

Memorandum

DATE: August 03, 2006
TO: Ken Bierly, OWEB
FROM: John Runyon, Adolfsen Assoc., and Steve Bauer, Watershed Professionals Network
RE: **Process for Determining Columbia Basin Limiting Factors (Regional Priorities)**

I. Introduction

OWEB is establishing regional priorities to be used as guidance in reviewing grant applications to help ensure a clear and strategic approach to prioritize project funding. The ultimate goal is to establish investment priorities for each of the 15 Oregon Plan reporting basins based on technical information provided in subbasin plans, local watershed assessments, ESA recovery plans, and water quality management plans. This memo outlines the process for summarizing watershed-scale limiting factors within the Columbia Basin.

II. Status and Approach

The development of watershed limiting factors for the Columbia Basin builds upon the policy framework adopted by the OWEB Board and described in the document: *Improvement Priorities at Basin and Watershed Scales*. This project further builds on the experience gained in identifying watershed-scale limiting factors and developing restoration priorities for the Rogue and Willamette basins. A subtle but critical difference in this process is the emphasis on identifying limiting factors rather than specifically identifying priorities. Limiting factors are based on a technical evaluation of the current resource condition; priorities should address these limiting factors but may also logically address the technical feasibility, cost, and benefits of a particular restoration approach. This project is only identifying the limiting factors.

The identification of limiting factors emphasizes a “ridgetop-to-ridgetop” perspective, encompassing terrestrial, riparian, and aquatic habitats, multiple fish and wildlife species, and watershed functions. This broader watershed context is the basis for developing restoration project priorities that address key factors that limit watershed function.

In the Columbia Basin, the project team is compiling information on watershed-scale limiting factors primarily from the Northwest Power and Conservation Council (NWPCC) Subbasin Plans for the following basins: Hood-Fifteen Mile, Deschutes, John Day, Umatilla, Grande Ronde, Powder, and Owyhee-Malheur. The subbasin plan information is supplemented with local watershed assessments and action plans, ODFW’s Conservation Strategy, Agricultural Water Quality Management Plans, NOAA-Fisheries recovery planning documents, and DEQ 303(d) water quality databases. This information is used to develop a list of limiting factors at

the 5th field HUC (Hydrologic Unit Code) scale for each of Columbia subbasins defined through the NWPCCC's planning process.

The outcome of the project is a list of watershed-scale limiting factors that are as objective and transparent as possible, given the large geographic area and the diverse set of information and data available for each of the subbasins. The project team has developed a clear, logical framework for "translating" the Subbasin Plans and other information into a consistent set of limiting factors for the Columbia Basin region.

III. Examples

A key piece of information in the subbasin planning process was the use of Ecosystem Diagnosis and Treatment (EDT) and Qualitative Habitat Assessment (QHA) models in evaluating watershed limiting factors. EDT/QHA factors were rated by local expert panels prior to processing this information through models. We are using the rating inputs to identify limiting factors, not relying on the model outcomes that predict fish population response. This approach takes advantage of the technical basis for EDT/QHA and avoids the potential pitfalls associated with complex model assumptions and predictions.

The EDT/QHA ratings provide information on aquatic and riparian limiting factors, but the outputs do not always align with the OWEB limiting factors list. As a result, the project team has developed a framework and criteria for translating the reach-scale EDT results into the OWEB-defined limiting factors at the watershed scale.

Two examples of how the EDT attributes provide information on limiting factors:

- The EDT attribute (Level 2 Attribute) "Confinement – Hydromodifications" is a reasonable approximation for the OWEB limiting factor, *Floodplain Connection*.
- The EDT attribute (Level 2 Attribute) "Riparian Function" reasonably translates into the OWEB limiting factor, *Riparian Habitat Fragmentation / Connectivity*.

In cases where there are no EDT/QHA model results, or the model attributes do not directly translate over to limiting factors, the limiting factors ratings are determined based upon information contained in the subbasin plans, watershed assessments, and other local assessments. Limiting factors ratings for terrestrial habitats are based on wildlife evaluations from the subbasin plans, ODFW's Conservation Strategy, and other documents.

For all of the limiting factors we are documenting the source of information and the degree of confidence in the rating based on the quality of the information. This process provides the ability to adjust the ratings as new information becomes available.

Three examples from the Hood-Fifteen Mile Subbasin of completed limiting factors ratings, rational, and documentation:

Hood River Subbasin, Fifteenmile Creek 5th-field HUC

Limiting Factor: Riparian – Altered Habitat Structure

Rating: High Impact.

Rating Confidence: Low.

Rational: EDT Riparian Function (75th percentile of 3.8, High) indicates a degraded riparian function. Fifteenmile Creek had a low percentage of riparian vegetation meeting expected vegetation composition, 49% (Watershed Assessment, page 42).

Source: Fifteenmile Subbasin Plan, 2004.

Hood River Subbasin, Middle Columbia River – Eagle Creek 5th-field HUC

Limiting Factor: Aquatic – Habitat Complexity

Rating: Moderate Impact.

Rating Confidence: High.

Rational: Impacts confined to the lower watershed. The upper watershed is primarily wilderness and not significantly impacted. "Pool habitat and large woody debris in lower stream reaches do not meet the aquatic habitat standards in the Mt. Hood National Forest Land and Resource Management Plan" (p. 104). The damming of the Columbia River inundated high quality anadromous fish habitat in the lower stream reaches (p. 107).

Source: Hood River Subbasin Plan, 2004.

Hood River Subbasin, Fifteenmile Creek 5th-field HUC

Limiting Factor: Terrestrial/Upland – Altered Disturbance Regime

Rating: High Impact.

Rating Confidence: Low.

Rational: Subbasin Plan, page 75 - 89, describes increase in fire frequency in the cheatgrass dominated sites, conversion of interior grasslands to forested habitats due to fire suppression, and decrease in openings due to fire suppression. Because the assessment is at the ecoregion scale and not specific to the watershed, the confidence is rated low.

Source: Fifteenmile Subbasin Plan, 2004.