

This flood outlook is for the National Weather Service (NWS) Omaha/Valley <u>Hydrologic Services Area</u>. This area includes eastern Nebraska and portions of southwest Iowa. Questions regarding this outlook can be directed **here**.

# Spring Flood Outlook Highlights

- \* The risk of flooding for the remainder of winter and into mid-spring is below normal. Locally heavy spring rains will cause flooding in localized areas as is the case every year. This outlook is directed towards flooding on a larger scale.
- \* Current conditions are not conducive to major, large-scale flooding.
- \* The threat for localized ice jam flooding remains above normal.
- \* Graphics for select river gauges are available on our website at: http://water.weather.gov/ahps2/long\_range.php?wfo=oax.
- \* A video to help you better understand the probabilistic graphics is available here: http://www.youtube.com/watch?v=pSoEgvsnpv4

**Overview:** During the last two weeks there haven't been any significant changes to the flood threat. The snowpack in the headwaters of the Missouri River increased, while the Platte River headwater snowpack remained about the same. Frost depths remain deep, if heavy rain were to fall in the next few weeks, this would likely lead to a significant flooding concern. Although the ice jam threat remains, it was alleviated when a significant amount of ice flushed out of the Platte and Loup Rivers.

Mountain snowpack: For the headwaters of the Missouri River snow water equivalent values are 136% of normal through March 6, this is an increase of 10% in the last two weeks. For the headwaters of the Platte River snow water equivalent values are 128% of normal, this is relatively unchanged in the past two weeks.

**Plains snowpack:** Across the Dakotas snow depths are not a concern. Over the past two weeks little if any water equivalent was added to the snowpack, if anything the water content was reduced a little. In South Dakota, west of the Missouri River, there is little, if any, snow away from the Black Hills. Toward the headwaters of the James and Big Sioux Rivers, snow water equivalent values are around one inch, and up to 2 inches in isolated areas. The majority of the Plains snowpack has less than one inch of water equivalent. Into North Dakota similar snow water equivalent values are being reported.

**Ice jam threat:** This year the threat for localized ice jam flooding remains <u>above normal</u>. A significant amount of ice flushed through the Loup/Platte River system during the weekend of February 22<sup>nd</sup>. Some ice remains in the river, this combined with recent cold temperatures has allowed the ice jam threat to remain. Warm temperatures next week should end the ice jam threat.



Frost depths: Due to the below normal temperatures observed this winter, frost depths are deep and are relatively unchanged in the past two weeks. In Valley, Nebraska the frost depth is 23 inches. While this is the only frost depth reporting site, based on regional frost depth values, it seems reasonable most areas of eastern Nebraska and southwest Iowa have similar frost depths, if not deeper. Frost depth can be a major contributor to flooding, specifically when rain or snowmelt occurs on frozen ground. The frost inhibits infiltration of the rain/snowmelt and flooding is more easily achieved. Ideally, we want the ground to sufficiently warmed-up prior to the spring rains. Given how deep the frost is this year, this will take much longer than years past, thus increasing the flood threat if heavy rains were to occur.

Current river conditions: See sub-sections below. Where available streamflows have been compared to the long-term mean.

Climate outlook for the next two weeks (March 12 through March 18): The Climate Prediction Center predicts a 33 to 40 percent chance for below normal temperatures with a 33 percent chance of precipitation being below normal.

**Climate outlook for March through May:** The Climate Prediction Center predicts a 33 to 40 percent chance for below normal temperatures and equal chance for below, near and above normal precipitation through May.

For basin specific information, click one of the links below:

Missouri River from Decatur to Rulo Niobrara River Basin Big Blue River Basin Elkhorn River from Neligh to the Platte River confluence Platte River from Duncan to Louisville Other Tributaries to the Missouri River

To follow are sections describing the threat for flooding for select river basins.



### Missouri River from Decatur to Rulo

**Overview:** The Missouri River has been running lower than normal below Gavins Point this winter. This is a function of conservation measures taken by the US Army Corps of Engineers as well as the lack of appreciable tributary contributions downstream of Gavins Point Dam. With that said, flows are higher when compared to the mean than they were last year going into snowmelt season. <u>Based on snow and basin conditions there is a greater than 50% chance of the Missouri River from Plattsmouth to Rulo reaching flood stage through the first week in June. This increased threat for minor flooding is largely the result of above normal snowpack in the headwaters of the Missouri River. From Decatur to Omaha, the Missouri River is not expected to reach flood stage. Streamflow values in the table below are in cubic feet per second (cfs).</u>

		St Pa	Average creamflow st 14 days	5	Long-ter mean flo	rm OW	Recent a % of	streamfl long-te:	.ow as rm mean
Missouri	River:								
at	Decatur		15,813		19,600		81%		
at	Omaha		16,368		22,500		73%		
at	Nebraska	City	22,623		31,300		72%		
at	Rulo		24,147		34,700		70%		

### Niobrara River Basin

**Overview:** Basin-wide conditions are not conducive to large scale flooding this spring. Ice jam flooding can't be rule out along Ponca Creek which is a common area for ice jams to form.

	Chance of Reachin Flood Stage Compared to Norma	ng Chance of al Minor Flooding
Niobrara River: at Verdel	near normal	<5%
Ponca Creek: at Verdel	6% less	12%



# Big Blue River Basin

**Overview:** Basin-wide conditions are not conducive to large scale flooding this spring. For the current water year precipitation is around 125 to 150% above normal. This precipitation was heaviest along the mid to upper reaches of the Little Blue River. Because of this, the chance of reaching minor flood stage along the Little Blue River is higher than normal.

c	hance of Reaching Flood Stage compared to Normal	Chance of Minor Flooding
Big Blue River:		
at Surprise	11% less	5%
at Seward	10% less	10%
at Crete	16% less	40%
at Beatrice	23% less	12%
at Barneston	8% less	7%
Lincoln Creek: at Seward	14% less	17%
W Fk Big Blue River at Dorchester	15% less	19%
Turkey Creek: at Wilber	16% less	27%
Little Blue River: at Deweese at Fairbury	3% greater 4% greater	21% 9%



# Elkhorn River Basin

**Overview:** Basin-wide conditions are not conducive to large scale flooding this spring. In a typical year ice jams are the main threat along the Elkhorn River. This year with river flows well below normal and a lack of snow cover, the flooding due to ice jams is below normal. With that said, until all the ice is melted in the river, ice jam flooding cannot be completely ruled out.

(	Chance of Reaching Flood Stage Compared to Normal	Chance of Minor Flooding
Elkhorn River:		
at Neligh	near normal	<5%
at Norfolk	near normal	<5%
at Pilger	near normal	<5%
at West Point	near normal	5%
at Winslow	near normal	<5%
at Waterloo	near normal	<5%
N Fk Elkhorn Rive:	r:	
at Pierce	4% less	<5%
Maple Creek:		
at Nickerson	6% less	8%
Logan Creek:		
at Uehling	near normal	<5%



# Platte River Basin

**Overview:** Basin-wide conditions are not conducive to large scale flooding this spring. As is the case every year ice jam flooding is the main concern. During the weekend of February 22<sup>nd</sup> and during the next week, ice jam flooding occurred near Schuyler and North Bend. That weekend a significant amount of ice moved out of the river. With much warmer weather on the way for next week, the remainder of the ice should move out. Interests along the Platte River, especially from North Bend and downstream, should remain vigilant to the continued threat of ice jams especially into early/mid next week.

	Chance of Flood Compared t	Reaching Stage Normal	Chance of Minor Flooding
Platte River:			
at Duncan	near n	ormal	7%
at North Bend	11%	less	7%
at Leshara	10%	less	14%
at Ashland	23%	less	<5%
at Louisville	18%	less	6%
Shell Creek: at Columbus	near r	ormal	5%
Salt Creek:			
at Roca	4%	less	8%
at Lincoln	1%	less	8%
at Greenwood	5%	less	13%
at Ashland	7%	less	30%
Wahoo Creek: at Ithaca	8%	less	30%



### Other tributaries to the Missouri River

**Overview:** Basin-wide conditions are not conducive to large scale flooding this spring. In Iowa the majority of the appreciable snow cover is east of the Missouri River divide. The headwaters of the Little Sioux River have some snow to melt, but it won't be enough to substantially increase the flood threat. Because of the lack of snow cover, the chance of reaching flood stage is below normal across southwest Iowa.

	Chance Flo Compare	of Reaching ood Stage ed to Normal	Chance of Minor Flooding
Maple River at Mapleton	near	normal	<5%
Little Sioux River at Turin	2%	less	<5%
Soldier River at Pisgah	near	normal	<5%
Boyer River at Logan	28	less	<5%
Weeping Water Creek at Union	2%	less	13%
Nishnabotna River:			
East Nishnabotna at Red Oak	11%	less	28%
West Nishnabotna at Hancock	13%	less	22%
West Nishnabotna at Randolph	3%	less	28%
Nishnabotna at Hamburg	26%	less	21%
Little Nemaha River at Auburn	4%	less	13%
N Fk Big Nemaha River at Humbold	t near	r normal	<5%
Big Nemaha River at Falls City	7%	less	<5%
Nodaway River at Clarinda	near	r normal	<5%

#### Current streamflow as a

	percent of	long-term mean
Maple River at Mapleton Little Sioux River at Turin	23% 31%	
Soldier River at Pisgah Boyer River at Logan West Nishnabotna at Hancock	66% 25% 46%	
East Nishnabotna at Red Oak Nishnabotna at Hamburg Nodaway River at Clarinda	36% 51% 29%	



A table of flood probabilities is available at the link below. This is the same information contained above except it includes statistics about a given river gage reaching moderate and major flood stage.

Table of Flood Probabilities

All of this probabilistic information is also available in graphical format on the internet at:

http://water.weather.gov/ahps2/long\_range.php?wfo=oax

The next link is a video describing how to interpret the probabilistic graphics.

http://www.youtube.com/watch?v=pSoEgvsnpv4

Unless conditions significantly change, this will be the last Spring Flood Outlook issued by the National Weather Service office in Omaha. For questions on this outlook, please contact:

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