

Texas A & M University and U.S. Bureau of Reclamation
Hydrologic Modeling Inventory
Model Description Form
JULY 28, 2000

[Please update as appropriate and fill in missing information]

Name of Model: Physical Habitat Simulation System (PHABSIM)

Model Type: 1-dimensional hydraulic simulation coupled with physical habitat simulation

Model Objective(s) : provide relationship of changes in habitat with changes in discharge to decision makers

Agency and Office: U.S. Geological Survey, Fort Collins Science Center

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Model Structure or Mathematical Basis: Step-backwater, stage-discharge regression, frequency of observation of depth, velocity and channel index habitat utilization applied to study site area

Model Parameters: Manning's n, habitat suitability criteria (HSC) for species

Spatial Scale Employed in the Model: typically up to 1 km

Temporal Scale Employed in the Model: Instantaneous, model results should be supplied to habitat time series models

Input Data Requirements: Transect bathymetry, stage-discharge pairs, transect velocity distributions

Computer Requirements: Pentium, Runs up to Windows XP, Not tested on Vista

Please see the Hydrologic Modeling Inventory Website: <http://hydrologicmodels.tamu.edu/>
The inventory is being maintained by Texas A&M University and the Bureau of Reclamation.

Model Output: Weighted Usable Area (units of habitat as ft²/1000 ft or m²/km) for each life stage of each species for which habitat suitability criteria were supplied

Parameter Estimation / Model Calibration: A calibration procedure is provided in the user documentation

Model Testing and Verification: Published in various organs since 1978, testing of conversion to Windows format completed.

Model Sensitivity: Highly dependant on the quality and applicability of the HSC

Model Reliability: The backwater model is standard and comparable to other 1D models, the habitat model is consistent for a selected set of options. Care must be taken in selection model options that match the analytical problem.

Model Application / Case Studies:

Documentation: Documentation for the Windows Version at <http://www.fort.usgs.gov/Products/Software/PHABSIM/>.

Other Comments:

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