Yakima River Basin Water Enhancement Project Phase III

Bumping Dam and Reservoir Enlargement – 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

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Attachments

Attachment 1 – November 5, 2020 Data Gaps Presentation

1 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 Bumping Dam and Reservoir Enlargement project. 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 Storage Alternatives Appraisal Assessment. May 2006.* The purpose of the assessment was to evaluate alternatives that would create additional water storage for the Yakima River basin and assess their potential to supply the water needed for ecosystem aquatic habitat, basin-wide agriculture, and municipal demands. The evaluation considered enlargement of the Bumping Lake (Reclamation, 2006).

- *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 Bumping Dam Enlargement 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 enlargement at Bumping Lake as an option (Reclamation and Ecology, 2012).

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

2 Project Description

The proposed project site is about 40 miles northwest of Yakima, Washington, on the Bumping River, about 4,500 feet downstream of the existing Bumping Lake Dam. The site is within Wenatchee National Forest in Yakima County, Washington. The Bumping River is a tributary of the Naches River and thereby the Yakima River. The proposed project is to construct a new dam that would rise above streambed about 163 feet and impound an enlarged reservoir of 198,300 acre-feet at elevation 3,490 (top of active conservation capacity) with a surface area of approximately 3,200 acres. The dam and reservoir would provide carryover storage against possible shortages of irrigation water for project lands and would provide incidental flood-control benefits.

3 Resource Areas

3.1 Fish (including listed species)

The primary fish species of concern in the study area for the project include Middle Columbia River (MCR) steelhead (*Onchorynchus mykiss*), bull trout (*Salvelinus confluentus*), sockeye salmon (*O. nerka*), coho salmon (*O. kisutch*), and Chinook salmon (*O. tshawytscha*). NEPA and SEPA compliance would require 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 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 Bumping Dam and Reservoir Enlargement 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 Bumping Lake (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 Bumping Lake (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).
- *Yakima River Basin Storage Alternatives Appraisal Assessment. 2006.* This report includes a summary of the life history and status of Yakima River basin anadromous fish and the bull trout. Species discussed include steelhead, bull trout, spring Chinook, fall Chinook, coho, sockeye salmon, and pacific lamprey (*Entosphenus tridentatus*) (Reclamation, 2006).
- *Cle Elum and Bumping Lake Dams Fish Passage Facilities Planning Report. 2008.* This report provides an overview of the Yakima Basin species of interest (sockeye, coho, spring Chinook, steelhead, and bull trout). Restoration efforts for anadromous and resident fish in the Yakima basin are also discussed (Reclamation 2008a).
- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* The EIS discusses the Bumping Lake Enlargement project as an alternative that was considered but eliminated from detailed analysis. The analysis notes that inundation of perennial and intermittent stream habitat would impact aquatic ecosystems and fishery resources (Reclamation 2008b).
- *Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011.* The memorandum focuses on the effects to bull trout from expanding the reservoir. The memorandum notes that the expanded reservoir would inundate perennial and intermittent stream habitat downstream from the existing dam and upstream of the existing reservoir, including approximately 3,500 linear feet of Deep Creek and the Bumping River. The memorandum notes that increasing storage in Bumping Lake would have positive and negative effects on bull trout.

In addition, the project would provide a greater opportunity for genetic mixing of bull trout stocks below and above the reservoir with installation of fish passage facilities at the new dam; increase prey base for bull trout from reintroduced fish above the dam; and result in a general increase in ecosystem productivity above the dam (ESA Adolfson, 2011).

- *Yakima River Integrated Water Resources Management Plan EIS. March 2012.* Generalized discussion of short-term and long-term impacts to fish species from construction and operation of the project are discussed. Impacts to bull trout, both positive and negative, are also discussed (Reclamation and Ecology, 2012).

3.1.2 Technical Studies/Environmental Surveys Needed

The existing conditions for fish species 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 study area 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 Bumping Dam Reservoir. Further studies and sampling would be required to understand the zooplankton abundance, as well as generally characterizing the food web in the reservoir.

As an important bull trout spawning area, further analysis of the potential inundation of Deep Creek would be required. The analysis would need to consider how inundation and dewatering would impact bull trout utilizing the creek. Alternatives should also be considered to evaluate operational scenarios that prioritize bull trout spawning activities.

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 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

For the Bumping Dam and Reservoir Enlargement project, the following reports include discussion of wildlife habitat and impacts in the project area:

- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* The EIS discusses the Bumping Lake Enlargement project as an alternative that was considered but eliminated from detailed analysis. The analysis notes that old growth forest and northern spotted owl habitat would be inundated by the reservoir enlargement (Reclamation 2008b)

- *Bumping Lake Expansion - Additional Information on Impacts to Northern Spotted Owl and Late Successional Forest. 2009.* The memorandum summarizes the potential impacts to northern spotted owl and related late successional forest that could result from the enlargement of water storage in the Bumping Lake. Potential impacts are assessed assuming a storage volume of 150,000 acre-feet and GIS mapping to overlay potential inundation areas with northern spotted owl and late successional forest habitats (ESA Adolfson, 2009)

- *Yakima River Integrated Water Resources Management Plan EIS. March 2012.* The EIS summarizes wildlife species, including priority species within the Naches River basin. Bumping Lake and the surrounding forests are to the south and northeast are within spotted owl Critical Habit Unit 6. In addition, inundation would displace wildlife. Listed species and priority species that may be impacted include wolverine, western toad, golden eagle, common loon, and northern spotted owl (Reclamation and Ecology 2012).

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

For the Bumping Dam and Reservoir Enlargement project, the following sources contain some discussion about the potential for impacts to vegetation and wetlands:

- *Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011*. The memorandum quantifies potential habitat impacts from the enlargement of Bumping Lake, including inundating old-growth forest habitat (ESA Adolfson, 2011)

- *Yakima River Integrated Water Resources Management Plan EIS. March 2012.* The EIS provides an overview of vegetation communities near Bumping Lake. The EIS also discusses impacts associated with inundation to vegetation communities including old growth forest (Reclamation and Ecology, 2012).
- *National Wetlands Inventory. 2020.* The USFWS National Wetlands Inventory mapper notes the presence of numerous wetlands surrounding the existing reservoir (USFWS, 2020).

3.3.2 Technical Studies/Environmental Surveys Needed

Vegetation and wetland surveys for any upland areas potentially impacted by the new inundation area would need to be conducted to inform environmental review and support the Clean Water Act (CWA), and state and local permitting requirements. Wetland surveys would be informed by the presence of wetlands identified in the National Wetlands Inventory. 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. 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

To understand the potential impacts to surface water resources, an understanding of the operational parameters of the reservoir 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. The Yakima River Basin Water Storage Feasibility Study EIS notes that increasing Bumping Lake storage would alter the current operational parameters of the river and Yakima system as a whole. It concludes that additional stored water available in average years would not represent a meaningful amount to exchange with the three reservoirs in the Upper Yakima River basin. The operational parameters and benefits of the project would need to be determined.

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 enlargement of the reservoir could potentially impact water quality.

3.5.1 Existing Data Sources/Information Available

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

- *Cle Elum and Bumping Lake Dams Fish Passage Facilities Planning Report. 2008.* This report provides an overview of the limnological study of Bumping Lake conducted from September 2003 to October 2004 (Reclamation, 2008a).
- *Yakima River Integrated Water Resources Management Plan EIS. March 2012.* The EIS provides an overview of water quality for Bumping Lake as well as tributaries. The EIS also describes potential water quality issues with impoundment associated with new storage, including seasonal increases in sediment load, decreased downstream turbidity, and water temperature changes (Reclamation and Ecology, 2012).
- *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. No entries are provided for Bumping Lake (Ecology, 2020).
- *Reclamation Water Quality Sampling Data.* Reclamation collects water quality data for Bumping Lake 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 expanded reservoir. It is assumed that the water quality sampling data collected by Reclamation for Bumping Lake 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 Groundwater

The primary concern from enlargement of the reservoir would be groundwater seepage that may occur.

3.6.1 Existing Data Sources/Information Available

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

- *Yakima River Basin Storage Alternatives Appraisal Assessment. 2006.* Per this report, a detailed investigation of the groundwater occurrence at the reservoir site was not conducted. Information collected from the 1952 drill holes indicated a groundwater table depth of about 22 feet adjacent to the Bumping River, and about 53 feet near the right abutment on the dam site axis. Drilling was not conducted on the left abutment of the dam site (Reclamation, 2006).

- *Hydrogeologic Framework of the Yakima River Basin Aquifer System. 2009.* The report provides information on geology, well data, hydrogeologic units, and groundwater occurrence in the Yakima River Basin (USGS, 2009).

- *Yakima River Integrated Water Resources Management Plan EIS. March 2012.* Impacts to groundwater levels due to surface water storage are generally discussed surface water storage projects (Reclamation and Ecology, 2012).

3.6.2 Technical Studies/Environmental Surveys Needed

Modeling would be required to understand groundwater seepage that may result from construction of the reservoir. In addition, mitigation would need to be identified to account for 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 benefit 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. Also, 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 considered. For these projects, federal permits would likely trigger the need for compliance with the NHPA.

3.7.1 Existing Data Sources/Information Available

- *Yakima River Basin Storage Alternatives Appraisal Assessment. 2006.* The report summarizes four cultural resources reports conducted between 1975 and 1986 in the Bumping Lake enlargement area (Reclamation, 2006).

- *Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011*. Per this memo, the area of enlargement for Bumping Dam is known to have cultural resource, including those related to construction of the original dam, historic recreational residences, and recorded archaeological sites. These cultural resources, some of which may be eligible for the NRHP, could be impacted by reservoir enlargement (ESA Adolfson, 2011).

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 Department of Archaeological and Historic Preservation (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 and Shoreline Use

The land use implications of expanding the 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

- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* The EIS discusses the Bumping Lake Enlargement project as an alternative that was considered but eliminated from detailed analysis. The EIS notes that 14 summer homes and lands adjacent to the William O. Douglas Wilderness Area would be inundated by the enlarged reservoir (Reclamation 2008b).
- *Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011.* This memorandum discusses the current land use and ownership around Bumping Lake as well as Special Permit Use that would be required from the Forest Service (ESA Adolfson, 2011).

3.8.2 Technical Studies/Environmental Surveys Needed

Coordination with impacted landowners would need to begin early in the process to discuss the land acquisition and relocation process. For the purposes of the NEPA/SEPA analysis, the EIS would need to document the impacted properties and the proposed mitigation.

3.8.3 Timeline

The timeline for coordinating with impacted landowners is difficult to predict but could take many years.

3.9 Recreation

The expanded reservoir has the potential to inundate existing recreational opportunities around the reservoir.

3.9.1 Existing Data Sources/Information Available

- *Yakima River Basin Storage Alternatives Appraisal Assessment. 2006.* The report lists several areas of impacts to existing recreational activities. All existing lakeshore access and recreational facilities would be inundated by enlargement of the reservoir, including: boat launch, picnic area, and parking; marina and parking; two campgrounds, and trail access (Reclamation, 2006).
- *Yakima River Basin Water Storage Feasibility Study EIS. 2008.* (Reclamation, 2008b) and Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011 (ESA Adolfson 2011). The EIS and memorandum discuss the Bumping Lake Enlargement project as an alternative that was considered but eliminated from detailed analysis. The analysis notes that the

enlarged reservoir also would inundate existing recreational facilities and approximately 9 miles of U.S. Forest Service road, plus approximately 17 miles of road that would be closed, terminating all vehicle traffic above the dam site and road access to campgrounds above the existing reservoir. In addition to the roads, about 4 miles of trails would be inundated. These actions would hamper accessibility to areas above the reservoir.

- *Yakima River Basin Study Environmental, Policy and Legal Barriers. June 2011.* The memorandum notes that recreational facilities would be constructed where possible, but it is unlikely that comparable replacement locations for the residences and the marina could be provided on Bumping Lake, given the steepness of the topography on the north and the proximity of the William O. Douglas Wilderness Area. Replacing recreation facilities such as the campground and boat launch would cause additional impacts on forested communities that could further adversely affect the listed and priority species and habitats known to occur in the vicinity.
- *Yakima River Integrated Water Resources Management Plan EIS. March 2012.* The EIS discusses the long-term impact from inundation, focusing on the elimination of all current shoreline recreational facilities and restriction to trail access upstream of the dam.

3.9.2 Technical Studies/Environmental Surveys Needed

Coordination with the U.S. Forest Service on the impacts to recreation facilities and development of appropriate mitigation measures would be required.

3.9.3 Timeline

In order to have appropriate mitigation measures identified, coordination with the U.S. Forest Service 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.

3.10 Additional Resources

The earth, noise, 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 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). Completion of the landowner coordination and the 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.

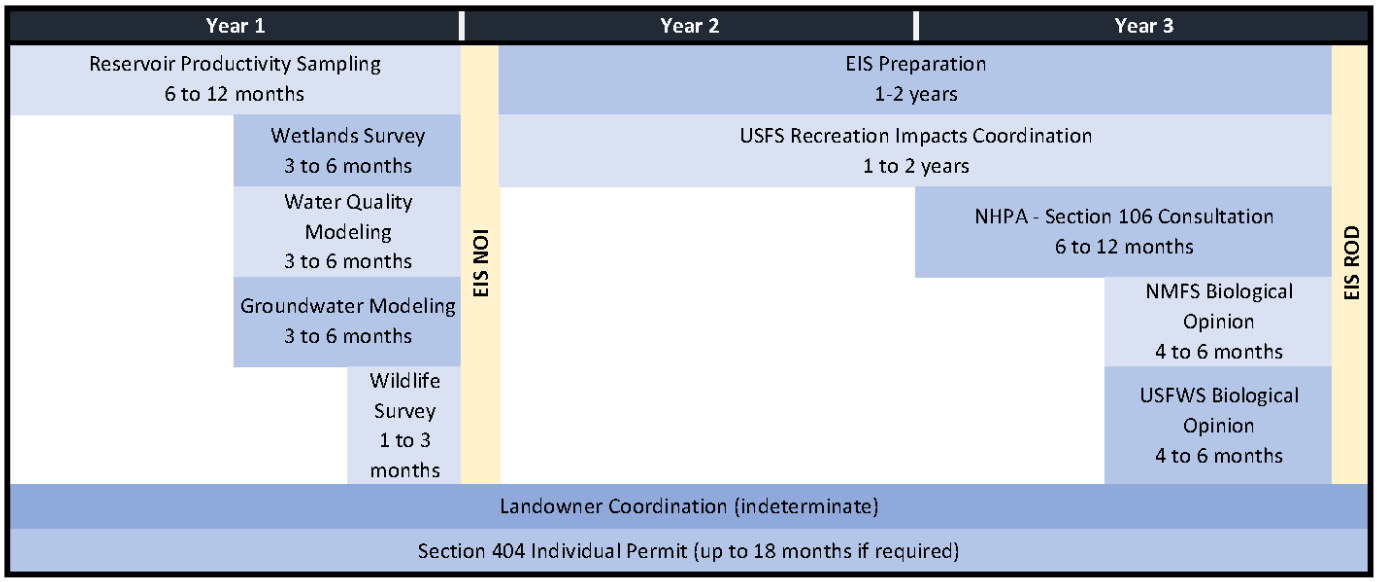

Figure 1. Representative Schedule

5 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 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 Bumping Dam Reservoir Enlargement project.

7 References

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