

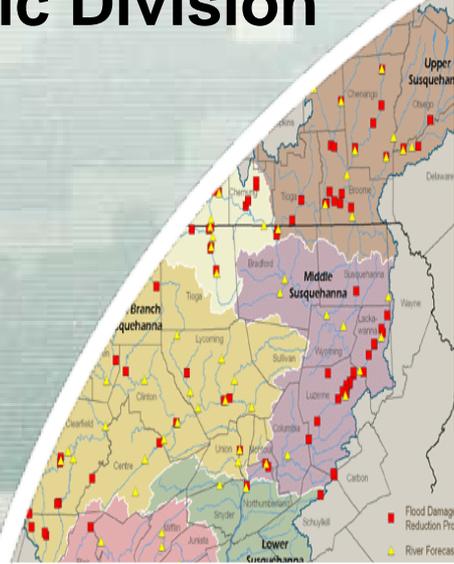
IWRSS Implementation: Integrated Watershed Gaging Initiative

BG Duke DeLuca
Commander, North Atlantic Division

24 Aug 2011



US Army Corps of Engineers
BUILDING STRONG[®]



Integrated Watershed Gaging Initiative

Overview

North Atlantic Division River Basin Commissions

Integrated Water Resources Science and Services

Susquehanna River Basin Gaging Efforts: SRBC, USACE, NWS, USGS

North Atlantic Division Regional Demo

Opportunities

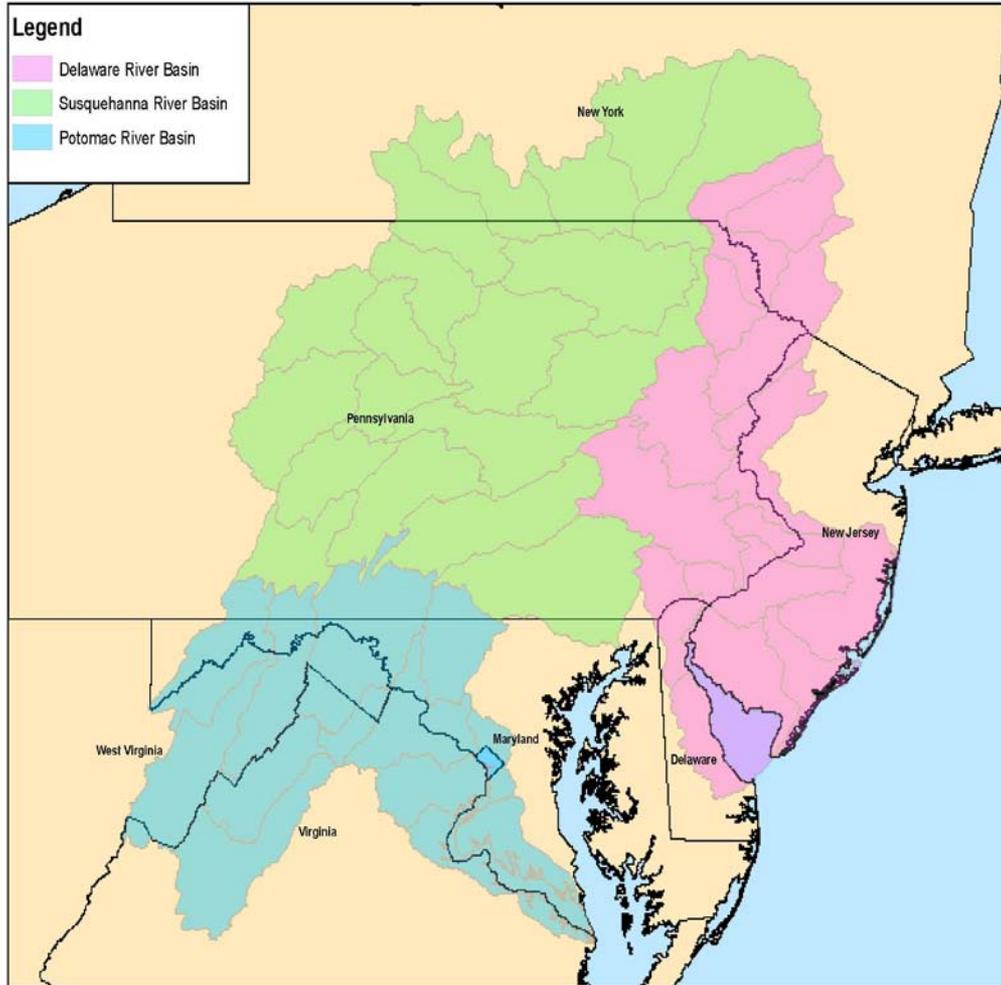
Challenges

Way Forward



Integrated Watershed Gaging Initiative

North Atlantic Division River Basin Commissions



Susquehanna River Basin: The Susquehanna River flows 444 miles from its headwaters at Otsego Lake in Cooperstown, N.Y., to Havre de Grace, Md., where the river meets the Chesapeake Bay

Delaware River Basin: The Delaware River is an interstate boundary for its entire 330-mile-length, stretching from Hancock, N.Y. to the Delaware Bay.

Potomac River Basin: The Potomac River flows 383 miles from Fairfax Stone, West Virginia to Point Lookout, Maryland where it empties into Chesapeake Bay.



Integrated Watershed Gaging Initiative

North Atlantic Division River Basin Commissions

Interstate Commission on the Potomac River Basin (ICPRB)

- 1940 Compact between US, the District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
- Non-regulatory agency promoting coordination on a watershed scale

Delaware River Basin Commission (DRBC)

- 1961 Compact between US, New York, New Jersey, and Delaware
- Commissioners: Governors (or designees) and Commander, NAD, as ex officio US member representing the federal government
- Regulatory Authority on water quality actions pertaining to the basin
- Special Protection Waters “no measurable change” water quality program
- Developing regulatory framework for Marcellus Shale Natural Gas Production

Susquehanna River Basin Commission (SRBC)

- 1971 Compact between US, New York, Pennsylvania, and Maryland.
- Commissioners are the governors (or designees) and Commander, NAD, as ex officio US member representing the federal government
- States retain primary jurisdiction on water quality; SRBC
- Existing regulatory framework for Marcellus Shale Natural Gas Production



Integrated Watershed Gaging Initiative

North Atlantic Division River Basin Commissions

Federal Partnership in the Susquehanna River Basin

Department of the Interior
US Geological Survey
National Park Service
US Fish and Wildlife Service



Department of Energy
Federal Energy Regulatory Commission

Department of Homeland Security
US Coast Guard
Federal Emergency Management Agency

Department of Defense
US Army Corps of Engineers

Department of Agriculture
Natural Resource Conservation Service
Forest Service

Environmental Protection Agency

National Oceanic and Atmospheric Administration
National Weather Service



Integrated Watershed Gaging Initiative

Integrated Water Resources Science and Services (IWRSS)

ASA(CW) signed 11 May 2011

Integrated and Adaptive Water Resource Management MOU

DOD USACE



DOI USGS

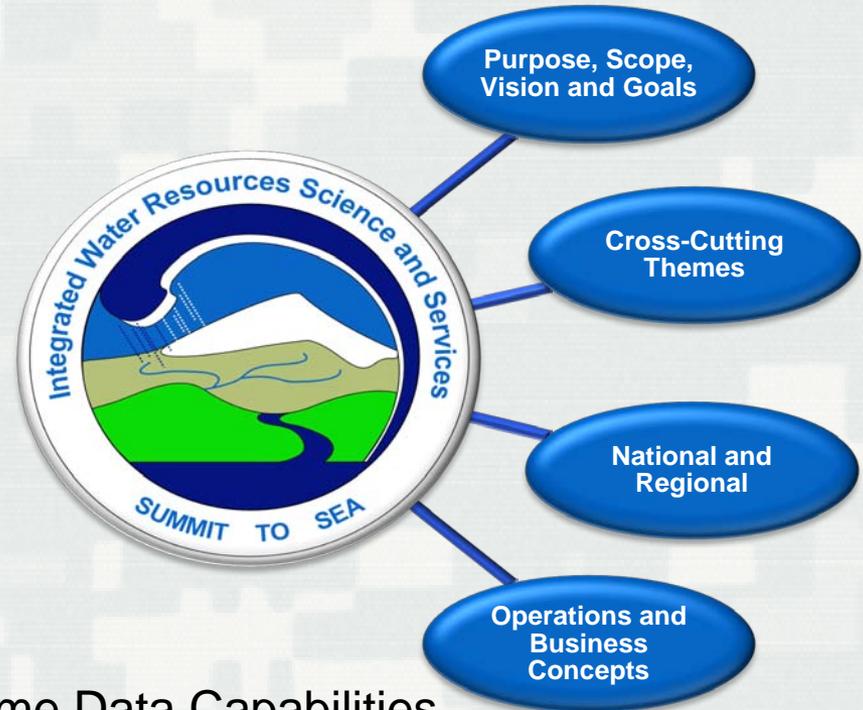


NOAA NWS



MOU Provisions:

- Interoperable systems
- Enhanced High Resolution, Real-Time Data Capabilities
- Develop Individual Agreements for Specific Efforts



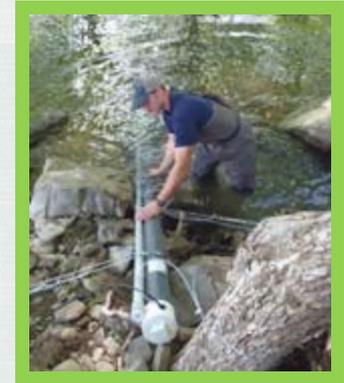
Integrated Watershed Gaging Initiative

Susquehanna River Basin Gaging Efforts



Susquehanna River Basin Commission

- Remote Water Quality Monitoring Network established Jan 2010
- Real-time measurement/reporting of water quality conditions
- Targets smaller rivers and streams in northern tier PA and southern tier NY
- Stations positioned to track effects of natural as drilling;
with reference locations
- Water quality parameters
 - Temperature
 - pH
 - Conductance,
 - Dissolved Oxygen
 - Turbidity

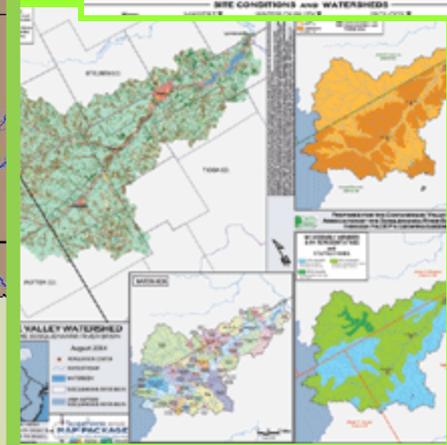
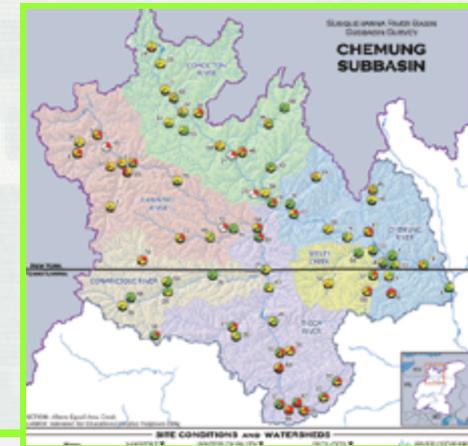
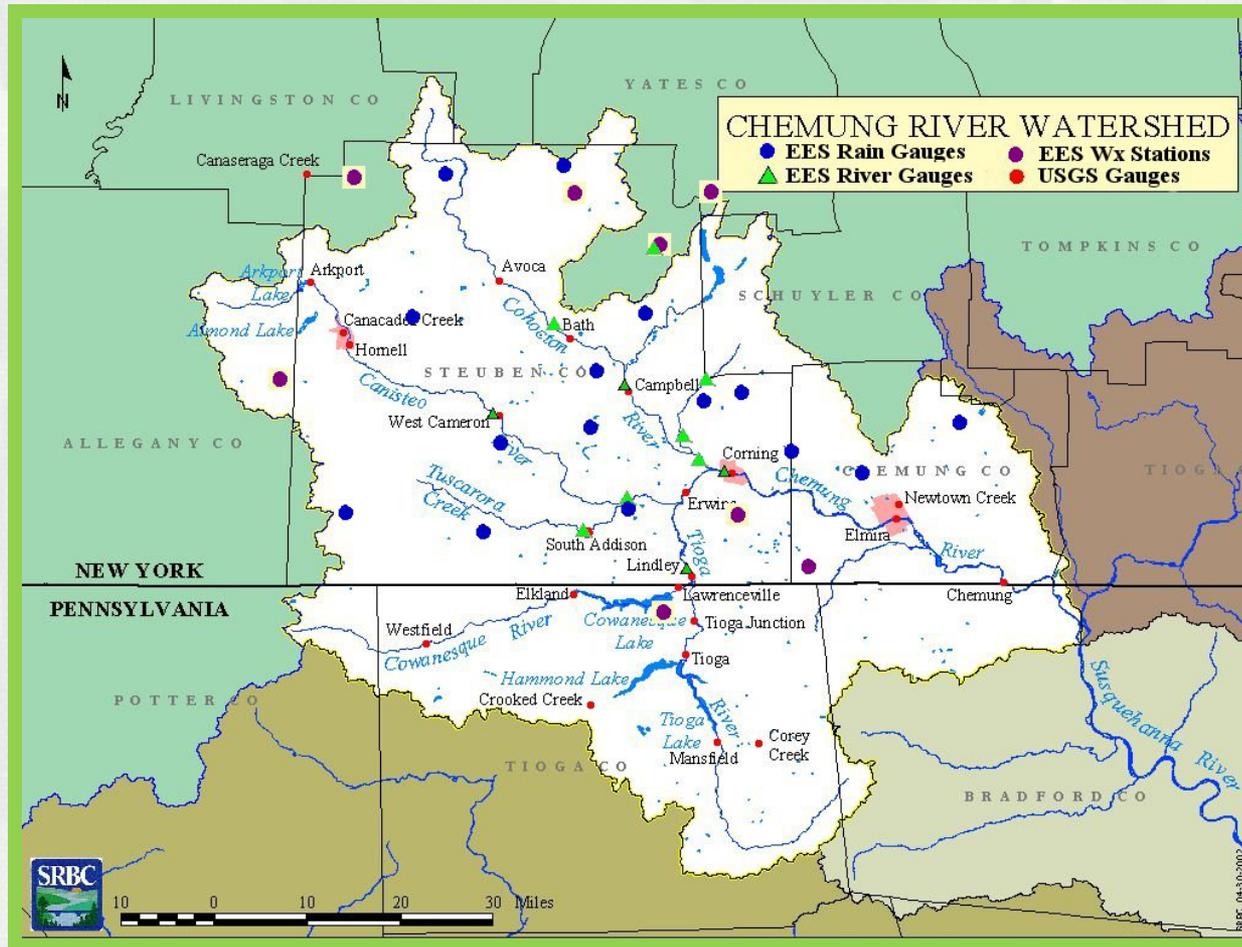




Integrated Watershed Gaging Initiative

Susquehanna River Basin Gaging Efforts

Susquehanna River Basin Commission



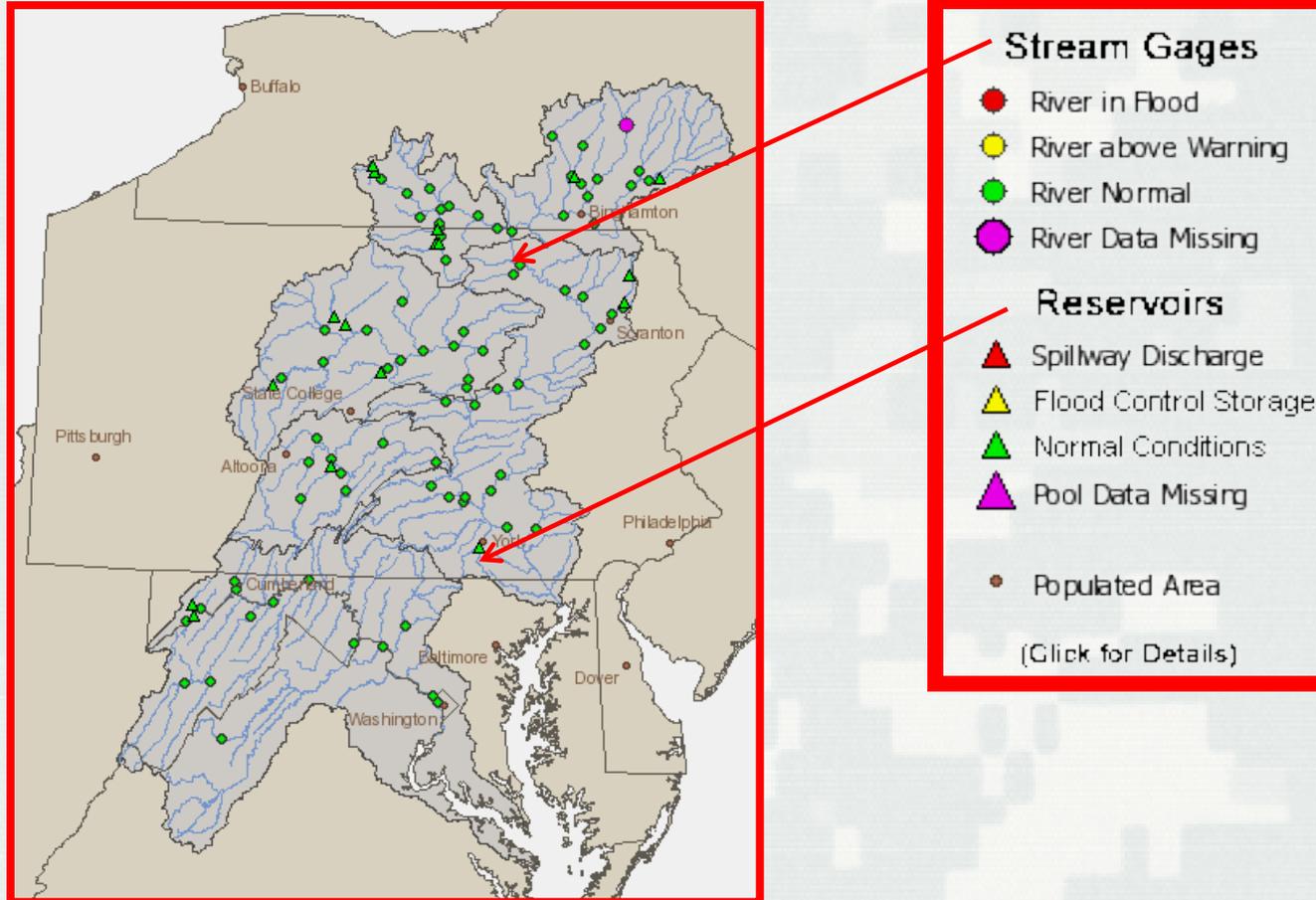
Integrated Watershed Gaging Initiative

Susquehanna River Basin Gaging Efforts



US Army Corps
of Engineers®

US Army Corps of Engineers Reservoir Monitoring



Integrated Watershed Gaging Initiative

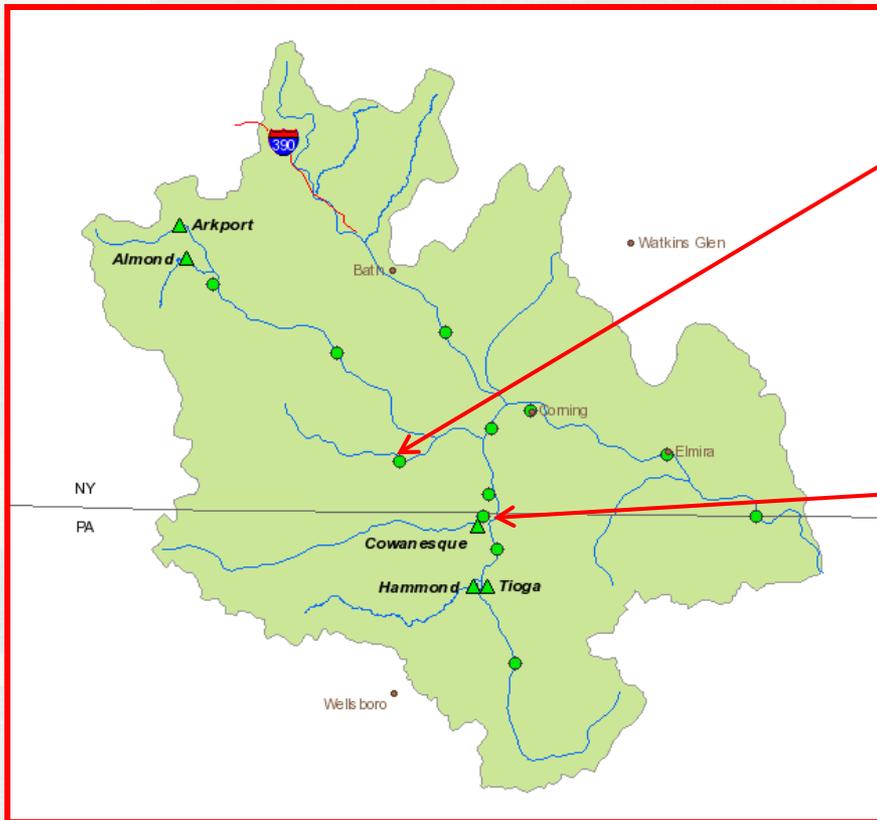
Susquehanna River Basin Gaging Efforts



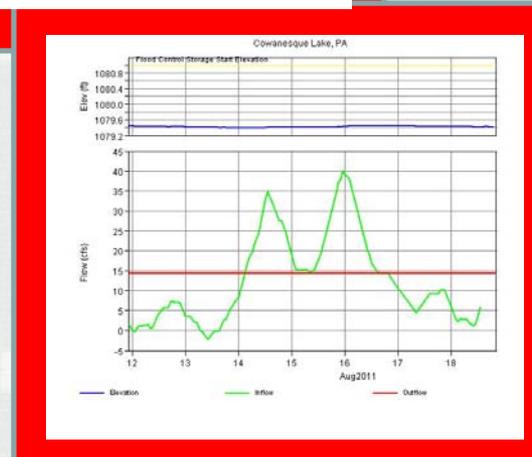
US Army Corps of Engineers®

US Army Corps of Engineers Reservoir Monitoring

Basin	Location	Project	Stream	Conductance	PH	Water Temperature
Chemung	Mansfield	Tioga Hammond	Tioga	X	X	
Chemung	Tioga Junction	Tioga Hammond	Tioga	X	X	X
Chemung	Lawrenceville	Cowanesque	Cowanesque			X



Links to :
[NWS Web Info](#)
[USGS Web Info](#)

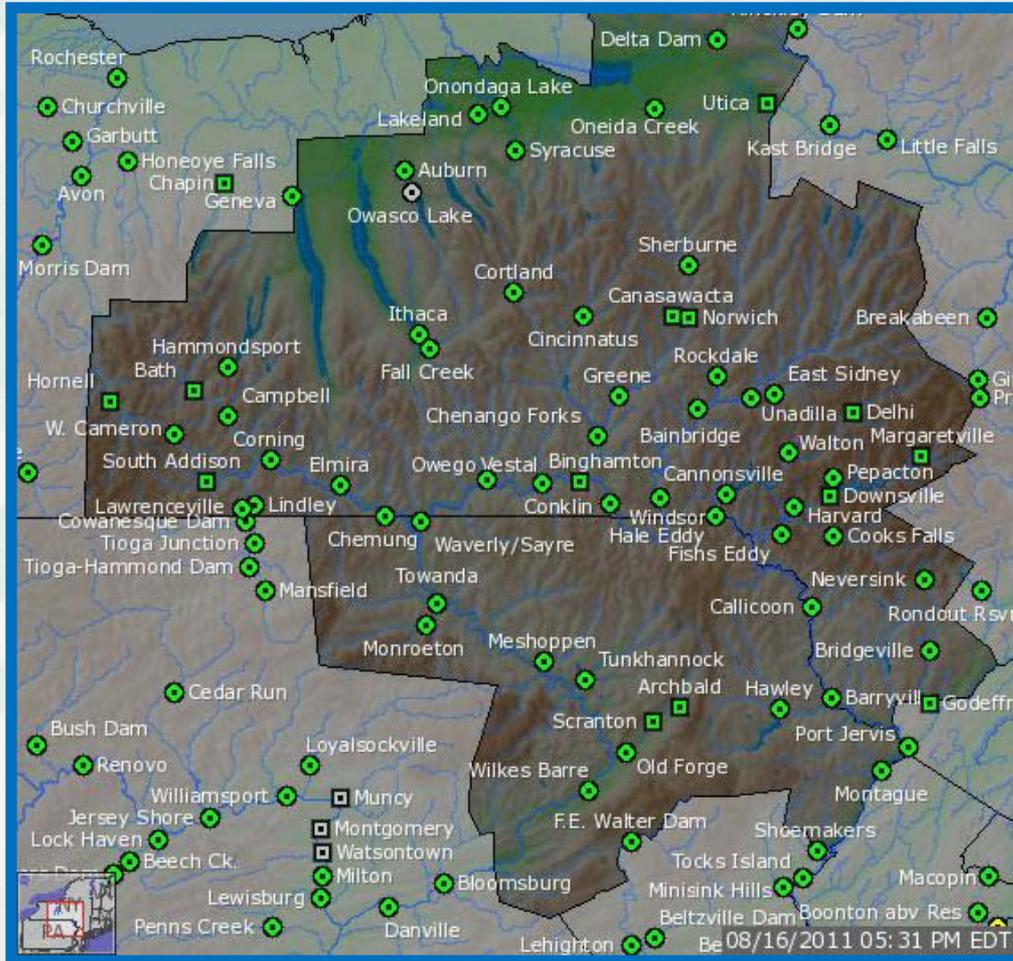


Integrated Watershed Gaging Initiative

Susquehanna River Basin Gaging Efforts



NOAA National Weather Service Advanced Hydrologic Prediction Service



Topography , Gauges, Counties, States, Major Rivers, Other Rivers, Highways, Cities, Hydrologic Service Area Boundaries (HSA)

Map Legend

Hydrograph Available

Probability and Hydrograph Available

Major Flooding

Moderate Flooding

Minor Flooding

Near Flood Stage

No Flooding

Observation More Than 24 Hours Old

Out of Service



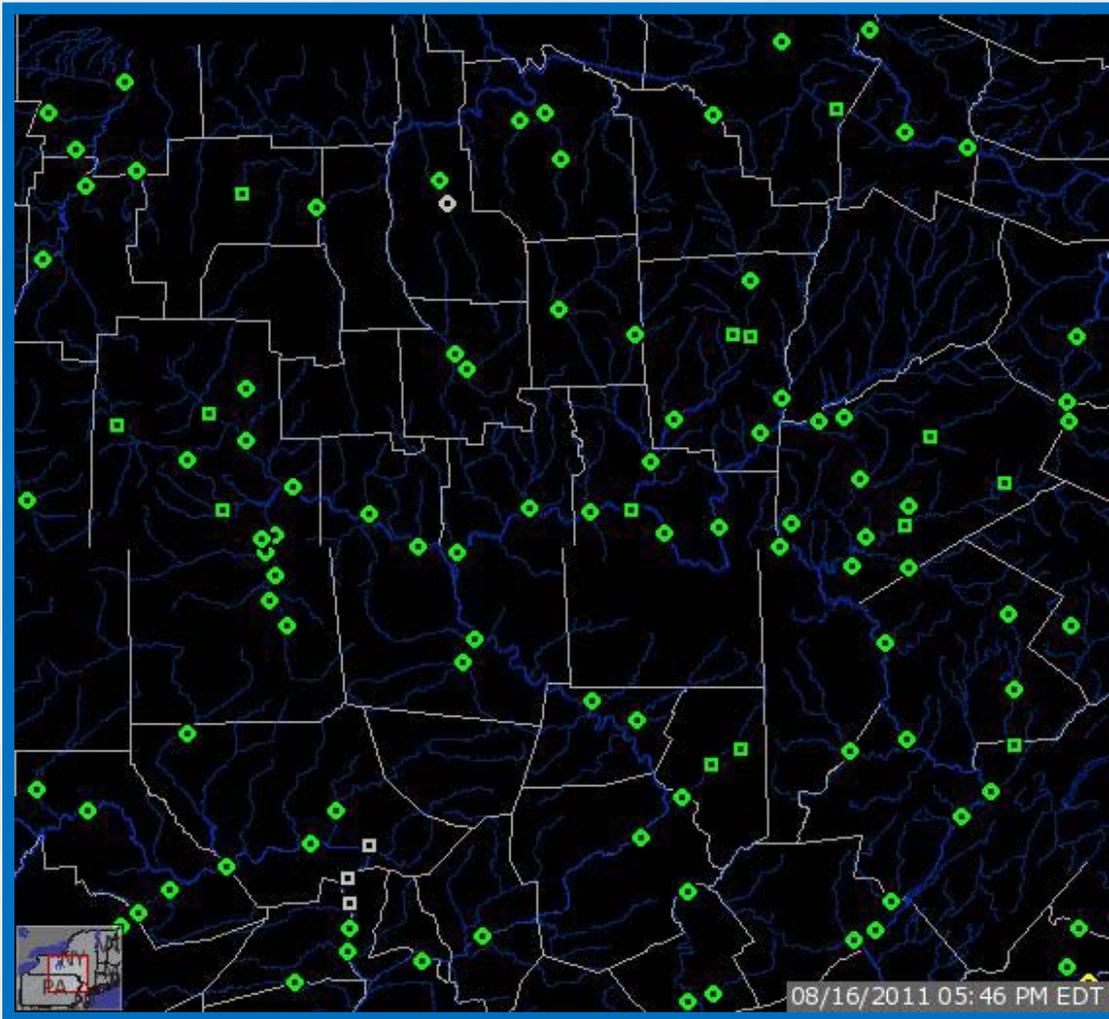
BUILDING STRONG®

Integrated Watershed Gaging Initiative

Susquehanna River Basin Gaging Efforts



NOAA National Weather Service Advanced Hydrologic Prediction Service



Gauges Only (111)

Map Legend

□ Hydrograph Available

○ Probability and Hydrograph Available

Major Flooding

Moderate Flooding

Minor Flooding

Near Flood Stage

No Flooding

Observation More Than 24 Hours Old

Out of Service

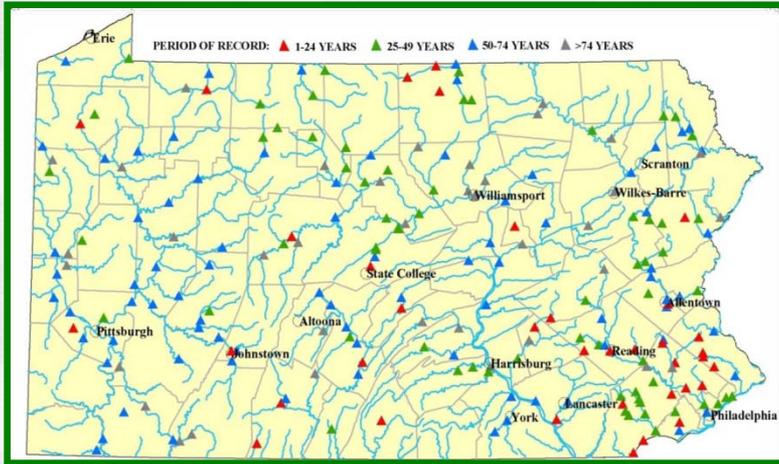


BUILDING STRONG®

Integrated Watershed Gaging Initiative Susquehanna River Basin Gaging Efforts



US Geological Survey Gaging Station Network



Surface-Water

- 258 stream gages.
- 363 real-time sites
- Water availability and ecosystem flows

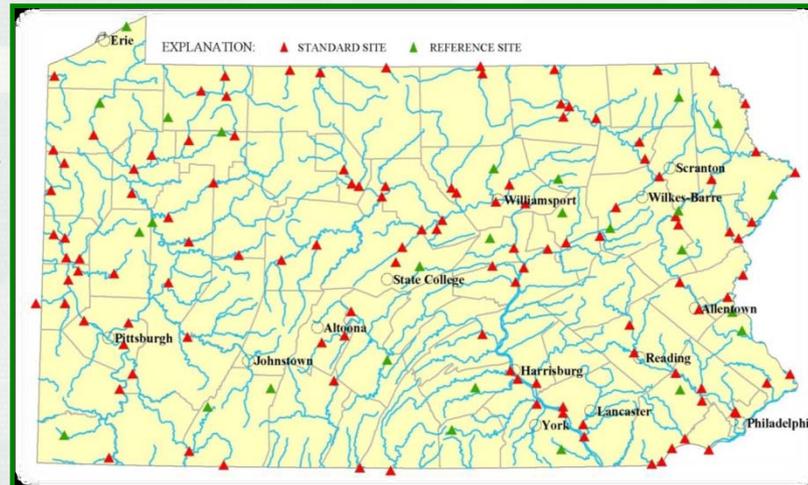
Real-Time Monitoring Network Improvements

- Streamflow
 - 7 new stream gages on small watersheds

- Water Quality
 - ph, temp, DO, special conditions
 - Susquehanna Basin 8 monitors (4 new)

Water-Quality Stations

- 31 Real-time monitors
- 112 standard sites
- 26 reference sites



BUILDING STRONG®

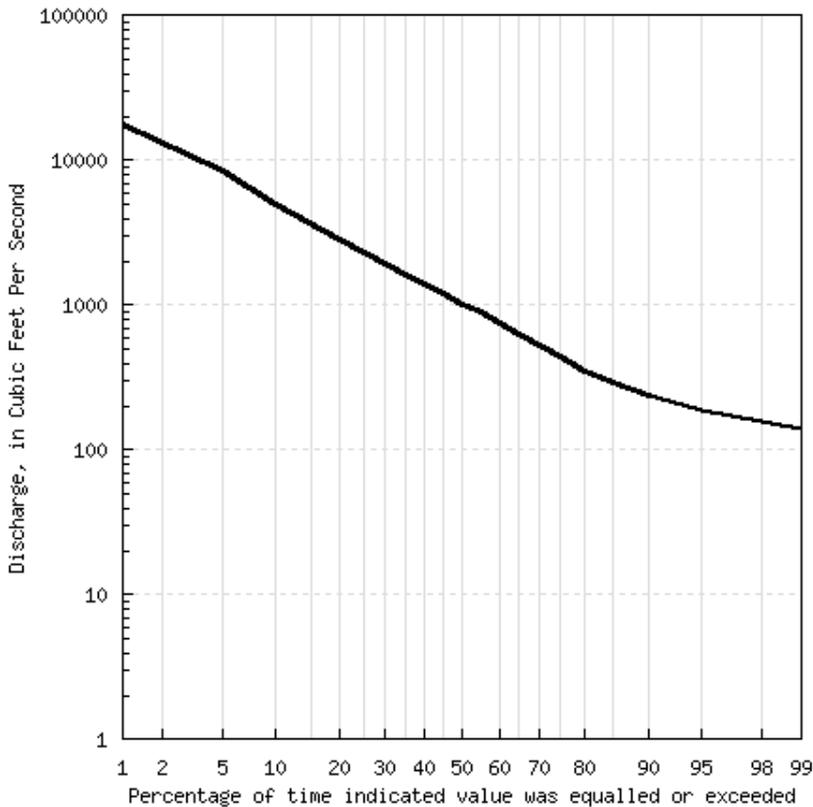
Integrated Watershed Gaging Initiative

Susquehanna River Basin Gaging Efforts



WaterWatch USGS Streamgauge Statistics

USGS 01529950 CHEMUNG RIVER AT CORNING NY
 Drainage Area: 2006 Square Miles, Length of Record: 36 Years



beg_dt: 19741001
 end_dt: 20100930
 nval: 13149
 mean: 2175.4
 std: 3433.0
 min: 105.0
 p05: 187.0
 p10: 236.0
 p25: 440.0
 p50: 1020.0
 p75: 2330.0
 p90: 5020.0
 p95: 8385.0
 max: 87100.0

Map data ©2011 Google
[Terms of Use](#)
 Map Satellite

USGS 01529950 CHEMUNG RIVER AT CORNING NY

Site number	Name	Drainage (mi ²)	No. of Years
01529950	CHEMUNG RIVER AT CORNING NY	2006	36
01530332	CHEMUNG RIVER AT ELMIRA NY	2162	2
01530380	NEWTOWN CREEK AT BREESPORT NY	20.6	2
01530500	NEWTOWN CREEK AT ELMIRA NY	77.5	70
01531000	CHEMUNG RIVER AT CHEMUNG NY	2506	106



Integrated Watershed Gaging Initiative

North Atlantic Division Regional Demo

Opportunities

Federal Partnership Established

Basic Gaging Network In-Place

IWRSS MOU Supports Specific Agreements

Forcing Factor - Natural Gas Production

USGS Comprehensive Study - Scoping Underway

Challenges

Commitment of Support

Improved Platforms for Real-Time Data Sharing

Way Forward

Develop/Execute Regionally Specific MOA

Identify Monitoring Gaps: Data Types/Coverage

Implement Expanded Gaging Network

Refine Data Sharing



Thank you, discussion?



North Atlantic Division PoCs:

Roselle Henn

roselle.e.henn@usace.army.mil

347.370.4562

Ralph LaMoglia

ralph.a.moglia@usace.army.mil

347-370-4599



BUILDING STRONG®