Legislative Hearing April 28, 2016
Talking Points

Background

- Domoic acid is a naturally occurring neurotoxin that is related to a "bloom" of a particular single-celled plant called Pseudo-nitzschia. The conditions that support the growth of Pseudo-nitzschia are unpredictable. Shellfish, finfish, and crustaceans are capable of accumulating elevated levels of domoic acid without apparent ill effects. However, when these species are then consumed by humans or some other animals, illness due to domoic acid can occur.

- The 2015/2016 domoic acid event began in late April of 2015 with significant increases in Pseudo-nitzschia at sampling sites in Humboldt, Sonoma, Marin, San Mateo, Santa Cruz, and Monterey counties. The bloom increased in intensity in different areas and the levels of Pseudo-nitzschia remained abundant along much of the coast through August.

- The levels of pseudo-nitzschia in ocean waters had significantly declined by the second week of September and by October were either absent or at background levels for almost all sampling locations. However, domoic acid levels in some species, such as crab, have declined at a much slower pace.

- Our Department issued several advisories in the early summer of 2015 that, in summary, advised the public not to consume recreationally caught mussels and clams, commercial or recreational anchovy, sardines, and crab caught in Monterey, Santa Barbara, or Santa Cruz Counties due to elevated levels of domoic acid. We have been able to lift advisories from various areas and organisms as analytical results of samples show that the domoic acid has been reduced to low or undetectable levels.

- There have been over 1,900 samples collected and analyzed for domoic acid as part of the 2015/2016 event, about four times the number typically analyzed in past years due to the abnormal bloom.

- The action level for domoic acid in the United States for crabs is 30 ppm in the internal organs (viscera) and 20 ppm in the meat.

Sampling and Testing

- Samples from impacted areas are tested at the Department's Food and Drug Laboratory and are analyzed on an "as consumed" basis, giving a more realistic understanding of the actual domoic acid exposure a person may get from consumption. That means the entire crab is cooked and then internal organs (viscera) and meat are separated from the crab for individual testing.

- Our Department routinely tests the crab viscera and will periodically test the meat if high levels of domoic acid are isolated from the viscera.

- This is the first year that we have isolated domoic acid in the crab meat. While we do not have a sufficient amount of data to make absolute conclusions, it appears from the data we have, that the

crabs that have higher levels (80+ ppm) of domoic acid in the viscera, are more likely to have levels of domoic acid exceeding 20 ppm in the meat.

- Our Department has continued coordination with the Department of Fish and Wildlife, to obtain samples of Dungeness and rock crabs from impacted areas.

- Our Department will continue collecting samples on a weekly or bi-weekly basis based on the last set of tests for a particular area, until all areas are open or the season has closed. The data shows that extremely high levels are not likely to decrease in time periods of less than one week, so those areas will be sampled every two weeks until the levels are much closer to the action level.

- Our Department is continuing to test crabs from Mendocino County, Trinidad, Monterey and one area of the Channel Islands.

- Our Department does not continue to collect samples from areas that have been released from the advisory in absence of a current bloom in that geographic area. Ongoing monitoring for increased levels of Pseudo-nitzschia in coastal waters will provide an indication when additional species sampling needs to be increased.

Reviewing our Process

- Throughout the 2015/2016 event, our Department has closely collaborated with our partners at CDFW, OEHHA, Fish and Game Commission (FGC), and the Ocean Protection Counsel (OPC). We have held weekly and bi-weekly calls to coordinate activities, share analytical data, and discuss sampling strategies. The entire process has been very collaborative and decision making has incorporated input from all of the regulatory agencies involved.

- In March of 2016, CDPH and CDFW engaged our counterparts in Oregon and Washington to review the 2015/2016 domoic acid event and cooperatively review how each state had handled the event within their jurisdiction. All three states are utilizing the same pre-season evaluation criteria, sample collection criteria, and reopening criteria. These meetings continue as we explore sample sizes, geographic distribution of samples, sampling frequency, and criteria for consideration of closure of a fishery. We have engaged national experts from the US Food and Drug Administration, Center for Food Safety and Applied Nutrition to provide input on these criteria and our respective protocols.

- Our Department is participating in a Harmful Algal Bloom Task Force along with CDFW, OEHHA, FGC, and OPC. I will defer to Valerie Termini to describe the collaborative activities occurring under this task force.

- In collaboration with OEHHA and CDFW, we plan to reach out to industry stakeholders in the coming months to recap the 2015/2016 event and look for creative solutions and alternatives to full closures during future domoic acid events.

Areas for Improvement

- We plan on refining the public information that is available related to domoic acid and domoic acid testing on our website. Our domoic acid webpage has received more than 85,000 views, with an average of 5 minutes spent at the site per view, since it was stood up on 11/3/2015. It is the 15th

most visited CDPH webpage. We will be updating our Frequently Asked Questions, providing links to additional resources, and evaluating how we present analytical data for future events.

- We are also continuing discussions with CDFW on other mechanisms we can utilize to collect future samples. It is important to ensure that we have confidence in the origin of the samples we receive so that we can rely on the analytical data from those samples to inform our decision making. Consideration on the use of monitors and contract vessels for collection of samples is one of the alternatives currently being discussed.

- In absence of the ability to utilize monitors and contract vessels to collect our own samples, we also need to determine how we can solicit cooperation from the industry in providing samples during domoic acid events. Our Department received great support from the Dungeness and rock crab industry this year, however the fishery was closed so there was no risk of additional regulatory action based on submission of samples. We did not receive this same support from the lobster and shrimp industries, likely due to fear that we might find elevated levels of domoic acid in those species, resulting in a similar closure for those fisheries.

- Thank you for your time and for the invitation to present at the hearing today. We realize that this event has had a significant impact on California's crab industry and want to reaffirm our commitment to continuing to work with our regulatory partners and industry members to provide best level of support and protection to California's food supply. We would be happy to answer any additional questions that you might have.

Additional Info./Reference Bullets if needed during Q&A:

- The sampling protocol utilized to lift an advisory on a closed fishery was adapted from the protocol established by the Washington State Department of Health.

- Symptoms of domoic acid poisoning in people can occur within 30 minutes to 24 hours after eating toxic seafood. In mild cases, symptoms may include vomiting, diarrhea, abdominal cramps, headache and dizziness. These symptoms are similar to what you might expect from a variety of other food-borne pathogens such as Salmonella. In severe cases, the victim may experience trouble breathing, confusion, disorientation, cardiovascular issues, seizures, excessive bronchial secretions, permanent loss of short-term memory (a condition known as Amnesic Shellfish Poisoning), coma or death.

- Since mild illnesses may be difficult to differentiate from other pathogenic causes, and because such a large percentage of the population does not report food-borne illness to health authorities, it is not surprising that we have not received a significant number of illness reports. OUR DEPARTMENT has received several self-diagnosed reports of illness from consumers who consumed crab and OUR DEPARTMENT has referred those individuals to their local public health department and their personal physicians for proper diagnosis and treatment.

- The first outbreak associated with domoic acid occurred in mussels from eastern Canada in 1987. There were several deaths and approximately 200 illnesses. Based on the epidemiological data from that outbreak, the 20 parts per million regulatory standard was developed by the Canadian health authorities. The US Food and Drug Administration and all other countries with commercial shellfish industries have adopted this standard. FDA later added an exception, the 30 ppm limit for crab viscera. These standards are cited in the FDA's Seafood Hazards Guide.

- CDPH issued advisories on June 1, 2015 and June 8, 2015 advising the public not to consume recreationally caught bivalve shellfish, and the internal organs of small finfish and crab caught in Monterey or Santa Cruz County, due to elevated levels of domoic acid.

- CDPH updated its advisory on July 3, 2015 to advise the public not to eat recreationally caught mussels and clams, commercially or recreationally caught anchovy or sardines; or commercially or recreationally caught crab that were caught in Monterey, Santa Cruz, or Santa Barbara Counties, due to elevated levels of domoic acid. The warning was modified to include the meat of small finfish and crabs after domoic acid was detected in the meat above the alert level of 20 ppm.

- Our Department will consider modifying the advisory when two sets of samples (6 crabs per sample) are collected from an area at least seven days apart, are all found below the action level.

- The levels of domoic acid found in rock crabs caught in Santa Barbara prior to the July 3, 2015 advisory, ranged from 7.9 ppm to 260 ppm, with an average level of 96 ppm. 43% of the samples exceeded the action level.

- Our Department modified the advisories several times based on test results received:
    - December 31, 2015 – Dungeness & Rock Crab south of Piedres Blancas Light Station Except for Channel Islands
    - February 11, 2016 – Dungeness Crab South of Point Reyes
    - March 18, 2016 – Dungeness Crab South of the Sonoma / Mendocino County Line
    - March 28, 2016 – Rock Crab - Channel Islands