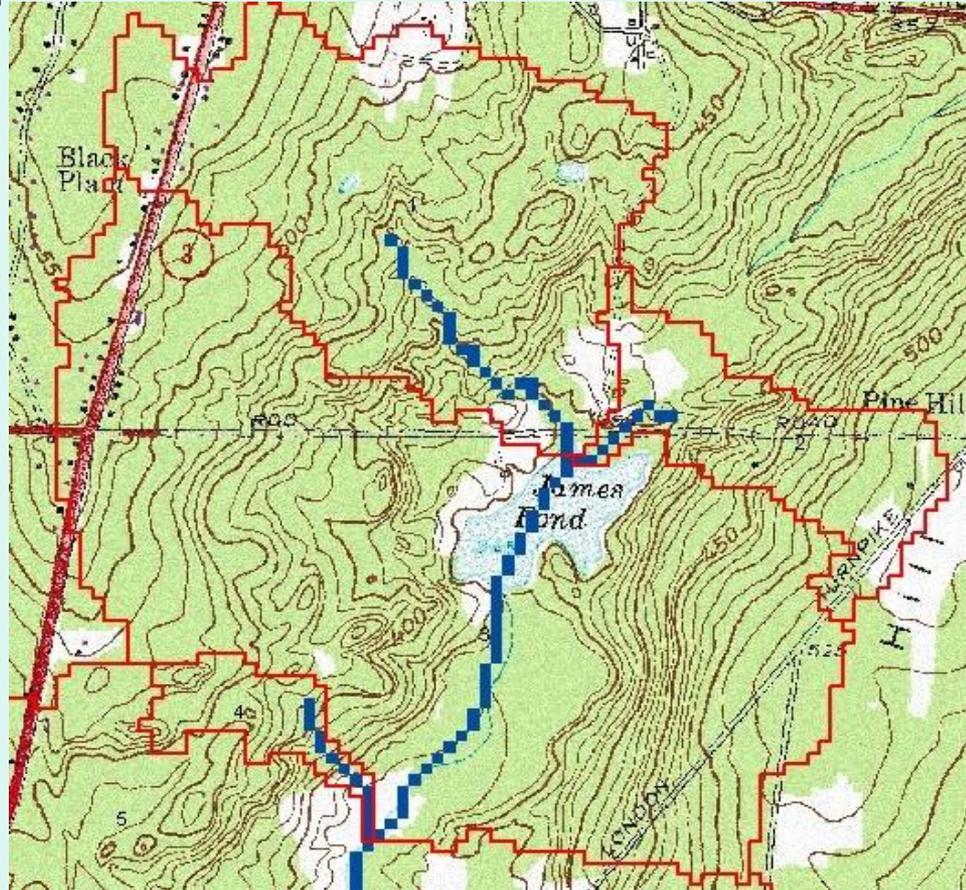


# Hydrologic and Hydraulic GIS Applications Work Group



Presented by William Merkel  
USDA-NRCS

# Accomplishments

- Presented two papers at professional conferences
- Demonstrated GIS applications
- Distributed questionnaire to federal agencies and others.
- Developed page with web links to major applications.
- <http://hydrologicmodels.tamu.edu/>

# ESRI ArcHydro Tools

The image shows the ESRI ArcHydro Tools menu in ArcGIS Desktop. The menu is open, displaying a list of tools under the 'Terrain Morphology' category. The 'DEM Reconditioning' tool is highlighted with a mouse cursor. The background shows a map with a blue shaded area representing a watershed or catchment, overlaid on a topographic map with contour lines. The map also shows a grid and some red text labels like '22' and '3040'.

File Edit View Insert Selection Tools Window Help

1:15,955

Spatial Analyst Layer: ned\_lake\_ft

Terrain Preprocessing Terrain Morphology Watershed Processing Attribute Tools Network Tools ApUtilities

Layers

- drg\_s\_mt005.sic  
RGB
  - Red: Band
  - Green: Band
  - Blue: Band
- ned\_lake\_ft  
Value  
High : 5523.5  
Low : 2549.5

Data Management Terrain Preprocessing

- DEM Reconditioning
- Build Walls
- Fill Sinks
- Flow Direction
- Flow Accumulation
- Stream Definition
- Stream Segmentation
- Catchment Grid Delineation
- Catchment Polygon Processing
- Drainage Line Processing
- Adjoint Catchment Processing
- Drainage Point Processing
- Longest Flow Path for Catchments
- Longest Flow Path for Adjoint Catchments
- Slope
- Slope greater than 30
- Slope greater than 30 and facing North
- Weighted Flow Accumulation

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# Current Model List

- ESRI ArcHydro Tools
- EPA Basins and EPA SWMM
- HEC-Geo RAS
- HEC-Geo HMS
- StreamStats
- NRCS Geo-Hydro (ArcView 3.3)
- NRCS Geo-Hydro (ArcGIS 9.1)

# Current Model List

- AGWA (with Kineros2)
- GIS Weasel
- eCoastal
- HAZUS
- NHD Plus
- SWAT
- Map Window (with hydrology tools)

# Questionnaire

- Title, version, contact information
- Brief description
- Web-based or desktop ?
- Data requirements
- Data format and compatibility
- Requires ESRI products ?
- Documentation / user support



## Hydrologic Modeling Inventory Website



Welcome to the Hydrologic Modeling Inventory Website. This is a collaborative effort between [Texas A&M University](#) and the [Bureau of Reclamation](#) to provide basic information on a variety of hydrologic models to practitioners in the academic, governmental and private sectors.

The effort was started in 1999 as a collaborative effort between Louisiana State University and the Bureau of Reclamation. Developers of well known models were contacted by Dr. Vijay P. Singh, Dr. Donald K. Frevert and several other Bureau of Reclamation staff members. Each developer was asked to fill out a questionnaire providing basic information including the capabilities of their model, input requirements, output information, assumptions, hardware requirements and contact information. The questionnaires were originally posted on a Bureau of Reclamation website, but in 2007 the website was moved to the Texas A&M domain to facilitate support and maintenance. Developers have been contacted in subsequent years to update the information on their respective models and new models continue to be added as appropriate.

Visitors to the website will click on the link at the bottom of this page and will be directed to a page with a listing of model links which, in turn, will direct the visitor to the summary sheet for each model. More detailed information on specific models can be obtained by contacting the developers and the e-mail, phone or mailing addresses indicated.

Comments and suggestions for the Hydrologic Modeling Inventory Website are welcome.

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[Click to access Hydrologic Modeling Inventory](#) 

# GIS Application in Hydrology and Hydraulics

- [Automated Geospatial Watershed Assessment Tool](#)
- [eCoastal Program](#)
- [BASINS version 4.0](#)
- [GIS Weasel](#)
- [HAZUS-MH](#)
- [HEC-GeoRAS](#)
- [HEC-GeoHMS](#)
- [MapWindow](#)
- [NHDPlus Append Tool](#)
- [NRCS Geo-Hydro ArcGIS](#)
- [NRCS Geo-Hydro ArcView](#)
- [StreamStats](#)
- [Soil and Water Assessment Tool \(SWAT\)](#)

# Current and future activities

- Prepared draft report for review by Workgroup and SOH.
- Prepare final report on Workgroup activities.
- Coordinate more with federal and academic committees.
- Coordinate with ESRI and associated hydrologic application developers.