**Supplement Analysis**
for the
**Columbia Estuary Ecosystem Restoration Program EA**
(DOE/EA-2006/SA-13)

**Lower Elochoman III Floodplain Restoration Project**
**BPA project number 2010-073-00**

Bonneville Power Administration
Department of Energy

## Introduction

Bonneville Power Administration (Bonneville) and the U.S. Army Corps of Engineers (Corps) are partners in the Columbia Estuary Ecosystem Restoration Program (CEERP or estuary restoration program), which is a collaboration intended to evaluate, protect, monitor, and restore fish and wildlife habitat in the Columbia River estuary.

In July 2016, Bonneville and the Corps completed the Columbia Estuary Ecosystem Restoration Program Environmental Assessment (DOE/EA-2006) (Programmatic Estuary EA). The Programmatic Estuary EA streamlines the environmental review of routine actions with well understood and predictable environmental impacts common to restoration projects in the Columbia River estuary. The purpose of this Supplement Analysis (SA) is to provide site-specific information about an individual restoration project proposed under the estuary restoration program.

Consistent with the Programmatic Estuary EA, this SA analyzes the proposed Lower Elochoman III Floodplain Restoration Project that would restore habitat along the Elochoman River in Wahkiakum County, Washington. The SA was prepared to analyze the site-specific impacts of the proposed Lower Elochoman III Floodplain Restoration Project and determine if the project is within the scope of the analysis considered in the Programmatic Estuary EA. It also evaluates whether the proposed project presents significant new circumstances or information relevant to environmental concerns. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed pursuant to 40 Code of Federal Regulations (CFR) § 1502.9(d).

## Proposed Activities

The Lower Elochoman III Floodplain Restoration project is an effort by Columbia Land Trust to protect and restore the floodplain habitats in the tidally influenced Elochoman Slough and Elochoman River system. The project would enhance the hydrological connectivity of Nelson Creek and approximately 105 acres of floodplain habitats along the tidally-influenced lower Elochoman River. The vision for the Lower Elochoman III project is to maximize the site's hydrological connectivity with Nelson Creek, the Elochoman River, and the Columbia River estuary to restore function for juvenile salmonids. Improved site dynamics resulting from diurnal tidal forces, over-topping Elochoman River flood events, and pulses of cold water from Nelson Creek during winter storm events would increase juvenile salmon access,

wetland and channel complexity, floodplain topographic diversity, and food web connectivity. Improvement of site conditions would also benefit listed Columbian white-tailed deer.

The project site is located just north of Cathlamet, Washington and adjacent to almost 6,000 acres of lands conserved and restored by Columbia Land Trust and U.S. Fish and Wildlife Service. The proposed restoration project would improve hydrology and access by removing a damaged, undersized tide gate and culvert; excavating a sinuous channel network; filling drainage ditches; and re-routing Nelson Creek out of its ditched alignment and undersized culvert through a 50-foot fish-friendly bridge. Wetland capacity would be improved by floodplain scrape down, invasive species removal, and native plantings.

The failed tide gate that would be removed is located within the existing tidal slough, through which Nelson Creek would flow following project completion. It is currently located toward the bottom of the existing channel, and disturbance would occur up to 10 feet below the bottom of the channel. A section of Nelson Creek would be re-routed through a new channel and a diversion structure. To facilitate a fish and flood friendly crossing for Nelson Creek under Risk Road, a 50-foot clear span bridge would be installed. Due to deep floodplain soils, the bridge would be supported by deep pilings which would be driven to a depth of approximately 100 feet. Other disturbance related to the bridge installation, approaches, etc. would occur up to a depth of approximately 12 feet (average 7 feet). Fill would also be required in ditches and around the bridge approaches to an average depth of approximately 3 feet.

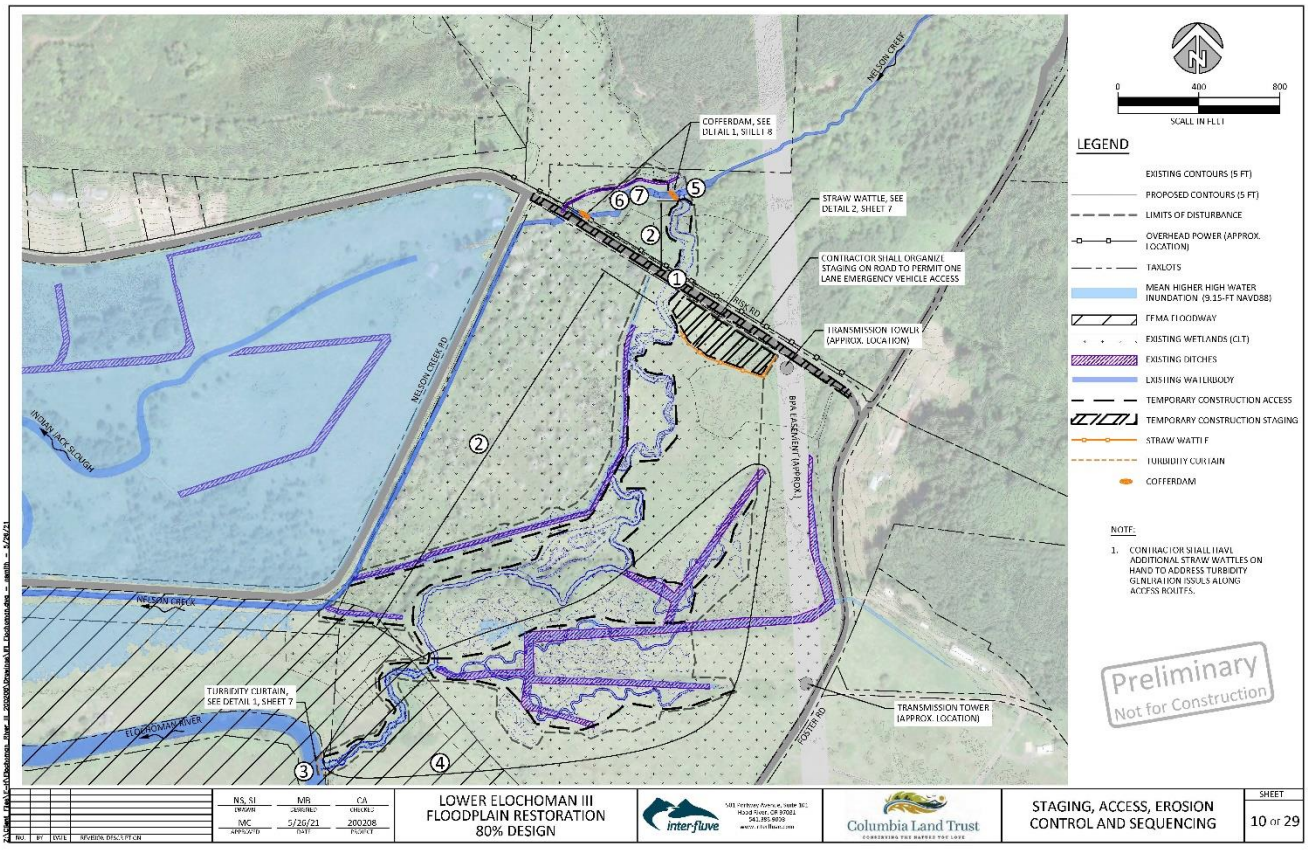
A new sinuous channel network with an average depth of approximately 6 feet deep would be excavated to replace the ditch network and serve as the new flow path of Nelson Creek within a 6.4 acre area to the south of Risk Road. The majority of existing ditches in the project area would be filled to an average depth of 5 feet within an approximately 4-acre area to improve hydrology and create additional wetland area.

All access, staging, and stockpile areas would occur within the project area. Due to site limitations, mostly being wetlands, equipment would need to be staged within 150 feet of wetlands and waterways when not in use. These areas would be isolated with spill prevention and containment best management practices (BMP) in place. Spill kits would be onsite throughout all of the work areas.

The construction of all project elements would be completed with excavators, bulldozers, and haul trucks. Track and tire disturbance would occur throughout the access and staging areas; up to a depth of three feet but generally zero to one foot. Excavators would remove the soils and the bulldozer would complete grading. Removed soils would be used for ditch fill. Any extra soils removed from excavation would be trucked and hauled to an approved offsite location.

To create off-channel refugia, herbaceous wetland plant communities, and amphibian habitat/connectivity, wetland swales would be excavated to an average depth of 2 feet. A variety of live cuttings, bare root, and potentially containerized plant material would be installed with a disturbance depth of approximately 18 inches (cuttings may be installed deeper but no soil would be surfaced). To control priority weed species and help with the survival of plantings, weeds would be controlled throughout the project area. The only ground disturbance involved would be incidental impacts from tires and/or tracks of equipment used to control weeds (tractors, ATVs, skid steers, etc.) up to a depth of 12 inches.

**Figure 1. Lower Elochoman III Floodplain Restoration Design**




Under the proposal, Bonneville would fund Columbia Land Trust (CLT) to conduct restoration actions along the Elochoman River, approximately one and a half miles north of Cathlamet, Wahkiakum County, Washington. The restoration site historically had tidally-influenced freshwater wetlands and tidal channels. Early in the 20th century, mature Sitka spruce trees were harvested from the site and it was converted to agricultural use. Native vegetation removal, ditching, and wetland filling activities reduced the site's estuarine habitat diversity. In 2015, hydrology and fish access were restored through the removal of tidegates and installation of larger culverts under state Highway 4. Restoration actions being proposed include removing a damaged, undersized tide gate and culvert, excavating a sinuous channel network, filling drainage ditches, and re-routing Nelson Creek out of its ditched alignment and undersized culvert, through a 50' fish-friendly bridge. Wetland capacity would be improved by floodplain scrape down, invasive species removal, and native plantings.

The proposed restoration would improve habitat for 13 Endangered Species Act (ESA)-listed salmon and steelhead populations/species and ESA-listed eulachon (smelt), as well as other fish species and wildlife species, such as Columbian white-tailed deer (CWTD). The proposed restoration actions are consistent with the actions considered in the Programmatic Estuary EA, including the following Columbia River estuary (CRE) module management actions developed by NOAA's National Marine Fisheries Service with the intent of aiding in the recovery of salmon and steelhead throughout the region:

- CRE-1: Protect intact riparian areas in the estuary and restore riparian areas that are degraded.

- CRE-3: Protect or enhance estuary instream flows influenced by Columbia River tributary or mainstem water withdrawals and other water management actions in tributaries.
- CRE-6: Reduce the export of sand and gravels from dredge operations by using dredged material beneficially.
- CRE-9: Protect remaining high-quality off-channel habitat from degradation and restore degraded areas with high intrinsic potential for high-quality habitat.
- CRE-10: Re-establish or improve access to off-channel habitats.
- CRE-15: Reduce the introduction and spread of invasive plants.

Funding the proposed activities fulfills commitments under the 2020 National Marine Fisheries Service Columbia River System Biological Opinion. These proposed activities would also support conservation of ESA-listed species considered in the 2020 ESA consultations with the United States Fish and Wildlife Service on the operations and maintenance of the Columbia River System.

**Environmental Effects**

The typical environmental impacts associated with the estuary restoration program are described in Chapter 3 of the Programmatic Estuary EA, and are incorporated by reference and summarized in this document. Below is a description of the potential impacts of the Lower Elochoman III Floodplain Restoration Project and whether they are consistent with the impacts described in the Programmatic Estuary EA. Much of the site-specific analysis cited in the environmental impacts section below comes from the Lower Elochoman III Restoration Basis of Design Report (Inter-Fluve 2021).

1. **Fish**

The overall impacts to fish from the proposed Lower Elochoman III Floodplain Restoration project would be moderate and beneficial. ESA-listed species in the project area may include coho, Chinook, and chum salmon, as well as ESA-listed bull trout and non-listed cutthroat trout and Pacific lamprey. Detrimental impacts such as increased turbidity and injury or mortality from fish salvage and work-area isolation would exist, but are short-term and related to project construction. Beneficial impacts such as improvements in hydrological regimes, enhanced water quality, and increased habitat area and access for fish should develop post-construction. These impacts are consistent with the analysis in the Programmatic Estuary EA, Section 3.2.3, which describes fish impacts as expected to be moderate and beneficial. As consistent with the Programmatic Estuary EA, Bonneville would use the Habitat Improvement Program IV (HIP IV) process to provide programmatic ESA coverage for impacts to ESA-listed fish for the Lower Elochoman III Floodplain Restoration Project. Categories of action included in the HIP IV and relevant to the project include those in the 'River, Stream, Floodplain and Wetland Restoration' and 'Invasive Plant Control' categories, including:

- 1f - Bridge and Culvert Removal or Replacement
- 2f – Channel Reconstruction
- 2b – Set-back or Removal of Existing Berms, Dikes, and Levees
- 2d – Install Habitat-Forming Natural Structures
- 2e – Riparian Vegetation Planting
- 3c – Manage Vegetation Using Herbicides (Estuarine Systems)

2. **Hydrology and Hydraulics**

Water surface elevations at the Elochoman River III project site are controlled by tidal fluctuations, discharge from the Elochoman River, and discharge from Nelson Creek and surrounding hillsides. Nelson Creek enters the project site from the north. The Elochoman River enters the project site from the south and reaches the Columbia River approximately 2 miles downstream from the project site. A series of hydraulic simulations were utilized to investigate the appropriate size and type (e.g, culvert, clear span bridge, etc.) of the Risk Road crossing. The existing Nelson Creek culvert beneath Risk Road was determined to be substantially undersized through both field observation and comparison with a natural reference approximately 0.5 miles upstream. To alleviate the potential for flooding and also allow for the passage of salmonids, a 50-foot single clear span bridge, is proposed on Risk Road. This scenario represents an improvement over existing conditions with respect to flooding and fish passage that is exhibited with the current tidegate and undersized culvert. Through the re-routing of Nelson Creek beneath the proposed bridge, the excavation of a new channel network, filling of drainage ditches, and the floodplain scrape down, hydrology and hydraulic exchange would be greatly improved over the existing conditions of the site.

As discussed within the Programmatic Estuary EA, Section 3.3, by re-routing Nelson Creek beneath a 50-foot bridge; excavating the new channel network; and scraping down several topographically higher areas within the floodplain; tidal exchange would be restored. The project site would be inundated, and hydrological processes which have been disconnected for decades would be restored almost instantaneously. The effects of restoring hydrology would include a localized increase in water quantity including an increase in the depth of water and duration of water on the site. Hydraulics would also be altered within the site and would be expected to further the development of a natural tidal channel network and restore sediment accretion within tidal wetlands due to the restoration of natural processes. Over time, the restoration of hydrological connectivity and inundation at the project site would support the restoration of natural processes contributing to habitat establishment and development, fish and wildlife usage, and structural and functional dynamics at the project site. Increasing the wetted area via breaching or lowering a levee or dike would provide additional floodplain capacity and conveyance for flood flows, reducing the local flood profile. Restoring local hydrology improves ecological structure, sustaining a diversity of habitat types which in turn increases the resilience and self-sufficiency of the wider ecosystem.

The impacts associated with the project would be moderate and are consistent with those described in the Programmatic Estuary EA, Section 3.3.3, which include: erosion, scour, and in-channel deposition; increased frequency and duration of inundation; localized changes in velocity, flow, and circulatory patterns; reconnection of channel habitats; and increased instream flows.

3. **Water Quality**

The project would result in overall positive impacts to water quality, including increased composition of native vegetation and vegetation cover, increased quantity of tidal marsh habitat, and increased hydrology, tidal exchange, and flushing. Impacts associated with construction activities at the Lower Elochoman III Floodplain Restoration project site could result in increases to localized turbidity, but would be short-term and limited to the duration of construction and subsequent site stabilization. As part of the HIP IV process, conservation measures would be implemented to ensure that increases in suspected sediment are not exceeding compliance limits. The impacts associated with the Lower Elochoman III Floodplain Restoration project would be low and are consistent with those described in the Programmatic Estuary EA, Section 3.4.3, which described impacts to be low to moderate.

4. **Geomorphology, Soils, and Topography**

The Lower Elochoman III Floodplain Restoration property was formed by a combination of physical processes and human alterations. The project area endured past farming, ditching, tilling, and grading practices as is evident by the existing ditch, berm, and grazed areas that occur along the Elochoman River floodplain.

The landforms visible at today's project area were altered by a variety of anthropogenic impacts including flood control systems (levees), infrastructure development, and vegetation change. Within the project area, tidal floodplains were isolated by levee systems. The ditching and leveeing in the project area has driven two noteworthy geomorphic changes. First, ditching and leveeing has disconnected the surface from regular flood inundation. This resulted in the associated loss of inundation benefits including sediment deposition, reduction in contributions to the vegetation seed bank, reduction in particulate and nutrient exchange, and lack of scouring flood flows. Second, ditching and leveeing contributed to the lowering of the groundwater surface elevation. This lowering led to further subsidence of the project area (an increase in soil aeration and decrease in buoyancy, which leads to soil consolidation), and a subsequent lowering of the ground surface.

Soils data for the Elochoman River III project site and the surrounding area were obtained from the United States Department of Agriculture National Resource Conservation Service (USDA NRCS). Elochoman River and Nelson Creek soils are primarily Nuby silt loam in the central portion of the project area. Near the historical Nelson Creek channel and near the Elochoman River, soils are found to be Grehalem silt loam with Montesa silt loam (1% to 8% slopes) near the project area boundary. Ocosta silty clay loam is mapped along the western edge of the project area. Nuby silt loam is very deep, poorly drained soil located on floodplains and Grehalem silt loam is a very deep, well-drained soil found on natural levees of floodplains (Pringle 1986).

Impacts from the project are moderate in the short-term, with long-term beneficial impacts consistent with those analyzed in the Programmatic Estuary EA Section 3.5.3. These impacts include temporary erosion and sedimentation; altered channel form; degraded structure and increased density of soils; localized changes in velocity, flow, and circulatory patterns; and increased groundwater exchange resulting in changes to soil structure and porosity. Analysis of these impacts is included above in Section 2, Hydrology and Hydraulics.

5. **Sediment Quality**

The Lower Elochoman III Floodplain Restoration project would remove approximately 35,000 cubic yards of material from the 100-year floodplain of the Elochoman River. The floodplain scrape down, removal of the tidegate and culvert, construction of the bridge, excavation of the channel network, and filling of the several drainage ditches would all occur during the summer when water levels are low and weather is dry. Excavated material from construction actions would be pulled in a direction away from the Nelson Creek and adjacent wetlands to avoid any potential impacts to it, implementing all BMPs required by the Washington State Department of Ecology (WA ECY). These construction actions would result in bare/disturbed soils with the potential for runoff. All exposed areas would be seeded with a mix of sterile, quickly-establishing erosion control species and native herbaceous species post-construction. BMPs required by WA ECY such as application of straw would also be implemented. Due to the elevation of these areas, it is anticipated that seed would have the opportunity to successfully

germinate. Establishment should occur before any substantial precipitation events. Potential impacts include runoff associated with rain events on exposed soils, which should be avoided by summer time construction followed by seeding.

During the summer, water levels would be well below the work area. Work would be conducted in such a way that no sediment would be delivered to the river. If any sediment is delivered to the river, silt fence or other appropriate BMPs would be utilized. All disturbed areas associated with this project element would be seeded shortly after construction, and planted with native trees and shrubs early in 2022.

Overall impacts on sediment quality are moderate in the long term. Though there may be some short-term adverse impacts from disturbing and redistributing sediments, the actions proposed would increase organic material within the floodplain sediments over time, increasing their capacity to store nutrients as well as toxic chemicals. While this may lower sediment quality, water quality could improve the water column, thus improving the health of the aquatic biota. Such impacts have been previously analyzed in the Programmatic Estuary EA Section 3.6.3 and are consistent with the impacts at the Lower Elochoman III Floodplain Restoration project.

6. **Air Quality**

Temporary impacts to air quality associated with the Lower Elochoman III Floodplain Restoration project would result from the transportation and operation of construction equipment, as well as emissions related to travel to and from project areas for maintenance purposes. Impacts would be low and would not result in long- or short-term violations of state air quality standards. Project impacts on air quality would be low both in concentration and duration, consistent with the impacts described in the Programmatic Estuary EA, Section 3.7.3.

7. **Wildlife**

A population of CWTD resides in the Westport Slough area. This population is reproducing successfully and maintains a stable population estimated at approximately 150 animals on the 1,400 acres between Westport Slough and the Columbia River. A section of the Julia Butler Hansen National Wildlife Refuge for the CWTD is located in Westport Slough, which is south of the Lower Elochoman III Floodplain Restoration project area. Inundation of the Lower Elochoman III Floodplain Restoration project area may temporarily displace CWTD, although the project is expected to provide a net gain in available habitat for adults and juveniles. The berm scrape down and filling of the single section of ditch would provide newly available habitat at or near mean higher high water (MHHW). All areas would be planted with native species, which would provide various strata of cover and habitat for CWTD during all times of the year. Topographic and vegetative diversity would increase with restoration actions which would benefit CWTD by providing forage and cover habitats within the same area.

CWTD in the Lower Columbia River area are closely associated with riparian habitats often characterized by densely forested swamps covered with tall shrubs and scattered spruce, alder, cottonwood, and willows. In the summer, CWTD preferentially inhabit mixed forests of western red cedar, red alder, and parkland habitat with a grassy understory. The Lower Elochoman III Floodplain Restoration project area does contain CWTD habitat and may affect CWTD temporarily during construction and maintenance periods. However, to avoid and minimize impacts to CWTD within and around the project area, CLT must

follow the conservation measures set forth in the HIP IV Biological Opinion of 2020. As a reminder, the measures relevant to this project are:

- To avoid and minimize impacts to CWTD during the fawning period, restoration activities would *not* occur from June 1 to July 15.
- Project personnel would be instructed to *not* approach CWTD adults or fawns at any time and reduce vehicle speeds around project sites where CWTD occur to avoid vehicle-deer collisions.
- Herbicides would *not* be used in CWTD fawning areas from June 1 to July 15. Within suitable or occupied habitat, use only herbicides listed under General Conservation Measures for Terrestrial Species and Critical Habitats #4 in the HIP IV Biological Opinion.

In addition to the aforementioned conservation measures, it is recommended to create microtopography within the project area to the maximum extent practicable. This entails creating and maintaining areas of higher elevation with native vegetation suitable for CWTD scattered within areas of lower elevation to allow deer to use these areas seasonally.

Impacts on wildlife resulting from the Lower Elochoman III Restoration project would be low to moderate, and would relate to construction. The conversion of pasture grass to a diverse mixture of trees, shrubs, native grasses, and forbs would permanently displace most upland species. Semi-terrestrial mammals such as beaver, as well as amphibians, waterfowl, shorebirds, and insect-eating birds would have expanded and much improved wetland and aquatic habitat for breeding and feeding. Species favoring riparian forest would benefit from the planting of native tree and shrub species in areas bordering the restored tidal wetland. Project impacts would be consistent with the impacts discussed in Section 3.8.3 of the Programmatic Estuary EA.

The Programmatic Estuary EA acknowledged the potential for restoration projects to impact ESA-listed species. According to an email on April 18, 2019, by Jennifer Siani of the USFWS, the Lower Elochoman III Wetland Restoration project area contains CWTD habitat and may affect, but is not likely to adversely affect CWTD. Therefore, conservation measures set forth in HIP IV Biological Opinion of 2020 must be used by CLT to avoid and minimize impacts to CWTD. If ESA-listed species are potentially impacted, the Programmatic Estuary EA describes the need for consultation, including the implementation of mitigation measures, conservation measures, or project design features identified to minimize impacts.

8. **Wetlands, Floodplains, and Vegetation**

Vegetation communities within the wetland and floodplain areas of the project site consist predominantly of reed canarygrass (*Phalaris arundinacea*), knotweed species (*Polygonum* spp.), and Himalayan blackberry (*Rubus bifrons*) except for an area located in the northwestern corner. This area contains a mature overstory of Sitka spruce (*Picea sitchensis*), red alder (*Alnus rubra*), and western red cedar (*Thuja plicata*) with a minor component of big leaf maple (*Acer macrophyllum*), Oregon ash (*Fraxinus latifolia*), and black cottonwood (*Populus trichocarpa*). The understory component is that of Douglas spirea (*Spiraea douglasii*), red-osier dogwood (*Cornus sericea*), black twinberry (*Lonicera involucrata*), and Pacific ninebark (*Physocarpus capitatus*). The understory also contains a minimal occurrence of perennial and annual hydrophytes such as skunk cabbage (*Lysichiton americanus*), slough sedge (*Carex obnupta*), water parsley (*Oenanthe sarmentosa*), small-fruited bulrush (*Scirpus microcarpus*), and other rush species.

There would be a risk to the integrity of the project if the weed populations are not controlled to allow the upcoming native plantings as well as native seed bank to thrive. Wetland sites containing a diversity of native grass, forb, shrubs, and overstory species provide a much higher quality habitat for myriad species, including listed salmonids and CWTD. They provide increased nutrient input, shading, prey production, forage opportunities, and functioning wetland dynamics such as sediment accretion and water filtration. Without herbicide treatments on all weed species on the project site, it would be an extremely slow, if not impossible process to establish native vegetation for the benefit of a variety of listed and non-listed wildlife species. Further, public opinion is influenced by these restoration projects, and one complaint often cited in restoration projects is that weeds are not controlled which can result in off-site impacts.

Due to the large amount of invasive species present on the site, the entire Lower Elochoman III Floodplain Restoration project site would be revegetated with non-invasive species appropriate to elevation ranges or zones. Such vegetation is needed for supporting accretion, marsh development, and hydrological complexity and would reduce the likelihood for invasive species to dominate and simplify the site.

The impacts to wetlands and vegetation from projects envisioned in the Programmatic Estuary EA, Section 3.9.3 are intended to be moderate and beneficial by design, since wetland restoration, invasive species control, and estuarine habitat improvement are the intent of these actions. The Lower Elochoman III Floodplain Restoration project would result in beneficial impacts to native vegetation, wetlands, and estuarine habitats in the proposed restoration area consistent with those considered in the Programmatic Estuary EA.

9. **Land Use and Recreation**

The Lower Elochoman III Floodplain Restoration project site is located on the lower, tidal reach of the Elochoman River. The property historically functioned as floodplain for the Elochoman River as well as intertidal habitat associated with the Columbia River and its wetland complex within the Julia Butler Hansen Wildlife Refuge. Within the last 100 years, the property was ditched and drained and utilized for agricultural purposes. CLT purchased the property in 2012 for conservation and to provide and enhance wildlife habitat for listed salmonid and steelhead species, CWTD, and other wildlife species. Although the site is currently hydrologically connected to the Columbia River via sloughs and the newly installed box culverts under State Route 4, the existing fish habitat is limited to straight ditches lacking complexity, roughness, shading, large wood, and length compared to historical conditions.

The landforms visible at today's project area were altered by a variety of anthropogenic impacts including vast flood control systems (dams and levees), dredging navigation corridors, infrastructure development, and vegetation change. Within the project area, the primary alteration has been the construction of drainage ditches. These structures alter the timing, duration, and extent of floodplain connectivity by draining areas which under purely natural conditions would likely have been tidal wetlands. While water can access all portions of the project area, water quickly drains through ditches. In addition, the relatively straight uniform ditches provide minimal aquatic and riparian habitat for native species.

Impacts on land use and recreation would result from the removal of the existing tidegate and culvert; the relocation of Nelson Creek crossing beneath a new bridge at Risk Road; the excavation of a new sinuous channel network; the floodplain scrape down; and filling of several ditches. These activities

would convert the lands from the historical agricultural uses to tidal marsh habitat, and therefore reducing access within the project vicinity. Restoring degraded farmlands to tidal marsh areas would restore accretion rates and position these areas to better respond to sea-level rise. The proposed activities would impact the farmlands identified as of statewide importance. While estuarine restoration projects would have low to moderate adverse effects to farmlands, the project is occurring in coordination with CLT as a willing landowner, which purchased the property from willing landowners themselves in 2012. Such impacts are consistent with those described in the Programmatic Estuary EA, Section 3.10.3 and Appendix C, which described impacts to land use and recreation as low to moderate.

10. **Cultural Resources**

Bonneville initiated its site-specific National Historic Preservation Act Section 106 consultation on December 3,
2020. A field survey was conducted and no cultural resources were identified, so Bonneville completed its consultation on April 20, 2020, determining that the project would have no adverse effect to historic properties. Bonneville consulted with the Cowlitz Indian Tribe, Shoalwater Bay Tribe, Chinook Indian Nation, and the Washington Department of Archaeology and Historic Preservation (DAHP). The DAHP concurred with Bonneville's determination as long as Driscoll-Naselle No. 1 transmission line is avoided.

Cultural resources impacts are consistent with the analysis in the Programmatic Estuary EA, Section 3.11.3. That is, the proposed activities would not impact historic sites, and impacts to cultural resources uncovered during construction would be mitigated by the use of Inadvertent Discovery Plans (IDPs).

Therefore, impacts would be low consistent with the impacts discussed in the Programmatic Estuary EA. The impacts discussed in the Programmatic Estuary EA, Section 3.11.3 include: reestablishment of tidal channels, reestablishment of wetland and riparian plant communities, and removal of structures.

11. **Socioeconomics**

The Lower Elochoman project site was used in the past as farmland and more recently as working forest land. When the project site was sold to the CLT, the site had been taken out of agricultural production and a hybrid poplar lease was active. Since acquisition, the poplar lease has been purchased and extinguished. However, no farmland or working forest land would be lost as a result of this proposal because the property was purchased for wildlife habitat and has with it a conservation easement restricting land uses to wildlife habitat conservation and enhancement. Furthermore, the site is not productive for agricultural or hybrid poplar farming due to mammalian browsing and being prone to flooding.

Negative impacts associated with the proposed project include removal of the existing tidegate and culvert; the relocation of Nelson Creek crossing beneath a new bridge at Risk Road; the excavation of a new sinuous channel network; the floodplain scrape down; and filling of several ditches. These impacts would modify the property into a tidally influenced floodplain with native vegetation, excluding future farming and grazing opportunities. In addition, the acquisition of the Lower Elochoman property by CLT and the proposed restoration from agricultural to protected wetland would remove the property from the county tax base, reducing tax revenues. Small beneficial, short-term impacts would occur associated with the workers needed for construction, as well as long-term benefits associated with improvement of fish runs and natural scenery.

The Programmatic Estuary EA did not anticipate that the projects would have adverse human health or socioeconomic impacts, or would disadvantage low-income or minority populations. For the Lower Elochoman III Floodplain Restoration project, socioeconomic impacts are low, and consistent with those described in the Programmatic Estuary EA Section 3.12.3.

12. **Visual Resources**

The Lower Elochoman III property can be seen from Highway 4 (Ocean Beach Highway) to the west. The removal of the existing tidegate and culvert; the relocation of Nelson Creek crossing beneath a new bridge at Risk Road; the excavation of a new sinuous channel network; the floodplain scrape down; filling of several ditches; and restoration of the property to a more natural state would increase hydrological connectivity, resulting in an increase in the quality and size of the wetlands within the project site. To compensate for the project impacts, an area to the north of Risk Road and the riparian zone of the newly excavated channel of Nelson Creek would be revegetated with a variety of native trees and shrubs.

This alteration of the physical landscape through the removal of existing infrastructure would shift the character of the site from a somewhat human-engineered landscape to a more natural-looking area, resulting in low impacts to visual resources as is consistent with the visual resources analysis in the Programmatic Estuary EA, Section 3.13.3.

13. **Noise, Hazardous Waste, and Public Health and Safety**

The Lower Elochoman III Floodplain Restoration project would result in minimal noise and hazardous waste impacts related to construction and maintenance activities. Potential safety risks could be associated with increased surface area of flowing and standing water with daily tidal flooding in places where there was none in recent history. Flooding on restored sites would be daily tidal flooding or seasonal flooding of the property. The project would increase the surface area of flowing and standing water in places where there was none in recent history, which may result in safety concerns where roads or trails bring people in close proximity to new/restored hydraulics.

Although there may be safety concerns in regards to the flooding of roads or trails with channel re-alignment projects, this is not the case with the Lower Elochoman III Floodplain Restoration project. The proposed 50-foot single clear span bridge represents a substantial improvement over existing conditions with respect to flooding and fish passage. Areas to the north of Risk Road that used to have flooding issues would be greatly improved due to the removal of the undersized culvert and replacement with the proposed bridge. There would likely be no impact at all since flooding surrounding the project site is a result of rainfall combined with high tides and background storm events. Again, the flood risk to surrounding properties would be reduced by re-directing unrestricted water from Nelson Creek onto the project site instead of the water being directed through an undersized existing culvert, causing water to backup and flood behind it.

The Lower Elochoman III Floodplain Restoration project includes removing a damaged, undersized tide gate and culvert; excavating a sinuous channel network; filling drainage ditches; and re-routing Nelson Creek out of its ditched alignment and undersized culvert, through a 50’ fish-friendly bridge. Wetland capacity would be improved by floodplain scrape down, invasive species removal, and native plantings. Long term monitoring and maintenance would also occur to assure the newly planted riparian

vegetation is successful. As a result, the only impacts are associated with construction and maintenance, and are low, which is consistent with those described in the Programmatic Estuary EA, Section 3.14.3.

14. **Transportation and Infrastructure**

The Lower Elochoman III Floodplain Restoration project is expected to have minimal impacts on transportation or infrastructure, as there are no roads that would be removed for the project. The project is not expected to have any impacts on navigability within the Columbia River to the west or within the Elochoman River, consistent with the analysis in the Programmatic Estuary EA, Section 3.15.3.

15. **Climate Change**

Possible negative impacts to climate change include those relating to use of vehicles and equipment associated with construction and maintenance of the Lower Elochoman III Floodplain Restoration project area. Due to the short duration of construction and the relatively small number of construction vehicles, temporary emissions associated with project construction are anticipated to be well below 25,000 tons of $CO_2e$ during construction. Overall, the long-term impacts on climate change from the project are expected to be low and beneficial, which is consistent with the impacts described in the Programmatic Estuary EA, Section 3.16.3.

**Findings**

Bonneville finds that the potential impacts from the proposed Lower Elochoman III Floodplain Restoration project were examined, reviewed, and consulted upon and are similar to those analyzed in the Columbia Estuary Ecosystem Restoration Program Environmental Assessment (DOE/EA-2006) and Finding of No Significant Impact. There are no substantial changes in the EA's Proposed Action and no significant new circumstances or information relevant to environmental concerns bearing on the EA's Proposed Action or its impacts within the meaning of 10 CFR § 1021.314(c)(1) and 40 CFR §1502.9(d). Therefore, no further NEPA analysis or documentation is required.

*/s/ Shawn Skinner*
Shawn Skinner
Environmental Protection Specialist

Concur:

*/s/ Sarah T. Biegel* Date: *July 1, 2021*
Sarah T. Biegel
NEPA Compliance Officer

**References and Literature Cited**

Inter-Fluve, Inc. 2021. Elochoman III Habitat Enhancement Project – 80% Basis of Design Report. Prepared by Inter-Fluve, Inc. for the Columbia Land Trust, Portland, OR. Available from Columbia Land Trust, Portland, OR.

Pringle, R.F. 1986. Soil Survey of Grays Harbor County Area, Pacific County, and Wahkiakum County, Washington. Soil Conservation Services.