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Re: Topical Workshop 5: Advancing 30x30: Conservation of Coastal Waters

Dear Mr. Crowfoot, Ms. Norris, and Mr. Gold,

On behalf of our eight organizations that represent millions of Californians who love and depend on the ocean, we thank the Newsom Administration for its leadership in pledging to conserve at least 30 percent of California's coastal waters by 2030 (30x30), and for initiating an inclusive public discourse surrounding 30x30 implementation. We appreciate the Coastal Waters Advisory Panel's thoughtful report that details ambitious conservation actions to protect California's spectacular ocean and coastal biodiversity. Given the urgency of the climate and biodiversity crises, we support the Administration's rapid and sustained actions to achieve the 30x30 goal.

The California Natural Resources Agency (CNRA) requested public input in response to the six questions the agency posed to the Coastal Waters Advisory Panel. Our organizations are pleased to share the following responses.

1. What are the biggest threats to coastal and marine biodiversity in California?

Climate change and biodiversity loss are two of the most pressing challenges facing society. The impacts of these dual crises are transforming ocean habitats and wildlife, and are interfering with the crucial role they play for humanity, from stabilizing our climate to protecting coastal communities to providing food for billions of people.

California's ocean and coastal areas are not spared the effects of these stressors. Loss of vulnerable habitat and wildlife along California's coast and offshore waters mirror regional and global trends. There are roughly 30 species of threatened and endangered animals found in California's ocean ecosystems, including iconic species such as the California sea otter, blue, fin, and humpback whales, white and black

abalone, chinook salmon, and marbled murrelets.¹ Approximately 90 percent of California’s tidal marshes have been lost from fill and water diversion;² 90 percent of historic eelgrass beds have disappeared in the past 75 years.³ Beaches close to urban centers that have been replenished, groomed, or armored are some of the most disrupted natural ecosystems of any in California.⁴ For decades, California’s kelp forests – which support close to a 1000 species – were severely depleted by overfishing.⁵ In recent years, they have suffered declines and dramatic ecological shifts as a result of marine heat waves and sea star wasting syndrome, leading to the disappearance of sea stars, which serve as a keystone predator.⁶

A spatial assessment of human impacts on the California Current Ecosystem in 2008 showed that the California seascape is crowded with intensive human use.⁷ By mapping 25 human impacts across the region, researchers demonstrated that most areas in California’s waters are experiencing greater than ten stressors. Dense population centers along the coast utilize California’s rich ocean resources for a myriad of activities, from commercial and recreational fishing and ecotourism, to military activities, water desalination, and shipping. While climate change impacts were the most pervasive, fishing and land-based stressors played a larger role in the overall cumulative impact scores as compared to ocean-based activities.⁸ While there has not been a recent update of human pressures in the California Current Ecosystem, there are clear trends of increased ocean use globally.⁹

For decades, commercial and recreational fishermen have harvested approximately 350 species from California’s productive waters.¹⁰ In 1998, the state prioritized the long-term sustainability of its ocean ecosystems by passing the Marine Life Management Act (MLMA). Spurred by decades of overfishing that, over time, had significantly impacted fish abundance, marine wildlife, and benthic habitat, the MLMA was an important turning point in the direction of the state’s marine fisheries management. However, implementation of this landmark legislation has been hampered by restricted financial resources and staffing. Limited investment in monitoring and enforcement has made it difficult to track the status of the fisheries and fishers’ compliance with the law.¹¹ Given current levels of monitoring, the

¹ California Department of Fish and Wildlife Biogeographic Data Branch, “[State and Federally Listed Endangered and Threatened Animals Of California](https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline)”, California Department of Fish and Wildlife, accessed August 19, 2021, <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline>.

² Harold Mooney and Erika Zavaleta, “*Ecosystems of California: Threats & Responses Supplement for Decision-Making*,” (California: University of California Press 2016), <http://calnat.ucanr.edu/files/263126.pdf>

³ National Park Service, “Seagrass Beds”, accessed August 19, 2021, <https://www.nps.gov/chis/learn/nature/seagrass-beds.htm>.

⁴ Ibid.

⁵ M. J. Tegner, P. K. Dayton, Ecosystem effects of fishing in kelp forest communities, *ICES Journal of Marine Science* 57, no. 3 (June 2000): 579–589, <https://doi.org/10.1006/jmsc.2000.0715>.

⁶ Meredith McPherson et al., “Large-scale shift in the structure of a kelp forest ecosystem co-occurs with an epizootic and marine heatwave,” *Communications Biology* 4, no. 298 (March 2021): 1-9, [10.1038/s42003-021-01827-6](https://doi.org/10.1038/s42003-021-01827-6).

⁷ Benjamin Halpern et al., “Mapping cumulative human impacts to California Current marine ecosystems.” *Conservation letters* 2, no. 3 (2009): 138-148, <https://doi.org/10.1111/j.1755-263X.2009.00058.x>.

⁸ Ibid.

⁹ Benjamin Halpern et al., “Recent pace of change in human impact on the world’s ocean.” *Scientific reports* 9, no. 1 (2019): 1-8, <https://www.nature.com/articles/s41598-019-47201-9>.

¹⁰ Chavez, F. P. *, Costello, C. *, Aseltine-Neilson, D., Doremus, H., Field, J. C., Gaines, S. D., Hall-Arber, M., Mantua, N. J., McCovey, B., Pomeroy, C., Sievanen, L., Sydeman, W., and Wheeler, S. A. (California Ocean Protection Council Science Advisory Team Working Group). 2017. *Readying California Fisheries for Climate Change*. California Ocean Science Trust, Oakland, California, USA.

¹¹ Michael Weber, Burr Heneman, Huff McGonigal, *Guide to California’s Marine Life Management Act: Second Edition*. (California: California Wildlife Foundation, 2017).

degree of fisheries depletion remains unknown for most of the California state managed fisheries.¹² Bycatch and whale entanglement associated with commercial fisheries also pose threats to coastal and ocean biodiversity. Bycatch rates for many commercial fisheries are unknown, as state fisheries have very limited observer coverage. While there has been significant attention on trying to address the issue of whale engagement in fishing gear, it remains a problem and has gotten worse in recent years.

As climate change accelerates, it is rapidly exerting an oversized influence on California's marine and coastal ecosystems. Combined with the impacts of the local stressors described above, climate change poses a grave threat to California's coastal and ocean biodiversity. Ocean waters are becoming warmer, more acidic, lower in oxygen, and prone to extreme events.¹³ In recent years, marine heatwaves, like "the Blob," have caused massive seabird die offs, declines in forage fish, and marine mammal starvation.¹⁴ Harmful algae blooms, likely exacerbated by climate change, have impacted wildlife and forced closures of the West Coast's profitable Dungeness crab fishery, costing the industry \$48 million during the 2015–2016 season alone.¹⁵ Ocean acidification is progressing twice as fast in the waters off of California compared to the global average due to strong upwelling currents, posing a potential new threat to fisheries and marine ecosystems.¹⁶

As heavily impacted as the California seascape is now, the human pressures to use the ocean more intensively are only expected to increase.¹⁷ With climate change accelerating, we are at the threshold of a new era of ocean-based industrialization.

- Propelled by President Biden's Executive Order calling for 30 gigawatts of offshore wind energy development in the United States by 2030 and Governor Newsom's \$20 million in support of offshore wind energy, offshore wind companies are envisioning at least 10 gigawatts of offshore wind in waters offshore California, requiring roughly 1,200 square miles of sea space. For perspective, the state's marine protected area (MPA) network totals 852 square miles. With the growth of this new industrial ocean use comes habitat loss and the potential for additional wildlife threats from vessel strikes, entanglement, and noise.
- As the severity of the freshwater crisis intensifies, there will be sustained pressure to develop desalination plants along the coast. Although California adopted a desalination policy in 2015 to minimize impacts to marine life, the policy has loopholes that will allow desalination facilities to use the same intake structure that California outlawed in 2010 due to the significant impacts to marine life.
- There is great interest in developing new ocean uses as part of California's blue economy. For example, the Ocean Protection Council (OPC) has committed to promoting sustainable aquaculture by developing an action plan that includes consideration of algae, shellfish, and finfish aquaculture in state waters. Commercial scale aquaculture can have direct impacts on

¹² California Department of Fish and Wildlife, "Status of the Fisheries Reports," accessed August 19, 2021, <https://wildlife.ca.gov/Conservation/Marine/Status>.

¹³ H.-O. Pörtner et al., "IPCC Special Report on the Ocean and Cryosphere in a Changing Climate," Intergovernmental Panel on Climate Change, 2019, https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf.

¹⁴ Warren Cornwall, "Ocean Heat Waves Like the Pacific's Deadly 'Blob' Could Become the New Normal," *Science News*, Jan 21, no. 2019 (2019): 8., <https://www.sciencemag.org/news/2019/01/ocean-heat-waves-pacific-s-deadly-blob-could-become-new-normal>.

¹⁵ Amie Windsor, "Federal disaster declaration made for 2015/16 crab season" *SoCo News*, January 31, 2017, https://soconews.org/sonoma_west_times_and_news/news/federal-disaster-declaration-made-for-2015-16-crab-season/article_555f4c88-e81e-11e6-a305-879ffc4d40b9.html

¹⁶ Emily Osborne et al., "Decadal variability in twentieth-century ocean acidification in the California Current Ecosystem." *Nature Geoscience* 13, no. 1 (2020): 43-49. doi:10.1038/s41561-019-0499-z.

¹⁷ Benjamin Halpern, et al., "Spatial and temporal changes in cumulative human impacts on the world's ocean." *Nature communications* 6, no. 1 (2015): 1-7 6. 7615. 10.1038/ncomms8615.

ocean habitats and ecosystems such as: pollution, disease, habitat loss, and overexploitation of forage fish.¹⁸

- Because of the ocean’s scale and its capacity to store carbon, ocean carbon dioxide removal is of growing interest to researchers and investors. For example, Monterey Bay Aquarium Research Institute and Oceans Visions are just now developing a research agenda to accelerate the development of large-scale macroalgae farming for enhanced carbon sequestration in the deep sea.

The 30x30 initiative offers California an opportunity to take stock of current and future threats to our coastal and marine ecosystems and to develop ocean-based industries in a manner that safeguards the structure and function of natural ecosystems. Decades of scientific research show that this will require both establishing areas free from as many stressors as possible to allow marine habitats and wildlife to recover and flourish, as well as the careful siting and operation of these new uses. Twenty years ago, California exhibited leadership in establishing a network of ecologically connected highly and fully protected MPAs. It is time for the state to recommit to the goal of a healthy and resilient ocean and take additional and significant action to protect biodiversity and help ensure resilient systems now, while we can.

2. As a counterpoint to threats and challenges - the Ocean Protection Council’s (OPC) 2020-2025 Strategic Plan includes an objective to “Advance ‘Healthy Oceans’ Policy and Science” (Objective 2.5). How could California define “healthy oceans” in a way that incorporates both ecosystem services and the intrinsic value of nature/nature’s right to thrive? How can the development of “healthy oceans” policy support the 30x30 goal?

The OPC rightly notes the interdependence between humans and the ocean and the inequity in presuming that ocean ecosystems exist for the purpose of human use: “California recognizes the intrinsic value of coastal and ocean ecosystems and species, rather than inequitably characterizing them as simply ‘resources’ for human use.”¹⁹ The landmark 2020 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) report states the imperative of humans fundamentally changing their relationship with nature.²⁰

A healthy ocean provides a host of ecosystem services that benefit humans, yet centering humans at the core of “healthy oceans” fundamentally contradicts the state’s commitment to equitable ocean use. Instead, placing the ocean’s intrinsic value and its right to thrive at the core of the definition of “ocean health” will better enable the state of California to achieve its equity and 30x30 objectives.

Beginning with the California Ocean Protection Act in 2006, California has codified the importance of the concept of “ocean health,” yet has not defined it. Recognizing the importance of a definition, OPC has committed to developing a definition of “healthy oceans” “grounded in ecosystem-based science [and the] intrinsic value of ecosystems and species” by 2023.²¹ Consistent with OPC’s commitment, the state’s 30x30 Coastal Waters Advisory Panel emphasizes the importance of defining “ocean health” so that 30x30 conservation goals can be “clearly articulated” and of building and implementing conservation

¹⁸ Rosamond Naylor et al., “A 20-year retrospective review of global aquaculture.” *Nature* 591, no. 7851 (2021): 551-563. <https://www.nature.com/articles/s41586-021-03308-6>.

¹⁹ Wade Crowfoot et al., “STRATEGIC PLAN to Protect California’s Coast and Ocean 2020–2025” (California: California Ocean Protection Council, 2020), 12.

²⁰ Eduardo Brondizio et al., “Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services,” 2019, <https://zenodo.org/record/3831674#.YR7FpIhKg2w>.

²¹ Wade Crowfoot et al., “STRATEGIC PLAN to Protect California’s Coast and Ocean 2020–2025” (California: California Ocean Protection Council, 2020), 15.

goals “based on a definition of ocean health that includes a comprehensive view of past and current conditions, future potential, and relationships with people.”²²

In developing its definition of ocean health, OPC and 30x30 implementors should consider the Coastal Waters Advisory Panel recommendations and those stemming from the California Initiative to Define Ocean Health developed at the September 2015 workshop. A definition of “ocean health” should incorporate the following principles:

- Science must underpin the definition of ocean health. For the purposes of this definition, Indigenous Traditional Knowledge should be considered as science.
- A healthy ocean is one that does not simply lack disease or infirmity, but “refers to a higher level of functioning” and is capable of upholding “normal form and function.”²³ Normal form and function reflect the attributes of organization, vigor, and resilience. A healthy ocean will have normal form and function and manifest these three attributes.²⁴ Measuring these attributes is complex because ocean ecosystems are complex, dynamic, and must be measured at a variety of spatial and temporal scales and across multiple habitats.²⁵

While not a prerequisite to implementing 30x30 for the coast and ocean, a science-based definition of “ocean health” will help implementing agencies refine goals and progress toward 30x30 objectives. Our organizations are supportive of a process to define ocean health that builds on the 2015 Workshop to Define Ocean Health and includes the attributes of organization, vigor, and resilience.

3. How can the state collaborate and partner with California Native American Tribes to achieve the 30x30 ocean conservation goal in a way that recognizes indigenous rights, respects cultural practices, and provides benefits for all?

The United States can only reach a 30x30 goal for the ocean by doing more to help people protect the places that matter to them, in a manner that meets local, state, Tribal, and regional needs. The 30x30 initiative offers a chance to create more equitable access to nature, bring communities together to conserve our shared natural heritage, and prioritize tribal sovereignty and self-determination in this effort. We need everyone to contribute, we need to use all the tools we have, and we need to consider new management regimes for conservation.²⁶

Both President Biden’s and Governor Newsom’s 30x30 Executive Orders note the critical role of Native

²² Linda Sheehan et al., “Advancing 30x30: Conservation of Coastal Waters: Advisory Panel Summary Document” (California: California Ocean Protection Council, 2021).

²³ Earth Law Center and Dr. Brock Bernstein, “California Initiative to Define Ocean Health: Workshop Report”, January 2016, <https://static1.squarespace.com/static/55914fd1e4b01fb0b851a814/t/56aed4ec356fb0d6e73b4704/1454298350076/Ocean+Health+Workshop+Report+Final+1-31-16.pdf>.

²⁴ Ibid.

²⁵ Workshop scientists noted that defining lower-level metrics to measure these attributes (e.g., biodiversity, mean trophic level, total productivity, community structure, abundance of key species quality of essential habitat, amount and frequency of specific disturbances, etc.) is necessary. Ibid.

²⁶ “Partnerships with the California Tribes and Tribal Communities that have historically stewarded these habitats can lead to a greater understanding of how to identify and advance towards healthy coastal ecosystems, enabling the development of more effective management practices in the future.” Linda Sheehan et al., “Advancing 30x30: Conservation of Coastal Waters: Advisory Panel Summary Document” (California: California Ocean Protection Council, 2021), 6.

American consultation and participation in 30x30 implementation.²⁷ Efforts to engage Native American tribes early will lead to greater success in protecting biodiversity and restoring ecosystem health. In California, there is now widespread recognition of the peril of excluding Indigenous voices from environmental management decisions. For example, California leadership has recognized that adopting traditional Indigenous practices of regular controlled burns and thinning must be an integral part of its wildfire management strategy.

As CNRA begins to implement N-82-20, the agency should look first to its tribal consultation policy. The CNRA tribal consultation policy recognizes that California Native American tribes and tribal communities have sovereign authority over their members and territory and a unique relationship with California's natural resources. CNRA recognizes that all California tribes and tribal communities, whether federally recognized or not, have distinct cultural, spiritual, environmental, economic and public health interests. Including tribes and tribal communities at all stages of the 30x30 decision-making process can promote equitable, positive, and durable outcomes.

California's 30x30 initiative presents an opportunity to enact new natural resource management governance structures. CRNA and relevant agencies should consider adopting a new category of marine managed area – a Tribal Protected Area -- established to support conservation, cultural values and tribal stewardship. California can look to global examples from Canada and Australia to help guide its work in this area.

4. How is California monitoring changes in ocean and coastal biodiversity by ecosystem or habitat, and/or regionally? How should monitoring results inform conservation strategies? Where are there major gaps in monitoring that need to be filled for more effective conservation?

Government agencies, research institutions, and NGOs currently comprise an extensive decentralized monitoring network in California state waters. These monitoring efforts are necessary to understand the marine ecosystem, the effectiveness of existing management efforts, and to inform future management decisions on oceans issues such as commercial and recreational fisheries, MPAs, ocean acidification and hypoxia, and pollution. As an example of current complementary monitoring efforts, the California Department of Fish and Wildlife (CDFW) monitors commercial fisheries and recreational fishing effort and has a number of existing monitoring partnerships to track certain aspects of the MPA network.²⁸ CDFW, OPC, and the Fish and Game Commission (FGC) draw on existing programs such as the U.S. National Park Service Kelp Forest Monitoring (KFM), California Collaborative Fisheries Research Program (CCFRP), Multi-Agency Rocky Intertidal Network (MARINe), and National Science Foundation Long-Term Ecological Research (LTER). As another example, while pH, alkalinity, and dissolved oxygen are under the purview of CDFW, the State and Regional Water Quality Control Boards monitor some water quality parameters such as total maximum daily load. The state's MPA network is in its Long-Term monitoring phase (Phase 2). Phase 2 is an effort that began in 2018 to track changes in selected metrics inside and outside of MPAs over time and to help assess whether the MPA network is meeting its goals.

²⁷ Executive Order N-82-20 states, "Since time immemorial, California Native Americans have stewarded, managed and lived interdependently with the lands that now make up the State of California." California Executive Order N-82-20 (October 7, 2020), <https://www.gov.ca.gov/wp-content/uploads/2020/10/10.07.2020-EO-N-82-20-.pdf>.

²⁸ Marine Protected Area Monitoring Action Plan. California Department of Fish and Wildlife and California Ocean Protection Council, California, USA, October 2018.

Despite the state’s extensive monitoring programs, there are important gaps in monitoring and integration efforts on ocean biodiversity generally and the MPA network. On MPA monitoring, we would like to highlight the following gaps:

- While Phase 2 seeks to formally integrate existing research programs that scientists and community science partners lead, the state is in early stages of designing a publicly accessible, centralized data repository.²⁹ We urge the state to prioritize developing methods to share data and research results with a wide range of audiences.
- While some human use metrics -- data on commercial and recreational fisheries and law enforcement – are being incorporated into Phase 2, the recent OPC Science Advisory Team report on the MPA network states that monitoring the human dimensions of MPA network use is critical.³⁰ The human dimensions of ocean biodiversity go far beyond consumptive (fishing) uses, and monitoring should reflect the breadth of human values including cultural, recreational non-consumptive, and other.
- The state must also do more to forge formal, cooperative relationships with California Tribes and support Indigenous knowledge.

There are also gaps in monitoring of the status of commercially and recreationally exploited fish populations. A 2019 review and evaluation of CDFW’s budget revealed that Species & Habitat Conservation and Permitting was one of the top two under-resourced services relative to the mission level need in both percentages and total hours (the gap was 71 percent).³¹ While recent state efforts to expand and enhance fishery management protocols through the Master Plan revision have improved management protocols, the MLMA’s overall effectiveness continues to suffer from a lack of monitoring. There are also opportunities to improve coordination between MPA and fisheries monitoring efforts and investments.

These gaps in monitoring already have an impact on California’s conservation efforts. The 30x30 Marine Advisory panel correctly notes that extensive and sustained monitoring will be essential to effectively manage California’s marine resources as ocean conditions change. Given that changes to California’s coasts and oceans are occurring rapidly, it is critically important to fill existing monitoring gaps and to develop a plan for integrated and expanded monitoring. We recommend that CNRA and OPC work together to assess all the state’s current monitoring efforts, conduct a gap and anticipated needs analysis, and propose a plan to centralize the state’s monitoring efforts. Further, the agencies should create strategies to better integrate monitoring across management efforts, utilize community science data, partner with California universities, and support Tribal monitoring initiatives. Expanding marine monitoring to include fisheries stock assessments, all habitats both inside and outside of MPAs, human dimensions related to MPAs and ocean biodiversity generally will be necessary to realize the conservation gains of the 30x30 initiative. Sustained funding must underpin the state’s monitoring efforts.

5. What sustainable fisheries management practices in California, other states, and worldwide provide measurable conservation benefits? What can we learn from these efforts that could be applied to California’s 30x30 ocean conservation efforts?

Key objectives of California’s 30x30 Executive Order are to protect biodiversity and to build climate resilience. It may be possible for a fishery conservation measure to contribute to these goals. However, to constitute a contribution, the measure must not simply protect a managed fish species or its habitat. Rather it must deliver effective and long-term in-situ significant biodiversity protection, including by protecting the natural structure and function of the ocean ecosystem. The measure must not be temporary

²⁹ Ibid.

³⁰ Madeleine Hall-Arber et al., Scientific Guidance for California’s MPA Decadal Reviews: A Report by the Ocean Protection Council Science Advisory Team Working Group and California Ocean Science Trust, June 2021.

³¹ “California Department of Fish and Wildlife Service Based Budgeting Project,” California Department of Fish and Wildlife, last modified March 2020, <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=165110&inline>.

or short-term, but must be in place for the long term and be designed to provide enduring benefits to ocean biodiversity. Existing and reasonably foreseeable threats to the area's biodiversity should be prevented. Long-term monitoring with periodic review (for example, every 7-10 years) should be conducted to determine whether the area continues to provide significant biodiversity protection and resilience in the face of climate change. This evaluation of a fishery management measure must be done on a case-by-case basis. These principles are consistent with criteria established by the IUCN in its guidance for other area-based conservation measures (OECMs).³²

California should also consider the role ecosystem-based risk assessments (ERA) could play in assessing whether areas could contribute to the 30x30 target. California can build on the work already done, which has demonstrated ERA as a vehicle for identifying relative risks from different fisheries at a somewhat general level. If ERAs were expanded in California to include the top 50 fisheries, it should be possible to identify which target and bycatch species and habitats are most at risk from which fisheries. Based on this strategic-level assessment, higher-risk fisheries could be subjected to a more detailed ERA that would be more specific about affected species and habitats compared to the current lumping of species and habitats. Managers could then identify habitats in need of greater protection from fishing than what is now achieved through current MPAs or current fisheries management. Management of these fisheries to reduce the risks to these habitats to *de minimis* levels could provide a level of protection that might fit within the concept of 30x30, if other criteria were also met (for example, the durability of the measures and the extent to which other threats are also abated).

6. From a spatial management perspective, California state waters are a complex mosaic with several overlapping layers of various types of protection under different jurisdictions. Which areas other than Marine Protected Areas (MPA) currently enjoy the highest levels of protection? What additional measures, if any, are needed to meet the 30x30 conservation targets for coastal waters? As a follow up, what is a science-based ocean conservation definition that protects biodiversity?

Governor Newsom's Executive Order (EO) on 30x30 sets out, among other things, a mandate to protect and restore biodiversity, build climate resilience, contribute to the State's climate mitigation efforts, and increase access to nature by conserving at least 30 percent of California's land and coastal waters by 2030. To guide this effort, the state should adopt a clear, science-based definition of 'conserve' that will achieve the stated goals of the EO and enable the state to gauge progress over time. The definition should contain the following elements: (1) conservation measures are durable over time; (2) levels of protection are adequate to support biodiversity, climate resilience and/or climate mitigation; and (3) the natural structure and functions of the ecosystem are maintained or restored for generations to come. One possible definition to consider is,

For the purposes of 30x30, "protect" or "conserve" means the establishment of enduring measures that support secure and thriving biodiversity, contribute to climate adaptation, and provide ecosystem services, such that the intrinsic value, natural character, resources, and functions of the covered area are maintained or enhanced now and into the future, both individually and as part of an interconnected network of healthy lands and waters.

Because California's coastal waters contain a patchwork of area-based management approaches with varying levels of protection, the state's inventory of coastal waters should take stock by identifying the objectives, level of protection, and the likely conservation outcome for each measure. The state should

³² Proceedings of CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY, Sharm El-Sheikh, Egypt. November 30, 2018. Accessed August 19, 2021, <https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-08-en.pdf>.

strongly consider utilizing the [MPA Guide](#) for this assessment. The MPA Guide is a peer-reviewed evaluation framework, developed by hundreds of experts from around the world, and represents a synthesis of decades of empirical research on MPA design, implementation, and impacts.

As CNRA develops the California Nature GIS mapping tool in partnership with Esri, it should make publicly available the percentage and area of key coastal/ocean habitats that are currently included in existing MPAs (e.g., What percentage of existing state eelgrass habitat is included in state MPAs?). Further, the state should consider whether the state MPA network adequately protects all representative marine habitats.³³ For example, the 2016 Marine Life Protection Act (MLPA) Master Plan review found that deep rock, marsh, rocky shores, and mid-depth rock are the most represented habitats, and shallow sand and estuary habitats have the least representation.³⁴ The upcoming MLPA decadal review should inform this gap analysis. As gaps in biodiversity protection and habitat representation are revealed, 30x30 affords the opportunity for the state to consider establishing new protected areas or other management measures capable of protecting these habitats and the biodiversity they support.

As part of the 30x30 implementation process, CNRA and CalEPA should consider both creating new protected areas and strengthening protections for existing areas. The agencies should:

- Support designation of new National Marine Sanctuaries and/or monuments and strengthen the habitat protection measures in California's National Marine Sanctuaries;
- Establish State Water Quality Protected Areas to overlay all state MPAs and overhaul California's Areas of Special Biological Significance to ensure natural water quality is maintained in existing protected areas;
- Advance stronger protections for eelgrass and estuarine habitat from impacts of coastal development, aquaculture, and bottom tending fishing gear;
- Support conversion of partial-take MPAs to no-take areas, as needed, to improve conservation value associated with existing protections.

CDFW's mission is to protect all biodiversity in California. The agency manages one million acres of land for public access and enjoyment and is certainly at the heart of the ability of the Newsom Administration to deliver on its biodiversity and climate goals. Further, CDFW plays a role in most natural resource projects that advance in California (fire, restoration, water, clean energy, etc.). In 2019, at the direction of the Legislature, there was a year-long review of CDFW's ability to deliver on its mission. The review revealed that CDFW is unable to deliver on much of what it is required to do. As mentioned previously, CDFW is funded to deliver on only 26% of what it needs to do to protect fish and wildlife and habitat. This year, the Newsom administration and California legislature remedied a great deal of that funding gap, yet the funding level for CDFW to do its job remains inadequate.

Ensuring that CDFW has the resources it needs to execute its mission and to enforce compliance with the state's MPA and fisheries management regulations is critical to protecting biodiversity. For example, there have been many reports of increased poaching during the COVID pandemic when illegal take overran some MPAs and decimated tidepools. Lack of funding has limited CDFW's physical on-the-ground, or on-the-water enforcement capabilities, thus resulting in a need for more effective enforcement supplemented by docent programs and other means of promoting compliance. Additional funding to

³³ Bethan O'Leary et al., "The first network of marine protected areas (MPAs) in the high seas: the process, the challenges and where next." *Marine Policy* 36, no. 3 (2012): 598-605, <https://doi.org/10.1016/j.marpol.2011.11.003>.

³⁴ California Department of Fish and Wildlife. (2016). California Marine Life Protection Act Master Plan for Marine Protected Areas. Adopted by the California Fish and Game Commission on August 24, 2016. Retrieved from www.wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan, p 25.

support ongoing enforcement and compliance efforts that include government and non-government collaborations could build a shared ethos of environmental stewardship.

Both the federal government's recent *Conserving and Restoring America the Beautiful* report and the state's work to date on MPAs highlight the need for science to guide the 30x30 effort. A strong scientific basis is essential to help evaluate how whether conservation measures will result in significant and lasting benefits for biodiversity, ecosystem structure and function, and climate resilience. Conservation approaches aren't one size fits all, and they offer varying levels of biodiversity protection. Science can help us answer the question: What's needed to save California's amazing natural systems for us and for the future?

Thank you for the opportunity to comment.

Signed:

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