



**FISH CONTAMINATION EDUCATION COLLABORATIVE**

**Final ENFORCEMENT REPORT**

**February 2015 – July 2016**

**Palos Verdes Shelf Superfund Site**

**Los Angeles County, California**

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**REMEDIAL ACTION CONTRACT 3 FULL SERVICE**

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*Prepared for*

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## EXECUTIVE SUMMARY

The United States Environmental Protection Agency (EPA) created the Fish Contamination Education Collaborative with representatives of federal, state, and local agencies, as well as community-based organizations that carry out various outreach and education activities. Enforcement represents one of the four Institutional Controls implemented to address the sediment contamination at the Palos Verdes Shelf Superfund Site (the Site). Enforcement consists of enforcing existing white croaker regulations for commercial and recreational anglers, along with inspections of retail food facilities and enforcement of market protocol under the California Health and Safety Code. Efforts also include monitoring and enforcing the daily catch limit and the commercial no-take zone for white croaker.

In February 2015, the EPA contracted EA Engineering, Science, and Technology, Inc. (EA) to coordinate with enforcement agencies/inspectors to support enforcement activities and provide outreach materials as needed. Additionally, EA conducted fish identification training to Los Angeles County and City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) inspectors in September 2015. Enforcement inspection data (recreational and commercial) was collected by the California Department of Fish and Wildlife (CDFW) between January 2015 and January 2016. The following tables summarize the results of these inspections.

### *CDFW Recreational Fishing Inspections Overview: January 2015 – January 2016*

<b>CDFW Recreational Inspections</b>	
# of inspections	76
# inspections when fisherman reported they would keep white croaker if they caught it	32
# of inspections: white croaker observed	44
# of white croakers seized	0
# of inspections: barracuda observed	26
# of barracudas seized	0
# of inspections: topsmelt observed	37
# of topsmelt seized	5
# of inspections: barred sand bass observed	13
# of barred sand bass seized	3
# of inspections: black croaker observed	28
# of black croaker seized	0

### *CDFW Commercial Fishing Inspections Overview: March 2015*

<b>CDFW Commercial Inspections (Old Form)</b>	
# of inspections	5
# of white croaker observed	0
# of white croaker seized	0

# of violations reported	0
# of tip cards distributed	0

Based on the inspection data, Do Not Consume (DNC) fish, specifically the white croaker, were not observed during the commercial inspections. This indicates that the commercial fishing industry is aware of the enforcement goals. White croakers were more commonly found among recreational fishermen in approximately 58 percent of the inspections. Other DNC fish were less frequently observed with the exception of topsmelt, which was observed in approximately 69 percent of the inspections. Recreational anglers are mostly aware of fish contamination issues; in both the commercial and recreational inspections, over 70 percent of anglers reported awareness. More anglers reported awareness during piers and boat inspections compared to beach inspections. Intentions to keep white croaker were more often reported during piers and jetties and beach inspections patrols than during boat patrols. In over 40 percent of overall inspections, fishermen reported they would keep white croaker if they caught it, which suggests there may be need for more outreach about the health effects of consuming contaminated fish.

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## **ACRONYMS AND ABBREVIATIONS**

CDFW	California Department of Fish and Wildlife
DNC	Do Not Consume
EA	EA Engineering, Science, and Technology, Inc.
EPA	United States Environmental Protection Agency
FCEC	Fish Contamination Education Collaborative
SGA	S. Groner Associates
Site	Palos Verdes Shelf Superfund Site

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## 1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) created the Fish Contamination Education Collaborative (FCEC) with representatives of federal, state, and local agencies, as well as community-based organizations that carry out various outreach and education activities. Enforcement represents one of the four Institutional Controls implemented to address the sediment contamination at the Palos Verdes Shelf Superfund Site (the Site). Enforcement consists of enforcing existing white croaker regulations for commercial and recreational anglers, along with inspections of retail food facilities and enforcement of market protocol under the California Health and Safety Code. Efforts also include monitoring and enforcing the daily catch limit and the commercial no-take zone for white croaker.

The EPA, Los Angeles County, and Orange County started collecting market data in 2004 to determine whether white croaker caught in and around the Site were reaching local markets. Overtime, anecdotal reports began to suggest that white croaker was no longer being found in the markets. In 2012, EPA's previous contractor, S. Groner Associates (SGA), compiled a report analyzing the data collected between 2008 and June 2011 with the purpose of providing a basic status report and to describe general observations related to white croaker. In May 2013, SGA compiled a report analyzing the data collected between July 2011 and September 2012. Additionally, SGA prepared a report in April 2014 summarizing data collected by California Department of Fish and Wildlife (CDFW) between October 2012 and September 2013 and the data collected through market surveys between September 2012 and September 2013, with the scope of providing observations related to white croaker.

In February 2015, EPA contracted EA Engineering, Science, and Technology, Inc. (EA) to coordinate with enforcement agencies/inspectors to support enforcement activities and provide outreach materials as needed. Additionally, EA conducted fish identification training for Los Angeles County and City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) inspectors in September 2015. The database with the enforcement inspection data was maintained by EPA's contractor, Gilbane. The data was provided to EA prior to preparation of this report. During EA's contract period (February 2015-July 2016), the only enforcement data collected was by CDFW. Therefore, this report covers the CDFW recreational and commercial enforcement inspections.

## 2.0 ENFORCEMENT INSPECTIONS

CDFW staff conducts inspections of in-water commercial and recreational anglers, shoreline recreational anglers, as well as businesses that buy and sell fish commercially. In years past, Los Angeles County Public Health staff conducted market surveys in Los Angeles County; City of Long Beach conducted the surveys of markets and restaurants in Long Beach, and Orange County Health Care Agency, Environmental Health Division conducted the surveys of markets and restaurants in Orange County. Based on the data collected prior to EA's involvement in the project, Orange County determined that white croaker was not being sold in markets and declined to continue involvement in this program. From the data available, the inspections performed by the Los Angeles County have not been performed since December 2011.



Additionally, the inspections conducted by the City of Long Beach have not been performed since June 2014. The recreational and commercial inspections were performed by CDFW between January 2015 and January 2016. The inspections consisted of the following:

- Recreational (shoreline and in-water) fishermen
- Commercial (in-water and wholesale) fishing operations.

The recreational inspections were focused along the Palos Verdes Peninsula shoreline (including areas between Malaga Cove and Long Point, Abalone Cove and Inspiration Point, and Royal Palms and Cabrillo Beach Jetty). CDFW conducts at least one shoreline patrol and one water sport patrol per month. Recreational fishing inspections include inspecting piers, jetties, boats, and beaches. During recreational fishermen inspections, the wardens check bags for illegal fish and size limits and conduct outreach about the dangers of white croaker and other relevant topics. The bag limit for recreational fishermen is 10 white croakers. CDFW wardens fill out one inspection form per fishing mode a day.

CDFW has focused inspections of commercial vessels in the red zone, in particular the areas surrounding the white croaker catch ban off of Palos Verdes and Fish Harbor where a large amount of fishermen dock their boats. CDFW usually performed four commercial and business inspections per quarter and one catch ban patrol per month.

### **3.0 ENFORCEMENT INSPECTION RESULTS**

An analysis of the enforcement inspections was performed to summarize major findings from the inspections. The analysis focused on providing a general descriptive summary (or descriptive statistics) of the inspections. In some cases, there were repeat inspections done at the same sites during the year. As a result some observations were correlated and thus inferential statistics could not be calculated.

#### **3.1 RECREATIONAL FISHING**

The recreational inspection data was collected between January 2015 and January 2016 using one data sheet per inspection mode. Inspection modes included piers and jetties, boat patrol, and beach and intertidal areas. There were 76 inspections conducted between January 2015 and January 2016. Out of those, approximately 42 percent (n=32) were pier and jetties inspections, 30 percent (n=23) were boat patrols, and 28 percent (n=21) were beach and intertidal inspections.

##### **3.1.1 Awareness of Fish Contamination Issues**

At least one angler interviewed reported being aware of the fish contamination issues during 55 out of 76 inspections. This includes 28 out of 33 pier and jetties inspections, 12 out of 24 beach inspections, and 4 out of 23 boat inspections. Additional information is included in the following table.

**Table 1. Reported Awareness of Fish Contamination by Fishing Mode.**

Fishing Mode	Reported Awareness					
	Yes	% by Mode	% All Modes	No	% by Mode	% All Modes
<b>Piers and Jetties</b>	28	84.9%	34.6%	5	15.15%	6.8%
<b>Boat Patrol</b>	15	62.5%	18.5%	9	37.50%	11.1%
<b>Beach and Intertidal</b>	12	50.0%	14.8%	12	50.0%	14.8%
<b>Total</b>	55	100%	67.9%	26	100%	32.1%

Note: Total does not add up to 76 inspections because the data indicate three (3) and one (1) instances where both yes and no were recorded for beach and intertidal and boat patrol inspections, respectively.

### 3.1.2 Intentions to Keep White Croaker

When asked about intentions to keep white croaker if they caught it, at least one angler responded “yes” on 32 of the 76 inspections. Intentions to keep white croaker were more often reported during piers and jetties (16 out of 25) and beach inspections (12 out of 21) than boat patrol inspections (4 out of 23). Additional information is included in the following table.

**Table 2. Intentions to Keep White Croaker.**

Fishing Mode	Would fishermen keep White Croaker if they caught it?					
	Yes	% by Mode	% All Modes	No	% by Mode	% All Modes
<b>Piers and Jetties</b>	16	51.6%	21.33%	15	48.4%	20.0%
<b>Boat Patrol</b>	4	17.4%	5.33%	19	82.6%	25.3%
<b>Beach and Intertidal</b>	12	57.1%	16.00%	9	42.9%	12.0%
<b>Total</b>	32	100%	42.67%	43	100%	57.3%

Note: Total does not add up to 76 inspections because one data entry was left blank.

### 3.1.3 Do Not Consume (DNC) Fish Observed and Seized

#### 3.1.3.1 White Croaker

White croaker was observed in approximately 58 percent (n=44) of the inspections. No white croaker were seized during inspections. White croaker were observed at the following locations: Manhattan Beach, El Porto, El Segundo, Marina Del Rey, Playa Del Rey, Long Beach, Redondo Beach, Palos Verdes, Los Angeles, and on a number of piers.

#### 3.1.3.2 Other DNC fish

Barracuda was observed in approximately 34 percent (n=26) of the inspections. No barracuda were seized during inspections. Barracuda was observed at the following locations: Coastal Manhattan Beach, El Porto, El Segundo, Marina Del Rey, Playa Del Ray, Dockweiler Beach, El Segundo Beach, Long Beach, Long Beach Harbor, Los Angeles and Orange Counties, Santa Monica Bay, Marina Del Rey Jetties, Venice Beach, and Santa Monica, Venice Pier, Santa Monica Pier, and Venice North Jetty, Marina Del Rey Launch Ramp, Venice Beach, Offshore

Los Angeles and Orange Counties, Redondo Beach, Venice Pier, Marina Del Rey Jetties, Manhattan Pier, Hermosa Pier, Redondo Pier, Santa Monica, Marina Del Rey, Playa Del Rey, and El Segundo, and on the Venice pier.

Topsmelt was observed in approximately 49 percent (n=37) of the inspections. There were five topsmelt seizures reported. Topsmelt was observed at the following locations: Coastal Manhattan Beach, El Porto, El Segundo, Marina Del Rey, Playa Del Ray, Dockweiler Beach, Long Beach, Los Angeles Harbor, Offshore Los Angeles/Long Beach, and on the Santa Monica Pier.

Barred sand bass was identified in approximately 53 percent (n=40) of the inspections. No barred sand bass were seized during inspections. Barred sand bass was observed at the following locations: Dockweiler Beach, El Segundo Beach, El Porto, Playa Del Rey, Long Beach, Los Angeles Harbor, Palos Verdes, and on the Santa Monica Pier.

Black croaker was observed in approximately 37 percent (n=28) of the inspections. There were no black croaker seizures reported. Black croaker was observed at the following locations: Manhattan Beach, El Porto, El Segundo, Marina Del Rey, Playa Del Rey, Dockweiler Beach, Long Beach, and Los Angeles Harbor, on the Redondo Pier, and on the Santa Monica Pier.

### **3.1.4 Citations, Warning, and Violations**

At least one fisherman did not adhere to the bag limit in approximately 5 percent of inspections. There were no citations related to white croaker but four warnings were issued. There was a total of 25 warnings and 21 citations for other fish violations issued. Citations and violations were generally not related to the DNC fish and ranged widely including possession of undersized fish and lobster, taking fish from marine protection areas, fishing without a license, use of too many rods, and total possession of fish over the limit.

### **3.1.5 Information Provision**

Tip cards and/or enforcement brochures were distributed during inspections. During the inspections, the materials were provided in English (~68 percent [n=52]), Spanish (~41 percent [n=31]), Chinese (~1 percent [n=1]), and Vietnamese (~8 percent [n=6]). During approximately 18 percent (n=14) of the data sheets indicate that no tip cards were distributed during the inspections.

## **3.2 COMMERCIAL FISHING**

The commercial fishing inspection data was collected on 25 March 2015. The dataset included five inspections conducted at fish businesses.

### **3.2.1 Awareness of Fish Contamination Issues**

In 100 percent (n=5) of the inspections, the entity operator was aware about the white croaker catch ban area. The reported source of information about white croaker catch ban area was the Department of Health and Human Services.

### **3.2.2 White Croaker Identified**

Throughout the collection period, no white croakers were observed. There were no white croakers seized or collected.

### **3.2.3 DNC Fish Observed and For Sale**

There were no DNC fish observed or intended for sale.

### **3.2.4 Violations**

There were no violations reported.

### **3.2.5 Information Provision**

Tip cards were not handed out during any of the inspections.

## **4.0 ENFORCEMENT INSPECTION RESULTS DISCUSSION**

### **4.1 RECREATIONAL FISHING**

At least one angler interviewed stated that they were aware of the fish contamination issues in approximately 68 percent of the recreational inspections. A higher percentage (~35 percent) of angler awareness was reported from inspections performed at piers and jetties in comparison to other fishing modes (i.e., ~19 percent boat patrol, ~15 percent beach and intertidal). Intentions to keep white croaker were also highest in pier and jetties inspections (~21 percent intended to keep) compared to boat patrol (~5 percent) and beach and intertidal (~16 percent) inspections. This indicates that while anglers on piers and jetties are most aware of contamination issues, they are also most likely to keep white croaker. Over 40 percent of inspections indicated that fishermen reported they would keep white croaker if they caught it, which suggests there may be a need for more outreach concerning the health effects of consuming contaminated fish. Approximately 58 percent of inspections reported white croaker, 69 percent of topsmelt, 53 percent of barred sand bass, and 37 percent of black croaker were observed during the inspections.

Data from multiple fishermen are included per inspection which presents potential limitations on the data evaluation. The inspections did not collect information on the fishermen interviewed, therefore it could not be determined whether there is a bias in the data due to the same fishermen being interviewed during each inspection. Alternatively, because the statistics are being

generated for each inspection event rather than for each fishermen interviewed, without a better understanding of the variability in responses per inspection event, there is no way to develop and apply a weighting factor to the response counts for the different fishing modes. Additionally, a selection bias could have occurred if the subset of fishermen were selected for repeated inspections due to a specific reason, which could limit the broader applicability of the results. Another limitation to the datasets is the small sample size. Due to limited sample size, findings generated from the dataset may only apply for the specific sample population, and may not be applicable to the population of the counties.

## **4.2 COMMERCIAL FISHING**

In all inspections (100 percent) the entities indicated they were aware of the white croaker catch ban area. There were no white croakers observed and there were no white croaker violations issued. This suggests that commercial fishing operations were in compliance with white croaker regulations. Due to limited sample size, findings generated from the dataset may only apply for the specific sample population, and may not be applicable to the population of the counties.

## **5.0 FISH IDENTIFICATION TRAINING**

EA facilitated fish identification training for the City of Long Beach and Los Angeles County inspectors on 16 September 2015. During the training, the EPA Remedial Project Manager provided information about the site including the sediment contamination, associated remedy, and the FCEC program. The inspectors were provided instruction on their role including the recreational advisory and catch band, enforcement, embargo, inspection forms, and inspector tools. Additionally, they learned how to identify the white croaker and a fresh fish specimen demonstration was performed by EA subcontractor Dr. Michael Franklin (California State University – Northridge).

## **6.0 CONCLUSIONS**

Enforcement is a key Institutional Control as part of FCEC program. Based on the inspection data, DNC fish, specifically the white croaker, were not observed during the commercial inspections. This indicates that the commercial fishing industry is aware of the enforcement goals. White croakers were more commonly found among recreational fishermen in approximately 58 percent of the inspections. Other DNC fish were less frequently observed with the exception of topsmelt, which was observed in approximately 69 percent of the inspections. Recreational anglers are mostly aware of fish contamination issues; in both the commercial and recreational inspections, over 70 percent of anglers reported awareness. More anglers reported awareness during piers and boat inspections compared to beach inspections. Intentions to keep white croaker were more often reported during piers and jetties and beach inspections patrols than during boat patrols. In over 40 percent of overall inspections fishermen reported they would keep white croaker if they caught it, which suggests there may be need for more outreach concerning the health effects of consuming contaminated fish.