OMB Control No. 0690-0030
Expiration Date: 07/31/2023

Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	✓				
I felt comfortable voicing my opinion.	✓				
I know more about the National Weather Service (NWS) resources.	✓				
I feel I could use NWS resources to judge my risk in an extreme weather event.	✓				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

More localized cell phone Alerts.

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

Frequent broadcasting on News/weather/radio etc.

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	✓				
Share what I learned about NWS products today with others.	✓				
Seek NWS information about extreme weather risks.	✓				
Use NWS products and information in your decision-making	✓				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics (Combined text and graphics)

Please explain. Text and graphics to better understand severity.

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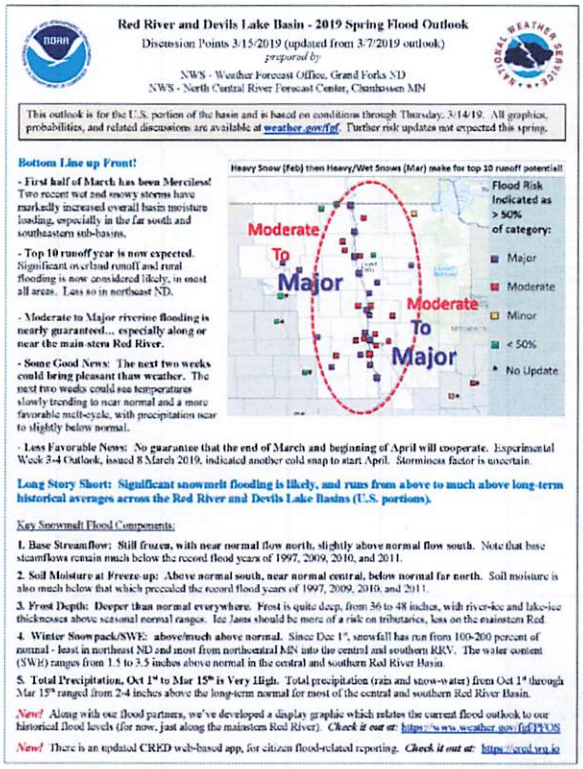
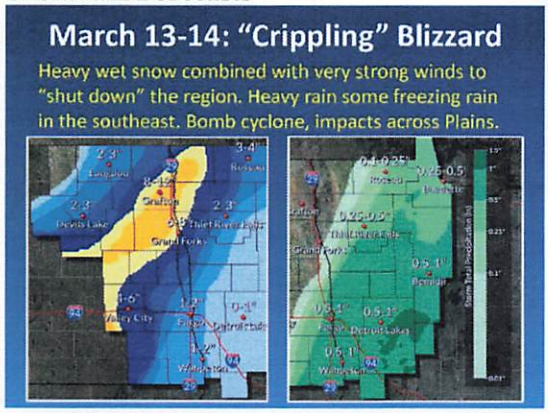
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 	✓				
Snow/rain Forecasts 	✓				

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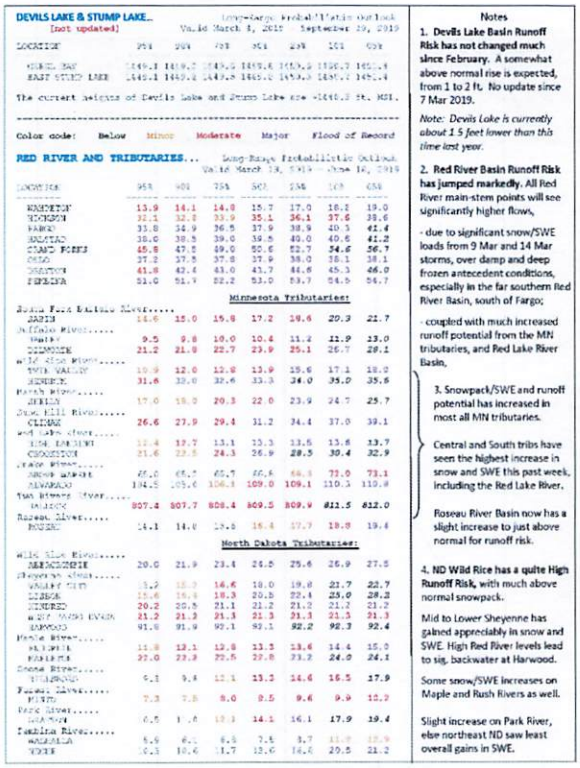
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook			✓		
Flood risk	✓				



DEVILS LAKE & STUMP LAKE...
[not updated]
Long-Range Probabilistic Outlook
Valid March 1, 2019 - September 29, 2019

LOCATION | 95% | 90% | 75% | 50% | 25% | 10% | 05%
DEVIL LAKE | 1449.1 | 1449.2 | 1449.6 | 1449.8 | 1450.1 | 1450.3 | 1450.4
EAST STUMP LAKE | 1449.1 | 1449.2 | 1449.6 | 1449.8 | 1450.1 | 1450.3 | 1450.4

The current heights of Devils Lake and Stump Lake are ~1448.8 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...
Long-Range Probabilistic Outlook
Valid March 13, 2019 - June 26, 2019

LOCATION | 95% | 90% | 75% | 50% | 25% | 10% | 05%
WAHPETON | 13.9 | 14.1 | 14.8 | 15.7 | 17.0 | 18.8 | 19.0
HICKSON | 32.1 | 32.8 | 33.9 | 35.1 | 36.1 | 37.6 | 38.6
FARGO | 33.8 | 34.9 | 36.5 | 37.9 | 38.9 | 40.5 | 41.4
ABERCROMBIE | 38.0 | 38.5 | 39.0 | 39.5 | 40.0 | 40.6 | 41.2
GRAND FORKS | 45.8 | 47.5 | 49.0 | 50.6 | 52.7 | 54.6 | 56.7
OSLO | 37.2 | 37.5 | 37.8 | 37.9 | 38.0 | 38.1 | 38.1
DRAYTON | 41.8 | 42.4 | 43.0 | 43.7 | 44.6 | 45.3 | 46.0
PEMBINA | 51.0 | 51.9 | 52.2 | 53.0 | 53.7 | 54.5 | 54.7

Minnesota Tributaries:

Buffalo River basin River.....
DILTS | 14.6 | 15.0 | 15.8 | 17.2 | 18.6 | 20.3 | 21.7
Wild Rice River.....
Hendrum | 9.5 | 9.8 | 10.0 | 10.4 | 11.2 | 11.9 | 13.0
SYCAMORE | 21.2 | 21.8 | 22.7 | 23.9 | 25.1 | 26.7 | 28.1
Wild Rice River.....
TWIN VALLEY | 10.9 | 12.0 | 12.8 | 13.9 | 15.6 | 17.1 | 18.0
HENDRUM | 31.6 | 32.0 | 32.6 | 33.3 | 34.0 | 35.0 | 35.6
Marsh River.....
ADRIAN | 17.0 | 18.0 | 20.3 | 22.0 | 23.9 | 24.7 | 25.7
Snake River.....
CLIMAX | 26.6 | 27.9 | 29.4 | 31.2 | 34.4 | 37.0 | 39.1
Red Lake River.....
RED LAKE FALLS | 12.4 | 12.7 | 13.1 | 13.3 | 13.5 | 13.6 | 13.7
CROOKSTON | 21.6 | 22.5 | 24.3 | 26.9 | 28.5 | 30.4 | 32.9
Grand River.....
GRAND MARAIS | 65.0 | 65.7 | 65.7 | 66.6 | 68.3 | 72.0 | 73.1
ALVARADO | 104.5 | 105.6 | 106.1 | 109.0 | 109.1 | 110.3 | 112.8
Two Rivers River.....
HALLOCK | 807.4 | 807.7 | 808.4 | 809.5 | 809.9 | 811.5 | 812.0
Roseau River.....
ROSEAU | 14.1 | 14.8 | 15.6 | 16.4 | 17.7 | 18.8 | 19.4

North Dakota Tributaries:

Wild Rice River.....
ABERCROMBIE | 20.0 | 21.9 | 23.4 | 24.5 | 25.6 | 26.9 | 27.5
Sheyenne River.....
VALLEY CITY | 5.2 | 15.3 | 16.6 | 18.0 | 19.8 | 21.7 | 22.7
LISBON | 15.6 | 16.8 | 18.3 | 20.5 | 22.4 | 25.0 | 28.2
KINDRED | 20.2 | 20.5 | 21.1 | 21.2 | 21.2 | 21.2 | 21.2
WEST FORK RIVER | 21.2 | 21.3 | 21.3 | 21.3 | 21.3 | 21.3 | 21.3
HARWOOD | 91.8 | 91.9 | 92.1 | 92.1 | 92.2 | 92.3 | 92.4
Maple River.....
MAPLETON | 11.8 | 12.1 | 12.8 | 13.3 | 13.6 | 14.4 | 15.0
FARGO | 22.0 | 23.3 | 22.5 | 22.8 | 23.2 | 24.0 | 24.1
Sheyenne River.....
HARWOOD | 6.1 | 9.8 | 12.1 | 13.2 | 14.6 | 16.5 | 17.9
Turtle River.....
MANVEL | 7.3 | 7.5 | 8.0 | 8.5 | 9.6 | 9.9 | 12.2
Park River.....
GRAFTON | 0.5 | 1.0 | 10.3 | 14.1 | 16.1 | 17.9 | 19.4
Tamarac River.....
HALMA | 6.6 | 6.1 | 6.6 | 7.5 | 8.7 | 11.0 | 12.9
VOSS | 0.3 | 10.6 | 11.7 | 12.6 | 14.6 | 20.5 | 21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

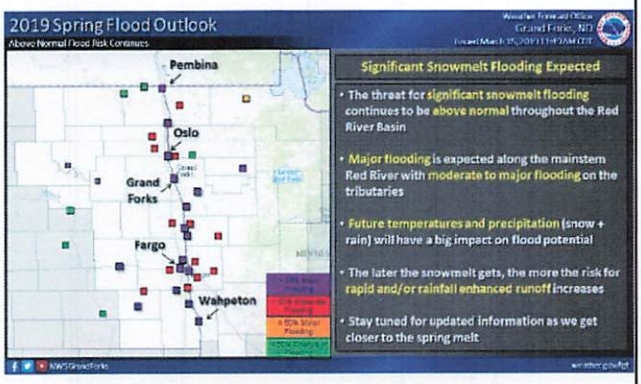
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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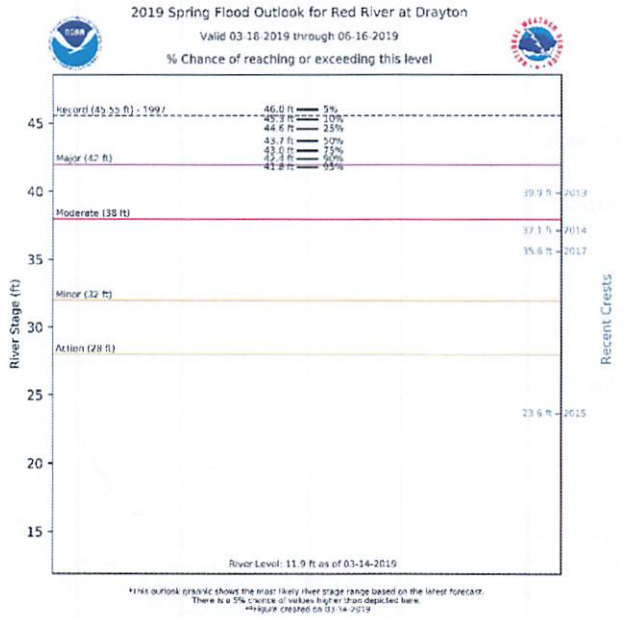
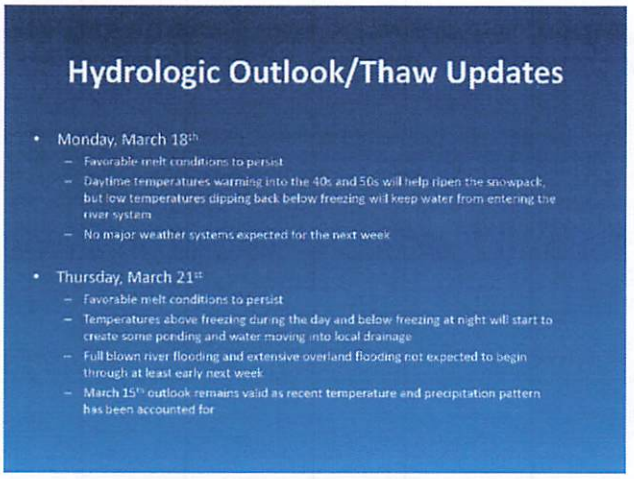
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 			✓		
Hydrologic Outlook/Thaw Updates 		✓			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF				✓	

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	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...				✓	

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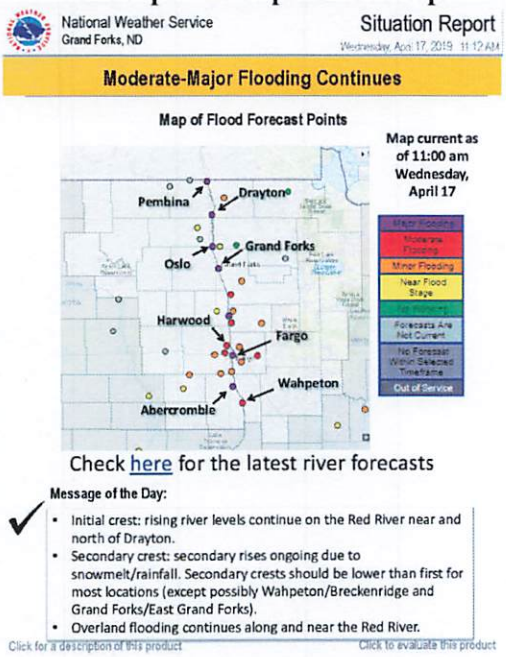
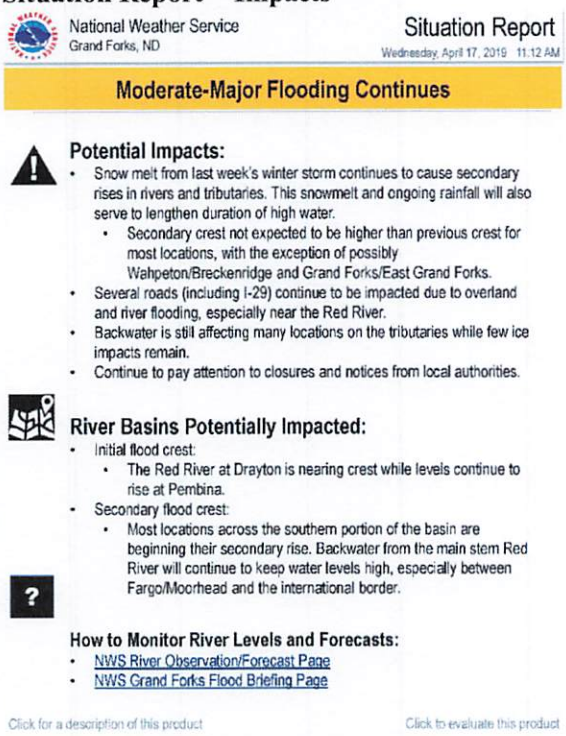
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points 	✓				
Situation Report - Impacts 	✓				

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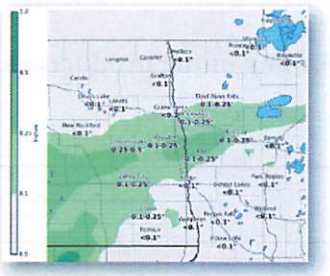
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Precipitation Outlook Click for a description of this product — Click to evaluate this product	✓				
Situation report – 24 hour precipitation National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed) 24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu) Click for a description of this product — Click to evaluate this product	✓				

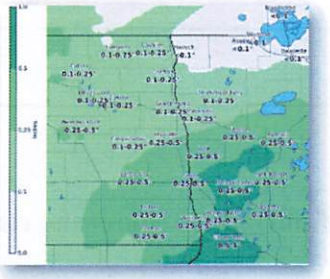
Temperature Outlook

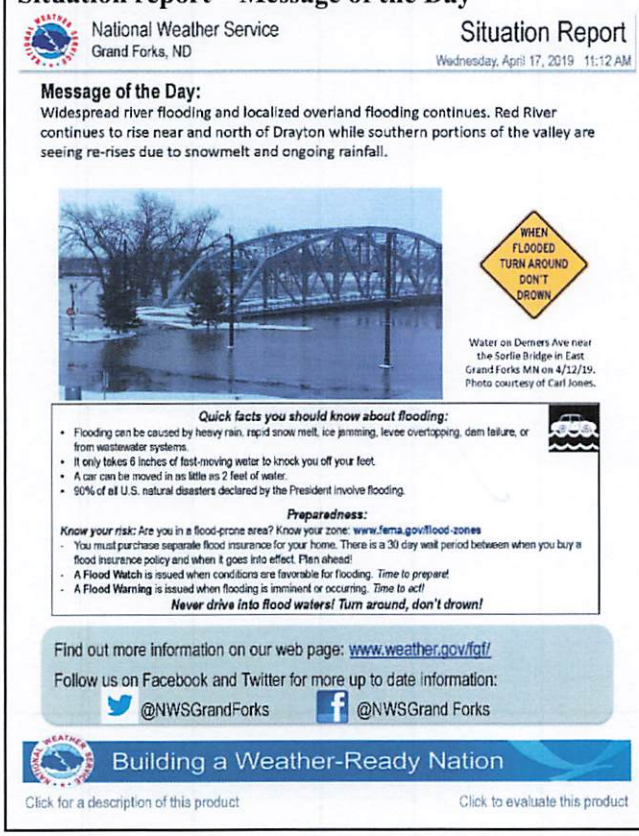
Day of the Week	Highs	Lows (Overnight)
Wednesday, April 17	46-51	35-38
Thursday, April 18	52-56	31-34
Friday, April 19	59-65	41-46
Saturday, April 20	56-66	35-40
Sunday, April 21	52-57	31-36
Monday, April 22	50-57	32-37

Precipitation Outlook

Day of the Week	Type	Liquid Amounts	Location
Wednesday, April 17	Rain and Snow	0"-0.50"	Mainly southern RRV
Thursday, April 18	Showers/Thunder	0"-0.10"	Eastern ND/NW MN
Friday, April 19	None	0"	
Saturday, April 20	Showers	0"-0.20"	Along/north Hwy 2
Sunday, April 21	None	0"	
Monday, April 22	None	0"	





	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 	✓				

7. What changes might you recommend for any of the products shown?

No changes necessary.

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

(Facebook) Twitter (Internet) Other: News

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

N/A

_____

12. Additional comments:

N/A

_____

Thank you for participating!

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Survey Questions - Post-Focus Group Session Survey

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1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	✓				
I felt comfortable voicing my opinion.		✓			
I know more about the National Weather Service (NWS) resources.	✓				
I feel I could use NWS resources to judge my risk in an extreme weather event.	✓				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

Some of the products are too data heavy. Tell me about my city and 50 miles around, not the tristate area.

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

Phone alerts would be best for evacuation, but not smaller and/or less urgent updates. Don't wake me at 3 a.m. unless the evacuation order is complete and it's time to go.

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.				✓	
Share what I learned about NWS products today with others.				✓	
Seek NWS information about extreme weather risks.		✓			
Use NWS products and information in your decision-making			✓		

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics (Combined text and graphics)

Please explain. the graphic with boxes and major/moderate per city as well as a message of the day for context.

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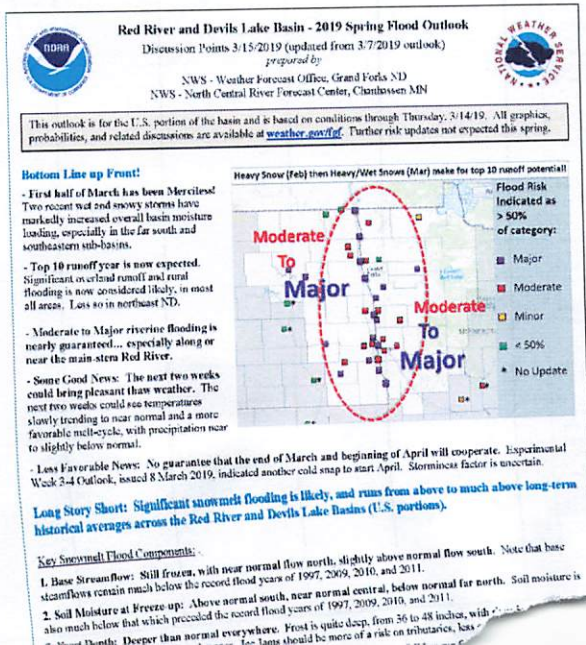
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook				✓	



Red River and Devils Lake Basin - 2019 Spring Flood Outlook
Discussion Points 3/15/2019 (updated from 3/7/2019 outlook)
prepared by
NWS - Weather Forecast Office, Grand Forks ND
NWS - North Central River Forecast Center, Chanhassen MN

This outlook is for the U.S. portion of the basin and is based on conditions through Thursday, 3/14/19. All graphics, probabilities, and related discussions are available at weather.gov/fgf. Further risk updates not expected this spring.

Bottom Line up Front!

- First half of March has been Merciless! Two recent wet and snowy storms have markedly increased overall basin moisture loading, especially in the far south and southeastern sub-basins.
- Top 10 runoff year is now expected. Significant overland runoff and rural flooding is now considered likely, in most all areas. Less so in northeast ND.
- Moderate to Major riverine flooding is nearly guaranteed... especially along or near the main-stem Red River.
- Some Good News: The next two weeks could bring pleasant thaw weather. The next two weeks could see temperatures slowly trending to near normal and a more favorable melt-cycle, with precipitation near to slightly below normal.
- Less Favorable News: No guarantee that the end of March and beginning of April will cooperate. Experimental Week 3-4 Outlook, issued 8 March 2019, indicated another cold snap to start April. Storminess factor is uncertain.

Heavy Snow (Feb) then Heavy/Wet Snows (Mar) make for top 10 runoff potential!

Long Story Short: Significant snowmelt flooding is likely, and runs from above to much above long-term historical averages across the Red River and Devils Lake Basins (U.S. portions).

Key Snowmelt Flood Components:

1. Base Streamflow: Still frozen, with near normal flow north, slightly above normal flow south. Note that base streamflows remain much below the record flood years of 1997, 2009, 2010, and 2011.
2. Soil Moisture at Freeze-up: Above normal south, near normal central, below normal far north. Soil moisture is also much below that which preceded the record flood years of 1997, 2009, 2010, and 2011.

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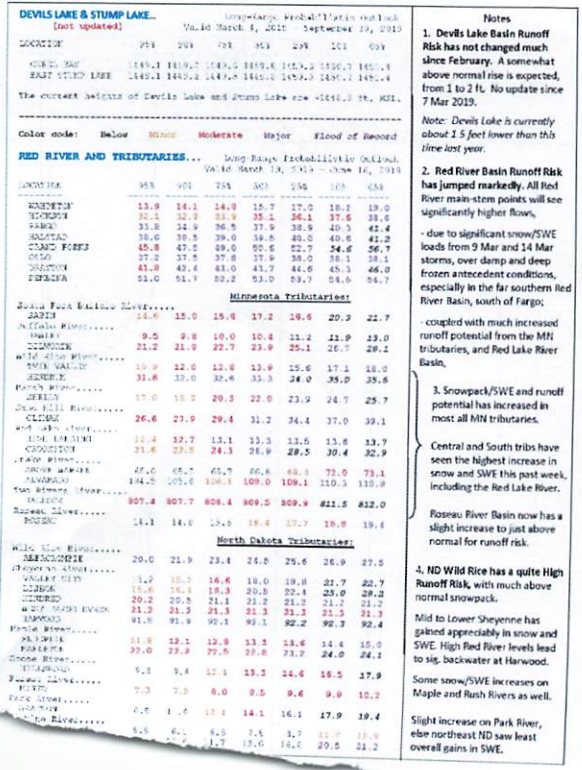
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook					✓



DEVILS LAKE & STUMP LAKE...
[not updated]

Long-Range Probabilistic Outlook
Valid March 8, 2019 - September 29, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
CHAIN, BAY	1449.1	1449.7	1449.6	1449.8	1450.3	1450.7	1451.4
EAST STUMP LAKE	1449.1	1449.2	1449.6	1449.8	1450.3	1450.7	1451.4

The current heights of Devils Lake and Stump Lake are 1448.8 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long-Range Probabilistic Outlook
Valid March 15, 2019 - June 14, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
HALLOCK	13.9	14.1	14.8	15.7	17.0	18.1	19.0
ST. VINCENT	32.1	32.3	33.9	35.1	36.1	37.6	38.6
PARK R.	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	38.0	38.5	39.0	39.8	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.9	52.2	53.0	53.7	54.6	54.7
Minnesota Tributaries:							
South Fork Buffalo River.....							
JADIN	14.6	15.0	15.6	17.2	18.6	20.3	21.7
Buffalo River.....							
DILWORTH	9.5	9.8	10.0	10.4	11.2	11.9	13.0
GLYNDON	21.2	21.8	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
HOT SPRINGS	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.8	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
ERSKINE	17.0	18.2	20.3	22.0	23.9	24.7	25.7
Shell Rock River.....							
CLEAR	26.6	27.9	29.4	31.2	34.1	37.0	39.1
Red Lake River.....							
RED LAKE	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	31.6	27.5	24.3	26.9	29.5	30.4	32.9
Lake River.....							
ARGYLE	67.0	65.7	65.7	66.6	68.3	72.0	73.1
ALVARADO	104.5	105.0	106.3	109.0	109.1	110.5	113.8
Two Rivers River.....							
WASKISH	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.0	13.8	13.6	13.7	13.9	13.6
North Dakota Tributaries:							
Wild Rice River.....							
MAYVILLE	20.0	21.9	23.4	24.8	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	13.2	15.3	16.6	18.0	19.8	21.7	22.7
LISBON	15.6	16.1	18.3	20.5	22.4	23.0	23.3
HARVEY	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO EVANS	21.2	21.3	21.3	21.3	21.3	21.5	21.3
KINDRED	91.0	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
MAPLETON	11.8	12.1	12.8	13.5	13.6	14.4	15.0
HORACE	22.0	23.3	23.5	23.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	9.3	9.4	12.1	13.3	14.6	16.5	17.9
Forest River.....							
FORK	7.3	7.5	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	0.8	1.6	12.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.6	6.1	6.5	7.5	9.7	11.7	12.9
			11.7	13.6	14.6	20.5	21.2

Notes

1. Devils Lake Basin Runoff Risk has not changed much since February. A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. Red River Basin Runoff Risk has jumped markedly. All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. ND Wild Rice has a quite High Runoff Risk, with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

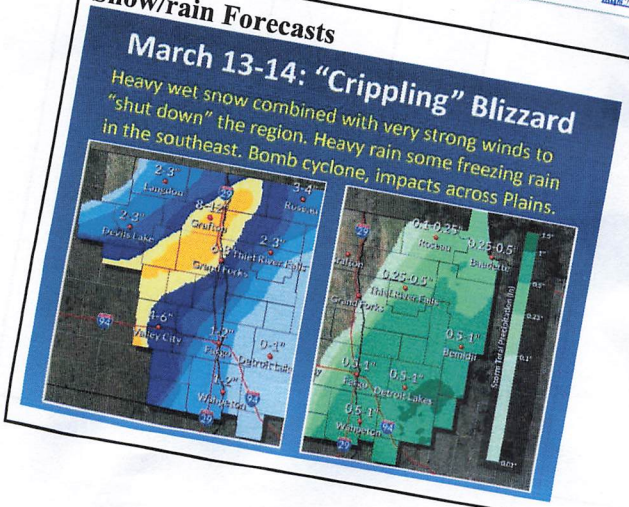
Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.

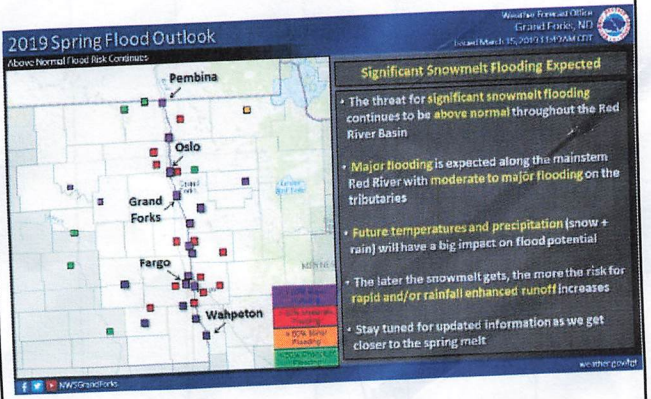
...ing with our flood partners, we've developed a display graphic which relates the current flood outlook to our ...orical flood levels (for now, just along the mainstem Red River). *Check it out at:* https://www.weather.gov/fgf/PFOS

New! There is an updated CRED web-based app, for citizen flood-related reporting. *Check it out at:* https://cred.vrg.io

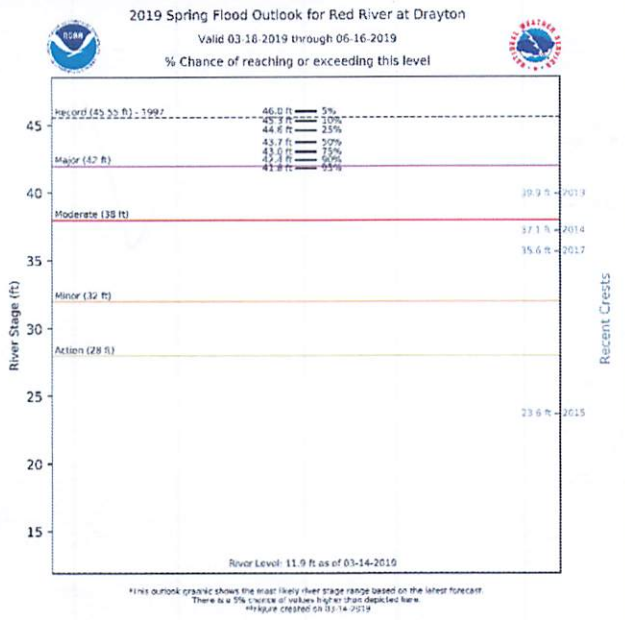
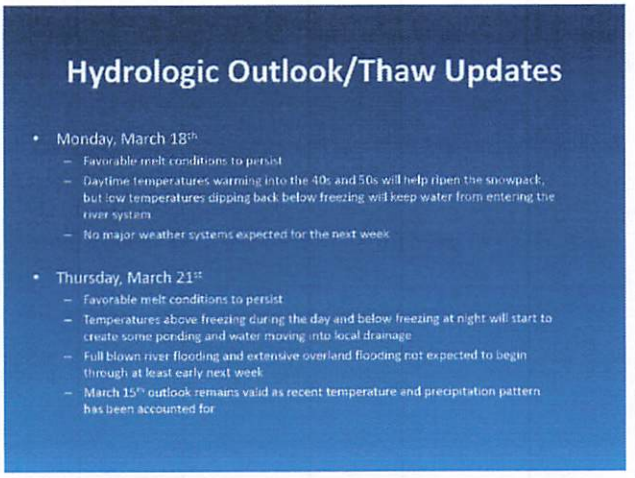
Snow/rain Forecasts



Flood risk


2019 Spring Flood Outlook
Above Normal Flood Risk Continues
Weather Forecast Office
Grand Forks, ND
Issued March 15, 2019 11:49AM CDT
Pembina
Oslo
Grand Forks
Fargo
Wahpeton
Significant Snowmelt Flooding Expected
• The threat for significant snowmelt flooding continues to be above normal throughout the Red River Basin
• Major flooding is expected along the mainstem Red River with moderate to major flooding on the tributaries
• Future temperatures and precipitation (snow + rain) will have a big impact on flood potential
• The later the snowmelt gets, the more the risk for rapid and/or rainfall enhanced runoff increases
• Stay tuned for updated information as we get closer to the spring melt
weather.gov/gf
NWSGrandForks

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

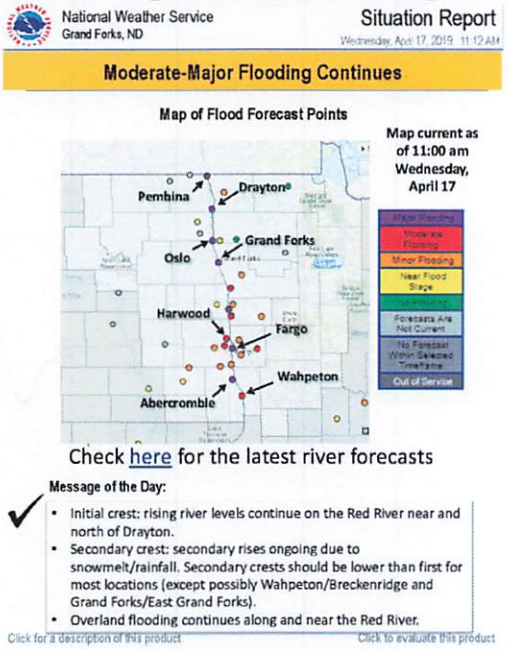
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 		✓			
Hydrologic Outlook/Thaw Updates 		✓			

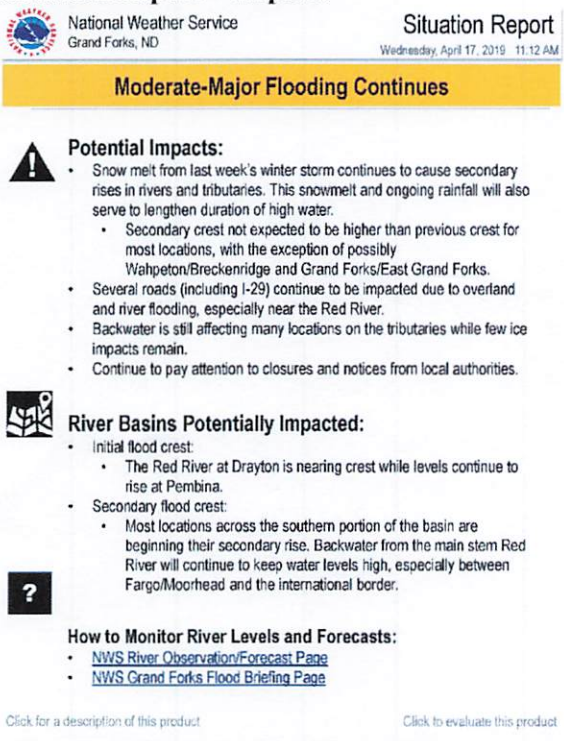
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF				✓	

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...					

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding Moderate Flooding Minor Flooding Near Flood Stage Flood Stage Forecasts Are Not Current No Forecast Within Selected Timeframe Out of Service Check here for the latest river forecasts **Message of the Day:** • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product	✓				

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product
Click to evaluate this product
		✓			

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

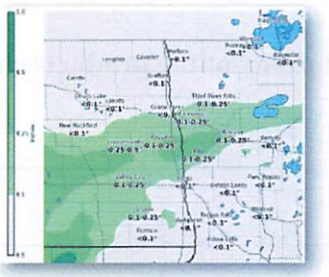
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook			✓		

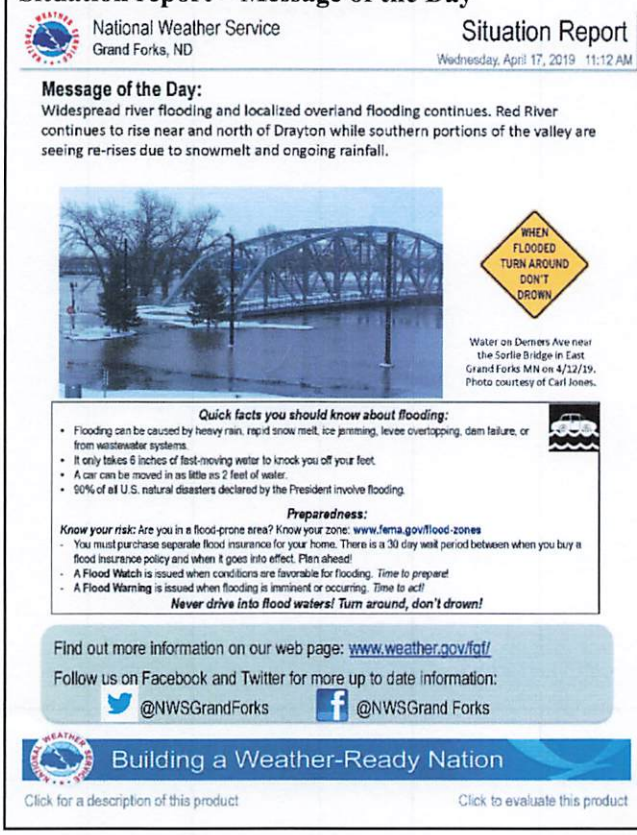
Day of the Week	Highs	Lows (Overnight)
Wednesday, April 17	48-51	35-38
Thursday, April 18	52-56	31-34
Friday, April 19	59-65	41-46
Saturday, April 20	56-66	35-40
Sunday, April 21	52-57	31-36
Monday, April 22	50-57	32-37

Precipitation Outlook

Day of the Week	Type	Liquid Amounts	Location
Wednesday, April 17	Rain and Snow	0"-0.50"	Mainly southern RRV
Thursday, April 18	Showers/Thunder	0"-0.10"	Eastern ND/NW MN
Friday, April 19	None	0"	
Saturday, April 20	Showers	0"-0.20"	Along/north Hwy 2
Sunday, April 21	None	0"	
Monday, April 22	None	0"	

Click for a description of this product — Click to evaluate this product

Situation report – 24 hour precipitation National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu) Click for a description of this product — Click to evaluate this product			✓		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 	✓				

National Weather Service
Grand Forks, ND

Situation Report
Wednesday, April 17, 2019 11:12 AM

Message of the Day:
Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall.

Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones.

Quick facts you should know about flooding:

- Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems.
- It only takes 6 inches of fast-moving water to knock you off your feet.
- A car can be moved in as little as 2 feet of water.
- 90% of all U.S. natural disasters declared by the President involve flooding.

Preparedness:

Know your risk: Are you in a flood-prone area? Know your zone: www.fema.gov/flood-zones

- You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead!
- A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!*
- A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!*

Never drive into flood waters! Turn around, don't drown!

Find out more information on our web page: www.weather.gov/fgf/

Follow us on Facebook and Twitter for more up to date information:
@NWSGrandForks @NWSGrand Forks

Building a Weather-Ready Nation

Click for a description of this product Click to evaluate this product

7. What changes might you recommend for any of the products shown?

More context!
Give a level of urgency and don't make the details overly complicated.

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other:_____

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

(Smartphone) Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes (No)

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

They did a good job.

_____

12. Additional comments:

Good work!

_____

Thank you for participating!

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	X				
I felt comfortable voicing my opinion.	X				
I know more about the National Weather Service (NWS) resources.	X				
I feel I could use NWS resources to judge my risk in an extreme weather event.	X				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

I'm literate in usage of NWS products.

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions? None

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

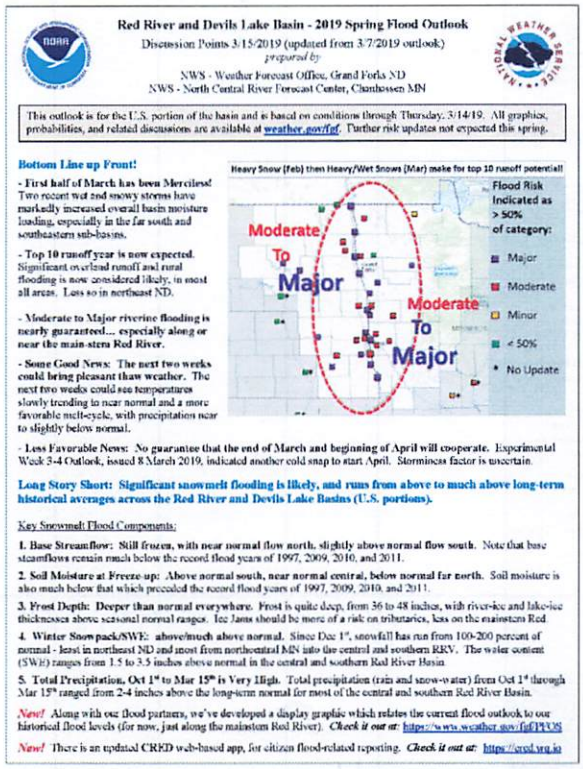
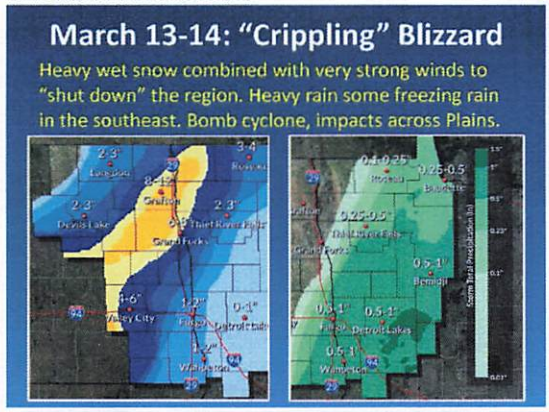
	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.		X			
Share what I learned about NWS products today with others.	X				
Seek NWS information about extreme weather risks.	X				
Use NWS products and information in your decision-making	X				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics (Combined text and graphics)

Please explain. I think more information is best.

6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 		X			
Snow/rain Forecasts 		X			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook			X		
Flood risk		X			

Long range probabilistic outlook

DEVILS LAKE & STUMP LAKE.. Long-Range Probabilistic Outlook
[not updated] Valid March 4, 2019 - September 19, 2019

LOCATION	95%	90%	75%	50%	25%	10%	5%
CREEL BAY	1449.1	1449.2	1449.6	1449.6	1450.2	1450.7	1451.4
EAST STUMP LAKE	1449.1	1449.2	1449.6	1449.0	1450.0	1450.7	1451.4

The current heights of Devils Lake and Stump Lake are ~1448.3 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES... Long-Range Probabilistic Outlook
Valid March 18, 2019 - June 16, 2019

LOCATION	95%	90%	75%	50%	25%	10%	5%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	39.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	38.0	38.5	39.0	39.5	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.6	54.7
Minnesota Tributaries:							
South Fork Buffalo River.....							
SABIN	14.6	15.0	15.8	17.2	18.6	20.9	21.7
Buffalo River.....							
HAWLEY	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DILWORTH	21.2	21.8	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
TWIN VALLEY	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.6	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
SHELLY	17.0	18.2	20.3	22.0	23.9	24.7	25.7
Sand Hill River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.1	37.0	39.1
Red Lake River.....							
HIGH LANDING	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	21.6	22.5	24.3	25.9	28.5	30.4	32.9
Snake River.....							
ABOVE WARREN	65.0	65.4	65.7	66.6	68.3	72.0	73.1
ALVARADO	104.5	105.6	106.1	109.0	109.1	110.3	110.8
Two Rivers River.....							
HALLOCK	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.8	15.6	16.4	17.7	18.9	19.4
North Dakota Tributaries:							
Wild Rice River.....							
ABERCROMBIE	20.0	21.9	23.4	24.5	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	13.2	15.2	16.6	18.0	19.8	21.7	22.7
LISBON	15.6	16.4	18.3	20.5	22.4	25.0	28.2
KINDRED	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO DIVERSION	21.2	21.3	21.3	21.3	21.3	21.3	21.3
HARWOOD	91.6	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
ENDERLIN	11.8	12.1	12.8	13.3	13.6	14.4	15.0
MAPLETON	22.0	22.9	22.6	22.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	9.1	9.4	12.1	13.3	14.6	16.5	17.9
Forest River.....							
MINTO	7.3	7.8	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	6.5	11.6	12.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.9	6.1	6.3	7.4	8.7	[illegible]	[illegible]
NECHE	10.3	10.6	11.7	13.6	16.2	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

Roseau River Basin now has a slight increase to just above normal for runoff risk.

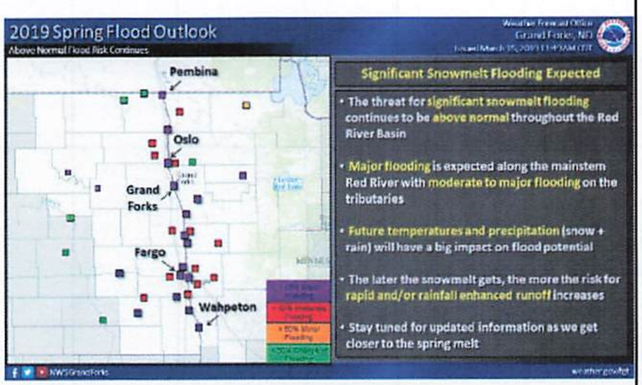
4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

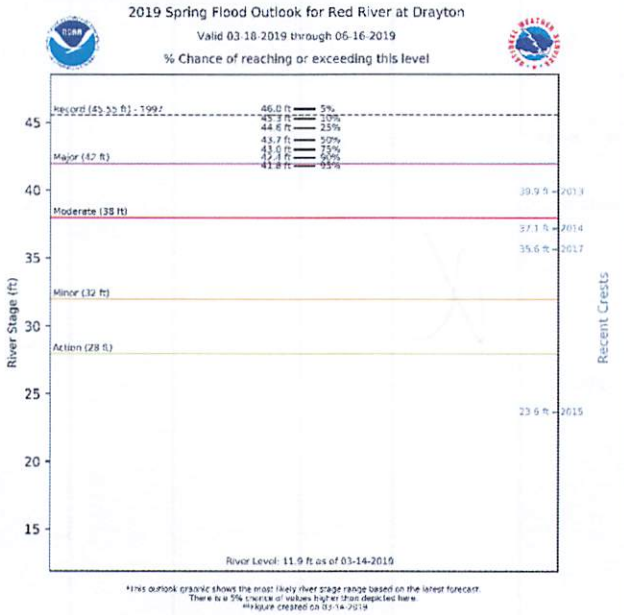
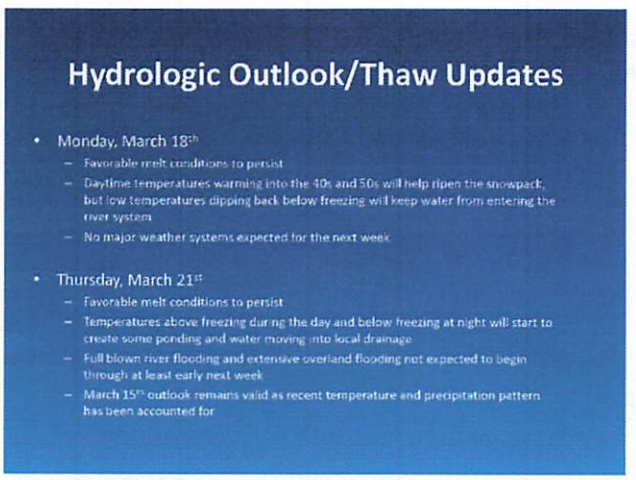
Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.

Flood risk

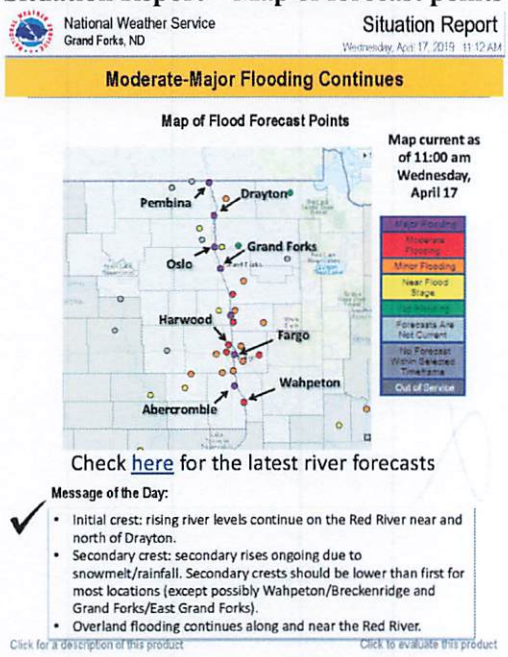


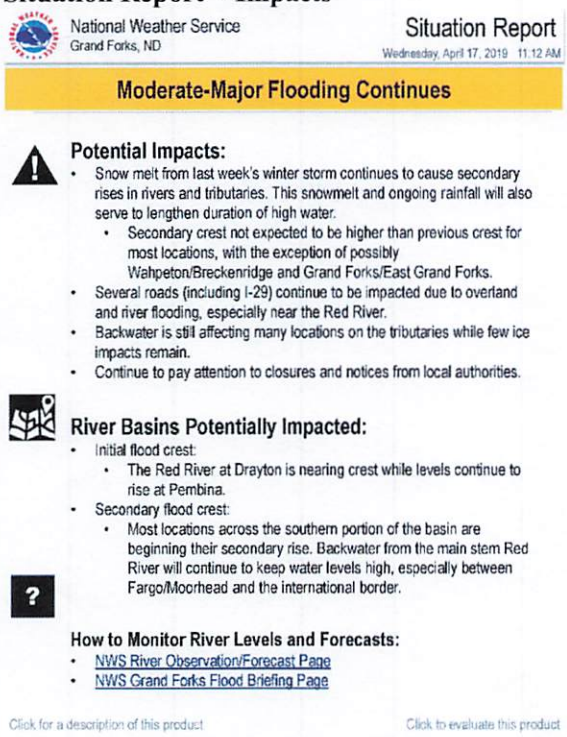
OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 	X				
Hydrologic Outlook/Thaw Updates 		X			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF	X				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...	X				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** **Map of Flood Forecast Points** Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding Moderate Flooding Minor Flooding Near Flood Stage Forecasts Are Not Current No Forecast Within Selected Timeframe Out of Service Check here for the latest river forecasts **Message of the Day:** • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product	X				

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product
Click to evaluate this product
	X				

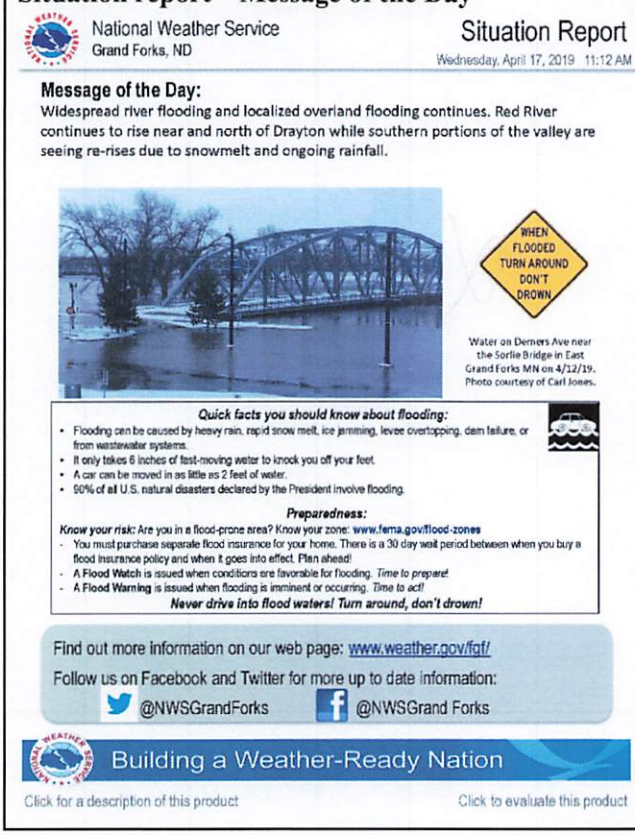
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Precipitation Outlook Click for a description of this product — Click to evaluate this product	X				
Situation report – 24 hour precipitation National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed) 24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu) Click for a description of this product — Click to evaluate this product	X				

Temperature Outlook

Day of the Week	Highs	Lows (Overnight)
Wednesday, April 17	46-51	35-38
Thursday, April 18	52-56	31-34
Friday, April 19	59-65	41-46
Saturday, April 20	56-66	35-40
Sunday, April 21	52-57	31-36
Monday, April 22	50-57	32-37

Precipitation Outlook

Day of the Week	Type	Liquid Amounts	Location
Wednesday, April 17	Rain and Snow	0"-0.50"	Mainly southern RRV
Thursday, April 18	Showers/Thunder	0"-0.10"	Eastern ND/NW MN
Friday, April 19	None	0"	
Saturday, April 20	Showers	0"-0.20"	Along/north Hwy 2
Sunday, April 21	None	0"	
Monday, April 22	None	0"	

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 	X				

7. What changes might you recommend for any of the products shown?

None

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other: Weather Radio

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

Very good presentation.

_____

12. Additional comments:

Thank you for coming.

_____

Thank you for participating!

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.		✓			
I felt comfortable voicing my opinion.	✓				
I know more about the National Weather Service (NWS) resources.			✓		
I feel I could use NWS resources to judge my risk in an extreme weather event.					

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

No internet access at need to use the library; they don't really have risk assessment, so hard to understand from the data what impacts to prepare for

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

Risk assessment, like what is given for earthquakes or hurricanes, etc, or other hazards

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

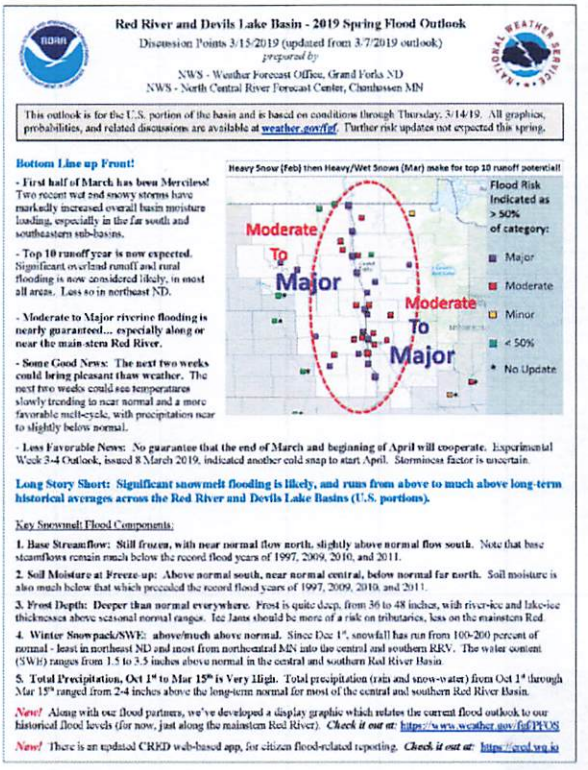
	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	✓				
Share what I learned about NWS products today with others.	✓				
Seek NWS information about extreme weather risks.	✓				
Use NWS products and information in your decision-making	✓				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics Combined text and graphics

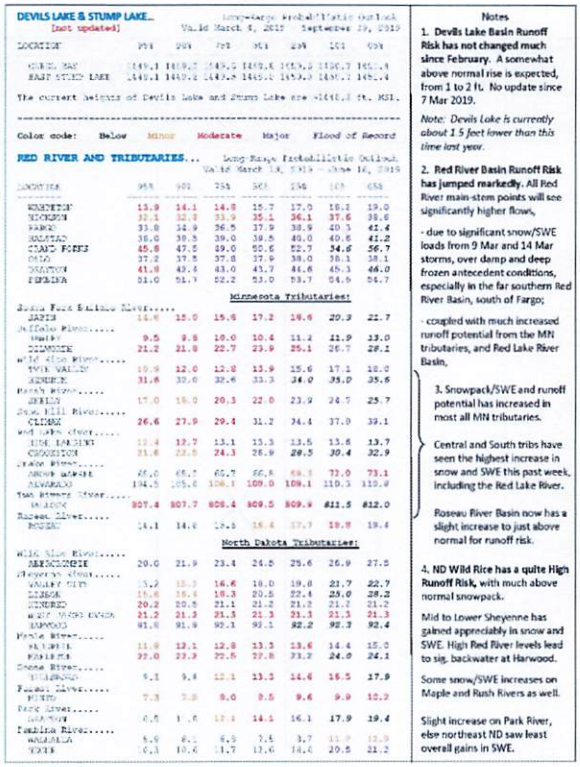
Please explain. maps, legends, explanations of the data in a graph

6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 			X		
Snow/rain Forecasts		X			

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook				X	
Flood risk		X			



DEVILS LAKE & STUMP LAKE...
[not updated]
Long-range Probabilistic Outlook
Valid March 1, 2019 - September 30, 2019

LOCATION | 95% | 90% | 75% | 50% | 25% | 10% | 05%
DEVILS LAKE | 1449.1 1449.7 1449.6 1449.6 1450.2 1450.7 1451.4
STUMP LAKE | 1449.1 1449.8 1449.6 1449.6 1450.2 1450.7 1451.4

The current heights of Devils Lake and Stump Lake are 1448.8 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...
Long-Range Probabilistic Outlook
Valid March 18, 2019 - June 16, 2019

LOCATION | 95% | 90% | 75% | 50% | 25% | 10% | 05%
WAHPETON | 13.9 | 14.1 | 14.8 | 15.7 | 17.0 | 18.1 | 19.0
HICKSON | 32.1 | 32.3 | 33.9 | 35.1 | 36.1 | 37.6 | 38.6
FARGO | 33.8 | 34.9 | 36.5 | 37.9 | 38.9 | 40.3 | 41.4
HALSTAD | 36.0 | 38.5 | 39.0 | 39.5 | 40.0 | 40.6 | 41.2
GRAND FORKS | 45.8 | 47.5 | 49.0 | 50.6 | 52.7 | 54.6 | 56.7
OSLO | 37.2 | 37.5 | 37.8 | 37.9 | 38.0 | 38.1 | 38.1
DRAYTON | 41.8 | 43.4 | 43.0 | 43.7 | 44.8 | 45.3 | 46.0
PEMBINA | 51.0 | 51.7 | 52.2 | 53.0 | 53.7 | 54.6 | 54.7

Minnesota Tributaries:

Buffalo River.....
CASPER | 14.6 | 15.0 | 15.6 | 17.2 | 18.6 | 20.3 | 21.7
Otter Tail River.....
FRITZ | 9.5 | 9.8 | 10.0 | 10.4 | 11.2 | 11.9 | 13.0
DILWORTH | 21.2 | 21.8 | 22.7 | 23.9 | 25.1 | 26.7 | 28.1
Wild Rice River.....
TWIN VALLEY | 10.9 | 12.0 | 12.8 | 13.9 | 15.6 | 17.1 | 18.0
HENDRUM | 31.6 | 32.0 | 32.6 | 33.3 | 34.0 | 35.0 | 35.6
Marsh River.....
ARGYLE | 17.0 | 18.0 | 20.3 | 22.0 | 23.9 | 24.7 | 25.7
Snake River.....
CLIMAX | 26.6 | 27.9 | 29.4 | 31.2 | 34.4 | 37.0 | 39.1
Red Lake River.....
RED LAKE FALLS | 11.8 | 12.7 | 13.1 | 13.3 | 13.5 | 13.6 | 13.7
CROOKSTON | 21.6 | 22.5 | 24.3 | 26.9 | 28.5 | 30.4 | 32.9
Sprague River.....
ANGUS ADAMS | 65.0 | 65.7 | 65.7 | 66.6 | 68.1 | 72.0 | 73.1
ALVARADO | 104.5 | 105.6 | 106.1 | 109.0 | 109.1 | 110.3 | 110.9
Two Rivers River.....
ARGYLE | 807.6 | 807.7 | 808.4 | 809.5 | 809.9 | 811.5 | 812.0
Roseau River.....
ROSEAU | 14.1 | 14.6 | 15.0 | 16.4 | 17.7 | 18.8 | 19.4

North Dakota Tributaries:

Wild Rice River.....
ABERCROMBIE | 20.0 | 21.9 | 23.4 | 24.5 | 25.6 | 26.9 | 27.5
Sheyenne River.....
VALLEY CITY | 15.2 | 15.3 | 16.6 | 18.0 | 19.8 | 21.7 | 22.7
LISBON | 15.8 | 16.4 | 18.3 | 20.5 | 22.4 | 25.0 | 28.2
KINDRED | 20.2 | 20.5 | 21.1 | 21.2 | 21.2 | 21.2 | 21.2
WEST FARGO | 21.2 | 21.2 | 21.3 | 21.3 | 21.3 | 21.5 | 21.3
HARWOOD | 91.8 | 91.9 | 92.1 | 92.1 | 92.2 | 92.3 | 92.4
Maple River.....
MAPLETON | 11.8 | 12.1 | 12.8 | 13.3 | 13.6 | 14.4 | 15.0
MAPLETON | 22.0 | 23.2 | 22.6 | 22.8 | 23.2 | 24.0 | 24.1
Sheyenne River.....
KINDRED | 6.1 | 9.8 | 12.1 | 13.3 | 14.6 | 16.5 | 17.9
Forest River.....
FORTH | 7.3 | 7.9 | 8.0 | 8.5 | 9.6 | 9.9 | 10.2
Park River.....
GRAFTON | 6.5 | 7.6 | 12.1 | 14.1 | 16.1 | 17.9 | 19.4
Pembina River.....
WALHALLA | 6.6 | 6.1 | 6.8 | 7.6 | 9.7 | 11.0 | 12.9
NECHE | 6.1 | 10.6 | 11.7 | 13.6 | 15.6 | 20.5 | 21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

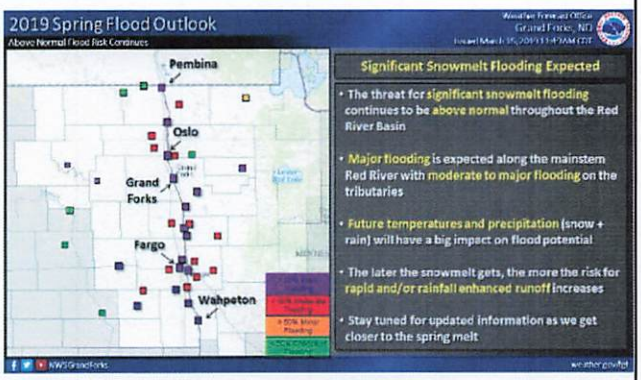
Roseau River Basin now has a slight increase to just above normal for runoff risk.

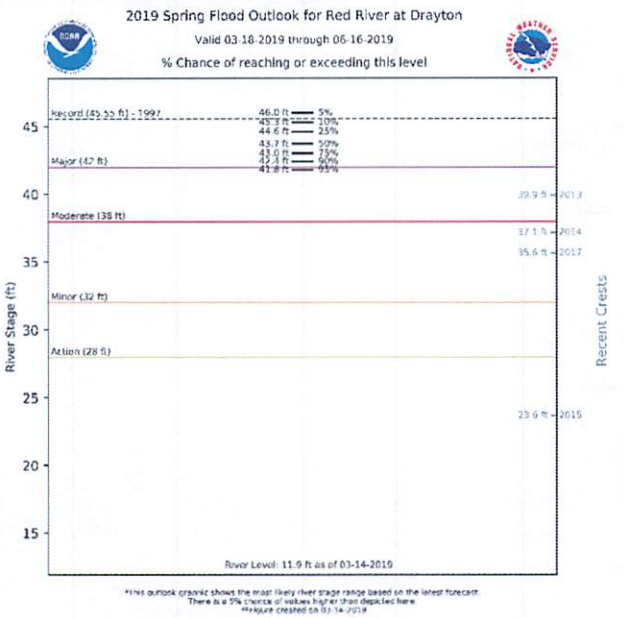
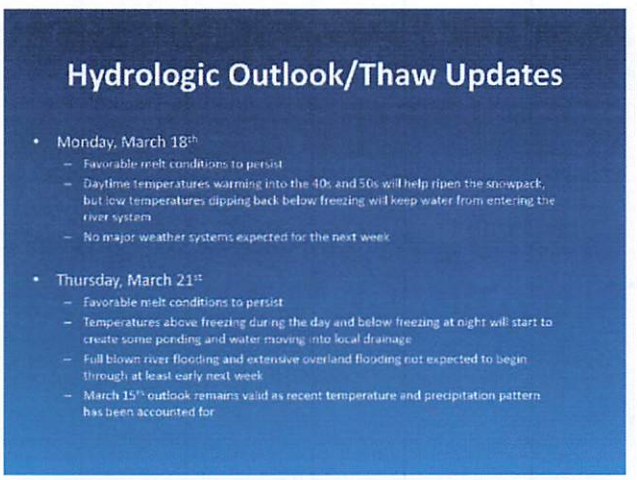
4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

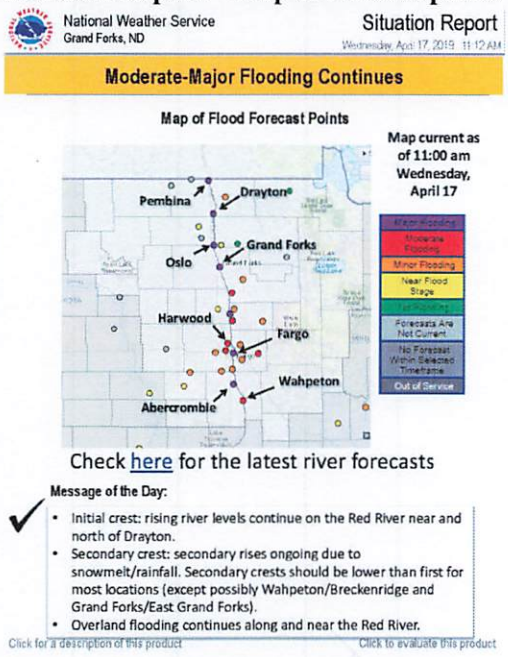
Slight increase on Park River, else northeast ND saw least overall gains in SWE.

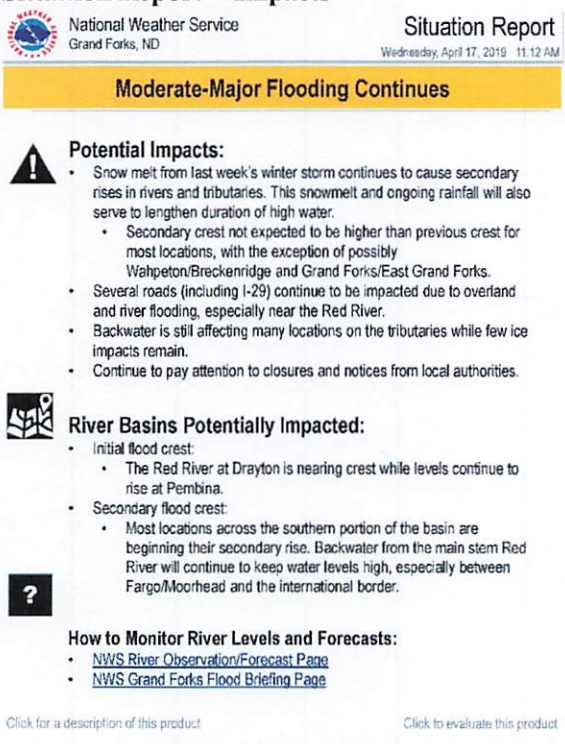


	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 			X		
Hydrologic Outlook/Thaw Updates 			X		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF		X			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...		X			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding Moderate Flooding Minor Flooding Near Flood Stage Forecasts Are Not Current No Forecast Within Selected Timeframe Out of Service Check here for the latest river forecasts Message of the Day: • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product		X			

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product
Click to evaluate this product
		X			

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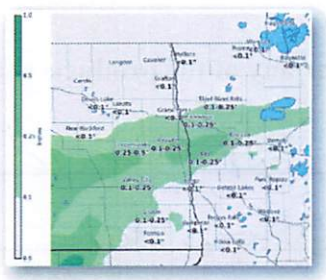
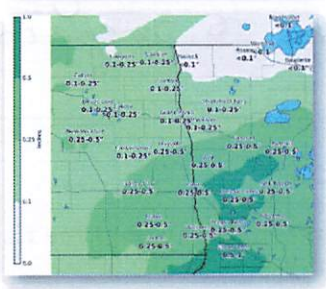
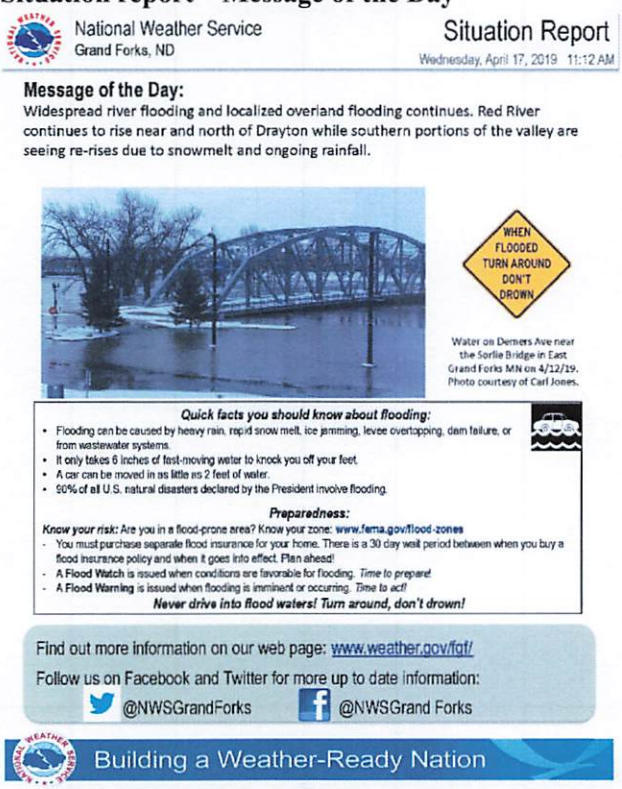
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND — Situation Report — Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs / Lows (Overnight): Wednesday, April 17: 46-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 Precipitation Outlook Day of the Week / Type / Liquid Amounts / Location: Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product — Click to evaluate this product		X			
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND — Situation Report — Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product — Click to evaluate this product		X			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Message of the Day:** Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall. WHEN FLOODED TURN AROUND DON'T DROWN Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones. ***Quick facts you should know about flooding:*** • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be moved in as little as 2 feet of water. • 90% of all U.S. natural disasters declared by the President involve flooding. ***Preparedness:*** ***Know your risk:*** Are you in a flood-prone area? Know your zone: **www.fema.gov/flood-zones** - You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead! - A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!* - A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!* ***Never drive into flood waters! Turn around, don't drown!*** Find out more information on our web page: www.weather.gov/fgf/ Follow us on Facebook and Twitter for more up to date information: @NWSGrandForks @NWSGrand Forks Building a Weather-Ready Nation Click for a description of this product Click to evaluate this product			X		

7. What changes might you recommend for any of the products shown?

Tutorials, risk assessment, predicted extent of flooding & for how long, given the data, how much to prepare

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter (Internet) Other: phone

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

_____

_____

12. Additional comments:

_____

_____

Thank you for participating!

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Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	✓				
I felt comfortable voicing my opinion.	✓				
I know more about the National Weather Service (NWS) resources.	✓				
I feel I could use NWS resources to judge my risk in an extreme weather event.	✓				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

Simply not being proactive & checking for forecast before warning has to be issued. I feel NWS is on the right track to taking measures for increasing accessibility to information.

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

Everything has an app so an app that was created to give links to critical areas that face floods for live data feeds would help.

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	✓				
Share what I learned about NWS products today with others.	✓				
Seek NWS information about extreme weather risks.	✓				
Use NWS products and information in your decision-making	✓				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text (Graphics) Combined text and graphics

Please explain. _____

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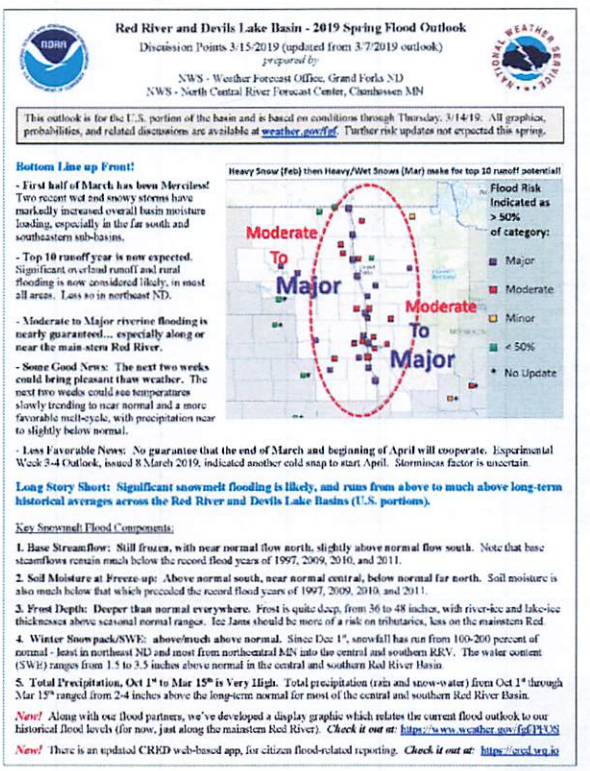
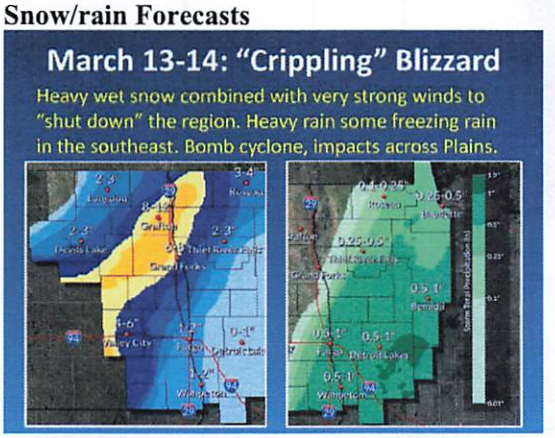
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 	1				
Snow/rain Forecasts 			2		

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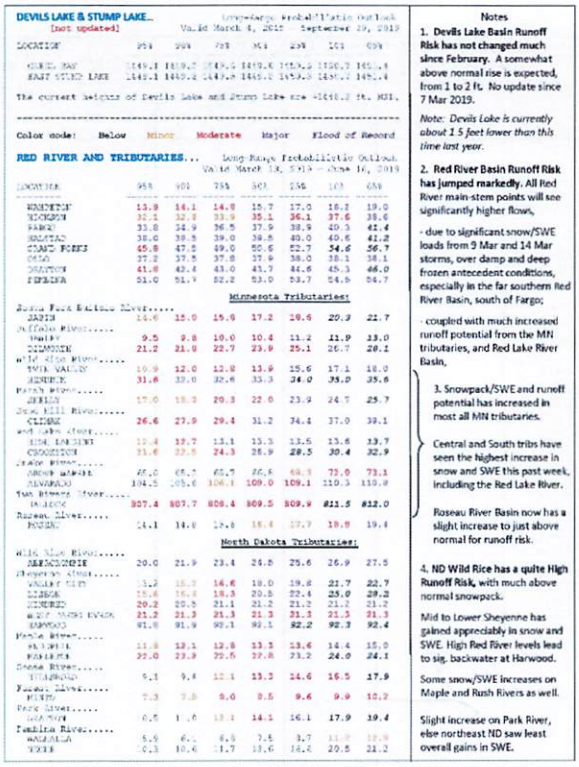
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook			2		
Flood risk					



DEVILS LAKE & STUMP LAKE...
[not updated]
Long-Range Probabilistic Outlook
Valid March 6, 2019 - September 29, 2019

LOCATION	95%	90%	75%	MID	25%	10%	05%
DEVILS LAKE	1449.1	1449.7	1450.6	1451.6	1453.0	1454.7	1456.4
EAST STUMP LAKE	1449.1	1449.2	1449.4	1449.6	1450.0	1450.2	1450.4

The current heights of Devils Lake and Stump Lake are 1448.8 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...
Long-Range Probabilistic Outlook
Valid March 18, 2019 - June 16, 2019

LOCATION	95%	90%	75%	MID	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.3	33.9	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	38.6	38.8	39.0	39.8	40.0	40.6	41.2
GRAND FORKS	45.8	47.0	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.9	52.2	53.0	53.7	54.5	54.7

Minnesota Tributaries:

Buffalo River.....							
DILWORTH	14.6	15.0	15.6	17.2	19.6	20.3	21.7
Ottertail River.....							
DUNTY	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DIAMOND	21.2	21.9	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
HYDE VALLEY	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.6	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
ARGUSS	17.6	18.2	20.3	22.0	23.9	24.7	25.7
Snake Creek.....							
CLEBURN	26.6	27.9	29.4	31.2	34.1	37.0	38.1
Red Lake River.....							
RED LAKE DAM	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	31.6	32.5	34.3	36.9	38.5	38.4	32.9
Grand Marais.....							
GRAND MARAIS	65.0	65.7	65.7	66.6	68.3	73.0	73.1
ALVARADO	104.5	105.6	106.1	108.0	109.1	110.3	110.8
Two Rivers River.....							
GRACE	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.0	13.8	13.4	13.7	13.8	13.4

North Dakota Tributaries:

Mile Mile River.....							
MERCHANDISE	20.0	21.9	23.4	24.8	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	15.2	15.9	16.6	18.0	19.8	21.7	22.7
KINDRED	15.6	16.4	18.3	20.5	22.4	23.0	23.2
KINDRED	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO RIVER	21.2	21.3	21.3	21.3	21.3	21.3	21.3
HARWOOD	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Forest River.....							
ARVILLA	11.8	12.1	12.8	13.3	13.6	14.4	15.0
FARGO	22.0	23.3	23.5	23.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	6.1	9.4	12.1	13.2	14.6	16.5	17.9
Forest River.....							
MINTO	7.3	7.8	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	6.5	1.6	13.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.9	6..	6.5	7.5	9.7	11.0	12.0
CAVALIER	6.3	10.6	11.7	13.6	16.2	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

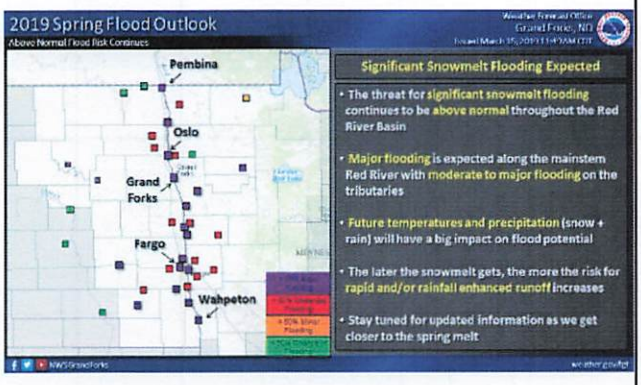
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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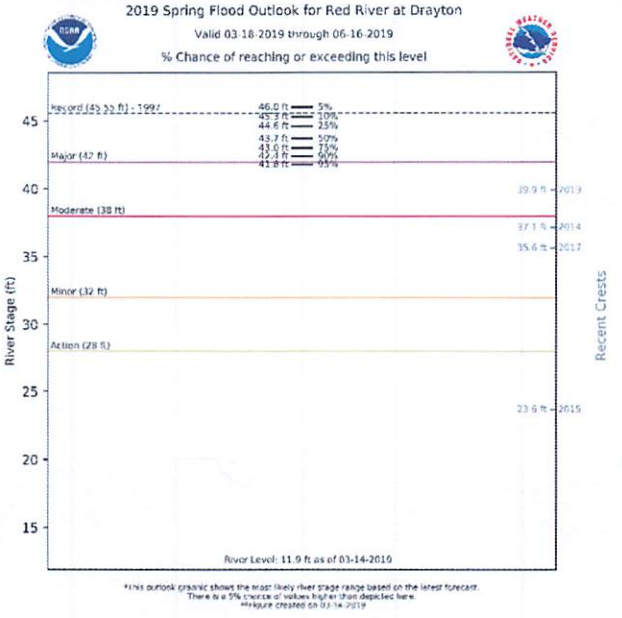
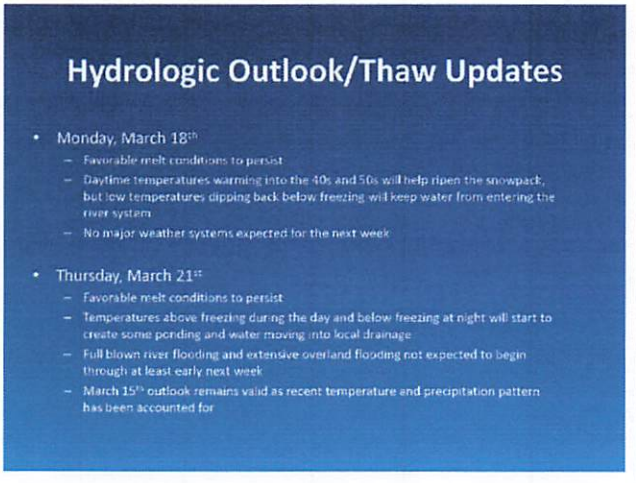
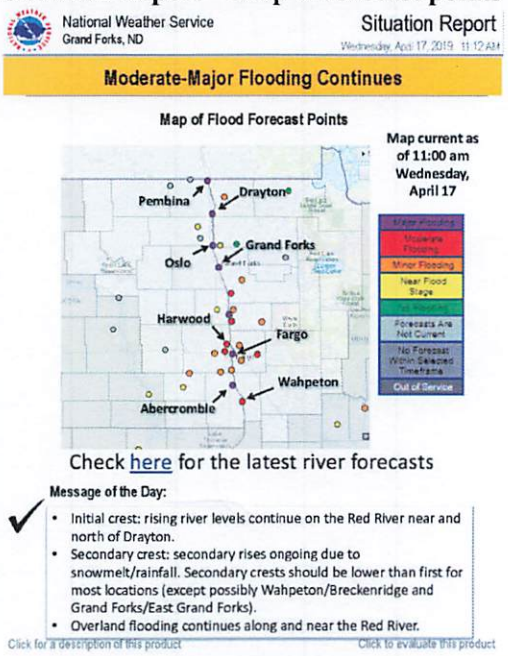
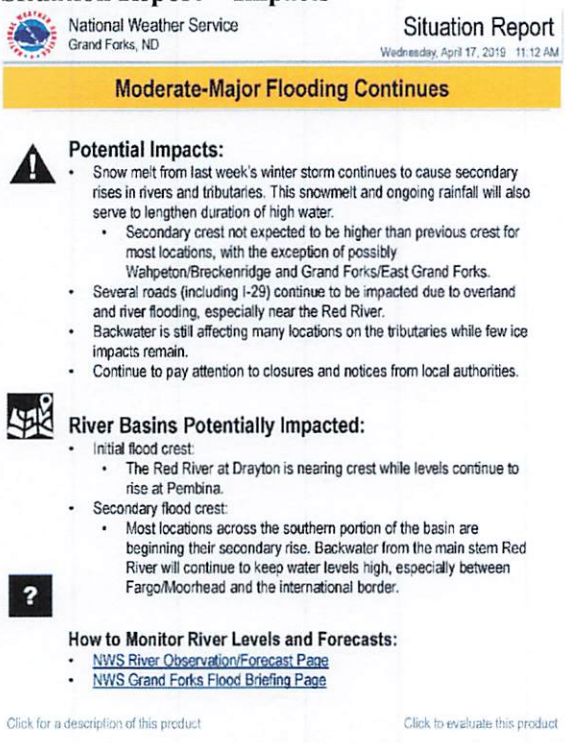
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance  	✓				
Hydrologic Outlook/Thaw Updates  				✓	

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF					

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date Thu Fri Sat Sun Mon Tue Wed (month/day) 04/18 04/19 04/20 04/21 04/22 04/23 04/24 ...truncated 784 lines...			2		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** **Map of Flood Forecast Points** Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding, Moderate Flooding, Minor Flooding, Near Flood Stage, Forecasts Are Not Current, No Forecast Within Selected Timeframe, Out of Service Check here for the latest river forecasts **Message of the Day:** • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product	✓				

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product Click to evaluate this product
	✓				

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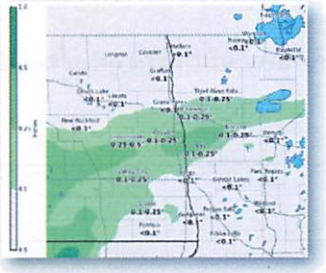
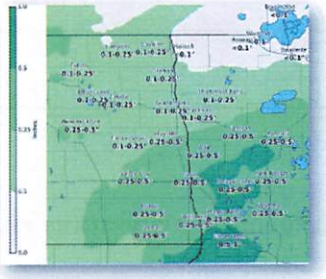
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs / Lows (Overnight) Wednesday, April 17: 48-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 Precipitation Outlook Day of the Week / Type / Liquid Amounts / Location Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product Click to evaluate this product			2		
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product Click to evaluate this product				2	

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Message of the Day:** Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall. Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones. ***Quick facts you should know about flooding:*** • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be moved in as little as 2 feet of water. • 90% of all U.S. natural disasters declared by the President involve flooding. ***Preparedness:*** ***Know your risk:*** Are you in a flood-prone area? Know your zone: **www.fema.gov/flood-zones** - You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead! - A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!* - A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!* ***Never drive into flood waters! Turn around, don't drown!*** Find out more information on our web page: www.weather.gov/fgf/ Follow us on Facebook and Twitter for more up to date information: @NWSGrandForks @NWSGrand Forks Building a Weather-Ready Nation Click for a description of this product Click to evaluate this product	2				

7. What changes might you recommend for any of the products shown?

_____

_____

_____

_____

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other:_____

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

_____

_____

12. Additional comments:

I very much appreciate the things I learned d being a part of a discussion such as this that's very important

Thank you for participating!

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Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.		✓			
I felt comfortable voicing my opinion.		✓			
I know more about the National Weather Service (NWS) resources.		✓			
I feel I could use NWS resources to judge my risk in an extreme weather event.		✓			

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

_____
_____
_____
_____

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	✓				
Share what I learned about NWS products today with others.	✓				
Seek NWS information about extreme weather risks.	✓				
Use NWS products and information in your decision-making	✓				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text (Graphics) Combined text and graphics

Please explain. _____

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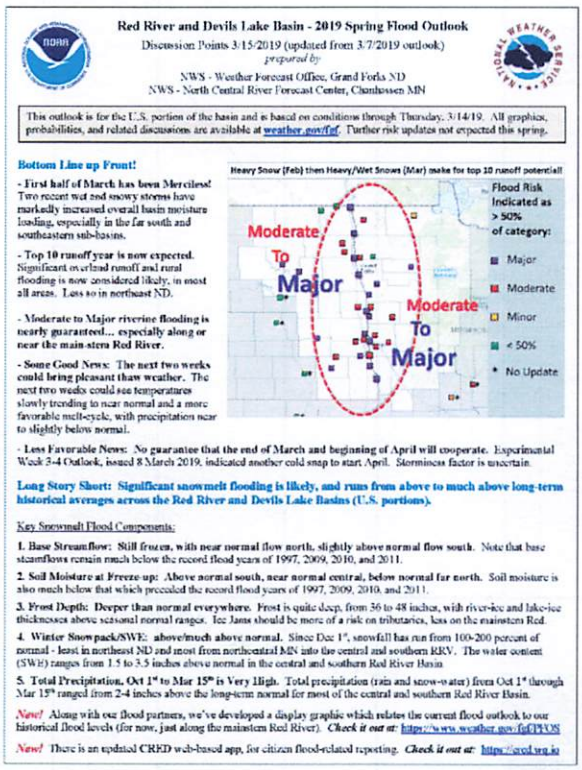
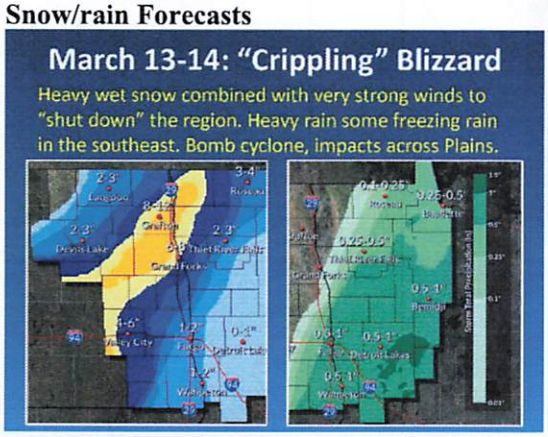
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 			✓		
Snow/rain Forecasts 		✓			

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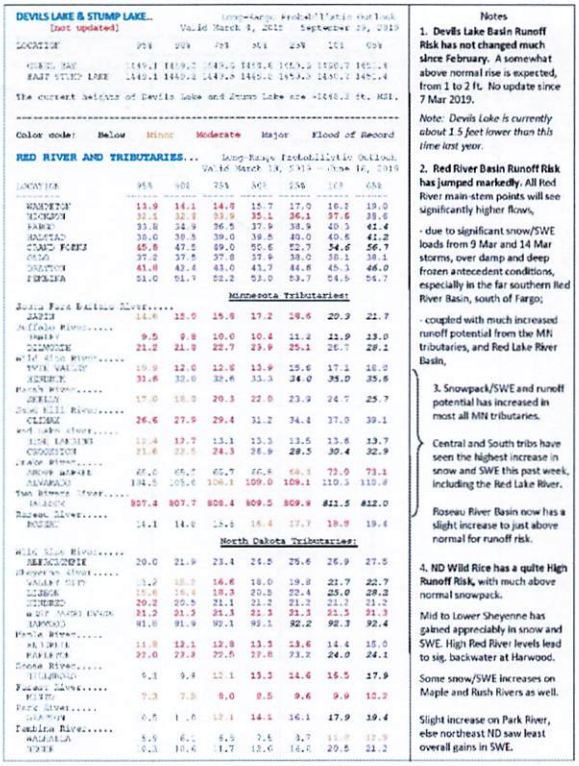
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook			✓		
Flood risk	✓				



DEVILS LAKE & STUMP LAKE...
[not updated]
Long-Range Probabilistic Outlook
Valid March 1, 2011 - September 30, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
DEVILS LAKE	1449.1	1449.2	1449.6	1449.8	1450.3	1450.7	1451.4
EAST STUMP LAKE	1449.1	1449.2	1449.5	1449.6	1450.0	1450.2	1450.4

The current heights of Devils Lake and Stump Lake are 1448.3 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...
Long-Range Probabilistic Outlook
Valid March 19, 2019 - June 17, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	38.6
HARWOOD	33.8	34.9	36.5	37.9	38.9	40.5	41.4
HALSTAD	38.0	38.5	39.0	39.8	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.8	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.5	56.7

Minnesota Tributaries:

Buffalo River.....							
DILWORTH	9.5	9.8	10.0	10.4	11.2	11.9	13.0
Wild Rice River.....							
TWIN VALLEY	19.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.8	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
SHELLY	17.0	18.3	20.3	22.0	23.9	24.7	25.7
Snake River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.1	37.0	39.1
Red Lake River.....							
RED LAKE R	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	21.6	22.5	24.3	26.9	28.5	30.4	32.9
Grace River.....							
ARGYLE	65.0	65.7	65.7	66.6	68.1	72.0	73.1
HALMAVILLE	104.5	105.6	106.1	109.0	109.1	110.3	110.8
Two Rivers River.....							
ALVARADO	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Tamarac River.....							
ROSEAU	14.1	14.6	15.6	16.4	17.7	18.8	19.4

North Dakota Tributaries:

Wild Rice River.....							
HENDRUM	20.0	21.9	23.4	24.8	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	15.2	15.5	16.6	18.0	19.8	21.7	22.7
KINDRED	15.6	15.8	18.3	20.5	22.4	25.0	28.2
KINDRED	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO DAMS	21.2	21.3	21.3	21.3	21.3	21.5	21.3
HARWOOD	91.0	91.9	92.1	92.1	92.2	92.3	92.4
Pembina River.....							
WALHALLA	11.8	12.1	12.8	13.5	13.6	14.4	15.0
PARK RIVER	22.0	23.2	23.5	23.8	23.2	24.0	24.1
Snake River.....							
HILLSBORO	9.1	9.8	12.1	13.3	14.6	16.5	17.9
Forest River.....							
FORK	7.3	7.5	8.0	8.5	9.6	9.9	12.2
Park River.....							
GRAFTON	0.5	1.0	12.1	14.1	16.1	17.9	19.4
Tongue River.....							
WALHALLA	5.6	6.1	6.5	7.5	9.7	11.3	12.9
TOKE	0.3	10.6	11.7	12.6	14.6	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

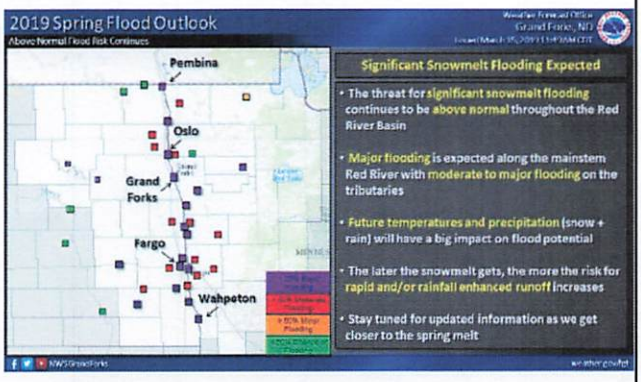
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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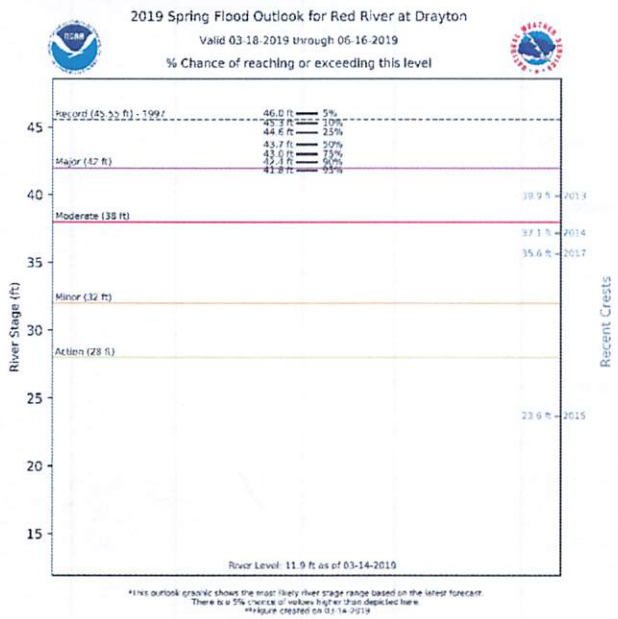
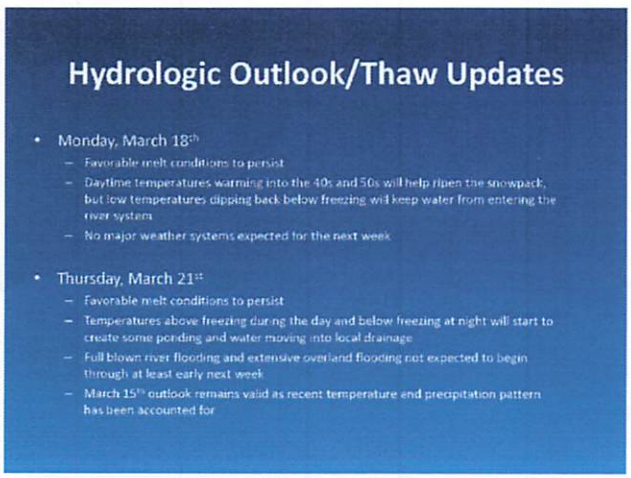
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 			✓		
Hydrologic Outlook/Thaw Updates 		✓			

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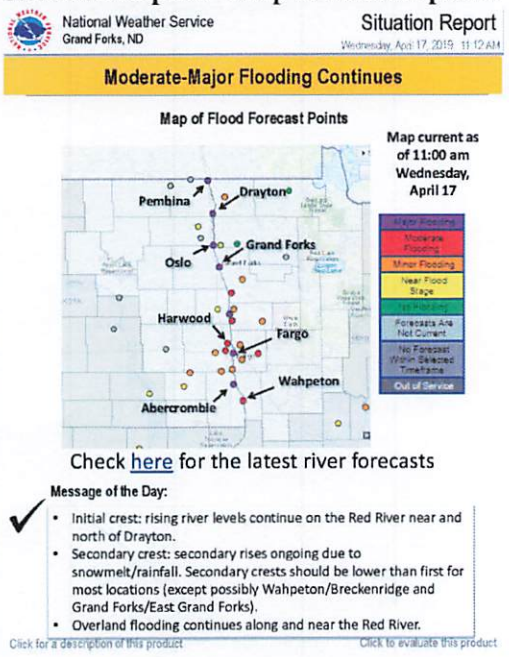
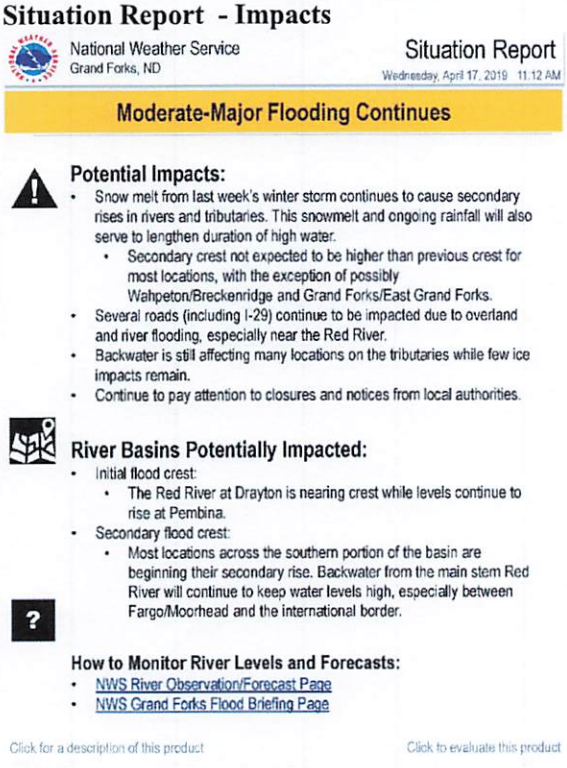
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF					

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...					

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** **Map of Flood Forecast Points** Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding Moderate Flooding Minor Flooding Near Flood Stage Forecasts Are Not Current No Forecast Within Selected Timeframe Out of Service Check here for the latest river forecasts **Message of the Day:** • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product	✓				

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product
Click to evaluate this product
			✓		

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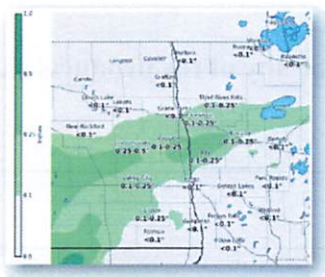
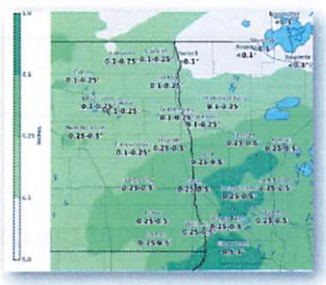
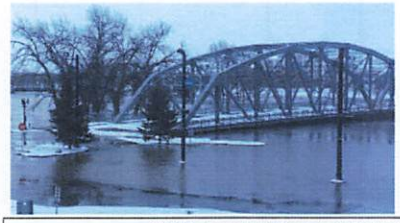
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs / Lows (Overnight) Wednesday, April 17: 46-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 Precipitation Outlook Day of the Week / Type / Liquid Amounts / Location Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product Click to evaluate this product	✓				
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product Click to evaluate this product	✓				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Message of the Day:** Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall.  Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones. ***Quick facts you should know about flooding:*** • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be moved in as little as 2 feet of water. • 90% of all U.S. natural disasters declared by the President involve flooding. ***Preparedness:*** ***Know your risk:*** Are you in a flood-prone area? Know your zone: **www.fema.gov/flood-zones** - You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead! - A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!* - A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!* ***Never drive into flood waters! Turn around, don't drown!*** Find out more information on our web page: www.weather.gov/fgf/ Follow us on Facebook and Twitter for more up to date information: @NWSGrandForks @NWSGrand Forks Building a Weather-Ready Nation Click for a description of this product Click to evaluate this product	✓				

7. What changes might you recommend for any of the products shown?

NONE

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

(Facebook) Twitter Internet Other: Phone App

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes (No)

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

_____

_____

12. Additional comments:

_____

_____

Thank you for participating!

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Expiration Date: 07/31/2023

Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.		X			
I felt comfortable voicing my opinion.	X				
I know more about the National Weather Service (NWS) resources.	X				
I feel I could use NWS resources to judge my risk in an extreme weather event.		X			

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

Some products are too difficult. Emergency flood alerts aren't made massively attention grabbing & they are easy to scroll past

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

more localized info, multiple measurement sites

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	X				
Share what I learned about NWS products today with others.		X			
Seek NWS information about extreme weather risks.	X				
Use NWS products and information in your decision-making	X				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics Combined text and graphics

Please explain. faster to read, has minimal text with only SUPER important info

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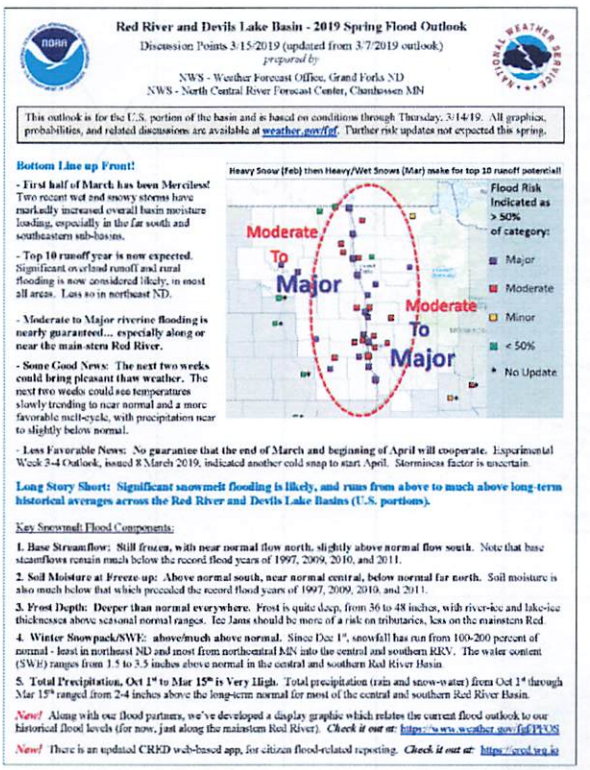
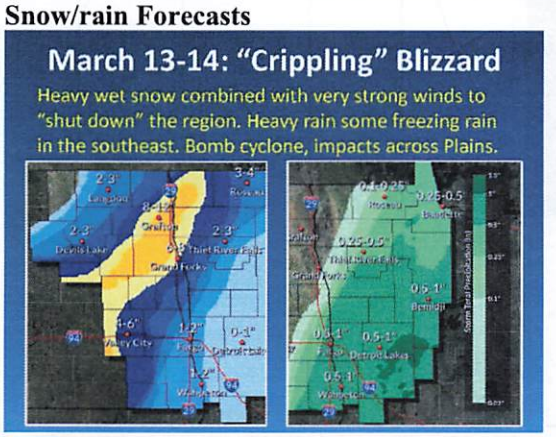
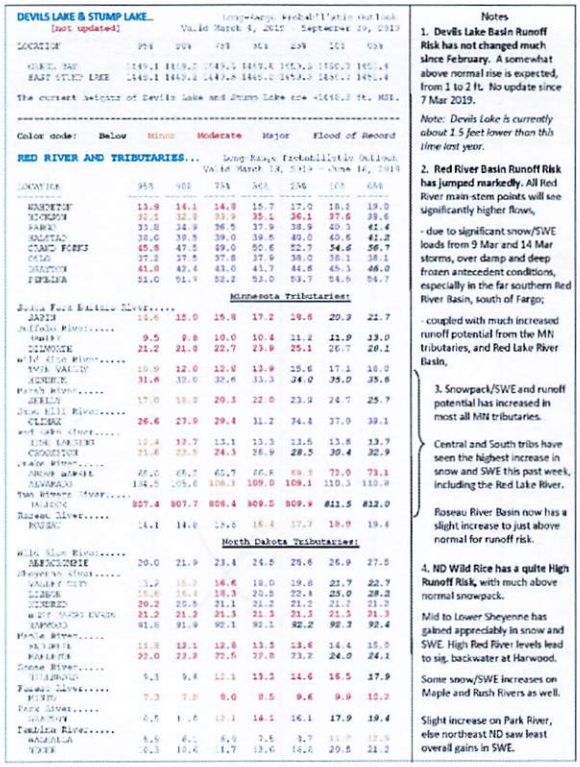
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 			X		
Snow/rain Forecasts 	X				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook				X	
Flood risk	X				



DEVILS LAKE & STUMP LAKE...
[not updated]

Long-Range Probabilistic Outlook
Valid March 4, 2019 - September 29, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
DEVILS LAKE	1449.1	1449.2	1449.5	1449.8	1450.3	1450.7	1451.4
EAST STUMP LAKE	1448.1	1448.2	1448.5	1448.8	1449.3	1449.7	1450.4

The current website of Devils Lake and Stump Lake are 1450.2 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long-Range Probabilistic Outlook
Valid March 14, 2019 - June 14, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.1	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	38.6
HARWOOD	33.8	34.9	36.5	37.9	38.9	40.3	41.4
ARGUSTAD	38.0	38.5	39.0	39.8	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.8	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.6	54.7

Minnesota Tributaries:

Judicial Ditch 11.....							
JAZZA	11.6	12.0	15.8	17.2	18.6	20.3	22.7
Buffalo River.....							
HAWLEY	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DILWORTH	21.2	21.8	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
TWIN VALLEY	10.9	12.0	12.9	13.9	15.6	17.1	18.0
ADRIAN	31.6	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
ERSKINE	17.0	18.3	20.1	22.0	23.9	24.7	25.7
Judicial Ditch 11.....							
CLEBAY	26.6	27.9	29.4	31.2	34.1	37.0	39.1
Red Lake River.....							
HIGH LANDING	12.4	12.7	13.1	13.3	13.5	13.8	13.9
CROOKSTON	21.6	22.5	24.3	26.9	28.5	30.4	32.9
Snake River.....							
BROWNS BRIDGE	67.0	68.7	69.7	70.6	69.3	72.0	73.1
HALLOCK	104.5	105.6	106.1	109.0	109.1	110.1	110.8
Two Rivers River.....							
ARGYLE	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.8	15.8	16.4	17.7	18.9	19.6

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	20.0	21.9	23.4	24.5	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	15.2	15.7	16.6	18.0	19.8	21.7	22.7
KINDRED	15.6	16.4	18.3	20.5	22.4	25.0	28.2
KINDRED	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FORK RIVER	21.2	21.3	21.3	21.3	21.3	21.3	21.3
LISBON	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
MAYVILLE	11.8	12.1	12.8	13.5	13.6	14.4	15.0
PORTLAND	22.0	22.3	22.5	22.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	9.1	9.4	12.1	13.2	14.6	16.5	17.9
Forest River.....							
FORT	7.3	7.8	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	6.5	7.6	12.1	14.1	16.1	17.9	19.4
Tributaries.....							
MANVILLE	5.9	6.1	6.8	7.5	8.7	11.7	12.9
TOWER	6.3	10.6	11.7	13.6	14.6	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

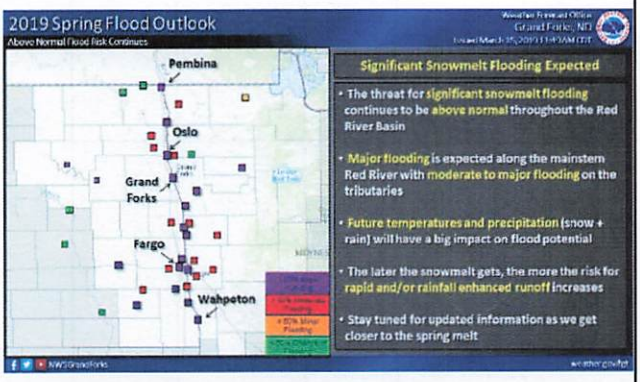
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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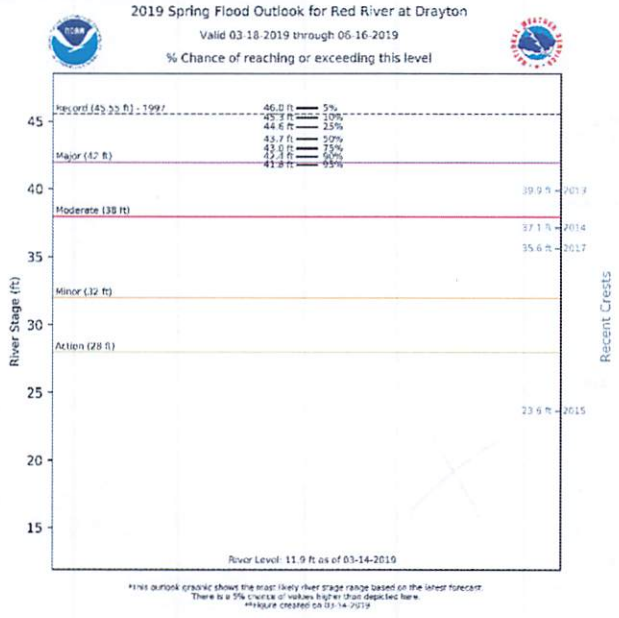
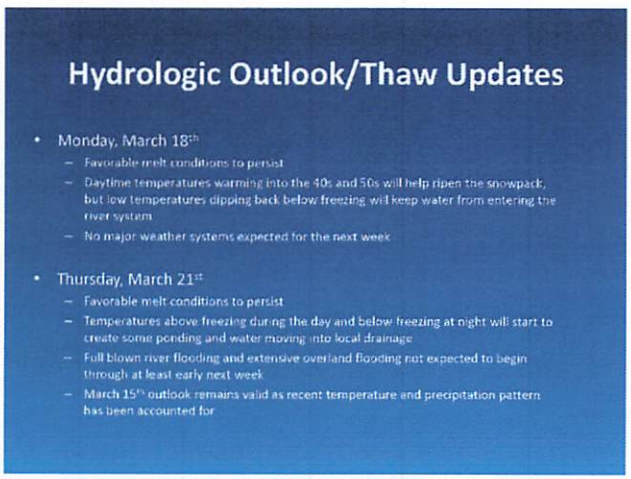
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 		X			
Hydrologic Outlook/Thaw Updates 				X	

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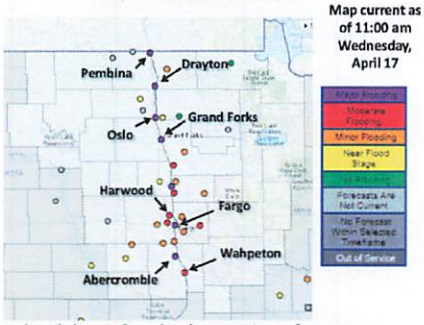
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF	X				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...	X				

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points  Check here for the latest river forecasts Message of the Day: • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product — Click to evaluate this product	X				

Situation Report - Impacts
National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product — Click to evaluate this product
		X			

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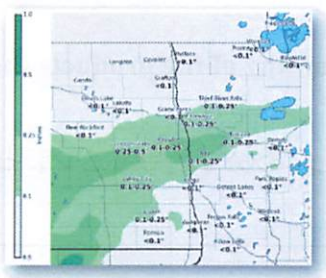
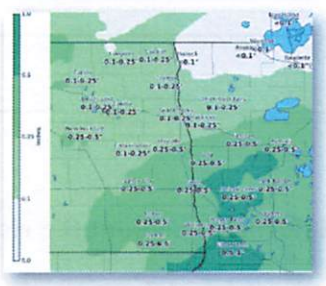
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs / Lows (Overnight) Wednesday, April 17: 46-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 Precipitation Outlook Day of the Week / Type / Liquid Amounts / Location Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product Click to evaluate this product	X				
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product Click to evaluate this product		X			

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Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day		X			

National Weather Service
Grand Forks, ND

Situation Report
Wednesday, April 17, 2019 11:12 AM

Message of the Day:
Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall.

Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones.

Quick facts you should know about flooding:

- Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems.
- It only takes 6 inches of fast-moving water to knock you off your feet.
- A car can be moved in as little as 2 feet of water.
- 90% of all U.S. natural disasters declared by the President involve flooding.

Preparedness:

Know your risk: Are you in a flood-prone area? Know your zone: **www.fema.gov/flood-zones**

- You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead!
- **A Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!*
- **A Flood Warning** is issued when flooding is imminent or occurring. *Time to act!*

Never drive into flood waters! Turn around, don't drown!

Find out more information on our web page: www.weather.gov/fgf/

Follow us on Facebook and Twitter for more up to date information:
@NWSGrandForks @NWSGrand Forks

Building a Weather-Ready Nation

Click for a description of this product Click to evaluate this product

7. What changes might you recommend for any of the products shown?

More localized measurements

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other:_____

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

(Smartphone) Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes (No)

If Yes, please explain:

N/A

11. What improvements could be made in the format or content of this session?

N/A

12. Additional comments:

N/A

Thank you for participating!

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Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	X				
I felt comfortable voicing my opinion.	X				
I know more about the National Weather Service (NWS) resources.		X			
I feel I could use NWS resources to judge my risk in an extreme weather event.	X				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

lack of prediction of heavy rains

facebook dependent around here w/ no local TV or radio

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3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

[redacted]

Not Sure

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.		X			
Share what I learned about NWS products today with others.	X				
Seek NWS information about extreme weather risks.	X				
Use NWS products and information in your decision-making	X				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics (Combined text and graphics)

Please explain. text but short and concise
I hate video updates. They're hard to absorb the info and take too long to watch and you can't listen to them well in public

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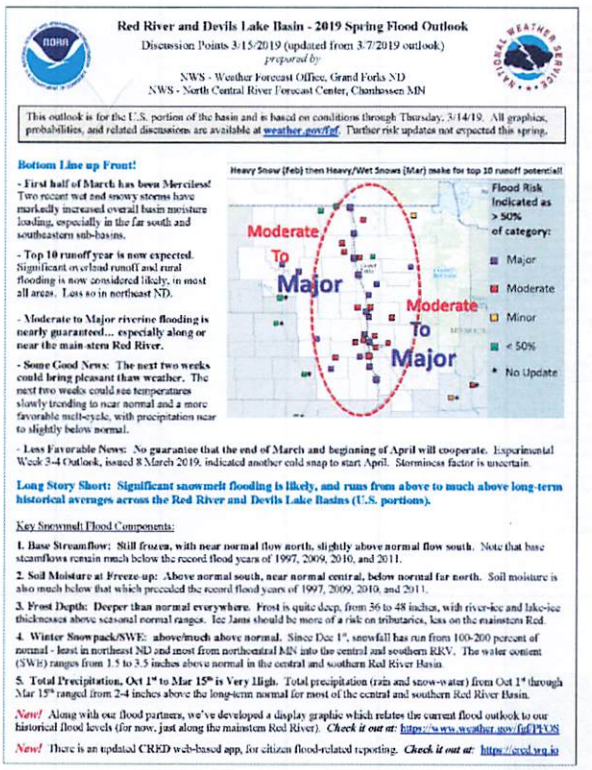
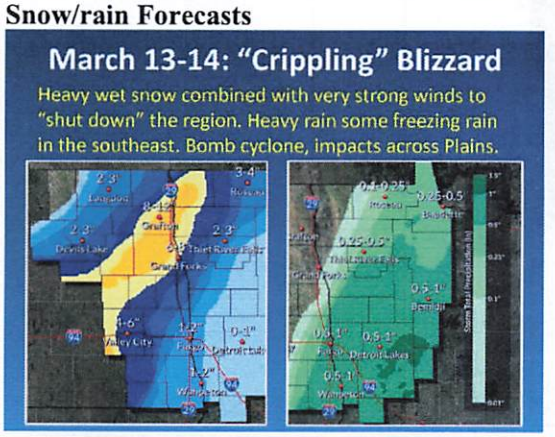
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 	X				
Snow/rain Forecasts 	X				

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	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook				X	
Flood risk	X				

DEVILS LAKE & STUMP LAKE...
[not updated]

Long-Range Probabilistic Outlook
Valid March 4, 2019 - September 29, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
DEVILS LAKE	1449.1	1449.2	1449.6	1449.8	1450.2	1450.7	1451.4
EAST STUMP LAKE	1449.1	1449.2	1449.6	1449.8	1450.2	1450.7	1451.4

The current values of Devils Lake and Stump Lake are ~1449.2 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long-Range Probabilistic Outlook
Valid March 14, 2019 - June 12, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.6	33.9	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.5	41.4
HALSTAD	38.0	38.5	39.0	39.6	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	43.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.6	55.7

Minnesota Tributaries:

Buffalo River.....							
HAWLEY	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DILWORTH	21.2	21.9	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
HOT SPRINGS	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.6	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
ABERCROMBIE	17.0	18.2	20.3	22.0	23.2	24.7	25.7
Sand Hill River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.4	37.0	39.1
Red Lake River.....							
RED LAKE	12.4	12.7	13.1	13.3	13.6	13.8	13.7
CROOKSTON	21.6	22.5	24.3	26.9	28.5	30.4	32.9
Snake River.....							
ARGYLE	65.0	65.7	65.7	66.6	68.1	72.0	73.1
HALLOCK	104.5	105.0	106.1	108.0	109.1	110.3	110.8
Two Rivers River.....							
INTAKE	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.8	15.6	16.4	17.7	18.8	19.4

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	20.0	21.9	23.4	24.8	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	3.2	13.9	14.6	18.0	19.0	21.7	22.7
KINDRED	19.6	19.8	18.3	20.8	22.4	25.0	28.2
KINDRED	20.2	20.6	21.1	21.2	21.2	21.2	21.2
@ DIV. WORKS DRAIN	21.3	21.3	21.3	21.3	21.3	21.3	21.3
HARWOOD	91.6	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
MAPLETON	11.8	12.1	12.8	13.3	13.6	14.4	15.0
PARK RIVER	20.0	23.3	23.5	23.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	6.1	9.8	12.1	13.3	14.6	16.5	17.9
Forest River.....							
FORDVILLE	7.3	7.5	8.0	8.5	9.6	9.9	12.2
Park River.....							
GRAFTON	0.5	1.0	12.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.6	6.1	6.3	7.6	9.7	11.3	12.6
CAVALIER	0.3	10.4	11.7	13.6	14.0	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

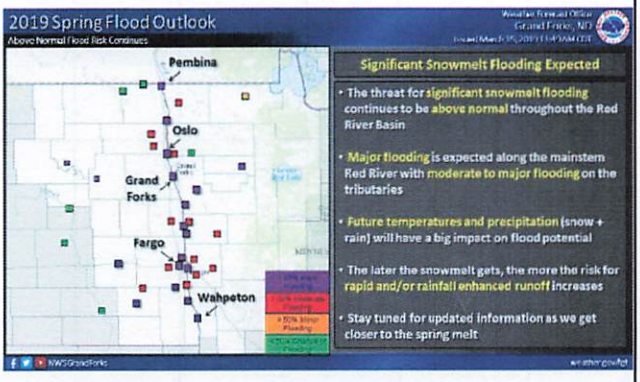
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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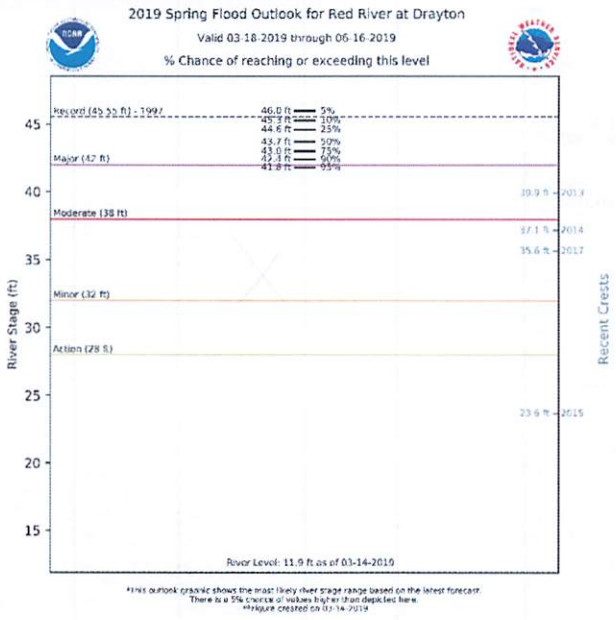
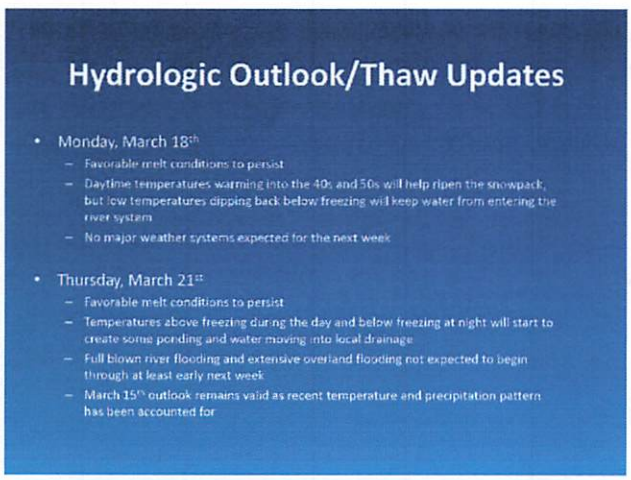
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 	X				
Hydrologic Outlook/Thaw Updates 		X			

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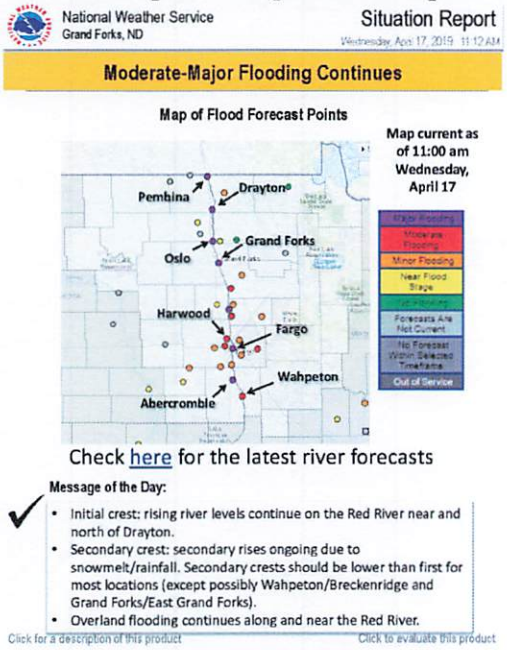
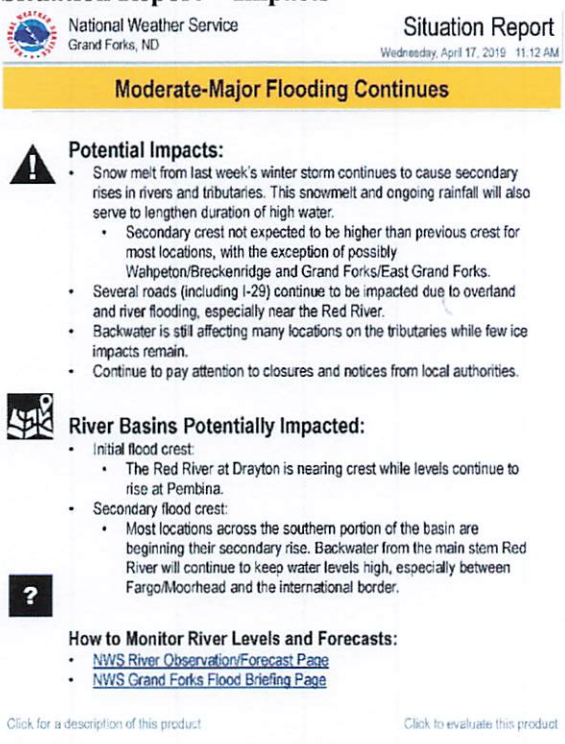
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF			X		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...			X		

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM Moderate-Major Flooding Continues Map of Flood Forecast Points Map current as of 11:00 am Wednesday, April 17 Pembina Drayton Grand Forks Oslo Harwood Fargo Wahpeton Abercrombie Major Flooding Moderate Flooding Minor Flooding Near Flood Stage Forecasts Are Not Current No Forecast Within Selected Timeframe Out of Service Check here for the latest river forecasts Message of the Day: • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product		X			

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product
Click to evaluate this product
		X			

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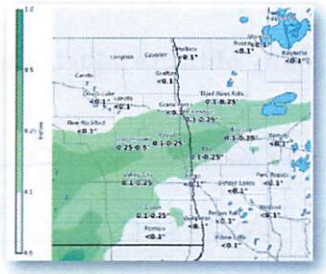
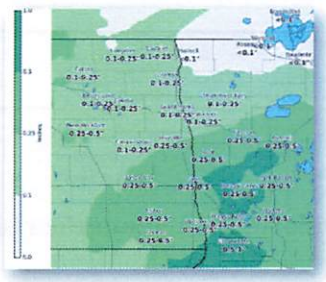
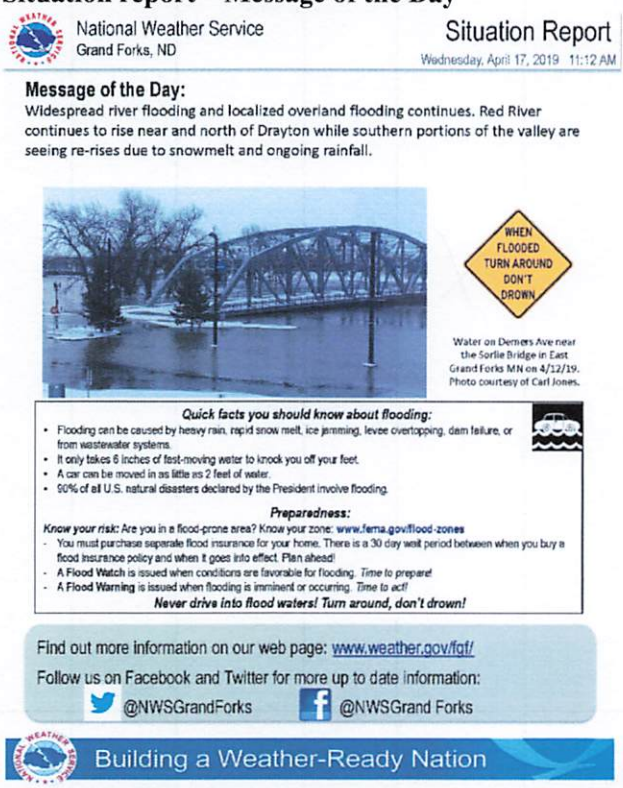
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs / Lows (Overnight) Wednesday, April 17: 46-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 Precipitation Outlook Day of the Week / Type / Liquid Amounts / Location Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product Click to evaluate this product	X				
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product Click to evaluate this product	X				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Message of the Day:** Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall. WHEN FLOODED TURN AROUND DON'T DROWN Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones. ***Quick facts you should know about flooding:*** • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be moved in as little as 2 feet of water. • 90% of all U.S. natural disasters declared by the President involve flooding. ***Preparedness:*** *Know your risk:* Are you in a flood-prone area? Know your zone: www.fema.gov/flood-zones - You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead! - A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!* - A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!* ***Never drive into flood waters! Turn around, don't drown!*** Find out more information on our web page: www.weather.gov/fgf/ Follow us on Facebook and Twitter for more up to date information: @NWSGrandForks @NWSGrand Forks Building a Weather-Ready Nation Click for a description of this product Click to evaluate this product	X				

7. What changes might you recommend for any of the products shown?

Keep text char & concise and not wordy.
Limit info to the more specific community.

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other:_____

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

Nothing

11. What improvements could be made in the format or content of this session?

Nothing

12. Additional comments:

Great!

Thank you for participating!

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Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	✓				
I felt comfortable voicing my opinion.	✓				
I know more about the National Weather Service (NWS) resources.	✓				
I feel I could use NWS resources to judge my risk in an extreme weather event.	✓				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

User friendly apps for specific areas

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

A cell phone app w/ updated info

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	✓				
Share what I learned about NWS products today with others.	✓				
Seek NWS information about extreme weather risks.	✓				
Use NWS products and information in your decision-making	✓				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text (Graphics) Combined text and graphics

Please explain. Easier to spot your area w/ graphics

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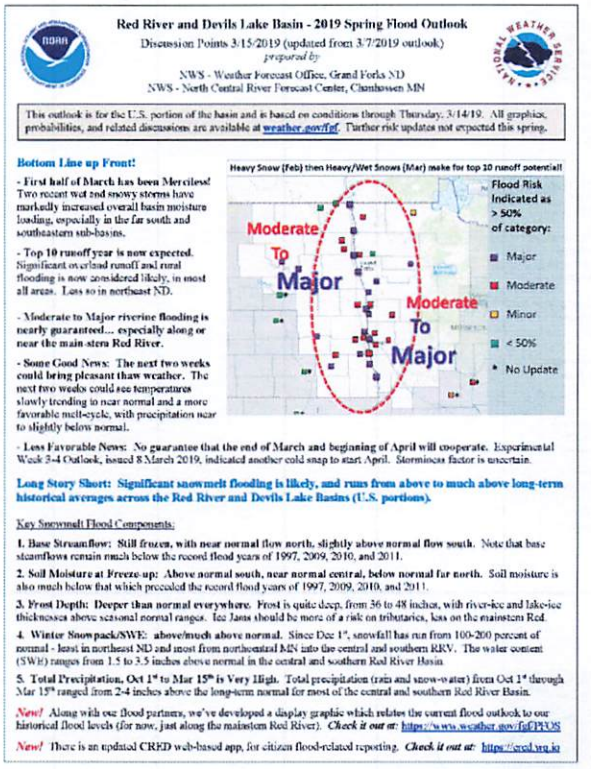
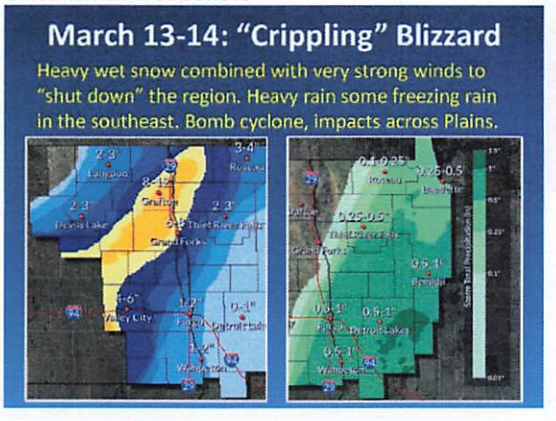
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 		✓			
Snow/rain Forecasts 	✓				

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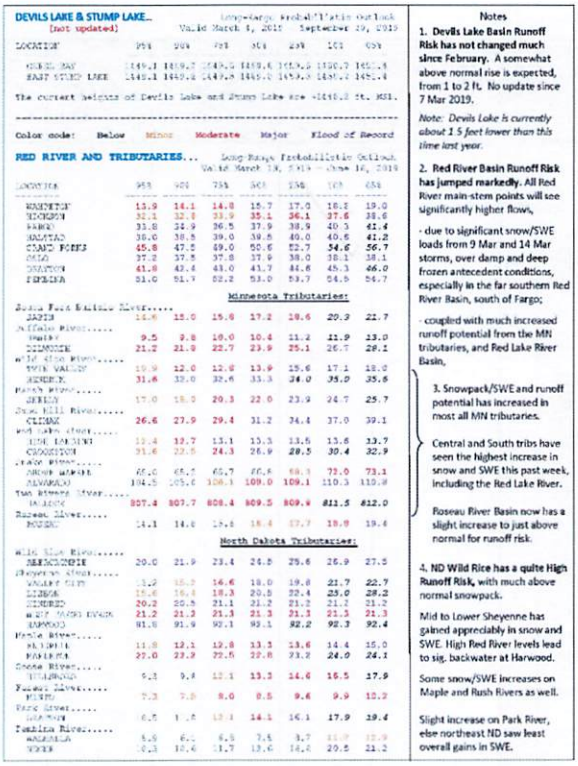
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook				✓	
Flood risk	✓				



DEVILS LAKE & STUMP LAKE...
[not updated]

Long-Range Probabilistic Outlook
Valid March 1, 2019 - September 29, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
DEVILS LAKE	1449.1	1449.7	1449.6	1449.6	1450.0	1450.7	1451.4
EAST STUMP LAKE	1448.1	1449.2	1447.8	1448.0	1450.0	1450.2	1451.4

The current heights of Devils Lake and Stump Lake are 1448.2 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long-Range Probabilistic Outlook
Valid March 18, 2019 - June 16, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	38.0	38.5	39.0	39.8	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.5	54.7

Minnesota Tributaries:

South Fork Buffalo River.....							
ZAPATA	14.6	15.0	15.6	17.2	18.6	20.3	21.7
Ottertail River.....							
FRAZEE	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DETROIT	21.2	21.8	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
TWIN VALLEY	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.6	33.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
ARGYLE	17.0	18.3	20.3	22.0	23.9	24.7	25.7
Snake Hill River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.1	37.0	39.1
Red Lake River.....							
HIGH LANDING	13.4	13.7	13.1	15.3	13.5	13.6	13.7
CROOKSTON	31.6	22.5	24.3	26.9	28.5	30.4	32.9
Grace River.....							
ARGYLE WATER	67.0	65.7	65.7	66.6	69.1	73.0	73.1
ALVARADO	104.5	105.6	108.1	109.0	109.1	110.3	110.9
Two Rivers River.....							
DRAYTON	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Sweet River.....							
HOPE	14.1	14.6	15.6	16.4	17.7	18.9	19.4

North Dakota Tributaries:

Wild Rice River.....							
HENSCHOPIE	20.0	21.9	23.4	24.8	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	15.2	15.2	16.6	18.0	19.8	21.7	22.7
KINDRED	15.6	16.4	18.3	20.5	22.4	25.0	28.2
KINDRED	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO DIVER	21.2	21.3	21.3	21.3	21.3	21.3	21.3
HARWOOD	91.8	91.9	92.1	93.1	92.2	92.3	92.4
Maple River.....							
MAPLETON	11.8	12.1	12.8	13.3	13.6	14.4	15.0
MAPLETON	22.0	23.2	22.6	22.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	6.1	9.4	12.1	13.3	14.6	16.5	17.9
Forest River.....							
FORDVILLE	7.3	7.8	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	6.5	7.6	12.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.6	6.1	6.6	7.5	9.7	11.9	12.9
NECHE	9.3	10.6	11.7	13.6	16.6	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

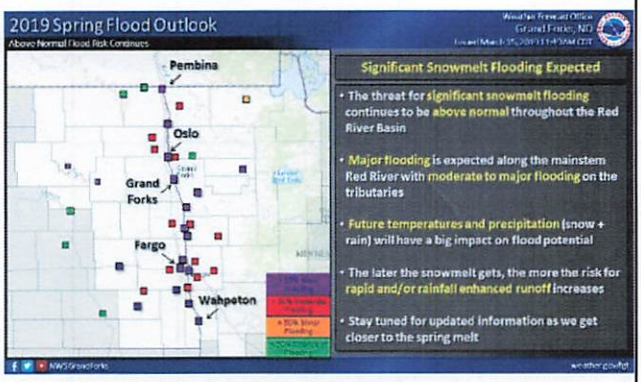
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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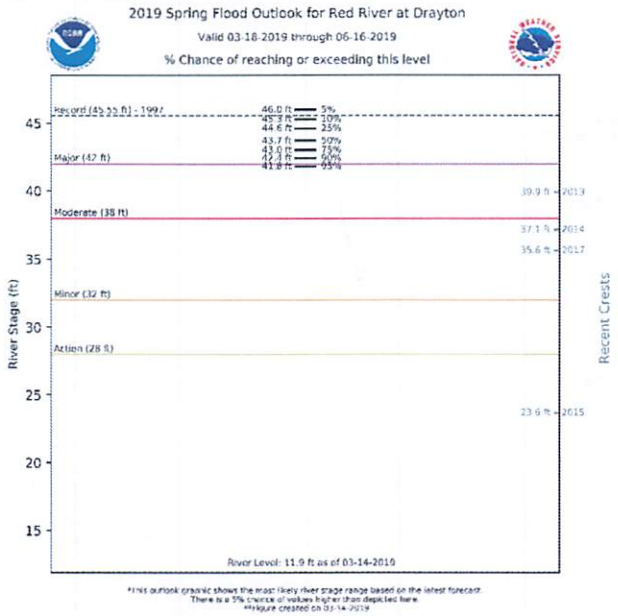
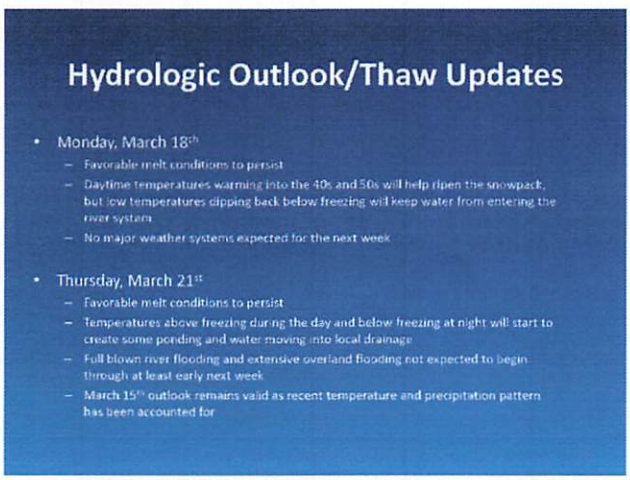
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance  			✓		
Hydrologic Outlook/Thaw Updates  		✓			

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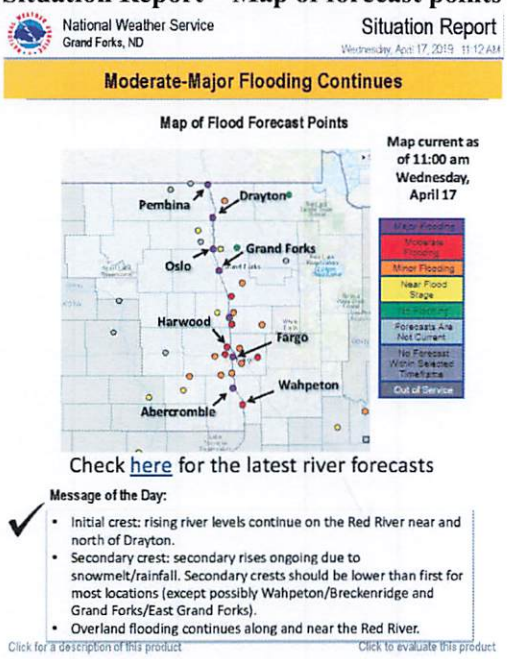
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF		✓			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...		✓			

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points	✓				
Situation Report - Impacts		✓			



National Weather Service
Grand Forks, ND

Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

Map of Flood Forecast Points

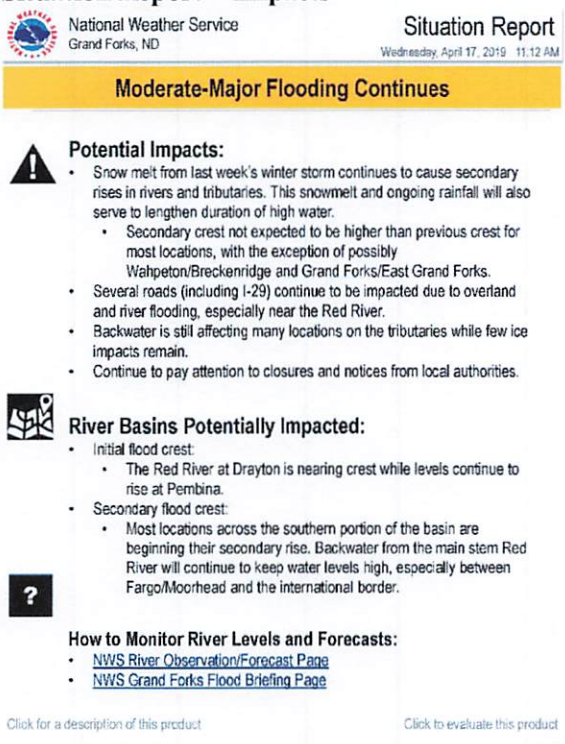
Map current as of 11:00 am Wednesday, April 17

Check here for the latest river forecasts

✓ **Message of the Day:**

- Initial crest: rising river levels continue on the Red River near and north of Drayton.
- Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks).
- Overland flooding continues along and near the Red River.

Click for a description of this product Click to evaluate this product



National Weather Service
Grand Forks, ND

Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

Potential Impacts:

- Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  - Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
- Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
- Backwater is still affecting many locations on the tributaries while few ice impacts remain.
- Continue to pay attention to closures and notices from local authorities.

River Basins Potentially Impacted:

- Initial flood crest:
  - The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
- Secondary flood crest:
  - Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.

How to Monitor River Levels and Forecasts:

- NWS River Observation/Forecast Page
- NWS Grand Forks Flood Briefing Page

Click for a description of this product Click to evaluate this product

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook		✓			

National Weather Service
Grand Forks, ND

Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

Temperature Outlook

Day of the Week	Highs	Lows (Overnight)
Wednesday, April 17	46-51	35-38
Thursday, April 18	52-56	31-34
Friday, April 19	59-65	41-46
Saturday, April 20	56-66	35-40
Sunday, April 21	52-57	31-36
Monday, April 22	50-57	32-37

Precipitation Outlook

Day of the Week	Type	Liquid Amounts	Location
Wednesday, April 17	Rain and Snow	0"-0.50"	Mainly southern RRV
Thursday, April 18	Showers/Thunder	0"-0.10"	Eastern ND/NW MN
Friday, April 19	None	0"	
Saturday, April 20	Showers	0"-0.20"	Along/north Hwy 2
Sunday, April 21	None	0"	
Monday, April 22	None	0"	

Click for a description of this product

Click to evaluate this product

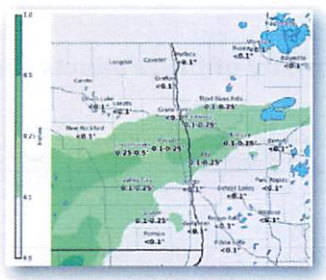
Situation report – 24 hour precipitation		✓			

National Weather Service
Grand Forks, ND

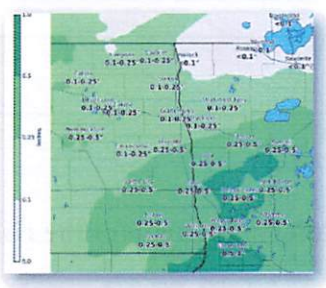
Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)



24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)



Click for a description of this product

Click to evaluate this product

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Message of the Day:** Widespread river flooding and localized overland flooding continues. Red River continues to rise near and north of Drayton while southern portions of the valley are seeing re-rises due to snowmelt and ongoing rainfall. WHEN FLOODED TURN AROUND DON'T DROWN Water on Demers Ave near the Sorlie Bridge in East Grand Forks MN on 4/12/19. Photo courtesy of Carl Jones. ***Quick facts you should know about flooding:*** • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping, dam failure, or from wastewater systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be moved in as little as 2 feet of water. • 90% of all U.S. natural disasters declared by the President involve flooding. ***Preparedness:*** *Know your risk:* Are you in a flood-prone area? Know your zone: www.fema.gov/flood-zones - You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead! - A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!* - A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!* ***Never drive into flood waters! Turn around, don't drown!*** Find out more information on our web page: www.weather.gov/fgf/ Follow us on Facebook and Twitter for more up to date information: @NWSGrandForks @NWSGrand Forks Building a Weather-Ready Nation Click for a description of this product Click to evaluate this product	✓				

7. What changes might you recommend for any of the products shown?

Apps to access these on your phone or laptop.

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter (Internet) Other: website

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

It was very informal and comfortable – change nothing
The presenters were personable + great

12. Additional comments:

Enjoyed them.

_____

Thank you for participating!

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.	✓				
I felt comfortable voicing my opinion.	✓				
I know more about the National Weather Service (NWS) resources.	✓				
I feel I could use NWS resources to judge my risk in an extreme weather event.		✓			

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

lack of marketing on NWS part

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

I use water table information over the years the impact and snow melt water ratio

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.		✓			
Share what I learned about NWS products today with others.		✓			
Seek NWS information about extreme weather risks.	✓				
Use NWS products and information in your decision-making	✓				

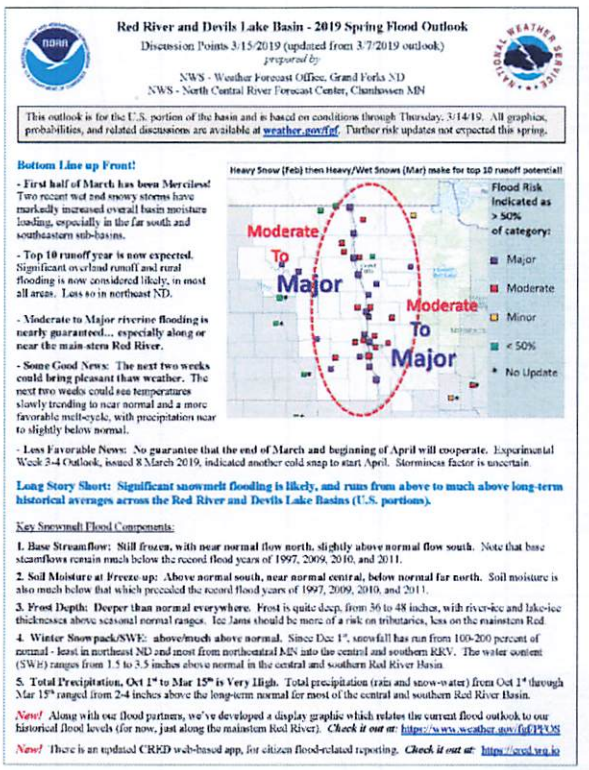
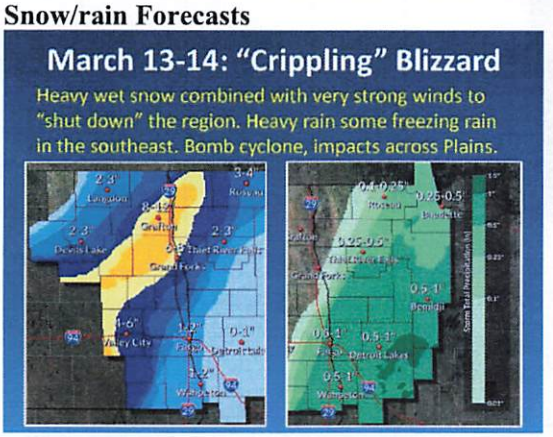
5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics Combined text and graphics

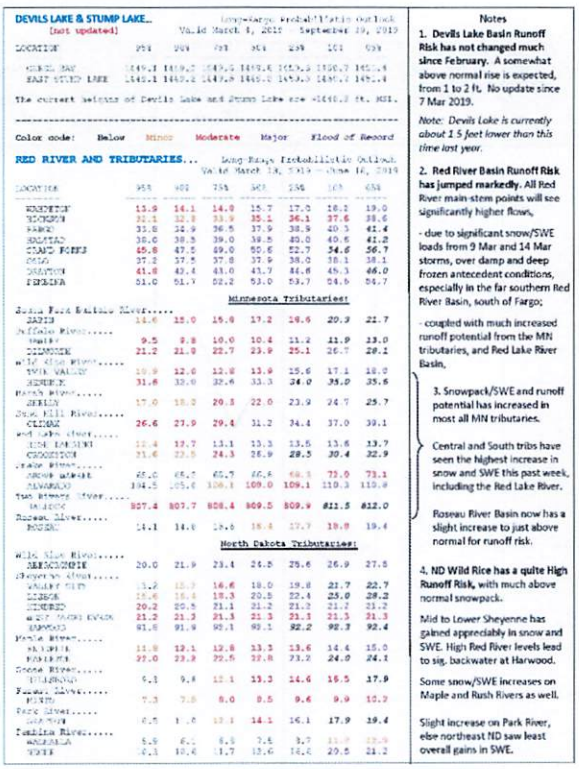
Please explain. ADHD need different ~~more~~ stuff to keep attention

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 			✓		
Snow/rain Forecasts 			✓		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook				✓	
Flood risk		✓			



DEVILS LAKE & STUMP LAKE...
[Not updated]

Long-Range Probabilistic Outlook
Valid March 4, 2019 - September 30, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
DEVILS LAKE	1449.1	1449.2	1449.6	1449.8	1450.0	1450.2	1450.4
EAST STUMP LAKE	1449.1	1449.2	1449.6	1449.8	1450.0	1450.2	1450.4

The current balance of Devils Lake and Stump Lake are 1449.2 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...
Long-Range Probabilistic Outlook
Valid March 14, 2019 - June 12, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.5	41.4
HALSTAD	36.6	38.5	39.0	38.5	43.0	43.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.6	54.7

Minnesota Tributaries:

Buffalo River.....							
DILWORTH	14.6	15.0	15.8	17.2	18.6	20.9	21.7
Wild Rice River.....							
TWIN VALLEY	9.5	9.8	10.0	10.4	11.2	11.9	13.0
HENDRUM	21.2	21.9	22.7	23.9	25.1	26.7	28.1
Marsh River.....							
BERLIN	10.9	12.0	12.8	13.9	15.6	17.1	18.0
HENDRUM	31.8	32.0	32.6	33.3	34.0	35.0	35.6
Snake River.....							
ERSKINE	17.0	18.2	20.3	22.0	23.9	24.7	25.7
Two Rivers River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.1	37.0	39.1
Red Lake River.....							
RED LAKE FALLS	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	21.6	22.5	24.3	26.9	28.5	30.4	32.9
Snake River.....							
ARGYLE	65.0	65.7	65.7	66.6	68.5	72.0	73.1
ALVARADO	104.5	105.6	106.1	109.0	109.1	110.3	113.8
Two Rivers River.....							
ARGYLE	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.6	16.6	18.4	17.7	19.8	19.4

North Dakota Tributaries:

Wild Rice River.....							
MENOKEN	20.0	21.9	23.4	24.8	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	15.2	15.7	16.6	18.0	19.8	21.7	22.7
LISBON	18.6	18.8	19.3	20.5	22.4	25.0	28.2
KINDRED	20.2	20.5	21.1	21.2	21.3	21.2	21.2
WEST FORK RIVER	21.2	21.3	21.3	21.3	21.3	21.5	21.3
HARWOOD	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
MAPLETON	11.8	12.1	12.8	13.3	13.6	14.4	15.0
KINDRED	22.0	23.2	72.6	72.8	73.2	24.0	24.1
Goose River.....							
HILLSBORO	6.1	6.8	12.1	13.3	14.6	16.5	17.9
Forest River.....							
FORTH	7.3	7.8	8.0	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	8.5	1.0	13.1	14.1	16.1	17.9	19.4
Tubbs River.....							
ARGUSLA	6.6	6.1	6.5	7.6	8.7	11.7	12.9
PARK	8.1	10.6	11.7	13.6	14.6	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

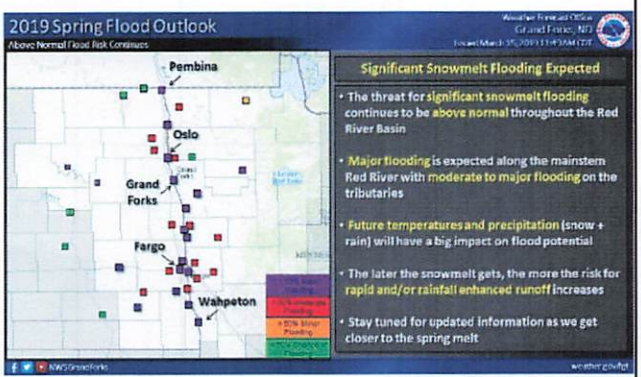
Roseau River Basin now has a slight increase to just above normal for runoff risk.

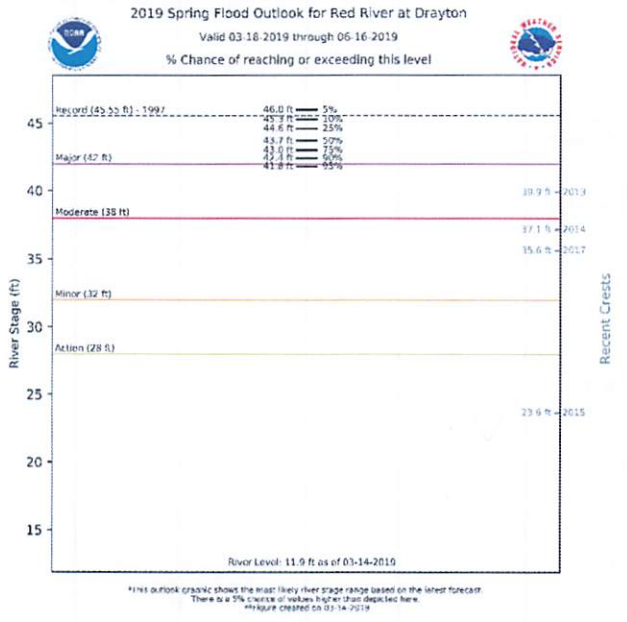
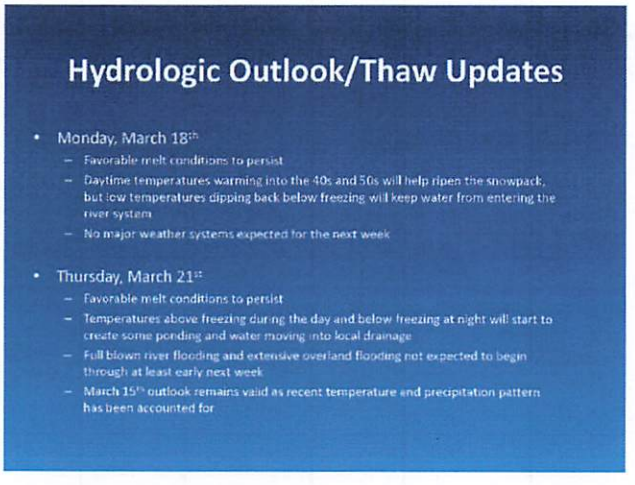
4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance  		✓			
Hydrologic Outlook/Thaw Updates  		✓			

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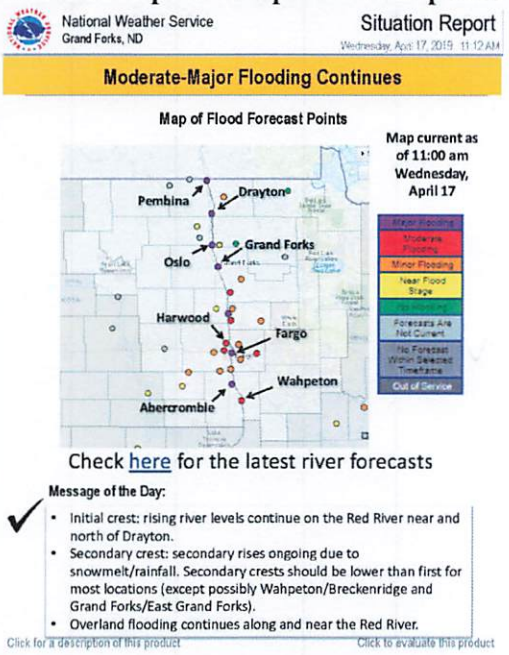
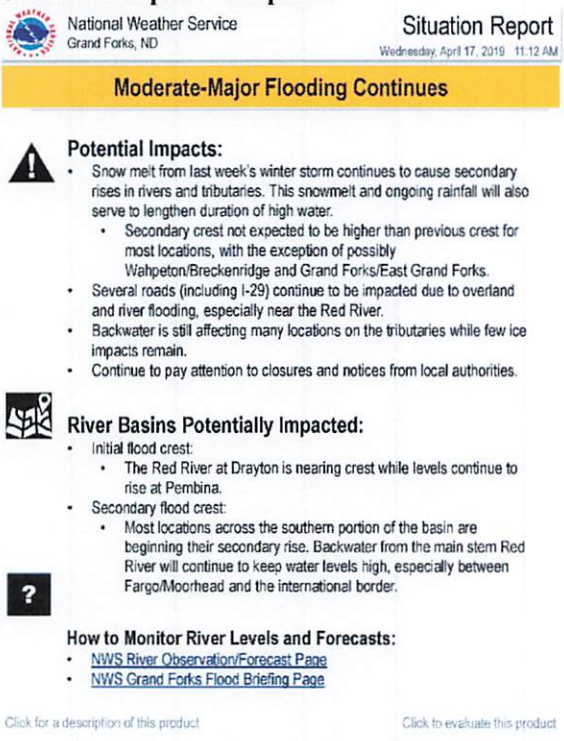
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * Alvarado...on the Snake River...in Marshall County ...The flood warning has been extended for these river locations in North Dakota...Minnesota... * Hickson...on the Red River...in Cass County * Sabin...on the South Branch Buffalo River...in Clay County * Hawley...on the Buffalo River...in Clay County * Enderlin...on the Maple River...in Cass and Ransom Counties ...The flood warning continues for these river locations in Minnesota...North Dakota... * Wahpeton...on the Red River ...in Wilkin and Richland Counties * Fargo...on the Red River ...in Clay and Cass Counties * Halstad...on the Red River ...in Norman and Traill Counties * East Grand Forks...on the Red River ...in Polk and Grand Forks Counties * Oslo...on the Red River ...in Marshall...Polk...Grand Forks and Walsh Counties * Drayton...on the Red River ...in Kittson...Marshall...Pembina and Walsh Counties * Pembina...on the Red River ...in Kittson and Pembina Counties * Dilworth...on the Buffalo River ...in Clay County * Twin Valley...on the Wild Rice River (MN) ...in Norman County * Hendrum...on the Wild Rice River (MN) ...in Norman County * Shelly...on the Marsh River ...in Norman County * Climax...on the Sandhill River ...in Polk County * Crookston...on the Red Lake River ...in Polk County * Hallock...on the Two Rivers River ...in Kittson County * Abercrombie...on the Wild Rice River (ND) ...in Richland County * Kindred...on the Sheyenne River ...in Cass and Richland Counties * West Fargo Diversion...on the Sheyenne River ...in Cass County * Harwood...on the Sheyenne River ...in Cass County * Mapleton...on the Maple River ...in Cass County .This forecast is for a 7-day period...the highest stage indicated may not reflect the crest for this event. Forecasts are updated daily and stage values will change as new weather and river information is used. River forecasts use 24 hours of forecast precipitation. However, depending on the situation, they may include precipitation expected through the next 72 hours. PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-181653- /O.CON.KFGF.FL.W.0001.000000T0000Z-000000T0000Z/ /WHNN8.2.SM.190328T0937Z.190401T1115Z.000000T0000Z.NO/ 1152 AM CDT Wed Apr 17 2019 The Flood Warning continues for... * ...Wahpeton...on the Red River. * until further notice...or until the warning is cancelled. * At 10:30 AM Wednesday the stage was 12.9 feet. * Minor flooding is occurring and during the next 7 days...Moderate flooding is forecast. * Moderate Flood Stage is 13.0 feet. * The river is forecast to crest at 14.5 (give or take one foot) on Sunday morning. * Reservoir outflows upstream are being lessened by the USACE. * Impact Statement(s) - At 15.0 feet, MAJOR FLOOD. Wahpeton storm sewer outlets and Main Street closed. && Daily 7am CDT/6am CST forecast stage in feet: Date (month/day) Thu 04/18 Fri 04/19 Sat 04/20 Sun 04/21 Mon 04/22 Tue 04/23 Wed 04/24 ...truncated 784 lines...	✓				

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding Moderate Flooding Minor Flooding Near Flood Stage Forecasts Are Not Current No Forecast Within Selected Timeframe Out of Service Check here for the latest river forecasts Message of the Day: • Initial crest: rising river levels continue on the Red River near and north of Drayton. • Secondary crest: secondary rises ongoing due to snowmelt/rainfall. Secondary crests should be lower than first for most locations (except possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks). • Overland flooding continues along and near the Red River. Click for a description of this product Click to evaluate this product	✓				

Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing rainfall will also serve to lengthen duration of high water.
  • Secondary crest not expected to be higher than previous crest for most locations, with the exception of possibly Wahpeton/Breckenridge and Grand Forks/East Grand Forks.
• Several roads (including I-29) continue to be impacted due to overland and river flooding, especially near the Red River.
• Backwater is still affecting many locations on the tributaries while few ice impacts remain.
• Continue to pay attention to closures and notices from local authorities.
River Basins Potentially Impacted:
• Initial flood crest:
  • The Red River at Drayton is nearing crest while levels continue to rise at Pembina.
• Secondary flood crest:
  • Most locations across the southern portion of the basin are beginning their secondary rise. Backwater from the main stem Red River will continue to keep water levels high, especially between Fargo/Moorhead and the international border.
How to Monitor River Levels and Forecasts:
• NWS River Observation/Forecast Page
• NWS Grand Forks Flood Briefing Page
Click for a description of this product
Click to evaluate this product
		✓			

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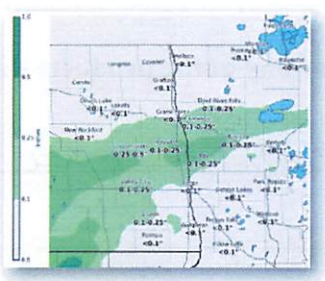
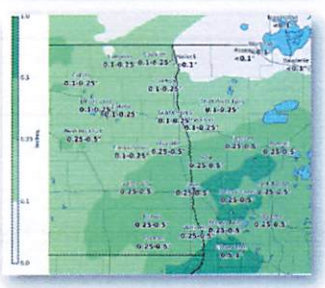
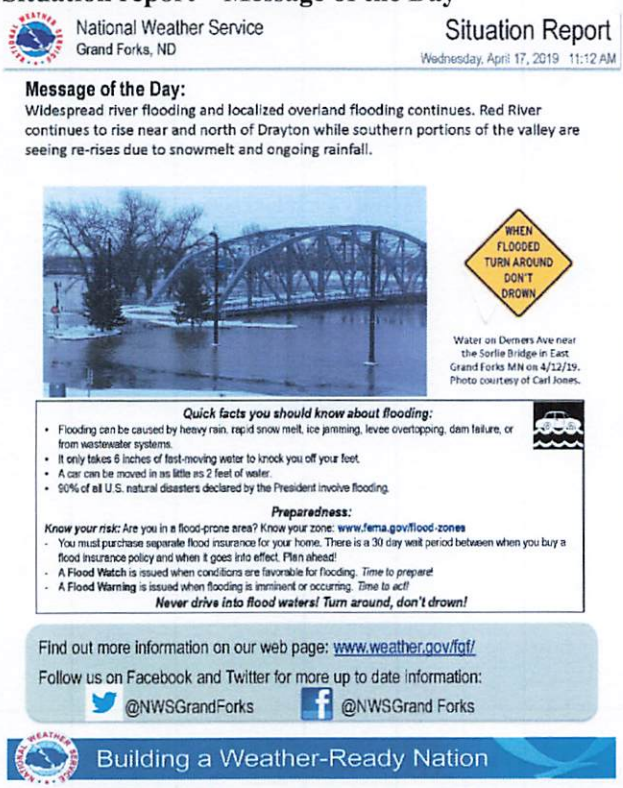
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs / Lows (Overnight) Wednesday, April 17: 46-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 Precipitation Outlook Day of the Week / Type / Liquid Amounts / Location Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product Click to evaluate this product	✓				
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product Click to evaluate this product				✓	

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 			✓		

7. What changes might you recommend for any of the products shown?

explain how to read things or make them easier

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other: NWS warnings on radio or TV

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes (No)

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

None

_____

12. Additional comments:

Thank you.

_____

Thank you for participating!

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Survey Questions - Post-Focus Group Session Survey

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0690-0030. Without this approval, we could not conduct this post-focus group survey collection. Public reporting for this information collection is estimated to be approximately 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Nurture Nature Center at: 518 Northampton Street, Easton, PA 18042, Attn: Rachel Hogan Carr, Executive Director, rhogan@nurturenature.org.

1. Please rate your agreement with the following statements about the forum.

Please check ONE box for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The information was clearly presented.		✓			
I felt comfortable voicing my opinion.	✓				
I know more about the National Weather Service (NWS) resources.			✓		
I feel I could use NWS resources to judge my risk in an extreme weather event.	✓				

2. What are the biggest barriers you face in using NWS flood forecast and warning products? Some examples to consider are lack of computer or phone, lack of internet access, language barriers, NWS products too difficult to understand, or other factors.

Some information is extremely dense(ly) packed onto a webpage.

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3. Our goal today was to gather feedback to improve NWS flood forecast and warning tools. Beyond the questions asked today, what else would be important to know about how you gather/would use NWS information about extreme weather risks and your intended actions?

Localized information

4. After attending today's session, how likely are you to:

Please check ONE box for each statement.

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Somewhat Unlikely	Unlikely
Create or revise plans to deal with extreme weather events using NWS products.	X				
Share what I learned about NWS products today with others.		X			
Seek NWS information about extreme weather risks.	X				
Use NWS products and information in your decision-making	X				

5. Do you prefer text-based or graphical/visual NWS products in trying to understand your level of risk from flooding? Circle one.

Text Graphics (Combined text and graphics)

Please explain. ~~It's~~ I enjoy more pages vs densely packed pages of information

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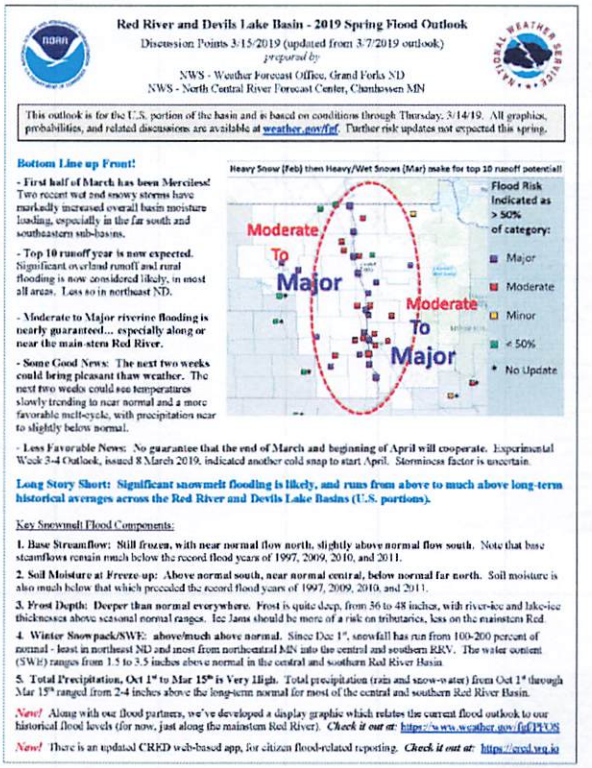
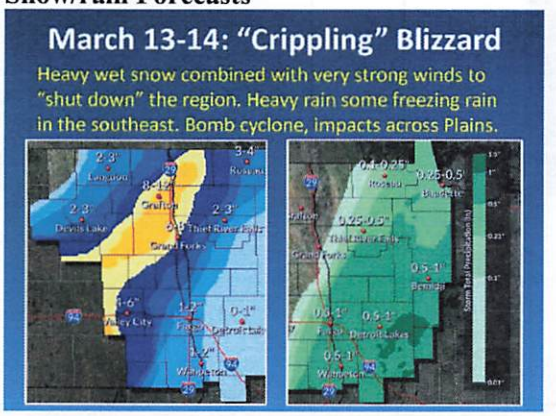
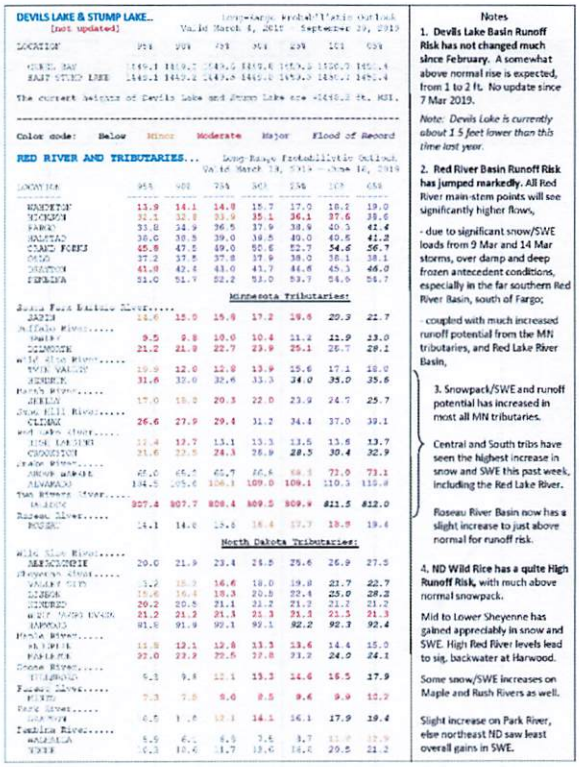
6. Please rate the weather products discussed today based on their usefulness to you in assessing your flood situation.

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Spring Flood Outlook 	X				
Snow/rain Forecasts 	X				

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Long range probabilistic outlook		X			
Flood risk			X		



DEVILS LAKE & STUMP LAKE...
[not updated]

Long-range Probabilistic Outlook
Valid March 4, 2019 - September 29, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
DEVILS LAKE	1449.1	1449.7	1449.6	1449.8	1449.9	1450.0	1450.4
EAST STUMP LAKE	1448.1	1448.6	1448.8	1449.0	1449.2	1449.5	1449.8

The current heights of Devils Lake and Stump Lake are 1449.2 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long-Range Probabilistic Outlook
Valid March 14, 2019 - June 12, 2019

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	13.9	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	32.1	32.8	33.9	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	38.0	38.5	39.0	39.5	40.0	40.6	41.2
GRAND FORKS	45.8	47.5	49.0	50.6	52.7	54.6	56.7
OSLO	37.2	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.6	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.6	56.7

Minnesota Tributaries:

Buffalo River.....							
HAWLEY	15.6	15.0	15.6	17.2	19.6	20.3	22.7
Wildcat River.....							
HENDRUM	9.5	9.8	10.0	10.4	11.2	11.9	13.0
DILWORTH	21.2	21.9	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
HIGH VALLEY	19.9	12.0	12.8	13.9	15.6	17.1	18.0
KENDRICK	31.6	32.0	32.6	33.3	34.0	35.0	35.6
Marsh River.....							
HERIAN	17.0	18.2	20.3	22.0	23.9	24.7	25.7
Snake Hill River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.4	37.0	39.1
Red Lake River.....							
RED LAKE FALLS	12.4	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	21.6	22.5	24.3	26.9	28.5	30.4	32.9
Snake River.....							
ARGYLE WATER	65.0	65.2	65.7	66.4	68.3	72.0	73.1
ALVARADO	104.5	105.6	106.1	109.0	109.1	110.3	113.8
Two Rivers River.....							
DRAYTON	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.6	15.8	16.4	17.7	18.9	19.6

North Dakota Tributaries:

Wild Rice River.....							
MAYVILLE	20.0	21.9	23.4	24.5	25.6	26.9	27.5
Sheyenne River.....							
VALLEY CITY	15.2	15.3	16.6	18.0	19.8	21.7	22.7
KINDRED	16.6	16.8	18.3	20.5	22.4	25.0	28.2
HORACE	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO DIVER	21.2	21.2	21.3	21.3	21.3	21.3	21.3
LISBON	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
MAPLETON	11.9	12.1	12.8	13.5	13.6	14.4	15.0
PORTLAND	22.0	22.2	22.5	22.8	23.2	24.0	24.1
Goose River.....							
HILLSBORO	6.1	9.8	12.1	13.3	14.6	16.5	17.9
Forest River.....							
FORDVILLE	7.3	7.8	8.6	8.5	9.6	9.9	10.2
Park River.....							
GRAFTON	6.5	7.6	12.1	14.1	16.1	17.9	19.4
Pembina River.....							
WALHALLA	5.9	6.1	6.3	7.6	9.7	11.2	12.9
CAVALIER	6.3	10.6	11.7	13.6	16.6	20.5	21.2

Notes

1. **Devils Lake Basin Runoff Risk has not changed much since February.** A somewhat above normal rise is expected, from 1 to 2 ft. No update since 7 Mar 2019.

Note: Devils Lake is currently about 1.5 feet lower than this time last year.

2. **Red River Basin Runoff Risk has jumped markedly.** All Red River main-stem points will see significantly higher flows,

- due to significant snow/SWE loads from 9 Mar and 14 Mar storms, over damp and deep frozen antecedent conditions, especially in the far southern Red River Basin, south of Fargo;

- coupled with much increased runoff potential from the MN tributaries, and Red Lake River Basin,

3. Snowpack/SWE and runoff potential has increased in most all MN tributaries.

Central and South tribs have seen the highest increase in snow and SWE this past week, including the Red Lake River.

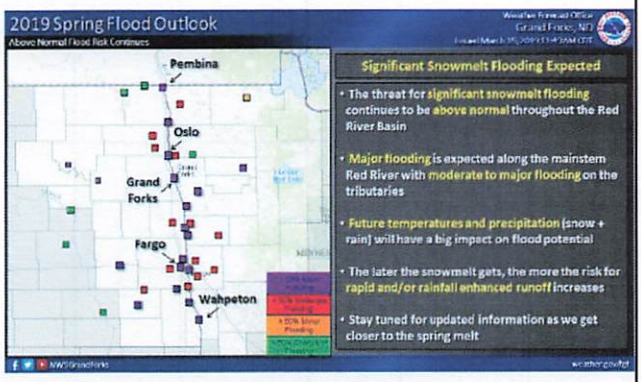
Roseau River Basin now has a slight increase to just above normal for runoff risk.

4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

Some snow/SWE increases on Maple and Rush Rivers as well.

Slight increase on Park River, else northeast ND saw least overall gains in SWE.



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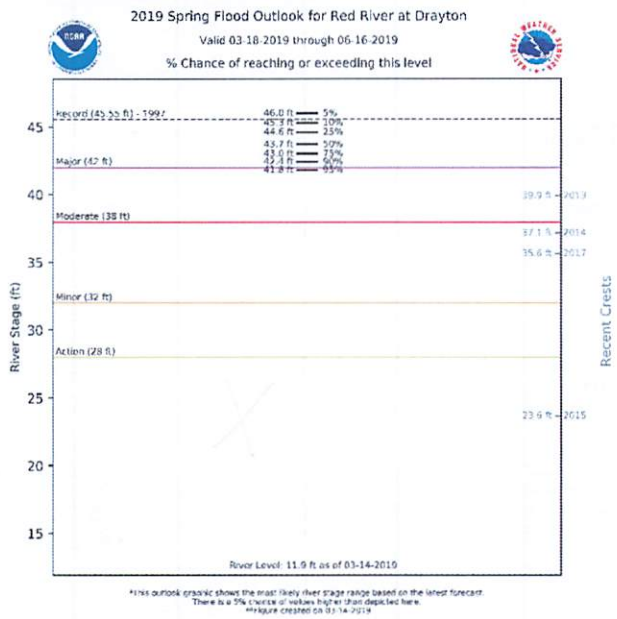
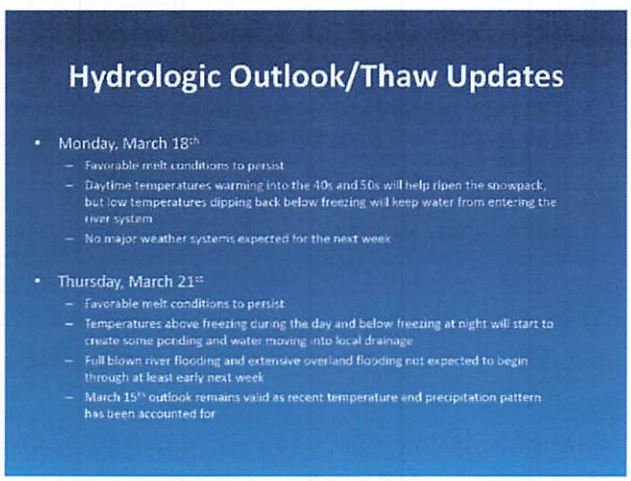
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance 		X			
Hydrologic Outlook/Thaw Updates 		X			

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Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in Grand Forks, ND has issued a flood warning (new) for these river locations in Minnesota...North Dakota... new flooding is forecast to occur at... * Wahpeton...on the Red River...in Wilkin and Richland Counties. . A combination of reservoir outflows and localized snowmelt is causing the Wahpeton stage to slowly rise. Forecast temperatures show continued above freezing temperatures over the next 24 hours, followed by cooler temperatures March 29 through 31 More snowmelt is expected today. Below freezing forecast temperatures during March 30-31 should temporarily shut down the melt. A more typical springtime temperature regime, with daytime highs above freezing, and nighttime lows below freezing, is currently forecast for the first week of April. This would result in an ideal slow snowmelt pattern during that time. The current stage is affected by 1 to 2 feet of ice. *** A follow-up flood statement with more detailed flooding information will be issued shortly. *** PRECAUTIONARY/PREPAREDNESS ACTIONS... Safety message...turn around, don't drown... - Don't travel through flooded areas! - Persons in the warned area need to take steps to protect life and property. If necessary, move to a higher and safer location. - Persons living in the Red River Basin should monitor river levels while the river is in, or near, flood. For more information...go to the AHPS/River section on our web page at: www.weather.gov/grandforks && MNC167-NDC077-271541- /O.NEW.KFGF.FL.W.0001.190329T0600Z-190402T1200Z/ /WHNN8.1.SM.190329T0600Z.190330T1200Z.190401T0600Z.NO/ 941 AM CDT Wed Mar 27 2019 The National Weather Service in Grand Forks, ND has issued a new Flood Warning for... * ...Wahpeton...on the Red River * from late Thursday night to Tuesday morning. * At 8:30 AM Wednesday the stage was 10.2 feet. * Minor Flood Stage is 11.0 feet. * For the next 7 days...Minor flooding is forecast. * Forecast...rise above Flood Stage by early Friday morning and continue to rise to near 11.5 feet by Saturday mid-morning. The river will fall below Flood Stage by early Monday morning. && LAT...LON 4650 9684 4650 9663 4603 9641 4602 9672 $$ HydroTeam FGF			X		

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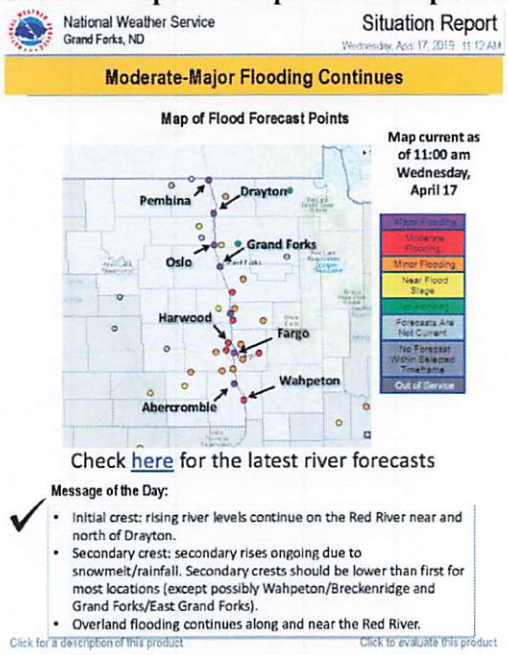
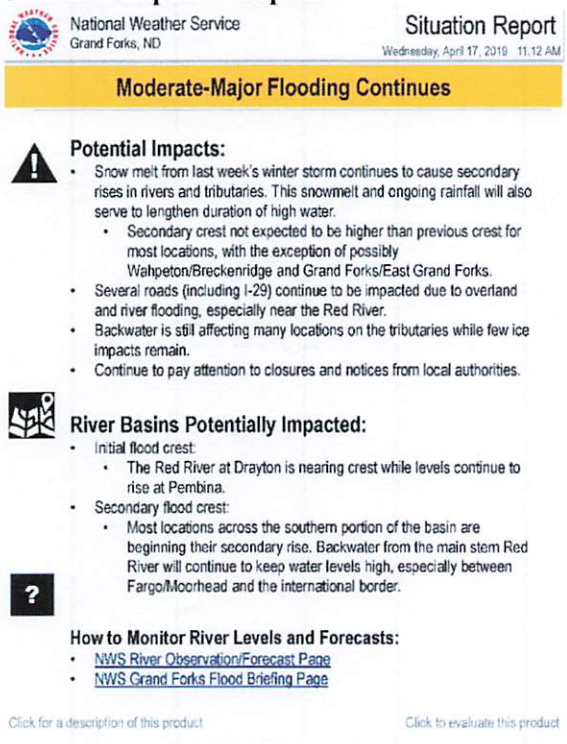
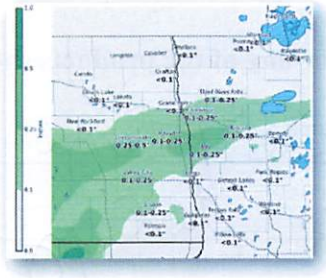
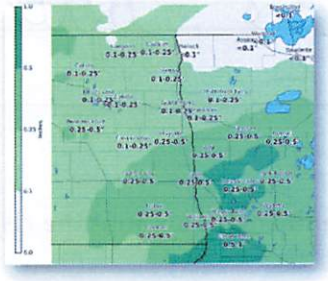
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points 		X			
Situation Report - Impacts 		X			

OMB Control No. 0690-0030
Expiration Date: 07/31/2023

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** **Temperature Outlook** Day of the Week / Highs / Lows (Overnight): Wednesday, April 17: 46-51 / 35-38 Thursday, April 18: 52-56 / 31-34 Friday, April 19: 59-65 / 41-46 Saturday, April 20: 56-66 / 35-40 Sunday, April 21: 52-57 / 31-36 Monday, April 22: 50-57 / 32-37 **Precipitation Outlook** Day of the Week / Type / Liquid Amounts / Location: Wednesday, April 17: Rain and Snow / 0"-0.50" / Mainly southern RRV Thursday, April 18: Showers/Thunder / 0"-0.10" / Eastern ND/NW MN Friday, April 19: None / 0" / Saturday, April 20: Showers / 0"-0.20" / Along/north Hwy 2 Sunday, April 21: None / 0" / Monday, April 22: None / 0" / Click for a description of this product Click to evaluate this product		X			
Situation report – 24 hour precipitation National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)  24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)  Click for a description of this product Click to evaluate this product			X		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 		X			

7. What changes might you recommend for any of the products shown?

Highlight the date / time if it is easier to identify. Esp. because users are often on mobile devices

8. Which media would you use to find NWS information about the risk of flooding near you? Please circle all that apply:

Facebook Twitter Internet Other:_____

9. Which digital platform are you most likely to use to access NWS resources? Circle one.

Smartphone Tablet Laptop Desktop Other: _____

10. Was anything in the session confusing? Yes No

If Yes, please explain:

_____

_____

11. What improvements could be made in the format or content of this session?

Great job ladies!

_____

_____

12. Additional comments:

_____

_____

Thank you for participating!