

Looking Ahead to a Kentucky Water Resources Plan and the Prioritization of Projects

Excerpts and additions from a presentation to the
Water Resources Board
given on
October 31, 2016

Department for Environmental Protection
Energy and Environment Cabinet



To Protect and Enhance Kentucky's Environment

Kentucky
UNBRIDLED SPIRIT™

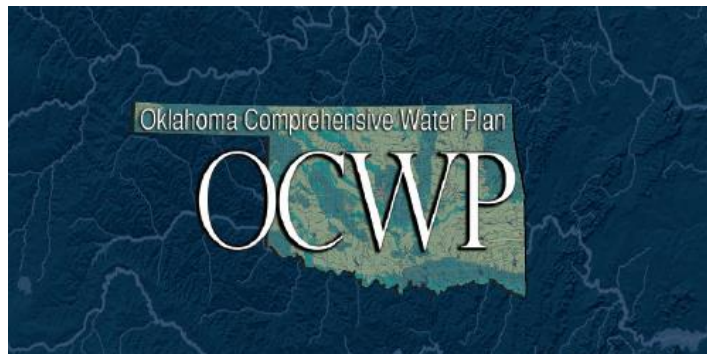
“A GOAL WITHOUT A PLAN IS A WISH”

Anonymous Radio Personality





The AWP brings data, science, and public input together to define water demands, water supplies, issues and potential solutions to meet our future needs.



States' plans are unique but share common features that are the foundation for water planning.



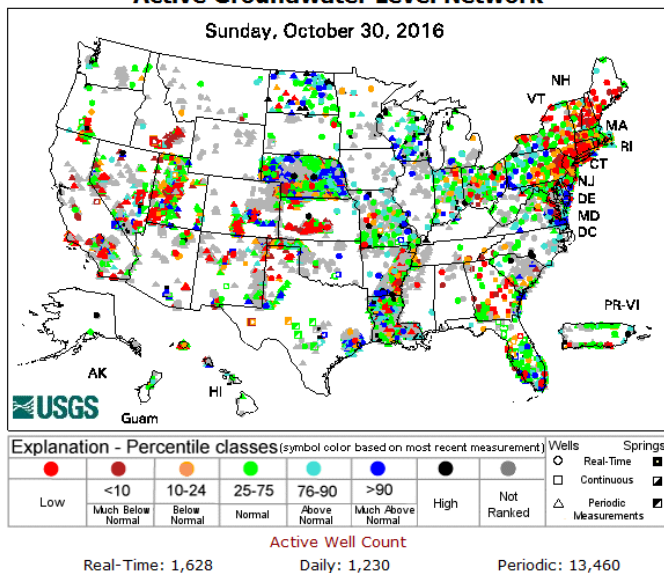
The Georgia Comprehensive State-wide Water Management Plan (State Water Plan) was adopted by the General Assembly in 2008. The State Water Plan provides for [Resource Assessments](#), [Forecasting](#), and [Regional Water Planning](#).



TECHNICAL DATA AND STUDIES

Active Groundwater Level Network

Sunday, October 30, 2016



I. WATER AVAILABILITY

Regional Water Inventories

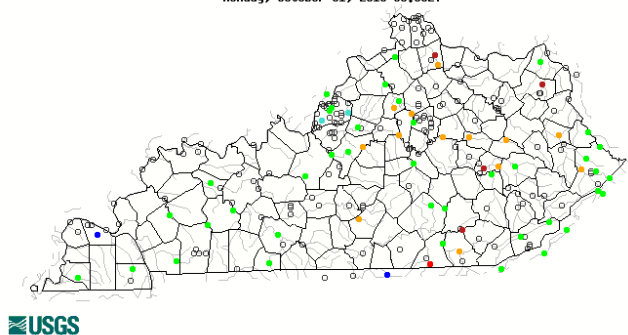
Annual and Seasonal "Surplus/Deficit"

- Existing withdrawal demand
- Instream Flow demands

Map of real-time streamflow compared to historical streamflow for the day of the year (Kentucky)

Kentucky or Water-Resources Regions

Monday, October 31, 2016 08:30ET



TECHNICAL DATA AND STUDIES



II. DEMAND FORECASTING

Population-driven Demands

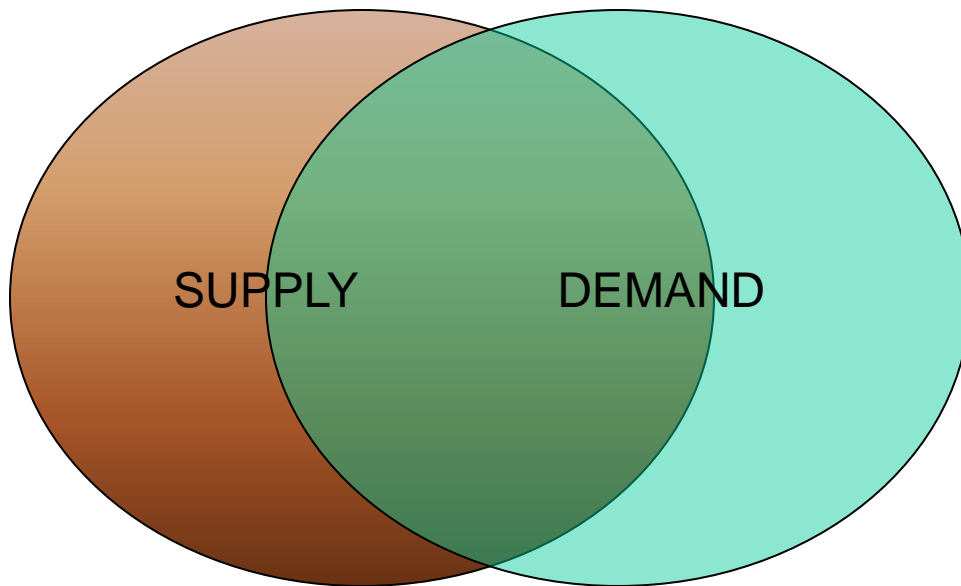
Agricultural Demands

Energy Sector Demands

Industrial Demands



TECHNICAL DATA AND STUDIES



GAP ANALYSIS

Where does available supply not meet current demand?

Where will available supply not meet future demand?

Why does the GAP exist?

What are potential solutions?

“HOT SPOT” ANALYSIS

Which GAPS are most critical?

Project Profile Ranking Results

Project Title	Project Duration	Annual Cost	Score
State Water Plan Initial Project Profile (see separate attachment)	5 year	\$130,000	1.4
Kentucky Groundwater Observation Network	3 year	\$122,000	2.2
Kentucky Mesonet Station Acquisition and Installation	5 year	\$45,000	4.8
Kentucky Mesonet Soil Monitoring	2 year	\$36,000	4.8
Streamflow Gaging Stations in Critical Areas with Existing Data Gaps	3 year	\$90,000	4.8

THE “PLAN” AS A PROJECT

Kentucky Farm Bureau Water Management Working Group Recommendations for Consideration

“Committee feels recommendations should be prioritized by importance and need to allow the WMWG to tackle issues in a more productive and timely fashion”

1. Monitoring – Required for all phases of Planning, Implementation and Mitigation
2. Analysis of Water Use and Information Needs – Backbone of the Water Plan
 - Determination of water use for crop and livestock production on municipal systems
 - Determination, assessment, projection, vulnerability, survey, identify.....
3. Water Resources Development and Technical Assistance – Water Plan Implementation
 - Mitigation – Sustainability – Resiliency – Conservation
4. Drought Mitigation and Response – Water Plan Implementation and Mitigation
5. Communication and Outreach – Water Plan Implementation and Mitigation
 - Drought Preparedness

THE “PLAN” AS A PROJECT

Water Availability

A statewide water availability assessment will be performed at a planning unit level to inventory the regional water sources and assess annual and seasonal surplus and deficit based on hydrological records, models or other methods, instream flow requirements and current/projected withdrawal demands.

Missing Components

- Groundwater
- Instream Flow ($\text{AVAILABILITY} = \text{WATER IN} - \text{INSTREAM NEEDS} - \text{USER DEMANDS}$)

Demand Forecasting

Projecting future water demands for water supply, agriculture, industry, mining, energy production and other needs is a key part of developing a long-term vision for the state's water resources. Reliable projections for water demands combined with a water availability assessment will be used to identify gap areas where water demands may exceed supply, serving as the basis for water plan development.

GAP Analysis

PROJECTS PRE-DATING THE WATER PLAN CONCEPT

Drought Risk Assessment: (CY 2017)

A drought risk assessment will be developed by the Division of Water in 2017. One of the principal water use sectors included in the assessment will be agricultural drought risk based on regional vulnerability to drought in crop and animal production operations. Data from this assessment may inform both the Water Availability and Demand Forecasting technical studies. This project is funded by a grant from FEMA.

Water Tracking (CY 2017 – 2018)

Determination of water use for crop and livestock production on municipal systems

Tracking the various uses of water that produced by the state's 397 Public water systems (PWS). Treated water is used for domestic, commercial, industrial, mining, agricultural and other purposes. This study will include an assessment of the demands that may be placed on PWS by livestock water demand, especially under seasonal high demand or drought conditions. It is anticipated that this study can be funded by leveraging funds from a WUDR grant with other funding sources.

PROJECTS PRE-DATING THE WATER PLAN CONCEPT

Recommendation

Determination of water use for crop and livestock production on municipal systems

Utilize the best available data on PWS capacity and site specific availability assessments including site visits to determine suitability of PWS for long-term water supply tap-ons for livestock watering.

- Solicit comment from DOW for proposed projects related to agricultural tap-ons to PWS
- Create working assessment of PWS capacity X Drought Vulnerability for each PWS

Data is available for these assessments at KDOW, WRIS and individual PWS.

Develop the comprehensive, statewide analysis of PWS-supplied water for agriculture use in coordination with the creation of the Kentucky Water Plan.