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This issue of IMPACT provides an introduction to the upcoming March AWRA Spring Specialty Conference “GIS and Water Resources V” in San Mateo, California. AWRA’s first GIS and Water Resources conference was held in 1997 and these articles illustrate the progress that is being made in characterizing watersheds, integrating complex geospatial hydrology data, and producing meaningful results for water resources decision-making. This issue presents a wide variety of applications of GIS techniques to water resource data and issues.

5 Applying the National Hydrography Dataset ... Jeff Simley
Overviews the National Hydrologic Dataset (NHD), its development, and applications. Future directions are outlined including the enhancement to NHDPlus and improved surface water.

10 National Hydrography Dataset-Based Modeling of Stream Habitat Fragmentation and Steelhead Distribution in California Adromous Watersheds ... Martina Koller, Connie Shannon, Tom Christy, Robin Carlson, Eric Haney, and Stan Allen
Studies the migrations barriers through an application of the NHD to assess steelhead passage and stream habitat fragmentation.

14 Network-Based Analysis of Freshwater Ecosystems Using the FLOWS Tools ... David M. Theobald and John B. Norman
Explores development of a set of tools – FLOWS – to analyze river networks that explicitly recognize the ecological flows and processes of the system, and presents several applications to real-world issues.

17 The Arc Hydro MODFLOW Data Model ... N.L. Jones and G. Strassberg
Presents a data model and associated tools to design a template for archiving MODFLOW models with ArcGIS.

20 Salmon Habitat Conservation in the Columbia River Basin: Using GIS to Predict River Floodplain and Lateral Channel Migration ... Jason E. Hall, Damon M. Holzer, and Timothy J. Beechie
Provides an overview of a project analyzing floodplain boundaries and lateral channel migration in the context of regional river restoration planning.

23 GIS Applications for Hazard Estimation in the California Delta and Suisun Marsh ... Douglas Wright, Jeannie A. Stamberger, Joel Dudas, Amy Keeley, Segaran Logeswaran, and Christian G. Raumann
Discusses levee failures that have caused 166 floods in this region since 1900, with some flooded lands never reclaimed. Examines developing information to improve policies on how to allocate funds for risk mitigation efforts.

27 Development of a Model to Assess Ground-Water Availability in California’s Central Valley ... Claudia C. Faunt, Randall T. Hanson, and Kenneth Belitz
Provides an overview of a modeling effort to evaluate and project ground water conditions in an area where irrigated agriculture heavily relies on surface water and ground-water availability.

31 Integration of Regional Hydrologic Modeling Using FORTRAN and ArcGIS ... Alan L. Flint and Lorraine E. Flint
Explores a robust method for integrating ArcGIS and FORTRAN to overcome the complexity of numerical models and large data sets.

36 Terrain Characteristics as a Function of ArcGIS Terrain Dataset Generalization ... Dean Djokic, Thomas A. Evans, and Amit Sinha
Discusses the use of terrain pyramiding to generalize the terrain, and the use of generalized terrain to produce watersheds and their characteristics. Investigates whether “simpler” terrains can produce similar characteristics as the full terrain using LiDAR data.
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