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**Department of Fish and Wildlife**  
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April 10, 2020

*Patty Garvey-Darda, Project Leader*  
*Cle Elum Ranger District*  
*803 W 2nd Street*  
*Cle Elum, WA 98922*

**Subject: Gold Creek Valley Restoration (#57415)**

Dear: Patty Garvey-Darda,

The Washington State Department of Fish and Wildlife (WDFW) appreciates the opportunity to provide comments to the USFS regarding the proposed Gold Creek Valley Restoration (Project #57415) near Snoqualmie Pass.

WDFW unequivocally supports the Gold Creek Valley Restoration project.

The project helps implement bull trout recovery actions, salmon recovery actions, and fish & wildlife connectivity across the central Cascades and through the nearby I-90 wildlife bridges. The Public has made a significant investment in maintaining the ecological integrity of the central Cascades around the Snoqualmie Pass area over the past several decades, including the Gold Creek valley.

The proposed restoration project would have significant positive effects to fish, wildlife, streams, wetlands and water quality. We would like to provide the following comments based on a review of the proposed project and our knowledge of inter-related fish and wildlife resources in the nearby area.

**Landscape Context and Large-Scale Habitat Acquisition and Restoration:**

The Gold Creek valley extends from the Alpine Lakes Wilderness - immediately to the north of the project site - and connects across I-90 to USFS lands to the south, along the crest of the Cascades, south to the Norse Peak Wilderness.

The Gold Creek Valley is located at the west end of Lake Keechelus. Keechelus Lake is ~5.6 miles in length and one of three large lakes flanking the east slopes of the Cascade Mountains from Snoqualmie Pass to the town of Easton. These large lakes and the surrounding high ridges act as barriers for most terrestrial animals and direct migrating animals to either side of

each lake. The west end of Lake Keechelus is bounded by the Snoqualmie Pass Ski area and associated developments. These highly developed areas prevent many animals from using the pass as a travel route. To the east, a large valley wall naturally directs north-south migrating animals to the end of Lake Keechelus and thus directly through the proposed project area.

In the past several decades, there have been substantial private and public land conservation efforts to protect old-growth forest, provide larger contiguous blocks of forested habitat, and facilitate habitat connectivity across the I-90 corridor through the acquisition of private land. The Cascades Conservation Partnership, the Mountains-to-Sound Greenway Trust, the U.S. Fish and Wildlife Service (USFWS), and the U.S. Forest Service (USFS), and WDFW have invested over \$150 million in these efforts. These land purchases, along with the I-90 Land Exchange (USDA1999), have added 75,000 acres (approximately 117 square miles) of land to the National Forest system adjacent to and within the I-90 Snoqualmie Pass East project area (I-90 MDT Report). An additional ~80+ square miles of conservation lands were purchased by The Nature Conservancy, WDFW, Forterra, and WSDOT.

Within the Gold Creek Valley, both WSDOT and the Cascade Land Conservancy (now Forterra) have purchased ~550 acres in Township 22N Range 11E Section 11 in order to protect important habitat and enhance the ecological integrity. Both the USFS and WSDOT/CLC properties will facilitate ecological connectivity and animal movement to the crossing structure on Interstate 90. If the Gold Creek Valley Restoration Project is implemented, it will have significant positive effects on the ecological connectivity of the surrounding landscape.

Forest restoration has included replanting forests cut during the heyday of timber operations, developing a more sustainable travel management plan and addressing impacts from roads, and thinning forests to accelerate the recovery of forest stands to support threatened and endangered species such as northern spotted owls, and reduce the risks of catastrophic fire or disease and insect infestations. In short, these efforts aim to put the forest back on a trajectory that matches historic natural conditions and manage the forests to be more resilient in the face of climate change, or other perturbations.

### **History:**

Historically the Gold Creek Valley was a post-glacial alluvial valley carpeted with old growth forest, and abundant forested wetlands supporting a rich diversity of fish and wildlife species. Early logging in the lower valley began sometime between 1942 and 1954, and continued through the late 1990's. The old growth forest that bounded the creek provided resistance and "roughness" that kept it from widening and slowed its migration across the floodplain. Upon the removal of these old growth forests, Gold Creek was no longer blocked from migrating, and immediately began to mine the gravel alluvium underlying the old forest, bringing this material into the channel. The valley bottom began to unravel. The active portion of the creek grew by 5-6 times as wide, and the channel migrated much more readily from one side of the floodplain to the other. Once flows dropped to summer lows, the stream flowed through these newly recruited gravels, rather than over them. This dewatering of long

stretches of the stream has proved deadly to rearing bull trout and other native fishes, and the aquatic life that supports the system.

To further exacerbate the situation, numerous gravel pit ponds were dug in the floodplain, with Gold Creek Pond being the largest and deepest. Gold Creek Pond is many feet below the surrounding floodplain and stream, and acts as a giant sump, drawing groundwater away from the stream. As retired Yakama Nation Hydrologist Tom Ring said “If you wanted to dewater a stream without touching it, you couldn’t have done a better job than by digging a pond to pull groundwater to the side of the valley and away from the stream, and by installing drains on the floodplain through the development that deliver to the pond and keep groundwater from reaching the stream”.

The historic forested wetland where Gold Creek Pond now exists, supported a much higher water table and slower transmissivity of water across the floodplain or down the valley. Furthermore, the forested wetland likely acted the opposite of the current pond, rather than draining the stream of water, it likely released/contributed water to Gold Creek at those low-flow times of the year. Cold, Clean water. Numerous studies have demonstrated the rich biodiversity of wetland habitats, particularly forested wetlands for birds, mammals and herptiles (amphibians and reptiles). A restored forested wetland site will have higher wildlife biodiversity than the current degraded conditions that exist in a deep, relatively sterile, open-water pond.

#### **Interstate 90 and Wildlife Crossings and Ecological Connectivity:**

The Gold Creek Valley Restoration project spans the Interstate-90 Snoqualmie Pass East expansion project and a major wildlife Connectivity Emphasis Area (CEA) across the highway. In fact, the Gold Creek connectivity structures (bridges) are amongst the largest structures in the entire project. The large structure is 1200 feet long and is elevated nearly 30 feet off the ground and is paired with a ~120-foot bridge to pass wildlife at all times of the year, even with heavy snows, or high reservoir levels. The new wildlife crossing structures have been highly effective as monitoring data have shown. WSDOT monitored the old bridges for 4 years prior to constructing the new wildlife crossing/ecological connectivity bridges. In the 4 years prior only ~50 deer and 4 coyotes were documented. Whereas in the first 5 years with the new bridges 3,051 deer, 260 elk (in year 5), 459 coyote, and 13 bobcat detections were recorded, along with approximately 22 other species during monitoring.

The I-90 project also aimed to facilitate ecological processes such as floodplain function, sediment transport, habitat restoration, and hydrologic connections. The WSDOT sponsored project to improve both highway capacity/safety and animal movement and ecological function across the highway is the result of over ten years of intensive planning by a multi-disciplinary team of specialists and a major Federal Environmental Impact Statement (EIS). The project implements portions of the USFS’s Snoqualmie Pass Adaptive Management Area Plan, and the Northwest Forest Plan, along with the National Forest Management Act for wildlife connectivity.

Landscape modeling efforts that address animal migration in the Cascades have identified the Gold Creek area as a major animal movement corridor for higher elevation species that occur close to the crest of the Cascades. The area has also been identified as a zone for deer and elk roadkill. Fencing installed in 2019 along the I-90 project will direct animals toward the Gold Creek valley highway crossing structures. Roadkill has decreased by half already – even before the fencing was completed.

One of the key functions identified through the I-90 planning process was the necessity of maintaining *Ecological Connectivity* across the highway project. This means reconnecting wildlife populations and hydrologic and other natural processes across the highway at key locations. WSDOT convened a Mitigation Development Team to put together both the science behind ecological connectivity and wildlife crossings and make recommendations to the Interdisciplinary Team as how to meet the Purpose and Need of the project for Ecological Connectivity. I served on the Mitigation Development Team as WDFW's representative for over a decade.

The I-90 Mitigation Development Team defined ecological connectivity as:

The *movement of organisms* and the *occurrence of ecological processes* across an ecosystem over time. Intact ecosystems are structured by dynamic processes that create a shifting mosaic of various habitat patches. The ability of organisms to disperse freely through this mosaic is important to allow genetic exchange, re-colonization of habitats, and maintenance of functioning food webs. Genetic variability is a species' insurance against localized or population level disturbances and ultimately improves an organism's evolutionary potential. The ultimate outcome is *natural sustaining populations* across an ecosystem over time. (WSDOT MDT Report, Appendix D).

Ecological connectivity across a landscape is important for animals because they need to access food resources, migrate to avoid severe weather, find mates, avoid natural events like wildfires and disperse to maintain genetic fitness. Young animals also need to access unoccupied territories (I-90 MDT Report).

#### **Bull Trout, and the future return of anadromous fish species:**

Bull trout are a Federally and State listed species (USFWS 1998, Status: Threatened) and Gold Creek is the only stream above Keechelus Dam with a known spawning population. The Gold Creek population contains a genetically distinct stock from other populations in the Yakima Basin and the population is currently at risk and threatened. Adult bull trout spend most of the year rearing and feeding in Lake Keechelus, but also forage in tributary streams. The adults migrate throughout early summer and fall into Gold Creek to spawn. Gold Creek is their only spawning habitat.

WDFW routinely conducts 3-4 spawning surveys each year in the fall to locate and enumerate the bull trout population in the Gold Creek system. The average number of redds (nests) from 1984-2019 is only ~16.6 redds per year. However, the Gold Creek bull trout population is

declining, and the average redd count over the past 5 years has dropped to ~10.6 redds/year on average, with some recent years being just 2 or 3 redds in the entire system. The Gold Creek population is in dire straits and needs our immediate help. We are highly likely to have fewer than approximately 100 adult bull trout in this population. Fortunately, bull trout are iteroparous spawners -meaning they spawn multiple times in their lives. They are also a long-lived species which has helped keep them around. Because of this, multiple generations of bull trout are in the population pipeline at once, which has provided resilience to the species. Bull trout need to migrate out of Lake Keechelus to the headwaters of Gold Creek in order to successfully spawn. If they are forced to spawn lower in the system, their nests are frequently scoured from the streambed during the high flows of the lower stream. In recent times this migration to the headwaters has been interrupted by dewatering events. WDFW routinely documents bull trout spawning in portions of Gold Creek directly adjacent to the project area and downstream of Gold Creek Pond, when they cannot reach the headwaters.

In 2019, as a short-term “lifeboat” approach WDFW and the Yakama Nation (YN) have begun rescue operations of young-of-year and juvenile bull trout in the frequent dewatering section of Gold Creek. Young-of-year are taken to the YN hatchery to increase survival for return back to Gold Creek the next year, whereas juveniles are immediately relocated higher in Gold Creek to perennially flowing reaches. Meanwhile, we have been focusing on a long-term approach to understanding the limiting factors and implementing a comprehensive restoration strategy through KCT’s work to improve habitat conditions and return the population to a self-sustaining level.

The Gold Creek bull trout population is one of 5 Yakima Basin “Action Populations” identified in the Yakima Basin Bull Trout Action Plan. Limiting environmental factors for this population include stream de-watering, groundwater redirection from gravel pit ponds and development drainage systems that pull cold, clean groundwater away from the stream, interrupted floodplain functions, lack of large wood jams and habitat complexity, migration issues, non-native brook trout, food availability and impacts from Keechelus Dam.

The Gold Creek Valley Restoration project would implement much needed long-term habitat recovery actions included in the Yakima Basin Bull Trout Action Plan (2012) and updates (2017); The USFWS Recovery Plan (2015); Yakima Basin Salmon Recovery Plan. We are undertaking restoration actions for a broad array of fish and aquatic species. Historically Keechelus Lake supported important anadromous (sea running) runs of sockeye salmon, Chinook salmon, and Steelhead trout, along with other resident native species.

The Yakima Basin Integrated Water Plan will eventually be making the investment to provide fish passage at Keechelus Dam in support of restoring native fish runs. Gold Creek is the largest watershed above the dam and was very important for salmon runs historically. It is imperative to get Gold Creek on a restorative track now for bull trout, but also for the future when we have fish passage at Keechelus Dam for all migrating species – sockeye salmon, Chinook salmon, and steelhead trout, in addition to native resident species. Restoring these fish stocks can have significant economic benefits to the surrounding communities, through recreational and commercial fishing, hotel stays, tackle purchases, and outdoor equipment purchases.

Gold Creek is a textbook example of “cumulative effects” from logging, mining, road building, highways, gravel pit excavation, development, levee construction, recreational facilities, reservoir construction and operation. Yet, Gold Creek has just as much potential to be restored, and it should not be viewed as a one-way valve where habitat function can only be degraded. Nature is resilient, and can be restored, but it needs our help. You don’t recover a species by just protecting the few places it has retracted to, or by maintaining a perpetually degraded state of its habitat. We strongly recommend implementing the elements of the Gold Creek Valley restoration project to restore this habitat.

**Recreation:**

WDFW supports outdoor recreation, but placement, intensity, and timing are critical to consider in order to minimize impacts to natural systems and the species that depend upon them. We feel there is a way to both restore functions in Gold Creek and the valley, while having some level of recreational experience. For example, the existing Gold Creek Pond parking area and its associated fill could be relocated out of the former wetland/floodplain, and a boardwalk through a restored forested wetland (similar to historic conditions) could be constructed where the pond is currently located. However, some recreational facilities are mutually exclusive to the proper functioning of Gold Creek and natural floodplain processes. For instance, the levees around Gold Creek Pond, and the Pond itself, prevent proper functioning of the floodplain, natural sediment transport processes down valley, and interfere with historical groundwater flows. Additionally, having high levels of recreation adjacent to the wildlife crossings, would prevent the crossings from properly functioning. Therefore, it may be necessary to relocate recreation within the valley, or in some instances relocate recreation opportunities away from the Gold Creek Valley.

Recreation can happen in a lot of places across a landscape. Recreation is only growing with Washington’s growing population trend. However, the Gold Creek Valley is the only place that the Gold Creek bull trout spawn, and the primary place they rear. Additionally, the valley provides a major landscape connectivity link for important and sensitive terrestrial species in the high-elevation zone of the Cascade mountains. We’re trying to connect the North Cascades to the South Cascades, and along the higher elevation zones, and the Gold Creek valley is the spot.

The nearby Snoqualmie Pass Recreation sites and development to the west of the Gold Creek Valley is expansive, year-round, and extremely high usage. Thus, adding further importance to habitat and wildlife connectivity in the Gold Creek Valley. Furthermore, WSDOT, Federal Highway Administration, USFS, USFWS, WDFW and a broad consortium of non-government conservation organizations have invested heavily in the nearby wildlife bridges, wildlife fencing to guide animals to the crossings while keeping them off the highway. During the I-90 Snoqualmie Pass East highway project, in order to meet wildlife connectivity needs, we worked with the federal agencies to close/relocated a major rest area/snow park, close the USFS campground at Crystal Springs, and discourage State Parks from future development, all

actions that were on parcels adjacent to the I-90 wildlife bridges, in order to facilitate wildlife connectivity, and restoration of natural processes.

WDFW makes the following specific recommendations regarding recreation in the Gold Creek valley: Maintain day use only recreation in lower Gold Creek valley, as many animals migrate in the early morning and twilight or at night - no camping or overnight recreation. Do not plow snow to provide recreational access in winter. WDFW would like to see no increase in recreation, in fact, a decrease in recreation and/or relocating recreation away from sensitive habitats such as floodplains, wetlands, and around wildlife connectivity structures. This would facilitate the proper functioning of the structures and ecological processes and functions that fish and wildlife depend upon, and in order to facilitate the movement of wildlife.

### **Climate Change:**

Climate change has been and will continue to impact Gold Creek and the central Cascades. Shifting snowpack, increasing rain-on-snow events, changes in run-off patterns, will all likely result in higher high-flows, and lower low-flows. We already have dewatering of segments of Gold Creek due to the historic habitat degradation and Gold Creek Pond pulling groundwater away from the stream. It is difficult to reverse the global climate change effects, however, by restoring Gold Creek, it's floodplains, wetlands, and groundwater paths, the Creek will certainly be significantly more resilient to climate change in a restored state, as opposed to its existing degraded state. It is beyond the scope of this project to effect global climate change. Without restoration, the effect of both a degraded stream and the effects of climate change could be a one-two punch that knocks out many of the stream's functions in the ecosystem, thus impacting a myriad of species that depend upon a healthy Gold Creek.

### **Kittitas Conservation Trust and Gold Creek Assessment work:**

The Kittitas Conservation Trust has been diligent, thorough, and comprehensive in their effort to investigate the broad array of historical changes in the Gold Creek Valley, and how these changes have affected the habitat and functions of Gold Creek. KCT has been responsive to both reviewers and following the insights they have gained, and as a result they have expanded the scale and scope of the project in order to take a comprehensive approach from the bottom to the top of the valley.

KCT has conducted the following assessments: a hydrologic study; LiDar & the resulting floodplain model under existing and several proposed conditions; they have conducted a stormwater drain location study and effects analysis; Drilled groundwater wells that informed a groundwater modeling effort undertaken by the Yakama Nation; Identified historic logging, road building, gravel pit construction, development; and developed conceptual designs that support recovery of natural processes while providing a "no-rise" approach in floodplain restoration. Finally, by conducting a study on the impacts of the FS-4832 road fill, sediment transport mechanisms, and reservoir influences.

KCT has been very responsive in engaging the public and stakeholders, a technical advisory group, the Yakima Basin bull trout working group, and identifying issues and conducting assessments that bring information forward to understand and address those issues.

### Summary

The Gold Creek Valley Restoration project will significantly improve habitat conditions within Gold Creek, restore ecological processes such as floodplain connectivity and sediment transport, decrease the duration and extent of dewatering events, create scour pools along the dewatered reach where imperiled bull trout can find refuge even if dewatering continues in some areas, and increase the viability of the nearby wildlife underpass structures in the Gold Creek Connectivity Emphasis Area (CEA) constructed by WSDOT and its partners on the I-90 Snoqualmie Pass East Project. The Gold Creek Valley Restoration Project is likely to have significant positive effects upon both the terrestrial and the aquatic environment and the species dependent upon these habitats. Additionally, the project will likely have significant positive long-term improvements to the high-quality wetlands and hydrograph of Gold Creek and associated wetlands.

WDFW supports the Gold Creek Valley Restoration project. Implementing the Gold Creek Valley Restoration project, protects the previous public investment in the surrounding landscape of the central Cascade Mountains. Furthermore, restoring these ecosystems can have significant positive economic benefits to the surrounding communities. Please feel free to call me at (509) 899-5287, or email at [William.Meyer@dfw.wa.gov](mailto:William.Meyer@dfw.wa.gov) if you have questions or would like additional information.

Sincerely,

A handwritten signature in black ink that reads "William R. Meyer". The signature is written in a cursive, flowing style.

William R. Meyer  
Fish & Wildlife Biologist  
Yakima Basin Integrated Plan

Cc: Perry Harvester, WDFW R-3