Yakima River Basin Water Enhancement Project Phase III

Tieton Dam Fish Passage – Data Gap Analysis Technical Memorandum

U.S. Bureau of Reclamation
Contract No. 140R1019D0009

Prepared by

HDR

U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Columbia-Cascades Area Office

State of Washington
Department of Ecology
Office of Columbia River

February 2021

MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities

---

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The Mission of the Washington State Department of Ecology is to protect, preserve and enhance Washington's environment, and promote the wise management of our air, land and water for the benefit of current and future generations.

Yakima River Basin Water Enhancement Project Phase III

Tieton Dam Fish Passage – Data Gap Analysis Technical Memorandum

U.S. Bureau of Reclamation
Contract No. 140R1019D0009

Prepared by

HDR

U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Columbia-Cascades Area Office

State of Washington
Department of Ecology
Office of Columbia River

February 2021

Contents

Attachments

1.0 Introduction

This memorandum addresses the potential data needs associated with future National Environmental Policy Act (NEPA)/State Environmental Policy Act (SEPA) compliance requirements for the construction and operation of fish passage at Tieton Dam. For the purposes of this memorandum, it is assumed that a joint NEPA/SEPA Environmental Impact Statement (EIS) would be prepared. Based on a review of existing reports and discussion with members of the Yakima River Basin Water Enhancement Project Workgroup and project partners at a November 5, 2020 meeting, this memorandum outlines existing data sources identified for each environmental resource area and the information contained therein; discusses data and study requirements to fulfill NEPA/SEPA compliance requirements based on current proposed configurations of the project; outlines a conceptual timeline to complete those requirements and next steps to verify appropriate analysis is identified for each resource.

The review of existing information primarily focused on reviewing existing NEPA/SEPA documentation for projects that fall under the Yakima Basin Integrated Plan (Integrated Plan) and studies that have been published for various resources that could be impacted by the proposal. These included:

- *Yakima River Basin Study Environmental, Policy and Legal Barriers Memorandum. June 2011.* This technical memorandum analyzed potential environmental, policy, and legal barriers that could prevent the Tieton Dam Fish Passage Project from moving forward (ESA Adolfson, 2011).
- *Yakima River Basin Integrated Water Resource Management Plan Final Programmatic Environmental Impact Statement. March 2012.* The Integrated Plan Programmatic EIS (PEIS) evaluated two alternatives to meet the water supply and ecosystem restoration needs in the Yakima Basin and considered reservoir fish passage as one of the project elements (Reclamation and Ecology, 2012).
- *Tieton Dam Fish Passage Facilities Appraisal Assessment Report. October 2015.* This appraisal assessment report describes project alternatives and technical considerations for adding upstream and downstream fish passage facilities at the U.S. Department of the Interior Bureau of Reclamation's Yakima Project, Tieton Dam (Rimrock Reservoir) (HDR 2015).

Other information sources that are specific to individual resources are discussed in their respective resource sections below.

2.0 Project Description

The Tieton Dam Fish Passage project considers adding upstream and downstream fish passage facilities at the U.S. Department of the Interior Bureau of Reclamation's Yakima Project, Tieton Dam (Rimrock Reservoir) as part of the Yakima River Basin Integrated Plan) (Reclamation and Ecology 2011). Tieton Dam is located in Yakima County, Washington, approximately 40 miles northwest of the City of Yakima, Washington. The intent of the fish passage element of the Integrated Plan is to restore access to habitat above the five existing large storage reservoirs (and the smaller Clear Lake Dam) and provide upstream and downstream passage for anadromous salmonids, as well as bull trout and other resident fish.

Tieton Dam was not equipped with upstream or downstream fish passage facilities when constructed in 1925. Construction of the dam inundated a large amount of river habitat since Tieton Dam was constructed on a river and not associated with a natural lake. The tributaries upstream from the dam formerly supported runs of anadromous salmonids and resident fish. Fishery agencies considered

McAllister Meadows, which was inundated with construction of Rimrock Reservoir, high quality habitat for spring Chinook (*Onchorynchus tshawytscha*), coho (*O. kisutch*), steelhead (*O. mykiss*), and bull trout (*Salvelinus confluentus*). The watershed upstream of Tieton Dam did not historically support sockeye salmon. Once constructed, Tieton Dam blocked access to upstream habitat. Reclamation and Ecology estimate that approximately 37 river miles of tributary stream habitat (to natural upstream or manmade barriers) could be accessible to anadromous salmonids if fish passage were provided at Tieton Dam.

Restoration of fish passage at Tieton Dam has the objective of maximizing ecosystem integrity in the following ways:

- Increasing the life history diversity, geographic distribution, and abundance of coho salmon, spring Chinook salmon, and Pacific lamprey (*Entosphenus tridentatus*) to self- sustaining levels capable of supporting increased harvest
- Contributing to the recovery of Endangered Species Act (ESA)-listed upper Middle Columbia River (MCR) steelhead
- Reconnecting isolated populations of ESA-listed bull trout (*Salvelinus confluentus*)

Rimrock Reservoir was not a natural lake so the watershed upstream would not have historically supported sockeye salmon. A possible additional objective would be introducing sockeye salmon populations to this part of the Yakima River basin as part of the Yakima Basin Sockeye Reintroduction program initiated by the Yakama Nation with Washington Department of Fish and Wildlife (WDFW) support, with the goal of restoring populations in the Yakima River basin to self-sustaining levels capable of supporting harvest. Fishery biologists believe that passage at Tieton could allow introduction of sockeye at Rimrock Reservoir and contribute to reintroduction of extirpated sockeye salmon in the Yakima River basin. Introducing sockeye into Rimrock Reservoir would depend on the success of the reintroduction program at Cle Elum Reservoir.

3.0 Resource Areas

3.1 Fish (including listed species)

The primary fish species of concern in the study area for the Tieton Dam Fish Passage project include MCR Steelhead, bull trout, coho salmon, and Chinook salmon. NEPA and SEPA compliance requires concurrent preparation of ESA consultation documentation for activities with the potential to impact listed species. Formal ESA Section 7 consultation can begin at 30-percent design and must be completed prior to issuance of Section 404 Discharge Authorization from the U.S. Army Corps of Engineers (Corps) and the NEPA decision document. Formal consultations are generally required for “Major Construction Projects” that require an EIS for NEPA.

3.1.1 Existing Information

For the Tieton Dam Fish Passage project, the following reports have some discussion about fish in the project area:

- *Yakima Fisheries Enhancement Study Phase II. 1982.* The Yakima Fisheries Enhancement Study, Phase II includes discussion of the nutrient levels and habitat productivity of Rimrock Reservoir (Mongillo and Faulconer, 1982).
- *Draft Progress Report on Limnological Surveys of Five Reservoirs in the Upper Yakima River Basin. 1999.* The survey includes discussion of the nutrient levels and habitat productivity of Rimrock Reservoir (Hiebert, 1999).

- *Inland Fishes of Washington. 2003.* Inland Fishes of Washington describes all the known native and introduced fishes found in freshwater habitats of Washington State (Wydoski and Whitney 2003).
- *2011 Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011.* Per the memorandum, the fish passage element of the project is not anticipated to present any environmental barriers for project implementation. The 2011 memorandum assumes that other environmental impacts for the Tieton Fish Passage project would be similar to the impacts associated with construction of fish passage at Cle Elum dam (ESA Adolfson, 2011).
- *Yakima River Basin Integrated Water Resource Management Plan Final Programmatic Environmental Impact Statement. March 2012.* The Integrated Plan PEIS provides a broad overview of fish species in the Tieton River. The PEIS also provides a brief overview of water temperature conditions that may affect fish in the basin. However, as any data used in the preparation of the PEIS is approximately 10 years old and therefore, could not be relied upon during the preparation of a Tieton Dam Fish Passage EIS (Reclamation and Ecology 2012).
- *Tieton Dam Fish Passage Facilities Appraisal Assessment Report. October 2015.* The report summarizes the fish species that are currently present in Rimrock Reservoir, as well as the species that would benefit from fish passage at Rimrock Reservoir. The data presented in this report is borderline in terms of applicability to a future EIS effort and especially so when considered on the timeframe of when a future EIS would be prepared (HDR 2015).

3.1.2 Technical Studies/Environmental Surveys Needed

The existing conditions for fish species in the Tieton River and Rimrock Reservoir that could potentially be impacted by proposed fish passage would need to be updated prior to the preparation of the EIS. A general census of fish anticipated to occur in the river and reservoir would be obtained from Wydoski and Whitney 2003, with the expectation that WDFW biologists would verify that the information is still accurate.

Information regarding productivity in the reservoir appears to be primarily sourced from Mongillo, P. and Faulconer, L. 1982 and Hiebert, S. 1999. These reports provide a high-level overview of the conditions within Rimrock Reservoir. Further studies and sampling would be required to understand the zooplankton abundance as well as generally characterizing the food web in the reservoir.

Specific questions that would need to be addressed in the EIS analysis include:

- How will reintroduction of bull trout impact other existing species in the reservoir, including sockeye and steelhead?
- Need to assess potential impact of dam operation and reservoir drawdown on upstream fish passage.
- Need to assess potential impacts of fish passage operation on availability of water supply for irrigation.

3.1.3 Timeline

Study and sampling of the productivity of the reservoir would require approximately 6 to 12 months and would need to be timed to capture seasonal changes in reservoir operations and productivity. The review period for formal consultation documents and issuance of a Biological Opinion is approximately 4 to 6 months, though the National Marine Fisheries Service may take longer to review and approve.

3.2 Wildlife (including listed species)

In addition to general concerns about wildlife habitat impacts, the terrestrial species of concern in the study area includes northern spotted owl. NEPA and SEPA compliance would require concurrent preparation of ESA consultation documentation for activities with the potential to impact listed species. Formal ESA Section 7 consultation can begin at 30-percent design and must be completed prior to issuance of Section 404 Discharge Authorization from Corps and the National Environmental Policy Act (NEPA) decision document. Formal consultations are generally required for "Major Construction Projects" that require an EIS for NEPA.

3.2.1 Existing Data Sources/Information Available

- *Yakima River Basin Integrated Water Resource Management Plan Final Programmatic Environmental Impact Statement. March 2012.* The Integrated Plan PEIS provides a broad overview of terrestrial species in the Naches River Basin and near Rimrock Reservoir. Appendix C to the Integrated Plan PEIS provides a summary table of special species near Rimrock Reservoir (Reclamation and Ecology 2012).
- *Tieton Dam Fish Passage Facilities Appraisal Assessment Report. October 2015.* The report discusses the potential impacts to northern spotted owl. Critical habitat for northern spotted owl is designated near Rimrock Reservoir; however, according to the appraisal report is unlikely to be impacted by construction of the fish passage facilities (HDR 2015).

3.2.2 Technical Studies/Environmental Surveys Needed

A general wildlife habitat survey would need to be conducted prior to preparation of an EIS. The available reports did not indicate whether a recent habitat suitability survey for northern spotted owl has been conducted. This would be useful for the ESA and NEPA/SEPA analysis. A survey would typically need to be conducted within the previous 5 years for ESA applicability; however, if the US Fish and Wildlife Service (USFWS) specifically requires a survey, it would likely need to have been conducted within 2 years or less prior to the preparation of the EIS. If no survey is conducted, Washington State Department of Natural Resources and WDFW data and interviews with local biologists would likely be sufficient.

3.2.3 Timeline

A general wildlife survey would require 1 to 3 months. In accordance with the northern spotted owl survey protocol, six site visits should be conducted during the allowed survey period between April 1 and August 15. At least one of the site visits should be conducted at night and areas of good quality habitat or historic activity should be identified as survey locations. The review period for formal consultation documents and issuance of a Biological Opinion is approximately 4 to 6 months, though the USFWS may take longer to review and approve.

3.3 Vegetation and Wetlands (including listed species)

Vegetation and wetlands that may be affected by project activities are subject to multiple regulations, programs, plans, and policies. Federal regulations and policies include the Clean Water Act (CWA), which regulates the discharge of fill material in "waters of the U.S.", including wetlands. Washington Administrative Code Chapter 220-110 (Hydraulic Code) requires an environmental permit for construction activities in or near Washington State waters.

3.3.1 Existing Data Sources/Information Available

- *Yakima River Basin Integrated Water Resource Management Plan Final Programmatic Environmental Impact Statement. March 2012.* The Integrated Plan PEIS provides a qualitative overview of vegetation type within the Naches River Basin and adjacent to Rimrock Reservoir. Construction of fish passage facilities could disturb vegetation at the reservoir (Reclamation and Ecology 2012).
- *National Wetlands Inventory. 2020.* The USFWS National Wetlands Inventory mapper notes the presence of several wetlands surrounding Rimrock Reservoir. They are concentrated along the Tieton River and other creeks that interact with the reservoir (USFWS, 2020).

3.3.2 Technical Studies/Environmental Surveys Needed

Depending on where the potential fish passage facilities are sited, vegetation and wetland surveys for any upland areas potentially impacted by the fish passage facility would need to be conducted to inform environmental review and support CWA and state or local permitting requirements. Wetland surveys would be informed by the presence of wetlands identified in the National Wetlands Inventory. If there are wetlands any in the project area, they would need to be field-verified to determine the extent and quality of the wetlands.

3.3.3 Timeline

A wetland and vegetation survey and report would require approximately 3 to 6 months to prepare. Tieton River and Rimrock Reservoir are both considered jurisdictional waters of the U.S. As such, any fill or excavation would require preparation of either an Individual or Nationwide Permit under Section 404 of the CWA. The applicant would submit a complete Joint Aquatic Resource Permit Application to the Corps at least 9 months prior to bid letting. Due to the nature of the work and likely extent of permanent fill, authorization under the Nationwide Permit Program may not be possible. If applying for an Individual Permit, the permitting process may take up to 18 months. Any impacts to wetlands would also be included in this permitting process with the additional requirement of identifying compensatory mitigation per the no net loss policy.

3.4 Surface Water Resources

No additional studies or surveys are anticipated for surface water resources. To understand the potential impacts to surface water resources, an understanding of the operational parameters of the reservoir with and without fish passage would be required. It is assumed that this would be made available by Bureau of Reclamation at the time of preparation of any required NEPA/SEPA documentation.

3.5 Surface Water Quality

Surface water quality in the state of Washington is subject to the requirements of the Clean Water Act (CWA). The CWA requires preparation of lists of impaired waters (Section 303[d]), permit approvals such as Section 401 Water Quality Certifications, and National Pollutant Discharge Elimination System (NDPES) permits for discharges to receiving waters. In Washington State, NPDES permits and Section 401 Water Quality Certifications are administered by Ecology. Surface water quality standards for the State of Washington are established by Ecology in Chapter 173-201A of the Washington Administrative Code (WAC). Changes in operations as a result of the addition of a fish passage facility to Tieton Dam could potentially impact water quality in the reservoir.

3.5.1 Existing Data Sources/Information Available

- *National Water Quality Monitoring Council Database. 2020.* The U.S. Environmental Protection Agency, U.S. Geological Survey, and U.S. Department of Agriculture maintain a database of water quality data that each agency collects independently in a single database (National Water Quality Monitoring Council, 2020).
- *Washington States Lakes Environmental Data. 2020.* The Washington Department of Ecology maintains a database of water quality data for lakes and reservoirs in the state. At Rimrock Reservoir, there is one entry for a 2000 fish tissue toxics study conducted on rainbow trout (Ecology, 2020).
- *Reclamation Water Quality Sampling Data.* Reclamation collects water quality data for Rimrock every 3 years.

3.5.2 Technical Studies/Environmental Surveys Needed

Modeling would be required to understand the potential water quality impacts from operational changes resulting from the addition of the fish passage facility. It is assumed that the water quality sampling data collected by Reclamation for Rimrock would be sufficient for any required modeling inputs.

3.5.3 Timeline

A water quality model and results would require approximately 3 to 6 months to prepare.

3.6 Cultural Resources

Cultural resources are considered any property valued (for example, monetarily, aesthetically, or religiously) by a group of people, and may include archaeological sites, built environment structures, human-altered landscapes, objects, and locations of traditional or ceremonial significance (Traditional Cultural Properties). These valued properties can be historical in character or date to the pre-contact past.

In recognition of the public's interest in cultural resources and the benefits of preserving them, several federal, state, and local regulations have been developed for their protection. The National Historic Preservation Act (NHPA) of 1966 (as amended) is the primary law that guides management activities (36 Code of Federal Regulations [CFR] 800). Section 106 of the NHPA requires federal agencies to consider the effects of undertakings that are federally funded, permitted, or take place on federally administered lands. If those undertakings have the potential to affect historic properties, defined as cultural resources that are eligible for listing in the National Register of Historic Places (NRHP) they must be taken into account. For these projects, federal permits would likely trigger the need for compliance with the NHPA.

The Washington Department of Archaeology and Historic Preservation (DAHP) considers Tieton Dam a component of the historic district for the Yakima-Tieton Irrigation District, and it is eligible for inclusion in the National Register of Historic Places (NRHP). The historic district is identified for its contribution to the development of irrigation and the economic development of eastern Washington and for its engineering design.

3.6.1 Existing Data Sources/Information Available

DAHP Washington Information System for Architectural and Archaeological Records Data (WISAARD). 2020. Much of the area surrounding Rimrock Reservoir is classified as high or very high risk for encountering cultural resources according to DAHP's Statewide Archaeological Predictive

Modeling. DAHP's database notes two previous projects in the area, the first installation of fish passage at the Clear Creek Dam and the second a safety railing installation project at the Tieton Dam Warehouse Building.

3.6.2 Technical Studies/Environmental Surveys Needed

Based on the historic eligibility of Tieton Dam and associated infrastructure, any construction-related work conducted at the dam, including the downstream tailrace, would require consultation with DAHP. Although previous cultural and historic resource surveys have been conducted near the proposed upstream and downstream passage facilities, Reclamation would review the Area of Potential Effect delineated for previous surveys and determine the applicability of previous surveys to this project. Updated surveys may be required for consultation, and new surveys would be required if previous Areas of Potential Effect were not inclusive of all areas potentially affected by passage implementation. This includes any clearing or grading that may be necessary for fish haul truck access roads and fish release locations upstream of Rimrock Reservoir.

3.6.3 Timeline

NHPA consultation and coordination on impacts to NRHP-eligible resources would be conducted concurrent with the NEPA/SEPA compliance process. Conducting a survey, coordinating with Tribes and DAHP, completing NHPA consultation, and producing a technical report would likely require 6 to 12 months.

3.7 Additional Resources

The earth, groundwater, noise, land and shoreline use, air quality, recreation, visual, public services, utilities, transportation, environmental justice, and socioeconomics sections of the EIS could be completed during preparation of the EIS without any notable pre-EIS effort required. Each would require their own EIS section; however, no lengthy data collection efforts or modelling would be required for these resources that could not be completed during the normal course of EIS preparation.

4.0 Schedule

The below representative schedule (Figure 1) outlines the work that would need to be completed prior to EIS preparation (i.e., pre-Notice of Intent [NOI]) and work that would need to be completed prior to issuance of an EIS Record of Decision (ROD). Preparation of a Section 404 Individual Permit (if required) would not be tied directly to the NEPA/SEPA process but should be considered concurrent activities. As noted above, the timeline for cooridnation for potentially impacted landowners is very difficult to predict.

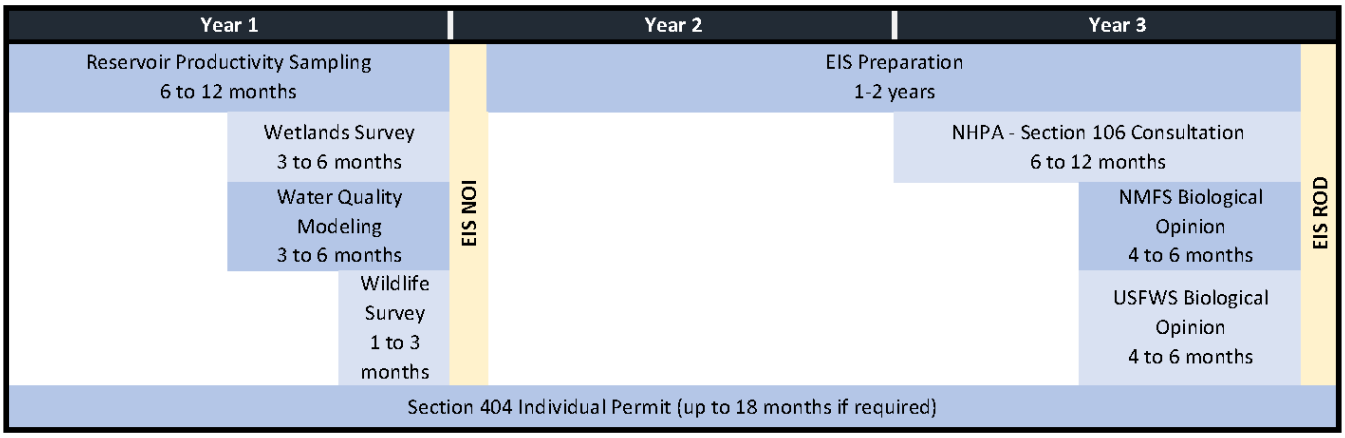

Figure 1. Representative Schedule – Tieton Dam Fish Passage

5.0 Next Steps

The next step in this process would be for Reclamation and Ecology to work with resource authors to fine tune their analyses, including development of the approach to individual resource analyses, verifying existing data availability, and planning for any data collection efforts.

6.0 Conclusion

This analysis indicates that there are no major findings from this analysis, major gaps in data availability, or understanding of issues that would change the current planning trajectory of the Tieton Dam Fish Passage project.

7.0 References

Bureau of Reclamation and Washington State Department of Ecology. Yakima River Basin Integrated Water Resource Management Plan Final Programmatic Environmental Impact Statement. March 2012.

ESA Adolfson. 2011. Yakima River Basin Study Environmental, Policy and Legal Barriers Technical Memorandum. June 2011.

HDR Engineering, Inc. 2015. Tieton Dam Fish Passage Facilities Appraisal Assessment Report. October 2015.

Hiebert, S. 1999. Draft Progress Report on Limnological Surveys of Five Reservoirs in the Upper Yakima River Basin Washington. Bureau of Reclamation, Denver, Colorado.

Mongillo, P. and Faulconer, L. 1982. Yakima Fisheries Enhancement Study Phase II. Washington Department of Game. Final report to U.S. Bur. Recl. Contr. 0-07-10-50218

National Water Quality Monitoring Council. 2020. Water Quality Data. Available online: https://www.waterqualitydata.us/portal/#statecode=US%3A53&countycode=US%3A53%3A077&mimeType=csv

US Fish and Wildlife Services. 2020. National Wetland Inventory Wetlands Mapper. Available online: https://www.fws.gov/wetlands/data/Mapper.html

Washington State Department of Archaeology and Historic Preservation (DAHP). 2020. WISAARD System. Available online: https://wisaard.dahp.wa.gov/

Washington State Department of Ecology. 2020. Washington States Lakes Environmental Data. Available online: https://apps.ecology.wa.gov/coastalatlas/tools/LakeDetail.aspx.

Wydoski, R.S. and Whitney, R.R. 2003. Inland Fishes of Washington: Second Edition, Revised and Expanded, 2 Rev Expedition. ed. University of Washington Press, Bethesda, MD.