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Recommendations to the Northwest Power and Conservation Council on the Imnaha Subbasin Priority Strategies to Guide the 2007-2009 Project Solicitation

Prepared by the Nez Perce Tribe
Department of Fisheries Resource Management

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We feel that all of the strategies outlined in the subbasin plan are all important. Therefore, we have included a complete list of all objectives, strategies and relative prioritization (Essential, Recommended, and Beneficial) in Table 1.

A) Top 2 Strategies Limiting Wildlife Populations

1. Protect and restore wildlife habitat within the three key cover types of eastside grasslands, wetland/riparian areas, and ponderosa pine forest through fee title acquisition, conservation easement, and ecologically appropriate management actions with an emphasis on continuing activities on Wildlife Management Areas currently funded by the Bonneville Power Administration as part of the Council's Fish and Wildlife Program.
2. Restoration of proper ecological functions within high priority cover types (eastside grasslands, wetland/riparian areas, and ponderosa pine forest) through the use of prescribed fire, noxious weed control, livestock management, vegetation manipulation, hydrologic improvements, re-establishment and/or protection of wildlife habitat corridors/links, and other management activities as appropriate to the cover type and current condition.

B) Top 1 Strategy Limiting Artificial Production

1. Meet the artificial production goals as articulated in US v. Oregon.

C) Top 3 Strategies Limiting Fish Populations

1. Protect existing high quality, functional habitats
2. Re-connect existing functional habitats
3. Restore normative watershed processes in dysfunctional habitats
4. Perform instream or other enhancements.

D) Top 3 Strategies for Research, Monitoring, and Evaluation.

1. Monitor the status of focal species and quantify limiting factors with priority species being Chinook salmon, steelhead, and Pacific lamprey.
2. Evaluate the effectiveness of management actions being applied in basin with priority to approaches with critical uncertainties (supplementation).
3. Implement full Monitoring and Evaluation plan contained in Subbasin Management Plan.

Table 1. General prioritization of strategies.

Problem	Objective	Strategies		
		Essential	Recommended	Beneficial
1	1A	1A2, 1A3, 1A4, 1A5	1A1	
2	2A		2A5	2A2, 2A3, 2A4
	2B	2B1, 2B3, 2B4	2B5	2B2
3	3A	3A2	3A1, 3A3, 3A4, 3A6	3A5
4	4A	4A2	4A1	
5	5A			
	5B		5B1, 5B4	5B2, 5B3,
	5C			5C1, 5C2, 5C3
	5D			5D1, 5D2, 5D3, 5D4
	5E			5E1, 5E2, 5E4, 5E5
6	6A	6A1	6A2	6A3
7	7A	7A1, 7A2, 7A3 7A5, 7A6	7A7	7A4
8	8A		8A2	8A1
8	8B		8B2, 8B4, 8B6	8B1, 8B3, 8B5, 8B7
9	9A	9A1, 9A2,		9A2
9	9B	9B1, 9B2	9B3	

Table 1 continued.

Problem	Objective	Strategies		
		Essential	Recommended	Beneficial
10	10A	10A1	10A5	10A2, 10A3, 10A4, 10A6
11	11A	11A1, 11A2, 11A3 11A4, 11A5	11A6	
12	12A	12A6	12A2, 12A3, 12A4, 12A7	12A1, 12A5
13	13A			
14	14A	14A3, 14A4	14A1, 14A2, 14A5	8A1
14	14B	14B3, 14B4	14B5	14B1, 14B2
15	15A	15A2, 15A3, 15A4	15A5, 15A6	15A1
16	16A	16A1, 16A2	16A3, 16A4	
16	16B	16B1, 16B2, 16B3	16B4, 16B6	16B5
17	17A	17A2, 17A4, 17A5, 17A6, 17A7, 17A8	17A3, 17A9, 17A10	17A1
18	18A	18A4, 18A5, 18A6	18A1, 18A2, 18A7	18A3
19	19A	19A2, 19A3	19A1, 19A4	
21	21A	21A3		21A1, 21A2 21A4, 21A5
22	22A	22A1, 22A2		
23	23A	23A3, 23A6, 23A7	23A2, 23A4 23A8, 23A9	23A1, 23A5

General Priority Geographical Areas and Limiting Factors

Refer to Tables 91-102, Figures 68-71 (Imnaha Subbasin Assessment), Table 12 (Imnaha Subbasin Plan, p110) for restoration and protection priority areas. Figure 2 (Imnaha Subbasin Plan) below also depicts priority areas. The figure depicted below from Appendix C of the Plan delineates sixth-field HUC codes within the Imnaha Subbasin. Please also take note that a comprehensive assessment of fish passage and a prioritization of those barrier structures for replacement consideration is being conducted for this entire subbasin. The result of this barrier assessment and prioritization may change the relative importance or priority of addressing fish passage issues in the Imnaha Subbasin.

Table 12. Sixth-field HUCs within which spring Chinook (SC), fall Chinook, steelhead (SS), And bull trout (BT) co-occur and within which common restoration, protection, or protection/restoration activities have been defined. HUCs shown are not ranked in order of activity priority. A lack of species combinations indicates a lack of common activities.

	All Species	SC, FS, SS	SC, SS, BT	SC, SS	SC, BT	SS, BT
Priority: Restoration		08B Imnaha River 1	07P Big Sheep Crk 3	07K Big Sheep Crk 1 09A Imnaha River 08D Imnaha River 3 07M Big Sheep Crk 07D Little Sheep Crk		07H Little Sheep Crk 2 07J Little Sheep Crk 3 (Redmont, Ferg., Canal)
Priority: Protection			09M Imnaha Riv 9 09L Imnaha River 09N Imnaha River 09J Imnaha River		09P South Fk Imnaha R 07R Big Sheep Crk Headwaters	
Priority: Protection / Restoration	08C Imnaha River		09J Imnaha River	08H Lightning Crk 07Q Lick Creek 08E Horse Creek		09G Imnaha Riv 6 09G Imnaha Riv 6

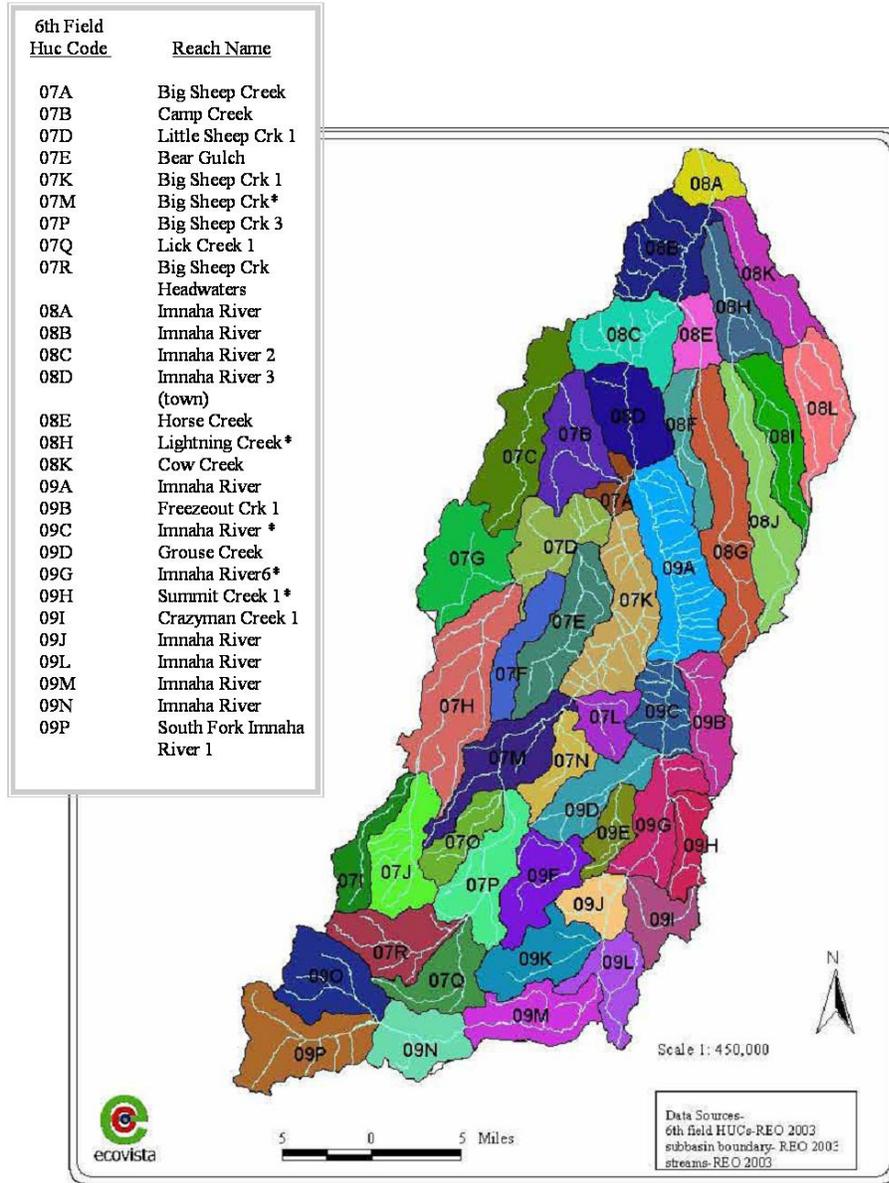
5.3.2.1 Natural Production Objectives and Strategies (copied from the Umatilla/Willow Subbasin Plan, Edited Ver. 05/28/04)

The management strategies to enhance natural production through habitat restoration are outlined below. These strategies are not listed in order of priority¹. They are as follows:

- 1) **Purchase water rights from willing sellers.** Purchased water rights can come from water directly removed from Big Sheep Creek, Little Sheep Creek, and the Imnaha and its tributaries. This water can then be left instream to enhance flows, aquatic species passage, decrease temperatures, and improve spawning and rearing habitat.
- 2) **Increase water conservation and irrigation efficiency.** This strategy will aid in improving streamflow by reducing the quantity of water withdrawn for agricultural and municipal purposes. Typical conservation projects include conversion of flood irrigation systems to sprinklers, piping and lining of irrigation ditch systems, decreased watering of lawns by municipalities, etc.
- 3) **Modify zoning and flood control planning through regulatory actions.** By working to improve zoning ordinances to prevent development of riparian areas and floodplains, better riparian function and channel-floodplain connection can be attained and/or maintained.
- 4) **Education and outreach for improving riparian and floodplain protection.** Education of local individuals and groups to improve their knowledge of proper riparian and floodplain function will result in an increased sense of ownership in the individual stream reaches, as well as longer term, more sustained results.
- 5) **Place large woody debris and large boulders.** Where opportunities exist, work on public, federal, state, tribal and private lands will be conducted to improve instream habitat. Placing large woody debris and large boulders directly increases habitat complexity and can improve habitat quantity by increasing the number of pools.
- 6) **Fence and plant riparian zones/Develop offsite watering facilities.** Where opportunities exist, work on public, federal, state, tribal and private lands will be conducted to improve riparian habitat. Fencing and/or offsite water development is utilized to manage use of the riparian zone by livestock and planting of native vegetation is done to speed the recovery process once grazing or other land uses have been modified. Riparian habitat improvements can directly impact stream temperatures and sediment inputs (through stabilizing stream banks and filtering runoff).
- 7) **Modify channel and flood-plain function.** Where opportunities exist, work on public, federal, state, tribal and private lands will be conducted to improve form and function of stream channels. This work involves directly (active restoration and bioengineering) or indirectly (passive restoration) returning stream channels to a functional state that is determined by the valley form, geology, soils, vegetation and climate. Specific parameters often targeted by this type of work include channel width and depth, sinuosity, slope, flood prone area, ratio of channel features, etc.

- 8) **Construct pool and riffle habitat using in-stream modifications.** Where opportunities exist, work on public, federal, state, tribal and private lands will be conducted to increase the quantity of pools and gravel dominated riffles (as opposed to cobble). Straightening, entrenchment and simplification of stream channels is a common problem in the Big Sheep Watershed (including Little Sheep Creek) that leads to the reduction of pool habitat and gravel dominated riffles. Pools will be constructed by direct intervention, often concurrently with work to restore channel form and function, and the quantity of gravel dominated riffles will be improved by decreasing channel slope, reducing entrenchment and confinement, and restoring pool/riffle sequencing.
- 9) **Maintain, relocate, or eliminate forest, public and private roads in riparian and sensitive areas.** Where opportunities exist, work on public, federal, state, tribal and private lands will be conducted to address problems caused by roads. The first step in this process would be to help these individuals or groups to develop a transportation plan for the specific area (ideally at the watershed scale) of interest. Roads are a source of sediment and a means of rapidly routing sediment to streams, occupy historic riparian zones, disconnect groundwater flow, disrupt wildlife and often result in stream confinement. Maintenance, relocation or removal of roads are the primary tools for addressing these problems.
- 10) **Increase protective status of priority habitats.** Where habitats have high value due to their current productive capacity or general importance to particular species, they should be protected to maintain their value. This can be accomplished by easements and other kinds of natural resource protection agreements, or on public lands by varying kinds of protections authorized by statute or rule.
- 11) **Modify detrimental land use activities.** Change land use activities leading to degradation of habitat, thereby allowing stream attributes impacted by these activities to recover without intervention. A common example of this kind of work is riparian buffers where streamside areas are protected from uses such as livestock grazing, timber harvest or agricultural crops (mainstem Imnaha and Big Sheep Creek).
- 12) **Restore upstream or headwater attributes to improve downstream conditions.** In particular, water quality problems are cumulative in a downstream direction. Sources of water quality problems at a particular location can often be sourced to areas upstream. This is also true of large wood debris. The source of large wood debris for some reaches can be primarily from upstream reaches. Limiting factors such as fine sediment, water temperature and large wood debris should be addressed at the watershed scale as well as the reach/geographic area scale. Understanding of these problems at the watershed scale is necessary, however, to effectively work at this scale. Actions such as restoration of riparian vegetation and channel function upstream of areas limited by temperature, sediment and/or large wood should be particularly effective.

- 13) **Increase passage efficiency of in-stream obstructions including culverts, bridges, diversion structures, and unscreened diversions.** Fish passage barriers should be corrected wherever they exist. However, if this is not feasible, a prioritization of the known barriers should be developed to account for life history stage impacted, miles of habitat reopened, and quality of reopened habitat. Problem 10 (p 35) lists the known passage problems; however, this is not a comprehensive list for all obstructions to migration in the Imnaha subbasin. It is recommended that the fish passage inventory, analysis and prioritization currently being conducted by the Nez Perce Tribe be utilized to further clarify/define the areas needing mitigation.
- 14) **Maintain passage efficiency through ongoing O&M activities.** Structural fixes installed to provide fish passage over irrigation dams, etc. require maintenance to operate within design criteria. All fish passage facilities should be maintained to provide optimal passage conditions.
- 15) **Inventory and treatment of noxious weed infestations.** Noxious weeds are one of the most significant ecological problems in this subbasin. The potential impacts associated with the unchecked spread of noxious weeds/invasive species in this area could be devastating to all natural resources.
- 16) **Continue protection of reserved Tribal treaty rights and resources.** Maintain, preserve and protect all rights and resources secured by the Nez Perce Tribe under the Treaty of 1855.



(Adopted from Imnaha Subbasin Management Plan, Appendix C, p 137)

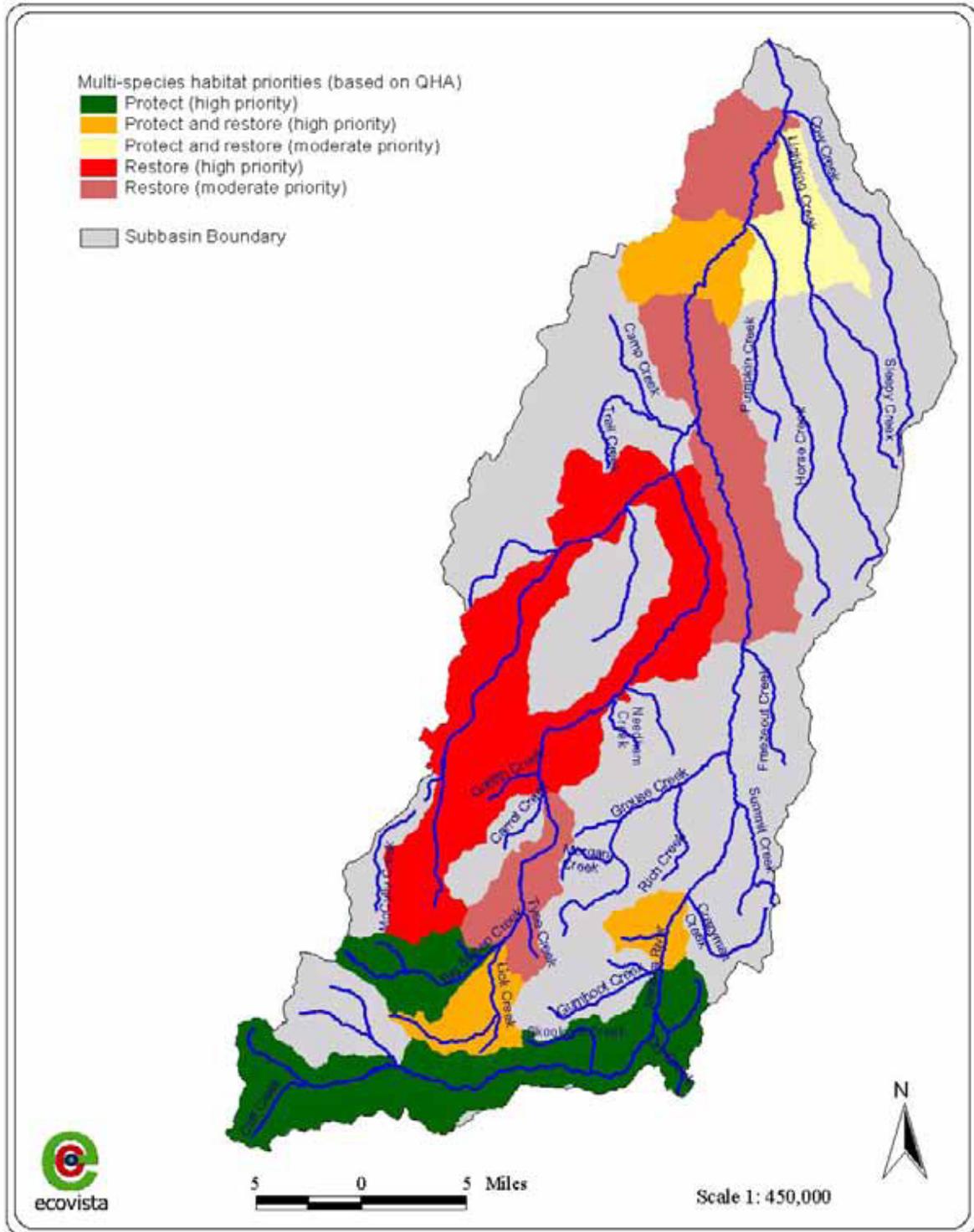


Figure 2. Multi-species representation of restoration, protection and protection/restoration areas I the Imnaha Subbasin. Not shown are Grouse and Gumboot Creeks, which are considered by ODFW to represent ‘Moderate Priority’ restoration areas (B. Knox, ODFW, personal communication, May, 2004) (Imnaha Subbasin Management Plan, p 112).