



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10
1200 Sixth Avenue
Seattle, WA 98101

OCT 12 2001



Reply To
Attn Of: OW-134

David Mabe, Administrator
State Water Quality Programs
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1253

Re: Approach for developing temperature Total Maximum Daily Loads (TMDL) for Idaho waterbodies on 303(d) List

Dear Mr. Mabe:

Two recent TMDL temperature submittals from Idaho Department of Environmental Quality (IDEQ) involved the use of an approach called the Cumulative Watershed Effects (CWE) method. The TMDLs in which this method was used are the Upper North Fork Clearwater and the Crooked Creek, Main Salmon-Chamberlain. While IDEQ has developed temperature TMDLs in the past, this is the first time the CWE approach has been used to develop temperature TMDLs. CWE is also being proposed for use on forested lands in the South Fork Clearwater TMDL. EPA evaluated the CWE approach and discussed it with your staff. The purpose of this letter is to provide you with a summary of our evaluation and conclusions.

It is our understanding that IDEQ proposes to apply CWE to predict how much shade is sufficient at any given elevation to meet the state's water quality standards and then use these results as TMDL targets. After careful evaluation of the CWE method, it is our conclusion that results generated by the CWE nomographs do not provide an accurate or precise means to predict stream temperature response. We concluded that using CWE results as TMDL shade targets may result in a prediction that underestimates the level of shade needed. This could then result in on the ground reductions in shade below levels that are currently present, particularly at higher elevations in the watershed. This is because CWE, like many models, is not a precise or accurate tool for predicting stream temperature response. The data on which it relies to calculate predictions of shade is very limited and the assumptions of the approach only address two of the many variables that affect stream temperature.

The state of Idaho and other states in EPA Region 10 have used a variety of methods to develop temperature TMDLs, each of which have their strengths and weaknesses. How the outputs of those methods are expressed and utilized needs to take into account those strengths and weaknesses. In the case of CWE, we believe it can be a useful screening tool whose output can help land managers to prioritize areas for shade enhancement and streamside restoration. We do not believe however, that it is a robust enough tool to predict specific stream temperature response, nor whether water quality standards will be achieved.

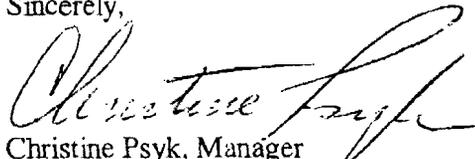
Recognizing that we should not stop the work to develop temperature TMDLs in order to wait for a perfect tool with which to do so, EPA recommends that if IDEQ uses CWE to develop temperature TMDLs that it adopt sideboards to shore up the limitations in the method. EPA's recommended sideboards are as follows:

- If current shade is less than what CWE predicts is necessary to achieve the state's water quality standards, it would be acceptable to use CWE results as the interim TMDL target. While CWE results may not assure achievement of water quality standards, to the extent they call for greater canopy closure and more shade they should drive land managers to improve riparian conditions in impaired watersheds.
- However, if current shade levels are greater than or equal to CWE predicted targets, then the TMDL target should be set at current shade levels. This would account for the uncertainties and imprecision in the CWE analysis and prevent further degradation in an impaired system. This would ensure that CWE derived predictions would not drive or justify reduction of shade below current levels in impaired waterbodies.

These sideboards would allow us to move forward with temperature TMDLs in Idaho that rely on CWE. We do see this as an interim solution to be used between now and when a more robust approach is developed. Recognizing that this will take time, we believe that the sideboards identified above along with expressed commitments in the TMDLs to rely on temperature monitoring and adaptive management in implementation of the TMDL would provide a basis to proceed with temperature TMDLs that are on the Idaho TMDL Schedule. We also recommend that these temperature TMDLs provide discussions about the other variables that affect temperature as part of the watershed assessment. This would include discussions about channel effects, specific desired buffer density, height, width, and other relevant variables critical to understanding and effectively managing for healthy riparian condition.

We would be happy to meet with you and your staff to go over in greater detail our evaluation of CWE and our conclusions. I can be reached at (206) 553-1906.

Sincerely,



Christine Psyk, Manager
Watershed Restoration Unit

cc: Randy Smith, EPA
Mike McIntyre, IDEQ
Marti Bridges, IDEQ
Jim Bellatty, IDEQ