

Yakima River Basin Water Enhancement Project Phase III

New Water Storage Projects – 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.

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Attachment 1 - November 5, 2020 Data Gaps Presentation

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 new water storage projects at the Wymer Dam and Reservoir, Springwood Reservoir, and North Fork Cowiche Canyon Reservoir. For the purposes of this memorandum, it is assumed that a joint NEPA/SEPA Environmental Impact Statement (EIS) would be prepared for each project. 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 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.

For the Wymer Dam and Reservoir project, these included:

- *Yakima River Basin Storage Study Wymer Dam and Reservoir Appraisal Report. September 2007.* This appraisal assessment report considers the costs and features required to construct Wymer Dam and Reservoir (Reclamation, 2007).
- *Yakima River Basin Water Storage Feasibility Study Final Environmental Impact Statement (FEIS). December 2008.* The purpose of the storage study is to evaluate plans, including the Wymer dam and reservoir that would create additional water storage for the Yakima River basin and assess each plan's potential to supply the water needed for fish and the aquatic resources that support them, basin-wide irrigation, and future municipal demands (Reclamation, 2008).
- *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 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).

For the Springwood Reservoir project, the primary source was the *2017 Kittitas Reclamation District Initial Water Storage Assessment Summary Report* (Jacobs 2017). This report evaluates potential geographic locations, including the Springwood reservoir site, for siting water storage facilities.

For the North Fork Cowiche Creek Reservoir project, the primary source was the *Feasibility Study for the North Fork Cowiche Creek Reservoir* (CH2MHill, 2016). This feasibility study considers the costs and features required to construct the reservoir.

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

2.0 Project Description

2.1 Wymer Dam and Reservoir

Wymer Reservoir is proposed in a canyon that contains Lmuma Creek, an intermittent tributary channel to the Yakima River. The mouth of the creek is located on the Yakima River approximately 8 miles upstream of Roza Diversion Dam. The reservoir would have an active capacity of 162,500 acre-feet, including 82,500 acre-feet for annual use for downstream irrigation and instream flows and 80,000 acre-feet for use in dry years.

2.2 Springwood Reservoir

The Springwood Reservoir is a proposed water storage reservoir with a capacity of 21,363 acre-feet. The 262 acre reservoir would be located west of the Yakima River to the southeast of Horlick, WA.

2.3 North Fork Cowiche Creek Reservoir

The North Fork Cowiche Creek Reservoir is a proposed off-stream water storage reservoir located approximately 0.5 mile upstream on the North Fork Cowiche Creek. This 35,000 acre-foot reservoir would increase available water supplies in the lower Yakima River Watershed.

3.0 Resource Areas

3.1 Fish (including listed species)

The primary fish species of concern in the study area for all three projects include Middle Columbia River (MCR) steelhead (*Onchorynchus mykiss*), bull trout (*Salvelinus confluentus*), coho salmon (*O. kisutch*), and Chinook salmon (*O. tshawytscha*). NEPA and SEPA compliance requires concurrent preparation of Endangered Species Act (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 NEPA decision document. Formal consultations are generally required for “Major Construction Projects” that require an EIS for NEPA.

3.1.1 Existing Information

Existing information about potential fish impacts is limited. The primary source for freshwater fish information is *Inland Fishes of Washington* (Wydoski and Whitney 2003). This book describes all the known native and introduced fishes found in freshwater habitats of Washington State. Springwood and North Fork Cowiche Creek reservoirs do not have any additional existing analyses to report.

For the Wymer Dam and Reservoir project, two reports have limited discussion about the potential for fish impacts:

- *2011 Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011.* Per the memorandum, the Wymer dam and reservoir would not be located on a fish-bearing stream and therefore, would have fewer environmental impacts on fish than other similar reservoirs proposed on main channels (ESA Adolfson, 2011).
- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* Model results indicate that winter flows from Cle Elum Lake to the Wymer site are greater than under the No Action

Alternative, resulting in more than doubling of flows in the Cle Elum River. Local fisheries biologists believe these flows would improve overwintering juvenile salmonid habitat conditions. During the summer months, flows in the upper Yakima River are lower, as some of the irrigation needs in the middle basin would be met by releases from Wymer reservoir. Because the percent change in habitat values are all less than 10 percent compared to the No Action Alternative, the study indicated that no effect on the biological response of steelhead or spring Chinook upper Yakima River population would be expected, compared to the No Action Alternative. Also, the study showed virtually no difference in the flow volumes or in the spring runoff pattern and no significant change in summer habitat downstream from the Parker gage (Reclamation, 2008).

3.1.2 Technical Studies/Environmental Surveys Needed

The EIS analysis would need to consider the potential impacts to fish in existing waterbodies that could be impacted by a newly constructed reservoir, or, more generally, how creation of the reservoir will impact existing fish populations in the Yakima Basin system holistically. Updated modeling using operational parameters with the individual reservoirs in place would be needed to understand these impacts. A general census of fish anticipated to occur would be obtained from Wydoski and Whitney 2003, with the expectation that Washington Department of Fish and Wildlife (WDFW) biologists would verify that the information is accurate. An understanding of the fish populations that would be expected within the newly constructed reservoir would also be needed.

3.1.3 Timeline

Modeling of operations and their potential impacts on fish in the Yakima Basin would require 6 to 12 months to complete. If required, 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)

There is potential for impacts to terrestrial wildlife associated with these projects. 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. Formal consultations are generally required for “Major Construction Projects” that require an EIS for NEPA.

3.2.1 Existing Information

For the Wymer Dam and Reservoir project, three reports have some discussion about the potential for wildlife impacts:

- *Yakima River Basin Water Storage Feasibility Study Fish and Wildlife Coordination Act Report. 2007.* The study includes a comprehensive list of wildlife species that may be found within the project area. Washington GAP vertebrate distribution models and WDFW Priority Habitat and Species database were utilized. The study also notes the Wymer site does not provide suitable nesting habitat or foraging opportunities for bald eagle. However, the creation of the reservoir may create suitable foraging habitat. Other habitat components would need to be included, such as perch sites for eagles. Long-term development of nesting habitat would require establishing tree stands adjacent to the reservoir (USFWS, 2007).

- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* This document provides the foundation for the analysis provided in the *Policy and Legal Barriers* memorandum. This study provides the list of species likely to occur within the inundation area of the Wymer Reservoir and discusses habitat connectivity and movement corridors impacts. Mapping of sage-grouse movement corridors are included in the study (Reclamation, 2008).
- *Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011.* The memorandum discusses potential impacts to wildlife habitat. The Wymer Reservoir area provides core habitat for several species, including greater sage-grouse, ferruginous hawk, sage sparrow, Brewer's sparrow, bighorn sheep, mule deer, and numerous other birds and small mammals. Wymer Reservoir would inundate habitat and movement corridors for these species. Movement corridors for sage grouse are also briefly discussed. The memorandum quantifies the type and acreage of habitat that would be affected by inundation (ESA Adolfson, 2011).

For the Springwood Reservoir, the 2017 Kittitas Reclamation District Initial Water Storage Assessment Summary Report briefly discusses the potential for wildlife habitat impacts. It states that there are no WDFW priority habitat or species within the project area. Also, there is no species or habitat for federally listed species within the project area (Jacobs, 2017).

For the North Fork Cowiche Creek Reservoir project, the 2016 Feasibility Study for the North Fork Cowiche Creek Reservoir discusses potential wildlife habitat issues (CH2MHill, 2016). As documented in the Feasibility Study, the US Fish and Wildlife Service Environmental Conservation Online System indicates that six federally listed threatened, endangered, and proposed threatened species could occur or could potentially be impacted in the project area. These species are the marbled murrelet (*Brachyramphus marmoratus*; federally threatened), yellow-billed cuckoo (*Coccyzus americanus*), bull trout, Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), and North American wolverine (*Gulo gulo luscus*). However, they note there are no known occurrences of these species in the project area. The feasibility study also notes two WDFW Priority Habitats, shrub-steppe and Oregon white oak woodland, were identified in the study area. WDFW identifies utilization of the study area by mule deer and elk. Areas to the north have confirmed sightings of bighorn sheep and golden eagle nests. No state-listed threatened or endangered animal species are known to occur within the proposed dam and reservoir footprint.

3.2.2 Technical Studies/Environmental Surveys Needed

At all three potential reservoir sites, a general wildlife habitat survey would need to be conducted prior to preparation of an EIS. Habitat suitability analyses would need to be conducted for the presence of listed species; however, only North Fork Cowiche Creek and Wymer appear to have the potential for suitable habitat. Surveys for listed species would typically need to be conducted within the previous 5 years for ESA applicability; however, if the 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 (DNR) and WDFW data and interviews with local biologists would likely be sufficient.

In addition, the EIS should consider the question of wildlife connectivity and how a constructed reservoir would impact the movement of wildlife through each respective project area.

3.2.3 Timeline

A general wildlife survey would require 1 to 3 months. 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)

The creation of new reservoirs would inundate existing vegetation and wetland habitat. 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

For the Wymer Dam and Reservoir project, the following have some discussion about the potential for impacts to vegetation and wetlands:

- *Yakima River Basin Water Storage Feasibility Study Fish and Wildlife Coordination Act Report. 2007.* The study maps wetland and riverine habitats identified at the Wymer Reservoir site based on field observations and use of land cover data. USFWS’s analysis of wetlands at the Wymer Reservoir site was confined to that area found within the footprint of the proposed dam, impounded reservoir (at maximum pool elevation) and in the indirect impact area around the perimeter of the dam and reservoir. Acreage of wetlands are also quantified. The study also includes a discussion of the existing shrub-steppe habitat as well as potential impacts (USFWS, 2007).
- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* The EIS discusses the existing vegetation communities (shrub-steppe) in the project area as well as construction and operational impacts from the project (Reclamation, 2008).
- *National Wetlands Inventory (NWI). 2020.* The USFWS National Wetlands Inventory mapper does not note the presence of any wetlands in the project area for the proposed reservoir (USFWS, 2020).

For the Springwood Reservoir, the 2017 Kittitas Reclamation District Initial Water Storage Assessment Summary Report briefly discusses the potential for impacts to wetlands and vegetation (Jacobs, 2017). According to the NWI, the project area contains 11.0 acres of freshwater emergent wetland, freshwater forested/shrub wetland, freshwater ponds, and riverine wetlands. The report notes that there are freshwater herbaceous marsh, swamp, or baygall wetlands and depressional wetlands present within the project area. There are no Coastal Change Analysis Program wetlands present within the project area. The report also notes that there is a DNR Natural Heritage Program rare species, Oregon golden aster (*Heterotheca oregona*), approximately 2,000 feet to the southeast of the project area.

For the North Fork Cowiche Creek Reservoir project, the *2016 Feasibility Study for the North Fork Cowiche Creek Reservoir* discusses potential for impacts to wetlands and vegetation (CH2MHill, 2016). The Feasibility Study notes that no wetlands identified by the NWI are located within the study area, and the North Fork Cowiche Creek is the only surface water identified by the US Geologic Survey National Hydrography Dataset in the study area. One documented occurrence of Oregon golden aster is found within a 1-mile buffer that intersects the northern arm of the proposed reservoir.

3.3.2 Technical Studies/Environmental Surveys Needed

Vegetation and wetland surveys for the project areas of each reservoir would need to be conducted to inform environmental review and support CWA and state, and local permitting requirements. Wetland surveys would be informed by the presence of wetlands identified in the NWI. If there are any wetlands

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. In addition, any required surveys for rare plant surveys would require up to 1 year to prepare in order to account for seasonal survey schedules. Any fill or excavation would require preparation of either an individual or nationwide permit under Section 404 of the Clean Water Act. The applicant would submit a complete Joint Aquatic Resource Permit Application (JARPA) to the US Army Corps of Engineers (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 (NWP) 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 reservoirs 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 (NPDES) 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 could potentially impact water quality in waterbodies connected to the constructed reservoirs.

3.5.1 Existing Data Sources/Information Available

For the Wymer Dam and Reservoir project, the following reports discuss water quality impacts:

- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* The EIS provides a general overview of water quality issues in the Yakima River basin. The EIS also states that little change is expected to Yakima River water quality parameters are a result of releases from the Wymer reservoir (Reclamation, 2008).
- *Technical Memorandum: Wymer Reservoir Temperature Study. 2014.* The memorandum discusses the results of temperature modeling utilizing different timing scenarios of releases from the Wymer Reservoir. Modeling was for temperature changes in the Yakima River downstream of the reservoir (Anchor QEA, 2014).

There are no existing data sources for water quality associated with the construction and operation of a reservoir at North Fork Cowlitz Creek or Springwood.

3.5.2 Technical Studies/Environmental Surveys Needed

Modeling would be required to understand the potential water quality impacts on the system from operational changes resulting from the addition of the new reservoirs.

3.5.3 Timeline

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

3.6 Groundwater

The primary concern from the construction of the reservoirs would be groundwater seepage that may occur.

3.6.1 Existing Data Sources/Information Available

For the Wymer Dam and Reservoir project, the following have some discussion about the potential for groundwater impacts:

- *Yakima River Basin Study Environmental, Policy and Legal Barriers*. 2011. The memorandum outlines groundwater seepage that may occur from the project (ESA Adolfson, 2011).
- *Yakima River Basin Water Storage Feasibility Study EIS*. 2008. The EIS provides a detailed overview of groundwater occurrence, aquifer recharge, and hydraulic properties in the Yakima Basin (Reclamation, 2008). In addition, the EIS discusses the potential affects from groundwater seepage. A groundwater seepage model has not been performed for the Wymer Reservoir. However, qualitative analysis shows that the majority of groundwater seepage from the proposed Wymer Reservoir would be west toward the Yakima River and could involve substantial volumes. Permeability testing in a drill hole on the left abutment indicates very high hydraulic conductivity values in the upper basaltic layers. Because the Yakima River Valley is less than a mile from the Wymer dam site, seepage would have a relatively short-flow path and would be under a high-flow gradient from the full reservoir to the river valley below.

No existing studies were identified considering groundwater at the Springwood reservoir site.

For the North Fork Cowiche Creek Reservoir project, the 2016 Feasibility Study for the North Fork Cowiche Creek Reservoir discusses potential for impacts to groundwater (CH2MHill, 2016). The feasibility study notes that little is known about the groundwater in the project area, including depth and the character of the aquifer. The feasibility study notes that based on the topographical features in the vicinity of the area, there may be a need for a detailed reservoir seepage analysis. One area of particular concern may be along the northern boundary of the proposed reservoir, where there is a steep topographical drop into the Tieton River drainage and a relatively thin ridge between it and the North Fork Cowiche Creek drainage basin. Excessive seepage from the reservoir into the Tieton River drainage could cause erosion and slope stability problems on the canyon walls of the drainage where this seepage would daylight on the slopes.

3.6.2 Technical Studies/Environmental Surveys Needed

For all three potential reservoirs, modeling would be required to understand groundwater seepage that may result from construction of the reservoirs. In addition, mitigation would need to be identified to control the seepage and potential for sediment transport through the abutments and reservoir rim.

3.6.3 Timeline

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

3.7 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.

3.7.1 Existing Data Sources/Information Available

For the Wymer Dam and Reservoir, the *2011 Yakima River Basin Study Environmental, Policy and Legal Barriers* notes that the Wymer Reservoir site has high potential for historic and cultural resources. The site is on territory ceded by the Yakama Nation under the Walla Walla Treaty of 1855 (ESA Adolfson, 2011).

For the Springwood Reservoir, the *2017 Kittitas Reclamation District Initial Water Storage Assessment Summary Report* briefly discusses the potential for impacts to cultural and historic resources (Jacobs, 2017). The report notes that this project area has never been surveyed; therefore, there are no previously identified cultural resources. Based on a review of the setting, landform, and previous disturbance, the project area has a moderate to high sensitivity for archaeological sites. However, within 0.2 miles of the project area is a system of historic canals that are potentially eligible for the NRHP. Within 0.5 miles of the project area are three previously recorded historic sites associated with the railroad, including a historic railroad shed) and a shack constructed from railroad ties. The DAHP Predictive Model indicates portions of the project area range from very low risk to very high risk of encountering cultural resources.

For the North Fork Cowiche Creek Reservoir project, the *2016 Feasibility Study for the North Fork Cowiche Creek Reservoir* discusses the potential to encounter cultural resources at the reservoir site (CH2MHill, 2016). As part of the feasibility study, a literature review was conducted using Washington Information System for Architectural and Archaeological Records Database (WISAARD); a review of the Statewide Predictive Model produced by the Department of Archaeology and Historic Preservation (DAHP) also conducted; and preliminary fieldwork was conducted at the site. This work revealed two potentially eligible archaeological sites and the DAHP predictive model indicated that much of the area of potential effects for the reservoir is in an area of "high-risk" or "very high-risk" for archaeological resources.

3.7.2 Technical Studies/Environmental Surveys Needed

Based on the potential to encounter historic resources, all three sites are likely to require consultation with DAHP. Reclamation would need to establish an area of potential effect for each reservoir site, conduct surveys for historic resources, document any historic resources, and coordinate with DAHP and Tribes throughout the process.

3.7.3 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.

3.8 Land Use

The land use implications of constructing a new reservoir would be related to land ownership and the potential for the inundation area to impact surrounding land uses.

3.8.1 Existing Data Sources/Information Available

For the Wymer Dam and Reservoir project, the *2011 Yakima River Basin Study Environmental, Policy and Legal Barriers* memorandum notes that the reservoir would require the acquisition of approximately 4,000 acres of privately owned land and would inundate lands administered by the Department of Defense (ESA Adolfson, 2011).

No existing documentation exists discussing land use implications of the Springwood Reservoir project; however, it is understood that the property is privately owned.

For the North Fork Cowiche Creek Reservoir project, the 2016 Feasibility Study for the North Fork Cowiche Creek Reservoir notes that the primary land use in the project area is cattle grazing. Intensive grazing has resulted in low cover of native grasses and increased cover of the non-native crested wheatgrass (*Agropyron cristatum*) and medusahead (*Taeniatherum caput-medusae*). It is understood that the property is owned privately and that a small portion of WDFW/DNR managed lands would be inundated by the reservoir (CH2MHill, 2016).

3.8.2 Technical Studies/Environmental Surveys Needed

An understanding of the availability of lands currently held privately and the implications for those public lands that would be inundated is required.

For the Wymer Dam and Reservoir project, permitting would require coordination with the U.S. Department of Defense because the reservoir water level would encroach about 2,500 feet onto the Yakima Training Center varying in depth from 0–50 feet. This encroachment would be relatively minor and should not result in a significant direct disruption to the Yakima Training Center. However, either a transfer of jurisdiction from the Department of Defense to Reclamation or an encroachment agreement would be required.

For the Springwood Reservoir project, Reclamation would need to confirm the land ownership and availability.

For the North Fork Cowiche Creek Reservoir project, Reclamation would need to coordinate with WDFW on the conversion of any impacted lands.

3.8.3 Timeline

The research on land ownerships and availability could be completed in 1 month. The timeline for coordinating with impacted landowners is difficult to predict but could take many years.

For the Wymer Dam and Reservoir project, coordination with the Department of Defense should be conducted prior to development of the EIS. Interagency coordination can be challenging to apply an appropriate timeline but assume 1 to 2 years.

For the North Fork Cowiche Creek Reservoir project, coordination with WDFW should be conducted prior to development of the EIS. Interagency coordination can be challenging to apply an appropriate timeline but assume 1 to 2 years.

3.9 Transportation

The potential impacts associated with transportation systems would need to consider any transportation facilities that could potentially be inundated by the reservoirs.

3.9.1 Existing Data Sources/Information Available

For the Wymer Dam and Reservoir project, *Yakima River Basin Study Environmental, Policy and Legal Barriers* discusses potential transportation impacts (ESA Adolfson, 2011). This memorandum provides a brief overview the temporary impacts to transportation routes in the area including bridges. The Interstate 82 Bridge over Lmuma Creek would require reinforcement and protection of its piers to avoid negative impacts from inundation, but major disruption is not anticipated.

No existing sources for transportation impacts for the Springwood or North Fork Cowiche Creek reservoir projects were identified. However, a cursory review of the project areas does not reveal any significant transportation concerns.

3.9.2 Technical Studies/Environmental Surveys Needed

For the Wymer dam and reservoir project, permitting would require coordination with WSDOT for potential impacts on Interstate 82. This encroachment would be relatively minor.

No pre-EIS studies are anticipated for transportation impacts associated with Springwood or North Fork Cowiche Creek.

3.9.3 Timeline

Coordination with WSDOT on the Wymer Dam and Reservoir Project could require 6 to 12 months depending on the nature of the impacts.

3.10 Additional Resources

The earth, noise, air quality, recreation, visual, public services, utilities, 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 (Figures 1 to 3) for each project 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 coordination for potentially impacted landowners is very difficult to predict.

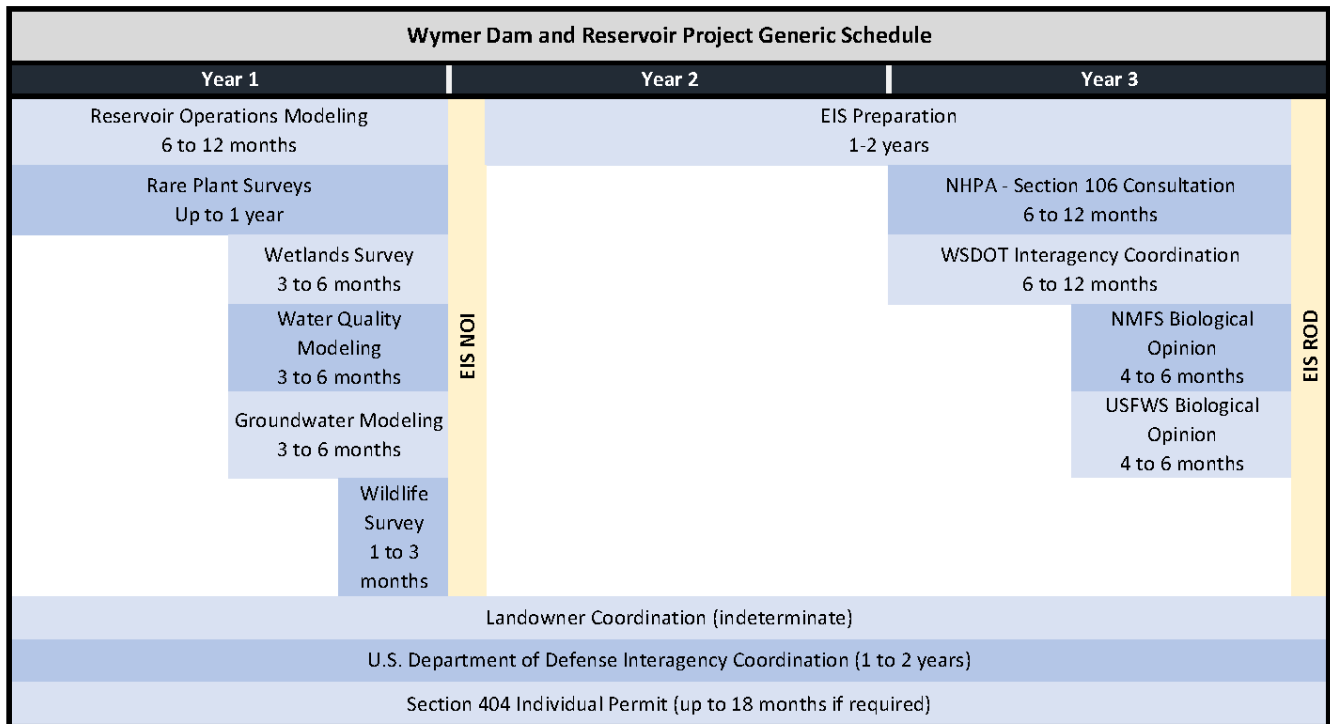


Figure 1. Representative Schedule – Wymer Dam and Reservoir

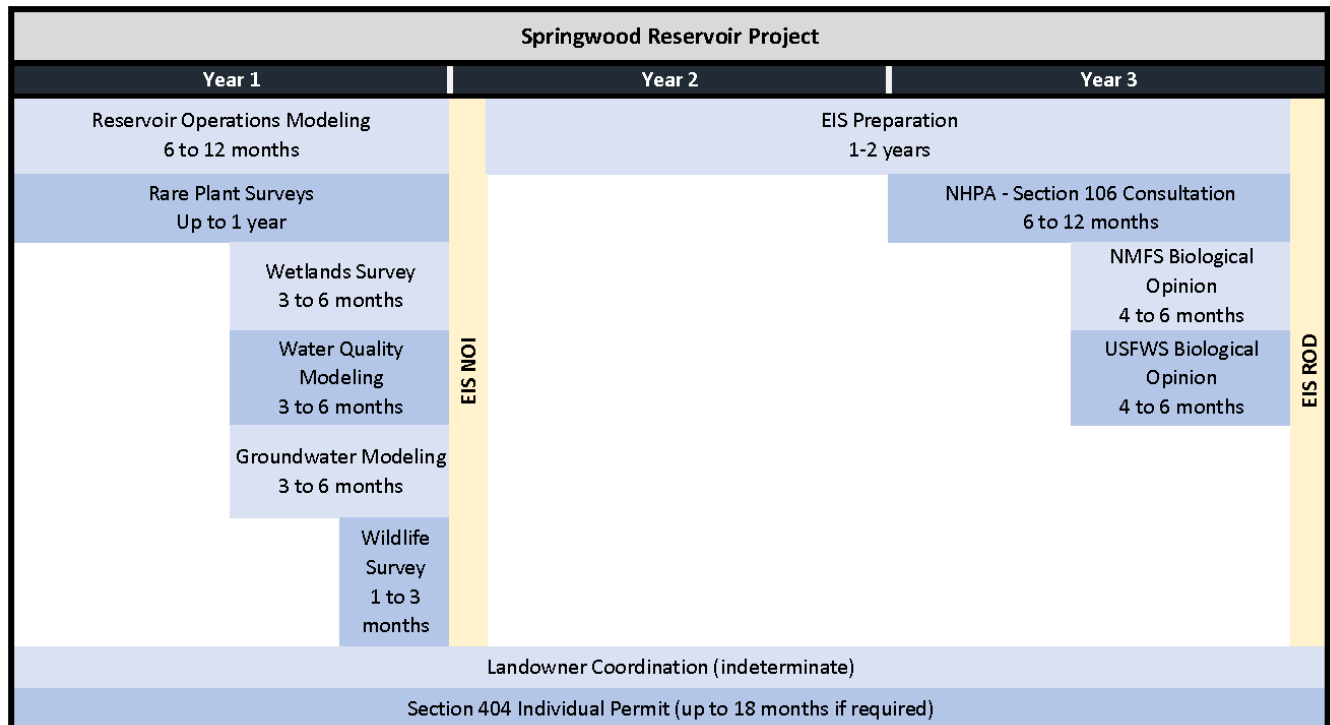


Figure 2. Representative Schedule – Springwood Reservoir

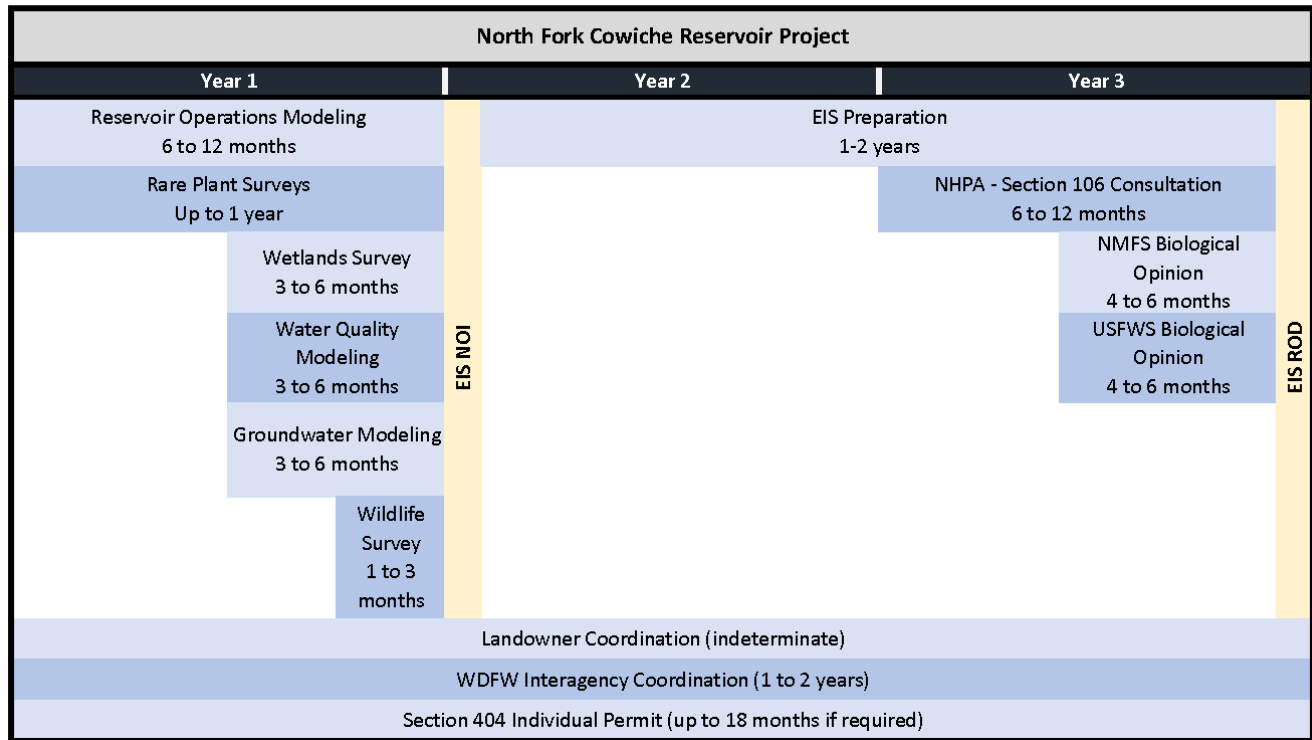


Figure 3. Representative Schedule – North Fork Cowiche Reservoir

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 Wymer Dam and Reservoir, North Fork Cowiche Creek, or Springwood Reservoir projects.

7.0 References

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