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## 10-Year Floodplain Mapping Project

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In late 2006, the Snoqualmie Watershed Forum elected to use a portion of year-end funds for an analysis of flooding depths in the lower Snoqualmie River during an estimated 10-year recurrence flood event. The work was performed by Northwest Hydraulic Consultants in conjunction with other floodplain mapping that they had undertaken as part of the Flood Insurance Study for FEMA. The work product is a set of files for use in Geographic Information Systems (GIS) software that depicts the extent and depth of the 10-year floodplain from the County Line upstream to Snoqualmie Falls.

### **How did they compute flooding depths?**

Two data ‘layers’ were created: The first describes the ‘dry’ surface topography of the valley, including the bed elevation of the river channel itself and the surrounding floodplain. The second layer describes the water surface elevation during a 10-year event, as computed from the hydraulic model developed for the FEMA study. To turn these two data layers into a ‘map’ of depth, one was subtracted from the other. That is, the elevation of the ground subtracted from the elevation of the water gives us the depth. This was calculated for grid cells measuring 15 ft. by 15 ft. throughout the valley.

### **What do the colors on the map mean?**

The gradation of blue colors represents increasing depth during a 10-year flood event, with darker colors representing deeper water. The 100-yr floodplain is also shown in dark red. Where the red is visible on the map, the land should be ‘dry’ during a 10-year event.

### **How can we use this information?**

This information may have several types of applications. For example, these data can help to identify the topographic characteristics of floodplain areas for future restoration projects. Or, the information can be used to identify areas where structures, critter pads, or other resources are more likely to be at risk of inundation to a particular depth on a fairly regular basis.

### **Are there caveats we should be aware of regarding the results?**

First and foremost, the data represent a combination of other data from different modeling efforts. Any errors or limitations in those models will have been carried forward into this effort.

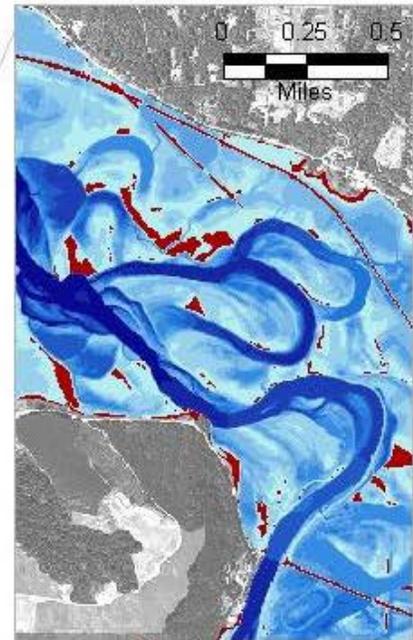
Second, as we all know, every flood in the Snoqualmie is different. The level of flooding in any particular location depends on a variety of conditions, including tides in Puget Sound, Skykomish River flow, air temperature, etc. To presume these data are accurate predictors of future flood depths in specific locations would be irresponsible.

Third, the analysis does not consider the ‘routing’ of water, only the elevation. In other words, levees and other features may affect the observed depth at a given location. This data simply represents the difference in the calculated elevation of flood waters and the ground surface.

# Lower Snoqualmie River 10-Year Flood Depth



Chinook Bend and Stillwater



## 100-yr Floodplain

 100-year Extent

## 10-yr Flood Depth

-  0-2.3 ft
-  2.3-4.3 ft
-  4.3-6.2 ft
-  6.2-8.1 ft
-  8.1-10 ft
-  10.0-11.9 ft
-  11.9-13.6 ft
-  13.6-15.4 ft
-  15.4-17.6 ft
-  17.6-20.8 ft



Carnation

Fall City

### Notes:

The 10-yr flood inundation depth has been mapped only for the lower Snoqualmie River, not for tributaries. In contrast, The 100-yr floodplain extent includes the floodplains of major tributaries.

Within the Snoqualmie mainstem only, those areas on the map where the 100-yr floodplain is visible (dark red) remain dry



Snoqualmie

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