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**VIA U.S. MAIL AND EMAIL**

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**Re: Butte Sink Mitigation Bank – Winter Run Credit Resolution**

Dear Ms. Barker and Ms. Marcinkevage:

I am writing to follow-up on the Butte Sink Mitigation Bank (BSMB) winter-run Chinook salmon credit discussions, and CDFW's letter on the matter dated September 30, 2021. As discussed in further detail below, the Bank Sponsor disagrees with CDFW's assertion that the proposed BSMB provides only minimal rearing benefits to winter-run Chinook salmon as a result of the BSMB site accessibility metrics. CDFW's review of the 2020 Butte Sink and Bypass Study acknowledges that the BSMB site floods in more than half the years analyzed (11 out of 20 years). Site-specific data gathered by WRA, Inc., historic data, and the 2020 Butte Sink and Bypass Study all support a finding that winter-run have access to the BSMB site during Colusa Weir overtop events. Despite this, CDFW and NMFS are still only offering the winter-run credit proposal dated November 2, 2020, which provides zero credits for permanent impacts, a few credits for temporary impacts, or a discounted credit ratio for all credits.

This proposal is financially infeasible, especially in light of the rearing benefits to juvenile winter-run Chinook salmon that the BSMB would provide when the site is flooded. In light of the fact that CDFW does not think that a 1:1 ratio is appropriate, but acknowledges benefit to

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winter-run offered by the BSMB, it stands to reason that the credit ratio should also be greater than zero. In order to resolve the winter-run credit issue and enable the BSMB to be implemented, the Bank Sponsor proposes a credit ratio of 0.5:1 for winter-run Chinook salmon, as discussed further below.

#### **A. CDFW Memorandum dated July 21, 2020**

CDFW's September 30, 2021, letter states that the CDFW memorandum dated July 21, 2020, ("2020 CDFW Memorandum") constitutes the latest and best available science regarding potential benefits of the BSMB site to winter-run Chinook salmon. The Bank Sponsor disagrees with this assertion and the implication that the 2020 CDFW Memorandum dictates a permanent winter-run impact credit ratio of zero for several reasons.

As the Bank Sponsor previously pointed out, the 2020 Butte Sink and Bypass Study confirms winter-run juvenile are present in the Butte Sink in significant numbers during flood events, with almost a third of all fish captured in the Colusa Bypass during the study being winter-run Chinook salmon. In addition, WRA Inc. gathered additional site-specific hydrologic data and presented other data, including the results of a HEC-RAS 2D hydraulic model and rotary screw trap data on outmigration timing, which supports a finding that winter-run Chinook salmon are present and have access to the BSMB site during flood events, which are frequent in the Butte Sink. As we discussed last year, approximately half (50%) of the BSMB site floods even in very small flow events (1,000 cfs) across the Colusa Weir. To recap, days of weir activation during the majority of the winter-run salmon outmigration window range (November-February) on average from approximately 4 days in critically dry years to approximately 40 days in wet years as described in detail in the Butte Sink Development Plan. While the Bank Sponsor acknowledges that there is uncertainty in the exact days of weir activation and thus inundation at the BSMB site due to varied water years, decades of data from the Colusa Weir demonstrate that even in critical dry years the weir is activating, and that winter-run Chinook salmon would benefit from access to the BSMB site.

CDFW's letter also states that the 2020 CDFW Memorandum is based on consultation with agencies from Oregon and Washington. However, the CDFW Memorandum does not cite the purported communications with the Oregon and Washington state agencies, nor does it provide them. Furthermore, it's unclear if the referenced banks in these states are comparable at all to mitigation banks located in the central valley of California and serving central valley Chinook salmon. In contrast, site-specific data presented by WRA Inc. and in the 2020 Butte Sink and Bypass study indicate that winter-run both extensively access and benefit from bypasses and floodplains, and would benefit from the BSMB. CDFW's own summary of the 2020 Butte Sink and Bypass study admits that benefits to juvenile winter-run Chinook salmon would have occurred at the BSMB site in 11 out of 20 years.

## B. CDFW Review of 2020 Butte Sink and Bypass Study

CDFW Region 2 reviewed the 2020 Butte Sink and Bypass Study, summarized in a September 10, 2021, memorandum titled “Proposed Butte Slough [sic] Mitigation Bank Additional Fisheries Analysis” (“Additional Analysis.”) CDFW’s Additional Analysis plainly affirms the conclusions of the 2020 Butte Sink and Bypass Study. Specifically, CDFW’s Additional Analysis confirms that “off-channel wetlands and flooded agricultural habitats provided high growth rates for juvenile Salmon, with the highest rates observed in the Butte Sink.” In addition, the Additional Analysis confirms that winter-run are present at the BSMB site during flood events.

The Additional Analysis provides some criticisms of the 2020 Butte Sink and Bypass study, all without citation.<sup>1</sup> Most of the critiques center around the fact that the study only encompasses one water year and a only sampled a small proportion of the total winter-run Chinook population without evaluating interannual variability in run size and outmigration timing. The Additional Analysis indicates that the study methods only determine presence or absence of winter-run Chinook salmon and that benefits should be based on the proportion of the emigrating population available to benefit from the property. This is not the standard that other mitigation banks that have been issued winter-run Chinook salmon credits have been measured against, **as performance standards for these banks have only required presence be documented for all winter-run Chinook credits to be released at a 1:1 credit ratio.** Furthermore, rotary screw trap data from the last ten years at the Red Bluff Diversion Dam upstream of the site and Tisdale Weir downstream of the site show that approximately 75% of winter-run juveniles on average have passed through the Red Bluff Diversion Dam by November 1<sup>st</sup> but only about 5% have passed through the Tisdale Weir by this same time period. Approximately 95% have passed Tisdale Weir by mid-February. This suggests that the majority of the winter-run juveniles are upstream of the BSMB site during flooding and outmigration windows and thus available to benefit from the property. Even using the arbitrary threshold of 25% of the winter-run juvenile being upstream of the property during Colusa Weir overtopping events put forth in the Additional Analysis, BSMB met that condition in all but one overtopping event from 2000-2019 as shown in Figure C in the July 21, 2020, Memorandum.

When these data are compared with data from the 2020 Butte Sink and Bypass Study documenting that nearly a third of all fish sampled in the Colusa Bypass were winter-run Chinook salmon, they collectively dispute the conclusion presented in the July 21, 2020 CDFW memorandum “Proposed Butte Slough Mitigation Bank Fisheries Analysis” that only a small

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<sup>1</sup> Again, the 2020 Butte Sink and Bypass Study was prepared by leading researchers from leading public universities, in direct collaboration with NMFS. In contrast, CDFW’s 2-page Additional Analysis does not include a single citation, reference to scientific literature or published journal article, etc., regarding the assumed 25% of the winter-run juvenile cohort being upstream of BSMB threshold or the conclusion only a small fraction of the winter-run juvenile population would utilize the Colusa Bypass.

fraction of the population would utilize the Colusa Bypass and thus the BSMB site. These data also contradict the zero permanent winter-run credit position that NMFS and CDFW have taken.

### C. Comparison of Flood Event Metrics

The 2020 Butte Sink and Bypass Study and CDFW's Additional Analysis support the conclusion that the BSMB can provide "great ecological value" to winter-run Chinook salmon. This conclusion should modify the initial position taken by CDFW and NMFS that the BSMB must be penalized because it is located "off-channel."<sup>2</sup> The Study also contradicts CDFW's assertion that the BSMB cannot be compared at all to the Bullock Bend site. Again, CDFW asserts that the two sites are not comparable due to different locations and accessibility issues. However, the 2020 Butte Sink and Bypass Study proves the location of the two banks provides similar salmon rearing benefits when inundated, as juvenile central valley salmon utilize the bypasses and off-channel floodplains that those bypasses provide access to, like the BSMB site. Thus, if rearing central valley salmon have access to the BSMB site, those salmon will benefit from the BSMB in a manner similar to the benefit Bullock Bend provides. As explained above and in prior correspondence, winter-run would have access to the BSMB site.

The remaining primary criticism raised by CDFW is that flood event metrics do not support winter-run crediting at the BSMB. This is emphasized several times in the CDFW's Additional Analysis. However, CDFW's own analysis indicates that winter-run Chinook salmon have access to the BSMB site at least once every two-years on average. The Bank Sponsor also provided data indicating that winter-run have access to the BSMB site even in critical dry years. Again, the Bank Sponsor has previously addressed CDFW's concern regarding the uncertainty of water years and activation of the Colusa Weir during the winter-run outmigration window. This data, summarized in section A, above, has been provided via email and letter correspondence, is presented in the development plan, and has been discussed on conference calls with CDFW and NMFS.

The CDFW Additional Analysis acknowledges that the BSMB site has been accessible to winter-run Chinook salmon in 11 out of 20 years analyzed. As the Bank Sponsor has pointed out on several occasions, CDFW and NMFs approved a 1:1 winter-run credit ratio for elevations at Bullock Bend that flood only once every four years, or less than half the years that the BSMB site floods, and is accessible to and beneficial for all runs of central valley Chinook salmon.

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<sup>2</sup> This position also ignores that the BSMB site is located adjacent to Butte Creek and provides a unique ecological connection between the Sacramento River and Butte Creek.

**D. The Bank Sponsor Proposal for Winter-Run Credits**

The Bank Sponsor proposes a ratio of a half credit to one (0.5:1) for winter-run Chinook Salmon. This is a significant compromise by the Bank Sponsor. The Bank Sponsor is confident this proposal is well-supported by data provided by WRA, Inc., the 2020 Butte Sink and Bypass Study, and CDFW's own acknowledgment that the BSMB site is accessible to winter-run Chinook salmon in 11 out of 20 years analyzed. In addition, the Bank Sponsor reserves the right to seek additional winter-run Chinook salmon credits if data collected from the BSMB supports this finding.

Best regards,

MITCHELL CHADWICK LLP



G. Braiden Chadwick

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