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Mr. Ryan Bartling
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Feedback on California Department of Fish and Wildlife Integrated Risk Assessment and Mitigation Program (RAMP) Proposal

Dear Mr. Bartling -

The Natural Resources Defense Council (NRDC) fights to ensure the rights of all people to the air, the water, and the wild. On behalf of our more than three million members and online activists, we work extensively to protect marine mammals, including, advocating for endangered and threatened species, curbing harmful noise pollution, and imposing sensible limits on industry practices that harm marine life. We submit these brief comments on features of the proposed Risk Assessment and Mitigation Program (RAMP) that were discussed during the Working Group meeting on September 4-5, 2019.

Entanglements off the West Coast have increased markedly over the past six years[1] and, concerningly, have included endangered and threatened humpback whales, endangered blue whales, protected gray whales, and endangered Pacific leatherback sea turtles. In addition to serious injuries and mortalities, entanglements also cause a range of sub-lethal effects, including reduced health, impaired reproductive output, and weight loss, all of which contribute insidiously to long-term population decline.[2] The combination of direct and sub-lethal effects of entanglement is currently driving the critically endangered North Atlantic right whale to extinction on the U.S. East Coast.[3] It is therefore imperative that strong and effective measures to reduce the risk of entanglement be taken immediately to prevent West Coast species from following a similar trajectory.

[1] *See* NOAA FISHERIES, *2017 West Coast Entanglement Summary, Figure 1* (May 2018), https://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/5.2.2018_wcr_2018_entanglement_report_508.pdf
[2] *van der Hoop, J.*, et. al., "Entanglement is a costly life-history stage in large whales," *Ecology and Evolution*, vol. 7, pp. 92-106
[2] *van der Hoop, J.*, et. al., "Entanglement is a costly life-history stage in large whales," *Ecology and Evolution*, vol. 7, pp. 92-106 (2017).
[3] *See* Rolland, R.M., *et. al.*, "Health of North Atlantic right whales *Eubalena glacialis* over three decades: from individual health to demographic and population health trends," *Marine Ecology Progress Series*, vol. 542, pp. 265-282 (2016); Sharp, S.M, *et al*., "Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis*, mortalities between 2003 and 2018," *Diseases of Aquatic Organisms*, Vol. 135, pp. 1-31 (2019).

Ropeless Gear Criteria. We understand that CDFW is developing regulations setting forth the certification criteria for "ropeless" gear that may be used during the fishing closures beginning in April 2021. We urge CDFW to utilize criteria that allow deployment of a range of ropeless fishing systems, while discouraging the use of ineffective alternate gear systems.

Because entanglements are primarily caused by fixed gear fisheries, and specifically the vertical endlines used to mark the location of gear *via* a surface buoy, it is essential to develop ropeless alternatives to entirely remove these vertical lines from the water and effectively eliminate almost all risk of entanglement. There are various types of ropeless gear systems available and, as their relative effectiveness will be determined by further use in the field, we believe certification criteria should permit utilization of a range of ropeless systems. We also believe it is important for CDFW, in partnership with other state entities like the Ocean Protection Council, to support additional ropeless gear field trials as soon as possible, in order to enable the continued and timely refinement of ropeless systems, and provide ongoing opportunities for fisherfolk and other stakeholders to provide input.

To maximize the value of forthcoming ropeless gear field trials, we recommend CDFW: focus on practical modifications to existing ropeless gear recovery systems to improve efficiency and reduce costs for fishermen (*e.g.*, improving efficiency of deployment, engineering adjustments to improve compatibility with specific fishing vessels, assessing other potential economic benefits such as gear loss reduction, etc.); establish adequate sample size and replication to ensure that the results of the project can be interpreted in a meaningful way; and undertake the trial within a large-scale demonstration area involving multiple fishermen and enforcement staff to best inform future regulations and technology development. Development of solutions to track and share the location of ropeless fishing systems to prevent potential gear conflicts among fishermen and enable enforcement (*i.e.*, developing electronic tracking systems that allow for gear detection and protect sensitive business information) is also critical.

We also wish to express our serious concerns over the level of interest and investment in certain other gear modification approaches, particularly "reduced breaking-strength" rope and "weak links." The presumed effectiveness of reduced breaking-strength rope is largely theoretical,[4] beyond which there is little demonstrated evidence to suggest that these modifications will be effective in reducing serious injury and mortality, the incidence of entanglement, or sub-lethal effects. Moreover, theory suggests that reduced breaking-strength rope will not benefit calves or juveniles, and that certain species, including humpback whales, may require a weaker breaking strength that may not be feasible for certain fisheries off the West Coast to adopt. There is also no way to meaningfully demonstrate the success of these types of gear modifications, if any, without years of data compilation that the urgency of the situation cannot support. Previous

[4] Knowlton, A.R., et al."Effects of fishing rope strength on the severity of large whale entanglements," *Conservation Biology*, vol. 30, pp. 318-328 (2016).

management measures to reduce entanglements of large whales along the eastern seaboard have required weak links between the top of the vertical endline and the surface buoy system of pot and gillnet gear and between gillnet panels. Evidence indicates that these and other measures have not reduced either the incidence or severity of entanglements.[5]

We are also concerned about the potential use of acoustic deterrent devices (ADDs), or "pingers," as a means of preventing entanglements. First, the fundamental lack of audiograms for baleen whales means that tailoring an ADD to specifically target these species is highly problematic. Second, the response of marine mammals—both large whales and small cetaceans—to ADDs appears to be highly variable depending on species, migration direction, and social category.[6] In some instances, levels of bycatch remained high close to active ADDs suggested that ADDs may attract marine mammals towards nets in certain contexts.[7] Third, we have very little understanding of hearing in sea turtles, meaning that ADDs are not a comprehensive solution to reducing the risk of entanglement for all endangered species. Finally, a burgeoning body of scientific evidence indicates that introduction of anthropogenic noise into the marine environment has a range of negative effects on marine life, from zooplankton to blue whales.[8] In light of the number of open questions about the effectiveness of such technology in preventing entanglements, as well as the potential for the technology to cause long-term harm to marine life, we do not believe they should be among the types of gear modifications authorized for use.

Given the lack of demonstrated effectiveness and uncertainties associated with reduced breaking-strength rope, weak links, ADDs, and similar gear modifications, we instead strongly recommend that resources be directed to measures most likely to be effective in guaranteeing a significant reduction in entanglement, such as vertical line reduction, fishing-area closures, and ropeless fishing systems.

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[5] *E.g.*, "A whale entangled in gear with attached bullet buoys (EgNEFL1235 / 4193) had weak links present near the base of the buoys, neither of which separated as designed." Sharp, S.M., *et al*., "Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis*, mortalities between 2003 and 2018," *supra*. See, also, Pace RM III, et al., "Incremental fishing gear modifications fail to significantly reduce large whale serious injury rates," Endangered Species Research, vol. 26, pp. 115−126 (2014);

[6] Hamilton, S. and Baker, G.B., "Technical mitigation to reduce marine mammal bycatch and entanglement in commercial fishing gear: lessons learnt and future directions," *Reviews in Fish Biology and Fisheries* (February 2019); *Evaluating and Assessing the Relative Effectiveness of Acoustic Deterrent Devices and other Non-Lethal Measures on Marine Mammals* (Oct. 28, 2014); https://www.gov.scot/publications/evaluating-assessing-relative-effectiveness-acoustic-deterrent-devices-non-lethal-measures/pages/1/.

[7] *See*, *e.g.*, Erbe, C., Wintner, S., Dudley, S.F.J., and Plon, S., "Revisiting acoustic deterrence devices: Long-term by-catch data from South Africa's bather protection nets," Proceedings of Meetings on Acoustics, vol. 27, 010025 (2016).

[8] *See*, *e.g.*, L. Weilgart, "The Impacts of Anthropogenic Ocean Noise on Cetaceans and Implications for Management," Canadian Journal of Zoology 85, no. 11 (2007): 1091-1116; L. Weilgart, "The Impact of Ocean Noise Pollution on Fish and Invertebrates," OceanCare and Dalhousie University, May 1, 2018, https://www.oceancare.org/wpcontent/uploads/2017/10/OceanNoise_FishInvertebrates_May2018.pdf.

Take Limit Triggering Management Measures. We understand that CDFW is considering using a multi-year average for the take limit triggering additional management actions, rather than a yearly take limit. We recommend CDFW utilize a specific number for its yearly take limit.

Under the Endangered Species Act (ESA), "the permissible level of take ideally should be expressed as a specific number." *Oregon Natural Resources Council v. Allen,* 476 F. 3d 1031, 1037 (9th Cir. 2012). Departure from this requirement may be justified where an agency can "establish that no such numerical value could be practically obtained." *Allen*, 476 F.3d at 1037.

Here, given the data currently available on whale populations and yearly entanglements, CDFW has the ability to specify a yearly take limit. CDFW has not shown that an absence of data requires a multi-year average.

We appreciate your consideration of these comments, and should you require any additional information, please do not hesitate to contact me with the information below.

Sincerely,

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