



**FISH CONTAMINATION EDUCATION COLLABORATIVE
FINAL ANNUAL ANGLER OUTREACH REPORT**

July 2016 –July 2017

Palos Verdes Shelf Superfund Site

Los Angeles County, California

EPA IDENTIFICATION NO. CAD008242711

REMEDIAL ACTION CONTRACT 3 FULL SERVICE

CONTRACT: EP-S9-14-01

Prepared for

U.S. Environmental Protection Agency Region 9
75 Hawthorne Street
San Francisco, California 94105

Prepared by

EA Engineering, Science, and Technology, Inc.
1000 Atlantic Avenue, Suite 101
Alameda, California 94501

November 2017
Revision: 00

EXECUTIVE SUMMARY

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 and polychlorinated biphenyls 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. In February 2015, EPA contracted EA Engineering, Science, and Technology, Inc. (EA) continued the community involvement activities. In order to re-establish the activities, EA discussed the outreach previously conducted with EPA and the past contractor, reviewed the Interim Record of Decision and Palos Verdes Shelf Superfund Site Institutional Controls (ICs) Program Implementation Plan, and contracted with past outreach community partners.

SUMMARY OF COMMUNITY INVOLVEMENT PROGRAM

The Community Involvement Program was designed to reduce risk exposure posed by contaminated fish through outreach and education. The program has three main activities: Angler Outreach, Community Outreach, and Enforcement. In support of these activities, EA coordinated meetings with the Fish Contamination Education Collaborative (FCEC). The FCEC is a forum for the agencies, outreach groups, and other entities involved to share ideas, get updates on the project's progress, and maintain momentum for continued outreach work. This report will discuss the outreach activities. The annual enforcement activities are documented in a separate report.

The purpose of the Community Involvement Program is the dissemination of educational material concerning consumption of contaminated fish focusing on specifically vulnerable ethnic communities. This report summarizes the extent of the outreach including:

1. Angler outreach conducted between July 2016 and July 2017
2. Bait shop outreach conducted in March and April 2017.
3. Electronic outreach on the FCEC website and Facebook page conducted between July 2016 and July 2017
4. Community events attendance between July 2016 and July 2017.

EA subcontracted Heal the Bay (HTB) and Cabrillo Marine Aquarium (Cabrillo) to perform angler outreach; team subcontractor, HDR, Inc. (HDR), to complete the bait shop outreach and attend community events; and Chinese Christian Herald Crusade (CCHC) and Boat People SOS (BPSOS) to conduct outreach during community events for the Chinese and Vietnamese

communities, respectively. Electronic outreach through the FCEC website and Facebook page was maintained by EA. Two FCEC partners meetings were coordinated and facilitated by EA. The FCEC partners meetings were held in July 2016 and April 2017.

Enforcement and pier sign monitoring activities were also performed as part of the Community Involvement Program. Enforcement activities were performed by the Department of Fish and Wildlife (recreational and commercial fishing) between February 2016 and July 2017. Additionally, the City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) began collection of enforcement inspection data (markets and restaurants) in March 2017. The Los Angeles County Department of Public Health (LACDPH) will begin collection of this data in July/August 2017. The enforcement activities are further documented in the Annual Enforcement Report, submitted separately.

EA facilitated a fish identification training workshop to approximately 25 attendees from the LACDPH and City of Long Beach on 20 July 2017. The pier signs were monitored by HTB and Cabrillo between July 2016 and July 2017 to assess the need for replacement or repair. Pier sign status is summarized in a separate report.

PROGRAM EFFECTIVENESS

The Community Involvement Program, through the various outreach activities at multiple locations, has been effective in reaching anglers and community members to increase awareness of the contamination issues associated with the Palos Verdes Shelf Superfund Site. The angler outreach is effectively reaching anglers, more specifically white and English speaking/bi-lingual Hispanic communities, with a smaller minority of Chinese and Austronesian communities. Outreach conducted at 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, and Santa Monica has also shown positive effectiveness in disseminating information. A total of 3,360 tip cards were distributed in English, Spanish, Vietnamese, and Chinese. During the most recent bait shop visits in April 2017, many of the shops had distributed all of the materials that were provided during the previous visit. Of the outreach activities, electronic outreach has had the least effectiveness in reaching the communities based on the minimal traffic observed on the FCEC website and Facebook page. The outreach reporting indicated that the community events were highly effective at reaching the target communities handing out approximately 12,000 total tip cards at events reaching Hispanic, African American, Vietnamese, and Chinese communities.

PROGRAM RECOMMENDATIONS

Although outreach has been effective at communicating the issues to the public, several observations and recommendations were made that could improve the program. Relative to awareness, it would be beneficial for future outreach to include additional data points to be able perform more in-depth sensitivity analyses, which would help with identifying more accurate methods to improve angler and other outreach. Such information may include whether the angler has shared his/her knowledge with other anglers or community members, and if so, how

many. The form of media the angler learned of the contamination will continue to be collected during the next reporting period. With regards to the geographic distribution and demographic variability, several data collection improvements are recommended for future outreach. To better understand and visualize the geographic distribution of the anglers through the outreach program, it would be beneficial to collect city data in conjunction with the zip code data. This would improve the number of respondents included in the geographic distribution statistics and provide a broader picture of the outreach effectiveness beyond the individual and zip code levels.

The bait shop outreach identified some improvements that could benefit outreach. It was determined that phone and e-mail contact information of the outreach leads would benefit the bait shops and the public as a resource to ask questions or request information materials. During the bait shop visits, it was noted that many shops needed to replenish information materials sooner than every six months, and that many of the plastic tip card holders were missing and required replacement. It was recommended to target local fish markets in addition to the bait shops to distribute tip cards and expand outreach to the target demographic in new communities and audiences.

Enhancements to the FCEC website and Facebook page content and activity could potentially improve the effectiveness of electronic outreach. Because the bounce rate for the FCEC website has remained above 80 percent since September 2016, it appears that users arrive to the website and leave because they cannot find what they are looking for. A reorganization of the content and/or a revision to the visual layout of the FCEC website homepage may enhance the ability for people to navigate and find specific links or additional pages they would like to visit. Enhancing the content on the Facebook page may also help increase visits to, likes, reach, and engagement of the Facebook page. This could involve posting more frequently about all the types of activities the FCEC is involved with, including changes to FCEC website, community events, and angler outreach events. The existing network could be leveraged by encouraging partner organizations to post, tag, and share content through their network. The more social media traffic generated through posts, as well as links back to the website, should improve the overall effectiveness of both the FCEC website and Facebook page.

The community outreach events have been effective at distributing information materials to the target communities. Although this method of outreach has been highly effective, several observations and potential improvements to the community events and information materials have been identified. The fishing game used by HDR, BPSOS, and CCHC has been successful at attracting children and parents to the FCEC booth. A second fishing game could provide more traffic. The large display board features outreach to fish markets and anglers, however, it would be worthwhile to update technical information and add information about outreach for local educators, schools and/or school districts to help attract teachers to the booth. Teachers and parents reportedly were interested in outreach programs at their respective schools. It is recommended that EA and HDR continue outreach efforts to reach the Los Angeles Unified School District. CCHC and BPSOS both found an increasing Spanish Community at their community events. Addition a Spanish-speaking outreach partner should be considered to further reach this demographic.

To further evaluate effectiveness of the community outreach events, it is recommended that booth attendees be asked questions to further understand their awareness of the contamination. The questions will include whether the attendees are aware of the DDT/PCB fish contamination advisories before the community event, what is the awareness source (signs, tip-card, community event, outreach team, internet, media, friend/family, other), language spoken, and an open-ended question on what they think of the contamination.

This page intentionally left blank

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
LIST OF FIGURES	ii
LIST OF TABLES.....	ii
ACRONYMS AND ABBREVIATIONS	iii
1.0 INTRODUCTION	1
2.0 OVERVIEW OF THE COMMUNITY INVOLVEMENT PROGRAM	2
2.1 Angler Outreach	3
2.2 Bait Shop Outreach	3
2.3 Electronic Outreach.....	3
2.4 Community Outreach.....	4
2.5 FCEC Partners Meetings.....	4
3.0 DATA COLLECTION AND ANALYSIS APPROACH.....	4
3.1 Angler Outreach.....	4
3.2 Bait Shop Outreach	5
3.3 Electronic Outreach.....	6
3.4 Community Event Outreach.....	6
4.0 RESULTS	6
4.1 Angler Outreach.....	6
4.1.1 Anglers Contacted During Outreach Period	6
4.1.2 Angler Outreach Effectiveness (Contamination Awareness)	6
4.1.3 Angler Outreach Effectiveness (Geographic Distribution/Demographic Variability)	7
4.2 Bait Shop Outreach	8
4.3 Electronic Outreach.....	8
4.4 Community Outreach.....	9
5.0 DISCUSSION AND RECOMMENDATIONS.....	11
5.1 Angler Outreach.....	11
5.2 Bait Shop Outreach	12
5.3 Electronic Outreach.....	12
5.4 Community Event Outreach.....	13
5.5 FCEC Partners Meetings.....	14

LIST OF FIGURES

<u>No.</u>	<u>Title</u>
1	Pier Locations Map
2	Bait Shop and Piers
3	Seasonal Fluctuation in the Number of Anglers Contacted
4	Geographic Distribution of Angler Zip Codes within Los Angeles, San Bernardino, and Riverside Counties
5	Total Sessions, Users, Page Views, Bounce Rate, and New Users
6	Pages per Session and Average Session Duration
7	Number of “Likes” Received by the FCEC Facebook Page
8	Total Number of Users Reached and Engaged by Posts to FCEC Facebook Page

LIST OF TABLES

<u>No.</u>	<u>Title</u>
1	Anglers Contacted During Outreach Period
2	Anglers Aware of Contamination and “Do Not Consume” Warnings
3	Repeat Respondents to Angler Outreach
4	New Respondents to Angler Outreach
5	Source of Angler Awareness June-July 2017
6	Languages Spoken by Anglers from Los Angeles, Orange, San Bernardino, and Riverside Counties.
7	Summary of Google Analytics Data

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
DDT	Dichlorodiphenyltrichloroethane
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
LAUSD	Los Angeles Unified School District
PCB	Polychlorinated biphenyl

This page intentionally left blank

1.0 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 Palos Verdes Shelf. The program includes: (1) public education and outreach; (2) monitoring; and (3) enforcement. In 2003, EPA created the Fish Contamination Education Collaborative (FCEC) with representatives of federal, state and local agencies, 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 as an interim remedy 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.

In February 2015, EPA contracted EA Engineering, Science, and Technology, Inc. (EA) to continue the community involvement activities. EA discussed the outreach previously conducted with EPA and the past contractor, reviewed the Interim Record of Decision and Palos Verdes Shelf Superfund Site ICs Program Implementation Plan, and contracted with past outreach community partners.

The Community Involvement Program was designed to reduce risk exposure posed by contaminated fish through outreach and education. The program has three main activities: Angler Outreach, Community Outreach, and Enforcement. In support of these activities, EA coordinated meetings with the FCEC. The FCEC is a forum for the agencies, outreach groups, and other entities involved to share ideas, get updates on the project's progress, and maintain momentum for continued outreach work. This report will discuss the outreach activities. The annual enforcement activities are documented in a separate report.

The purpose of the Community Involvement Program is the dissemination of educational material concerning consumption of contaminated fish focusing on specifically vulnerable ethnic communities. This report summarizes the extent of the outreach including:

1. Angler outreach conducted between July 2016 and July 2017
2. Bait shop outreach conducted in March and April 2017.
3. Electronic outreach on the FCEC website and Facebook page conducted between July 2016 and July 2017.
4. Community events attendance between July 2016 and July 2017.

EA subcontracted Heal the Bay (HTB) and Cabrillo Marine Aquarium (Cabrillo) to perform angler outreach; team subcontractor, HDR, Inc. (HDR), to complete the bait shop outreach and attend community events; and Chinese Christian Herald Crusade (CCHC) and Boat People SOS (BPSOS) to conduct outreach during community events for the Chinese and Vietnamese communities, respectively. Electronic outreach through the FCEC website and Facebook page was maintained by EA. Two FCEC partners meetings were coordinated and facilitated by EA. The FCEC partners meeting were held in July 2016 and April 2017.

Enforcement and pier sign monitoring activities were also performed as part of the Community Involvement Program. Enforcement activities were performed by the Department of Fish and Wildlife (recreational and commercial fishing) between February 2016 and July 2017. Additionally, the City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) began collection of enforcement inspection data (markets and restaurants) in March 2017. The Los Angeles County Department of Public Health (LACDPH) will begin collection of this data in July/August 2017. The enforcement activities are further documented in the Annual Enforcement Report, submitted separately.

EA facilitated a fish identification training workshop for approximately 25 attendees from the LACDPH and City of Long Beach on 20 July 2017. The pier signs were monitored by HTB and Cabrillo between July 2016 and July 2017 to assess the need for replacement or repair. Pier sign status is summarized in a separate report.

2.0 OVERVIEW OF THE COMMUNITY INVOLVEMENT PROGRAM

The Community Involvement Program is one of three ICs designed to reduce risk exposure 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 focusing on specifically vulnerable ethnic communities. This report summarizes the extent of the outreach including:

1. Angler Outreach
2. Bait Shop Outreach
3. Electronic Outreach
4. Community Event Outreach
5. FCEC Partners Meetings.

The following sections summarize each of these outreach subprograms.

2.1 ANGLER OUTREACH

HTB and Cabrillo continued the previous Angler Outreach activities. HTB contacted anglers at the following fishing piers located within the Palos Verdes Shelf Superfund Site contaminated sediment area between Santa Monica Pier and Seal Beach Pier (Figure 1): (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 contacted anglers at the Cabrillo Pier (Figure 1). HTB and Cabrillo staff educated anglers at the piers discussing the local contamination, distributed program materials 2 to 3 days per week, generally during times of highest angler population on the piers. Pier angler outreach was conducted on Thursday or Friday, Saturday, and Sunday. Beginning in August 2017, HTB will extend angler outreach during the evening hours at Venice and Redondo Beach piers. The evening program (4:00 P.M.-8:00 P.M.) will be performed once per week (Saturdays) for three months (July through September 2017). Face-to-face conversations were held with anglers, in the angler's native tongue, when possible. The outreach included discussions about the contamination in fish, distribution of information materials, and recording outreach activity results. The numeric objective of the HTB and Cabrillo outreach was to contact a minimum of 11,000 and 1,600 anglers, respectively, between July 2016 and July 2017.

As part of the angler outreach program, EA worked with HTB and Cabrillo to monitor 45 pier signs and maintain a record of their condition. EA reported missing or damaged signs to EPA and coordinated with the LACDPH and City of Long Beach to complete sign removal and/or replacement. The summary of pier sign status is summarized in a separate report.

2.2 BAIT SHOP OUTREACH

HDR conducted outreach at 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, and Santa Monica (Figure 2). HDR staff provided tip cards in English, Spanish, Vietnamese, and Chinese to bait shop managers and recorded the number of tip cards provided. Additionally, the contact email address (info@pvsfish.org) was left in case the bait shops wanted to request additional materials or had any questions. HDR also notified bait shops that materials would be replenished every six months.

2.3 ELECTRONIC OUTREACH

Electronic outreach was completed by maintaining the FCEC website (<http://www.pvsfish.org/>), Facebook page (<https://www.facebook.com/fcecprogram/>), and disseminating electronic newsletters. EA responded to questions emailed to the FCEC information account, posted outreach photos, community event summaries, and upcoming events. EA also recorded user traffic such as the number of visitors and Facebook page "likes". The data collected (using Google Analytics) on the FCEC website included the number of visitors, page views, number of pages/session, average duration of visitor stay on the website, the bounce rate (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 OUTREACH

CCHC and BPSOS hosted and attended Chinese and Vietnamese community events and provided outreach materials within their facilities to educate these specific communities on the fish contamination and “Do Not Consume” fish. CCHC attended 12 Chinese community events, and BPSOS attended 13 Vietnamese community events. HDR attended 12 events including African American, Hispanic, Vietnamese, Chinese, and non-specific community events. Two of the twelve events included outreach to children in the Los Angeles Unified School District (LAUSD). During the community events, outreach focused on distributing tip cards and information pamphlets as well as having one-on-one conversations with community members to provide fish contamination and consumption education.

2.5 FCEC PARTNERS MEETINGS

The FCEC partners meeting included 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 issues related to the program. Further discussion of the key points from these meetings is included in Section 5.5.

3.0 DATA COLLECTION AND ANALYSIS APPROACH

3.1 ANGLER OUTREACH

HTB and Cabrillo staff conducted angler outreach from July 2016 to July 2017. The following data were recorded during the angler outreach efforts:

1. Whether an outreach angler was an adult or child.
2. Whether an outreach angler was a repeat or new respondent.
3. The number of information tip cards provided.
4. Whether the outreach angler is aware of the contamination.
5. Whether the outreach angler is aware of DDT and PCB contamination as opposed to another contaminant (e.g., mercury). The recording of this information began in June 2017.
6. The awareness source (i.e., pier signage, information tip-cards, outreach, community events, media, internet, friend/family, or other). The recording of this information began in June 2017.

7. The language spoken during the angler outreach.
8. The zip code the angler lives in, if provided.
9. 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 only, non-English, and multi-lingual) 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. Based on input during the FCEC Partners Meeting in April 2017, HTB and Cabrillo began recording the source of angler awareness and whether the anglers were specifically aware of the DDT and PCB contamination. This information will also be used to evaluate outreach effectiveness.

3.2 BAIT SHOP OUTREACH

HDR conducted the bait shop outreach in March and April 2017. During each visit, HDR collected qualitative data including how many bait shops took outreach materials and how many of the materials were distributed in each language. Based on information from the July 2016 FCEC Partners Meeting, nine bait shops were found to overlap with the HTB outreach efforts. Therefore, these nine bait shops were removed and replaced. HDR reached out to 65 potential bait shops to replace the nine overlapping shops. The bait shops removed and their replacements are listed in the table below. Figure 2 presents the locations of the 40 bait shops.

Removed Bait Shops	Replacement Bait Shops
Lincoln-Pico Sporting Goods, Santa Monica	Scubahaus, Santa Monica
Santa Monica Pier Bait and Tackle	Adventure 16, Santa Monica
Nick's Liquor Store, Venice Beach	Big 5 Sporting Goods, Culver City
Redondo Coffee Shop & Bait, Redondo Beach	Catalina Liquor & Deli, Redondo Beach
Robert's Liquor, Hermosa Beach	Dawn to Dusk Liquor, Hermosa Beach
22nd Street Landing Sport Fishing, San Pedro	Mr. C's Liquor, San Pedro
Beach City Market, San Pedro	Pacific Wilderness, San Pedro
The Rusty Hook, San Pedro	Baja Fish Gear, Lomita
Buoy's On The Pier, Long Beach	7 Eleven (Ocean Blvd.), Long Beach

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/session, the bounce rate (the percentage of visitors to a website who navigate away from the site after viewing one page), the number of new or repeat visitors, and page views by city. The combined information from these datasets enabled a qualitative-quantitative analysis of the outreach effectiveness of the FCEC website. In addition, analytic data from the Facebook page, such as the number of likes, fans reached, and user engagement provided additional data to assess outreach effectiveness.

3.4 COMMUNITY EVENT OUTREACH

HDR, CCHC, and BPSOS attended a total of 35 community events. During each community event, the total number of attendees and/or tip cards distributed (English, Spanish, Chinese, and/or Vietnamese) were recorded. Similar to the other outreach datasets, the community event outreach data were analyzed to determine and compare the outreach effectiveness within each of the target communities.

4.0 RESULTS

4.1 ANGLER OUTREACH

4.1.1 Anglers Contacted During Outreach Period

Table 1 summarizes the total number of anglers contacted between July 2016 and July 2017. The table presents the following total values: (1) total per month; (2) total in 2016; (3) total in 2017; (4) total for the outreach period; (5) total for HTB locations; and (6) total for Cabrillo locations. Based on the data, both HTB and Cabrillo achieved the outreach objectives by reaching 11,801 (goal was 11,000) and 1,868 (goal was 1,600) anglers, respectively.

Based on the monthly trends in the data, as shown in Figure 3, there appear to be seasonal fluctuations with the numbers of anglers generally decreasing between October 2016 and February 2017, increasing in March, April 2017 and July 2017. Overall peaks are shown in April and July 2017. Belmont Pier has the greatest variability, with peak anglers ranging from 54 (January 2017) to 396 (April 2017). Redondo Beach and Venice fishing locations have the next greatest variability, with peak angler outreach ranging from 74 (February 2017) to 320 (July 2017) and 55 (February 2017) to 281 (July 2017), respectively.

4.1.2 Angler Outreach Effectiveness (Contamination Awareness)

Angler outreach effectiveness was measured through direct and specific questions asking anglers if they were aware of the contamination and “Do Not Consume” fish warnings, followed by

questions of when they learned of the contamination and by what media (e.g., newspaper, social media, FCEC brochure).

Angler awareness of the contamination and “Do Not Consume” warnings was collected during the outreach sessions from July 2016 to July 2017. In June and July 2017, anglers were asked about the source that 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, anglers reached at Hermosa Beach had the most awareness with 92 percent of anglers aware of the contamination issues, followed by Redondo Beach (85 percent), Seal Beach, Venice, and Cabrillo (83 percent each). Angler awareness was lowest at Santa Monica at 77 percent of anglers. Of the anglers contacted at the piers that were aware of the contamination, on average, 76 percent spoke English, 16 percent spoke Spanish, 4 percent spoke Chinese, 2 percent spoke Vietnamese, 1 percent spoke Tagalog, 0.3 percent spoke Russian, and 0.1 percent spoke Armenian.

Anglers were asked whether they were a new or repeat outreach respondent. Tables 3 and 4 summarize the percent of respondents who were repeat or new respondents, respectively, for the outreach period. At all the fishing locations, at least 53 percent of anglers were repeat and 46 percent of anglers were new respondents. Venice had the most repeat respondents (61 percent) and Seal Beach had the most new respondents (55 percent). In June-July 2017, HTB and Cabrillo 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). Based on the results presented in Table 5, pier signage (40 percent) and the pier outreach team (52 percent) are reported as the most influential source of information. Less influential sources of awareness were media (3 percent), friend/family (2 percent), internet, community events, and other such as school (1 percent each).

4.1.3 Angler Outreach Effectiveness (Geographic Distribution/Demographic Variability)

During the angler outreach, anglers were asked to provide the zip code where they live. Of the 13,667 anglers reached between July 2016 and July 2017, 44 percent (6,002 anglers) provided their zip code. Of the anglers who provided their zip code, approximately 87 percent were from Los Angeles County, 6 percent from Orange County, 4 percent from San Bernardino County, and 2 percent from Riverside County. Figure 4 depicts the distribution and concentration of zip codes for Los Angeles, Orange, San Bernardino, and Riverside counties. The highest zip code concentration occurs within the Cabrillo zip code of 90731. The highest concentrations appear to occur within the area bound by Interstate-110 to the west, Interstate-605 to the east, and Interstate-10 to the north.

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. There are several key aspects of this data that are important to note. The data indicate that many of the anglers responded in English, but the notes also indicate the ability to speak another language. Therefore, many of the language categories are bi- or multi-lingual.

Additionally, there were instances in the data where no language spoken was filled in, resulting in missing data. Moreover, because approximately 98 percent of the angler outreach respondents were from the four surrounding counties, the analysis focused on these geographic areas.

Table 6 summarizes the language distribution spoken by the anglers. The results indicate that nearly 90 percent of the respondents within Los Angeles, Orange, San Bernardino, and Riverside counties spoke only English and approximately 10 percent were non-English or multi-lingual speakers. Of the non-English or multi-lingual speakers, approximately 26.2 percent of respondents were only Spanish speakers, 4.9 percent only spoke Chinese, 0.7 did not specify a language, and 0.4 percent only spoke Tagalog. The multi-lingual speakers spoke English/Vietnamese (2.2 percent), English/Chinese (0.2 percent), and English/Spanish (0.1 percent). In summary, the demographic groups that are likely effectively being reached through the Angler Outreach Program may include English speaking/bi-lingual Hispanic, with a smaller minority of Chinese and Austronesian communities. However, HTB noted during the FCEC Partners April 2017 meeting that many anglers, especially illegal immigrants, are uncomfortable providing more information in fear of deportation.

4.2 BAIT SHOP OUTREACH

In March and April 2017, HDR conducted outreach to 40 fbait shops in the California cities of Huntington Beach, Seal Beach, Long Beach, San Pedro, Redondo Beach, Hermosa Beach, Manhattan Beach, Hawthorne, Marina Del Rey, Venice, and Santa Monica (Figure 2). A total of 3,360 tip cards were distributed in English (29 percent), Spanish (28 percent), Chinese (25 percent) and Vietnamese (18 percent). Some shops only requested tip cards in specific languages based on their known clientele. The bait shops were notified that materials would be replenished within the next six months. Overall, the March and April 2017 outreach effort was successful. The shop managers remembered the FCEC and tip cards from the 2016 outreach efforts. Since then, most shops had distributed all of the materials. Shops that had new employees and/or managers that were not familiar with FCEC and the tip cards were engaged and open to displaying and distributing the information. A few expressed gratitude that these materials were made available to their customers. HDR noted that many of the plastic tip card holders were missing and should be replaced.

4.3 ELECTRONIC OUTREACH

Figures 5 and 6, and Table 7 summarize the Google Analytics data for the outreach period. The figures and tables present the Google Analytics datasets that were collectively used to quantify electronic outreach effectiveness. Based on the data, the website experienced a sharp decrease in visitors, measured by the number of sessions or visits to the webpage, unique users, and page views between July and October 2016. During this time, the bounce rate and percent of new users to the website remained fairly constant, around 85 percent and 99 percent, respectively. Beginning in November 2016, the number of sessions, users, and page views remained fairly constant, around 150 sessions and users, and 200 page views on average. The page views peaked in May 2017 at approximately 270. The bounce rate remained fairly constant throughout

this period from a peak of 92 percent in October 2016 to 82 percent in May 2017. The New Users remained at an average of 99 percent during this time period.

The pages/session and average session duration depicts different trends to the sessions, users, and page view data. There is a slight increase in average session duration during July and August 2016 of an average of 0.26 seconds, compared to 0.22 seconds from September 2016 to January 2017. Pages per session show a similar trend of an average of 1.3 between July and August 2016, compared to 1.19 between September 2016 and January 2017. There is a sharp increase in average session duration in February 2017, and again in April and May 2017 of 0.57 seconds, 1.0 minute, and 1.5 minutes, respectively.

In addition to overall website usage, Google Analytics tracks demographic data, specifically country, region/state, and city, and metro area. For the purposes of this analysis, the city level data was evaluated. Similar to the angler outreach analysis, visitors to the website were primarily from California (56 percent of users with geographic tracking turned on and 44 percent of all visitors to the website). In California, the top five cities with visitors to the website include Los Angeles, San Francisco, San Diego, Long Beach, and Glendale. Approximately 20 percent of visitors to the website were from Los Angeles (324 sessions), followed by 3 percent from San Francisco (52 sessions), 2 percent from San Diego (40 sessions), 2 percent from Long Beach (30 sessions), and 1 percent from Glendale (16 sessions).

The Facebook analytics data are presented in Figures 7 and 8. Figure 7 depicts the number of likes the Facebook page received from July 2016 to July 2017. Figure 8 presents the number of fans (users who like the Facebook page) reached and percent of users engaged during the outreach period for each post to the Facebook page. As of July 2017, the Facebook pages has approximately 4,812 likes from fans. The Facebook page likes has had a steady decrease in overall likes throughout the year. The number of likes shows a declining at a rate trend of approximately 8 likes per month.

To evaluate the reach and engagement of posting information on the Facebook page, Facebook analytics data provide the total number of fans reached, the total number of fans reached who also liked the Facebook page, the percent of engaged users relative to the fans reached, and the percent of engaged users relative to the number of fans reached who also like the Facebook page. Between July 2016 and July 2017, there have been 4 posts to the Facebook page, all on April 4, 2017, with, on average, a total fan reach of 115 and 3 percent engagement. Of the fans reached, on average 111 (96 percent) also liked the Facebook page, however there was no records of engagement on the posts.

4.4 COMMUNITY OUTREACH

HDR attended 12 community events between July 2016 and July 2017, including African American, Hispanic, Chinese, and non-specific community events. Two (#4 and #11) of the 12 events were conducted as part of LAUSD outreach. Below is the list of community events attended by HDR during the outreach period:

1. African American Festival (25 February 2017)
2. Los Angeles Lantern Festival (4 March 2017)
3. Santa Monica STEAM Machines (March 5, 2017)
4. Los Angeles Environmental Education Fair (March 11, 2017)
5. Noches de Estrellas (24 March 2017)
6. Los Angeles Department of Public Works Earth Day (19 April 2017)
7. Manhattan Beach Earth Day (22 April 2017)
8. Aquarium of the Pacific Earth Day (23 April 2017)
9. Heritage of Aloha Festival (20 May 2017)
10. Lummis Day (03 June 2017)
11. Los Angeles Exposition Park Summer Camp (29 June 2017)
12. Northeast Los Angeles 8th Annual Concert in the Park and Fireworks Show (2 July 2017).

In total, more than approximately 40,000 people attended the events. HDR was able to hand out tip cards to 5.3 percent of the attendees, of which 72.7 percent were English, 19.9 percent were Spanish, 5.0 percent were Chinese, and 2.4 percent were Vietnamese. CCHC attended 12 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. Health Fair – Rowland Heights (22 October 2016)
2. Health Fair – San Gabriel (29 October 2016)
3. Thanksgiving Dinner – Monterey Park (29-30 October 2016)
4. Thanksgiving Dinner – Rowland Heights (6 November 2016)
5. Health Fair – Covina (12 November 2016)
6. Turkey Trot (19 November 2016)
7. Lunar New Year Celebration (4 February 2017)
8. Lunar New Year Festival (11 February 2016)
9. Walk-a-Thon (25 March 2017)
10. Earth Day (8 April 2017)
11. Spring Awakening (20 May 2017)
12. 4th of July Carnival (4 July 2017).

In total, 19,870 people attended the events. CCHC was able to hand out tip cards to approximately 19.4 percent of the attendees, of which 79.1 percent were Chinese, 17.7 percent were English, and 3.1 percent were Spanish. Although these percentages appear low relative to the number of people attending the community events, this number reflects a significant number of community members being reached through community events. Furthermore, the majority of the people reached were Chinese-speaking indicating that targeting Chinese focused events is an effective outreach method. This is counter to the angler outreach, which is less effectively reaching the Chinese community.

BPSOS attended 13 community events during the outreach period, targeted primarily at Vietnamese communities. Below is the list of community events attended by BPSOS during the outreach period:

1. OCAVMHAS Walk With Us (10 September 2016)
2. Emergency Preparedness Fair (24 September 2016)
3. Nhan Hoa Comprehensive Healthcare Clinic's Fall Health Fair (22 October 2016)
4. Vietnamese Physicians Association of Southern California Free Health Fair (23 October 2016)
5. Community Health Fair (10 November 2016)
6. Great American Smokeout (17 November 2016)
7. UDW Health Fair (18 November 2016)
8. Santiago High School Resource Fair (26 January 2017)
9. GGUSD Resource Fair for School Community Liaisons (03 February 2017)
10. Immigration Town Hall (9 February 2017)
11. Lincoln Adult Center (22 February 2017)
12. Los Amigos High School (9 March 2017)
13. City of Westminster's 60th Anniversary (8 April 2017)

In total, 2,624 people attended the events with approximately 88 percent receiving tip cards from BPSOS staff, of which 79.4 percent were Vietnamese, and 20.6 percent were English. Similar to HDR and CCHC, the data show that outreach at the community events is effective and is further spreading awareness of the contamination issues at the Palos Verdes Shelf Superfund Site.

5.0 DISCUSSION AND RECOMMENDATIONS

The Community Involvement Program, through the various outreach activities at multiple locations, has been effective in reaching anglers and community members to increase awareness of the contamination issues associated with the Palos Verdes Shelf Superfund Site. The following sections discuss conclusions and recommendations for each aspect of the outreach program.

5.1 ANGLER OUTREACH

Through the angler outreach, both HTB and Cabrillo were able to surpass the outreach objective between July 2016 and July 2017. Additionally, the awareness data collected was also conclusive that the majority of anglers, especially at the more popular fishing locations were, on average, aware of the contamination. Most importantly, of the data collected, the results of the geographic distribution and demographic variability expose several interesting conclusions about the overall effectiveness of the Angler Outreach Program. Overall, there was less variability in the languages collected during this annual period, as compared to the previous report. 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. Similarly, the demographic variability data, as measured through the angler languages spoken, present a wide variety of ethnicities and cultures being reached through the outreach program. The form of media the angler learned of the

contamination is primarily through the outreach team and pier signage. This indicates successful implementation of the program outreach.

Although the above results were measurable from the collected data, there is significant room for improvement in the type of data collected. Relative to awareness, it would be beneficial for future outreach to include additional information to be able to perform more in-depth sensitivity analyses, which would help with identifying more accurate methods to improve angler and other outreach. Such information may include whether the angler has shared his/her knowledge with other anglers, family, or community members, and if so, how many. The form of media the angler learned of the contamination will continue to be collected during the next reporting period.

With regards to the geographic distribution and demographic variability, several data collection improvements are recommended for future outreach. To better understand and visualize the geographic distribution of the anglers through the outreach program, it would be beneficial to collect city data in conjunction with the zip code data. This would improve the number of respondents included in the geographic distribution statistics and provide a broader picture of the outreach effectiveness beyond the individual and zip code levels.

5.2 BAIT SHOP OUTREACH

Overall the March and April 2017 bait shop outreach events were successful. The majority of the shops distributed the information materials and in some cases needed replenishment sooner than the prescribed three to six months. It was recommended to target local fish markets in addition to the bait shops to distribute tip cards and expand outreach to the target demographic in new communities and audiences. Nine bait shops overlapped with HTB outreach and were replaced with new bait shops for the 2017 outreach events. During the outreach, HDR noticed that many of the plastic tip card holders were missing and should be replaced.

5.3 ELECTRONIC OUTREACH

The Google Analytics for the FCEC website and Facebook page data present some interesting conclusions about the effectiveness of the two media in reaching the public.

The Google Analytics data indicate that since July 2016, visits to the FCEC website have been relatively minimal, and even when the website receives visitors, there is little to no engagement, as reflected by the bounce rate, page views per session, and average session duration. A deeper look at the top five pages visited after July 2016 showed that the pages visited were not the main pages of the website providing information on the contamination, fishing piers, or fish, but rather to blog posts from 2010. Based on these results, the website is not effectively reaching the public, but is more likely acting solely as a resource in the event people need additional information.

The Facebook data evaluated suggest similar outreach effectiveness as the FCEC website. Since July 2016, the Facebook page has seen a steady drop in the number of users who like the page,

which is likely due to the lack of activity on the Facebook page, such as posts, comments, and or responses to posts and comments. Even so, when posts were published on the FCEC Facebook page, the data indicated that the posts did not effectively reach or engage the general Facebook population or users who liked the page. Overall, the Facebook page is also not effectively reaching the public.

Enhancements to the FCEC website and Facebook page content and activity could potentially improve the effectiveness of electronic outreach. Because the bounce rate for the FCEC website has remained above 80 percent since September 2016, it appears that users arrive to the website, are looking more for resources, and leave because they cannot find what they are looking for quickly. A reorganization of the content and/or a revision to the visual layout of the FCEC website homepage may enhance the ability for people to navigate and find specific links or additional pages they would like to visit. Enhancing the content on the Facebook page may also help increase visits to, likes, reach, and engagement of the Facebook page. This could involve posting more frequently about all the types of activities the FCEC is involved with, including changes to FCEC website, community events, and angler outreach events. The existing network could be leveraged by encouraging partner organizations to post, tag, and share content through their network. The more social media traffic generated through posts, as well as links back to the website, should improve the overall effectiveness of both the FCEC website and Facebook page.

5.4 COMMUNITY EVENT OUTREACH

The community outreach events have been effective at distributing information materials to the target communities. Although this method of outreach has been highly effective, several observations and potential improvements to the community events and information materials have been identified.

Events attended by HDR were diversified this year in response to comments received during the July 2016 FCEC meetings. HDR noticed that children were attracted to the FCEC booth by the fishing game and often led their parents there to engage. A second fishing game could provide more traffic. The large display board features outreach to fish markets and anglers, however, it would be worthwhile to update technical information and add information about outreach for local educators, schools and/or school districts to help attract teachers to the booth.

Following their community events, CCHC identified that the majority of the individuals who approached the booths were families with young children, expressing their concern in finding out about fish safety. They found an increased participation from the Spanish Community at these events, and that they were not aware of the contamination. Fisherman reported that while they were aware of the mercury contamination in fish, they were not aware of DDT or PCBs. Teachers and parents reportedly were interested in outreach programs at their respective schools. CCHC also reported that the fishing game remains successful, and a second game could provide more traffic.

BPSOS identified during their Vietnamese community events that many events were health fair events, which are usually held in the fall/winter to access to free flu shots. For these events,

BPSOS was invited by organizations who BPSOS has partnered with in the past. BPSOS is continuing to collaborate with other organizations in order to diversify the community events to reach more anglers in the Vietnamese Community. Other issues noted for the Vietnamese community was that it is necessary to distribute tip-cards and other information materials. BPSOS reported that many older adults and young children who took tip cards for their family were not aware of the contamination prior to receiving the tip cards.

To further evaluate effectiveness of the community outreach events, it is recommended that booth attendees be asked questions to further understand their awareness of the contamination. The questions will include whether the attendees are aware of the DDT/PCB fish contamination advisories before the community event, what is the awareness source (signs, tip-card, community event, outreach team, internet, media, friend/family, other), language spoken, and an open-ended question on what they think of the contamination.

5.5 FCEC PARTNERS MEETINGS

FCEC Partners Meetings were held in July 2016 and April 2017 for stakeholders to discuss the angler, community, and enforcement outreach activities. Some key points discussed during the meeting included extending outreach to the LAUSD, printing more FCEC information materials for the outreach groups, adding a Spanish-speaking partner to the outreach efforts, and identifying/replacing duplicative bait shops at the piers. As discussed above, HDR began LAUSD outreach during the reporting period by attending events focused on the LAUSD community. Additionally, HDR worked with HTB to identify nine duplicative bait shops and subsequently replaced them and performed outreach during the reporting period. HTB added a Spanish-speaker to their outreach team. Additional outreach materials were printed and distributed to the outreach groups in December 2016. During the April 2017 FCEC Partner meeting, some key points discussed included adding pier outreach during the night hours, revising the pier outreach tally sheet to include questions on the angler's source of awareness of DDT and PCB contamination, printing more FCEC information materials for the outreach groups, removing and replacing damaged "Do Not Consume" pier signs, and obtaining new contacts from partners for LAUSD outreach. As mentioned above, HTB will begin pier outreach during night hours in August 2017 at the busiest piers, Redondo Beach and Venice. The tally sheet was revised and implemented by HTB and Cabrillo beginning in June 2017. Damaged pier signs are being replaced by LACDPH and the City of Long Beach, documented in a separate report. Additional outreach materials were printed and distributed to the outreach groups in July 2017. HDR obtained new contacts from partners to follow-up on new opportunities to perform LAUSD outreach.

This page intentionally left blank

FIGURES

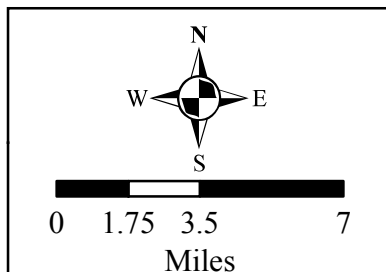
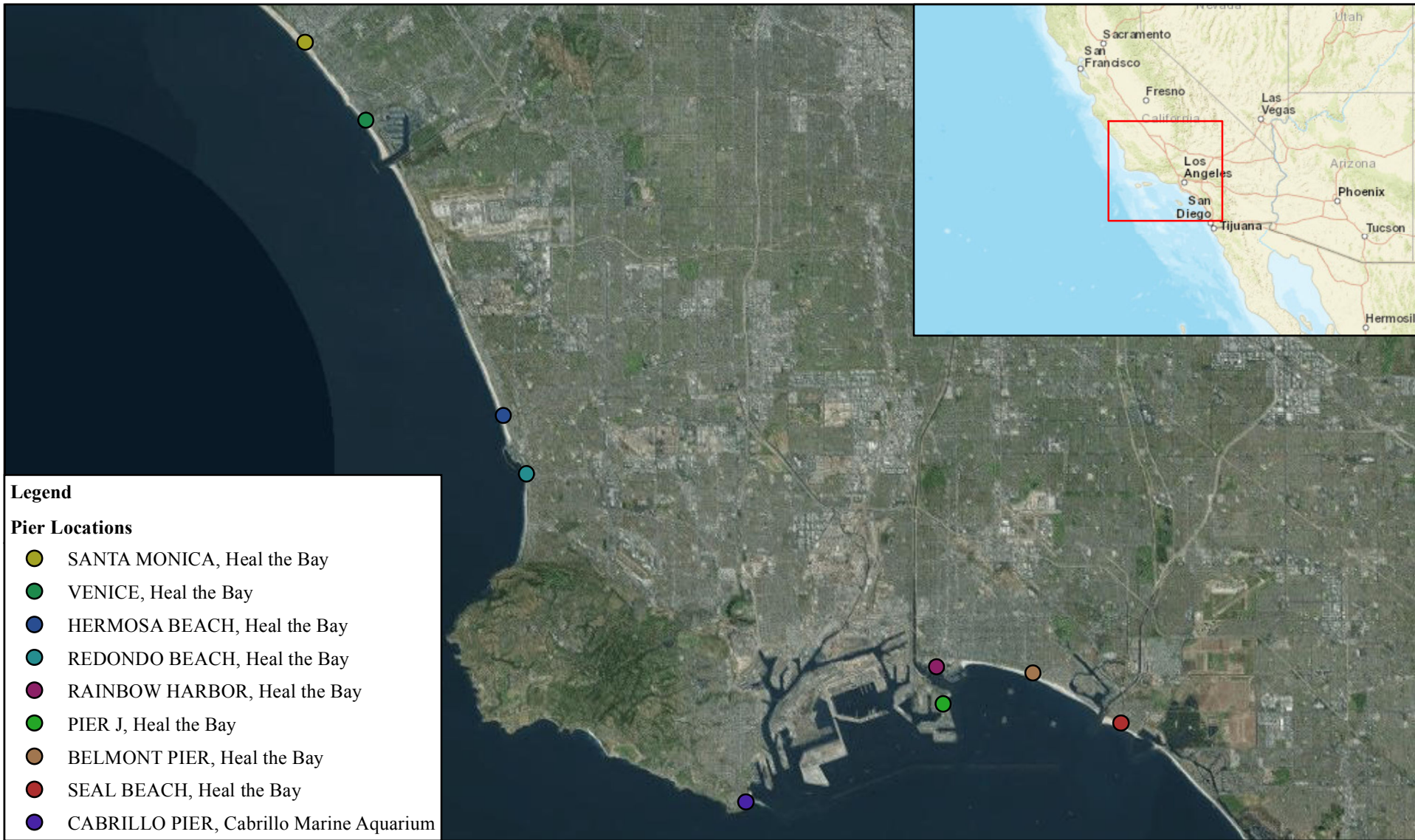


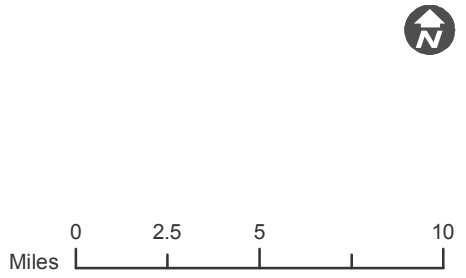
Figure 1. Pier Locations Map

Palos Verdes Shelf Superfund Site
Los Angeles County, California



- Legend**
- Bait Shop
 - ◆ Pier/Coastal Structure

August, 2017
 Data Sources: CSMW, 2007; esri, 2006, 2017;
 Los Angeles County, 2016; US Census Bureau, 2016



Palos Verdes Shelf Superfund Site
 Los Angeles County, California

Figure 2
 Bait Shops and Piers

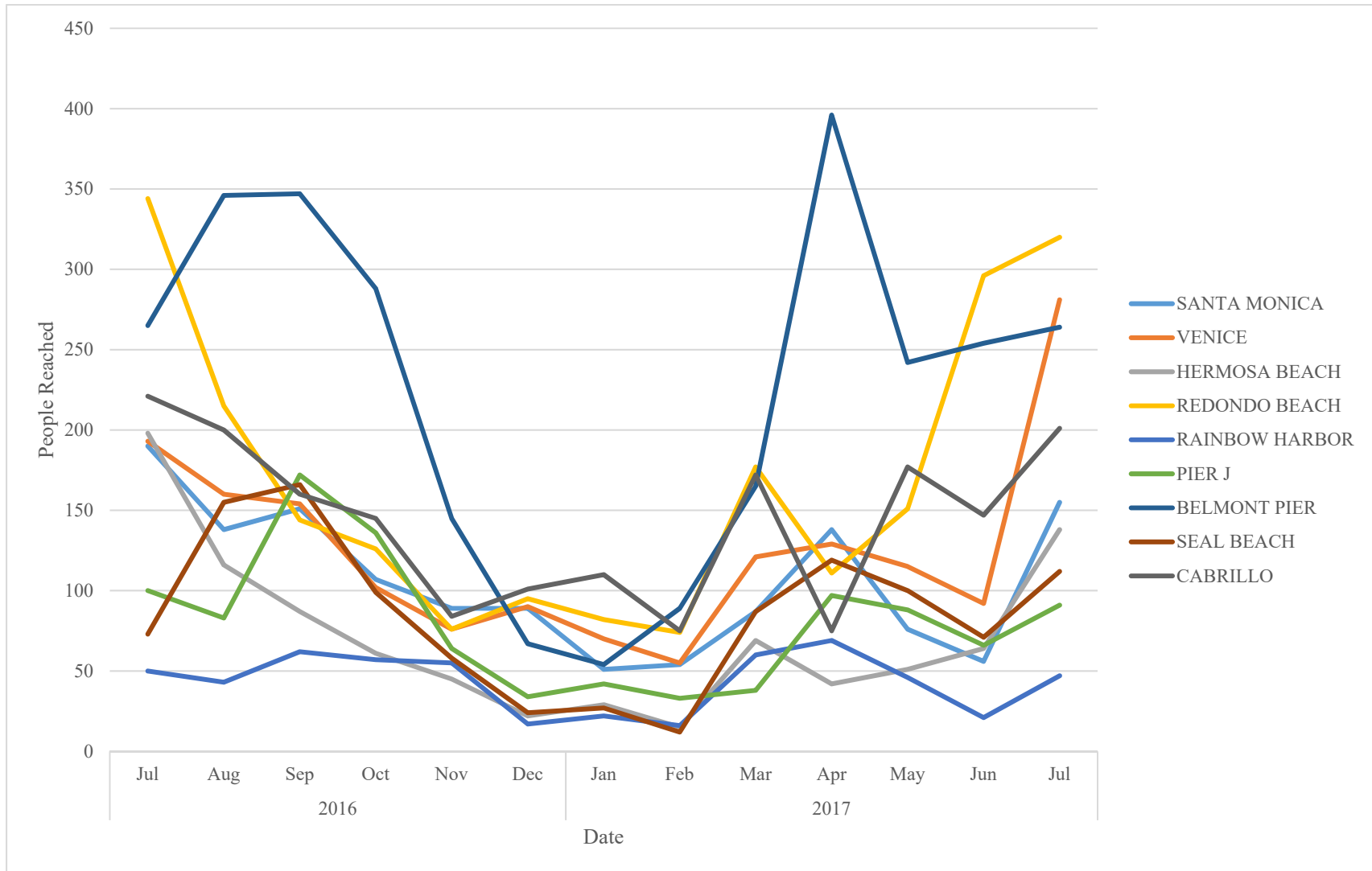


Figure 3. Seasonal Fluctuation in the Number of Anglers Contacted

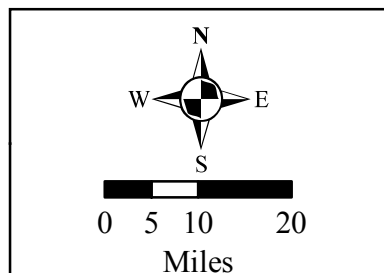
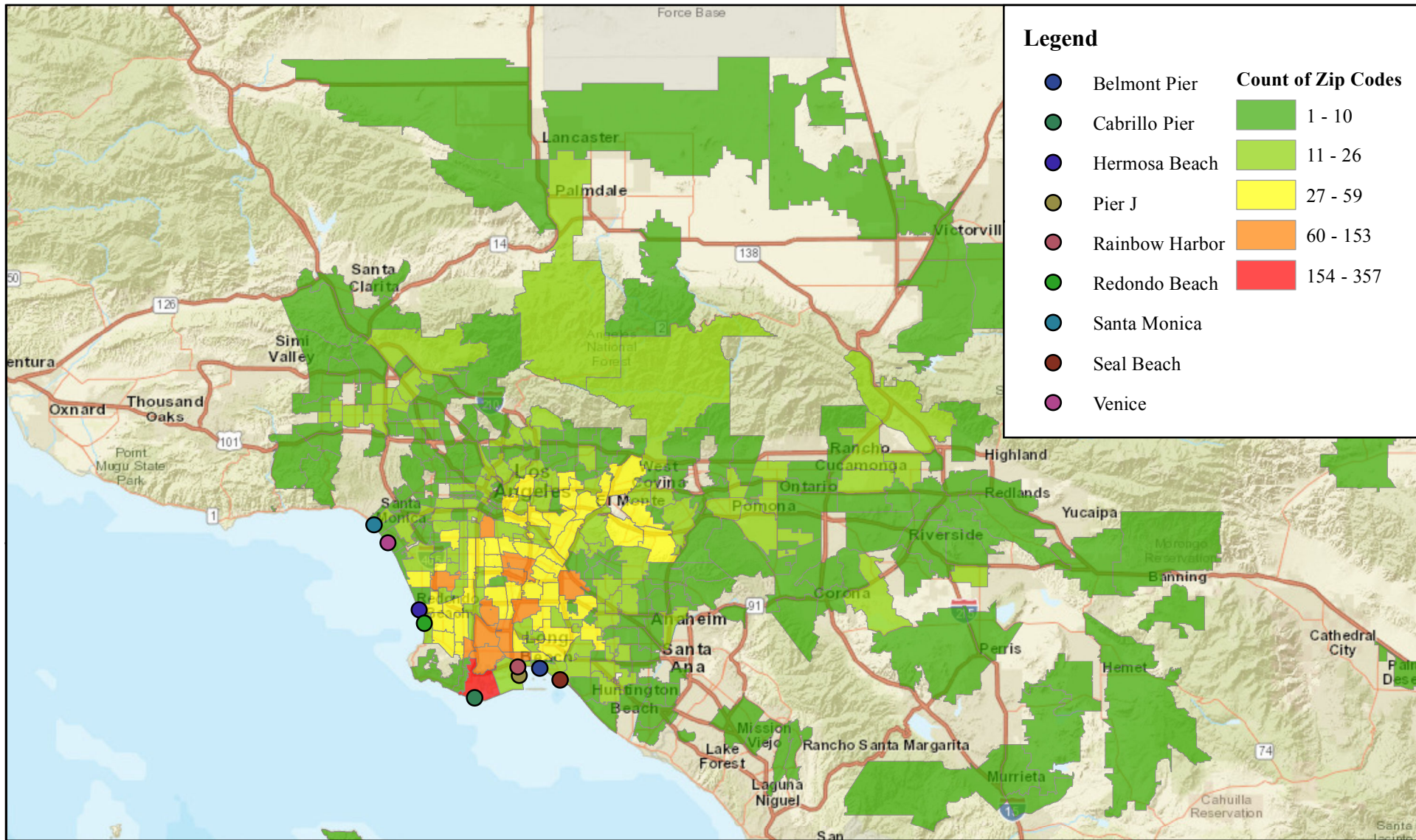


Figure 4. Geographic Distribution of Angler Zip Codes within Los Angeles, San Bernardino, and Riverside Counties

Palos Verdes Shelf Superfund Site
Los Angeles County, California

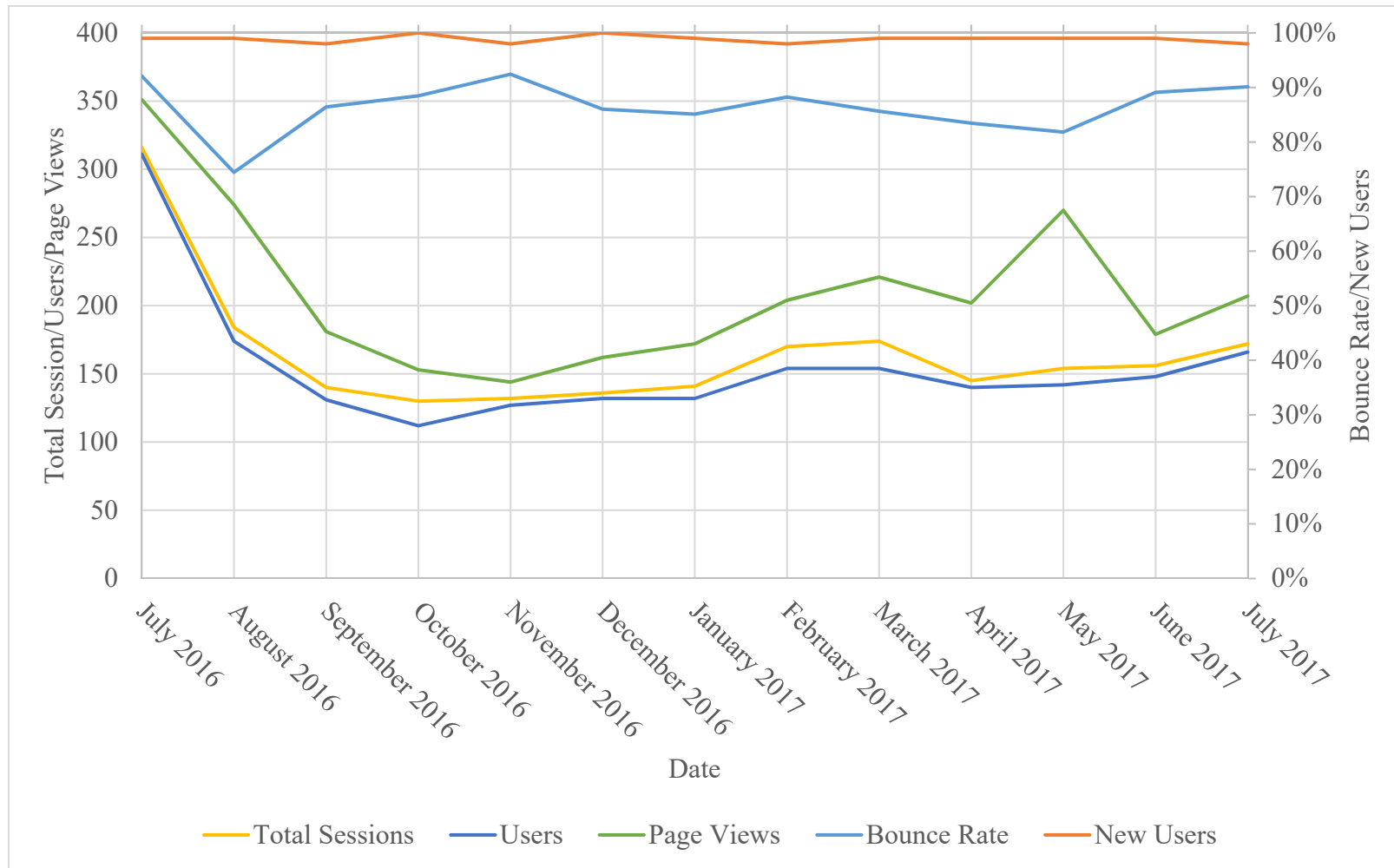


Figure 5. Total Sessions, Users, Page Views, Bounce Rate, and New Users

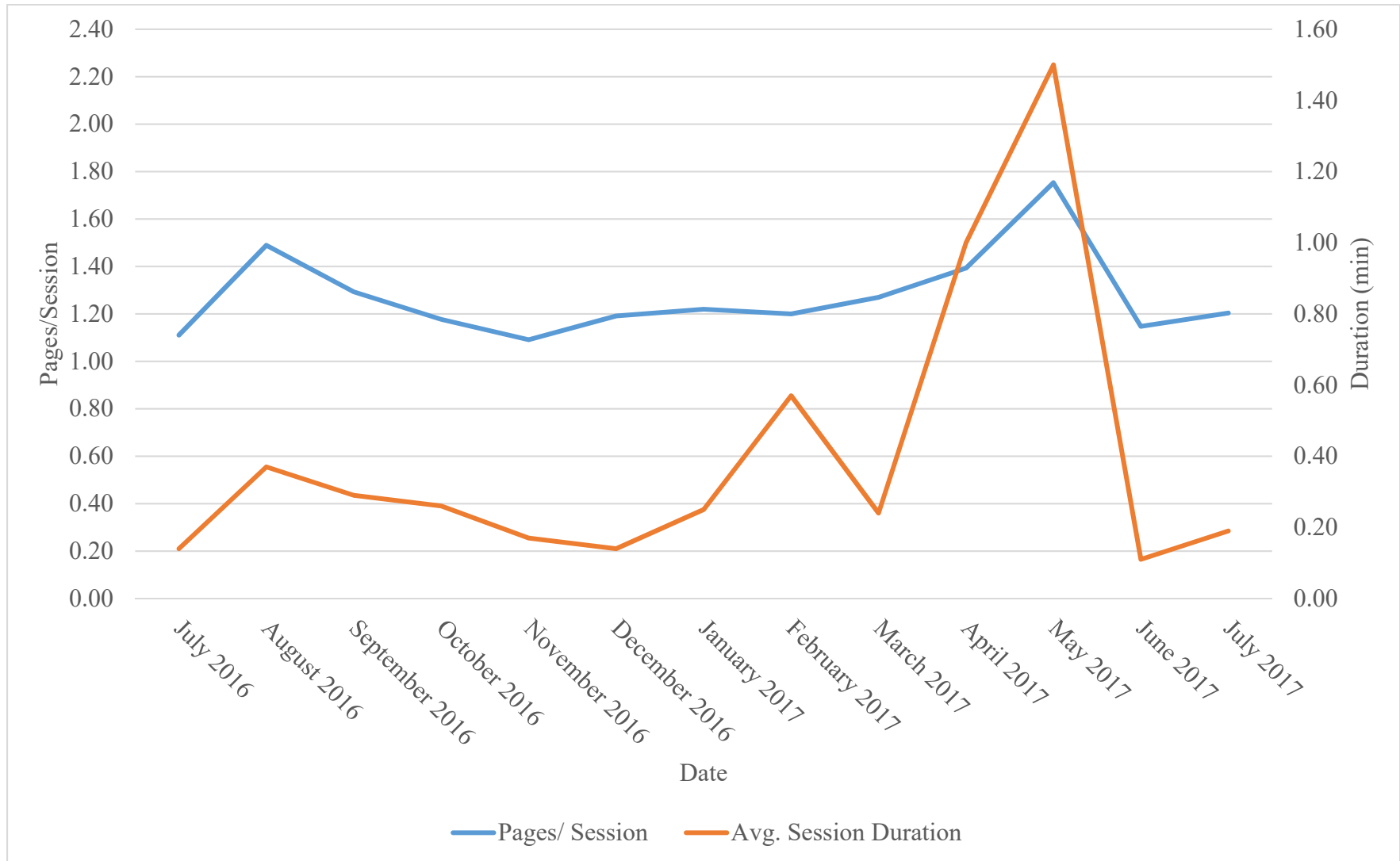


Figure 6. Pages per Session and Average Session Duration

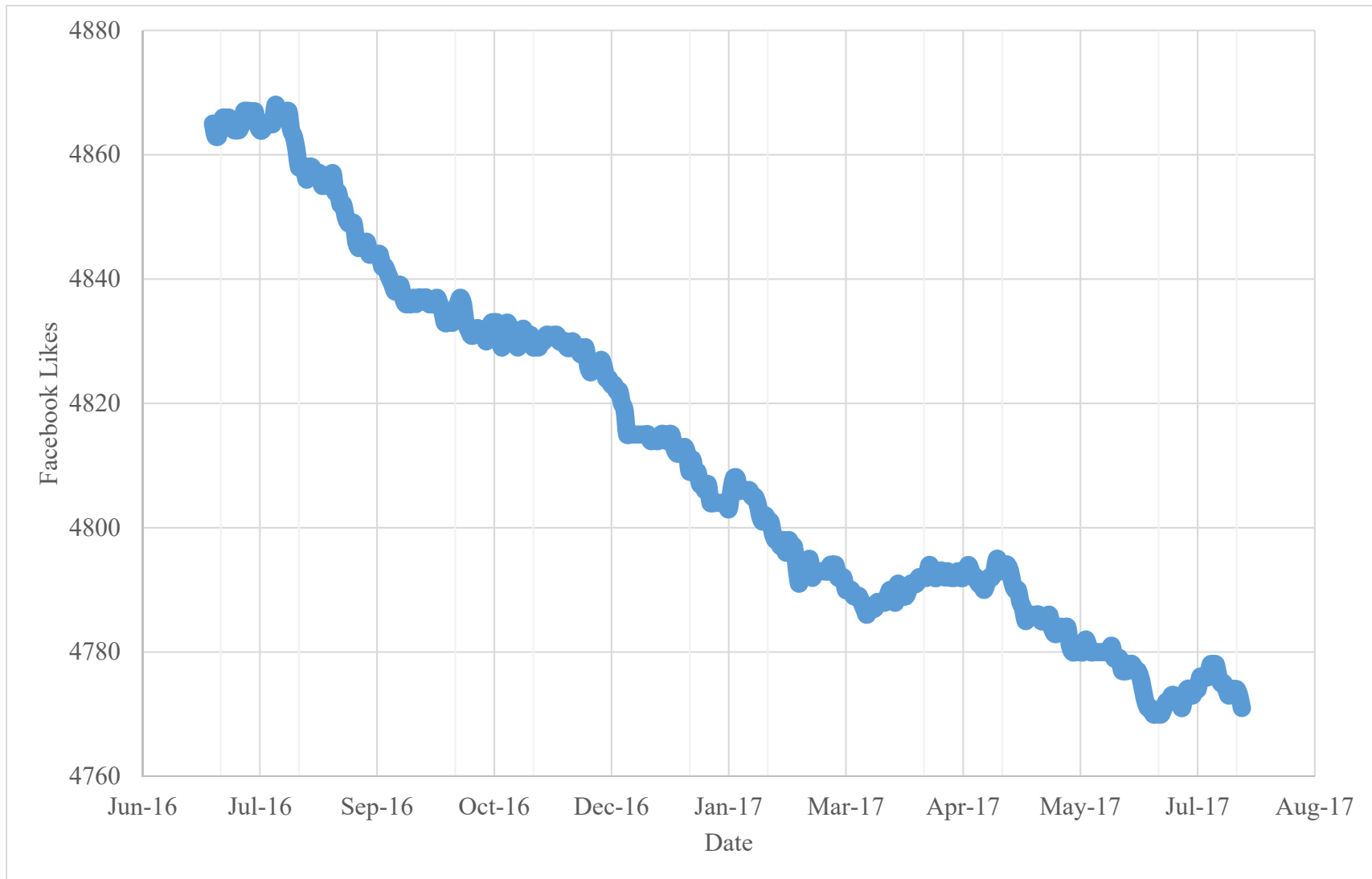


Figure 7. Number of “Likes” Received by the FCEC Facebook Page

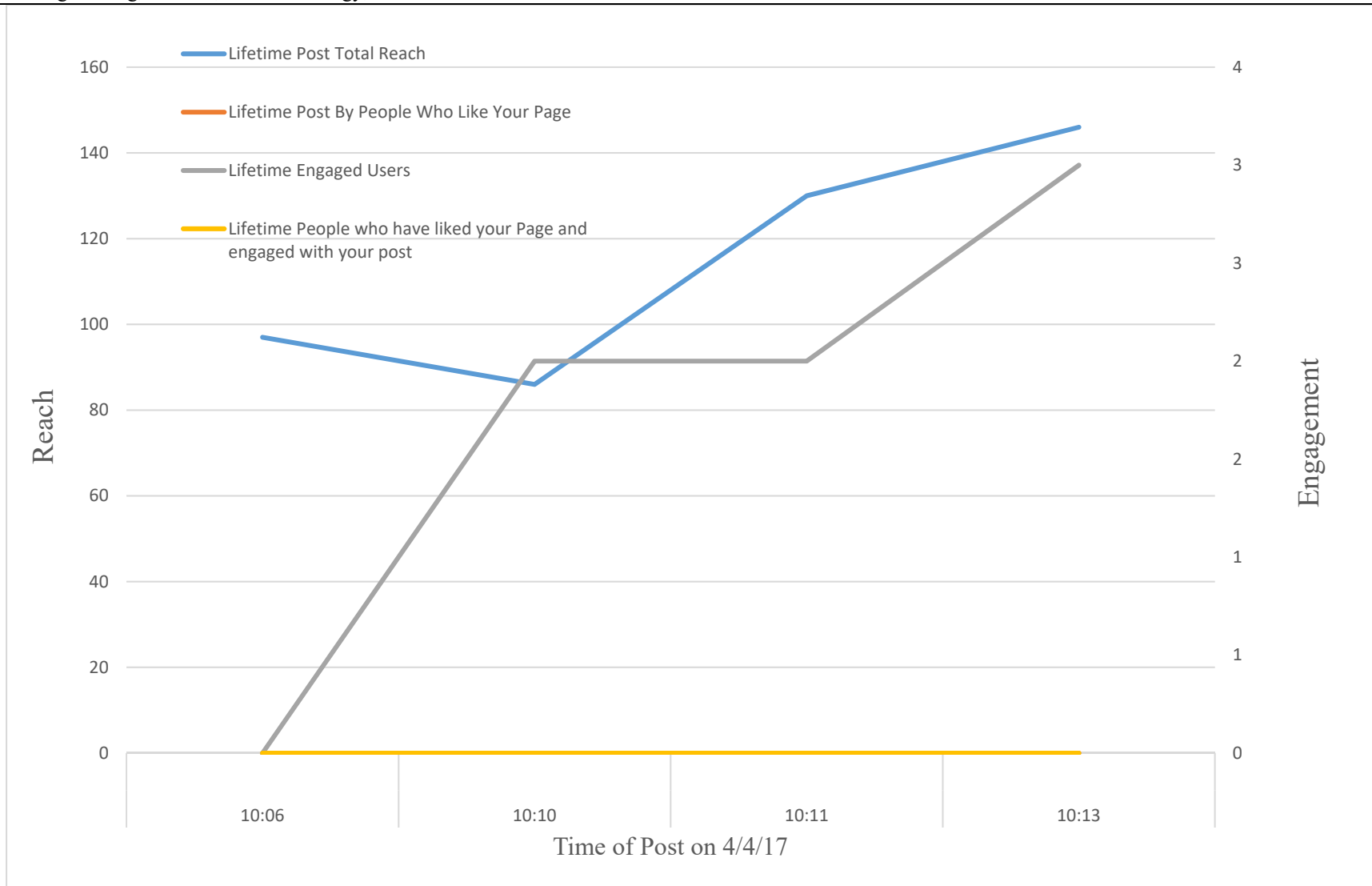


Figure 8. Total Number of Users Reached and Engaged by Posts to FCEC Facebook Page

TABLES

Table 1. Anglers Contacted During Outreach Period.

Date	SANTA MONICA	VENICE	HERMOSA BEACH	REDONDO BEACH	RAINBOW HARBOR	PIER J	BELMONT PIER	SEAL BEACH	CABRILLO PIER	TOTAL
Jul-2016	190	193	198	344	50	100	265	73	221	1,634
Aug-2016	138	160	116	215	43	83	346	155	200	1,456
Sep-2016	151	154	87	144	62	172	347	166	160	1,443
Oct-2016	107	102	61	126	57	136	288	99	145	1,121
Nov-2016	89	76	45	76	55	64	145	58	84	692
Dec-2016	89	90	22	95	17	34	67	24	101	539
Jan-2017	51	70	29	82	22	42	54	27	110	487
Feb-2017	54	55	15	74	16	33	89	12	75	423
Mar-2017	87	121	69	177	60	38	165	87	172	976
Apr-2017	138	129	42	111	69	97	396	119	75	1,176
May-2017	76	115	51	151	46	88	242	100	177	1,046
Jun-2017	56	92	64	296	21	66	254	71	147	1,067
Jul-2017	155	281	138	320	47	91	264	112	201	1,609
Total (2016)	764	775	529	1000	284	589	1458	575	911	6,885
Total (2017)	617	863	408	1211	281	455	1464	528	957	6,784
Total (Outreach Period)	1,381	1,638	937	2,211	565	1,044	2,922	1,103	1,868	13,669

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

Date	SANTA MONICA	VENICE	HERMOSA BEACH	REDONDO BEACH	RAINBOW HARBOR	PIER J	BELMONT PIER	SEAL BEACH	CABRILLO	Average
Jul-2016	59%	71%	76%	78%	86%	48%	58%	67%	73%	68%
Aug-2016	66%	72%	78%	69%	40%	63%	64%	75%	79%	67%
Sep-2016	72%	83%	92%	76%	66%	78%	76%	81%	71%	77%
Oct-2016	79%	83%	84%	75%	86%	60%	78%	84%	79%	79%
Nov-2016	71%	87%	98%	79%	89%	80%	79%	84%	82%	83%
Dec-2016	63%	83%	100%	89%	53%	88%	82%	92%	91%	82%
Jan-2017	75%	86%	100%	98%	86%	71%	96%	89%	76%	86%
Feb-2017	87%	93%	100%	96%	88%	85%	89%	83%	89%	90%
Mar-2017	82%	87%	100%	85%	85%	87%	77%	92%	97%	88%
Apr-2017	79%	76%	95%	92%	72%	87%	83%	76%	89%	83%
May-2017	93%	91%	92%	91%	100%	90%	74%	90%	84%	90%
Jun-2017	88%	86%	100%	84%	100%	97%	90%	85%	90%	91%
Jul-2017	88%	81%	86%	93%	100%	93%	92%	88%	77%	89%
Average	77%	83%	92%	85%	81%	79%	80%	84%	83%	83%

Table 3. Repeat Respondents to Angler Outreach.

Date	SANTA MONICA	VENICE	HERMOSA BEACH	REDONDO BEACH	RAINBOW HARBOR	PIER J	BELMONT PIER	SEAL BEACH	CABRILLO	Average
Jul-2016	38%	44%	43%	43%	52%	29%	29%	14%	43%	37%
Aug-2016	43%	38%	40%	49%	40%	46%	33%	41%	61%	43%
Sep-2016	52%	49%	56%	54%	35%	67%	46%	47%	47%	50%
Oct-2016	51%	61%	51%	56%	39%	54%	60%	59%	69%	55%
Nov-2016	65%	63%	84%	47%	62%	52%	60%	55%	46%	59%
Dec-2016	51%	78%	64%	60%	47%	82%	55%	29%	71%	60%
Jan-2017	57%	71%	55%	54%	73%	60%	63%	41%	56%	59%
Feb-2017	65%	73%	60%	62%	88%	64%	43%	50%	77%	65%
Mar-2017	78%	77%	45%	50%	67%	71%	58%	52%	56%	61%
Apr-2017	64%	62%	62%	46%	35%	65%	48%	45%	44%	52%
May-2017	63%	63%	47%	41%	63%	49%	47%	50%	55%	53%
Jun-2017	59%	62%	58%	36%	57%	27%	56%	54%	46%	50%
Jul-2017	51%	48%	49%	44%	49%	44%	60%	52%	42%	49%
Average	57%	61%	55%	49%	54%	54%	50%	45%	55%	53%

Table 4. New Respondents to Angler Outreach.

Date	SANTA MONICA	VENICE	HERMOSA BEACH	REDONDO BEACH	RAINBOW HARBOR	PIER J	BELMONT PIER	SEAL BEACH	CABRILLO	AVERAGE
Jul-2016	62%	56%	57%	57%	48%	71%	71%	85%	57%	63%
Aug-2016	57%	62%	60%	51%	60%	54%	67%	59%	39%	57%
Sep-2016	48%	51%	44%	46%	65%	33%	54%	53%	51%	49%
Oct-2016	49%	39%	49%	44%	61%	46%	40%	41%	29%	44%
Nov-2016	35%	37%	16%	53%	38%	48%	40%	45%	54%	41%
Dec-2016	49%	22%	36%	40%	53%	18%	45%	71%	27%	40%
Jan-2017	43%	29%	45%	46%	27%	40%	37%	59%	43%	41%
Feb-2017	35%	27%	40%	38%	13%	36%	57%	50%	17%	35%
Mar-2017	22%	23%	55%	50%	33%	29%	42%	48%	42%	38%
Apr-2017	36%	38%	38%	54%	65%	35%	52%	55%	56%	48%
May-2017	37%	37%	53%	59%	37%	51%	53%	50%	44%	47%
Jun-2017	41%	38%	42%	64%	43%	73%	44%	46%	54%	50%
Jul-2017	49%	52%	51%	56%	51%	56%	40%	48%	58%	51%
Average	43%	39%	45%	51%	46%	46%	50%	55%	44%	46%

Table 5. Source of Angler Awareness June-July 2017.

	Awareness Source								Total
	Pier Signage	Tip-card	Pier Outreach Team	Internet	Events	Media	Friend/Family	Other	
Santa Monica	69	0	109	8	4	0	4	0	194
Venice	93	3	185	6	0	17	2	0	306
Hermosa	78	6	92	0	0	5	3	0	184
Redondo	267	5	240	7	0	12	10	2	543
Pier J	68	0	58	2	0	6	8	3	145
Rainbow Harbor	33	0	35	0	0	0	0	0	68
Belmont	142	9	276	0	0	29	14	0	470
Seal Beach	58	5	90	1	0	1	0	0	155
Cabrillo	127	1	117	1	0	2	4	12	264
Total	935	29	1202	25	4	72	45	17	2329
Percent (Total Sources)	40	1	52	1	0	3	2	1	

Table 6. Languages Spoken by Anglers from Los Angeles, Orange, San Bernardino, and Riverside Counties.

Language Spoken	Los Angeles	Orange	Riverside	San Bernardino	Total Non-English
English	90%	95%	89%	91%	NA
Spanish	7.6%	3.3%	7.6%	7.7%	26.2%
Chinese	1.6%	0.0%	3.3%	0.0%	4.9%
No Language	0.2%	0.0%	0.0%	0.5%	0.7%
English, Chinese	0.2%	0.0%	0.0%	0.0%	0.2%
Tagalog	0.2%	0.3%	0.0%	0.0%	0.4%
English, Vietnamese	0.1%	1.0%	0.0%	1.0%	2.2%
English, Spanish	0.1%	0.0%	0.0%	0.0%	0.1%
Total	100%	100%	100%	100%	

Table 7. Summary of Google Analytics Data.

Month-YY	Total Sessions	% change from previous month	Users	Pageviews	Pages/ Session	Avg. Session Duration	Bounce Rate	New Users	Returning Users
July 2016	316		311	351	1.11	0.14	92.09%	99%	1%
August 2016	184	-41.77%	174	274	1.49	0.37	74.46%	99%	1%
September 2016	140	-23.91%	131	181	1.29	0.29	86.43%	98%	2%
October 2016	130	-7.14%	112	153	1.18	0.26	88.46%	100%	0%
November 2016	132	1.54%	127	144	1.09	0.17	92.42%	98%	2%
December 2016	136	3.03%	132	162	1.19	0.14	86.03%	100%	0%
January 2017	141	3.68%	132	172	1.22	0.25	85.11%	99%	1%
February 2017	170	20.57%	154	204	1.20	0.57	88.24%	98%	2%
March 2017	174	2.35%	154	221	1.27	0.24	85.63%	99%	1%
April 2017	145	-16.67%	140	202	1.39	1.00	83.45%	99%	1%
May 2017	154	6.21%	142	270	1.75	1.50	81.82%	99%	1%
June 2017	156	1.30%	148	179	1.15	0.11	89.10%	99%	1%
July 2017	172	10.26%	166	207	1.20	0.19	90.12%	98%	2%