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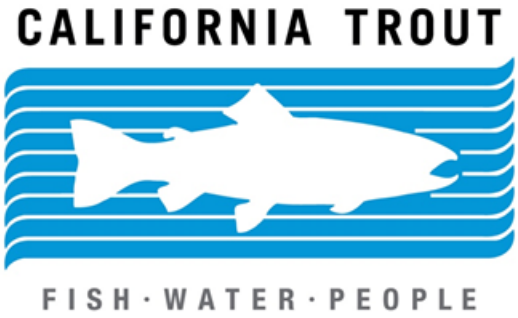
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December 8, 2017

Statewide Infrastructure Investigations Branch
Division of Statewide Integrated Water Management
California Department of Water Resources
Sacramento, CA 94236-0001
Attention: Jenny Marr

Dear Ms. Marr,

Thank you for the opportunity to provide comments on the draft white paper *Flood MAR: Using Flood Water for Managed Aquifer Recharge to Support Sustainable Water Resources* (Flood MAR White Paper). Our organizations congratulate the Department of Water Resources (DWR) for addressing the topic of using floodwater for aquifer recharge. We commend you for this effort and fully support finalizing this document to help achieve the goal of integrated flood management that addresses multiple benefits.

Over the years, our groups have worked closely with DWR's Central Valley flood management team, members and staff of the Central Valley Flood Protection Board, and a wide range of stakeholders to help develop the Central Valley Flood Protection Plan (CVFPP), and we have emphasized that the Conservation Strategy must include measurable objectives and look beyond mitigation (actions that offset negative impacts of projects) to ecological uplift (actions that contribute to the recovery and stability of native species populations, biological diversity, and ecological function). We hope that these same elements can be reflected in DWR's approach to using flood water for aquifer recharge.

Like the Central Valley Flood Protection Plan, the Flood MAR White Paper emphasizes multiple benefits. For example, page 11 of the White Paper states, "The ability to integrate flood and groundwater management by actively managing high-flow events to recharge aquifers could provide multiple benefits." This sentence is followed by a description of nine potential benefits of Flood-MAR projects. On page 15, the Flood MAR strategy is described as "inherently multi-benefit – providing flood risk reduction, drought preparedness, aquifer replenishment, ecosystem enhancement, and other potential benefits."

Although we agree with these statements, we note that the conceptual emphasis of the Flood MAR strategy, in the text and in Figures 4 and 5, is largely focused on directing floodwaters to farmland and dedicated recharge basins. The role of connected floodplains is less clearly articulated. It is in this context that we offer the following suggestions for improving the Flood MAR White Paper. Please note that we have tried to keep these comments concise and fairly high level. Some of the

signatories to this letter may therefore provide additional, more specific comments in these and related areas.

Recognize that multiple-benefit projects are not simply inherent to some strategies, but rather result from careful planning and design that is guided by measurable objectives. For Flood MAR to fulfill the promise of multiple benefits, it will need to draw on the Central Valley Flood Protection Plan Conservation Strategy and other measurable objectives for the flood system performance. Multiple benefits must be a specified goal at the start of project planning, rather than just a result of traditional recharge or flood projects.

More clearly articulate the role of connected floodplains in aquifer recharge. The current Flood MAR White Paper has almost no mention of the role that connected floodplains and flood bypasses can play in this strategy. These areas are important because they represent the area where the water already occurs, and relatively modest changes in the footprint of these systems could provide sizeable benefits in terms of flood risk reduction, ecosystem function, reservoir reoperation, and shallow and deep aquifer recharge. Shallow aquifer recharge associated with floodplain restoration can provide cool water temperature refugia during the critical spring months when salmon are out-migrating. If the current information on the recharge potential of floodplains is not sufficient to identify these opportunities, then that limitation should be called out as an important information gap.

Discuss the ecological importance of high flows. While the document recognizes the need to maintain minimum flows that sustain aquatic communities, it is likely that much of the definition of minimum ecological flows has focused on low flows, and typically much less attention has been given to high flows. The Trinity River Restoration Program offers one example of defining ecological high flows. The Flood MAR White Paper could be improved by articulating the need to investigate the ecological functions of flood flows to ensure that recharge efforts don't diminish these functions. There are existing tools, including the Ecological Flows Tool and the Central Valley Habitat Exchange salmon Habitat Quantification Tool, that could be used to demonstrate that the diversion of high flows will not degrade habitat quality for aquatic and riparian species.

Extend the preliminary Merced River study to include multiple benefits. The box on page 25 adds some great specificity to the white paper. However, the Merced example does not provide any insight into how that approach can generate multiple benefits related to ecosystem functions. Integrating that concept into this box, even if it is to say that it requires more study, would improve the example.

Next steps: engage conservation stakeholders and regulatory agencies. We recommend that if Flood MAR is designed to achieve multiple-benefits, it is critical to engage conservation stakeholders and regulatory agencies early and often. The benefits of this approach include: 1) a greater likelihood that the Flood MAR can deliver ecological uplift to Central Valley rivers, 2) less conflict over permitting, and 3) greater stakeholder support, including financing, for the implementation of projects.

We appreciate and applaud the forward-looking effort invested in developing the draft Flood MAR White Paper. We also appreciate that it clearly builds upon the multiple-benefit framework that was established in the Central Valley Flood Protection Plan. We look forward to working with you to help achieve the goals of environmental stewardship in the Central Valley as they relate to flood protection and managed aquifer recharge by implementing multiple-benefit projects.

Sincerely,

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