

By

Jere Christner<sup>1/</sup> and Michael Belair<sup>2/</sup>The Need For a Prediction Method

The Willamette National Forest has approximately 6,000 miles of Forest road and hundreds of bridges and culverts which can be subject to damage from storms and flooding. The Willamette National Forest has a program of preventing excessive damage through the use of preventive maintenance. During storm periods there is road surveillance and action to keep bridges and culverts functioning. This Flood Prediction method improves our ability to determine when action should be taken and the degree of the threat so that we can safely and effectively use our people and resources.

What Was Done

Information from previous storms and floods was assembled. Newspaper accounts back to the early 1900's were checked. Data on precipitation, streamflows, and the presence or absence of snow were summarized. Data were analyzed through the use of graphical and statistical techniques to develop models which use streamflow, precipitation, and other factors to make storm and flood predictions.

How the Predictions Are Used

During the winter storm season, information is collected and assembled on a daily basis for use in the prediction models. Information on predicted precipitation amounts is transmitted to field units regularly, regardless of storm or flood threat. During periods of more intense precipitation or conditions that could produce flooding or other damage, additional data on streamflow, freezing level, and snow are evaluated to judge how critical conditions are becoming. An example of a graphical method is shown on the reverse of this sheet.

Further Refinement

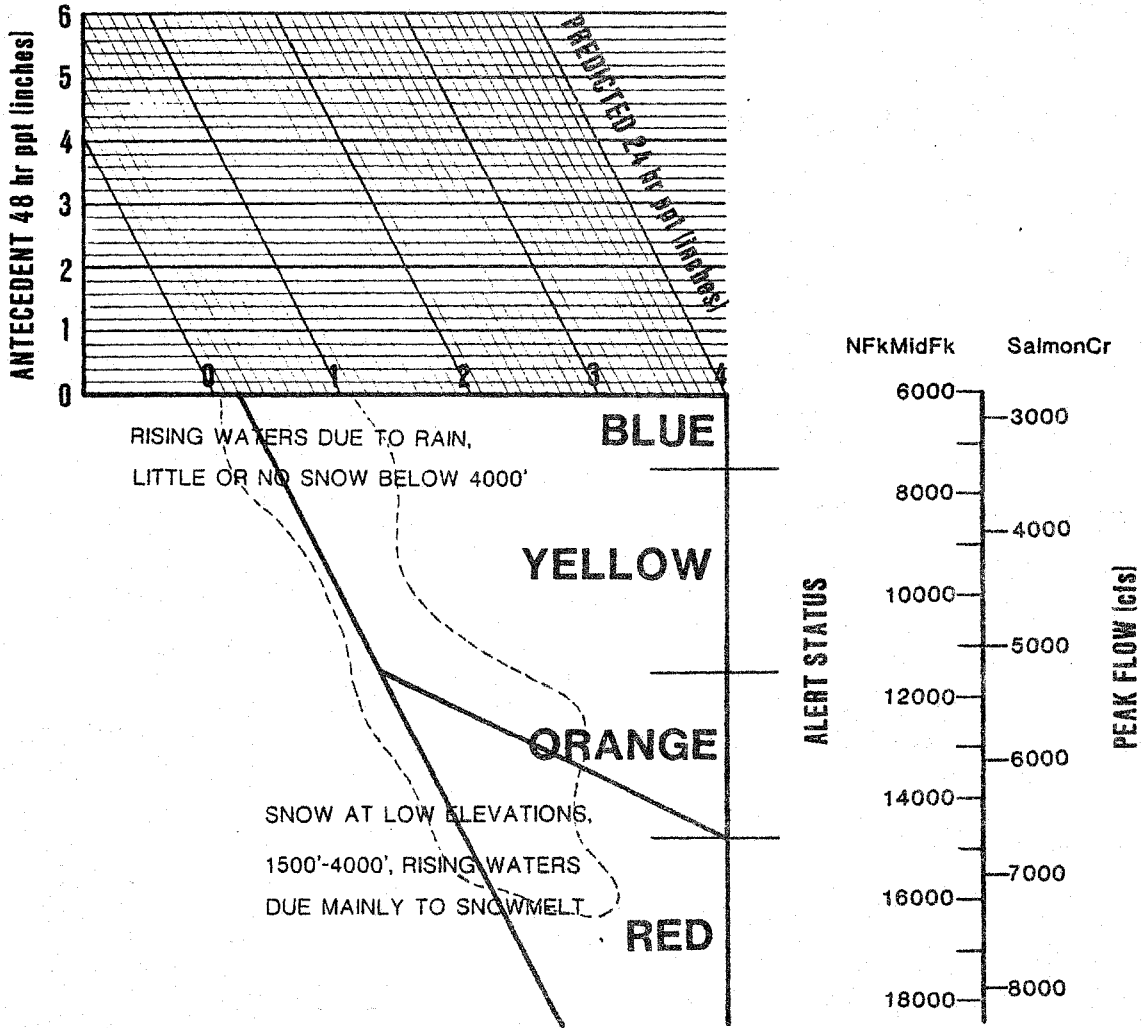
After developing the models and using the flood prediction methods, it became obvious that one of the weaker links in the prediction is the aspect of snow. On the west side of the Cascades in central Oregon, high amounts of soil water input and runoff often result from periods of snowmelt during rainfall. With the availability of SNOTEL, eventually there will be a data base sufficient to improve our predictions.

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**USE THIS GRAPH IF TODAY'S FLOW ON  
NFK MID FK IS 5000-7000 cfs  
(SALMON CR 2300-3200 cfs)**



Example of graphical method of flood prediction.