



Guide to the new Montana Water Supply Outlook Report

Due to the amount of information available and advancements in technology to project spatial data for maps, the format of the report has changed. This document is intended to help the reader make the best use of the report and make viewing easier.

The Water Supply Outlook Report requires the user to have Adobe Acrobat on their computer to view the document. It can be downloaded for free here:

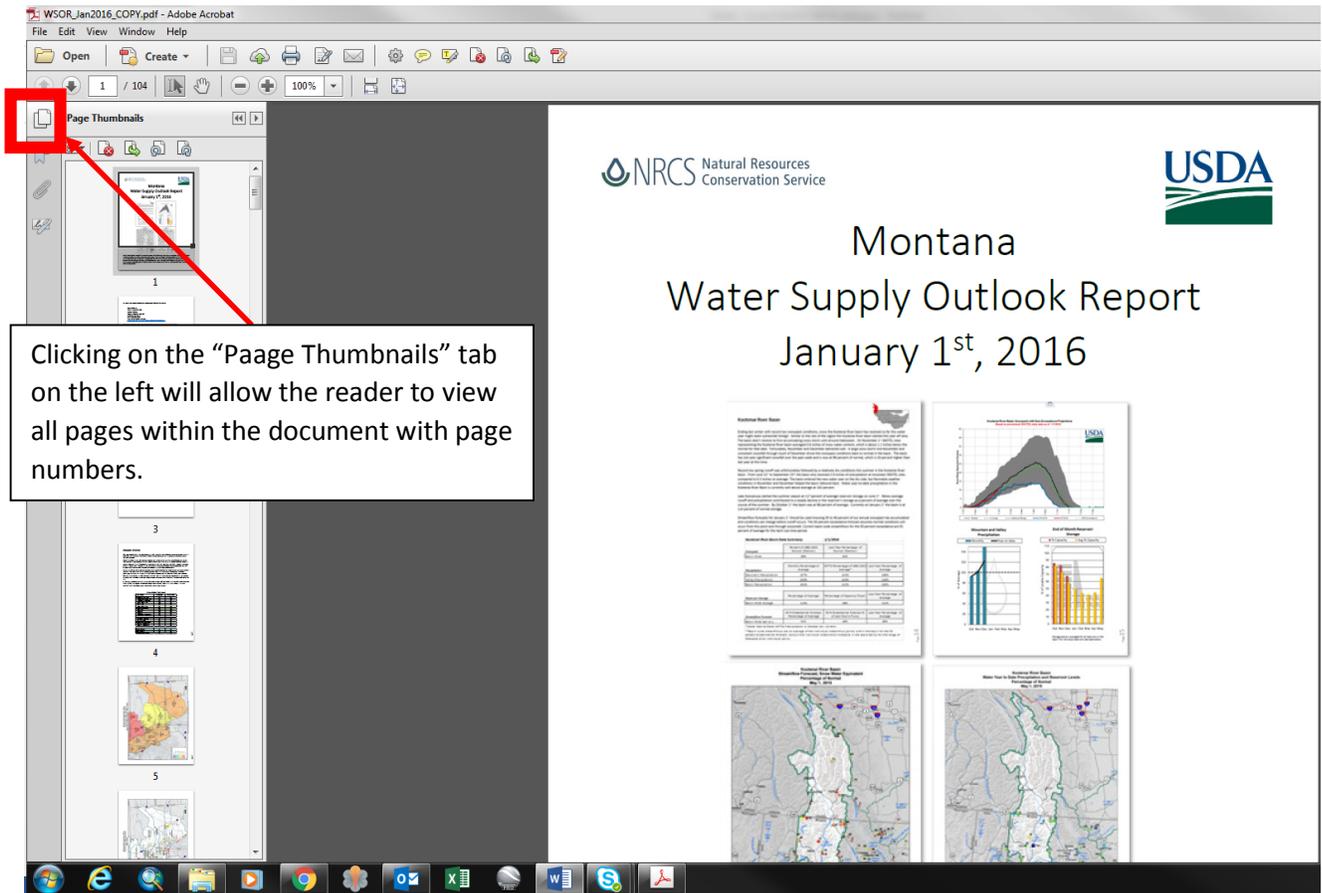
[Adobe Acrobat Reader DC](#)

If you do not have access to a computer or would like to receive a hardcopy of the report please contact snow survey staff.

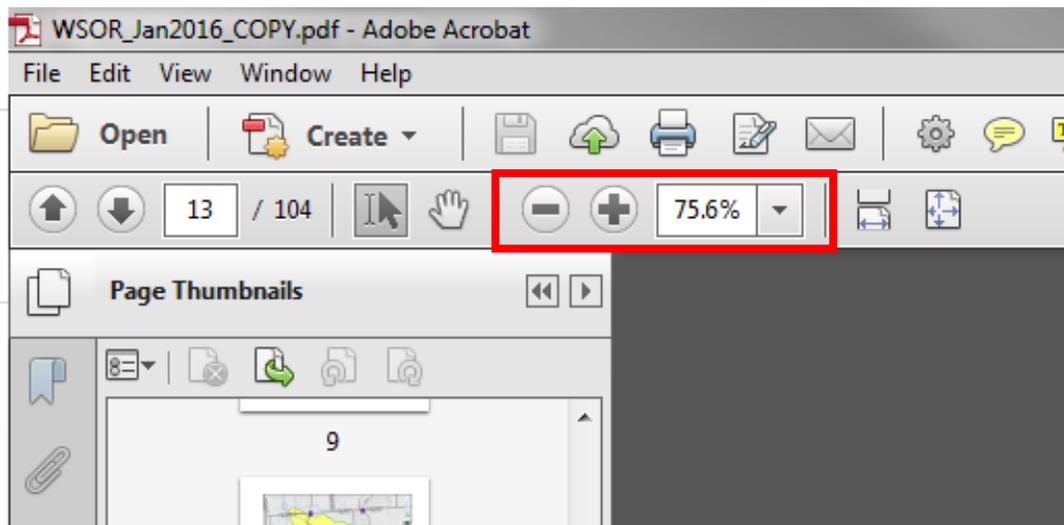
The WSOR is published and available in PDF format. Within the PDF format heading and sections have been put into a table of contents and are clickable if you use the bookmarks feature on the left side of the Adobe software. This allows the user to quickly move to the section of the WSOR they are most interested in and allows for faster navigation.

The screenshot shows the Adobe Acrobat Reader interface. On the left, the Bookmarks panel is open, with a red box highlighting the 'Bookmarks' tab icon. A red arrow points from this icon to a text box that reads: "Clicking on the 'Booemark' tab on the left will allow the reader to access the bookmarked pages within the document." The main content area displays a chart titled "Lower Yellowstone River Basin Snowpack with Non-Exceedence Projections" based on provisional SNOTEL daily data as of 1/1/2016. The chart plots Snow Water Equivalent (SWE) in inches from October to September. It includes a shaded area for the historical range, a dashed line for the average, a solid line for the median, and a dotted line for the 50% exceedence. Below the main chart are two smaller charts: "Mountain and Valley Precipitation" showing monthly and year-to-date precipitation as a percentage of the average, and "End of Month Reservoir Storage" showing the percentage of usable capacity for various reservoirs.

The reader can also use the “Page Thumbnails” tab located above the bookmarks tab to navigate the document, this allows for a zoomed out view of all pages and page numbers.



The zoom function at the top of the page can be used to zoom in and out on text and images within the document



New Graphics and Information

Maps

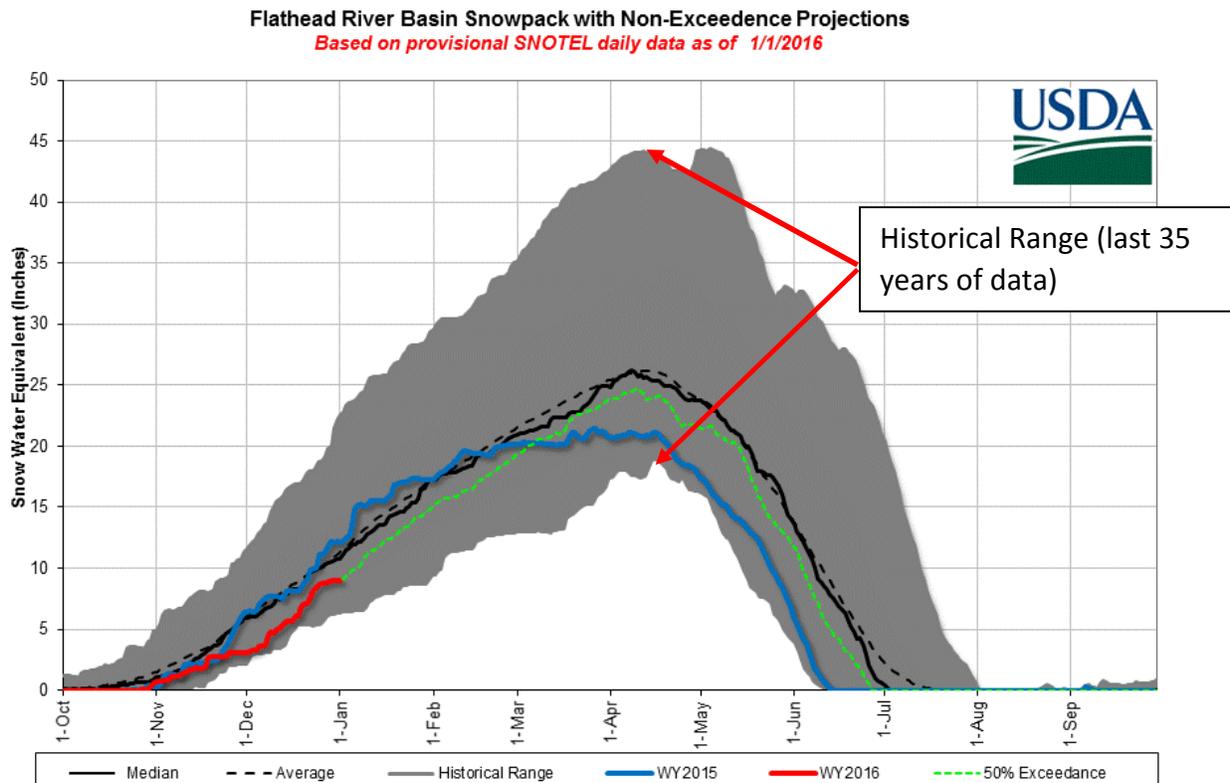
State-wide maps of monthly and water year precipitation as well as snow water equivalent and streamflow forecasts are available in the opening section of this document. These maps are generated using valley COOP and mountain SNOTEL stations for precipitation, and snowcourse and SNOTEL stations for snow water equivalent (SWE). The maps and all maps in the document will be archived and available for future viewing on the Montana State Library's Water Information System which can be found here:

http://mslapps.mt.gov/Geographic_Information/Maps/watersupply/Default

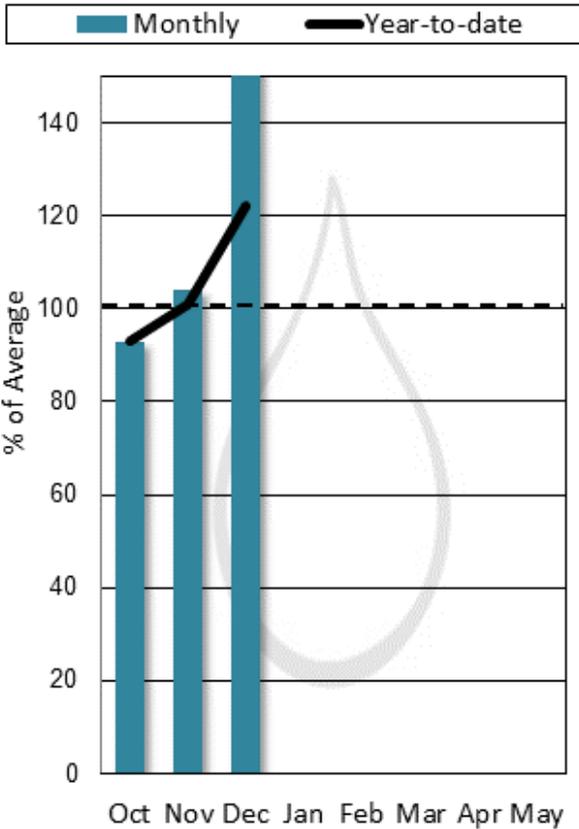
Individual river basins will now include high resolution maps that display current conditions for monthly (prior month) precipitation, water year-to-date information (October 1st – Current), snow water equivalent and 50% exceedance streamflow forecasts. These maps were a collaborative effort by the NRCS and the state of Montana staff to make the information available not only in these reports but online for water users.

Graphical Data

Snow Water Equivalent graphs show the overall trend of the SNOTEL sites within the basin for the water year. This graphic does not include monthly snowcourse data and represents an average of the SNOTEL sites within the basin. Included in the graphic are current year SWE, previous year SWE, 1981-2010 average, 1981-2010 median (or "Normal") and 50 % exceedance, or equal chance outcome at this time.

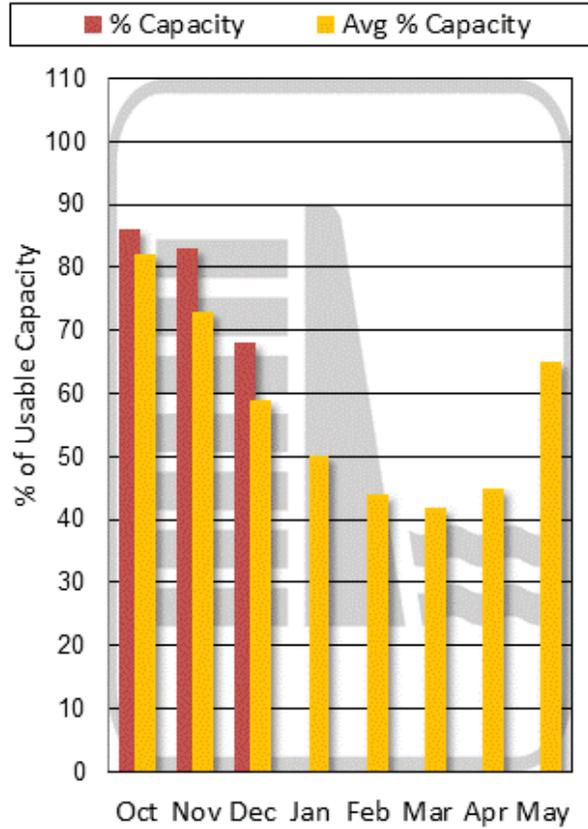


Mountain and Valley Precipitation



Precipitation Bar Graphs show monthly precipitation for the basin overall and includes mountain SNOTEL data and valley COOP data. Monthly values are for the first of the month through the end of that month, and year to date is from the beginning of the water year (October 1st) to the date of the report.

End of Month Reservoir Storage



Reservoir Bar Graphs display the average of the current percent of capacity of all the reservoirs in the basin compared to the average percent of capacity. The reader can compare these to see if the current value is above or below average and make determinations about the water year. Also by looking at average percent of capacity the reader has the ability to see when reservoirs are typically being drawn and months when they start to fill.

Basin Data Tables display first of the month data for snowpack, precipitation, reservoir storage and streamflow forecasts. *Snowpack* percentages of normal includes SNOTEL and monthly manual snowcourse data for conditions assessment. *Mountain Precipitation* is from SNOTEL sites within the basin and *Valley Precipitation* is from COOP valley weather observations/data. *Reservoir Storage* is the average of all of the reservoirs within the basin. Streamflow percentage of average is the average of all the streamflow forecasts in the basin. "Last Year Percentages" for all the categories is what percentage was observed last year at this time.

Flathead River Basin Data Summary

1/1/2016

| Snowpack | Percent of 1981-2010 Normal (Median) | Last Year Percentage of Normal (Median) |
|-----------------|--------------------------------------|---|
| Basin-Wide | 83% | 108% |

| Precipitation | Monthly Percentage of Average | WYTD Percentage of 1981-2010 Average* | Last Year Percentage of Average |
|------------------------|-------------------------------|---------------------------------------|---------------------------------|
| Mountain Precipitation | 131% | 96% | 120% |
| Valley Precipitation | 164% | 113% | 165% |
| Basin Precipitation | 132% | 96% | 121% |

| Reservoir Storage | Percentage of Average | Percentage of Capacity (Total) | Last Year Percentage of Average |
|--------------------------|-----------------------|--------------------------------|---------------------------------|
| Basin-Wide Storage | 104% | 73% | 117% |

| Streamflow Forecast | 50 % Exceedance Forecast Percentage of Average | 50 % Exceedance Forecast % of Last Year's Flows | Last Year Percentage of Average |
|----------------------------|--|---|---------------------------------|
| Basin-Wide Apr-July | 96% | 147% | 65% |

*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

**Basin-wide streamflows are an average of the individual streamflow points within the basin for the 50 percent exceedance forecast. Consult the individual streamflow forecasts in the table below for the range of forecasts at an individual point.

Additional information including daily snowpack products, maps and SNOTEL data can be found on the Montana Snow Survey and Water Supply Forecasting Homepage

It can be found here: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/>

The NRCS Montana Snow staff has worked hard to put these products together for the water users of the state and we welcome any feedback on the new layout and information. If you have questions, concerns or comments please contact.

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