



**FISH CONTAMINATION EDUCATION COLLABORATIVE
ENFORCEMENT REPORT**

August 2020 – July 2021

Palos Verdes Shelf Superfund Site

Los Angeles County, California

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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 Department of Public Health (LACDPH) and City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) inspectors in September 2015, July 2017, and August 2018.

In March 2020, the World Health Organization classified the COVID-19 outbreak as a pandemic. To reduce the impact of the outbreak, closures of non-essential businesses and restrictions on public gatherings were issued by the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention, the State of California, and Los Angeles County. The closures and restrictions were implemented in March 2020 and continued through this reporting period. Therefore, no fish identification training was conducted during this reporting period. Enforcement inspection data collected from markets and restaurants is typically collected by the City of Long Beach and LACDPH. However, during this reporting period, both agencies were involved in COVID-19 pandemic public health activities and neither conducted enforcement inspections. The California Department of Fish and Wildlife (CDFW) continued enforcement inspections during this reporting period.

Recreational and commercial fishing enforcement data was collected by the CDFW between September 2020 and June 2021. A total of 177 recreational inspections were conducted with 4,266 anglers and an average of 24 anglers present per inspection. CDFW also conducted five commercial inspections at one fish market in January 2021 and four restaurants in April 2021. The following tables summarize the results of the CDFW enforcement inspections.

CDFW Recreational Fishing Inspections Overview: September 2020 – July 2021

CDFW Recreational Inspections	
# of inspections	177
# of pier and jetty inspections	74
# of boat patrol inspections	23
# of beach and intertidal inspections	80
# of inspections where at least one fisherman reported awareness of contamination	118
# inspections where at least one fisherman reported that they would keep white croaker if caught	26
# of inspections with white croaker observed	25
# of white croakers seized	75
# of inspections with barracuda observed	2
# of barracudas seized	0
# of inspections with topsmelt observed	13
# of topsmelt seized	0
# of inspections with barred sand bass observed	24
# of barred sand bass seized	2
# of inspections: black croaker observed	0
# of black croaker seized	0

CDFW Commercial Fishing Inspections Overview: January 2021 – April 2021

CDFW Commercial Inspections	
# of inspections	5
# aware of white croaker catch ban area	1
# with intent to catch/buy/sell white croaker	0
# of white croaker observed	0
# of white croaker seized	0
# of violations reported	0
# of informational sheets provided	3

Based on the inspection data, Do Not Consume (DNC) fish, specifically the white croaker, were not observed during the commercial inspection and no commercial inspections revealed intent to catch, buy, or sell white croaker. No other DNC fish were observed during commercial inspections. During the recreational inspections, white croaker (14 percent), barred sand (14 percent), topsmelt (7 percent), and barracuda (1 percent) were observed. At least one angler stated that they were aware of the fish contamination issues during 67 percent of the recreational inspections. This is a 38 percent increase compared to the last reporting period, and up from 55 percent during the reporting period prior to that. Awareness was reported by at least one angler more often during pier and jetty inspections (73 percent, 54 of 74) and beach inspections (69 percent, 55 of 80) compared to boat inspections (39 percent, 9 of 23). Inspections where at least one angler expressed an intention to keep white croaker if they caught it occurred during

15 percent of the total inspections (26 of 177). The intention to keep white croaker was found more often during pier and jetty inspections (16 percent, 12 of 74) and beach inspections (15 percent, 12 of 80) than during boat inspections (9 percent, 2 of 23). This indicates that while anglers on piers and jetties tend to have more awareness of contamination issues, they are also most likely to keep white croaker. The results suggest there may be new anglers on the piers and the need for more outreach about the health effects of consuming contaminated fish.

Tip cards and/or enforcement brochures were distributed during 40 percent of inspections (71 of 177). During the inspections, the materials were also provided in Spanish (16 percent), Chinese (3 percent), and Vietnamese (1 percent). This is a decrease compared to 85 percent materials distributed during the last reporting period. It is also a continued recommendation for CDFW to record the amount of materials distributed in each language during each inspection.

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ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
City of Long Beach	City of Long Beach Department of Health and Human Services, Bureau of Environmental Health
DNC	Do Not Consume
EA	EA Engineering, Science, and Technology, Inc.
EPA	United States Environmental Protection Agency
FCEC	Fish Contamination Education Collaborative
LACDPH	Los Angeles County Department of Public Health
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.

EPA, Los Angeles County Department of Public Health (LACDPH), and Orange County started collecting market data in 2004 to determine whether white croaker caught in and around the Site were reaching local markets. Over time, 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 inspections 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 LACDPH and City of Long Beach Department of Health and Human Services, Bureau of Environmental Health (City of Long Beach) inspectors in September 2015, July 2017, and August 2018. Previous enforcement reports were prepared by EA for the periods between February 2015 and July 2016, February 2016 and July 2017, August 2017 and July 2018, August 2018 and July 2019, and August 2019 and July 2020. The reports included enforcement data collected by CDFW, LACDPH, and the City of Long Beach, when available.

In March 2020, the World Health Organization classified the COVID-19 outbreak as a pandemic. To reduce the impact of the outbreak, closures of non-essential businesses and restrictions on public gatherings were issued by the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention, the State of California, and Los Angeles County. The closures and restrictions were implemented in March 2020 and continued through this reporting period. Enforcement inspection data collected from markets and restaurants is typically collected by the City of Long Beach and LACDPH. However, during this reporting period, both agencies were involved in COVID-19 pandemic public health activities and neither conducted enforcement inspections. The CDFW continued enforcement inspections and the data is summarized in this report for the reporting period.

2.0 ENFORCEMENT INSPECTIONS

CDFW staff conducts inspections of in-water commercial and recreational anglers, and shoreline recreational anglers. In prior years, LACDPH staff has conducted market inspections in Los Angeles County and the City of Long Beach has conducted inspections of markets and restaurants in Long Beach. As previously mentioned, due to COVID-19 business closures and public restrictions, enforcement inspections by LACDPH and the City of Long Beach were not conducted during this reporting period. In the past, the Orange County Health Care Agency, Environmental Health Division conducted the inspections 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 the FCEC program.

CDFW reported recreational fishing inspections between September 2020 and July 2021, and commercial fishing inspections in January 2021 and April 2021. The inspections consisted of the following:

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

CDFW conducted five commercial fishing inspections of one fish market in January 2021 and four restaurants in April 2021. Additionally, 177 recreational inspections were conducted 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). Recreational fishing inspections include inspecting piers, jetties, boats, and beaches. During recreational 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 fishing 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 number of anglers dock their boats.

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 MARKETS AND RESTAURANTS

The City of Long Beach typically targets ethnic restaurants and markets (e.g., Mexican, Chinese, Vietnamese) in the Long Beach area and provides informational brochures and tip cards to each

of the markets and restaurants. Five informational topics are covered during the inspections, including reminders to buy from reputable sources, health effects and at-risk populations, reminders to keep and file all invoices, identification of white croaker and reasons for concern, and locations of catch ban and contaminated zones. However, due to the COVID-19 pandemic, the City of Long Beach did not perform any enforcement inspections at restaurants or fish markets during this reporting period.

As part of the commercial fishing inspections, CDFW inspected five commercial fish markets, as furthered discussed in Section 3.3.

3.2 RECREATIONAL FISHING

Inspection modes included piers and jetties, boat patrol, and beach and intertidal areas. The recreational inspection data was collected between September 2020 and July 2021 using one data sheet per inspection. There were 177 recreational fishing inspections conducted in this time period. Out of those, 42 percent were pier and jetties inspections, 13 percent were boat patrols, and 45 percent were beach and intertidal inspections. A total of 4,266 anglers were reached during the pier and jetties (1,937), boat patrols (555), and beach and intertidal (1,774) recreational inspections. On average, 24 anglers were interviewed per inspection. An average of 26 anglers were interviewed during pier and jetty inspections, 24 were interviewed during boat inspections, and 22 were interviewed during beach inspections.

3.2.1 Awareness of Fish Contamination Issues

At least one angler interviewed reported being aware of the fish contamination issues during 118 out of 177 inspections (67 percent). This includes 54 out of 74 pier and jetties inspections, 55 out of 80 beach inspections, and 9 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	% Yes by Mode	% of Yes All Modes	No	% No by Mode	% of No All Modes
Piers and Jetties	54	73%	45.8%	20	27%	33.9%
Boat Patrol	9	39%	7.6%	14	61%	23.7%
Beach and Intertidal	55	69%	46.6%	25	31%	42.4%
Total	118	67%	-	59	33%	-

3.2.2 Intentions to Keep White Croaker

When asked about intentions to keep white croaker if they caught it, at least one angler responded “yes” on 26 of the 177 inspections (15 percent). Of inspections where at least one angler reported that they were aware of the fish contamination (n=118), 19 percent (n=22) had at least one angler who intended to keep white croaker. Inspections where at least one angler

expressed an intention to keep white croaker occurred during 12 of 74 pier and jetty inspections, 2 of 23 boat inspections, and 12 of 80 beach inspections. 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	% Yes by Mode	% of Yes All Modes	No	% No by Mode	% of No All Modes
Piers and Jetties	12	16%	46.2%	62	84%	41.1%
Boat Patrol	2	9%	7.7%	21	91%	13.9%
Beach and Intertidal	12	15%	46.2%	68	85%	45.0%
Total	26	15%	-	151	85%	-

3.2.3 Do Not Consume Fish Observed and Seized

Approximately 254 white croaker were observed in 25 inspections (14 percent). A total of 75 white croaker were seized. In January 2021, 69 were seized during a pier and jetty inspection, and in March 2021, 6 were seized during a beach inspection. Multiple areas were patrolled during each inspection, and the specific location of white croaker was not recorded. However, the January 2021 inspection was conducted at Cabrillo Beach and the South Shore Launch Ramp; these two locations were also noted in the March 2021 inspection. This suggests that white croaker was likely observed at these two locations. Other recorded locations where white croaker was found included Santa Monica Pier, Marina del Rey Launch Ramp, White Point Beach, Port of Los Angeles, Seal Beach, Cabrillo Beach, Davies Harbor Launch Ramp, Abalone Cove, Pelican Cove, Alamitos Bay, Pier J, Belmont Pier, 72nd Place Jetty, Port of Long Beach, and Port of Los Angeles. Two barracuda were observed at Marina Del Rey Launch Ramp during inspections. No barracuda were seized.

Approximately 76 topsmelt were observed in 13 inspections (7 percent). There were no topsmelt seizures reported. Multiple areas were patrolled during each inspection and the specific location of topsmelt was not specified. Topsmelt was noted most frequently, and/or in larger quantities during patrols of Davies Harbor Launch and South Shore Launch Ramps. Other recorded locations included Cabrillo Beach Boat Ramp, Belmont Pier, 72nd Place Jetty, Marina Bridge, Port of Long Beach, Long Beach Coast, San Pedro, Dockweiler State Beach, El Segundo, Manhattan Beach, Seal Beach Pier, Redondo Beach Pier, King Harbor, and Alamitos Bay.

Approximately 76 barred sand bass were observed in 24 inspections (14 percent). Two barred sand bass were seized during inspections. Multiple areas were patrolled during each inspection and the specific location of barred sand bass was not specified. Barred sand bass was noted most frequently, and/or in larger quantities during patrol of Davies Harbor Launch Ramp, South Shore Launch Ramp, Cabrillo Beach Boat Ramp, Long Beach Coastline, and Palos Verdes. Other

recorded locations included Alamitos Bay, Redondo Beach, Los Angeles Harbor, Seal Beach, Marina Bridge, South Bay, and San Pedro.

No black croaker were observed during inspections.

3.2.4 Citations, Warning, and Violations

There were two bag limit violations among the 177 inspections. There were three citations related to white croaker, and there was a total of 100 warnings and 92 citations for fish violations issued. Most citations and violations were not related to the Do Not Consume (DNC) fish. Common violations included fishing without a license, undersized fish (DNC fish and non-DNC fish), and out of season fishing/lobstering.

3.2.5 Information Provision

Tip cards and/or enforcement brochures were distributed during 71 inspections (40 percent). During the inspections, the materials were sometimes provided in multiple languages. An English language tip card was provided for 40 percent of inspections (n=71). In addition, a Spanish tip card was provided 16 percent of the time (n=28), a Chinese tip card was provided 3 percent of the time (n=6), and a Vietnamese tip card was provided 1 percent of the time (n=2).

3.3 COMMERCIAL FISHING

Commercial fishing inspection data was collected by CDFW in January 2021 and April 2021. One fish market, was inspected in January, and four restaurants were inspected in April.

3.3.1 Awareness of Fish Contamination Issues

Among the commercial fishing inspections, the inspected business reported that they were unaware of contamination during four of the five inspections. During all five inspections, respondents indicated that they had no intention of catching, buying, or selling white croaker.

3.3.2 White Croaker Identified

During commercial inspections, no white croakers were observed, seized, or collected.

3.3.3 Do Not Consume Fish Observed and For Sale

During commercial inspections, there were no other DNC fish observed or intended for sale.

3.3.4 Violations

During commercial inspections, there were no violations reported regarding white croaker.

4.0 ENFORCEMENT INSPECTION RESULTS DISCUSSION

4.1 MARKETS AND RESTAURANTS

Due to the COVID-19 pandemic, the City of Long Beach and LACDPH did not perform restaurant or market inspections during this reporting period.

CDFW performed one fish market and four restaurant inspections during the reporting period. No commercial white croaker violations were found during inspections and all respondents indicated that they had no intention of catching, buying, or selling white croaker. Eighty percent of the respondents reported that they were unaware of the fish contamination. This is a 30 percent increase compared to the City of Long Beach's market and restaurant data in the last reporting period, with health inspectors as the most cited sources of awareness.

During the previous reporting period, awareness had improved over the prior reporting period. However, it was recommended that awareness could be improved by additional and/or more frequent health inspections and continued monitoring and maintenance of the DNC fish signs (reported separately in the Annual Pier Sign Summary Report). In addition, the list of markets and restaurants is periodically evaluated and updated to replace closed businesses, and approval of a replacement business takes time which affects the inspection schedules. High staff turn-over rates may also affect the continuity of knowledge of the fish contamination information. In addition to more frequent health inspections, follow-up outreach to contacts at the markets and restaurants could be considered to facilitate the continuity of knowledge. These recommendations remain in place for when inspections resume.

4.2 RECREATIONAL FISHING

Recreational fishing inspections (177) were greatly increased compared to the previous reporting period (47 inspections). During the last reporting period, inspections were not performed during March through July 2020 due to the COVID-19 pandemic. Inspections resumed in mid-September 2020. Recreational fishing inspections also increased relative to the 2018-2019 reporting period, prior to the COVID-19 pandemic (150 inspections). On average, 12.5 inspections were performed each month during the 2018-2019 reporting period, and an average of 18 inspections were performed each month during this reporting period despite a limited number of inspections being performed during the first four months after inspections resumed.

Inspections reported white croaker in 14 percent of inspections, barracuda in 1 percent, topsmelt in 7 percent, barred sand bass in 14 percent, and black croaker in 0 percent. At least one angler interviewed stated that they were aware of the fish contamination issues in 67 percent of the recreational inspections. This is up from 38 percent during the previous reporting period, and up from 55 percent during the reporting period prior to that. Anglers reported awareness during more piers and jetty inspections (73 percent) and beach inspections (69 percent) compared to boat inspections (39 percent). Inspections where at least one angler expressed an intention to keep white croaker if they caught it occurred during 15 percent of the total inspections (26 of 177). The intention to keep white croaker was found during pier and jetty inspections 16 percent

of the time, during beach inspections 15 percent of the time, and during boat inspections 9 percent of the time. These results indicate that awareness has increased among anglers across all three inspection location types compared to the last two reporting periods. This may be a result of increased enforcement during this reporting period.

Although anglers were more aware of contamination at piers and jetties and beaches, they reported intention to keep white croaker at a higher rate than during boat inspections. The results suggest there may be need for more outreach about the health effects of consuming contaminated fish in the boat inspection areas.

It is a continued recommendation to add a question to CDFW's Recreational Fishing inspection form to gauge the source of awareness of the fish contamination (e.g., DNC fish signs, community-based organizations, media), similar to CDFW's Commercial Inspection form, which asks the source of awareness of the commercial catch ban. This information is useful to evaluate how to better improve what modes of outreach can be performed to increase recreational fishing awareness.

Data from multiple anglers are included for each inspection which presents potential limitations on the data evaluation. The inspections did not collect information on each of the anglers interviewed, therefore it could not be determined whether there is a bias in the data due to repeat anglers being interviewed. Alternatively, because the statistics are being generated for each inspection event rather than for each angler 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. With multiple locations per form, it is unclear where, precisely, DNC fish are being identified most frequently. Additionally, given this reporting format, the actual percent of anglers who are aware of contamination is dramatically skewed upward; if even one angler is aware of contamination (average of 24 anglers interviewed per inspection), data will indicate that all interviewed anglers were aware. 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. To address some of these issues, an improvement to the Recreational Fishing inspections form may include collection of this more detailed data.

Outreach materials in English, Spanish, Vietnamese and/or Chinese were distributed during 40 percent of the inspections. This is down from the prior two inspections periods when materials were distributed in over 85 percent of inspections. It is recommended to increase distribution of materials during the inspections, particularly when inspections find white croaker and/or angler intent of keep white croaker. It is also a continued recommendation for CDFW to record the amount of materials distributed in each language during each inspection.

4.3 COMMERCIAL FISHING

During the commercial fishing the inspections performed by CDFW, there was no white croaker observed, and there were no white croaker violations issued. This suggests that commercial fishing operations were in compliance with white croaker regulations. However, due to a 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. In addition, even though no businesses sold nor intended to sell white croaker, only one of five was aware of contamination. The commercial fishing inspection frequency could be increased to better address awareness. Additionally, the commercial fishing inspection form could benefit from better tracking of the specific location as well as tracking of outreach materials provided in each language (similar to the Recreational Fishing form), to better track demographics.

5.0 FISH IDENTIFICATION TRAINING

The fish identification training for the City of Long Beach and Los Angeles County inspectors was not held during the reporting period due to the COVID-19 pandemic and associated restrictions on public gatherings.

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, was not observed during commercial inspections. However, approximately 254 white croaker were found among fishermen in 14 percent of recreational fishing inspections. This is down from the previous reporting periods (2016-2020) in which white croaker was found in approximately 30 percent of inspections, and 58 percent during the 2015-2016 reporting period. The total number of white croaker found was similar to prior years despite white croaker being found during fewer inspections. This is due in large part to one inspection performed in January 2021 where 109 white croaker were observed and 69 were seized. Other DNC fish were less frequently observed which is also consistent with the previous reporting periods. During this reporting period, awareness of fish contamination increased for recreational fishing inspections conducted by CDFW compared to the last two reporting periods. More anglers reported awareness during piers and jetty inspections and beach inspections compared to boat inspections. However, intentions to keep white croaker were lower among boat inspections. In addition, there were significantly more pier and jetty inspections (n=74) and beach inspections (n=80) compared to boat (n=23) inspections. In 15 percent of recreational inspections, fishermen reported they would keep white croaker if they caught it. This is the much lower than the last reporting period, which had been consistent with previous reporting periods (approximately 30 percent). These results indicate that outreach concerning the health effects of consuming contaminated fish has been successful, but that there is a need for outreach to continue. Commercial inspections were limited during this reporting period. Among five commercial inspections, only one was aware of the fish contamination.

As mentioned previously, COVID-19 pandemic State restrictions on public gatherings were implemented in March 2020 and remained in place throughout the previous reporting period and continued into this reporting period. During much of these reporting periods, only essential businesses (e.g., medical facilities, grocery stores, restaurant food take-out/delivery) were open to the public. Restaurant and market inspections were not performed by LACDPH and City of Long Beach during this reporting period due to continuing restrictions. There remains a need to continue outreach education and enforcement to open markets/restaurants. It is recommended that the enforcement partners resume inspections, to the extent practicable and safe, as restrictions are lifted. Other activities may still be performed without in-person contact such as updating the CDFW inspection forms, updating the list of markets/restaurants to replace closed businesses, scheduling virtual meetings to follow-up on outreach to markets/restaurants, launching virtual fish identification training, and inspecting the DNC fish sign status (reported separately) for visibility to returning pier users. These activities may be performed to continue enforcement and outreach activities during the COVID-19 pandemic restrictions and help to resume and accelerate activities once the restrictions are lifted.

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