

Devils Tree Drop  
Pre and Post Project Habitat Attributes  
Devils Lake Fork of the Wilson River  
Fish Habitat Restoration Project

July 1998-May 2000

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## **Introduction**

During the summer of 1999 helicopters were used to place 179 whole trees at 34 sites in the Devils Lake Fork of the Wilson River. This project was a cooperative effort by the Oregon Department of Forestry (ODF) and The Oregon Department of Fish and Wildlife (ODFW) to improve fish habitat for coho salmon (*Oncorhynchus kisutch*) on lands managed by ODF. Funding for this project was provided by a grant from the US Fish and Wildlife Service (USFWS) Jobs in the Woods program. The trees were uprooted from along nearby roads by an ODF excavator, and placed by helicopter in groups of from three to eight trees per site.

## **Methods**

This stream was selected by the ODFW Western Oregon Stream Project as one of ten streams to be monitored for changes in the physical aquatic habitat. Approximately 500m of stream was surveyed four times using the ODFW aquatic inventory method, Moore et al. (1997) collecting a variety of data on habitat attributes (table 1). A winter habitat survey was completed prior to implementing the project with a summer survey conducted immediately after the project completion. Winter and summer surveys were repeated in the year following the completion of the project.

## **Results**

Following the placement of these trees several habitat attributes important for the freshwater survival of coho salmon increased (table 1). These include the total amount of large woody debris, percent of total pool area, and percent of secondary channel area.

## **Discussion**

The number of pieces of wood showed a fourfold increase while the volume more than tripled, following the project completion. (Note: Because the first summer pre-project survey was not completed until shortly after the project was implemented, the placed pieces of wood were mistakenly counted. The winter 1999 data more closely describes the amount of pre-project wood). The data would suggest that the amount of wood decreased from the first summer survey. This is probably due to the deepening of the pools, which obscured several of the pieces. Comparison of plan view drawings made shortly after the project to current conditions (December 2000) show little movement of wood, and no loss of wood from the project area.

The number of key wood pieces showed almost no increase in numbers This is due to the survey protocol which measures the diameter at the middle of the piece. Because these were whole trees up to 90 feet long, these measurements were taken above where the trunk had begun to significantly taper, and did not meet the diameter requirements (.5m)

The percent of total pool area increased, with the summer area more than doubling. During recent site visits it was observed that beavers have constructed dams on several of

the jams, resulting in a further increase in pool depth and area. The percent of secondary channel area quadrupled.

Table 1. Habitat attributes for the Devils Lake Fork Wilson River segment.

	Pre- Treatment Winter 1999	Pre- Treatment Summer 1999	Post - Treatment Winter 2000	Post - Treatment Summer 2000
Active Channel Width	6	9	9	9
Primary Channel Length	470	430	523	471
Channel Area	3078	2683	4180	3399
% Secondary Channel Area	1	5	7	4
% Pool Area	47	26	62	56
% Dammed Pool Area	1	2	26	1
Deep Pools / km	10	2	8	5
% Riffle Fines	32	26	19	16
% Riffle Gravel	21	15	32	9
% Total Fines	28	38	51	25
% Total Gravel	17	10	20	11
Wood Piece / 100 m	3	16	9	13
Wood Volume / 100 m	6	28	32	20
Key Wood Pieces / 100 m	0	1	.4	0
Wood Jams / km	---	7.0	1.9	10.6

## References

Moore, K. M. S., K. K. Jones, and J. M. Dambacher. 1997. Methods for stream habitat surveys. Oregon Dept. of Fish and Wildlife information report 97-4. 40 pp