UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OREGON 97232-1274

June 16, 2017

Refer to NMFS No: WCR-2016-5506

Mr. David Murillo
Regional Director – Mid-Pacific Region
U.S. Bureau of Reclamation
2800 Cottage Way, MP-3700
Sacramento, California 95825-1898

Mr. William Croyle
Acting Director
California Department of Water Resources
1416 Ninth Street
Sacramento, California 95814

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, and Fish and Wildlife Coordination Act Recommendations for the California WaterFix Project in Central Valley, California

Dear Mr. Murillo and Mr. Croyle:

Thank you for your letter, received August 2, 2016, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 *et seq.*) for the proposed California WaterFix Project (Project).

Based on the best available scientific and commercial information, the Biological Opinion (Opinion) concludes that the Project is not likely to jeopardize the continued existence of federally listed:

- Endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*),
- Threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*),
- Threatened Central Valley steelhead (*O. mykiss*),
- Threatened Southern Distinct Population Segment (DPS) of North American green sturgeon (*Acipenser medirostris*), and
- Endangered Southern Resident killer whales (*Orcinus orca*).

NMFS concludes that the Project is not likely to destroy or adversely modify the designated critical habitats of:

- Sacramento River winter-run Chinook salmon,
- Central Valley spring-run Chinook salmon,
- Central Valley steelhead, and
- Southern DPS of North American green sturgeon.

EXHIBIT BKS-255

affect kelt emigration downstream during the February through April time period, but may start to affect kelts in May as water temperatures warm in the lower portions of the American River.

Overall, the water temperature modeling results and the threshold analysis indicate that thermal impacts on steelhead kelt emigration will largely be the same with implementation of either the PA or NAA. The PA is not expected to result in adverse effects, relative to the NAA. For purposes of the analysis in Section 2.7 Integration and Synthesis of the combined effect of PA implementation when added to the environmental baseline and modeled climate change impacts, NMFS concludes that the water temperatures, as modeled under both the PA and NAA operational scenarios, will not adversely affect kelt emigration during the February through April period, but may begin to adversely affect kelt migration during May of critical years.

Juvenile Rearing

Monthly Temperatures and Exceedance Plots

Modeled mean monthly water temperatures during the year-round juvenile rearing period for steelhead in the American River between Hazel Avenue and Watt Avenue are presented in the BA in Appendix 5.C, Upstream Water Temperature Methods and Results, Section 5.C.7, Upstream Water Temperature Modeling Results, Table 5.C.7-14, Table 5.C.7-15. See Appendix C of this Opinion, BA Table 5.C.7-14, American River at Hazel Ave, Monthly Temperature, and BA Table 5.C.7-15, American River at Watt Ave, Monthly Temperature.

Overall, the PA would change mean water temperatures very little (predominantly less than 1°F, or approximately 1%) throughout the juvenile rearing reach in all months and water year types. The largest increase in mean monthly water temperatures under the PA relative to NAA would be 1.0°F, or up to 1.4%, and would occur at Watt Avenue in critical water years during August.

Exceedance plots of mean monthly water temperatures were examined during each month and water year type throughout the juvenile rearing period (BA Appendix 5.C, Upstream Water Temperature Methods and Results, Section 5.C.7, Upstream Water Temperature Modeling Results, Figure 5.C.7.14-7, Figure 5.C.7.15-7). The values for the PA in these exceedance plots generally match those of the NAA. Further examination of critical water years during August at Watt Avenue, where the largest increase in mean monthly water temperature was seen, reveals that the colder end of the curves overlap substantially, but the higher end of the PA curves indicate that water temperatures are up to approximately 4°F higher for individual months depending on the exceedance percentile (Figure 2-35).

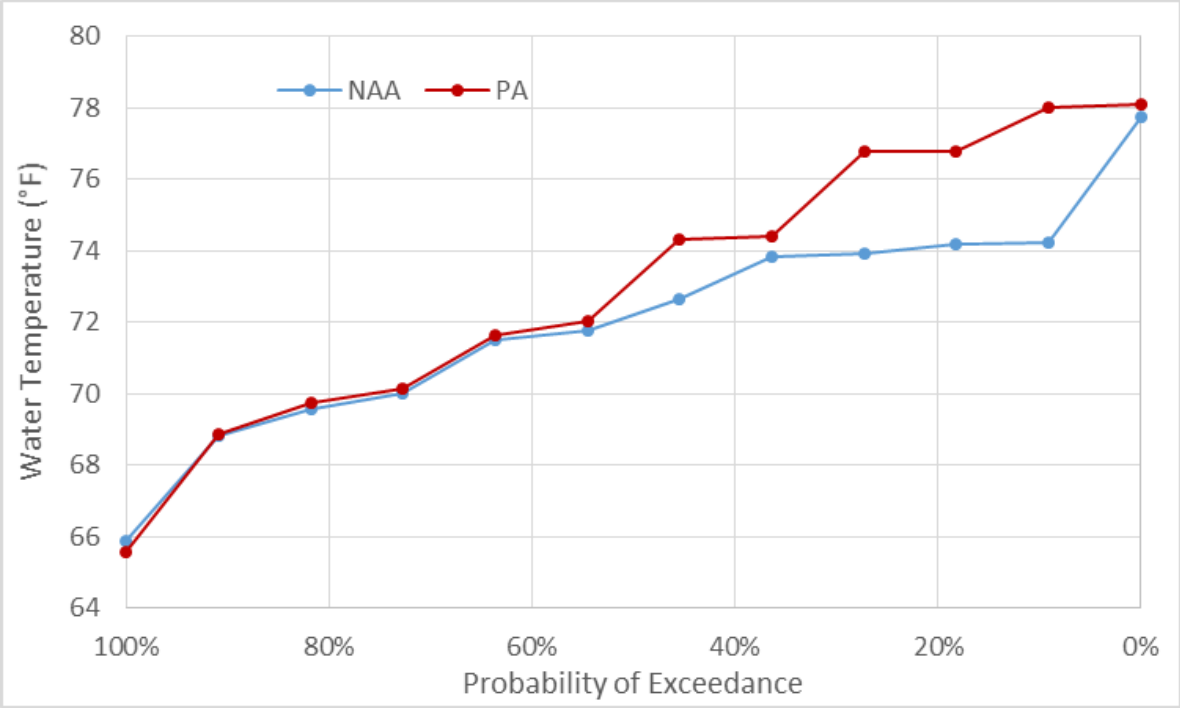

Figure 2-35. Exceedance Plot of Mean Monthly Water Temperatures (°F) in the American River at Watt Avenue in August of Critical Water Years.

Temperature Threshold Analysis

Threshold water temperatures of 63°F and 69°F (7DADM) were used to evaluate water temperature threshold exceedances during the steelhead juvenile rearing life stage in the American River between Hazel Avenue and Watt Avenue (BA Appendix 5.D, Section 5.D.2.1, Water Temperature Analysis Methods, Table 5.D-50). Temperature thresholds were derived according to the methods previously discussed in the Sacramento River section for juvenile rearing.

Results of the water temperature thresholds analysis are presented in the BA in Appendix 5.D, Section 5.D.2.5, Detailed Water Temperature Threshold Analysis Results, Tables 5.D-167 through 5.D-170. At Hazel Avenue, there would be two instances in which there would be more than 5% more days under the PA compared to the NAA on which temperatures would exceed the 63°F threshold: June (7.7% higher) and October (8.6% higher) of above normal water years. In neither instance would the magnitude of average daily exceedance under the PA be more than 0.5°F greater than that under the NAA. For the 69°F 7DADM threshold, there would be three instances in which there would be more than 5% more days under the PA compared to the NAA on which temperatures would exceed the threshold: July of below normal water years (5.6% higher), August of critical water years (21.0% higher), and September of dry years (5.3% higher). In July of below normal years, the average daily exceedance above the threshold under the PA would also be 1.0°F higher than that under the NAA. Furthermore, in August of critical water years, the average daily exceedance above the threshold under the PA would also be 0.7°F higher than that under the NAA. These two instances could represent biologically meaningful negative effects on rearing juvenile steelhead. In September of dry years, there would be no