November 10, 2021

California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Re: DRAFT Natural and Working Lands Climate Smart Strategy

Dear Deputy Secretary Hansen,

California Trout and Trout Unlimited write in support of the California Natural Resources Agency's (CNRA) draft Natural and Working Lands Climate Smart Strategy ("Strategy"). Our organizations collaborate to achieve our shared goals of restoring and improving habitat in important salmon and steelhead watersheds in California, while improving water reliability for people. To achieve these goals, we leverage our strengths and expertise as a group, advance innovative projects and policies that restore and protect wild salmon and steelhead populations and their habitat and promote funding for these conservation and restoration activities. Freshwater ecosystems play an important role in both mitigating (e.g., green power generation, carbon sequestration) and adapting (e.g., climate refugia, buffering extreme heat and flood events, water security) to climate change, and are integral to achieving the state's climate goals.

The elevation of natural and working lands is a key strategy to address and combat the impacts of climate change and these lands offer a unique set of climate solutions as well as a host of other co-benefits for people and nature. However, we believe it is critical that our lands and waters be considered holistically when prioritizing actions to address climate change. While floodplains and wetlands are discussed in the Strategy, we urge CNRA to add rivers and streams to the eight landscapes included in Section Three. This is strongly supported within the Regional Input provided by stakeholders across nearly all the areas where workshops were held. We do not believe the threats and opportunities specific to river ecosystems can be properly captured within the wetlands landscape type as seems to be suggested in the current Strategy. Rivers and wetlands will be at the center of nature-based solutions to build the resilience of our water supply system to climate change.

- *A Rivers and Streams Section Should be Added to Section Three*

Riverine ecosystems play a unique and important role in supporting the health and vitality of California's communities. They sustain species of significant economic, recreational, and cultural value, though at the same time, they are uniquely threatened. At least 90% of the state's wetlands have been lost and over 100 freshwater-dependent plants and animals, including most of California's iconic salmon and trout species, are at risk of extinction. This is a direct result of the extraordinary pressures that people have placed on California's freshwater resources. Dams and diversions impact nearly all the state's rivers to satisfy water demands, limit flood risk, and generate electricity. Land-use practices, including forestry, agriculture, and urbanization also degrade freshwater ecosystems and affect the quality and quantity of water in the state's rivers, streams, lakes, meadows, and wetlands.

The impairment of California's freshwater ecosystems not only places native freshwater species at a higher risk of extinction compared to their terrestrial counterparts, it also threatens the valuable ecosystem services and cultural resources that freshwater ecosystems provide—including clean water supplies for communities, industry, and agriculture; sustainable sources of food and fiber; and climate resilience benefits. Moreover, impacts to freshwater ecosystems limit recreational opportunities and the ability of Californians to enjoy the state's public trust resources. Finally, California's commercial and recreational fisheries are dependent on healthy rivers as important spawning and nursery habitat.

A. Climate smart river management can contribute to carbon neutrality.

Freshwater ecosystems are key to achieving California's climate change goals by contributing to clean energy generation and carbon sequestration. For example, it is estimated that meadows and freshwater wetlands can store six times as much carbon as California forests, per unit area.

B. Climate smart management of rivers can also provide many climate resilience benefits to Californians.

These ecosystems do not function in a vacuum, rivers connect California's landscapes, from headwaters to sea. Connected freshwater ecosystems also enhance climate resilience by buffering the effects of extreme climate events such as flooding and heat waves, by contributing to groundwater recharge, and by maintaining habitats for fish and wildlife.

Climate resilience is uniquely tied to water resilience in California given our highly variable precipitation patterns that are predicted to become more extreme with climate change. An integrated approach to terrestrial-freshwater conservation in the Strategy will require planning and implementation at the watershed scale. The State's Water Resilience Portfolio (2020) provides a

strong foundation for managing rivers as part of the Strategy, we encourage its incorporation. Particular attention should be given to the connectivity of freshwater ecosystems. River connectivity should be enhanced by removing unsafe and non-functional dams and barriers, restoring groundwater-surface water interactions, and reconnecting rivers to their floodplains.

Because many of the state's rivers, lakes, and wetlands have been degraded, restoration is needed before they can be considered conserved. Restoration strategies should focus on the recovery of ecosystem processes that dynamically create and sustain habitat for native species and support ecosystem services. For example, the protection of environmental flows—the natural variability of flowing water required to sustain the health and services of rivers—is particularly important for maintaining vital ecological functions and will necessitate changes in dam operations and limits on water withdrawals. Additionally, increasing the space within river corridors for natural processes like flooding and sediment deposition to occur will be vital in enhancing resilience in a changing climate. Sustained efforts to protect cold-water sources, limit pollution, and control the spread of invasive aquatic species will also be required to protect freshwater ecosystems. Effective conservation of freshwater ecosystems will require active, adaptive management.

Strategies for conserving freshwater ecosystems should balance human and ecosystem needs and be informed by, and tailored to, community preferences. The goals of conservation actions should also vary across the state in response to local and regional histories, existing conditions and ecologies. In less developed watersheds, strategies should prioritize biodiversity conservation, and protection of source water and environmental flows. In urbanized watersheds, freshwater conservation should prioritize actions to limit pollution, "naturalize" engineered channels, improve public access, and strengthen connections between people, freshwater, and nature. River corridors in the urban environment, when properly managed, can form a multibenefit web of human and wildlife movement corridors, equitable access to open space, flood protection, and benefits to ecosystem health. The revitalization of urban waterways, in particular, has the potential to redress historical inequities in land and water use policies that have harmed marginalized communities. In all watersheds, conservation programs should be oriented towards the enhancement of public access and partnerships with Indigenous communities to guide management of ancestral lands and waters. All watershed conservation programs should partner with California Indigenous tribes at the local and statewide level to ensure that they are given opportunities to meaningfully inform strategies for planning, implementation, and monitoring.

C. Priority and Nature-Based Solutions: Rivers

We urge the following priority actions be included in the rivers section:

- Restore rivers to facilitate their natural function;
- Ensure that flows in California's rivers and streams are sufficient to maintain healthy native fish populations and freshwater biodiversity;

- Increase the connection of rivers to their floodplains and wetlands to reduce flood impacts and increase groundwater infiltration;
- Remove barriers to aquatic species migration specifically those which allow species access to cold water habitats;
- Partner with California Indigenous tribes to preserve, restore, enhance rivers flowing through tribally owned and trust lands;
- Better integrate land and water use planning;
- Increase the number of streamflow gauges statewide;
- Restore rivers as park strips and open space in urban areas.

- *Additional recommendations on other Landscape sections:*

To better integrate water system through the document, we recommend the following:

- **More emphasis should be given to freshwater wetlands and floodplains.** The Wetlands section (p. 37-39) focuses on coastal wetlands. The role of floodplains in buffering extreme flood events and recharging groundwater (a critical water resilience strategy) should be highlighted. There is a high-level recommendation to "Restore rivers and floodplains and facilitate their natural functions" included, but a specific recommendation to restore connectivity of rivers with their floodplain should be included as should dam removal.

- **The Strategy should leverage widely supported existing planning efforts already in place and in progress in the Central Valley.** These include the Conservation Strategy to the Central Valley Flood Protection Plan, Flood-MAR and the Visions for Floodplain Recovery in the Sacramento Valley that water users and non-governmental organizations have been collaborating on, in addition to a number of efforts to create plans for floodplain recovery, groundwater recharge, human and agricultural water delivery and use. The state should name these efforts and others to seed any long-term strategy moving forward.

- **More emphasis should be given to estuaries.** Estuaries are critical in buffering sea level rise and are critical to numerous species life histories, including many commercial, recreational, and subsistence fisheries. We would encourage the Strategy to support estuary restoration and conservation.

- **The final Strategy include the process-based restoration actions outlined in the comment letter from *Occidental Arts & Ecology Center*** in the Forests, Developed Lands, Wetlands and Grassland landscapes sections, to better reflect the proven efficacy of these innovative restoration approaches. We appreciate the inclusion of the “Did you know?” section on beaver and welcome further inclusion of the important role they can play. Nature-based solutions that store

water on the landscape are critical to the drought resilience of freshwater ecosystems.

- **Roadless areas should be conserved as roadless.** Riverine ecosystems in forests are negatively impacted by road building. In areas with existing road systems, investments should be made to decommission unnecessary roads and upgrade other roads to reduce their impacts on aquatic ecosystems (through hydrologic disconnection and moving main roads to ridgelines instead of near streams). We strongly support the Strategy's inclusion of the need to reconnect aquatic ecosystems within forests, these barriers are often caused by inadequate road crossings.

- **Highlight additional opportunities to collaborate with tribes:**
  - The Strategy should highlight how rivers are critical to the identity and vitality of many California Indigenous tribes and the potential for urban rivers and streams to enhance access to nature and buffer climate impacts in disadvantaged and vulnerable communities.
  - Freshwater ecosystems are an important source of both economic investment and accessible and culturally meaningful food and fiber, especially for California's Indigenous tribes, as well as disadvantaged communities and support a disproportionately high diversity of native plant and animal species, many of which are not found outside the state.

- *Metrics Should Better Integrate Water Systems*

California does not adequately quantify and track its natural resources or biodiversity. As a state, California has only recently required reporting on groundwater use and the system of stream gauging is incomplete. Further, we do not track the migration or numbers of salmon and steelhead. At the current rate, 45% of California salmonids are likely to be extinct in the next 50 years. This includes 11 of 21 anadromous species (52%) and 3 of 10 inland species (30%). In 100 years, 23 of the remaining 31 species (74%) are likely to be extinct if present conditions continue (see CalTrout's SOS Report). If California truly wants to identify the most urgent problems to address and track its progress in key watersheds, then we must invest in streamflow monitoring, real time diversion reporting, and the monitoring of salmon and steelhead in watersheds. The following strategies should be supported:

- The Coastal Monitoring Plan (CMP) for north coast salmonids is severely underfunded. Without CMP, the State of California will not have continuous records of fish counts and with the hundreds of millions of investments on north coast fisheries, there would be no way to quantify the effectiveness of the projects on actual fish numbers. Salmon are an indicator species for watershed health.

- Streamflow monitoring is essential for any regulatory successes in the face of climate change. Until we understand the amount of water that moves through each watershed, we will not know how to manage or regulate it successfully.

- *How Our Organizations Are and Will Continue to Support Priority Actions:*

  - **Partnerships and Collaboration**
    - Bring together regulators, tribes, water users, public water agencies, non-governmental organizations, and other stakeholders to develop innovative, voluntary solutions to water supply, water quality, and ecosystem protection.
    - Support the revival of salmon, steelhead, lamprey, and other native fisheries and ecosystems central to several Indigenous tribes on the Klamath and Eel Rivers through the efforts to remove obsolete hydroelectric dams and related river restoration activities.
    - Support a comprehensive culvert and fish passage improvement program, including along transportation corridors, using the strategy generated by the public-private California Fish Passage Forum and by piloting new approaches with state and federal agencies in coordination with the six regional California Fish Passage Advisory Committees.
    - Develop priorities and a process for removal or reconfiguration of aging or obsolete dams with collaborative partners.
    - Evaluate, plan for, and respond to environmental stressors due to climate change, including development of regional drought contingency plans for fish and wildlife and ecosystems and promotion of climate change adaptation projects to prevent species decline.
    - Support urban stream restoration projects, including but not limited to multi-benefit erosion and flood management improvements that provide community access to clean water, daylight streams to create shaded corridors, remediate river-adjacent brownfields, and restore natural infrastructure.
    - Support communities and watershed groups in developing watershed management plans.

  - **Science, Research, Data, and Analysis**
    - Use the California Coastal Salmonid Monitoring Plan to assess salmon populations and inform recovery actions for watersheds.
    - Develop rapid methodologies to establish regional instream flow metrics through the multi-partner California Environmental Flow Framework. Provide regional training on the environmental flow methods and tools to

support local and statewide resource managers. Develop a series of case studies around the state to refine the tools.
    - Conduct and utilize instream flow analyses to further develop instream flow recommendations for ecologically important streams to protect public trust values.
    - Work with universities, tribes, public water agencies, and non-governmental organizations to develop new tools for identifying functional ecosystem flows.
    - Develop analytical modeling tools that can be used to rapidly assess streamflow depletion tied to groundwater pumping.
    - Increase the number of streamflow gauges statewide, especially in undammed watersheds.

- **Technical Assistance, Capacity, and Outreach**
    - Create planning units within the Water Board and California Department of Fish and Wildlife to protect instream flow for human health and safety and fish and wildlife in dry years.
    - Make funding available for groundwater recharge and small-scale storage projects with multiple benefits.
    - Expand the scope and capacity of existing multi-agency post-fire assessment teams to evaluate anticipated impacts to aquatic life and drinking water sources.
    - Explore ways to make water rights information easily available to the public by rebuilding the state's water right data base to include digital place of use, diversion, and case history information, made available on an easy-to-use geospatial platform.

- **Funding, Finance, and Market Mechanisms**
    - Coordinate grant and loan programs across state agencies to make funding for multi- benefit projects, including restoration, easier to arrange and leverage.

- **Workforce and Organization**
    - Expand education programs to retrain forestry, mining, and construction workers as restoration practitioners.

- **Incentives and Procurement**
    - Incentivize small-scale, dry-season water storage for water users in coastal salmonid bearing watersheds.
    - Incentivize stream restoration actions as part of Timber Harvest Plans.

- **Policy and Regulation**
  - Accelerate state permitting of projects that protect and enhance fish and wildlife and water supply reliability and support the development of expedited and cost-effective permitting mechanisms for common types of restoration and enhancement projects.
  - Establish terrestrial-freshwater protected areas and management plans at the watershed scale. Watersheds are naturally defined geographic units that include the river network and the landscape that it drains. Conservation planning at the watershed scale will help to ensure that actions can effectively address the stressors that threaten, and protect the natural processes that support, freshwater ecosystem health and services.
  - Support policies the expedite the removal of non-functional dams and restore connectivity of inland waters.
  - Protect, restore, and manage for environmental flows.
  - Continue to reduce permitting barriers (aka "cut the green tape") for climate interventions related to land management and restoration and streamline existing programs to encourage cross agency innovation.

We strongly urge the state to include the recommendations outlined in this letter in the final Natural and Working Lands Climate Smart Strategy to better reflect the integral role our watersheds play in addressing climate change. We appreciate your consideration and stand ready to help support this effort. Please reach out to any of us to engage in further discussion or if there are any questions.

Sincerely,

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