

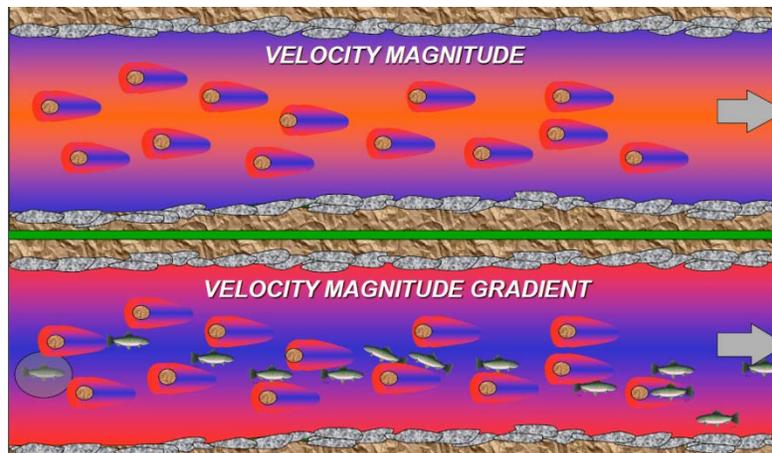
Delta Science Program and Ecosystem Restoration Program Joint Brown Bag Series Presents

The River Machine: Conceptual Model Integrating Fish Movement and Habitat, Fluvial Geomorphology, Fluid Dynamics, and Biogeochemical Cycling

John M. Nestler, Ph.D.
Retired, USACE Engineer Research and Development Center, MS

Tuesday, October 30, 2012, 12:00 – 1:00 p.m.

**Location: Park Tower Building, 980 Ninth Street
2nd Floor Conference Center, Sacramento CA 95814**



The changes that occur in many large floodplain rivers are influenced, and at times controlled, by flood pulses that form and reform river channels. Flood pulses also contribute to the immense abundance and diversity of river life by transporting nutrients and organic matter into backwaters in spring, supporting primary and secondary production during the summer, and redistributing these products to channels as water levels recede. This presentation will explore a new conceptual framework for large river restoration that links physical and chemical processes of large floodplain rivers to important life stages of fish and other plant and animal species. The framework uses two hydraulic variables: magnitudes of velocity and the spatial velocity gradient, to explain fish “hydro-navigation”, and to partially explain patterns in biogeochemistry and stream action in large river systems.

Two examples will be presented where the conceptual framework was tested using movement data from tagged shovel-nosed sturgeon. The researchers believe the framework is an important element of large river restoration because it directly links the unique physical and chemical processes of large floodplain rivers to life stage requirements important to fish and other species.

For questions, contact Martina Koller at (916) 445 – 5838 or martina.koller@deltacouncil.ca.gov