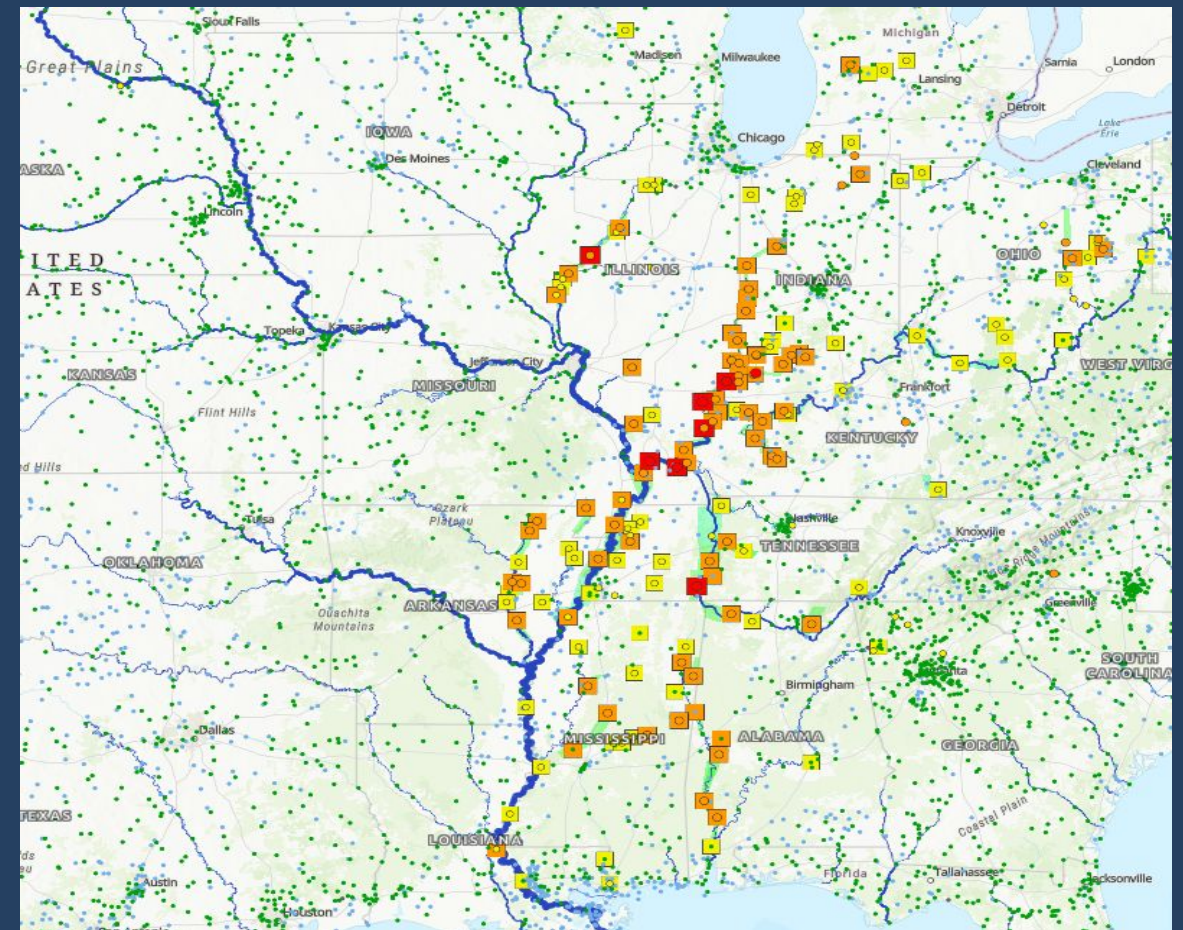
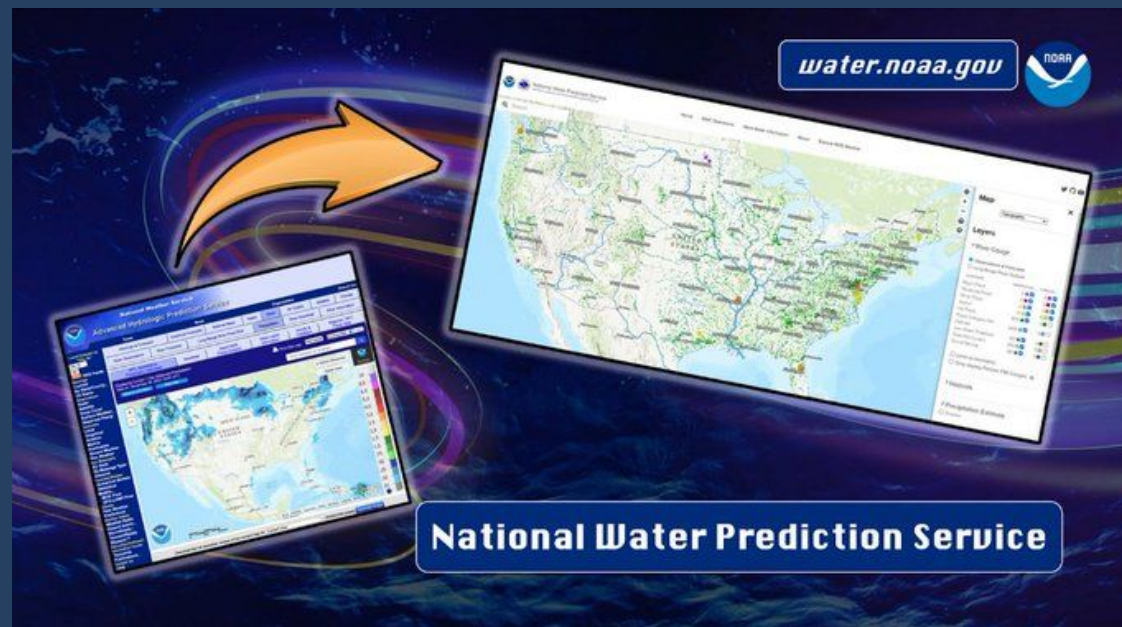


# National Water Prediction Service (NWPS)

The Replacement for  
AHPS Coming Soon

NWS Des Moines, IA



March 5, 2024



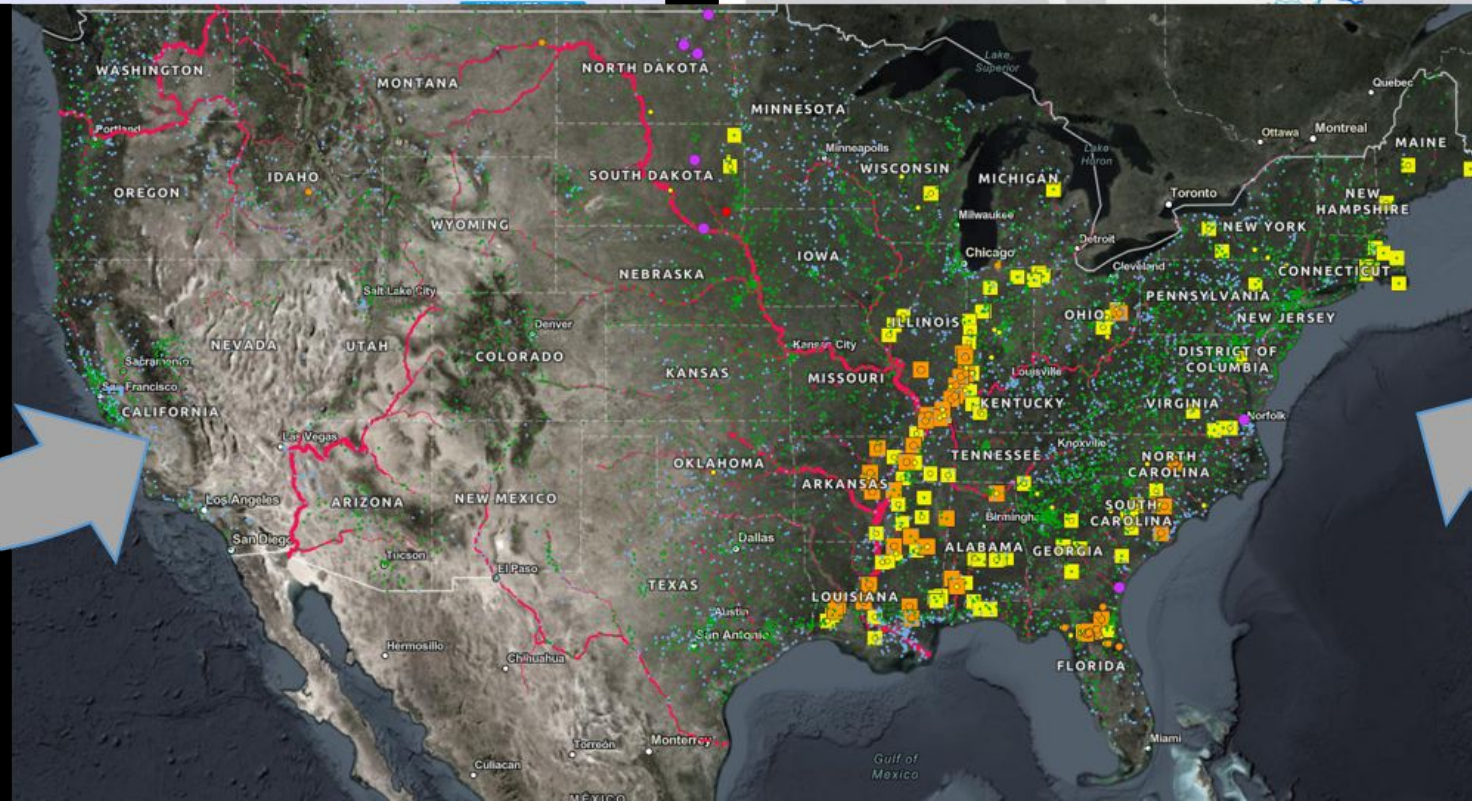
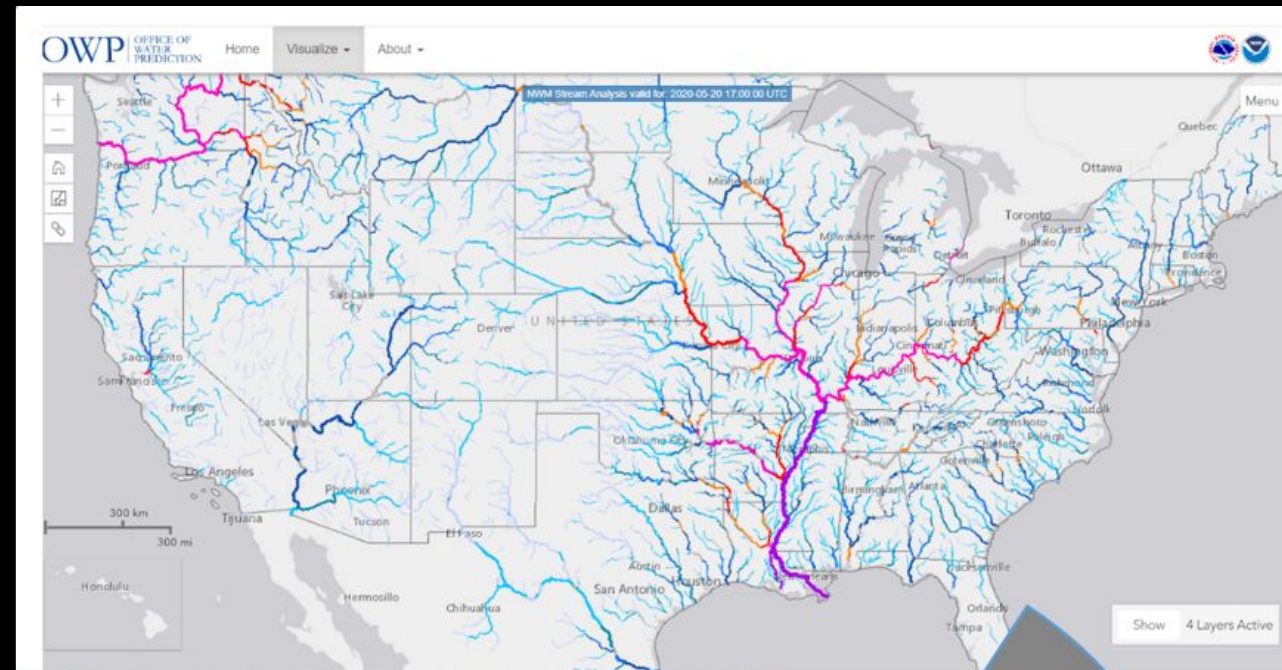
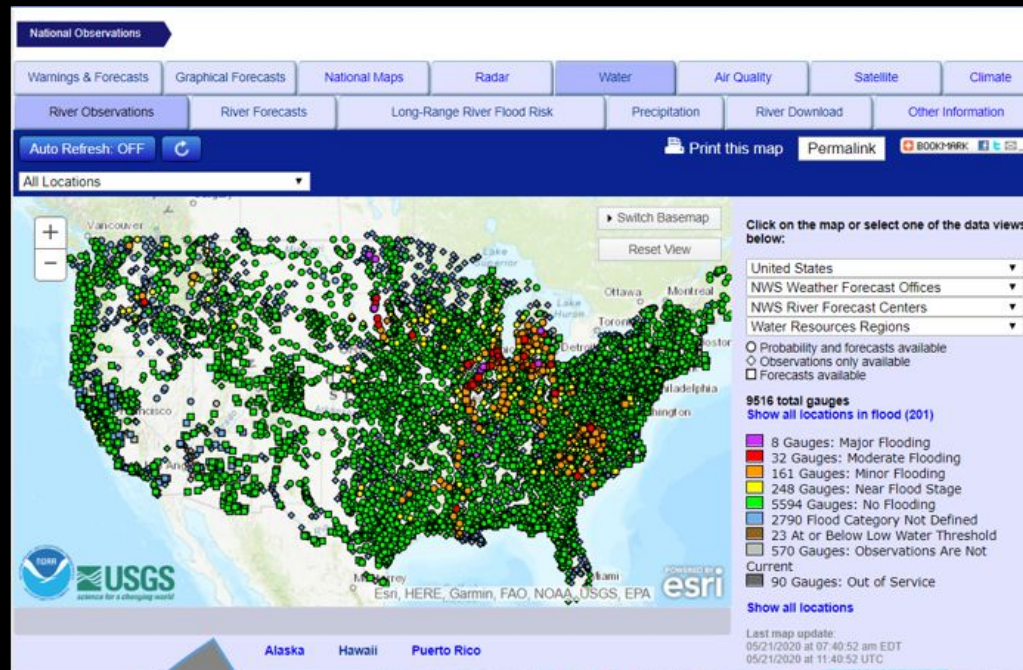
# National Water Prediction Service (NWPS)

## Overview

- National Water Prediction Service (NWPS) is the planned replacement to AHPS - scheduled for on or around **March 27, 2024**
- Numerous improvements to map interface, hydrographs, and mobile capabilities

# National Water Prediction Service (NWPS)

NWPS will be located at [water.noaa.gov](http://water.noaa.gov)



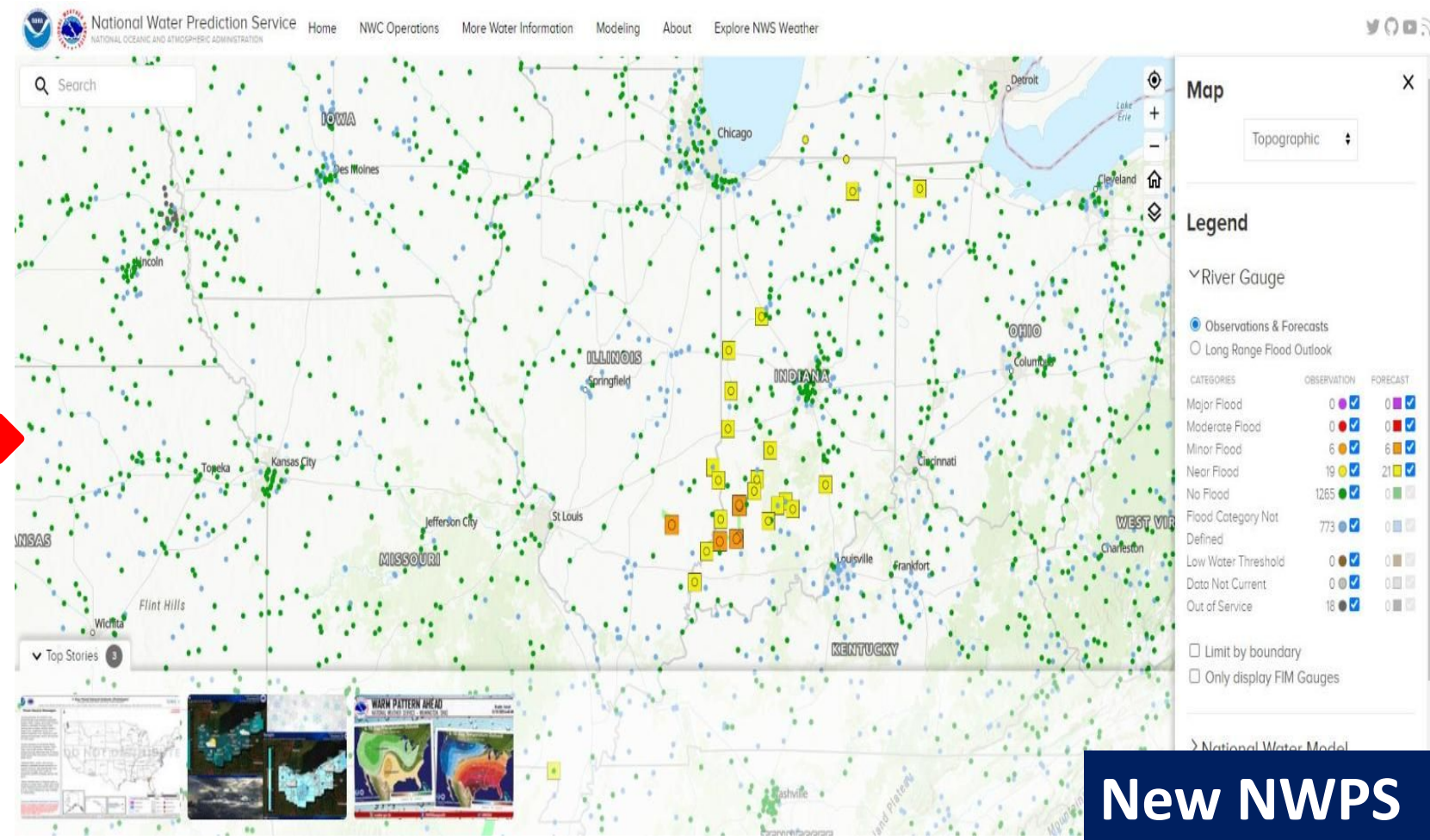
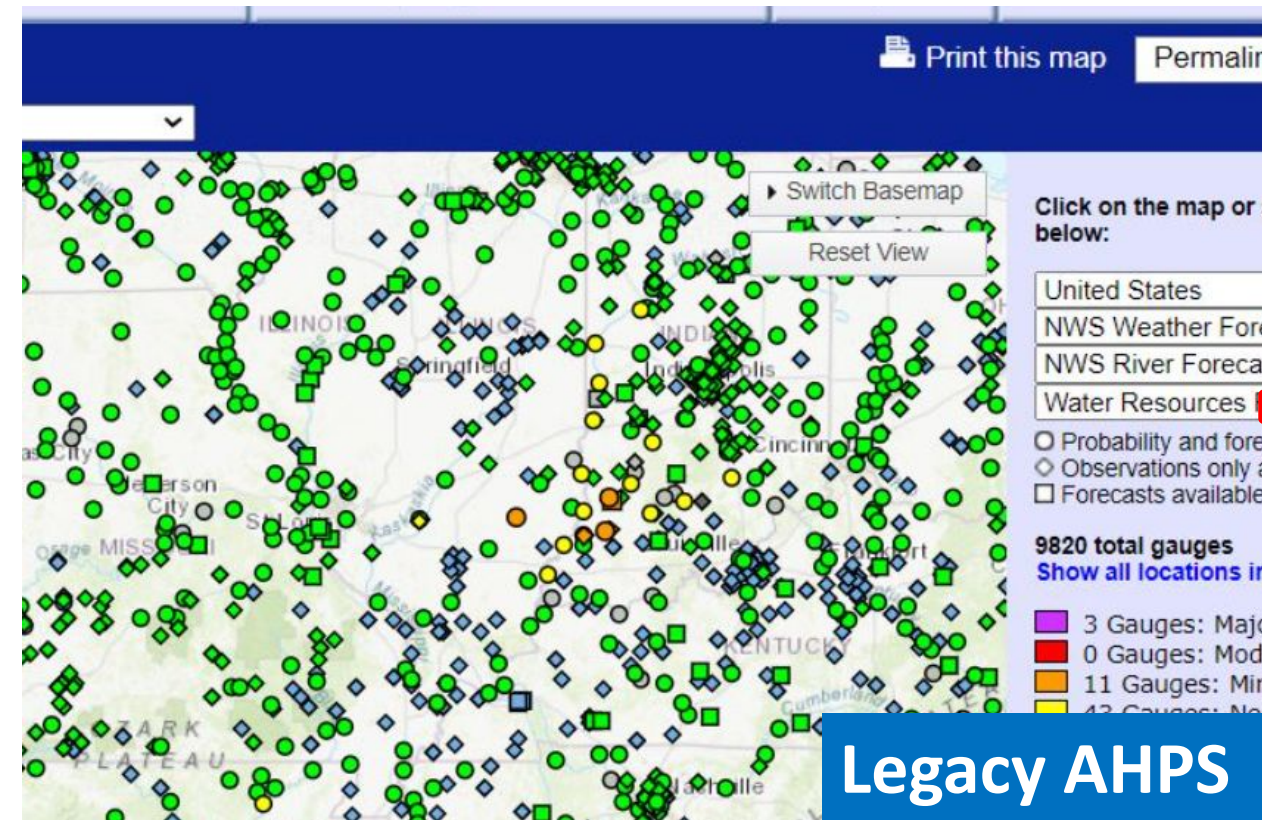
NWS Des Moines, IA



# National Water Prediction Service (NWPS)

## Changes to Map Interface – More Flexible Options

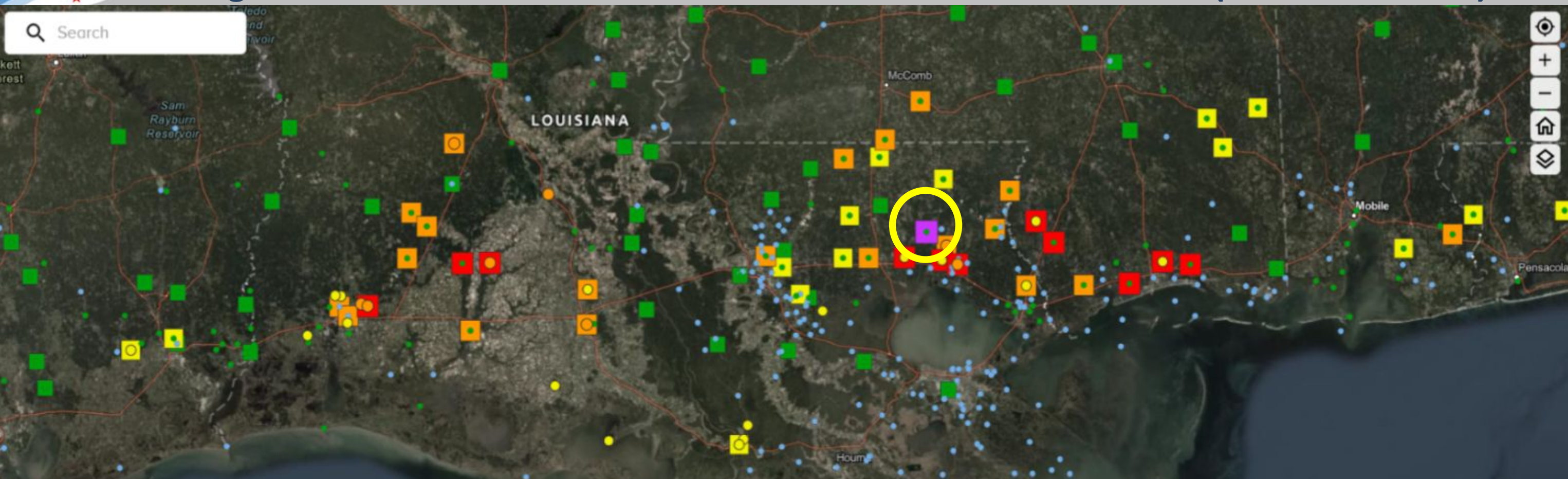
- Additional map layers and more gauge filtering options





# National Water Prediction Service (NWPS)

Gage location icons now have both observed and forecast status (where available)



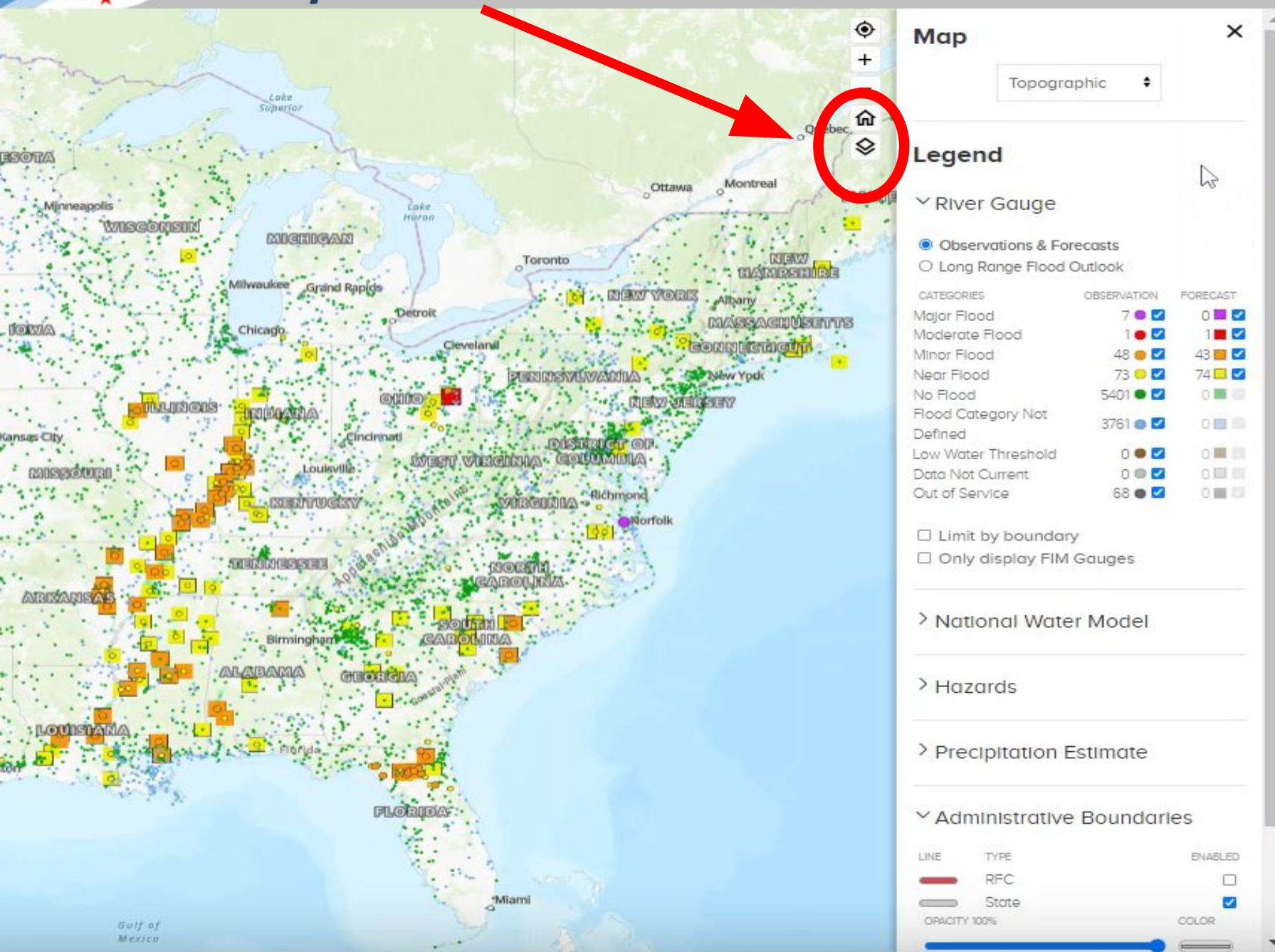
In relation to  
flood category:

- Observed stage in circle
- Forecast is the surrounding square



# National Water Prediction Service (NWPS)

## Layer and Home buttons



- **Layer** button brings up Map & Legend Menu
- **Map** backgrounds:
  - Topographic is default
  - Satellite
  - Dark
  - Light
- **Legend** – turn on/off items
- **Home** button zooms out to National extent
- *Bookmarking* - save a certain extent and background



# National Water Prediction Service (NWPS)

Search Bar – by geographic area or river gage by location ID or name

Search by keyword or by gauge; state; rfc; wfo; wr: prefix

CATEGORIES	OBSERVATION	FORECAST
Major Flood	0	0
Moderate Flood	0	0
Minor Flood	13	14
Near Flood	18	16
No Flood	442	0
Flood Category Not Defined	301	0
Low Water Threshold	0	0
Data Not Current	0	0
Out of Service	0	0

- Search by:
  - State
  - RFC – river forecast centers
  - WFOs

- Use limit by boundary button  
Displays gages only in boundary selected

Limit by boundary

Only display FIM Gauges



# National Water Prediction Service (NWPS)

## National Water Model Streams - model data provides initial guidance values for streams

National Water Prediction Service Home NWC Operations More Water Information Modeling About Explore NWS Weather

Search

Map Topographic

Legend

River Gauge

- Observations & Forecasts
- Long Range Flood Outlook

CATEGORIES	OBSERVATION	FORECAST
Major Flood	0	0
Moderate Flood	0	0
Minor Flood	9	10
Near Flood	9	9
No Flood	180	37
Flood Category Not Defined	90	0
Low Water Threshold	0	0
Data Not Current	0	0
Out of Service	0	0

National Water Model

LINE TYPE ENABLED

Stream Reach

OPACITY 90% COLOR

Hazard

Precipitation

Administrative Boundaries

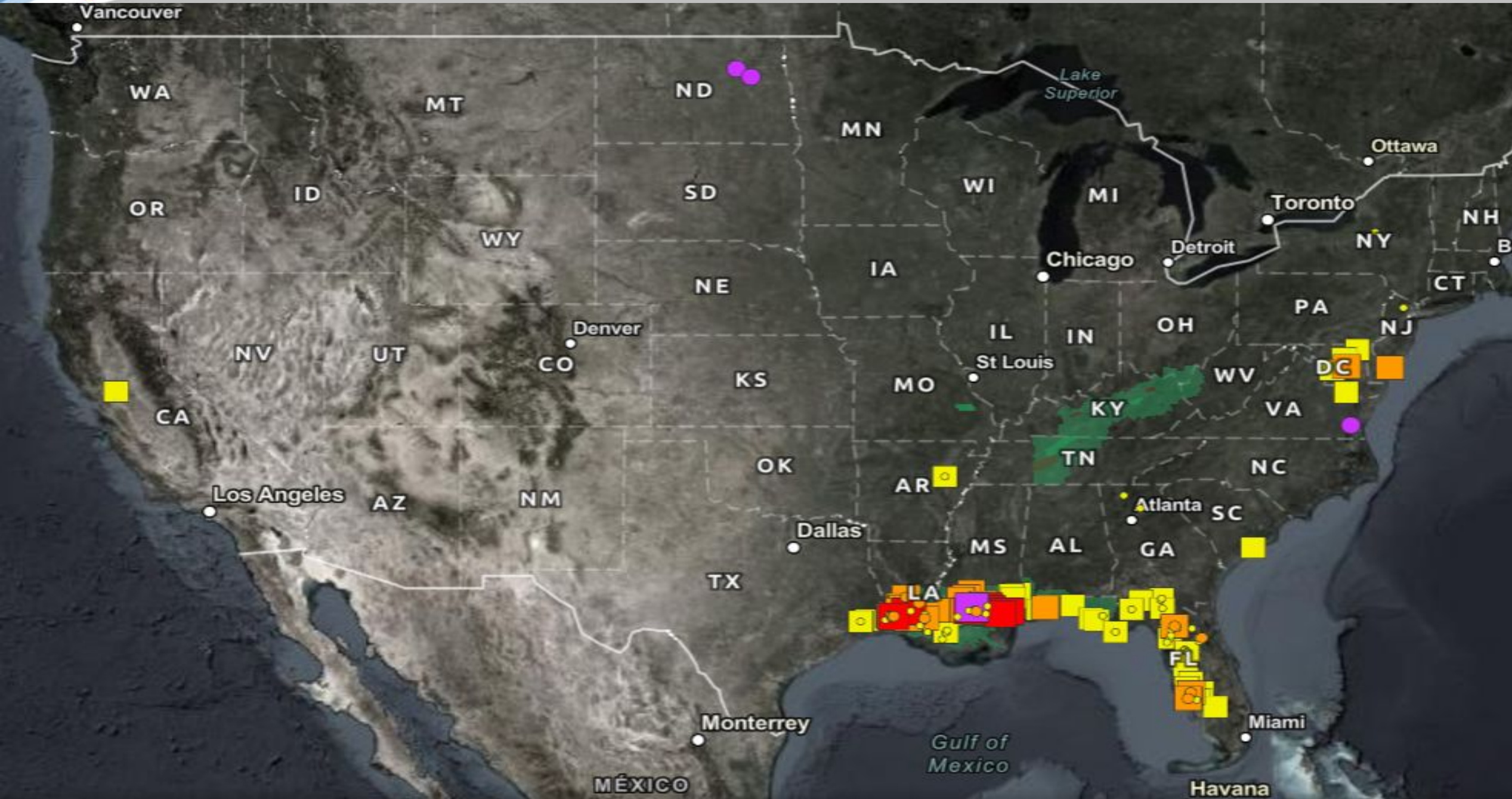
234 118 230  
R G B





# National Water Prediction Service (NWPS)

Changes to Map Interface – option to show weather hazards watches & warnings



Map

Topographic

Legend

▼ River Gauge

- Observations & Forecasts
- Long Range Flood Outlook

CATEGORIES	OBSERVATION	FORECAST
Major Flood	7	0
Moderate Flood	1	1
Minor Flood	48	43
Near Flood	73	74
No Flood	5401	0
Flood Category Not Defined	3761	0
Low Water Threshold	0	0
Data Not Current	0	0
Out of Service	68	0

Limit by boundary

Only display FIM Gauges

> National Water Model

**> Hazards**

> Precipitation Estimate

▼ Administrative Boundaries

LINE	TYPE	ENABLED
	RFC	<input type="checkbox"/>
	State	<input checked="" type="checkbox"/>

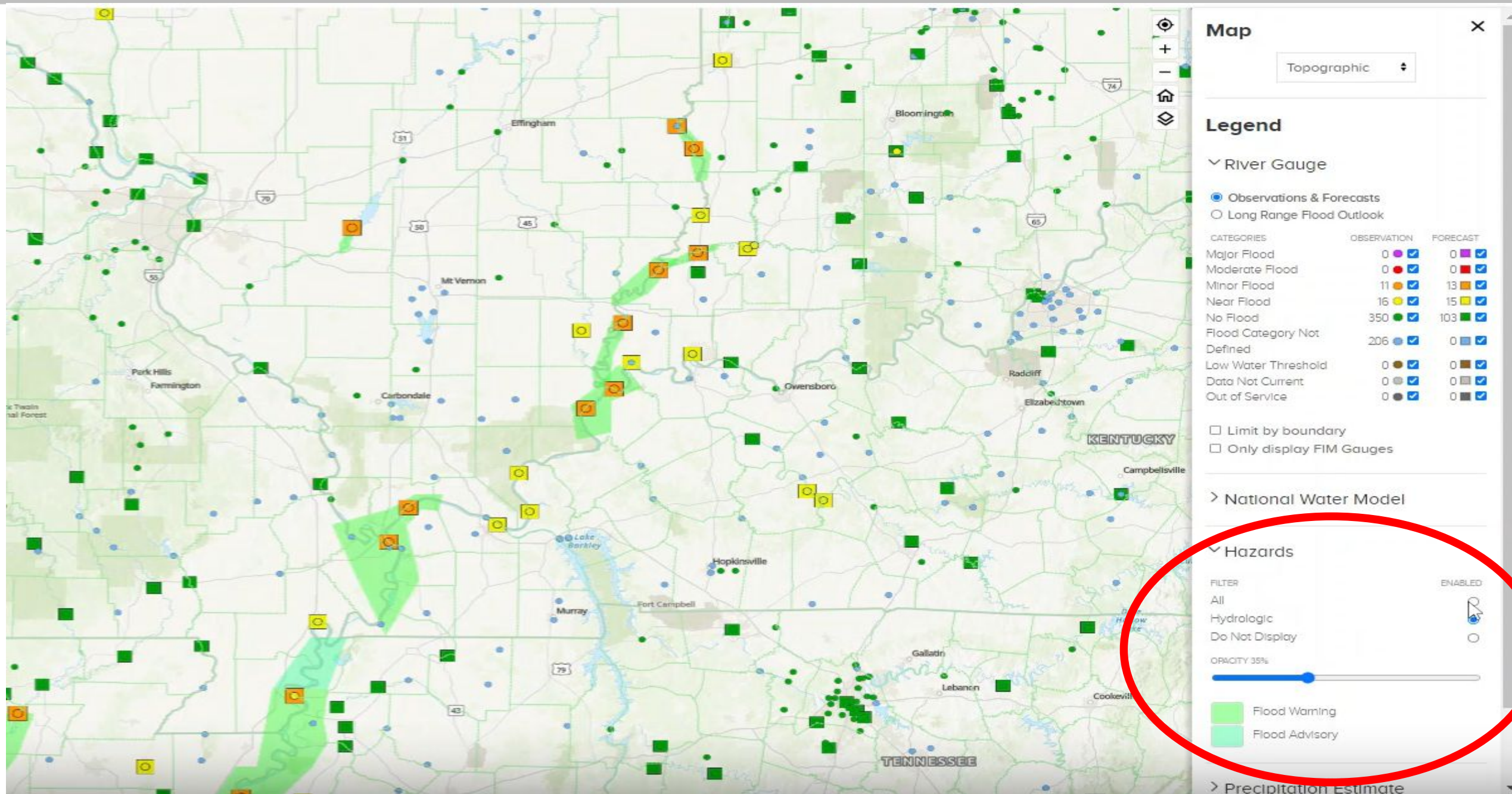
OPACITY 100%

COLOR



# National Water Prediction Service (NWPS)

## Changes to Map Interface – option to show weather hazards watches & warnings





# National Water Prediction Service (NWPS)

Click on one of the hazards – you get the actual product, pops up on page

**Flood Warning**

**Flood Warning issued March 17 at 11:29AM CDT until March 20 at 9:00AM CDT by NWS Paducah KY**

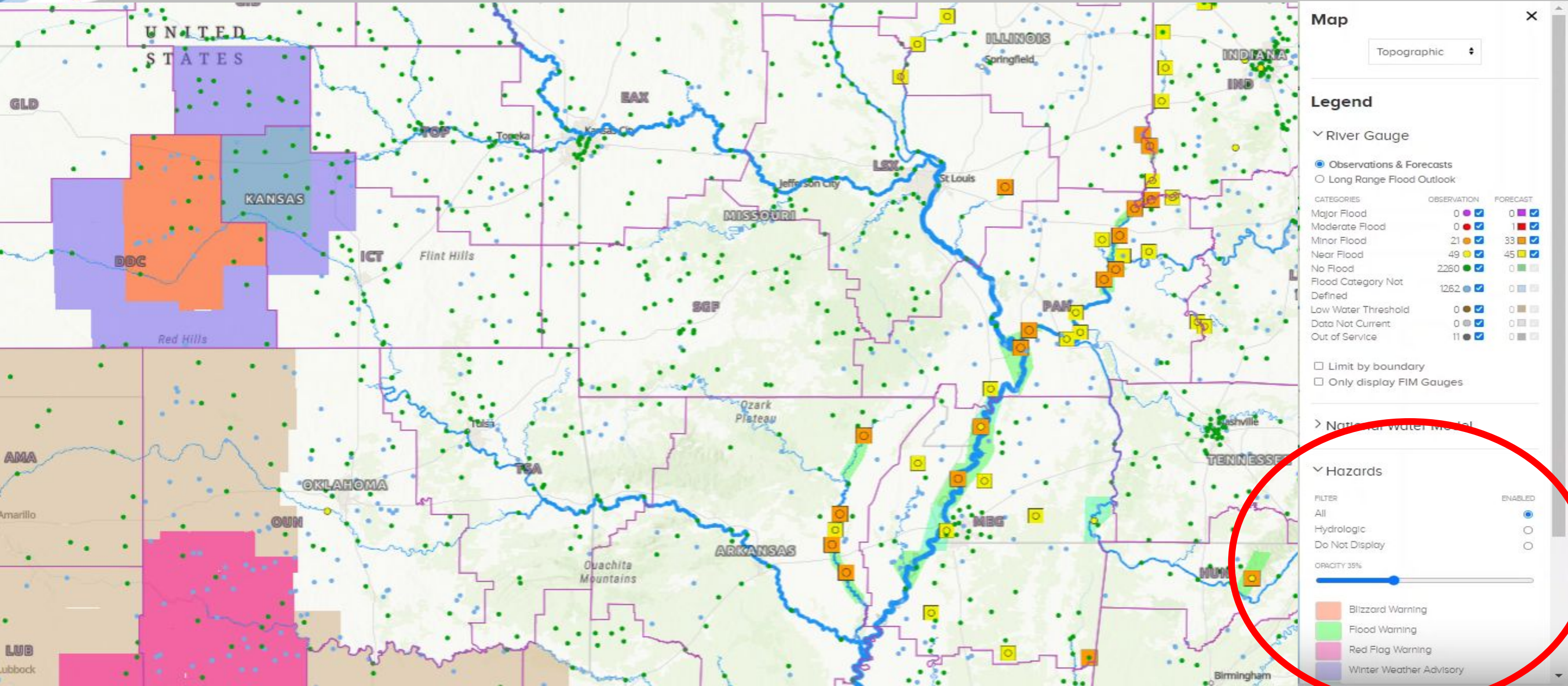
Effective Mar 17, 2022, 11:29 AM CDT  
Expires Mar 18, 2022, 1:30 PM CDT

- WHAT...Minor flooding is occurring and minor flooding is forecast.
- WHERE...Ohio River at Calro.
- WHEN...Until late Sunday morning.
- ADDITIONAL DETAILS...
- At 11:00 AM CDT Thursday the stage was 42.9 feet.
- Forecast...The river is expected to fall below flood stage early Sunday morning and continue falling to 31.3 feet Sunday, March 27.
- Flood stage is 40.0 feet.



# National Water Prediction Service (NWPS)

Changes to Map Interface – Not just hydro hazards watches & warnings but all!





# National Water Prediction Service (NWPS)

## Changes to Map Interface – option to show weather hazards watches & warnings

National Water Prediction Service Home NWC Operations More Water Information Modeling About Explore NWS Weather

Search

**Winter Weather Advisory**

**Winter Weather Advisory issued March 17 at 3:01AM CDT until March 18 at 9:00AM CDT by NWS Wichita KS**

Effective Mar 17, 2022, 3:01 AM CDT  
Expires Mar 17, 2022, 5:15 PM CDT

- WHAT...Wet snow expected. Total snow accumulations of up to two inches. Winds gusting as high as 45 mph.
- WHERE...Saline, McPherson and Reno Counties.
- WHEN...From 9 PM this evening to 9 AM CDT Friday.
- IMPACTS...Plan on slippery road conditions. The hazardous conditions will impact the morning commute.
- ADDITIONAL DETAILS...While most of the snow accumulation will be on grassy surfaces, roads and highways could become slushy, slick and hazardous.

**Precautionary/preparedness actions**

Slow down and use caution while traveling.

The latest road conditions for the state you are calling from can be obtained by calling 5 1 1.

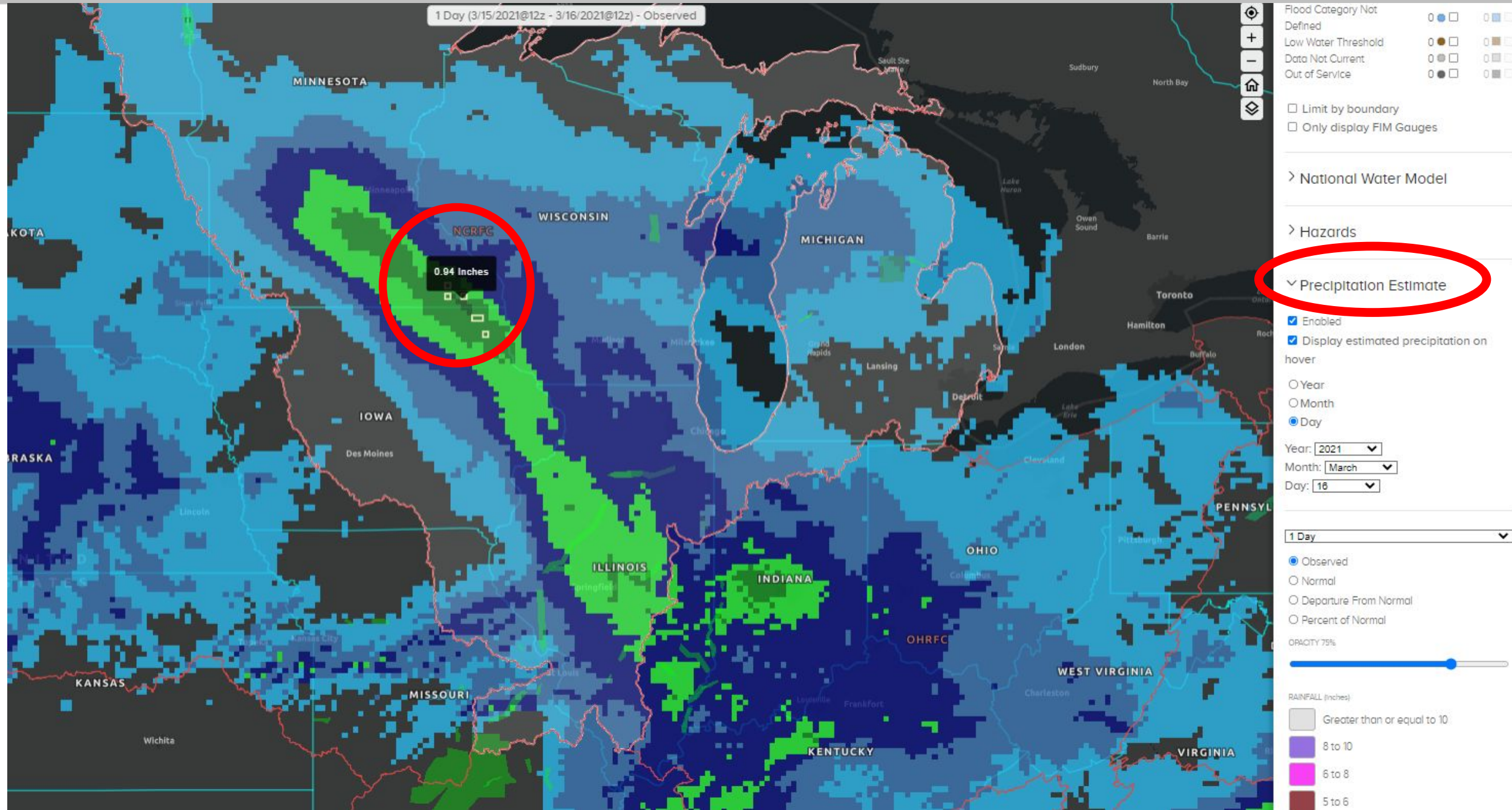
Top Stories 0



# National Water Prediction Service (NWPS)

## One Seamless Map – Look at Precipitation Estimates

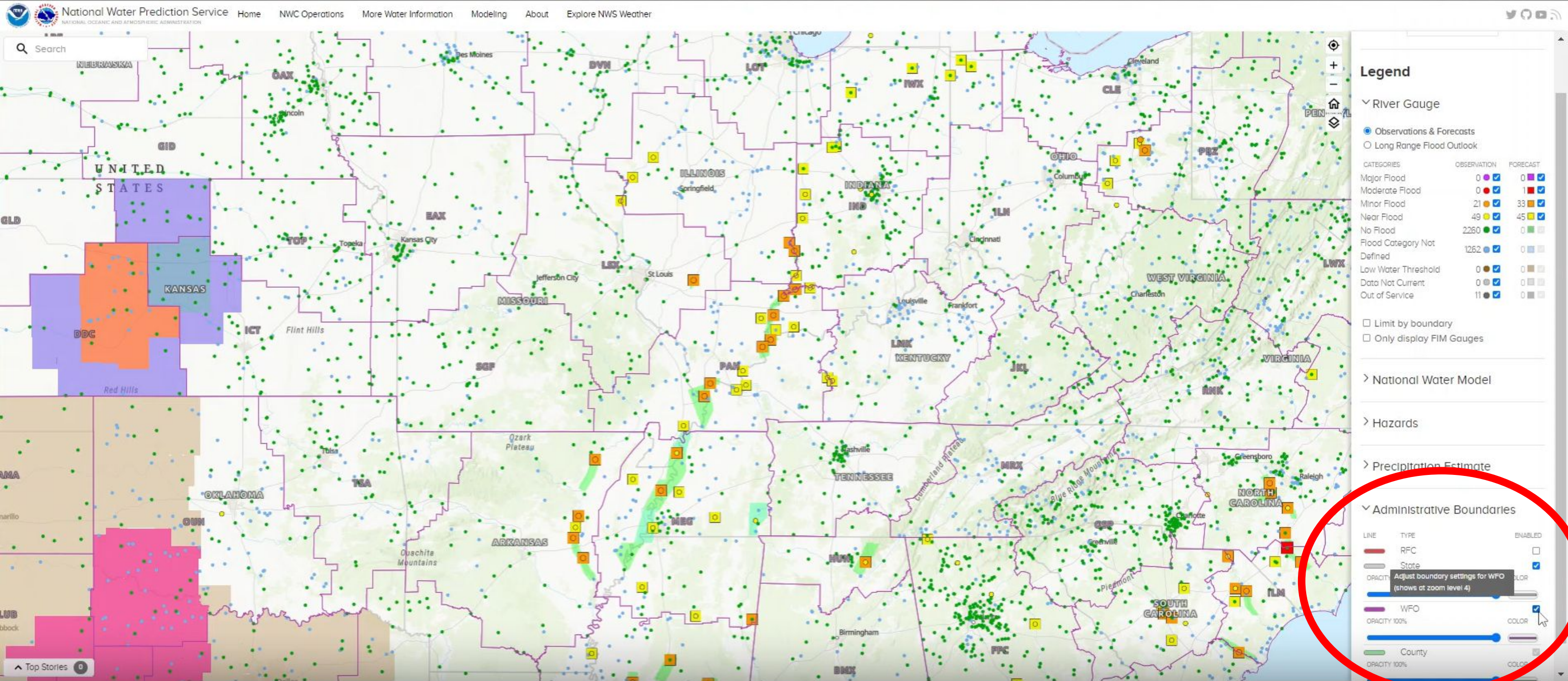
- Defaults 12Z
- Observed
- Normal
- Departure from normal
- Percent of normal
  
- Hover feature precip estimate (must turn on)





# National Water Prediction Service (NWPS)

## Administrative Boundaries on the background of map





# National Water Prediction Service (NWPS)

Two new sections added – National Snow Analysis and Flood Inundation (FIM)

Minor Flood	8	<input checked="" type="checkbox"/>	7	<input checked="" type="checkbox"/>
Near Flood	24	<input checked="" type="checkbox"/>	20	<input checked="" type="checkbox"/>
No Flood	6013	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>
Flood Category Not Defined	3065	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>
Low Water Threshold	90	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>
Data Not Current	616	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>
Out of Service	151	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>

Limit by boundary  
 Only display RFIM Gauges ⓘ

---

> National Water Model

---

> National Snow Analysis

---

> Flood Inundation  Enabled

---

> Hazards

---

> Precipitation Estimate  
 Enabled

---

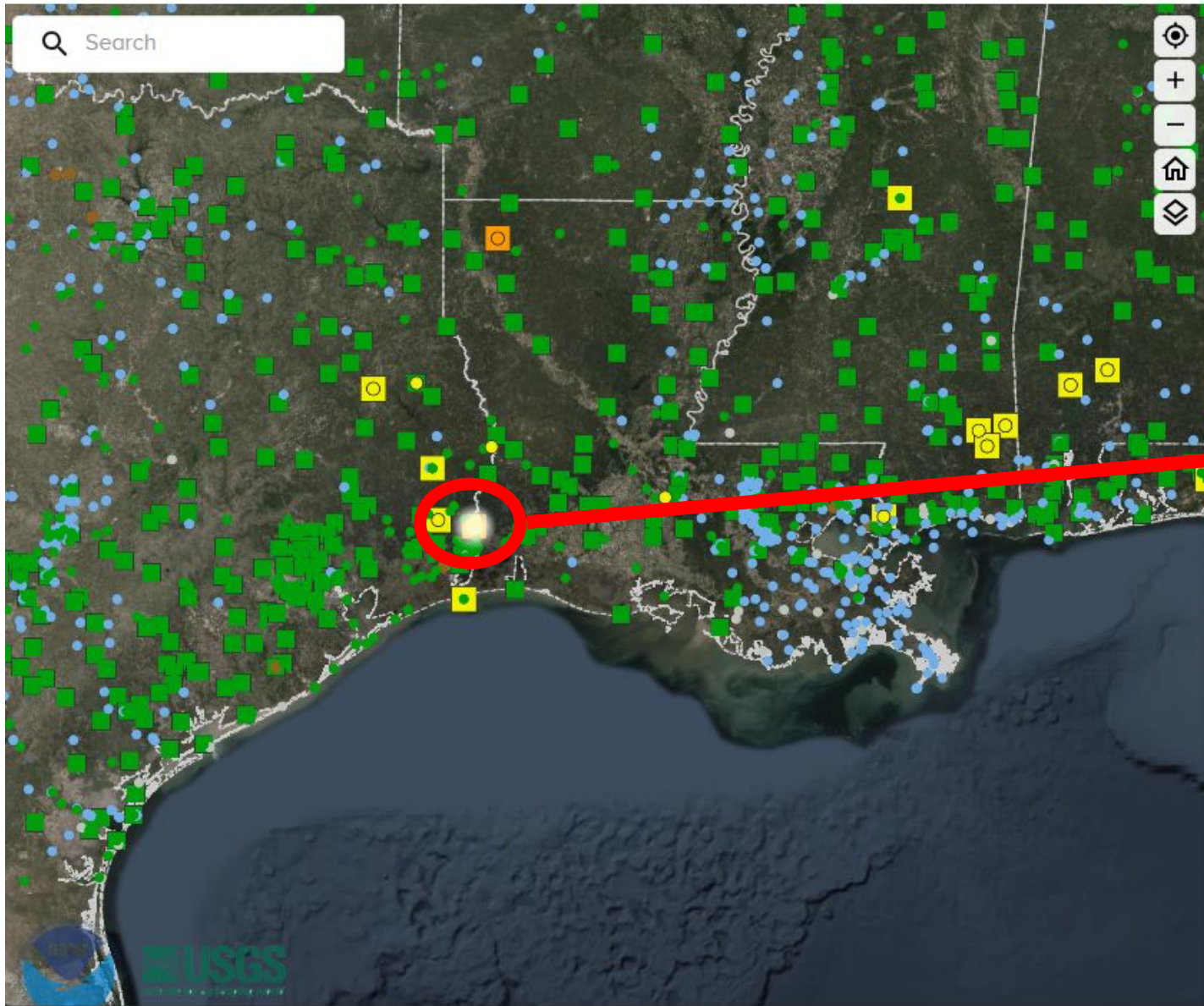
> Administrative Boundaries





# National Water Prediction Service (NWPS)

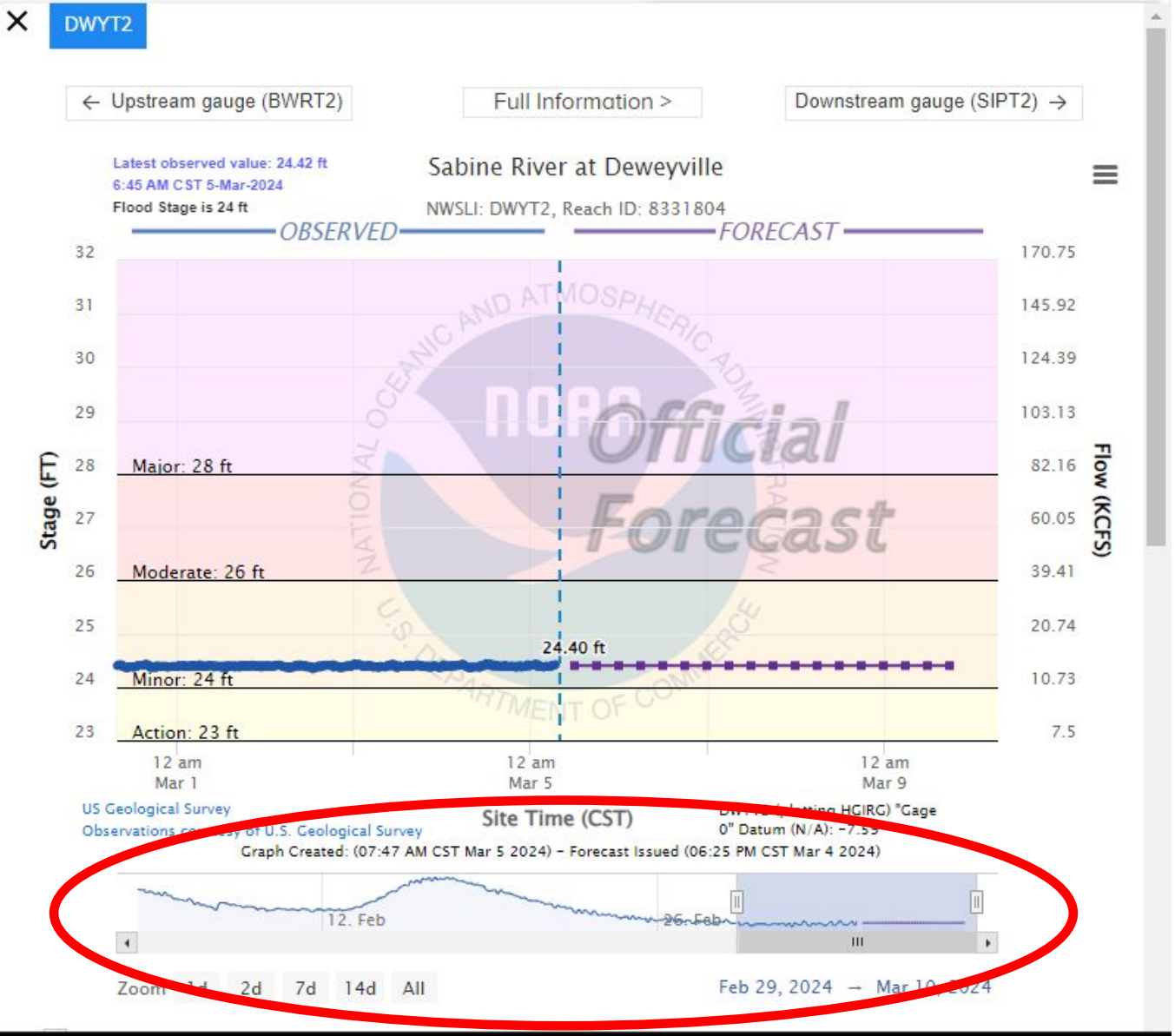
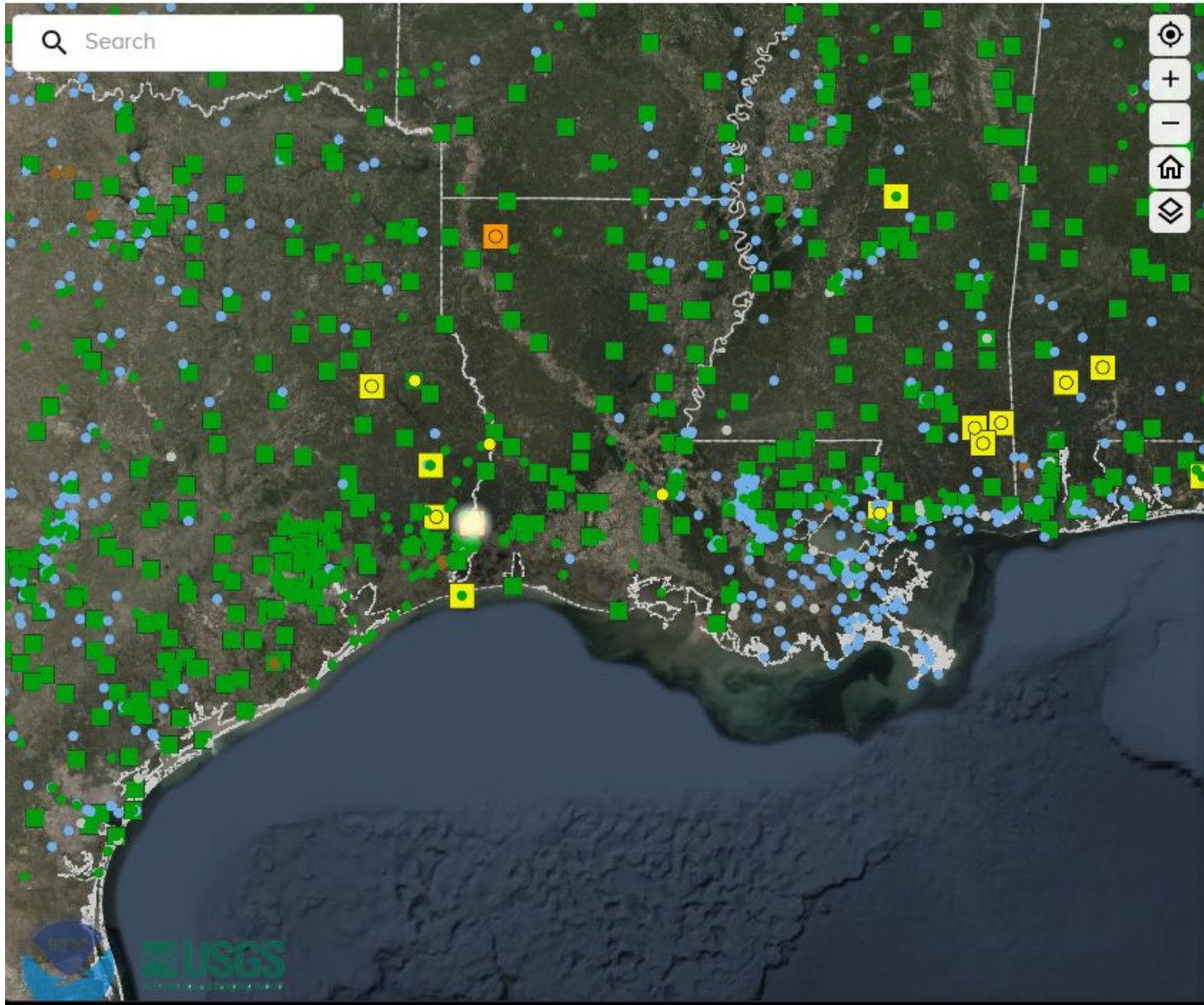
Go directly to popup Hydrograph from main page - select site





# National Water Prediction Service (NWPS)

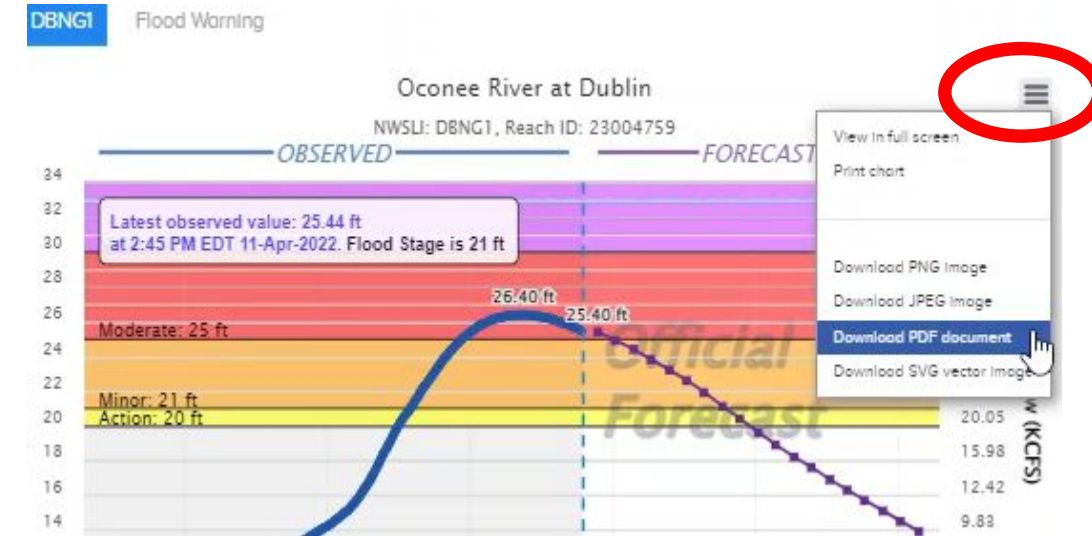
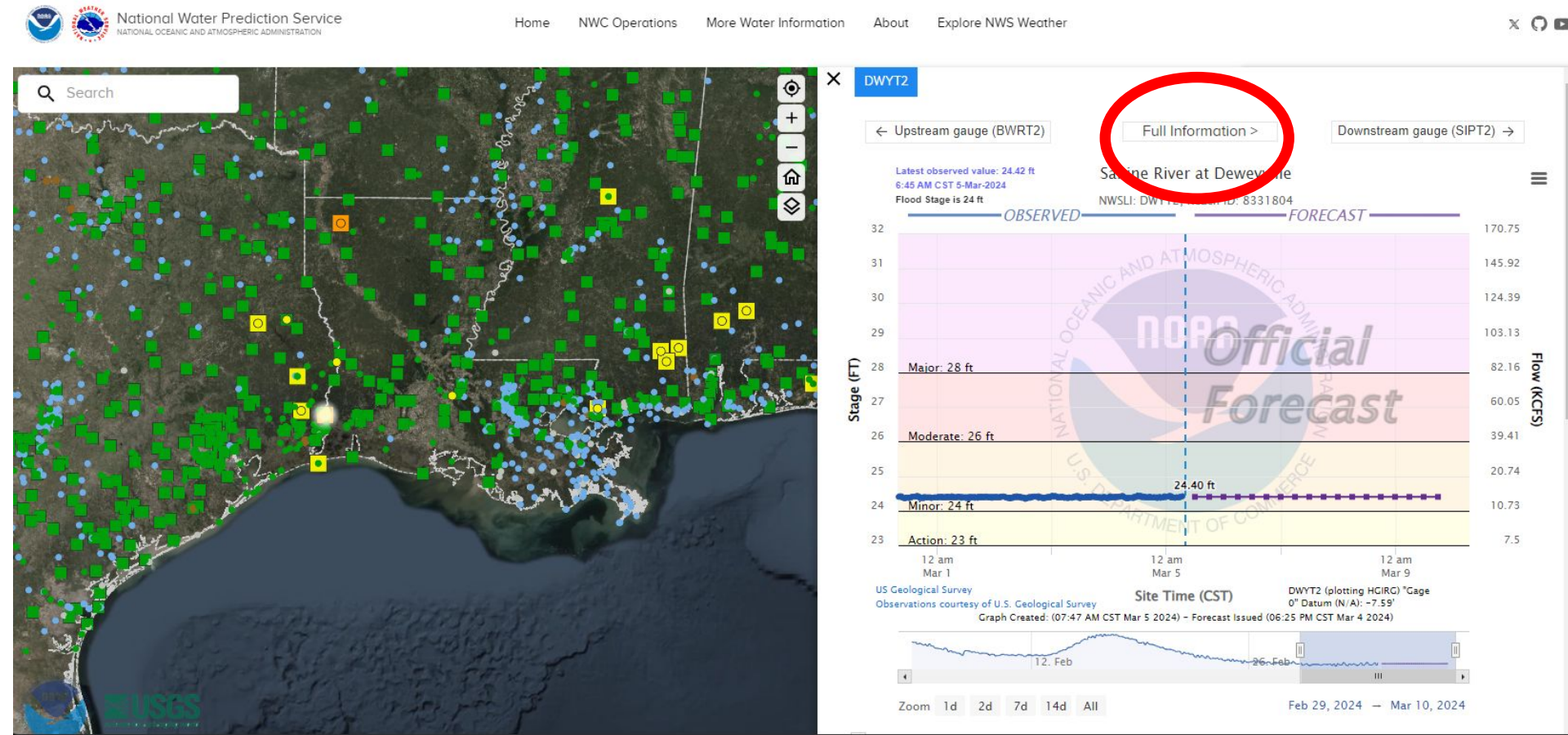
## Time scale slider bar





# National Water Prediction Service (NWPS)

**Full Information** button - takes you directly to hydrograph



- View full screen hydrograph
- Print hydrograph
- Download different types of graphic images



# National Water Prediction Service (NWPS)

## Hydrograph page – place cursor along hydrograph get readout of stage and flow

SERFC / FFC / DBNG1

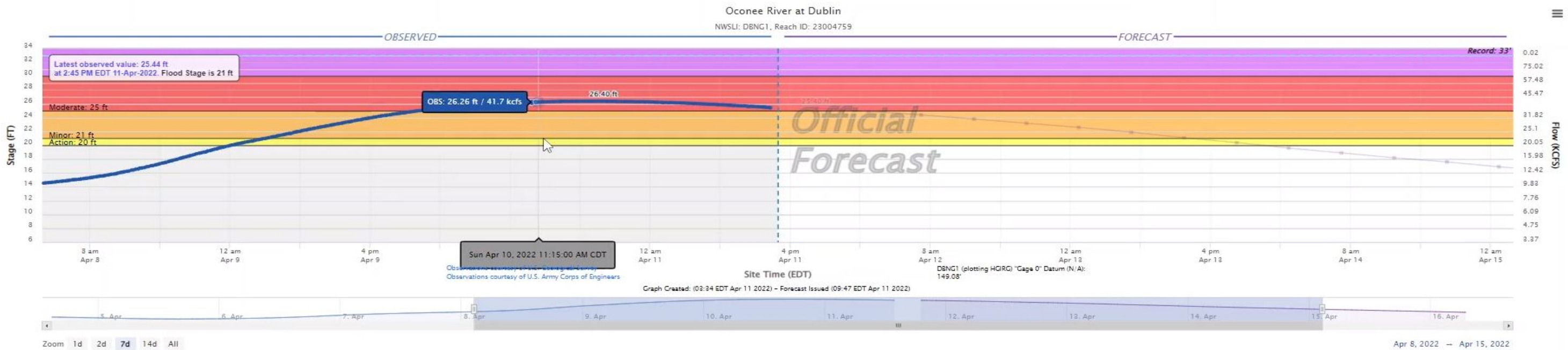
### Oconee River at Dublin

Last updated: Apr 11, 2022, 2:34 PM CDT

**Flood Warning**

Special Weather Statement

Official National Water Model Guidance



Scale to Flood Categories

- Official**
- Observed (OBS)
  - Forecast (FCST)
  - Record: 33 ft
  - Low Stage: 0 ft

CATEGORY	STAGE
Major Flooding	30 ft
Moderate Flooding	25 ft
Minor Flooding	21 ft
Action Stage	20 ft

**NOTE:** Forecasts are issued routinely year-round.

Automated gauge readings are now available, courtesy of the USGS.



# National Water Prediction Service (NWPS)

## Hydrograph page – cursor readout of each individual time step of the forecast

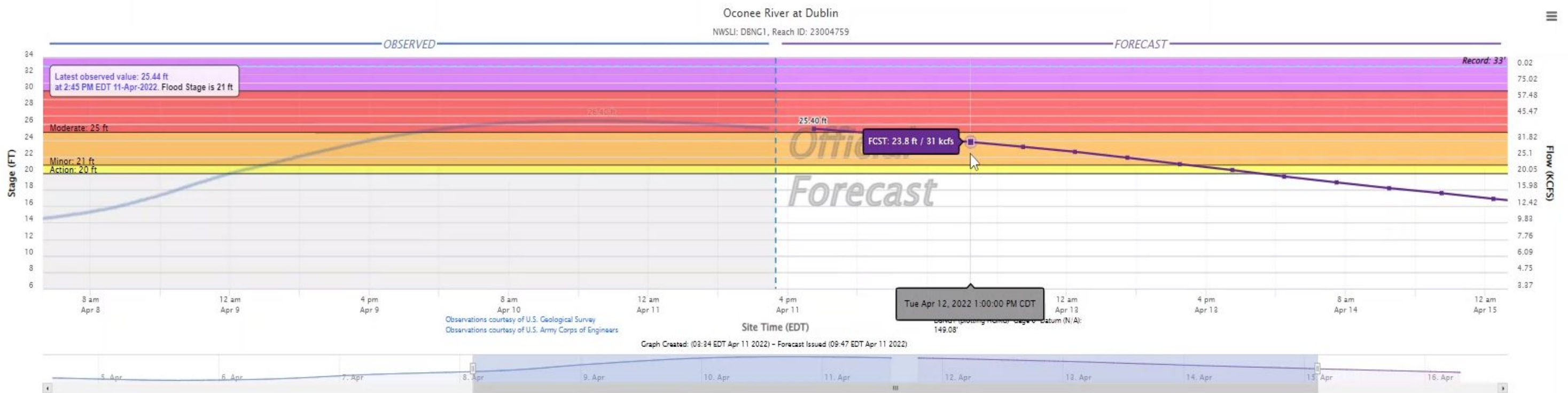
Oconee River at Dublin

Last updated: Apr 11, 2022, 2:34 PM CDT

Flood Warning

Special Weather Statement

Official National Water Model Guidance



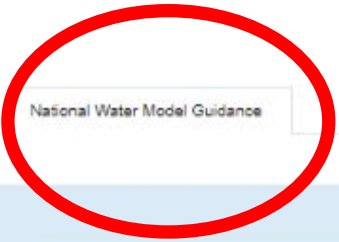


# National Water Prediction Service (NWPS)

## National Water Model Guidance plotted on hydrograph

Note: National Water Model is guidance only

and not official forecast



Official

- Observed (OBS)
- Forecast (FCST)

CATEGORY	STAGE
Major Flooding	40 ft
Moderate Flooding	37 ft
Minor Flooding	35 ft
Action Stage	10 ft

National Water Model

- Analysis (ANA)
- Short Range (SR)
- Medium Range Ensembles
- Long Range Ensembles



# National Water Prediction Service (NWPS)

## Metadata, pictures, probabilistic graphics

### Flood Impacts

25 ft Water may reach top of improved levee at 2nd and River Streets.

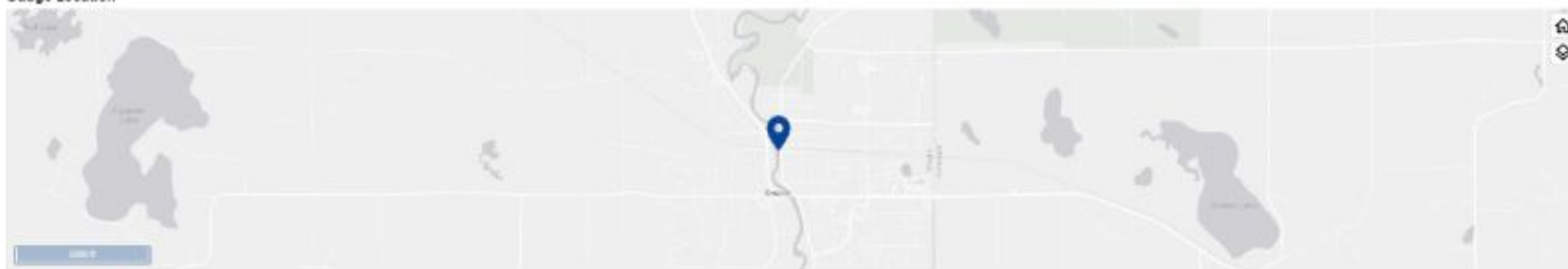
24.95 ft Water begins to flow over the levee on the west side of town.

21.85 ft Water may begin to flow over the bridge on Bridge Street.

### Gauge Info

Coordinates	45.029 -93.797
gpc	NCRFC
State	IA
WFO	WFO
County	Wright

### Gauge Location



- Display DELMS marker
- Display FEMA's National Flood Hazard Layers

### Recent Crests

- 19.84 ft on 03-25-2019 (P)
- 16.35 ft on 04-27-2018 (P)
- 17.56 ft on 10-11-2017
- 16.68 ft on 08-21-2016
- 11.05 ft on 05-25-2015
- 21.02 ft on 06-24-2014
- 17.03 ft on 06-09-2014
- 17.9 ft on 05-29-2013
- 17.17 ft on 05-25-2012
- 16.76 ft on 05-31-2012

[SHOW ALL CRESTS](#)

### Historic Crests

- 23.25 ft on 04-14-1965
- 21.02 ft on 06-24-2014
- 20.45 ft on 04-12-1989
- 20.3 ft on 03-21-2010
- 20 ft on 03-28-2011
- 19.95 ft on 04-15-2001
- 19.84 ft on 03-25-2019 (P)
- 19.25 ft on 04-08-1997
- 18.85 ft on 04-30-2001
- 18.75 ft on 06-25-1993

[SHOW ALL CRESTS](#)

### Gauge Photos



Upstream from west side of bridge during high water



Photo 1 of 8

### Probability Information

#### Weekly Chance of Exceeding Levels

[About this graph](#)

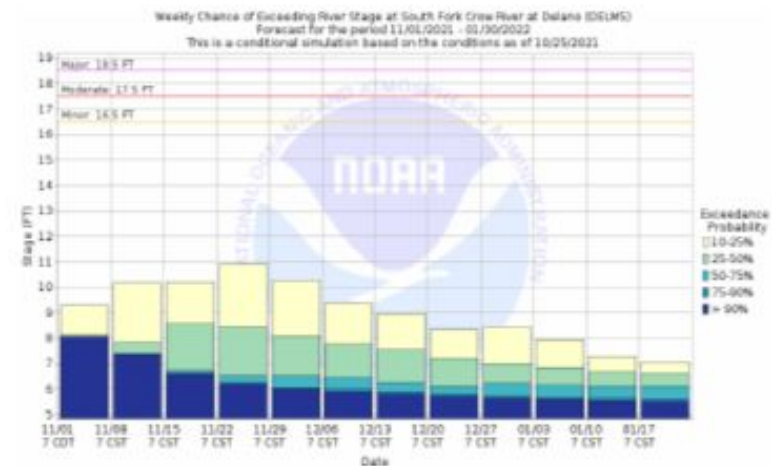


Photo 2 of 2

nu

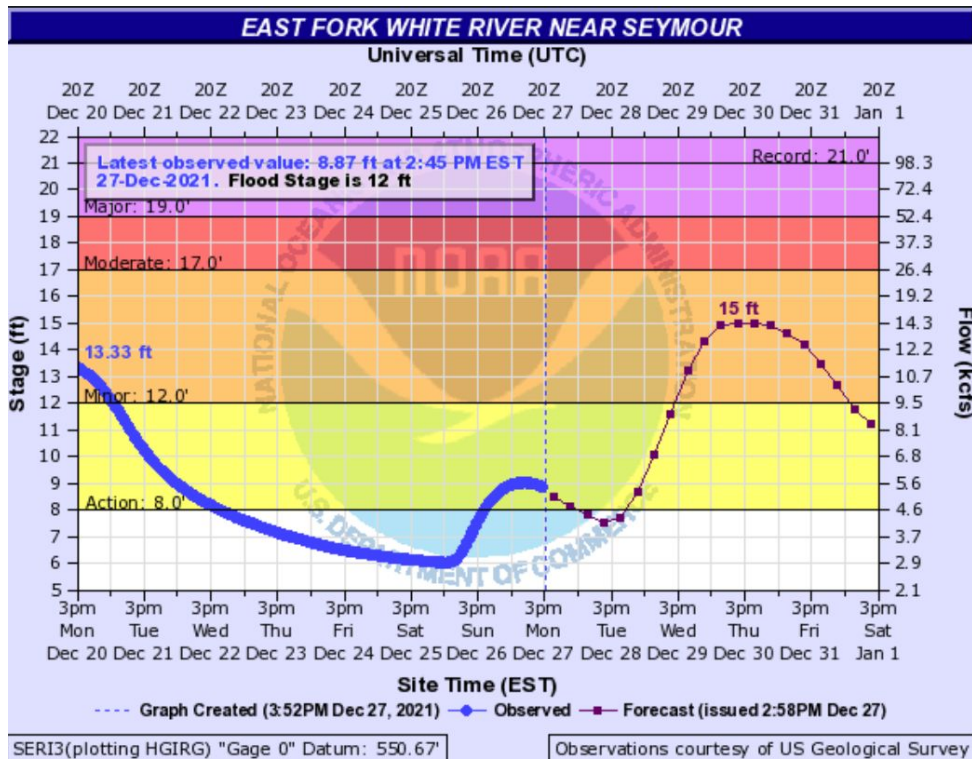
Stage



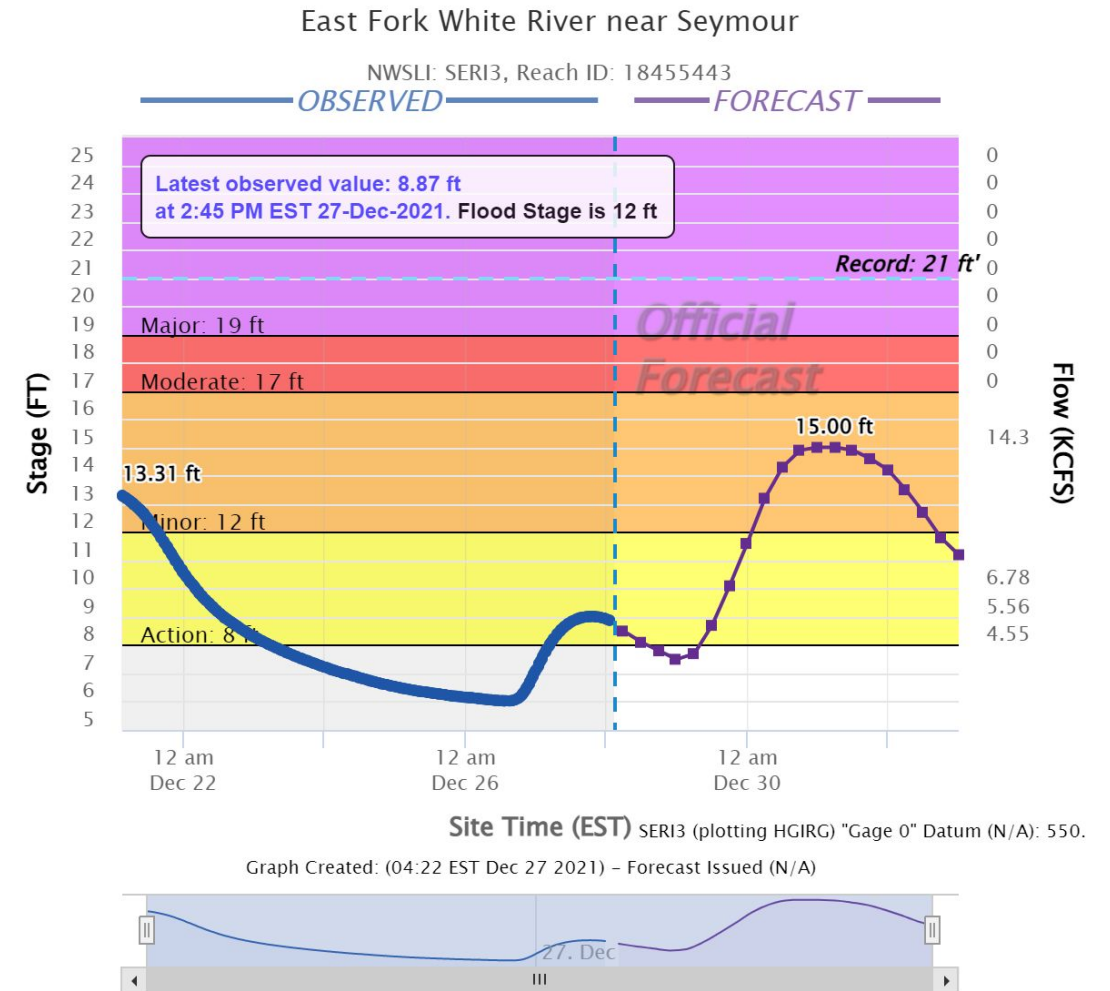
# National Water Prediction Service (NWPS)

## Review Changes to Hydrographs – customizable data display

- Hydrographs generate upon request, rather than 15 min
- Interactive panning and zooming
- Zoom option allows one to go back 30 days of data



Legacy AHPS



New NWPS

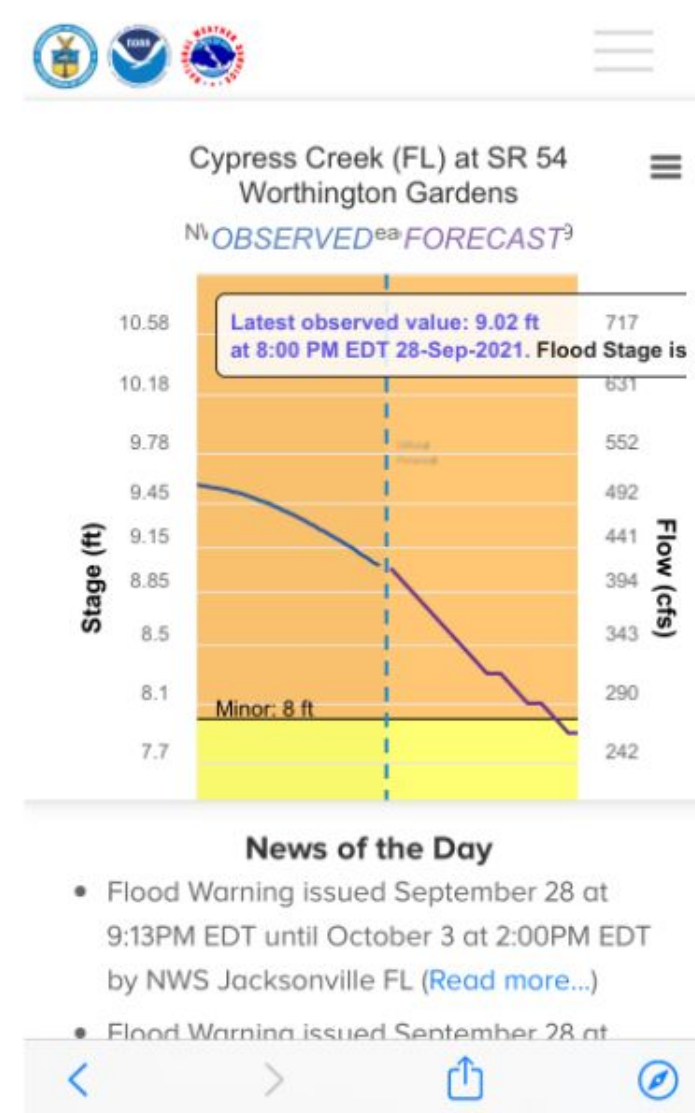
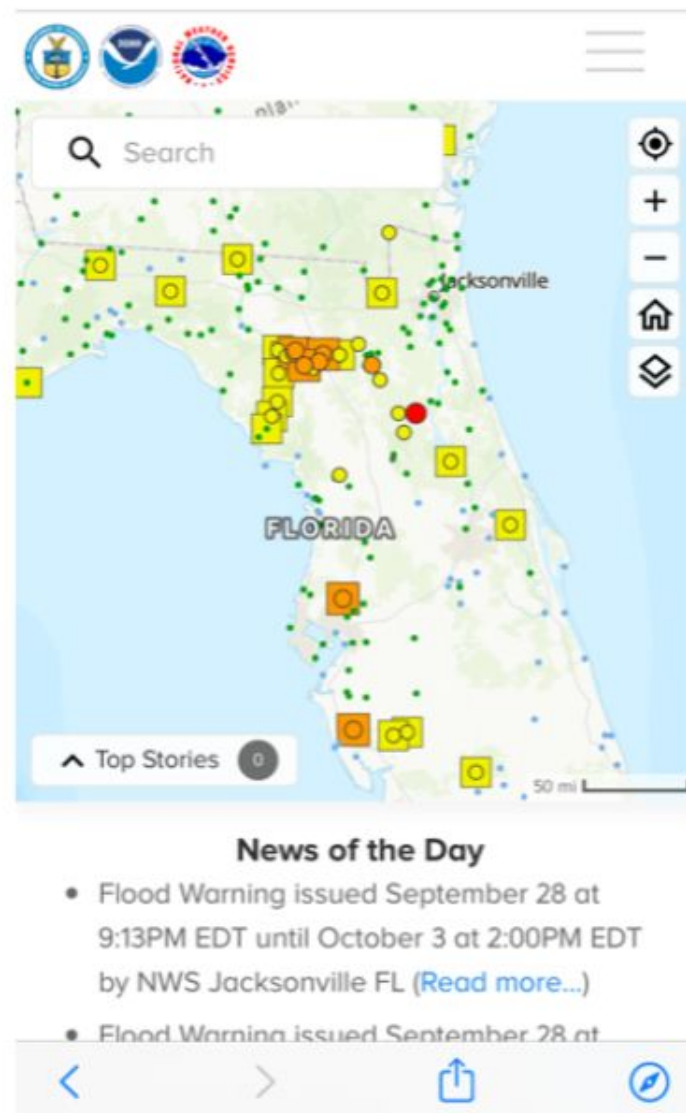
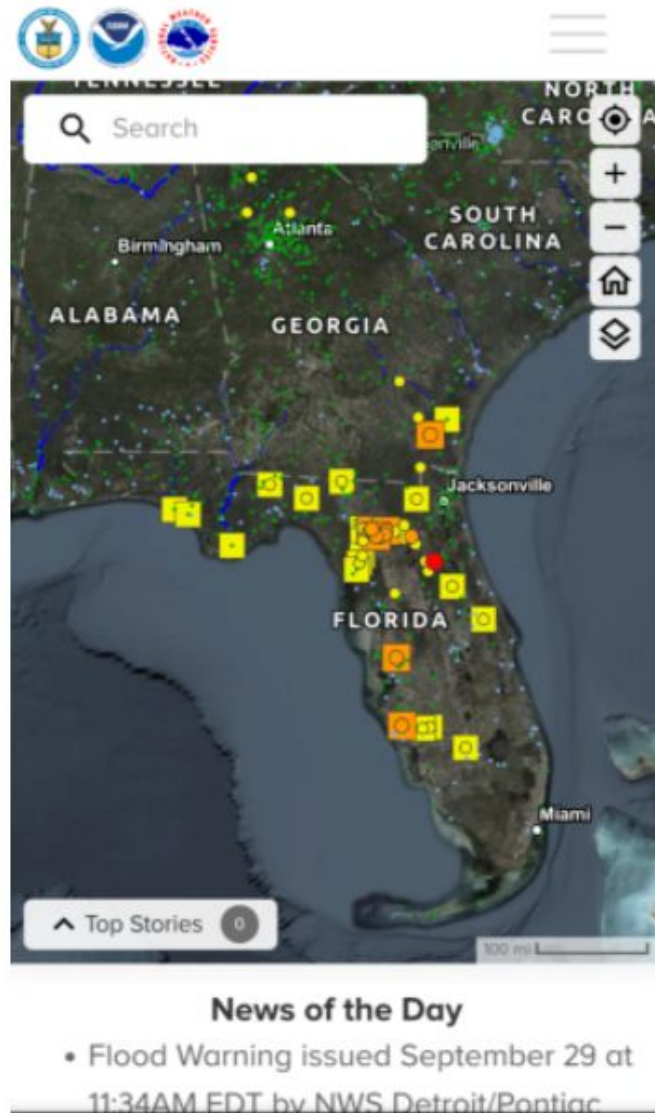




# National Water Prediction Service (NWPS)

## Improved Mobile Capabilities

- Maps and hydrographs improved for mobile devices





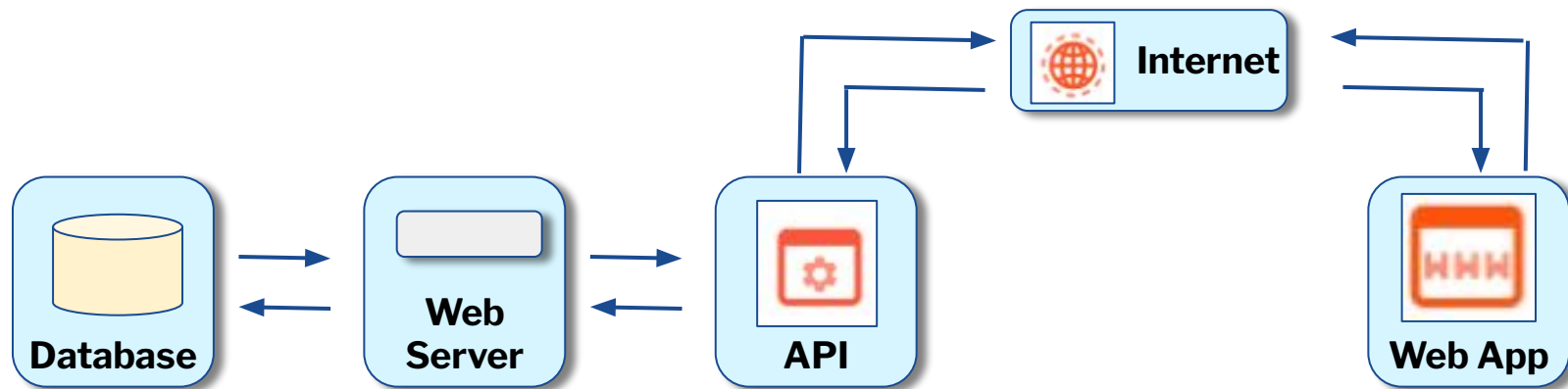
# Data Driven Application Programming Interfaces (APIs)

**NWPS is an API driven Web App for the dissemination of integrated water information across the NWS**

Core Partners, Third Party APIs and Web Apps can leverage the NWPS API to integrate observations and forecast data into **their own** decision support tools.

**API Webinar at:**

<https://www.youtube.com/watch?v=-A8mt1EgAj0>



**API Documentation -**

<https://preview-api.water.noaa.gov/nwps/v1/docs/>

USGS API

*Example Web App*

NWPS API

*YUKON RIVER 98 N Yukon River at Eagle (YEAA2)*

**Observed Data - USGS**  
**River Forecast - NWS**  
**Flow Statistics - USGS**

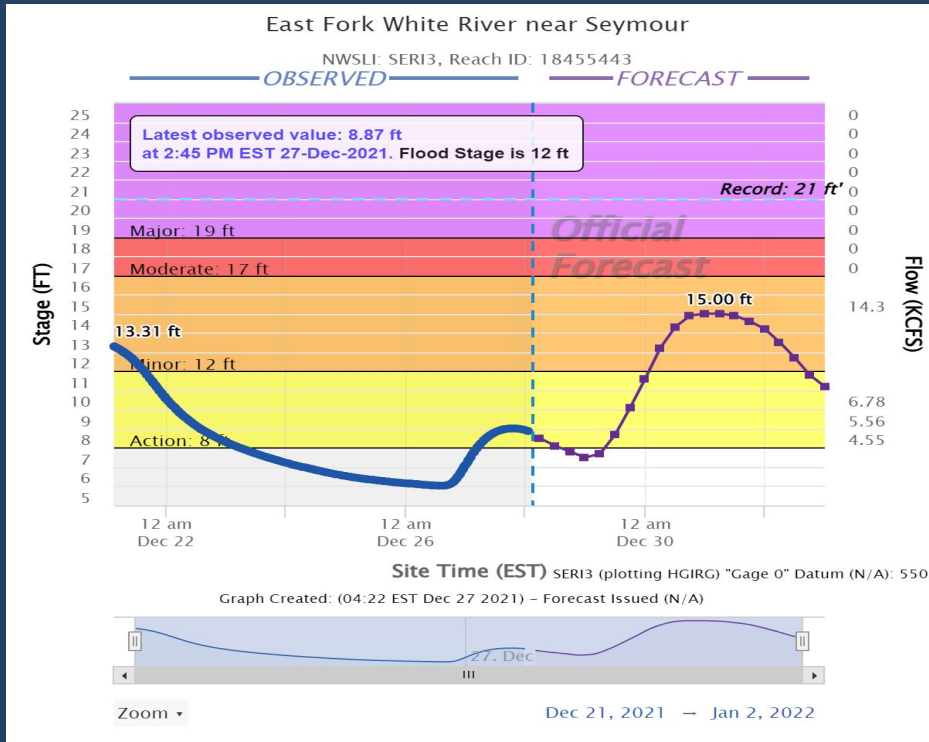
**Multiple Sources Integrated for DSS**



# National Water Prediction Service (NWPS)

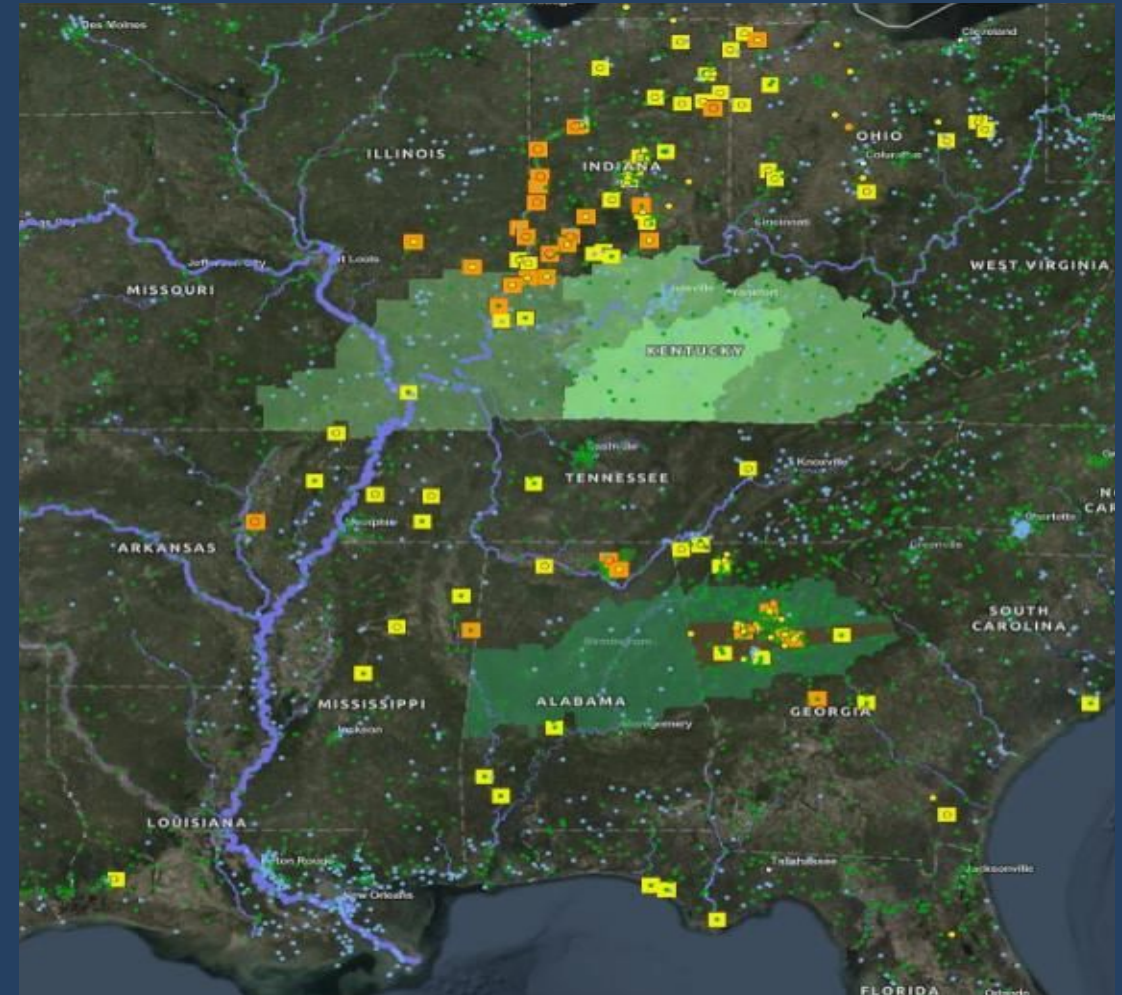
## Important URLs

- NWPS staging: <https://preview.water.noaa.gov/>
- NWPS permanent site (on or around March 27, 2024): <https://water.noaa.gov/>
- API: <https://preview-api.water.noaa.gov/nwps/v1/docs/>
- WFO Example: <https://preview.water.noaa.gov/wfo/dmx>
- RFC Example: <https://preview.water.noaa.gov/rfc/ncrfc>
- State Example: <https://preview.water.noaa.gov/state/ia>
- Example link to static hydrograph (see API to properly retrieve):  
[https://preview.water.noaa.gov/resources/hydrographs/desi4\\_hg.png](https://preview.water.noaa.gov/resources/hydrographs/desi4_hg.png)
- More information including user's guide:  
[https://www.weather.gov/dmx/NWPS\\_Info](https://www.weather.gov/dmx/NWPS_Info)



NWS Des Moines, IA

[nws.desmoines@noaa.gov](mailto:nws.desmoines@noaa.gov)



NWPS located at  
[water.noaa.gov](http://water.noaa.gov)  
 (Permanent site)

