

Update NHD in Big Wood River Area (Water District 37)

Introduction

The management of natural resources is becoming increasingly important and complex. In Idaho, water resources management is critical to the State's agriculturally-based economy. Without adequate tools to plan and design water projects, planners and engineers have a more difficult task implementing water-related projects. In areas where agriculture is dominant in southern Idaho, the current NHD does not match the existing hydrography, due to the building of canals and the altering of waterways. In many areas local knowledge is key in updating the NHD.

Accurate mapping is a basic tool for planning and designing water projects such as managed aquifer recharge and modeling. The goal of the managed aquifer recharge project is to direct the greatest amount of water through existing canals in the post-irrigation season with the goal recharging the Eastern Snake Plain Aquifer (ESPA).

In gaining public support for managed recharge projects in Idaho it is important to have accurate digital data and maps showing an accurate representation of existing hydrography. Those maps should present facts, figures and other pertinent information in an easy to understand and visually pleasing format. Accurate digital data provides hydrologists with base data that is needed in modeling agricultural areas. The correct geographic representation as well as the feature type is needed in recharge and modeling efforts.

GIS mapping has the capability to meet those requirements in a cost-effective manner. The IDWR has made extensive use of GIS mapping in locating recharge sites, determining impact on ground water aquifers, and in public and legislative presentations to obtain support and funding for those projects.



Figure 1: Proposed update area.

Various irrigation districts have been identified to be ideal candidates for recharge projects. For example, the IDWR improved the hydrographic data, using 2006 NAIP imagery and historical maps from the Northside Canal Company (NSCC). Employees of the NSCC have been instrumental in the QA/QC of this data which IDWR submitted to the USGS for inclusion into the NHD in early 2010.

NSCC data has already been instrumental during IDWR's recharge efforts in the fall of 2009 and the need for similar information in other high priority areas (i.e. areas with canals that are positioned relative to the ESPA, with optimal soil structure and a willingness of canal managers to participate) is clear. Managers at IDWR agreed that the area of highest importance, indicated in figure 1, is managed by the American Falls Reservoir District #2 (AFRD#2), Big Wood Canal Company and Water District #37.

IDWR proposes to update the area indicated in figure 1 and submit all changes to the USGS for implementation in the NHD. They will update this area using 2009 NAIP imagery, historical maps (if available) and input from AFRD#2, Big Wood Canal Company and Water District #37 by providing those entities with poster-sized paper maps (which can be used to draw edits on) and customized tools developed by IDWR and partially funded by USGS during FY09, that make it easy for novice ArcGIS users to supply edits to IDWR.

Benefits to the USGS and the NHD Community

- Updated NHD in these areas is mission-critical for IDWR and farmers that rely on water supplied by the East Snake Plain Aquifer
- An example of how the NHD plays an important role in managing natural resources

Proposed work

- Use 2009 NAIP imagery and historical maps to revise existing NHD.
- Collect information, using the revised hydrologic layer described in the previous bullet as a starting point, from American Falls Reservoir District #2, the Big Wood Canal Company and Water District 37. Information will be collected using the customized editing tools developed by IDWR, internet based collection tools developed by IDWR and paper maps
- Submit updates to the USGS for inclusion into the NHD
- Create large sized paper maps showing NAIP imagery and updated NHD data and send those to American Falls Reservoir District #2, the Big Wood Canal Company

and Water District #37 so they can use those maps. We will also supply those entities with the updated NHD data (clipped to their management area), NAIP imagery and other GIS baselayers so that they can start using this data in their day-to-day operations.

Deliverables

- Updated NHD for American Falls Reservoir District #2, the Big Wood Canal Company and Water District 37
- An article detailing the role the NHD plays in aquifer recharge projects. This article could, for example, be used in articles promoting the NHD and illustrating important issues that the NHD helps address.
- A short report describing how this project has been carried out as well as challenges that were encountered.