

**US 101 Elwha Bridge Replacement Downstream Mitigation
Environmental Assessment**

Prepared for Olympic National Park

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How to Comment on this EA

This Environmental Assessment is being made available to the public, federal, state, and local agencies and organizations through press releases distributed to a wide variety of news media, direct mailing, and on park webpages.

Copies of the document may be downloaded from the Planning, Environment, and Public Comment (PEPC) website:

Internet: <http://parkplanning.nps.gov/olym> (PEPC Project Number 116039)

In addition, written comments will be accepted on the PEPC website and at the following location:

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Note to Reviewers: Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment –including your personal identifying information– may be made publicly available at any time. Although you can ask the National Park Service in your comment to withhold your personal identifying information from public review, the NPS cannot guarantee that it will be able to do so.

Comments submitted by phone or email will not be accepted. Comments submitted by individuals or organizations on behalf of other individuals or organizations also will not be accepted.

Responses to substantive comments on the EA will be addressed in the proposed Finding of No Significant Impact or will be used to prepare an Environmental Impact Statement (if warranted).

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Abbreviations

| | |
|-------|--|
| APE | Area of Potential Effect |
| BMP | Best Management Practice |
| CEQ | Council on Environmental Quality |
| DAHP | Department of Archeology and Historic Preservation |
| dbh | Diameter at breast height |
| DOI | Department of the Interior |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| ELJ | Engineered Log Jam |
| ESA | Endangered Species Act |
| FHWA | Federal Highway Administration |
| FONSI | Finding of No Significant Impact |
| HED | Highway Easement Deed |
| LEKT | Lower Elwha Klallam Tribe |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| NMFS | National Marine Fisheries Service |
| NPS | National Park Service |
| NRHP | National Register of Historic Places |
| NSNSD | Natural Sounds and Night Skies Division |
| ONP | Olympic National Park |
| SR | State Route |
| T&E | Threatened and endangered species |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| WRIA | Water Resource Inventory Area |
| WSDOT | Washington State Department of Transportation |

Chapter 1: Background and Purpose and Need

1.1 Background

The Washington State Department of Transportation (WSDOT) will be replacing the US 101 Elwha River Bridge. Construction is anticipated to start in 2023. An Environmental Assessment (EA) was prepared for the US 101 Elwha River bridge replacement (US 101 Elwha Bridge EA (“2021 EA”)), and a Finding of No Significant Impact (FONSI) was published by the Federal Highway Administration (FHWA), WSDOT, and the National Park Service (NPS) in 2021. Construction of engineered logjams (ELJs) is required as compensatory mitigation, per consultation with the Lower Elwha Klallam Tribe (LEKT) under asserted treaty rights and with the U.S. Army Corps of Engineers (USACE) pursuant to Clean Water Act (CWA) Section 404 Permit requirements. Mitigation is for the riverine impacts from the bridge replacement project and for riverine impacts that occurred due to emergency scour countermeasures constructed in 2016 and 2017 and is the subject of this EA (Figure 1).

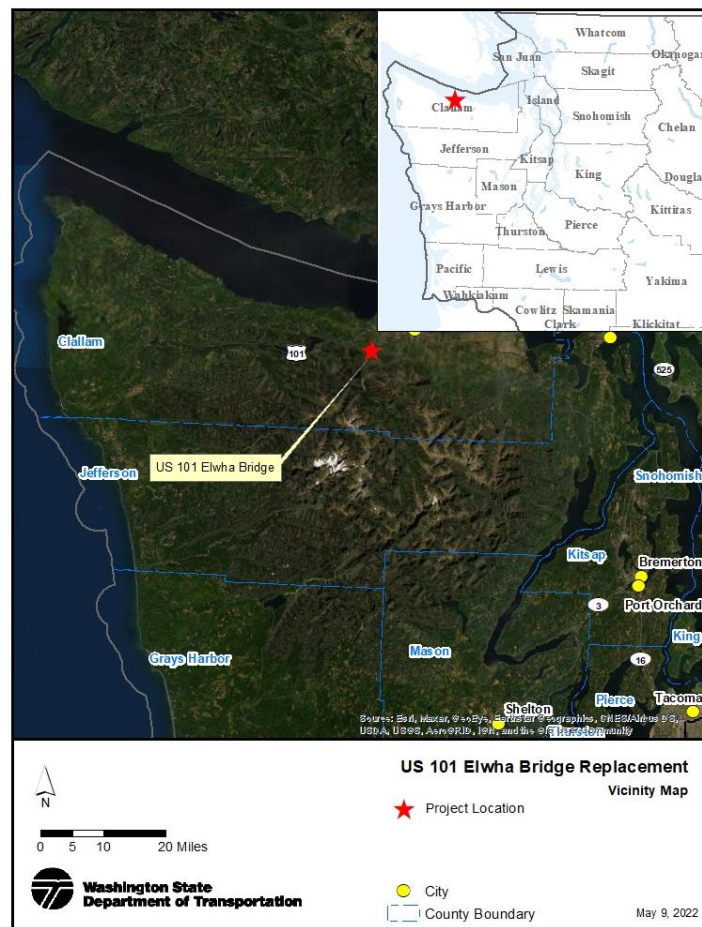


Figure 1 – Vicinity Map

1.2 Project Need

The project need is to improve river channel dynamics and provide salmonid habitat as compensatory mitigation for riverine impacts downstream from the US 101 Elwha River Bridge demolition and reconstruction project.

The use of ELJs was identified in the 2021 EA as compensatory mitigation per the USACE CWA 404 Permit consultation, as well as per consultation with the LEKT under asserted treaty rights. The lands where the ELJs are proposed for installation under the 2021 EA are “Elwha Project Lands.” These lands were legislated to Olympic National Park (ONP) under the Elwha River Ecosystem and Fisheries Restoration Act of 1992 (“the Elwha Act”) for purposes related to dam removal and restoration efforts. While these lands are not within the park’s established boundary, they are temporarily managed by the NPS and are subject to the Department of the Interior (DOI) and NPS National Environmental Policy Act (NEPA) compliance and other legal requirements until subsequent legislation is passed turning these lands over to a permanent management entity. Due to the land designation, WSDOT and FHWA need to acquire a Highway Easement Deed (HED) from the NPS for bridge and ELJ construction. For DOI and NPS NEPA compliance, the impacts of this compensatory mitigation measure must be considered and the analysis provided for public review. While due to the project need, this is considered a connected action, though addressing river channel dynamics could be an action independent of bridge demolition and construction. This EA is therefore tiered to the bridge reconstruction EA (2021 EA) and analyzes only the installation of the proposed ELJs.

1.3 Project Purpose

The purpose of the project is to: (1) maximize channel length to the greatest extent possible, (2) create and sustain as many pools as possible, and (3) create stable alluvial islands for forests to mature to improve shading of the river and provide a long-term source of large wood, all to improve river channel dynamics and provide salmonid habitat as mitigation for riverine impacts from bridge demolition and construction.

1.4 Cooperating Agencies and the Decision-Making Process

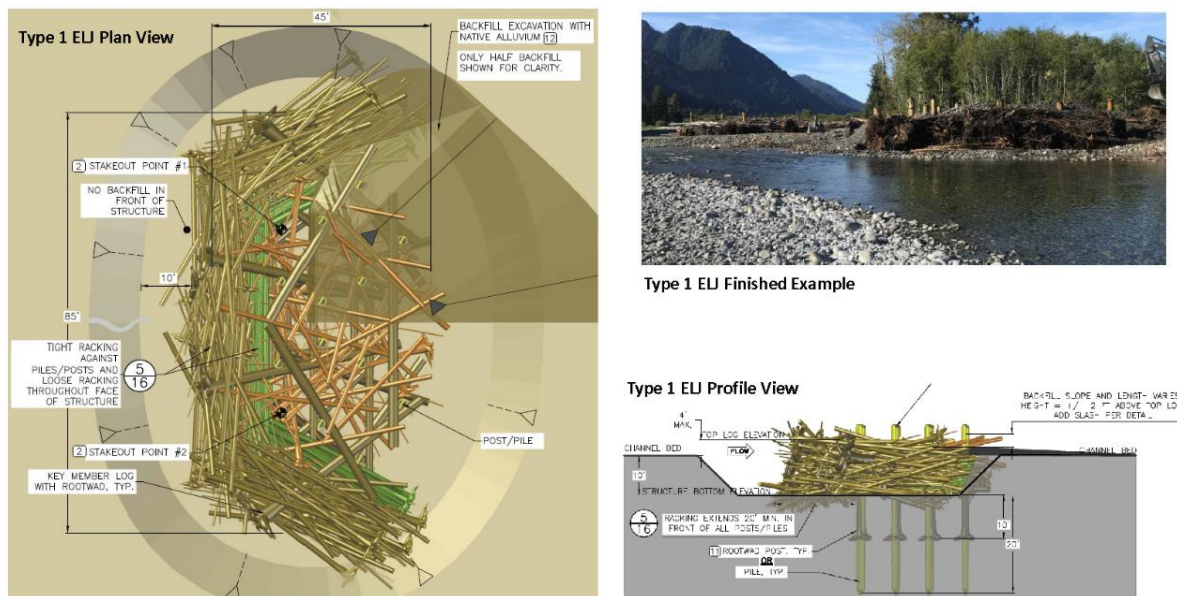
WSDOT and FHWA are the project proponents. ELJ construction would occur on Elwha Project Lands temporarily managed by ONP under the Elwha Act. WSDOT and FHWA are required to obtain a HED from the DOI to construct on these lands. These federal actions must comply with NPS NEPA requirements and necessitate preparation of an EA per Council on Environmental Quality (CEQ) and DOI NEPA regulations (46 CFR Part 1500 and 43 CFR Part 46, respectively), and NPS Director’s Order-12.

The NPS is the lead federal agency and WSDOT prepared this EA on behalf of the NPS. This EA evaluates impacts of the proposed action on natural and cultural resources, visitor use and experience, and park operations and incorporates by reference the WSDOT US 101 Elwha Bridge Replacement EA, FONSI, and associated references and appendices. The documentation will be used to help the NPS Regional Director, Interior Regions 8, 9, 10, & 12, decide whether to approve ELJ construction on Elwha Project Lands. The decision would be documented in a FONSI for this EA. Should the EA reveal significant impacts on resources that are currently

under park management from the proposed action, an Environmental Impact Statement (EIS) and Record of Decision (ROD) would be prepared.

ELJ Design

The ELJs are piling/post-reinforced structures consisting of large, untreated green timber and sized approximately 100-feet wide and 50-feet long. Each ELJ would consist of approximately 16 timber piles or posts (e.g., untreated 40-foot long Douglas-fir timber piles of 22-inch butt diameter), 14 large logs with rootwads (e.g., 24" diameter by 40-50 foot long trees), 9 large logs without rootwads (e.g., 24" diameter by 40-60 foot long), roughly 400 small-diameter logs (e.g., "racking", 6-12" diameter by 20-50 foot long), and approximately 700 cubic yards of limbs, brush, and twigs (Figure 3).



Type 1 ELJ DESIGN – ELWHA RIVER at US 101 Mitigation (Draft in Progress)



Figure 3. Conceptual ELJ Design

Site Access, Preparation, and Staging

Access to all ELJs would be gained from the eastern side of the river. Temporary access routes to reach ELJ sites across floodplain surfaces would stem from the upland access roads that would be established for the bridge work. The temporary access roads below the Ordinary High-Water Mark (OHWM) would be aligned primarily on dry gravel bars and would minimize impact to existing riparian vegetation and existing wood accumulations. Wetlands and other sensitive areas would be avoided. Temporary access routes would be established with tracked excavators and dozers by clearing, grubbing, and grading of floodplain surfaces in-the-dry to a width of 16 feet or less to allow machine access to ELJ sites. Temporary roads would be constructed with native material and no imported material would be necessary for access routes.

Each ELJ site would be accessed by temporary access roads. Each ELJ would require an area of approximately 13,000 square feet for site work, which includes excavation and temporary

stockpile of materials. These areas for site prep would be delineated as Contractor Sensitive Areas (CSA). Within the CSA, clearing and grubbing of native vegetation and floodplain wood, as well as leveling and minor grading, would occur.

The temporary access roads below the OHWM would be aligned primarily on dry gravel bars and would minimize impact to existing riparian vegetation. Wetlands and other sensitive areas would be avoided. The temporary roads would be constructed using graders, tracked excavators, and dump trucks, using existing alluvium. No use of quarry rock or geotextile material is anticipated to be used in the construction of temporary roads and bridges.

At least one temporary stream crossing (e.g., temporary bridges) would be needed to access ELJ locations surrounded by flowing channels. The stream crossings would need to span approximately 150 feet of the main Elwha River channel based on its current location with a maximum width of up to 16-feet. Temporary bridge materials for a span of this size typically involve the temporary placement of concrete ecology blocks, steel beam girders, and additional timber for framing and decking of the bridge. The actual temporary bridge design and materials would be determined by the contractor depending on the equipment traveling over the temporary bridge and the conditions of the river at the time of construction. The size of aggregate on the river bars and temporal need for bridges excludes the use of a pile supported structure. Additional “minor” stream crossings may be needed if significant flow is in the side channel at time of construction. Minor crossings, less than 50 feet across, are typically constructed with logs as stringers and decked with a steel plate.

ELJ Construction Sequencing

ELJ work areas would be isolated from flowing water with cofferdams. Cofferdams would consist of filling plastic “bulk-bags” with onsite gravels generated during excavation and placing the bulk-bags in the flowing channel as a linear barrier to isolate the work area from flow. Following work site isolation, fish would be removed and relocated to areas outside of the work area (fish removal would be conducted via netting and electrofishing per WSDOT fish moving protocol and permit conditions). Once the river isolation system is established and work areas have been cleared of fish, ELJ construction could commence. Surface and subsurface water encountered during excavation would be pumped to an upland area for infiltration. For sites located on gravel bars outside of the wetted channel at the time of construction, water control would be limited to pumping of excavation areas to suitable upland areas for infiltration.

After the work area is isolated from flowing water and the fish have been removed, a roughly 10-foot deep pit (e.g., the structure foundation excavation) with roughly 1:1 side slopes would be excavated beneath the adjacent river thalweg using a tracked excavator and shored for safety as necessary. Excavated alluvium would be temporarily stockpiled next to the pit and used as backfill after the construction of the timber structure. The excavated pits would be dewatered using pumps as necessary to allow for placement and inspection of timber piles and logs.

Timber piles would be driven to a maximum depth of approximately 26-feet below the thalweg elevation. Piles would be installed using a tracked excavator or crane equipped with an impact or vibratory hammer. If shallow bedrock exists at an ELJ site or difficult driving conditions are measured during geotechnical investigation which precludes driving a timber pile, then

excavated rootwad posts would be installed and placed as vertical support members in lieu of timber piles as specified by the engineer.

After timber piles or rootwad posts are installed and approved by the engineer, and while the excavation pit is maintained in a dry condition by dewatering, a tracked log loader and/or excavator with hydraulic thumb and a tracked excavator with hydraulic thumb would be used to then place the logs between the timber piles or rootwad posts. Log lengths and diameters used in the structure may vary slightly, but frame log members would be between 40-60-feet long with a maximum diameter of 26-inches. Log members would be fastened to the timber piles and to underlying layers using a combination of non-galvanized 5/8-inch-diameter steel wire rope with stainless steel clamps to create lashed connections as well as 1-inch threaded steel rods with nuts to create through-bolted connections to distribute loading between the structure supports.

Approximately 400 small diameter (<12-inch) racking logs of 20–50-foot lengths would be placed within, and in front of, the core of the ELJ. Racking log placement would occur with each layer to ensure racking material extends into the structure and is pinned in place by subsequent layers. The racking logs are critical to creating a scour barrier in front of the piles, reducing the porosity of the structure to provide the greatest hydraulic effect, as well as to provide interstitial spaces with cover for fish habitat. Wood materials generated onsite during access and construction site preparation may be incorporated into the structure as racking material or mixed with alluvium on top of the structure. Existing large wood shall be repositioned and incorporated as racking where available.

After each layer of the structure is complete, the excavated alluvium stockpiled during foundation excavation would be placed within and downstream of the structure as non-structural backfill. The backfill would be placed in the lee of the structure where sediment would be expected to deposit naturally and would be planted with native vegetation. Planting would occur at completion of ELJ construction. The finished surface of the structure including backfill would not exceed the adjacent terrace or floodplain surface elevation by more than 2 feet. Where ELJs would be installed within or adjacent to the low flow channel of the Elwha River, the front side of the excavation pit dug for the structure foundation would remain open (un-backfilled) to function as a scour hole to provide pool habitat for fish. At sites where ELJs do not overlap the low flow channel or where fish stranding is a concern, the pit would be backfilled.

Restoration and Site Cleanup

After construction, the CSA at each ELJ site would be restored and stabilized by reconstructing natural wood accumulations in or near their pre-project location, removing track marks and decompaction of soils, and scattering of slash and native vegetation debris cleared during site preparation across unvegetated surfaces. Based on the particular site conditions, existing wood moved from natural logjams or floodplain surfaces to allow construction may be either placed back in its pre-project condition or placed within constructed ELJs at the direction of the Engineer.

The final elements of work consist of restoration of temporarily disturbed areas, site cleanup, and demobilization. Affected natural habitat and vegetation would be revegetated with native species similar to those removed. Restoration of disturbed areas would generally follow the standards

contained in WSDOT's Standard Specifications (WSDOT 2023) for roadside restoration and WSDOT's Roadside Policy Manual (WSDOT 2015), and ONP standards.

Construction Stormwater and Water Quality Management

Stormwater during construction operations would be reduced by following the best management practices (BMPs) outlined in the Temporary Erosion and Sediment Control (TESC) Plan per current WSDOT's Highway Runoff Manual and Environmental Manual (Appendix E).

A Water Quality Management Protection Plan (WQMPP) is in development to guide the planning, implementation, monitoring, and performance of BMPs used during in-water work.

2.3 Alternatives Considered but Dismissed

Restoration of Indian Creek by restoring it into its historic channel was an existing restoration concept the LEKT had been developing prior to the Elwha River Bridge Replacement project. WSDOT initially inquired with the Tribe whether development and implementation of Indian Creek stream restoration would provide adequate compensatory mitigation for Bridge project impacts to the Elwha River. Ultimately, WSDOT's Bridge project impacts were of a scope, scale, and location that made the Indian Creek restoration inadequate in type, size and location to compensate for Bridge project impacts.

Chapter 3: Affected Environment and Environmental Consequences

This section describes the resources that could be impacted, the methods used for evaluating impacts, and provides an assessment of the impacts (i.e., environmental consequences) associated with the alternatives. It is organized by impact topic, which allows a standardized comparison between alternatives based on issues. The analysis considers context, intensity, and duration of impacts, the indirect and cumulative impacts, and measures to mitigate impacts.

Methodology

The environmental consequences for each impact topic were defined based on the following information regarding context, type of impact, duration of impact, area of impact, and the cumulative context. Unless otherwise stated in the resource section in *Environmental Consequences*, analysis is based on a qualitative assessment of impacts. Impacts are described in terms of context, type, and duration.

a. Context of Impact

The context is the setting within which impacts are analyzed – such as the project area or region, or for cultural resources – the area of potential effects (APE).

b. Type of Impact

The type of impact is a measure of whether the impact will improve or harm the resource and whether that harm occurs immediately or at some later point in time.

- **Beneficial:** Reduces or improves impact being discussed.
- **Adverse:** Increases or results in impact being discussed.
- **Direct:** Caused by and occurring at the same time and place as the action, including such impacts as animal and plant mortality, damage to cultural resources, etc.
- **Indirect:** Caused by the action but occurring later in time at another place or to another resource, including changes in species composition, vegetation structure, range of wildlife, offsite erosion or changes in general economic conditions tied to park activities.

c. Duration of Impact

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be one of the following:

- **Short-term:** Often quickly reversible, associated with a specific event, and lasting up to one year.
- **Long-term:** Reversible over a much longer period (for more than one year) or may occur continuously based on normal activity.

d. Impact Analysis

Impacts on various resource topics are compared among alternatives by describing qualitative or quantitative differences. Special Status Species and Cultural Resources impact determinations are formally determined under the Endangered Species Act (ESA) (Section 7) and the National Historic Preservation Act (Section 106), respectively. In accordance with *Management Policies* (NPS 2006), the analysis in this Environmental

Assessment fulfills the responsibilities of the NPS under Section 106 of the National Historic Preservation Act.

Special Status Species

Conclusions drawn for impacts to special status species adhere to the following definitions under the U.S. Fish and Wildlife Service (USFWS) effects determinations for threatened and endangered species and designated critical habitat:

- **No Effect:** The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action will not affect the listed species or its designated critical habitat (USFWS 1998).
- **May Affect, Not Likely to Adversely Affect:** The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects or 2) expect discountable effects to occur (USFWS 1998).
- **May Affect, Likely to Adversely Affect:** The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (USFWS 1998).

Conclusions drawn for impacts to essential fish habitat (EFH) adhere to the following definitions under the National Marine Fisheries Service (NMFS) effects determinations for designated EFH:

- **No Effect:** The appropriate determination when the proposed action will have no effect on listed species or designated critical habitat. For this determination, the effects of the action should be temporally or spatially separated from the listed species.
- **Adverse Effect:** Any impact which reduces the quality and/or quantity of essential fish habitat. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. (50 CFR 600.810; USFWS 1998)

Cultural Resources

Conclusions drawn for impacts to cultural resources adhere to the following definitions:

- **No effect:** There are no historic properties present within the Area of Potential Effect (APE) or there are historic properties present but the undertaking would have no effect upon them. The undertaking would have an assessment of effects determination of “no historic properties affected” (36 CFR Part 800.4(d)(1)).

- **No adverse effect:** The undertaking would have an effect on historic properties, but the effects do not meet the criteria in 36 CFR Part 800.5(a)(1) or conditions are imposed to avoid adverse effects. The undertaking would have an assessment of effects determination of “no adverse effect” (36 CFR Part 800.5(b)).
- **Adverse effect:** The undertaking will alter, directly or indirectly, the characteristics of a historic property that qualify it for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. The undertaking would have an assessment of effects determination of “adverse effect” (36 CFR Part 800.5(d)(2)).

Cumulative Effects Analysis Methodology

The Council on Environmental Quality (CEQ) describes a cumulative impact as follows (Regulation 40 CFR 1508.7):

A cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (CEQ 2005).

Cumulative actions are evaluated in conjunction with the impacts of an alternative (including existing conditions) to determine if they have any additive effects on a particular resource.

Cumulative Impact Scenario

Past, present, and reasonably foreseeable future projects or plans at the park and, if applicable, the surrounding area or region were identified to provide the cumulative impact scenario. The geographic area of analysis for cumulative impacts varies slightly by affected resource and may include areas outside of park jurisdiction (such as the airspace above the park, or tribal waterways/fisheries).

For the purposes of conducting the cumulative effects analysis, NPS identified the following projects, plans, or actions described according to the resource potentially affected.

Past Projects:

The Elwha River Ecosystem and Fisheries Restoration Project (Olympic National Park)

This project is the nation’s largest dam removal project and the second largest ecosystem restoration project to date. The purpose of this project was to fully restore the Elwha River ecosystem and native anadromous fisheries through the removal of two hydroelectric dams and implementation of fisheries restoration and revegetation. Dam removal began in 2011, and the project was completed in 2014 with the removal of the Glines Canyon Dam (the Elwha Dam was removed in 2012). The Elwha River is free flowing once again and access for migratory fish has been restored. The natural flow of sediment has also been reinstated and sand bars, estuary, and beaches at the river’s mouth have been restored. While the ecosystem is recovering, the

fluctuations in sediment and river channel migration have washed out portions of the floodplain and led to public and administrative access issues in the Elwha Valley.

US Highway 101 Rehabilitation at Lake Crescent and East Beach Road (Olympic National Park)

This EA was finalized in August 2016 and implementation began in 2017. The purpose of this project is to rehabilitate 12.3 miles of US 101 adjacent to Lake Crescent and 4.0 miles of East Beach Road to address safety and long-term maintenance concerns. Rehabilitation actions include repair pavement deterioration and stabilize road shoulders, improve drainage, replace guardrail, conduct rockfall mitigation, improve Sledgehammer Point, construct Barnes Point transit stop, and modify turnouts along Lake Crescent. East Beach Road modifications have already been completed, and included new asphalt pavement surfacing, culvert improvement, replacement of nine culverts, and striping and signing. Actions applicable to both US 101 and East Beach Road include replace asphalt concrete paving, replace roadway signs, and conduct revegetation/restoration in disturbed areas. During the construction seasons, visitors and local commuter traffic experience regular 30-minute delays and have experienced longer delays.

Temporary Off-road Access for Geotechnical Investigation/EA (Olympic National Park)

Geotechnical investigation is required to inform the decision-making for the Olympic Hot Springs Road long-term planning project. Geotechnical investigations are being conducted off-road and within the road prism between the Madison Falls parking area and the Boulder Creek Trailhead parking area. There are approximately 22 off-road drilling sites and approximately 20 drilling sites within the roadway surface. The off-road investigations begin at about 800 feet north of the Sanders Creek temporary bridge and end at the Ranger Station. The road closure has impacted public use within the Elwha Valley due to no vehicle access to areas beyond the Madison Falls Trailhead and parking area. During drilling and monitoring activities, the road remains open to foot and bicycle traffic, as accessed via the Bypass Trail.

Current Projects:

Olympic Hot Springs Road Rehabilitation and Relocation (Long-term Access) (Olympic National Park)

The intent of this project is to improve the condition of the Olympic Hot Springs Road, enabling the roadway to be able to withstand periodic inundation, stabilizing the upper segment of roadway, and to reduce maintenance needs of the roadway while continuing to provide public access into the Elwha Valley. Rehabilitation activities typically include, but are not limited to subsurface improvements, new pavement, fill slope stabilization, drainage improvements, guardrail improvements, ditch cleaning, and intersection improvements. Additionally, this project may relocate or armor approximately one mile of roadway that has been repeatedly damaged by floodwaters since the removal of the Glines Canyon Dam in 2014. During construction, the road would remain closed to vehicle use, but open to foot and bicycle traffic.

Emergency Actions for the US 101 Elwha River Bridge (WSDOT and FHWA)

Emergency repairs completed in October 2016 and August 2017 were short-term responses to the conditions that necessitated the replacement of the existing bridge. In October 2016, WSDOT requested and received emergency authorization from NMFS, USFWS, WDFW, and the USACE

to place 700 cubic yards of large rock around two bridge piers in the Elwha River. The objective of the work was to provide for the protection of the bridge against imminent catastrophic failure caused by the river undermining the piers. WSDOT determined that additional geotechnical investigation and scour protection was necessary. The results of hydraulic modeling and analysis indicate that at a velocity of 9 feet/second (equivalent to the 10-year storm event), the rock that was placed in October 2016 could move and additional scour could occur. Visual inspections confirmed that rock was displaced during high-flow events over the winter and that additional scour protection would be necessary to safeguard the bridge. Installation of the additional protection took place from August 28 to August 31, 2017.

Future Foreseeable Actions:

Implementation of the WSDOT US Highway 101 Elwha River Bridge Replacement project (WSDOT and FHWA)

This project includes the relocation and construction of the US 101 Elwha River Bridge over the Elwha River on NPS Elwha Project Lands, and realignment of US 101 at the turnoff for Olympic Hot Springs Road to correct a curve with substandard geometrics and sight distance. WSDOT will build a new bridge on a new alignment just north of the existing bridge. The existing bridge will remain open to traffic during construction, assuming the current bridge remains structurally sound. Once construction is completed, traffic will be shifted onto the new bridge and the old bridge will be removed. Construction is expected to take 2 years to complete. The alternatives were described and analyzed in the US 101 Elwha River Bridge Replacement EA and the FONSI released in November 2021.

Maintenance of US 101 (WSDOT)

WSDOT conducts routine maintenance activities on US 101. These activities include repair pavement cracks and holes, restriping, ditch cleaning, sign repair or replacement, vegetation control, litter pickup, snow/ice management, and tasks associated with bridges, guardrails, and related structures, slide removal, repair of erosion damage, unplanned road closures, and removal of fallen trees. Construction activities include, but are not limited to, overlay, chip and seal, other resurfacing, reconstruction, and general rehabilitation.

DelHur Industries New Mining and Processing Area

The proposal would establish a 19.35-acre gravel pit on the northern portion of an approximately 30-acre parcel. The material will be extracted through the use of loaders, excavators, and trucks. The proposal would produce an estimated 750,000 cubic yards of material per year over a 10-20-year period, depending on demand. The project site is located about 700 feet north of US 101 and about 0.5 miles west of the Elwha River. This project is currently under environmental review.

Continued Administrative, Commercial, and Military Overflights

Overflights of the project area by military, commercial, and private aircraft would occur for the duration of bridge construction activities. Most overflights are not low-level events, generally occurring between 10,000-35,000 feet above mean sea level. These flights may increase in number of aircraft and frequency of flights. Sound associated with overflights of new military aircraft may likely be louder in the future. Commercial overflights occur daily and at high levels (above 30,000 feet), where they could affect the acoustic environment over large distances but

not at levels that would be highly disruptive to humans or wildlife. Private overflights occur less frequently and at the lower range of the above-referenced elevations (closer to 10,000 feet), but generally have similar impacts as commercial flights. Military overflights occur less frequently than commercial flights, however, military jets are considerably louder than commercial jets and could thus be audible to visitors and wildlife over the project area.

Olympic National Park, in coordination with the Federal Aviation Administration, completed an Air Tour Management Plan (ATMP) in 2022. This ATMP provides the terms and conditions for commercial air tours conducted over Olympic National Park pursuant to the National Parks Air Tour Management Act of 2000.

Air tours have been occurring over the park for over 3 decades, operating under an Interim Operating Authority. The ATMP developed acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tours on natural and cultural resources, visitor experiences, and tribal lands. The ATMP ultimately reduced the number of overall total annual air tours over the park to 64 from an annual average of 76, set operator altitude restrictions on aircraft, and established a dedicated flight path. The actions in the ATMP will have an overall reduction on impacts to the natural soundscape within the park.

3.1 Geology and Soils

Affected Environment

The Elwha River Valley consists of a series of relatively narrow bedrock canyons and wide lower-gradient, flat alluvial sections. Surface deposits in the project area are dominated by glacial deposits and recent alluvium. The glacial sediments provide much of the sediment transported by the Elwha River. Alpine glaciers, which extended at least as far as the southern end of Lake Aldwell (FERC 1993), carved out the wide bottom lands in weaker rock units, whereas canyons were formed in more resistant lithologies. The topography within the region was influenced by alpine glaciers flowing from the Olympic Mountains, and the Juan de Fuca lobe of the Vashon continental glacier, which covered the lower Elwha River (NPS 1996).

A sequence of alluvial, glacial, and non-glacial deposits comprises the unconsolidated hydrogeologic system in the lower Elwha River Basin, which includes the project area. The older glacial and non-glacial units were deposited first, covering the bedrock surface that slopes downward toward the north. The Elwha River Valley is cut into these deposits. Recently deposited alluvial sediment partially fills the valley floor. The width of the alluvium is restricted by relatively steep bedrock and glacial deposit bluffs (NPS 1996). There are no bedrock outcrops within the project area.

Soils in the vicinity are post-Pleistocene (less than 8,000 years old) and are developed either directly from glacial sediments, or on alluvium or colluvium derived primarily from glacial sediments. According to the Clallam Soil Survey (USDA 1979), Puget silt loam soil underlies the project area. This very deep, poorly drained soil is on low terraces and floodplains (slope of 0-3%). It has been artificially drained. Permeability is moderately slow. The available water capacity is high. The effective rooting depth is limited by a seasonal high-water table that is at a

depth of 4 to 6 feet from November through April. Runoff is medium, and the hazard of water erosion is slight. This soil is subject to occasional flooding for brief periods from December through March (USDA 1979).

Soil compaction has occurred in some parts of the project area due to human activity including the construction and maintenance of US 101. In these areas, runoff is moderate on poorly drained soils, and the capacity of the soil to support vegetation has been reduced.

Environmental Consequences

No Action

Under the No Action Alternative, no construction activities would occur and there would be no changes to the existing soils in the project area.

Proposed Action

Under the Proposed Action Alternative, localized, short- and long-term, adverse impacts to soils would occur from the use of heavy equipment. Excavation associated with the large wood structures and floodplain channels would displace soil and alluvium in those locations. Driving heavy equipment on unpaved temporary access routes across the floodplain to clear vegetation, haul materials, and access the construction areas would result in compaction of soils along these routes, as well as from pile driving. Further long-term adverse effects to soils could occur if soil disturbance and vegetation removal result in erosion. However, the final design would include best management practices (BMPs) for limiting soil exposure during construction, and the contractor would be responsible for developing and implementing a temporary erosion and sediment control plan (TESC).

Mitigation Measures

Consideration would be given to limiting earthwork operations to the drier times of the year when erosion potential is reduced. However, the potential for erosion during construction operations would be reduced by following the BMPs outlined in the TESC Plan sections of WSDOT's current Highway Runoff Manual and Environmental Manual.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; and the establishment of a new mining and processing area, this project would add a small increment to the long- and short-term cumulative adverse impacts to soils in the project area.

3.2 Vegetation

Affected Environment

The project area is located within the western hemlock zone. This zone has the most extensive native vegetation type in western Washington and Oregon (Franklin and Dyrness 1988) and is characterized by a wet, mild, maritime climate with relatively dry summers. Throughout this zone, mature forest communities are characteristically dominated by western hemlock and Douglas-fir. Dominant understory species composition is shaped by different moisture regimes that reflect elevation, soil type, slope, and aspect, and ranges from scouring rush in wet areas, sword fern in transition zones, and Oregon grape in the driest sites.

Riparian vegetation in the project area is limited to the floodplain of the Elwha River and its tributaries. Composition and structure vary with the age of the floodplain surface; mature terraces may be dominated by large red alder or big-leaf maple; more recent surfaces have thick stands of younger alders and maples, sometimes mixed with Sitka willow, and the youngest surfaces have only herbaceous species such as riverbank lupine or annual grasses.

Exotic species are abundant because of the highly disturbed nature of the project area and its proximity to human developments. Scotch broom, Canada thistle, creeping buttercup, and reed canarygrass are the most widespread of the dozens of exotic species in the area. Threatened or endangered plants are not known to occur within the immediate vicinity of the project (WNHP 2017).

Environmental Consequences

No Action

Under the No Action Alternative, no changes to the existing vegetation would occur within the project area and the establishment of forested islands would either be slowed or would not occur.

Proposed Action

The Proposed Action Alternative would have short-term adverse effects to vegetation within the footprint of construction, staging, and access routes totaling approximately 9 acres. This is due to clearing and grubbing that would occur in all areas identified for ELJs, temporary access routes, and staging areas. Vegetation removal would consist mainly of cottonwood trees that are less than 10 years old or 5 to 10 inches diameter at breast height.

Mitigation Measures

Temporary impact areas would be restored with native trees and shrubs appropriate for the specific region and conditions of the site and per the current WSDOT Roadside Manual and in collaboration with the NPS. Per requirements of WSDOT Standard Specification 8-02.3(2)B, the contractor would develop a Weed and Pest control plan that outlines how invasive species will be prevented, controlled, and addressed.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal project and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; and the establishment of a new mining and processing area, this project would add a small increment to the short-term adverse cumulative impacts and long-term beneficial cumulative impacts, due to area restoration, to vegetation in the project area. Additionally, vegetation growth in this area occurs rapidly and the areas cleared for staging and access would be naturally restored rather quickly.

3.3 Water Resources

Affected Environment

Water sources are typically subdivided into two types: surface water and groundwater. Surface water resources are essential to maintaining human health, fish, wildlife habitat, and vegetation. Groundwater resources serve as underground storage of freshwater that can be used for drinking, irrigation, recharge areas, and general water supply. Floodplains are related water resource areas where surface water inundates low-lying ground during a flood event.

The project is located in Water Resource Inventory Area (WRIA) 18 Elwha/Dungeness which drains north to the Strait of Juan de Fuca. The study area for surface water encompasses the immediate project vicinity as well as the downstream receiving water bodies in WRIA 18. The Elwha River is 45 miles long, has 100 miles of tributaries and streams, and drains 321 square miles of the Olympic Peninsula. Eighty-three percent of the drainage lies within ONP, comprising 20% of the total park area. The river and its tributaries are classified by the Washington Department of Ecology (Ecology) as Class AA waters, signifying "extraordinary" quality.

Overall, the Elwha River has relatively low concentrations of dissolved and suspended sediment loads, nutrients, and organics. Changes in natural water quality occur in the lower part of the watershed, mostly as a result of elevated water temperatures during the summer. Turbidity of the lower river is related to flood flows, logging, agricultural practices, and bank erosion. In addition to the Elwha River, Indian Creek is the other surface water resource in the immediate project vicinity, its confluence with the Elwha River is just northwest of the existing bridge. Indian Creek drains Lake Sutherland and flows through an area of second growth timber and intermittent farmland.

Environmental Consequences

No Action

Under the No Action Alternative, no change to the existing condition of water resources would occur. The variability of the quality, quantity, and timing of flows in the Elwha River would remain unchanged.

Proposed Action

Under the Proposed Action Alternative, construction activities have the potential to cause short-term adverse impacts to water quality during construction. Excavation and fill of the stream bed, banks, and floodplain could lead to localized increases in turbidity when those areas are re-wetted. The use of heavy equipment near the river could increase the risk of hydraulic fluid leaks or fuel spills and pollution from runoff if proper containment precautions are not taken. The project would have no effect on the quantity and timing of river flows.

The project requires authorization for the Proposed Action under the Clean Water Act Section 401 and individual water quality certificates from Ecology. The contractor would operate according to an approved Water Quality Management Protection Plan (WQMPP) and Spill Prevention, Control, and Countermeasure (SPCC) Plan would be implemented by the contractor to minimize the risk of adverse effects to water quality.

Mitigation

Mitigation measures to reduce impacts to water resources would include the following:

- In-water work would be scheduled to occur during periods of low river flow that typically occur between June 15th-August 31st.
- Areas of in-water work would be isolated by the installation of measures such as the placement of a bulkbag cofferdams, filled of onsite gravel, around the work area to prevent flowing water from entering the excavation area.
- Dewatering systems would be installed to maintain a dry work area. Construction water would be discharged to upland areas for infiltration, or to an alternate system that prevents turbid water from re-entering the stream channel.
- Dewatering and rewatering rates would be monitored to minimize sediment disturbance and to prevent fish stranding.
- Erosion and sediment control BMPs would be installed according to TESC Plan.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal project and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; and the establishment of a new mining and processing area, this project would add a small increment to the short-term adverse cumulative impacts during construction but overall

long-term cumulative beneficial impacts to water quality in the project area due to restoration of floodplain functions.

3.4 Fish

Affected Environment

Ten stocks of anadromous salmon and trout are either currently present in the Elwha River or were known to be present before the dams were built. They are winter and summer Puget Sound steelhead trout (*Oncorhynchus mykiss*); coho (*Oncorhynchus kisutch*); summer/fall and spring Puget Sound Chinook (*Oncorhynchus tshawytscha*); pink (*Oncorhynchus gorbuscha*), chum (*Oncorhynchus keta*), and sockeye (*Oncorhynchus nerka*) salmon; cutthroat trout (*Oncorhynchus clarkia*); and native char (Dolly Varden (*Salvelinus malma*)) and bull trout (*Salvelinus confluentus*). Pacific (*Lampetra tridentate*) and brook (*Lampetra richardsoni*) lamprey have also been documented in the Elwha River. In addition to these anadromous species, the Elwha River harbors many other species of non-migrating fish (e.g., sculpins, resident cutthroat). The Elwha River is currently the largest producer of steelhead and Chinook salmon on the Strait of Juan de Fuca and is second only to the Dungeness River for coho. Nearly all Chinook, coho, and steelhead are hatchery-produced.

Federally threatened fish species under the Endangered Species Act (ESA) include the Puget Sound Chinook, Puget Sound steelhead, eulachon, and bull trout. Also, Puget Sound Chinook, coho, and pink salmon are federally listed species under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Impacts to these fish species, critical habitat, and essential fish habitat are analyzed in the Biological Assessment dated September 2017 and are addressed in the Threatened and Endangered Species section within this chapter.

This section focuses on coho, chum, and sockeye salmon; cutthroat trout; Pacific and brook lamprey; and other non-listed fish species. The one known Dolly Varden population in the Elwha River watershed is located in Boulder Creek above an anadromous barrier, therefore Dolly Varden would not be affected by this project.

Environmental Consequences

No Action

Under the No Action Alternative, construction would not occur and the project area would remain in its existing condition. The existing conditions would remain degraded and void of habitats that support healthy salmonid populations and geomorphic processes.

Proposed Action

Under the Proposed Action Alternative, in-water work may lead to short-term adverse effects to water quality, specifically turbidity and sediment released during the re-wetting of isolated work areas. The Proposed Action creates a risk of pollutant spills, which could in turn affect the quality of aquatic habitat and fish behavior in the area. Disruptions caused by construction would have short-term adverse effects on fish. Protocols to exclude fish from the in-water work areas

involve capturing and handling fish before releasing them in safe areas. Fish removal would be conducted via netting and electrofishing per WSDOT fish moving protocol and permit conditions. While this activity is intended to reduce overall harm to fish within the area, this handling can lead to disturbance and injury to a small percentage of salvaged fish.

Mitigation Measures

Mitigation measures to reduce impacts to fish resources include the following:

- In-water work activities would be restricted to the approved work windows during periods of low river flow that typically occur between June 15th -August 31st.
- Direct harm to fish would be minimized by isolating the in-water work areas and relocating fish according to the BMPs established by resource management agencies.
- Soil and erosion control BMPs would be implemented to eliminate sediment discharges into waterways and wetlands.
- Work areas would be maintained in a clean condition, with no unsecured food or trash that would attract corvids or other nuisance species.
- In-water equipment would be visually examined for aquatic invasive species.
- Conservation measures developed during consultation with the USFWS and NMFS would be applied.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; and the establishment of a new mining and processing area, this project would add a small increment to the short-term cumulative adverse impacts to fish and fish habitat in the project area from increase in sedimentation associated with installation and removal of work isolation areas, as well as from any vibratory sounds during construction. The project would add a small increment to the overall both the short-term adverse impacts to fish during construction activities, and long-term beneficial impacts to fish and fish habitat in the project area by improving the quality of habitat for both adult and juvenile salmonids.

3.5 Wildlife and Wildlife Habitat

Affected Environment

Large and small mammals have been observed or are known to occur in the project area. Mammal species include Columbian black-tailed deer (*Odocoileus hemionus columbianus*), Roosevelt elk (*Cervus canadensis roosevelti*), beaver (genus *Castor*), river otter (*Lontra Canadensis*), coyote (*Canis latrans*), bear (*Ursus americanus*), cougar (*Puma concolor*), weasels (genus *Mustela*), mink (*Neovison vison*), and several species of bats. Numerous bird species also

use the area, including robins (*Turdus migratorius*), red-tailed hawks (*Buteo jamaicensis*), western flycatchers (*Empidonax difficilis/occidentalis*), ducks, great blue herons (*Ardea Herodias*), hooded mergansers (*Lophodytes cucullatus*), pileated woodpeckers (*Dryocopus pileatus*), gulls (genus *Larus*), cormorants, ruffed (*Bonasa umbellus*) and blue (genus *Dendragapus*) grouse, mountain chickadees (*Poecile gambeli*), great horned owls (*Bubo virginianus*), and western screech owls (*Megascops kennicottii*). Common reptiles in the project area include the northwestern garter snake (*Thamnophis ordinoides*), common garter snake (*Thamnophis sirtalis*), northern alligator lizard (*Elgaria coerulea*), roughskin newts (*Taricha granulosa*), and Pacific chorus frog (*Pseudacris regilla*).

Environmental Consequences

No Action

Under the No Action Alternative, no action would be taken, therefore, the No Action Alternative would not have any direct adverse or beneficial impacts on wildlife and wildlife habitat within the project area.

Proposed Action

The Proposed Action Alternative would have short-term adverse effects to terrestrial wildlife species. Construction activity and crews onsite would generate noise and visual disturbance in the area that could temporarily disrupt the distribution and behavior of wildlife. These activities would include the use of haul trucks, excavators, and pile drivers on the floodplain and periodic use of other construction equipment such as pumps and chainsaws. Vegetation clearing required for staging areas, access routes, and large wood structures would result in short- and long-term adverse effects to species that use those plant communities for habitat.

Mitigation Measures

Wildlife habitat effected by temporary construction impacts would be restored through native tree and shrub plantings as described in the Vegetation section of this chapter. Portions of the vacated roadway would be similarly restored. Noise abatement that would mitigate impacts to wildlife during project construction is described in the Acoustic Environment section of this chapter.

- Construction limits would be delineated to protect existing vegetation and minimize noise and visual disturbance to wildlife.
- Soil and erosion control BMPs would be implemented to eliminate sediment discharges into waterways and wetlands.
- Construction activities would be restricted to the approved work windows to minimize potential disturbance to marbled murrelets.
- Direct harm to fish would be minimized by isolating the in-water work areas and relocating fish according to the BMPs established by resource management agencies.
- Work areas would be maintained in a clean condition, with no unsecured food or trash that would attract corvids or other nuisance species.
- In-water equipment would be visually examined for aquatic invasive species.

- Conservation measures developed during consultation with the USFWS and NMFS would be applied.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; the establishment of a new mining and processing area; and noise from continued administrative, commercial, and military overflights, this project would add a small increment to the long- and short-term adverse cumulative impacts to wildlife and wildlife habitat in the project area due to noise and crew presence during construction and the loss of vegetation from clearing. However, the Proposed Action Alternative would add a small increment to the overall long-term cumulative beneficial impacts to the ecosystems and biological communities in the river by adding complexity to the system. The large wood structures would improve the quality of habitat for both adult and juvenile salmonids that wildlife prey on.

3.6 Threatened and Endangered Species

Affected Environment

The Endangered Species Act (ESA), NPS *Management Policies 2006*, NEPA, and applicable regulations require the analysis of potential impacts on special-status species (federal or state endangered, threatened, candidate, or species of concern). Such analysis was completed in the project Biological Assessment (WSDOT 2017a) and supplemented in 2022. Additionally, according to section 4.4.2.3 of NPS *Management Policies 2006*, NPS must “manage critical habitat [...] to maintain and enhance their value of the recovery of threatened and endangered species” (NPS 2006).

The federally listed threatened and endangered (T&E) species and federally designated critical habitats (CH) that exist within or immediately adjacent to the project area listed in Table 1. There are no known threatened or endangered plants within the immediate vicinity of the project area (WNHP 2017).

Table 1. ESA-Listed Species and Critical Habitat

| Species | Status | Federal Jurisdiction | Status of CH |
|--|------------|----------------------|---------------------------------------|
| Puget Sound Chinook salmon (<i>Oncorhynchus tshawytscha</i>) | Threatened | NMFS | Designated; none in action area |
| Puget Sound steelhead trout (<i>Oncorhynchus mykiss</i>) | Threatened | NMFS | Designated; present in action area |
| Eulachon (<i>Thaleichthys pacificus</i>) | Threatened | NMFS | Designated; none in action area |
| Southern Resident Killer Whale (<i>Orcinus orca</i>) | Endangered | NMFS | Designated; none in action area |
| Bull trout (<i>Salvelinus confluentus</i>) | Threatened | USFWS | Designated; present in action area |
| Northern spotted owl (<i>Strix occidentalis caurina</i>) | Threatened | USFWS | Designated; none in action area |
| Marbled murrelet (<i>Brachyramphus marmoratus</i>) | Threatened | USFWS | Designated; none in action area |
| Streaked horned lark (<i>Eremophila alpestris strigata</i>) | Threatened | USFWS | Designated; none in action area |
| Yellow-billed cuckoo (<i>Coccyzus americanus</i>) | Threatened | USFWS | Designated; none in action area |
| Taylor's checkerspot butterfly (<i>Euphydryas editha taylori</i>) | Threatened | USFWS | Designated; none in action area |

Environmental Consequences

No Action

Under the No Action Alternative, no construction would occur, and the project area would remain undisturbed in its existing condition. Protected species would continue to use the area in its existing condition. The No Action Alternative would have no effect on protected species or habitats and the ESA effects determination would be *no effect* on any of the ESA-listed species.

Proposed Action

Section 7 Determination Summary

The effects of the Proposed Action on T&E species are presented in Table 2.

Table 2. Effect determinations for Species and Designated CH

| Species | Status | Federal Jurisdiction | Effect Determination | CH Effect Determination |
|--|---------------|-----------------------------|--------------------------------|--------------------------------|
| Chinook salmon (Puget Sound ESU) | Threatened | NMFS | Likely to Adversely Affect | No Effect |
| Steelhead (Puget Sound DPS) | Threatened | NMFS | Likely to Adversely Affect | Likely to Adversely Affect |
| Eulachon (Southern DPS) | Threatened | NMFS | Not Likely to Adversely Affect | No Effect |
| Southern Resident Killer Whale (<i>Orcinus orca</i>) | Endangered | NMFS | Not Likely to Adversely Affect | N/A |
| Bull trout | Threatened | USFWS | Likely to Adversely Affect | Likely to Adversely Affect |
| Northern spotted owl | Threatened | USFWS | Not Likely to Adversely Affect | N/A |
| Marbled murrelet | Threatened | USFWS | Not Likely to Adversely Affect | N/A |
| Streaked horned lark | Threatened | USFWS | No Effect | N/A |
| Yellow-billed cuckoo | Threatened | USFWS | No Effect | N/A |
| Taylor's checkerspot butterfly | Threatened | USFWS | Not Likely to Adversely Affect | N/A |

ESU = Evolutionarily Significant Unit

DPS = Distinct Population Segment.

Chinook salmon, steelhead trout, and bull trout

Under the Proposed Action the project *may affect, is likely to adversely affect* Chinook salmon, steelhead trout, and bull trout due to the following actions:

- In-channel construction activities would likely create locally elevated levels of turbidity during construction within 1,800 feet of in-water construction activities.
- The ELJ construction would increase disturbance to benthic habitat by over 217,500 SF. This includes up to 27,000 SF for the placement of cofferdam supersacks on the bed for construction of the ELJs; 190,500 SF for the excavated riverbed alluvium for construction of up to 15 ELJs (only 12 of 15 sites, or 152,400 SF, would be constructed to final detail - including de-watering and fish isolation - converting the excavated river alluvium into the ELJ structure), any ELJ sites not constructed to final detail, up to 38,100 SF, would be restored to pre-project baseline conditions (i.e., ELJ pits would be backfilled, and the temporary access roads would be removed and graded to pre-project conditions-in-the-dry).

- Conversion of the bed and benthos from construction of the ELJ locations is likely to lower prey availability to juvenile Puget Sound Chinook and steelhead. The activity could temporarily reduce prey availability in the immediate vicinity of the ELJs by a total of 152,400 SF in the vicinity of the final 12 locations.
- Conversion of the bed and benthos on and immediately around of the ELJ locations would likely greatly alter forage for juvenile bull trout and bull trout prey for sub-adult and adult bull trout. The activity could temporarily reduce prey availability in the immediate vicinity of the ELJs by a total of 152,400 SF in the vicinity of the final 12 locations.
- Temporary in-channel features may create localized increases in stream velocities resulting in localized scour or deposition of streambed materials during construction.
- Construction activities would be occurring in a reach with documented spawning, potentially temporarily reducing the overall amount of available spawning habitat for Chinook salmon and steelhead trout during construction.
- Dewatering activities would include fish isolation, removal, and handling activities and may affect Chinook salmon, steelhead trout, and bull trout.
- Removal of 1.29 acres of riparian vegetation may indirectly affect habitat functions for Chinook salmon, steelhead trout, and bull trout such as riparian shading of the stream corridors, contributions of invertebrates to the aquatic food chain, and streambank protection.
- Chinook and steelhead juvenile, and bull trout may be present during installation of cofferdams. These cofferdams would isolate a substantial area and would require fish removal so that work can occur in the dry.

Steelhead and bull trout critical habitat

The project *may affect, is likely to adversely affect* steelhead and bull trout CH for the following reasons:

- Steelhead and bull trout CH includes the mainstem Elwha River, as well as Indian Creek and Little River that occur within the action area for the project.
- Steelhead freshwater spawning sites may be affected due to turbidity and scour during construction that may affect spawning habitat in the immediate vicinity of the project. These areas may also be temporarily reduced by construction access features, and potentially degraded by fine sediment deposition during in-water construction activities. Freshwater rearing sites may be affected due to increased in-stream turbidity during construction activities. Freshwater migration corridors may be affected due to increased in-stream velocities caused by construction access pads and cofferdams installed to isolate demolition areas.
- Juvenile steelhead occurring within the action area may be temporarily displaced or may avoid freshwater rearing habitat near in-water construction.
- The migration of juvenile and adult steelhead may be altered due to the placement of temporary construction access features and increased flow velocities within the project area.
- In-water construction areas would result in long-term alteration of steelhead CH in the area.

- For bull trout, migratory habitat may be affected due to increased in-stream velocities caused by construction access pads and cofferdams installed to isolate demolition areas. Also, in-water construction access features would result in the alteration of complex river, stream, and reservoir systems and processes in the action area; alterations to water quality and quantity although long-term reductions in the rate of pollutant loading from stormwater are expected to occur; and migration habitat would be altered due to the placement of temporary construction access features and increased flow velocities within the project area.

These factors, when taken together, would likely result in temporary, but unavoidable effects, on one or more steelhead and bull trout primary constituent elements (PCEs).

Chinook salmon and Eulachon CH

There would be *no effect* on Chinook salmon and eulachon CH as there is no CH for either of these species within the construction limits.

Northern Spotted Owl and Marbled Murrelet

The project *may affect, is not likely to adversely affect* northern spotted owls and marbled murrelets for the following reasons:

- While the nearest active spotted owl nesting territory is more than 5 miles from the project site, spotted owls may forage in or disperse through forested habitats near the project site. However, there are no potentially suitable nest trees present within 195 feet of the project site, meaning the potential for adverse effects is discountable. Also, the project site is at a low-elevation (approximately 240 feet), valley-bottom location, whereas sites where spotted owls persist on the Olympic Peninsula are in steep terrain at relatively high elevations (above 2,900 feet, on average). Also, the most suitable nesting habitat on the Olympic Peninsula has been taken over by barred owls, and evidence from monitoring studies suggests that spotted owls are unlikely to recolonize areas of suitable habitat outside of active territories on the Olympic Peninsula. As such, the potential for adverse effects on nesting spotted owls is discountable.
- Marbled murrelets are not known or expected to nest within 328 feet of areas where heavy equipment would be operated. The nearest known nest site is approximately 4.2 miles south of the project site, and all locations where behaviors associated with nesting have been observed are more than 1 mile from the project site. No potentially suitable nest trees are present within 328 feet of areas where heavy equipment would be operated, meaning the potential for adverse effects on nesting murrelets is discountable. Results of surveys conducted in and near the project area indicate that marbled murrelets do not nest in the valley-bottom forest habitat in the project area.
- Forested habitats in the action area could provide suitable nesting/roosting habitat for spotted owls and marbled murrelets. Vegetation clearing for construction activities would remove approximately 3 acres of forest habitat. Also, project-related noise and human activities would cause a temporary increase in the level of disturbance to any spotted owls and marbled murrelets that may be present in the immediate construction area.
- No suitable nesting or roosting habitat for spotted owls would be removed by project activities, and no potentially suitable nest trees for marbled murrelets would be removed

either, so project-related impacts on habitat would be insignificant. Vegetation clearing in the project action area would occur along existing road corridors and would not fragment cover or create new travel corridors for avian predators into suitable nesting, roosting, or foraging habitat for spotted owls or marbled murrelets. For the same reasons, project-related vegetation clearing would not reduce the capacity for forest habitat at the project site to function as dispersal habitat. As such, project-related effects on nesting, roosting, foraging, or dispersal habitat would be insignificant. Any effects that may occur would be minimal in scope and transitory in duration and would have no measurable effect on the long-term survival of northern spotted owls and marbled murrelets.

Northern Spotted Owl and Marbled Murrelet CH

The proposed project would have ***no effect*** on designated CH for northern spotted owls and marbled murrelets. There is no designated CH within or adjacent to (i.e., within 150 feet) the project footprint; therefore, project activities would not affect any of the PCEs of spotted owl or marbled murrelet CH.

Streaked-horned Lark

The proposed project would have ***no effect*** on Streaked-horned lark or designated CH. Breeding habitat for streaked horned larks in Washington consists of grasslands and sparsely vegetated areas at airports, sandy islands, and coastal spits. No such habitat is present in the action area. The nearest known breeding area is more than 60 miles from the action area. The nearest location where CH has been designated for the streaked horned lark is more than 80 miles from the project action area.

Yellow-billed Cuckoo

The proposed project would have ***no effect*** on Yellow-billed Cuckoo or designated CH. No CH for the yellow-billed cuckoo has been designated in Washington.

Taylor's Checkerspot Butterfly

The project ***may affect, is not likely to adversely affect*** Taylor's checkerspot butterflies for the following reasons:

- Extant populations of Taylor's checkerspot butterflies have been documented approximately 1 mile from the project site, and plant species that may be suitable as hosts for larvae or nectar sources for adults may be present within areas where ground-disturbing activities would occur. However, the project site lacks the features of suitable habitat for Taylor's checkerspot butterflies, so the potential for adverse effects is discountable. Also, no areas with high densities of larval host plants are present at the project site, further reducing the potential for adverse effects on this species.
- Adults are extremely unlikely to venture into the project area because dispersal of adults from occupied habitats occurs as only a random event, limited to few individuals, so the potential for adverse effects on adult butterflies is discountable, any project-related effects would be unsubstantial.

Taylor's Checkerspot Butterfly CH

The proposed project would have *no effect* on designated CH for Taylor's checkerspot butterflies. There is no designated CH within or adjacent to (i.e., within 150 feet) the project footprint; therefore, project activities would not affect any of the PCEs of CH for the species.

Mitigation Measures

- Construction limits would be delineated to protect existing vegetation and minimize noise and visual disturbance to wildlife.
- Soil and erosion control BMPs would be implemented to eliminate sediment discharges into waterways and wetlands.
- Construction activities would be restricted to the approved work windows to minimize potential disturbance to marbled murrelets.
- Direct harm to fish would be minimized by isolating the in-water work areas and relocating fish according to the BMPs established by resource management agencies.
- Work areas would be maintained in a clean condition, with no unsecured food or trash that would attract corvids or other nuisance species.
- In-water equipment, such as the barge, would be visually examined for aquatic invasive species.
- Conservation measures developed during consultation with the USFWS and NMFS (see the decision document for the terms and conditions as provided by the USFWS and NMFS) would be implemented.
- Any areas disturbed on a temporary basis would be permanently stabilized and restored in a manner consistent with the WSDOT's Roadside Policy Manual (WSDOT 2015). The WSDOT would remove any temporary fills and till-compacted soils and restore woody and herbaceous vegetation according to an engineer-approved restoration or planting plan.
- A minimum 1-year plant establishment plan would be implemented to ensure survival, or replacement, of vegetation by stem count at the end of 1 year.
- Before, during, and immediately after isolation and dewatering of the in-water work area, fish from the isolated area would be captured and released using methods that minimize the risk of fish injury, and in accordance with the ESA consultation requirements, HPA permit conditions and WSDOT protocols for such activities (WSDOT 2012).

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; the establishment of a new mining and processing area; and noise from continued administrative, commercial, and military overflights, this project would add a small increment to the long- and short-term adverse cumulative impacts to threatened and endangered species in the

project area due to noise and crew presence during construction and the loss of vegetation from clearing. However, the Proposed Action Alternative would add a small increment to the overall long-term cumulative beneficial impacts to the ecosystems and biological communities in the river by adding complexity to the system. The large wood structures would improve the quality of habitat for both adult and juvenile salmonids that wildlife prey on.

3.7 Cultural Resources

The project area of potential effect (APE) was expanded in 2022 to include the proposed ELJ locations and access roads (Figure 4). A survey occurred in April 2022 and resulted in the identification of no new cultural resources.

Affected Environment

During tribal consultation for the bridge replacement project several cultural sites were identified including the Indian Valley Traditional Cultural Property (TCP) within the project's Area of Potential Effect (APE). The TCP was recommended eligible for listing on the National Register of Historic Places (NRHP) under criterion A: Association with events that have made a significant contribution to the broad patterns of our history, B: Association with the lives of persons significant in our past and D: Properties that have yielded or may yield important information about prehistory or history.

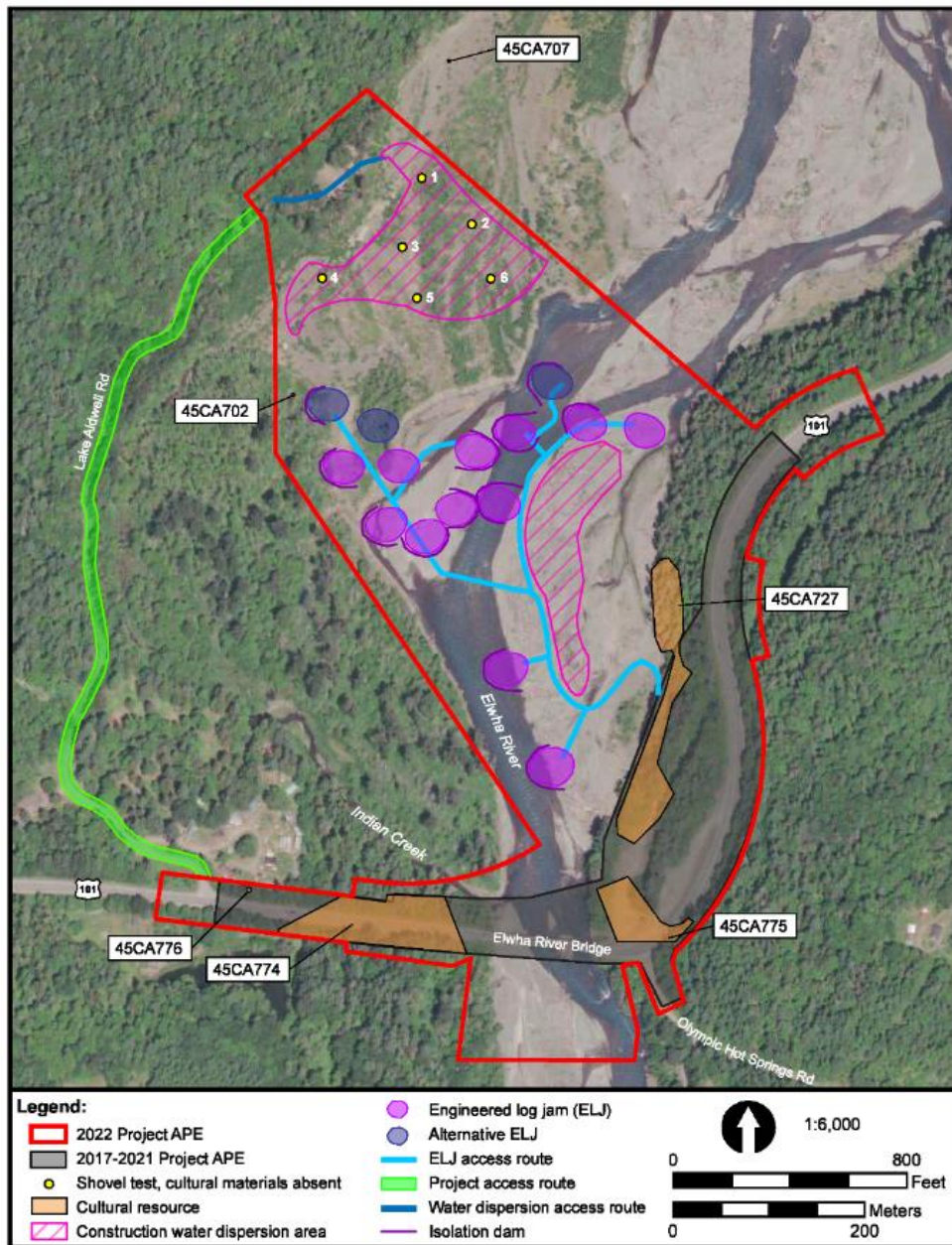


Figure 3. Aerial image showing the WSDOT US 101 Elwha River Bridge Additional Survey project APE and the locations of project elements in Clallam County, Washington. Photo taken in 2017.

Figure 4. Project Area of Potential Effect (APE)

Environmental Consequences

No Action

No action would be taken under this alternative, therefore there would be no direct or indirect impacts to cultural resources or the TCP within the project area.

Proposed Action

Construction of ELJs would occur within the Indian Valley TCP. Construction of the structures would cause short-term adverse impacts on aesthetics within the TCP from construction equipment and soil disturbance. The ELJ structures would be a permanent feature in the river floodplain. As described in section 2.2, the ELJs are timber construction and are built to mimic natural conditions.

Mitigation Measures

The cultural resources survey that was conducted in 2022 for the proposed ELJs, water dispersion areas, and associated access roads did not result in identification of additional cultural resources. Although the 2022 survey area is in an area used by Native American groups, no material evidence of precontact activity was identified. All new project impacts associated with the ELJs are located on young landforms containing river gravels and have a low probability of containing buried cultural resources. In the event of an inadvertent discovery, all project work would stop immediately, ONP's archeologist would be contacted, and work would not begin until approval is provided, in writing, from the ONP Superintendent.

Conclusion

Activities associated with the ELJ construction, which occurs in the active river channel, would not impact previously identified eligible historic properties within the project area and would have no adverse effect on the Indian Valley TCP. This is due to newly added impacts located on active Elwha River channels and young deltaic landforms that are currently being naturally disturbed by river action, which would not compromise the overall historic integrity of the TCP. Restoration of disturbed areas would occur following completion of the construction. The State Historic Preservation Officer (SHPO) concurred with the finding that the ELJ work would have no adverse effect on historic properties in a letter to WSDOT dated August 23, 2022 (Appendix D). Therefore, the proposed action would add no additional impacts to the overall cumulative effects on cultural resources in the project area.

3.8 Acoustic Environment

The acoustic environment is a resource with intrinsic natural and cultural resources value. It is a critical component of wilderness character and plays an important role in wildlife communication, behavior, and other ecological processes. Results from surveys of the American public indicate that hearing the sounds of nature is an important reason for visiting national parks. Therefore, the value of acoustic environments and soundscapes is related to an array of park resources and has broad implications for park management. As described in the park's GMP, natural sounds characterize the park — the impossibly elaborate song of a winter wren,

bugling bull elk declaring their dominance, the rhythm of waves over pebbles on a beach, the piercing whistle of an Olympic marmot, the crisp sound of wind through subalpine fir, the soft silence of falling snow, and the haunting flute-like call of a varied thrush. Even if the source is impossible to find, sounds inform visitors of what is around them (NPS 2008).

Some threats to the acoustic environment originate in areas adjacent to the park boundary such as noise from logging or adjacent construction activities, National Park Service administrative aircraft, and non-National Park Service aircraft such as military, commercial, and private sector aircraft (NPS 2008).

Affected Environment

The project area is located within the heavily traveled corridor of US 101. This corridor is a through route, the road serves not only park visitors, but also commercial users (including heavy logging truck traffic), and local commuter and non-commuter traffic. There has not been a sounds study specifically for this project area. An acoustic monitoring study was conducted in 2010 near the 12-mile section of US 101 within the NPS boundary along Lake Crescent. The monitoring site was in a forested location about 0.25 miles from the lakeshore. Some data from that study is relevant to this project site as the traffic that passes through the Lake Crescent section of the highway also passes through this project area. The acoustic monitoring conducted by the National Park Service's Natural Sounds and Night Skies Division (NSNSD) revealed that approximately 25% of the 4,000 vehicles per day is estimated to be attributed to heavy truck traffic, primarily from logging trucks (NPS 2015). Based on experience of the project team, standing in the project area observing bridge and landscape characteristics, when logging trucks passed, typically all conversation had to cease before, during, and after passage, so that the continued conversation could be heard. At the project site, some of the road noise is masked (and added to) by the river sounds, creating a louder overall ambient acoustic environment with both natural and human-caused components.

According to the NSNSD snapshot, park transportation corridors, like the one surveyed in the US 101 at Lake Crescent study, have median ambient sound levels that are typically more than four orders of magnitude higher than the natural condition (NPS 2010). As with other roads studied, traffic along this corridor also follows a pattern. Traffic is generally heavier on this stretch of highway during the summer compared to winter and is heavier during the daytime compared to nighttime (NPS 2015). Weather patterns also influence the distribution of low frequency sound near the roadway, with wetter periods experiencing more weather-related sounds at higher decibel levels than dry periods due to rain, thunder, presence of wildlife, and other natural sounds.

Environmental Consequences

No Action

Under the No Action Alternative, there would be no increase of the existing noise conditions in the area. Therefore, the No Action Alternative would have no impact on the acoustic environment.

Proposed Action

Under the Proposed Action Alternative, construction activity would lead to a temporary increase of noise within the project area which would have a short-term adverse impact on the acoustic environment in and immediately adjacent to the project area. The activities that would occur that would produce increased terrestrial noise include construction of access roads to ELJ locations, geotechnical exploration for proposed ELJ locations, and construction of the ELJs. The action area was defined by the distance from the project-generated construction, and noise (108 dBA) would attenuate to ambient sound levels (40 dBA) at 6,636 feet. Construction noise is based on the three loudest pieces of equipment: vibratory pile driver (105 dBA), hoe ram (97 dBA), and impact pile driver (105 dBA). The duration of project-generated construction noise associated with ELJ construction is anticipated to occur over two seasons: Season 1, June 1st through August 31st in 2023, and Season 2, June 15th through September 30th in 2024. Pile driving activity, using either a vibratory driver or an impact driver, would be necessary for installing the timber pile elements of the large wood structures. Pile driving would occur over several weeks during the in-water work window.

Mitigation Measures

Construction activities would be limited to daylight hours, coinciding with existing traffic patterns in the project area, and any in-water work, including pile driving, would be limited to the prescribed in-water work window of June 1st through August 31st in the first construction season, and June 15th through September 30th in the second construction season.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; the establishment of a new mining and processing area; and noise from continued administrative, commercial, and military overflights, this project would add a small increment to the overall long- and short-term cumulative adverse impacts to acoustic environment in the project area.

3.9 Visitor Use and Experience

Affected Environment

There are currently no formalized or maintained facilities in this area including the parking area, trails, and boat launch. However, visitors and local residents use this area for walking alongside the river; and as a non-commercial kayak, tubing, or rafting put-in or take-out location. The Elwha River has been closed to all fishing since 2012 and would remain closed to fishing at least through June 2023.

Environmental Consequences

No Action

The ELJs would not be constructed under the no action alternative and there would be no impact to visitor use and experience.

Proposed Action

Public access would be restricted during construction which would have short-term adverse impacts on visitor use and experience.

Mitigation

- Keep closures to as limited a timeframe as possible.
- Notify the park's Public Information Officer two weeks in advance of area closures for timely public, staff, and tribal notification.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; the establishment of a new mining and processing area; and noise from continued administrative, commercial, and military overflights, this project would add a small increment to the overall short-term cumulative adverse impacts to visitor use and experience in the project area.

3.10 Viewshed

Affected Environment

The project is in the floodplain of the Elwha River at the former site of Lake Aldwell. The river and floodplain are a dynamic system that is actively and naturally returning to pre-damn conditions. The river bottom is a braided channel comprised of large cobbles, rounded rock, and reestablishing vegetation such as cottonwoods. There are currently no manmade structures within the project area and the immediate viewshed of the river other than the bridge over US 101.

Environmental Consequences

No Action

The ELJs would not be constructed under the No Action Alternative and there would be no impact to the viewshed.

Proposed Action

Under the Proposed Action Alternative vegetation would be removed for construction of access roads and the ELJs. Disturbed areas would be replanted after construction activities have been completed and the area is expected to recolonize naturally with species that are appropriate for the conditions. Permanent impacts to visual quality would include the large wood structures that are designed to mimic the function of naturally occurring structures. Immediately after construction, these structures are anticipated to appear somewhat incongruous with the surrounding landscape, but over time, they would promote scour, deposition, and natural revegetation that would make them blend in and create visually appealing river features. Therefore, this alternative would have short- and long-term adverse impacts to the viewshed.

Mitigation Measures

- Disturbed areas would be replanted after construction activities have been completed.

Conclusion

The ELJ project, in conjunction with past, present, and reasonably foreseeable future actions, including the nation's largest dam removal and second largest ecosystem and fisheries restoration project to date which removed two hydropower dams on the Elwha River both upstream and downstream of the project area and subsequent related research and restoration projects; road washouts and emergency bank stabilization repairs for road protection; geotechnical investigations; the US 101 resurfacing, restoration, and rehabilitation project and continued maintenance of the US 101 roadway; the relocation of the US 101 Elwha River Bridge; and the establishment of a new mining and processing area, this project would add a notable increment to the overall long- and short-term cumulative adverse impacts to the viewshed in the project area due to construction activities and until the ELJs appear to be more of a natural feature on the landscape.

Chapter 4: Consultation and Coordination

Public engagement for the US 101 Elwha River Bridge Replacement Project, which included the ELJ project element, though without the specific details of the installation and subsequent impacts of these large structures, upon release of the EA, has been extensive. Details of the outreach can be found in the US 101 Elwha River Bridge Replacement Project FONSI (2021).

Agency Outreach

The NPS and WSDOT coordinate with agencies that are responsible for issuing environmental permits and who have special expertise in project related fields. This coordination is accomplished through e-mails, meetings, verbal contacts, and official letters. For this project, coordination is ongoing with: FHWA, USFWS, NMFS, US Army Corps of Engineers (USACE), Ecology, WDFW, DAHP, and Clallam County.

Tribal Outreach & Coordination

WSDOT worked closely on the development of the ELJ design with the LEKT to ensure mitigation requirements, per the 404-permit consultation, would be met and for consistency with other restoration efforts in the Elwha River system. WSDOT also continued Section 106 consultation with the LEKT on the expanded APE and potential impacts to the Elwha River TCP.

Chapter 5: References

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- 2021 Environmental Assessment for US 101 Elwha River Bridge Replacement Project
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Washington State Natural Heritage Program (WNHP)

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Appendix A List of Preparers

The following individuals contributed to the production of this environmental assessment.

| Name | Company | Role |
|-------------------------|------------------------------|--------------------|
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| <i>Dave Conca</i> | <i>Olympic National Park</i> | <i>Reviewer</i> |
| <i>Pat Crain</i> | <i>Olympic National Park</i> | <i>Reviewer</i> |
| <i>Janet Coles</i> | <i>Olympic National Park</i> | <i>Reviewer</i> |

Appendix B Distribution List

Federal Agencies

U.S. National Park Service – Interior Regions 8, 9, 10, & 12
U.S. Forest Service
Bureau of Reclamation
Federal Highway Administration
Federal Emergency Management Agency
National Marine Fisheries Service
U.S. Environmental Protection Agency, Region 10
U.S. Army Corps of Engineers, Seattle District Office
U.S. Fish and Wildlife Service

State Agencies

Department of Archaeology and Historic Preservation
Department of Commerce
Department of Ecology
Office of Attorney General
Department of Fish and Wildlife
Department of Natural Resources
WA Parks and Recreation
Puget Sound Partnership

Local Agencies

City of Port Angeles SEPA Reviewer
City of Forks

Native American Tribes

Lower Elwha Klallam Tribe
Port Gamble S’Klallam Tribe
Jamestown S’Klallam Tribe
Makah Tribe

24th District Legislators

Kevin Van De Wege
Mike Chapman
Steve Tharinger

Appendix C Environmental Commitments

| Resource | Commitments |
|-------------------|---|
| Soils | To the extent possible, earthwork operations will be limited to the drier times of the year when erosion potential is reduced. This can be accomplished by careful planning of construction staging and by the use of geometric covers. Potential for erosion during construction operations would be replaced by following the BMP's outlined in the Standard Specification Erosion Control Requirements and the Temporary Erosion and Sediment Control (TESC) Plan sections of WSDOT's Highway Runoff Manual and Environmental Manual. |
| Vegetation | Temporary impact areas would be restored with native trees and shrubs. Development of a Weed and Pest Control Plan outlining how invasive species will be prevented, controlled, and addressed |
| Surface Water | <p>Water quality effects would be limited by the use of Best Management Practices (BMPs) which would be outlined in the contract specifications for the project. The project would maintain compliance with state water regulations in WAC 173-201A.</p> <p>Before project completion, WSDOT would install water quality treatment facilities along new roadway segments and construct conveyance structures to carry stormwater to planned treatment areas and discharge points.</p> |
| Fish/Wildlife/ESA | <p>The project Biological Assessment Supplement (WSDOT & FHWA 2022) prescribes numerous specific impact avoidance and minimization measures pertaining to fish species.</p> <p>Project activities will fully comply with the Hydraulic Project Approval's (HPAs) issued for the project by WDFW.</p> <p>The contractor will designate at least one employee as the erosion and spill control lead. That person will be responsible for installing and monitoring erosion control measures and maintaining spill containment and control equipment. The erosion and spill control lead will also be responsible for ensuring compliance with all local, state, and federal erosion and sediment control requirements, including discharge monitoring reporting for the Washington State Department of Ecology.</p> <p>Erosion control blankets or an equally effective BMP will be installed on steep slopes that are susceptible to erosion and where ground-disturbing activities have occurred. Doing so will prevent erosion and assist with establishment of native vegetation.</p> |

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| | <p>Project staging and material storage areas will be located a minimum of 150 feet from surface waters or in currently developed areas such as parking lots or previously developed sites.</p> <p>Erodible material that may be temporarily stored for use in project activities will be covered with plastic or other impervious material during rain events to prevent sediments from being washed from the storage area to surface waters.</p> <p>Exposed soils will be seeded and covered with straw mulch or an equally effective BMP after construction is complete. Any temporary construction impact areas will be revegetated with native plants following final grading activities.</p> <p>All exposed soils will be stabilized during the first available opportunity, and no soils shall remain exposed for more than 2 days from October 1 to April 30, and for more than 7 days from May 1 to September 30.</p> <p>Any areas disturbed on a temporary basis will be permanently stabilized and restored in a manner consistent with the WSDOT's Roadside Policy Manual (WSDOT 2015). The WSDOT will remove any temporary fills and till-compacted soils and restore woody and herbaceous vegetation according to an engineer-approved restoration or planting plan.</p> <p>A minimum 1-year plant establishment plan will be implemented to ensure survival, or replacement, of vegetation by stem count at the end of 1 year.</p> <p>Elwha River flows will be monitored throughout construction using the Northwest River Forecast Center station at McDonald Bridge, upstream of the project site. During flow events approaching the 2-year discharge, equipment and materials will be moved off the access pads until water levels subside.</p> <p>During flow events approaching the 2-year discharge, equipment and materials will be moved off the demolition laydown pads until waters subside. Portions of the cofferdam may be selectively removed to provide flow relief and prevent catastrophic failure.</p> |
|--|---|

| | |
|--------------------|---|
| Cultural Resources | A Memorandum of Agreement (MOA), signed by consulting parties in May 2021, details how the adverse effects to cultural resources will be managed and mitigated. |
| Visual Resources | WSDOT will remove the minimum amount of vegetation necessary to complete the project. Once the final design has been approved, a tree survey would be undertaken to determine the number and size of trees the project would remove. When trees are removed for a project, WSDOT replaces them within the limits of the project. All plant materials, including seeding would be funded by the project for weed suppression and plant establishment for a minimum of 3 years. |