

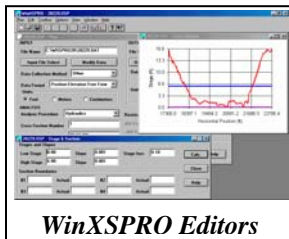
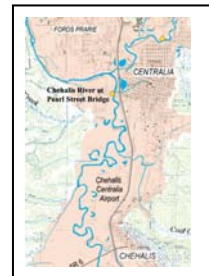


Technical Assistance, Review, and Development for Numerical Simulation Models

WEST Consultants, Inc. provides services for numerical simulation modeling throughout the United States and abroad. As part of these services, we supply technical assistance, review, and support for a wide range of numerical simulation models including: HEC-RAS, HEC-HMS, HEC-1, HEC-2, HEC-6, UNET, MIKE11, FLO2D, MODFLOW, HEC-ResSim, CE-QUAL-W2, EFDC, and link-node models. We have performed Beta testing with the U.S. Army Corps of Engineers Hydrologic Engineering Center (HEC) for both their RAS and HMS models. WEST can also develop or modify existing software to meet a client's needs. Prior projects include incorporating UNET into MODFLOW to create a coupled surfacewater-groundwater model, developing WinXSPRO for analyzing channel cross-section data in an interactive, user-friendly environment, and modifying HEC-2 to perform pier and contraction scour calculations. The RIPRAP Design System, the latest software developed by WEST, provides guidance on sizing riprap for bank and bottom protection from scour.

Chehalis Basin Flood Damage Reduction Study Independent Technical Review of the Existing Conditions Hydrology and Hydraulic Model.

WEST was contracted by the Corps of Engineers Seattle District to conduct an extensive Independent Technical Review (ITR) of the existing conditions hydrology and hydraulic model for the Chehalis Basin. The technical review considered data input, modeling techniques, model calibration, verification of model results, and technical documentation. Results of the technical review were provided to the Corps. A back-check was also conducted by WEST Consultants to ensure that the review comments were properly addressed. Contact: Wayne Wagner, (206) 764-3542.



WinXSPRO Editors

Development of WinXSPRO Software for the USDA Forest Service Stream Systems Technology Center.

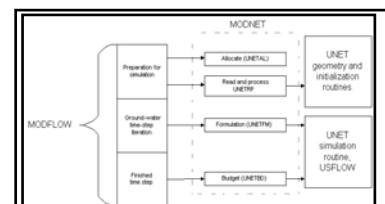
WEST developed the program based on the original XSPRO version produced by the Bureau of Land Management. WinXSPRO analyzes channel cross-section data in an interactive, user-friendly environment. The program is run in Microsoft® Windows™ with easy-to-read input and output screens and many other features common to other Windows™ programs. Contact: Larry Schmidt, (970) 295-5984.

MIKE SHE/MIKE11 Development and Application for South Florida Water Management District.

WEST reviewed the model development of a coupled surfacewater/groundwater program that utilizes the two Danish Hydraulic Institute (DHI) Models, MIKE SHE and MIKE11. Our review included the addition of new processes to describe infiltration and ET, and ensuring consistency with the District's methods. As part of the study, WEST developed a program to translate MODFLOW groundwater model data sets into a form compatible with the graphical interface and input data structure used to develop the groundwater model component of MIKE SHE. Contact: Jason Yan (561) 686-8800.

MODNET Software Development & Testing for the South Florida Water District.

WEST combined the U.S. Geological Survey's modular groundwater model, MODFLOW, with the Corps of Engineers' unsteady channel flow model, UNET, to create MODNET, a coupled surfacewater-groundwater model. The combined model provides a tool for simulating coupled surfacewater-groundwater flow, and the ability to include hydraulic structures, such as weirs, gates, and levees. Contact: David Welter (561) 686-6707.



Flow chart of MODFLOW and UNET connection