



# Oregon

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Department of Fish and Wildlife

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**To:** The Honorable Jackie Dingfelder, Chair  
Senate Committee on Environment and Natural Resources



Testimony by  
Bruce McIntosh, Deputy Administrator, Fish Division  
Oregon Department of Fish and Wildlife  
Testimony on House Bill 2396A

The Oregon Department of Fish and Wildlife (department) offers the following comments on House Bill 2396.

House Bill 2396 adds large woody debris (large wood) to the definition of material for the purposes of removal-fill provisions. This means that the Department of State Lands (DSL) would have authority to regulate the removal of large wood from waters of the state. DSL currently regulates the placement but not removal of large wood. Large wood in stream, river, wetland, lake and estuarine systems is very important for fish and wildlife habitat. Research has shown that large wood is a vital and naturally occurring component of healthy stream ecosystems. Oregon's native fish species evolved with stream and estuarine systems that contained significant amounts of large wood. Ecological benefits of large wood include fish habitat, stream channel and streambank stability, and biological diversity.

For the past 25 years Oregon has lead the region in restoring large wood to rivers. This strategy is central to the Oregon Plan for Salmon and Watersheds. Many state agencies and land use partners, most notably the timber industry, have invested millions of dollars adding large wood to river systems. For example, from 2002 to 2012 the department's Western Oregon Stream Restoration Program (WOSRP) implemented 517 instream projects covering over 561 miles. Adding structural elements (consisting of large logs) to streams reduces water velocities and encourages deposition of coarse bed load. The result has been the creation of mainstem pools and riffles and winter refuge habitat for fish. These projects dramatically increased mainstem and off-channel habitat for at-risk species including Chinook and coho salmon, winter steelhead, cutthroat trout, western pond turtles, red-legged frogs, and Pacific lamprey.

Large wood that falls completely across a stream causes water to be slightly impounded resulting in the formation of an upstream pool and a downstream plunge pool as water flows under and over the wood. Pools are deeper water habitats that provide critical hiding and resting areas for fish and are especially important fish habitats during periods of low streamflow. Water flowing over and under large wood during high flow events can result in



localized scour pockets or holes, providing excellent cover habitats for fish. Large wood can also create velocity shelters for fish, especially behind large rootwads. Fish often rest within these velocity shelters, where water velocities are slower. In large streams and rivers, large wood can trap and accumulate smaller wood, branches, leaves and other organic materials that add to the complexity and diversity of instream fish habitats.

The retention of sediment and the formation of pools associated with large wood allow the stream to dissipate energy to reduce erosion both up stream and down stream. Large wood in low gradient, meandering and sandy streambed systems serves a critical function in controlling the grade of the stream channel by holding back or stabilizing the movement of these fine streambed materials. Conversely, large wood can also facilitate the transport of fine sediments where wood accumulation narrows a stream channel thereby increasing water velocities. In these situations, large wood assists with flood management by ensuring that the streambed elevation does not increase. In addition, large wood that has accumulated along streambanks can often absorb and redirect the highly erosive forces of large stream flow events protecting streambanks from erosion. Research has documented many examples where large wood was removed from entire river sections, resulting in major erosion of the stream channel, streambanks and ultimately degradation of instream fish habitats.

Microscopic algae, called periphyton, can attach to large wood and provide food for aquatic insects and other invertebrates, which also colonize and attach themselves to large wood. In addition, large wood tends to trap and collect other organic materials such as leaves providing a food source for many aquatic insects, which shred and consume leaf materials. These same aquatic insects comprise a major component within fish diets. In a very real sense, large wood effectively creates a "mini-ecosystem" which significantly adds to a stream's biological diversity and health.

Following flood events such as the 1996 flood, there is significant recruitment of large wood into waters of the state. To date, removal of this material has not been regulated by the state. The department supports movement of large wood when there is compelling evidence that it is causing flooding of private/public infrastructure, significant streambank erosion, or is a navigational hazard. Otherwise, large wood is a very valuable resource that provides a wide variety of benefits to Oregon's aquatic ecosystems if left in rivers and streams.

The department appreciates the opportunity to provide the Committee with these comments.

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