

COLUMBIA SUBBASIN PRIORITIZATION MODEL

OBJECTIVE

This model is intended to provide a consistent approach for identifying biological priorities at the subbasin scale within the Columbia River Basin. The model relies heavily on data generated by the Interior Columbia Basin Ecosystem Management Program (ICBEMP) for subbasins east of the Cascade Crest and on similar data available for subbasins west of the Cascade crest.

This model for prioritizing Columbia River subbasins is a modification of a recently completed effort by the Interagency Implementation Team (IIT). The IIT model was developed through a commitment made as part of the Snake River and upper Columbia River Biological Opinions for chinook salmon and Steelhead and Bull trout in areas of the Columbia and Klamath Rivers not covered by the Northwest Forest Plan.

PRODUCT

The model tends to emphasize subbasins which 1) have high biological and ecological integrity, 2) are anchored by federal land management, 3) have been identified as having greater potential for habitat restoration which would increase smolt production, and 4) may potentially have impaired stream flows as determined by the relative density of water diversions. Diversion density data was not available for subbasins west of the Cascade Crest, therefore diversion density was not used as criterion in those subbasins.

MODEL COMPONENTS

The model has four primary components: (1) Biological, (2) Percent federal lands, (3) Potential for restoration, and (4) Relative risk from current water diversions. The Biological component is intended to identify subbasins that have a high degree of biological integrity intact. The Percent federal land component is intended to identify subbasins where conservation and restoration efforts will be anchored by virtue of high Federal management within the basin. The potential for restoration component identifies those subbasins that are felt to have the greatest potential benefit from habitat restoration and consequently incremental increase in smolt capacity. Lastly, the Water diversion element focuses attention on those subbasins that currently have relatively higher numbers of diversion per unit area. Diversion density was not specifically addressed in westside subbasins since that data was not available.

Model

Components:

1. Biological- This component is given a weight of 1.
 - On the eastside, this component is the percentage of the subbasin within a Priority Watershed for specific listed salmonid ESUs or within the ICBEMP A1/A2 Network (strongholds). Priority watersheds for anadromous salmonids are being developed by the IIT. The A1/A2 network data can be extracted from the ICBEMP website.
 - On the westside, this component is the percentage of the subbasin that lies within a Key Watershed as identified by the Northwest Forest Plan.

2. Percent Federal ownership- This category is given a weight of 1.

- This component simply indicates the percentage of the subbasin that is under Federal land management.

3. Restoration potential- This category is given a weight of 1

- This component relies on the NPPC Subbasin plans to identify those subbasins which have the greatest amount of habitat assessed in fair condition and thus potentially restorable to good condition.

4. Diversion density- This category is given a weight of 1

- This component uses the ICBEMP water diversion data to identify the relative density of water diversions within each subbasin.

All model components are given equal weight. Subbasin priorities are determined by summing across all components.

RESULTS

Prioritized subbasins east and west of the Cascade Crest are presented by ESU in Tables 1 and 2. As a result of the model subbasin at the top of the lists indicate those subbasins which currently serve as biotic and ecological strongholds, are anchored by a high percentage of Federal land management, have relatively greater potential to benefit from habitat restoration, but may be impacted by the magnitude of current water-related management actions. ESU-specific subbasin rankings provide a framework for focusing strategies to protect subbasins which currently anchor the ESU and identify lower ranked subbasins within the ESU where long-term restoration efforts may effect a significant beneficial biotic response and increase connectivity within the ESU.

CONSIDERATIONS

Subbasin assessments developed through the NPPC subbasin planning process will help validate and refine data within the model. We expect that subbasins on the priority list may be reshuffled over time based on these iterative validation and assessment efforts. However, we feel that this existing data reasonably focuses short-term restoration efforts towards subbasins where the greatest potential benefit to anadromous salmonids.

This initial ranking of subbasins based on biological integrity, Federal ownership, potential restoration benefit, and risk from water-related management activities. It could be modified as a result of policy concerns. For example other factors such as percent of subbasin under agricultural management, specific requirements for mitigation of individual projects, obligations to co-managers, funding opportunities, and existing programs may warrant shifting subbasin priorities.

Table 1. Eastside subbasins prioritized by ESU.

Chinook Upper Columbia Spring

Subbasin
Wenatchee
Methow
Upper Columbia- Entiat
Similkameen
Okanogan

Chinook Snake River Fall

Subbasin
Imnaha
Upper Selway
Lower Selway
Lochsa
Lower Grande Ronde
Hells Canyon
Middle Fork Clearwater
South Fork Clearwater
Lower Snake-Tucannon
Lower Snake- Asotin
Lower Salmon
Lower Snake
Clearwater

Chinook Snake River Spring/Summer

Subbasin
Lower Middle Fork Salmon
Upper Salmon
Lemhi
Upper Middle Fork Salmon
Upper Grande Ronde
Middle Salmon- Panther
Pahsimeroi
Little Salmon
South Fork Salmon
Imnaha
Middle Salmon- Chamberlain
Lower Grande Ronde
Wallowa
Lower Salmon
Hells Canyon
Lower Snake-Tucannon
Lower Snake- Asotin
Lower Snake

Steelhead Middle Columbia

Subbasin
Upper John Day
Middle Fork John Day
North Fork John Day
Trout
Upper Yakima
Naches
Lower John Day
Walla Walla
Middle Columbia- Hood
Umatilla
Klickitat
Lower Yakima
Lower Deschutes
Willow
Middle Columbia- Lake Wallula

Steelhead Upper Columbia

Subbasin
Similkameen
Methow
Wenatchee
Upper Columbia- Entiat
Okanogan
Upper Columbia- Priest Rapids

Steelhead Snake River

Subbasin
Lemhi
Upper Grande Ronde
Upper Salmon
Middle Salmon- Panther
Upper Middle Fork Salmon
Lower Middle Fork Salmon
Middle Fork Clearwater
Pahsimeroi
Imnaha
Lower Grande Ronde
South Fork Salmon
Upper Selway
Lower Selway
Lochsa
Middle Salmon- Chamberlain
Wallowa
Lower Snake-Tucannon
South Fork Clearwater
Little Salmon
Hells Canyon
Lower Salmon
Clearwater
Lower Snake- Asotin
Lower Snake

Table 2. Westside subbasins prioritized by ESU.

Chinook Lower Columbia

Subbasin
Lewis
Willamette- Middle
Lower Columbia-Sandy
Upper Cowlitz
Lower Cowlitz
Willamette- Clackamas
Middle Columbia- Hood
Lower Columbia- Clatskanie
Willamette- Lower
Willamette- Molalla-Pudding
Lower Columbia

Chinook Upper Willamette

Subbasin
Willamette- South Santiam
Willamette- Middle
Willamette- Upper
Willamette- North Santiam
Willamette- Mckenzie
Willamette- Clackamas
Willamette- Molalla-Pudding
Willamette- Coast Fork
Willamette- Yamhill
Willamette-Tualatin

Steelhead Lower Columbia

Subbasin
Lewis
Upper Cowlitz
Willamette- Middle
Willamette- Clackamas
Middle Columbia- Hood
Lower Columbia-Sandy
Lower Columbia- Clatskanie
Lower Cowlitz
Willamette- Lower

Steelhead Upper Willamette

Subbasin
Willamette- South Santiam
Willamette- North Santiam
Willamette- Middle
Willamette- Upper
Willamette- Molalla-Pudding
Willamette- Yamhill
Willamette-Tualatin