

**Recommendations to the Northwest Power and Conservation  
Council on the Umatilla/Willow Subbasin Priority Strategies to  
Guide the 2007-2009 Project Solicitation**

Prepared by the Umatilla/Willow Subbasin Planning Team

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**A) Top 2 Strategies Limiting Wildlife Populations**

1. Maintain and restore habitats protected through Bonneville Power Administration funded mitigation actions for hydropower construction inundation impacts.
2. Protect at a medium or high level, shrub-steppe habitat on private lands in the five critical areas using cooperative agreements, conservation easements, and/or fee title acquisition. (Table 11. Page 5-55, Biological Objective 1, Strategy 2.)

**B) Top 1 Strategy Limiting Artificial Production**

1. Continue to supplement all native and reintroduced anadromous fish stocks at their current levels to provide for natural production and harvest.

**C) Top 4 Strategies Limiting Fish Populations**

- ✓ These strategies apply to ongoing projects and to new projects within the priority geographic areas.
- ✓ Management Strategy # refers to §5.3.2.1 of the subbasin plan document and is attached below on pages 2-4.
- ✓ Geographic Area definitions from the EDT process are provided below on page 5. A map showing the locations of these GA’s is located on page 4.

<b>Priority Strategies<sup>1</sup> to Address Factors Limiting Fish Populations</b>	<b>Management Strategy #</b>	<b>Priority Geographic Area (GA) #</b>
<b>1. Protect existing functional habitats</b>	10, 11	15, 16, 18, 19, 35, 40
<b>2. Connect existing functional habitats</b>	1, 3, 6, 13, 14	1, 2, 9, 11-15, 17,18, 28, 33, 35, 40 & Willow Creek
<b>3. Restore normative flood-plain processes in dysfunctional habitats</b>	7, 6, 11, 12	9, 12-15, 17-19, 28, 33-35, 38, 40
<b>4. Perform instream or other enhancements.</b>	5, 8	9, 12-15, 17-19, 28, 33-35, 38, 40

<sup>1</sup> See hierarchical restoration strategy in Roni et al. (2002).

**General Priority Geographical Areas and Priority Strategies**

- Birch Creek (GA # 12-19): priority for strategies 1, 2, 3 and 4.
- Meacham Creek (GA # 33-35 and 38): priority strategy 1, 3 and 4
- Mid and lower mainstem Umatilla River (GA #1, 2, 9, 11 and 28): priority strategy 2.
- Mid to upper Umatilla River (GA # 28 and 40): priority strategies 1, 3 and 4

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

EDT was the tool used to define the numeric objectives for natural returns shown in table 2. As stated above, to achieve these numerical objectives will require the restoration of all priority geographic areas as well as the implementation of Phase III of the Umatilla Basin Project. As shown in Section 3.6.1.1 of the Assessment, this restoration scenario produces the largest returns of all the anadromous species. On May 21, 2004 the aquatic working group developed a series of strategies designed to achieve these numeric objectives. In addition, the group developed habitat objectives for each of the priority geographic areas (as identified by EDT) and identified which strategies would work to achieve those objectives. The aquatic working group also developed a series of qualitative artificial production objectives for each geographic area. However, more quantitative objectives and strategies are listed below under the subheading *Artificial Production Objectives and Strategies*. Finally, bull trout were incorporated into this area by area analysis. This was done to provide continuity in the plan and is defensible because many of the limiting factors impacting the anadromous focal species also are limiting to bull trout and thus the same habitat objectives and strategies will work for all of these species.

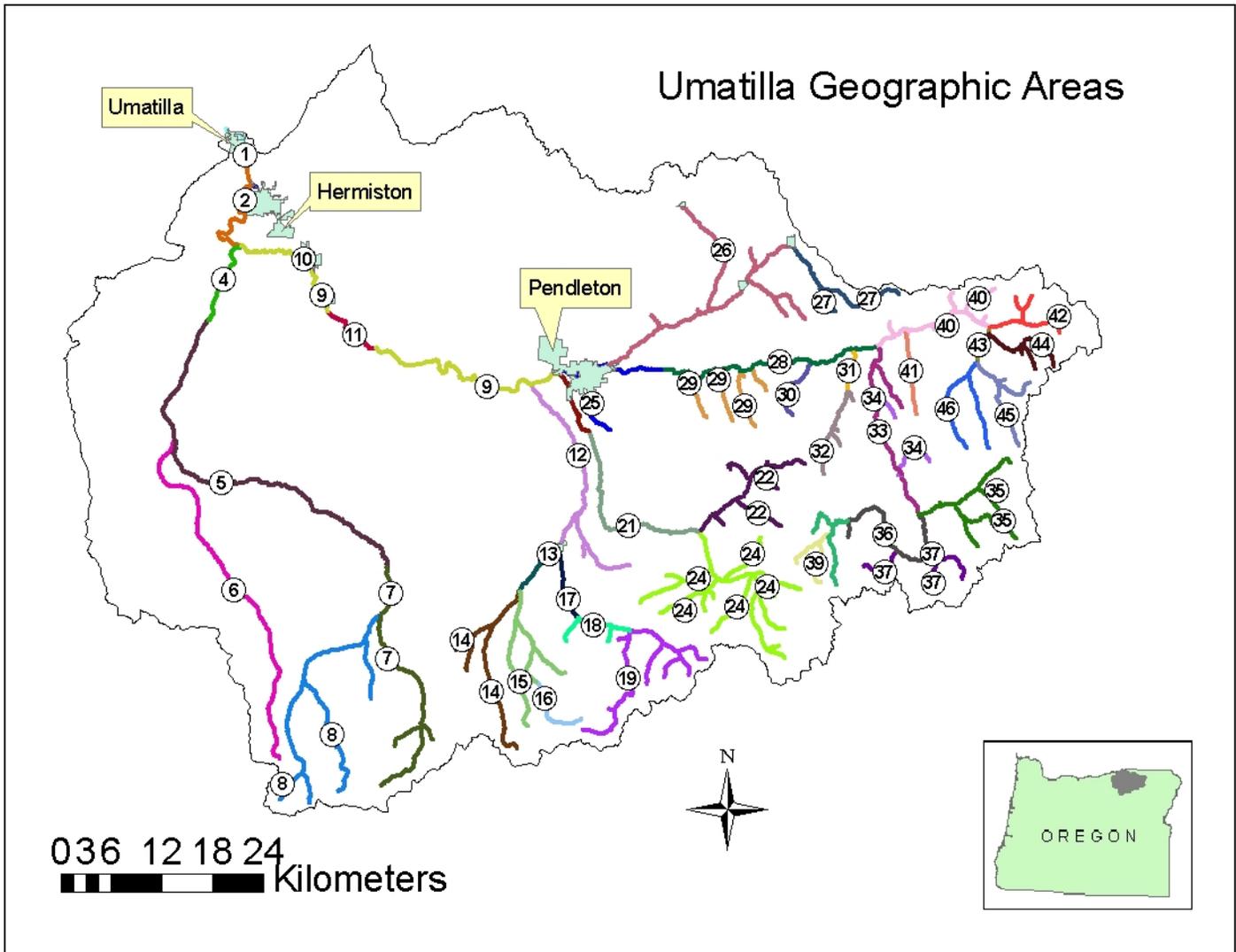
The management strategies to enhance natural production through habitat restoration are:

- 1) **Maintenance of Phase I and II, and implementation of Phase III Umatilla Basin Projects.** The Umatilla Basin Project is outlined in Section 3.1.3.2. Under one possible scenario of Phase III, summer flows in the Umatilla River will be enhanced (and water temperatures decreased) from Thornhollow Springs (RM 73.5) to the mouth. Thus, implementation of Phase III will impact flow and temperature in GAs 28, 25, 11, 9, 2, and 1.
- 2) **Purchase water rights from willing sellers.** Purchased water rights can come from water directly removed from the Umatilla or Willow mainstems and tributaries or from McKay and/or Willow Creek reservoirs. This water can then be left instream or released from McKay or Willow Creek reservoirs to enhance flows and decrease temperatures.
- 3) **Increase water conservation and irrigation efficiency.** This strategy will aid in improving streamflow by reducing the quantity of water withdrawn for

agricultural, industrial or 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.

- 4) **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.
- 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.** Where opportunities exist, work on public, federal, state, tribal and private lands will be conducted to improve riparian habitat. Fencing is installed 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 or indirectly 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 and entrenchment of stream channels as is a common problem in the Umatilla Basin 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 a 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. Roads are a source of sediment and a means of rapidly routing sediment to streams, occupy historic riparian zones, and often result in stream confinement. Maintenance, relocation or removal of roads are the primary tools for addressing the 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 or agricultural crops.
- 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.** Correction of passage deficiencies should be corrected wherever they exist. Table 45 is a list of known passage problems.
- 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.



**Umatilla Geographic Areas (GA) for EDT**

<b>GA</b>	<b>GA Description</b>
GA1	Umatilla, mouth to Threemile Dam
GA2	Umatilla, Threemile Dam to Butter Creek
GA3	North Hermiston Drain
GA4	Butter Creek, mouth to Madison Diversion
GA5	Butter Creek, Madison Diversion to East Butter
GA6	Little Butter
GA7	EF Butter and tribs
GA8	Butter Cr, EF to headwaters and Johnson Creek
GA9	Umatilla, Butter Cr to Westland Dam
GA10	Stage Gulch
GA11	Umatilla, Westland Dam to McKay Creek
GA12	Birch, mouth to forks including Stewart Creek
GA13	West Birch, mouth to Bear Creek
GA14	Bear Creek and tribs (West Birch)
GA15	West Birch, Bear top of gorge, including tribs
GA16	West Birch, Gorge to headwaters
GA17	East Birch mouth to California Gulch
GA18	East Birch, Cal Gulch to headwaters and tribs except Pearson
GA19	Pearson Creek (East Birch)
GA20	McKay Cr, mouth to McKay Dam
GA21	McKay Cr, McKay Dam to North Fork
GA22	NF McKay and tribs
GA24	McKay Cr, NF to headwaters including tribs
GA25	Umatilla, McKay Creek to Mission Bridge
GA26	Wildhorse Cr, mouth to Athena, including tribs
GA27	Wildhorse Cr, Athena to Headwaters, including tribs
GA28	Umatilla, Mission Bridge to Meacham Creek
GA29	Mission, Cottonwood, Moonshine, Coonskin Creeks
GA 30	Buckaroo Creek
GA31	Squaw Cr, Mouth to Bachelor Canyon
GA32	Squaw Cr, Bachelor Canyon to headwaters, including tribs
GA33	Meacham, Mouth to North Fork
GA34	Meacham, tribs from mouth to NF
GA35	NF Meacham and tribs
GA36	Meacham, NF to Twomile Creek including Sheep Creek
GA37	East Meacham and tribs and Butcher Creek
GA38	Meacham, Twomile to headwaters, including Twomile
GA39	Beaver Creek and tribs (Meacham)
GA40	Umatilla, Meacham to Forks including all tribs except Ryan Creek
GA41	Ryan Creek
GA42	NF Umatilla, mouth to headwaters including tribs
GA43	SF Umatilla, mouth to Thomas Creek
GA44	Buck Creek and tribs
GA45	Thomas Creek and tribs
GA46	SF Umatilla, Thomas Cr to headwaters including Shimmiehorn

References

Roni, P., Beechie, T.J., Bilby, R.E., Leonetti, F.E., Pollock, M.M. & Pess, G.P. (2002) A review of stream restoration techniques and a hierarchical strategy for prioritizing restoration in Pacific Northwest watersheds. *North American Journal of Fisheries Management*, **22**, 1–20.