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

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December 8, 2022

Candace McKinley
Environmental Program Manager
U.S. Bureau of Reclamation
Columbia-Cascades Area Office
1917 Marsh Road
Yakima, WA 98901-2058

Re: Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Roza Dam Fish Screen Replacement Project, Kittitas County, Washington.

Dear Ms. McKinley:

This letter responds to your November 12, 2021 request for initiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action. Your request, after supplemental information was provided, qualified for our expedited review and analysis because it met our screening criteria and contained all required information on, and analysis of, your proposed action and its potential effects to ESA-listed species and designated critical habitat.

NMFS also reviewed the likely effects of the proposed action on essential fish habitat (EFH), pursuant to section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (6 U.S.C. 1855[b]), and concluded that the action would adversely affect the EFH of Pacific coast salmon. Therefore, we have included the results of that review in this document.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order. As a result, the 2019 regulations are once again in effect, and we are applying the 2019 regulations here. For purposes of this consultation, we considered whether the substantive analysis and conclusions articulated in the biological opinion and incidental take statement would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

We reviewed the U.S. Bureau of Reclamation's (Reclamation) consultation request and related initiation package, including a Biological Assessment (BA) on November 12, 2021. We requested additional information on November 15, 2022, and received an updated BA on November 22, 2022. Consultation was initiated on November 12, 2021.

Where relevant, we have adopted the information and analyses you have provided and/or referenced, but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. We adopt by reference the following pages of the BA (Bureau of Reclamation 2022): pp 8–29 (proposed action), pp 29–47 (status of species and critical habitat), p 29 (action area), pp 1–8 and 45–47 (environmental baseline), pp 49–57 (effects of the action), and pp 47–48 (cumulative effects).

As described in the BA, Reclamation proposes to replace the fish screens at Roza Diversion Dam. The dam diverts water from the Yakima River in Kittitas County, Washington, into the Roza Canal for irrigation and hydropower. The proposed action includes isolating the work area, constructing new screens, demolishing old screens, and operating and maintaining the new screens. Changes in the Roza pool level and water diversion operations are also proposed for October 1 to March 15 of two consecutive years, to facilitate construction.

We examined the status of each species that would be adversely affected by the proposed action to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and discussed the function of the physical and biological features essential to the conservation of the species that create the conservation value of that habitat. A description of the status of the species and critical habitat is included on pages 29–47 of the BA and is adopted here. Since receipt of the BA, NMFS has published a 5-year review for Middle Columbia River (MCR) steelhead, updating its status and limiting factors (NMFS 2022); that review is adopted here.

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). A description of the action area is included on page 29 of the BA, which is adopted here. The action area extends from the upstream end of the Roza Dam pool downstream to the hydropower water return, a distance of approximately 11 miles. The action area is delineated by the extent over which the Yakima River's stage or discharge will be affected during construction activities.

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02). The environmental baseline is described on pages 1–8 and pages 45–47 of the BA and is adopted here. Habitat in the action area is comprised of a natural canyon reach and an armored, formerly productive floodplain reach. Migration success of steelhead smolts is compromised by downstream passage problems at Roza Dam and reduced spring flows below the dam.

The action area supports spawning, rearing, and migration of MCR steelhead. Spawning occurs in spring at low density. Rearing occurs year-round. Juvenile migration downstream can occur

year-round with a peak in April–May and an additional pulse in the fall. Adult migration upstream occurs in September–April. The ability of critical habitat in the action area to support recovery of MCR steelhead is primarily limited by: (1) mortality of juvenile fish attempting to pass Roza Dam, and (2) low flows caused by the operation of upstream reservoirs and Roza Dam. Other impairments, such as degraded water quality, have lesser impacts on the conservation value of critical habitat.

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.17). In our analysis, which describes the effects of the proposed action we considered 50 CFR 402.17(a) and (b).

An assessment of the effects of the proposed action is included in pages 49-57 of the BA, and adopted here (50 CFR 402.14[h][3]). NMFS has evaluated these sections and, after our independent, science-based evaluation, determined it meets our regulatory and scientific standards. Reclamation found that adverse effects would occur during construction periods when the Roza pool elevation is altered, and during long-term operation of the screens. In summary, adverse effects include:

1. Delay of adult migration caused by increased turbidity when the Roza pool is lowered.

2. Salvage of adults within one of the fish ladders when the Roza pool elevation is changed and passage is transitioned from the High Pool ladder to the Low Pool ladder, and vice versa.

3. Stranding and asphyxiation of juvenile fish when the Roza pool is lowered.

4. Salvage of juvenile fish within 2,000 square feet between the two coffer dams.

5. Displacement of juvenile fish due to increased turbidity during pool lowering that will increase predation risk.

6. Delayed migration of smolts when the Roza pool is lowered in spring.

7. Injury or death of small numbers of smolts from encountering operating screens.

The greatest effect of the proposed action, in terms of number of fish affected and the magnitude of the effect on the steelhead population, is increasing smolt survival by eliminating the existing screen and bypass system. As noted in the BA, reducing entrainment into the existing system and replacing it with in-river screens was projected by NMFS (2016) to increase smolt survival through the action area by 1.5 percent on average. However, given other operational changes underway at Roza Dam, and available information, NMFS expects a 1.9 percent increase in smolt survival through the action area as a result of the proposed action. Improved smolt survival would occur in the first outmigration season after construction and extend into the future for decades during the operational life of the new screen system.

Individual fish from the Upper Yakima population of MCR steelhead will be affected by the proposed action. Adult fish will be subject to migration delays during construction for a period of hours to a few days. Migration delays will occur before the peak upstream migration period. Up to several adults may be captured in dewatering ladders and safely released. Neither of these effects are expected to reduce the likelihood that these adults spawn successfully or outmigrate as kelts.

Construction is expected to result in the injury or death of a small number of juveniles, primarily from stranding as the Roza pool is lowered and the forebay is partially dewatered. The delay in migration for smolts is unlikely to have effects at the population scale, as the rate of migration in this period (early March) is typically slow within the action area and construction is unlikely to make a meaningful difference in migration timing. In the long term, some juveniles are expected to encounter the screens and be injured during water diversion, though the likelihood of injury will be much less than occurs with the existing facilities in place.

Critical habitat will be temporarily affected during pool drawdowns for construction, which will temporarily and slightly delay passage at the dam and temporarily increase turbidity. As a consequence, we expect temporary impairments to the safe passage and water quality physical and biological features (PBFs). In the long term, the action will improve the ability of critical habitat to support recovery by reducing the scale of artificial passage obstruction for migration (long-term improvement in the safe passage PBF).

"Cumulative effects" are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02 and 402.17[a]). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Cumulative effects are described on pages 47–48 of the BA and adopted here. Cumulative effects include moderate improvements in water quality and effects of climate change. In the BA, fish monitoring work and habitat and flow improvements are identified as cumulative effects; however, NMFS disagrees that these are cumulative effects. The fish monitoring activities are Federal actions due to their reliance on Federal facilities and approval via Federal permit. The habitat and flow improvements described are generally outside of the action area, and those in the action area are Federally funded and/or authorized. These activities are not cumulative effects because they have been or will be consulted on separately.

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action to the environmental baseline and the cumulative effects, taking into account the status of the species and critical habitat, to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

NMFS recently reaffirmed that MCR steelhead have not achieved viable status and are at continuing risk of extinction. Major threats to MCR steelhead include, but are not limited to, climate change, predation and regulation of the Columbia River, and various impairments in

tributaries, such as the Yakima River, due to low flows, poor passage conditions, and degradation of floodplain and riparian habitat. The Upper Yakima population is at high risk due to low abundance and productivity, as well as truncated spatial structure (NMFS 2022).

Within the action area, the key threats to MCR steelhead viability include impairment of floodplain function that limits rearing productivity, and regulation of the hydrograph and the operation of Roza Dam, both of which kill smolts migrating through the reach. Cumulative effects are not expected to meaningfully change population viability or the ability of critical habitat to support recovery of MCR steelhead.

The proposed action is expected to delay migration of some adults for up to a few days in two consecutive years, and to cause the capture and release of a small number of adults when fish ladders dewater. A small number of adults will be exposed to these effects, and neither effect is expected to reduce the success of spawning or outmigrating. Therefore, the viability of the population will not be affected by delayed adult migration.

The proposed action is expected to kill or injure a small number of juveniles during four events that lower the Roza pool for construction via stranding, salvage activities, and high turbidity that will increase predation risk. In total, a small number of juveniles from three cohorts are expected to be injured or killed. In the context of the entire population of rearing steelhead in the population, the injury and death of these fish is not expected to meaningfully affect the abundance or productivity of the population in the long term.

The proposed action is expected to cause some delay in smolt migration during early March in two consecutive years. Approximately 2 percent of the Upper Yakima population's steelhead transit the action area during this time period (NMFS, unpublished data). Migration speed at this time is relatively slow, such that a minor migration delay is unlikely to cause the injury or death of most of the fish that are slightly delayed. The effect is not expected to meaningfully reduce the abundance or productivity at the population scale.

The proposed operation of the new screens in the long term is expected to cause the injury or death of a small number of smolts over the operational life of the screens due to the trauma of impingement. Although the screens meet NMFS criteria and are designed to be protective, it is expected that a very small proportion of the thousands of smolts that pass by the screen will be impinged on occasion. The proposed action is expected to increase smolt survival through the action area by 1.5 to 1.9 percent by replacing the existing screen and bypass system with the new screens. The losses of a small number of juveniles resulting from the proposed action in the context of consistent annual improvements in smolt survival is inconsequential because the proposed action as a whole will increase the abundance and productivity of the population.

The proposed action will temporarily reduce the function of critical habitat with respect to safe passage and water quality during four pool-lowering events for construction. In the long term, the function of critical habitat in the action area will be improved for the safe passage PBF by removing the existing screen and bypass system, and installing and operating the new screens. These effects will increase the ability of critical habitat to support recovery of the listed species in the action area. Therefore, the action will not negatively affect the conservation value of critical habitat at the scale of the designation.

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of MCR steelhead or destroy or adversely modify their designated critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by interim guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this Incidental Take Statement (ITS).

Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take of MCR steelhead is reasonably certain to occur and will include: (1) capture, injury, and death resulting from fish salvage activities; (2) harm, injury, and death from lowering the Roza pool (forebay); and (3) harm from operating the screens.

Incidental Take from Fish Salvage

NMFS anticipates the proposed action will result in capture, injury, and death as a result of fish salvage within the fish ladders during changes in pool level and within the cofferdam around the work area. Adults that are captured are anticipated to be captured and released safely, but some juveniles are expected to be injured or killed. The two cofferdams used during construction will isolate 2,000 square feet in total. Estimating the specific number of animals captured, injured or killed is not possible because of the range of responses that individual fish will have, and because the numbers of fish present at any time is highly variable. Although captured fish can be counted, it is difficult to identify and quantify the number of fish with internal injuries. While this uncertainty makes it difficult to quantify take in terms of numbers of animals injured or killed, our best estimate is that a small number of juvenile fish will experience injury or death due to fish salvage. However, the zone of fish salvage is readily discernible and presents a reliable measure of the extent of take that can be monitored and tracked. Therefore, the estimated zone of fish salvage activities represents the extent of take associated with injury and death. The proposed surrogate is causally linked to anticipated take because it describes conditions that will

cause take due to fish salvage. Specifically, NMFS will consider the extent of take exceeded if the proposed action results in salvage of any adults outside of the fish ladders, or results in salvage of any juveniles outside of the fish ladders or the 2,000 square feet of coffer dammed area.

Incidental Take from Lowering the Roza Pool

NMFS anticipates the proposed action will result in harm, injury, or death to a combination of migrating adults, rearing juveniles, and migrating smolts as a result of lowering the Roza pool. Lowering the pool will cause increased turbidity that will delay migrating adults and cause juvenile displacement to areas with higher predation risk. Lowering the pool will also strand rearing juveniles and delay migration of smolts. Estimating the specific number of animals harmed is not possible because of the range of responses that individual fish will have, because the numbers of fish present at any time is highly variable, and because it is not possible to observe fish being affected. While this uncertainty makes it difficult to quantify take in terms of numbers of animals harmed, our best estimate is that a small number of rearing juveniles and migrating adults will be affected, and that a small number of smolts will be negatively affected by outmigration delay. However, the extent of pool lowering (dewatering) is readily discernible and presents a reliable measure of the extent of take that can be monitored and tracked. Therefore, the extent and frequency of pool lowering represents the extent of take associated with harm, injury, and death. The proposed surrogate is causally linked to anticipated take because it describes conditions that will cause take due to pool lowering. Specifically, NMFS will consider the extent of take exceeded if the proposed action results in the Roza forebay being lowered to the Low Pool condition (approximately 1207.75 feet) more than four times, or lowered to the Low Pool condition outside the October 1–March 15 work window.

Incidental Take from Operating Screens

NMFS anticipates the proposed action will result in harm to a small number of juveniles over the life of the screens due to impingement. Estimating the specific number of animals harmed is not possible because of the range of responses that individual fish will have, because the numbers of fish present at any time is highly variable, and because it is not possible to observe fish being affected. While this uncertainty makes it difficult to quantify take in terms of numbers of animals harmed, our best estimate is that a very small number of juveniles will be affected in any year. However, the average approach velocity of water diverted through each screen is readily calculated and presents a reliable measure of the extent of take that can be monitored and tracked. Therefore, the average approach velocity at each screen represents the extent of take associated with harm. The proposed surrogate is causally linked to anticipated take because it describes conditions that will cause take due to impingement. Specifically, NMFS will consider the extent of take exceeded if the proposed action results in an average approach velocity through any screen that exceeds 0.50 feet per second in September through January; exceeds 0.46 feet per second in February, March, or August; or exceeds 0.40 feet per second in April through July.

The surrogates described above are measurable, and thus can be monitored and reported. For this reason, the surrogates function as effective reinitiation triggers.

Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

"Reasonable and prudent measures" (RPMs) are measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02). Reclamation shall minimize incidental take by:

1. Monitoring the project to ensure that the measures are meeting the objective of minimizing take and that the amount or extent of take is not exceeded.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. Reclamation or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement RPM 1:

    a. Within 30 days of the end of one full operation season after construction is completed, Reclamation shall provide NMFS a post-project monitoring report including, at a minimum, the following information:

        i. Project name and NMFS Tracking No: Roza Dam Fish Screen Replacement Project, WCRO-2021-02929.

        ii. Number of juvenile and adult *Oncorhynchus mykiss* that were captured and released without injury during each fish salvage event during construction.

        iii. Number of juvenile and adult *O. mykiss* that were observed injured or dead during each fish salvage event during construction.

        iv. Total area (square feet) of fish salvage efforts outside of the fish ladders during each fish salvage event during construction.

        v. Dates during which Roza forebay was lowered to Low Pool condition (approximately 1207.75 feet elevation) for construction.

vi. Approach velocity measurements taken at each screen through the operation season and description of adjustments made to meet performance criteria.

b. Report should be delivered to crbo.consultationrequest.wcr@noaa.gov

Reinitiation of Consultation

Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If 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 the biological opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified action."

Essential Fish Habitat

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) 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 conducted 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.

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.0-5[b]).

NMFS determined the proposed action would adversely affect EFH of Pacific salmon as follows:

1. Lowering the Roza pool four times, causing displacement, stranding, and delayed migration of juvenile coho and Chinook salmon.

2. Impingement from operating the screens.

Before initiation of consultation, NMFS made recommendations to Reclamation throughout the development of the proposed action and Reclamation has adopted these recommendations to the extent feasible. NMFS determined that measures included in the BA are sufficient to avoid, minimize, mitigate, or otherwise offsets the impact of the proposed action on EFH. Therefore, NMFS is not recommending any additional measures.

Reclamation must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600. 920[l]).

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 biological opinion will be available through NOAA Institutional Repository at https://repository.library.noaa.gov/welcome. A complete record of this consultation is on file at NMFS' Columbia Basin Branch.

Please direct questions regarding this letter to Sean Gross, Columbia Basin Branch, at (509) 856-5442.

Sincerely,

Nancy L Munn

Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator
Interior Columbia Basin Office

cc: Scott Willey – USBR

REFERENCES

Bureau of Reclamation. 2022. Biological Assessment of Potential Effects to Middle Columbia River Summer Steelhead from Installation of In-River Fish Screens at Roza Diversion Dam in Kittitas County, Washington. 61pp.

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