

ISRP Comments – “Increase Naches River In-stream Flows By Purchasing Wapatox Water Right, Project ID 23028

Issues raised:

1. Time Critical

This acquisition is time critical due to the fact that the current owners must determine in the near future whether to sell the facility or pursue FERC relicensing. Additionally, energy generation is becoming an ever more attractive business, and what may be a liability in the form of a water diversion on a river with two listed fish species may become a lucrative risk to undertake. Also, with increasing power prices, buy-out of a generation facility will likely become more expensive.

2. Monitoring and Evaluation – clarification

As part of his reaches study, Dr. Jack Stanford and his colleagues began analyzing (1998) a series of aerial photographs of the Naches River Wapatox bypass reach to evaluate changes in main and side channel habitat over time. This analysis includes a classification and enumeration of various habitat types, including main channel, springbrooks, side channels and mid-channel island ponds/wetlands. We are beginning to understand the effects of numerous human influences on this reach of the Naches River, and have one of the most comprehensive chronological habitat change studies in the Columbia Basin forming the baseline. Monitoring and evaluation (M&E) subsequent to the funding of this project will continue in the form of the Reaches Study and among other YN, BOR, USF&WS and WDF&W efforts.

Although knowing the relative aerial change in habitat in the Naches bypass reach is vital, we also need to tie in salmonid presence/absence and habitat utilization to begin to determine overall project success. Ideally, this evaluation will include all life stages of salmon, steelhead and bull trout affected by water management in the Naches River below Wapatox Dam.

Beginning in the summer of 2000, representatives from the BOR, YN, USF&WS and WDF&W began working collaboratively to determine juvenile salmonid presence/absence and habitat utilization in the Naches River bypass reach as discharge decreased and became indicative of “normal” summer operations with the Wapatox power plant online. Data collection centered on side channels that were lost or were endangered as main channel flow decreased due to Wapatox diversions. In order to paint a picture of salmonid exploitation of the complete habitat mosaic of this bypass reach, sampling and analysis will continue in all habitat types to determine the temporal and spatial nature of fish habitat utilization.

M&E of this project will build on past data, current and ongoing efforts and future planned data collection to gage project success. The Yakama Nation has coho smolt survival data from 1998 and 1999 releases that will be compared with coho survival data

after the project is completed. These data include survival to Prosser Dam on the Yakima River and McNary Dam on the Columbia River. As such, benefits to the Yakima and Columbia basins in terms of smolt to adult survival can be gaged, providing a direct feedback loop that will be helpful in estimating the affects of returning discharge to prime floodplain habitats. In addition, the response of all life stages of steelhead and spring chinook to flow addition in this reach of the Naches River will be monitored to calibrate and judge the output of EDT modeling. The EDT currently suggests that a primary limiting factor to production in this reach of the Naches is a lack of instream flow and habitat complexity, especially for juvenile salmonids. Restoring more normative flow conditions to the Naches bypass reach will provide a significant opportunity to evaluate contemporary research and modeling, and to improve future modeling and management.

3. Partial versus total decommissioning

The BOR looked at numerous options with respect to Wapatox, among them partial versus total decommissioning. In the spirit of habitat restoration, partial decommissioning during the summer and winter low-flow periods was assessed. This option was deemed unsuitable for 2 main reasons:

1. The overall goal in the Yakima basin, with respect to the restoration efforts of all federal, tribal, local and state agencies, is to restore the Yakima and its tributaries to the “normative” condition, especially in terms of discharge management. This philosophy has been fostered and supported by the work of Dr. Jack Stanford in the Yakima and other river basins around the world. Restoring flows during the summer and winter low-flow periods alone is not normative. Year-round flow restoration is necessary to provide ecologically significant mechanisms to the Naches bypass reach.
2. Significant technical and economic reasons exist for the current owner with respect to partial decommissioning.
 - a. The Wapatox plant doesn’t generate much revenue, and partial decommissioning would not provide enough money to keep necessary year-round staff paid.
 - b. Shutting down the power plant during the winter could cause canal freeze-up that would pose significant engineering, technical and safety concerns.

Therefore, in the spirit of returning the Naches River to a more normative condition, and in the face of significant technical, economic and safety concerns, the BOR recommended total decommissioning of the Wapatox power facility. This decision provided the best win-win situation for the current owners, and the most fishery and aquatic resource benefits.

4. How this project fits into the Big Picture of the Yakiama Yakima River

The Systems Operation Advisory Committee (SOAC), in their 1999 Report to the Secretary of the Interior, founded their recommendations for biologically based flows for the Yakima River in the normative river concept. This philosophy postulates that

restoring river conditions, to the extent that present-day realities allow, to a more natural condition will provide the template necessary for restoration and maintenance of all riverine physical and biological objectives. Returning flows previously diverted for year-round power production at the Wapatox facility to the Naches River is a prime example of approaching a more normative condition in the Naches River and Yakima basin as a whole.

The Yakima/Klickitat Fisheries Project (YKFP) is working on salmonid restoration in the Yakima subbasin through improved passage, habitat preservation and/or restoration, and reintroduction and supplementation of certain stocks. EDT modeling has indicated that restoring flows in the lower Naches to more normative conditions will improve spawning, incubation, rearing and passage of several species and stocks of salmon. Habitat protection and restoration are becoming increasingly important tools in restoring viable salmon populations in developed rivers like the Naches. The YKFP is negotiating for six adjoining parcels of land (approximately 210 acres) located in the geomorphic floodplain downstream from the Wapatox facility. Again, the fisheries value of these properties would be greatly increased with more normative flows through this reach.

Currently, 60 percent of the listed Steelhead stock spawn in Toppenish and Satus Creeks, which are smaller than the Naches Basin. Modeling shows that providing for stable in-stream flows in what is currently the Wapatox By-pass reach may provide a power house for steelhead production. Over 40% of the radiotagged steelhead that returned to the Naches spawned between the mouth and the Tieton River, just upstream from Wapatox dam (Hockersmith et al, 1995). These redds may be severely impacted as flows in this reach drop and side channels dewater during the incubation period. In addition to increased egg to fry survival, increased in-stream flows will increase summer rearing habitat by a level that is yet unquantified.

A coho reintroduction feasibility study is currently being conducted in the Naches and Upper Yakima Rivers. All of the smolts in the Naches must pass through this reach. The dewatering of this reach in large degree may also increase the predation losses suffered by all anadromous species due to the concentration of juveniles to a smaller water body that lacks any form of cover. Adult coho also spawn in the mainstem Naches mainstem and tributaries in this reach.

It is also the professional opinion of the Yakama Nation Fisheries Staff that two major benefits will be realized by increasing the in-stream flows. First, with higher flows water temperatures will decrease providing increased survival and growth for juveniles. Second, smolts and juveniles will be lost at a reduced rate at diversions in the by-pass reach (S. Naches Channel) than under the current low in-stream flows created by the Wapatox Diversion.

5. Habitat gain

We are working at the present time to provide an exact figure of the amount of habitat gained by adding previously diverted canal flow back into the Naches River. This data will be a product of the Reaches Study underway by the BOR, CWU and others.

However, in absolute terms, reviving the Naches Wapatox bypass reach will provide immeasurable gains in habitat to fish and aquatic resource assemblages. Prior to initiation of the Reaches Project, Dr. Jack Stanford performed aerial surveys of the entire Yakima River basin and its major tributaries. Dr. Stanford identified 9 priority reaches in the basin, and said of the Lower Naches (Wapatox bypass reach) “This large and extensively braided flood plain occurs from the Naches Canal (Wapatox) Diversion to near the Naches confluence with Yakima. The lower 8km is an extensive upwelling zone with several large springbrooks and substantial fisheries habitat. Housing encroachment is minimal (Stanford Research Proposal to BOR, 15 January, 1999)”. Restoring flow to this reach of the Naches River will provide the fuel for an enormous food web that will support all life stages of salmon, steelhead, and bull trout.

The restoration potential of the Wapatox bypass reach is a unique opportunity in the Yakima basin. Due to the relative absence of floodplain encroachment and development, the Wapatox bypass reach is primed for restoration. A vital missing link in this restoration pathway is water, and decommissioning the Wapatox power plant would provide for that missing link.

6. Water rights –

The purchase of this water diversion would provide for increased in-stream flow. Currently, biologically based flows have not been set for the Naches Reach but all other large-scale diversions are below this reach. The Yakima Basin is closed to new surface water diversions and prior to any further consideration of new diversions, biologically based flows supportive of the Treaty of 1855 will be implemented.

7 Bottomline in-stream flow To the Columbia River

In terms of magnitude, the bottom line in instream flow addition down to the Columbia River is zero. Under current operating procedures, the Wapatox power plant is a non-consumptive use of water. However, in terms of water quality, restoring flow to the Naches bypass reach will provide significant benefits to the Yakima and Columbia basins.

The Naches bypass reach encompasses the spectrum of those habitats and physical relationships vital to fisheries and aquatic species assemblages. It is a complex floodplain reach underlain by cobbles and gravels that house a shallow alluvial aquifer. We, as scientists and managers, have just begun to recognize the absolute importance of these floodplain reaches to the physical and biological maintenance of river systems. The complex interactions of surface and groundwater in the vertical, lateral and longitudinal plane serves to make alluvial floodplain reaches centers of biophysical organization and

productivity for an entire river ecosystem. Under current operations, the Naches bypass reach is starved of a primary fuel for this massive “biophysical engine”—water that fits a year-round normative hydrograph.

At the head of the reach, the Naches River comes out of the Cascade Mountains and begins a journey through a wide floodplain of extensively braided channels. The head end of this reach is downwelling—in other words, a significant amount of surface water is added to the shallow alluvial groundwater system. Timing is important here; as most water available to the groundwater system comes off as snowmelt in the form of overbank flows, or flows that occupy shallow floodplain habitats. This cold melt water enters the ground at a cold time of the year and is insulated from high summer temperatures.

As the water year goes on, streamflow addition from snowpack in the mountains decreases and groundwater supports baseflow. As the Naches flows down-gradient to its confluence with the Yakima River, geologic influences at the end of the Wapatox bypass reach cause the whole system to be upwelling—water from the ground bubbles up in various places along the floodplain corridor, augmenting streamflow. Of vital note here is the quality of this water that upwells from the shallow alluvial groundwater aquifer. It is very cool in the summer, and can be as much as 15 °C cooler than water that has been in the river proper. In essence, Wapatox bypass reach is a huge, cooling sponge that absorbs an excess of cool water in the spring and returns this water to the Naches river and its distributaries in the late summer and early fall flow as cool groundwater recharge. This mechanism historically served to support year-round runs of salmon and steelhead.

The bulk cooling effects of making more water available to the system are of extreme importance to salmonids and their habitat in the Naches bypass reach. Under current operations, the Wapatox canal at the head end of this bulk cooling system serves to significantly deplete the amount of water available on a year-round basis. This non-normative management of discharge through the bypass reach has year-round consequences, and has virtually eliminated benefits that could be realized at temperature critical times.

The single factor most limiting bull trout survival in the Yakima basin could be elevated water temperatures. This project could help restore favorable flow conditions to the Naches bypass reach which could, in the future, provide viable bull trout habitats and facilitate their continued survival.

Instream flow benefits are primarily viewed, and incompletely so, as being magnitude based. Funding this project will not provide a net gain in discharge to the Columbia basin. It will provide a significant gain in water of vital importance to salmonids—cool, clean groundwater that returns to the river at a time when ambient temperatures are at their highest and salmonid populations are at their most vulnerable.

Stock status will increase with the total decommissioning of the Wapatox Diversion. There is currently a direct take of a listed species and there is a high probability of additional take due to the loss of side channel habitat and juvenile salmonids being pushed into low quality habitat.

Additional Issues:

There is a direct take of steelhead based upon the fact the spawning takes place at flows generally around 3000 cfs and spawning takes place on the margins of the River. When these fish are coming out of the gravels, flows have dropped due to irrigation flow management and it is suspected that many redds are dewatered.