



FISH CONTAMINATION EDUCATION COLLABORATIVE

PIER SIGN SUMMARY

August 2018 – July 2019

Palos Verdes Shelf Superfund Site

Los Angeles County, California

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ACRONYMS AND ABBREVIATIONS

Cabrillo	Cabrillo Marine Aquarium
DNC	Do Not Consume
EA	EA Engineering, Science, and Technology, Inc.
EPA	United States Environmental Protection Agency
FCEC	Fish Contamination Education Collaborative
HTB	Heal the Bay
LACDPH	Los Angeles County Department of Public Health Environmental Health Division Toxics Epidemiology Program

1. INTRODUCTION

The United States Environmental Protection Agency (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. The goal of the outreach activities are to protect the most vulnerable populations from the health effects of consuming contaminated fish related to the Palos Verdes Shelf Superfund Site. Pier signs containing Do Not Consume (DNC) fish messaging are posted on piers to help anglers identify which fish are on the DNC list and therefore should not be eaten.

In February 2015, the EPA contracted EA Engineering, Science, and Technology, Inc. (EA) to coordinate with the angler outreach groups, Heal the Bay (HTB) and Cabrillo Marine Aquarium (Cabrillo), to monitor pier sign conditions while performing angler outreach activities. HTB and Cabrillo performed pier sign condition assessments on a periodic basis and reported the status to EA. Based on the results, EA reported the damaged and missing signs to the Los Angeles County Department of Public Health Environmental Health Division Toxics Epidemiology Program (LACDPH) and City of Long Beach, as necessary. The locations of the DNC fish signs on the piers were also evaluated to determine if certain locations were problematic and in need of evaluation for new placement.

EA previously prepared reports summarizing the pier sign conditions from February 2015 to July 2016, August 2016 through July 2017, and August 2017 through July 2018. The results of the initial evaluation (February 2015 to July 2016) found a total of 63 signs were reported at piers between Santa Monica and Seal Beach. Of the 63 signs, 9 signs needed replacement. The FCEC partners agreed that overlap of the DNC fish signs in the Marine Protection Areas could potentially send mixed messages and should be removed. EA evaluated the overlap and determined that signs at four piers should be removed. EA worked with LACDPH to remove signs from Point Vincent, Long Point, Portuguese Bend, and Abalone Cove. In May 2016, LACDPH removed these signs.

During the August 2016 through July 2017 period, a total of 67 signs were tracked. Of these signs, 19 were identified for replacement at Santa Monica (3), Venice (3), Manhattan Beach (2), Redondo Beach (3), Ballona North Creek/Playa del Rey Jetty (1), Rainbow Harbor (5), and Pier J (2). At the time of the report, 11 of the 19 signs were replaced by LACDPH and the City of Long Beach. The remaining 8 signs were addressed during the following reporting period. The report also noted discrepancies on the amount of DNC fish signs reported by partners at some of the piers (Santa Monica, Cabrillo, Pier J, and Rainbow Harbor) and identified gaps in monitoring activities at Rainbow Harbor Pier. It was recommended that LACDPH, HTB, Cabrillo, and City of Long Beach coordinate to resolve the discrepancies.

During the August 2017 through July 2018 period, a total of 65 signs were monitored. This was down from 67 signs tracked in the previous reporting period. One sign was removed from Pier J because the City of Long Beach's Marine Bureau decided to minimize signage at this location. The second sign was removed from Ballona North Creek/Playa del Ray Jetty because the LACDPH's Industrial Hygienist concluded that the four existing signs are sufficient and a fifth

sign was not necessary. Of the 65 signs, 8 were identified for cleaning and/or replacement. LACDPH planned to replace 6 of the 8 signs during the August 2018 to July 2019 reporting period. The remaining 2 of the 8 signs, located at Seal Beach pier, are in poor condition (scratched and worn but still readable). EA understands that these signs fall under the jurisdiction of Orange County, which has withdrawn from DNC fish sign monitoring and maintenance activities.

The discrepancies in the number of DNC fish signs and gap in monitoring activities previously identified were resolved during the reporting period (August 2017 - July 2018). EA worked with the partners (LACDPH, Cabrillo, HTB, and City of Long Beach) to update the pier sign accounting inconsistencies at Santa Monica, Cabrillo, Pier J, and Rainbow Harbor piers. Additionally, it was determined that two piers at Rainbow Harbor were not being tracked by HTB. During the FCEC partners meeting on 18 January 2018, the City of Long Beach agreed to monitor these signs.

As of July 2018, 6 signs were identified for replacement by LACDPH at Cabrillo (3), Venice (2), and Hermosa Beach (1) piers. Two signs located at Seal Beach Pier were reported to be in poor condition. These signs are part of Orange County's jurisdiction.

2. PIER SIGN CONDITIONS (AUGUST 2018-JULY 2019)

LACDPH, HTB, Cabrillo, and the City of Long Beach performed pier sign evaluations between August 2018 and July 2019. Tables A-1 through A-3 in Appendix A present the pier sign condition assessments. Based on the evaluations, a total of 69 signs were monitored. Since the last reporting period, four new signs were added. One sign is located at Cabrillo pier and three new signs were added to the Seal Beach pier by Orange County. Of the 69 signs, 38 DNC fish signs were cleaned and 9 were replaced with new signs during this reporting period (Table A-1 in Appendix A).

LACDPH evaluated piers between Santa Monica and Cabrillo piers (Figure 1). In September and October 2018, LACDPH replaced signs at the Cabrillo (3), Venice (2), and Hermosa Beach (1) piers that were identified in the previous reporting period. As part of the replacement activities, a new sign on the Cabrillo pier was noted by LACDPH. The sign is located at a lifeguard station, near the parking lot of the pier. This sign was not previously being tracked by Cabrillo.

During the FCEC partners meeting on 23 April 2019, the LACDPH reported 50 signs were present, of which 24 were cleaned and 9 were replaced. In April 2019, LACDPH replaced three DNC fish signs, one each at Dockweiler Beach, Rocky Point, and Royal Palms/White's Point. Damaged signs were primarily due to bent signs from leaning, graffiti, and environmental conditions (e.g., storm events, rust, sunlight). See Table A-1 in Appendix A for LACDPH's pier sign evaluation. By July 2019, LACDPH reported 50 signs were present, of which 35 were cleaned and 9 were replaced.

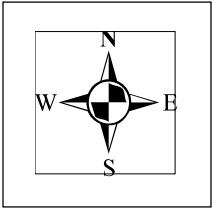
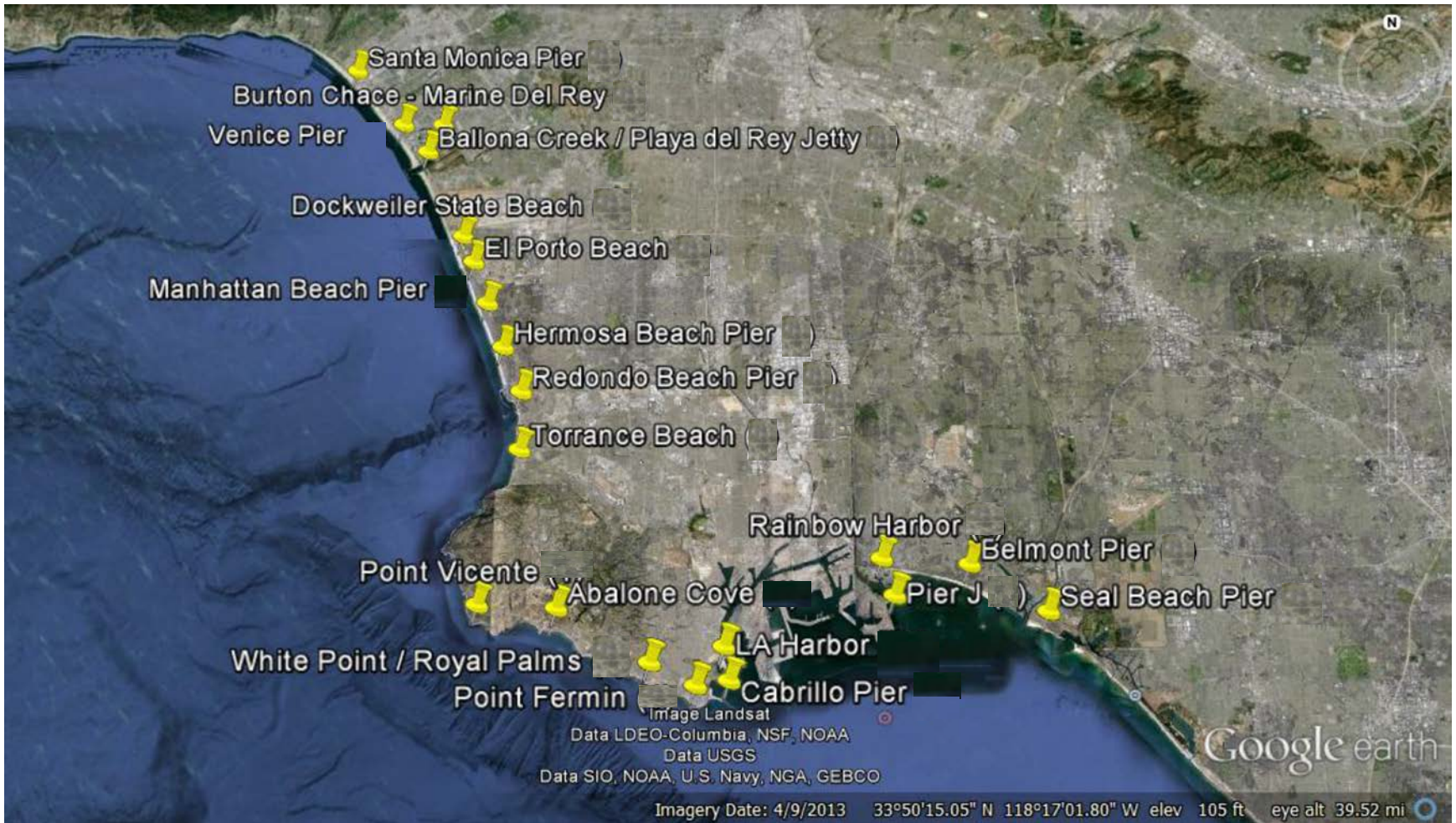


Figure 1. Do Not Consume Fish Sign Pier Locations Map

Palos Verdes Shelf Superfund Site
Los Angeles County, California

In addition to LACDPH, HTB and Cabrillo monitored sign conditions while performing angler outreach activities. HTB tracked signs located at Santa Monica Pier, Venice Pier, Hermosa Pier, Redondo Pier, Pier J, Rainbow Harbor, Belmont Pier, and Seal Beach Pier. Cabrillo monitored signs located at Cabrillo Pier. The City of Long Beach monitors 2 of the 5 DNC fish signs located at Rainbow Harbor that are not being monitored by HTB. Signs needing replacement were reported to EA. EA then coordinated the replacement with EPA, LACDPH, and the City of Long Beach. See Tables A-2 and A-3, respectively, in Appendix A for HTB and Cabrillo pier sign evaluations and Appendix B for photographs of pier signs.

HTB observed two signs were missing from the Santa Monica pier during outreach activities. EA reported these signs to LACDPH for replacement in March 2019. LACDPH was not able to replace these two signs due to construction activities on the pier. Additionally, the City of Long Beach reported a sign missing at Rainbow Harbor in March 2019 and replaced it in April 2019. During pier monitoring activities in July 2019, HTB observed that Orange County added three new signs and replaced two damaged signs at the Seal Beach pier. HTB also noted that the a DNC fish sign located at the entrance of Hermosa Beach pier was moved to the west side of a trash receptacle, making it less visible to the public (see Appendix B, Hermosa Beach Photograph #1).

Table 1 summarizes the pier sign conditions as of July 2019.

Table 1. Pier Sign Conditions – August 2018 – July 2019

Location	Total No. of Signs	Sign Condition				Notes
		Excellent	Good	OK	Poor	
Santa Monica Pier	6	-	4	-	2	Two missing signs need to be replaced. The signs will be replaced at the end of a construction project at the southwest end of the pier.
Venice Beach Pier	6	-	6	-	-	Signs are in good condition with exception of bending (from leaning) and two signs need cleaning of graffiti. Two signs were replaced in October 2018.
Marina Del Rey/ Burton Chase Platform	0	-	-	-	-	One sign was removed by LACDPH in 2015. There is no fishing at this location.
Ballona North Creek/Playa del Rey Jetty	4	-	-	4	-	One sign was reported missing, but it was not replaced because LACDPH determined 4 signs are sufficient for this area.
Ballona South	4	-	-	-	-	Due to ongoing bridge construction, signs could not be accessed during reporting period.
Dockweiler Beach	1	-	1	-	-	Sign was replaced in April 2019.
El Porto/El Segundo	1	-	1	-	-	Sign is in good condition.
Manhattan Beach	4	-	4	-	-	Sign is in good condition.
Rocky Point	1	-	1	-	-	Sign was replaced in April 2019.
Cabrillo Pier	8	-	8	-	-	Three signs replaced in October 2018. Signs are in good condition with exception of bending (from leaning).

Location	Total No. of Signs	Sign Condition				Notes
		Excellent	Good	OK	Poor	
Hermosa Beach Pier	5	-	3	2	-	Two signs in fair condition with one bent and peeling and the other requiring cleaning.
Redondo Beach Pier	6	-	6	-	-	Signs in good condition with three requiring cleaning.
Pier J	4	-	4	-	-	Signs are in good condition.
Rainbow Harbor	5	-	5	-	-	One sign was replaced in April 2019.
Belmont Pier	5	-	5	-	-	Signs are in good condition.
Seal Beach Pier	5	5	-	-	-	Five new signs were installed by Orange County in July 2019.
Torrance Beach	2	-	-	2	-	Signs are in good condition.
Royal Palms/White Point	2	-	1	1	-	Sign was replaced in April 2019.
Total	69	5	49	9	2	Due to construction, 65 of 69 signs had sign condition assessed.

3. STATUS AND RECOMMENDATIONS

As of July 2019, three signs need replacement. Two of the three signs are located on Santa Monica pier. These signs will be replaced when construction activities are completed at the pier. The third sign, located at Hermosa Beach, is bent and peeling and will likely need replacement during the next reporting period.

As part of the monitoring activities, DNC pier signs were most frequently replaced at the popular piers (e.g., Venice Beach). Damaged and/or missing signs were primarily due to environmental damage, bending from leaning, and/or vandalism. Compared to the 2018 pier sign conditions assessment, the number of signs needing replacement (6) decreased to 3 in 2019. The number of signs needing cleaning increased from 21 (in 2018) to 32 in 2019. Compared to the previous reporting years, there is an overall decrease in the signs needing replacement and an increase in the amount of signs being cleaned. This suggests that the partners' efforts to routinely monitor and track the sign conditions and collaborate on discrepancies has improved over the duration of the project.

During this reporting period, many signs were reported as bent due to leaning anglers, at multiple piers (e.g., Venice Beach, Hermosa Beach). As has been recommended in previous reports, an evaluation of pier sign height when placed at the piers is recommended. Some signs are still located in low areas which makes it easier for vandalism and removal (e.g., Venice Pier). However, if signs are located too high, they are not easily readable by pier anglers. It has been reported that the ideal height is 9 feet. This is evidenced at piers where the signs are located at height and have less maintenance activities (e.g., Pier J). HTB noticed that one sign on the Hermosa Beach pier was moved to the side of a trash receptacle, making it harder for anglers to see. It is recommended to re-evaluate this location and relocate it to a more visible area on the pier.

A new pier sign at Cabrillo pier was tracked by LACDPH. This sign is located on a lifeguard tower near the parking lot of the pier. It is recommended that Cabrillo add this 8th sign to their pier sign monitoring activities during the next reporting period.

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APPENDIX A

Pier Sign Evaluations

(LACDPH, Cabrillo, and Heal the Bay)

Los Angeles County Department of Public Health
Environmental Health Division
Toxicology and Environmental Assessment Branch
Table A-1: Pier Signage Update August 2018 – July 2019

Pier Location (North to South)	Total No. of Signs	No. Signs Cleaned	No. Signs Replaced	No. New Signs Needed	NOTES
Santa Monica	6	4	0	2	Two missing signs need to be replaced. The signs will be replaced at the end of a construction project at the southwest end of the pier.
Venice (Washington Blvd)	6	4	2	0	Missing or damaged signs replaced with new signs in October 2018.
Burton Chafe Park (Marina Del Rey)	--	--	--	--	In 2015, there was one sign. It was removed due to expansion of the boating bay and there is no fishing.
Ballona North Creek/ Playa del Rey Jetty	4	4	0	0	Five signs were previously located at this pier. One missing sign was not replaced in 2018 because the LACDPH industrial hygienist indicated that the 4 existing signs are sufficient.
Ballona South	4	0	0	0	Unable to access signs due to ongoing bridge construction.
Dockweiler Beach	1	0	1	0	Missing or damaged sign replaced with new sign in April 2019.
El Porto/El Segundo (near Manhattan)	1	0	0	0	
Manhattan Beach	4	4	0	0	
Hermosa Beach	5	4	1	0	Missing or damaged sign replaced with new sign in October 2018.

Los Angeles County Department of Public Health
Environmental Health Division
Toxicology and Environmental Assessment Branch
Table A-1: Pier Signage Update August 2018 – July 2019

Pier Location	Total No. of Signs	No. Signs Need Cleaning	No. Signs Replaced	No. New Signs Needed	NOTES
Rocky Point (King Harbor Marina (100 Marina Drive, Redondo Beach)	1	0	1	0	Missing or damaged sign replaced with new sign in April 2019.
Redondo Beach	6	3	0	0	
Torrance Beach	2	2	0	0	
Bluff /Malaga Cove	--	--	--	--	Limited beach and parking access. Not a likely place for people to fish. No sign is needed.
Lunada Bay	--	--	--	--	Unable to attach sign at beach access. There is no utilities post on site or other surfaces where one can attach signs.
Point Vicente	--	--	--	--	FCEC Partners decided to remove DNC signs within the Marine Conservation Area in 2016.
Long Point	--	--	--	--	FCEC Partners decided to remove DNC signs within the Marine Conservation Area in 2016.
Abalone Cove	--	--	--	--	Limited Access. No Signs were placed in 2015 and 2016 due to unstable ground. FCEC Partners decided to remove DNC signs within the Marine Conservation Area in 2016.
Portuguese Bend	--	--	--	--	FCEC Partners decided to remove DNC signs within Marine Conservation Area in 2016.
Royal Palms/White's Point	2	1	1	0	Missing or damaged sign replaced with new sign in April 2019.
Point Fermin	--	--	--	--	No coastal access.
Cabrillo Pier	8	5	3	0	Missing or damaged signs replaced with new signs in October 2018. An additional sign was noted at this lifeguard station (near the parking lot of the pier) that is not being tracked by Cabrillo.

Table prepared by Los Angeles County Department of Public Health and modified by EA.

Los Angeles County Department of Public Health
 Environmental Health Division
 Toxicology and Environmental Assessment Branch
 Table A-1: Pier Signage Update August 2018 – July 2019

	Total No. of Signs	No. Signs Cleaned	No. Signs Replaced	No. New Signs Needed
2015	59	16	--	25
2016	53	24	--	9
2017	49	15	--	12
2018	49	21	5	2
2019	50	32	9	2

Table prepared by Los Angeles County Department of Public Health and modified by EA.

Heal the Bay
 Pier Angler Outreach Program
 Table A-2: Pier Signage Update August 2018 - July 2019

Pier Location	Total No. of Signs Present	NOTES
Santa Monica	6	1. Missing. 2. Good condition. A few scrapes. 3. Missing. 4. Good condition. 5. Good condition. 6. Good condition. A few scrapes.
Venice	6	1. Good. 2. Good condition. Decal on top, few scratches, bent due to leaning. 3. Good condition. A few scrapes, decal and graffiti on top. 4. Good condition. Bent due to leaning, scrapes on top. 5. Good condition. Bent due to leaning. 6. Good condition. Bent due to leaning. Scratches, graffiti all over, puncture.
Hermosa Beach	5	1. Good condition. Bottom left corner is peeling. 2. Good condition. 3. Good condition. 4. Fairly good condition. Bottom right corner is peeling. 5. Fairly good condition. Dirty with scratches but readable.
Redondo Beach	6	1. Good condition. 2. Good condition. A little dirty. 3. Good condition. Very dirty with a few scratches. Bottom is peeling. 4. Good condition. 5. Good condition. A little dirty. 6. Good condition.

Heal the Bay
Pier Angler Outreach Program
Table A-2: Pier Signage Update August 2018 - July 2019

Pier Location	Total No. of Signs Present	NOTES
Pier J	4	<ol style="list-style-type: none"> 1. Good condition. 2. Good condition. 3. Good condition. 4. Good condition.
Rainbow Harbor	5	<ol style="list-style-type: none"> 1. Good condition. A little dirty. (monitored by Heal the Bay) 2. Good condition. A little dirty. (monitored by Heal the Bay) 3. Good condition. A little dirty with some graffiti. (monitored by Heal the Bay) 4. Good condition. Needs cleaning. (monitored by City of Long Beach) 5. New sign replaced in April 2019. (monitored by City of Long Beach)
Belmont	5	<ol style="list-style-type: none"> 1. Good condition. Some scratches. 2. Good condition. Some scratches and a sticker on bottom right hand side. 3. Good condition. Some scratches and bottom left side is peeling. 4. Good condition. Some scratches and a sticker on upper right side. 5. Good condition. Some scratches.
Seal Beach	5	<ol style="list-style-type: none"> 1. New 2. New 3. New 4. New 5. New

Cabrillo Pier
 Pier Angler Outreach Program
 Table A-3: Pier Signage Update August 2017 - July 2018

Pier Location (North to South)	Total No. of Signs	No. New Signs Needed	NOTES
Cabrillo	7	0	<ol style="list-style-type: none"> 1. Good Condition. Getting bent along the edges, but information is still readable. 2. Good Condition. Some markings and rust. 3. Good Condition. Some staining. 4. Good Condition. Bent along edges, rust, and some graffiti. Still readable. 5. Good Condition. Some fading paint on the left side. 6. Good Condition. Bent and some faded black graffiti. Appears that someone attempted to remove the sign. 7. Good Condition. Bent along edges, few dents, and rust.

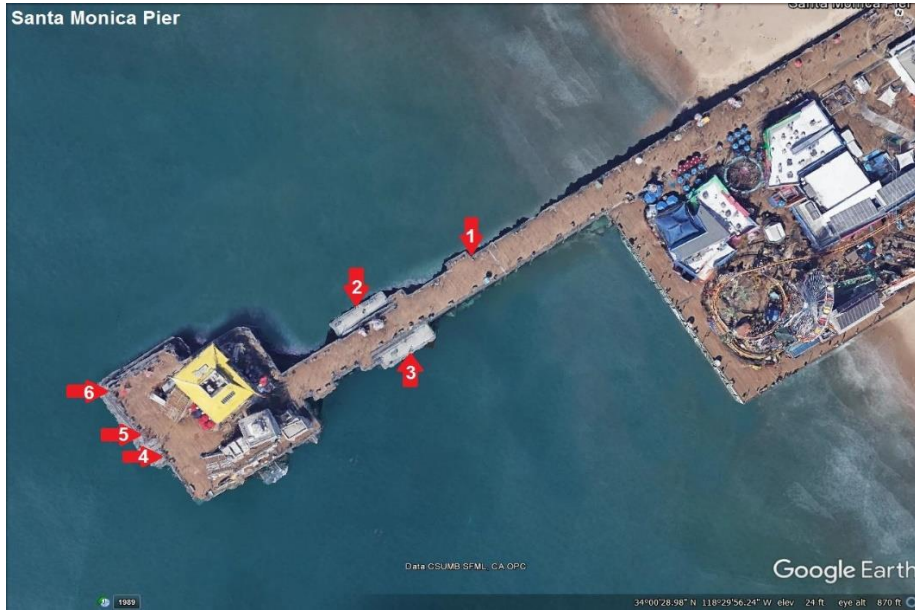
APPENDIX B

Pier Sign Locations Photographs

(Heal the Bay, Cabrillo, and City of Long Beach)

Santa Monica Pier

Six total signs present. Two signs (#1 and #3) will be replaced following construction.



#1



#2



#3



#4



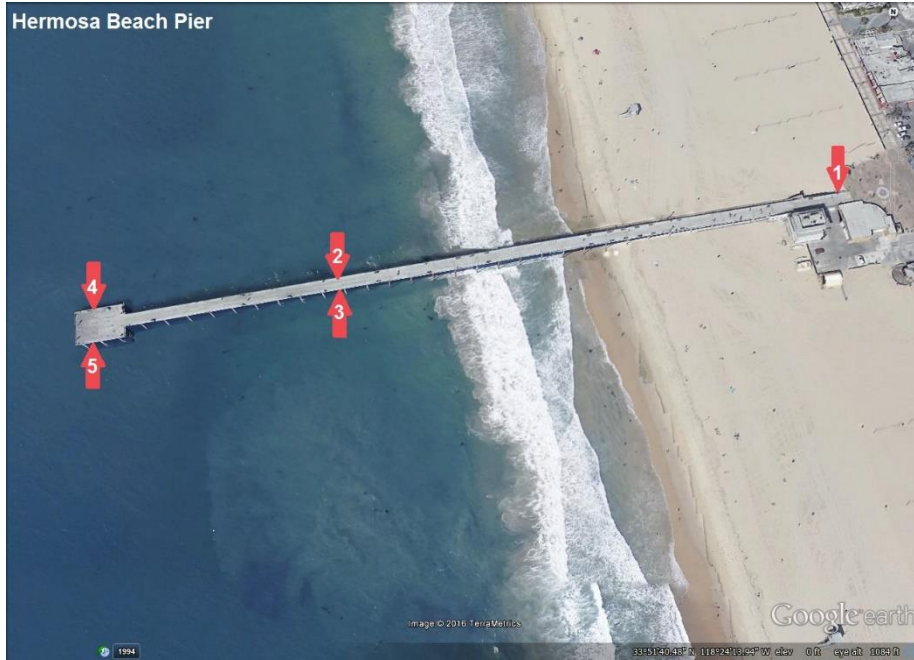
#5



#6

Hermosa Beach Pier

Five signs total. No signs need replacement. Sign #1 was moved to the west side of the trash receptacle. Two signs (#4 and #5) in fairly good condition.



#1



#2



#3



#4



#5

Redondo Beach Pier

Six total signs. Sign #3 is dirty and needs cleaning. No signs need replacement.



#1



#2



#3



#4



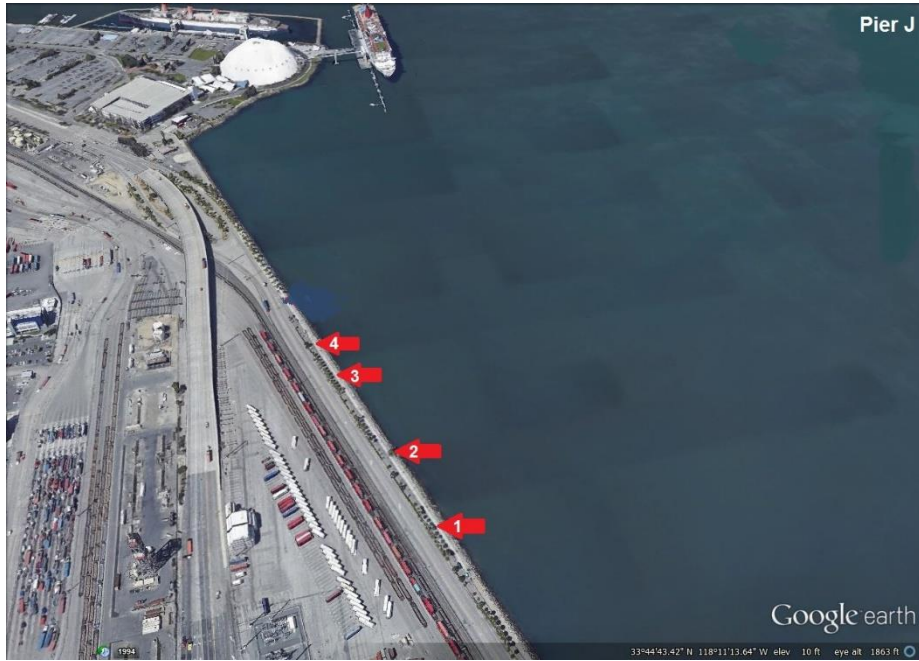
#5



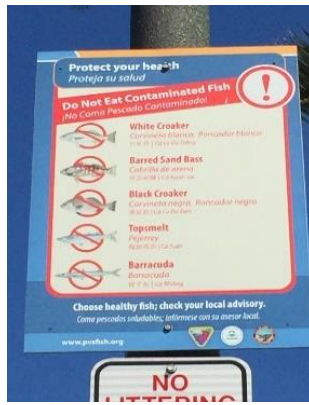
#6

Pier J

Four signs total. No signs need replacement.



#1



#2



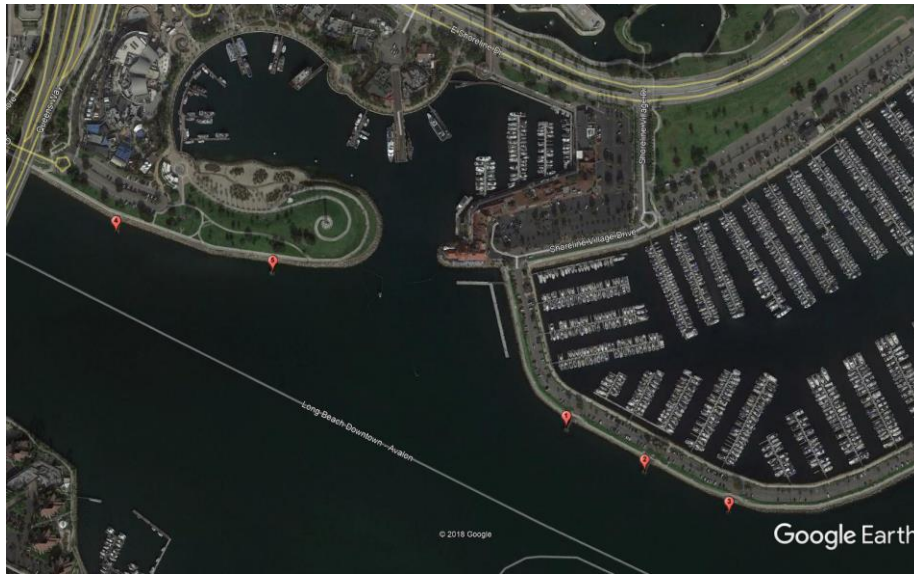
#3



#4

Rainbow Harbor Pier

Five signs, 1-3 monitored by Heal the Bay, 4-5 monitored by City of Long Beach. No signs need replacement.



#1



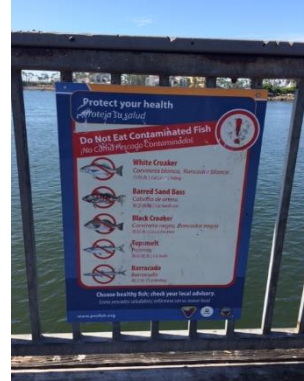
#2



#3

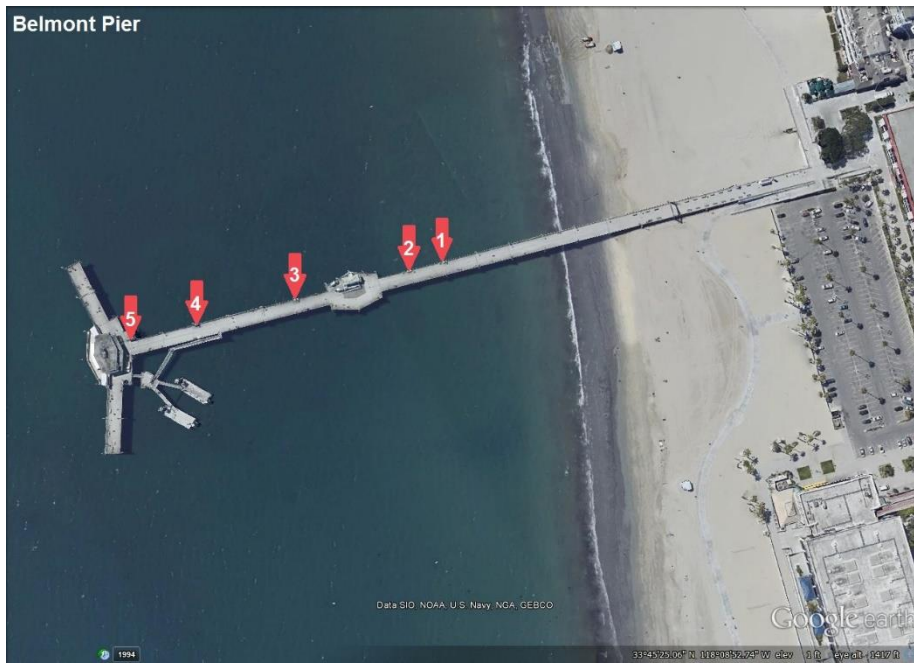


#4



#5

Belmont Pier
Five signs total. No signs need replacement



#1



#2



#3



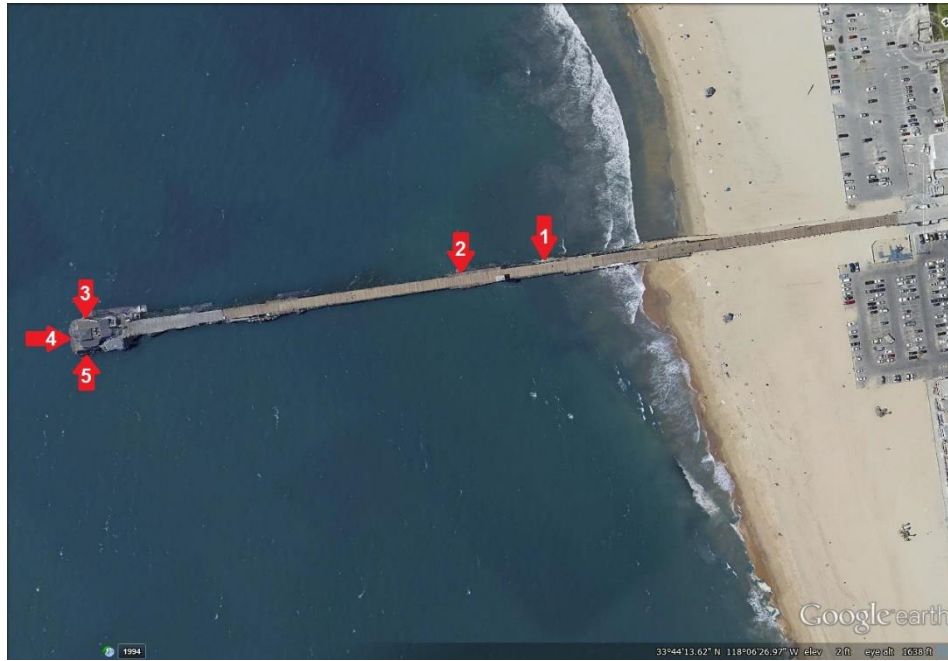
#4



#5

Seal Beach Pier

Five signs. All signs are new and under the jurisdiction of Orange County.



#1



#2



#3



#4

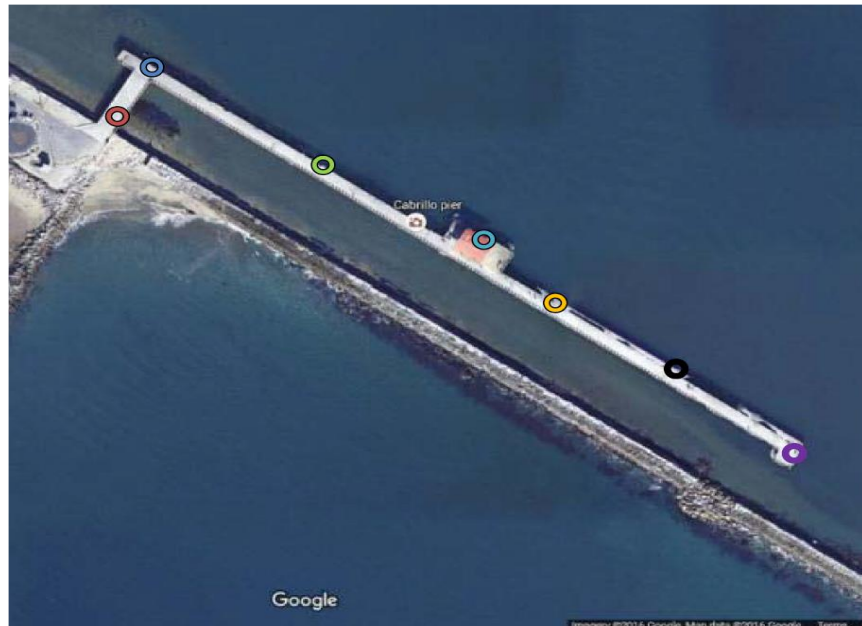


#5

Cabrillo Pier

Eight signs. No signs need replacement.

Seven signs located on the pier (below) are monitored by Cabrillo. The eighth sign is tracked by LACDPH and is located on a lifeguard station, near the parking lot of the pier.



#1



#2



#3



#4



#5

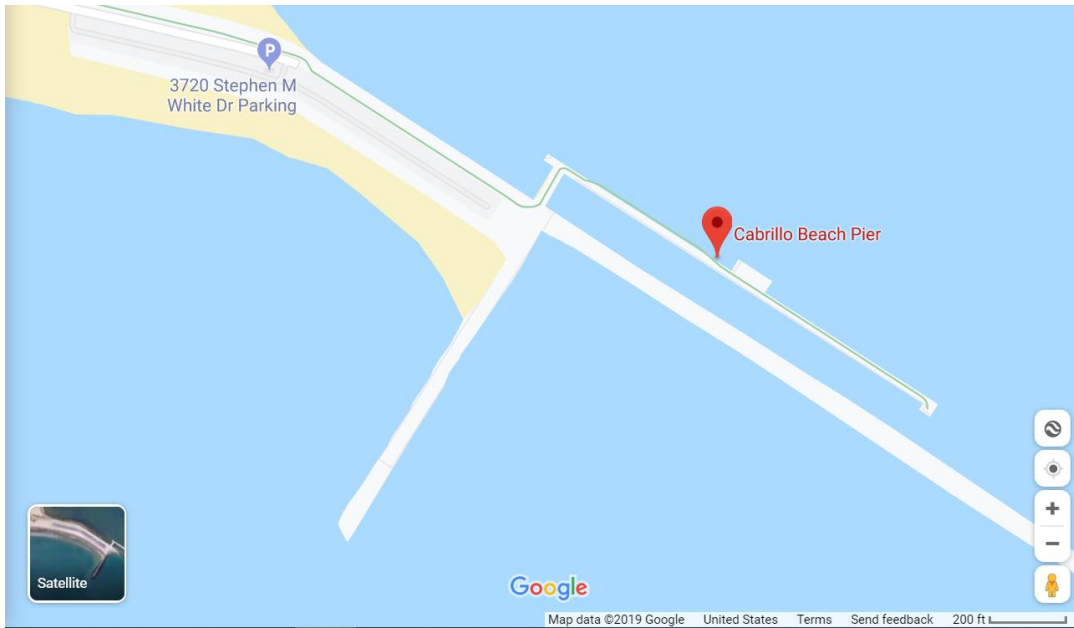


#6



#7

Cabrillo pier parking lot and DNC Fish Sign #8 Location



#8