



## AQUATOX Training Workshop Washington DC October 19-21, 2004

### BACKGROUND

AQUATOX is a PC-based simulation model for aquatic ecosystems and covers eutrophication, chemical fate, bioaccumulation, and ecotoxicology. It predicts the fate of various pollutants, such as nutrients and organic chemicals, and their effects on the ecosystem, including fish, invertebrates, and aquatic plants. AQUATOX is a valuable tool for ecologists, biologists, water quality modelers, and anyone involved in modeling or performing ecological risk assessments of aquatic ecosystems. Release 2 was issued by the U.S. Environmental Protection Agency's Office of Science and Technology in January, 2004, and is being used by the Office of Pollution Prevention and Toxics and the Office of Pesticide Programs.

This course will be split approximately 50% theory and 50% hands-on practical application. Lectures and labs are interspersed to maintain interest. The course is an expansion of a one-day course offered at the WEF TMDL conference. Comments on that course included: "Very good presentation. Appropriate balance of hands-on and theory..." "Speakers clearly experts in this area and excellent in their presentations." The code, example files, and lecture and practical material for the course will be provided on CD; handouts will include slides and notes. Material will draw heavily on the AQUATOX Technical Documentation and User's Manuals from the US EPA. Example studies will be based in part on a nutrient-criteria demonstration project conducted with three Minnesota rivers. No prior knowledge beyond basic environmental science is assumed.

### LOCATION

The course will be held in Room B139, the Office of Environmental Information training room, at 1201 Constitution Ave, NW, Washington DC 20460. The Metro stop is Federal Triangle, on the Blue and Orange lines, and it comes right to the building complex.

### REGISTRATION

The workshop is free, but space is limited and **prior registration is required**. To request space, please email **Doris Jean Quiring** ([djquiring@aquaterra.com](mailto:djquiring@aquaterra.com)) at AQUA TERRA Consultants (phone: 650-962-1864). Along with your request, please include complete contact information (name, title, organization, address, phone, fax) and a **brief statement** explaining your interest in AQUATOX. Registration requests should be received by 8 September 2004. Registration confirmations will be provided by 13 September 2004, along with hotel and building access details.

## TENTATIVE SYLLABUS

### First Day

9:00-9:15	Introduction: Why AQUATOX? Comparison with other water quality models (Dick Park)
9:15-9:30	Ecosystem primer (terminology, state variables, loadings, physical characteristics) (Dick Park)
9:30-10:00	Overview of AQUATOX, Application of AQUATOX (Dick Park)
10:00-10:15	Morning Break
10:15-11:00	AQUATOX as a part of BASINS, linkage to HSPF, SWAT (Jon Clough)
11:00-12:00	Lab: Setup for a new study, Blue Earth River MN (Wizard, site characteristics, importing loadings) (Jon Clough, Dick Park)
12:00-1:00	Lunch Break
1:00-1:30	Plants (equations, parameters; phytoplankton, periphyton, macrophytes, moss) (Dick Park)
1:30-1:45	Calibration strategy, goodness of fit, sensitivity analysis
1:45-2:30	Lab: Calibration of plants, Blue Earth and Crow Wing Rivers MN (Marge Wellman, Dick Park)
2:30-3:00	Animals (equations, parameters; zooplankton, zoobenthos, fish) (Dick Park)
3:00-3:15	Afternoon Break
3:15-4:00	Lab: Calibration of animals, Blue Earth and Crow Wing Rivers MN (Marge Wellman, Dick Park)

### Second Day

9:00-9:15	Remineralization (Dick Park)
9:15-9:30	Lab: stoichiometry and mass balance of nutrients in Blue Earth and Crow Wing Rivers (Jon Clough, Dick Park)
9:30-10:00	Lab: Validation, Rum River MN (intermediate agricultural loadings, minimal data, no BASINS linkage) (Marge Wellman, Dick Park)
10:00-10:15	Morning Break
10:15-10:30	Scenario management and analysis of alternatives (Dick Park)
10:30-11:30	Lab: Analysis of alternatives for Blue Earth River (Marge Wellman, Jon Clough, Dick Park)
11:30-12:00	Stressor identification, Cahaba River AL (Dick Park)
12:00-1:00	Lunch Break
1:00-1:45	Lab: Calibration, validation, and analysis of alternatives for Lake Onondaga NY (Marge Wellman, Dick Park)
1:45-2:15	Modeling fate and bioaccumulation of chemicals (Dick Park)
2:15-3:00	Lab: fate of chemicals in a flask and pond (Dick Park)
3:00-3:15	Afternoon Break
3:15-3:30	Modeling toxicity of chemicals (Dick Park)
3:30-4:00	Lab: Dieldrin in Lake Coralville IA (fate, impacts, and recovery) (Marge Wellman, Dick Park)

### Third Day

9:00-9:30	Lab: Risk assessment of herbicide in Ohio Stream (use of Cahaba River calibration, detailed toxicity data) (Dick Park)
9:30-10:00	Lab: Loading scenarios and stressor identification in Lake Coralville IA (Marge Wellman, Dick Park)
10:00-10:15	Morning Break
10:15-10:30	Modeling estuarine conditions (not yet released, salt balance submodel, estuarine species, shorebird bioaccumulation) (Dick Park)
10:30-11:00	Shellfish and finfish fisheries in Galveston Bay, TX (estuarine ecosystem, bioaccumulation) (Dick Park)
11:00-12:00	New (not yet released), consolidated version of AQUATOX with linked segments, layered sediments, migration, and other capabilities (Jon Clough)
12:00-1:00	Lunch Break
1:00-2:00	Summary, wrap-up (Dick Park, Marge Wellman, Jon Clough)

## INSTRUCTORS

Richard A. Park, Ph.D., Eco Modeling, Diamondhead MS  
Jonathan S. Clough, Warren Pinnacle Consulting, Warren VT  
Marjorie Coombs Wellman, Office of Water, US EPA, Washington DC