

Klickitat Hatchery Program Draft EIS – Summary of Environmental Impacts of Alternatives

Chapter	Resource Area	Anticipated Environmental Effects		
		Alternative 1 No Action Alternative	Alternative 2 Full Master Plan Build Out	Alternative 3 Klickitat Hatchery Build Out
3.1.1	Air Quality (NonGHG Emissions)	Air quality would be unaffected as no new pollutant sources would be added.	Construction would cause minor short-term increases in air pollutant emissions (adverse effect) at the Wahkiacus and Klickitat Hatcheries, and McCreedy Creek sites. Emergency use of generators at the Wahkiacus and Klickitat Hatchery sites, and seasonal use of generators at the McCreedy Creek site would cause minor short-term adverse impacts on air quality.	Construction would cause minor short-term increases in air pollutant emissions (adverse effect) at the Klickitat Hatchery and McCreedy Creek sites. Emergency use of generators at the Klickitat Hatchery site and seasonal use of generators at the McCreedy Creek site would cause minor short-term adverse impacts on air quality.
3.1.2	Climate Change (GHG Emissions)	Alternative 1 would have no effect on climate change.	Some increase in greenhouse gas emissions would occur; however, the contribution to climate change would be minor.	Some increase in greenhouse gas emissions would occur; however, the contribution to climate change would be minor.
3.2	Geology and Soils	Alternative 1 would not cause any ground disturbing activities; therefore, geology and soils would be unaffected.	A total of 33.15 acres of soil/ground would be disturbed at the three project sites. Short-term minor adverse effects of erosion and sedimentation from construction would occur at the Wahkiacus, Klickitat Hatchery, and McCreedy Creek site, although Best Management Practices would be employed to reduce the impact. Minor long-term site-specific adverse impacts on soils and geology would result from site grading at the three sites, which would permanently alter the natural conditions of these resources.	A total of 21.45 acres of soil/ground would be disturbed at the Klickitat Hatchery and McCreedy Creek sites. Short-term minor adverse effects of erosion and sedimentation from construction would occur at the Klickitat Hatchery and McCreedy Creek site, although Best Management Practices would be employed to reduce the impact. Minor long-term site-specific adverse impacts on soils and geology would result from site grading at the two sites, which would permanently alter the natural conditions of these resources.

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3.3	Water Quality and Quantity	<p>Groundwater, hydrology, water rights, and water quality would remain unaffected. Water demand at the Klickitat Hatchery would remain unchanged.</p>	<p>Construction activities would increase the erosion potential for soils; sediment could enter the Klickitat River, Swale Creek, and McCreedy Creek during rain events. In-water work at the three sites would have a minor short-term adverse effect on water quality.</p> <p>Water withdrawal from the Klickitat River and Swale Creek for new facilities at the Wahkiacus site, and from McCreedy Creek for a mobile acclimation facility, would cause lower flows in these streams between the intakes and outfalls. Consumptive use of water at Klickitat Hatchery is expected to be minimal and similar to existing conditions. Withdrawal from Swale Creek would have a minor adverse effect on stream temperature.</p> <p>No direct long-term adverse effects to water quality due to effluent discharge at any of the proposed facilities are anticipated.</p>	<p>Construction activities would increase the erosion potential for soils; sediment could enter the Klickitat River and McCreedy Creek during rain events. In-water work at the Klickitat Hatchery and McCreedy Creek sites would have a minor short-term adverse effect on water quality.</p> <p>Water withdrawal from McCreedy Creek for a mobile acclimation facility would cause lower flows in this stream between the intake and outfall. Consumptive use of water at Klickitat Hatchery is expected to be minimal and similar to existing conditions.</p> <p>No direct long-term adverse effects to water quality due to effluent discharge at any of the proposed facilities are anticipated.</p>
3.4	Fisheries	<p>No new fish hatchery or acclimation facilities would be built and fish production programs conducted at the Klickitat Hatchery would continue. Direct releases of hatchery fish from outside the subbasin</p>	<p>Construction would result in minor short-term loss of instream habitat due to dewatering related to in-water work isolation.</p> <p>Minor short-term increases in turbidity and</p>	<p>Construction would result in minor short-term loss of instream habitat due to dewatering related to in-water work isolation.</p> <p>Minor short-term increases in turbidity and</p>

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		<p>would continue without the benefit of acclimation, which impacts native fish.</p> <p>Naturally-produced juvenile steelhead and spring Chinook present in the mainstem Klickitat River downstream of the Klickitat Hatchery would continue to be vulnerable to predation and competition effects from hatchery coho and fall Chinook salmon releases from the Klickitat Hatchery.</p> <p>Releases of nonnative Skamania stock hatchery fish in the Klickitat River may be affecting and continue to affect the Klickitat native populations.</p>	<p>sedimentation would occur during installation and removal of cofferdams.</p> <p>Fish salvage during dewatering process would result in moderate short-term stress to handled fish. Effects to individuals could be adverse.</p> <p>Placement of instream structures (new intakes, fish ladders, etc.) would result in a minor permanent loss of instream and bank habitat.</p> <p>Operation of new facilities at Wahkiacus would introduce effluent into the Klickitat River, which could adversely affect fish near the outfall. All discharges would comply with NPDES permit requirements for fish rearing.</p> <p>Operation of Swale Creek intake could result in moderate adverse effects to rearing and spawning salmonids due to reduction in flow (habitat) and increase in instream temperature.</p> <p>Operation of the fish ladder at the Wahkiacus facility would result in minor short-term delays to upstream migration for non-target anadromous salmonids.</p> <p>Operation of McCreedy Creek intake would result in moderate short-term loss of available instream habitat. Effluent from acclimation facilities into McCreedy Creek would have a limited effect on water quality and result in minor, low intensity</p>	<p>sedimentation would occur during installation and removal of cofferdams.</p> <p>Fish salvage during dewatering process would result in moderate short-term stress to handled fish. Effects to individuals could be adverse.</p> <p>Placement of instream structures (new intakes, fish ladders, etc.) would result in a minor permanent loss of instream and bank habitat.</p> <p>Operation of McCreedy Creek intake would result in moderate short-term loss of available instream habitat.</p> <p>Removal of culvert at McCreedy Creek would improve passage, resulting in permanent beneficial effect. Effluent from acclimation facilities into McCreedy Creek would have a limited effect on water quality and result in minor, low intensity direct effects to fish in McCreedy Creek and Klickitat River.</p> <p>Operation of new intake at Klickitat Hatchery would result in minor delays to aquatic species that enter the bypass.</p>

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3.5	Vegetation	Alternative 1 would not require any vegetation removal; therefore, no impact to vegetation would occur.	<p>direct effects to fish in McCreedy Creek and Klickitat River.</p> <p>Removal of culvert at McCreedy Creek would improve passage, resulting in permanent beneficial effect.</p> <p>Operation of new intake at Klickitat Hatchery would result in minor delays to aquatic species that enter the bypass.</p> <p>Construction would have a short-term moderate impact on a total of 24.5 acres of vegetation.</p> <p>Permanent removal of a total of 5.9 acres of vegetation would occur.</p> <p>Routine maintenance of the hatchery facilities would include removal of woody debris, which would have a minor long-term adverse effect on vegetation and wildlife that rely on the woody debris for nutrients and habitat. Increased vehicle traffic at the Wahkiacus and McCreedy Creek sites may disperse nonnative species to these areas.</p>	<p>Construction would have a short-term moderate impact on a total of 15.7 acres of vegetation.</p> <p>Permanent removal of 3.7 acres of vegetation would occur.</p> <p>Routine maintenance of the hatchery facilities would include removal of woody debris, which would have a minor long-term adverse effect on vegetation and wildlife that rely on the woody debris for nutrients and habitat. Increased vehicle traffic at the McCreedy Creek site may disperse nonnative species to this area.</p>
3.6	Wildlife	The existing status of wildlife habitat and species at three project sites would not be affected by Alternative 1.	<p>Construction would remove a total of 5.9 acres of habitat for local wildlife species, decreasing available habitat and having a minor impact on wildlife.</p> <p>Less mobile species at the construction sites, such as amphibians and reptiles, would experience major adverse effects from construction.</p>	<p>Construction would remove a total of 3.7 acres of habitat for local wildlife species, decreasing available habitat and having a minor impact on wildlife.</p> <p>Less mobile species at the construction sites, such as amphibians and reptiles, would experience major adverse effects from construction.</p>

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3.7	Threatened and Endangered Species	<p>Naturally-produced juvenile steelhead present in the mainstem Klickitat River downstream of the Klickitat Hatchery would continue to be vulnerable to predation and competition effects from hatchery coho and fall Chinook salmon releases from the Klickitat Hatchery.</p> <p>Releases of nonnative Skamania stock hatchery fish in the Klickitat River may be affecting and continue to affect the Klickitat native populations.</p>	<p>Construction noise would have a moderate short-term effect on wildlife at the three project sites, displacing them during the construction period.</p> <p>Operation of hatchery and acclimation facilities would have a minor long-term effect on species that are sensitive to human disturbance.</p> <p>If present, effects to federally listed bull trout and Middle Columbia River steelhead would be similar to those described for Fisheries.</p> <p>Operation of the Swale Creek intake would result in minor to moderate adverse effects to designated critical habitat for steelhead due to flow reduction and increased instream temperature.</p> <p>Construction noise could result in a direct, short-term moderate adverse effect on a Northern spotted owl nest 0.65 mile downstream of the McCreedy Creek site.</p>	<p>Construction noise would have a moderate short-term effect on wildlife at Klickitat Hatchery and McCreedy Creek, displacing them during the construction period.</p> <p>Operation of hatchery and acclimation facilities would have a minor long-term effect on wildlife species that are sensitive to human disturbance.</p> <p>If present, effects to federally listed bull trout and Middle Columbia River steelhead would be similar to those described for Fisheries.</p> <p>Construction noise could result in a direct, short-term moderate adverse effect on a Northern spotted owl nest 0.65 mile downstream of the McCreedy Creek site.</p>
3.8	Wetlands	<p>Wetlands would be unaffected by Alternative 1.</p>	<p>Construction of the Wahkiacus site would have a major long-term impact to wetlands with removal of the 0.29 acre of Category 3 wetland. Erosion and sedimentation from construction activities could result in minor short-term adverse effect by decreasing water quality and habitat availability to slope wetlands associated</p>	<p>Erosion and sedimentation from construction activities could result in minor short-term adverse effect by decreasing water quality and habitat availability to slope wetlands associated with Indian Ford and Wonder Springs (Klickitat Hatchery site). In the long-term these slope wetlands could be lost and</p>

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3.9	Floodplains	No floodplain impacts would result from Alternative 1.	<p>with Indian Ford and Wonder Springs (Klickitat Hatchery site). In the long-term, these slope wetlands could be lost and converted to upland as site upgrades could alter surface water patterns.</p> <p>Erosion and sedimentation from construction of the bridge over McCreedy Creek could have a minor decrease in water quality and habitat availability in the wetland in the short-term.</p> <p>Construction of McCreedy Creek intake and outfall would be sited to avoid impacts to wetland spanning the creek.</p> <p>The intake and pump station for the Wahkiacus facility would be within the Klickitat River floodway And several facilities associated with the Wahkiacus site would be located in the floodway fringe. The development of these facilities would have a direct long-term minor effect on the flood elevation.</p> <p>The new intake at Klickitat Hatchery would be designed to withstand high water events and is not expected to alter flood elevations. Impacts to floodplains are not anticipated at Klickitat Hatchery site or McCreedy Creek site.</p>	<p>converted to upland as site upgrades could alter surface water patterns.</p> <p>Erosion and sedimentation from construction of the bridge over McCreedy Creek could have a minor decrease in water quality and habitat availability in the wetland in the short-term.</p> <p>Construction of McCreedy Creek intake and outfall would be sited to avoid impacts to wetland spanning the creek.</p> <p>The new intake at Klickitat Hatchery would be designed to withstand high water events and is not expected to alter flood elevations. Impacts to floodplains are not anticipated at Klickitat Hatchery site or McCreedy Creek site.</p>
3.10	Cultural	There would be no impacts to cultural resources under Alternative 1	Ground-disturbance related to construction activities at the Wahkiacus	There would be no impacts to cultural

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3.11.1	Visual Resources	There would be no change to the visual environment under Alternative 1.	<p>study area would constitute a long-term adverse impact to cultural materials. The modification of the existing hatchery and demolition of the three residences at the Klickitat study area would constitute a long-term adverse impact to these historic properties.</p> <p>Further evaluation of the McCreedy Creek study area is needed to determine if cultural materials are present. It is possible that the project could have an effect on them.</p>	<p>resources at the Wahkiacus study area.</p> <p>Under Alternative 3, the impacts to cultural resources at the Klickitat and McCreedy Creek sites would be the same as in Alternative 2.</p>
			<p>Construction activities would constitute a short-term moderate adverse direct impact to sensitive viewers at the Wahkiacus and Klickitat Hatchery sites.</p> <p>New structures at Wahkiacus site would constitute a minor long-term adverse impact to sensitive viewers.</p> <p>Partial removal of the concrete sill at the Klickitat Hatchery site would create a long-term direct beneficial impact to sensitive viewers.</p> <p>There would be no sensitive viewers present at the McCreedy Creek site and therefore no visual resources impacts.</p>	<p>Construction activities would constitute a short-term moderate adverse direct impact to sensitive viewers at the Klickitat Hatchery site.</p> <p>Partial removal of the concrete sill at the Klickitat Hatchery site would create a long-term direct beneficial impact to sensitive viewers.</p> <p>There would be no sensitive viewers present at the McCreedy Creek site and therefore no impacts.</p>
3.11.2	Soundscape	There would be no change to the soundscape under Alternative 1.	Construction would cause moderate short-term noise impacts in areas directly adjacent to construction activity, including the residence located 0.17 miles from the	The nearest off-site residences are located more than 0.25 mile from the Klickitat Hatchery site and may experience some temporary minor

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			<p>Wahkiacus site.</p> <p>Operational noise effects are not anticipated to exceed the WAC maximum environmental noise level and would only constitute a minor effect.</p> <p>The nearest off-site residences are located more than 0.25 mile from the Klickitat Hatchery site and may experience some temporary minor impacts from construction noise.</p> <p>The nearest off-site residences are located more than 0.25 mile from the McCreedy site and are not expected to experience impacts from construction or operation noise.</p>	<p>impacts from construction noise.</p> <p>Operational noise effects are not anticipated to exceed the WAC maximum environmental noise level and would only constitute a minor effect.</p> <p>The nearest off-site residences are located more than 0.25 mile from the McCreedy site and are not expected to experience impacts from construction or operation noise.</p>
3.12.1	Land Use and Transportation	<p>Land use would not change under Alternative 1.</p> <p>Transportation facilities would not change under Alternative 1.</p>	<p>Development of the Wahkiacus site would have a minor long-term direct beneficial impact on land use because the conservation and residential uses would conform to zoning, No changes in land use or zoning would occur at Klickitat Hatchery. Seasonal use of the McCreedy Creek for acclimation site would restrict access to tribal members, having an adverse effect on their use of the site.</p> <p>Short-term traffic delays (minor adverse impact) would occur at the three project sites due to construction trucks and construction worker vehicles accessing the sites.</p>	<p>No changes in land use or zoning would occur at Klickitat Hatchery. Seasonal use of the McCreedy Creek site for acclimation would restrict access to tribal members, having an adverse effect on their use of the site.</p> <p>Short-term traffic delays (minor adverse impact) would occur at the two project sites due to construction trucks and construction worker vehicles accessing the sites.</p>

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3.12.2	Social and Economic Environment	The current conditions of the local and regional economy, and population would not change. Subsistence users may be adversely affected by the limited availability of fish for harvest.	Construction and operation would result in a direct short-term beneficial impact on employment in the local and regional economy. New permanent jobs would be available at the Wahkiacus site and a temporary/seasonal job would be available at the McCreedy Creek site. Subsistence fishing could be interrupted during construction, having a minor adverse impact on subsistence users. Alternative 2 would benefit subsistence fishing by improving the availability of fish for harvest.	Construction and operation would result in a direct short-term beneficial impact on employment in the local and regional economy. A seasonal job would be available at the McCreedy Creek site. Subsistence fishing could be interrupted during construction, having a minor adverse impact on subsistence users. Alternative 3 would have a minor beneficial impact on subsistence fishing by slightly improving the availability of fish for harvest.
3.12.3	Recreation	Recreation resources and opportunities would continue at the present level.	Construction would cause short-term interruptions (minor adverse impact) to use of the Klickitat Trail and the Klickitat River at the Wahkiacus site. Vehicle traffic associated with Residence Option A (Wahkiacus site) would pose a minor risk to trail users. Removal of the concrete sill at the Klickitat Hatchery site would improve non-motorized boat use of the river. Construction and operation of the McCreedy Creek site would result in seasonal interruption (minor adverse impact) of tribal use of the site for recreation.	Removal of the concrete sill at the Klickitat Hatchery site would improve non-motorized boat use of the river. Construction and operation of the McCreedy Creek site would result in seasonal interruption (minor adverse impact) of tribal use of the site for recreation.
3.13	Public Health and Safety	Public health and safety would be unaffected by Alternative 1.	Minor short-term adverse effects would be directly related to injury occurring during	Minor short-term adverse effects would be directly related to injury occurring during

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			<p>construction activities.</p> <p>Operational safety risks would be the same as for similar hatchery facilities.</p> <p>Partial removal of the sill at Klickitat Hatchery would improve safety for boaters in this section of the river.</p>	<p>construction activities.</p> <p>Operational safety risks would be the same as for similar hatchery facilities.</p> <p>Partial removal of the sill at Klickitat Hatchery would improve safety for boaters in this section of the river.</p>