

## **Introduction**

In 2005, stakeholders and the Northwest Power and Conservation Council (NPCC) completed separate management plans for 58 tributary watersheds and mainstem segments of the Columbia River Basin. Subbasin plans identify restoration and protection strategies for habitat and fish and wildlife populations in United States portion of the Columbia River system.

This mapping application was designed to show the four most significant aquatic limiting factors (LFs) for the aquatic focal species (Table 1) that were identified and reported during the Subbasin Planning effort (2001-2004). A LF is defined as a habitat factor that limits the production and survival of a focal species. The summary information of the most common four LF categories (flow, temperature, sediment, and obstruction) from the plans was combined and can be displayed across the entire Columbia Basin as one unit so that stakeholders do not have to visit individual reports for the same information.

## **Subbasin Plan Reports**

The Northwest Power and Conservation Council (NPCC; formerly the Northwest Power Planning Council) has a web page for the individual subbasin plans. Please visit the Subbasin Plans and information at the NPCC web site for further information on the effort (<http://www.nwcouncil.org/fw/subbasinplanning>) and to view each of the plans.

## **Models**

Several habitat models were used to assess aquatic habitat and fish production during the subbasin planning process. Most of the subbasin planners used either the Ecosystem Diagnosis and Treatment (EDT) model for anadromous species or the Qualitative Habitat Assessment (QHA) model for resident species; however in some cases, both models were used within a single subbasin to cover both anadromous and resident species. Additionally, a few subbasin planners used their own models or methods (Unknown) to assess aquatic habitat and fish production in the blocked basins or in Idaho Table 2.

The terminology for the LFs may not always be consistent, due to the variety of models used for the subbasin planning effort. While the QHA model was meant to be used for resident species, several planners used QHA for salmon and steelhead and planners could adjust the model to their needs, which added to the inconsistent terminology of the QHA models between subbasins.

## **Limiting Factor Result Reporting**

The interactive map <http://map.critfc.org/flexviewers/limfactors/> displays the river and streams that were modeled for habitat assessments, based on each of the most common four categories of LFs reported in the Subbasin Plan. Each LF can be turned on and off in the map. The summarized LFs information generally came from the subbasin plans Management Plan section. Most plans summarize Limiting Factors and Priority Actions (actions are not part of this mapper) based

on the Geographic Area (GA) (other terms used for the same concept - Assessment Unit and similar) instead of by individual reach. A few, however, listed LFs per individual reach used in the models. The individual reaches are used in this mapper, for the LF that was summarized under GAs (a group of reaches); all the reaches under a GA were assigned the same LFs. As the LF data was collected from the subbasin plans for mapping, no attempt was made to crosswalk the terminology, and therefore, the original terms that describe the LFs from each plan are used in this mapper. Some of the LF terms are general and others are more specific to the issue. Not all subbasin planners reported LFs for every GA within the subbasin even if the reaches in the GA were modeled. We only report the summarized information in this mapper. For the raw ratings data per reach see the links at the end of this document. Some subbasins have fewer LFs than others; this is because some subbasin planners only reported three LFs, while others reported many more in their plan results.

### **Limiting Factor Terms and Definitions**

Almost all subbasin plans reported as their most common LF categories; flow, temperature, sediment, and obstructions. Each LF can be viewed in the map individually or with other LF categories. Within a category the type of LF may be different. For example the category of flow LF is displayed in the mapper as bright green lines, but reach by reach the actual LF type or issue may be low flow, or high flow, etc. To determine which type of LF is mapped under a category per reach, use the ID tool to click on a linear stream reach. A pop-up window will display the attributes (information) about the reach and the LF. The LF identified as the issue for reaches is indicated by an "X". Also included is more information from the Subbasin Plans such as: the Subbasin Name, GeoArea (Geographic Area, Assessment Unit, etc.), Reach Name, and Model (used to model the LFs). As described above, if the same models were used then common terminology and definitions between subbasin plans are likely, but not all subbasin plans reported the same LFs term/type under a category. Terms that seem to describe the same LF type were not crosswalked or combined, but are displayed here as they were named and defined in the subbasin plans.

The terms/types of LFs listed and defined by the subbasin planners under each category are listed below:

#### Temperature:

High Temp - Duration and amount of high summer water temperature that can be limiting to the focal species.

Low Temp - Duration and amount of low winter temperatures that can be limiting to the focal species.

Temp - Duration and amount of high summer water temperature or low winter temperatures that can be limiting to the focal species. General attribute when subbasin plan did not specify whether the issue was with high or low temperatures.

Flow:

High Flow - Frequency and amount of high flow events and the relative survival or performance of the focal species.

Low Flow - Frequency and amount of low flow events and the relative survival or performance of the focal species.

Base Flow – Minimum mean monthly discharge and the relative survival or performance of the focal species

Flow Var - Pattern and extent of flow fluctuations and the relative survival or performance of the focal species

Peak Flow - Maximum mean monthly discharge and the relative survival or performance of the focal species

Flow - The effect of the amount of fine sediment present in, or passing through, the stream reach on the relative survival or performance of the focal species. General attribute when subbasin plan did not specify whether the issue was with high, low, base, variation, or peak flows.

Sediment:

Sed Load - The effect of the amount of fine sediment present in, or passing through, the stream reach on the relative survival or performance of the focal species

Fine Sed – The amount of fine sediment present within the stream, especially in the spawning habitat of the focal species

Sediment – Natural and/or elevated general sediment loading from undefined source and the relative survival or performance of the focal species. General attribute when subbasin plan did not specify whether the issue was with sediment load, or fine sediments.

Sed Fines - Natural and/or elevated fine sediment loading from undefined source and the relative survival or performance of the focal species

Obstruction:

Conn Pass – Connectivity/Passage all forms of population fragmentation including physical, chemical, or thermal barriers and the relative survival or performance of the focal species

Hab Conn – Habitat connectivity and amount of discontinuous habitat areas from intermittent surface flow and the relative survival or performance of the focal species

Connect - Connectivity/Barriers all forms of population fragmentation including physical, chemical, or thermal barriers and the relative survival or performance of the focal species

Barriers - The effect of physical structures impeding movement of the focal species on its relative survival or performance within a stream reach; structures include dams and waterfalls

**Other Resources**

For subbasin plan raw spatial habitat and fish data used in the models visit the CRITFC web page <http://www.critfc.org/fish-and-watersheds/fishery-science/data-resources-for-scientists/critfc-data-download/>.

For other subbasin plan spatial data and the model programs visit the StreamNet web page [http://www.streamnet.org/subbasin\\_planning.html](http://www.streamnet.org/subbasin_planning.html).

**Contact**

Questions or comments about the mapping application or the information shown therein? Please direct them to Denise Kelsey at CRITFC (email: [keld@critfc.org](mailto:keld@critfc.org), phone: (503) 238-0667).

Table 1. List of subbasins and the aquatic focal species. Habitat assessments for the focal species habitat were completed and limiting factors were reported.

| Subbasin                                   | Steelhead-winter | Steelhead-summer | Chinook-spring | Chinook-summer | Chinook-fall | Coho | Bull trout | Cutthroat | Chum | Sockeye/kokanee | Redband | Rainbow | Pacific Lamprey | Sturgeon | Whitefish | Sculpin | Chub | Brook Trout | Burbot | Bass | Bluegill | Black crappie | Walleye | Yellow Perch |
|--|------------------|------------------|----------------|----------------|--------------|------|------------|-----------|------|-----------------|---------|---------|-----------------|----------|-----------|---------|------|-------------|--------|------|----------|---------------|---------|--------------|
| Abernathy                                  | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Almota                                     |                  | X                |                |                |              |      |            |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Asotin                                     |                  | X                | X              |                |              |      | X          |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Big White Salmon                           | X                |                  | X              |                | X            | X    |            |           |      |                 |         | X       |                 |          |           |         |      |             |        |      |          |               |         |              |
| Boise                                      |                  |                  |                |                |              |      | X          |           |      | X               | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Bruneau                                    |                  |                  |                |                |              |      | X          |           |      |                 | X       |         |                 |          | X         |         |      |             |        |      |          |               |         |              |
| Burnt                                      |                  |                  |                |                |              |      |            |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Clackamas                                  | X                |                  | X              |                | X            | X    |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Clearwater                                 |                  | X                | X              | X              | X            |      | X          | X         |      |                 |         |         |                 |          |           |         |      | X           |        |      |          |               |         |              |
| Coeur d'Alene                              |                  |                  |                |                |              |      | X          | X         |      | X               |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Columbia Estuary                           | X                |                  | X              | X              | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Columbia Gorge Mainstem                    |                  |                  |                |                |              |      |            |           | X    |                 |         |         | X               | X        |           |         |      |             |        |      |          |               |         |              |
| Columbia Gorge Tribs                       | X                |                  |                |                |              | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Coweeman                                   | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Cowlitz                                    | X                |                  | X              |                | X            | X    |            |           |      |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Crab Creek                                 |                  | X                |                | X              | X            |      |            |           |      | X               |         |         |                 |          |           |         |      |             |        | X    | X        | X             | X       | X            |
| Deadman                                    |                  | X                |                |                |              |      |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Deschutes                                  |                  | X                | X              |                |              |      | X          |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Elochoman                                  | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Entiat                                     |                  | X                | X              | X              | X            | X    | X          | X         |      |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Fifteenmile                                | X                |                  |                |                |              |      |            | X         |      |                 |         | X       | X               |          |           |         |      |             |        |      |          |               |         |              |
| Flathead                                   |                  |                  |                |                |              |      | X          | X         |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Germany                                    | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Grande Ronde                               |                  | X                | X              |                |              |      |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Grays                                      | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Hamilton-Hardy-Duncan                      | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Hood                                       | X                | X                | X              |                | X            |      | X          | X         |      |                 |         | X       | X               |          |           |         |      |             |        |      |          |               |         |              |
| Imnaha                                     |                  | X                | X              | X              | X            |      | X          |           |      |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| John Day                                   |                  | X                | X              |                |              |      | X          | X         |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Johnson Creek                              | X                |                  |                |                |              | X    |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Kalama                                     | X                | X                | X              |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Kellogg Creek                              | X                |                  |                |                |              | X    |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Klickitat                                  | X                | X                | X              | X              | X            | X    | X          | X         |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Kootenai                                   |                  |                  |                |                |              |      | X          | X         |      | X               | X       |         |                 | X        |           |         |      |             | X      |      |          |               |         |              |
| Lake Chelan                                |                  |                  |                |                |              |      | X          | X         |      | X               |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Lake Rufus Woods                           |                  |                  | X              | X              | X            |      |            |           |      | X               |         | X       |                 | X        |           |         |      | X           |        |      |          |               |         |              |
| Lewis                                      | X                | X                | X              |                | X            | X    | X          |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Little White Salmon                        |                  |                  |                |                | X            |      |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Lower Columbia Mainstem                    | X                | X                | X              |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Lower Mid-Columbia Mainstem and Rock Creek |                  | X                |                |                | X            | X    |            |           |      |                 |         |         |                 | X        |           |         |      |             |        |      |          |               |         |              |
| Malheur                                    |                  |                  | X              |                |              |      | X          |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| McKenzie                                   |                  |                  | X              |                |              |      | X          | X         |      |                 |         |         |                 |          |           |         | X    |             |        |      |          |               |         |              |
| Methow                                     |                  | X                | X              | X              | X            | X    | X          | X         |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Mill                                       | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Okanogan                                   |                  | X                | X              | X              | X            |      | X          | X         |      | X               |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Owyhee                                     |                  |                  |                |                |              |      |            |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Palouse                                    |                  | X                |                |                | X            |      | X          |           |      |                 |         | X       |                 |          | X         | X       |      | X           |        | X    |          |               |         |              |
| Payette                                    |                  |                  |                |                |              |      | X          |           |      | X               | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Pend Oreille                               |                  |                  |                |                |              |      | X          | X         |      | X               |         |         |                 |          | X         |         |      |             |        | X    |          |               |         |              |
| Powder                                     |                  |                  |                |                |              |      | X          |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Salmon                                     | X                | X                | X              | X              | X            |      | X          |           |      | X               |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Salmon Creek                               | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| San Poil                                   |                  |                  | X              | X              | X            |      |            |           |      | X               | X       | X       |                 |          |           |         |      |             |        |      |          |               |         |              |
| Sandy                                      | X                |                  | X              |                | X            | X    |            |           | X    |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Skamokawa                                  | X                |                  |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Snake Headwater                            |                  |                  |                |                |              |      | X          | X         |      |                 |         |         |                 |          | X         |         |      |             |        |      |          |               |         |              |
| Snake Hells Canyon                         |                  | X                | X              | X              | X            |      | X          |           |      |                 | X       |         | X               | X        |           |         |      |             |        |      |          |               |         |              |
| Snake Lower                                |                  | X                |                |                |              |      |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Snake Middle                               |                  |                  |                |                |              |      | X          |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Snake Upper                                |                  |                  |                |                |              |      | X          | X         |      |                 |         |         |                 |          | X         |         |      |             |        |      |          |               |         |              |
| Spokane                                    |                  |                  |                | X              | X            |      |            |           |      | X               | X       | X       |                 |          | X         |         |      |             |        | X    |          |               |         |              |
| Tenmile                                    |                  | X                |                |                |              |      |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Toutle                                     | X                |                  | X              |                | X            | X    |            |           | X    |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Tryon Creek                                | X                |                  |                |                |              | X    |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Tucannon                                   |                  | X                | X              |                | X            |      | X          |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Umatilla                                   |                  | X                | X              |                | X            | X    | X          |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Upper Columbia Mainstem                    |                  |                  |                | X              | X            |      |            |           |      | X               | X       | X       | X               | X        |           |         |      |             | X      |      |          |               |         |              |
| Upper Mid-Columbia Mainstem                |                  | X                | X              | X              | X            |      |            |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Upper Snake Closed                         |                  |                  |                |                |              |      | X          | X         |      |                 |         |         |                 |          | X         |         |      |             |        |      |          |               |         |              |
| Walla Walla                                |                  | X                | X              |                |              |      | X          |           |      |                 |         |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Washougal                                  | X                | X                |                |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Weiser                                     |                  |                  |                |                |              |      | X          |           |      | X               | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Wenatchee                                  |                  | X                | X              | X              | X            | X    | X          | X         |      | X               |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Willow                                     |                  |                  |                |                |              |      |            |           |      |                 | X       |         |                 |          |           |         |      |             |        |      |          |               |         |              |
| Wind                                       | X                | X                | X              |                | X            | X    |            |           | X    |                 |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |
| Yakima                                     |                  | X                | X              |                | X            | X    | X          |           |      | X               |         |         | X               |          |           |         |      |             |        |      |          |               |         |              |

Columbia River Inter-Tribal Fish Commission  
Interactive Mapping Application for Subbasin Planning Aquatic Limiting Factors

Table 2. Display of subbasin plan information on models used to assess aquatic focal species habitat.

| Ecoprovince        | Subbasin Plan Name                    | Subbasin                 | Watershed Modeled                                   | EDT                         | Not Full EDT | QHA                         | Other    | Not Modeled |
|--------------------|---------------------------------------|--------------------------|---|-----------------------------|--------------|-----------------------------|----------|-------------|
| Blue Mountain      | Asotin                                | Asotin                   | Asotin  | X                           |              |                             |          |             |
| Blue Mountain      | Asotin                                | Asotin                   | Tenmile   | X                           |              |                             |          |             |
| Blue Mountain      | Grande Ronde                          | Grande Ronde             | Grande Ronde  | X                           |              |                             |          |             |
| Blue Mountain      | Imnaha                                | Imnaha                   | Imnaha  |                             |              | X                           |          |             |
| Blue Mountain      | Snake Hells Canyon                    | Snake Hells Canyon       | Snake Hells Canyon                                  |                             |              | X                           |          |             |
| Columbia Cascade   | Entiat                                | Entiat                   | Entiat  | X                           |              |                             |          |             |
| Columbia Cascade   | Lake Chelan                           | Lake Chelan              | Lake Chelan   |                             |              |                             | X        |             |
| Columbia Cascade   | Methow                                | Methow                   | Methow  | X                           |              | X                           |          |             |
| Columbia Cascade   | Okanogan                              | Okanogan                 | Okanogan  | X                           |              |                             |          |             |
| Columbia Cascade   | Upper Middle Columbia                 | Columbia Upper Middle    | Upper Middle Columbia                               |                             |              | X                           |          |             |
| Columbia Cascade   | Wenatchee                             | Wenatchee                | Wenatchee   |                             |              | X                           |          |             |
| Columbia Gorge     | Big White Salmon                      | Big White Salmon         | Big White Salmon                                    | X                           |              |                             |          |             |
| Columbia Gorge     | Columbia Gorge                        | Columbia Gorge           | Columbia Gorge                                      | A few Tribs                 |              |                             |          | X           |
| Columbia Gorge     | Fifteenmile                           | Fifteenmile              | Fifteenmile   |                             | X            | X                           |          |             |
| Columbia Gorge     | Hood                                  | Hood                     | Hood  | X                           | X            | X                           |          |             |
| Columbia Gorge     | Klickitat                             | Klickitat                | Klickitat   | X                           | X            |                             |          |             |
| Columbia Gorge     | Lower Columbia                        | Little White Salmon      | Little White Salmon                                 |                             |              |                             |          | X           |
| Columbia Gorge     | Lower Columbia / Wind                 | Wind                     | Wind  | X                           |              |                             |          |             |
| Columbia Gorge     | Lower Columbia, Hood, and Fifteenmile | Columbia Gorge           | Columbia Gorge Tribs                                | split-up in other subbasins |              | split-up in other subbasins |          |             |
| Columbia Mountain  | Flathead                              | Flathead                 | Flathead  |                             |              | X                           |          |             |
| Columbia Mountain  | Kootenai                              | Kootenai                 | Kootenai  |                             |              | X                           |          |             |
| Columbia Mountain  | No Plan                               | Bitterroot               | Bitterroot  |                             |              |                             |          | X           |
| Columbia Mountain  | No Plan                               | Blackfoot                | Blackfoot   |                             |              |                             |          | X           |
| Columbia Mountain  | No Plan                               | Clark Fork               | Clark Fork  |                             |              |                             |          | X           |
| Columbia Plateau   | Crab                                  | Crab                     | Crab Creek  |                             |              | X                           |          |             |
| Columbia Plateau   | Deschutes                             | Deschutes                | Deschutes   | X                           | X            | X                           |          |             |
| Columbia Plateau   | John Day                              | John Day                 | John Day  | X                           | X            | X                           |          |             |
| Columbia Plateau   | Lower Middle Columbia                 | Columbia Lower Middle    | Lower Mid-Columbia Mainstem and Rock Creek          | Only Rock Creek             |              |                             |          | X           |
| Columbia Plateau   | Lower Snake                           | Snake Lower              | Almota  | X                           |              |                             |          |             |
| Columbia Plateau   | Lower Snake                           | Snake Lower              | Deadman   | X                           |              |                             |          |             |
| Columbia Plateau   | Lower Snake                           | Snake Lower              | Lower Snake Mainstem                                | Only Almota and Deadman     |              |                             |          | X           |
| Columbia Plateau   | Palouse                               | Palouse                  | Palouse   |                             |              |                             |          | X           |
| Columbia Plateau   | Tucannon                              | Tucannon                 | Tucannon  | X                           |              |                             |          |             |
| Columbia Plateau   | Umatilla                              | Columbia Lower Middle    | Willow  |                             |              | X                           |          |             |
| Columbia Plateau   | Umatilla                              | Umatilla                 | Umatilla  | X                           | X            | X                           |          |             |
| Columbia Plateau   | Walla Walla                           | Walla Walla              | Walla Walla   | X                           |              |                             |          |             |
| Columbia Plateau   | Yakima                                | Yakima                   | Yakima  | X                           |              |                             |          |             |
| Columbia R Estuary | Lower Columbia                        | Columbia Estuary         | Columbia Estuary Tribs                              |                             |              | X                           |          |             |
| Columbia R Estuary | Lower Columbia                        | Elochoman                | Elochoman   | X                           |              |                             |          |             |
| Columbia R Estuary | Lower Columbia                        | Grays                    | Grays   | X                           | X            |                             |          |             |
| Columbia R Estuary | Lower Columbia/ Elochoman             | Elochoman                | Abernathy   | X                           |              |                             |          |             |
| Columbia R Estuary | Lower Columbia/ Elochoman             | Elochoman                | Germany   | X                           |              |                             |          |             |
| Columbia R Estuary | Lower Columbia/ Elochoman             | Elochoman                | Mill  | X                           | X            |                             |          |             |
| Columbia R Estuary | Lower Columbia/ Elochoman             | Elochoman                | Skamokawa   | X                           |              |                             |          |             |
| Intermountian      | Intermountian                         | Coeur D'Alene            | Coeur D'alene                                       |                             |              | X                           |          |             |
| Intermountian      | Intermountian                         | Columbia Upper           | Lake Rufus Woods                                    |                             |              | X                           |          |             |
| Intermountian      | Intermountian                         | Columbia Upper           | Upper Columbia                                      |                             |              | X                           |          |             |
| Intermountian      | Intermountian                         | Pend Oreille             | Pend Oreille  |                             |              | X                           |          |             |
| Intermountian      | Intermountian                         | Sanpoil                  | San Poil  |                             |              | X                           |          |             |
| Intermountian      | Intermountian                         | Spokane                  | Spokane   |                             |              | X                           |          |             |
| Lower Columbia     | Lower Columbia                        | Columbia Lower           | Lower Columbia Mainstem                             |                             |              |                             |          | X           |
| Lower Columbia     | Lower Columbia                        | Cowlitz                  | Cowlitz   | X                           |              |                             |          |             |
| Lower Columbia     | Lower Columbia                        | Kalama                   | Kalama  | X                           |              |                             |          |             |
| Lower Columbia     | Lower Columbia                        | Lewis                    | Lewis   | X                           |              |                             |          |             |
| Lower Columbia     | Lower Columbia                        | Washougal                | Washougal   | X                           |              |                             |          |             |
| Lower Columbia     | Lower Columbia / Lower Columbia Tribs | Columbia Lower           | Lower Columbia Tribs (Hardy-Duncan-Hamilton-Salmon) | X                           |              |                             |          |             |
| Lower Columbia     | Lower Columbia/ Cowlitz               | Cowlitz                  | Coweeman  | X                           |              |                             |          |             |
| Lower Columbia     | Lower Columbia/ Cowlitz               | Cowlitz                  | Toutle  | X                           |              |                             |          |             |
| Lower Columbia     | No Plan                               | Sandy                    | Sandy   | X                           |              |                             |          |             |
| Lower Columbia     | Willamette                            | Willamette               | Clackamas   | X                           |              |                             |          |             |
| Lower Columbia     | Willamette                            | Willamette               | Johnson Creek                                       | X                           |              |                             |          |             |
| Lower Columbia     | Willamette                            | Willamette               | Kellogg Creek                                       | X                           |              |                             |          |             |
| Lower Columbia     | Willamette                            | Willamette               | McKenzie  | X                           |              |                             |          |             |
| Lower Columbia     | Willamette                            | Willamette               | Tryon Creek   | X                           |              |                             |          |             |
| Lower Columbia     | Willamette                            | Willamette               | Willamette Mainstem                                 | X                           |              |                             |          |             |
| Middle Snake       | Boise, Payette and Weiser             | Boise                    | Boise   |                             |              | X                           | X        |             |
| Middle Snake       | Boise, Payette and Weiser             | Payette                  | Payette   |                             |              |                             | X        |             |
| Middle Snake       | Boise, Payette and Weiser             | Weiser                   | Weiser  |                             |              |                             |          | X           |
| Middle Snake       | Bruneau                               | Bruneau                  | Bruneau   |                             |              | X                           |          |             |
| Middle Snake       | Burnt                                 | Burnt                    | Burnt   |                             |              | X                           |          |             |
| Middle Snake       | Malheur                               | Malheur                  | Malheur   |                             |              | X                           |          |             |
| Middle Snake       | Middle Snake                          | Snake Lower Middle       | Snake Lower Middle (Pine Creek)                     |                             |              | X                           |          |             |
| Middle Snake       | Middle Snake                          | Snake Upper Middle       | Snake Upper Middle                                  |                             |              |                             |          | X           |
| Middle Snake       | Owyhee                                | Owyhee                   | Owyhee  |                             |              | X                           |          |             |
| Middle Snake       | Powder                                | Powder                   | Powder  |                             |              | X                           |          |             |
| Mountain Snake     | Clearwater                            | Clearwater               | Clearwater  |                             |              |                             | X        |             |
| Mountain Snake     | Salmon                                | Salmon                   | Salmon  |                             |              |                             | X        |             |
| Upper Snake        | Upper Snake                           | Snake Headwaters         | Snake Headwaters                                    |                             |              |                             |          | X           |
| Upper Snake        | Upper Snake                           | Snake Upper              | Upper Snake   |                             |              |                             |          | X           |
| Upper Snake        | Upper Snake                           | Snake Upper Closed Basin | Closed Basin (Upper Snake)                          |                             |              |                             |          | X           |
| <b>Total</b>       |                                       |                          |   | <b>39</b>                   | <b>8</b>     | <b>28</b>                   | <b>5</b> | <b>15</b>   |