Status of USGS Super Gages Network

Nutrient Monitoring Council
September 16, 2015
Springfield, IL

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U.S. Geological Survey

USGS Nutrient Monitoring in Illinois

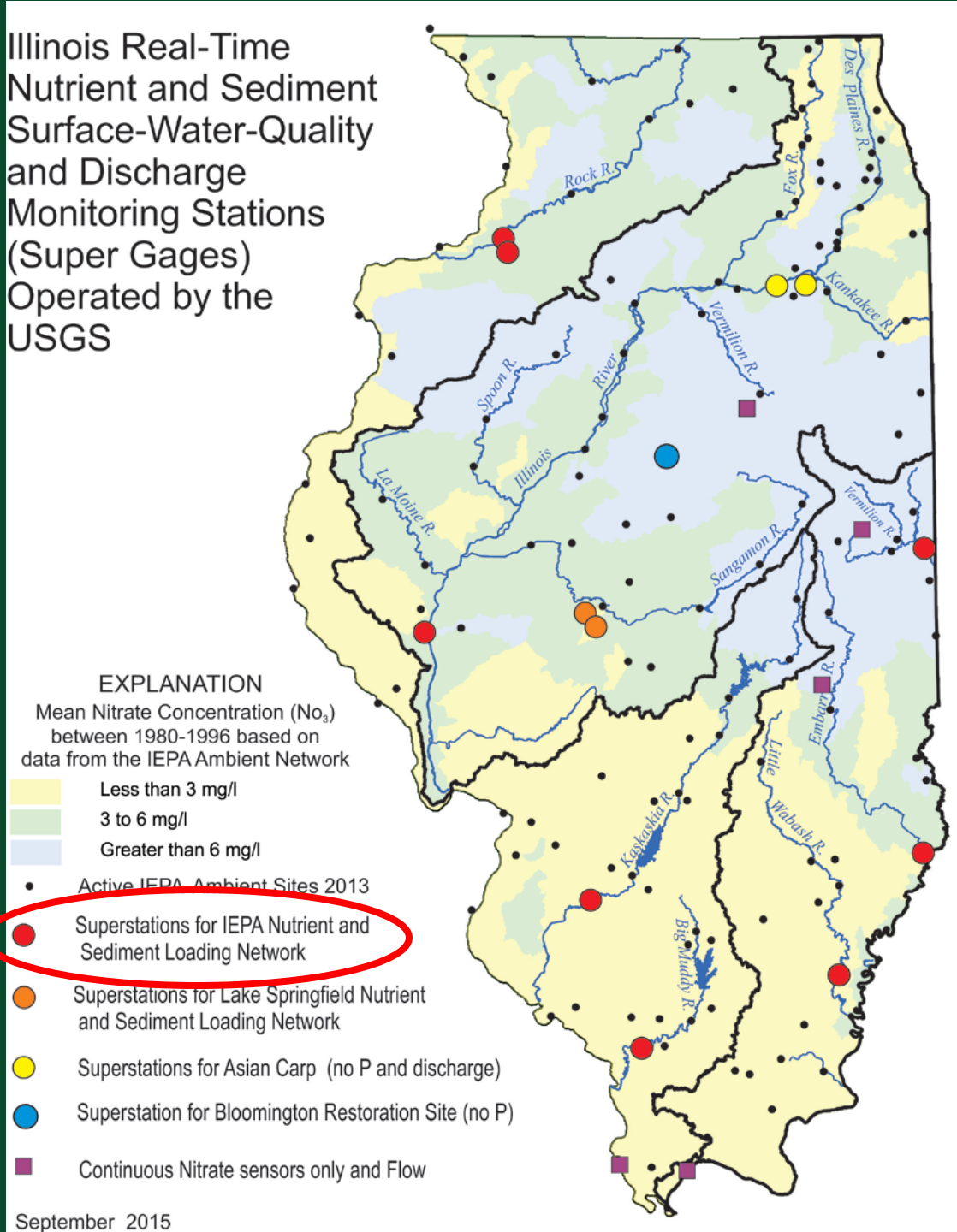
Presentation Outline

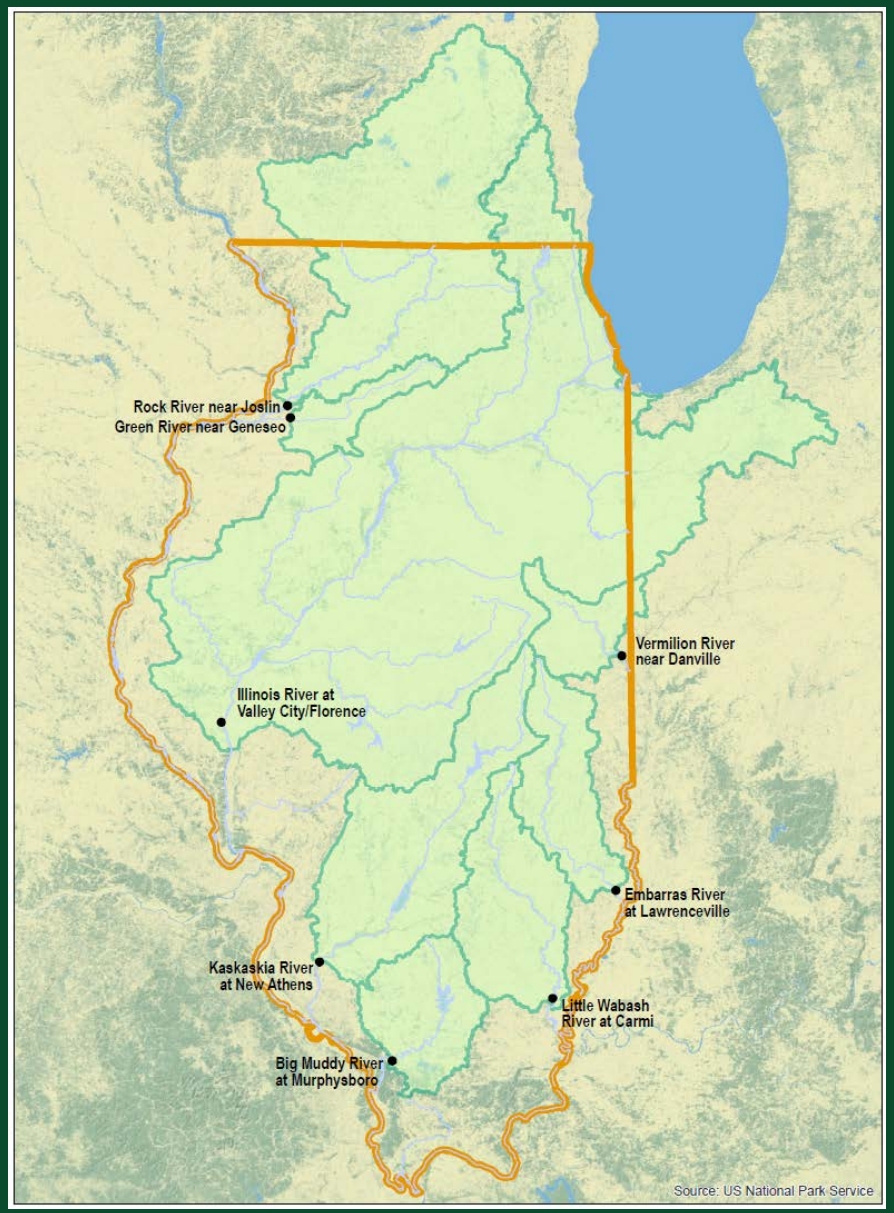
- Brief Review of Plan
- Status of Activities
- Future Plans

The Plan

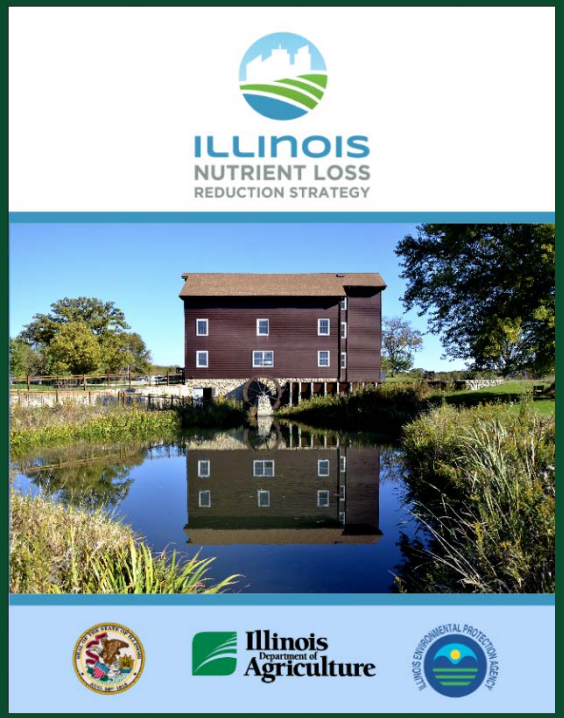
- Basins covering almost 75% of area of the State
  - **Rock River**
  - **Green River**
  - **Illinois River**
  - **Kaskaskia River**
  - **Big Muddy**
  - **Little Wabash**
  - **Embarras River**
  - **Vermilion River**
- Current USGS gaging station (flow)
- Current IEPA Ambient site/Historical Data

USGS





Basins cover almost 75% of the land area in the State



USGS

Status of Activities

- Construction is Proceeding
  - Infrastructure for all sites, but one, is completed
  - Equipment is deployed and being transmitted publically for 3 stations
- All stations should be completed and transmitting internally by October 2
- Some station(s) will need re-evaluation

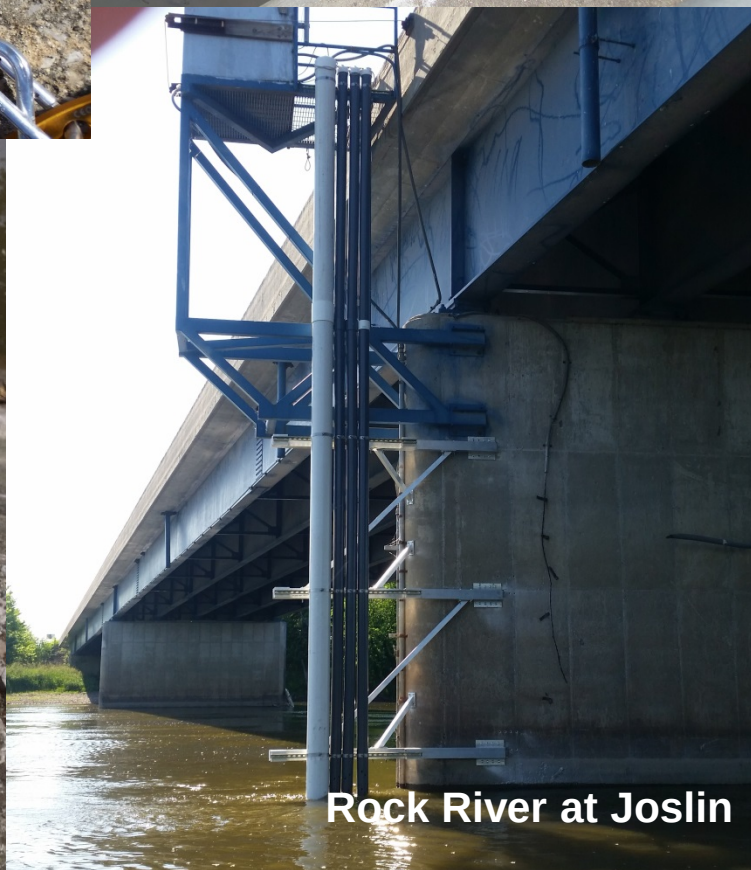
USGS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Kaskaskia at New Athens

Little Wabash
at Carmi

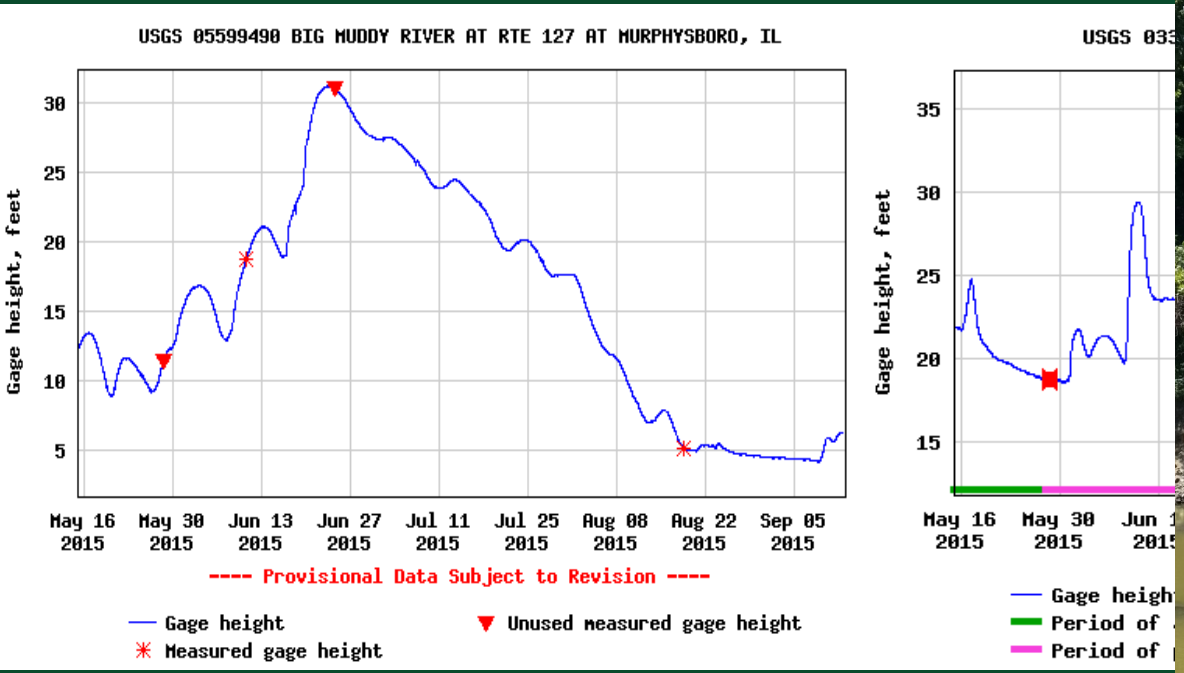
Green River at Geneseo



Rock River at Joslin

Schedule Impacts

- Agreement April 1
- Weather

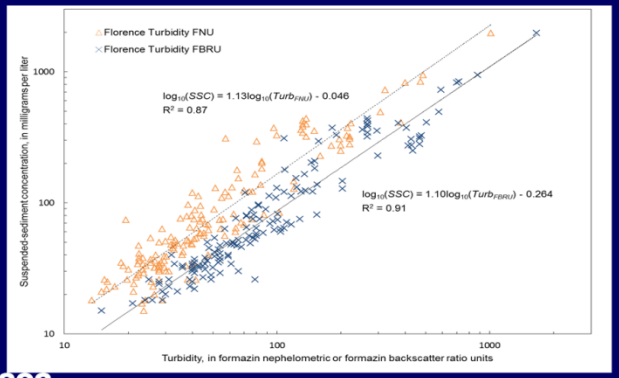


Future Plans

- Finish rest of installations (end of Sept.)
- Re-engineer where needed (Oct.)
- Build record for surrogates (2015-2016)
- Report w/ surrogate relationships (2016-2017)

Turbidity and SSC at the Illinois River at Florence

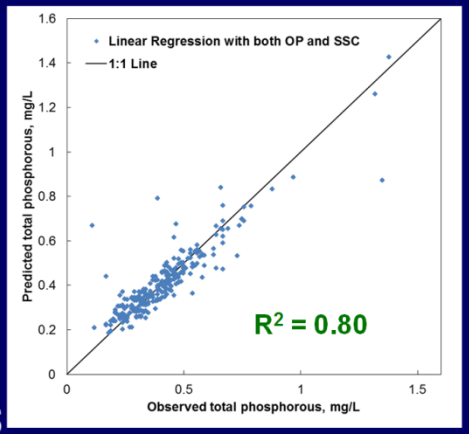
To measure suspended sediment concentration, USGS uses Turbidity as a surrogate



USGS

Total Phosphorus Predicted with Orthophosphorus and Suspended Sediment (IL River Valley City 1991 – 2013)

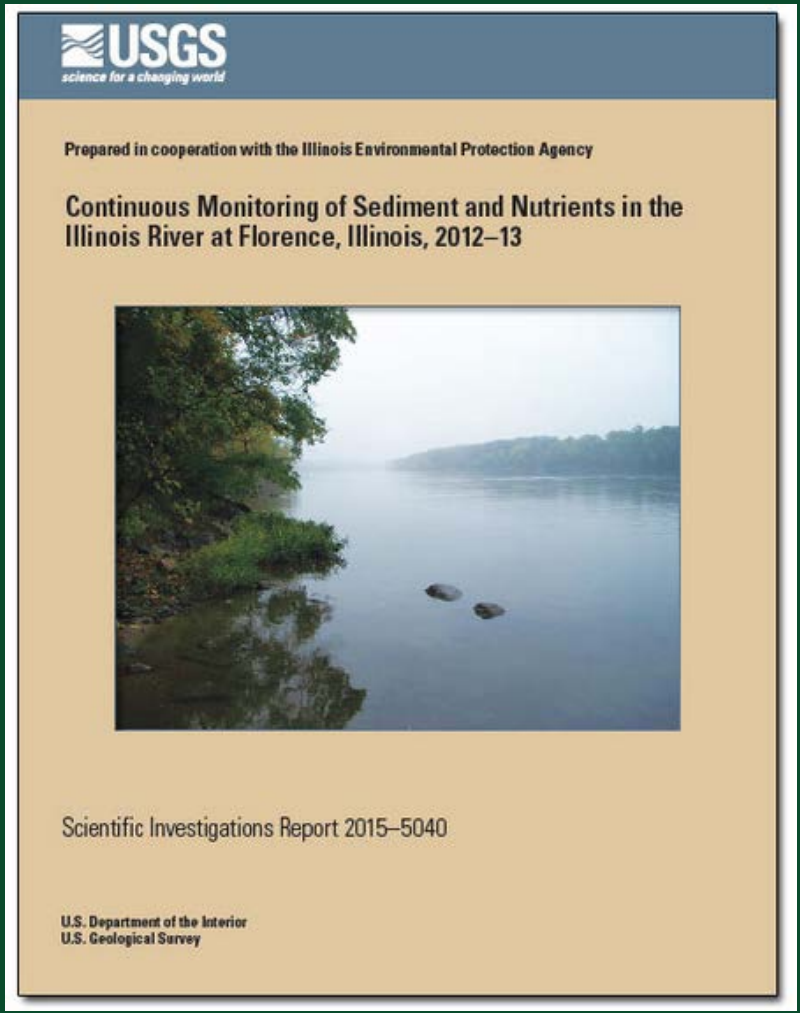
$$TP = 0.109 + 1.1\,OP + 0.00063\,SSC$$



USGS

USGS

USGS Continuous NO3 and PO4 in the Illinois River



Terrio, P.J., Straub, T.D., Domanski, M.M., and Siudyla, N.A., 2015, Continuous monitoring of sediment and nutrients in the Illinois River at Florence, Illinois, 2012–13: U.S. Geological Survey Scientific Investigations Report 2015–5040, 61 p., http://dx.doi.org/10.3133/sir20155040.

http://pubs.usgs.gov/sir/2015/5040/pdf/sir2015-5040.pdf.

Questions?

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