

Gas Well Drilling in the Susquehanna River Basin



October 22, 2008

Harrisburg, Pennsylvania

Susquehanna River Basin

The Basin

- 27,510-square-mile watershed
- Comprises 43 percent of the Chesapeake Bay watershed
- 4.2 million population
- 60 percent forested
- 32,000+ miles of waterways



The Susquehanna River

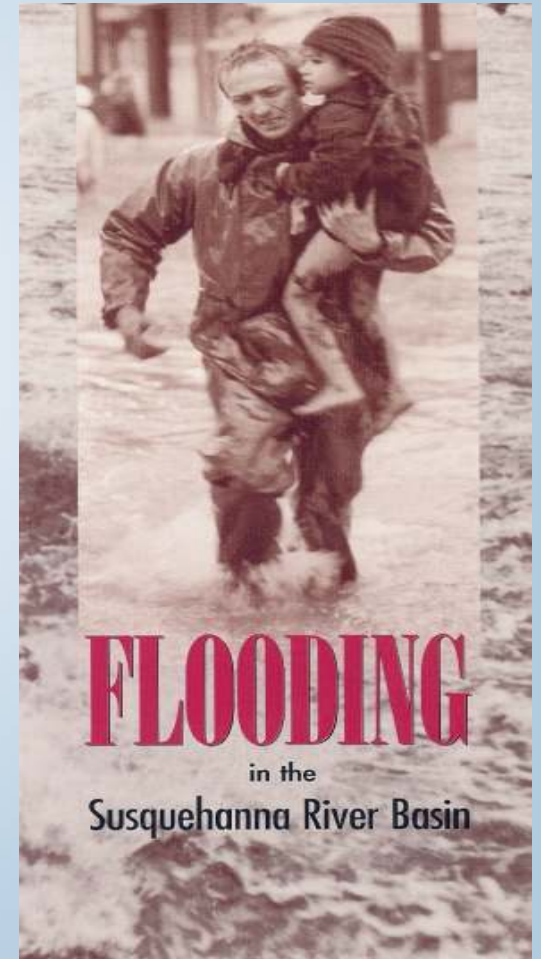
- 444 miles, largest tributary to the Chesapeake Bay
- Supplies 18 million gallons a minute to the Bay

Susquehanna River Basin Commission

- Federal-interstate compact commission established by the federal government and the states of New York, Pennsylvania, and Maryland.
- Responsible for managing the Basin's water resources.
- Currently comprised of 38 full-time staff
 - Water Resources Management (14 full time)
 - Regulatory program (7 full time)

Commission Programs

- Flood Forecast and Warning System
- Monitoring and Assessment
- Public Education and Outreach
- Water Resources Planning
- Drought Coordination
- [Regulatory Program](#)



Commission Regulations

- Projects requiring review and approval
 - Consumptive water use §806.4(a)(1)
 - 20,000 gpd/30-day average (600,000 gallons)
 - Approval by Rule §806.22(e)(i) public water supply
 - Water withdrawals §806.4(a)(2)(iii)
 - 100,000 gpd/30-day average (3,000,000 gallons)
 - Any project which involves a withdrawal from a groundwater or surface water source and which is subject to the requirements of §806.4(a)(1) regarding consumptive use.

Recent Commission Actions

May 30, 2008 - Cease and desist Orders were issued to two gas well drilling companies

June 6-18, 2008 - Notice was sent to 52 gas companies operating within the Susquehanna River Basin clarifying that water used for developing natural gas wells in the Susquehanna River Basin needs Commission approval

June-August 2008 - Commission staff met with over 30 gas companies operating within the Susquehanna River Basin, these meetings resulted in the executed 6 consent order and agreements.

August 14, 2008 - Executive Director issued a determination that all gas well drilling in the basin targeting the Marcellus or Utica shale must be approved after October 15, 2008 regardless of the quantity of water used.

September 11, 2008 - Commission released for public comment proposed regulations that would expand the applicability of the Approval by Rule provisions of the Commissions consumptive water use regulation.

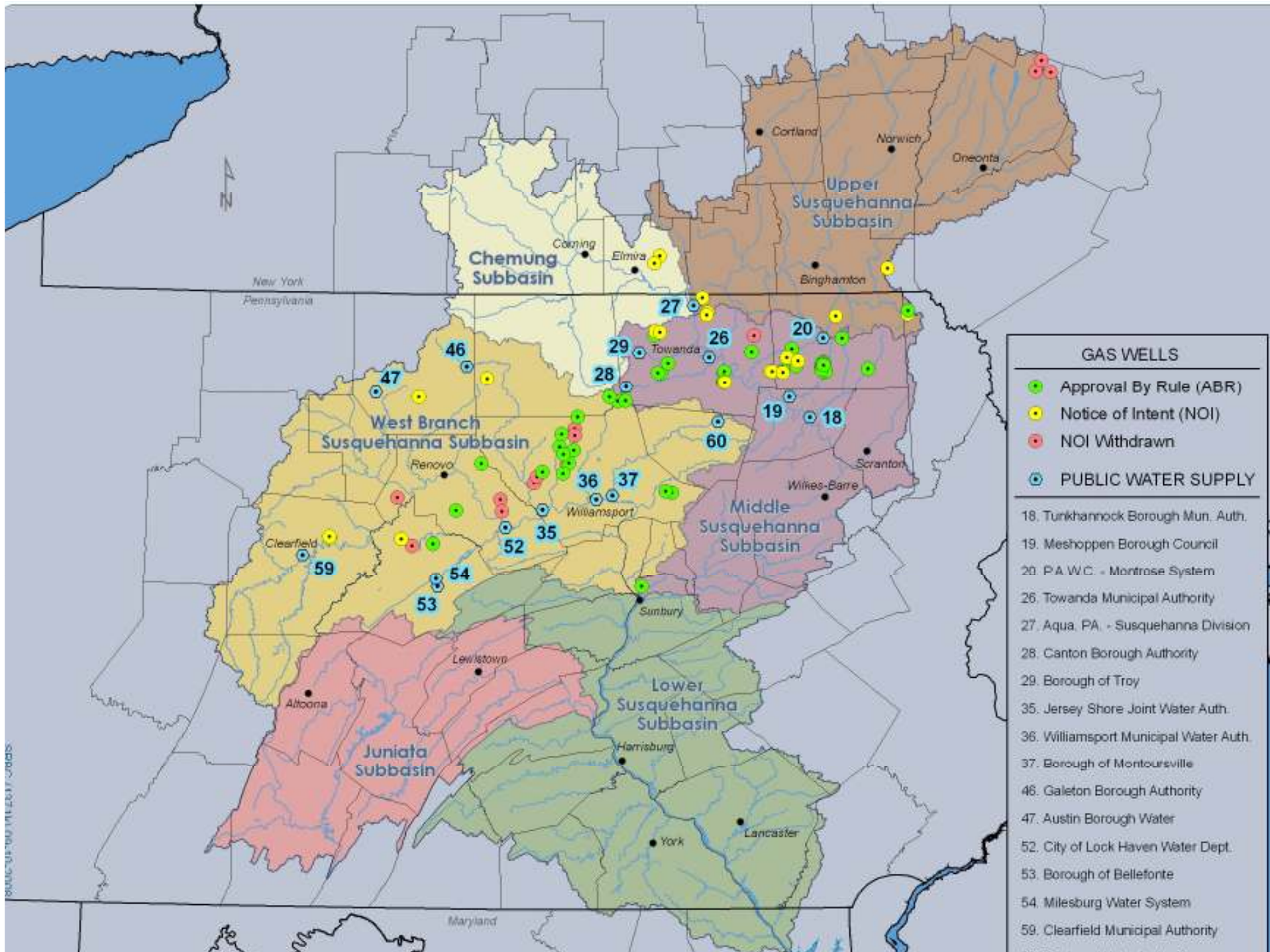
October 21 & 22, 2008 - Public hearing for proposed regulations.

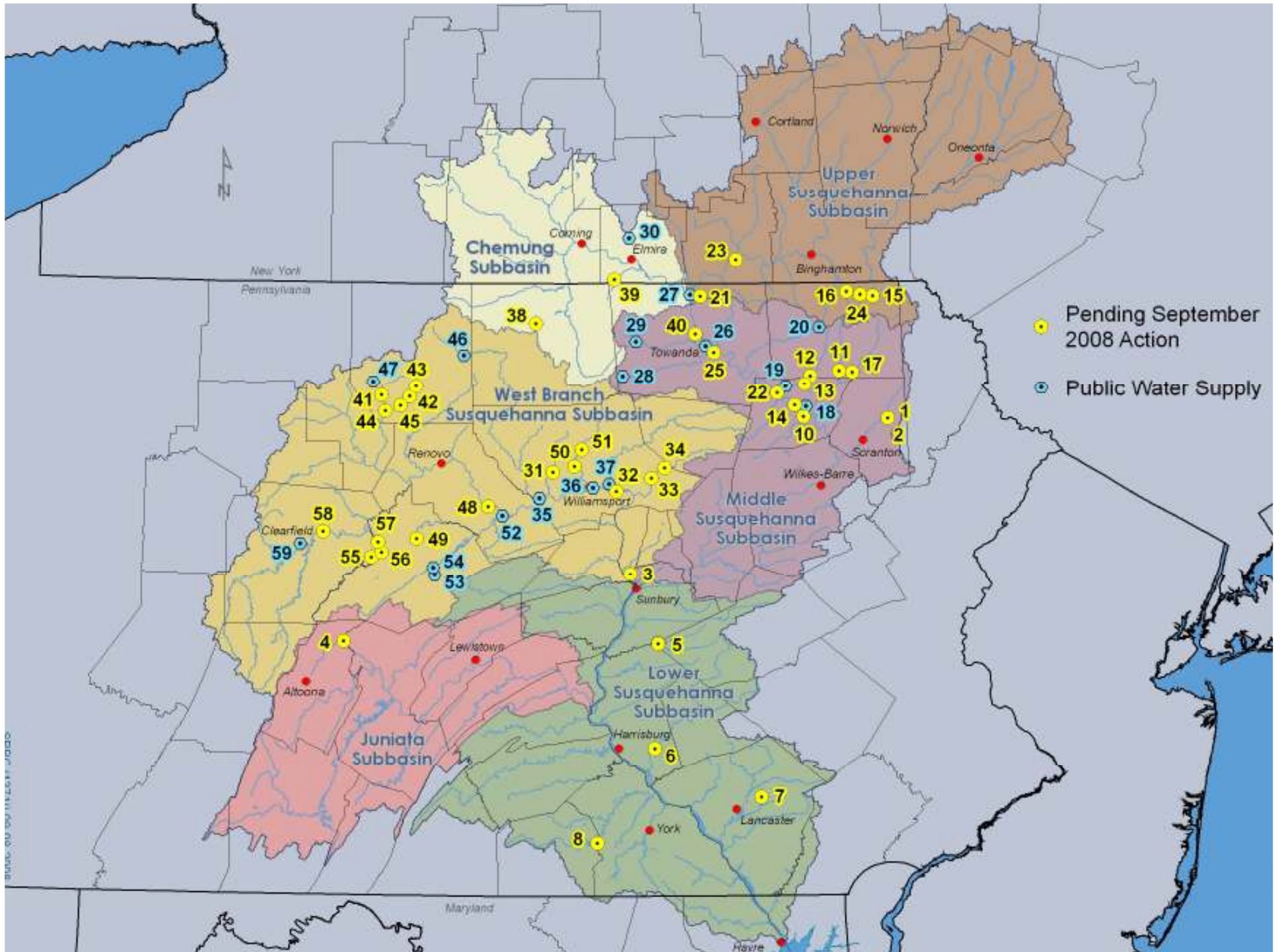
Commission Regulation (cont'd)

Approval by rule for consumptive uses.

-Consumptive water use §806.22(e)

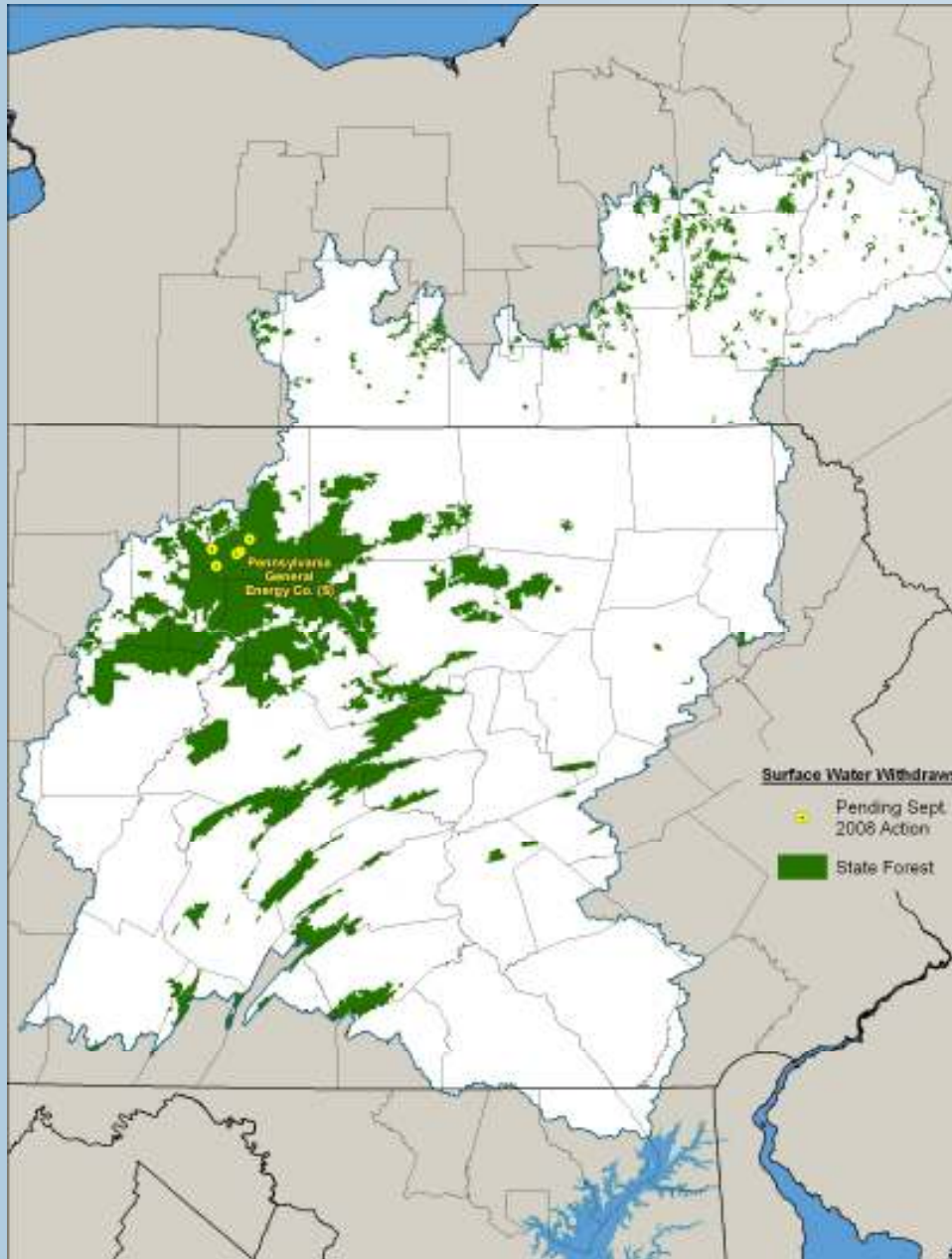
Any project whose **sole source of water for consumptive use is a public water supply** withdrawal, may be approved under this paragraph (e) in accordance with the following, unless the Commission determines that the project cannot be adequately regulated under this approval by rule.





Coordination

- PADEP, NYSDEC, MDE, USACE, PFBC
- Federal Register
- Project sponsors required to notice the host state, county, and municipality, contact contiguous landowners, and publish locally

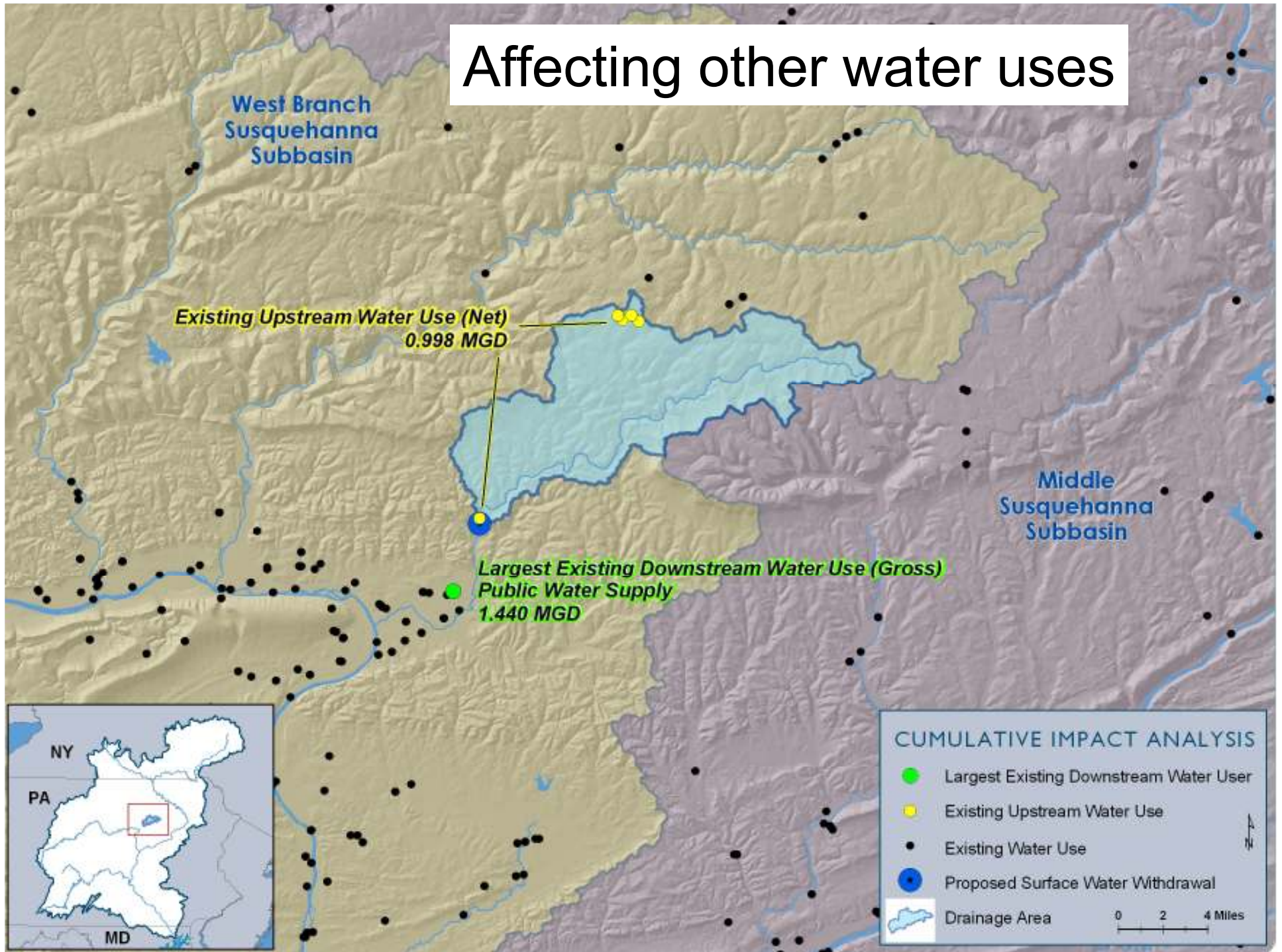


Commission Regulation

Water withdrawals §806.4(a)(2)(iii)

(2) The Commission may deny an application, limit or condition an approval to ensure that the withdrawal will not cause significant adverse impacts to the water resources of the basin. The Commission may consider, without imitation, the following in its consideration of adverse impacts: Lowering of groundwater or stream flow levels; rendering competing supplies unreliable; affecting other water uses; causing water quality degradation that may be injurious to any existing or potential water use; affecting fish, wildlife or other living resources or their habitat; causing permanent loss of aquifer storage capacity; or affecting low flow of perennial or intermittent streams.

Affecting other water uses

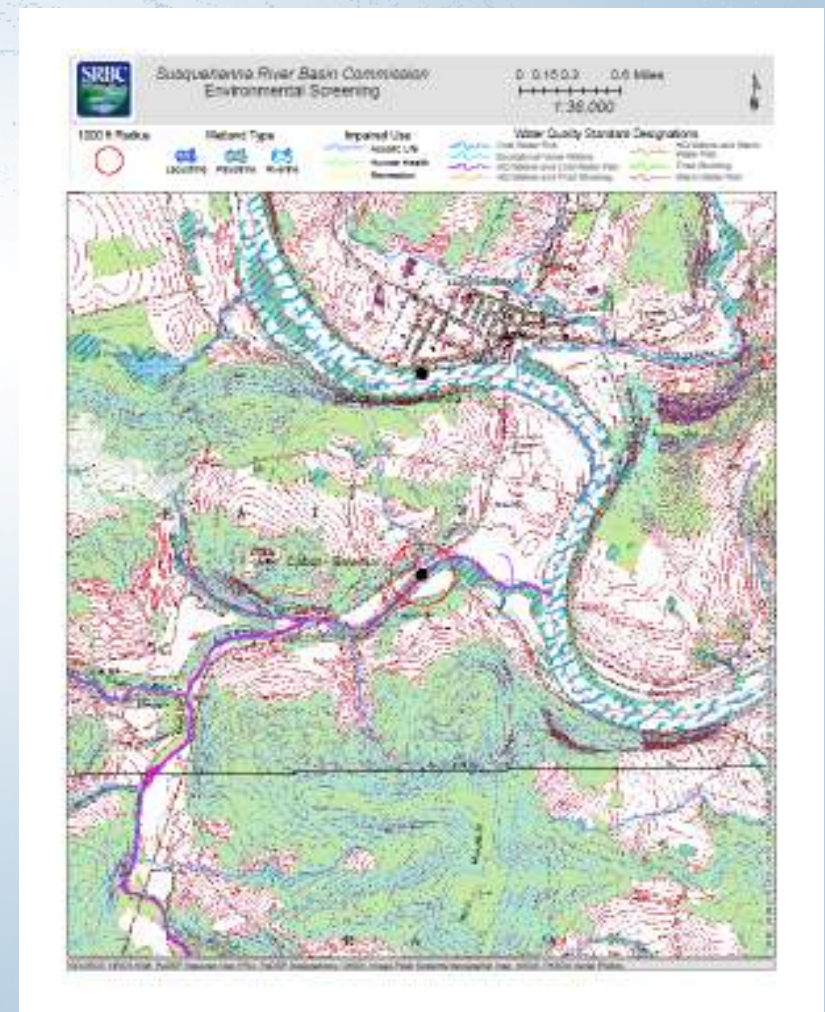


Affecting fish, wildlife or other living resources or their habitat



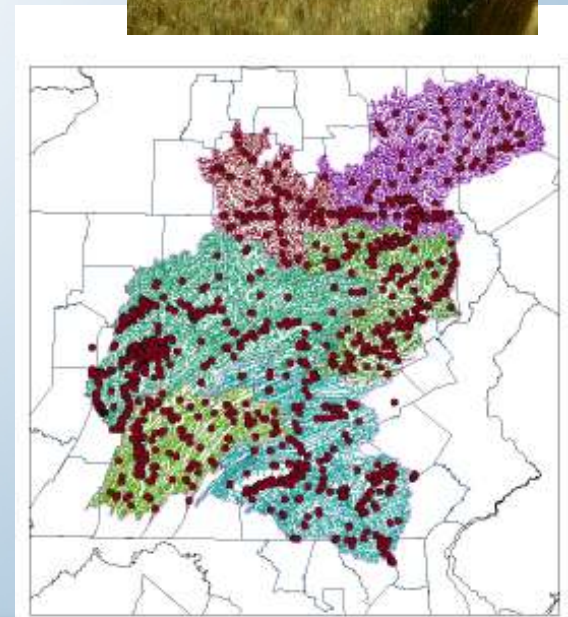
Environmental Screenings

- Surface and Groundwater Withdrawals
- Stream Classifications
 - Special Protection
 - Wild Trout Fishery
- 303(d) List or PWL Status
 - Type of Impairment
 - TMDL Development



Environmental Screenings - continued

- Adjacent Wetlands
- Wild/Scenic Rivers
- Natural Diversity Inventory Search
 - PFBC
 - PADCNR
 - USFWS
 - PGC
- Any Additional Water Quality Issues
 - Aquatic Nuisance Species



Aquatic Resource Surveys

- No data available
- Obsolete information
- Special protection stream
- Background data
- Correct protection level
- Pass-by occurrence



Aquatic Resource Surveys - Protocol

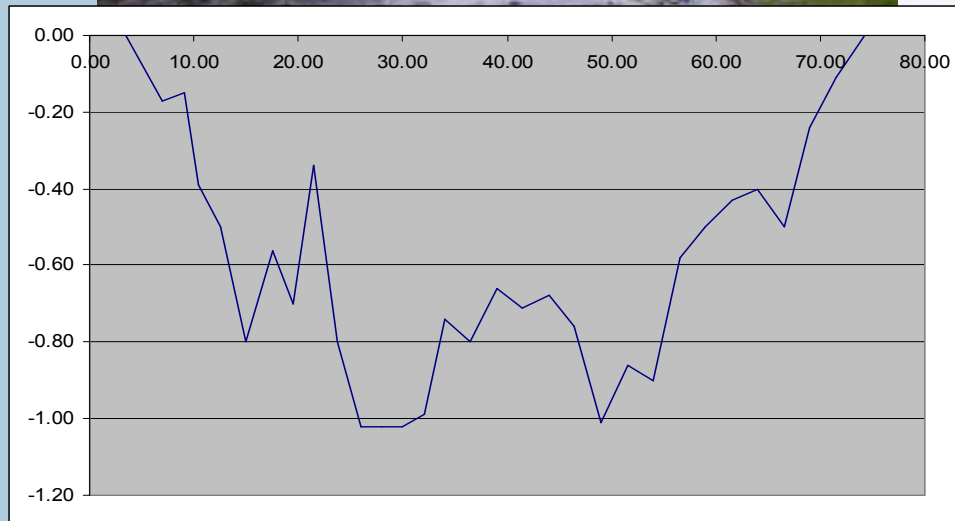
- Basic site information
- Macroinvertebrates
 - D-frame nets
 - ICE protocol
 - Genus level ID
- Fish
 - Depletion surveys
 - Community Structure
 - ID, enumeration, measurements
 - PFBC/PADEP hybrid



Aquatic Resource Surveys - Protocol



- Discharge measurements
- Physical habitat assessment
 - RBP parameters
 - Substrate types
- Water chemistry
 - DO, pH, conductivity, temperature, alkalinity
- Photographs



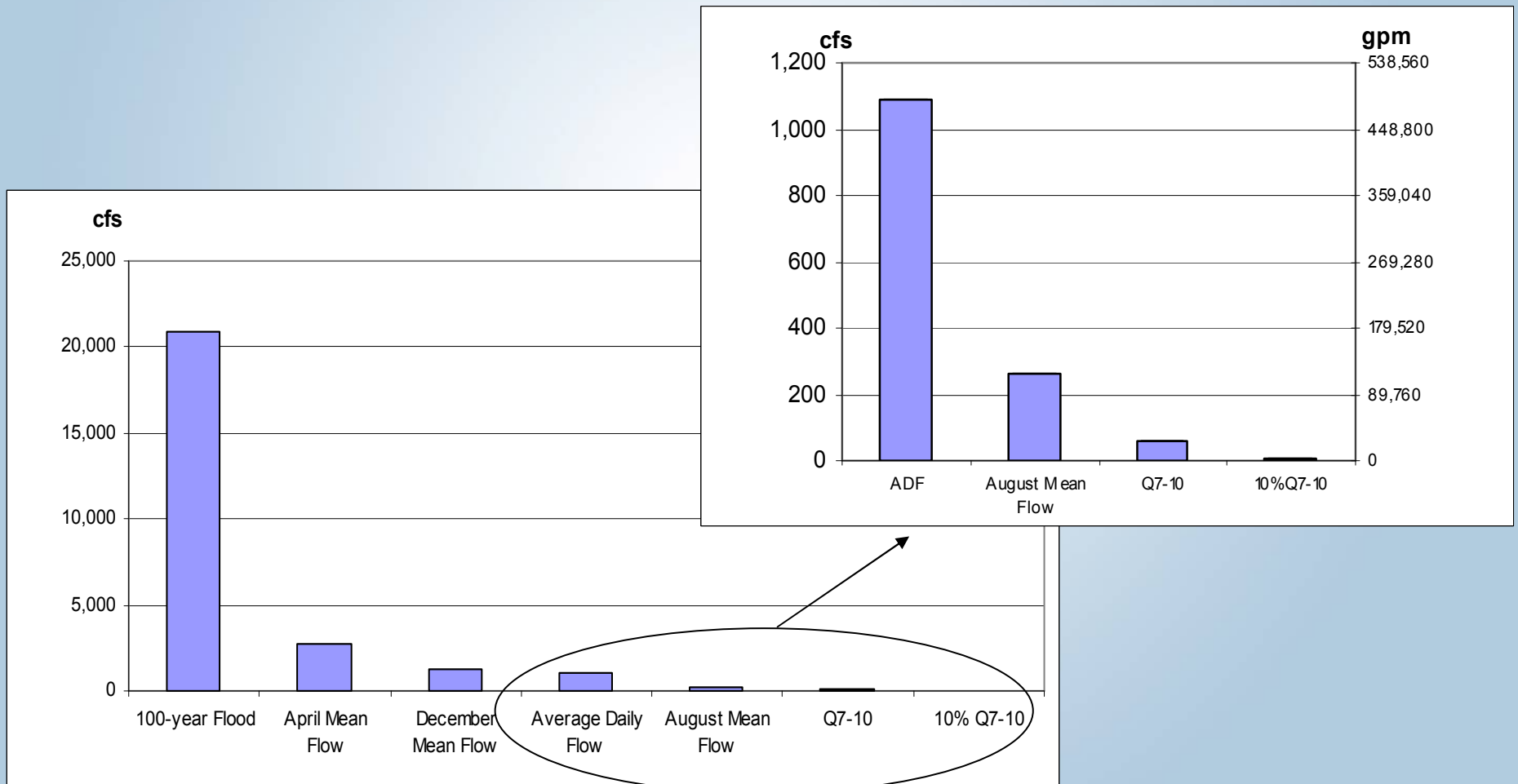
Aquatic Resource Surveys - Results



- Ensure correct protection level
- Possible stream re-designation
- Database expansion
- Background data for enforcement

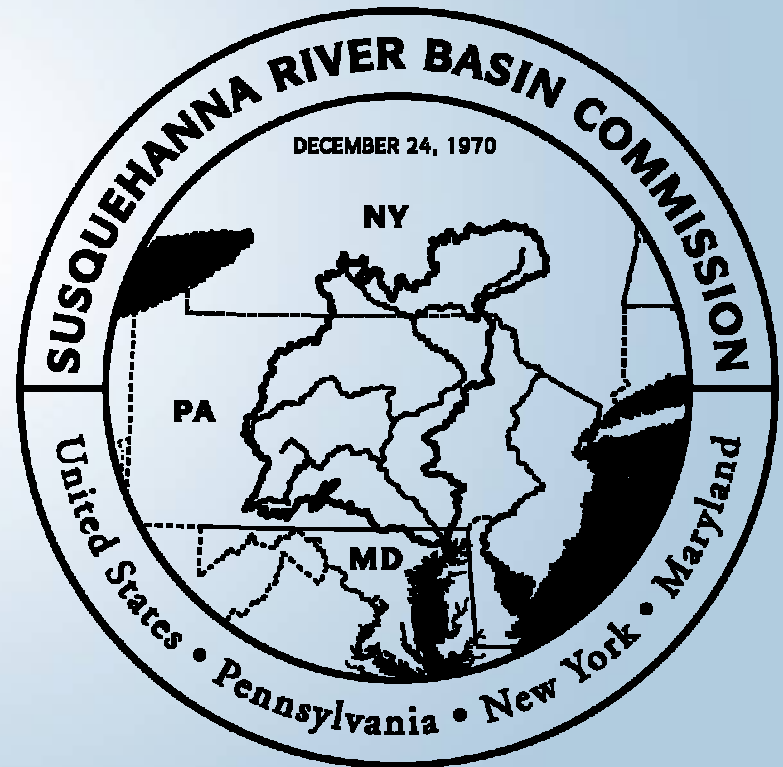
Common Name	Scientific Name	Pass 1	Pass 2	Pass 3	Total
rainbow trout	<i>Oncorhynchus mykiss</i>	3	1	0	4
brown trout	<i>Salmo trutta</i>	29	8	9	46
brook trout	<i>Salvelinus fontinalis</i>	0	1	0	1
smallmouth bass	<i>Micropterus dolomieu</i>	2	0	0	2
white sucker	<i>Catastomus commersoni</i>	26	16	9	51
mottled sculpin	<i>Cottus bairdi</i>	51	33	36	120
marginated madtom	<i>Noturus insignis</i>	9	5	3	17
banded darter	<i>Etheostoma zonale</i>	3	2	2	7
river chub	<i>Nocomis micropogon</i>	17	2	2	21
fallfish	<i>Semotilus corporalis</i>	1	6	2	9
creek chub	<i>Semotilus atromaculatus</i>	2	2	4	8
central stoneroller	<i>Camptostoma anomalum</i>	0	4	3	7
cutlips minnow	<i>Exoglossum maxillingua</i>	24	15	4	43
longnose dace	<i>Rhinichthys cataractae</i>	29	20	15	64
blacknose dace	<i>Rhinichthys atratulus</i>	116	36	34	186
common shiner	<i>Luxilus cornutus</i>	0	1	1	2
	Total =	312	152	124	588

Affecting low flow of perennial or intermittent streams



Gas Well Drilling in the Susquehanna River Basin

Jennifer L. R. Hoffman
Chief, Monitoring & Assessment Section
Telephone: (717) 238-0426 X 111
E-mail: jhoffman@srbc.net



Presented October 22, 2008

Harrisburg, Pennsylvania