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Ms. Amanda Hansen
Deputy Secretary for Climate Change
California Natural Resources Agency
715 P Street
Sacramento, CA 95814

RE: Comments from Pew's Conserving Marine Life in the United States program on the draft Natural and Working Lands Climate Smart Strategy

Dear Deputy Secretary Hansen:

On behalf of The Pew Charitable Trusts (Pew), thank you for the opportunity to comment on the draft Natural and Working Lands Climate Smart Strategy (Strategy), released by the California Natural Resources Agency (CNRA) on October 11, 2021. We commend Governor Newsom's administration for its commitment to accelerating the use of nature-based solutions to deliver on the state's climate goals. Addressing the climate crisis requires urgent, all-of-the-above approaches, including harnessing the power of natural and working landscapes to reduce emissions, enhance carbon storage, and build resilience. As CNRA finalizes the draft Strategy, we urge the Administration to follow through with bold, tangible, and place-based actions that advance protection, restoration and recovery, and sustainable management of California's invaluable lands and waters.

Pew's data-driven conservation efforts—both in the U.S. and abroad—help to preserve wild places and rivers, restore biodiversity, and increase understanding of ocean ecology. On land, our programs focus on conserving wildlife corridors, coastal ecosystems, and pristine landscapes. In marine environments, we work to minimize the consequences of overfishing, pollution, warming waters, and loss of habitat.

Pew's Conserving Marine Life in the United States program's interest relative to the draft Strategy, and the focus of these comments, is to advance conservation and restoration of California's iconic and vital coastal ecosystems, including tidal wetlands, eelgrass beds, and kelp forests. California's existing coastal habitats have been estimated to store approximately 13.4 million metric tons of carbon (roughly equal to the annual emissions of 10.7 million cars).[1] They also prevent erosion, reduce the impacts of flooding and storm surges in surrounding communities, filter pollutants from water, reduce localized ocean acidification, provide essential habitat for a diversity of wildlife, and support local economies and culture. Accordingly, protection and restoration of coastal habitats represent a triple win opportunity to advance carbon sequestration and reduce emissions, mitigate climate impacts, and conserve biodiversity.

Unfortunately, over the past century, California has lost approximately 90% of these ecosystems and the associated benefits they provide, and though the state has recently put in place robust regulatory

[1] These conservative carbon stock estimates are based on national tidal area mapping and an assumption of 1m soil depth and 27 kgC m^{-3}. See: https://smithsonian.github.io/CCRCN-Pew-Project/analysis.html#california-state-report and https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

protections, threats remain from development, barriers to water and sediment flows, pollution, and sea level rise. The Strategy represents an opportunity to turn the tide for coastal habitats, stemming the loss and actively expanding the recovery of these tidal and submerged landscapes and associated ecosystem services.

We commend CNRA for elevating the importance of coastal and nearshore systems throughout the draft Strategy by explicitly including them as discrete landscapes for climate mitigation and proposing specific actions for protection, restoration, and addressing sea level rise impacts. We also applaud the guiding principles underpinning the Strategy, including the commitments to advance equity, foster collaboration, and build meaningful partnerships with California Native American Tribes and tribal communities.

We recommend the following overarching considerations for CNRA as it finalizes the draft Strategy:

- ***Protect existing carbon sinks:*** With respect to natural landscapes, including coastal and nearshore systems, the Strategy should prioritize keeping carbon locked in the ground by avoiding loss and degradation. Just as the mitigation sequence prioritizes avoidance first over minimization and compensation, nature-based solutions should focus first and foremost on place-based protections and measures to reduce threats to ensure the state's existing carbon stores remain intact.
- ***Advance restoration at scale:*** Given the extent of loss of the state's natural landscapes, particularly wetlands, restoration is both necessary as well as a key tool to deliver climate mitigation and adaptation services to communities. We recommend the Strategy focus on accelerating recovery and advancing restoration at scale through measures like landscape level planning, improved valuation of ecosystem services provided by restoration in cost/benefit analyses, expedited permitting, and public private partnerships.
- ***Set measurable objectives and targets:*** CNRA should include in the final version, or explicitly identify as a next step, specific overarching objectives and targets that will help link the aspirational goals of the Strategy with detailed actions, priorities, and agency directives.
    - Given the urgency around climate action and the fact that our coastal and nearshore ecosystems are bearing the brunt of climate change through sea level rise, ocean acidification, and other impacts, we urge the inclusion of specific acreage commitments to conserve buffer areas to allow for inland migration of coastal ecosystems and to protect and restore submerged aquatic vegetation (seagrass and seaweeds). We also recommend that the Strategy help provide direction for the multi-agency actions and public-private partnerships that will be needed to deliver on existing coastal wetland protection and restoration targets in the Ocean Protection Council's (OPC) 2020-2025 Strategic Plan.
- ***Advance the Natural and Working Lands greenhouse gas inventory:*** The Strategy should more explicitly address how it will inform, complement, and advance the update of the Natural and Working Lands inventory, as well as the 2022 Scoping Plan update, both under development by the California Air Resources Board (CARB).
    - Given the importance of CARB's Natural and Working Lands greenhouse gas (GHG) inventory for setting a baseline for action, establishing forward looking targets, monitoring progress, and creating accountability and transparency, the Strategy should recommend improvements and research priorities for the inventory. The Strategy should also seek to improve CARB's inventory for coastal wetlands and commit to the inclusion

of seagrass and seaweeds as knowledge improves and GHG accounting methodologies for seaweeds are developed.

- ***Use decision-support tools to prioritize investments:*** The Strategy should invest in and operationalize decision-support frameworks to ensure that resources and management attention are allocated to areas and actions that deliver on climate mitigation, adaptation, and biodiversity goals. Recently, five mid-Atlantic states collaborated with Duke University to develop a similar decision-support tool that mapped specific areas along the coast that provide significant shoreline protection and carbon sequestration services.[2] As pressure grows to develop coastal and nearshore environments across the state, these frameworks can aid in transparent, evidence-based decision-making for assessing and managing trade-offs among competing uses. Such decision-support tools should also incorporate an equity lens to ensure climate-vulnerable frontline communities are meaningfully involved in planning and implementation of climate smart decision-making to ensure equity, sustainability, and economic resilience.

Our detailed comments relative to coastal and nearshore ecosystems are provided below, organized by the major sections of the Strategy.

Priority Actions and Approaches

Overall, we applaud CNRA for its comprehensive approach to natural and working lands in terms of landscape types and related nature-based solutions, as well as the explicit recognition of the need to conserve existing and potential climate refugia. We commend CNRA for recognizing and defining blue carbon as a critical ecosystem service provided by coastal habitats with significant potential in terms of climate mitigation. We endorse recognizing blue carbon in two landscape types: coastal wetlands and submerged aquatic vegetation (seaweeds and seagrass).

The draft Strategy lays out a set of high level but ambitious nature-based solutions in each landscape type. We would recommend that the final Strategy mention the connectivity among landscape types with respect to carbon and associated management actions. For example, there are proposed actions under "croplands" that could enhance coastal blue carbon, including restoring wetlands in coastal lands drained for agriculture in the Delta and Eel River estuaries, and protecting coastal agricultural lands that could serve as migration zones for coastal habitats.

With respect to **coastal wetlands**, we support the priority nature-based solutions identified in the Strategy. We recommend a stronger emphasis on protecting existing coastal wetlands; for example, the Strategy could include "protecting against habitat loss and fragmentation" as the first solution in the list of priority solutions. We also recommend adding restoring water and sediment flows, and supplementing sediment through beneficial use of dredge material, as specific nature-based solutions that will help enhance carbon sequestration and storage as well as promote resilience. In addition to the Delta, we recommend identifying restoration opportunities on the North Coast (Humboldt Bay and the Eel River estuary), Suisun Marsh, the sloughs of the Central Coast, and the pocket estuaries of Southern California, as these areas in particular have the potential to provide outsized carbon storage/sequestration benefits if and when restored. We urge the State to use the Strategy to further commit to the OPC's wetland conservation and restoration goals that call for the protection or creation of an additional 10,000 acres of coastal wetlands and increasing the acreage of coastal wetlands by 20%

[2] See: https://nicholasinstitute.duke.edu/coastal-ecosystem-services-mid-atlantic-states

by 2030 and 50% by 2040. We also recommend that the State commit to proactively protecting the approximately 200 km^2 of potential future habitat identified in the *Hope for the Coast* report that could help mitigate the potential loss of vulnerable coastal habitats to sea level rise.[3]

We commend CNRA for including **seagrasses and seaweeds** as a specific landscape type for climate mitigation action. We suggest that the Strategy mention the growing body of research around carbon stored in in the nearshore seabed that, once better understood, might also lend itself to climate smart management. As with coastal wetlands above, we recommend listing protection of existing seagrass beds as the first priority solution. We note the increased demand for infrastructure in nearshore areas for uses like aquaculture and cable laying for marine renewable energy. Accordingly, we recommend that the Strategy call for avoidance of impacts to the structure and function of seagrass and marine algae in the context of land use planning and coastal permitting, as well as robust mitigation requirements if impacts are unavoidable. We also recommend that the Strategy commit to advancing the OPC's target to preserve California's existing 15,000 acres of seagrass beds and create an additional 1,000 acres by 2025.

For **developed areas**, we recommend specifically identifying wetland restoration as a nature-based solution that can provide multiple benefits to coastal urban communities with respect to open space, flooding, water quality, erosion, and carbon sequestration.

Finally, for **sparsely vegetated lands**, we would add "dunal habitats" to F - *Identify beach and dunal habitats that are vulnerable to sea level rise and develop approaches for addressing loss of these habitats*" – and explicitly include the following: "including removing barriers and protecting buffer areas on adjacent undeveloped lands to allow for inland migration."

Tracking Progress and Measuring Outcomes

We commend the State for proposing a suite of metrics that can be used to track progress, adaptively manage specific strategies, and ensure accountability, and we support the inclusion of "avoided emissions" as a metric. As a next step, we recommend that the Strategy develop (or commit the State to develop) specific objectives that will then help with refining key metrics.

Opportunities to Scale Action

As requested in the draft Strategy, Pew's comments below focus on what we consider to be priorities for climate action (based on the categories and detailed list of suggested actions provided in the draft Strategy), what is missing, and opportunities for advancing action.

Partnerships and Collaboration

Partnerships and collaboration will be key to advancing the Strategy given the scale of ambition and the fact that ecosystems and communities are interconnected. We applaud and strongly support the Strategy's emphasis on prioritizing partnerships with Native American Tribes and tribal communities, as well as collaborations that cut across sectors (e.g., agricultural interests, local communities, transportation planners, etc.). One of Pew's core competencies is to serve as a convener among diverse

[3] Heady, W. N., B. S. Cohen, M. G. Gleason, J. N. Morris, S. G. Newkirk, K. R. Klausmeyer, H. Walecka, E. Gagneron, M. Small. 2018. Conserving California's Coastal Habitats: A Legacy and a Future with Sea Level Rise. The Nature Conservancy, San Francisco, CA; California State Coastal Conservancy, Oakland, CA.

interests, and we welcome the opportunity to help CNRA in this area if such assistance would be of interest at any juncture.

With respect to coastal and nearshore ecosystems, we support the following opportunities identified in the Strategy:

- Action 5 – **Set climate smart land management goals on publicly and privately owned lands.** This can be an overarching recommendation of the Strategy that could lead to the development of specific targets to achieve these goals.
- Action 19 – **Partner with coastal landowners on collaborative projects that protect and adapt shorelines from sea level rise impacts.** As noted previously, the *Hope for the Coast* report identified 200 km^2 of potential migration space, much of which is in privately held lands. The central and north coasts in particular represent regions where planning and partnerships can facilitate the protection of buffer areas that will serve as habitats of the future.
- Action 20 – **Update/adopt Local Coastal Plans to include nature-based climate solutions**. Nature-based solutions can play an important role in Local Coastal Plans to advance adaptation, resilience, and carbon capture. Many of the same interventions used to advance adaptation and resilience – e.g., beneficial use of dredge to build up coastal wetlands as natural barriers, allowing room for inland migration, restoring floodplains – will also maintain and enhance the carbon sequestration and GHG emission reduction capacities of these coastal landscapes.
- Action 25 – **Build and maintain regional approaches to improve the health and resilience of California's diverse landscapes by supporting and utilizing the state's nine conservancies.** We note the Coastal and Delta Conservancies' important role in advancing nature-based solutions including protecting existing carbon sinks, catalyzing restoration, and protecting future habitat areas.

In addition to the above, we would recommend adding the following actions that were not explicitly included in the draft:

- Given the urgency of responding to the climate crisis, California needs to take an all-of-government approach. Accordingly, we recommend a specific action related to breaking down institutional silos and fostering partnership and collaboration among state agencies. With respect to coastal and marine ecosystems, the Ocean Protection Council can serve to connect processes, expertise, and overlapping mandates to produce well-coordinated action. Developing specific strategies and milestones to coordinate and leverage CARB's work on natural and working lands in the context of the GHG inventory and Scoping Plan update would be an important first step that should be addressed in the final Strategy.
- For Action 15 – **Partner with the federal government to support research that will increase our understanding of the risk mitigation potential of climate-smart strategies on croplands, forests, grasslands, and shrubland and chaparral** – we recommend including "wetlands" to this list of landscape types given the risk mitigation potential of wetland protection and restoration.

Science, Research, Data & Analysis

The draft Strategy includes a comprehensive list of priority actions for science and research that would support the development of evidence-based policies and management to leverage the state's natural and

working lands and waters to address climate change. We commend and support the specific actions to engage California Native American Tribes and tribal communities and advance indigenous knowledge.

We support the following science-focused priority actions identified in the Strategy that would be particularly important for maintaining and restoring coastal ecosystems:

- Action 26 – **Lands and coastal waters should be evaluated for current and historical carbon storage, the potential for future carbon sequestration with restoration or management, and the stability of the stored carbon and risk of loss due to climate change or land use change.** This action could serve as an umbrella for many of the other science and research actions listed in the draft Strategy. This action would facilitate setting science-based goals and management targets with respect to maintaining and enhancing carbon sequestration and avoiding emissions. Pew would welcome the opportunity to assist with this effort as it relates to coastal habitats.
- We also endorse actions that help improve knowledge around ecosystem values, habitat suitability for restoration, current and potential carbon storage provided by coastal sediments, and nature-based solutions, all of which will support informed decision-making with respect to funding and management attention. Specifically, we endorse Action 34 related to improving knowledge around ecosystem values; Action 39 focusing on funding research that would identify coastal areas suitable for restoration; Action 42 related to exploration of transfer of development rights programs to mitigate GHGs by preserving landscapes; Action 43 that would advance climate/carbon science related to healthy soils; and the specific actions that advance knowledge of nature-based solutions associated with coastal and ocean ecosystems (48, 49, 50, 51, 52 and 57).

In terms of what's missing, we recommend including the following actions:

- We recommend a specific action that would bolster the CARB Natural and Working Lands GHG inventory, particularly with respect to coastal wetlands. We note that the U.S. GHG inventory data[4] for coastal wetlands is now disaggregated for states, including California. The U.S. GHG inventory is organized by climate regions, with California representing its own climate region. These data, along with state and regional data sets like the California Aquatic Resource Inventory (CARI) and the upcoming statewide wetland inventory being led by San Francisco Estuary Institute, could result in elevating the current CARB NWL inventory for coastal wetlands, which currently is at a "Tier 1" level in terms of robustness, to a Tier 2 or Tier 3 level.[5]
- For Action 26, we recommend adding "avoided conversion" ("the potential for future carbon sequestration with restoration, *avoided conversion,* or management"). We also recommend that this research action combine mapping and modeling related to adaptation. This would help illuminate priority areas for conservation, restoration, and protection of buffer areas that could serve as landward migration zones.
- We recommend enhancing Action 39 – **Fund research that identifies coastal areas suitable for wetland restoration** – by calling for the development of modeling and mapping of habitat areas suitable for restoration of submerged aquatic vegetation (eelgrass and kelp beds). Research

[4] See: https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf

[5] The Intergovernmental Panel on Climate Change (IPCC) has provided three methodological tiers for estimating GHG emissions and removals. Tier 1 represents the minimum set of information needed to complete inventories based on default values from global literature reviews, while Tiers 2 and 3 represent marked improvements over Tier 1 estimates in terms of certainty and sophistication through the use of national, regional and localized data sets.

conducted by the Pacific Marine and Estuarine Fish Habitat Partnership with support from Pew[6] indicates that habitat suitability is the most important driver for successful restoration of eelgrass.

- We recommend adding a statewide research action related to assessing the carbon dioxide and methane emissions reduction and carbon sequestration potential of restoring historic coastal wetland areas that have been drained and converted to other uses, as well as reconnecting currently impounded freshwater wetlands with tidal flow.[7]
- We recommend the development of pilot projects to explore the feasibility of various finance mechanisms, such as payment for ecosystem services and coastal resilience bonds, that would provide incentives for private landowners to engage in coastal wetland restoration and protection of lands that could serve as future coastal habitat areas.

Technical Assistance, Capacity, and Outreach

The draft Strategy outlines a comprehensive list of priority actions to provide the technical assistance, capacity, and outreach necessary to advance nature-based solutions. Pew stands ready to partner with CNRA to provide technical support and outreach with respect to coastal and nearshore habitats and related nature-based solutions.

Funding, Finance, and Market Mechanisms

As the State contemplates funding needs and opportunities, Pew recommends prioritizing actions that would help support decision-making around "triple win" opportunities, as well as identifying barriers (and related solutions) to leveraging public and private funding to support specific restoration projects. Action 92 – **Support interagency teams to expedite the permitting of large-scale restoration projects** – is an example of an approach that can help with one barrier (permitting hurdles) to deploying funding in support of restoration at scale. While still relatively new, the San Francisco Bay Restoration Regulatory Integration Team (BRRIT), which brings together permitting staff from various agencies in one office to help coordinate permit applications for multi-benefit habitat restoration projects, could serve as a model for other parts of the state.

Policy and Regulation

The draft Strategy outlines important regulatory and policy actions that would advance equity, support Native American Tribes and tribal communities, reduce threats, and avoid conversion of landscapes, all of which we strongly support. With respect to coastal and nearshore habitats, we note the following as key actions identified in the Strategy:

- Action 158 – **Require statewide and consistent sea level rise adaptation plans that are protective of blue carbon habitats.**
- Action 163 – **Explore opportunities to better evaluate climate smart land management activities through revisions to the CEQA statute and the CEQA GHG emissions guidelines.**
- Action 171 – **Increase the use of easements to deliver climate outcomes**. Easements will likely be a critical tool for protecting currently undeveloped areas that could serve as landward migration zones for coastal habitats.
- Actions related to **streamlining permitting requirements** in support of nature-based solutions (175, 178, 179, 180, 181, 182) related to ecosystem restoration.

[6] See: https://www.pacificfishhabitat.org/eelgrass-restoration-synthesis/

[7] See: Kroeger, K.D., Crooks, S., Moseman-Valtierra, S. *et al.* Restoring tides to reduce methane emissions in impounded wetlands: A new and potent Blue Carbon climate change intervention. *Sci Rep* 7**,** 11914 (2017). https://doi.org/10.1038/s41598-017-12138-4

We would also recommend that the Strategy add the following policy and regulatory actions for coastal wetlands, eelgrass, and seaweeds:

- Strengthen regulatory policies for blue carbon habitats like seagrass and coastal wetlands to improve compliance with mitigation requirements ensuring that development activities prioritize avoidance and minimization of adverse impacts to the structure and function of these ecosystems, and where impacts can't be avoided, that ecosystem services and functions are fully replaced, cumulative impacts are evaluated and addressed, and suitable and future habitats are protected.
- Incorporate measures in the state's soon-to-be-developed comprehensive kelp restoration and management plan that would protect and enhance the role kelp plays in ameliorating the impacts of climate change. This could include, for example, the establishment of kelp reserves in areas with acute ocean acidification, or the adoption of policies that exclude large-scale industrial kelp harvest and instead prioritize kelp's ability to provide ecosystem and climate services.

In conclusion, we would like to once again applaud California for its comprehensive efforts to address the climate crisis, including elevating the role of natural and working lands and waters in reducing and avoiding emissions and advancing resiliency. We commend CNRA for recognizing the critical role that coastal blue carbon habitats can play in this effort. Pew welcomes the opportunity to help build knowledge and advance science-based policies in support of California's coastal habitats.

We thank you for the opportunity to comment on the draft Natural and Working Lands Climate Smart Strategy, and note that our colleagues from Pew's U.S. Public Lands and Rivers Conservation program will also be submitting comments. Pew looks forward to engaging as this important work progresses.

Sincerely,

Gilly Lyons
Officer

Sylvia Troost
Senior Manager