

WDNR Public Safety Checklist for Woody Debris Projects
Yakama Indian Nation 2014 Upper Yakima River “Edge” Habitat Enhancement Project

A. Project Information :

1. Provide a general description of the site location including:
 - a) Relationship to towns, cities or other population centers.
A 3700 ft undeveloped reach of Upper Yakima River RM 184.8 to 185.5. Reach is half a mile downstream of the Cle Elum River confluence and two miles upstream of Cle Elum in Kittitas County, WA. Downstream extent of project reach is 1.72 miles upstream of the South Cle Elum bridge.
 - b) Describe adjacent banks (steep, flat, high, vegetated, etc.) and land use (residential, forest land, etc.)
Sections of the river where work will be done will be ecologically degraded reaches of the river within undeveloped forested floodplain and terrace areas. All of the habitat construction will be within ordinary high water owned by the State of Washington and accessed through land owned by the Bonneville Power Administration (BPA). All of the affected areas lie within the existing 100 yr floodplain on BPA and state land, except for a small private parcel owned by David J. Browitt (Figure 1). All of the BPA land is managed for conservation. The 2014 project area is rural forest floodplain with no residential or agricultural development. Hydraulic modeling shows that there will be no increase in the extent of flood inundation (Figure 2). The maximum rise in the 100 yr flood water elevations will be less than 0.2 ft and localized within the project area (Figure 3). Future work may include sites adjacent to agricultural land where riparian buffers are established. Development along Upper Yakima ranges from forest land to agricultural to residential.
 - c) Describe downstream structures in or over the waterbody (bridges, docks, pipelines, dams, water diversions, etc.).
Kittitas County South Cle Elum bridge is located at RM 183.08, about 9080 ft downstream of downstream limit of project area (RM 184.8). The next bridge is the WSDOT I-90 crossing about 3 miles downstream of the South Cle Elum bridge (RM 180).
2. Where is the project relative to the water body? (At the bend of river, at the margin of a channel, in the main channel, in a high flood stage channel, how far from the shoreline, etc.)
Edge structures (Type 1 ELJs, plan sheets 5-6) are located along margin of the channel, extending no more than 20 ft from top of bank. Up to 32 edge structures will be constructed, spaced approximately 60 ft apart in 5 separate treatment areas, 3 on the left and 2 on the right bank (sheet 4 of plan set). Channel is 150-200 ft wide so edge structures will occupy less than 13% of channel width. Up to two bar apex structures (Type 2 ELJs, plan sheets 7-8) will be installed in dry gravel bars and not obstruct the low-flow wetted channel. They will occupy about 90 ft (less than 50%) of bankfull channel width (200-300 ft at installation sites). Up to three post stabilized snags (Type 3 ELJ, plan sheet 9) will be constructed, each occupying less than 10% of channel width.
3. From what distance would people on the water body be able to see the project?
At least 500 feet.

4. What public safety notices are proposed?
Signage at public launch sites making river users aware that the river contains naturally occurring wood accumulations and salmon restoration structures. Warning signage on structures, are specified in design package for project.
5. What type of access is available and at what distance from the project site?
There is no public access to the north side of the river in the project reach. The Iron Horse Trail runs along the south side of the river (right bank) from RM 185.2-185.3. The closest public launch site is on north (left) bank at RM 189.5, four miles upstream. WDFW has a public launch off south (right) bank at RM 195.5, 9.5 miles upstream. There is private community from 190.2-190.8, 4.7 miles upstream.
6. What are the major activities over the course of the year?
Typical summer (June-Aug) flows are artificially high due to irrigation releases from upstream dam, ranging from 3000-6000 cfs. Flows typically drop down to 1000 cfs in September. Peak flows tend to occur in winter (Nov-February) or Spring (April-June). Biking, hiking and horseback riding on Iron Horse Trail. Recreational boating in this reach is mostly comprised of experienced guided and private fly fishers who are in rafts or drift boats.
7. Is the water body known as a fishing or water recreation site? If so, describe the time of year, frequency, and popularity of the site for these uses.
Yes – this reach of the Yakima is used for catch and release fly fishing, mostly during the summer months. Few if any people are on this reach in innertubes or inexpensive rafts. If they are, they have already negotiated substantially greater hazards upstream of this site on either the Yakima or the lower Cle Elum. This information is based on personal communication with Johnny Boitano, Head Guide, Troutwater Guide Service, Ellensburg, WA. Troutwater guides on this reach of river “almost every day during high flow release summer months”.
8. Is the water body suitable for use by novices or does it require skill to navigate? Are there existing hazards to navigation in the vicinity?
This portion of upper Yakima River is relatively low gradient and no rapids (Class 1-2) but is not suitable for novices. There are substantial existing natural snags and logjams upstream of this reach. River users are typically experienced and understand the risks of in-stream wood.
9. Have there been any previous accident reports in the project reach? Explain the circumstances of each, if any.
No accident reports in project reach.

B. Qualitative Safety Assessment

1. Does the project present a potential increase of risk to human safety by creating a hazard for users, introducing woody debris that could cause downstream damage in a flood event, or causing a debris dam in a flood event?
No. All boaters who enter this reach would first encounter numerous natural log jams that span more than half the bankfull width in upstream locations. All engineered wood placements (EWPs) will be positioned to provide a clear unobstructed navigation channel. Natural wood such as mid-channel snags do occur within the project reach and

will continue to create local obstructions that change year to year and tend to ultimately wash downstream. The EWPs will be in known locations along the channel margins or “edges”. The EWPs are designed to the 100 yr flow discharge. The project is unlikely to have a substantial effect on natural wood material moving down the river, but the structures will trap some material and thus the project will have no impact or a small beneficial effect on reducing the hazards of natural wood on downstream infrastructure. The project poses no risk of a channel spanning debris dam forming.

2. What criteria are influencing relative risk and safety the most? Elaborate on existing or proposed conditions, public user groups, reach characteristics, or proposed project elements?

Structure stability and blockage of main channel were key design criteria. Structures designed to be stable in 100 yr flood and last 50-100 years to ensure they pose no threat to downstream South Cle Elum bridge. Kittitas County does have to occasionally remove debris from bridge’s center piers. Proposed project will have no impact and possibly reduce bridge maintenance by trapping natural wood within project reach. Structures are designed to be easily navigated and not create “strainers” in the river. Structures will even improve safe areas to eddy out within the project reach. Reach is a pool-riffle channel that has a natural bar apex jam at head of an island and several unstable snags in the channel. Site is upstream of Yakama Nation/WDFW Cle Elum Research and Supplementation Facility (aka-Spring Chinook hatchery). No known public user groups.

3. If proposed project elements or conditions are increasing risk, can changes be made to reduce that risk?

No increase in risk, but signage is included to increase awareness.

4. Are there additional pre-project studies and data requirements needed based on this assessment?

No. A hydraulic model (HEC RAS) was developed to evaluate structure stability and analyze flood rise for Kittitas County Public Works.

Checklist completed by:

Tim Abbe, Ph.D., P.E.G., P.H.G.
Natural Systems Design, Inc.
tim@naturaldes.com
206-681-8697

Scott Nicolai
Yakama Nation YKFP
ykfphabitat@fairpoint.net
509 945-3163

Checked by:

Leif Embertson, P.E., C.F.M.
Natural Systems Design
leif@naturaldes.com
360-483-8611

Jennifer Nelson
WDFW
Jennifer.Nelson@dfw.wa.gov
509-457-9307