



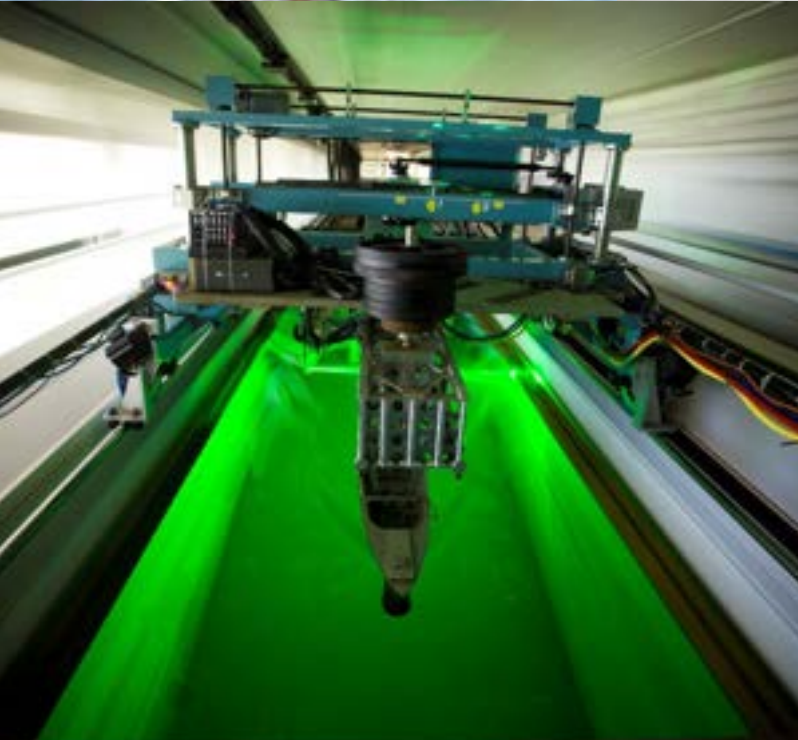
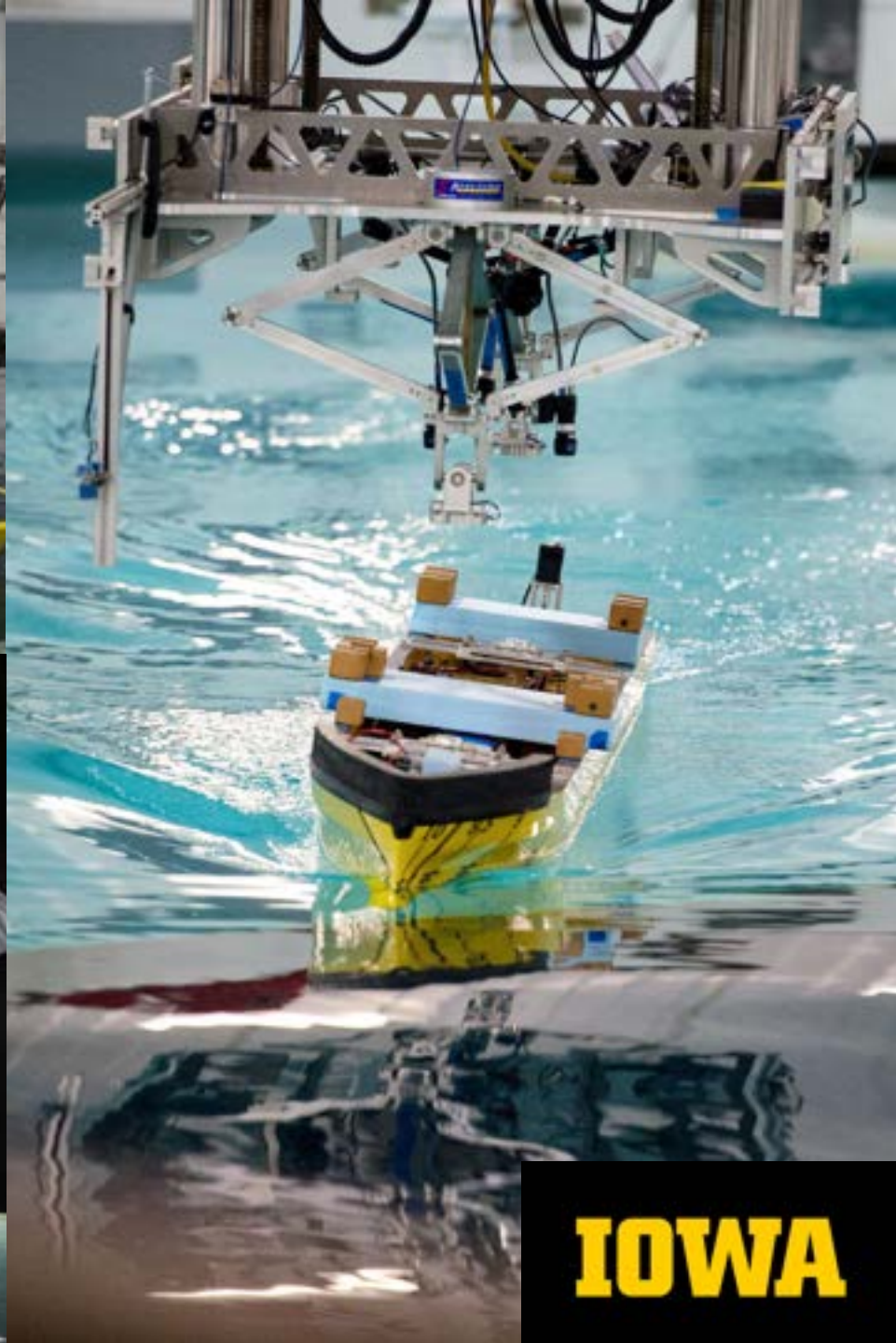
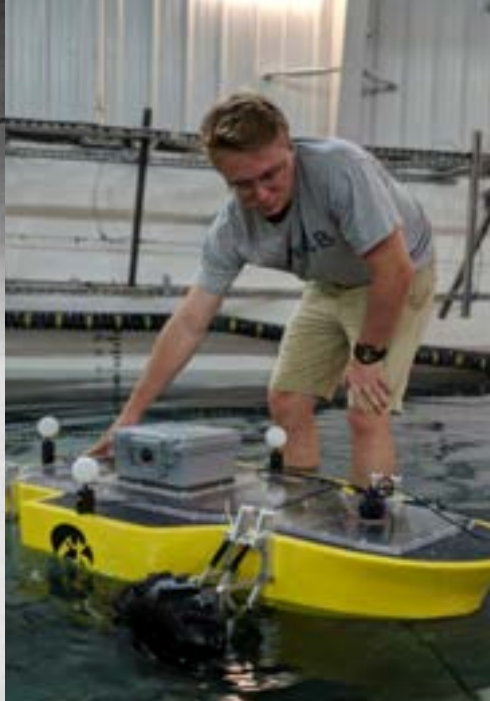
IOWA



Building a Resilient Iowa

Flood monitoring, forecasting, and mapping

Nathan Young, *IFC Associate Director*
March 10, 2022



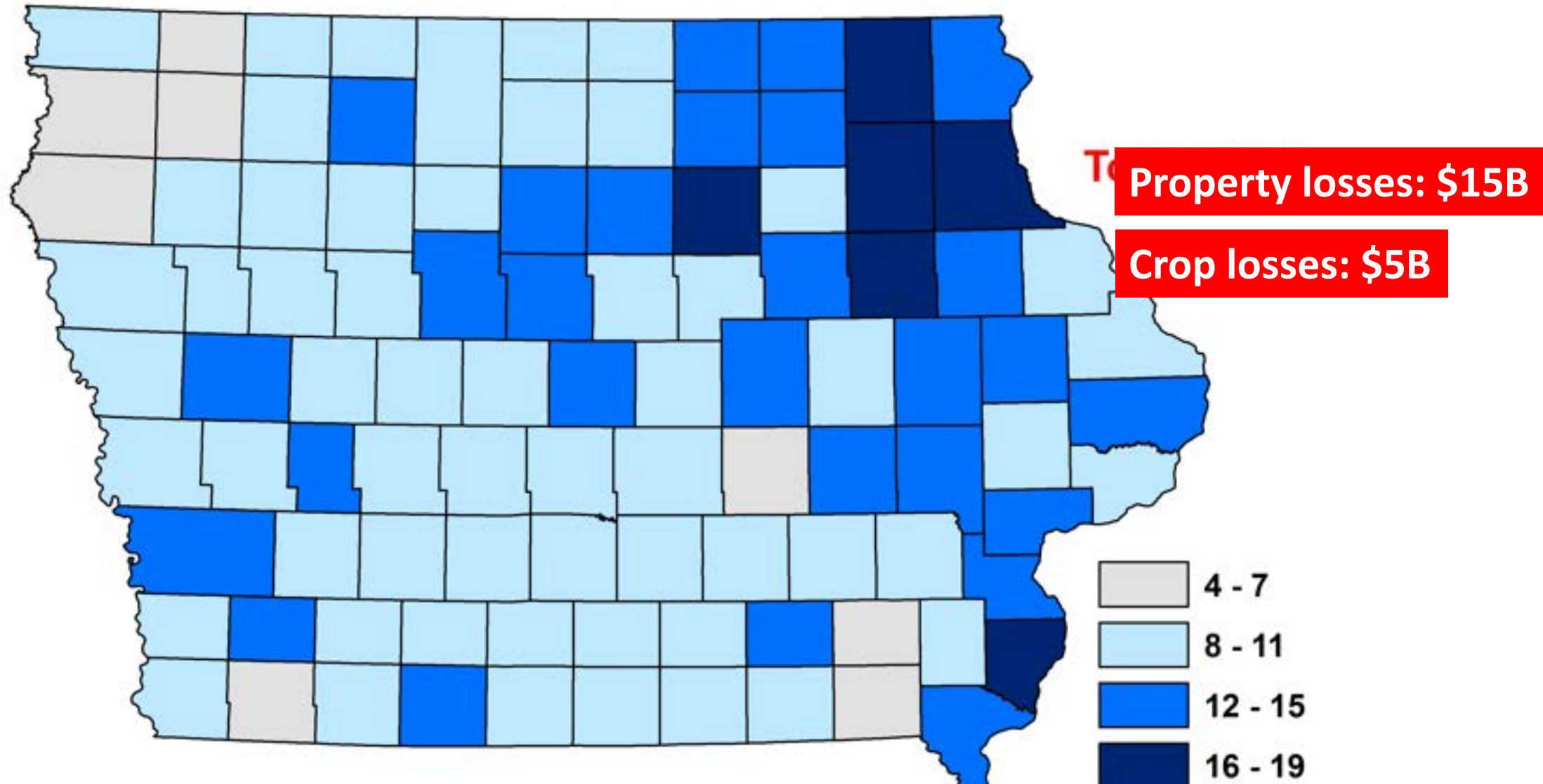
June 16, 2008



2008 flood, Cedar Rapids



FEMA Flood-Related Disaster Declarations 1989-2019



Iowa Flood Center

- Established by the Iowa Legislature after the catastrophic Iowa flood of 2008 as the nation's only academic center dedicated solely to flood research
- Offers Iowans accurate, scientific information to help them better understand their flood risks and prepare for future flooding
- Shares flood information online through the Iowa Flood Information System



IOWA



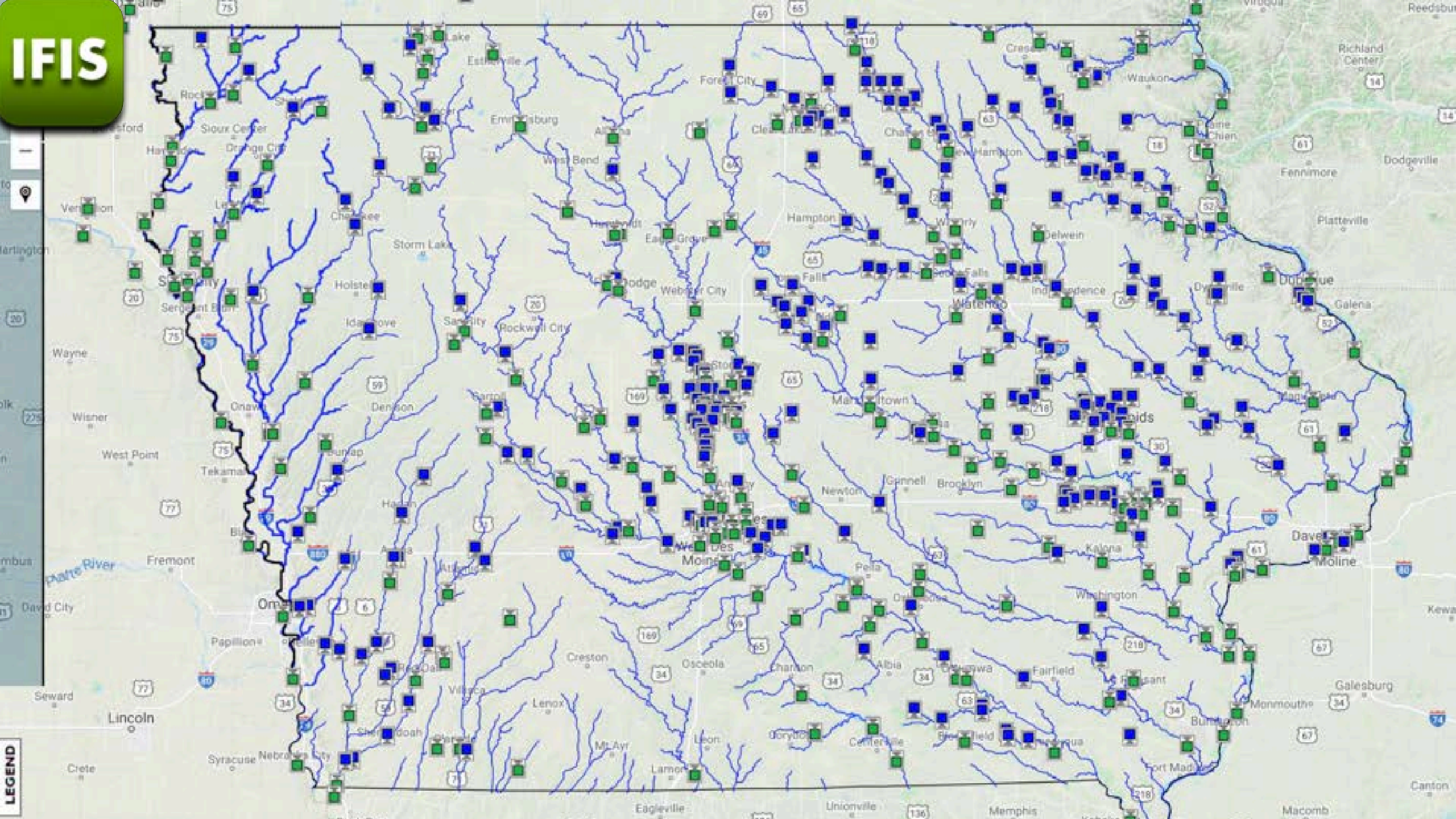
Iowa Flood Center

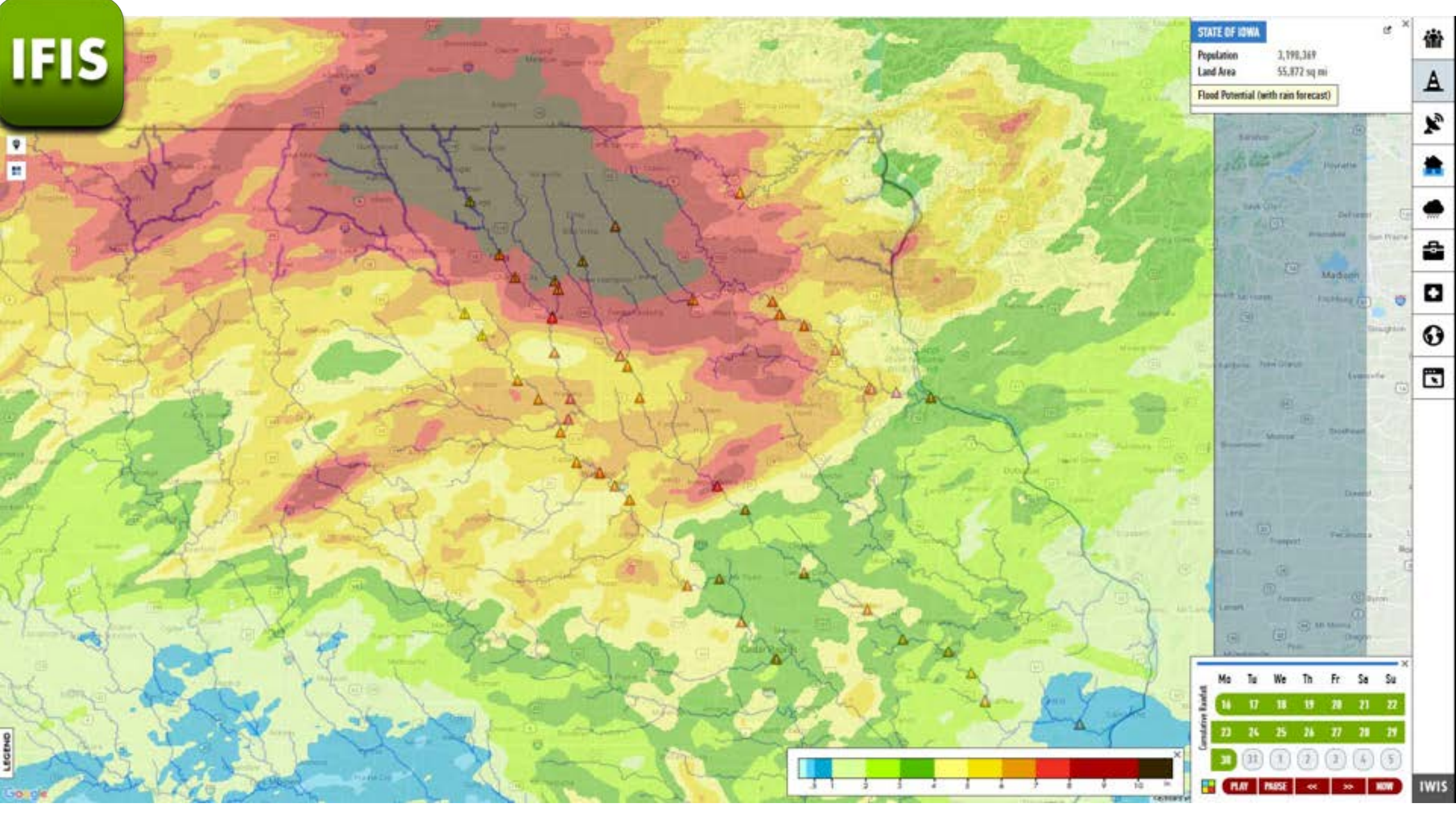
Sec. 15. NEW SECTION. 466C.1 IOWA FLOOD CENTER

1. The state board of regents shall establish and maintain in Iowa City as a part of the state university of Iowa an Iowa Flood Center. In conducting the activities of this chapter, the center shall work cooperatively with the department of natural resources, the department of agriculture and land stewardship, the water resources coordinating council, and other state and federal agencies.
2. The Iowa flood center shall have all of the following purposes:
 - a. To develop hydrologic models for physically based flood frequency estimation and **real-time forecasting of floods**, including hydraulic models of **flood plain inundation mapping**.
 - b. To establish community-based programs to **improve flood monitoring** and prediction along Iowa's major waterways and to support ongoing flood research.
 - c. To **share resources and expertise** of the Iowa flood center.
 - d. To assist in the **development of a workforce** in the state, knowledgeable regarding flood research, prediction, and mitigation strategies.

FLOOD MONITORING

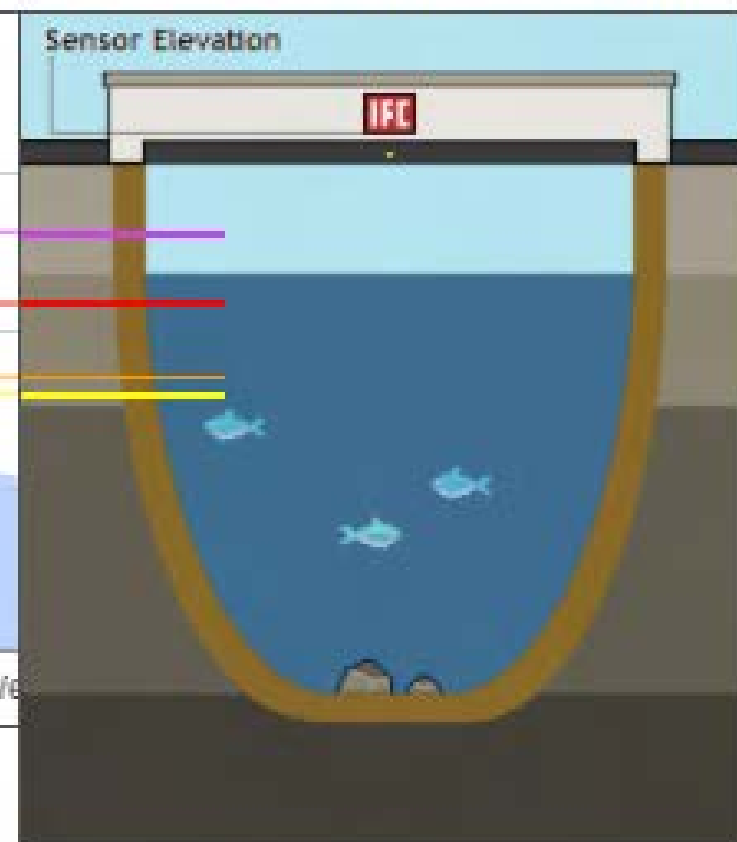
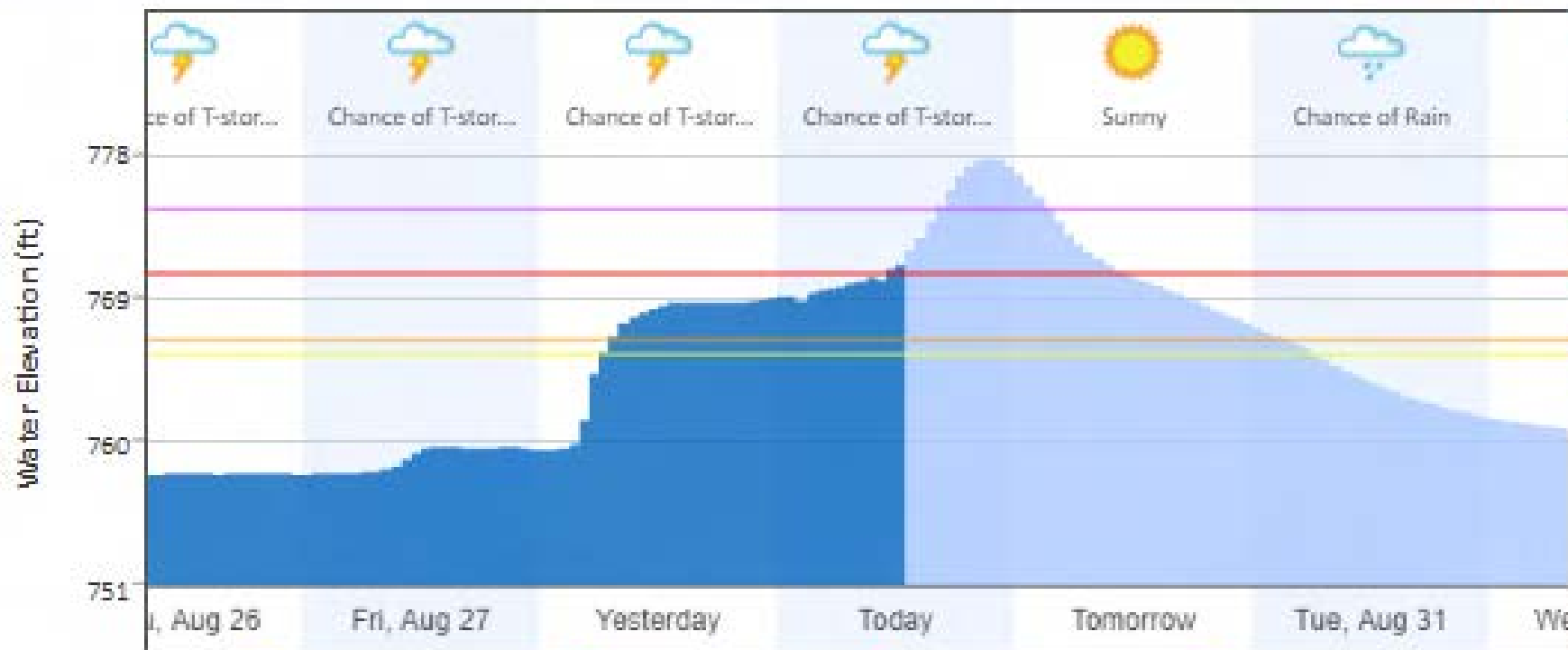






IFC STREAM GAUGE

City: Elgin
River: Turkey River
Station ID: TKYRV02 (IFC) Sensor Elevation: 778.4 ft
Forecast: IFC Model [[rain forecast](#) | [no rain scenario](#) | [2" rain scenario](#)]
Last Reported: Sun, August 29, 2021 1:00 pm
Last Reading: 771 ft 4 in (water elevation) Switch Data View: [[elevation](#) - [depth](#)]



■ Action Level: 765ft 4in ■ Flood Level: 766ft 4in ■ Moderate Level: 770ft 7in ■ Major Level: 774ft 6in



A photograph of a hydrologic monitoring station in a green field under a cloudy sky. The station consists of a central pole with a horizontal arm holding two sensors, and a white box mounted on the pole. The text "STATEWIDE HYDROLOGIC NETWORK" is overlaid in a yellow box.

STATEWIDE HYDROLOGIC NETWORK

Near at Kent Park, Oxford

Hydro Station (IFC)

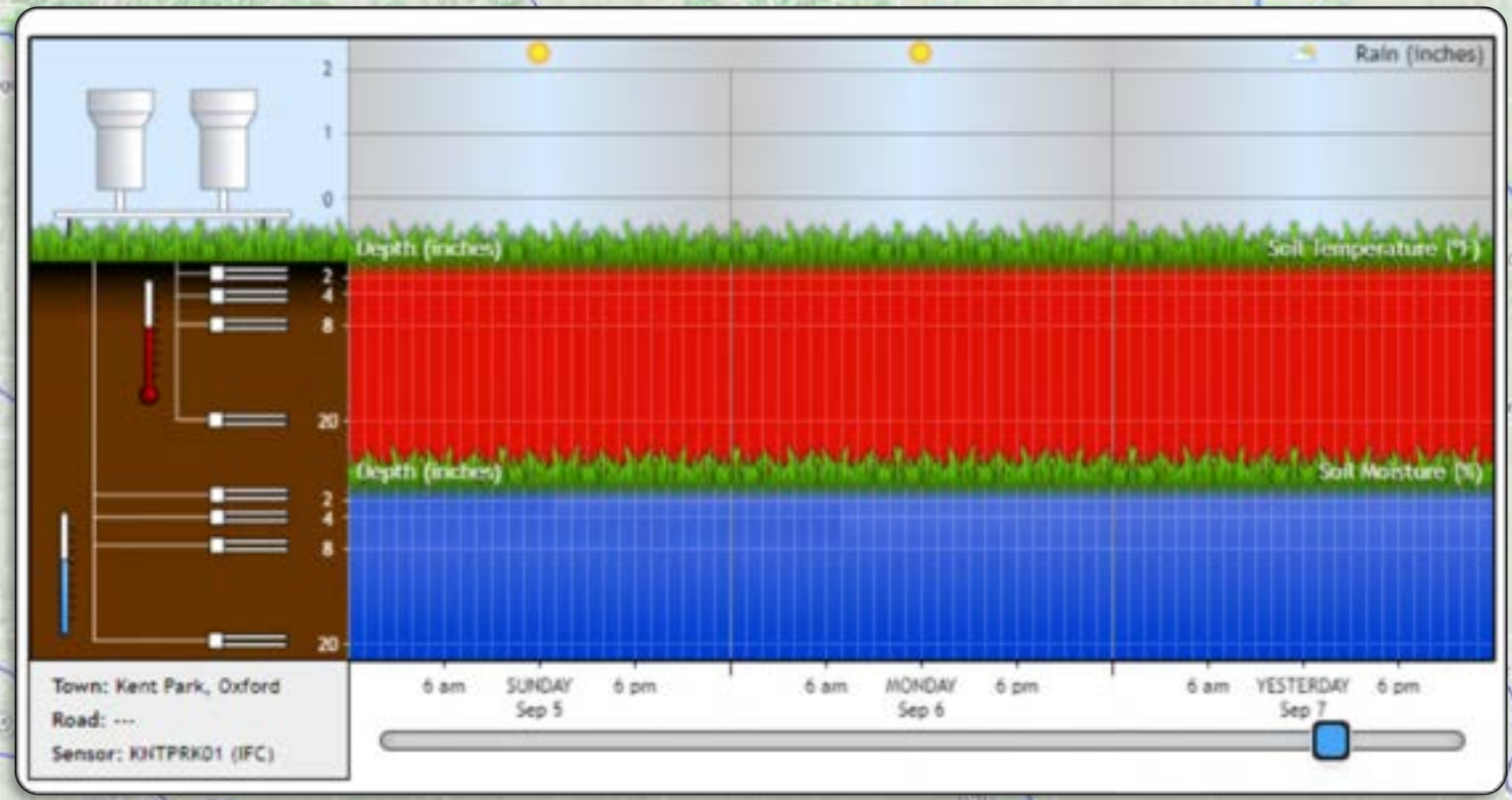
Last Reported: Wed, Sep 8, 2021 10:00 am
Groundwater Temperature: 52.3 °F
Water Table Depth: 19.7 ft
Wind: 2.7 mph NW
Rain: no rain

WIND WELL SOIL RAIN

STATE OF IOWA

Population 3,190,369
Land Area 55,872 sq mi

Flood Alerts (observations)

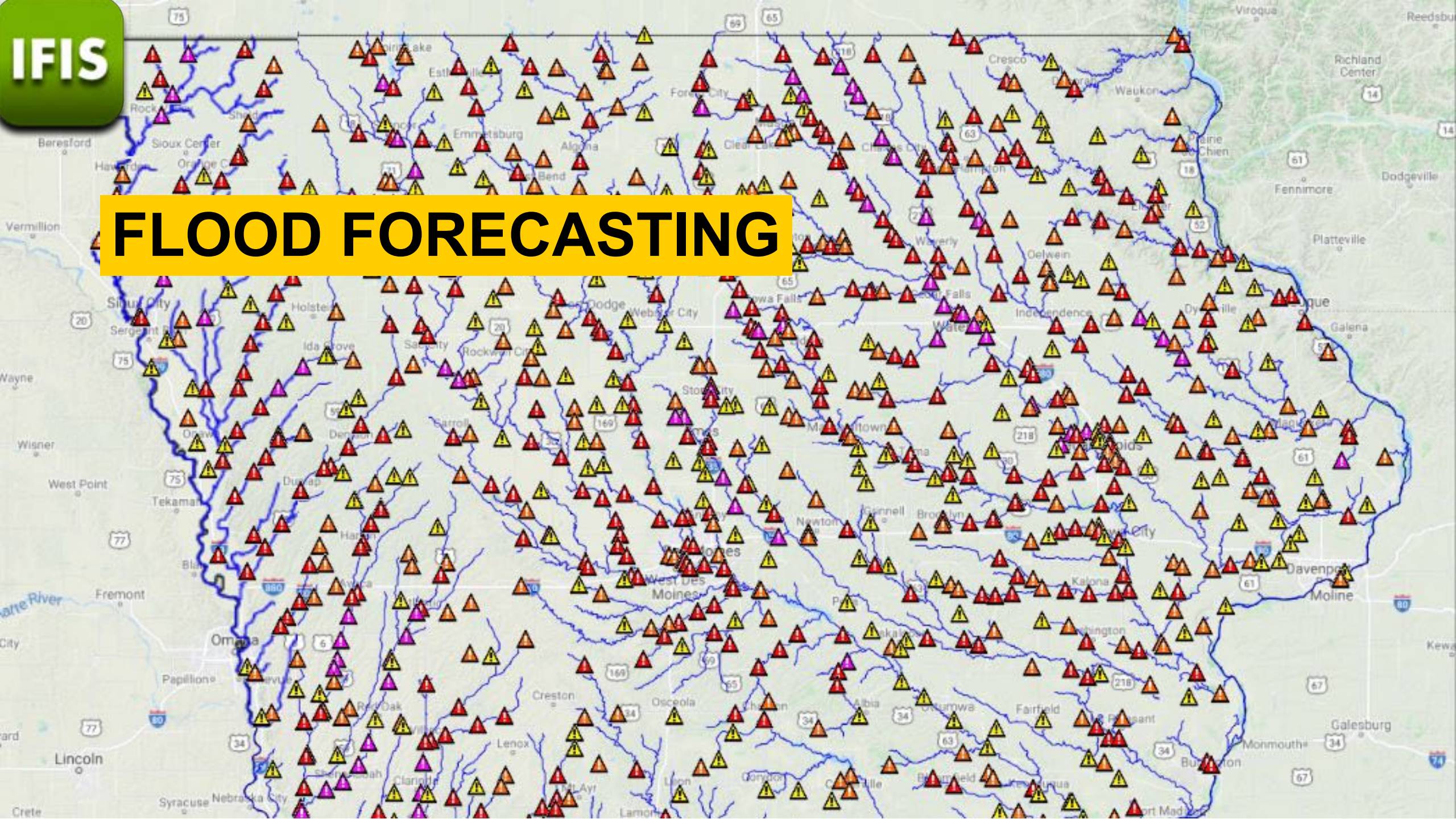


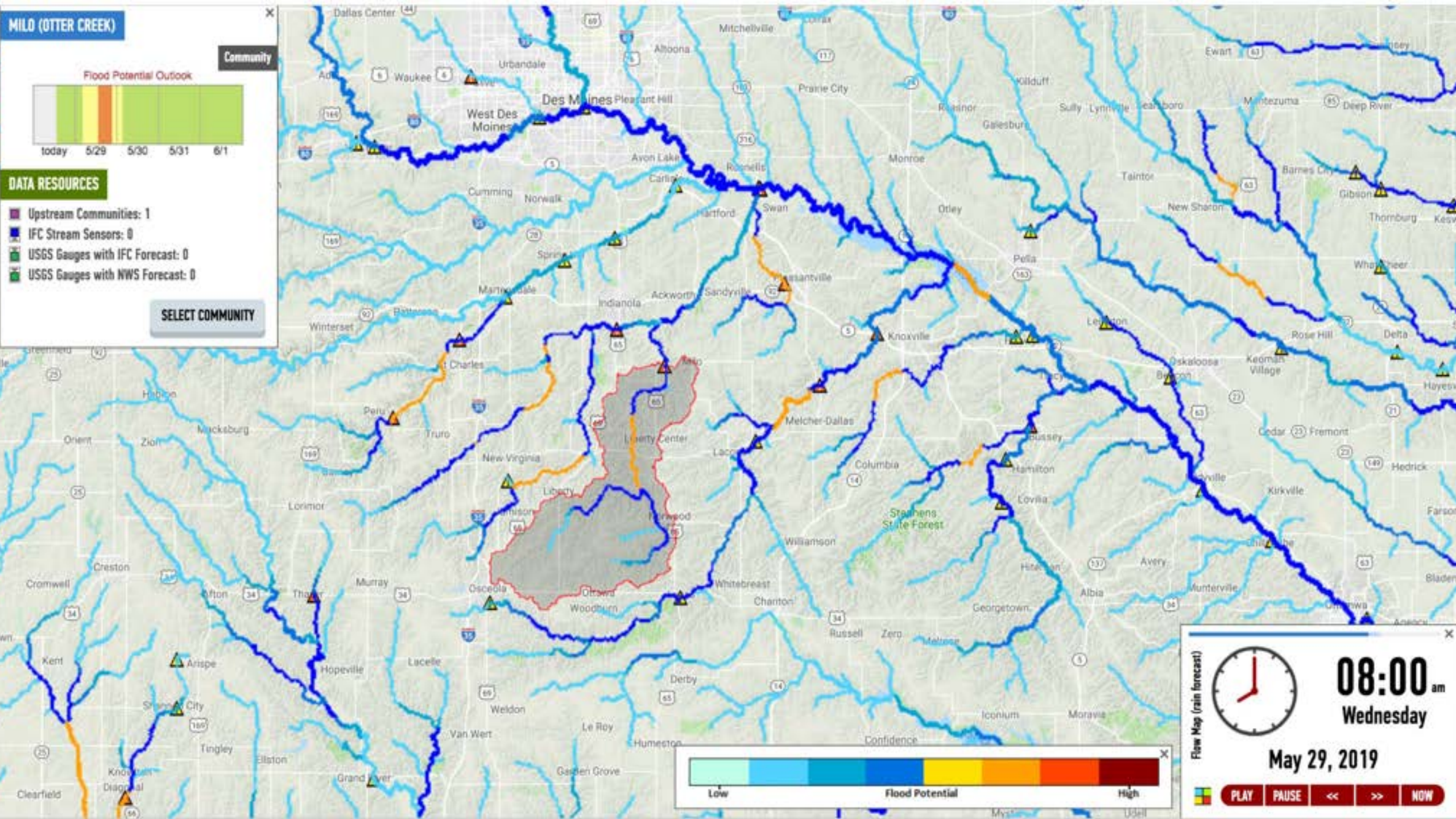
11:05 am
Wednesday
September 8, 2021

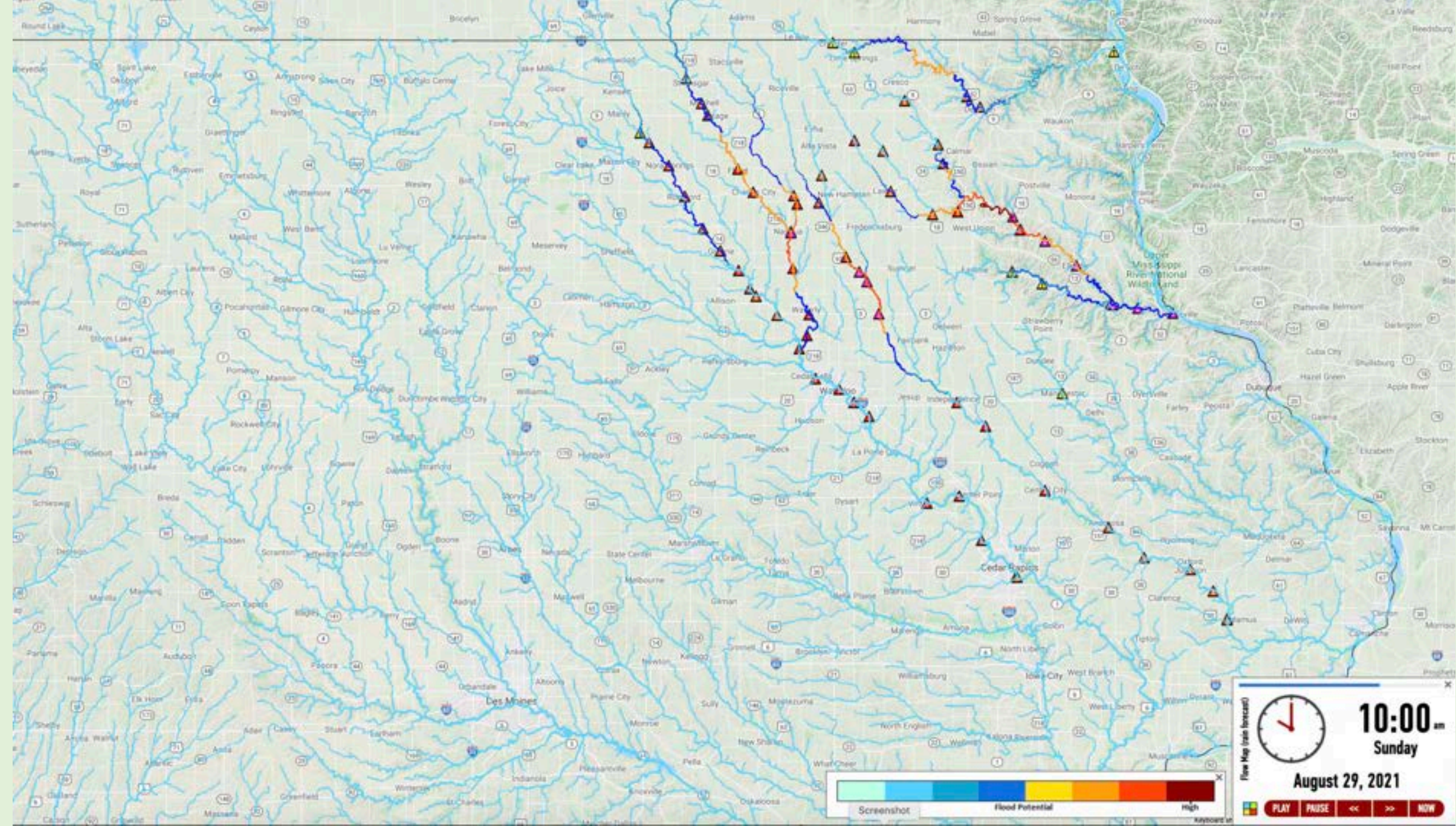
PLAY PAUSE << >> NOW

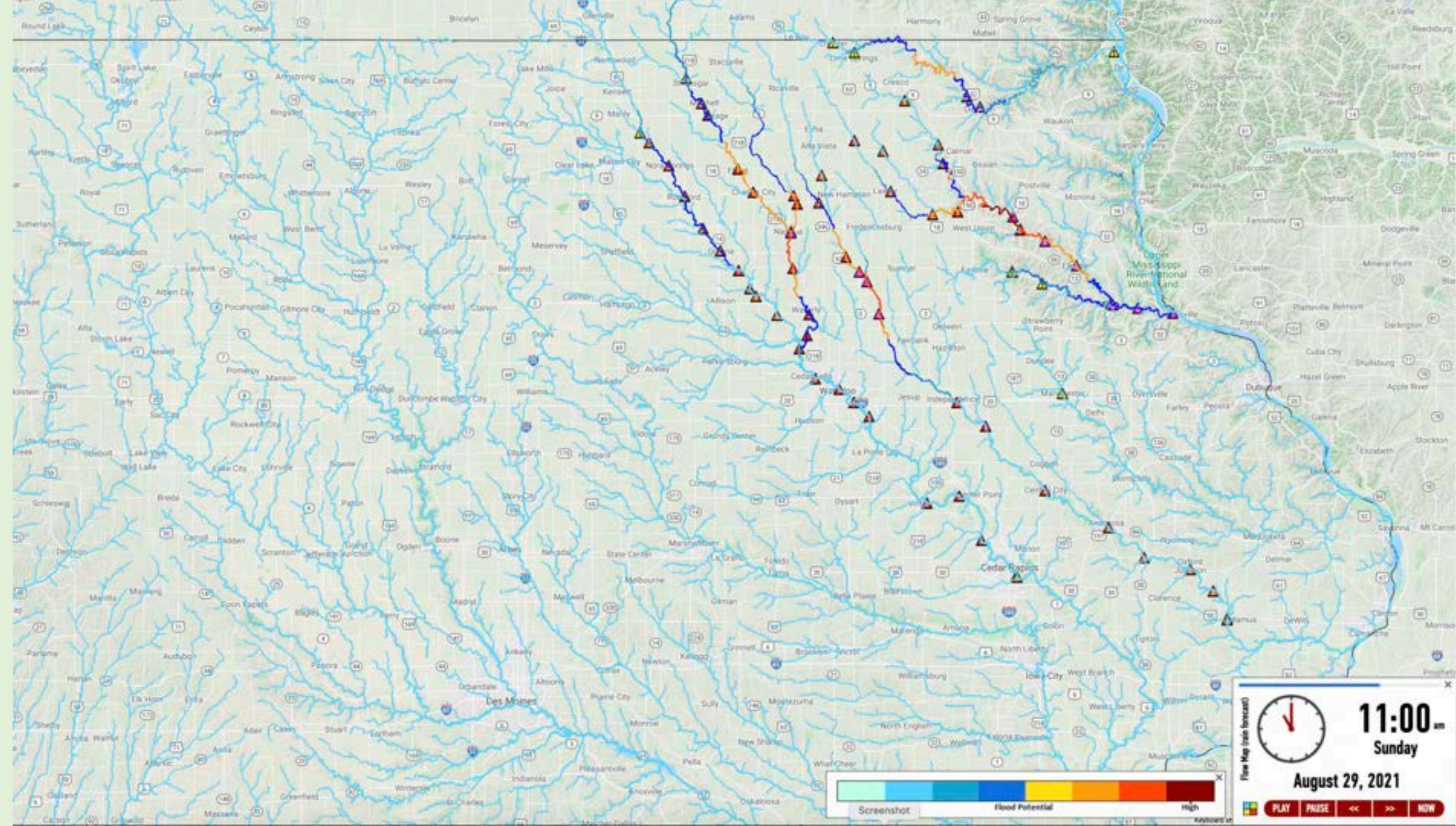


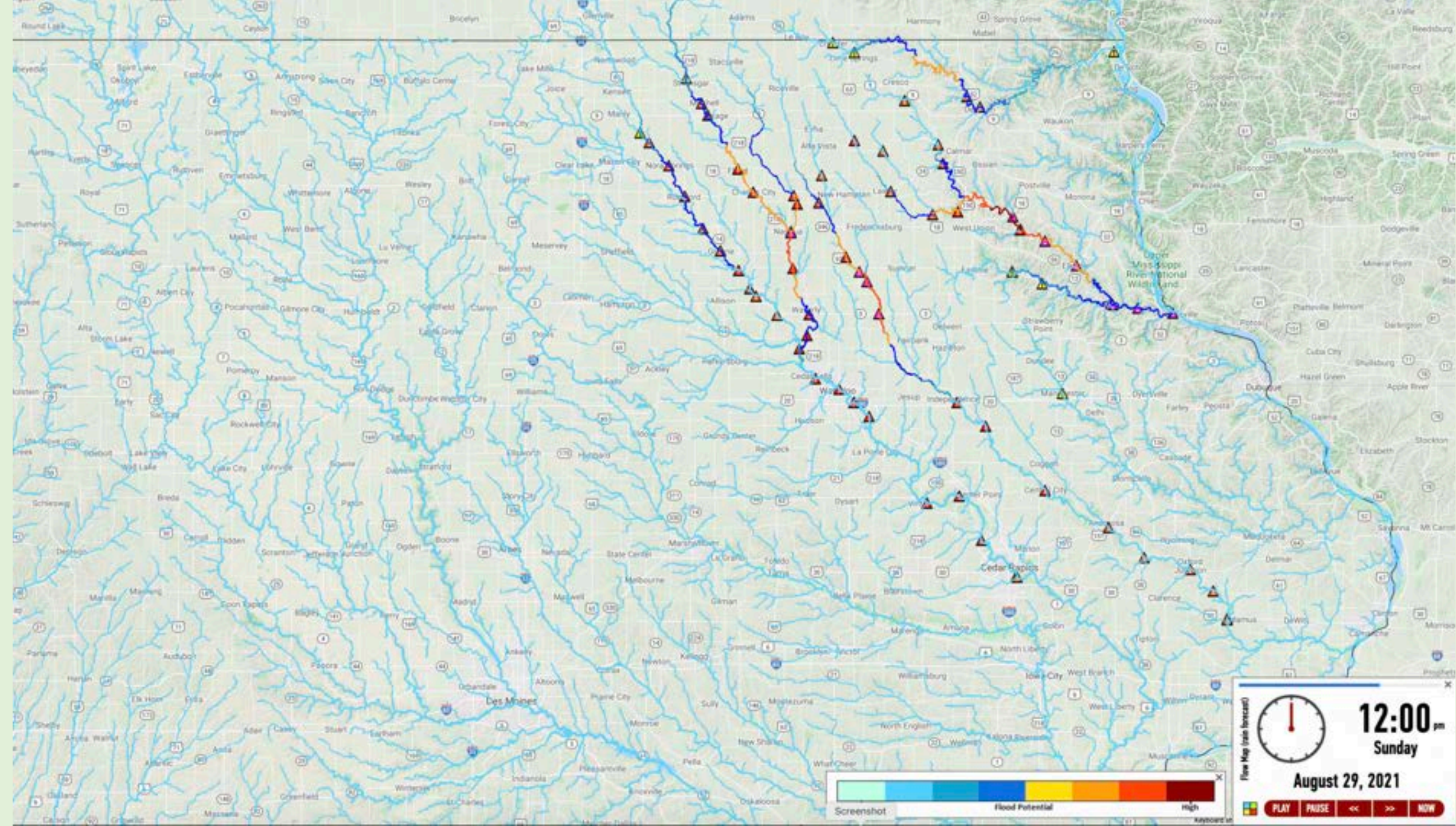
FLOOD FORECASTING

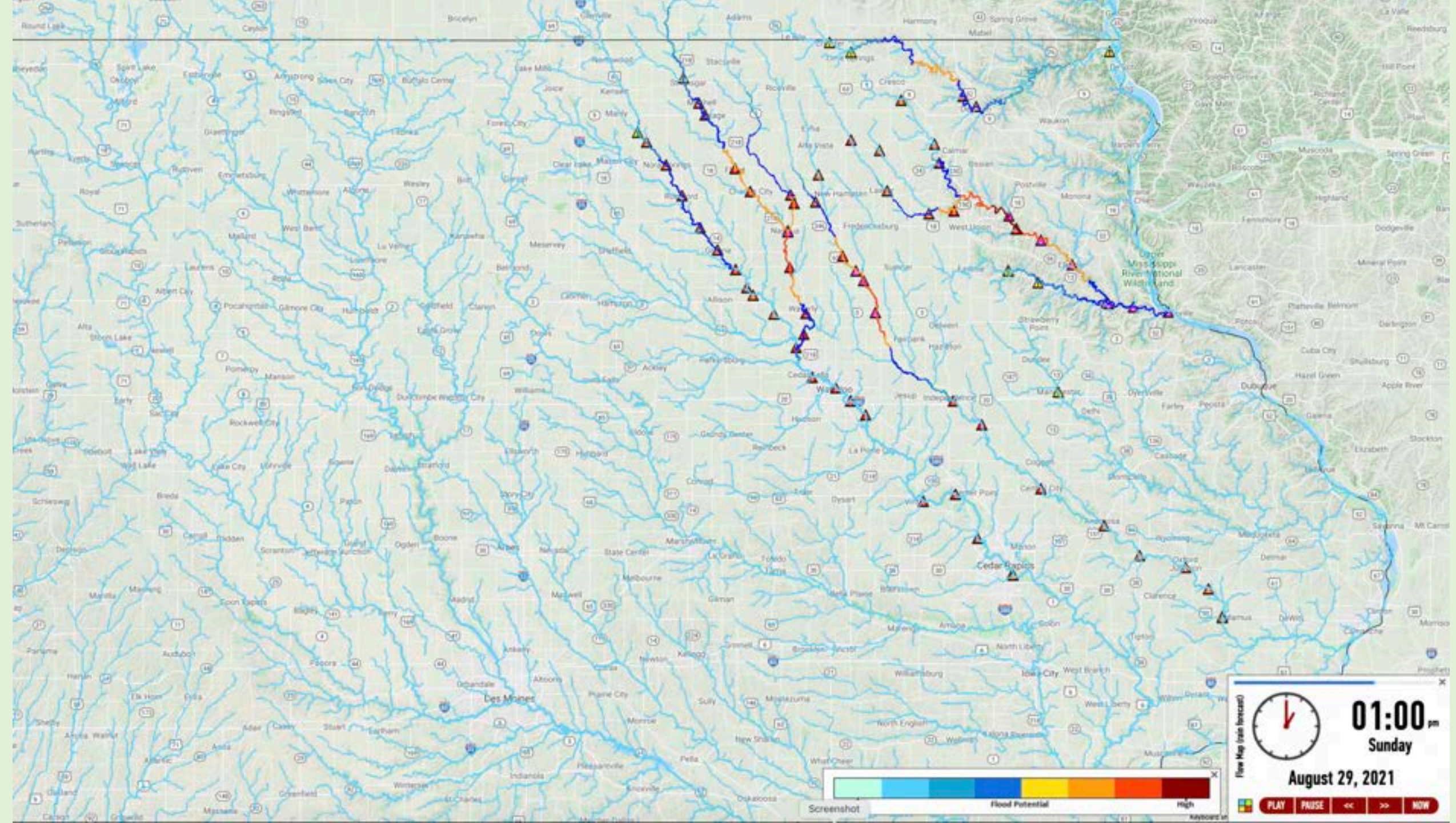


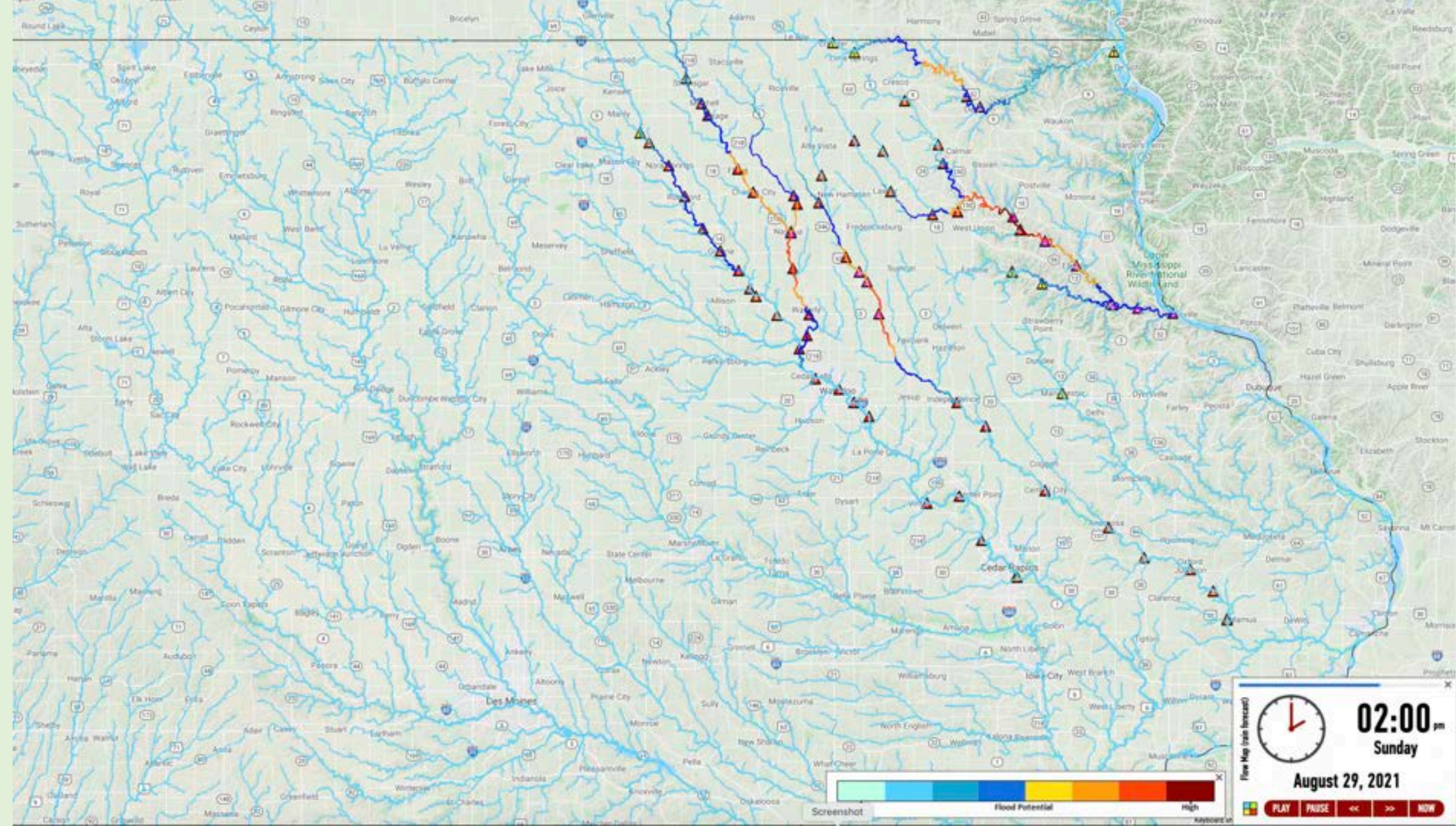


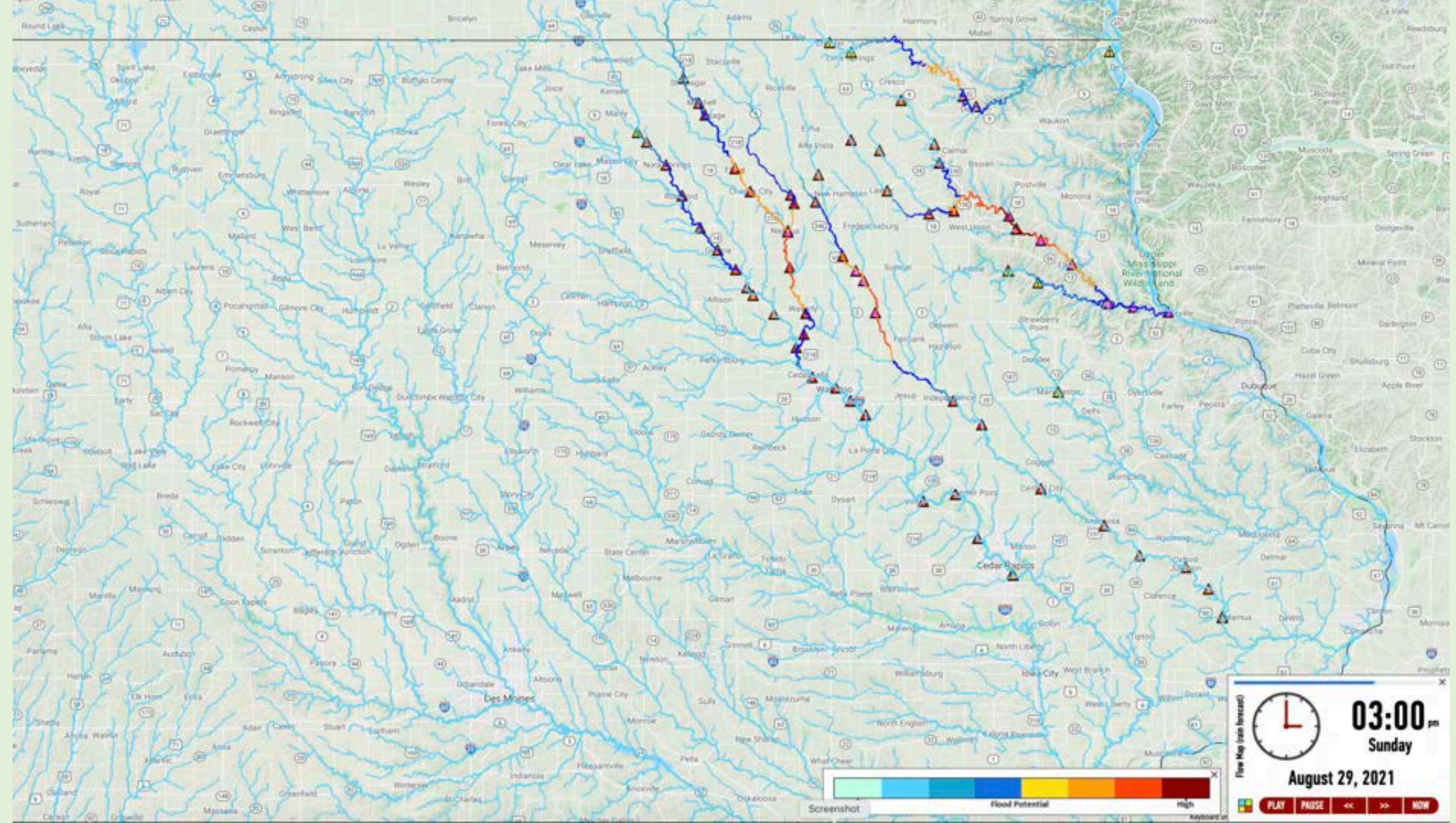


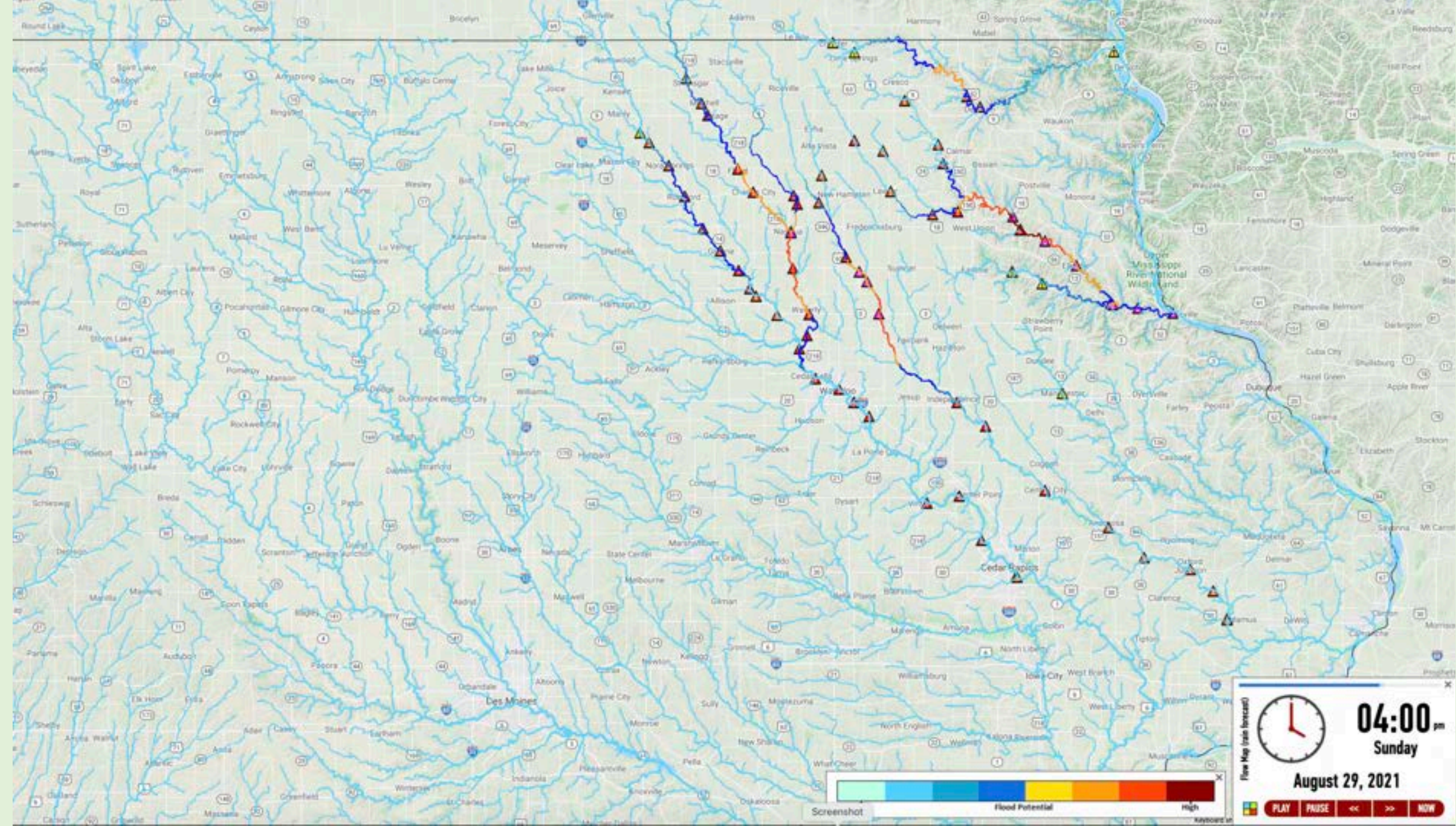


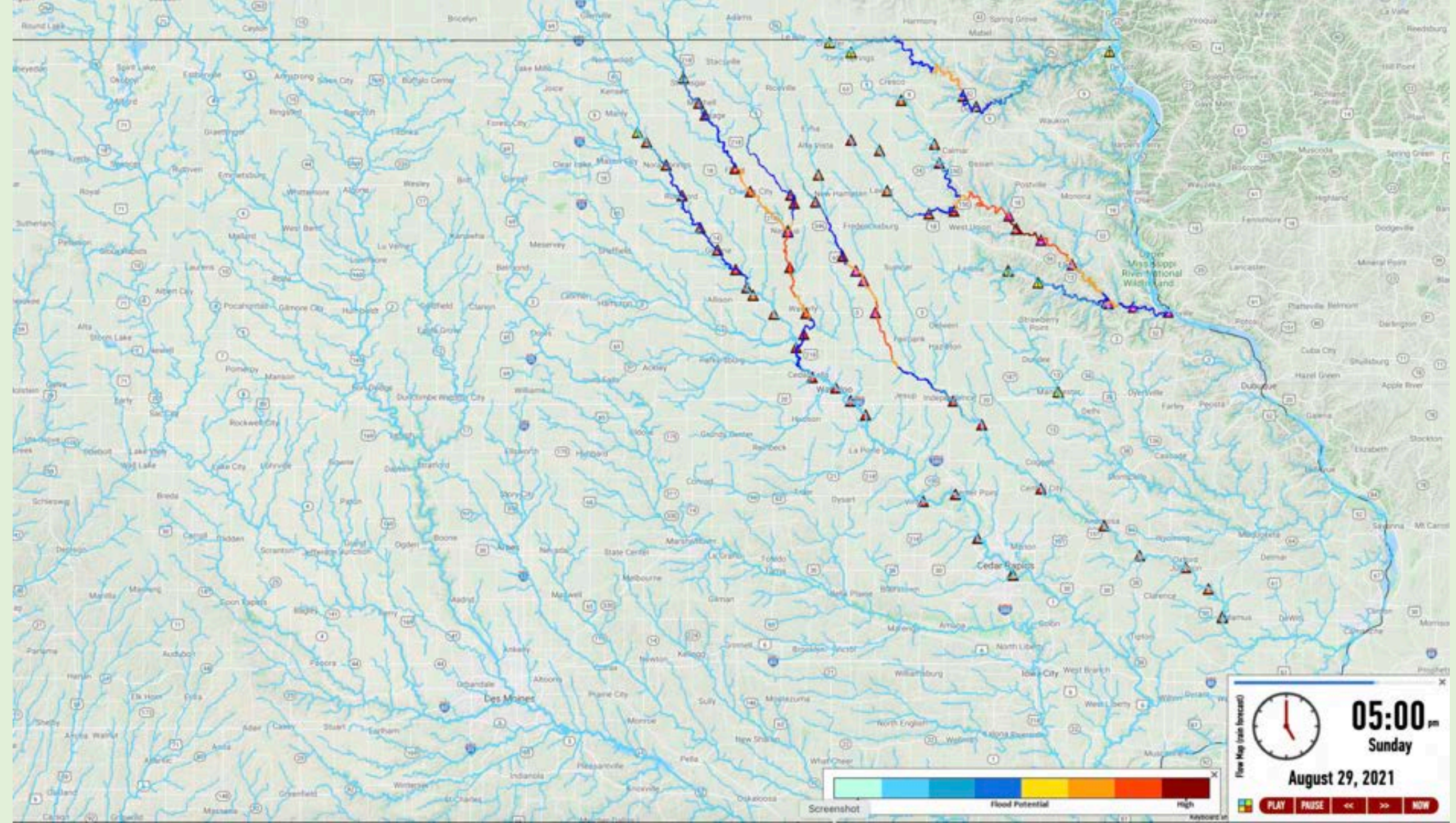


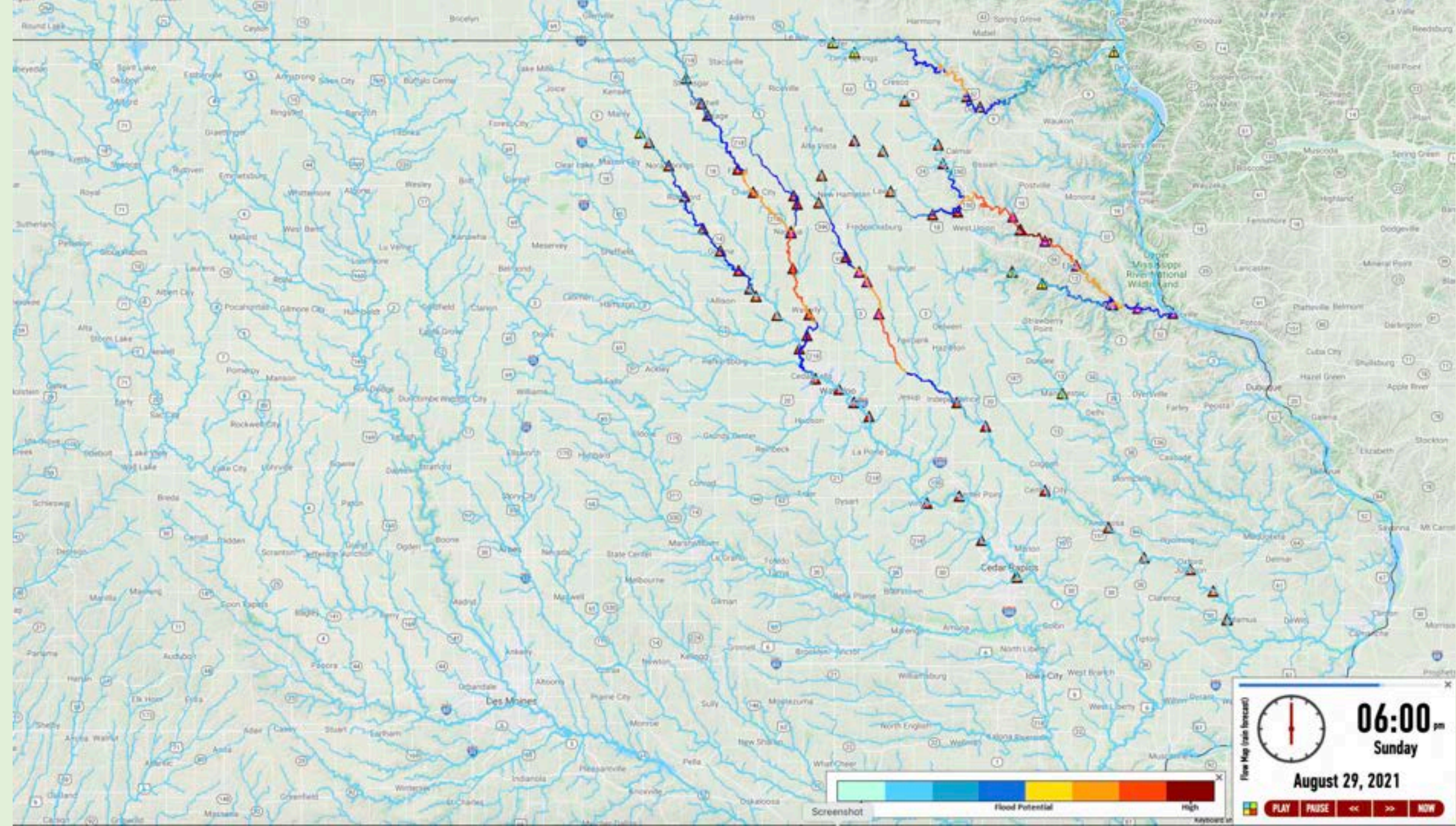


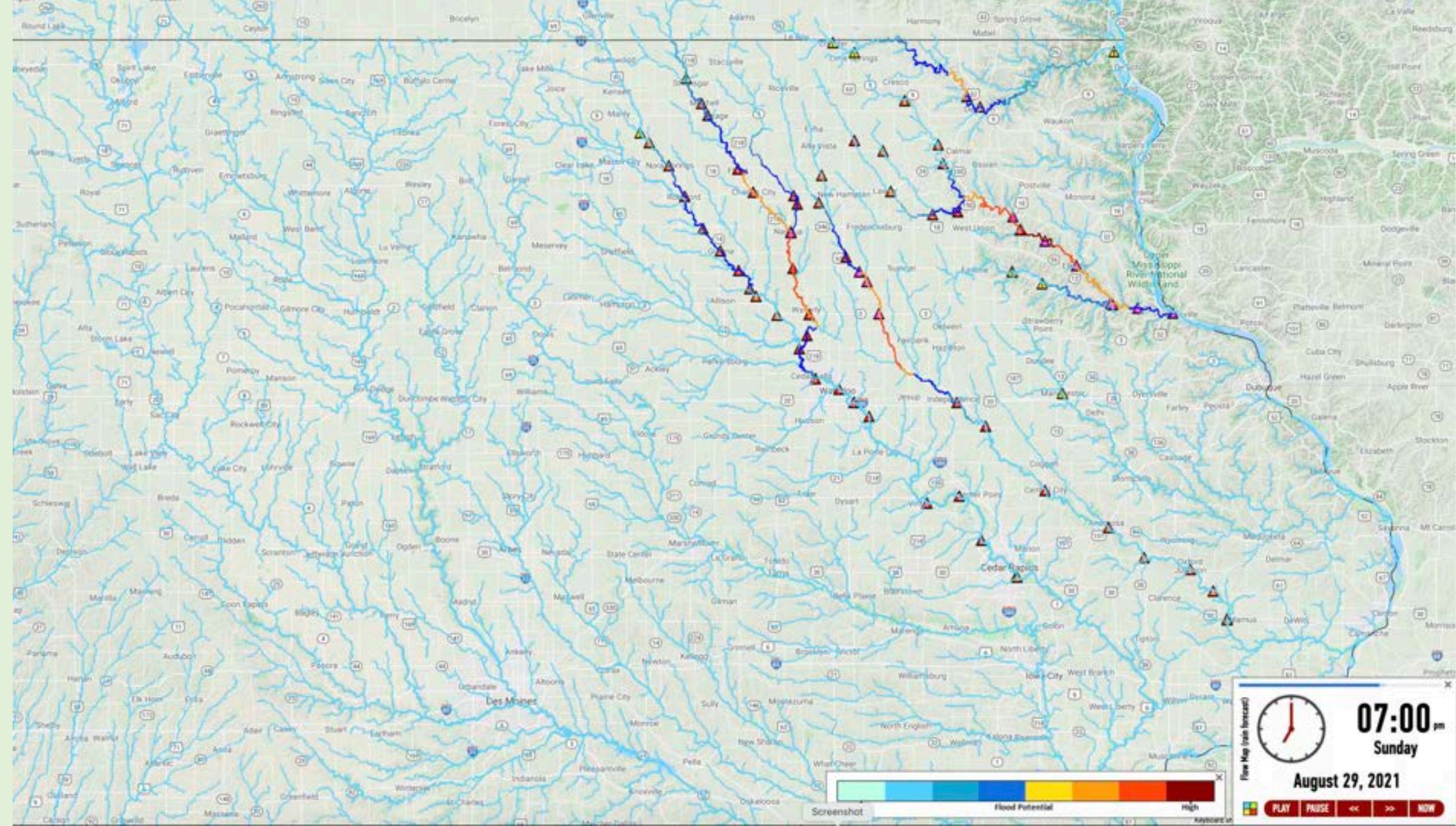


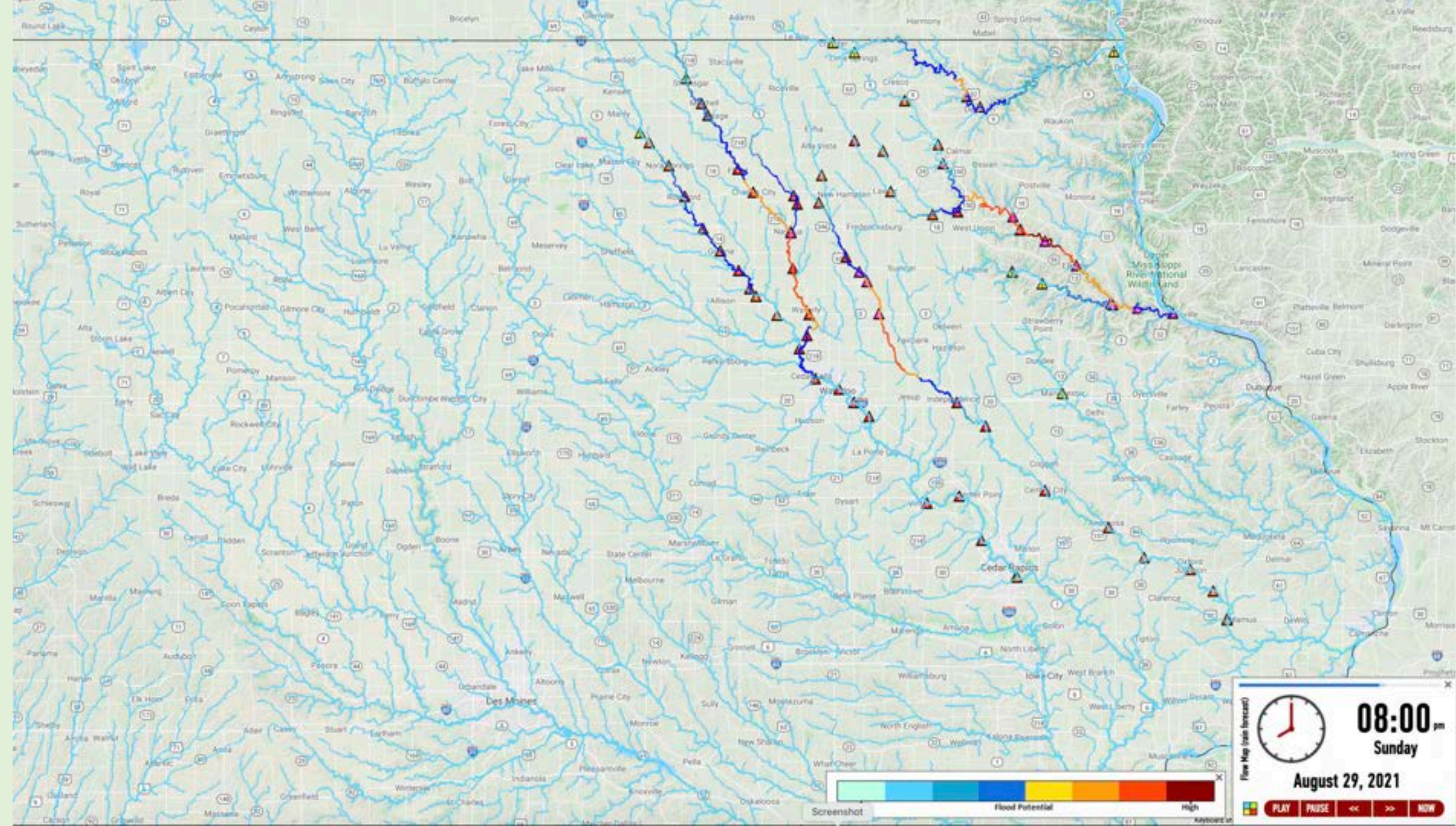


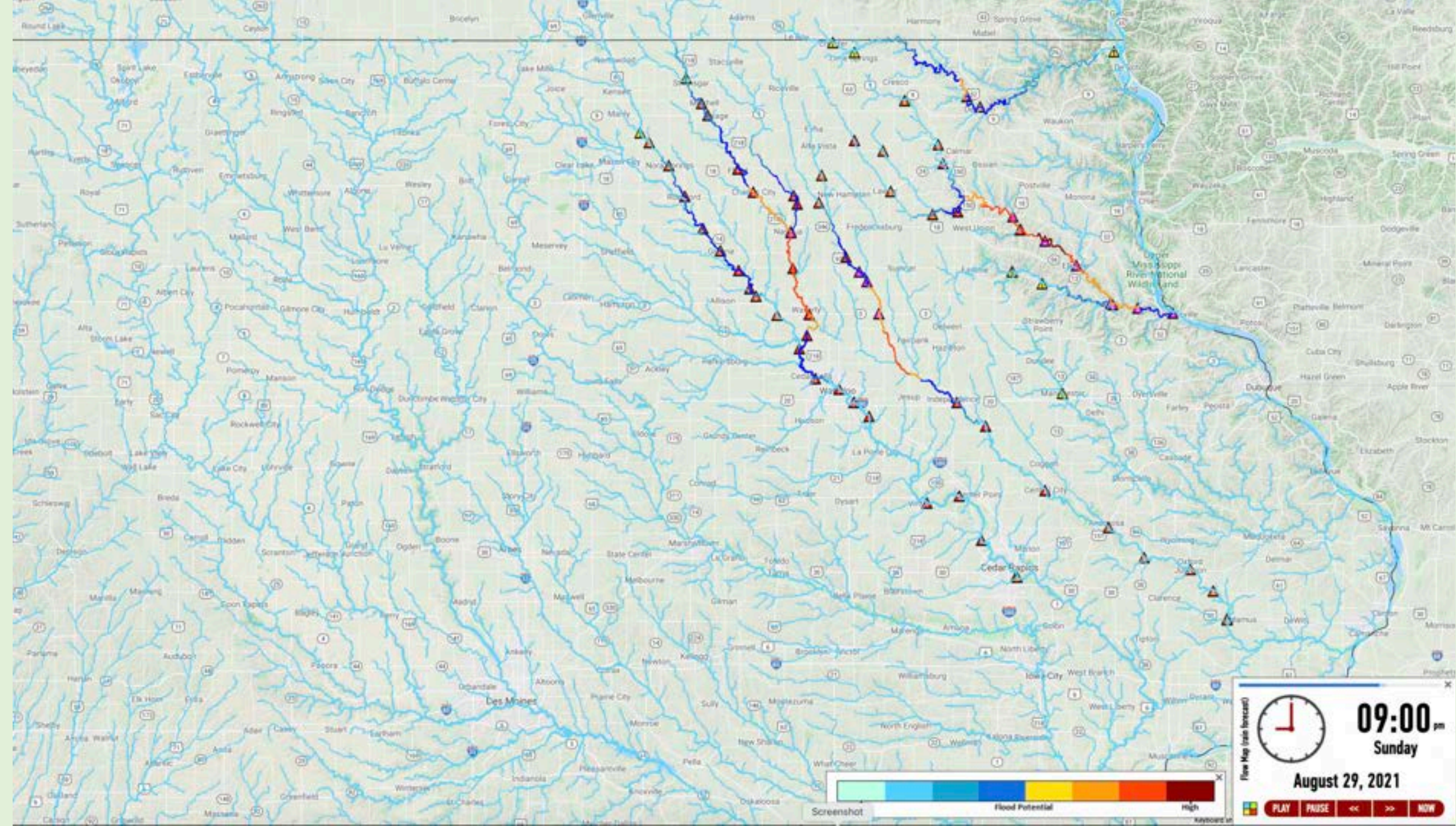












Flow Map (rain forecast)



09:00 pm
Sunday

August 29, 2021

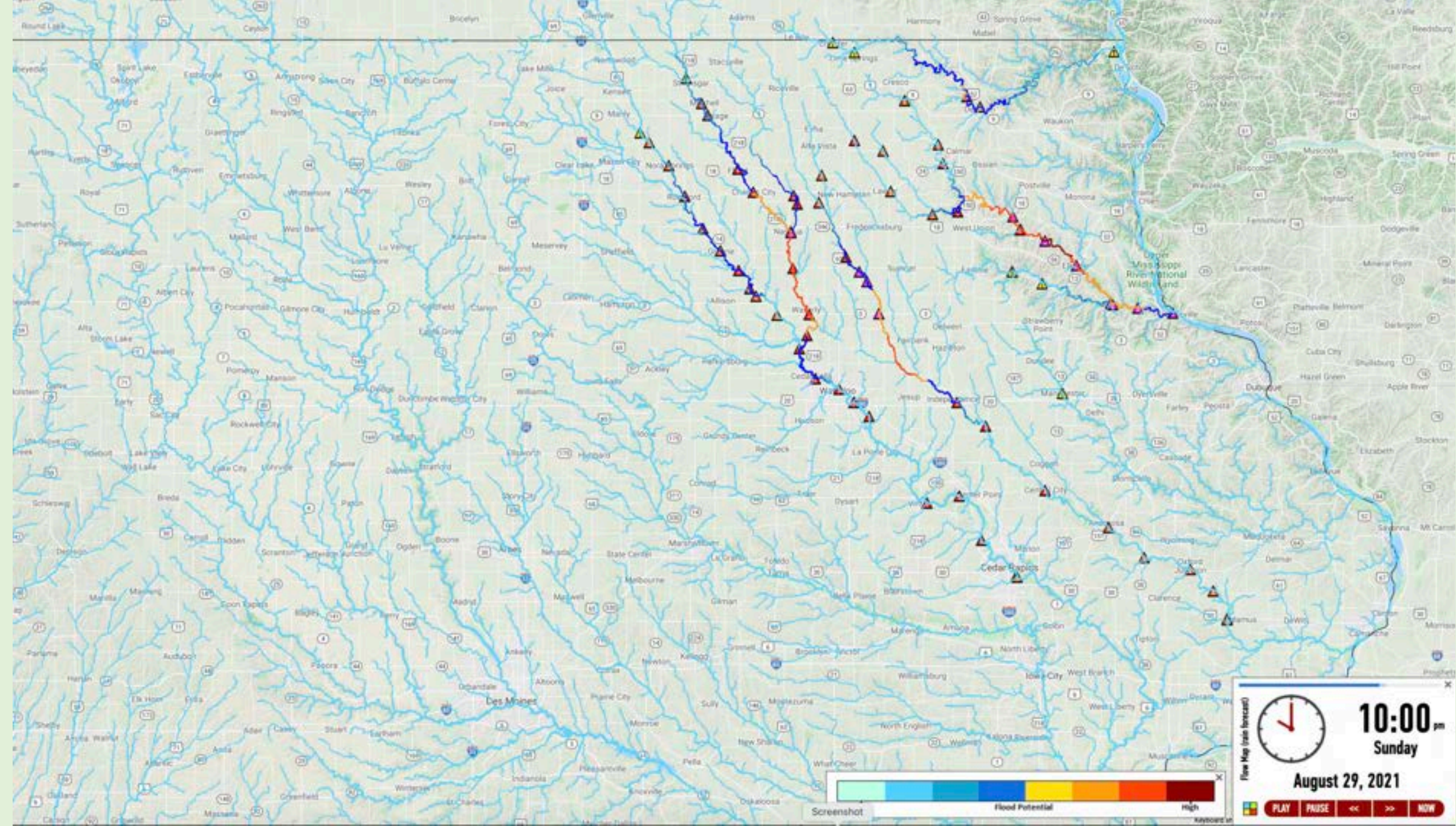
PLAY PAUSE << >> NOW

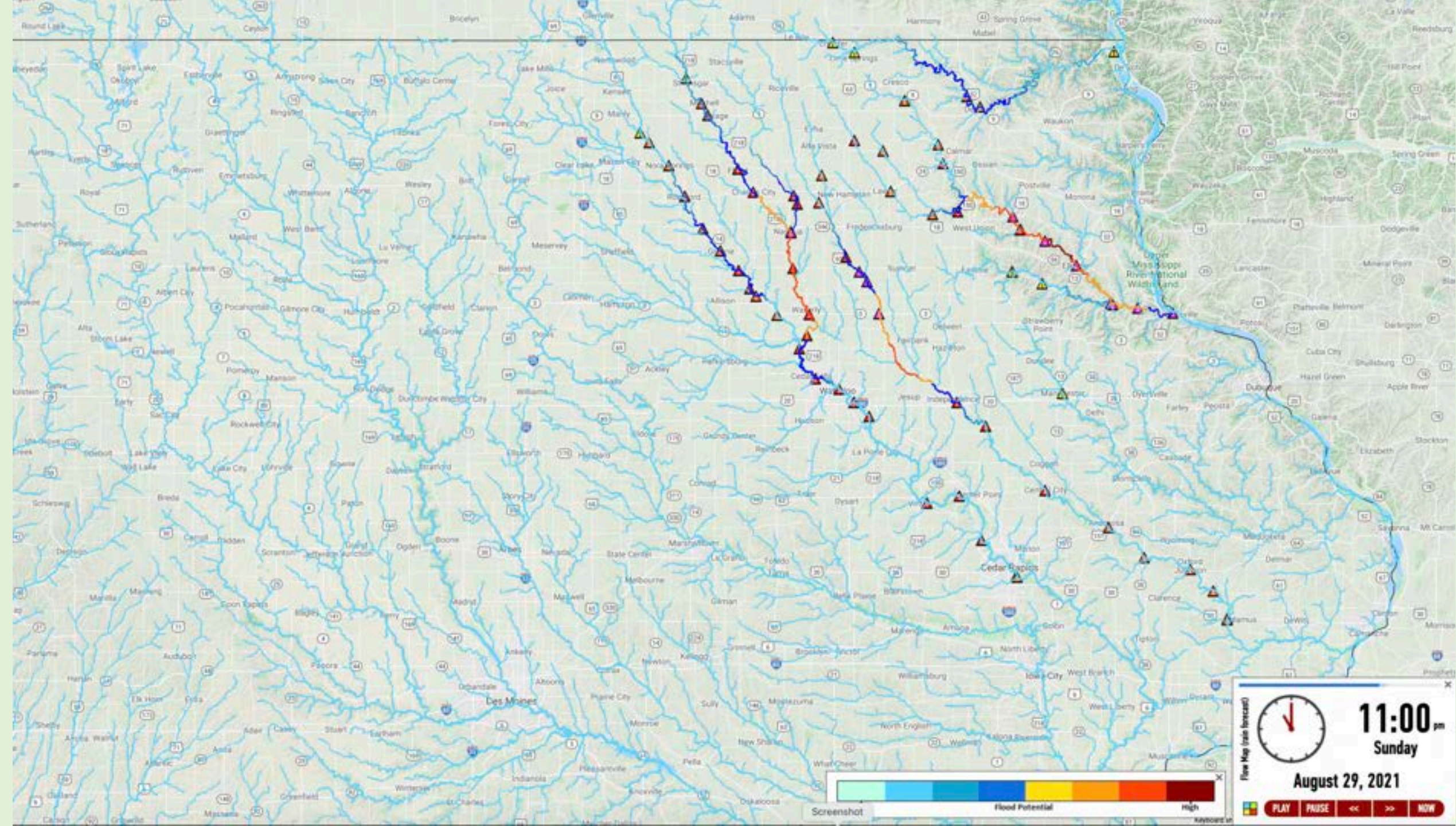


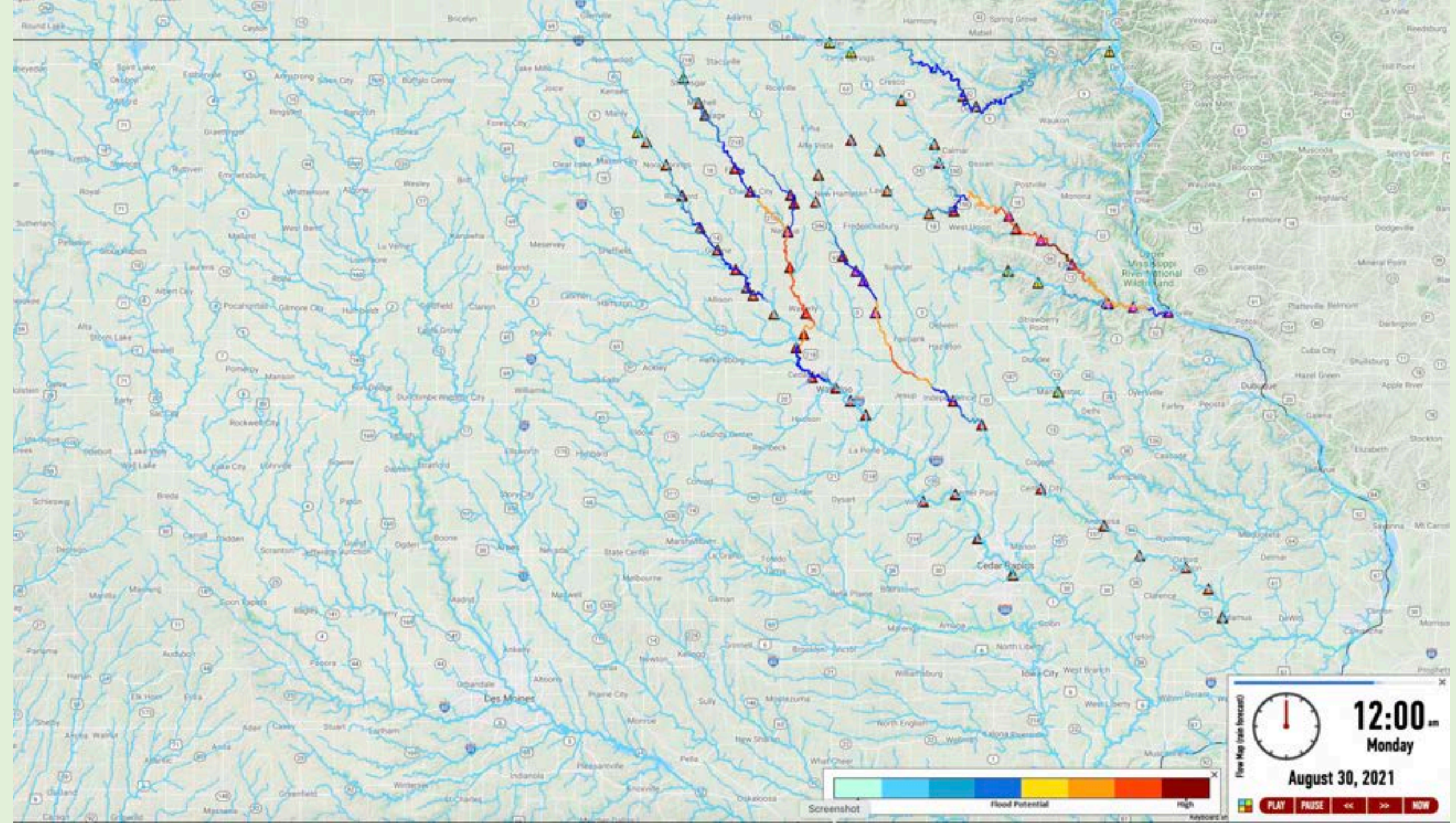
Screenshot

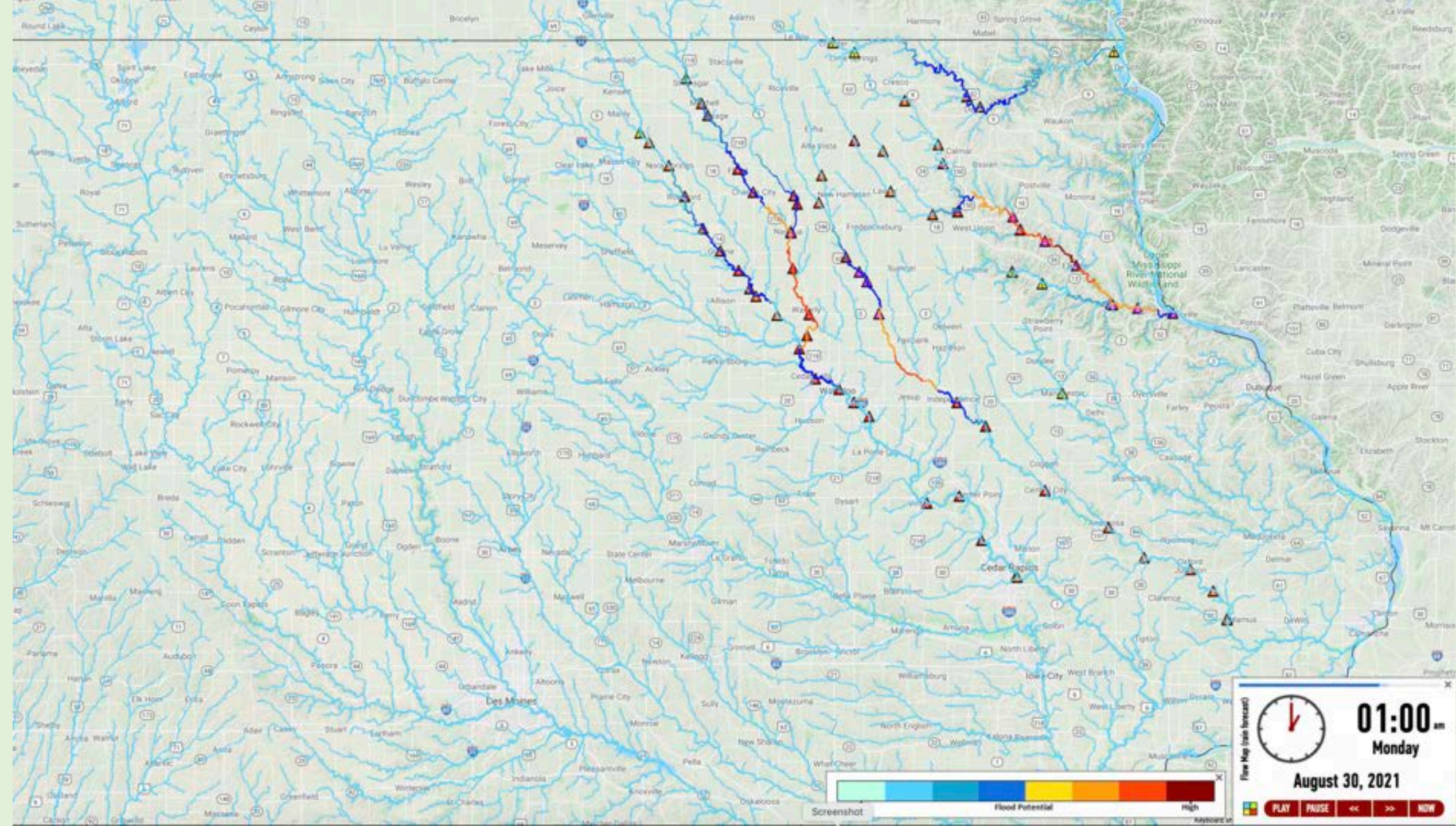
Flood Potential

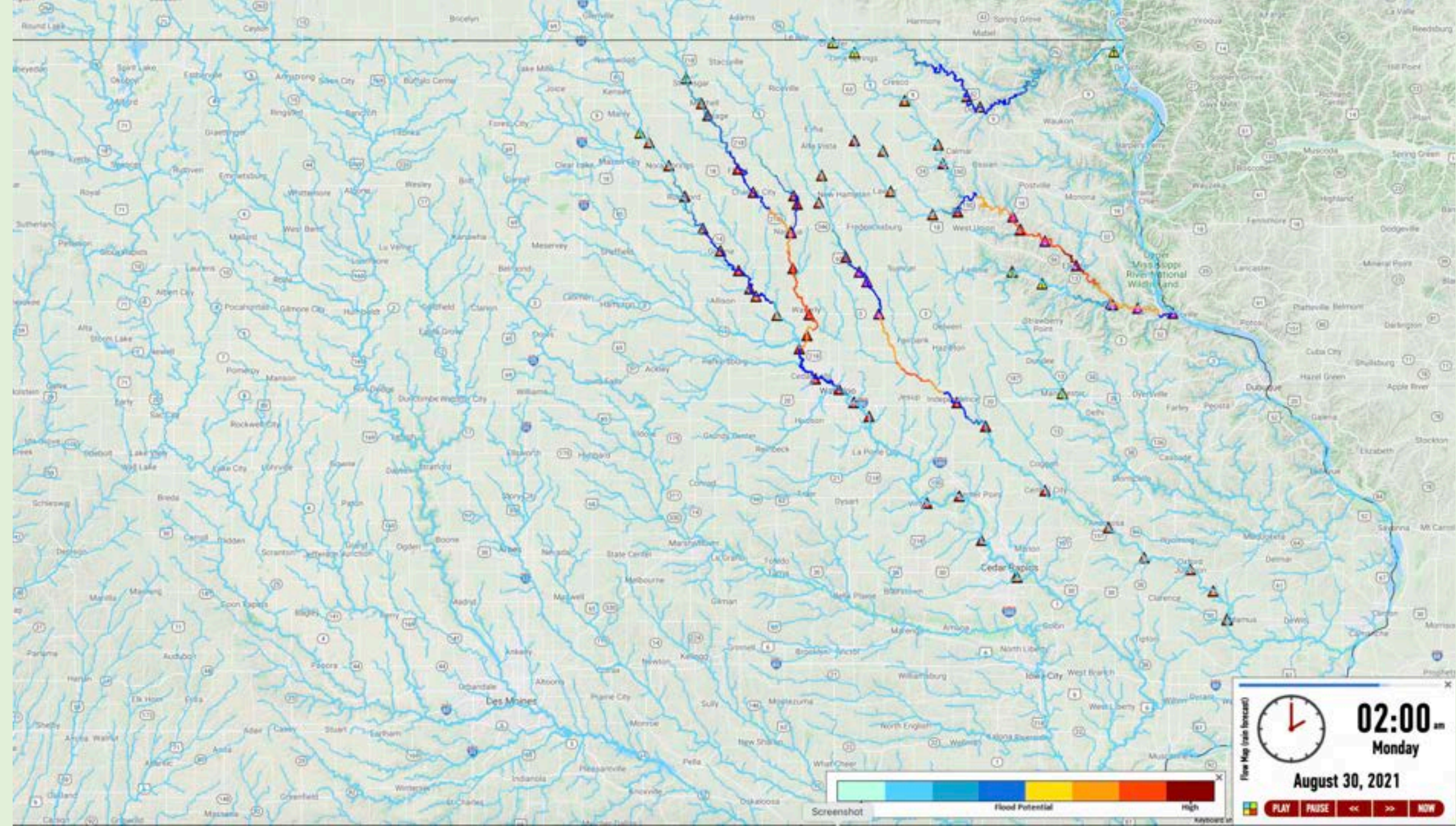
High

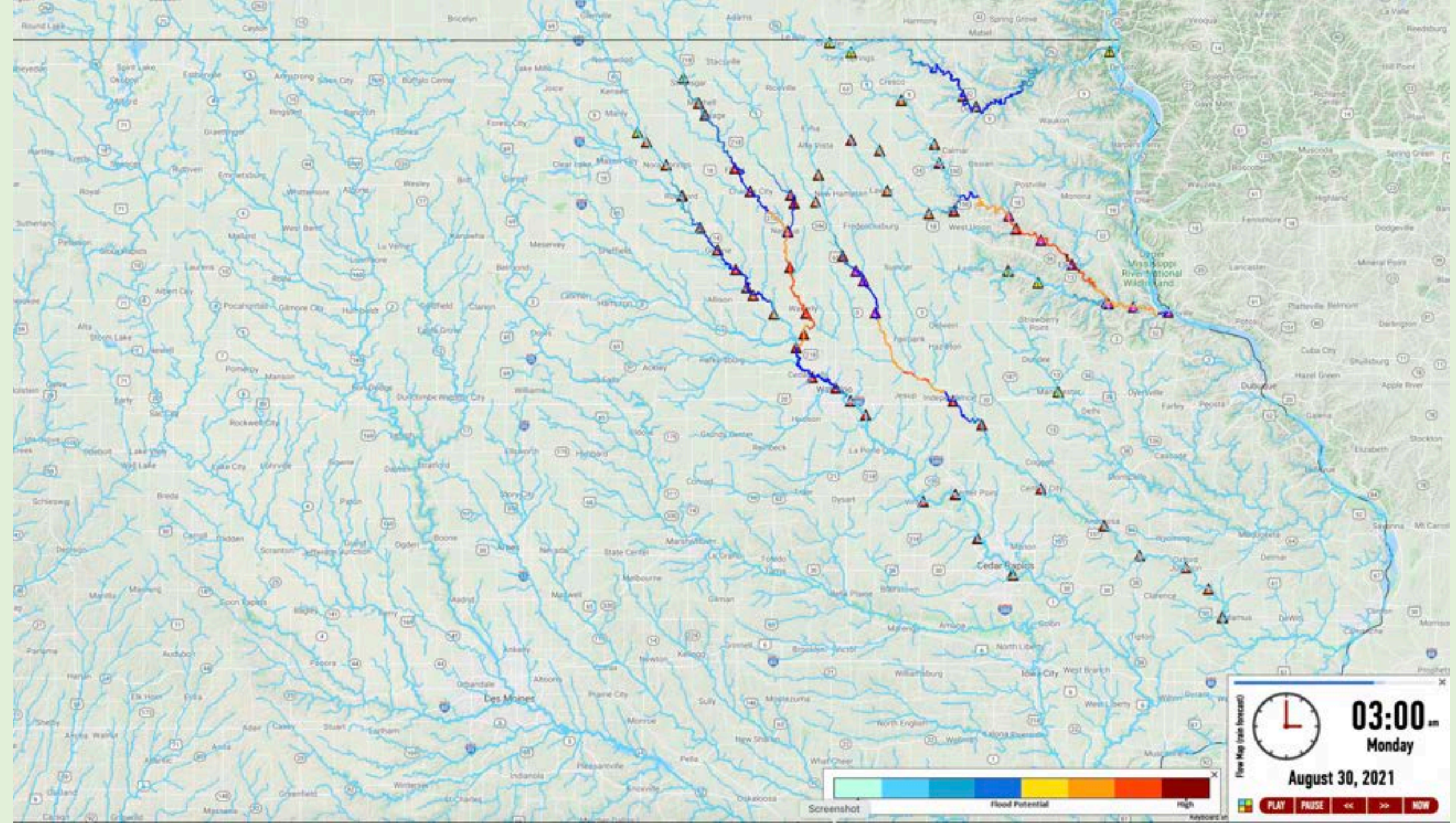


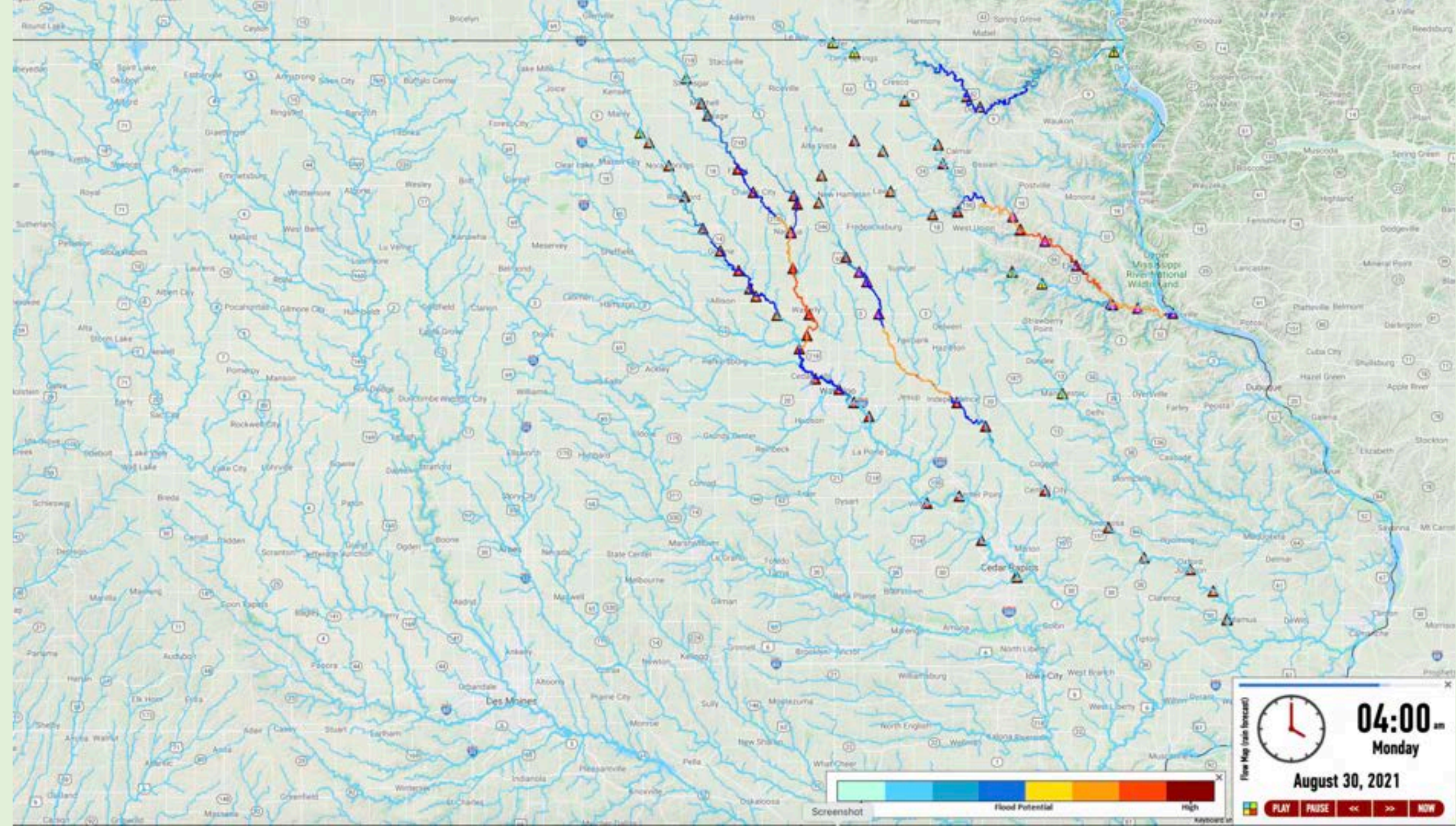


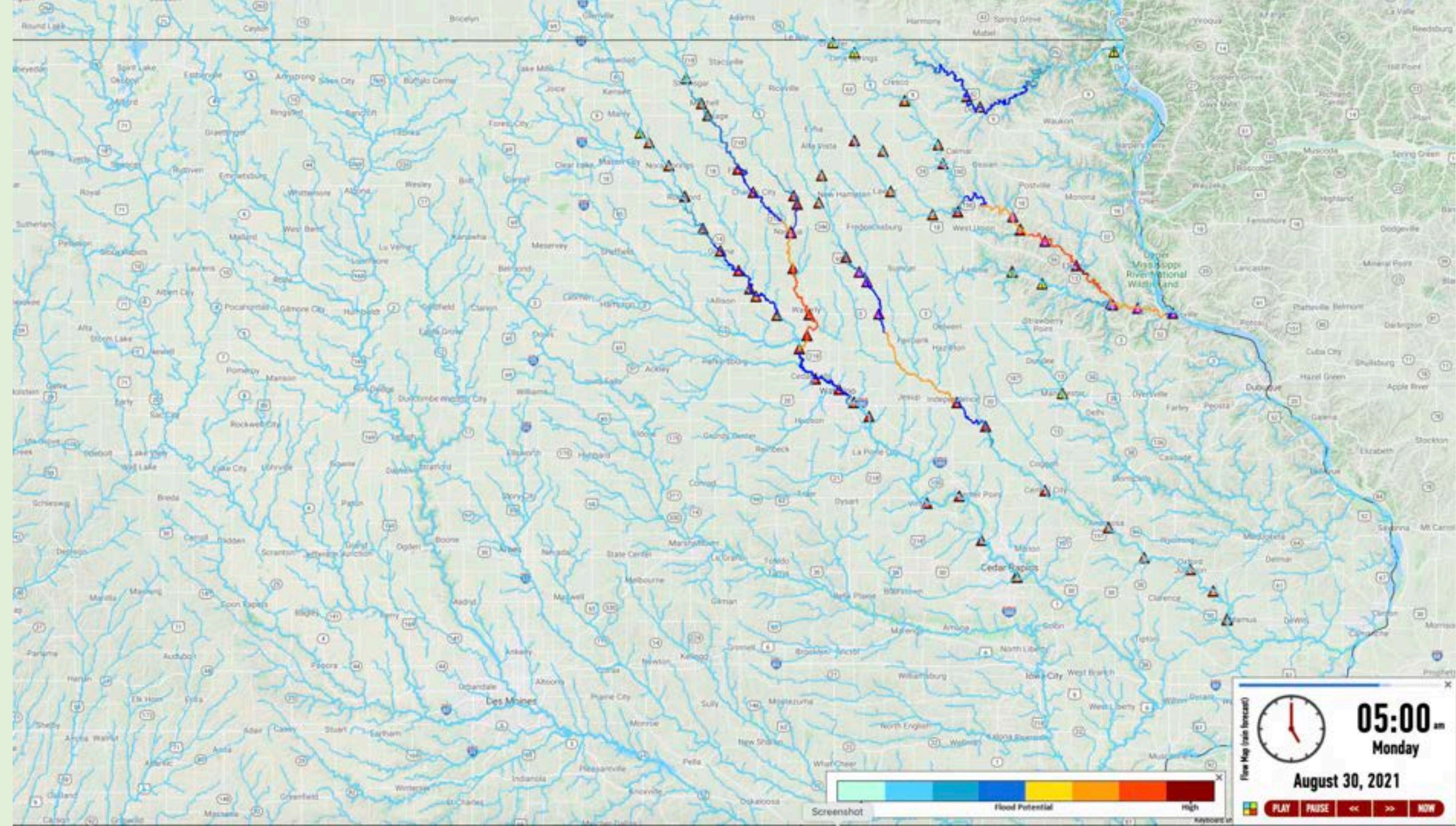


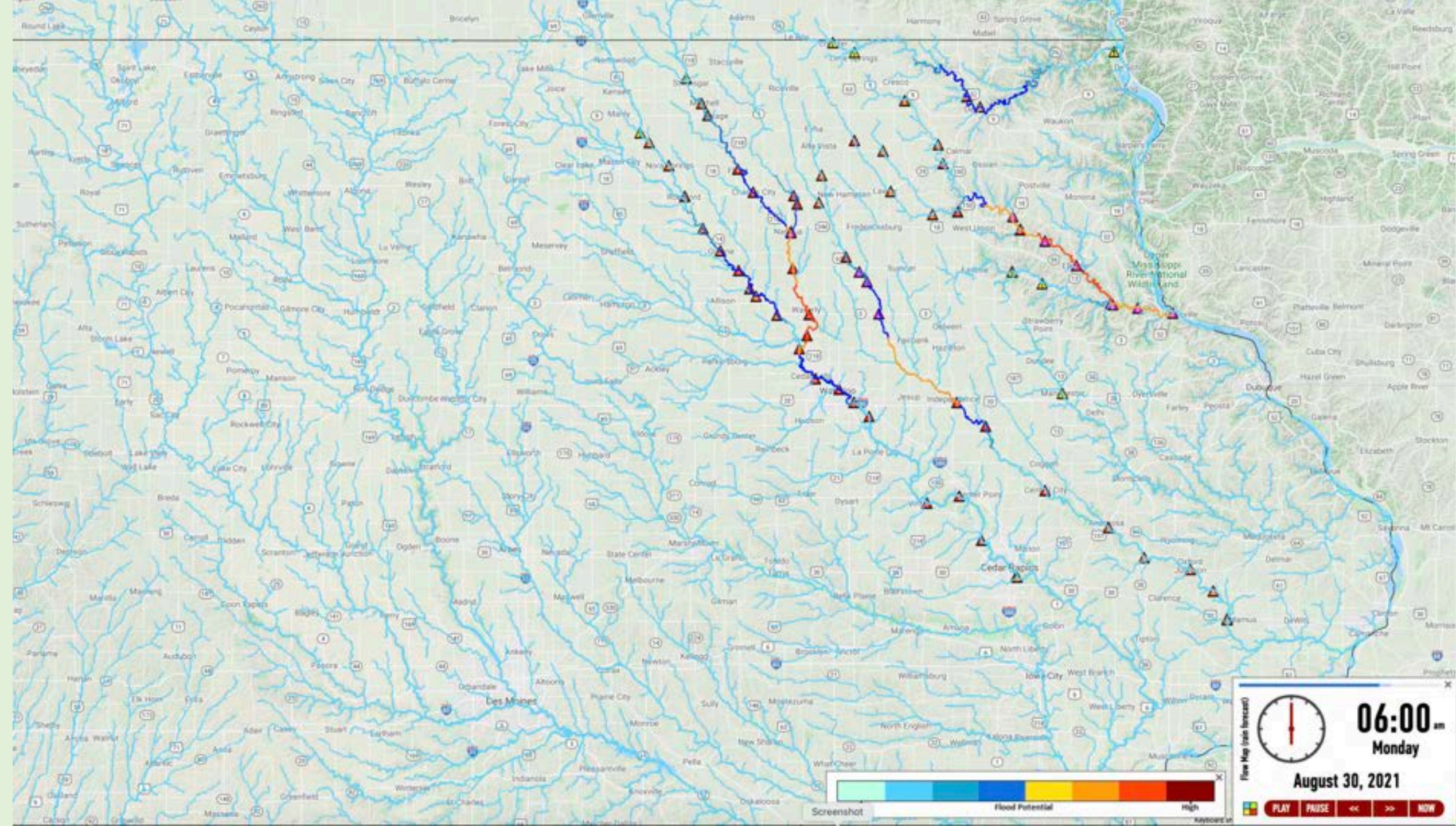








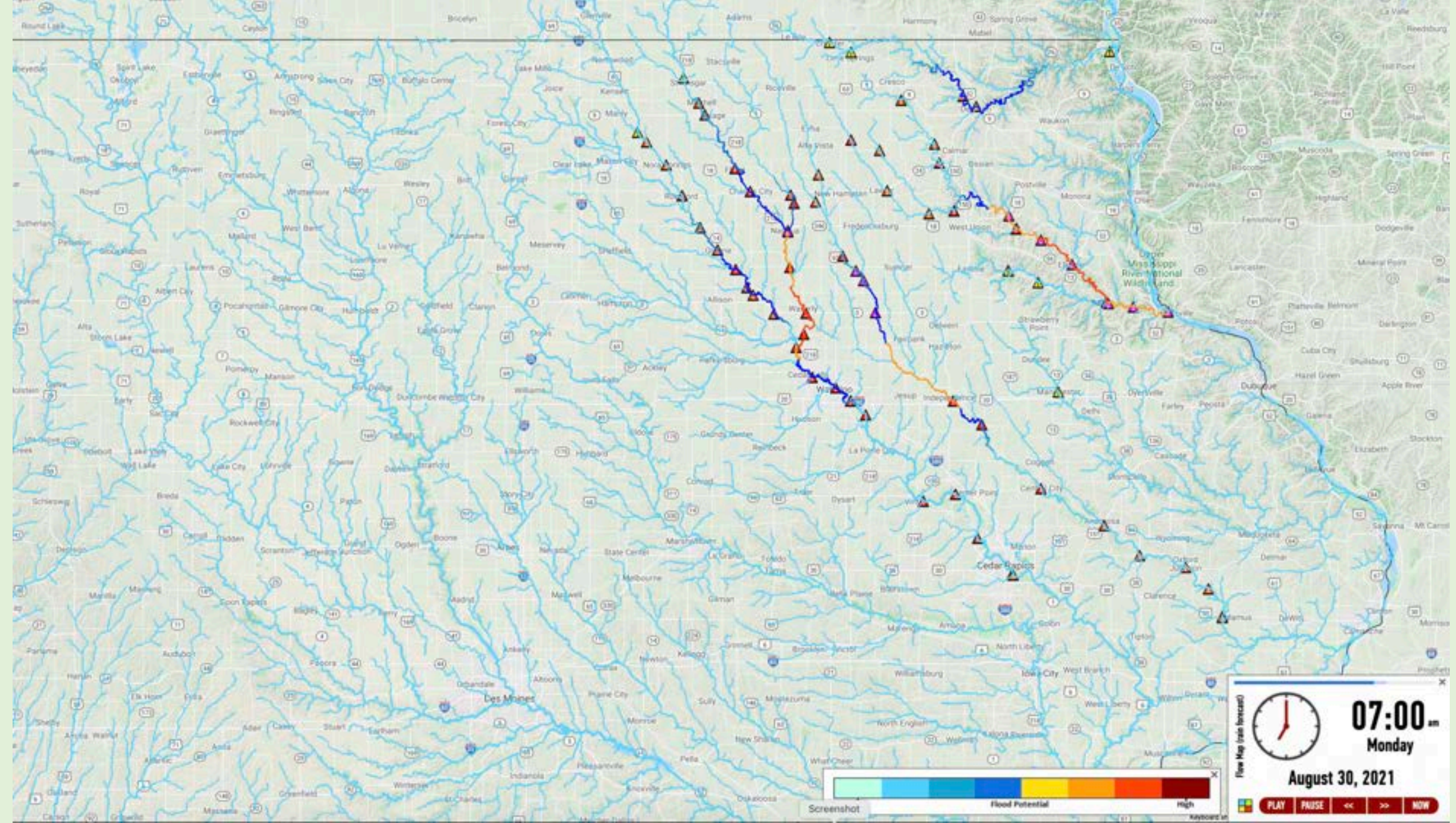


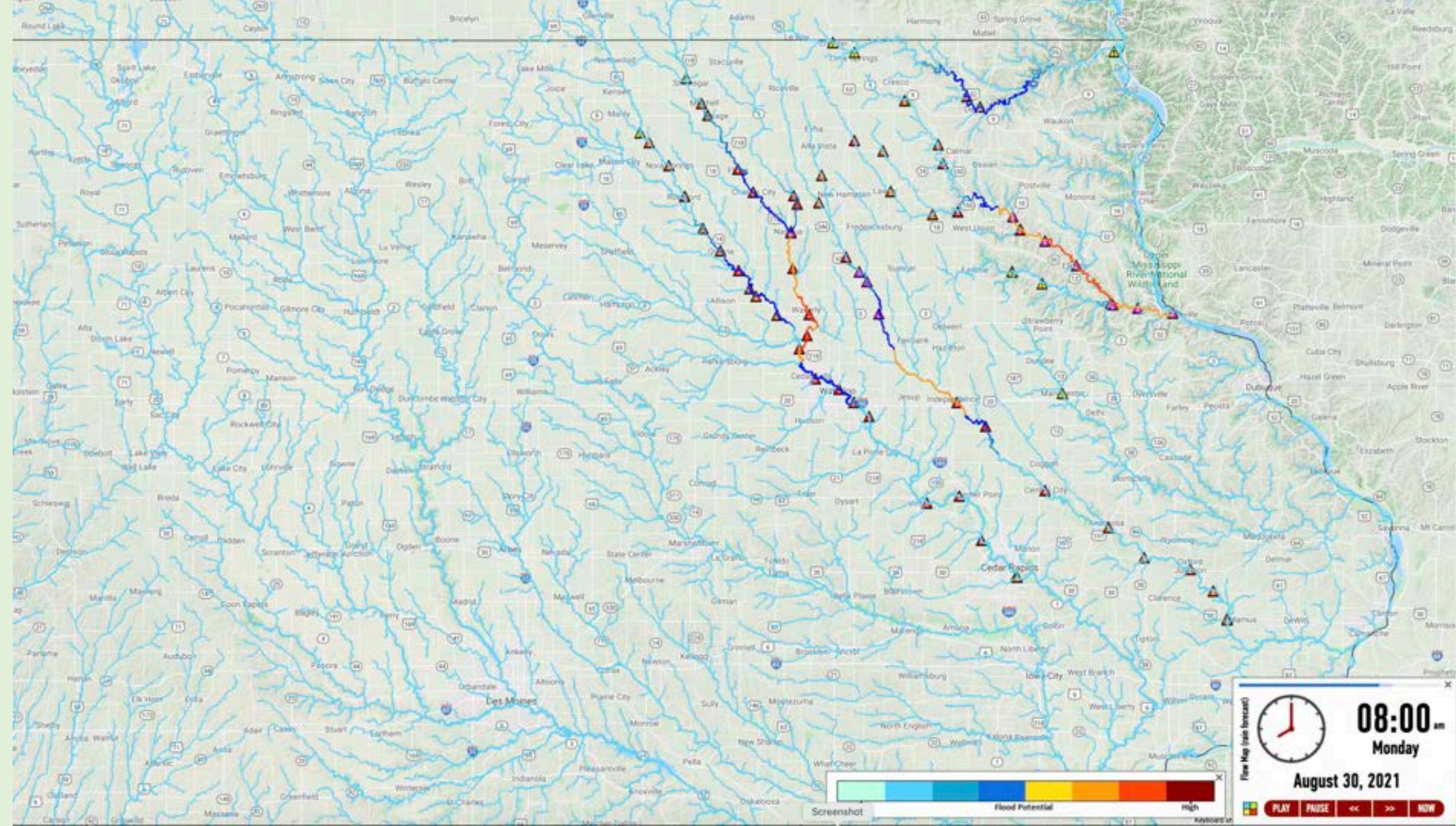


Flow Map (rain forecast)


06:00 am
Monday
August 30, 2021





PLAY PAUSE << >> NOW

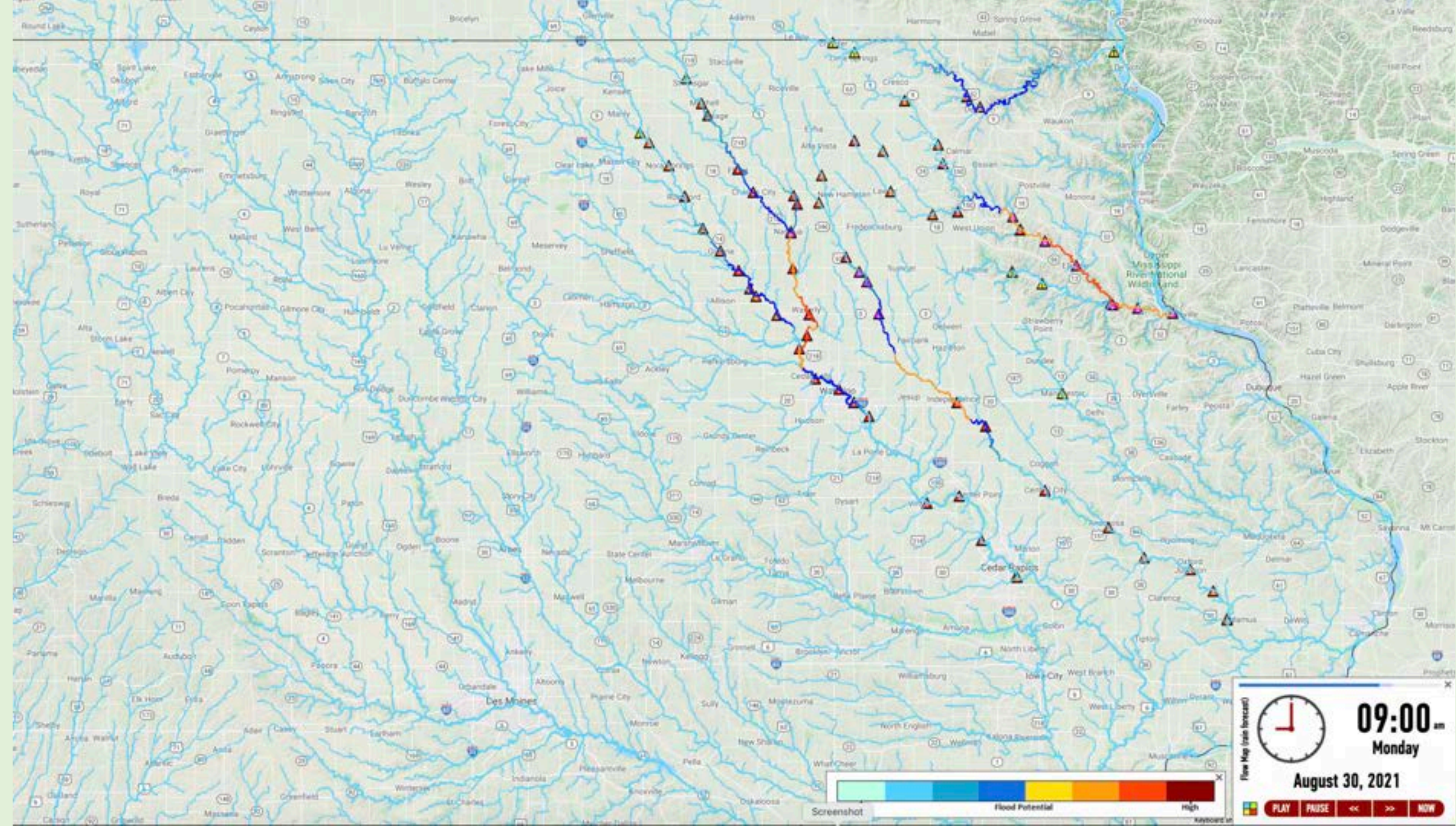


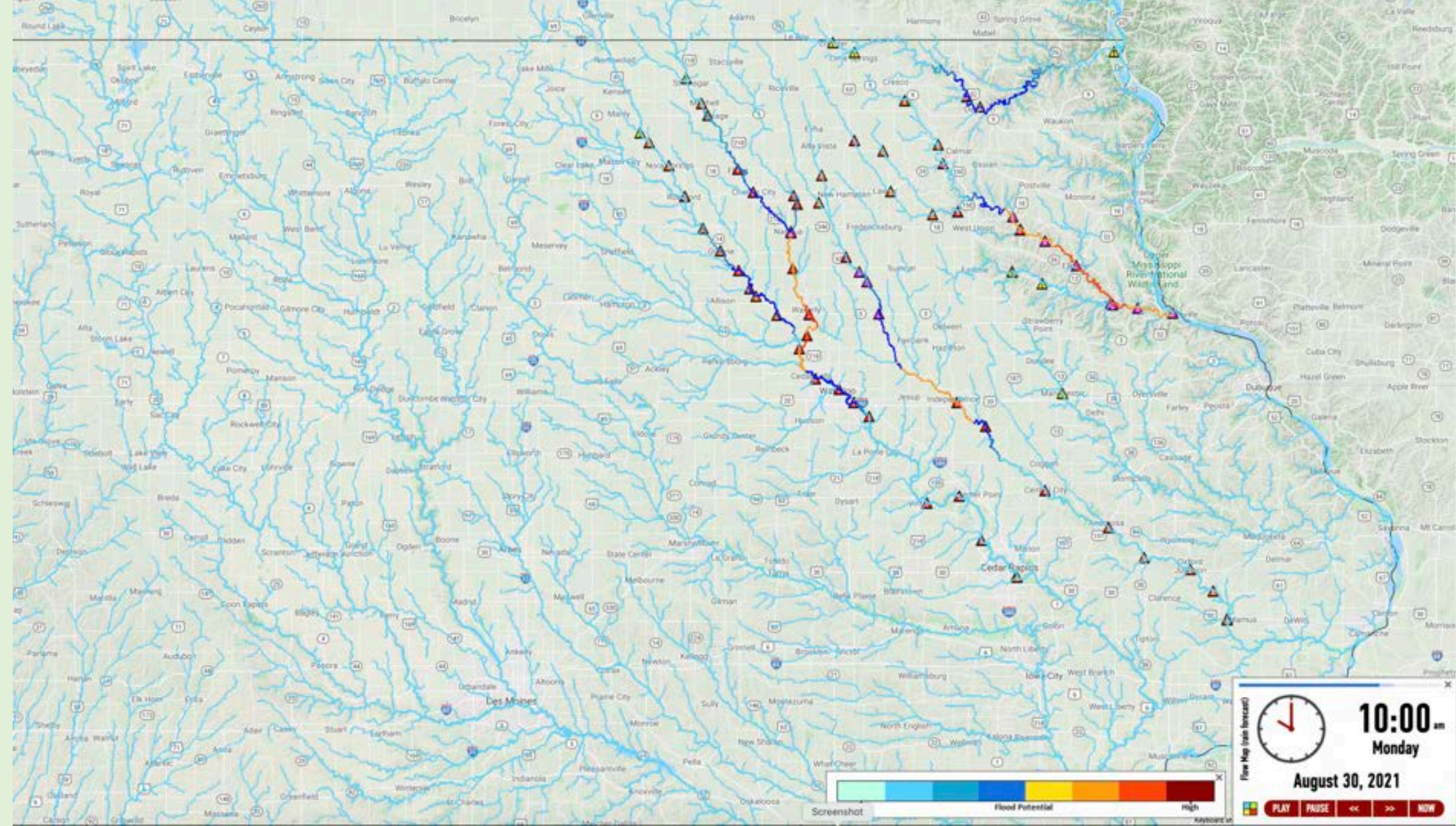


Flow Map (rain forecast)

 **08:00 am**
Monday
August 30, 2021

 **PLAY**  **PAUSE**  **<<**  **>>**  **NOW**







FLOOD MAPPING

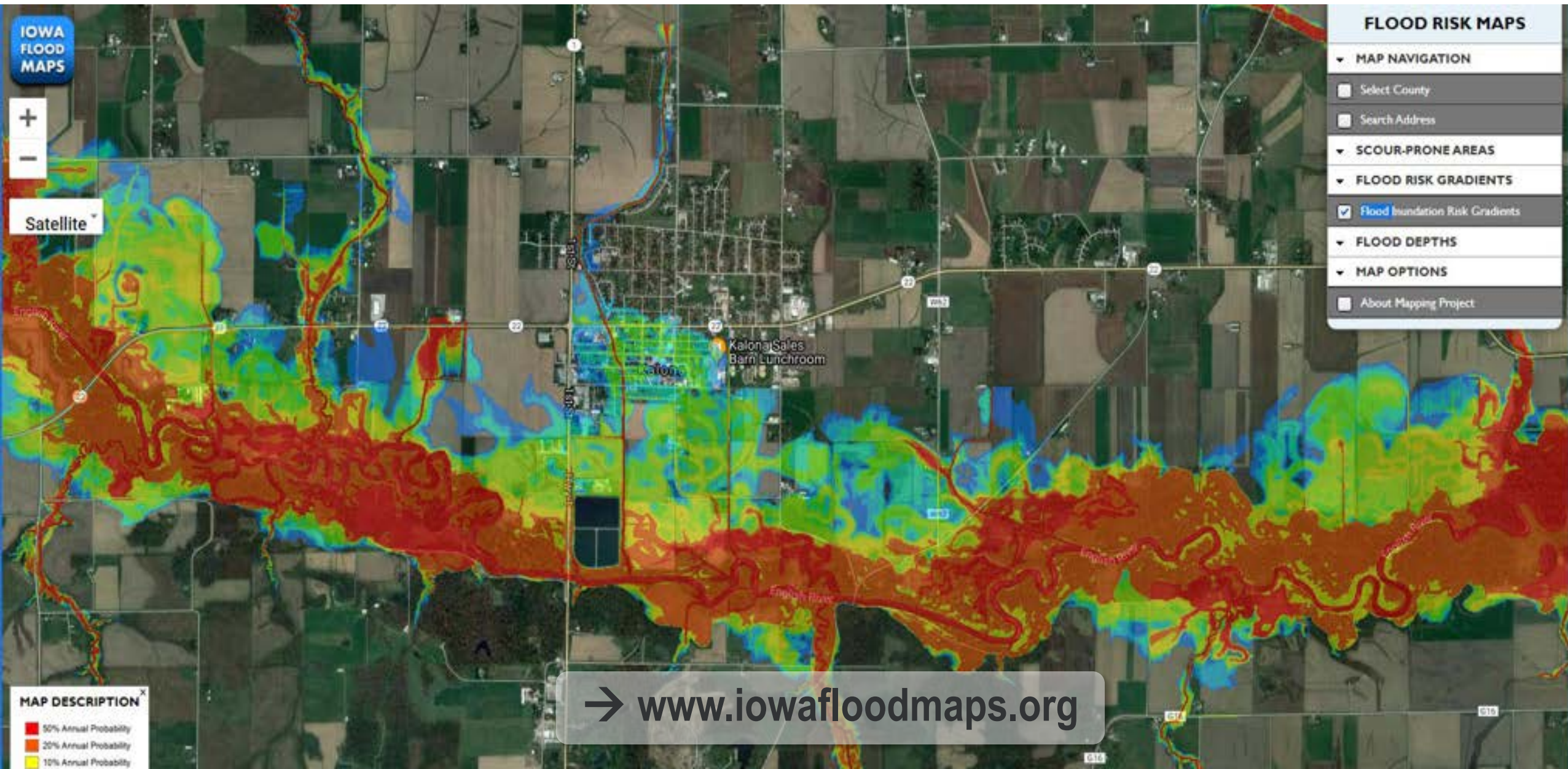


- LEGEND**
- Major Flood Stage
 - Moderate Flood
 - Flood Stage
 - Action Stage
 - No Alert

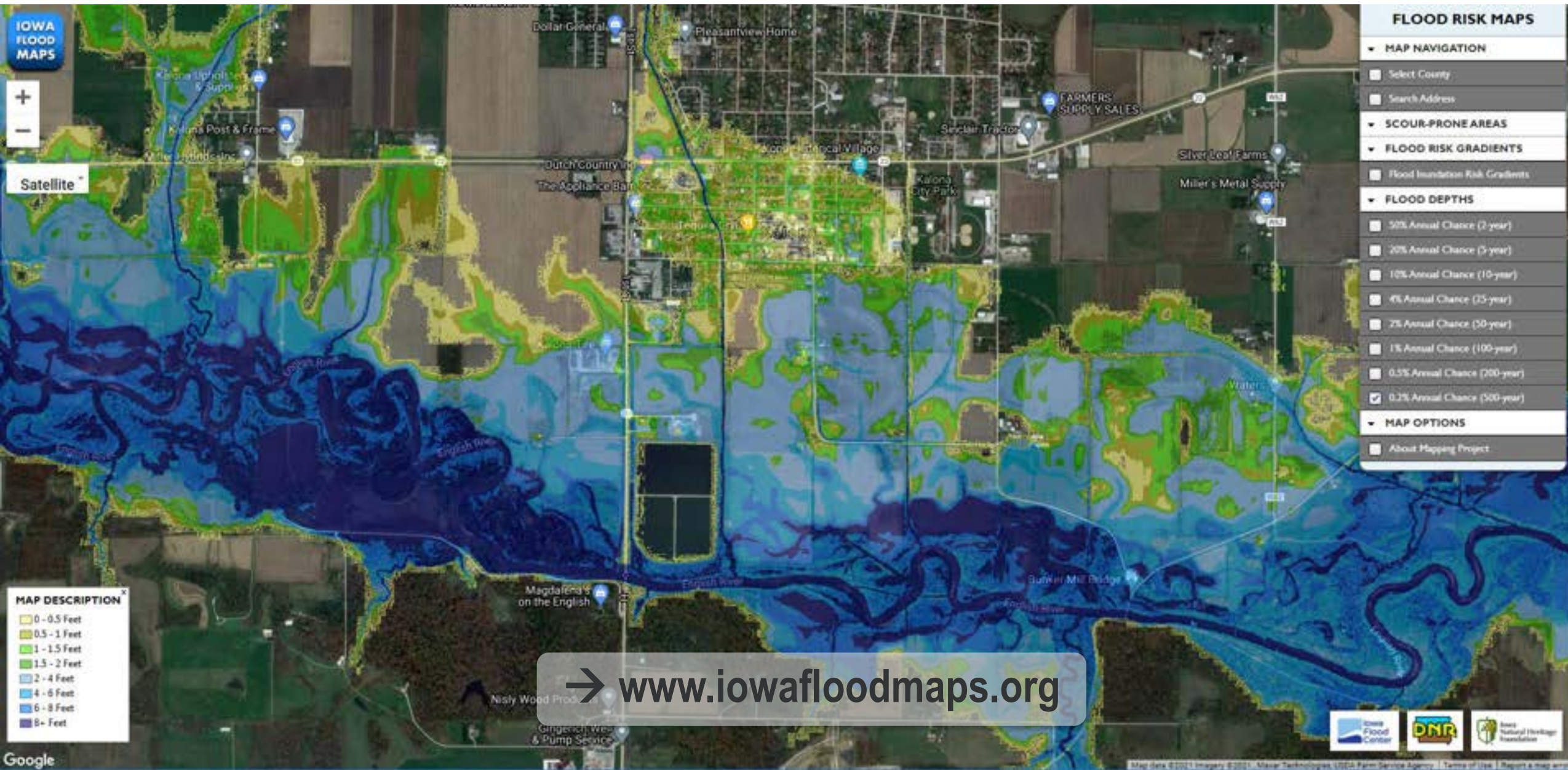


**US Army Corps
of Engineers®**

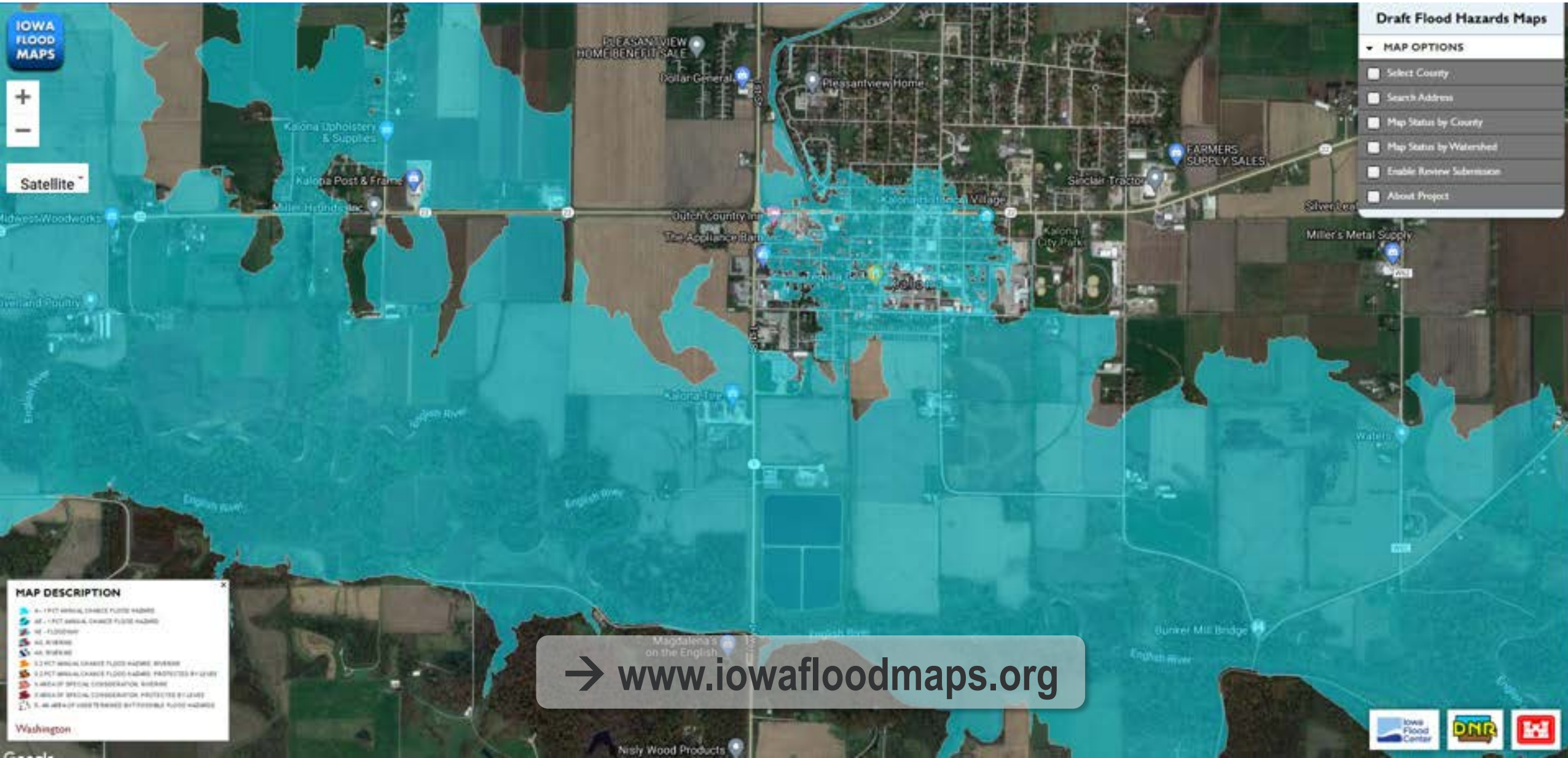
Flood Inundation Risk Gradients

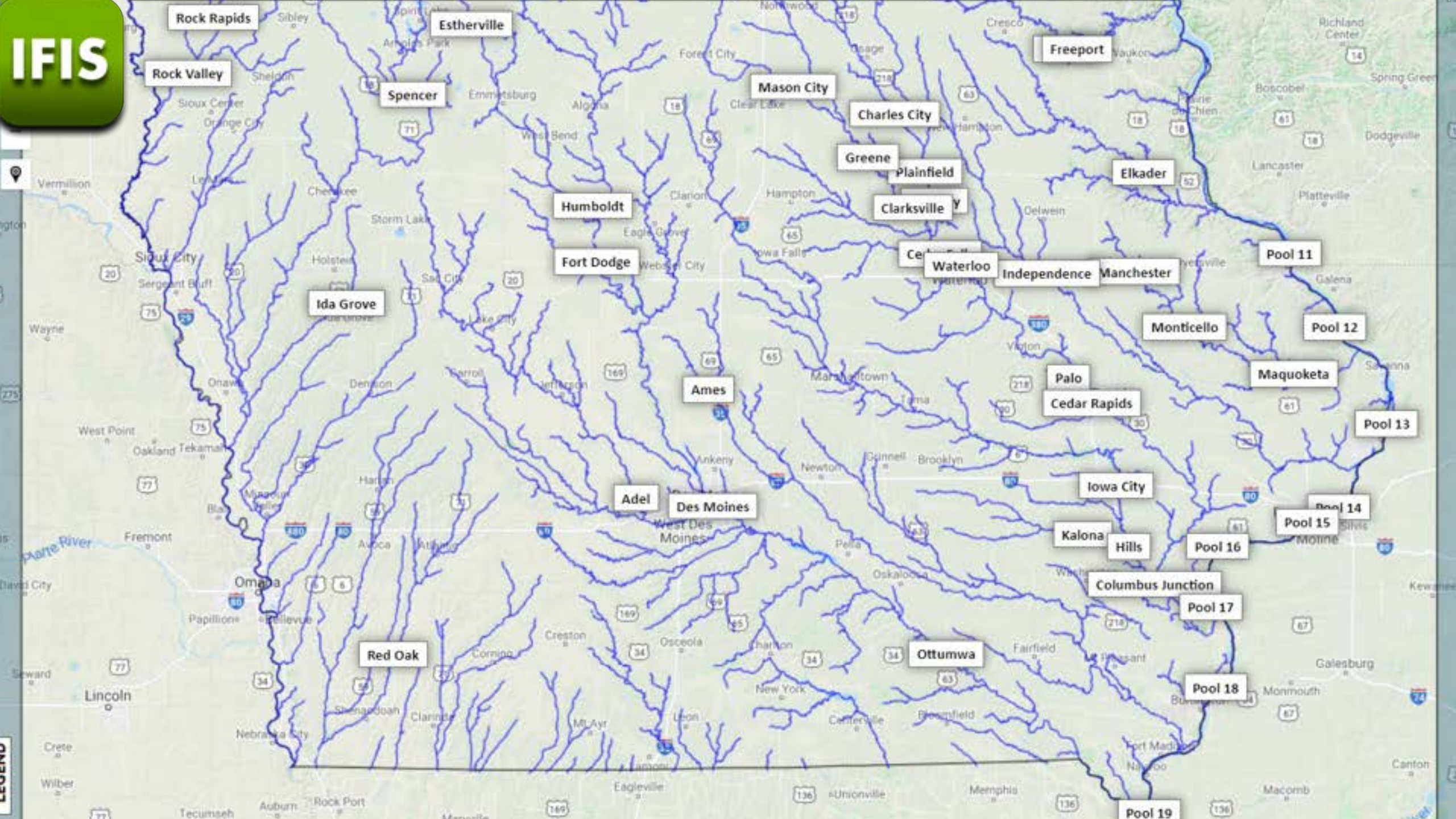


Flood Depths



FIRM Information







CEDAR RAPIDS

River: Cedar River

Gauge ID: 05464500 (reference)

Flood Level: 12 ft

Date Created: Jan 2011

Terms of Use: provisional - not for regulatory use

View Maps by

☒ River Stage

☐ Annual Chance

Flood Map Controller

Stage: 31 ft

Discharge: 139000 cfs

☐ Water Depth

☒ Damage Estimate

LEGEND

Major Flood Stage

Moderate Flood Stage

Flood Stage

Action Stage

No Alert

> 75%

50-75%

25-50%

< 25%

Flood Damage Estimate:

Affected Buildings: 3841

Structure Damage: \$39,845,227

Content Damage: \$93,149,875

IOWA FLOOD INFORMATION SYSTEM

The IFIS is a one-stop web-platform to access community-based flood conditions, forecasts, visualizations, inundation maps and flood-related information, visualizations and applications

LAUNCH IFIS



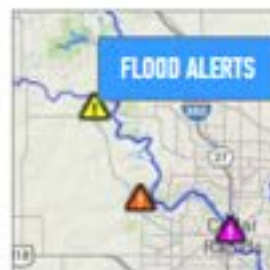
IFIS Widget



Video Guide



Mobile Alerts



ABOUT



FEATURES



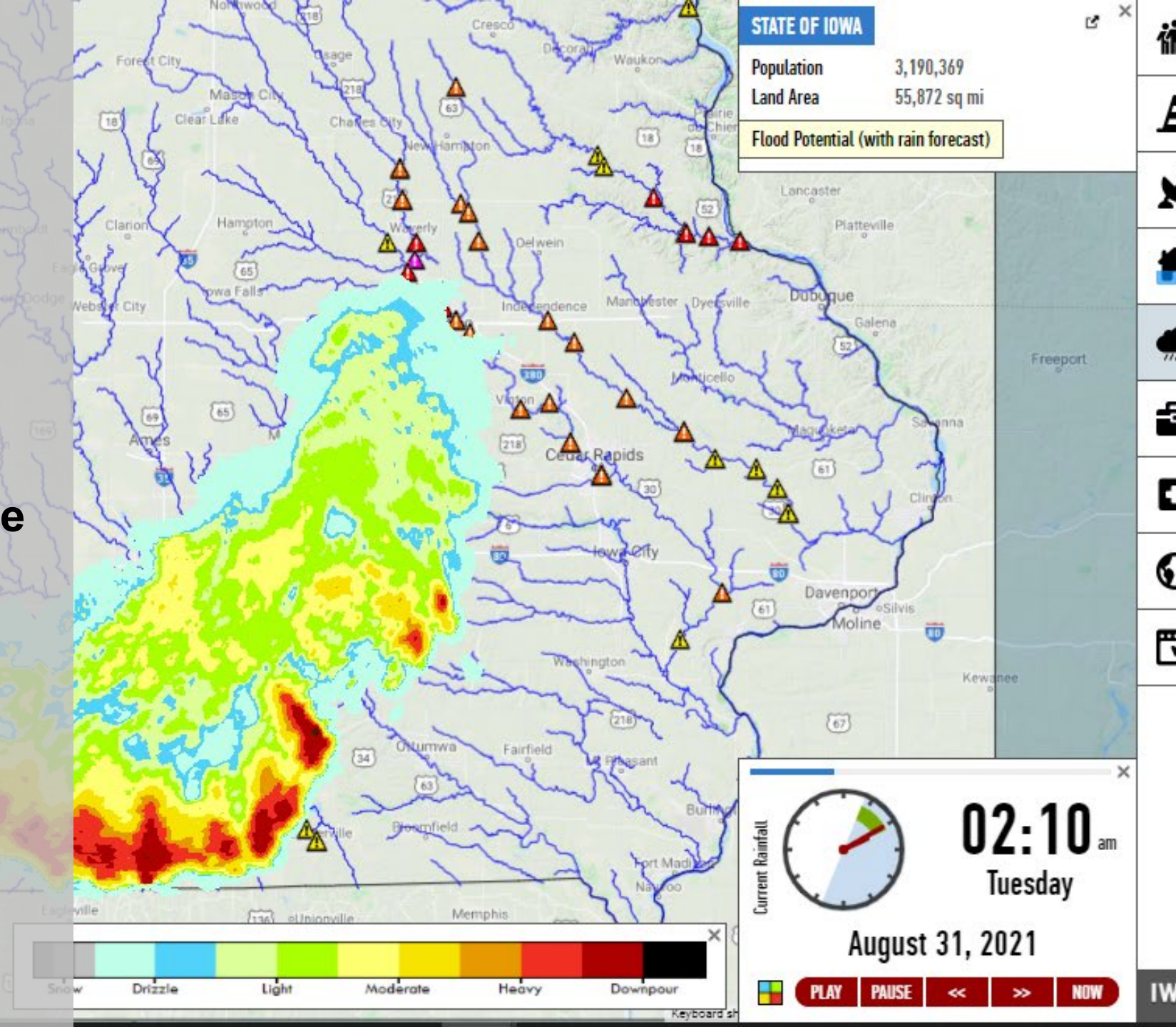
TOOLS



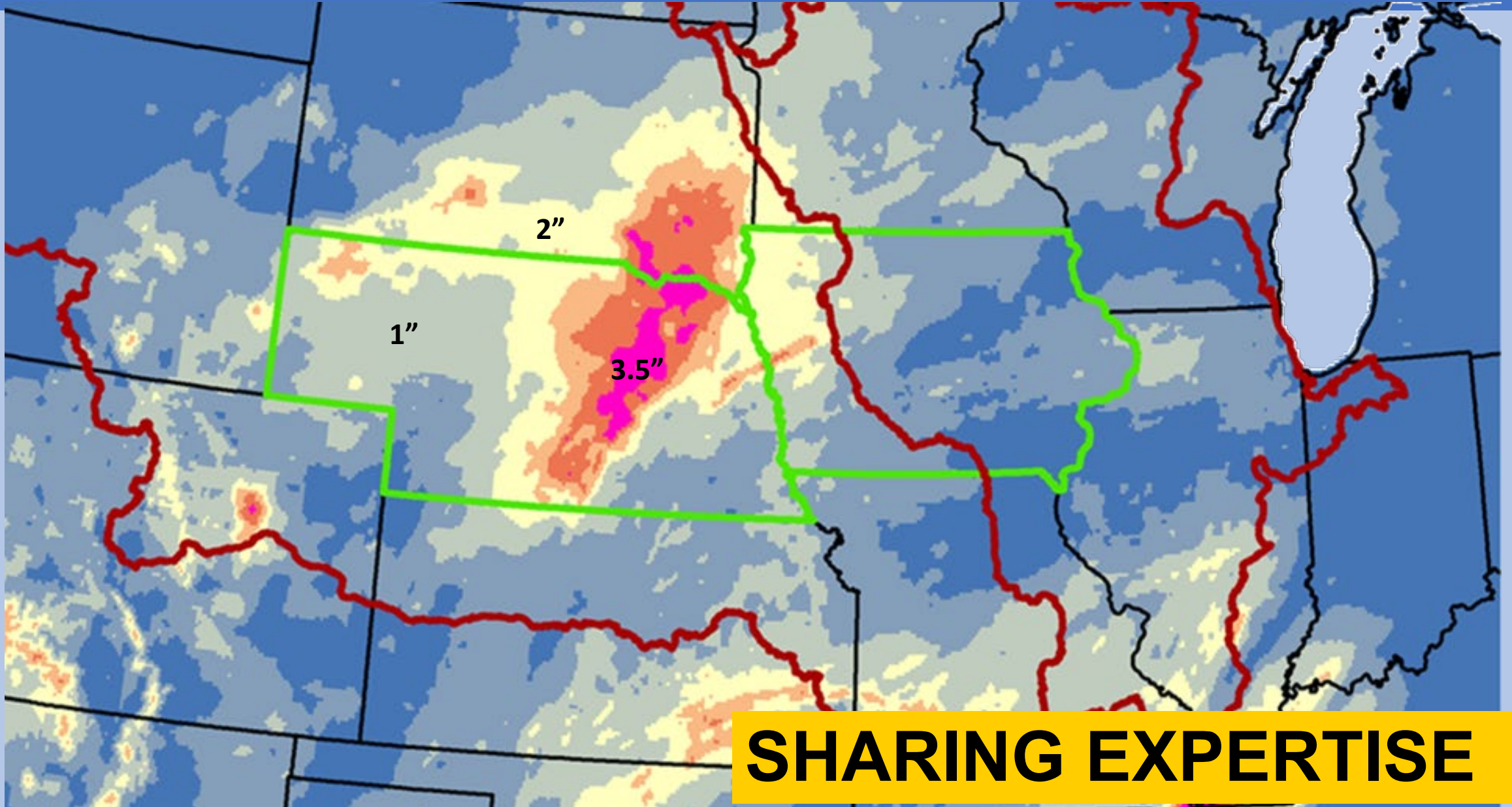
RESOURCES

“We depend on IFIS as a one-stop shop for all of our information needs before, during, and after a flood. The system is easy to use and has transformed flood response in our county.”

Sean Snyder, Winneshiek County Emergency Management

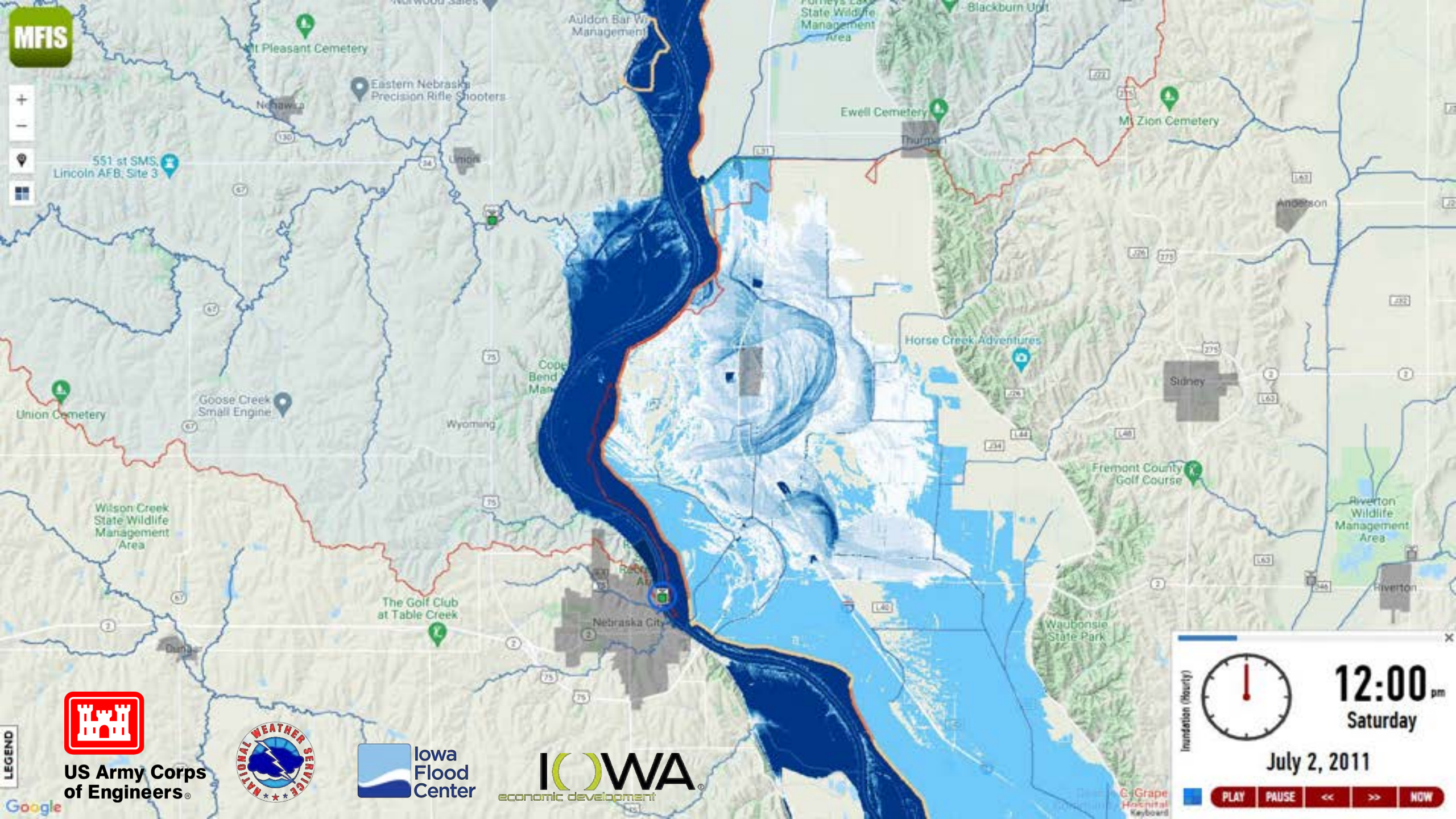


March 2019 Bomb Cyclone



2019 flood, Hamburg





MFIS



US Army Corps
of Engineers®



Inundation (Hourly)

12:00 pm
Saturday
July 2, 2011

PLAY PAUSE << >> NOW



OUTREACH

A group of seven people, four men and three women, are standing in a field of green, leafy plants. They are all smiling and looking towards the camera. The group is arranged in a single row. From left to right: a man in a blue polo shirt and grey trousers; a man in a grey t-shirt, blue jeans, and a baseball cap; a woman in a black blazer over a plaid shirt and dark pants; a man in a red and blue plaid shirt and blue jeans; a man in a dark blue polo shirt and blue jeans; a woman in a grey polo shirt and blue jeans; and a woman in a maroon t-shirt and black pants. The background shows a cloudy sky and a distant utility pole.



Serving Iowans

“Thank you for your continued work providing real-time information for our citizens to make informed decisions. Love what you are doing at the Iowa Flood Center.”

Chris Cournoyer, Iowa State Senator

Innovative Tools.
Reliable Information.







A Vision
for Iowa's
Future

The Iowa Watershed Approach



Iowans working together
to reduce flooding,

Serving Iowans



IFC UP



“Iowa really knows...They've modeled and mapped the state, they have great data visualization tools, and they have really effective outreach and communication. To really have a complete flood approach, you have to do all of those things.”

**Sam Marie Hermite, Texas
Water Development Board**



IFC in the News

News Tribune

Missouri has plan to develop flood monitoring system

Inspired by neighboring Iowa's flood-monitoring system, a Missouri group tasked with giving recommendations on building flood resiliency to the governor by the end of the month heard a presentation Wednesday on how the state could develop a similar system.

By Phillip Sitter May 14 2020 @ 12:05pm



The North Jefferson City Recreation Area was still under water in June 2019 while the Missouri River was in major flood stage. The Missouri River at Jefferson City was in it for 33 days in 2019 from May 23 to July 13. Photo by Quinn Wilson / News Tribune

Inspired by neighboring Iowa's flood-monitoring system, a Missouri group tasked with giving recommendations on building flood resiliency to the governor by the end of the month heard a presentation Wednesday on how the state could develop a similar system.

Iowa "light years ahead" with flood forecasting services



NATHAN YOUNG is the Associate Director of the Iowa Flood Center. Young explained his center's leadership of the State of Iowa's development of advanced flood forecasting services to benefit the state's citizens.

The Gazette

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\$0.99 FOR 1 MONTH!

Other states look to UI-based Iowa Flood Center for expertise

Texas latest to visit as the Iowa City center's renown grows



IOWA

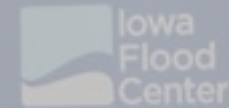


Iowa Flood Center



Serving Iowans

Save the date!



IFC Legislative Breakfast Reception

Tuesday, April 5, 2022

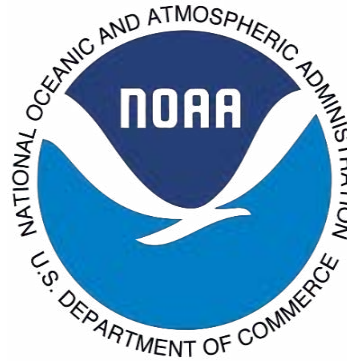
7:00-9:00 am

State Capitol, 1st Floor Rotunda

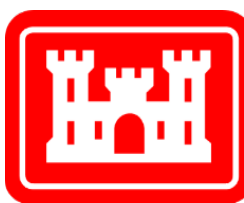
Innovative Tools.
Reliable Information.



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FEMA



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**IOWA STATE
UNIVERSITY**



IOWA



Thank you!

