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HON. HUMERLITO A. DOLOR
Governor
Province of Oriental Mindoro

Dear. Governor Dolor,

This is in response to your letter dated April 29, 2023 seeking an expert opinion and professional advice about the fishing ban in Oriental Mindoro due to the sinking of MT Princess Empress.

I have a total of eight years of education and training in Japan, where I completed my M.S. and Ph.D. and couple of years of postdoctoral fellowship in Tohoku University, where I worked on the different aspects of oil pollution. I also have more than 7 years of postdoctoral training and fellowship at the University of Texas at Austin Marine Science Institute and Texas A&M University in the United States, where I was involved in the different aspects of the Deepwater Horizon Oil spill, the biggest accidental spill in the history of petroleum industry where more than 800 million liters of light oil was released into the Gulf of Mexico.

As the lead expert of the DOST-NRCP to Oriental Mindoro oil spill, I have been involved in various capacities since the last week of March. I visited the oil spill site offshore twice and have conducted coastline survey several times in the coast of Pola, Naujan and Calapan with the Philippine Coast Guard and other government agencies. I also attended high level meetings in Manila. I am somewhat familiar with the situation on the ground and the current clean-up and spill response activities. My opinion is based on several years of overseas research experience, my discussion with other oil spill experts and my interpretation of the data from BFAR.

On March 31, 2023 during my courtesy visit to Incident Commander Commodore Geronimo Tuvilla, I also had a chance to meet the NOAA Science Support Coordinator from the United States, Ruth Yender and Jordan Stout. One of our major topics of discussion that day was the fishing ban in the area. The three of us were in good agreement that the fish are safe to consume after the spill. And that is mainly based on the massive research in the USA following the Deepwater Oil Spill authored by Ylitalo et al. (2012) of NOAA published in the prestigious Proceeding of the National Academy of Science of the United States (PNAS). In that study, scientists and regulators from federal and state agencies worked together to develop a seafood sampling plan and analytical protocols to determine whether seafood was safe to eat and acceptable for sale in the marketplace in response to the 2010 DWH oil spill. Approved methods for sensory testing and chemical analyses were used to detect polycyclic aromatic hydrocarbons (PAHs) in more than 8,000 seafood specimens collected in federal waters of the Gulf. Overall, individual polycyclic aromatic hydrocarbons (PAHs) were found in low concentrations or below the limits of quantitation. When detected, the concentrations were at least two orders of magnitude lower than the level of concern for human health risk. The bottom-line conclusion indicated that essentially no human health risk from consuming fin fish from the spill area. And that is consistent with the result from

several other major oil spills in the U.S. PAHs were also way below the level of concern in fish samples following several oil spills in many countries (Magalhaes et al., 2022; Al-Yakoob et al., 1993). Almost none of the fish samples collected after these spills exceeded the established advisory or action levels as a result of contamination from the oil spill, indicating oil spills rarely pose a threat to human health through consumption of petroleum-contaminated fish.

It has been well established in the scientific literature that all teleost or bony fishes have a well-developed capacity to metabolize and eliminate PAHs and other oil constituents such as aliphatic hydrocarbons (Stein 2010). Because of this efficient metabolism by the fish, there is a very low potential for PAHs to accumulate in muscle and consequently a low potential for transfer of PAHs up the food chain to human consumers. Also, the fish are also known to avoid polluted waters. However, bivalves (e.g., oysters and clams) have a lower capacity to metabolize PAHs, whereas crustaceans such as shrimp have an intermediate metabolic capacity (Yender et al., 2002).

The recent results from seafood samples from different areas in the coast of Oriental Mindoro collected and analyzed by BRAF support these literatures that PAHs in fish species following an oil spill are low. In fact, not a single fish sample exceeded the PAHs level of concern from the three consecutive sampling conducted by BFAR in various areas in the coast of Oriental Mindoro. This is consistent with my notion and with the NOAA experts more than a month ago. We think that fishing ban is unnecessary in several parts of Oriental Mindoro. However, since the sunken vessel still continues leaking and there is still oil on the water surface near the spill site, fishermen would need to be careful not to pull fishing gear or catch through oil near the site (within 10-15 km radius from the site). Since shellfish and crustaceans, may more readily take up and retain oil hydrocarbons and so may pose some temporary risk, harvesting and consumption of these organism in the entire Province of Oriental Mindoro needs to be further supported with additional field data.

In the established procedure of NOAA, there is a high degree of correlation between results of sensory and chemical analysis. And they recommend that sensory evaluation must be conducted rather than the more expensive and time-consuming detailed chemical/gas chromatography-mass spectrometry (GC/MS) testing. Thus, a massive evaluation of fish individuals based on sensory analysis would be another crucial evidence to support the decision of lifting the fishing ban in several areas. A general guidance often issued in the U.S. after oil spills is that: if the fish smell okay and taste okay (no petroleum taint), they are safe to eat .

Respectfully yours,

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