



## (ACTION ITEM)

Consideration and Possible Approval of Resolution [NUMBER] for a Contract with the University of Vermont, as a part of the 2021 Delta Science Proposal Solicitation

### Summary

*Council staff recommends that the Council approve a new contract with the University of Vermont (UVM). The Council originally approved this contract in June 2021 as part of the package of 2021 Delta Science Proposal Solicitation awards, but the Principal Investigator (PI) has since relocated from Humboldt State University (now known as Cal Poly Humboldt) to the University of Vermont. Humboldt State University has agreed to UVM taking over the proposal. This contract would fund research to assess the impact of predation on outmigration mortality of all Central Valley Salmon runs relative to habitat and other related factors. This contract would begin in November 2022 and end in June 2024. The budget for this contract is \$241,971, which is slightly reduced from the original proposed budget.*

### Requested Action

Council staff requests that the Council approve Resolution [NUMBER] granting authority to the Executive Officer to enter into a new contract with the University of Vermont for a total of \$241,971 from November 2022 to June 30, 2024. The Council previously approved this work through a contract with Humboldt State University (now Cal Poly Humboldt) during the 2021 PSN process. This request would change the contract from Cal Poly Humboldt to a contract with University of Vermont due to personnel relocation. The original proposal from Humboldt was never finalized. Humboldt has agreed to let UVM take over the proposal.

In March 2022, the Council was notified that the PI, Mark Henderson, changed his affiliation with academic institutions from Cal Poly Humboldt to the University of Vermont. Therefore, the contractor needs to be changed. There is no request for additional funds or changes to the contract end date.

The Executive Officer has delegated authority up to \$750,000 to enter into contracts and interagency agreements on the Council's behalf. Because this agreement was

approved as part of the package of PSN 2021 awards totaling \$9.6 million at the June 2021 Council meeting, Council staff is presenting this agreement for the same work but with a new academic institution for Council authorization.

## Background

The Sacramento River in California's Central Valley (CV) is one example of a highly modified ecosystem that has seen drastic declines of salmon runs in recent years (Katz et al. 2013; Yoshiyama et al. 1998) and within which juvenile salmon experience high outmigration mortality (Michel et al. 2015, Henderson et al. 2019, Notch et al. 2020). There are four runs (fall, late-fall, winter, and spring) of Chinook salmon in the Sacramento River that have experienced a decline due to a 150-year history of mining, harvest, habitat loss, and water infrastructure development (Yoshiyama et al. 1998, Harvey et al. 2014). Of these four runs (a.k.a. ecotypes), the winter and spring-runs populations have been the most impacted and are listed as endangered and threatened, respectively, under the US Endangered Species Act. Survival of Chinook salmon smolts from the Sacramento River to the ocean is markedly lower than smolt outmigration survival from the Columbia and Fraser rivers in the Pacific Northwest (Welch et al. 2008, Henderson et al. 2019).

## Information about the Topic

Understanding the relative importance of predation compared to other habitat related factors in the Sacramento River and the Delta is valuable to develop life-cycle models for the different runs and to establish restoration priorities for these ecologically and economically important fish that have seen drastic declines in population abundances. This is especially important given a recent finding that suggests outmigration survival has a more significant effect on smolt-to-adult ratios than marine survival does (Michel 2019). Recently, the Central Valley Project Improvement Act Science Integration Team (CVPIA SIT) listed improving estimates of juvenile Chinook survival through the mainstem Sacramento and the Delta as one of their top priorities for the near future. These data would provide a means to assess the effect of habitat restoration on juvenile salmon survival, which is critical to future prioritization efforts and understanding the effectiveness of restoration actions in the Central Valley (CVPIA SIT 2019). Similarly, life-cycle models are

currently under development for the winter-, fall-, and spring- ecotypes to understand how changes in water management and climate change may impact these populations, and these models rely on accurate estimates of survival in every life stage (Hendrix et al. 2017, Cordoleani et al. 2020).

This proposed study will provide a means to identify the spatial reaches of the Sacramento River that can be targeted for restoration and provide guidance to water management agencies for the best practices to help improve the recovery of these federally listed salmonids.

### Fiscal Information

The budget information for this contract is summarized below.

<b>Budget Category</b>	<b>Amount</b>
Personnel	\$188,909
Travel	\$12,500
Other (Workshops and Publications)	\$9,000
Indirect Costs	\$31,562
<b>Total</b>	<b>\$241,971</b>

### List of Attachments

None

### Contact

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