

February 18, 2020

CMER request

From: RSAG

Subject: Narrowing the scope of the Riparian Characteristics and Shade (RCS) Study to Alternative 1 in response to TFW Policy request (Policy meeting notes, January 2020).

Background: At the January 2020 TFW Policy meeting in response to the CMER update, the committee discussed options for assisting CMER in resolving remaining issues that are preventing the RCS study design from being sent to ISPR. TFW Policy Co-Chair Curt Veldhuisen stated that “having CMER vet RCS study designs would provide an opportunity to resolve some of the design and implementation problems without them going through ISPR.” In response, Policy approved a motion to “Have CMER send Policy alternate study designs prior to it being sent to ISPR; motion made by Jim Peter, seconded by Steve Barnowe-Meyer.” CMER directed RSAG to work on the study design at their January meeting.

At their February 13, 2020 meeting, RSAG discussed options for resolving the remaining technical issues with the RCS study design prior to sending to ISPR consistent with TFW Policy’s request. After thoroughly vetting both RCS Alternatives, RSAG determined that it was no longer feasible to pursue both Alternatives (1 and 2 below) based on the high cost and limited utility of Alternative 2 (see RSAG issues below). As a result, RSAG recommends that CMER / Policy continue to focus on resolving the remaining technical issues (e.g. study unit criteria, operational feasibility, forest types, and cost) of the study design focusing on Alternative 1.

RSAG requests that CMER approve this new approach and forward to Policy for their approval. Pending policy approval, RSAG will revise Alternative 1 to resolve technical issues, operational feasibility, and cost effectiveness consistent with best available science. The revised proposal will be submitted for CMER and Policy approval prior to sending to ISPR.

RSAG identified several issues regarding Alternative 2 (Alt-2)

1. RSAG recognized there is no pending need to have the Shade.xls model revised as intended by Alt-2 because the results from Alt-1 will provide the data necessary to determine relationships between stream shade and common forest-stand metrics as described in the Alt-1 study design. Furthermore, Dept. of Ecology had not requested or indicated any reason to have the Shade.xls model revised.
2. Because Alt-2 requires detailed measurement of solar radiation (over stream and within RMZ) during a specific time window (late Jul-early Aug) at multiple sites, the data collection is labor intensive. Further, given sampling multiple study sites on both the west and eastside of the state, the implementation schedule would require two summers and careful coordination of measurements/treatments with landowners. Consequently, RSAG questioned the feasibility of successfully implementing the complex suite of tasks.

3. Given issues 1 and 2, RSAG believes Alt-2 would have limited benefit for the cost (initial proposal, \$1,051,000) compared to the cost for Alt-1 (initial proposal \$545,000). Also, pending study design options that are currently being evaluated, the costs for Alt-1 and Alt-2 may increase to \$866,000 and \$1,276,000, respectively.

### Alternatives 1 and 2

Two alternative approaches identified in the Draft Scoping Document (Hicks 2018) are addressed below.

- Alternative 1: Use a well-controlled and replicated field study to firmly establish relationships between stream shade and the use of no-cut buffers of widths, common to the rules, applied both alone and in combination with adjacent stand-thinning harvests of varying intensity. This alternative would actively harvest experimental plots established in existing un-thinned RMZs to specific target conditions. The plots would be established in experimental blocks representing distinct forest types across the state. Shade.xls model refinement is not a focus of this alternative, however, the data from this alternative could be used to identify whether the Shade.xls model has a pattern of bias associated with different stand types, provide more accurate data on stand metrics to use in the model, and provide estimated stand specific shade values and energy extinction coefficients that could be used by modelers to create an updated model.
- Alternative 2: This alternative would use the same field study design as Alternative 1, but would include more direct measurements of canopy density and light extinction along with a broader range of descriptive stand metrics that affect canopy density throughout a solar path over a single day. In addition to providing the same empirical results as Alternative 1, this study would be designed to: a) examine a greater range of stand characteristics that may correlate with stream shade, and b) include making refinements to Shade.xls that enhance its ability to estimate shade response to prescription scenarios across a range of forest types in Washington.

The Draft Scoping Document continues, explaining the intended difference between the two alternatives:

Alternative 2 would include all of the field metrics in Alternative 1 plus examine vertical layering, and directly measure effects on radiant energy over the course of the day. This added information would be used to support a more extensive analyses designed to identify and make refinements to Shade.xls. It would also enhance our ability to classify treatment responses on light attenuation based on differences in crown shape and understory vegetation. Statistical models would be explored to help identify which stand characteristics can be used to effectively predict stream shading. In addition, the model would be run in an exploratory fashion to examine the effect of using different measures of canopy density (with extinction-on and off) and to assess the best approach for accounting for overhanging branches on stream shade. If stand type or other stand characteristics are found to predict riparian extinction coefficients, recommendations for model refinement would be made.