

Hi Pierre,

Hope all is well with you and your family. We're fine...I sure do miss Fort Collins.

Here's an opportunity for a CIVE 413 student...

Cheers,  
Brian

----- Original Message -----

Subject: Summer research position for undergraduate in river engineering

Date: Thu, 24 Apr 2008 13:10:57 -0700

From: Desiree Tullos <[tullosd@enr.orst.edu](mailto:tullosd@enr.orst.edu)>

Organization: Biological and Ecological Engineering - Oregon State University

To: Greg Jennings <[jennings@ncsu.edu](mailto:jennings@ncsu.edu)>, "Wyrick, Joshua Richard" <[Wyrick@rowan.edu](mailto:Wyrick@rowan.edu)>, Andy Ward <[ward.2@osu.edu](mailto:ward.2@osu.edu)>, "Stanley W. Trimble" <[trimble@geog.ucla.edu](mailto:trimble@geog.ucla.edu)>, [bbledsoe@enr.colostate.edu](mailto:bbledsoe@enr.colostate.edu), "Hession, W. Cully" <[chession@vt.edu](mailto:chession@vt.edu)>, Jack Schmidt <[jschmidt@cc.usu.edu](mailto:jschmidt@cc.usu.edu)>

Hi guys,

Do you know any good undergraduate or masters students who would be interested in coming out to Oregon Cascades for 10 weeks to work on a wood restoration study? I am copying a short summary of the project below. The student will be working with an ecology and a math student in an interdisciplinary team, spending substantial time doing surveys in foothill streams, and working independently to understand hydraulics of wood structures.

I can pay airfare up to \$500, lodging, and a \$3500 stipend. I'm particularly interested in engineering students with interests in rivers.

If you have any suggestions, could you please ask them to contact me?

Thanks,  
Desiree

Retention by and fish use of wood habitat structures over time;  
Structural controls and disturbance on ecosystem stability

\*/Background: /\*Following decades of removing wood from streams to increase drainage and reduce flooding, many habitat restoration projects in the Pacific Northwest are now returning large wood to streams in an effort to recreate channel complexity, store sediment and organic materials, and establish cover habitats for Pacific salmon

(*Oncorhynchus*/ spp.).

However, long-term studies of the structures are rare and thus questions remain regarding how and why the structures work.

One fundamental question asks whether they effective at restoring habitat building processes under natural disturbance regimes? That is, how does flooding affect the structures and channel's ability to retain wood, sediment, organic matter, water? And how do the structures, channel features (e.g. depth/area of pools, volume of stored sediment), and retention processes change over time following floods?

A second question asks under what channel conditions (e.g. confined vs. unconfined, distance to other structures, deep or shallow pools) are salmon most likely to use the structures? Determining why salmon use some structures and not others could help to increase the design and efficacy of wood placement.

*\*/Study Sites: /\**Quartz Creek in the Blue River Basin, near HJ Andrews Experimental Forest. Wood structures were installed in 1988 and all field data (fish, wood, channel units, leaf retention, dye tracers) was collected for years 1988-1992, and again after the 1996 flood. Every year, channel units and wood surveys are performed.

*\*/Study Plan:/\**

*\*Field study:/\** To be performed by one ecology and one geomorphology/engineering student - Electrofishing surveys, x-section surveys, dye (rhotamine) and leaf releases, wood (diameter, length, orientation), channel units. Analysis of data will evaluate links between presence of fish and the characteristics of and retention capacity for each structure.

**\*Mathematical Modeling\***: Will be used to address the larger question of how the structures help establish natural retention processes in the channel over time. A math student will use the existing literature and Quartz Creek dataset to develop a mechanistic model of organic and inorganic retention capacity of the structures over time and with disturbance.

--

Desiree D. Tullos  
Biological and Ecological Engineering  
Oregon State University  
541.737.2038  
<http://rivers.bee.oregonstate.edu/index.html>

--

~~~~~  
Brian P. Bledsoe, Ph.D., P.E.  
Department of Civil and Environmental Engineering  
Colorado State University  
Campus Delivery 1320  
Fort Collins, CO 80523-1320  
voice: 970.491.8410  
fax: 970.491.8671  
[brian.bledsoe@colostate.edu](mailto:brian.bledsoe@colostate.edu)  
<http://www.engr.colostate.edu/~bbledsoe>