



# **Fish Contamination Education Collaborative Annual Angler Outreach Report**

**August 2021 – July 2022**

**Palos Verdes Shelf Superfund Site  
Los Angeles County, California**

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**ACRONYMS AND ABBREVIATIONS**

BPSOS	Boat People SOS
Cabrillo	Cabrillo Marine Aquarium
CCHC	Chinese Christian Herald Crusade
City of Long Beach	City of Long Beach Department of Health and Human Services, Bureau of Environmental Health
DBS&A	Daniel B. Stephens & Associates, Inc.
DDT	Dichloro-diphenyl-trichloroethane
EA	EA Engineering, Science, and Technology, Inc.
EPA	U.S. Environmental Protection Agency
FCEC	Fish Contamination Education Collaborative
HDR	HDR, Inc.
HTB	Heal the Bay
IC	Institutional control
LACDPH	Los Angeles County Department of Public Health
PCB	Polychlorinated biphenyl

## 1. INTRODUCTION

The Palos Verdes Shelf Superfund Site is Operable Unit 5 of the Montrose Chemical Corporation Superfund Site, located in Los Angeles County, California. The Palos Verdes Shelf, a portion of the continental shelf off the coast of Los Angeles, became contaminated with dichloro-diphenyl-trichloroethane (DDT) and polychlorinated biphenyls (PCBs) from the Montrose Chemical plant and other industries that discharged their waste into the Los Angeles County sanitation system. Today, several square miles of sediment on the continental shelf are contaminated with these legacy pollutants. Although the contaminated sediment is too deep for human contact, some fish in the area accumulate these organic pollutants at levels that make them unsafe for consumption. The U.S. Environmental Protection Agency's (EPA) initial response to the site was to focus on limiting consumption of these potentially contaminated fish.

EPA signed an Action Memorandum for Institutional Controls (ICs) for the Palos Verdes Shelf in September 2001. "ICs" refers to non-engineered measures, such as site use restrictions, intended to prevent or reduce exposure to contaminants at a site. The Action Memorandum established ICs to reduce exposure to contaminated fish, particularly white croaker, from the Palos Verdes Shelf. The ICs program includes: public education and outreach, monitoring, and enforcement. In 2003, EPA created the Fish Contamination Education Collaborative (FCEC) with representatives of federal, state, and local agencies, non-government, and community-based organizations that carry out various outreach and education activities. Since then, each of these program facets has evolved and a fourth element, strategic planning, has been added to assess and calibrate the ICs program. In September 2009, EPA signed an Interim Record of Decision that selected the interim remedy of continuation and strengthening of the ICs program, monitored natural recovery, and placement of a cap over the area of the Palos Verde Shelf that contains the highest surface contaminant concentrations.

The purpose of the Community Involvement Program is the dissemination of educational material concerning consumption of contaminated fish focusing on specifically vulnerable ethnic communities. EPA designed the Community Involvement Program to reduce risk posed by exposure to contaminated fish through outreach and education. The program has three main activities: Angler Outreach, Community Outreach, and Enforcement. In support of these activities, EA Engineering, Science, and Technology, Inc. (EA) coordinated meetings with the FCEC. The FCEC is a forum for the agencies, outreach groups, and other involved entities to share ideas, get updates on the project's progress, and maintain momentum for continued outreach work.

In February 2015, EPA contracted EA to continue the community involvement activities. EA subcontracted with outreach community partners including Heal the Bay (HTB) and Cabrillo Marine Aquarium (Cabrillo) to perform angler outreach; Chinese Christian Herald Crusade (CCHC) and Boat People SOS (BPSOS) to conduct outreach during community events for the Chinese and Vietnamese communities, respectively; and team subcontractor, HDR, Inc. (HDR), to complete the bait shop outreach and attend community events. In November 2020, team subcontractor Daniel B. Stephens & Associates, Inc. (DBS&A), took over the bait shop and community event outreach activities that HDR had been performing. EA managed electronic outreach through the FCEC website.

In March 2020, the World Health Organization classified the COVID-19 outbreak as a pandemic. To reduce the impact of the outbreak, closures of non-essential businesses and restrictions on public gatherings were issued by the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention, the State of California, and Los Angeles County. Therefore, in-person angler and community outreach events were suspended in mid-March 2020 in compliance with State restrictions and closures of public spaces. Although many of these restrictions were lifted before this reporting period, COVID-19 related changes to operations continued to affect outreach activities in this period.

The City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) and Los Angeles County Department of Public Health (LACDPH) were involved in COVID-19 public health activities and have been unable to conduct outreach activities. Prior to the pandemic, the LACDPH monitored and maintained the "Do Not Consume" fish pier signs and performed enforcement inspections of local fish markets and restaurants in Los Angeles. The City of Long Beach attended local community outreach events, monitoring and maintenance of "Do Not Consume" fish pier signs, and enforcement inspections of local fish markets and restaurants in Long Beach. EA facilitated the fish identification training workshops for LACDPH and City of Long Beach enforcement inspections. LACDPH and City of Long Beach decided not to continue participating in the FCEC Program. Therefore, no fish identification training workshop was scheduled. HTB performed a pier sign monitoring event at all (17) piers with "Do Not Consume" fish signs, including those monitored by LACDPH and City of Long Beach during the reporting period. The enforcement activities performed by LACDPH and City of Long Beach were not rescheduled. The California Department of Fish and Wildlife performed enforcement inspections for recreational and commercial fishing. The pier sign inspection and enforcement activities are documented separately in the Annual Pier Sign Summary Report and Annual Enforcement Report.

To continue EPA's outreach and education to impacted communities during the COVID-19 pandemic, EA worked with the outreach groups to continue modified outreach activities that complied with COVID-19 local, State, and Federal guidelines and in accordance with the EPA approved Health and Safety Plan. HTB resumed pier angler outreach in June 2021. Cabrillo resumed angler outreach in September 2021. BPSOS, DBS&A and CHCC resumed community event outreach in August 2021, October 2021, and January 2022, respectively. DBS&A also performed modified bait shop outreach in November and December 2021 to limit in-person contact. EA coordinated the first post-pandemic virtual FCEC partners meeting in March 2022.

This report summarizes the extent of the outreach conducted between August 2021 and July 2022, including:

- Angler outreach conducted from August 2021 to July 2022.
- Modified Bait shop outreach conducted in November to December 2021 and July 2022.
- Electronic outreach on the FCEC website and Facebook fan page conducted between August 2021 and July 2022.

- Community events attended by BPSOS, CCHC, and DBS&A from August 2021 to July 2022
- FCEC partners meeting in March 2022



## 2. OVERVIEW OF THE COMMUNITY INVOLVEMENT PROGRAM

The Community Involvement Program is one of three ICs designed to reduce risk posed by the consumption of contaminated fish. The purpose of the Community Involvement Program is the dissemination of educational material concerning consumption of contaminated fish with a focus on vulnerable ethnic communities. This report summarizes the extent of the outreach including:

- Angler Outreach
- Bait Shop Outreach
- Electronic Outreach
- Community Event Outreach
- FCEC Partners Meeting

The following sections summarize each of these outreach subprograms.

### 2.1 ANGLER OUTREACH

HTB and Cabrillo conduct angler outreach during the day at nine fishing piers located within the Palos Verdes Shelf Superfund Site contaminated sediment area between Santa Monica Pier and Seal Beach Pier (Figure 1). HTB performs angler outreach at eight of the piers including (1) Santa Monica, (2) Venice, (3) Hermosa Beach, (4) Redondo Beach, (5) Rainbow Harbor, (6) Pier J, (7) Belmont Pier, and (8) Seal Beach. Cabrillo performs day angler outreach at Cabrillo pier. The angler outreach staff educate anglers at the piers about the local contamination and distribute FCEC program materials two to three days per week, generally during the day and at times of highest angler population on the pier (Thursday or Friday, Saturday, and Sunday). HTB expanded the angler outreach program to include evening hours as a pilot program at Venice and Redondo Beach piers between August 2017 and October 2017. These two piers were chosen based on popularity and ease of access for the outreach team during the evening hours. HTB conducted evening outreach on Saturdays between 4:00 and 8:00 P.M. Based on the success of the pilot program, evening outreach at these piers was implemented in October 2018.

Due to the COVID-19 pandemic, the angler outreach activities were suspended in mid-March 2020. HTB resumed day and evening outreach activities in June 2021. Cabrillo resumed day outreach activities in September 2021.

### 2.2 BAIT SHOP OUTREACH

Two rounds of bait shop outreach are typically performed at a minimum of 40 angler retail and bait shop locations in Huntington Beach, Seal Beach, Long Beach, San Pedro, Redondo Beach, Hermosa Beach, Manhattan Beach, Hawthorne, Marina Del Rey, Venice, Culver City, and Santa Monica (Figure 2). The bait shops are provided with FCEC outreach materials (tip-cards in English, Spanish, Vietnamese, and Chinese). Additionally, the FCEC contact email address ([info@pvsfish.org](mailto:info@pvsfish.org)) and website (<http://pvsfish.org/>) are given to bait shops so they may request additional materials or ask questions.

Due to COVID-19, DBS&A continued modified bait shop outreach during the reporting period. Since the pandemic, 5 bait shops have closed business or no longer sell bait. As a result, DBS&A telephoned 38 bait shops to determine their outreach material inventory needs. Based on the interviews, DBS&A performed outreach material deliveries to bait shops that requested materials. The first round of bait shop outreach was performed by DBS&A in November and December 2021. DBS&A initiated the second round of bait shop outreach in July 2022 and delivered materials in August 2022.

## **2.3 ELECTRONIC OUTREACH**

Electronic outreach was completed by maintaining the FCEC website (<http://www.pvsfish.org/>) and Facebook fan page (<https://www.facebook.com/fcecprogram/>). Typically, EA also prepares an electronic newsletter summarizing community events throughout the year. However, due to COVID-19, limited community outreach events were conducted in 2021 when the electronic newsletter would have been prepared. Additionally, EA responds to questions emailed to the FCEC information account and posts FCEC reports on the FCEC website. EA recorded user traffic such as the number of visitors and Facebook fan page “likes” (using Meta Business Suite, which replaced Facebook Insights during this reporting period). The data collected (using Google Analytics) on the FCEC website included the number of visitors, page views, number of pages viewed per session, average duration of visitor stay on the website, the bounce rate (i.e., percentage of visitors to a website who navigate away from the website after viewing one page), whether a visitor was new or a repeat, and page views by city.

## **2.4 COMMUNITY EVENT OUTREACH**

DBS&A, CCHC, and BPSOS typically attend community outreach events and provide FCEC outreach materials. Community outreach is provided to educate these specific communities on the fish contamination and “Do Not Consume” fish. During the events, outreach focuses on distributing informational tip-cards, comic books, and pamphlets as well as having one-on-one conversations with community members to provide fish contamination and consumption education. A children’s fishing game is provided at the events as a tool for children and families to engage in learning about identification of contaminated fish species. Sign-up sheets are available for visitors to sign-up for the electronic newsletter and indicate their awareness of the contamination (i.e., whether they are aware of the DDT/PCB fish contamination advisories before the community event, and what is the awareness source [i.e., “Do Not Consume” fish signs, tip-card, community event, outreach team, internet, media, friend/family, or other]).

Due to the COVID-19 pandemic, community outreach events were suspended for the entirety of the last reporting period. BPSOS, DBS&A, and CHCC resumed community event outreach in August 2021, October 2021, and January 2022, respectively. During this reporting period a total of 11 events were attended by BPSOS, DBS&A, and CCHC. BPSOS attended five events with themes dedicated to outreach to the Vietnamese community, CCHC attended two events with themes dedicated to the Chinese community, and DBS&A attended four events with themes dedicated to children, environmental education, and Hispanic culture.

## **2.5 FCEC PARTNERS MEETING**

The FCEC partners meeting is typically held in person and includes the angler outreach groups, agencies, and other entities to provide feedback and recommendations for program messaging, report on the condition of posted “Do Not Consume” pier signage, exchange information, and discuss any issues related to the program. Since the pandemic began, the FCEC partners meetings have been postponed. During this reporting period, EA held a virtual FCEC partners meeting on 10 March 2022.

### **3. DATA COLLECTION AND ANALYSIS APPROACH**

#### **3.1 ANGLER OUTREACH**

Due to the COVID-19 pandemic, in-person angler outreach was suspended in mid-March 2020 for both the daytime and evening outreach programs. HTB staff resumed angler outreach in accordance with the EPA-approved Health and Safety Plan in June 2021 and were active for the entirety of this reporting period. Cabrillo resumed angler outreach in September 2021 and continued for the remainder of this reporting period. The following data were recorded during their angler outreach:

- Whether an outreach angler was an adult or child.
- Whether an outreach angler was a repeat or new respondent.
- Whether a contacted angler agreed to speak with the outreach team.
- Whether the outreach angler is aware of the contamination.
- The awareness source (i.e., “Do Not Consume” fish pier signage, information tip-cards, outreach, community events, media, internet, friend/family, or other).
- The language spoken during the angler outreach.
- The zip code the angler lives in, if provided.
- Any additional notes about the angler, such as type of fish caught, and other language(s) spoken if outreach was conducted in English.

The outreach data was analyzed to determine the effectiveness of the angler outreach activities. The total number of anglers reached at each pier was tracked on a monthly and annual basis to determine whether the numeric outreach objective was met. The overall outreach effectiveness was based on the percent of anglers aware of the fish contamination of those reached. Another measure of outreach effectiveness was based on the demographic variability of the anglers. The demographics were assessed by the total number of anglers reached in each zip code/county, and the languages spoken (English, Spanish, Chinese) by county. This analysis was possible because each record in the database that had zip code information also contained the language spoken. The demographic variability data was also used to identify potential gaps in outreach within the communities.

#### **3.2 BAIT SHOP OUTREACH**

DBS&A performed modified bait shop outreach that limited in-person contact during the reporting period. Instead of visiting the bait shops in person, DBS&A conducted telephone interviews with the active bait shops to assess their current inventory of FCEC outreach materials (tip-cards in English, Spanish, Chinese, and Vietnamese), needs for replacement, and any other

pertinent observations from the bait shop representatives. Based on the telephone discussions, DBS&A delivered the FCEC outreach materials to the bait shops using personal protective equipment and social distancing per COVID-19 guidelines. Since the pandemic, five bait shops have closed business or no longer sell bait. As a result, DBS&A telephoned 38 bait shops in November 2021 and delivered outreach materials in December 2021. DBS&A conducted the second round of interviews with the active bait shops in July 2022 and delivered outreach materials in August 2022.

### **3.3 ELECTRONIC OUTREACH**

Data collection for the electronic outreach was performed using Google Analytics, which recorded information such as the various visitor types to the FCEC website, visitor activity on the website, and the method used to reach the website. The Google Analytics data were analyzed to determine the total number of visitors to the website, number of page views, number of pages viewed per session, the bounce rate (i.e., the percentage of visitors to a website who navigate away from the site after viewing one page), and the number of new or repeat visitors. The combined information from these datasets enabled a qualitative-quantitative analysis of the outreach effectiveness of the FCEC website. In addition, analytic data from Facebook Insights, such as the number of likes, fans reached, and user engagement provided additional data to assess outreach effectiveness.

### **3.4 COMMUNITY EVENT OUTREACH**

DBS&A, CCHC, and BPSOS attended a total of 11 community events. During each community event, the estimated number of attendees and/or tip cards distributed (English, Spanish, Chinese, and/or Vietnamese) were recorded. Like the other outreach datasets, the community event outreach data were analyzed to determine and compare the outreach effectiveness within each of the target communities. Based on community outreach evaluations from previous reporting periods, the children's fishing game and "What's the Catch" comic book continues to be the most popular and successful tools to educate families. Table 14 provides a summary and results of the community outreach events for this period.

## 4. RESULTS

### 4.1 DAY ANGLER OUTREACH

#### 4.1.1 Day Anglers Contacted During Outreach Period

During previous reporting periods, the numeric objective of the angler outreach was for HTB and Cabrillo to contact a minimum of 11,000 and 1,600 anglers, respectively. Including both day and night outreach, HTB reached 7,717 anglers in this reporting period, falling short of the goal. However, the decrease may be attributable to pier closures at Venice Beach during the reporting period. Cabrillo reached the goal with 1,603 anglers. Table 1 (day) and Table 7 (night) summarize the total number of anglers HTB and Cabrillo contacted by month and during the reporting period.

Based on the monthly trends in the data shown in Table 1 and Figure 3, there appear to be seasonal fluctuations with the numbers of anglers generally increasing from January to a peak in July, then declining from August to a low in December. This is consistent with past reporting periods, in which angler numbers increased in the spring and summer and declined in fall and winter. In the last reporting period outreach was only carried out during June and July so monthly and seasonal trends were not observed. The most popular pier for angler outreach continues to be Cabrillo pier, making up approximately 19.8 percent of the total anglers reached. Of the piers covered by HTB, the most popular was Belmont, making up 15.1 percent of the total anglers reached. Rainbow Harbor pier was the least frequented by anglers, making up 4.9 percent of the total anglers reached.

#### 4.1.2 Day Angler Outreach Effectiveness (Contamination Awareness)

Information on angler awareness of the contamination and “Do Not Consume” warnings was collected during the angler outreach sessions. Anglers were also asked about the source from which they learned of the information. Table 2 summarizes the percent of anglers who responded that they were aware of the contamination and “Do Not Consume” warnings. On average for all the piers monitored, angler awareness during the reporting period was approximately 72 percent (5,794 of 8,099). The anglers reached at Rainbow Harbor had the most awareness with 95 percent of anglers aware of the contamination issues. Angler awareness was lowest at Pier J (56 percent). Of the anglers contacted at the piers who were aware of the contamination, approximately 97.3 percent spoke English, 2.3 percent spoke Spanish, and 0.40 percent spoke Chinese.

Tables 3 and 4 summarize the percent of respondents who were repeat or new respondents for the outreach period. On average, 49 percent of anglers were repeat respondents and 50 percent were new respondents among all fishing pier locations. This is a notably higher level of repeat respondents and lower new respondents than the last reporting period, in which 29 percent of anglers reached were repeat and 71 percent were new. However, during the last reporting period HTB did not collect information whether anglers were new or repeat, but rather assumed that anglers were repeat if their source of awareness was tip cards or the outreach team. This assumption likely underestimated the number of repeat respondents. The percent of new and repeat angler results during this reporting period are consistent with results from previous

reporting periods. Hermosa Beach pier had the highest approximate fraction of repeat respondents (68 percent) while Rainbow Harbor (39 percent) and Venice Beach (40 percent) had the lowest approximate repeat respondents. The remaining piers averaged between 41 percent and 66 percent for repeat respondents. New respondents were highest at Rainbow Harbor (61 percent) and lowest at Cabrillo pier (31 percent). The remaining piers averaged between 32 percent and 59 percent for new respondents.

HTB asked anglers that reported awareness of the contamination to provide the source of their information (i.e., pier signs, information tip-cards, pier outreach team, internet, community events, media, friend/family, or other). Table 5 summarizes pier angler's source of awareness. Based on the results, the pier signage (39.8 percent), pier outreach team (30.5 percent), and tip cards (27 percent) were reported as the most influential sources of information. Compared to the previous reporting period, pier sign and tip card awareness is consistent while there was a significant increase of the angler outreach team from the previous reporting period (13.8 percent) but still less than the reporting period prior to that (57.9 percent). Less influential sources of awareness that were reported were media (1.4 percent), internet (0.6 percent), other sources (0.6 percent, and friends/family (0.1 percent). None of the anglers reached during this reporting period reported community events as their source of awareness.

#### **4.1.3 Day Angler Outreach Effectiveness (Geographic Distribution/Demographic Variability)**

During the angler outreach, anglers were asked to provide the zip code where they live. Of the 8,099 anglers reached in daytime outreach, 61.1 percent (4,945 anglers) provided their zip code. Of the anglers who provided their zip code, 64.6 percent were from Los Angeles County, 4.2 percent were from Orange County, 0.8 percent were from San Bernardino County, and 0.6 percent were from Riverside County. The remaining 29.8 percent of zip codes were from out of state and other counties in California. As the majority of respondents were from Los Angeles and the counties surround Los Angeles, analysis and figures focus on these areas.

Figures 4 and 5 depict the distribution and concentration of zip codes for the counties surrounding Los Angeles during day and night angler outreach, respectively. Of the total zip codes, the zip code with the highest concentration of anglers was 90731 in south Los Angeles (310 respondents), followed by 90813 (91 respondents) and 90744 (90 respondents), both also in south Los Angeles. Ten additional zip codes had 50 or more respondents, all of which were in Los Angeles County. There was no single pier for which any of these zip codes were found at exclusively.

Demographic variability was determined using the language data collected during the angler outreach. The efficiency of the outreach to various communities actively fishing the Palos Verdes Shelf Superfund Site was assessed by evaluating the different languages spoken geographically. Only responses of English, Spanish, and Chinese were reported in the data provided by HTB. While the data may indicate that many of the anglers responded in English, bi- or multi-language responses may not have been recorded by the anglers.

Table 6 summarizes the language distribution spoken by the anglers. The results indicate that 99.3 percent of the anglers spoke English, 0.5 percent spoke Spanish, and 0.2 percent spoke

Chinese. These results do not indicate if the English responders speak only English or if they are bi- or multi-lingual. Compared to previous reporting periods, the percent of Spanish and Chinese speakers reached outside of Los Angeles County decreased.

## 4.2 NIGHT ANGLER OUTREACH

HTB performed angler outreach on Saturday evenings at the Redondo beach and Venice beach piers. These piers were chosen based on previous observations that night anglers frequent these popular piers and they are safe evening access for the angler outreach team.

Table 7 summarizes the total number of anglers contacted. Based on the data, the evening outreach program reached a total of 1,221 anglers.

Table 8 summarizes the percent of anglers who responded that they were aware of the contamination and “Do Not Consume” warnings. On average, 76 percent of anglers reached during evening angler outreach exhibited awareness (n=928).

Tables 9 and 10 summarize the percent of respondents who were repeat or new respondents, respectively. An average of 43 percent of anglers were repeat respondents and 57 percent were new respondents among all fishing locations. This is a significant difference from the last reporting period in which 28 percent of respondents were repeat and 72 percent were new. However, during that reporting period, HTB did not actually collect information whether anglers were new or repeat, but rather assumed that anglers were repeat if their source of awareness was tip cards or the outreach team. This approximation likely underestimated the number of repeat anglers, which is more consistent with the data from the previous reporting period where 41 percent of anglers were repeat respondents and 59 percent of anglers were new respondents.

Table 11 summarizes the awareness source for the night responders. Pier signage (50.4 percent) and tip-cards (47.7 percent) were reported as the most influential sources of information. The only other sources reported was the media (1.5 percent) and friends/family (0.4 percent). During the previous reporting period, tip cards (44.0 percent) and pier signage (40.8 percent) were reported to be the highest sources of awareness. In past years, the outreach team was often reported as a major source of awareness, however in this reporting period no anglers reached reported the outreach team as their awareness source. This may be due to the fact that for the majority of the last reporting period HTB did not carry out outreach activities due to the COVID-19 pandemic.

During the night angler outreach pilot program, anglers were asked to provide the zip code where they live. Of the 1,221 anglers reached, 54.5 percent (666 anglers) provided their zip code. Of the anglers who provided their zip code, 98.8 percent were from Los Angeles County, 0.6 percent were from Orange County, and 0.6 percent were from out of state. Figure 4 depicts the distribution and concentration of zip codes for Los Angeles and Orange counties. The zip code with the highest concentration of anglers was 90503 in southwestern Los Angeles (30 respondents), followed by 90250 (25 respondents) and 90247 (20 respondents) both also in southwestern Los Angeles. 23 additional zip codes had 10 or more respondents, all of which were in Los Angeles County. See Figure 4 for the graphical distribution of where anglers are from.



Table 12 summarizes the language distribution spoken by the anglers reached during the evening outreach. The results indicate that 99.5 percent of the respondents spoke English and that 0.5 percent were non-English speakers (all non-English speakers spoke Chinese). All non-English speakers who provided zip codes resided in Los Angeles County.

### 4.3 BAIT SHOP OUTREACH

DBS&A conducted outreach to angler retail and bait shop locations in Huntington Beach, Seal Beach, Long Beach, San Pedro, Redondo Beach, Hermosa Beach, Manhattan Beach, Hawthorne, Marina Del Rey, Venice, Culver City, and Santa Monica (Figure 2). DBS&A continued modified bait shop outreach during this reporting period. In November 2021, DBS&A contacted 38 bait shops via telephone. There were three bait shops that closed business or no longer sold bait during the last reporting period and two during this period. Therefore, the bait shop outreach fell short of reaching the goal of 40 minimum bait shops.

Of the 38 bait shops, 6 requested more materials in Long Beach (7-Eleven [2], Jimmy Caivo Bait and Tackle), Culver City (Big 5 Sporting Goods), Seal Beach (Big Fish Bait and Tackle), San Pedro (Stanley's Liquor Jr. Market), and Hermosa Beach (West Marine [2]). These shops indicated increased business during the pandemic. In December 2021, DBS&A staff provided additional materials (tip-cards in English, Spanish, Vietnamese, and Chinese) to the six shops that requested additional materials in November. Two bait shops reported that they no longer sell bait (7-Eleven [3] in Huntington Beach and Kelly Marine in San Pedro). The remaining shops reported that they did not need more materials. Tip-cards were distributed in English (275), Spanish (275), Chinese (50), and Vietnamese (50). The following six bait shops received FCEC outreach materials in December 2021:

1. 7-Eleven (2)
2. Big 5 Sporting Goods
3. Big Fish Bait and Tackle
4. Jimmy Caivo Bait and Tackle
5. Stanley's Liquor Jr. Market
6. West Marine (2)

In July 2022, DBS&A initiated the second round of bait shop outreach. Replacements for the five bait shops which closed were not completed during this reporting period. Of the 36 bait shops contacted, 9 requested additional outreach materials. Tip cards were distributed to the bait shops in August 2022. A total of 450 English, 450 Spanish, 175 Chinese, and 175 Vietnamese tip cards were distributed to the following bait shops:

1. 7 Eleven (2)
2. ARCO/ampm
3. Bay Market
4. Charkbait
5. Fishermen's Hardware
6. Mahi Tackle-Sport Fishing Supplies
7. West Marine (1)

8. West Marine (2)
9. West Marine (3)

#### 4.4 ELECTRONIC OUTREACH

Figures 6 and 7 and Table 13 summarize the Google Analytics datasets that were collectively used to quantify electronic outreach effectiveness. Based on the monthly data, the FCEC website experienced a sustained decrease in visitors, measured by the number of sessions or visits to the webpage, unique users, and page views relative to the last reporting period. During this period, the average bounce rate increased slightly from 64.2 percent in the previous reporting period to 68 percent. The average percent of new users (97.3 percent) is consistent with previous reporting periods. The number of sessions, users, and page views decreased from a total of 13,950, 9,650, and 23,690, respectively, during the previous reporting period, to a total of 9,260, 7,363, and 15,183 during this reporting period. The number of sessions, users, and page views was highest in May 2022 (1,145 users; 2,186 page views) and the number of page views was lowest in December 2021 (848 page views), but the number of users was lowest in February 2022 (417 users). The average bounce rate was 68.4 percent, with the lowest bounce rate (41.2 percent) in March 2022 and the highest (79.5 percent) in April 2022. New users averaged 97.3 percent during this timeframe, although in May 2022 new users were the lowest at 89.3 percent. The pages per session data remained constant with an average of 1.6 pages per session. The session duration averaged approximately 50 seconds per session, but with a fair amount of variation. For instance, in March 2022 the average session duration was 29 seconds, while in August and November 2021 it was 58 seconds. In addition to overall website usage, Google Analytics tracks demographic data, specifically country, region/state, city, and metro area. Visitors from the United States made up 79.1 percent of visitors to the website who had tracking turned on. Among those, 69.8 percent were from California. In California, the top five cities with visitors to the website included 37.8 percent from Los Angeles, followed by 3.2 percent from San Diego, 3.1 percent from Long Beach, 2.7 percent from San Francisco, and 2.3 percent from San Jose.

The Facebook analytical data are presented in Figures 8 and 9. Figure 8 shows the number of likes the Facebook fan page had between August 2021 to July 2022. Figure 9 presents the number of fans reached (unique views) and the number of visits to the site during the outreach period for each post to the Facebook fan page. During this outreach period, the Facebook Insights application was replaced with Meta Business Suite, and some of the analytics provided are not the same or comparable to the previous reporting periods. However, as of July 2022, the Facebook fan page had 4,364 followers, and an average of 3 new likes per month, and an average of 11 page visits per month. Where the same metrics were used last year, such as in average number of likes per month, engagement is roughly the same as the last reporting period.

#### 4.5 COMMUNITY EVENT OUTREACH

BPSOS attended five events with themes dedicated to Vietnamese culture, health, and environmental education. Below is the list of community events attended by BPSOS during the outreach period:

1. City of Westminster Back-to-School Vaccination Event and Resource Fair (19 August 2021)
2. City of Westminster Bunny Hop at Sigler Park (09 April 2022)
3. City of Westminster Bunny Hop at Westminster Park (16 April 2022)
4. University of California, Los Angeles Vietnamese Community Health Fair (24 April 2022)
5. City of Anaheim Ponderosa Park Community Health and Resources Fair (09 July 2022)

In total, an estimated 700 people attended these events. BPSOS distributed 424 tip cards in Vietnamese (87.7 percent), Spanish (8.5 percent), and English (3.8 percent).

CCHC attended two community events during the outreach period, targeted primarily at Chinese community members. Below is the list of community events attended by CCHC during the outreach period:

1. City of Industry Chinese New Year Fair (22 and 23 January 2022)
2. City of San Gabriel Annual Walkathon and Carnival (18 June 2022)

In total, an estimated 1,600 people attended these events. CCHC distributed 2,151 informational outreach materials during the events consisting of informational brochures (33.7 percent), tip cards (34.9 percent), fish identification cards (31.4 percent), and 1 “What’s the Catch” curriculum guide (0.04 percent). Of the 725 informational brochures distributed, 93.8 percent were in Chinese and 6.2 percent were in English. Of the 750 tip cards distributed, 90.7 percent were in Chinese and 9.3 percent were in English. All 675 fish identification cards were in English. One English curriculum was also distributed at the Chinese New Year Fair in the City of Industry, California.

DBS&A attended four community events with themes dedicated to children, environmental education, and Hispanic culture and environmental education. Below is the list of community events attended by DBS&A during the outreach period:

1. Aquarium of the Pacific Baja Splash Cultural Fest in Long Beach (02 and 03 October 2021)
2. San Pedro Deane Dana Friendship Park and Nature Center First Annual Dia de los Muertos Chalk Festival in San Pedro (06 November 2021)
3. Aquarium of the Pacific Noche de Estrellas in Long Beach (04 March 2022)
4. Aquarium of the Pacific International Children’s Festival in Long Beach (19 and 20 March 2022)

In total, an estimated 2,800 people attended these events. DBS&A distributed 1,206 informational outreach materials during the events consisting of tip cards (36.4 percent), “What’s the Catch” comic books (40.6 percent), “What’s the Catch” curriculum guide (1 percent), informational pamphlets (4.4 percent), and fish identification cards (17.4 percent). Of the 440 tip cards distributed, 68.2 percent were in English, 17.1 percent were in Spanish, 6.8 percent were in Chinese, and 8 percent were in Vietnamese. The “What’s the Catch” comic books (490) for children were distributed in English (66.3 percent), Spanish (22.9 percent), and Chinese (10.8 percent). Twelve curriculum guides were given to educators to teach the fish contamination information. Additional outreach materials distributed included 210 fish identification cards in English, and 54 informational pamphlets in English (92.6 percent), Spanish (3.7 percent), Chinese (1.9 percent), and Vietnamese (1.9 percent).

## 5. DISCUSSION AND RECOMMENDATIONS

### 5.1 ANGLER OUTREACH

Due to the COVID-19 pandemic, Cabrillo's outreach activities were suspended during the first month of this reporting period; Cabrillo resumed outreach in September 2021. HTB conducted angler outreach during this entire reporting period.

During the last reporting period, outreach was lower at all piers due to the suspension of activities for the COVID-19 pandemic. Only HTB conducted angler outreach during June and July 2021 of the last reporting period. Two piers (Cabrillo and Venice) were not outreached due to suspension of outreach by Cabrillo and Venice pier was closed. However, during June and July 2022, outreach was higher compared to the same months of the last period at all piers except Santa Monica.

Compared to the August 2018 to July 2019 reporting period, the last period in which no months were affected by the COVID-19 pandemic, outreach was slightly down at all piers and during most months of this reporting period, with the total number of anglers reached being 79.4 percent of the last pre-pandemic report. During the two months (June and July) of the last period during which activities were carried out, the number of anglers reached was 37.7 percent of those reached during June and July of the 2018-2019 period. This indicates that pier angler activity is recovering from the COVID-19 pandemic restrictions but has not completely recovered to its pre-pandemic levels.

Daytime awareness data collected for this reporting period indicated that 72 percent of anglers were aware of contamination. This is like the last reporting period and markedly up from the approximately 55 percent that reported being aware during the reporting period prior to that, and similar but slightly down from the three periods between July 2016 and July 2019 in which 76 percent of anglers reported awareness. This may be attributed to a higher percent of new anglers, which were observed on the piers during closures of public spaces during the COVID-19 pandemic, a trend which may have increased into this reporting period. However, because the dataset is not complete, the number of new anglers may be over-represented for this outreach period. Compared to the day angler outreach, the evening angler outreach data show an average of 76 percent aware of the contamination. This is an increase from the last reporting period that showed 60 percent of night angler respondents were aware of the fish contamination.

Overall, the variability in the languages reported is consistent with the previous four reporting periods (2016-2020), which was less variable in language compared to 2015-2016 reporting periods. While English is the primary language spoken during both the day and evening angler outreach, more Spanish speakers were observed during the day while more Chinese speakers were observed during the night. This is opposite of the results recorded during the pilot night angler program in 2017, which indicated more Spanish than Chinese language speaking anglers, but is in line with the last reporting period. Continued monitoring of the night angler languages over future reporting periods is recommended to get a better understanding of this trend.

The geographic distribution of the outreach data shows the program is effectively reaching the local communities in the greater Los Angeles area potentially affected by the consumption of

fish from the Palos Verdes Shelf Superfund Site. The demographic variability data, as measured through the angler languages spoken, presents a more limited variety of ethnicities and cultures being reached through the outreach program; however, responses to languages are limited to single answers, and may not accurately reflect the demographics reached through the program.

The sources of awareness that anglers cited for how they learned of the contamination were primarily the “Do Not Consume” fish pier signage, angler outreach team, and FCEC tip-cards. Typically, in past years the outreach team has been a major source of awareness. However, during the last reporting period, the outreach team appreciably declined as a source of awareness due to the lack of in-person outreach due to the COVID-19 pandemic. The fact that the outreach team is once again a major source of awareness indicates that the influence of angler outreach is recovering to the pre-pandemic levels.

## **5.2 BAIT SHOP OUTREACH**

Overall, the modified bait shop outreach events were successful. Most shops remembered the FCEC program and most of the outreach materials were distributed. DBS&A contacted 38 bait shops and delivered outreach materials to a total of 15 shops that required additional outreach materials. Five bait shops closed business or no longer sell bait since the pandemic began. No bait shops were replaced during this reporting period. It is recommended that DBS&A continue to research and attempt potential bait shop replacements, to bring the goal to a minimum of 40 bait shops, when in-person bait shop outreach resumes. Overall, the identification and tracking of bait shop turn-over continues to be effective.

## **5.3 ELECTRONIC OUTREACH**

The Google Analytics for the FCEC website and Facebook Insights data present the effectiveness of the two media in reaching the public. The Google Analytics data indicate that since August 2021, visits to the FCEC website have decreased slightly, and engagement with the website decreased as well, as reflected by the bounce rate and page views per session. On average, session duration increased slightly compared to the previous reporting period, from 44 seconds to 50 seconds. The top two pages visited after August 2021 included the main page of the FCEC website (32.5 percent) and the “What Fish are Safe to Eat” webpage (17.8 percent). Other contamination-specific pages were included in the top ten sites visited. Overall, the FCEC website continues to slightly decrease its effectiveness reaching the public. One reason is that the FCEC partners focus less attention on electronic outreach as compared to the other outreach activities. It is a continued recommendation for FCEC partners to contribute to FCEC website updates to increase the electronic outreach.

The Facebook Insights data evaluation suggests similar limited outreach effectiveness as previous reporting periods. Since August 2020, the Facebook fan page has seen a steady drop in the number of users who like the page, which is likely due to the lack of FCEC partner activity on the Facebook fan page, such as posts, comments, and or responses to posts and comments. Even though the Facebook outreach metrics available during this reporting period are not the same as in previous years, it appears that the decline in visits has continued in this reporting period. Overall, the Facebook fan page is least effective at reaching the public. It is

recommended to consider other social media pages, such as Instagram and Twitter, which appear to be more popular and effective than Facebook to reach the public.

## 5.4 COMMUNITY EVENT OUTREACH

Community outreach events resumed during this reporting period after being cancelled during the COVID-19 pandemic. As in reporting periods prior to the pandemic, they have been effective at distributing informational materials to target local communities. However, the level of engagement during this reporting period was considerably lower than during the reporting period prior to the pandemic (2019-2020). Community events held during this period were still limited in capacity due to ongoing COVID-19 safety protocols, and this may have been a broader reason for the reduced attendance and engagement at many community events. For instance, use of the children's fishing game, one of the most popular FCEC outreach materials, was limited by disinfection procedures or use was prohibited at the event.

During the last reporting period when community events were paused, it was recommended that once in-person community outreach resumed, community outreach partners continue to collaborate with other community organizations and increase partner participation to diversify the community events and reach more anglers in the Los Angeles area, including children and Spanish, Chinese, Vietnamese, and African American communities. It was also recommended to encourage community event attendees to use the sign-in sheets to indicate whether they are aware of the DDT/PCB fish contamination advisories and what is the awareness source (signs, tip-card, community event, outreach team, internet, media, friend/family, other). During this reporting period, the sign-in sheets were not popular with community event attendees. It is recommended to consider adding a quick response code to the event sign-in sheet or FCEC booth display board to attract more visitors to the FCEC website and outreach materials.

During this reporting period, the "What's the Catch" comic book and educational curriculum guide was distributed to educators more frequently than in the past. This indicates that the community events targeted have helped increase visibility of the FCEC program with educators, which is a goal of the FCEC program. While at community events, staff from the Aquarium of the Pacific in Long Beach and Los Angeles County Zoo expressed interest in collaborating with the FCEC on permanent displays about the fish contamination. A Los Angeles Parks superintendent also expressed interest in having the FCEC participate in more children's educational events. It is recommended for the FCEC partners to consider these options for expanding outreach.

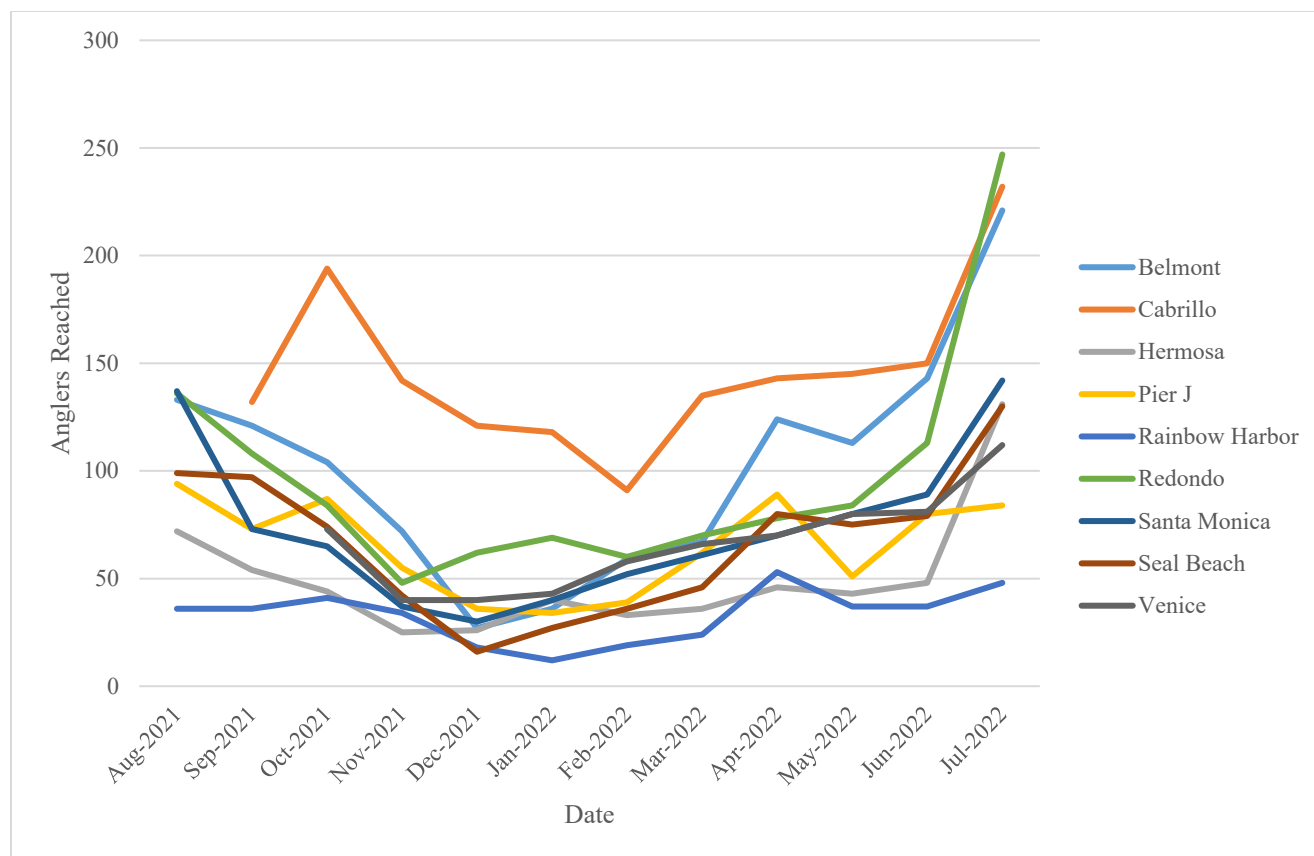
It is also recommended for the FCEC partners to update (as needed) and reprint the FCEC outreach materials that are the most popular with the local community groups and children. Based on the previous reporting periods the "What's the Catch" comic book and educational curriculum, FCEC tip cards and brochures, and children's fishing game are the most popular. These items, along with the FCEC booth display, are recommended for reprinting, updating, and/or replacement.

## **5.5 FCEC PARTNERS MEETINGS**

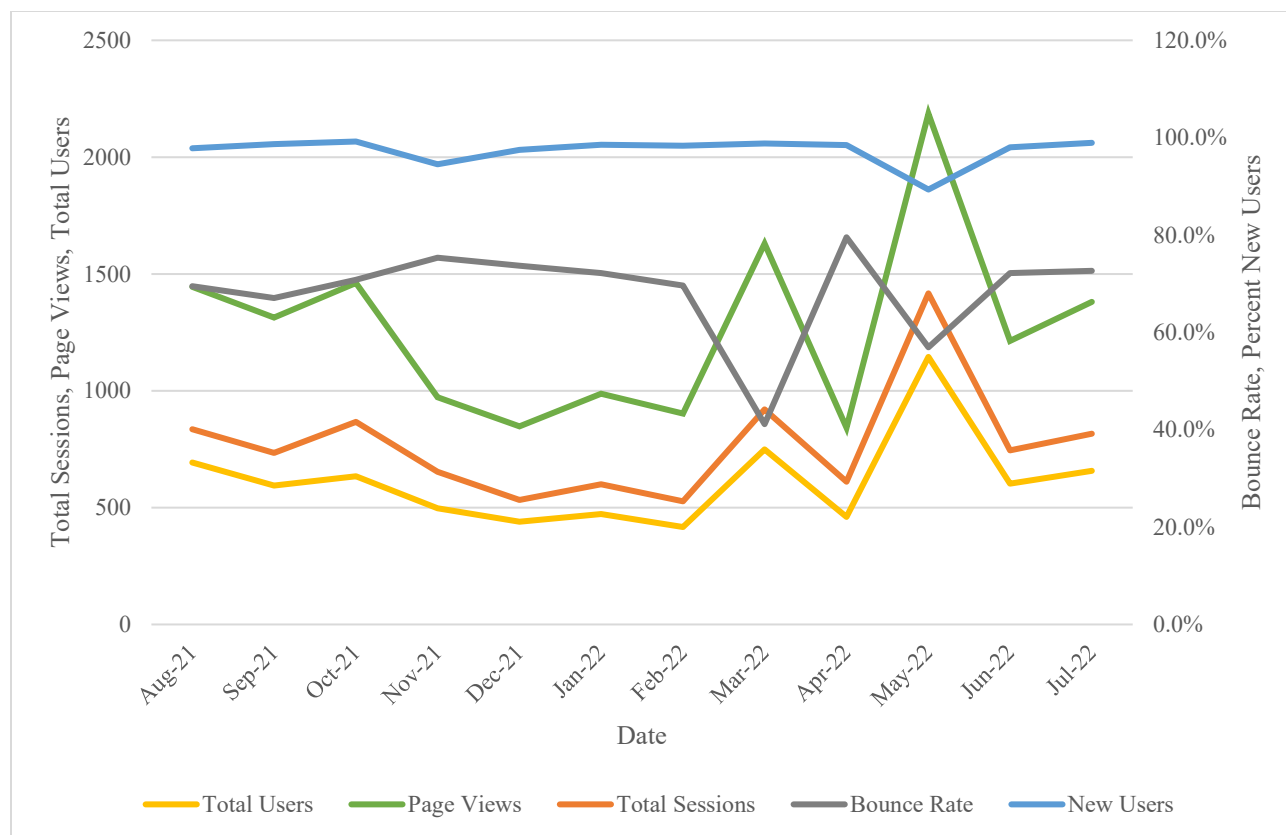
The first post-pandemic FCEC partners meeting was held on 10 March 2022. Topics included updates to pier angler outreach and community activities since the last meeting in April 2019. Topics included improvements to data sheets, alternative activities that were performed during the pandemic, resuming post-pandemic outreach activities, and other program results and recommendations. FCEC partners were encouraged to participate in the virtual outreach such as electronic outreach updates to the FCEC website and Facebook fan page. Additionally, FCEC partners were encouraged to provide feedback on replacing “Do Not Consume” fish pier sign monitoring and enforcement market and restaurant inspections for LACDPH and City of Long Beach, who no longer participate in the FCEC program.



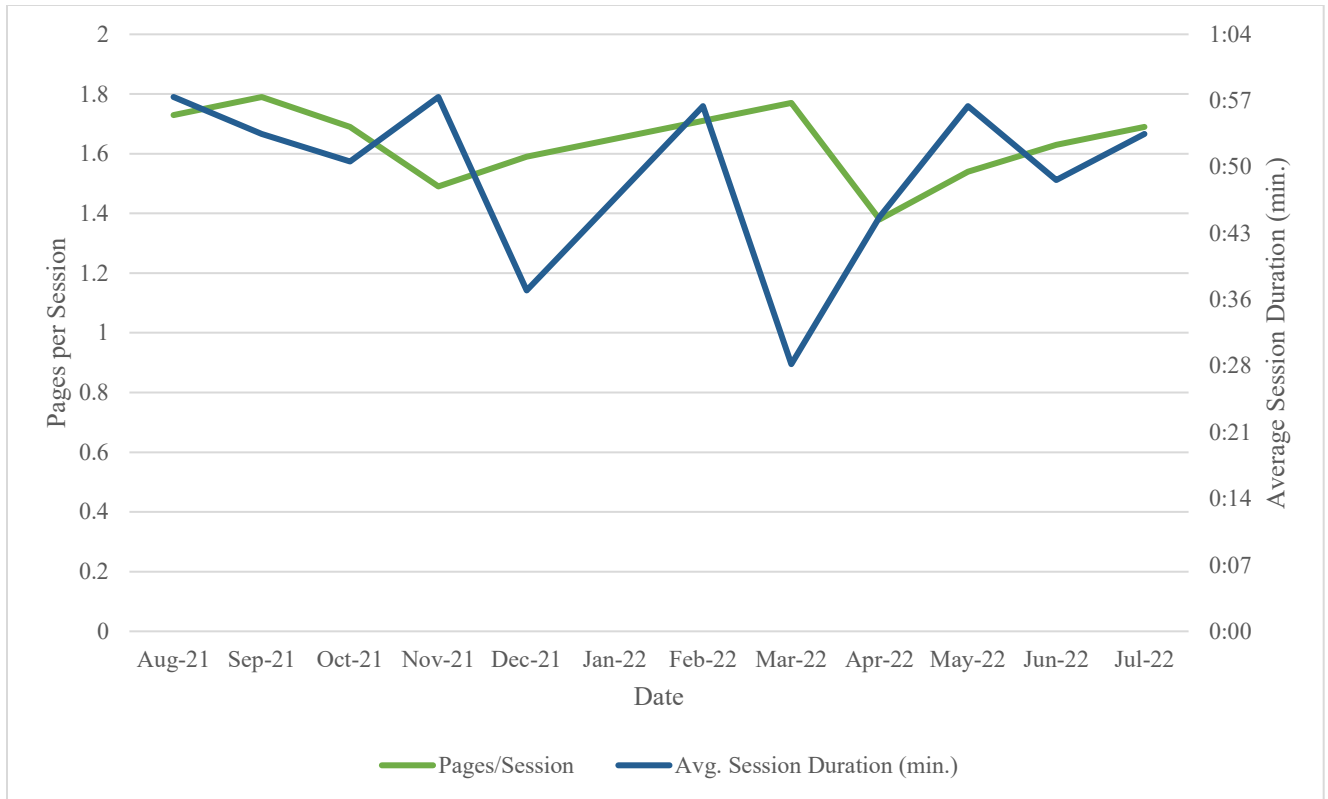
## **FIGURES**



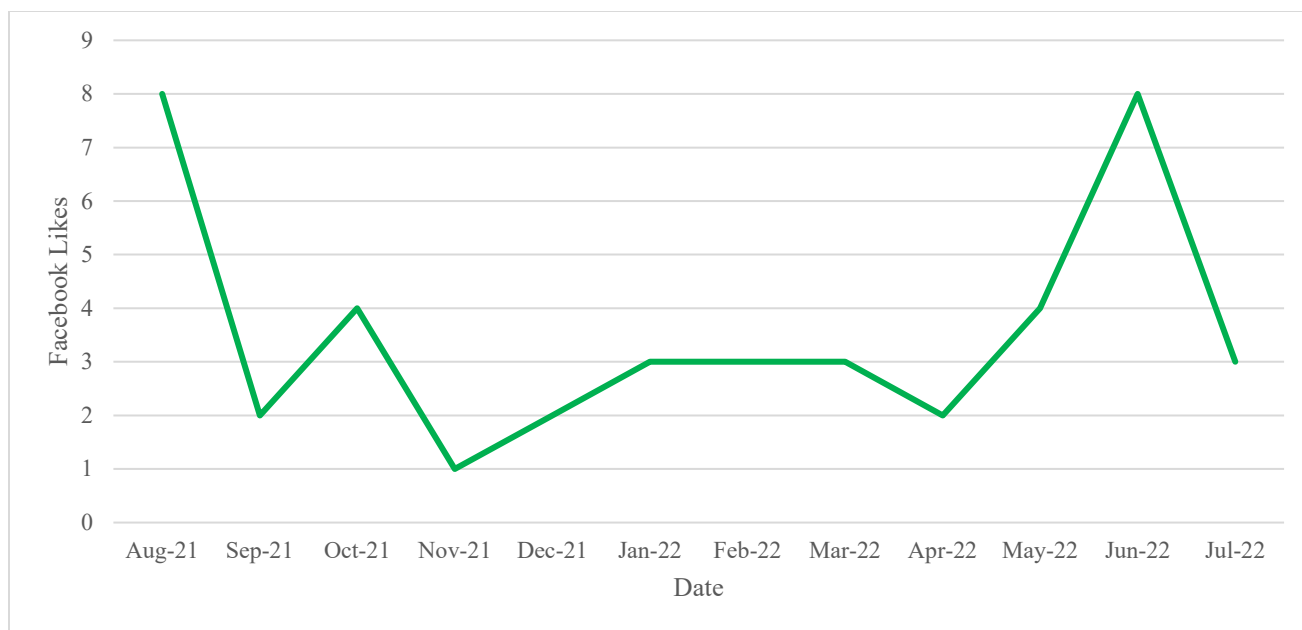
**Figure 3. Seasonal Fluctuation in the Number of Anglers Contacted**



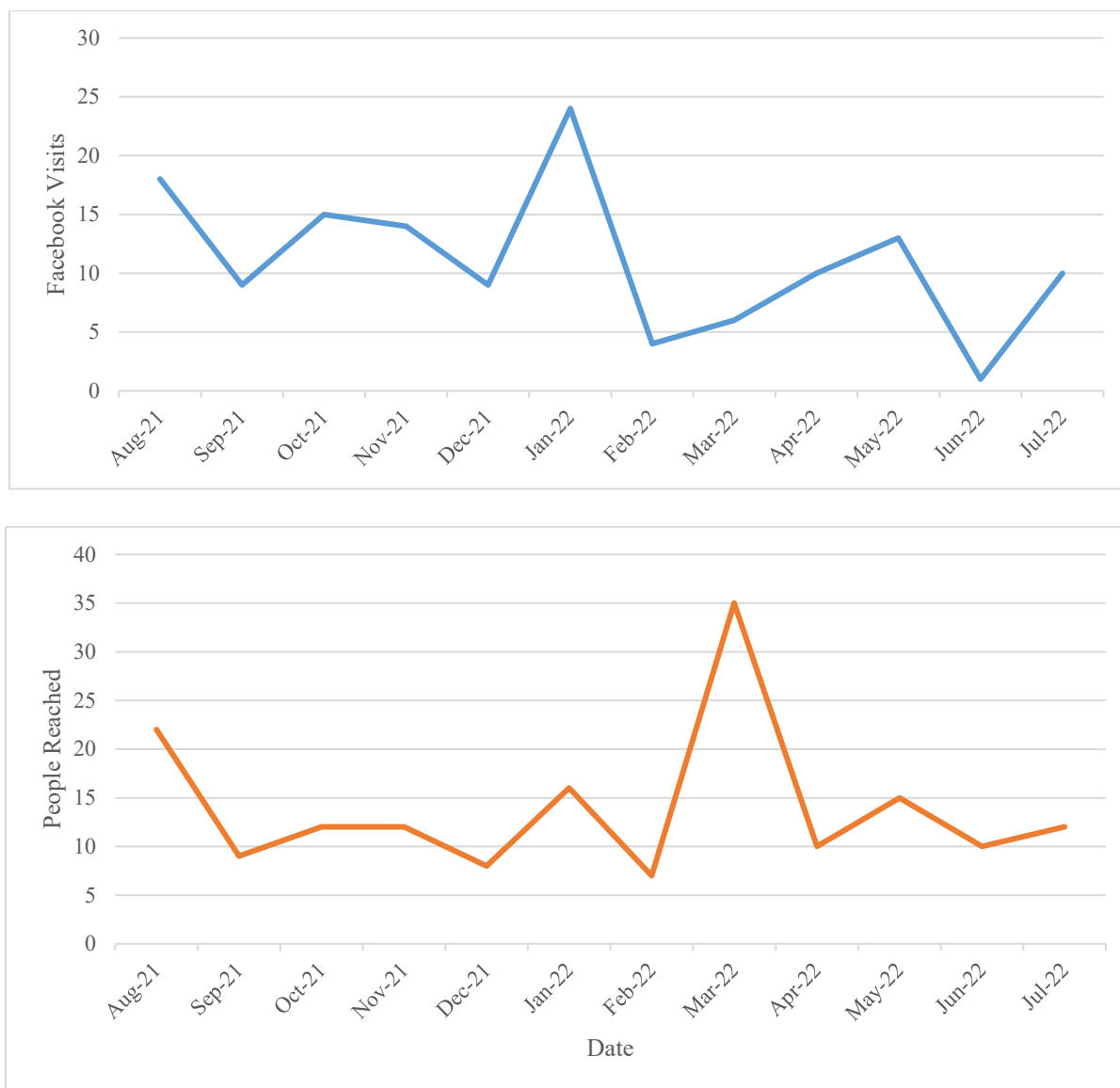
**Figure 6. Total Sessions, Users, Page Views, Bounce Rate, and New Users**



**Figure 7. Pages per Session and Average Session Duration**



**Figure 8. Number of New "Likes" Received by the FCEC Facebook Fan Page**



**Figure 9. Total Number of Users Engaged and Visits to FCEC Facebook Fan Page**

## **TABLES**

**Table 1. Day Anglers Contacted During Outreach Period**

<b>Date</b>	<b>Belmont</b>	<b>Cabrillo</b>	<b>Hermosa</b>	<b>Pier J</b>	<b>Rainbow Harbor</b>	<b>Redondo</b>	<b>Santa Monica</b>	<b>Seal Beach</b>	<b>Venice</b>	<b>Grand Total</b>
Aug-2021	133	--	72	94	36	136	137	99	--	707
Sep-2021	121	132	54	73	36	108	73	97	--	694
Oct-2021	104	194	44	87	41	84	65	74	73	766
Nov-2021	72	142	25	55	34	48	37	42	40	495
Dec-2021	27	121	26	36	18	62	30	16	40	376
Jan-2022	36	118	40	34	12	69	40	27	43	419
Feb-2022	59	91	33	39	19	60	52	36	58	447
Mar-2022	67	135	36	62	24	70	61	46	66	567
Apr-2022	124	143	46	89	53	78	70	80	70	753
May-2022	113	145	43	51	37	84	80	75	80	708
Jun-2022	143	150	48	80	37	113	89	79	81	820
Jul-2022	221	232	131	84	48	247	142	130	112	1347
<b>Total</b>	<b>1220</b>	<b>1603</b>	<b>598</b>	<b>784</b>	<b>395</b>	<b>1159</b>	<b>876</b>	<b>801</b>	<b>663</b>	<b>8099</b>



**Table 2. Day Anglers Aware of Contamination and “Do Not Consume” Warnings**

<b>Date</b>	<b>Belmont</b>	<b>Cabrillo</b>	<b>Hermosa</b>	<b>Pier J</b>	<b>Rainbow Harbor</b>	<b>Redondo</b>	<b>Santa Monica</b>	<b>Seal Beach</b>	<b>Venice</b>	<b>Average</b>
Aug-2021	40%	--	72%	61%	100%	69%	58%	36%	--	62%
Sep-2021	66%	77%	70%	68%	94%	61%	68%	74%	--	72%
Oct-2021	57%	73%	77%	77%	100%	65%	86%	66%	89%	77%
Nov-2021	65%	65%	92%	38%	100%	77%	81%	79%	85%	76%
Dec-2021	85%	65%	81%	50%	83%	89%	97%	81%	95%	81%
Jan-2022	67%	91%	85%	76%	100%	67%	78%	81%	77%	80%
Feb-2022	83%	93%	76%	69%	100%	63%	75%	81%	60%	78%
Mar-2022	87%	83%	89%	56%	88%	59%	74%	83%	67%	76%
Apr-2022	72%	87%	72%	40%	100%	83%	64%	79%	53%	72%
May-2022	69%	90%	79%	53%	92%	71%	68%	75%	56%	73%
Jun-2022	70%	87%	77%	40%	95%	65%	74%	78%	64%	72%
Jul-2022	62%	81%	85%	52%	88%	66%	61%	65%	62%	69%
<b>Average</b>	<b>65%</b>	<b>81%</b>	<b>79%</b>	<b>56%</b>	<b>95%</b>	<b>69%</b>	<b>70%</b>	<b>70%</b>	<b>68%</b>	<b>72%</b>

**Table 3. Repeat Respondents to Day Angler Outreach**

<b>Date</b>	<b>Belmont</b>	<b>Cabrillo</b>	<b>Hermosa</b>	<b>Pier J</b>	<b>Rainbow Harbor</b>	<b>Redondo</b>	<b>Santa Monica</b>	<b>Seal Beach</b>	<b>Venice</b>	<b>Average</b>
<b>Aug-2021</b>	64%	--	32%	45%	28%	37%	38%	83%	--	47%
<b>Sep-2021</b>	37%	33%	67%	51%	17%	65%	47%	36%	--	44%
<b>Oct-2021</b>	31%	40%	63%	49%	22%	61%	48%	27%	55%	44%
<b>Nov-2021</b>	37%	61%	58%	40%	26%	54%	50%	35%	40%	45%
<b>Dec-2021</b>	68%	59%	83%	36%	56%	73%	72%	40%	60%	61%
<b>Jan-2022</b>	59%	67%	90%	62%	58%	67%	59%	46%	53%	62%
<b>Feb-2022</b>	50%	73%	91%	56%	58%	70%	56%	41%	47%	60%
<b>Mar-2022</b>	48%	81%	89%	47%	42%	59%	48%	33%	37%	54%
<b>Apr-2022</b>	42%	81%	87%	35%	47%	60%	45%	44%	26%	52%
<b>May-2022</b>	47%	77%	79%	55%	59%	50%	36%	43%	24%	52%
<b>Jun-2022</b>	41%	74%	70%	47%	47%	55%	38%	29%	30%	48%
<b>Jul-2022</b>	54%	79%	55%	41%	40%	30%	51%	27%	40%	46%
<b>Average</b>	<b>47%</b>	<b>66%</b>	<b>68%</b>	<b>46%</b>	<b>39%</b>	<b>51%</b>	<b>46%</b>	<b>41%</b>	<b>40%</b>	<b>49%</b>

**Table 4. New Respondents to Day Angler Outreach**

<b>Date</b>	<b>Belmont</b>	<b>Cabrillo</b>	<b>Hermosa</b>	<b>Pier J</b>	<b>Rainbow Harbor</b>	<b>Redondo</b>	<b>Santa Monica</b>	<b>Seal Beach</b>	<b>Venice</b>	<b>Average</b>
<b>Aug-2021</b>	36%	--	68%	55%	72%	59%	62%	17%	--	53%
<b>Sep-2021</b>	63%	66%	33%	49%	83%	29%	53%	64%	--	55%
<b>Oct-2021</b>	69%	60%	38%	51%	78%	35%	52%	73%	45%	56%
<b>Nov-2021</b>	63%	39%	42%	60%	74%	43%	50%	65%	60%	55%
<b>Dec-2021</b>	32%	29%	17%	64%	44%	26%	28%	60%	40%	38%
<b>Jan-2022</b>	41%	33%	10%	38%	42%	30%	41%	54%	48%	37%
<b>Feb-2022</b>	50%	27%	9%	44%	42%	25%	44%	59%	53%	39%
<b>Mar-2022</b>	52%	19%	11%	53%	58%	31%	52%	67%	63%	45%
<b>Apr-2022</b>	58%	15%	13%	65%	53%	32%	55%	56%	74%	47%
<b>May-2022</b>	53%	21%	21%	45%	41%	44%	64%	57%	76%	47%
<b>Jun-2022</b>	59%	19%	30%	53%	53%	37%	63%	71%	70%	51%
<b>Jul-2022</b>	45%	19%	43%	59%	60%	64%	49%	72%	60%	52%
<b>Average</b>	<b>53%</b>	<b>31%</b>	<b>32%</b>	<b>54%</b>	<b>61%</b>	<b>43%</b>	<b>54%</b>	<b>59%</b>	<b>60%</b>	<b>50%</b>

**Table 5. Source of Day Angler Awareness**

	AWARENESS SOURCE								Total
	Pier Outreach Team	Friends	Internet	Community Events	Media	Signs	Tip Card	Other	
<b>Belmont</b>	57 (6.9%)	2 (0.2%)	0 (0%)	0 (0%)	32 (3.9%)	329 (40.0%)	399 (48.5%)	3 (0.4%)	822
<b>Cabrillo</b>	877 (66.8%)	0 (0%)	26 (1.9%)	0 (0%)	0 (0%)	345 (26.3%)	64 (4.9%)	0 (0%)	1312
<b>Hermosa</b>	104 (21.8%)	0 (0%)	1 (0.2%)	0 (0%)	3 (0.6%)	214 (44.8%)	152 (31.8%)	4 (0.8%)	478
<b>Pier J</b>	223 (50.6%)	0 (0%)	1 (0.2%)	0 (0%)	6 (1.4%)	103 (23.4%)	101 (22.9%)	7 (1.6%)	441
<b>Rainbow Harbor</b>	102 (27.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	233 (61.9%)	41 (10.9%)	0 (0%)	376
<b>Redondo</b>	126 (15.9%)	1 (0.1%)	7 (0.9%)	0 (0%)	24 (3.0%)	343 (43.4%)	283 (35.8%)	6 (0.8%)	790
<b>Santa Monica</b>	171 (27.2%)	2 (0.3%)	0 (0%)	0 (0%)	6 (1.0%)	253 (40.2%)	193 (30.7%)	4 (0.6%)	629
<b>Seal Beach</b>	46 (8.0%)	0 (0%)	0 (0%)	0 (0%)	6 (1.0%)	314 (54.9%)	204 (35.7%)	2 (0.3%)	572
<b>Venice</b>	85 (18.8%)	0 (0%)	0 (0%)	0 (0%)	5 (1.1%)	200 (44.3%)	151 (33.5%)	10 (2.2%)	451
<b>Grand Total</b>	1791	5	35	0	82	2334	1588	36	5871
<b>Percent (total sources)</b>	30.5%	0.1%	0.6%	0%	1.4%	39.8%	27%	0.6%	100%

(%) provided to indicate the percentage per awareness source per pier.

**Table 6. Languages Spoken by Day Anglers**

<b>Language Spoken</b>	<b>Los Angeles</b>	<b>Orange</b>	<b>Riverside</b>	<b>San Bernardino</b>	<b>Total</b>
English	97.6%	99.5%	100.0%	100.0%	99.3%
Spanish	1.7%	0.5%	0.0%	0.0%	0.5%
Chinese	0.7%	0.0%	0.0%	0.0%	0.2%

**Table 7. Night Anglers Contacted**

<b>Date</b>	<b>Redondo</b>	<b>Venice</b>	<b>Total</b>
Aug-2021	85	--	85
Sep-2021	73	--	73
Oct-2021	61	40	101
Nov-2021	49	43	92
Dec-2021	24	22	46
Jan-2022	22	24	46
Feb-2022	44	34	78
Mar-2022	42	39	81
Apr-2022	66	61	127
May-2022	60	57	117
Jun-2022	72	59	131
Jul-2022	132	112	244
<b>Total (Night Outreach)</b>	<b>730</b>	<b>491</b>	<b>1221</b>

**Table 8. Night Anglers Aware of Contamination and "Do Not Consume" Warnings**

<b>Date</b>	<b>Redondo</b>	<b>Venice</b>	<b>Average</b>
Aug-2021	69%	--	69%
Sep-2021	77%	--	77%
Oct-2021	84%	60%	72%
Nov-2021	86%	79%	82%
Dec-2021	92%	86%	89%
Jan-2022	91%	63%	77%
Feb-2022	77%	82%	80%
Mar-2022	79%	79%	79%
Apr-2022	79%	72%	75%
May-2022	77%	79%	78%
Jun-2022	72%	76%	74%
Jul-2022	70%	75%	72%
<b>Average</b>	<b>77%</b>	<b>75%</b>	<b>76%</b>

**Table 9. Repeat Respondents to Night Angler Outreach**

<b>Date</b>	<b>Redondo</b>	<b>Venice</b>	<b>Average</b>
Aug-2021	49%	--	49%
Sep-2021	42%	--	42%
Oct-2021	45%	34%	40%
Nov-2021	33%	52%	43%
Dec-2021	58%	59%	59%
Jan-2022	55%	55%	55%
Feb-2022	56%	48%	52%
Mar-2022	43%	49%	46%
Apr-2022	36%	35%	36%
May-2022	29%	26%	27%
Jun-2022	33%	31%	32%
Jul-2022	34%	42%	38%
<b>Average</b>	<b>43%</b>	<b>43%</b>	<b>43%</b>



**Table 10. New Respondents to Night Angler Outreach**

<b>Date</b>	<b>Redondo</b>	<b>Venice</b>	<b>Average</b>
Aug-2021	51%	--	51%
Sep-2021	58%	--	58%
Oct-2021	55%	66%	60%
Nov-2021	67%	48%	57%
Dec-2021	42%	41%	41%
Jan-2022	45%	45%	45%
Feb-2022	44%	52%	48%
Mar-2022	57%	51%	54%
Apr-2022	64%	65%	64%
May-2022	71%	74%	73%
Jun-2022	67%	69%	68%
Jul-2022	66%	58%	62%
<b>Average</b>	<b>57%</b>	<b>57%</b>	<b>57%</b>

**Table 11. Source of Night Angler Awareness**

	AWARENESS SOURCE							
	Signs	Tip Card	Friends	Media	Pier Outreach Team	Internet	Community Events	Total
Redondo	288	262	4	6	0	0	0	560
Venice	180	181	0	8	0	0	0	369
Total	468	443	4	14	0	0	0	929
<b>Percent (total sources)</b>	<b>50.4%</b>	<b>47.7%</b>	<b>0.4%</b>	<b>1.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>--</b>

**Table 12. Languages Spoken by Night Anglers**

<b>Language Spoken</b>	<b>Los Angeles</b>	<b>Orange</b>	<b>Other</b>	<b>Total</b>
English	98.6%	100.0%	100%	99.5%
Spanish	0.0%	0.0%	0.0%	0.0%
Chinese	1.4%	0.0%	0.0%	0.5%

**Table 13. Summary of Google Analytics Data**

<b>Date</b>	<b>Total Sessions</b>	<b>% Change from Previous Month</b>	<b>Users</b>	<b>Page Views</b>	<b>Pages/Session</b>	<b>Avg. Session Duration (min.)</b>	<b>Bounce Rate</b>	<b>New Users</b>	<b>Returning Users</b>
Aug-21	836	--	693	1,445	1.73	0:58	69.5%	97.8%	2.2%
Sep-21	734	-12.2%	595	1,313	1.79	0:54	67.0%	98.7%	1.3%
Oct-21	867	18.1%	634	1,461	1.69	0:51	70.8%	99.2%	0.8%
Nov-21	653	-24.7%	497	973	1.49	0:58	75.3%	94.6%	5.4%
Dec-21	533	-18.4%	440	848	1.59	0:37	73.7%	97.5%	2.5%
Jan-22	600	12.6%	473	988	1.65	0:47	72.2%	98.5%	1.5%
Feb-22	527	-12.2%	417	903	1.71	0:57	69.6%	98.3%	1.7%
Mar-22	921	74.8%	749	1,630	1.77	0:29	41.2%	98.8%	1.2%
Apr-22	611	-33.7%	460	842	1.38	0:45	79.5%	98.5%	1.5%
May-22	1,417	131.9%	1,145	2,186	1.54	0:57	57.0%	89.3%	10.7%
Jun-22	745	-47.4%	602	1,214	1.63	0:49	72.2%	98.0%	2.0%
Jul-22	816	9.5%	658	1,380	1.69	0:54	72.7%	98.9%	1.1%

**Table 14. Community Event Outreach Results**

Event	Outreach Community Partner	Date(s)	Anticipate d Number of Attendees	Distributed Outreach Materials					Sign In Sheet Signatures
				Tip Cards	Brochures	Comic Books	Fish ID Cards	Curriculum Guide	
Aquarium of the Pacific Baja Splash Cultural Festival	DBS&A	10/02/21-10/03/21	1000	300	0	175	100	10	0
Día de los Muertos Chalk Festival. LA County Park and Recreation Deane Dana Friendship Park Nature Center	DBS&A	11/6/2021	300	20	0	7	10	2	0
Aquarium of the Pacific Noche de Estrellas	DBS&A	3/4/2022	500	30	0	42	20	0	0
Aquarium of the Pacific International Children's Festival	DBS&A	3/19/2022 - 3/20/2022	1000	90	54	266	80	0	0
WFRC Back-to-School Vaccination Event & Resource Fair	BPSOS	8/19/2021	85	85	0	0	0	0	3
WFRC Bunny Hop Event at Sigler Park	BPSOS	4/9/2022	31	31	31	0	0	0	33
WFRC Bunny Hop Event at Westminster Park	BPSOS	4/16/2022	38	38	38	0	0	0	32
Vietnamese Community Health at UCLA Health Fair Westminster Rose Center	BPSOS	4/24/2022	70	70	70	0	0	0	69
Community Health & Resources Fair at Ponderosa Park Family Resource Fair	BPSOS	7/9/2022	200	200	200	0	0	0	41
Chinese New Year Fair	CCHC	1/22/2022 - 1/23/2022	1000	435	410	0	380	1	392
CCHC Annual Walkathon and Carnival	CCHC	6/18/2022	500-600	315	315	0	295	0	84