Testimony of Phil Roni, Research Scientist/Watershed Program Manager, Northwest Fisheries Science Center, NOAA Fisheries, Seattle, Washington.

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Good afternoon, Chairman and Board Members. My name is Phil Roni. I'm a research scientist with the NOAA Northwest Fisheries Science Center where I lead (and have led for last 20 years) a group of 20 scientists working on freshwater habitat, forestry, land-use, and restoration issues as they relate to salmon and steelhead. I wanted to testify from a scientific perspective regarding the Riparian Rule as it pertains to water quality and fish, particularly salmon.

Specifically, I want to touch on three things: 1) buffer widths needed to protect temperature, 2) extent of those buffers with particular reference to fish-bearing and non-fish bearing streams, and 3) Protecting Cold Water (PCW) criterion.

First, in regards to riparian buffers needed to protect stream temperature, the proposal for 90 to 100 ft. no-cut buffers to protect stream temperature is well supported by past and current science. For many years, the science has suggested that buffers anywhere from one to two potential tree heights are needed on fish-bearing streams to protect a variety of stream functions. This is quite a large range (100 to 300 feet in some cases) and I was excited to see the results of the RipStream study, which is an extremely well-designed study, that focused specifically on buffers needed to protect stream temperatures and on PCW criterion. It is clear from the RipStream and other studies that a no-cut buffer of 90 to 100 feet is needed to protect shade and temperature (PCW). Moreover, the Oregon Department of Forestry has analyzed the data in many different ways and came up the same answer of 90 to 100 ft. no-cut buffers. This should also protect a variety of other functions (micro-climate, nutrients, etc.); even larger buffers may be needed to fully protect some other functions such as providing large wood to the stream.

Second, the science is clear that protection is needed for non-fish bearing perennial streams as well. Non-fish bearing streams make up the majority of stream miles in any watershed and are drivers of the productivity of the system. They transmit temperatures downstream. It should be noted that the science on how far downstream the temperature effects from non-fish bearing streams are transmitted is variable ranging anywhere from a few hundred meters to a kilometer. Regardless, non-fish bearing streams provide important sources of wood, sediment, nutrients and gravels to fish-bearing streams and are drivers of productivity of downstream fish habitat and a watershed. The stream network is similar to your circulatory system. It would be a mistake to only protect your arteries and ignore your capillaries or assume that anything injected into your arterioles or capillaries would have no effect on your body or wouldn't be transmitted to your major arteries. It is similar with non-fish bearing streams and fish bearing streams. They are interconnected. and interdependent and protecting both non-fish bearing and fish bearing streams is important.

The third and final area I want to comment on is the PCW criterion of 0.3° C. This is well based in science that changes larger than this can have significant impacts on salmonid fishes. This can be either directly by making streams inhospitable for salmon and trout, or indirectly by affecting growth, feeding and reproduction. For example, small changes in temperature can significantly impact fish metabolism and their ability to feed and grow or, similarly, make them more susceptible to disease. It should also be noted that many streams, particularly at lower elevations, are on the edge of the limits of suitability for salmon and trout (particularly bull trout but also coho and cutthroat) and even small changes can make these streams or stream reaches inhospitable for salmonids. Finally, stream temperatures in many areas are predicted to increase with climate change and further increases in temperature due to removal of trees is of great concern and could further reduce suitable habitat for listed (and unlisted) salmon and trout.

In summary, 1) the science supports no-cut buffers of 90 of 100 ft. for PCW criterion, 2) this should be applied to fish-bearing and non-fish bearing streams, and 3) the PCW criterion of 0.3° C is scientifically sound and should not be increased.

I want to thank the Board for the opportunity to testify and I'm happy to answer any questions.