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To: Dr. Craig Shuman, Marine Region Manager, Department of Fish and Wildlife
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Tom Mason, Marine Sr Environmental Scientist Supervisor, Department of Fish and Wildlife

Fr: Participants of the California Spiny Lobster Commercial Fishery

Dt: August 24, 2016

Re: Proposed management response(s) in the event elevated levels of Domoic Acid are found in Lobster

On Wednesday, August 10, the California Legislature's Joint Committee on Fisheries and Aquaculture held a hearing entitled "Progress Reports on Crab Season, Domoic Acid and Disaster Declaration". At the conclusion of the hearing, a couple of things were very clear:

1. Spiny lobster will be amongst the species tested moving forward;
2. The State's crab fisheries are vastly different from the spiny lobster fishery such that possible management responses for one may not be appropriate for the other; and
3. While not on as grand a scale as last year, there is evidence of localized algal blooms which could give rise to elevated levels of Domoic Acid ("DA") in those areas. Santa Barbara was specifically labelled a potential hot spot for a DA event later this year. One of the slides presented by Dr. Kudela (see below) shows high probability of toxin (which we assume is indicative of a likely DA event) in many areas of the Southern California Bight, most of which are utilized by participants on the Spiny lobster commercial fishery.

It is against this backdrop that participants in the commercial lobster fishery met, on August 19, in order to discuss, amongst other things, the real threat DA poses to the fishery, this year and into the future. The Department of Fish and Wildlife ("DFW") was advised of the meeting and invited to attend. Tom Mason, Marine Sr Environmental Scientist Supervisor - Invertebrate Fishery Management Plan Project, attended and participated on behalf of the DFW. We appreciate the Department's willingness to entertain our comments and consider the proposals contained herein.

The meeting began with a brief overview of DA. A very helpful and informative discussion followed which centered on management implications of possible elevated levels of DA in lobster. Those areas where the

State has limited ability to use discretion were highlighted: (1) the FDA's established action levels of 20 ppm in the meat and 30 ppm in the viscera for Dungeness crab and (2) lobster imported from Mexico for the express purpose of shipping overseas. This started by reviewing the proposed management measures for the State's Crab fisheries. We then discussed differences between the crab and lobster fisheries in terms of scope, coverage, number of permits and markets. This supports our belief that tailoring a response to elevated DA levels in lobster is warranted. Both the fishery and the DFW were given action items as a result of the meeting. The fishery was tasked with developing this document which discusses proposed management responses and provides any additional questions that resulted from the meeting. The DFW was tasked with creating a document which more clearly defines the roles of the DFW, DPH and OEHHA in the process from initial discussions of sampling and collection protocols through implementation of closures. Before we offer our suggested management response, we feel an overview of the proposed management measures for the State's crab fisheries is in order.

PROPOSED MANAGEMENT RESPONSE FOR THE STATE'S CRAB FISHERIES

Last year, the Dungeness crab fishery was fully closed as a result of tests showing DA which exceeded the FDA's action levels for the viscera. This was not a popular decision which, in part, led to the August 10 hearing. Following Agency protocols, once crab in a specific area were below those action levels for two consecutive tests – that area/region was designated safe for opening. Opening of the fishery was staggered and done with input from industry.

After consultation, the DFW, Office of Environmental Health Hazard Assessment ("OEHHA") and Department of Public Health ("DPH") (collectively the "Agencies") are willing to consider allowing "some level of continued fishing operations during domoic acid events, while ensuring the safety of the food supply and the integrity of the industry".¹ In short, the fishery would be allowed to continue under an advisory when the amount of DA in the viscera exceeds the 30 ppm action level AND the amount of DA in the meat is below the 20 ppm threshold.

As a condition to allowing fishing under an advisory, "CDPH registered processors could either eviscerate the Dungeness crab to remove the contaminated portion of the crab or part the crab out to remove the meat from the crab".² This would require the collection of a well-defined paper trail which would track crab from harvest to processing so the DPH can ensure adulterated product doesn't enter the marketplace. The burden of removing the contaminated viscera cannot be passed along to the retailer or consumer. This marks a departure from how advisories have been handled in the past and will be discussed below. If DA levels in the meat exceed 20 ppm, the fishery would close in those areas.

PROPOSED MANAGEMENT RESPONSE FOR THE STATE'S LOBSTER FISHERY:

The fishery supports measures that will protect the public health while at the same time not overly constrain the fishery. We believe the proposals outlined below will accomplish both of the goals.

¹ See Page 3 of Memorandum dated August 5, 2016 to California Dungeness Crab Fishery from DPH, DFW and OEHHA (available at http://fisheries.legislature.ca.gov/sites/fisheries.legislature.ca.gov/files/u8/2016-8-5%20FinalDungenessCrab_DomoicAcidMemo_CDPH-CDFW.pdf – last accessed 8/22/2016)

² *Ibid*

Background:

Before outlining the particulars of a proposed management response, we feel a brief background may be helpful. In the past, when DA levels of 30ppm or greater were detected in the viscera of lobster, the DPH issued advisories instructing the public to not consume the viscera or other internal organs³. These advisories did not result in the disruption of the commercial fishery and there is no evidence anyone was seriously impacted from eating lobster. We asked buyers if they had any reports, from overseas, of illness directly related to consumption of California lobster during those time frames; and again the answer was no. Oregon and Washington both allowed their Dungeness crab fisheries to continue in 2015/16 under an advisory. Again there was no evidence of any adverse health effects⁴.

It is also important to note that consumption of spiny lobsters and crabs from a consumer standpoint is vastly different. While it is common practice for parts of the viscera of crabs to be eaten, such is not the case with lobster. Even if cooked whole, the viscera is generally regarded as inedible and discarded. In foreign markets, the lobster is typically eviscerated and cleaned prior to cooking. Eviscerating the lobster prior to putting it on the market thus makes little sense. You take a valuable live product, process it, and then sell it at a lower price, if you can find a market for it. We are turning it into the opposite of a value-added product. We should note that China do their own testing of seafood products entering their country. They imposed an import ban on certain species of crab from certain parts of the world due to elevated levels of Cadmium. As with DA acid, high concentrations are found in the carapace. Some people do eat that part of the crab, sometimes referred to as dark meat or crab butter. We cannot say for certain that China tests our lobsters for DA, but it is fair to say that algae blooms is not an isolated event restricted to our fishery

Interpretation of “Adulterated”

In their August 5 memorandum to the California Dungeness Crab Industry, the Agencies appear to add conditions to advisories that were not associated with past advisories. On page 3 of that memorandum they state, “When an advisory is in place, the sale of live crab or whole crab caught in an advisory area would constitute the sale of adulterated products and be a violation of federal and state law, even if the area under an advisory was open to fishing.” We point out that there is no evidence that levels of 30 ppm DA in viscera of crustaceans causes any adverse human health effects and thus the definition of “adulterated” below is not clearly applicable to crustacean viscera that exceeds the FDA action level.

³ October 28, 2010 - <http://www.cdph.ca.gov/Pages/NR10-077.aspx>
October 27, 2011 - <http://www.cdph.ca.gov/Pages/NR11-048.aspx> (continuing health advisory)
August 20, 2012 - <http://www.cdph.ca.gov/Pages/NR12-043.aspx>
October 10, 2014 - <http://www.cdph.ca.gov/Pages/NR-083.aspx>

⁴ “In recent years, monitoring has identified domoic acid at unsafe levels in razor clams and Dungeness crab from Washington’s coast, as well as its presence in clams, mussels, and oysters. No cases [of Domoic Acid shellfish poisoning] have been confirmed since 1991, which may reflect testing and closures of risk areas.” Washington State Department of Health *Shellfish Poisoning: Paralytic, Domoic Acid, or Diarrhetic* last updated March 2016. Available at <http://www.doh.wa.gov/Portals/1/Documents/5100/420-077-Guideline-ShellfishPoisoning.pdf>; last accessed 8/22/16

“Adulterated”, as it pertains to food, is defined in 21 USC §342(a)(1)⁵, in part, as follows:

A food shall be deemed to be adulterated—

(a) Poisonous, insanitary, etc., ingredients

(1) If it bears or contains any poisonous or deleterious substance which may render it injurious to health; but **in case the substance is not an added substance such food shall not be considered adulterated under this clause if the quantity of such substance in such food does not ordinarily render it injurious to health.** (emphasis added)

It is the second part of this clause which would apply to DA as it is not an added substance. Lobster (or crab) would not be “adulterated” if the quantity of DA in such lobster (or crab) does not ordinarily render it injurious to health. As previously mentioned, the lobster fishery had advisories issued in 2010, 2011, 2012 and 2014 – during which time the commercial fishery was allowed to operate without interruption; and, to the best of our knowledge, no one experienced any DA related illnesses. That would clearly support the proposition that 30 ppm in the viscera of lobster does not ordinarily render it injurious to health, especially when one considers how lobster is typically consumed. Therefore, lobster taken under an advisory would not be adulterated – and allowing them to entering commerce would not be a violation of Federal or State law.

Proposal:

In short, we propose a three-pronged management response:

1. If the viscera tests above 30 ppm AND the meat is below 20 ppm, the fishery operates under an advisory.
2. If the viscera tests above 200 ppm, the DPH will be obligated to test the meat. This does not impact the ability of DPH to elect to test the meat; but makes it mandatory under those conditions.
3. If the meat tests above 20 ppm, we agree it is prudent to implement a closure – the size and scope of which will be dependent on a number of factors after consultation with the commercial and recreational fisheries.

Advisory

If levels of 30 ppm or greater are detected in lobster viscera an advisory should be issued, as in the past. Our fishery is ready to step up and assist ongoing efforts to educate the public, with a special focus to educate groups of consumers more likely to eat the lobster viscera. Prior advisories didn’t require evisceration of the product and we would ask that future advisories follow the examples of the past. Because 30 ppm in the viscera is an amount that does not **ordinarily render lobster injurious to health**, it would not require the lobster to be labelled an adulterated product under federal law (see above). This would allow the fishery to continue to operate as normal.

We feel it is important to point out that requiring evisceration would, in effect, destroy the markets which have been developed for California lobster. So while not technically a closure,

⁵ <https://www.law.cornell.edu/uscode/text/21/342>

requiring evisceration could be the functional equivalent of one. It is a valuable product on the global market based on its ability to be shipped overseas in a live state. We firmly believe that there are ways to avoid unnecessary disruptions of supply while keeping consumers safe.

Mandatory testing

If lobsters from a specific area are found to have levels over 200 ppm in the viscera, then testing the meat would be required. Prior testing results for crab suggest that DA levels found in the meat are estimated to be approximately 10% of viscera levels. We envision this being a temporary requirement which would be used to better inform management responses in the future. A statistically significant correlation between DA in the viscera and DA in the meat could streamline testing in the future. If, for example, this testing shows the 10% ratio to be valid; then we would have confidence that meat in the lobster would be below the 20 ppm threshold until DA levels in the viscera approached that 200 ppm level.

This only establishes a mandatory testing requirement; it in no way impacts the ability of the Agencies to elect to test the meat of lobsters with levels below 200 ppm in the viscera.

Closure

While we have serious questions as to the validity of the 20 ppm threshold, we are willing to accept (for management purposes only and subject to change if future research suggests a different level) that such levels in the meat would ordinarily render lobster injurious to health, and thus fall within the statutory definition of adulterated. If those tests show levels of DA in the meat of 20 ppm or greater, the fishery should be closed in that area until further testing indicates acceptable levels below 20 ppm.

If practicable, and as quickly as possible to safeguard the consuming public's health, the scale of any possible closure should be made in consultation with the lobster fishery before implementation.

We expect that the recreational lobster fishery would be involved in these discussions and would support closures that safeguard the public's health by eliminating the possibility of recreational fishermen consuming adulterated lobster.

ADDITIONAL QUESTIONS:

This is not an exhaustive list of questions. It is probable that additional questions will arise as we draw closer to the opening of the commercial fishery.

1. *Considering the commercial fishery opens on October 5, are there plans in place to do any testing before the season opens?* This is of great concern to fishermen and buyers. Fishermen, who have been spending funds in anticipation of upcoming season, fear the uncertainty of possible closures and/or elimination of markets. Buyers fear being stuck with inventory they have paid for are unable to move because of testing that doesn't take place until after the opening of the commercial fishery. The worse-case scenario would involve buyers being stuck with inventory that they are unable to sell because a test made after the purchase results in a closure of the fishery in an area

where the lobster was caught. These previously purchased lobsters could then be considered adulterated and have to be eviscerated and sold at price much less than what they paid for.

2. *Is there a plan in place, or in development, for testing of lobster?* We are curious about the details and would be willing to consult with the Agencies in developing this plan and how to best execute collection of samples. Will testing be done in areas which are off-limits to commercial fishermen – Harbors, Santa Monica Bay and the front-side of Catalina Island?
3. *Are there any thoughts about including the lobster fishery in ongoing discussions regarding DA and the State's crab fisheries?* While the fisheries are similar, they are different in key ways. We can appreciate the desire of the Agencies to seek a one-size fits all response; and our interpretation of “adulterated” could be an avenue to develop such a response. We would appreciate the ability to participate and inform in future discussions centered on DA and testing protocols, sampling methods, potential management responses, etc.
4. *Are there any plans to utilize the offer from Apex Seafoods to use one of their live tanks to test the amount of time it takes for a lobster (or crab) to purge the DA and make it safe for sale?* Under proper conditions, lobster can be kept alive for extended periods of time. Getting a handle on how long it takes for DA to dissipate, could allow buyers to hold on to product for a specific amount of time in order for it to drop below levels of DA deemed to be dangerous to the public. There is anecdotal information, which we hope to validate, that DA may clear from a lobster in as little as 24 – 48 hours. Given proper controls and chain of custody protocols, this could (in the future) eliminate the need for commercial fishery closures based on unsafe levels of DA.

Please consider our proposals in the spirit of sincere concern and hope for future collaboration in which they are presented.

CC: Peter Kalvass, Department of Fish and Wildlife
Christy Juhasz, Department of Fish and Wildlife