Annual Progress Report

Division of Water and Waste Management

Water Use Section

December 2018

Harold A. Ward
Acting Director

Overview

- Plan History
- Water Facts
- Precipitation
- Large Quantity Water Use
  - SW, GW, Consumptive Use
- Water Management Plans
- Geophysical Well Logging
- Tools
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- Protected Areas
  - ZCC, ZPC, SWPA
- Stream Gage Network
- Recreation
- Initiatives/Future Pursuits

Plan History

The Act was originally passed in 2004.

Senate Bill 641 renamed it the Water Resources Protection and Management Act in 2008.

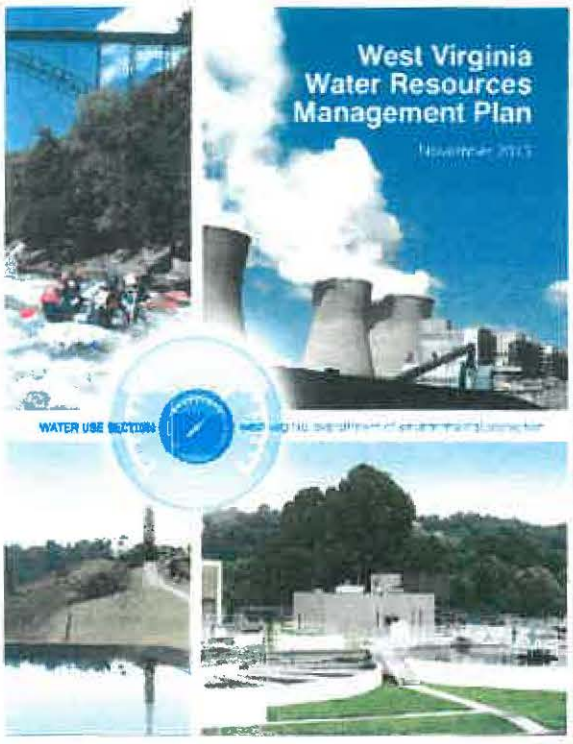
The Water Use Section was created in 2008 to accomplish the Act's requirements.

The WV Water Resources Management Plan was submitted on November 22, 2013.

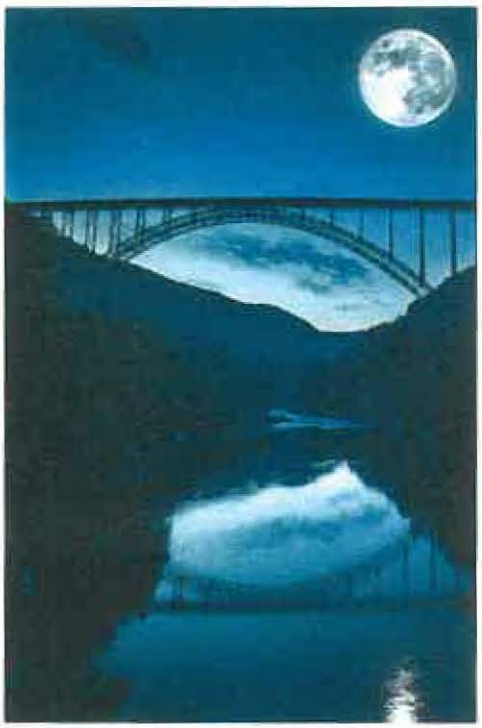
The Plan was adopted as part of Senate Bill 373 in 2014.

An addendum to the Plan will be submitted in 2020 containing general updates.

A new addendum will be submitted on a five year cycle thereafter.



Why collect water use data?



The Act (§22-26) recognized:

The need for the protection and conservation of our state's water resources.

& That

A comprehensive assessment of the availability and use of our states water would benefit the citizens of West Virginia.

West Virginia Water Facts

We average 44 inches of precipitation per year

Record rain event in Rockport WV, July of 1889 was 19.5" over 2 hour

Maximum storage of lakes - 1 trillion gallons

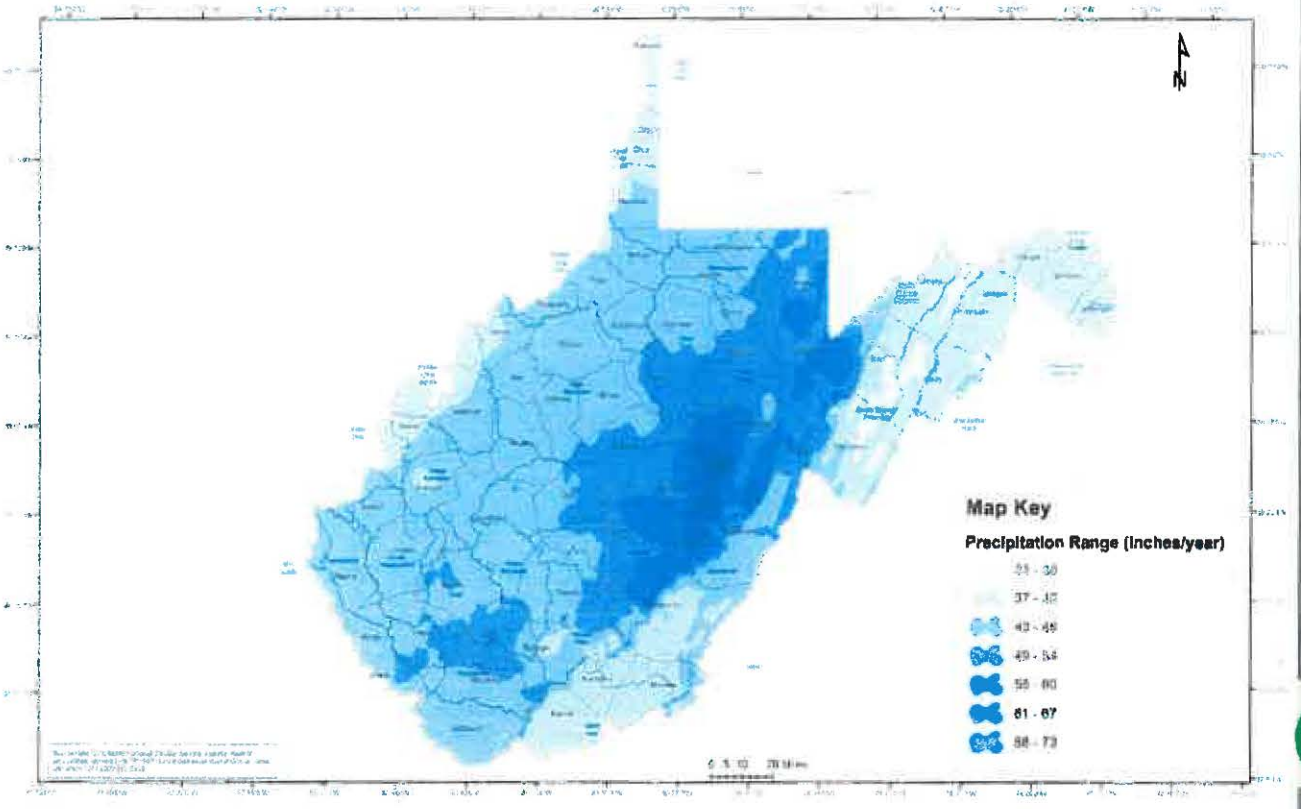
Estimated mine pool storage - 1.5 trillion gallons

Large Quantity Users withdraw an average of 828 billion gallons each year

We consume 8.5% of the water we withdraw (based on national coefficient's)

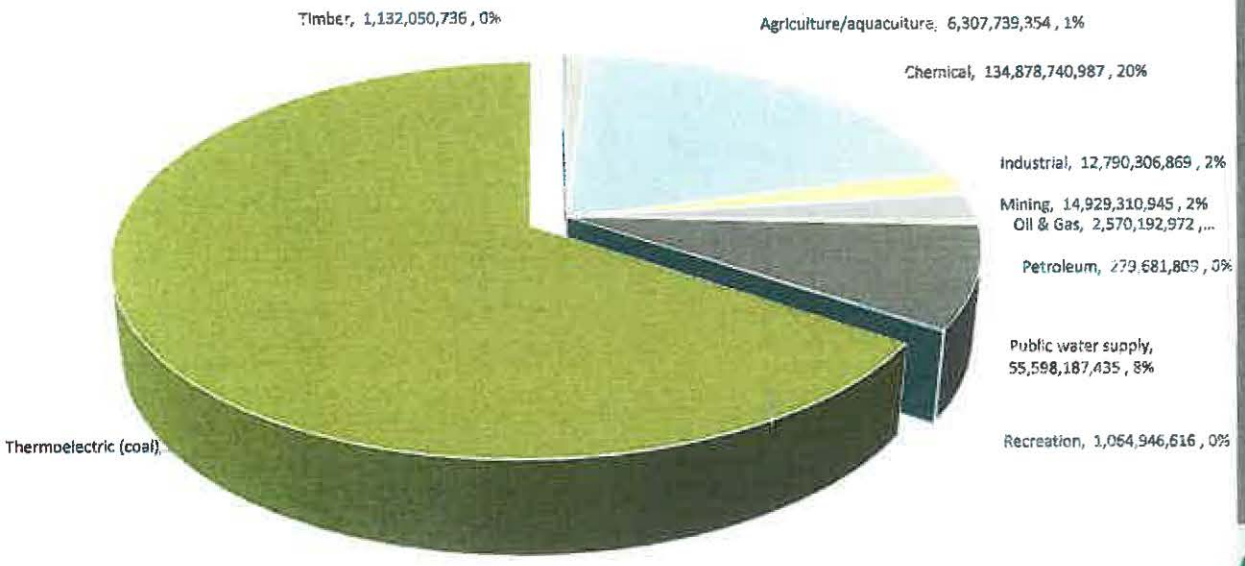
We have nearly 55 thousand stream miles in our state

Average Annual Precipitation



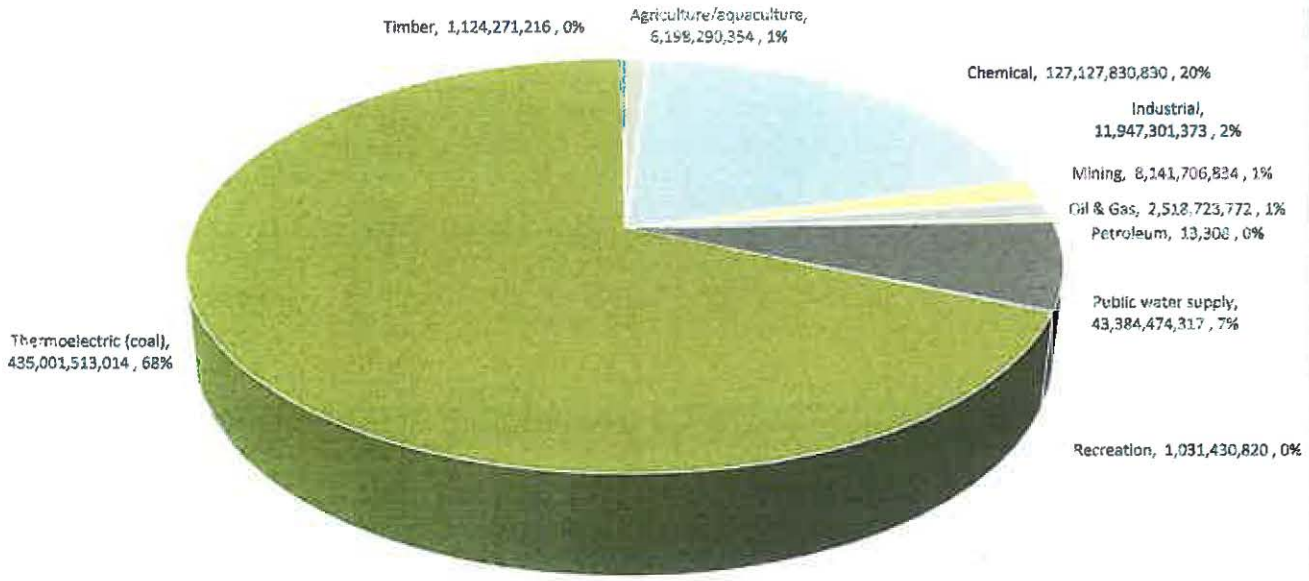
2017 LQU Water Use

Total Annual Withdrawals GW+SW (-Hydroelectric) in Gallons



2017 Surface Water Use

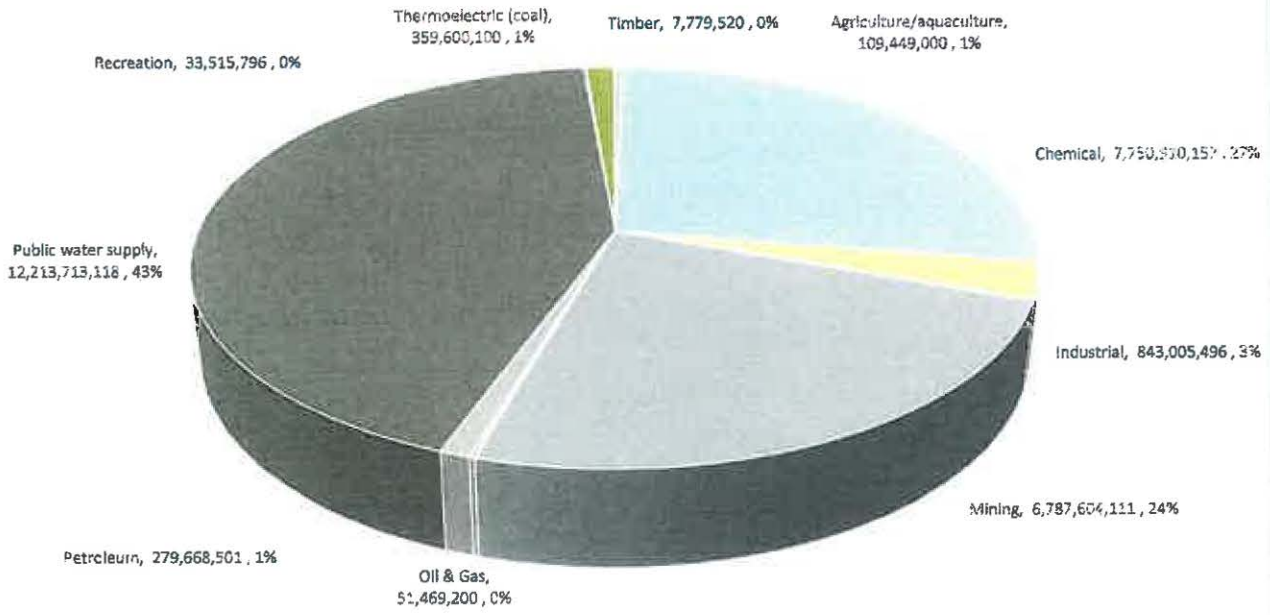
Total Annual Withdrawals (-Hydroelectric) in Gallons



95.72% of all water use in WV is from surface water

2017 Groundwater Use

Total Annual Withdrawals in Gallons

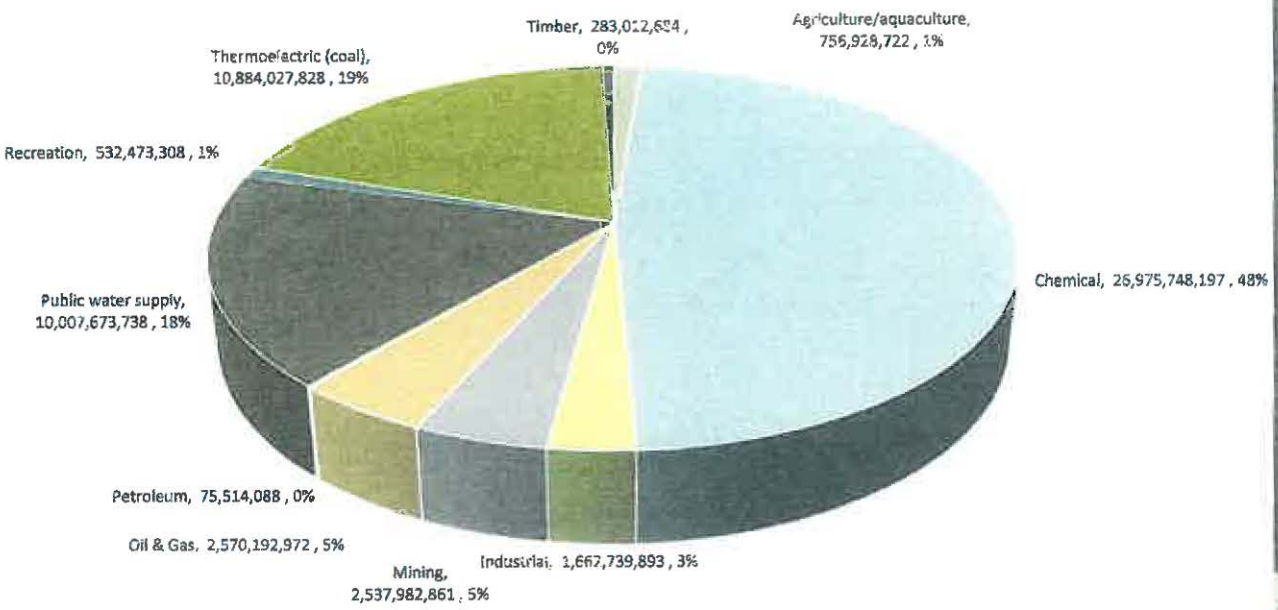


4.28% of all water use in WV is from groundwater.
22% of total public supply use is groundwater

2017 Consumptive Use

Water Use Category	Total Water Use	Est. Rate of Consumption	Est. Consumptive Use	Percent of Consumptive Use
Agriculture/aquaculture	6,307,739,354	0.12	756,928,722	1.34
Chemical	134,878,740,987	0.2	26,975,748,197	47.92
Industrial	12,790,306,869	0.13	1,662,739,893	2.95
Mining	14,929,310,945	0.17	2,537,982,861	4.51
Oil & Gas	2,570,192,972	1	2,570,192,972	4.57
Petroleum	279,681,809	0.27	75,514,088	0.13
Public water supply	55,598,187,435	0.18	10,007,673,738	17.78
Recreation	1,064,946,616	0.5	532,473,308	0.95
Thermoelectric (coal)	435,361,113,114	0.025	10,884,027,828	19.34
Timber	1,132,050,736	0.25	283,012,684	0.50
TOTAL	**664,912,270,837**		**56,286,294,291**	**8.47% of total use**

2017 Consumptive Water Use



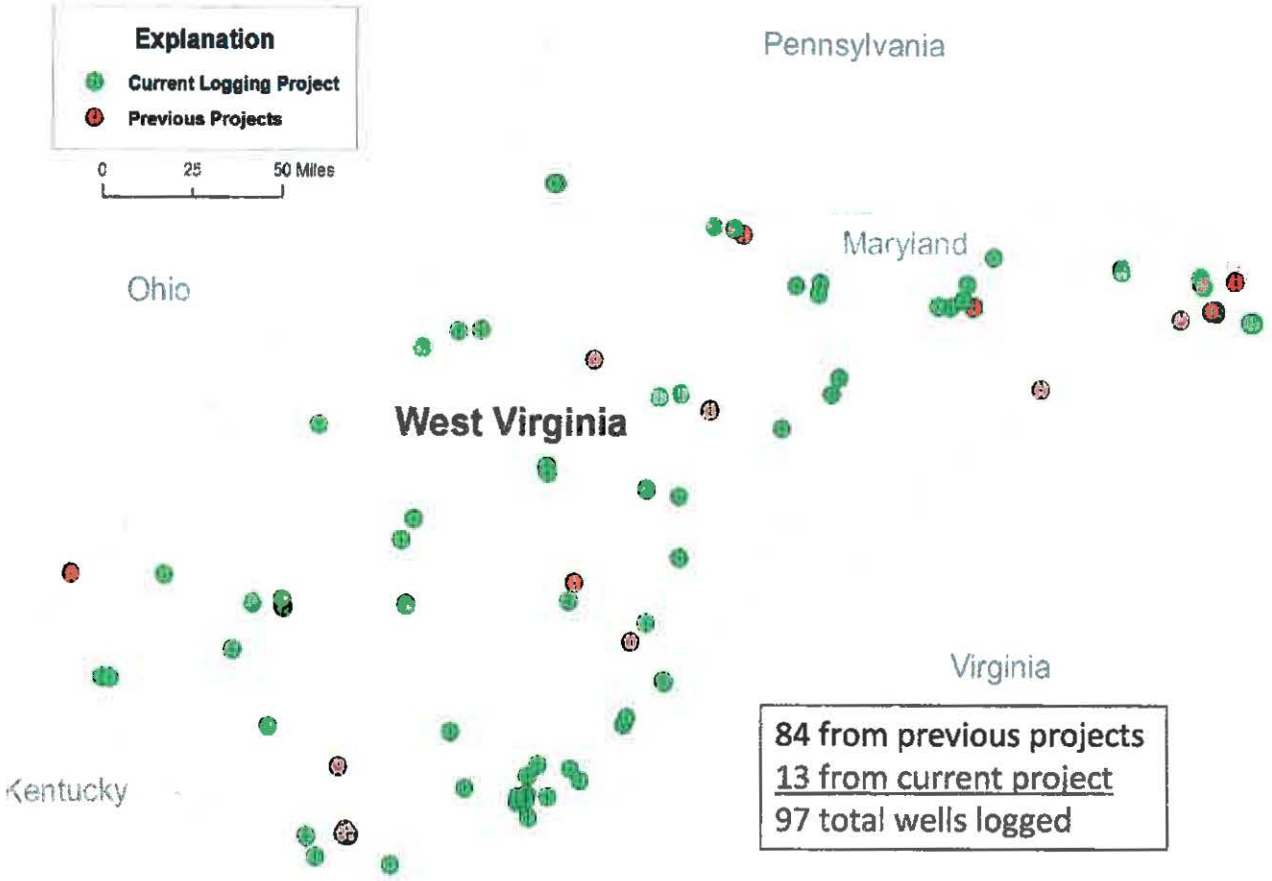
Water Use Observations

- 368 large quantity users
- Similar values and trends from 2016:
  - Vast majority of all water use from surface sources (95.7%)
  - Thermoelectric (coal) largest overall user of water
  - Public supply largest user of groundwater (22% of total public supply)
  - Chemical industry largest share of consumptive use (47.9%)
- Slight increase in consumptive use as percent of total withdrawals (+0.35%)
- Hydroelectric use (surface water): 9.6 trillion gallons (no consumption)

Water Management Plans (WMP's)

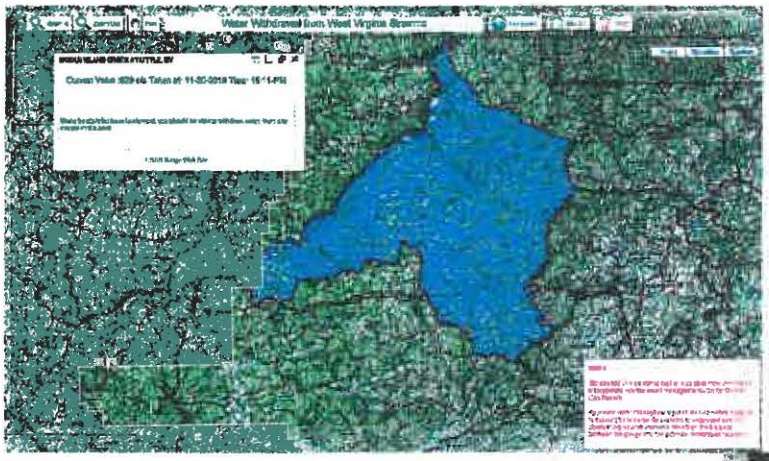
- In 2017, this Section reviewed and approved 518 individual WMP's, including 67 WMP's for new well pads.
  - An increase of 132.29%
- 106 WMP's were modifications to existing WMP's in 2017
  - An increase of 30.86%
- Totals for 2018 are expect to exceed 2017

Geophysical Well Logging - Year 4



84 from previous projects
13 from current project
97 total wells logged

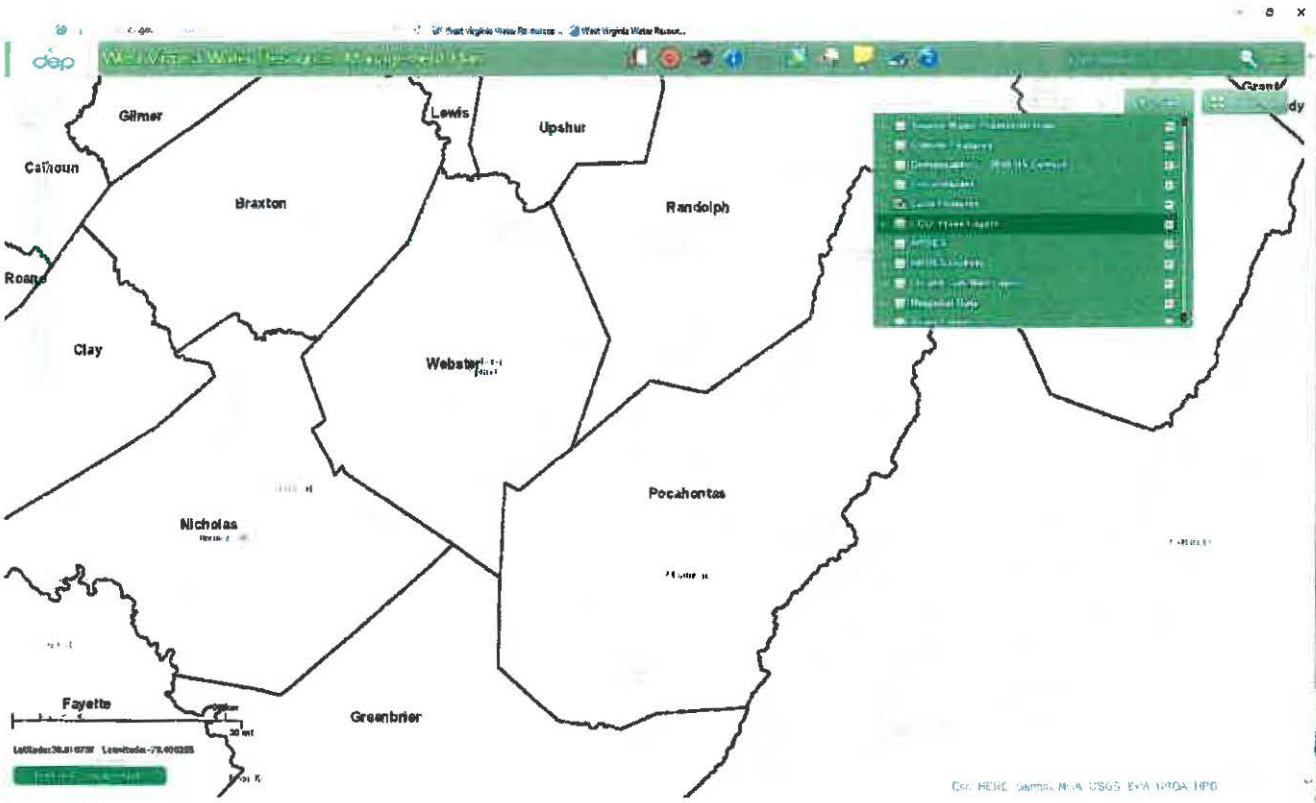
Water Withdrawal Tool



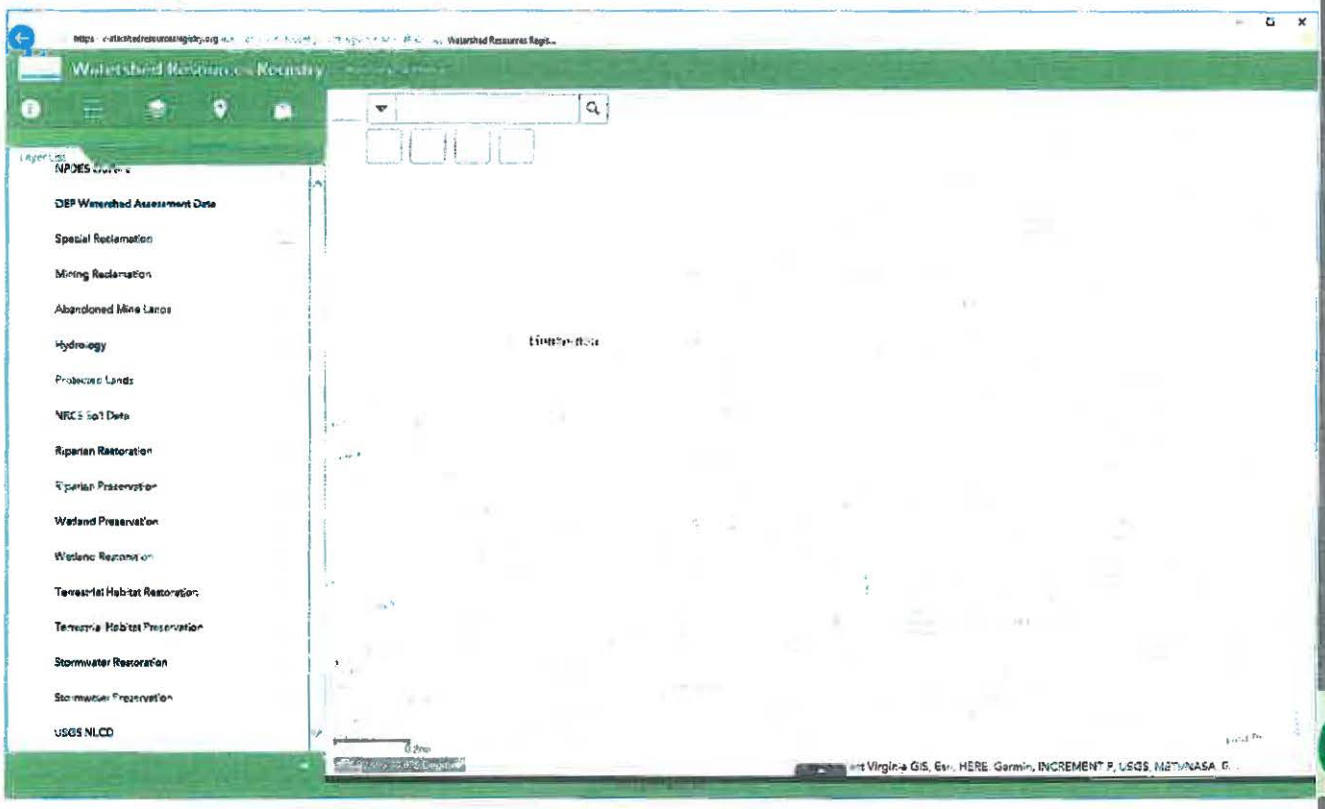
Tool

Stream Gage/Staff Gage

WRMP Mapping Tool

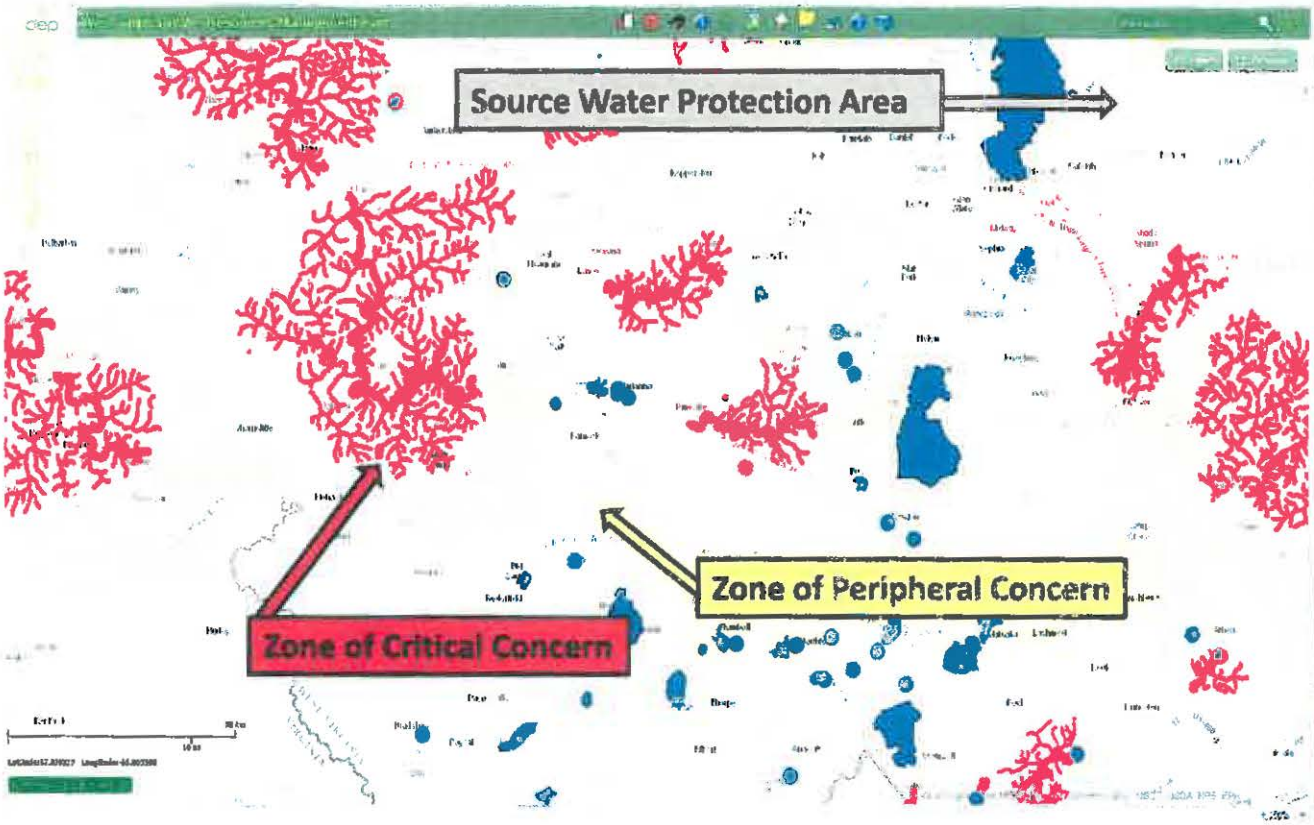


Watershed Resource Registry



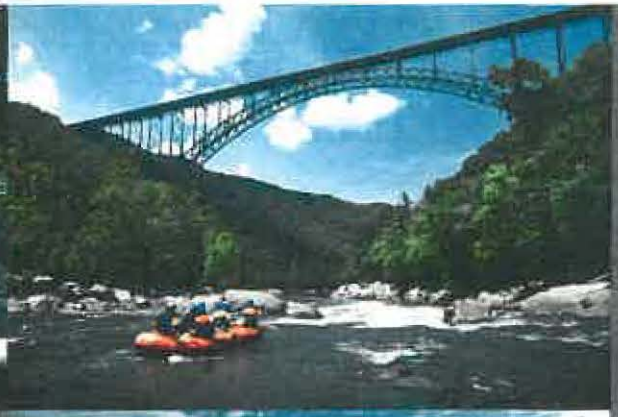
Protected Areas

(data sharing)



Stream Gage Network

- The stream gaging network is the most important asset to water resource management
- Our water resource models responsible for flood warning and answering the questions posed by the Act are dependent on data collected by the Stream Gaging Network
- The WV Water Gaging Council has proposed new funding and operation recommendations for the Stream Gage Network



Nature's
MOUNTAIN PLAYGROUND

Initiatives

- Working with USGS
  - Well logs
- Staff visited LQUs to validate reported quantities
  - Identified some who hadn't been reporting.
- Tweaked the ESS reporting system
  - Produced tutorial videos for reporters

Future Pursuits

- Continued annual reporting of water use activities
  - Research and assessment of future water resources needs
- Surveys and registration of large quantity users who are withdrawing water from in-state water resources
  - But are located outside the state borders
- Development and recommending a water quantity management strategy for the state and/or regions of the state
  - Where the quantity of water resources are found to be currently stressed or likely to be stressed
- Develop a procedure for notification of intent to drill a water well.
  - The goal is to gather the physical characteristics of the wells.
- Inventory and prepare an assessment of floodplain and stormwater management problems

Future Pursuits

A review and evaluation of statutes, rules, policies and institutional arrangements for the development, conservation, distribution and emergency management of water resources

A process for identifying projects and practices that are being, or have been, implemented by water users that reduce the amount of consumptive use, improve efficiency in water use, provide for reuse and recycling of water, increase the supply or storage of water or preserve or increase groundwater recharge and a recommended process for providing appropriate positive recognition of those projects or practices in actions, programs, policies, projects or management activities.

Thank You

- Staff
- USGS
- DHHR
- WVDEP AST Program
- WVU
- Watershed Groups
- WVDEP GW

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