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?

No improvements needed.

12. Additional comments:

Thank you

Thank you for participating!

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

Consistent color coding - different colors on each one meaning the same thing (like moderate risk)

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?

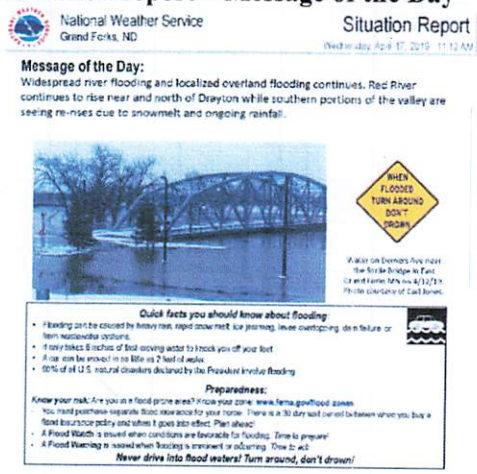
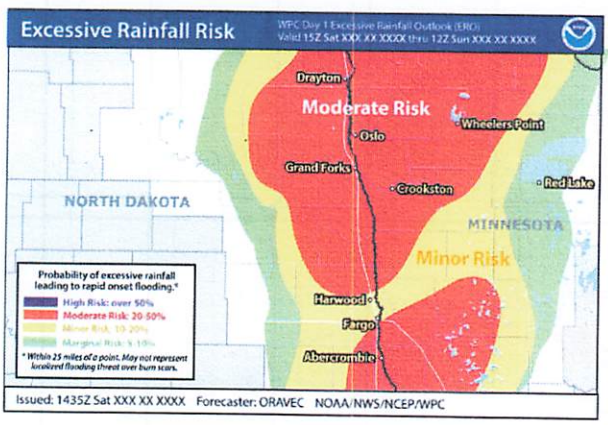
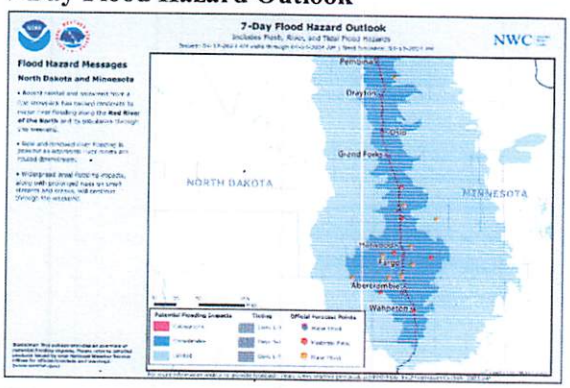
Too many people - only a few people dominated the discussion - needs smaller groups + more proactive moderation to ensure you hear from everyone

12. Additional comments:

_____

_____

Thank you for participating!

	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 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 Quick facts you should know about flooding: Preparedness:		✓			
 Excessive Rainfall Risk Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC		✓			
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA			✓		

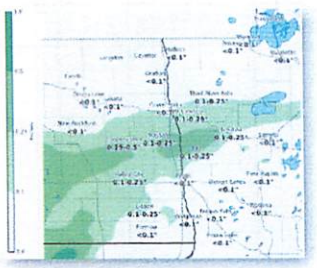
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Precipitation Outlook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

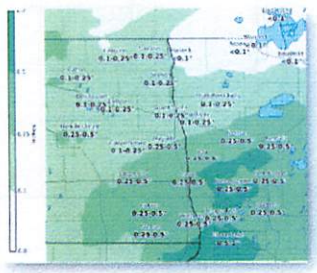
Temperature Outlook

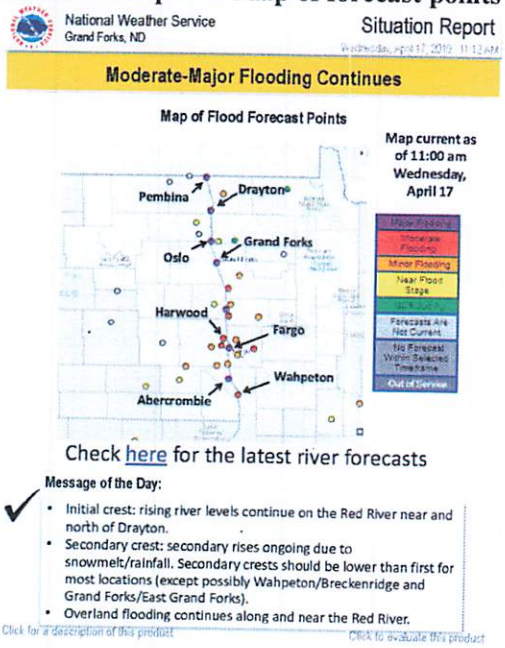
Day of the Week	Highs	Lows (Overnight)
Wednesday, April 17	46-51	35-38
Thursday, April 18	52-56	31-34
Friday, April 19	59-65	41-46
Saturday, April 20	56-66	35-40
Sunday, April 21	52-57	31-36
Monday, April 22	50-57	32-37

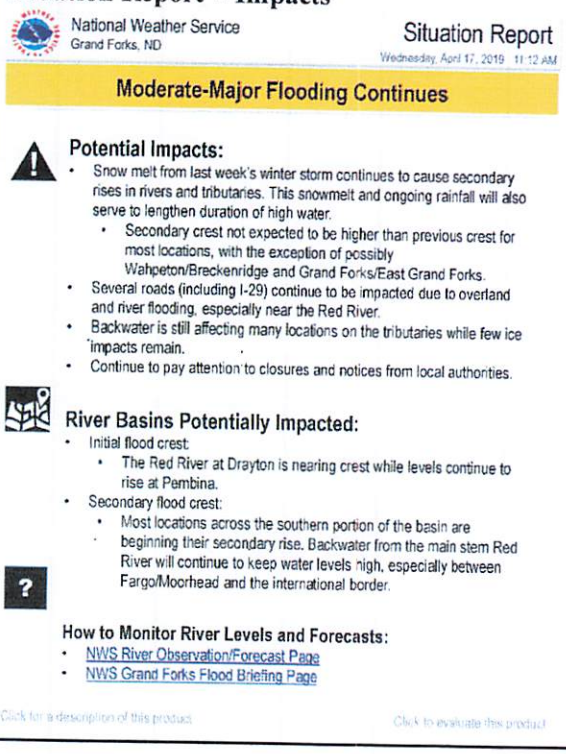
Precipitation Outlook

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"	





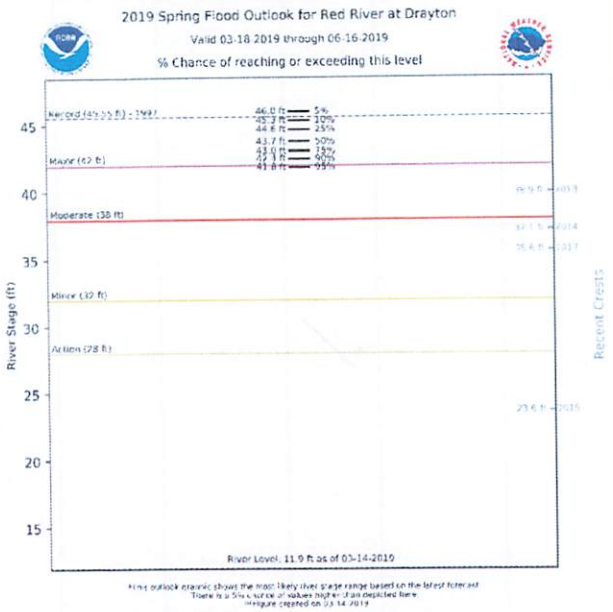
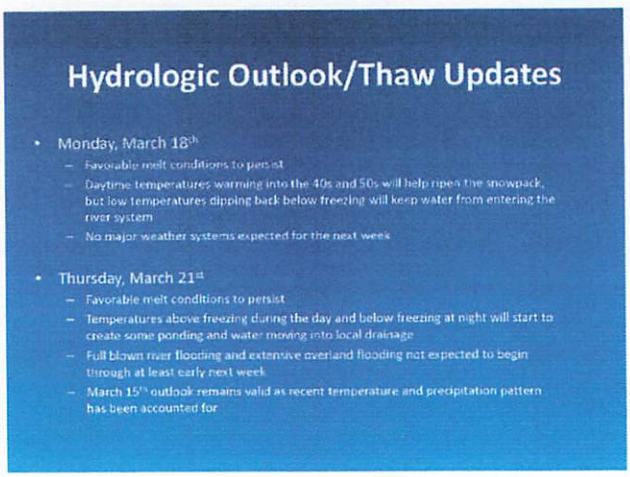
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 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
		✓			

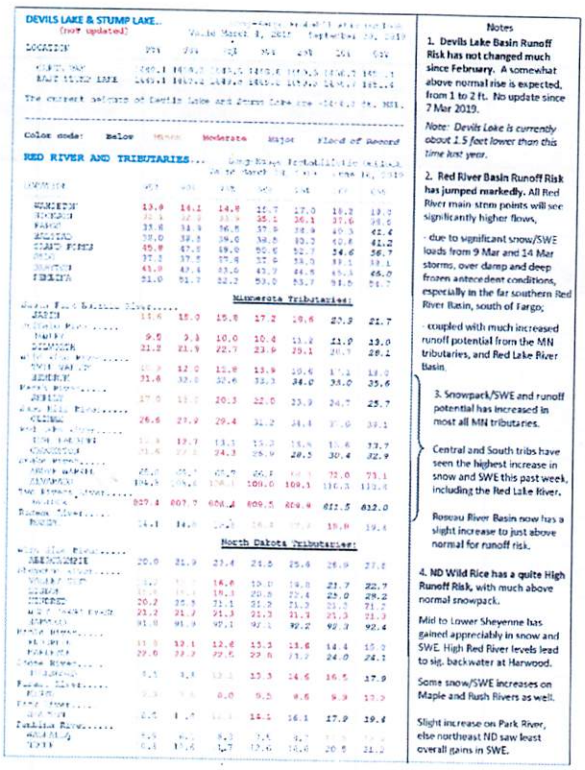
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
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
Percent chance of exceedance  	✓				
Hydrologic Outlook/Thaw Updates  		✓			

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



DEVILS LAKE & STUMP LAKE..

RED RIVER AND TRIBUTARIES...

Minnesota Tributaries:

North Dakota Tributaries:

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.

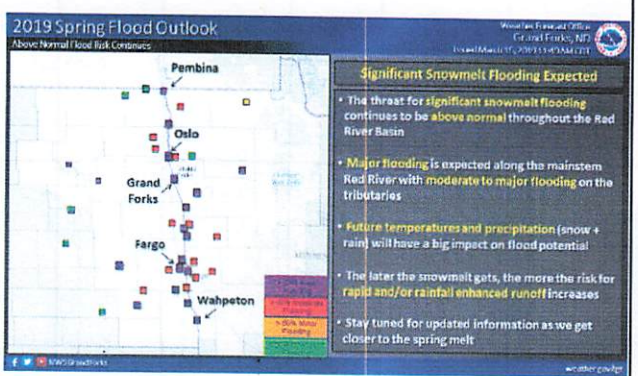
Roseau River Basin now has a slight increase to just above normal for runoff risk.

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.

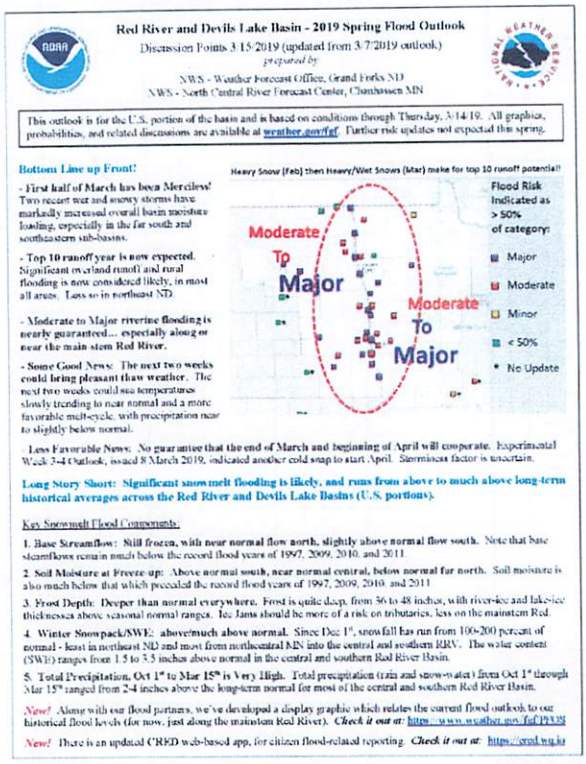
Some snow/SWE increases on Maple and Rush Rivers as well.

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



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		✓			



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.

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

- **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.

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.

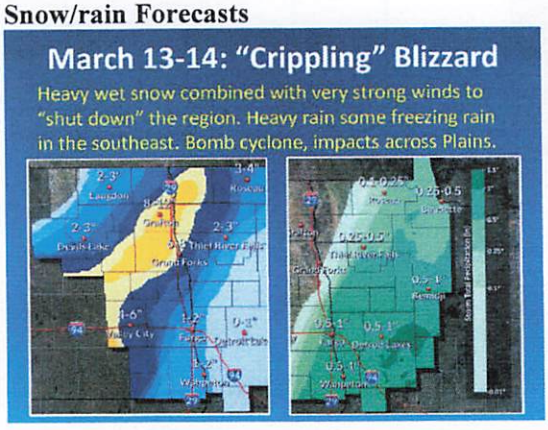
3. **Frost Depth: Deeper than normal everywhere.** Frost is quite deep, from 36 to 48 inches, with river-ice and lake-ice thicknesses above seasonal normal ranges. Ice Jams should be more of a risk on tributaries, less on the mainstem Red.

4. **Winter Snowpack/SWE: above/much above normal.** Since Dec 1st, snowfall has run from 100-200 percent of normal - least in northeast ND and most from northcentral MN into the central and southern RRV. The water content (SWE) ranges from 1.5 to 3.5 inches above normal in the central and southern Red River Basin.

5. **Total Precipitation, Oct 1st to Mar 15th is Very High.** Total precipitation (rain and snow-to-date) from Oct 1st through Mar 15th ranged from 2-4 inches above the long-term normal for most of the central and southern Red River Basin.

New! Along with our flood partners, we've developed a display graphic which relates the current flood outlook to our historical flood levels (for now, just along the mainstem Red River). ***Check it out at:*** https://www.weather.gov/fgf/19338

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



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?

Nothing

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 text examples shown were too hard to read - too much information to figure out what was important

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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 products are too hard to understand

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

Some verbage

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: Television phone alert

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:

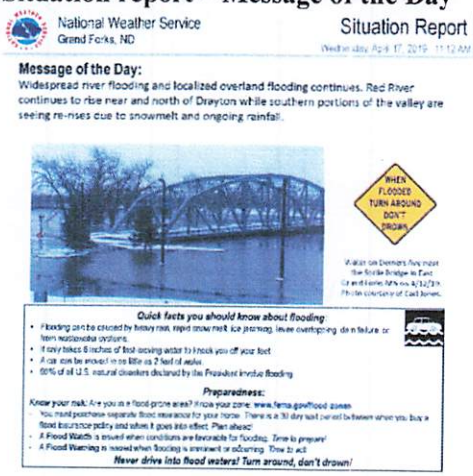
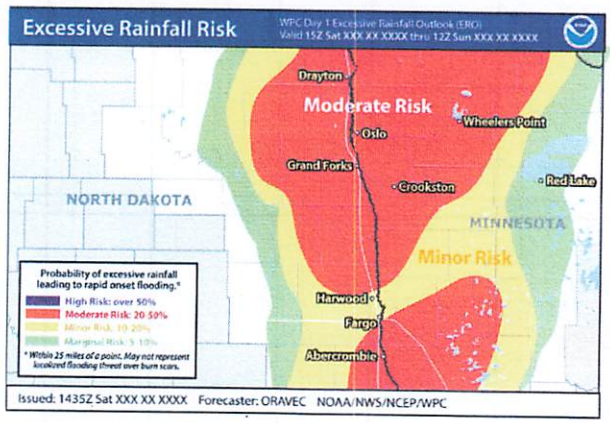
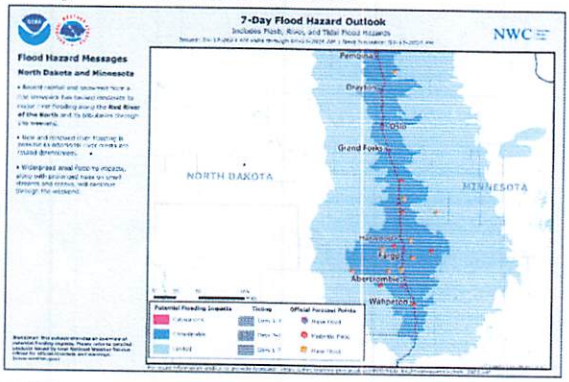
Some Maps

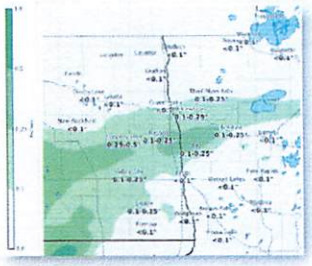
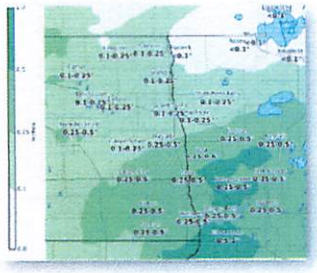
11. What improvements could be made in the format or content of this session?

12. Additional comments:

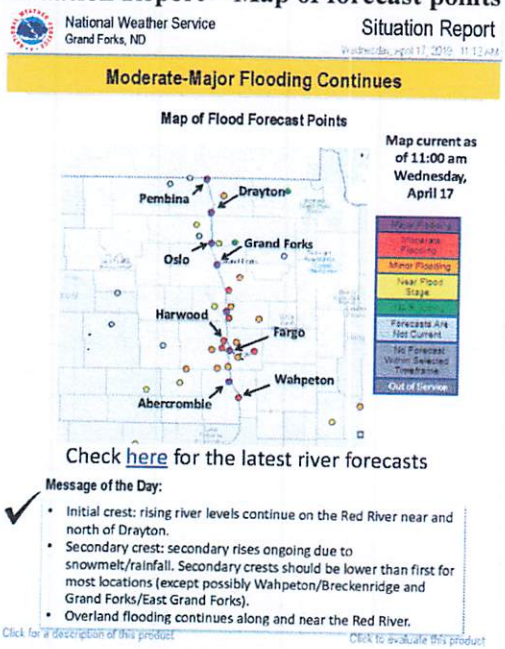
Thank You

Thank you for participating!

	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 **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 *Quick facts you should know about flooding:* • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping or failure, or from nontropical systems. • It only takes 6 inches of fast moving water to knock you off your feet. • A car can be swept away in as little as 2 feet of water. • 50% 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!***			✓		
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC		✓			
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook Includes Flash, River, and Tidal Flood Hazards NWC Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA Grand Forks Abercrombie		✓			

	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 – 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

Pembina
Drayton
Grand Forks
Oslo
Harwood
Fargo
Wahpeton
Abercrombie

Major Flooding
Moderate Flooding
Minor Flooding
Near Flood Stage
Below Flood Stage
Forecasts Are Not Current
No Forecast Within Selected Timeframe
Out of Service

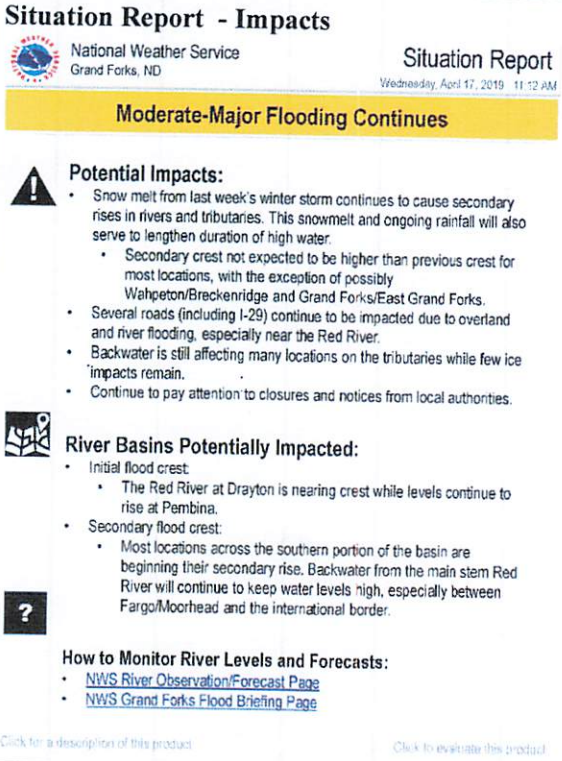
Check here for the latest river forecasts

✓ **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



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 nigh, 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

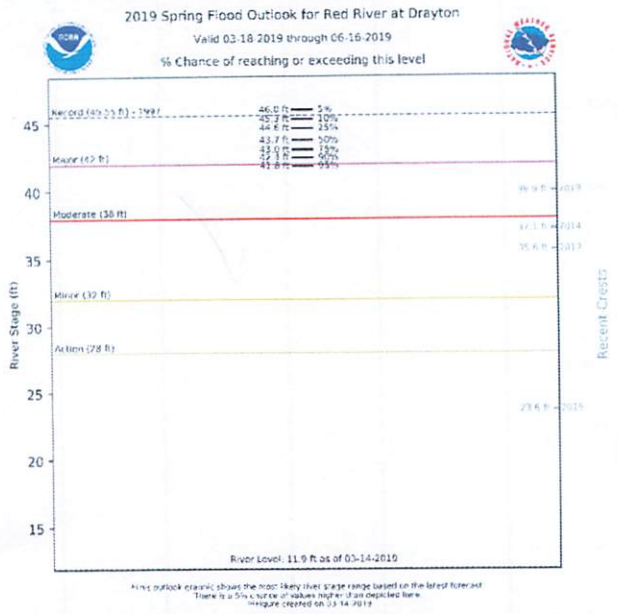
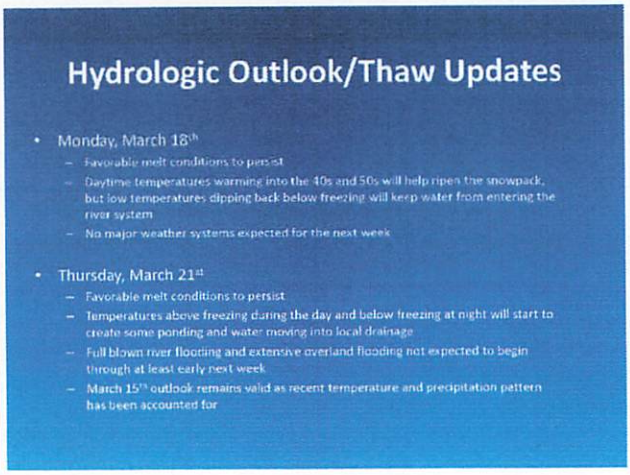
Click to evaluate this product

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

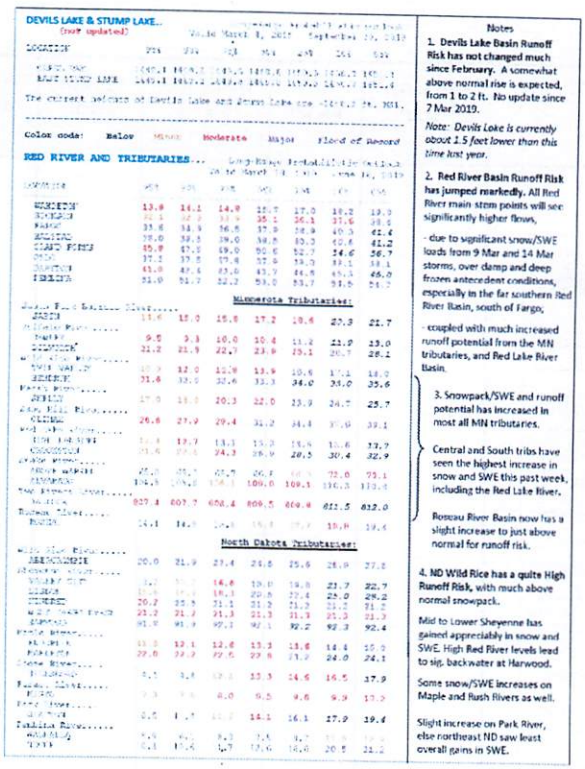
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * 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/ /WHMN8.2.SH.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/8am 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...			V		

	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: 07/31/2024

	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
Long range probabilistic outlook				✓	
Flood risk		✓			



DEVILS LAKE & STUMP LAKE...
(not updated)

RED RIVER AND TRIBUTARIES...

Minnesota Tributaries:

North Dakota Tributaries:

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.

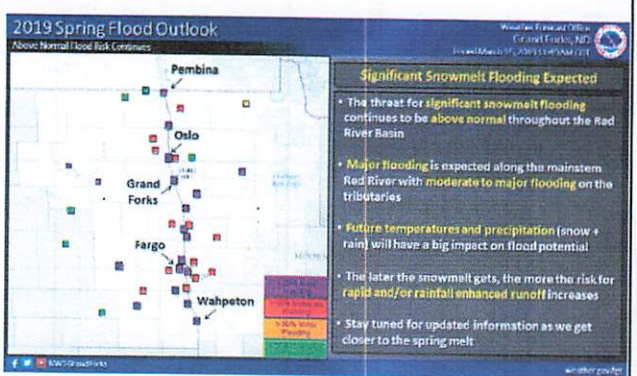
Roseau River Basin now has a slight increase to just above normal for runoff risk.

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.

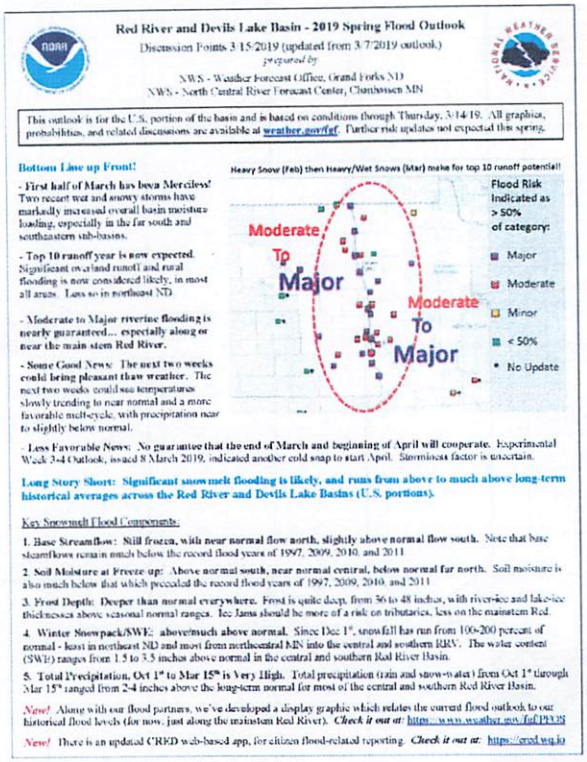
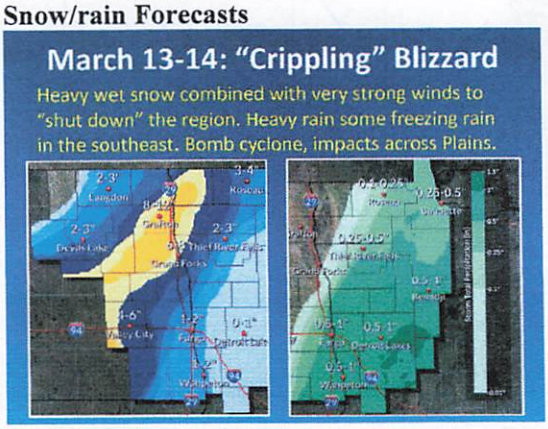
Some snow/SWE increases on Maple and Rush Rivers as well.

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



OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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 		✓			

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?

yes by 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.		✓			
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. _____

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Visual and audio versus Too Much Reading

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

Easier navigation on the website

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: 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:

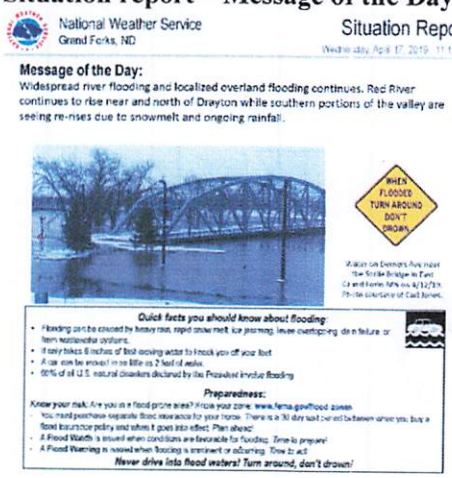
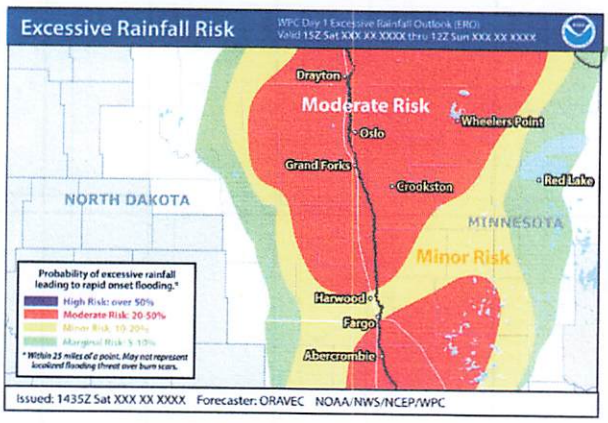
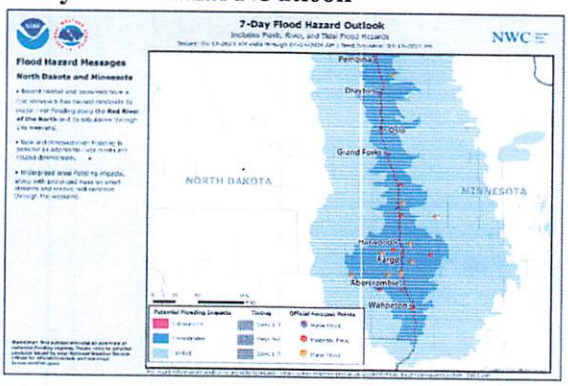
11. What improvements could be made in the format or content of this session?

Solicit feedback so everyone talks

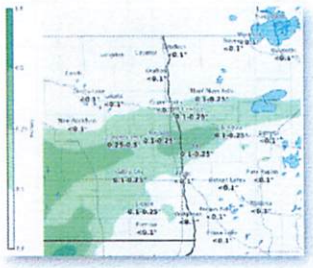
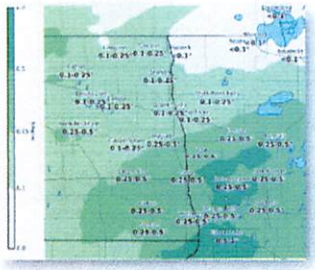
12. Additional comments:

Thank you!

Thank you for participating!

	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 **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 *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 nontropical storms. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be swept away in as little as 2 feet of water. • 60% 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!***		✓			
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC		✓			
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook NWC Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA		✓			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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 – Map of forecast points		✓			
Situation Report - Impacts		✓			

Situation Report – Map of forecast points

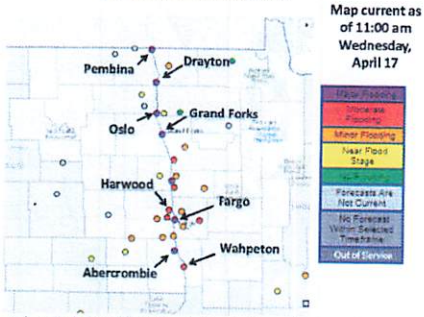
National Weather Service
Grand Forks, ND

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



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

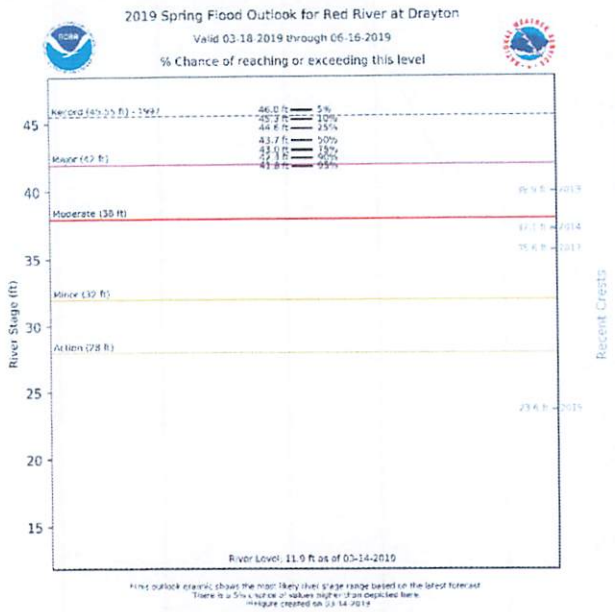
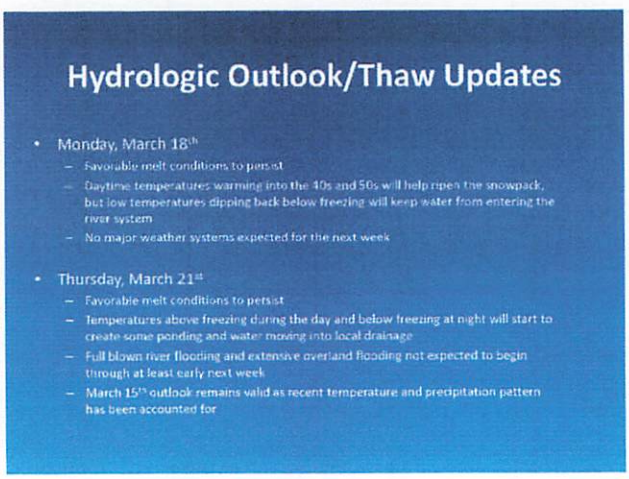
Click for a description of this product

Click to evaluate this product

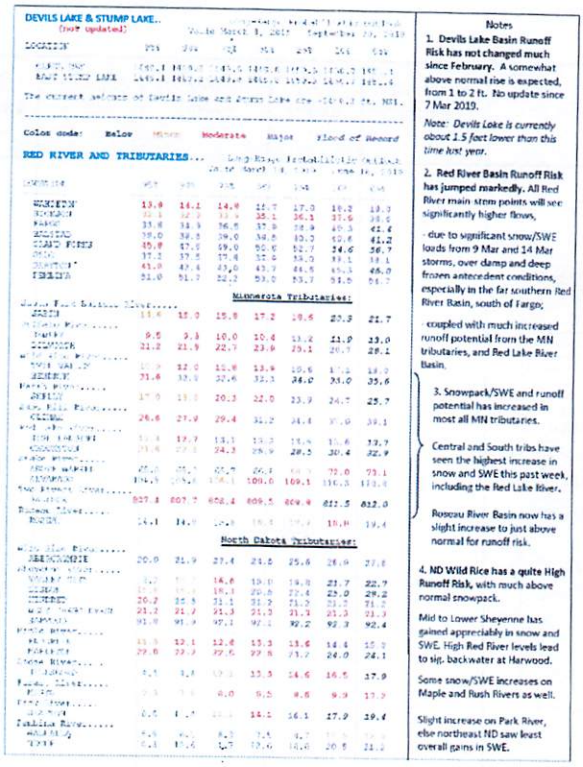
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
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
Percent chance of exceedance 			✓		
Hydrologic Outlook/Thaw Updates 		✓			

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



DEVILS LAKE & STUMP LAKE..
(not updated)

RED RIVER AND TRIBUTARIES...

Minnesota Tributaries:

North Dakota Tributaries:

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.

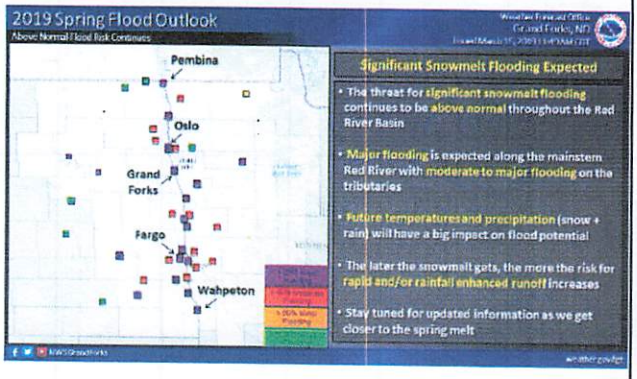
Roseau River Basin now has a slight increase to just above normal for runoff risk.

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.

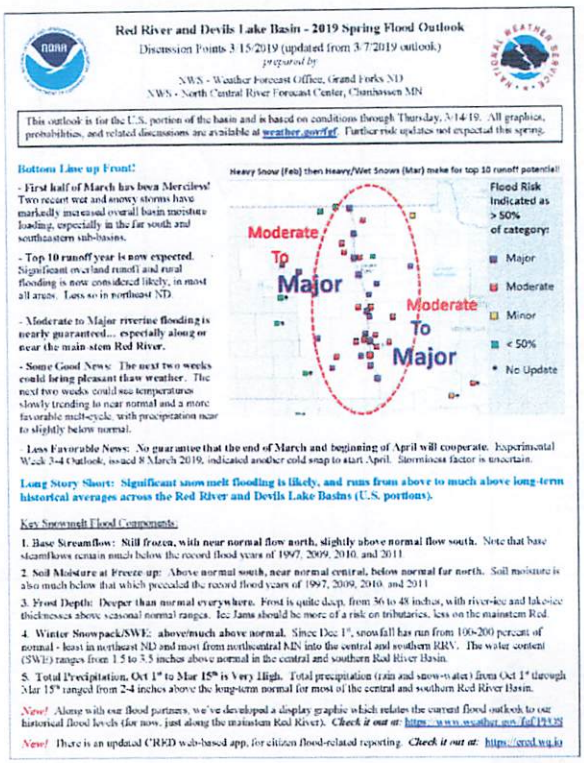
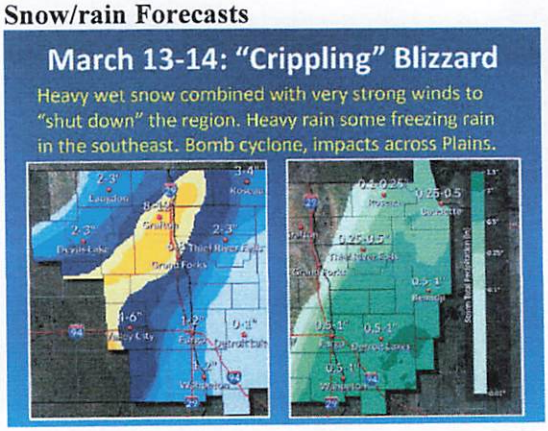
Some snow/SWE increases on Maple and Rush Rivers as well.

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



OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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 	✓				

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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?

steps to take during weather emergency

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. ⑥ Reading information is best way to get it, but looking at the maps is also useful

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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 electricity / internet during weather emergency.

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

larger print - + implement suggestions / ideas as discussed in the focus groups.

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

Facebook Twitter X Internet Other: 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?

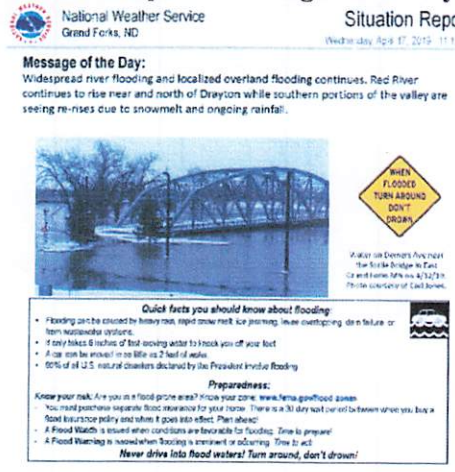
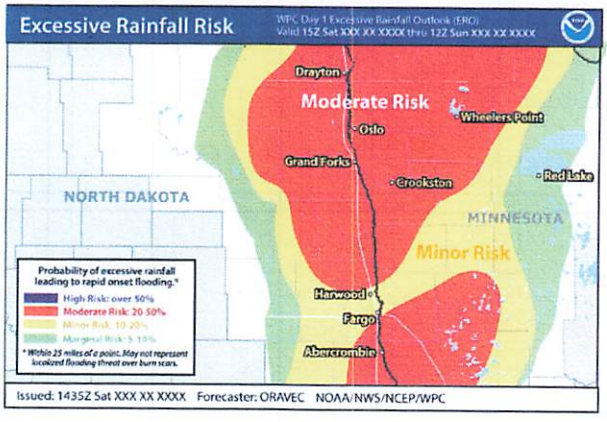
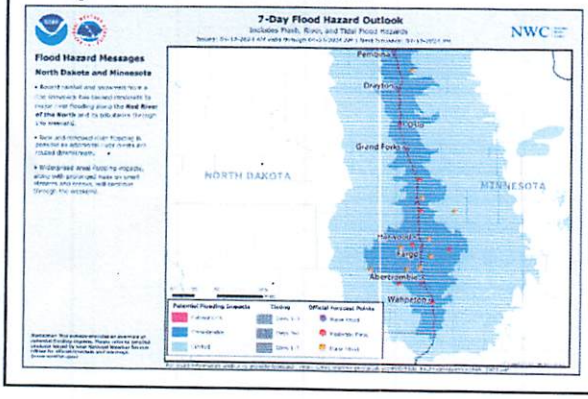
_____

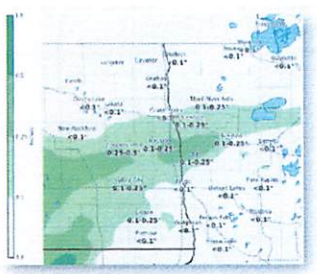
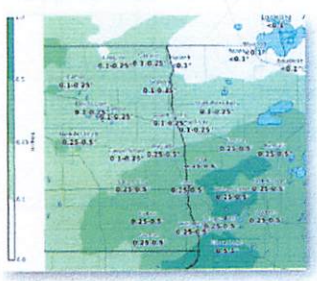
12. Additional comments:

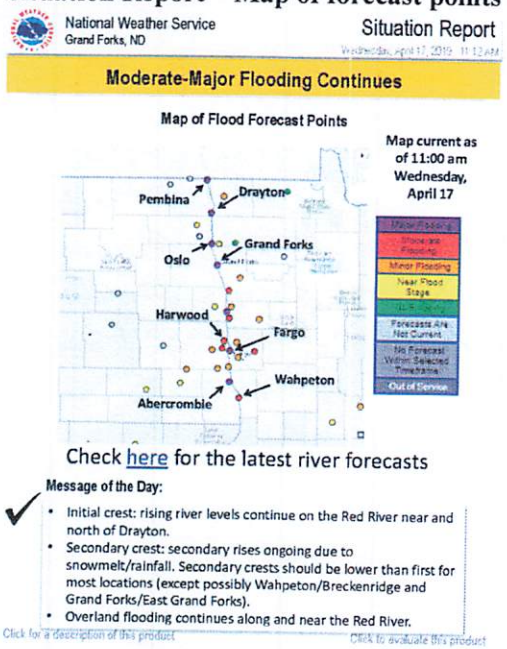
Thanks! Hope our input helped!

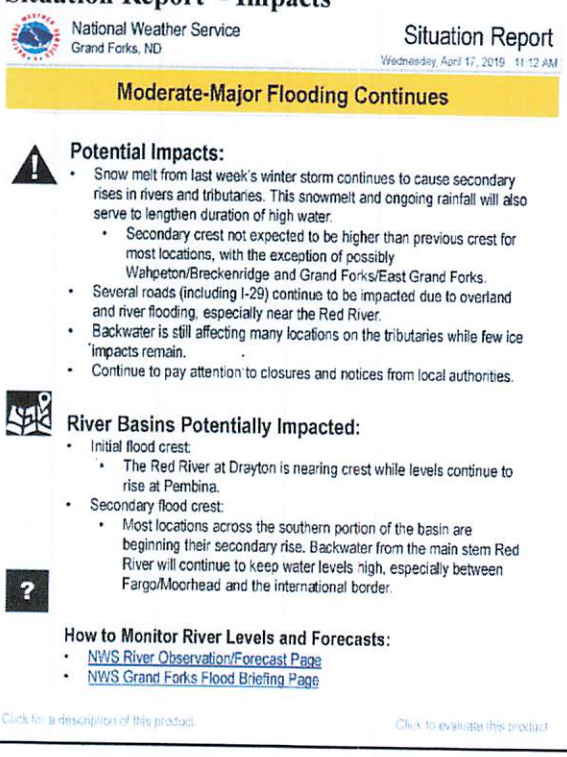
Thank you for participating!

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 	X				
	X				
7-Day Flood Hazard Outlook 	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** 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 – 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				

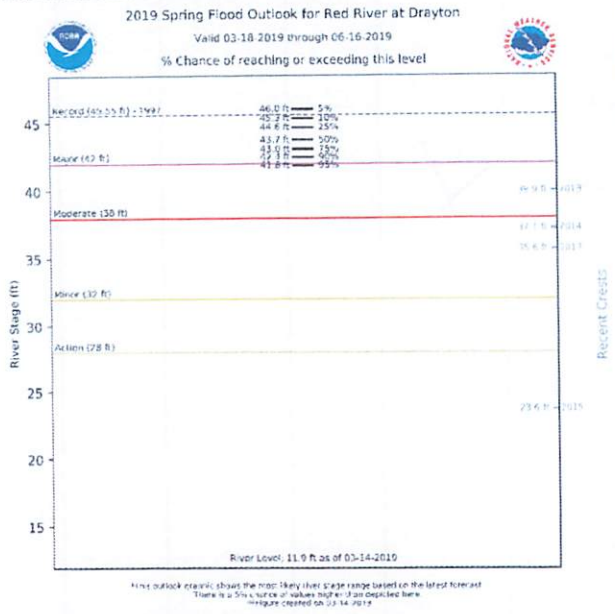
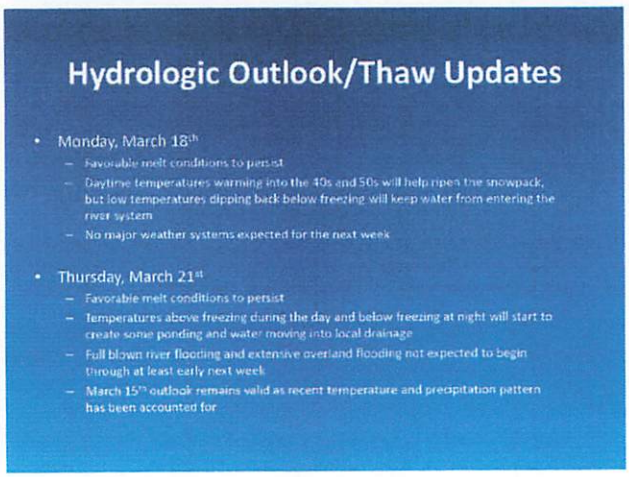
Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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				

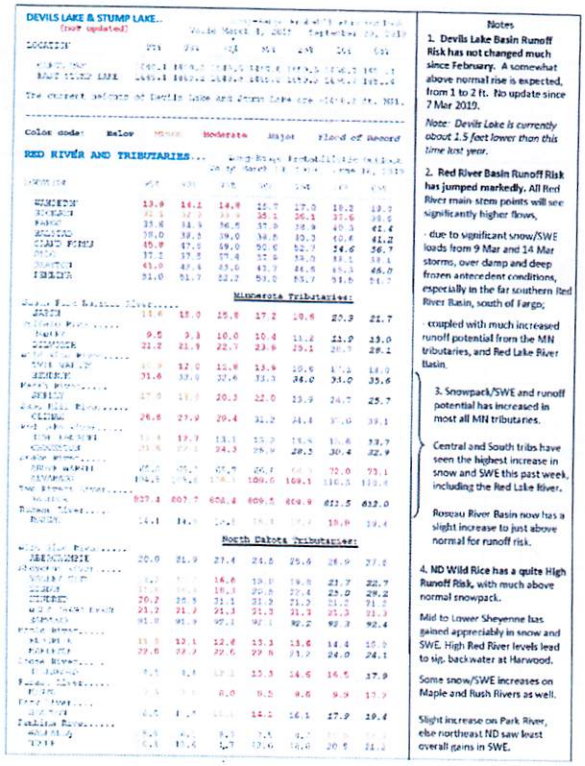
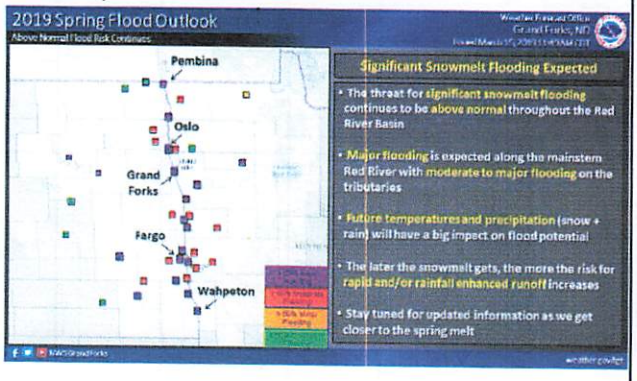
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
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				

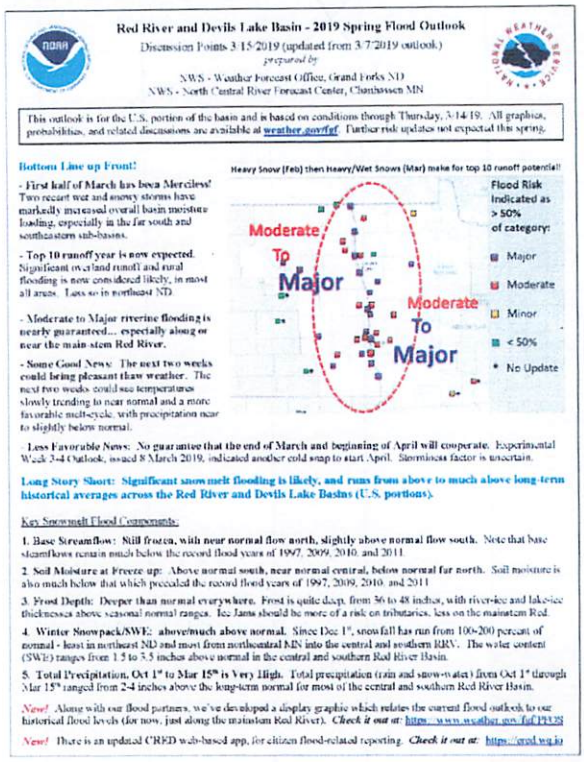
But if print size could increase or spread out on 2 sheets.

	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
Long range probabilistic outlook 		X			
Flood risk 		X			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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				

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?

- What should a persmdo - 1) Pre-event 2) During event 3) Post event

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 otherwise 2nd

Please explain. if clear as long as data info not "squished" + readable

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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				

- People w/ disabilities
- Blind
- Elderly

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.

- We do have a large Hispanic population - so info in Spanish + other languages might be helpful.
- Knowing what to do if in imminent danger

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:_____

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

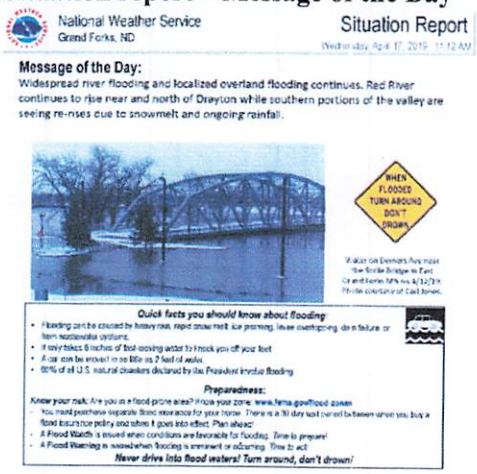
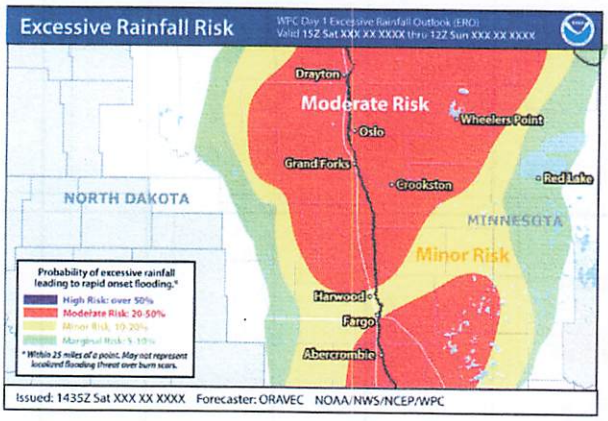
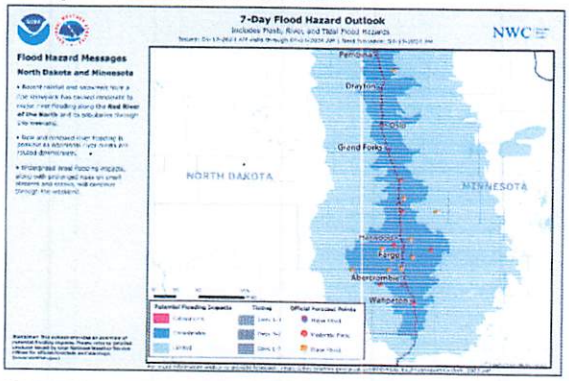
If Yes, please explain:

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

None

12. Additional comments:

Thank you for participating!

	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 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 Quick facts you should know about flooding: Preparedness:	X				
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Harwood Fargo Abercrombie Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC	X				
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook Flood Hazard Messages North Dakota and Minnesota NWC NORTH DAKOTA MINNESOTA			X		

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook	X				
Situation report – 24 hour precipitation	X				

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"	

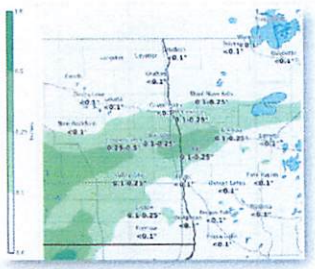
Click for a description of this product Click to evaluate this product

National Weather Service
Grand Forks, ND

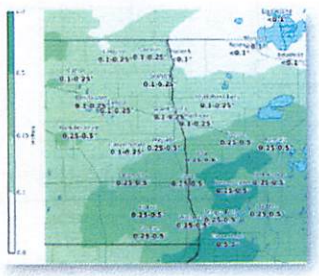
Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

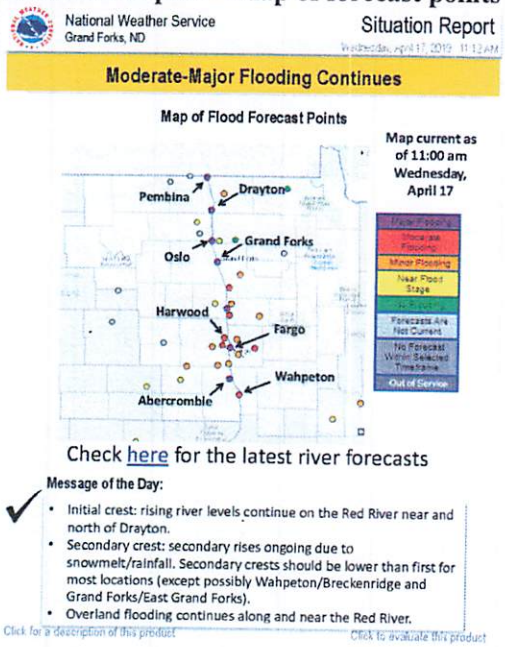
Precipitation over the last 24 hours in the River Forecasts (7 am Tue to 7 am Wed)

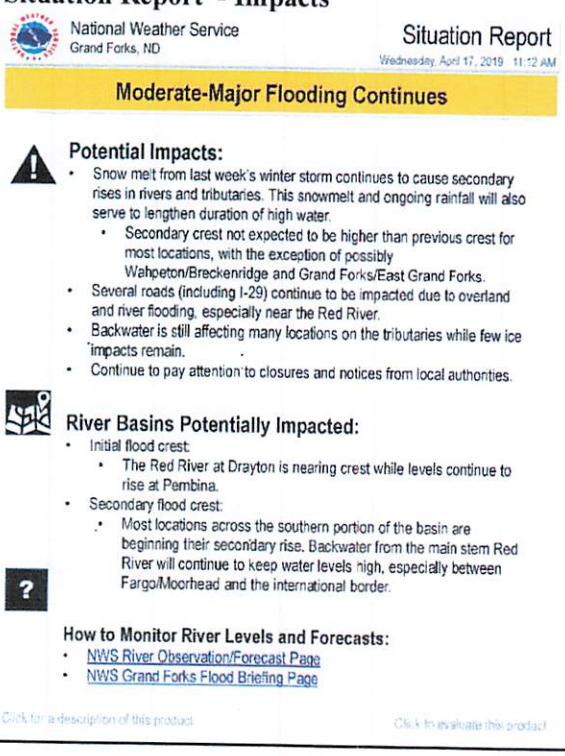


24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)



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

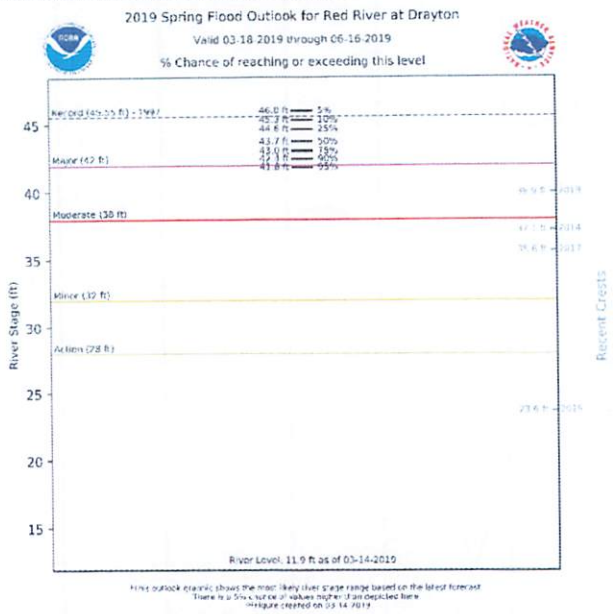
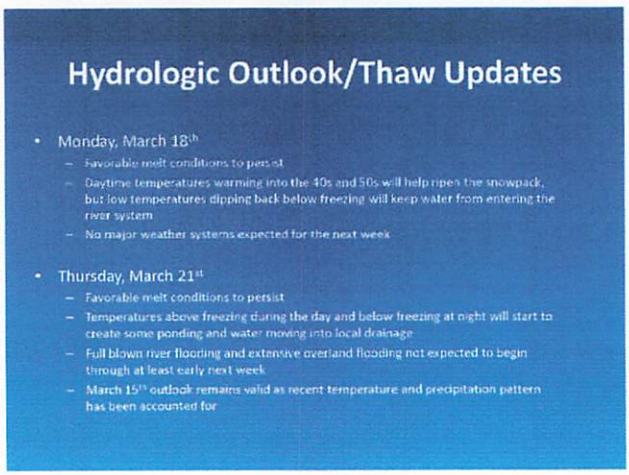
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 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			

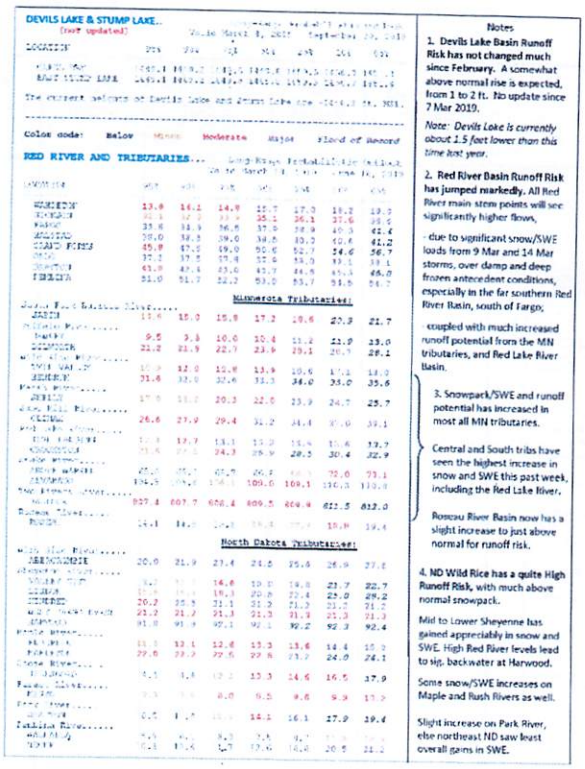
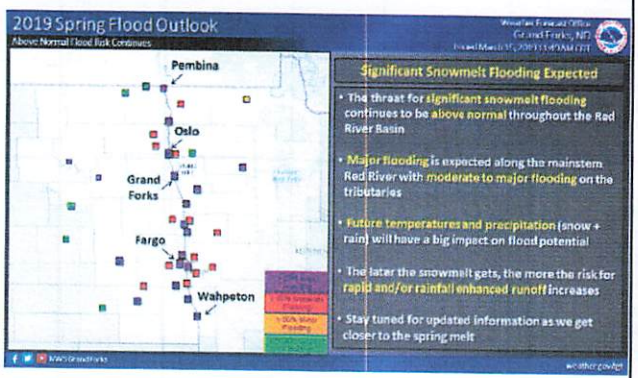
Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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
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
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				

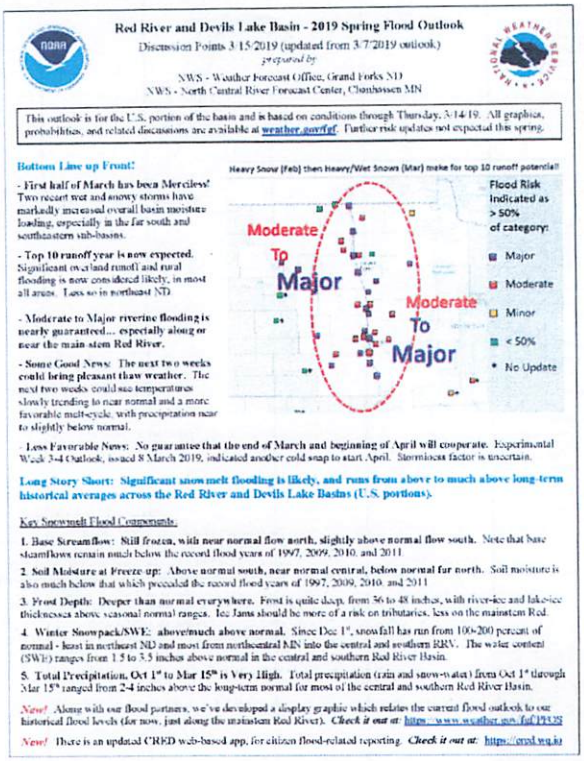
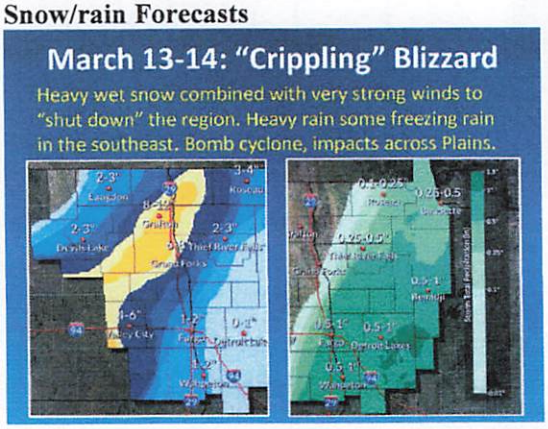
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
Long range probabilistic outlook 			X		
Flood risk 			X		

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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				

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?

to be informed or to help protect yourself and others.

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. because it helps people get a visual and everyone uses their phone's.

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Myself personally I have no barriers I would say some people, as in language barrier's blind or deaf residences may have problems communicating, or getting this info.

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?

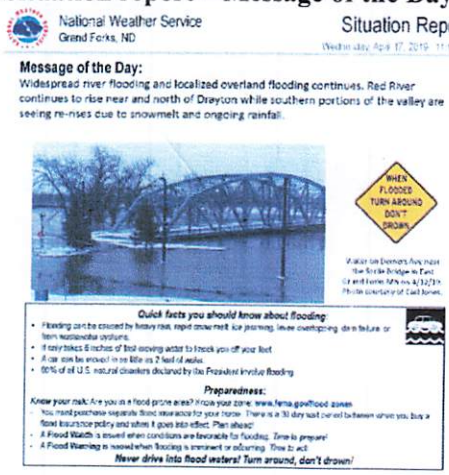
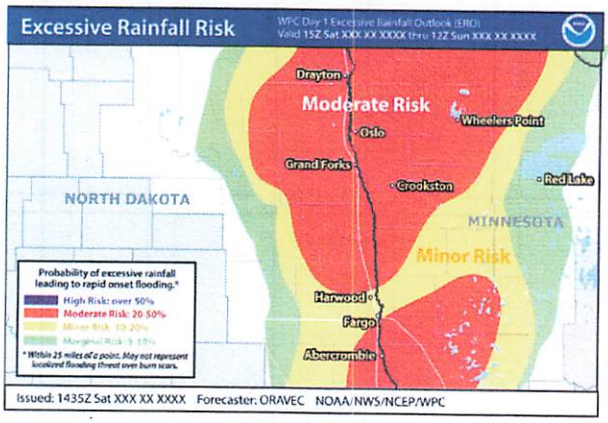
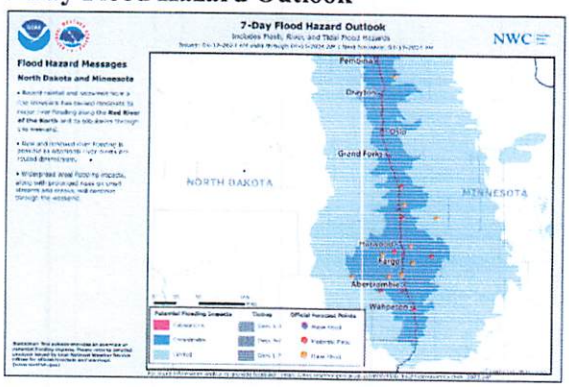
_____

12. Additional comments:

_____

_____

Thank you for participating!

	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 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 Quick facts you should know about flooding: Preparedness:		✓			
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC			✓		
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook NWC Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA			✓		

	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

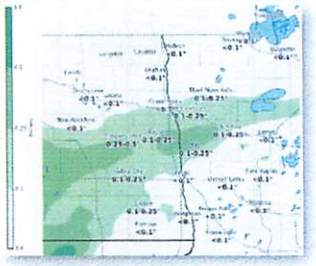
Situation report – 24 hour precipitation		✓			

National Weather Service
Grand Forks, ND

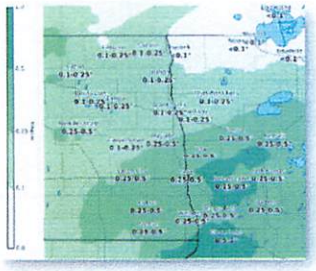
Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

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



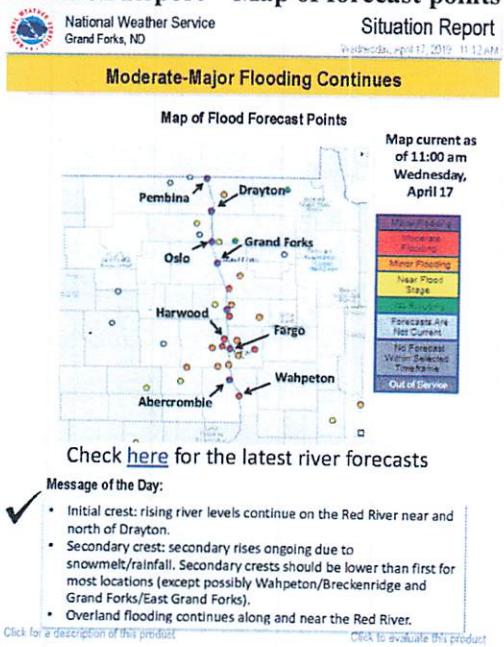
24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)

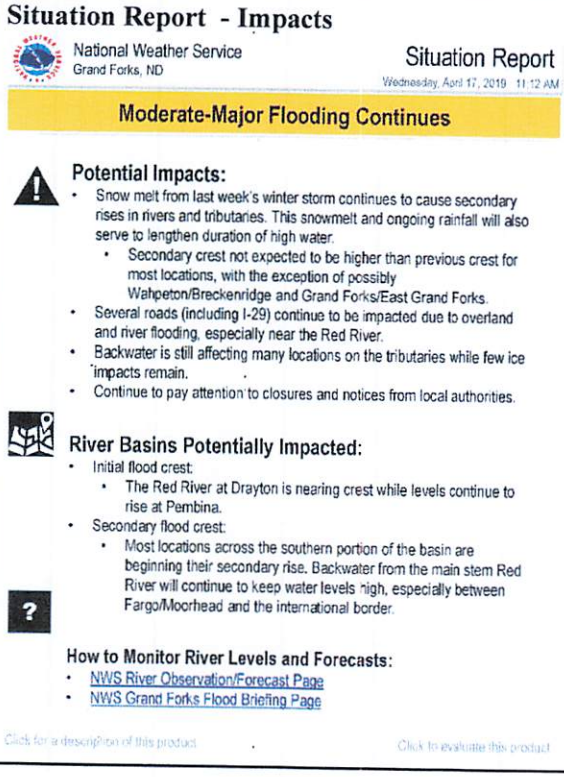


Click for a description of this product

Click to evaluate this product

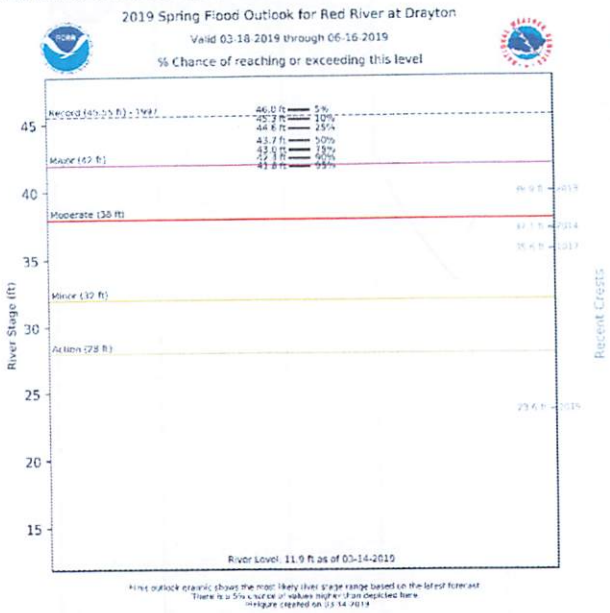
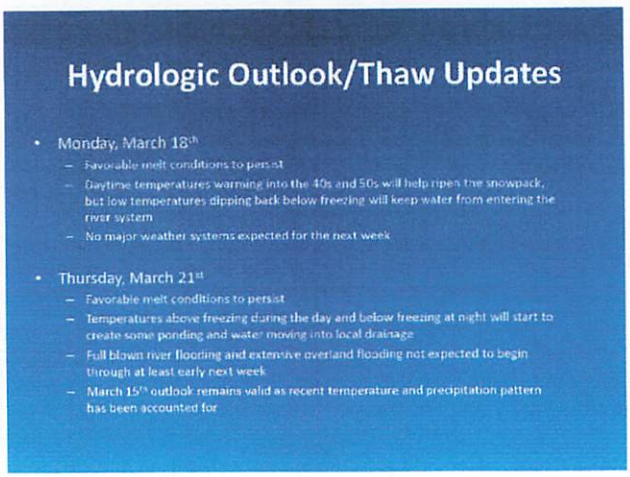
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points			✓		
Situation Report - Impacts			✓		

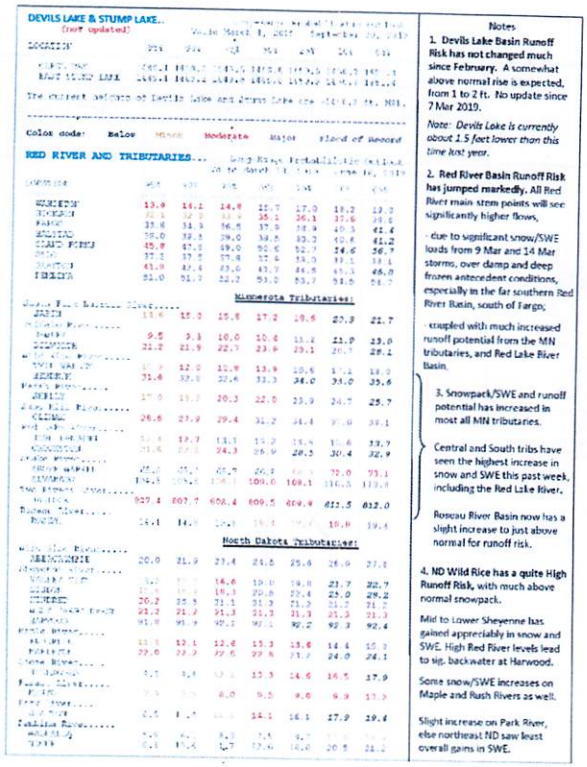
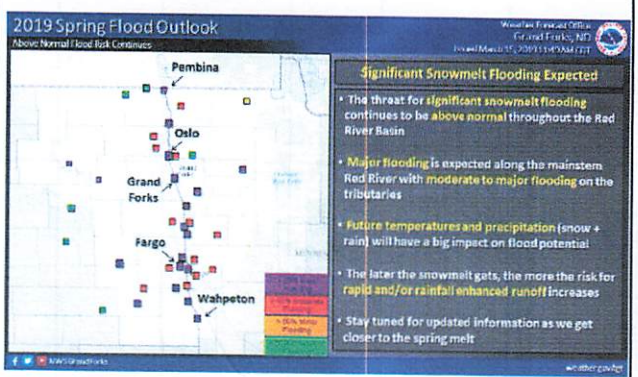




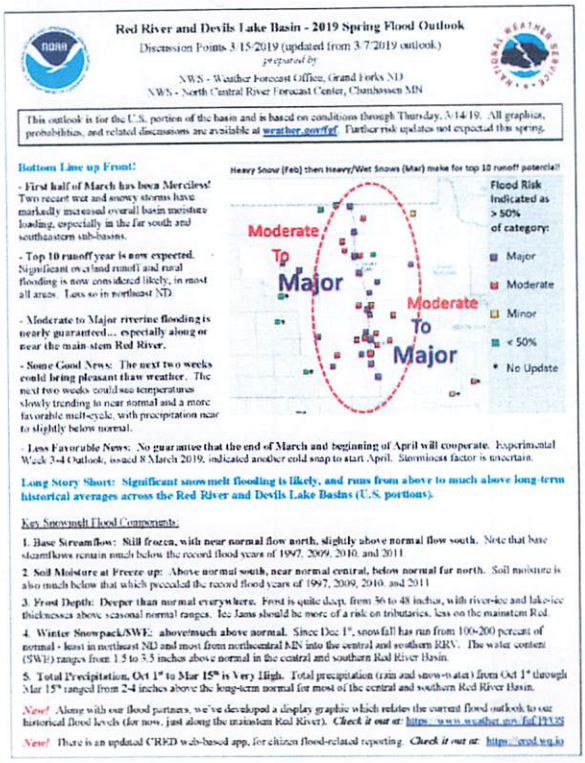
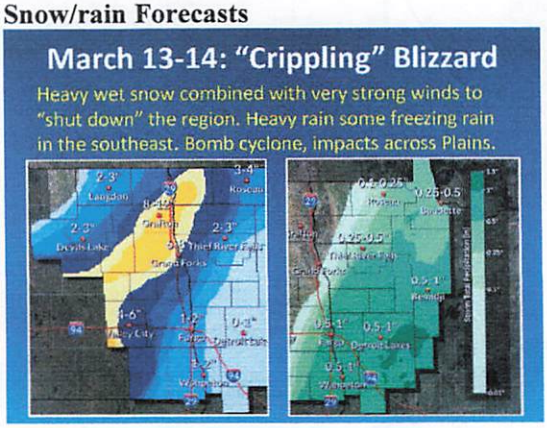
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * 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
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
Percent chance of exceedance 	✓				
Hydrologic Outlook/Thaw Updates 		✓			

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

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 			✓		

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 want to know totals to determine what to expect

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. _____

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

NWS products don't pertain to daily needs

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

Language

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: Local

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:

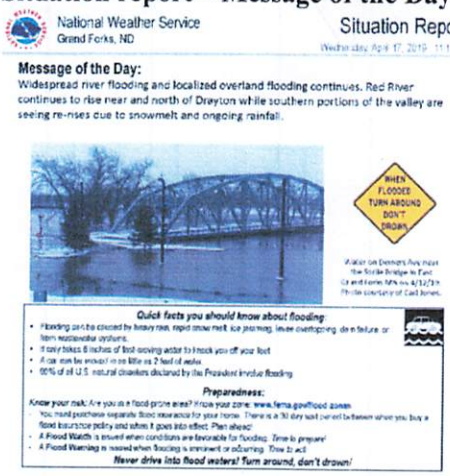
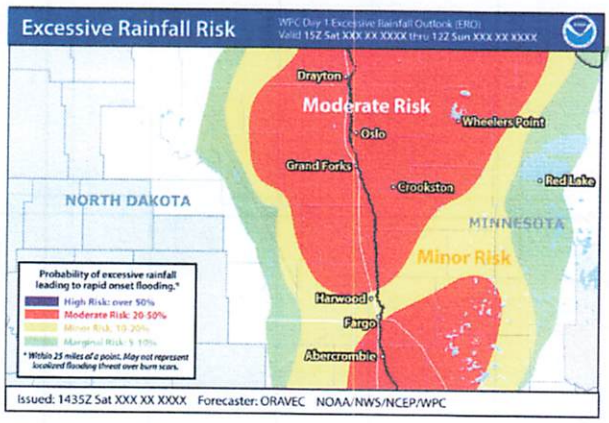
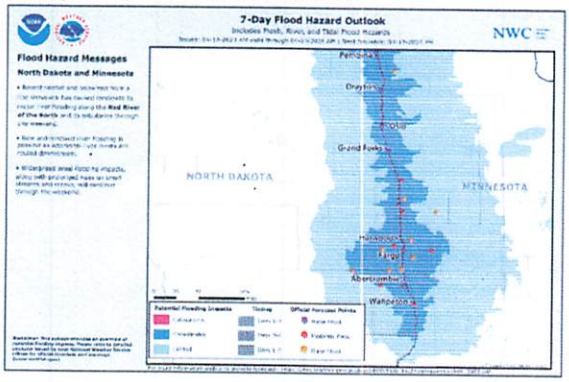
11. What improvements could be made in the format or content of this session?

None

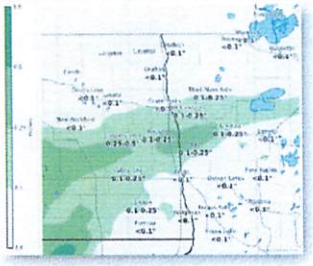
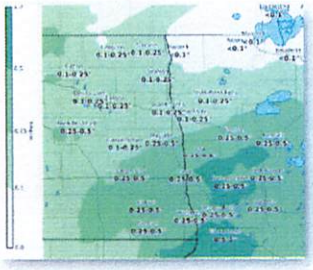
12. Additional comments:

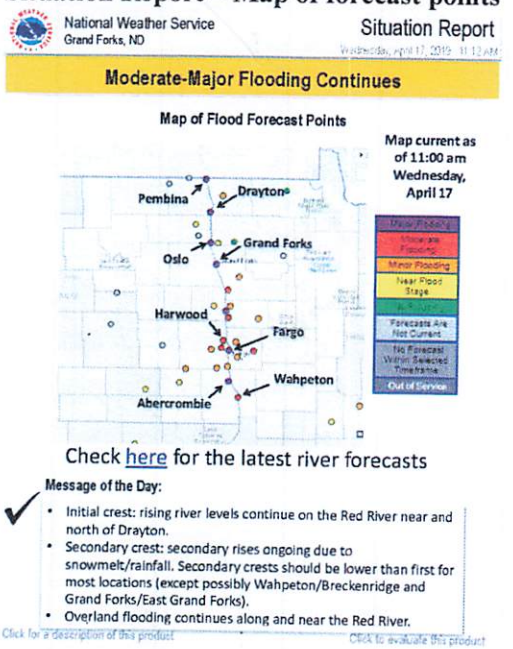
Thanks for initiation of Group

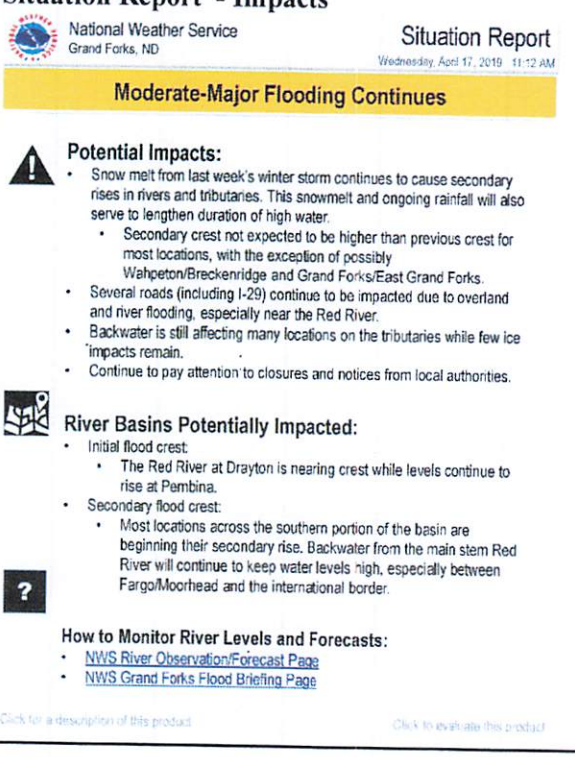
Thank you for participating!

	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 **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 FLOODS TURN AROUND DON'T DROWN *Quick facts you should know about flooding* • Flooding can be caused by heavy rain, rapid snow melt, ice jamming, levee overtopping or failure, or from thunderstorm systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be swept away 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!***			✓		
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC			✓		
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook Includes Flash, River, and Tidal Flood Hazards NWC Flood Hazard Messages North Dakota and Minnesota Pembina Drayton Grand Forks NORTH DAKOTA MINNESOTA Fargo Abercrombie Wahpeton					✓

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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 – 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		✓			

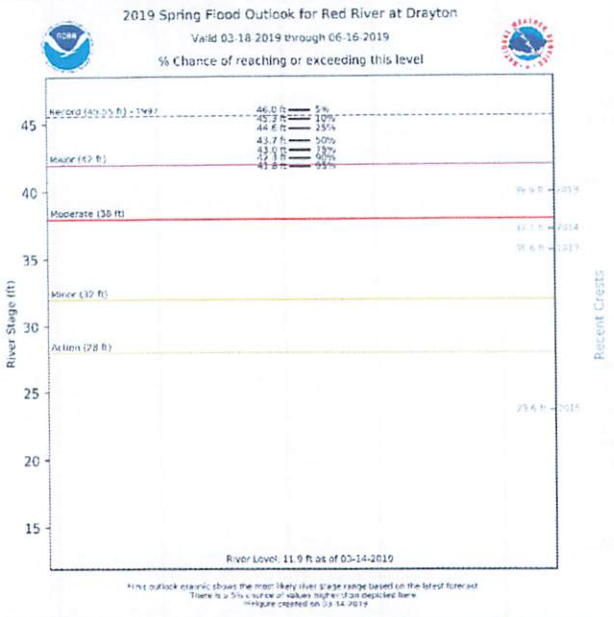
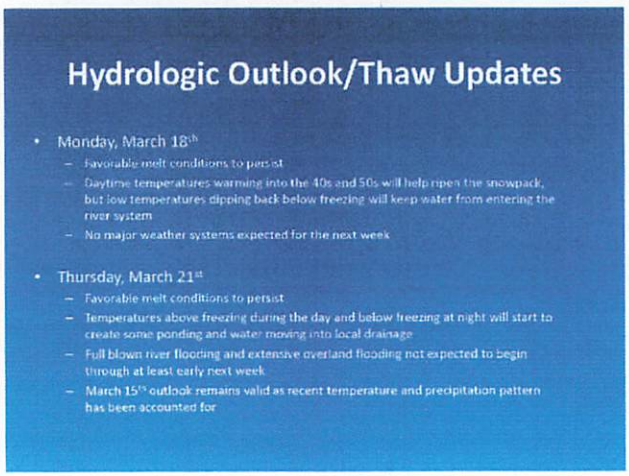
Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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 nigh, 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
		✓			

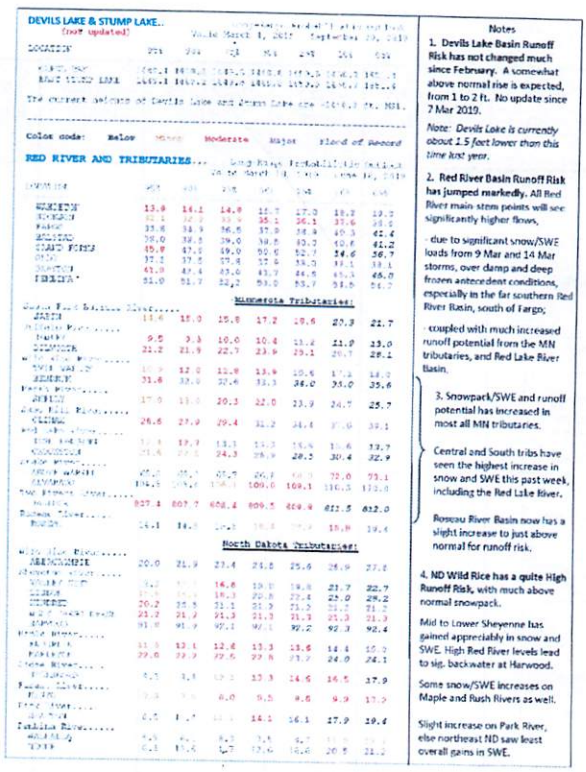
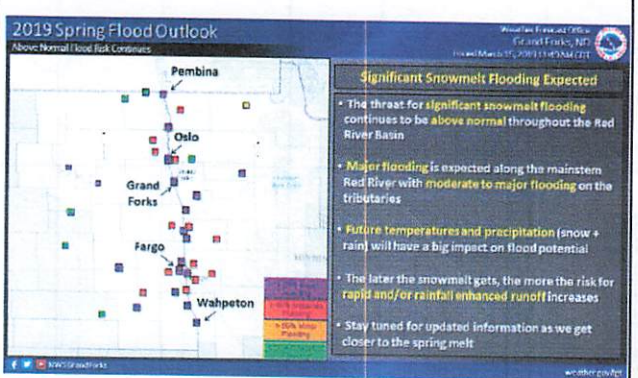
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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 rivor 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 && HNC167-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/8am 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
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			✓		

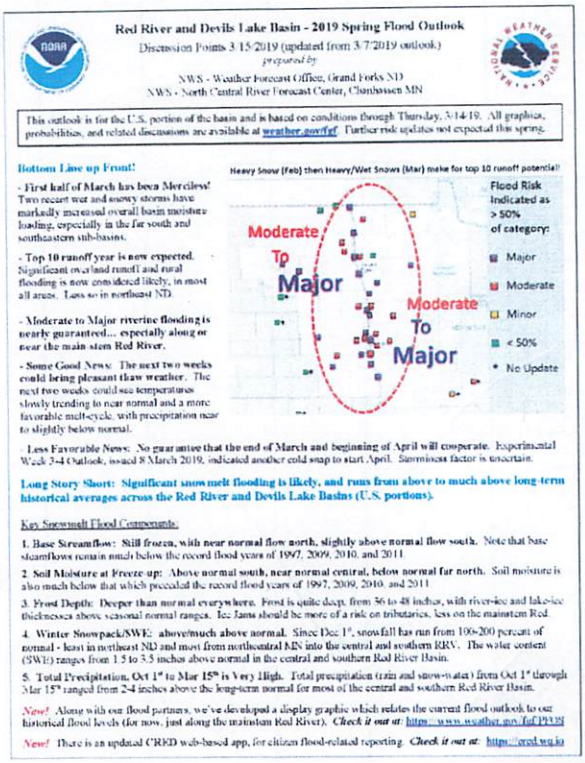
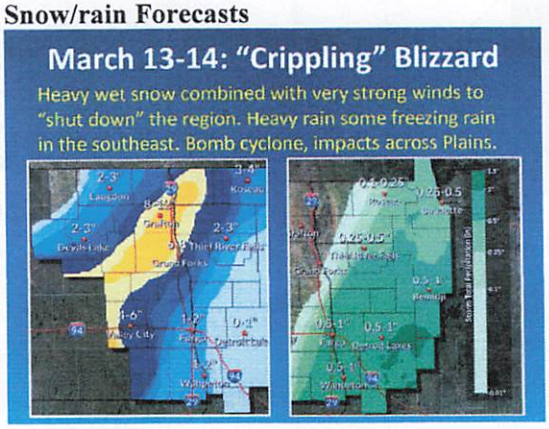
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
Long range probabilistic outlook 				✓	
Flood risk 		✓			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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 			✓		

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?

word of mouth & Local 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. I'm more visual however I like a mixture

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

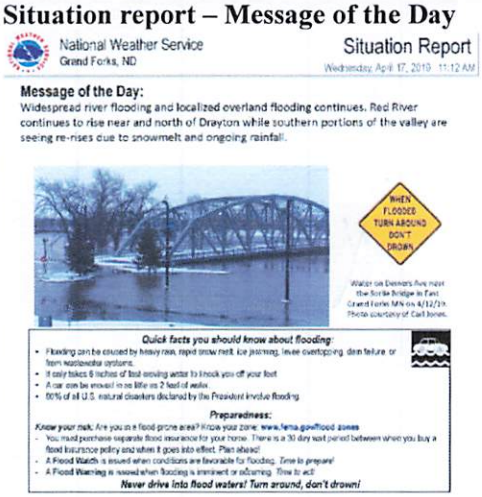
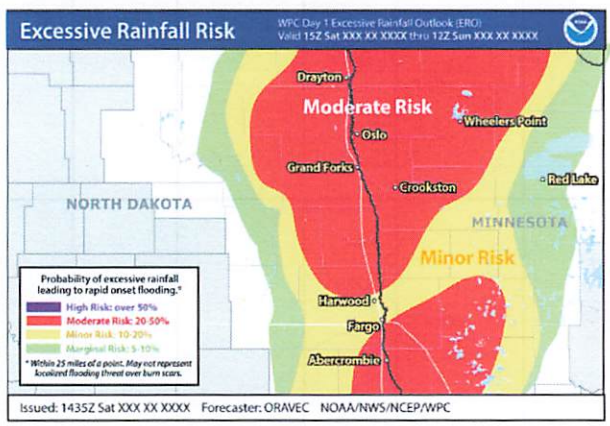
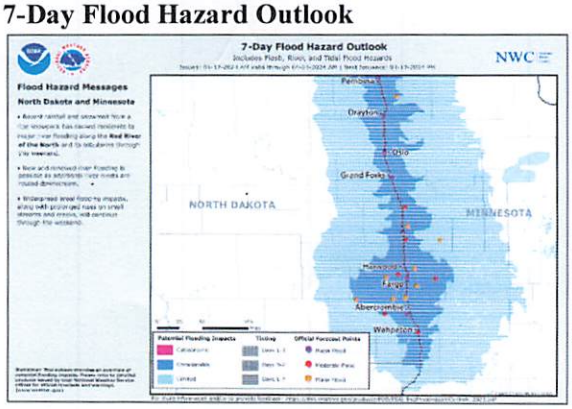
Please check ONE box for each statement.

	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.

Language Barriers

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 		X			
		X			
7-Day Flood Hazard Outlook 		X			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

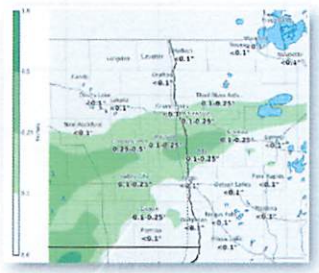
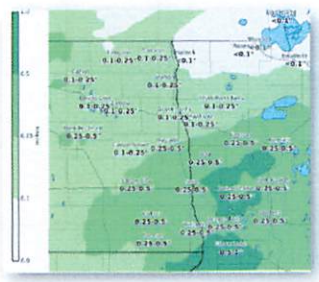
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND — Situation Report — Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook		X			

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

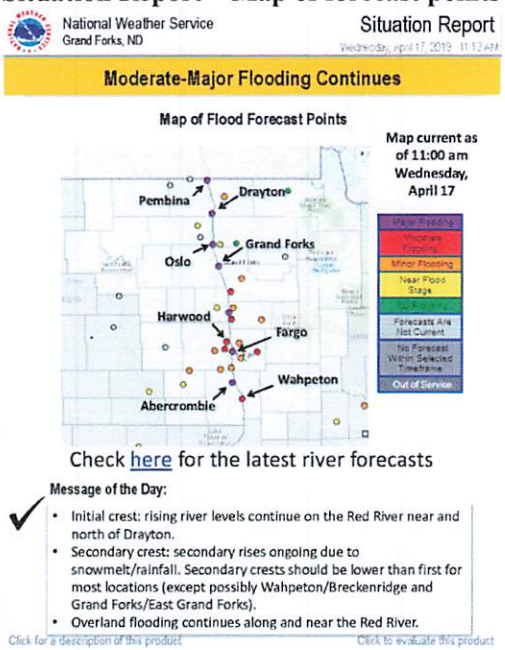
Precipitation Outlook

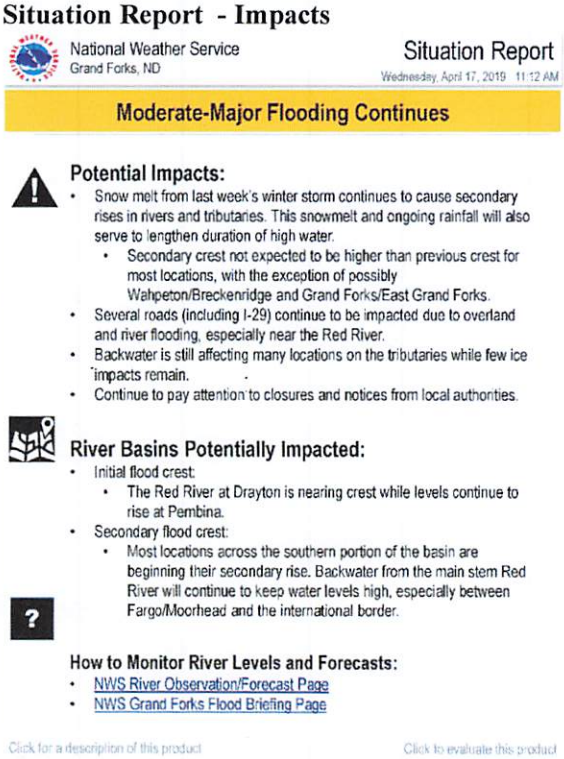
Day of the Week	Type	Liquid Amounts	Location
Wednesday, April 17	Rain and Snow	0"-0.50"	Mainly southern RRV
Thursday, April 18	Showers/Thunder	0"-0.10"	Eastern ND/NW MN
Friday, April 19	None	0"	
Saturday, April 20	Showers	0"-0.20"	Along/north Hwy 2
Sunday, April 21	None	0"	
Monday, April 22	None	0"	

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		X			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

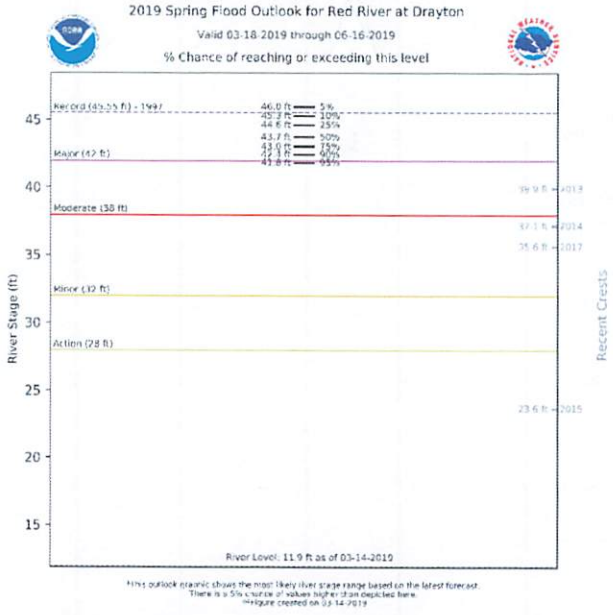
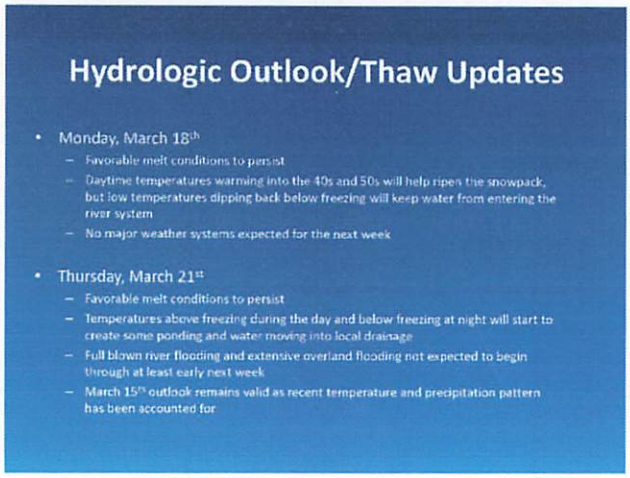
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 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			

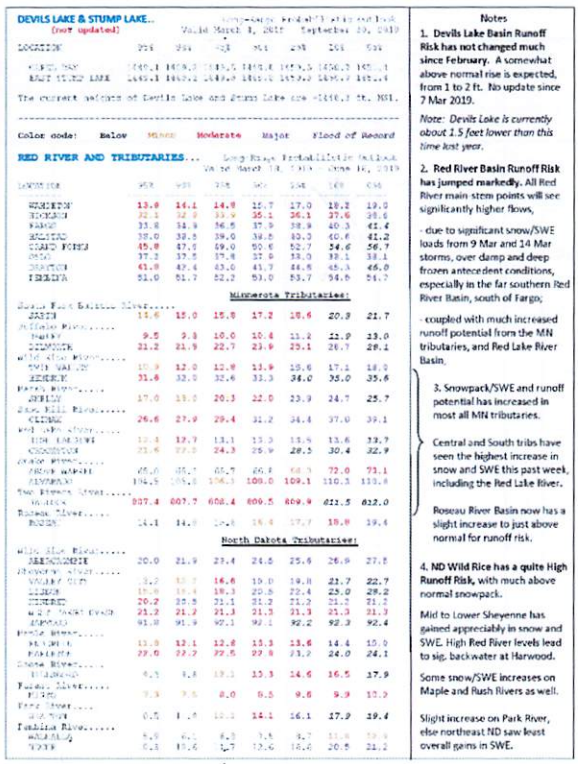
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * 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
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			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
Long range probabilistic outlook		X			
Flood risk		X			



DEVILS LAKE & STUMP LAKE...
(not updated)

Valid March 8, 2019 - September 30, 2019

LOCATION | 95% | 90% | 75% | 50% | 25% | 10% | 5%

EAST STUMP LAKE 1440.1 1440.2 1440.4 1441.0 1441.5 1442.2 1442.7

The current actual elevation of Devils Lake and Stump Lake are 1440.3 ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long Range Probabilistic Outlook
Valid March 08, 2019 - June 30, 2019

LOCATION	95%	90%	75%	50%	25%	10%	5%
WAHPETON	13.8	14.1	14.8	15.7	17.0	18.2	19.0
RICHLAND	32.1	32.9	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
HALSTAD	38.0	38.5	39.0	39.8	40.3	40.8	41.2
GRAND FORKS	45.8	47.6	49.0	50.6	52.7	54.6	56.7
OSLO	37.3	37.5	37.8	37.9	38.0	38.1	38.1
DRAYTON	41.8	42.4	43.0	43.7	44.5	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.6	56.7

Minnesota Tributaries:

Sheyenne River basin							
ZAREK	13.6	15.0	15.8	17.2	18.6	20.8	21.7
Wilkin River							
HANKE	9.5	9.8	10.0	10.4	11.2	12.9	13.0
WAHPETON	21.2	21.9	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
ERSKINE	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
Red Lake River							
CROOKSTON	26.6	27.9	29.4	31.2	34.4	37.0	39.1
Red Lake River							
HIGH LANDING	12.3	12.7	13.1	13.3	13.5	13.6	13.7
CROOKSTON	21.6	22.0	24.3	25.9	28.5	30.4	32.9
Snake River							
FROM WARREN	65.0	65.7	65.9	66.8	68.3	72.0	73.1
ARGYLE	104.5	105.0	106.3	108.0	109.1	110.3	110.8
Two Rivers River							
ARGYLE	607.4	607.7	608.4	609.5	609.9	611.5	612.0
Thief River							
BOWES	14.1	14.6	15.8	16.4	17.7	18.8	19.4

North Dakota Tributaries:

Wild Rice River							
ABERCROMBIE	20.0	21.9	23.4	24.6	25.6	26.9	27.8
Sheyenne River							
VALLEY CITY	13.2	13.7	16.6	19.0	19.8	21.7	22.7
LISBON	15.6	16.4	18.3	20.6	22.4	25.0	28.2
KINDRED	20.2	20.6	21.1	21.2	21.2	21.2	21.2
WEST FORK RED	21.2	21.2	21.3	21.5	21.3	21.3	21.3
FARGO	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Rush River							
MAPLETON	11.9	12.1	12.8	13.3	13.6	14.4	15.9
HORACE	22.6	22.7	22.6	22.8	23.2	24.0	24.1
Maple River							
HILDRED	6.5	6.8	13.1	13.3	14.6	16.5	17.9
Turtle River							
MINTO	7.3	7.5	8.0	8.5	8.6	8.9	10.2
Park River							
GRAFTON	0.5	1.0	12.1	14.1	16.1	17.9	19.4
Forbes River							
ARGYLE	5.9	6.1	6.3	7.5	9.7	11.6	12.9
MOTT	6.3	10.6	14.7	18.6	18.6	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.

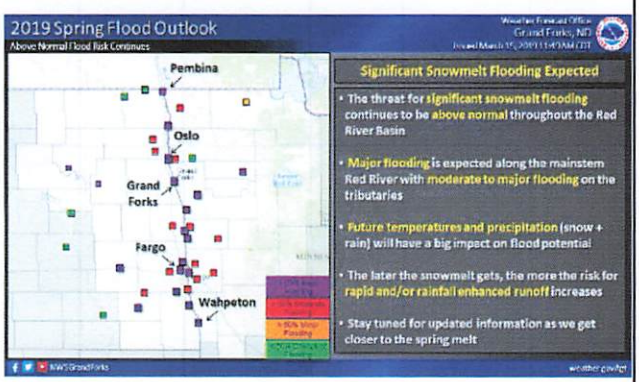
Roseau River Basin now has a slight increase to just above normal for runoff risk.

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

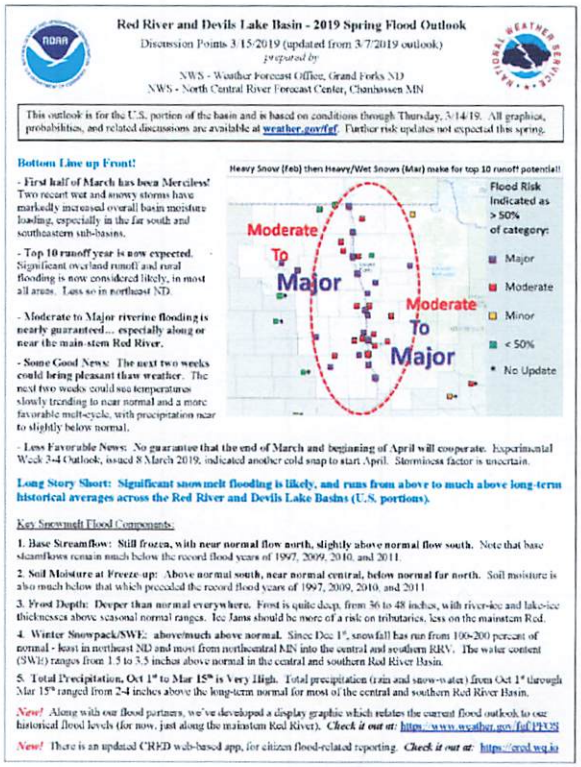
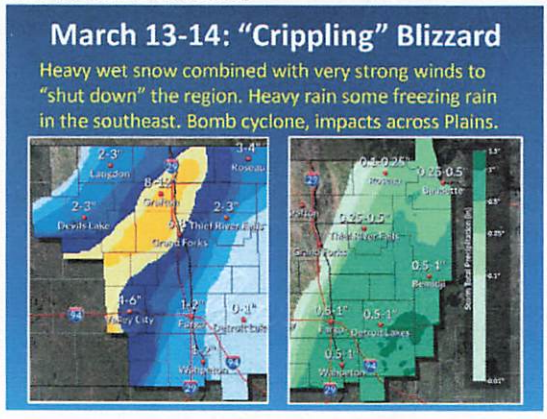
Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

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.



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: 07/31/2024

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?

where the report is coming from, locally, another center.

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. _____

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

No Barriers for me.

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

Tell more about the aftermath

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: Cell 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:

Because I've never been through anything like that before

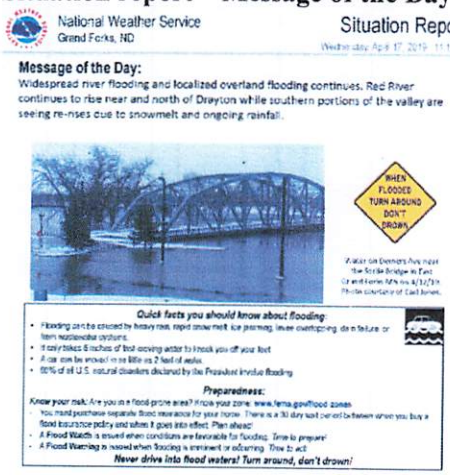
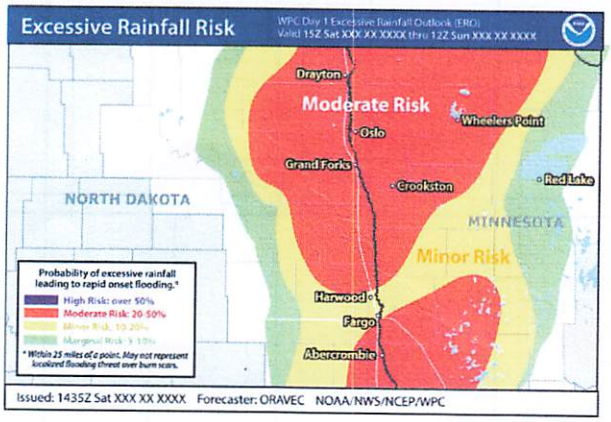
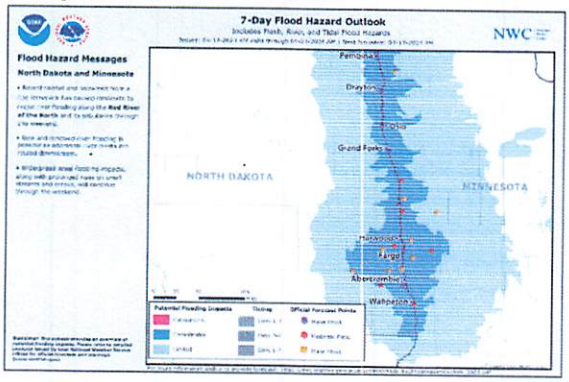
11. What improvements could be made in the format or content of this session?

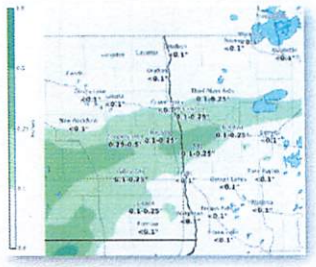
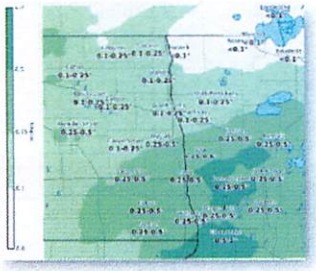
Bigger pics

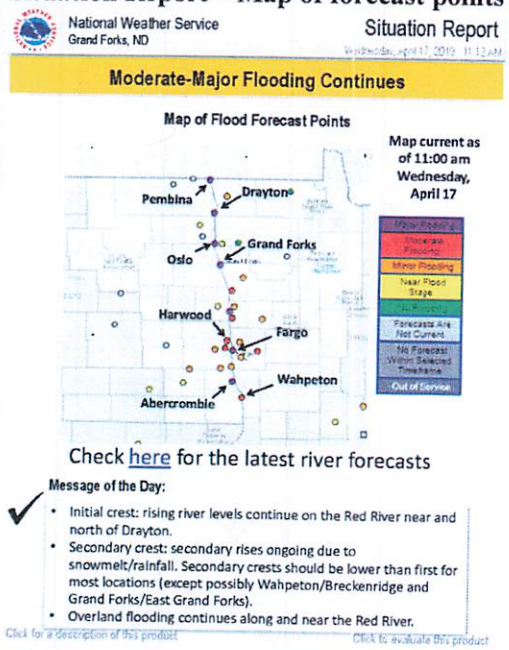
12. Additional comments:

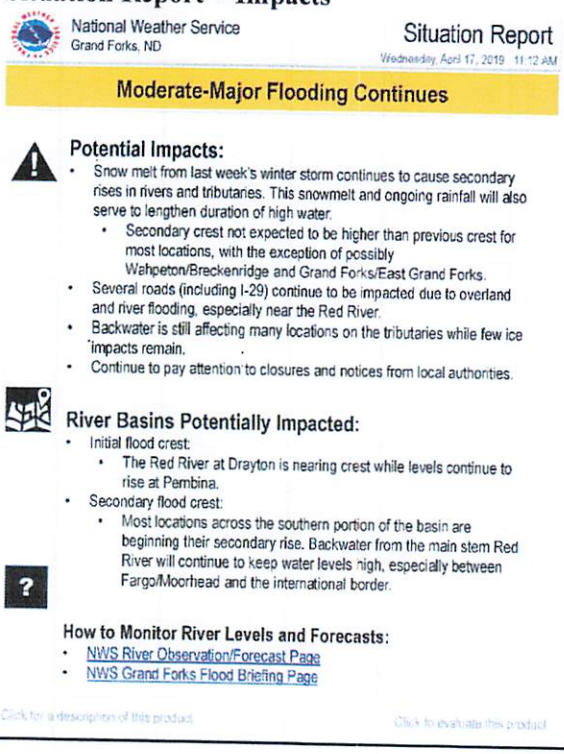
But I enjoyed the study!

Thank you for participating!

	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 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 Quick facts you should know about flooding: Preparedness:		X			
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC		X			
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook NWC Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA		X			

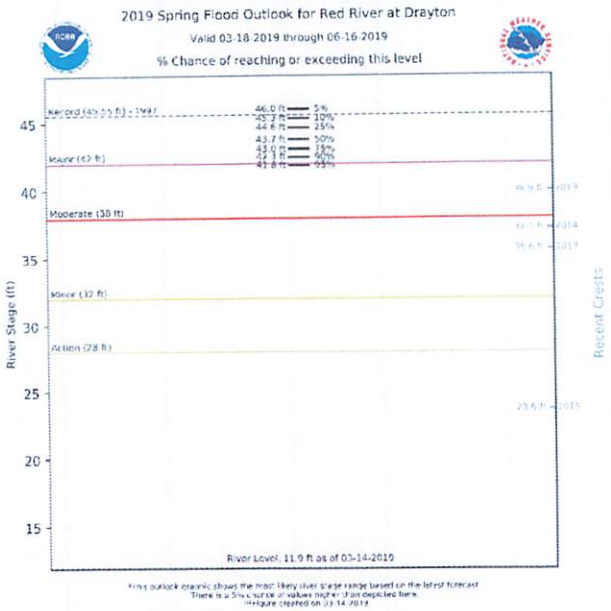
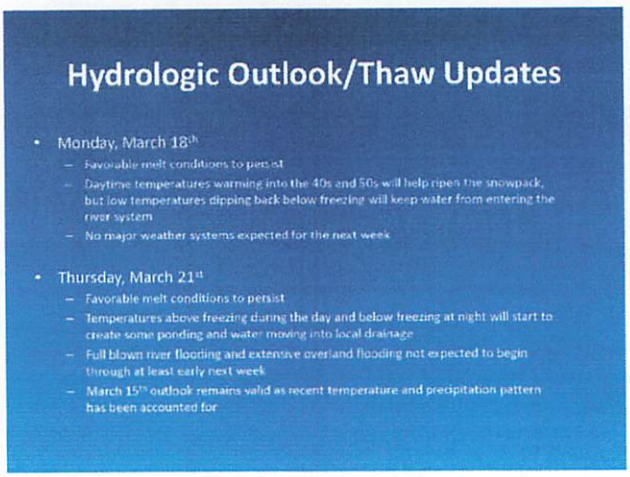
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook Day of the Week / Highs /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

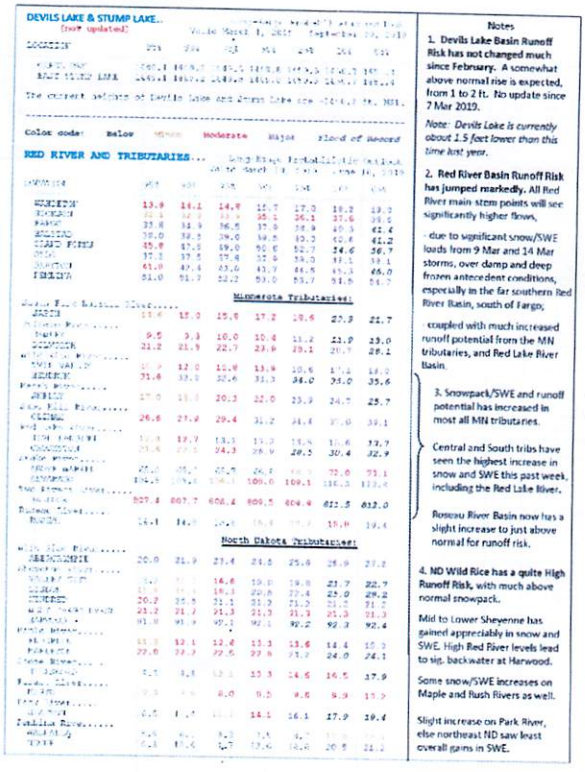
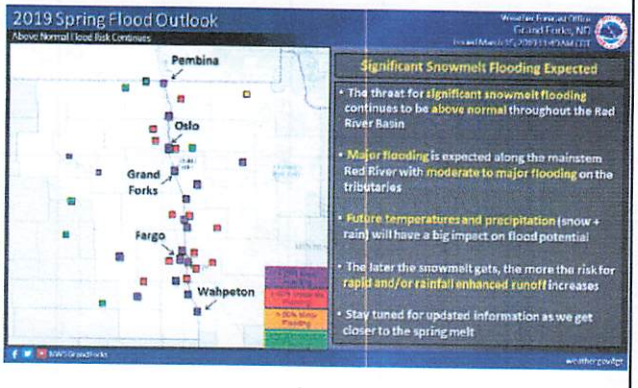
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points  National Weather Service Grand Forks, ND Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points Map current as of 11:00 am Wednesday, April 17 Pembina, Drayton, Grand Forks, Oslo, Harwood, Fargo, Wahpeton, Abercrombie Major Flooding, Moderate Flooding, Minor Flooding, Near Flood Stage, Action, 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 nigh, 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	

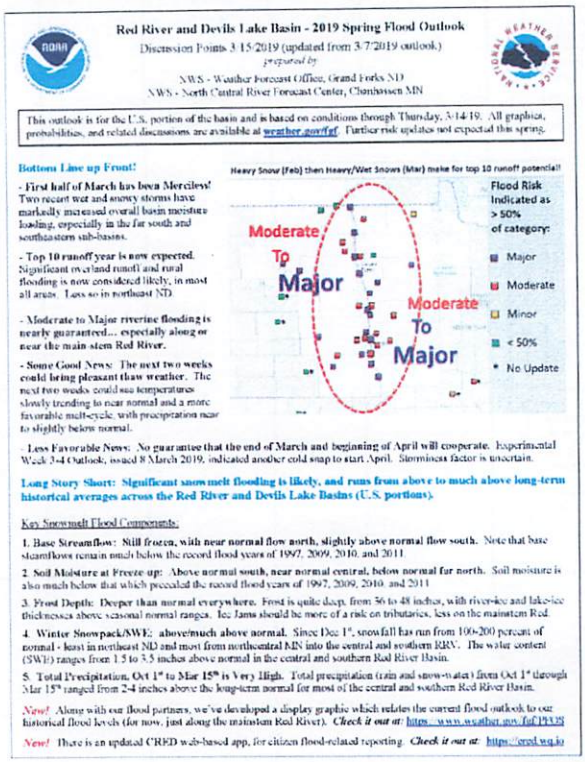
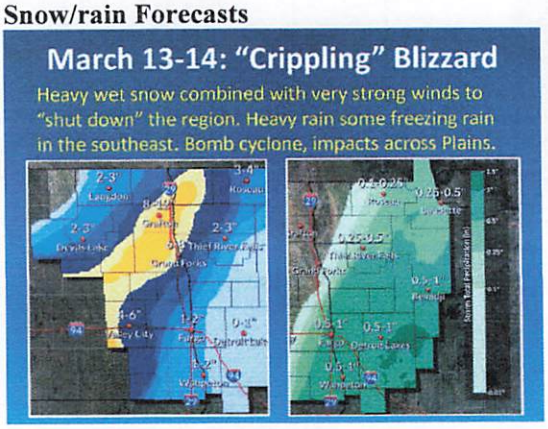
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * 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
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
Percent chance of exceedance 			X		
Hydrologic Outlook/Thaw Updates 	X				

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

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 					

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?

Want to do And Help for disabled

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. _____

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Understanding what I'm looking at

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

More catchy writting less graphics.

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)

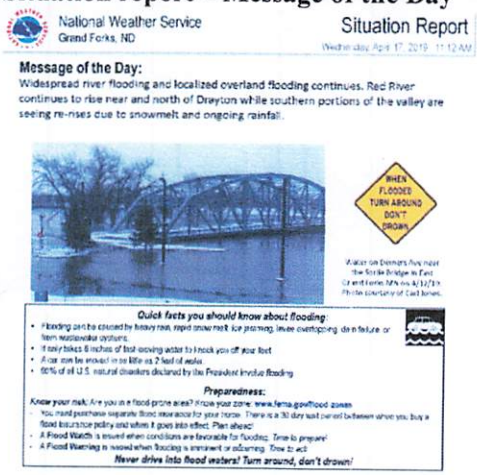
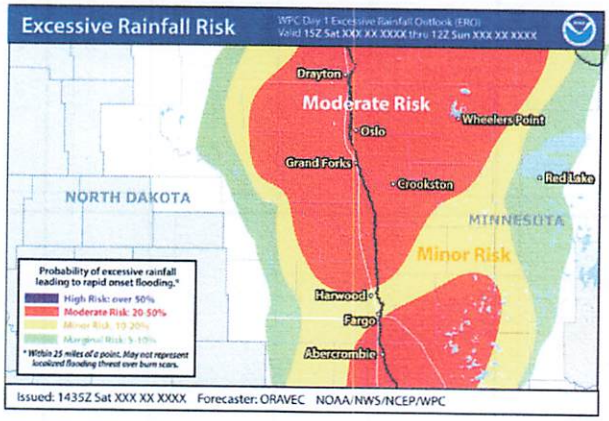
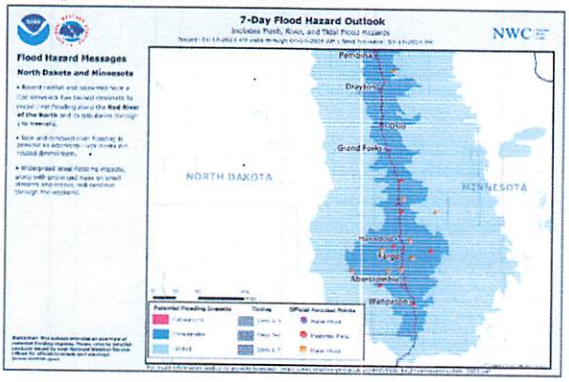
If Yes, please explain:

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

More short paragraphs.

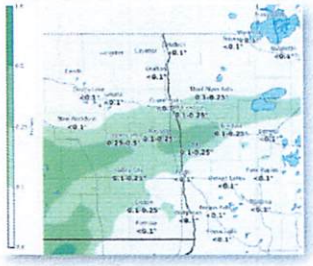
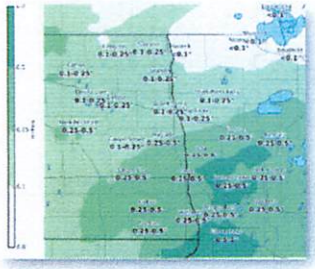
12. **Additional comments:**

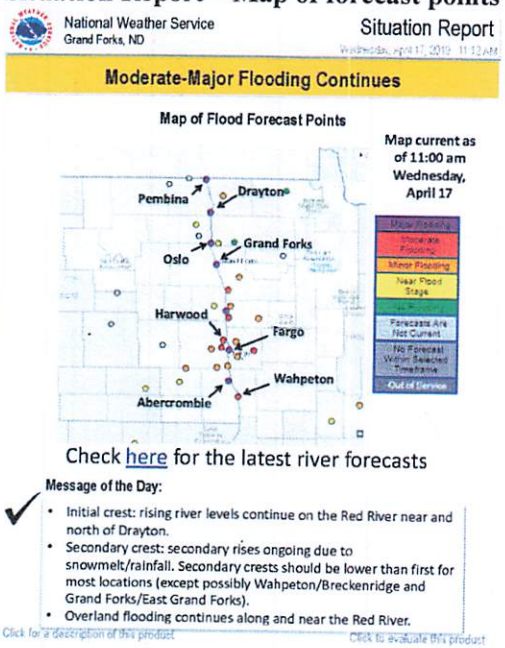
Thank you for participating!

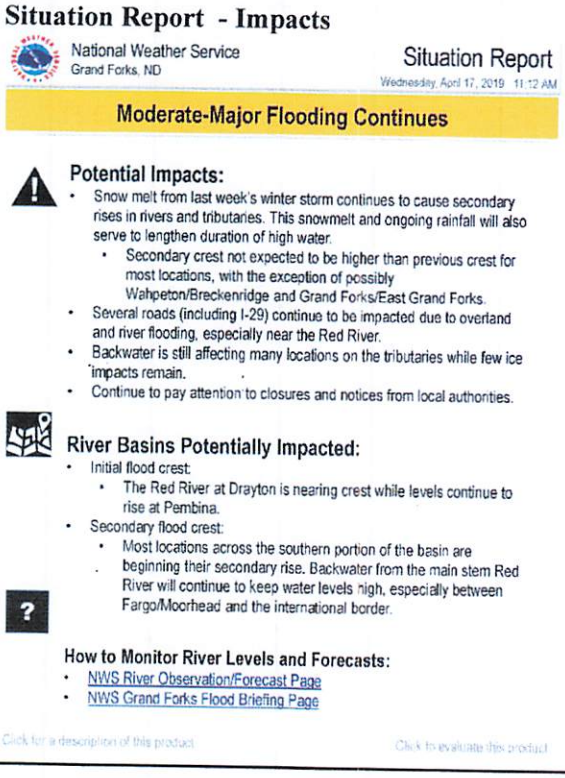
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day  National Weather Service Grand Forks, ND Situation Report **Message of the Day:** Widespread river flooding and localized overland flooding continues. Red River continues to rise near 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 *Quick facts you should know about flooding:* • Flooding can be caused by heavy rain, rapid snowmelt, ice jamming, levee overtopping, dam failure or from multiseverse 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. • 60% 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!***			✓		
Excessive Rainfall Risk  WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC	✓				
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook Including Flash, River, and Tidal Flood Hazards NWC Flood Hazard Messages North Dakota and Minnesota Pembina Drayton Oslo Grand Forks NORTH DAKOTA MINNESOTA Fargo Abercrombie Wahpeton					✓

↑ too much info all at once. too hard to follow.

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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 – 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		✓			

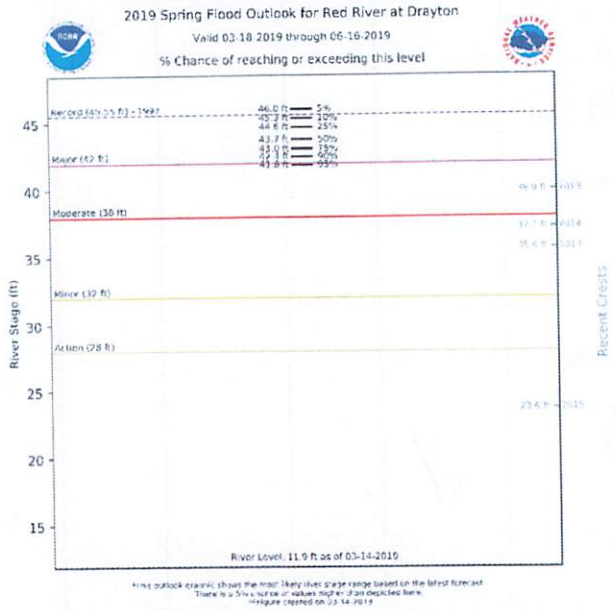
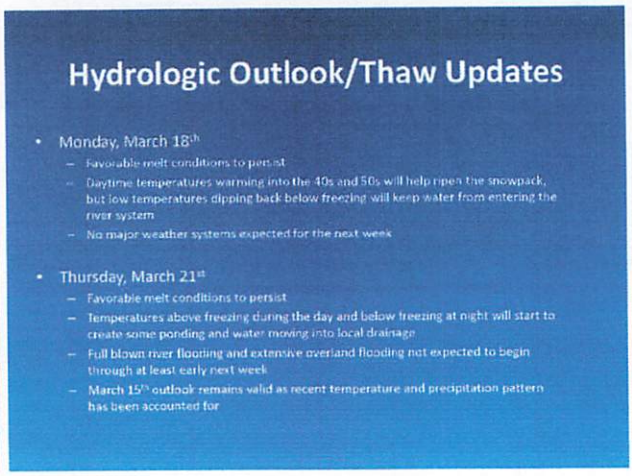
Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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
	✓				

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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 rivor 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.0081.000000T0000Z-000000T0000Z/ /WHMN8.2.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...	✓				

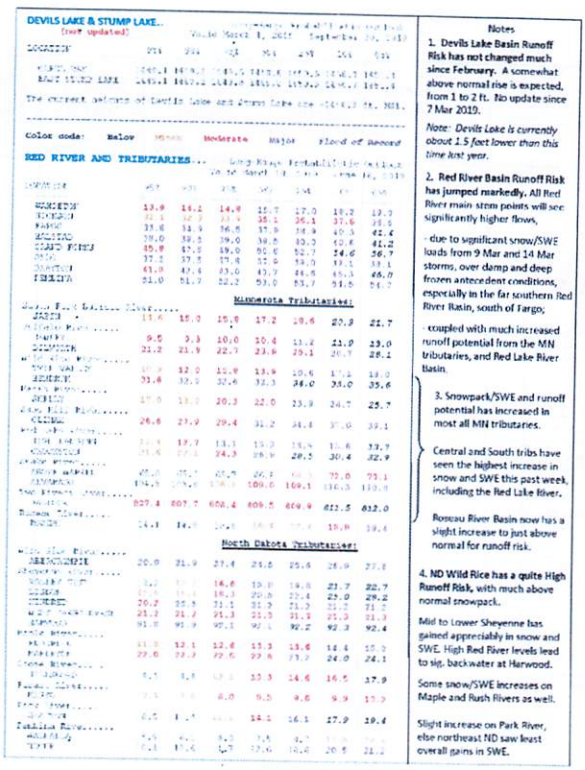
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in 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: 07/31/2024

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

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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



DEVILS LAKE & STUMP LAKE...
(not updated)

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Minnesota Tributaries:

North Dakota Tributaries:

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.

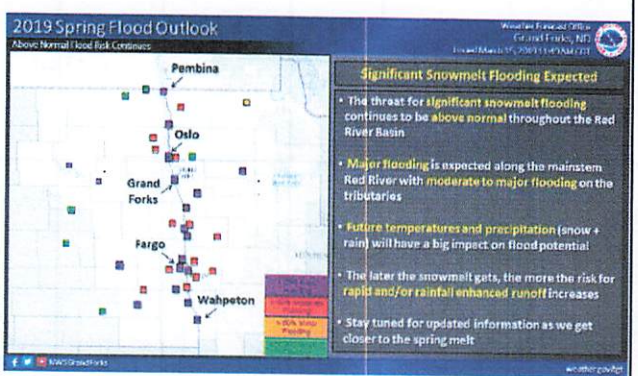
Roseau River Basin now has a slight increase to just above normal for runoff risk.

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

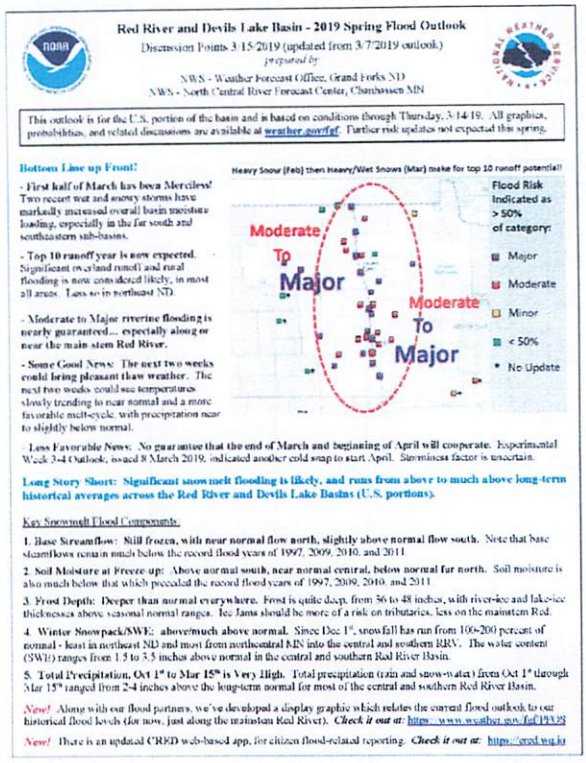
Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

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.



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					✓

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?

Amber Alert like alert if weather risk is Immenite.

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. Graphics w/ the legend and all are too difficult to understand

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Products too difficult to decipher. If I see them, most likely I'll skip.

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

"Catastrophic" => "Extreme"

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:

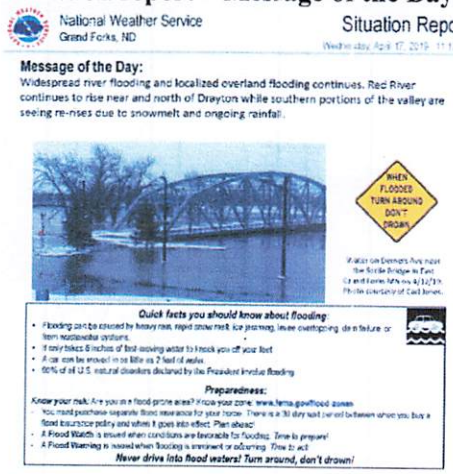
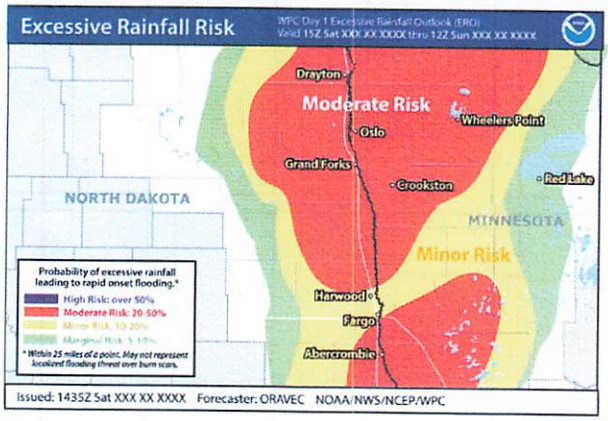
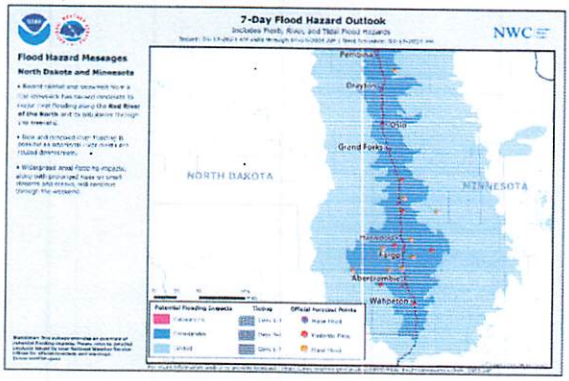
Data charts, hard to see screen

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

have handouts of screen images

12. Additional comments:

Thank you for participating!

	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 **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 *Quick facts you should know about flooding* • Flooding can be caused by heavy rain, rapid snowmelt, ice jams/log, levee overtopping, dam failure or from nontraditional sources. • It only takes 6 inches of fast-moving water to knock you off your feet. • A car can be swept in as little as 2 feet of water. • 80% 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!***		X			
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC		X			
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook NWC Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA Abercrombie Wahpeton		X			

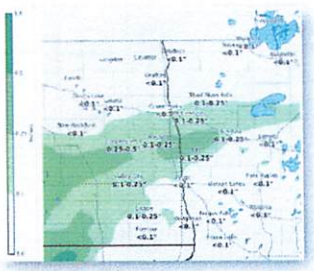
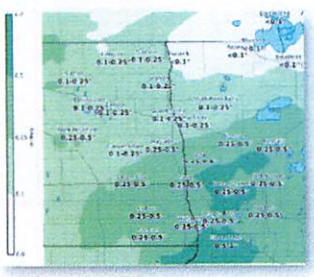
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Temp and Precip Outlook National Weather Service, Grand Forks, ND — Situation Report, Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Temperature Outlook				X	

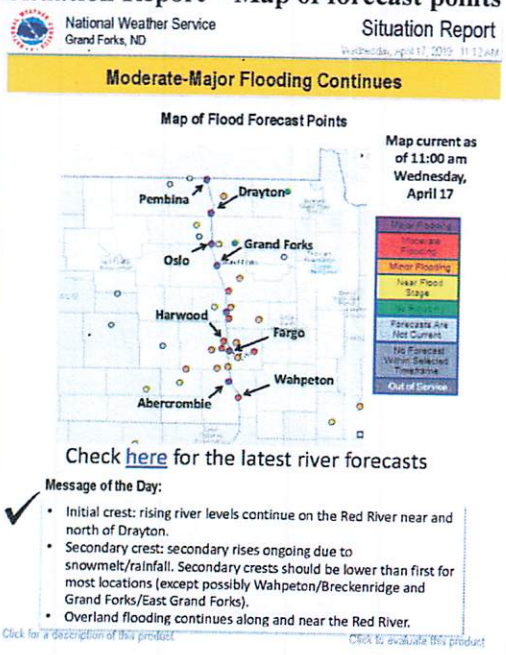
Day of the Week	Highs	Lows (Overnight)
Wednesday, April 17	46-51	35-38
Thursday, April 18	52-56	31-34
Friday, April 19	59-65	41-46
Saturday, April 20	56-66	35-40
Sunday, April 21	52-57	31-36
Monday, April 22	50-57	32-37

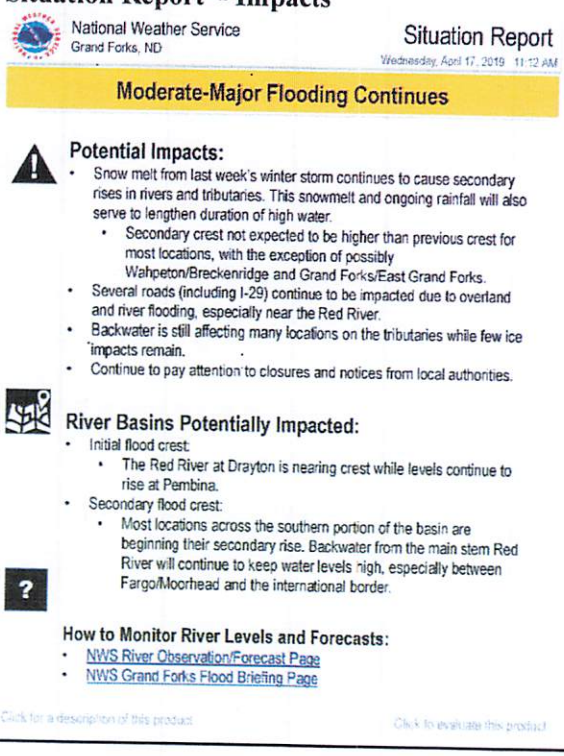
Precipitation Outlook

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		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 No Flooding 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			

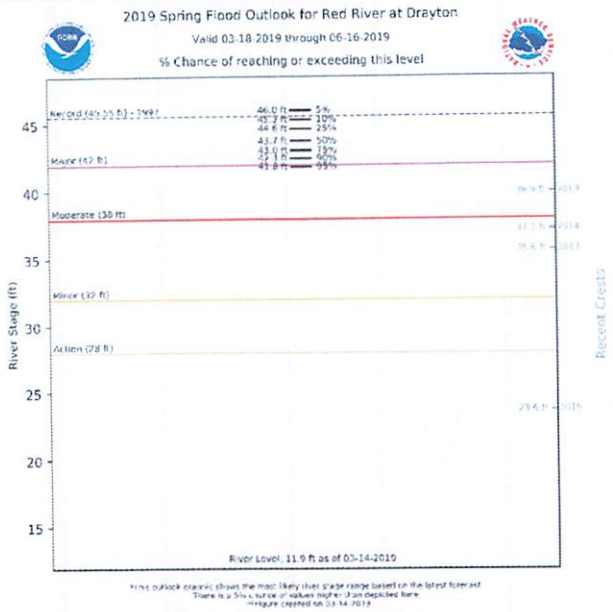
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

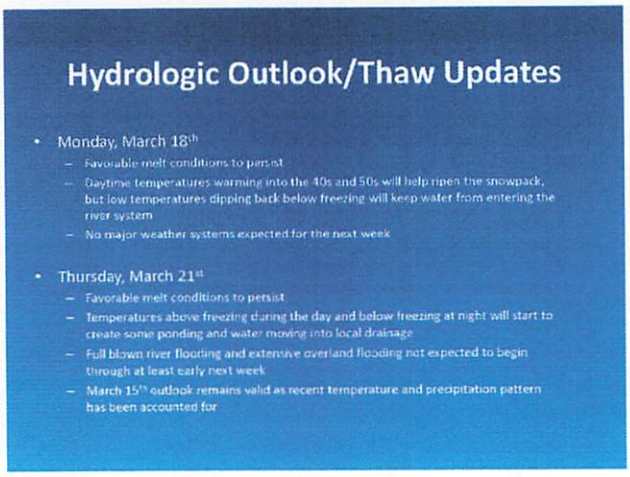
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement 713 WGUS83 KFGF 171652 FLSFGF Flood Statement National Weather Service Eastern North Dakota/Grand Forks ND 1152 AM CDT Wed Apr 17 2019 ...The flood warning is now cancelled for these river locations in Minnesota... * 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.0081.000000T0000Z-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
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				

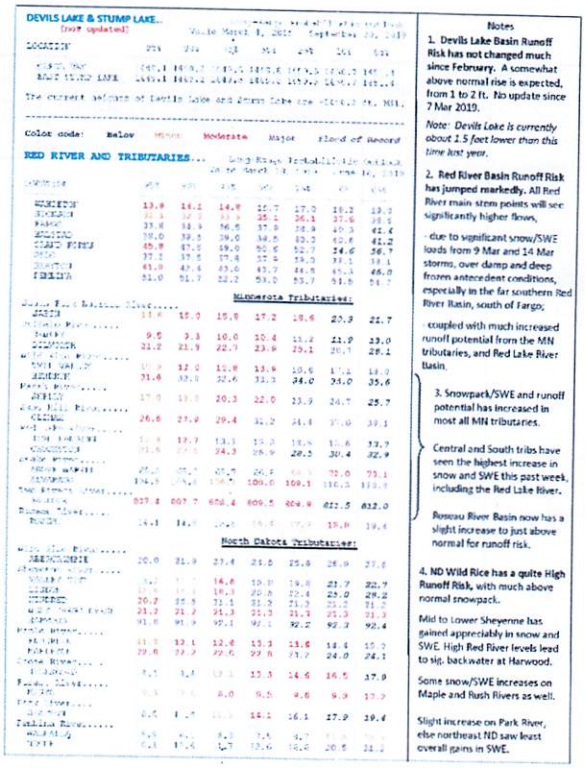
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
Long range probabilistic outlook			X		
Flood risk	X				



DEVILS LAKE & STUMP LAKE...

RED RIVER AND TRIBUTARIES...

Minnesota Tributaries:

North Dakota Tributaries:

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.

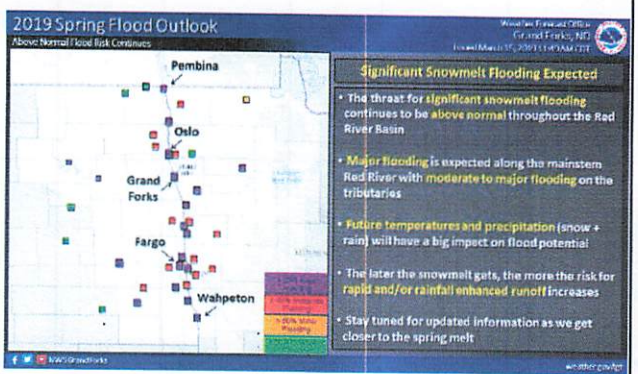
Roseau River Basin now has a slight increase to just above normal for runoff risk.

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

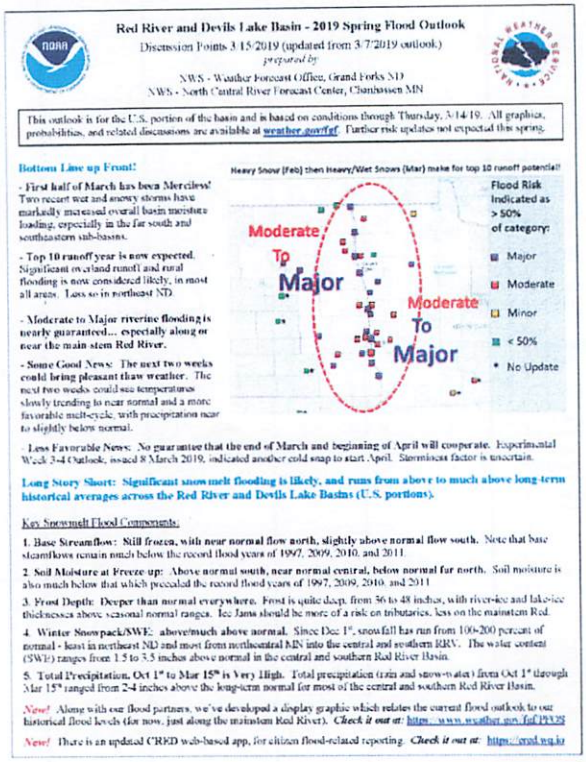
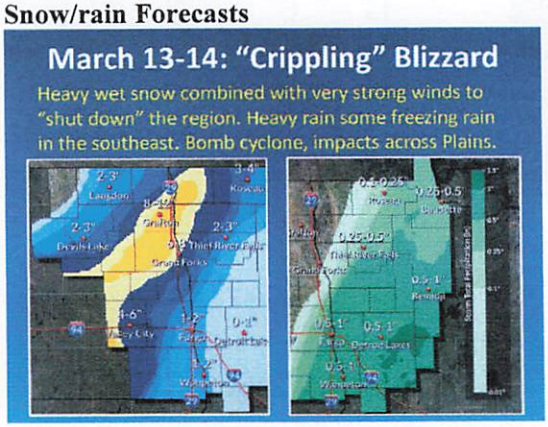
Mid to Lower Sheyenne has gained appreciably in snow and SWE. High Red River levels lead to sig. backwater at Harwood.

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.



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			

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?

N/A

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. Simple graphics with good legends and labeling

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Not understanding information presented by NWS (Today's graphics were better but not the big charts of data)

I can see lack of technology/internet access, and language barriers being issues for many folks!

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

Was not aware of the Screen-dicht
bring my glasses

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:

Bigger Screen or room

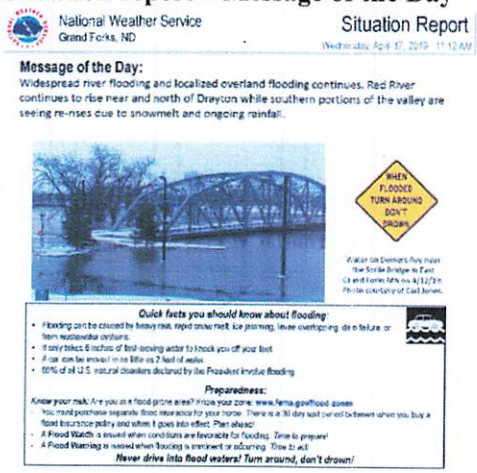
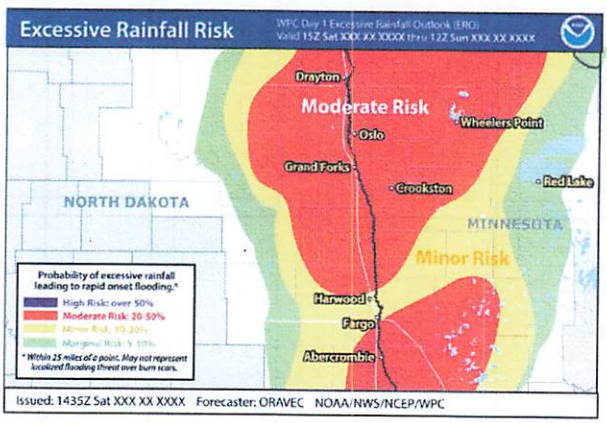
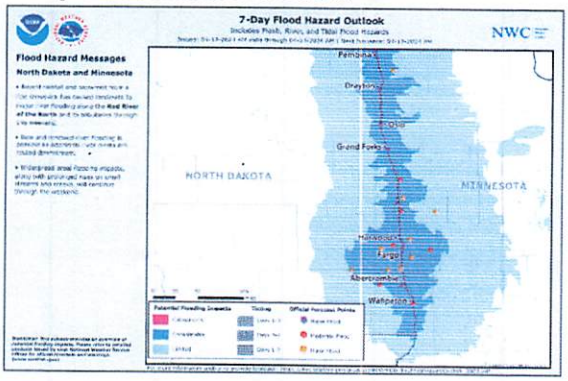
11. What improvements could be made in the format or content of this session?

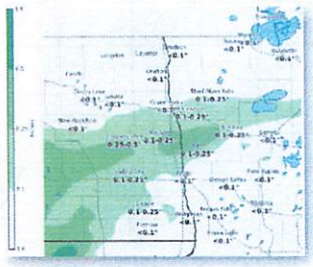
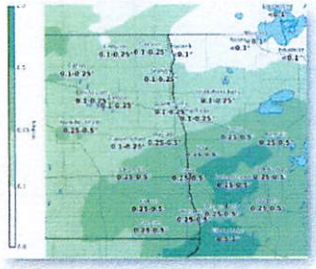
N/A

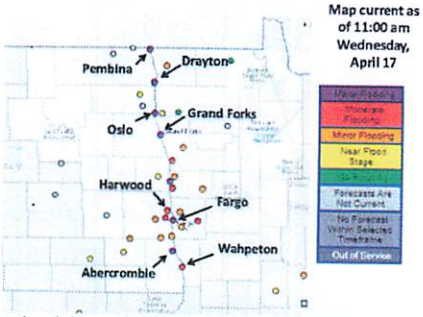
12. Additional comments:

N/A

Thank you for participating!

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 	X				
	X				
7-Day Flood Hazard Outlook 			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** 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			

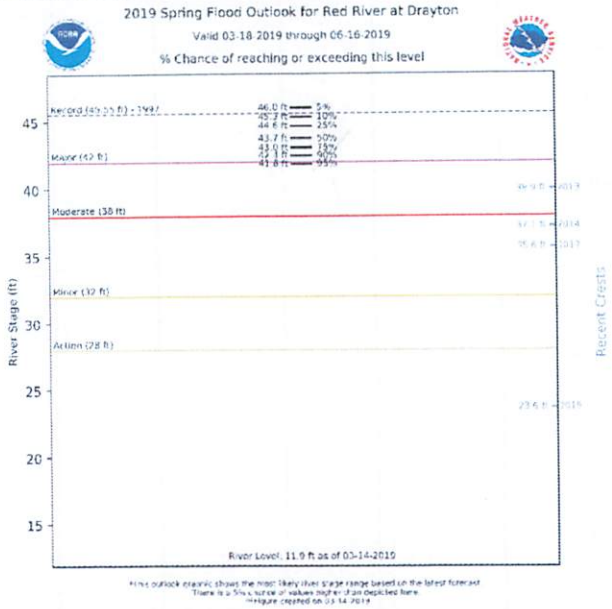
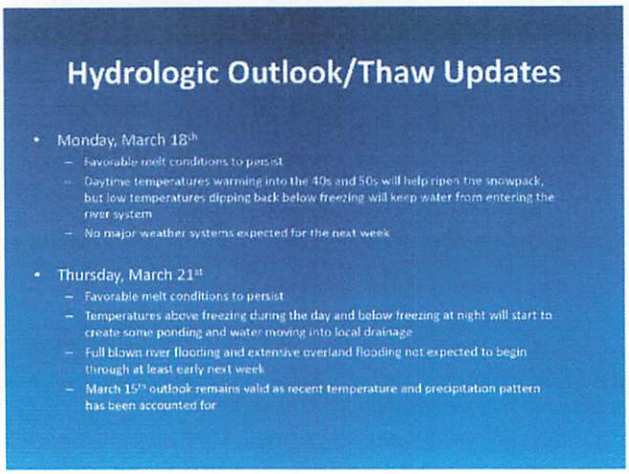
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation Report – Map of forecast points National Weather Service Grand Forks, ND — Situation Report Wednesday, April 17, 2019 11:12 AM **Moderate-Major Flooding Continues** Map of Flood Forecast Points  Check here for 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			

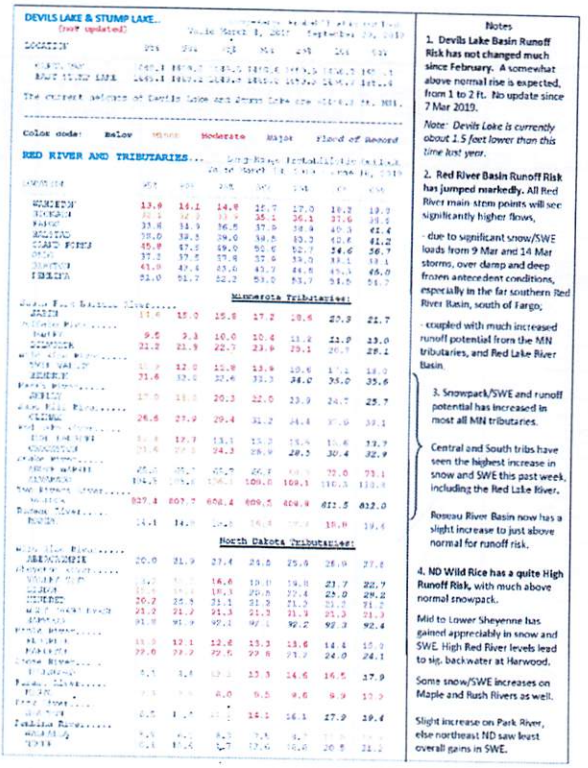
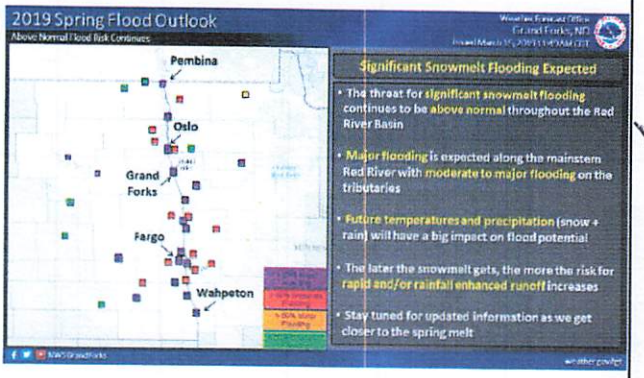
Situation Report - Impacts
National Weather Service Grand Forks, ND — Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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			

	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			

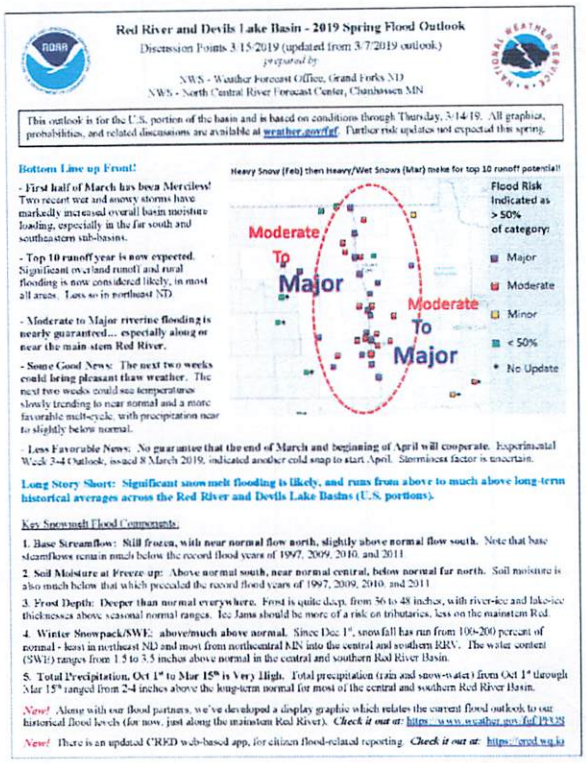
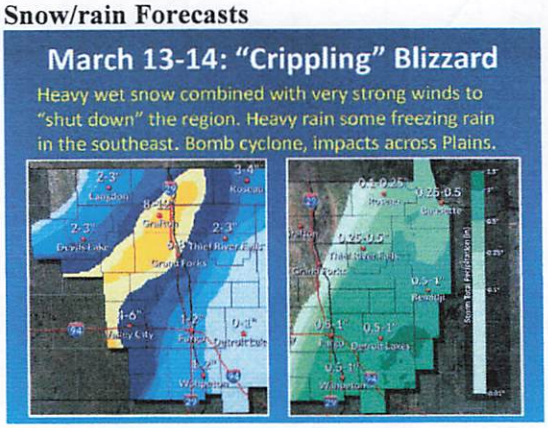
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in 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			

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
Long range probabilistic outlook 			X		
Flood risk 	X				

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				

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?

Words used need to be easier for everyone to understood

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. Easier to read

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Too Many Graphs and Charts. Tell us what the Charts are that are easy to follow

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

Tell us more about if flooding happens

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:

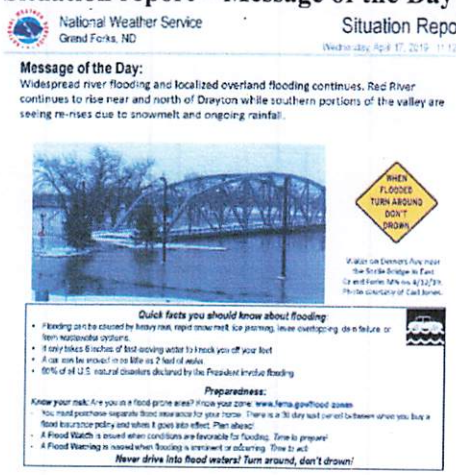
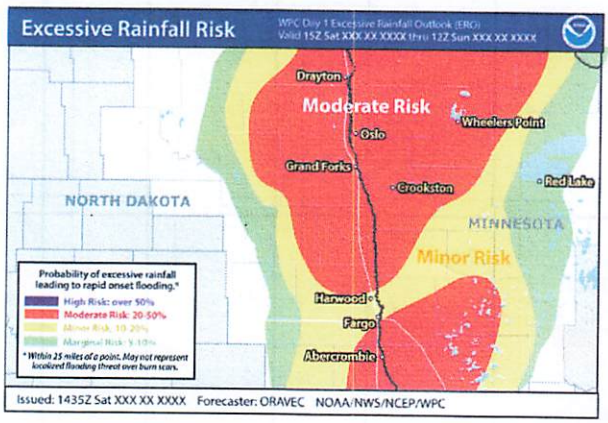
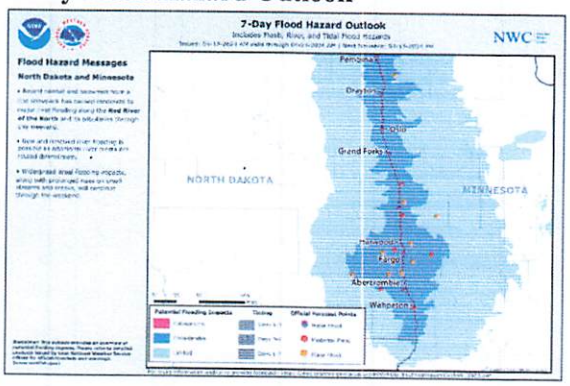
11. What improvements could be made in the format or content of this session?

nothing

12. Additional comments:

Great job overall

Thank you for participating!

	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 **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 ***Quick facts you should know about flooding:*** • Flooding can be caused by heavy rain, rapid snowmelt, ice jamming, levee overtopping, dam failure, or from multimedia systems. • It only takes 6 inches of fast-moving water to knock you off your feet • A car can be swept in as little as 2 feet of water • 80% 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!***	✓				
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% *Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC	✓				
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook NWC Flood Hazard Messages North Dakota and Minnesota NORTH DAKOTA MINNESOTA Fergus Falls Drayton Grand Forks Harwood Fargo Abercrombie Wahpeton	✓				

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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

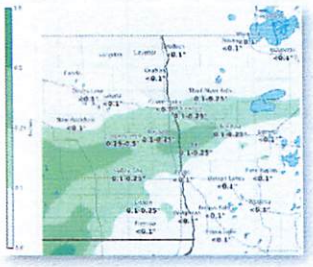
Situation report – 24 hour precipitation	✓				

National Weather Service
Grand Forks, ND

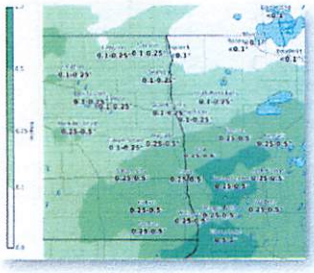
Situation Report
Wednesday, April 17, 2019 11:12 AM

Moderate-Major Flooding Continues

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

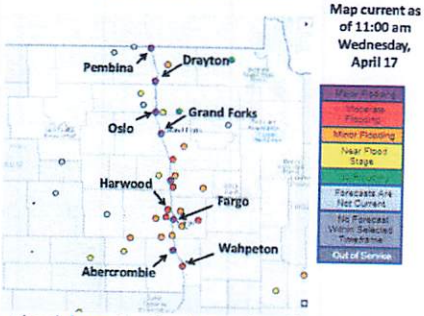


24 hour forecast precipitation in the River Forecasts (7 am Wed to 7 am Thu)



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 – 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  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	✓				

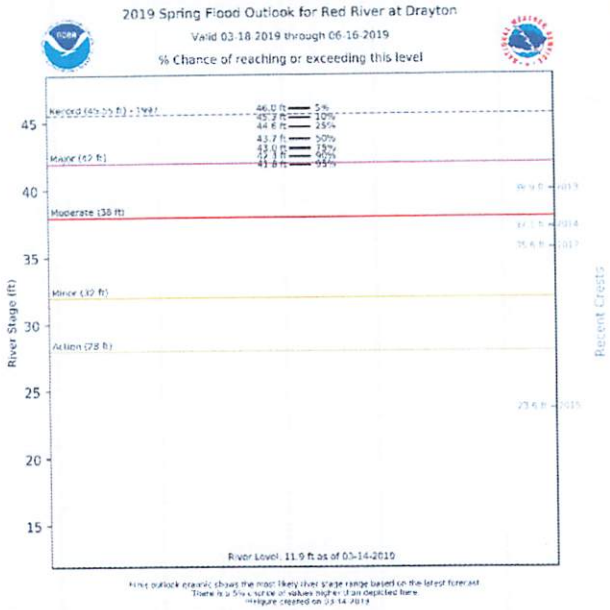
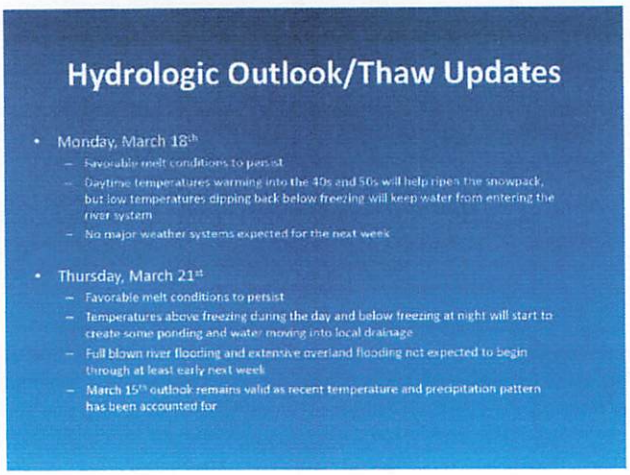
Situation Report - Impacts
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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: 07/31/2024

	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...	✓				

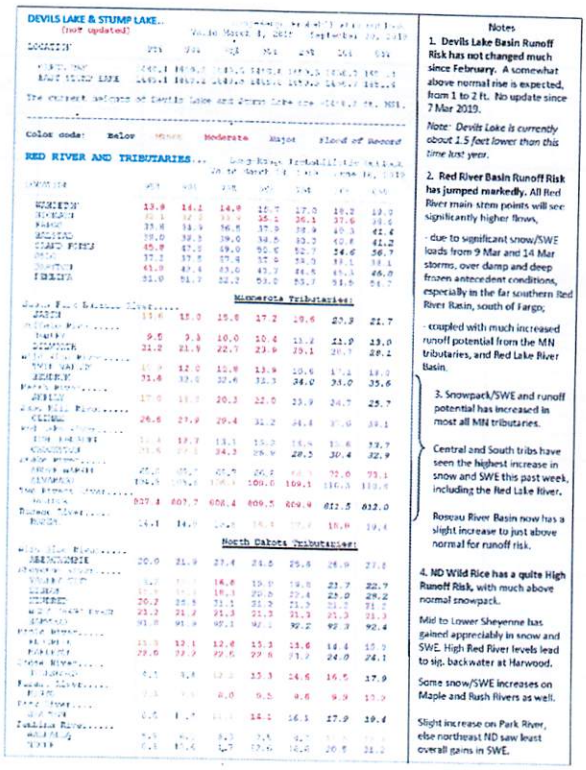
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in 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: 07/31/2024

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

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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



DEVILS LAKE & STUMP LAKE...
(not updated)

Valid March 1, 2019 September 30, 2019

LOCATION	25%	50%	75%	90%	95%	100%	105%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EAST STUMP LAKE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The current heights of Devils Lake and Stump Lake are [illegible] ft. MSL.

Color code: Below Minor Moderate Major Flood of Record

RED RIVER AND TRIBUTARIES...

Long-Range Probabilistic Outlook
Valid March 1, 2019 June 30, 2019

LOCATION	25%	50%	75%	90%	95%	100%	105%
WAHPETON	13.8	14.1	14.8	15.7	17.0	18.2	19.0
HICKSON	[illegible]	[illegible]	[illegible]	35.1	36.1	37.6	38.6
FARGO	33.8	34.9	36.5	37.9	38.9	40.3	41.4
HALSTAD	39.0	39.3	39.0	38.5	40.3	40.8	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	44.5	45.3	46.0
PEMBINA	51.0	51.7	52.2	53.0	53.7	54.5	54.7

Minnesota Tributaries:

Sandy Pine Bayou River.....							
JASPER	13.6	15.0	15.8	17.2	19.6	20.3	21.7
Wilmar River.....							
DAWSON	9.5	9.3	10.0	10.4	11.2	11.9	13.0
DELAVAN	21.2	21.9	22.7	23.9	25.1	26.7	28.1
Wild Rice River.....							
TWIN VALLEY	[illegible]	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	[illegible]	20.3	22.0	23.9	24.7	25.7
Red Lake River.....							
CLIMAX	26.6	27.9	29.4	31.2	34.4	37.0	38.1
Red Lake River.....							
TWIN BRIDGES	[illegible]	12.7	13.1	13.2	13.4	13.6	13.7
CROOKSTON	[illegible]	[illegible]	34.3	26.9	28.5	30.4	32.9
Snake River.....							
ARGYLE WARREN	[illegible]	[illegible]	[illegible]	26.2	[illegible]	72.0	73.1
ALVARADO	[illegible]	[illegible]	[illegible]	108.0	109.1	110.3	113.6
Two Rivers River.....							
[illegible]	807.4	807.7	808.4	809.5	809.9	811.5	812.0
Roseau River.....							
ROSEAU	14.1	14.0	[illegible]	[illegible]	[illegible]	18.8	19.4

North Dakota Tributaries:

Wild Rice River.....							
ABERCROMBIE	20.0	21.9	23.4	24.5	25.8	26.9	27.8
Sheyenne River.....							
VALLEY CITY	[illegible]	[illegible]	16.8	19.0	19.8	21.7	22.7
LISBON	[illegible]	[illegible]	18.1	20.5	22.4	23.0	28.2
HARWOOD	20.2	20.5	21.1	21.2	21.2	21.2	21.2
WEST FARGO RIVER	21.2	21.2	21.3	21.3	21.3	21.3	21.3
SAMSON	91.8	91.9	92.1	92.1	92.2	92.3	92.4
Maple River.....							
HARWOOD	11.3	12.1	12.8	13.3	13.6	14.4	15.2
MAPLETON	22.0	22.2	22.5	22.8	23.2	24.0	24.1
Stone River.....							
[illegible]	[illegible]	[illegible]	[illegible]	13.3	14.6	16.5	17.9
Forest River.....							
[illegible]	[illegible]	[illegible]	8.0	9.5	9.6	9.9	10.2
Park River.....							
[illegible]	[illegible]	[illegible]	[illegible]	14.1	16.1	17.9	19.4
Tumbling River.....							
WALKER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	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.

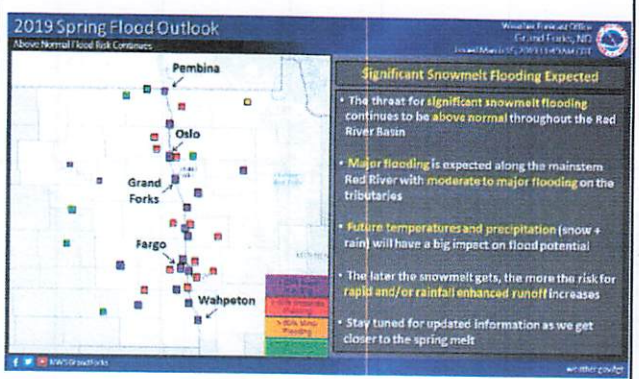
4. **ND Wild Rice has a quite High Runoff Risk,** with much above normal snowpack.

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

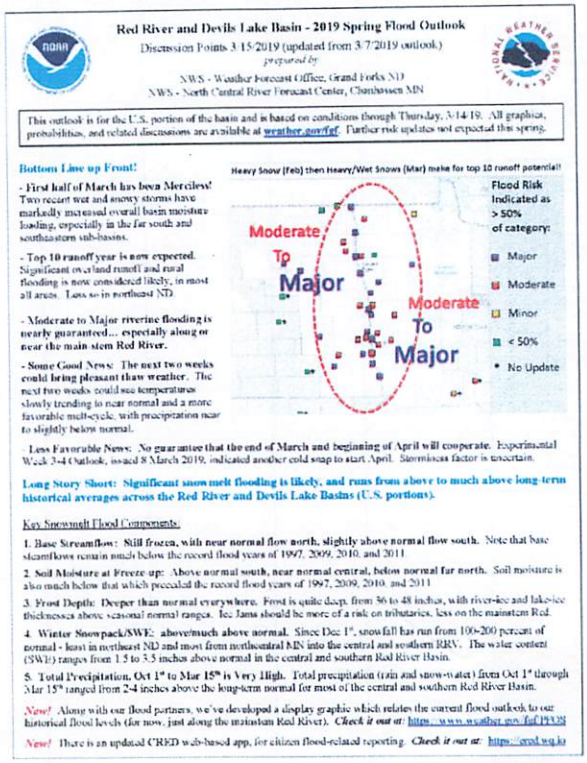
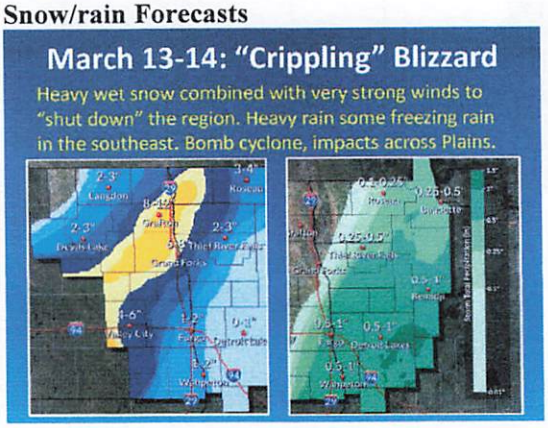
Some snow/SWE increases on Maple and Rush Rivers as well.

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

Flood risk	✓				



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 	✓				

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?

where to go what to do if is happens

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. It is describe Best

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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 Knowing

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

Better coverage of impacts that relate to everyday activites

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?

This format was good

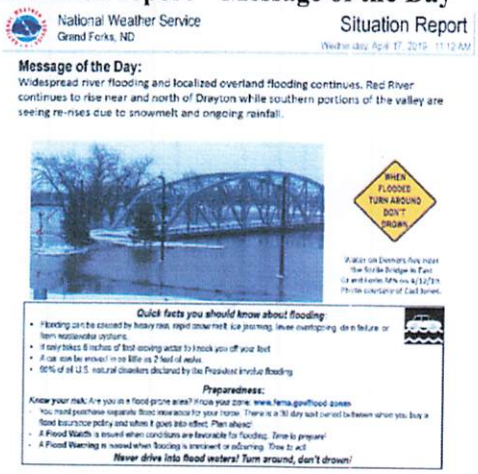
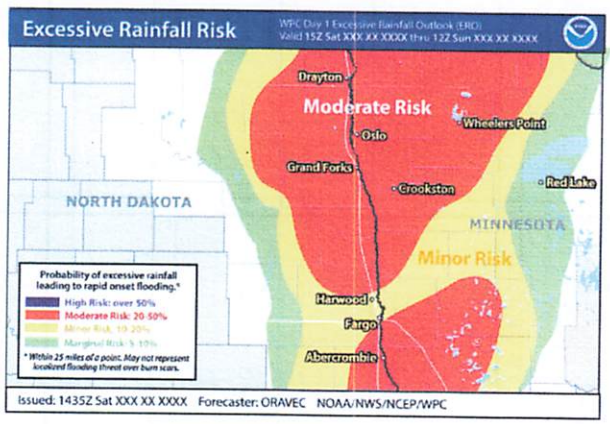
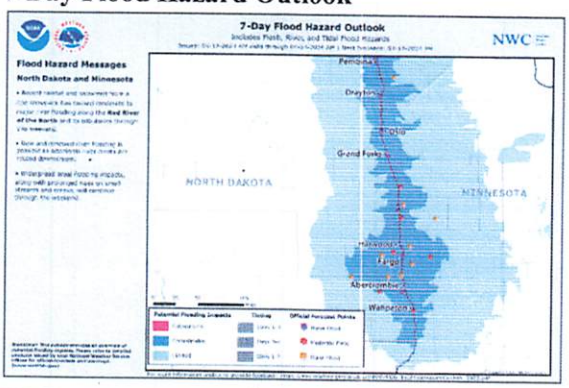
12. Additional comments:

_____

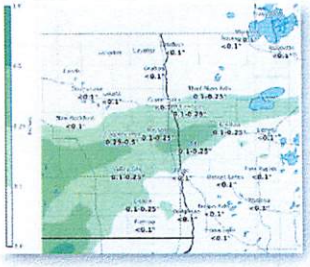
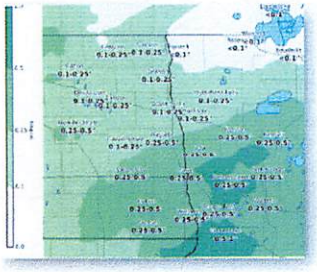
_____

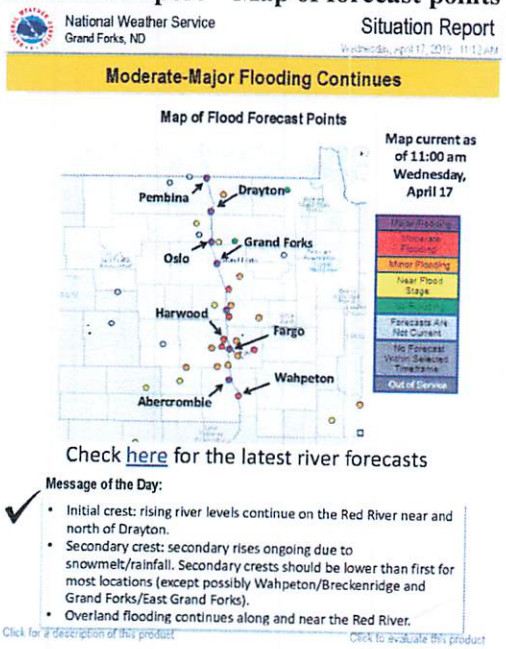
Thank you for participating!

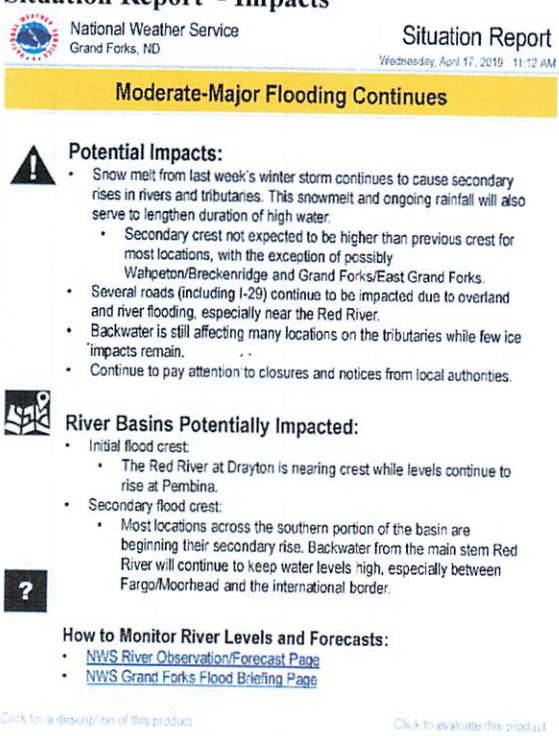
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Situation report – Message of the Day 				X	
		X			
7-Day Flood Hazard Outlook 					X

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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 – 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		

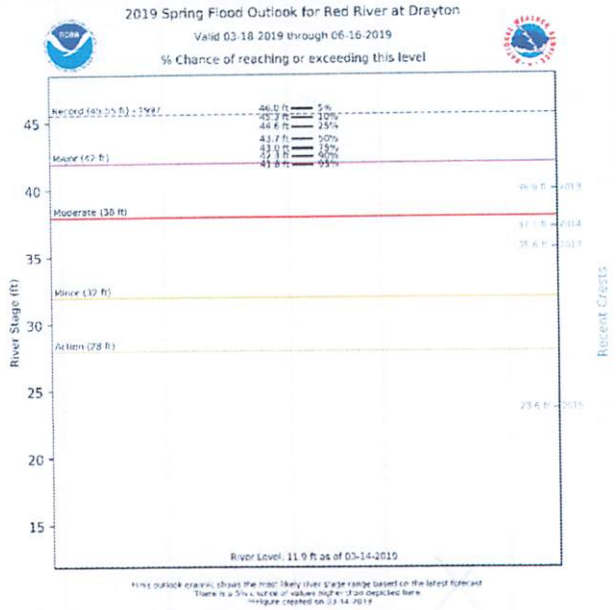
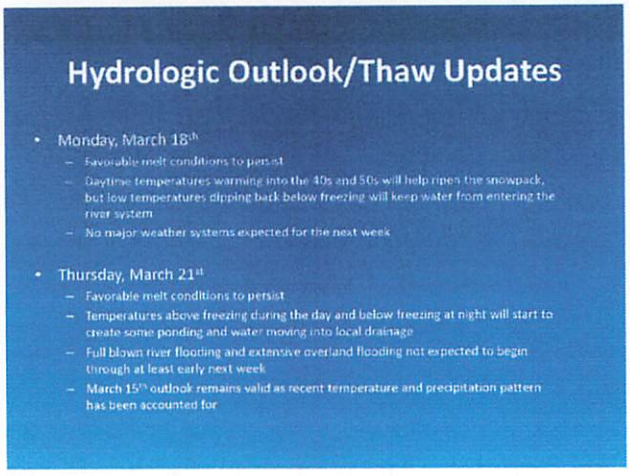
Situation Report - Impacts
 
National Weather Service
Grand Forks, ND
Situation Report
Wednesday, April 17, 2019 11:12 AM
Moderate-Major Flooding Continues
Potential Impacts:
• Snow melt from last week's winter storm continues to cause secondary rises in rivers and tributaries. This snowmelt and ongoing 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		

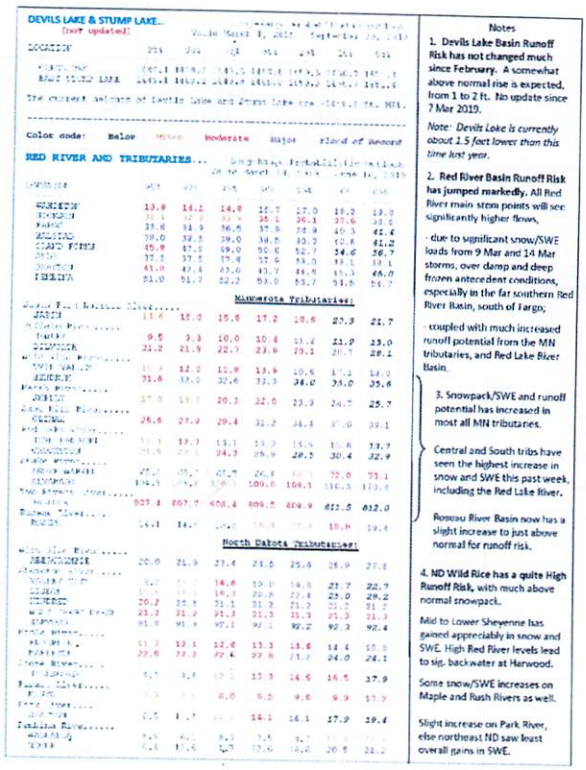
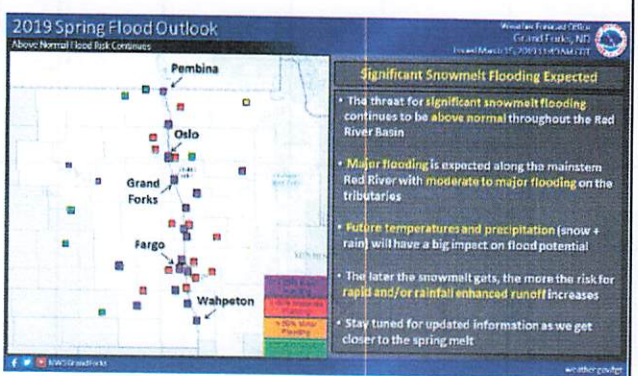
OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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				

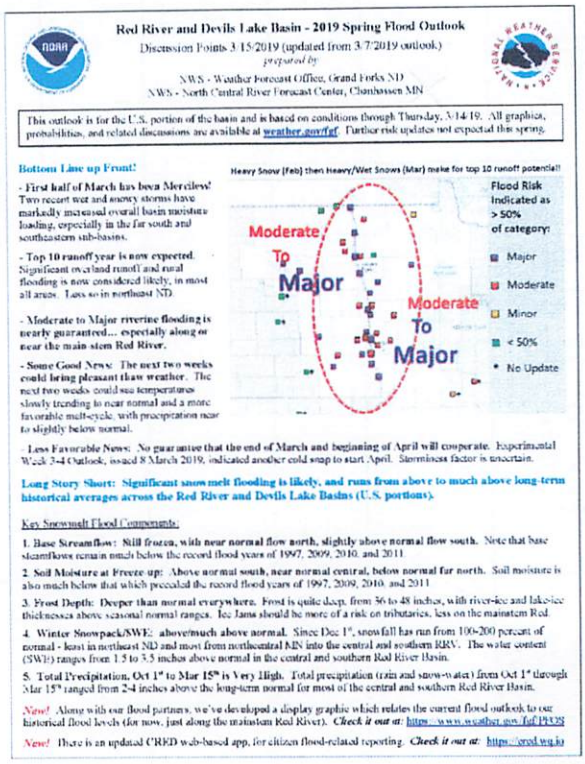
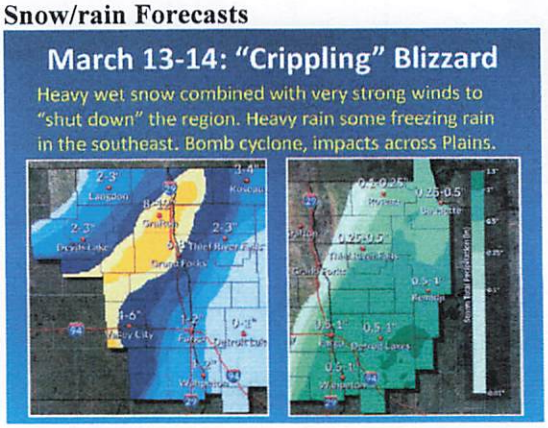
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in 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				

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

	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
Long range probabilistic outlook 	X				
Flood risk 			X		

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			

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?

The discussion really opened my eyes to how people see the NWS products. Being a "weather geek" my whole life, I always read through & understood the NWS products

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. As someone in IT, I like easily parsed data I can do customized visualizations such, but easily viewed summary graphics on website is great also

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

Biggest issue is lack of actual people at radio & TV stations to deliver products not worthy of EAS in a timely manner. There is also concern about silent impaired people interpreting the mostly visual presentations

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

Isolate the MOST useful information.
"How Severe, How Long, What To plan"

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:

Just tough to Know whats being communicated

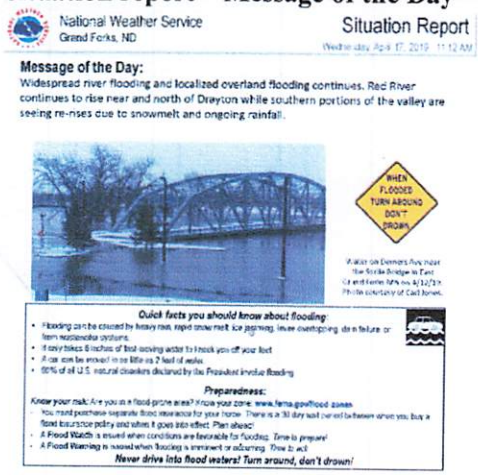
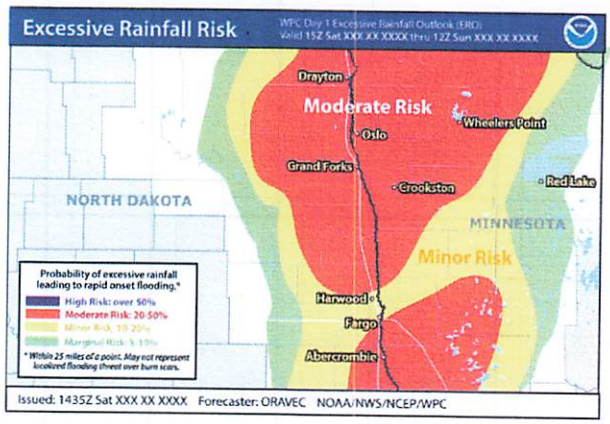
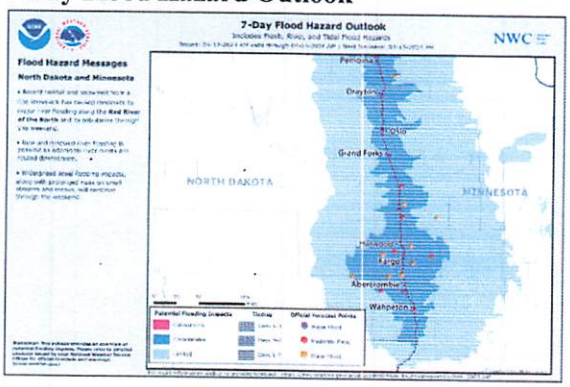
11. What improvements could be made in the format or content of this session?

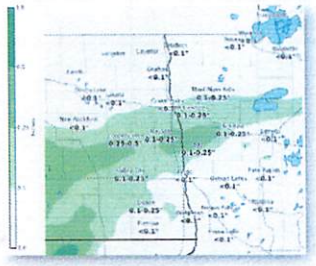
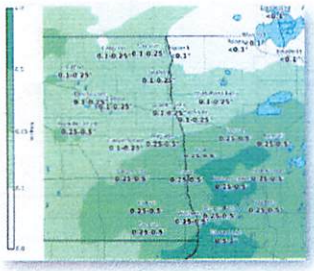
The large Text slides were difficult

12. Additional comments:

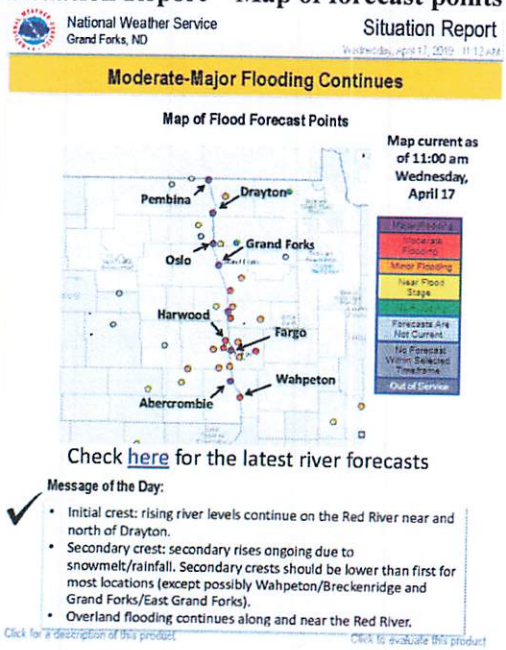
This was Socool, I didn't consider when and where I could find so Much information.

Thank you for participating!

	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 Apr 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 snowmelt, ice jamming, levee overtopping, dam failure or from residential systems. • It only takes 6 inches of fast-moving water to knock you off your feet. • Floods can be enjoyed in as little as 2 feet of water. • 60% 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!***		✓			
 Excessive Rainfall Risk WPC Day 1 Excessive Rainfall Outlook (ERO) Valid 15Z Sat XXX XX XXXX thru 12Z Sun XXX XX XXXX Drayton Moderate Risk Wheelers Point Oslo Grand Forks Crookston Red Lake NORTH DAKOTA MINNESOTA Minor Risk Probability of excessive rainfall leading to rapid onset flooding.* High Risk: over 50% Moderate Risk: 20-50% Minor Risk: 10-20% Marginal Risk: 5-10% * Within 25 miles of a point. May not represent localized flooding threat over burn scars. Harwood Fargo Abercrombie Issued: 1435Z Sat XXX XX XXXX Forecaster: ORAVEC NOAA/NWS/NCEP/WPC			✓		
7-Day Flood Hazard Outlook  7-Day Flood Hazard Outlook NWC Flood Hazard Messages North Dakota and Minnesota Pembina Drayton Oslo Grand Forks NORTH DAKOTA MINNESOTA Harwood Fargo Abercrombie Wahpeton			✓		

	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 – 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

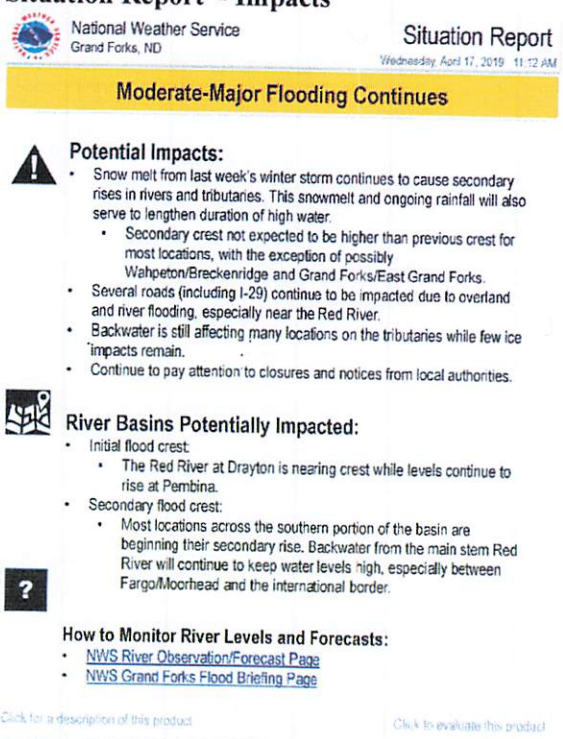
Check here for the latest river forecasts

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

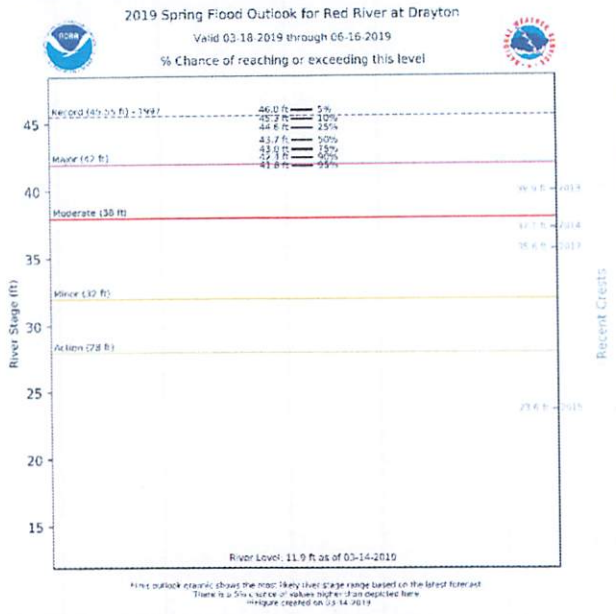
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood statement		✓			

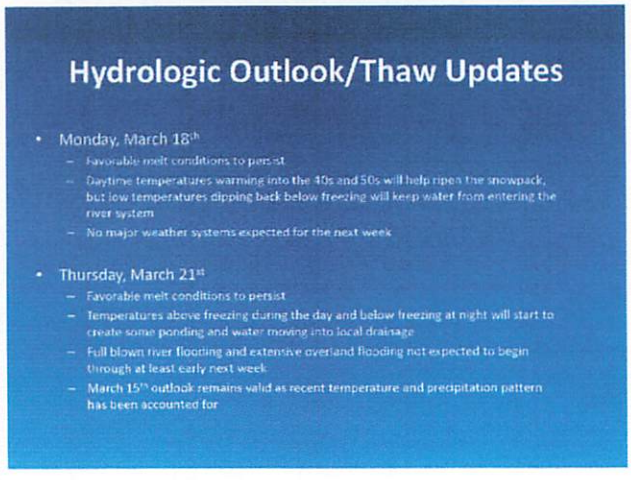
```
713
WGUS83 KFGF 171652
FLSFGF
Flood Statement
National Weather Service Eastern North Dakota/Grand Forks ND
1152 AM CDT Wed Apr 17 2019

...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...
```

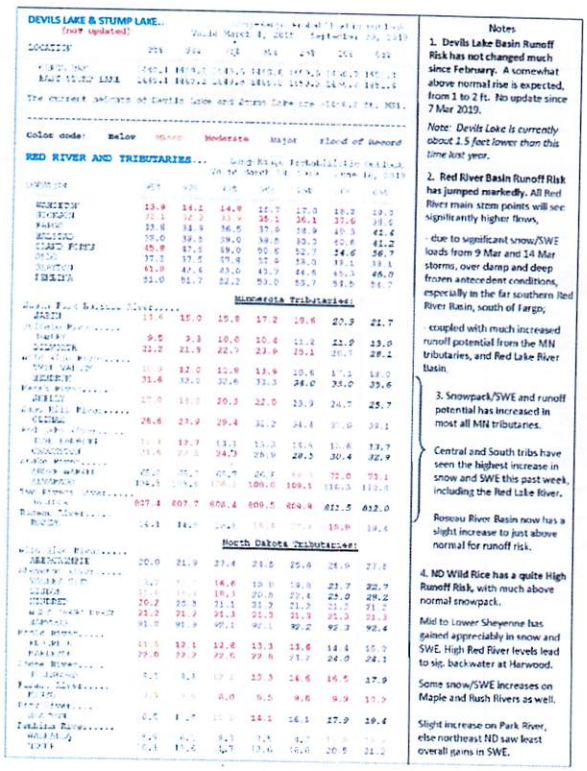
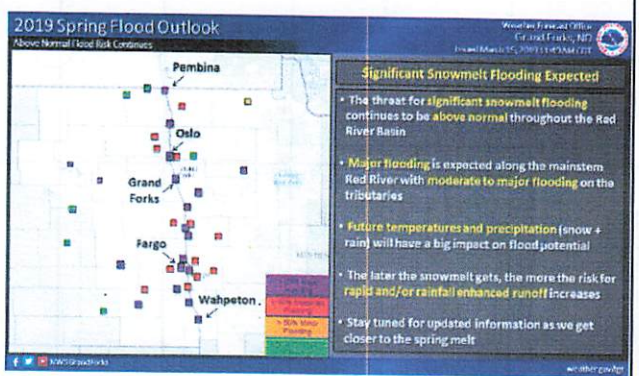
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Flood Warning 376 WGUS43 KFGF 271441 FLWFGF BULLETIN - IMMEDIATE BROADCAST REQUESTED Flood Warning National Weather Service Eastern North Dakota/Grand Forks ND 941 AM CDT Wed Mar 27 2019 ...The National Weather Service in 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: 07/31/2024

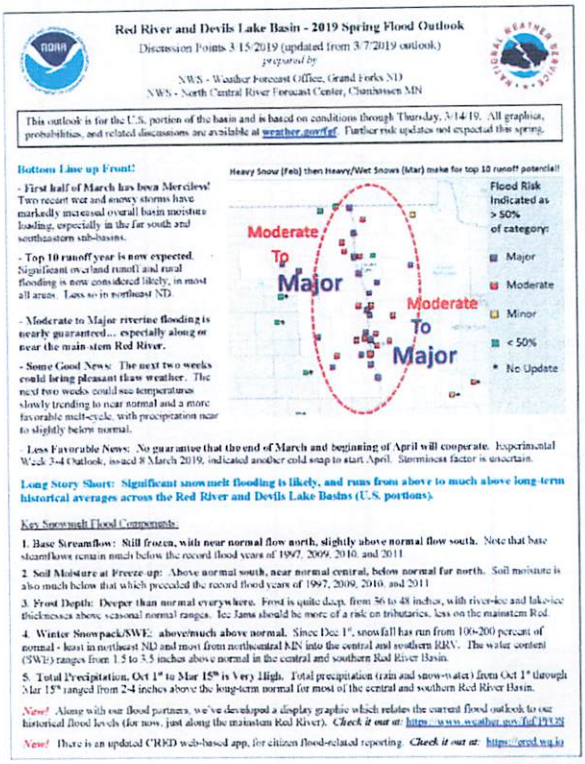
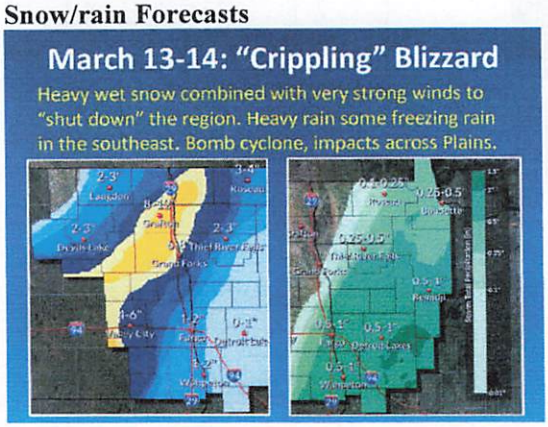
	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Percent chance of exceedance		✓			
Hydrologic Outlook/Thaw Updates			✓		





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

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 		✓			

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?

If someone could tell me what I should know and what to warn others of. Maybe during the warnings, they tell us what tools will help understand

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 is generally clear and concise
Graphics can help understand as well

OMB Control No. 0690-0030
Expiration Date: 07/31/2024

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.

They aren't easiest to understand, I'll oftentimes just read the forecasts. It's tough to read on cell phones. I don't know what to look up.