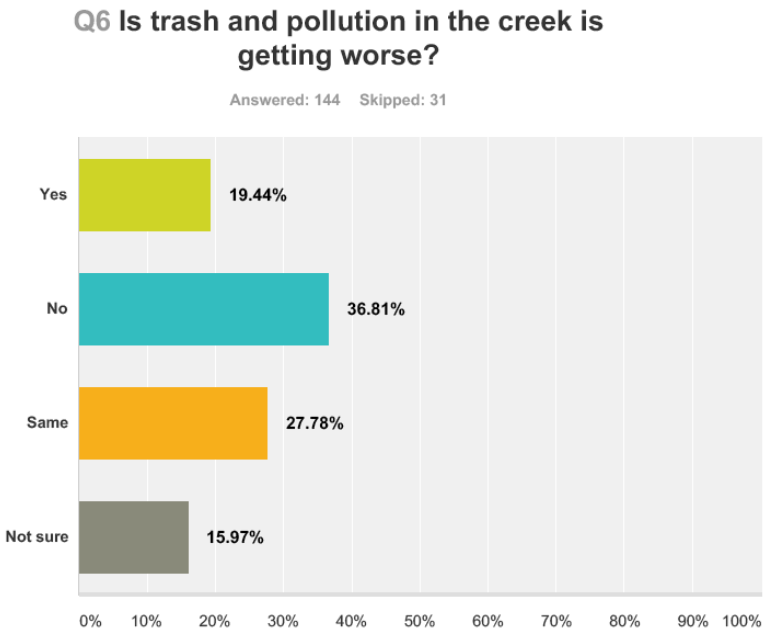




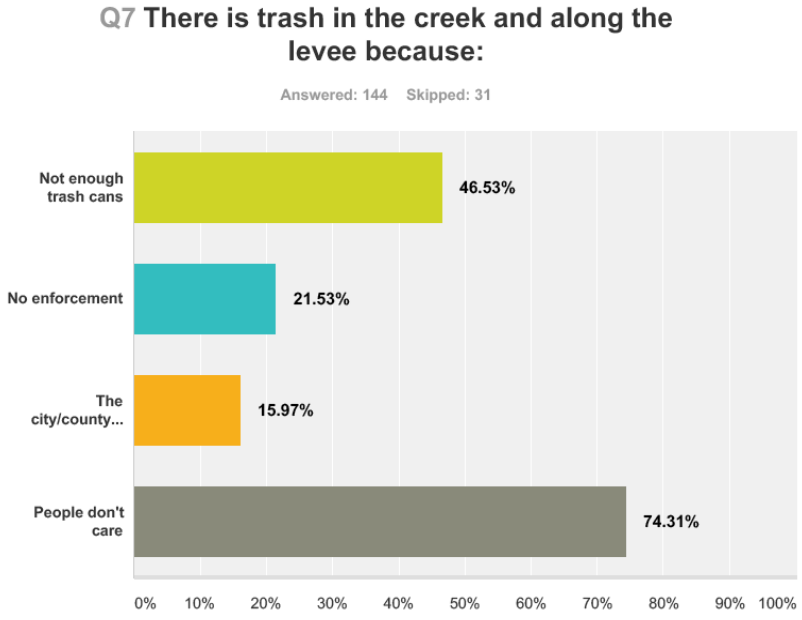
A total of 82.66% of individuals felt that trash in the creek is a problem and even more said that it bothers them when people leave trash (93.33%).

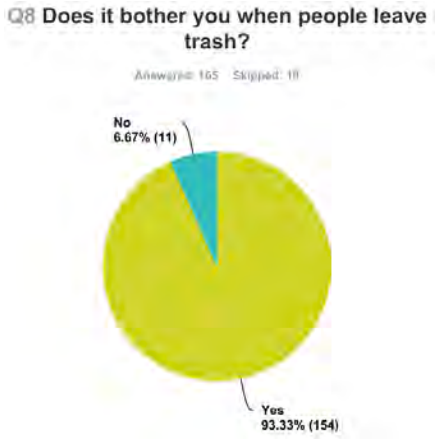


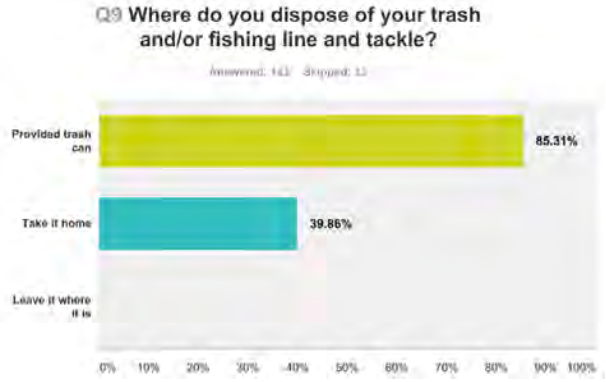
36.81% did not think the trash was getting worse, while 19.44% thought that it was getting worse. 27.78% of those surveyed thought the trash was consistent. These results indicate that the opinion of the trash level is relatively consistent with the location along the creek and day the survey was administered (i.e. surveys respondents at locations and times with more visible trash seemed to exhibit stronger negative views towards trash).



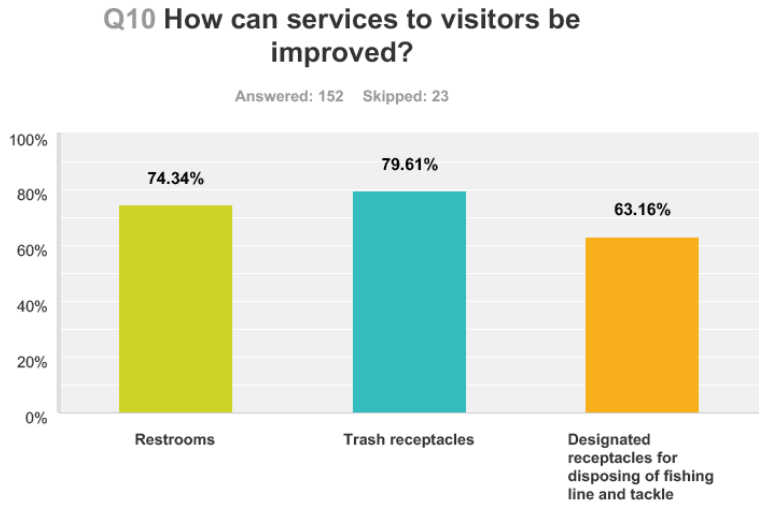
Most individuals (74.31%) concluded that litter resulted from people not caring and from lack of trashcans (46.53%). Almost all respondents (93.33%) were bothered by people leaving trash behind; however, no one admitted to leaving trash behind. Most people reported using the provided trash cans and/or bringing it home with them.



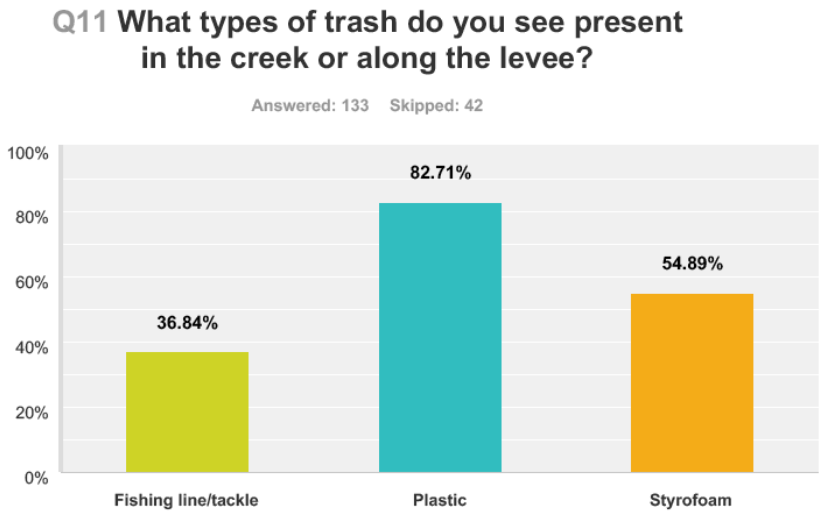




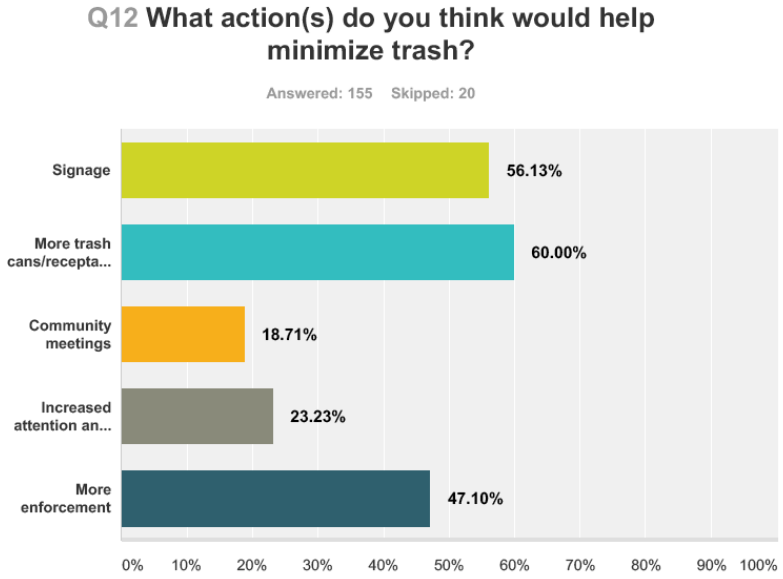
When asked what services could improve the area, 74.34% stated that the area needs more trash cans, 79.61% agreed that restrooms would be beneficial, and 63.16% felt that receptacles for fishing line and tackle would be helpful. This relative consensus shows that individuals visiting the area would benefit from all three of the services, and that providing more receptacles in places where they are lacking could reduce litter. Additionally, some current receptacles may be difficult to see, without lids, or unnoticeable due to bad placement or muted coloration.



Many individuals specified seeing plastic, Styrofoam, and fishing line. In the comments section, many individuals stated that they saw high amounts of paper, broken glass, cigarettes, snack bags, cups, bottles, cans, and wrappers.



The three top responses for minimizing trash were placing more trashcans (60.00%), informative signage (56.13%), and having more police enforcement of littering fines (47.10%).



Other ideas included having ash trays, water fountains, recycle bins, bags for dog waste, volunteer clean ups, signs in Spanish, public service announcements, placing fishing line cans over or attached to the regular cans, adding lids to trash cans, emptying cans more infrequently to reduce overflows, putting positive signs on the cans, having volunteers remind people to use the cans, having education in schools, not allowing fishermen on the bridge, placing trash cans toward the end of the jetty for visitor accessibility, taking

care of the homeless issue, and making the cans more visible. Respondents also noted the need for non-trash related amenities such as benches.

Recommendations:
Based on these data, the area would benefit from more trashcans placed in specific areas that will increase the likelihood of use, including along the bike path and along the jetties where there are long stretches without any receptacles. Also, having a regular trashcan before or adjacent to the fishing line receptacle will reduce the amount of litter improperly placed in the tube. The parking lot area is heavily covered in trashcans, and yet there is a large amount of litter and cigarette butt trash in that area. Ashtrays may benefit this area, as well as emptying the cans regularly, and increased law enforcement by the Sheriff's Department or other agencies with jurisdiction in the area. There are two identical signs side-by-side in the parking lot that include, amongst other rules and regulations, a suggestion to use the trash cans. More attractive and litter specific signage could be beneficial. Perhaps if the trashcans were covered in a positive message, i.e. "Thank you for keeping our Creek beautiful!" or "Help us keep Ballona Creek beautiful!" visitors will be more inclined to utilize them.

Based on information from visitors on the jetty as well as observational evidence of litter, it is likely that individuals who use the jetty in the evenings when it is dark are probably the ones who leave beer cans, liquor bottles, and other trash behind. The graffiti also seems to occur in the evenings. Policing the area at night may help prevent people from abusing this secluded location. However, it is also obvious that the closest trashcan to the end of the jetty is quite a far walk. People at the end of the jetty, especially at night with very little light to are unlikely to carry their trash a long distance. On one occasion, wrappers of glow sticks were observed, suggesting that individuals were using the jetty in the dark, so this is also a safety issue.

Additionally, the jetty that does not include benches has no trashcans or fishing line receptacles. Regardless, fishermen and other visitors frequently use it. Every day that we walked out on the jetty, we returned with handfuls of improperly discarded fishing line. A fisherman we spoke to at the end of that jetty said that every time he is out there he sees beer bottles left by fishermen and he always brings a bag with him to clean some of it up on the way back. Several visitors have mentioned that they often see fishing line on the rocks along the jetties.

Also, because the bridge is currently closed for repairs, we were unable to see the effects of fishing on the bridge or ask individuals who utilize that bridge how they perceive the trash issue. There is no guarantee that any of the individuals that use the bridge were surveyed since they may have chosen a different location during the construction. It would be valuable to assess the situation when the bridge has reopened to see if fishing on the bridge poses an additional litter issue.

Finally, several individuals mentioned that the amount of trash and litter and the number of fishermen and visitors increases significantly in the summer. It would be beneficial to execute an additional survey during the summer months to contrast the use of the jetty with data on the amount of litter left amongst the rocks and creek.