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Monday, Nov. 9
1:30 PM – 3:00 PM
SESSION 7: Endangered Species Act

Classification of Physical Habitat for Pacific Salmon in the Umatilla River Watershed - Scott O'Daniel, CTUIR, Pendleton, OR (co-authors: James Webster, Eric Hoverson)

Currently, significant efforts are aimed at improving freshwater habitats that Pacific Salmon require for spawning and rearing. Rivers in the Middle Columbia and Blue Mountains of Southeast Washington and Northeast Oregon exhibit some of the most diverse habitats for Pacific Salmon in the Columbia River Basin. In order to inform fisheries managers, we quantify the range of geologic, hydrologic, geomorphic and landuse influences on channel morphology across the Umatilla River watershed (6000 km^2) in Northeast Oregon. We calculated several DEM derived measures (channel slope, SD channel slope, sinuosity, floodplain width, valley slope, wavelength of the channel belt, ratio of channel segment length to floodplain width) to produce both standard and statistically derived stream classifications. To estimate bed grain size, we used morphologic measurements from 10 meter DEMs and the Shields equation (Buffington et al. 2004). The Umatilla River is characterized by a long, low gradient, mainstem profiles with relatively steep tributaries. The distribution of channel morphologies has a strong spatial threshold, with slope and valley width controlling higher stream orders. Widely available spatial datasets allow one to apply models over large areas to produce standard, comparable stream habitat assessments.

First Priority Implementation Strategies for Sediment Control in Ecologically Valuable Salmonid Watersheds - Todd Kraemer, Pacific Watershed Associates, Arcata, CA (co-author: William Weaver)

Historically, the restoration and protection of biologically important salmonid watersheds has been undertaken in a piecemeal and marginally effective fashion. Flawed strategies or modes of “restoration” are not likely to provide timely, effective biological protection. During this period of limited funding, we believe most salmonid recovery strategies will fail to protect and recover the species or their habitat because the pace of implementation is too slow. As a remedy, we propose an aggressive, watershed-wide initial treatment strategy for road systems that emphasizes the cost-effective treatment of chronic road surface sediment and high priority episodic failure sites. Watershed scientists have identified excess sediment delivery to stream channels from roads as one of the most significant and controllable factors affecting salmonid habitat. Roadbeds are a primary source of anthropogenic fine sediment delivery to streams during normal water years and often produce large volumes of eroded sediment during infrequent, large magnitude storm events. Experience has shown that employing full road upgrading treatments to prevent episodic road and stream crossing failures is effective but very expensive. This analysis suggests we employ a highly effective but less costly interim treatment strategy aimed at providing immediate widespread habitat protection using cost-effective treatments for both chronic and episodic sediment sources. This “first priority implementation strategy” for roads focuses on eliminating barriers to salmonid migration, greatly reducing chronic fine sediment delivery and employing highly cost-effective treatments to prevent episodic failures. Where roads are hydrologically connected to streams, an aggressive program to disperse road runoff will greatly reduce fine sediment discharge. Likewise, widespread construction of inexpensive critical dips will prevent stream diversions that cause significant gullying and catastrophic hillslope landslides. Rather than immediately replacing and upgrading all undersized stream crossing culverts, overflow culverts can be installed to temporarily avert overtopping and wash-outs. Similarly, trash barriers and flared inlets can be selectively installed to protect the most vulnerable stream crossings until the preferred long term culvert upgrade can be applied. By immediately focusing on implementing these basin-wide restoration treatments, rather than waiting for sufficient funding for costly stream crossing upgrades, key watersheds can be cost-effectively protected in a short period.

Restoring California's Second Largest River: Using a Shared Vision Process to Develop a New River's Hydrology - Jeffrey Payne, MWH, Sacramento, CA (co-authors: Josh Yang, Dave Mooney)

The San Joaquin River is a prominent and important feature of California's Central Valley. Historically, spring runoff from Sierra streams would spread over a valley floor covered by marshes and seasonal wetlands. In 1942, Reclamation completed construction of Friant Dam, ceasing flow to 150 miles of the river and ultimately extirpating salmon runs in the San Joaquin. In 1988, a coalition of environmental groups challenged renewal of long-term water service contracts to the CVP Friant Division contractors. In 2006, after more than 18 years of litigation, all litigants signed onto a Stipulation of Settlement. The Settlement seeks to restore fish populations in the mainstem San Joaquin River, and relies largely upon annual allocations and flow schedules specified within the Settlement to do so. Six hydrologic 'year type' classifications and flow schedules were defined to provide an initial set of flow schedules. To hedge against several uncertainties (e.g. the timing salmon migration), the Settlement identified provisions for adjusting these flow schedules in response to monitoring information. The provisions include flexible flow periods, wherein pulse volumes may be reshaped and/or shifted up to 4-weeks. Not all aspects of flow schedule implementation could be resolved at the time of Settlement. The details of implementation, including a 'continuous-line' annual allocation method and rules for flexible flow implementation were deferred – with a requirement of agreement by 2008. Agreement was not straight-forward. Uncertainties in the hydrologic forecasts used to set allocations, unpredictable ecological factors (the San Joaquin salmon fishery was extirpated seventy years ago), and the manner in which real-time adjustments impact Friant Division contract deliveries all needed to be better understood in advance of any agreement. A series of workshops was held to help overcome technical hurdles in coming to agreement. The workshops focused on a customized model and interface designed to provide transparency and clarity on difficult concepts. The process was a success; allowing the Settling Parties to become comfortable with the combined ranges of annual allocation and flexible operations. As a result, the agreement was made on-time and progress continued on the subsequent SJRRP permit applications and environmental compliance documentation.

Planning to Implementation: Institutionalizing Watershed Protection and Salmon Recovery from Regional Forums to Local Action - Sandra Kilroy, King County Water and Land Resources, Seattle, WA

In 1999 Chinook Salmon were listed as threatened under the Endangered Species Act. Two years later over 40 local governments in King County agreed to jointly cost-share the development of a salmon recovery strategy. Today those partnerships continue to guide the recovery of salmon in central Puget Sound in a grassroots and collaborative way. As a regional service provider to inter-local watershed forums and as a local government responsible for its share of project implementation, King County has grown in its capacity to support and implement salmon recovery projects. Through collaborative processes, a balance of local and regional focus, and an orientation towards results, King County has succeeded in institutionalizing salmon recovery as a critical pathway for overall watershed restoration. This presentation will cover: • The smart business of Inter-local Watershed Forums as a regional tool for engagement, leadership support, planning, and funding • Local government decisions and tools for prioritizing and funding salmon recovery projects • The organization of staff and services for effective project identification, design, and delivery • The art and science of partnerships, the importance of working together to get things done.