

USGS

New York Water
Science Center

NYCAC
January
2021



<https://www.facebook.com/USGSNewYork/>

- USGS Intro.
- Streamgages Data Usage
- NY's Streamgage Network
- Streamgaging Operation/Flood Documentation
- On-Line Resources
- Federal Priority Streamgages + Funding
- Existing Funded Picture
- *Any plans to improve functionality and utilization of the gages? –Yes!*
—————Lake Ontario Lake-Level Gages

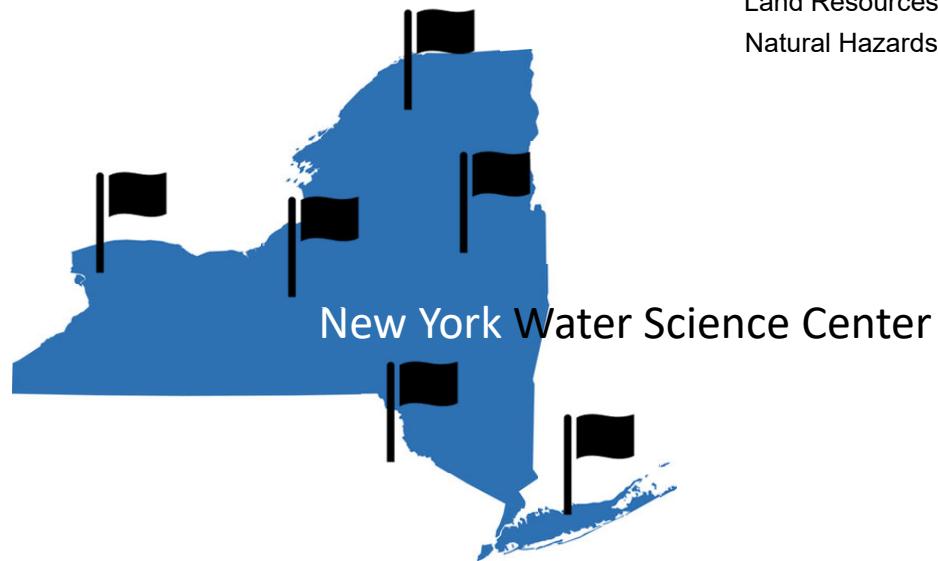
Outline



Department of the Interior



Geological Survey



Mission Areas

Water

- Core Science Systems
- Ecosystems
- Energy and Minerals
- Environmental Health
- Land Resources
- Natural Hazards



Regions

Region 1: North Atlantic-Appalachian

Region 2: South Atlantic-Gulf
(Includes Puerto Rico and the U.S. Virgin Islands)

Region 3: Great Lakes

Region 4: Mississippi Basin

Region 5: Missouri Basin

Region 6: Arkansas-Rio Grande-Texas-Gulf

Region 7: Upper Colorado Basin

Region 8: Lower Colorado Basin

Region 9: Columbia-Pacific Northwest

Region 10: California-Great Basin

Region 11: Alaska

Region 12: Pacific Islands

US Geological Survey in New York

SCIENCE PORTFOLIO

[SW & GW Information](#)

[Water Availability](#)

[Geospatial Applications](#)

[Water Quality](#)

[Ecosystem Health](#)

[Coastal Science](#)

[Geophysical Applications](#)



6 Offices –Main office in Troy



~150 Scientists, Technicians, Support Staff



Backed by the World's Foremost Experts in Earth System Science (8000+ Strong)



Mostly non-federal funding (Matching Funds)
–adapt our science to meet customer's needs



~100 Customers at any one time

New York Water Science Center



Minimize loss of life and property as a result of water-related natural hazards, such as floods, droughts, and land movement.



Effectively **manage groundwater and surface-water resources** for domestic, agricultural, commercial, industrial, recreational, and ecological uses.



Protect and enhance water resources for human health, aquatic health, and environmental quality.



Contribute to the wise **physical and economic development** of resources for the benefit of present and future generations.

Mission



Issuing flood warnings to protect lives and reduce property damage.



Planning, designing, operating, and maintaining the nation's multipurpose water-management systems.



Designing highways and bridges.



Mapping floodplains.



Monitoring environmental conditions and protecting aquatic habitats.



Protecting water quality and regulating pollutant discharges.



Managing water rights and transboundary water issues.

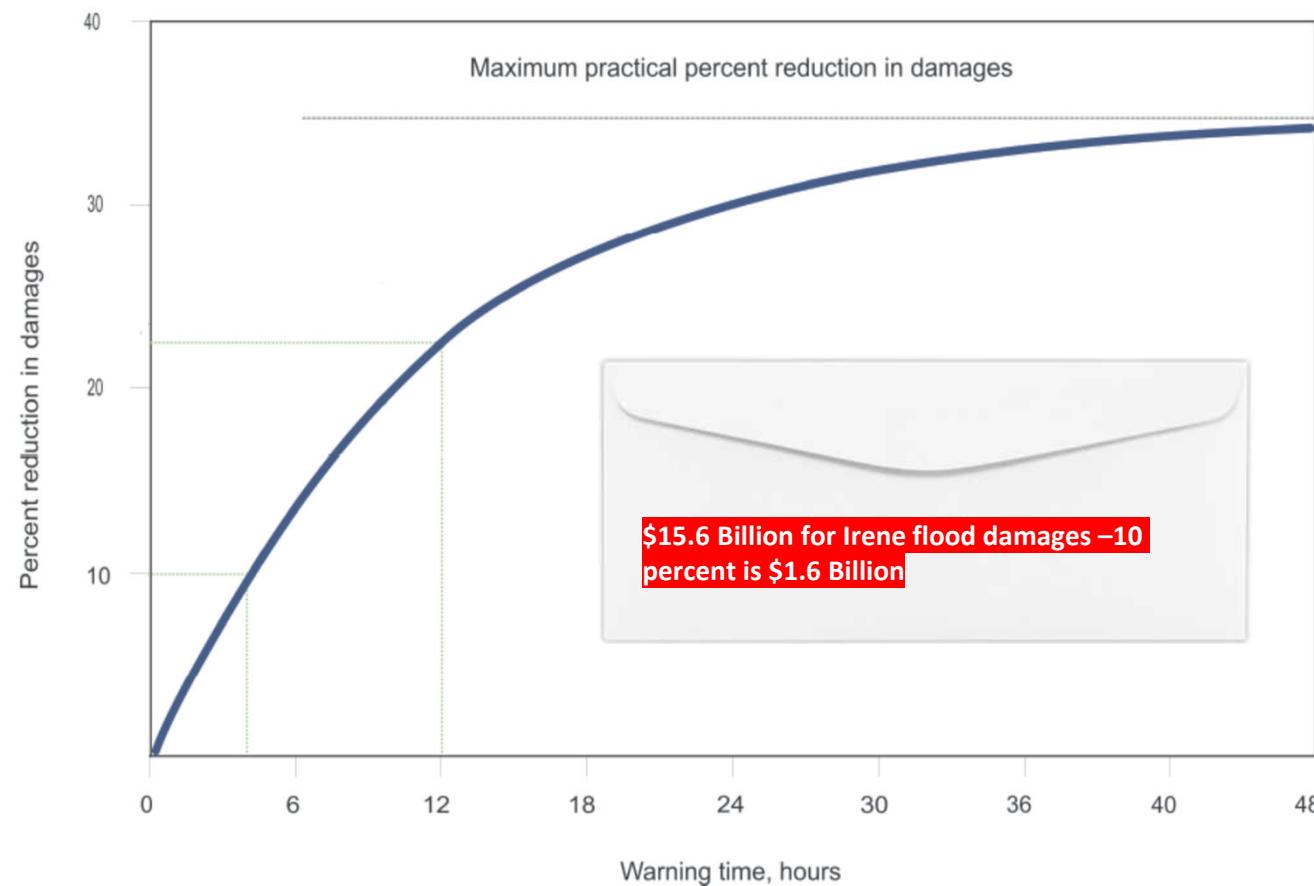


Education and research.

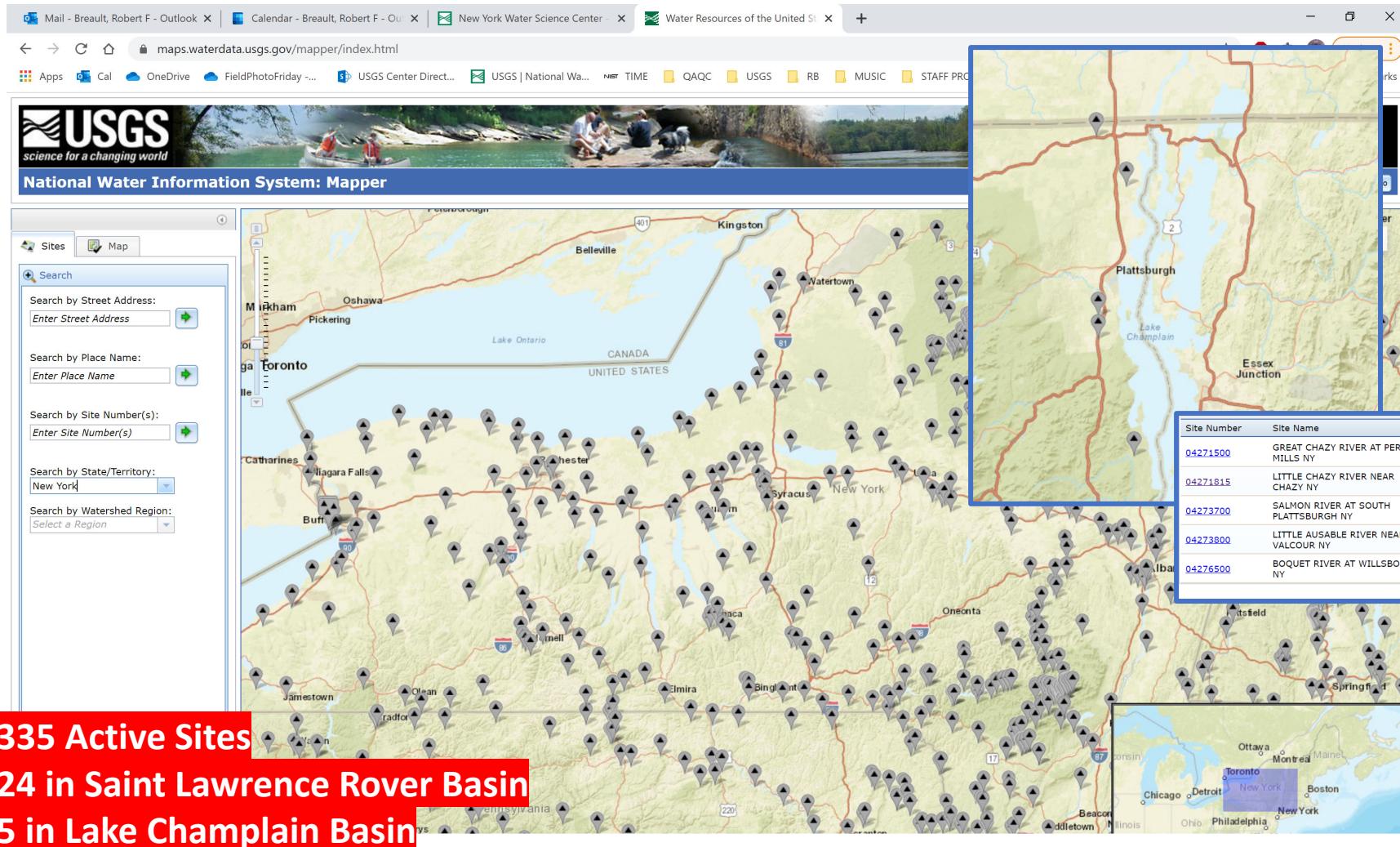


Recreational uses.

Streamgaging



NY Streamgage Network –Early Warning



NY Streamgage Network





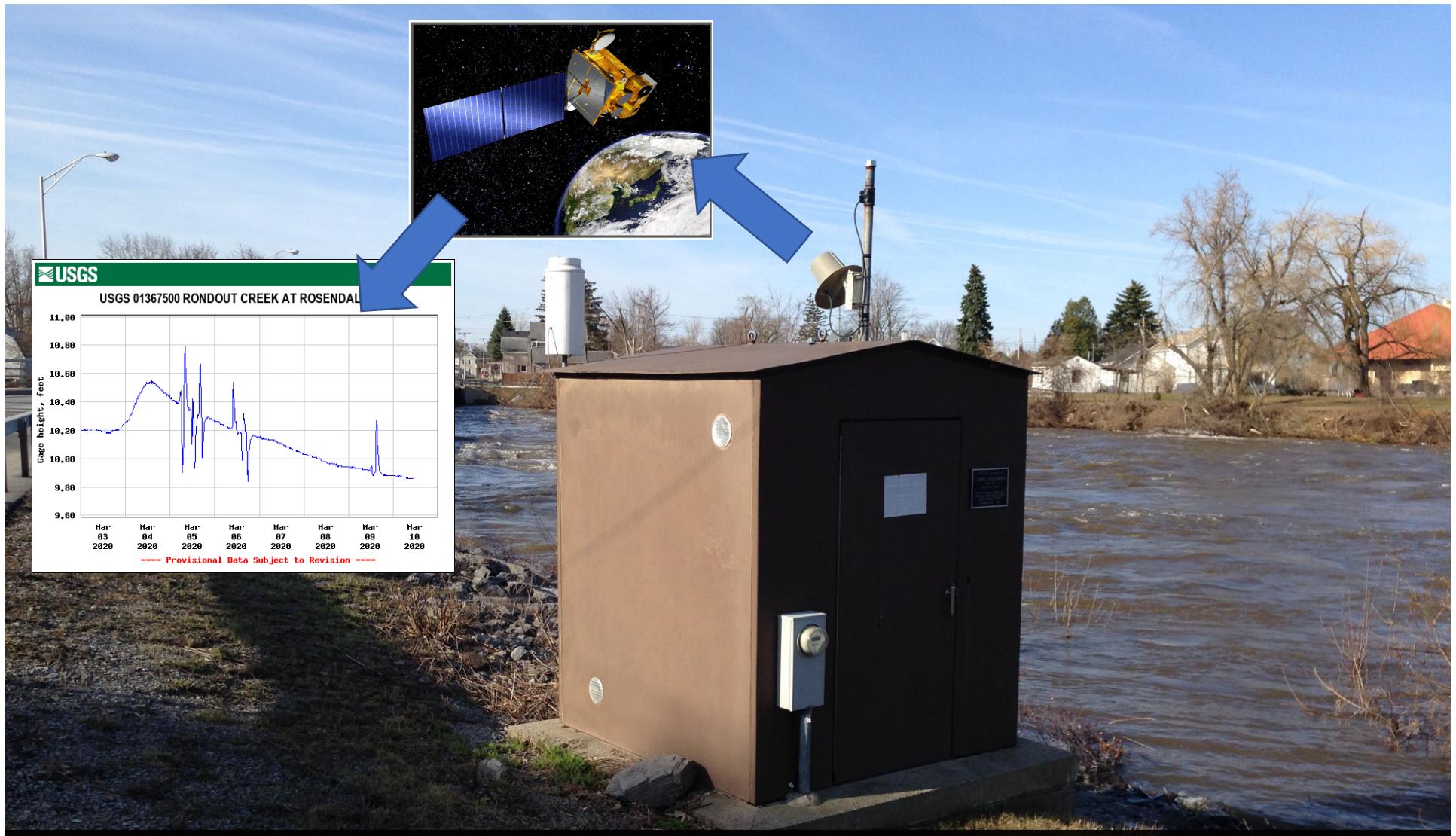
Kevin Hooey

Diana Phillips

Orifice-Line Installation



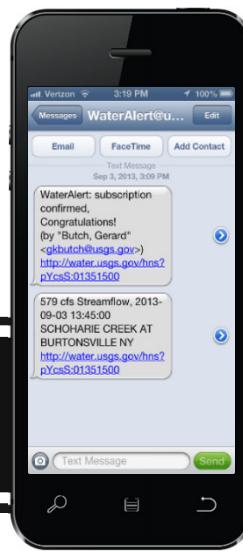
Gage-House Instrumentation



USGS Gage-House



Alicia Gearwar
Supervisory
Hydrologist &
Database Admin.

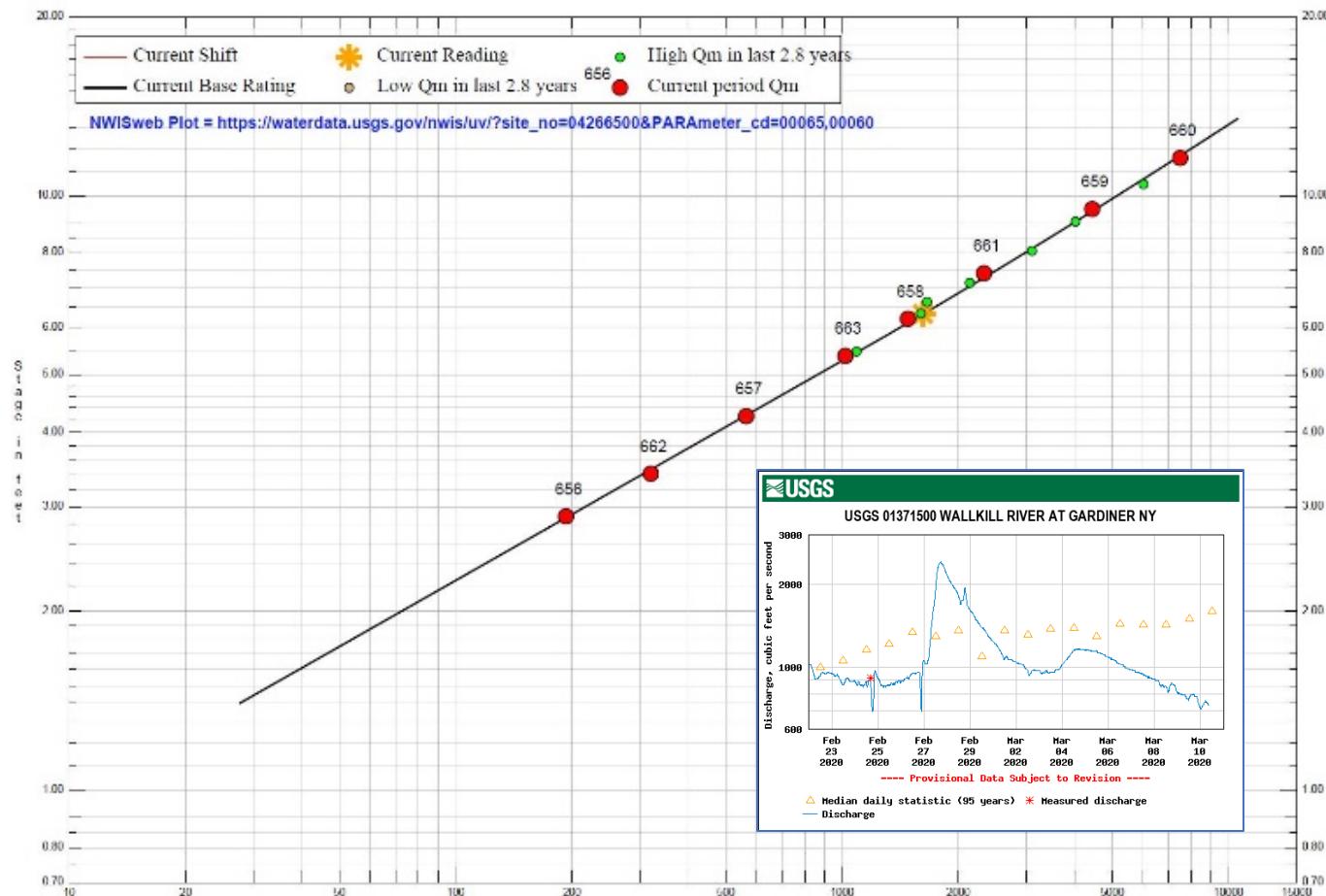


National Water Information System

04266500 - RAQUETTE RIVER AT PIERCEFIELD NY

Current Period 08/02/2018 to 02/02/2020 (18 months)

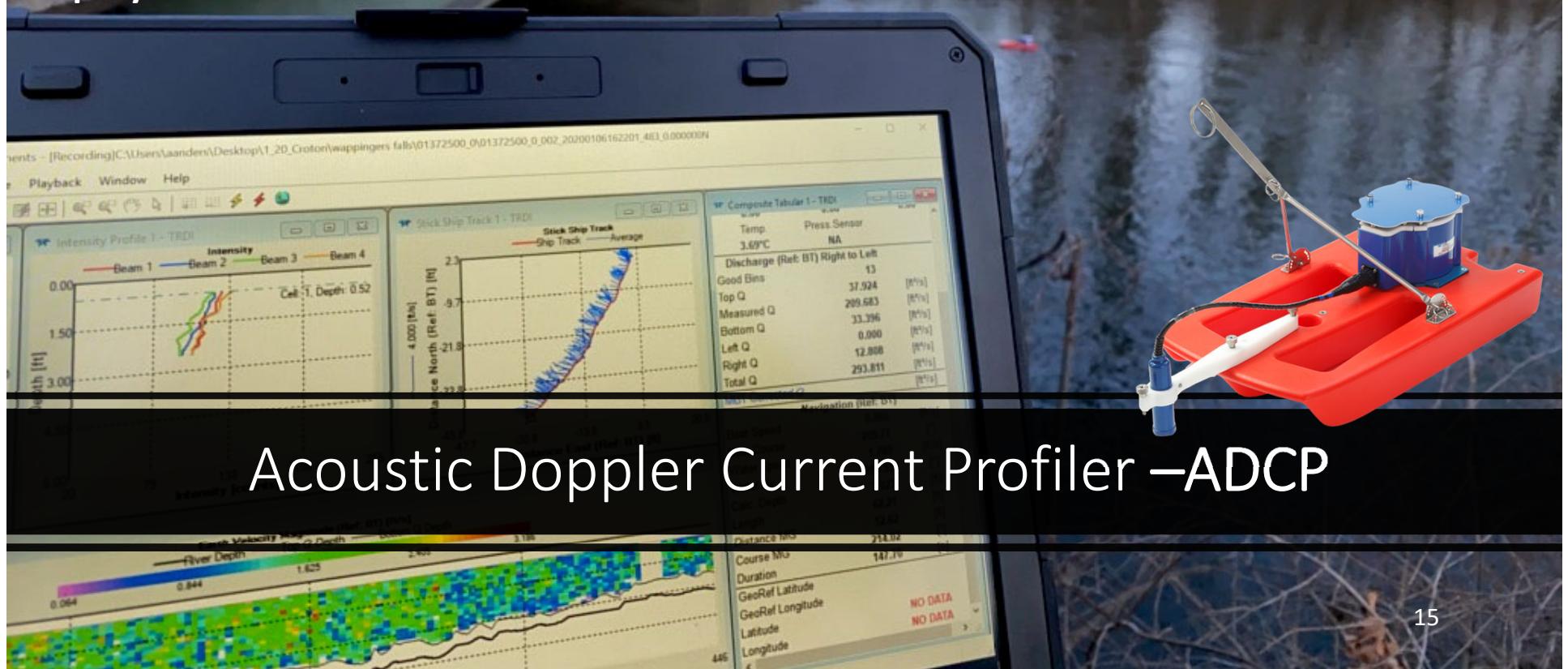
Current NWISweb Reading: 02/02/20 05:45 GH:6.33 Q:1620 CHG:0.00 ft/hr



Gage-House Operation



Andy Waite
Deputy Associate Director for Data



Acoustic Doppler Current Profiler –ADCP



Scott Grover

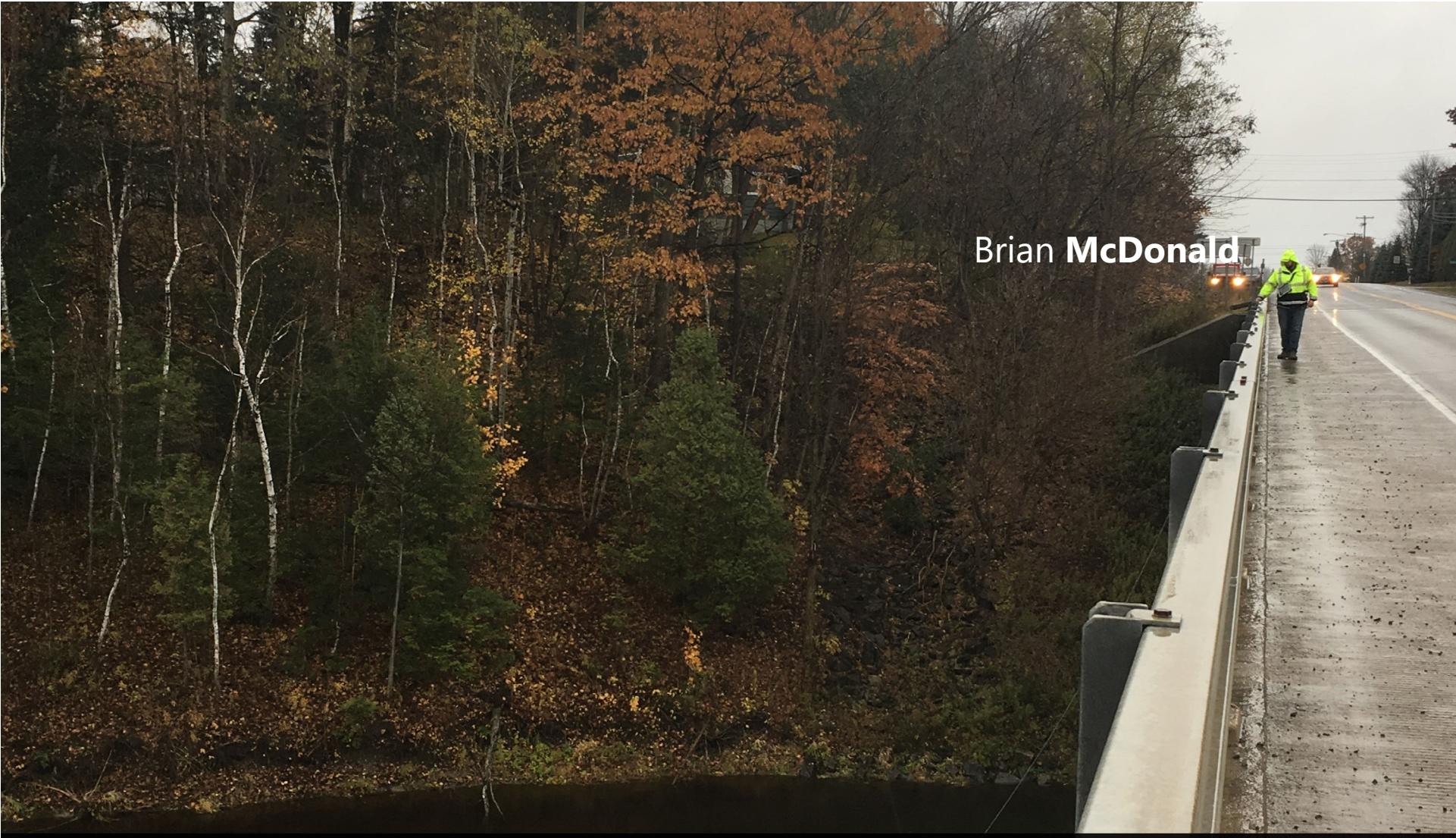
Streamflow (Q) Wading Measurement





Travis Smith

Streamflow (Q) Wading Measurement



Brian McDonald

Streamflow (Q) Bridge Measurement



Andy Lange

Bank-Operated Cableway Q Measurement





John Byrnes

Bank-Operated Cableway Q Measurement



Ron Johnston

Manned Cableway Q Measurement



Diana Phillips

Manned Cableway Q Measurement



Matt Jennings

Boat Q Measurement



Q-Boat Measurement



Ice Q Measurement



USGS 04215000 CAYUGA CREEK NEAR LANCASTER NY



Flood Measurement



Matt Jennings

Flood Measurement Wading



Jared Marion

Flood Measurement w/Bridge Crane





Flow Over Road Measurement



Jared Marion

Rapid Deployment Gage





Travis Smith

High-Water Marks –HWMs





John Byrnes

High-Water Marks –HWMs

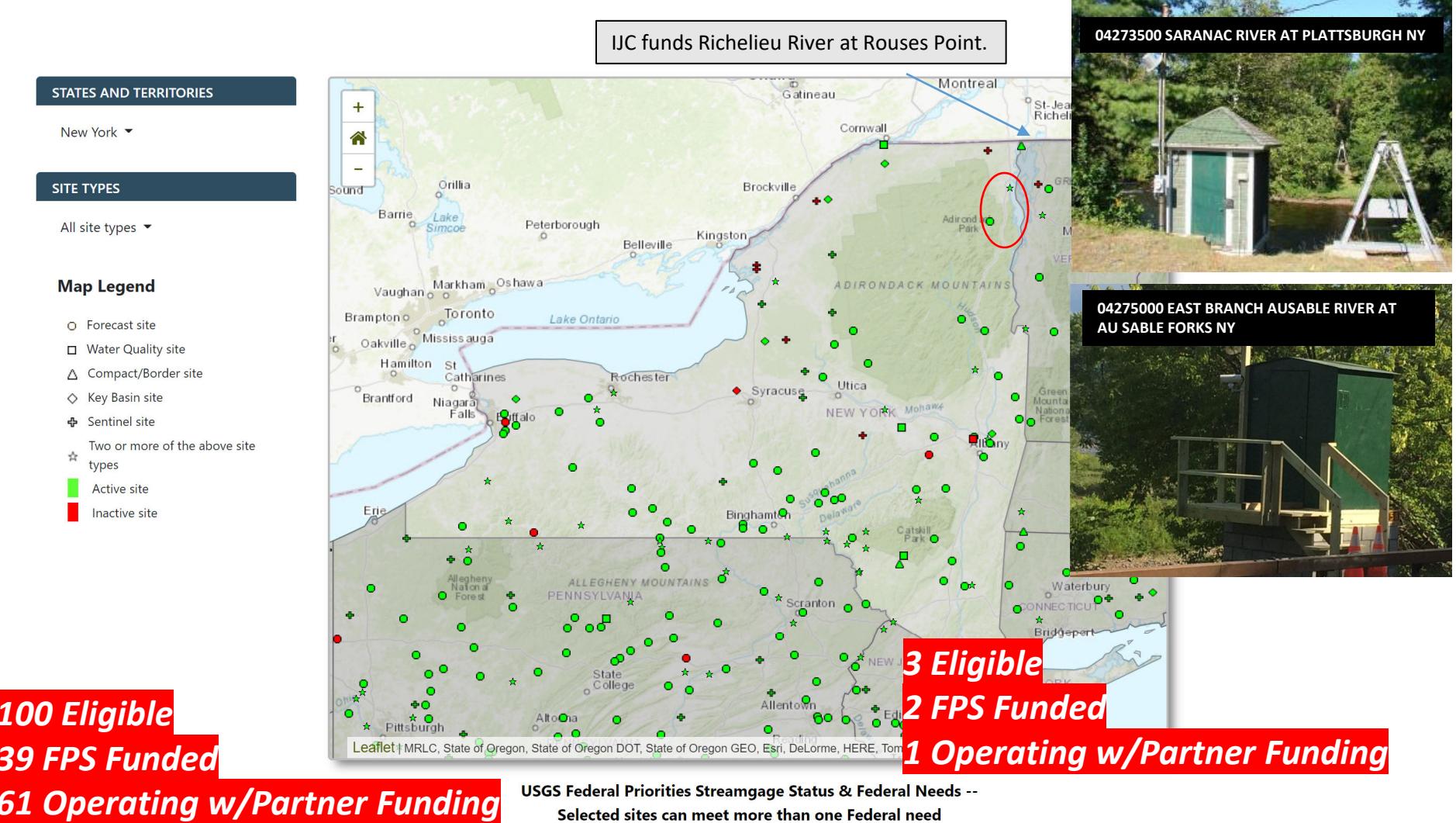


Surveying HWMs

^Federal Priority Streamgages (FPS)

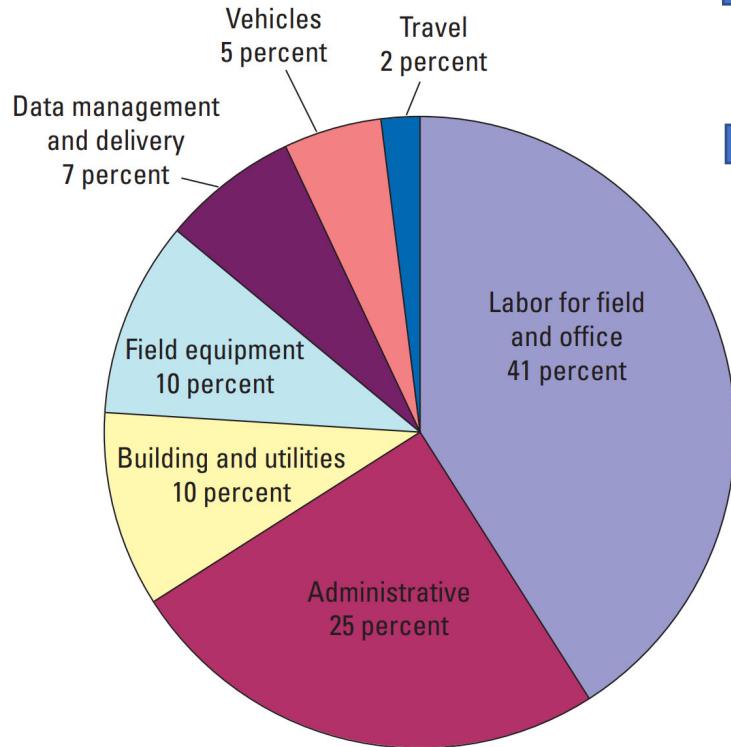
1. Forecast floods, droughts and other streamflow;
2. Support water-quality assessments of major rivers and estuaries
3. Support interstate and international compacts, court decrees, treaties and other border water agreements;
4. Track streamflow in major rivers and contributions from key basins to the next downstream basin, estuary, ocean or the Great Lakes; and
5. Describe long-term trends in streamflow at sentinel sites that typify major ecoregions and river basins, including trends related to population, land use, water use and climate.

^{^In the process of updating}



NY FPS in Lake Champlain Basin

Average Streamgage Cost = \$18,000/year



→ **FPS Funding is about \$532,000/year**

→ **Cooperator=\$8,742,880**
USGS Cooperative Matching Funds=\$1,300,250
Total=\$10,043,130.00
*Includes GW+QW
^80-percent Data Work 20-percent Project Work

Streamgages only get discontinued if the funding partner decides to no longer fund the gage or if FPS funding doesn't keep up with inflation/reduction.

Figure 1. Percentage of operation and maintenance funding invested in various activities for a typical USGS streamgage.

Cooperator Streamgage Funding

“Any plans to improve functionality and utilization of the gages?”

USGS's NGWOS will integrate fixed and mobile monitoring assets in the water, ground, and air, including innovative webcams and new ground- and space-based sensors.



Identify water monitoring gaps and data needs related to integrated water modeling and stakeholder decision-making.



Establish integrated set of fixed and mobile monitoring assets in the water, ground, and air.



Integrate delivery of water quantity, quality, and use data.



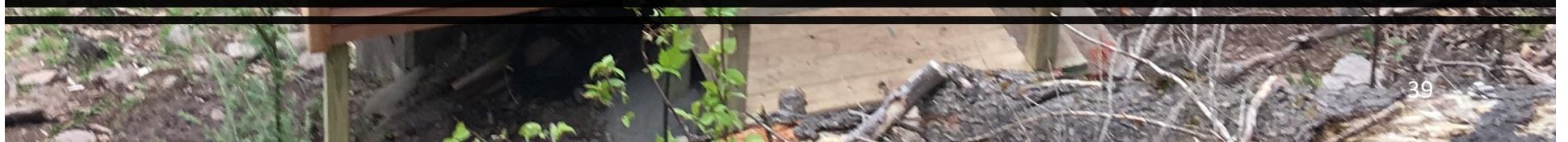
Work with partners and stakeholders to inform modern water prediction and decision-support systems.

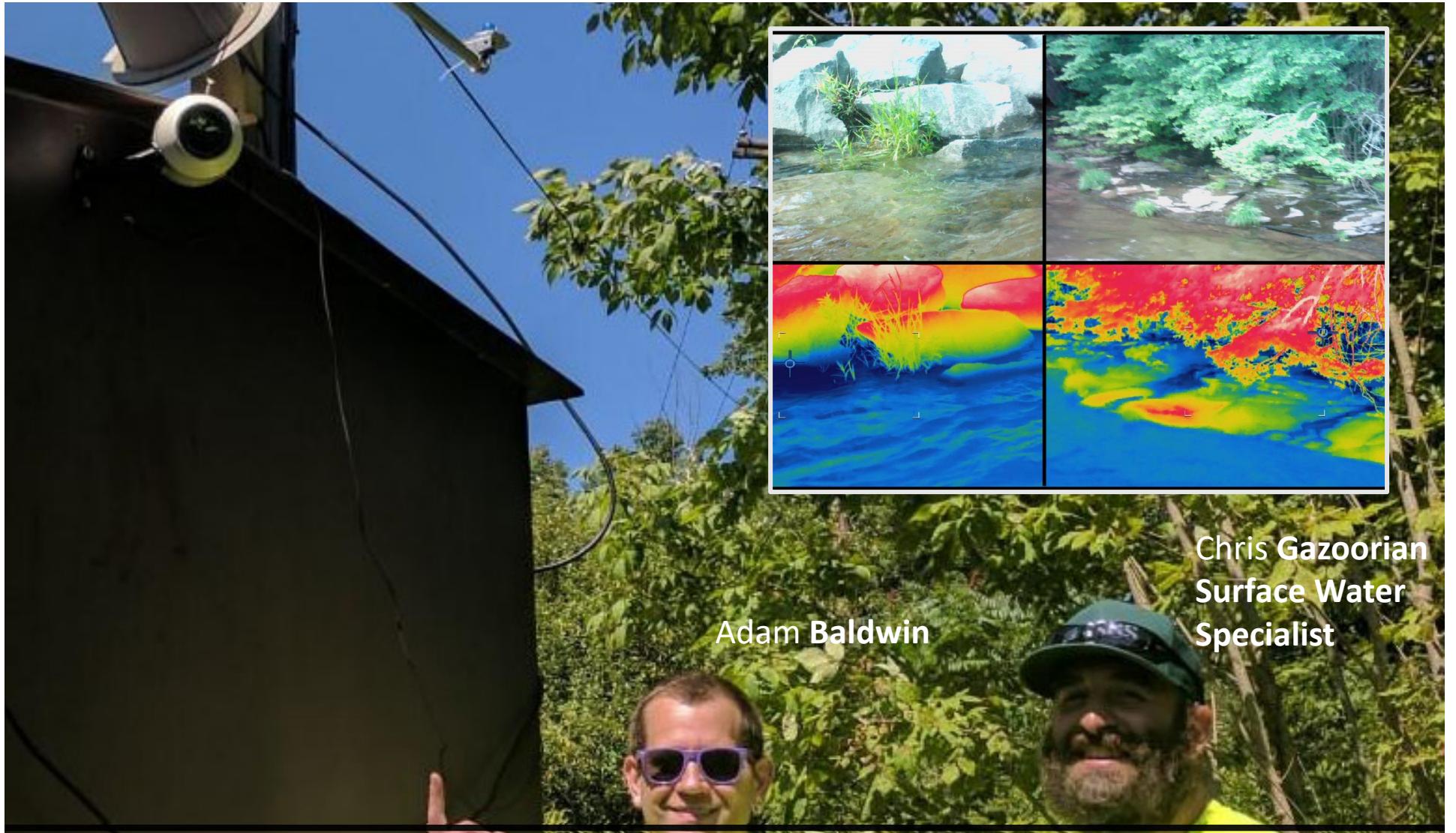
Next Generation Water Observing System

https://www.usgs.gov/mission-areas/water-resources/science/usgs-next-generation-water-observing-system-ngwos?qt-science_center_objects=0#qt-science_center_objects



Next Generation Water Observing System



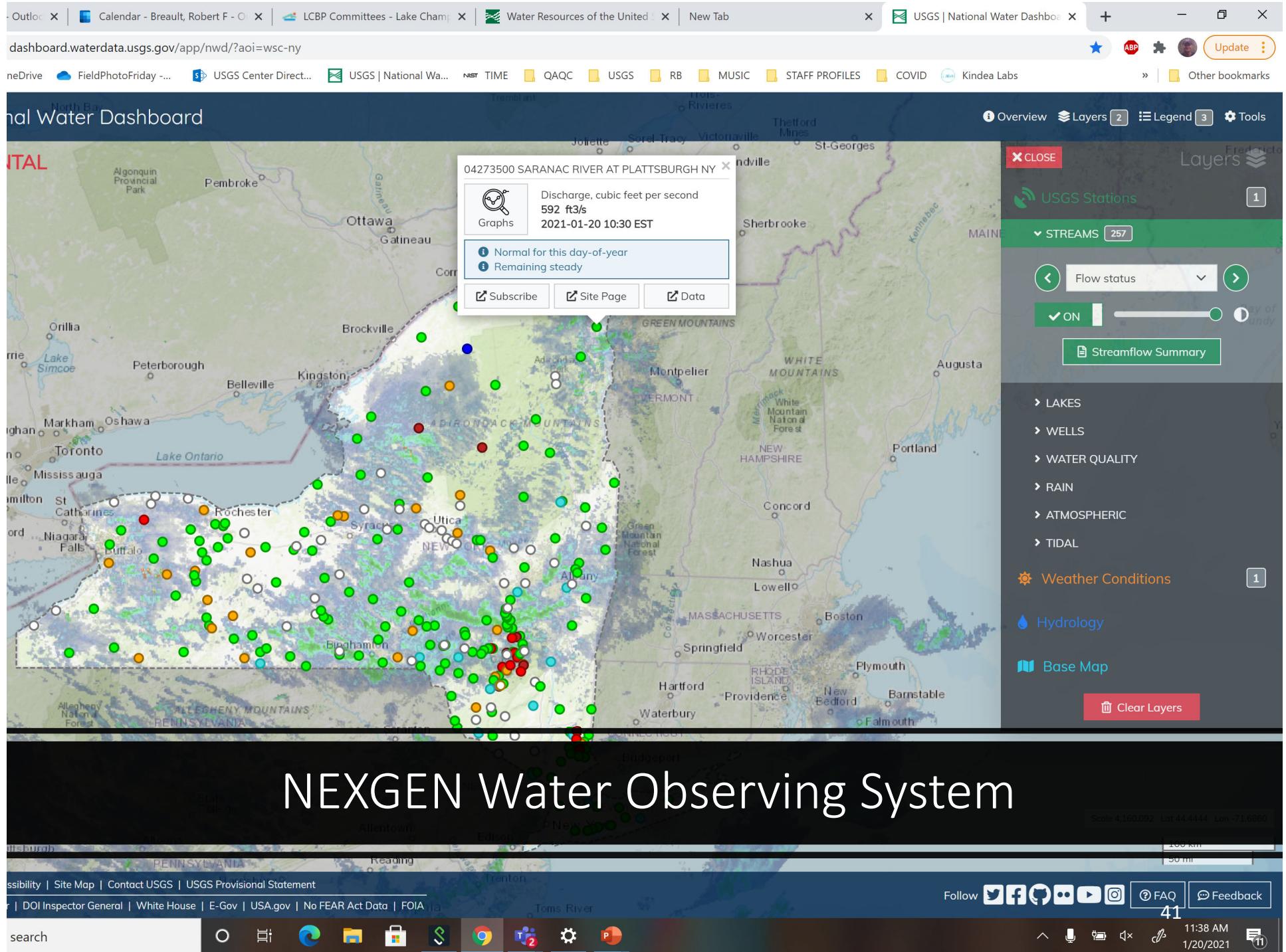


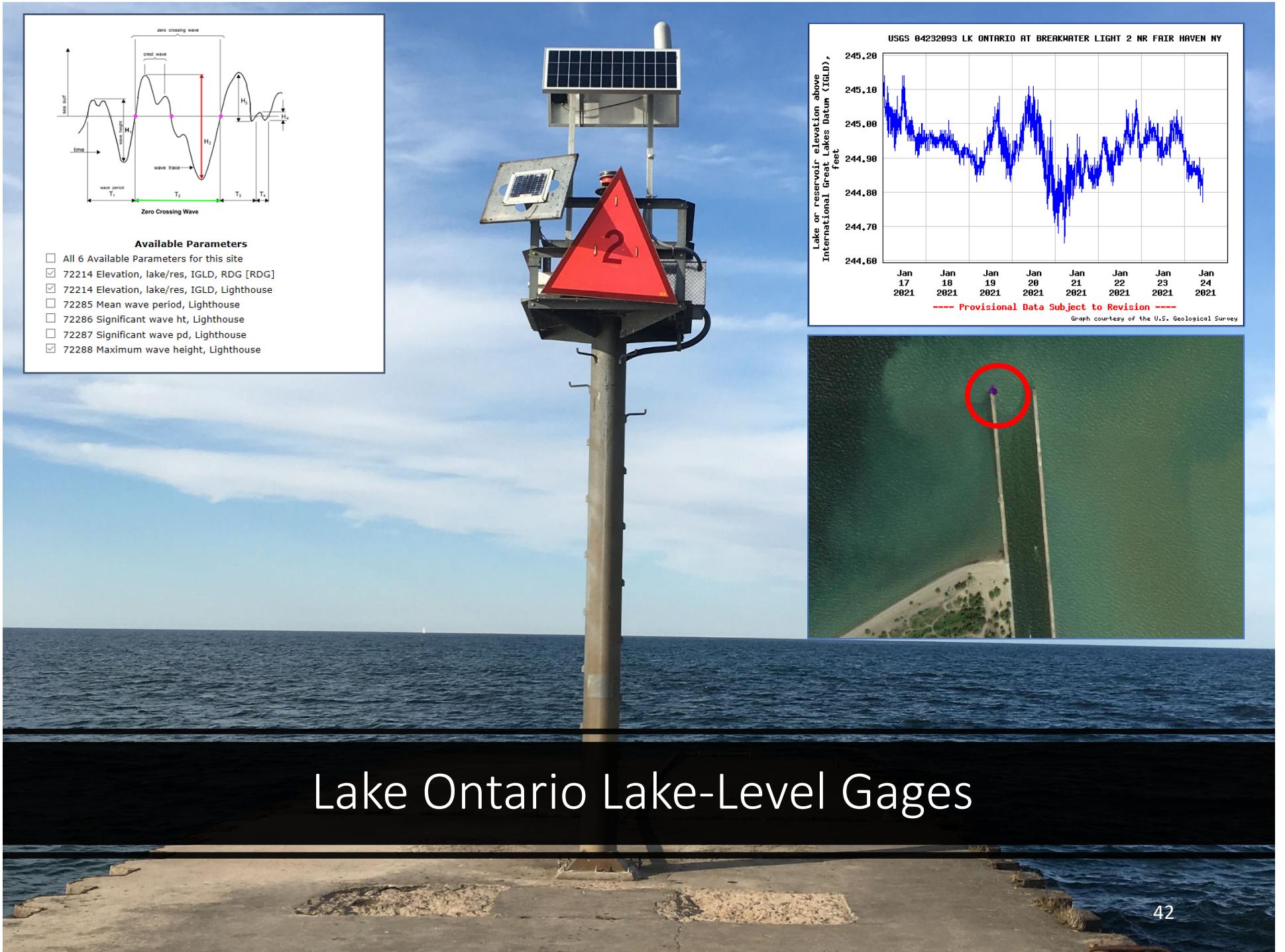
Adam Baldwin

Chris Gazoorian
Surface Water
Specialist

NEXGEN Water Observing System









Questions?



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Director

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Water Science Center

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