

Attachment D

National Marine Fisheries Service Concurrence Memorandum



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, CA 95814-4700

NOV 10 2015

Refer to NMFS No: WCR-2015-3710

Mr. Dave E. Hyatt
Resource Management Division Chief
Bureau of Reclamation
1243 N Street
Fresno, California 93721-1813

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the proposed North Valley Regional Recycled Water Program Project.

Dear Mr. Hyatt:

On September 25, 2015, NOAA's National Marine Fisheries Service (NMFS) received your request for written concurrence that the Bureau of Reclamation's (Reclamation) proposed North Valley Regional Recycled Water Program Project (NVRWP) is not likely to adversely affect species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This request was prepared by NMFS, pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) for Pacific Salmon, designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. Fall-run and late-fall-run Chinook salmon have the potential to be present in the action area and are managed under the Pacific Coast Salmon Fisheries Management Plan (FMP). Habitat areas of particular concern (HAPCs), as designated under this FMP, include (1) complex channels and floodplain habitats, (2) thermal refugia, (3) spawning habitat, (4) estuaries, and (5) marine and estuarine submerged aquatic vegetation. There are no HAPCs present in the action area. In this case, NMFS concluded the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public



Law 106-554). The concurrence letter will be available through NMFS's Public Consultation Tracking System at <https://pcts.nmfs.noaa.gov>. A complete record of this consultation is on file at the California Central Valley Office of NMFS.

Proposed Action and Action Area

Action Area and Project Location

The proposed project is located in the San Joaquin River near the City of Patterson, in Stanislaus County, California. The project location is adjacent to the Modesto Wastewater Treatment Plant, between the Tuolumne and Merced River confluences. The action area includes the project footprint, staging areas, adjacent riparian habitat, and extends approximately 350 feet upstream and downstream to the Delta. The interrelated or interdependent activities of this project include construction of pipelines and improvements to infrastructure at the City of Modesto Jennings Treatment Plant. Activities will occur at the Jennings Treatment Plant outfall, public roadways, and private and municipal agricultural lands.

Purpose and Need

Reclamation's proposed action is to issue a Warren Act contract to Del Puerto Water District (DPWD) for the NVRRWP. The DPWD, and cities of Modesto and Turlock propose to implement a regional solution to address water supply shortages within DPWD's service area on the west side of the San Joaquin River in San Joaquin, Stanislaus, and Merced counties. Annually, the proposed NVRRWP will deliver 59,000 acre-feet of recycled tertiary water directly to Reclamation's Delta-Mendota Canal. The recycled tertiary water will be produced by the cities of Modesto and Turlock and delivered via a new pipeline that will cross underneath the San Joaquin River.

The proposed project includes the construction and operation of infrastructure to deliver recycled water from the cities of Modesto and Turlock to the Delta-Mendota Canal. The recycled water will be used for irrigation in DPWD's service area and for habitat management at wildlife refuges. In addition, the proposed project will result in a curtailment of the recycled wastewater that is currently discharged into the San Joaquin River. Curtailment of these discharges into the San Joaquin River would contribute to an incremental reduction (monthly average of 25 cubic feet per second) in flows downstream of the discharge location.

Construction Activities

The proposed project activities include trenchless pipeline construction under the San Joaquin River. There are two types of methods that may be used to install the pipeline: horizontal directional drilling (HDD) and microtunneling. HDD is the preferred method, however if this method is not feasible, then microtunneling will be used. If HDD is used, the crossings will be installed between an entry and exit pit. Excavation will take place by introducing pressurized slurry through the drill string to the bit. The slurry pressure in combination with a rotating drill bit will excavate the material, which will then be transported back to the entry pit along the

outside of the drill string. Entry and pullback pits are required at each side of the crossing. The pits will be approximately 50 to 100 feet square by approximately five feet deep, and the collection points for Bentonite drilling mud and drill spoil. The entry side will require a work area of approximately 1,500 to 3,000 square feet for the drill rig, slurry separation plant, material storage and other support equipment. The exit side will require a work area of approximately 1,000 to 1,500 square feet for the pullback. This area will be used as a pipe assembly and laydown area. The depth of construction will vary from 30 to 50 feet under the San Joaquin River depending on soil conditions and other environmental constraints. If employed, HDD construction will take approximately 3 to 4 months to complete at the San Joaquin River crossing.

Microtunneling is a remotely-controlled pipe jacking process that provides continuous positive support of the face and counterbalances groundwater pressures at the face of the excavation. The microtunneling boring machine is advanced through the ground by incrementally adding jacking pipe segments to the end of the pipe string and advancing the pipe string from a jacking pit to a receiving pit on the opposite side of the crossing. The carrier or product pipe may be jacked directly or installed inside an oversized casing in a separate operation. Jacking pits for microtunneling are typically 10 to 14 feet square. Receiving pits are typically 12 to 16 feet square. Pit depths vary depending on the feature being avoided, existing utilities, and the presence of ground horizons that are more favorable to tunnel through than others. The depth of construction will be approximately 15 to 25 feet under the San Joaquin River channel. A work area (including the pit area) will be approximately 2,000 to 3,000 square feet at the jacking pit. The work area of the receiving pit is typically 1,000 square feet. Off-site staging areas can be used to reduce work areas at each shaft. If employed, pipeline installation using microtunneling at the San Joaquin River crossing will take about 10 months.

Construction of launching and receiving pits for trenchless construction (HDD or microtunneling) will require installation of shoring in upland locations adjacent to the San Joaquin River. These pits will be located on the land-side of the flood control levees. It may be possible that installation of sheet piles may require the use of impact pile driving equipment. Land-based pile driving has the potential to generate underwater noise. Pile driving activities will adhere to thresholds that will be protective of fish (see Table 1). The NMFS Pile Driving Calculator (NMFS 2012) was used to estimate the potential underwater noise related effects of fish species from construction of launching and receiving pits. The highest values for land-based pile driving activities reported in *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish Appendix I Compendium of Pile Driving Sound Data* updated October 2012 (ICF Jones & Stokes and Illingworth & Rodkin 2012) were used to iteratively develop thresholds for pile driving that would be protective of fish. If pile driving activities occur October 1 through May 31, pile driving activities will adhere to the restrictions on the number of allowable strikes for a 24 hour period provided in the table below. Pile driving is estimated to take six to eight weeks, however, it is not expected that pile driving will be continuous during that entire period.

Table 1.

Distance from San Joaquin River (Meters)	Distance from San Joaquin River (Feet)	Maximum Number of Strikes per 24 hours ¹
75	246	130
150	492	365
225	738	672
300	984	1035
375	1230	1447
450	1476	1902
>450	>1476	no limit

¹Calculations based on NMFS Pile Driving Calculations (NMFS 2012). Assumed peak sound level of 204 decibels (dB) and sound exposure level of 175dB.

Operations

Currently the Modesto and Turlock wastewater treatment plants discharge recycled wastewater into the San Joaquin River where it augments existing flows. Modesto and Turlock release an average of 25 cubic feet per second (cfs) of recycled wastewater into the San Joaquin River with a range of average monthly flows of 12.9 – 51.4 cfs (Table 2).

Table 2.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Modesto	31.4	38.2	35.2	10.1	7.0	0.0	0.0	0.0	0.0	0.1	5.1	17.7
Turlock	13.1	13.2	12.9	13.0	12.7	12.9	12.9	13.4	13.3	13.8	13.3	13.4
Total	44.5	51.4	48.1	23.1	19.7	12.9	12.9	13.4	13.3	13.9	18.4	31.1

NVRRWP is proposing that Modesto and Turlock treatment plants recycle the wastewater for other inland uses such as farmland irrigation, instead of discharging the treated and processed wastewater into the San Joaquin River, as it is currently being done. The curtailment of recycled wastewater discharges from these two plants into the river will result in a reduction of river flows. The amount of discharges are relatively small compared to total river flows. Table 3 shows that the change in the average monthly flow at Vemalis from 1923 to 2012 is less than 1 percent of the baseline flow.

In a dry water year, the reduction in the average monthly flow at Vemalis would range between 1.1 to 2.42 percent of the baseline flow (Table 4). In a critically dry water year, the reduction in the average monthly flow at Vemalis would range between 0.85 to 3.38 percent of the baseline flow (Table 4). The removal of these discharges from the San Joaquin River would contribute to an incremental reduction in flows, in all water year types, downstream of the discharge location.

However, given that the average monthly flows at Vemalis exceed 500 cfs in all months and water year types, the magnitude of reduction of flows in a dry and critically dry water year type is nominal.

Table 3.

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Base Flow (cfs)	5,056	6,817	7,226	7,277	7,565	6,277	2,622	1,499	1,782	2,306	2,252	3,438
Recycled wastewater Discharges (cfs)	44.5	51.4	48.1	23.1	19.7	12.9	12.9	13.4	13.3	13.9	18.4	31.1
Adjusted Flow (cfs)	5,012	6,766	7,178	7,254	7,545	6,264	2,609	1,486	1,769	2,292	2,234	3,407
% Change	0.88%	0.75%	0.67%	0.32%	0.26%	0.21%	0.49%	0.89%	0.75%	0.60%	0.82%	0.90%

Table 4.

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Base Flow (cfs) Dry WY	1,917	2,126	2,048	1,518	1,970	1,345	806	720	975	1,386	1,428	1,577
Base Flow (cfs) Critically Dry WY	1839	2230	1510	2162	2318	737.4	576	525.3	849.1	1439	1087	935.4
Recycled wastewater Discharges (cfs)	44.5	51.4	48.1	23.1	19.7	12.9	12.9	13.4	13.3	13.9	18.4	31.1
Adjusted Flow (cfs) Dry WY	1,873	2,075	2,000	1,495	1,950	1,332	793	707	962	1,372	1,410	1,546
Adjusted Flow (cfs) Critically Dry WY	17945	2178.6	14619	2138.9	2298.3	724.5	563.1	511.9	835.8	1425.1	1068.6	904.3
% Change Dry WY	2.32%	2.42%	2.35%	152%	100%	096%	1.60%	186%	136%	100%	129%	197%
% Change Critically Dry WY	245%	2.33%	3.24%	1.07%	085%	176%	2.26%	258%	158%	0.97%	170%	3.38%

Conservation and Avoidance Measures and Best Management Practices (BMPs)

The following measures will be followed as part of the proposed action to minimize or avoid potential impacts, resulting from implementation, to listed fish:

(1) To minimize water quality impacts as a result of construction activities, the following best management practices (BMPs) will be employed:

- a. Implementation of a Storm Water Pollution Prevention Plan (SWPPP), Hazardous Materials Management, and Spill Prevention Plan. These plans will include measures for erosion and sediment control, ensuring that construction vehicles are properly maintained, and oil and other fluids are capture and not allowed to contaminate runoff from the construction site.
- b. Temporary erosion control measures (e.g. silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, and/or sandbag dikes)
- c. All construction activities, including staging and stockpiling will be located on the land-side of the levees.

(2) Minimize loss of shaded riverine aquatic habitat (SRA): The following measures will be taken to minimize the loss and disturbance of SRA habitat:

- a. There will not be any removal of riparian vegetation or disturbance of riparian habitat along the San Joaquin River as construction activities will occur on the landside of the levees.
- b. Areas that may be disturbed by the construction activities will be restored using native seed mix to reestablish grasses.

(3) Construction will be limited to land-based activities. No in-river pile driving will be required. If land-based pile driving occurs during the time that ESA listed fish are present in the action area (October 1 through May 31), pile driving activities will adhere to restrictions that are protective of fish (Table 1).

Action Agency's Effects Determination

Reclamation has determined that the proposed action may affect but is not likely to adversely affect ESA-listed species and their designated critical habitats, under the jurisdiction of NMFS, based on project measures to avoid and minimize potential impacts, such as mitigation measure to reduce noise related impacts and practices to minimize water quality effects. Available information indicates the following listed species (Evolutionarily Significant Units [ESU] or Distinct Population Segments [DPS]) and critical habitat under the jurisdiction of NMFS may be affected by the proposed project (Table 5). Reclamation has determined that the proposed action may adversely affect EFH for Pacific Coast Salmon FMP. Primary constituent elements in the action area include freshwater migratory corridors.

Table 5. ESA listing history.

Species	ESU or DPS	Original Final FR	Listing Status Reaffirmed	Critical Habitat Designated
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	Central Valley spring-run ESU	9/16/1999 64 FR 50394 Threatened	6/28/2005 70 FR 37160 Threatened	9/2/2005 70 FR 52488
Chinook salmon (<i>O. tshawytscha</i>)	Sacramento River winter-run ESU	1/4/1994 59 FR 440 Endangered	6/28/2005 70 FR 37160 Endangered	6/16/1993 58 FR 33212
Steelhead (<i>O. mykiss</i>)	California Central Valley DPS	3/19/1998 63 FR 13347 Threatened	1/5/2006 71 FR 834 Threatened	9/2/2005 70 FR 52488
Green sturgeon (<i>Acipenser medirostris</i>)	Southern DPS	4/7/2006 71 FR 17757 Threatened	NA	10/9/2009 74 FR 52300

Consultation History

On July 3, 2014, Reclamation sent NMFS a letter inviting NMFS as a Cooperating Agency on the Project under NEPA.

On September 22, 2014, Reclamation provided relevant chapters of the draft Environmental Impact Statement to NMFS for review and comment. Comments from NMFS to Reclamation were received on October 1, 2014.

On January 7, 2015, NMFS signed Letter of Understanding to become a Cooperating agency.

On September 8, 2015, NMFS requested to review and comment on the draft biological assessment. Reclamation distributed the draft that same day.

On September 10, 2015, NMFS provided Reclamation comments to the draft biological assessment.

On September 29, 2015, NMFS received Reclamation's initiation package requesting informal consultation on the NVRRWP.

On October 6, 2015, NMFS sent an email to Reclamation regarding a question on temperature and flow in the biological assessment. NMFS received a response that same day.

On October 14, 2015, NMFS requested more information and clarification on the trenchless construction method. This information was received on October 16, 2015.

On October 15, 2015, NMFS requested more information regarding best management practices stated in the biological assessment. NMFS received a response that same day.

On October 16, 2016, NMFS requested further clarification regarding the timelines for the trenchless construction methods.

On October 16, 2015, NMFS had a discussion with Reclamation regarding pile driving over the phone. As a follow up to that question, NMFS sent Reclamation an email requesting further clarification on the land-based pile driving.

On October 19, 2015, NMFS received a response email from Reclamation regarding pile driving.

On October 26, 2015, NMFS received more information from Reclamation on the monthly mean flow at Vemalis.

On October 27, 2015, NMFS called and sent an email to the applicant to gather further information on the effluent water temperature. The information was received that same day. This completed the information needed for NMFS to initiate consultation.

Endangered Species Act

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

The potential effects of the proposed action include impacts to anadromous migrating adult and juvenile ESA listed fish species. Potential impacts include: water quality impacts, noise related impacts from pile driving, reduced flow impacts as a result of the curtailment of current discharges; and effects to critical habitat. The action area is a migration corridor for adult and juvenile anadromous fish. It is not suitable for spawning and incubation due to lack of riparian vegetation and unsuitable channel substrate.

Injury or Death due to Construction Work – Direct injury or death may occur to migrating adult and juvenile due to land-based pile driving activities. During the construction of the launching and receiving pits, noise generated from the land-based pile driving activities can impact fish. If land-based pile driving activities occur during the period that ESA listed fish may be present in the action area (October 1 through May 31), pile driving activities will adhere to the restrictions in Table 1 that are protective of fish. Therefore, impacts to ESA listed fish and their designated critical habitat as a result of noise generated from the land-based pile driving are expected to be insignificant.

Water Quality Degradation – The use of construction equipment has the potential to impair water quality and adversely affect ESA listed fish and critical habitat if hazardous chemicals are spilled and enter the river. Additionally, if sediment associated to the construction activities were to enter the water column, adverse effects may also occur to ESA listed fish and critical habitat. Water quality impacts could cause mortalities and changes in behavior that impair migration activities. These potential effects are expected to be discountable because of the BMPs, measures described above, and the fact that construction activities will occur on the land- side of the levees. Therefore, water quality impacts are expected to be discountable.

Reduction in Flow -The reduction of discharges (a monthly average of 25 cfs) into the San Joaquin River and resulting reduced flows due to the proposed project operations could impact migrating ESA listed fish. However, because the magnitude of the flow reduction (Table 3 and 4) is negligible, the adverse effects to ESA listed migrating anadromous fish and critical habitat will be insignificant.

Reduction in Chemical Exposure – The reduction of wastewater discharges will decrease waste chemicals to the San Joaquin River, and thus will reduce inputs of constituents of emerging

concern (CECs) (e.g. pharmaceuticals, personal care products). These CECs are known to cause endocrine disruption to fish (Krkosek and Olden 2016). Removing the recycled water from the San Joaquin River will have beneficial effects to ESA listed species and critical habitat because the CECs present in the recycled water will no longer be added to the river and fish will not be exposed to the added chemicals from the recycled water.

Temperature – The reduction of discharges may result in higher water temperature related impacts. During the summer months, the City of Modesto does not discharge to the river and the City of Turlock discharges effluent that is approximately the same temperature as the river. Turlock effluent temperature averages 25.7 degrees Celsius (°C) while the river temperature averages 25.5 °C. Both cities are allowed to discharge in the winter months, when the temperature of the river averages 12.1 °C. During this period, effluent temperatures average 18.3 °C, and ESA listed fish would be present in the river and exposed to the warmer effluent water temperatures. However, the proposed project will no longer discharge the effluent into the river and ESA listed fish will no longer be exposed to the higher effluent water temperatures. Additionally, the Districts monitor water temperatures of their effluent and at upstream and downstream of the receiving water locations. In 2013, temperatures downstream of the discharge location were warmer than the upstream temperature on ten sampling dates (Reclamation 2015). Because discharged waste waters are typically warmer, removing the discharge will not result in warmer water temperatures in the river and temperature related impacts to listed fish and their designated critical habitat as a result of the project will be insignificant.

Reduced Riparian Vegetation – Riparian vegetation provides cover, shade and food resources required by adult and juvenile ESA listed fish. Removal of SRA vegetation could result in a of food supply entering the river as well as an increase in water temperatures due to loss of shading. Decreasing the amount of cover may also increase the likelihood of predation. However, riparian vegetation will not be removed or disturbed during construction activities as the construction activities will occur on the land-side of the levees. Ground areas that may be disturbed by the construction activities will be restored using native seed mix to reestablish grasses. Therefore, impacts to listed fish and their designated critical habitat as a result of the construction activities will be insignificant.

Conclusion

Based on this analysis, NMFS concurs with Reclamation that the proposed action is not likely to adversely affect the subject listed species and designated critical habitat.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Reclamation or by NMFS where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or

critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation. This concludes the ESA portion of this consultation.

Please direct questions regarding this letter to Monica Gutierrez, California Central Valley Office, at (916) 930-3657 or via e-mail at Monica.Gutierrez@noaa.gov.

Sincerely,



William W. Stelle, Jr
Regional Administrator

CC: Division Chron File: 151422-WCR2014-SA00314

References Cited:

ICF Jones & Stokes and Illingworth & Rodkin, Inc. 2012. Appendix I: Compendium of Pile Driving Sound Data. Technical Guidance for Assessment and Mitigation of Hydroacoustic Effects of Pile Driving on Fish. October.

Krkosek, M. and J.D. Olden. 2016. Conservation of Freshwater Fishes, eds P. Closs. Published by Cambridge University Press.

National Marine Fisheries Service (NMFS). 2012. Pile Driving Calculator –Microsoft Excel spreadsheet. http://www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm.

U.S Bureau of Reclamation (Reclamation). 2015. North Valley Regional Recycled Water Program . Final Environmental Impact Statement. September 2015.