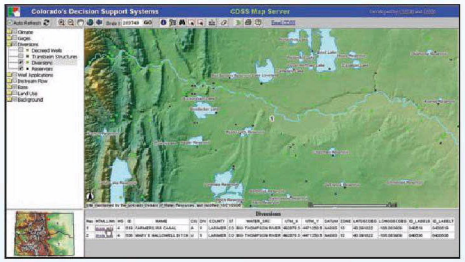


With a query of irrigation infrastructure, you can identify possible water rights transfers from one headgate to another.

Did you know . . .

SPDSS lets you use GIS without having to spend hundreds of dollars to purchase GIS software?

Go to http://cdss.state.co.us and select Map Viewer from the horizontal menu.

View Data feature allows users to query and download selected data.

Data from HydroBase is available for viewing and downloading using the View Data tool on the website. The user can define the basin, date range, water source, and/or structure and View Data will query HydroBase and then return the results in Excel, Adobe Acrobat, or another user-specified format. View Data is a user-friendly way to query and view in a limited fashion real time call data, water rights, climate data, groundwater levels, flow stations, structures, and other data.

- It gives you access to data, no longer requiring a trip to the State Engineer's Office.
- View Data provides the same data that are being used throughout the basin.
- It provides through limited queries the same data and information obtained by using the HydroBase database and interface that can be purchased from DWR – but at no cost.

Did you know . . .

You can access HydroBase data from the convenience of your office?

Go to http://cdss.state.co.us and select the type of data to view from the View Data pull-down menu.

New Tools in Progress

Basin-specific models help us understand unique nature of the South Platte Basin.

In order to understand and quantify how the South Platte River's water is moving and being used in the basin, basin-specific models are being developed. Users can have confidence in the validity of the analyses and results because the models that have been used in CDSS are established and widely accepted in Colorado , and have been part of the ongoing technical peer review process.

Agricultural and municipal use in the South Platte Basin have been documented in support of upcoming consumptive use and surface water modeling efforts, including information about the 25 largest agricultural providers (including Northern Colorado Water Conservancy District, Farmers Reservoir and Irrigation Company, Julesburg Irrigation District, and Larimer and Weld Irrigation Company) and the 9 largest municipal providers (Denver, Aurora, Ft. Collins, Greeley, Boulder, Longmont, Loveland, Westminster, and Thornton). Detailed technical memoranda are available on the SPDSS website.

Surface water, groundwater and consumptive use models being developed.

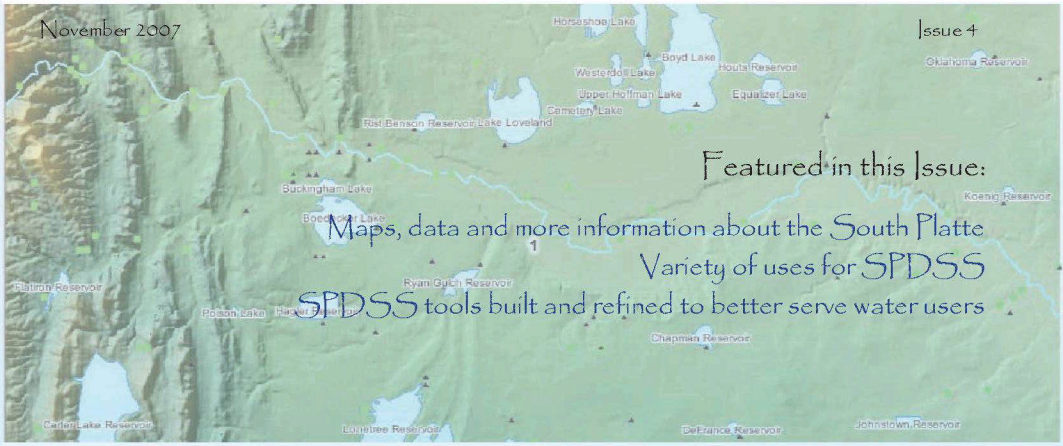
Because the surface water hydrology of the South Platte Basin is very complex, a proof of concept surface water model (StateMod) has been developed for Water District 64 to see if a full model of the South Platte Basin could be developed. As a result of this proof of concept model, it was determined that StateMod can and will be implemented for the South Platte Basin as a whole. For the groundwater model, extensive datasets of aquifer properties and groundwater levels have been developed that are available to SPDSS users.

SPDSS also includes a crop consumptive use model (StateCU) to determine consumptive use for agriculture in the basin. Over twenty experts from the engineering, academic, and government communities volunteered to participate in the review of SPDSS recommendations for the crop consumptive use analyses. Improvements to StateCU, including stronger graphical and tabular output reporting and accommodating reviewers interested in potential consumptive use at a defined location, have resulted in an increased use of the StateCU model by engineers and State personnel.

Upcoming tasks are to determine conveyance and application efficiencies, assign appropriate climate stations and fill missing climate data, and determine suitable consumptive use methods and crop coefficients.

SPDSS

The Newsletter for the South Platte Decision Support System
A publication of the Colorado Water Conservation Board and Colorado Division of Water Resources



What is SPDSS?

The South Platte Decision Support System helps water users make informed decisions about managing water.

State agencies, water providers, and water users are constantly evaluating management of water resources in response to increases in population and demand, droughts, endangered species issues, and reductions in federal water program funding. SPDSS is a comprehensive decision support system (DSS) being developed for the South Platte Basin under the direction of the Colorado Water Conservation Board (CWCB) and Division of Water Resources (DWR) with review and input by users in the form of a core advisory group and specific technical advisory groups.

The overall purpose of SPDSS is to provide all water users - from farmers, to water providers, to Colorado agencies - a better means for accessing, organizing, and evaluating a wide range of information and alternative strategies for making decisions about developing, managing, and preserving the water resources of the South Platte River Basin.

SPDSS, the third DSS to be developed by the state, consists of data that characterizes the hydrologic and hydrogeologic features of the basin and tools that provide enhanced water administration and water resource planning capabilities.

CWCB contracted with several firms to bring particular expertise to the development of SPDSS. These firms include Riverside Technology (GIS, irrigated parcels, and system integration), CDM (groundwater resources), Leonard Rice Engineers (consumptive use), and Brown and Caldwell (stakeholder outreach).

This newsletter focuses on providing water users with information and updates on the SPDSS data and tools that can help to manage the water resources of the South Platte River Basin. For more information about SPDSS and to access the data and documents discussed in this newsletter, visit the Colorado DSS website at http://cdss.state.co.us or contact Ray Alvarado, the SPDSS Project Manager at CWCB (303-866-3517 or ray.alvarado@state.co.us).

Did you know . . .

You can view GIS layers, download consumptive use and groundwater data, and get much more for free at http://cdss.state.co.us

More Information Available from SPDSS

Completion of Phase 3 brings more completed datasets and refined tools.

The information and tools available from SPDSS are changing and improving as the system continues toward completion. The following information is currently available for the South Platte Basin.

- GIS mapping tool
- HydroBase data
  - Structures, water rights, climate, stations
  - Diversions and real time calls
  - Groundwater and aquifer data (groundwater levels, aquifer properties, aquifer configuration)
- StateCU consumptive use model
- Crop cover for 2001
- Straightline diagrams
- Irrigated acreage

Most of the datasets are at your fingertips, available on the DSS website using a data management interface that allows the data to be used in the administrative and planning tools developed for SPDSS. To request information not available on line, please contact Ray Alvarado (303-866-3517 or ray.alvarado@state.co.us).

Variety of Proven Uses for SPDSS

Water users are integrating available information into decision making process.

Work by the SPDSS team (CWCB, DWR, and consultants) has led to the collection of large amounts of data and information. The SPDSS team has focused on developing comprehensive and accurate datasets that are being used to develop a groundwater model of the alluvial aquifer system, irrigated acreage, and GIS coverages. These datasets are ready to use to make water use decisions, whether you want to determine the current calls on the river or get data to model a water rights transfer.

- Water rights owners are using the datasets for modeling **water rights transfers and estimating stream depletions**.
- Ditch companies and water districts are using the datasets to develop **augmentation plans**.
- Scientists and engineers are using the aquifer data to understand **how groundwater pumping is affecting the aquifer and other water rights**. It is also used to identify and rank areas for underground water storage, as requested under Senate Bill 06-193.
- Water users are using SPDSS datasets to **analyze potential exchanges** for alternate points of diversion and water rights transfers.

Did you know . . .

Real time call data is available on the DSS website?

SPDSS information supports Roundtable discussions.

The data available through the SPDSS project has been used for House Bill 05-1177, commonly known as the "Colorado Water for the 21st Century Act." This bill created the Interbasin Compact Committee and the Basin Roundtables for ongoing discussions about needs within each basin and interaction among basins. For instance, part of the Interbasin Compact Committee focus includes determining consumptive and non-consumptive use in each basin, including the South Platte Basin. Much of the work on irrigated acreages and consumptive use that is available from the SPDSS project is very useful to the Roundtables. SPDSS information is also helpful for Senate Bill 06-179, which authorizes the Interbasin Compact Committee, through the Colorado Water Conservation Board, to fund projects that promote and encourage sound natural resource planning, management, and development of water and other natural resources.

Displaying data spatially with GIS enhances data analysis.

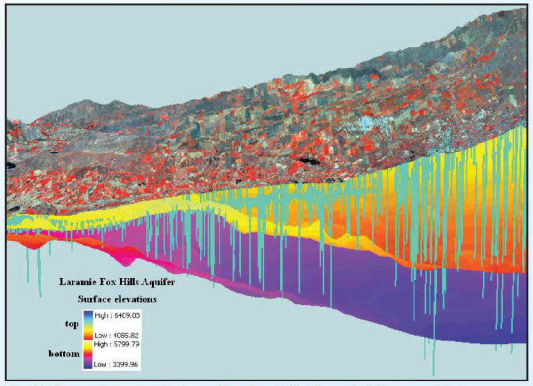
GIS coverages have been developed for the entire basin to easily view large amounts of information, including ditches, diversion structures, wells, groundwater aquifer data, and more.

- View aquifer characteristics and consumptive use by crops, as shown on opposite page.
- Ditch companies use diversion structure coverages to identify possible water rights transfers from one headgate to another.
- Irrigated parcel data is a newer addition to the information available through SPDSS. Snapshots of irrigated lands from 1956, 1976, 1987, 2001 and 2005 are available. The irrigated parcels are being mapped and put in GIS, and the irrigated lands are then linked with the ditches and wells that provide the irrigation water.

How can you use the irrigated parcel data?

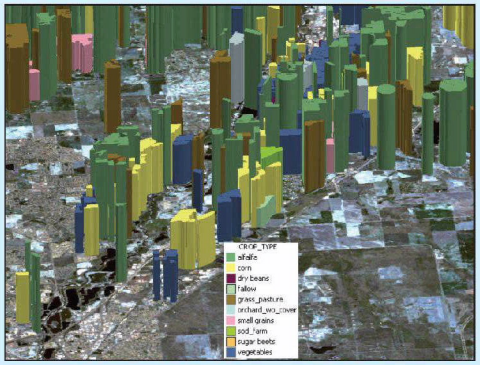
- Ditch share owners and ditch companies determine visually what lands are irrigated by their ditch.

SPDSS
Colorado Water Conservation Board, Colorado Division of Water Resources



Use GIS to overlay groundwater wells with aquifer characteristics, providing information needed to develop augmentation plans for wells.

- Consultants use the irrigated lands coverage as a starting point to do change of use analysis to determine a baseline or average ditch share yield for the ditch. This information can be used in the future as prospective buyers look to quantify the consumptive use yield of a ditch share.
- Platte Valley Irrigation Company performed ditchwide analyses to define average ditch share yield using SPDSS irrigated parcel data. The availability of the data saved money for the ditch company in their analysis. Otherwise they would have had to interview farmers to find out what area they irrigate, etc.
- The Northern Colorado Water Conservancy District has used the 2001 irrigated parcel boundaries and crop types developed by the South Platte DSS team to help them in setting up a system for monitoring crops and irrigated lands on an annual basis.



Use GIS to evaluate the consumptive use of crops by crop type.

SPDSS Tools Refined

Up to date tools specific to the South Platte Basin have not always been available to help in planning and administering water within the basin. The SPDSS team is focusing on building and refining tools to serve the needs of users in the South Platte Basin, as expressed in initial public meetings and interviews with users throughout the basin.

DSS website was refined to improve search features and access to tools.

SPDSS, through the larger CDSS effort, provides a searchable website that is an easy way for anyone to access information. The website not only gives background about SPDSS, but also provides all final products and a map viewer tool. You can:

- Use the pulldown menus on the home page to search for tools and information by basin or by type of information or tool.
- Access HydroBase data (water rights, structures, groundwater, streamflow, climate) from the View Data pulldown menu on the home page.
- View real time call data from the View Data pulldown menu on the home page.
- Review reports, data, memos, and other information related to each SPDSS effort, including consumptive use, GIS, and groundwater modeling, by using the Products pulldown menu on the home page.
- View and build your own GIS map by clicking Map Viewer on the home page.

Interactive Map Viewer allows users to tailor GIS maps to their needs.

Map Viewer is an interactive tool available to you on the SPDSS website for viewing GIS layers. You don't have to have GIS software or know how to use GIS.

The map provides relevant water administration and modeling information for the South Platte Basin. By outlining an area of interest, the user can zoom in and view layers by checking or unchecking boxes next to the layers listed at the left of the screen (shown on page 4). You can see where wells or structures or parcels, etc., are in relation to one another.