

New Products and Tools

1. WaterAlert

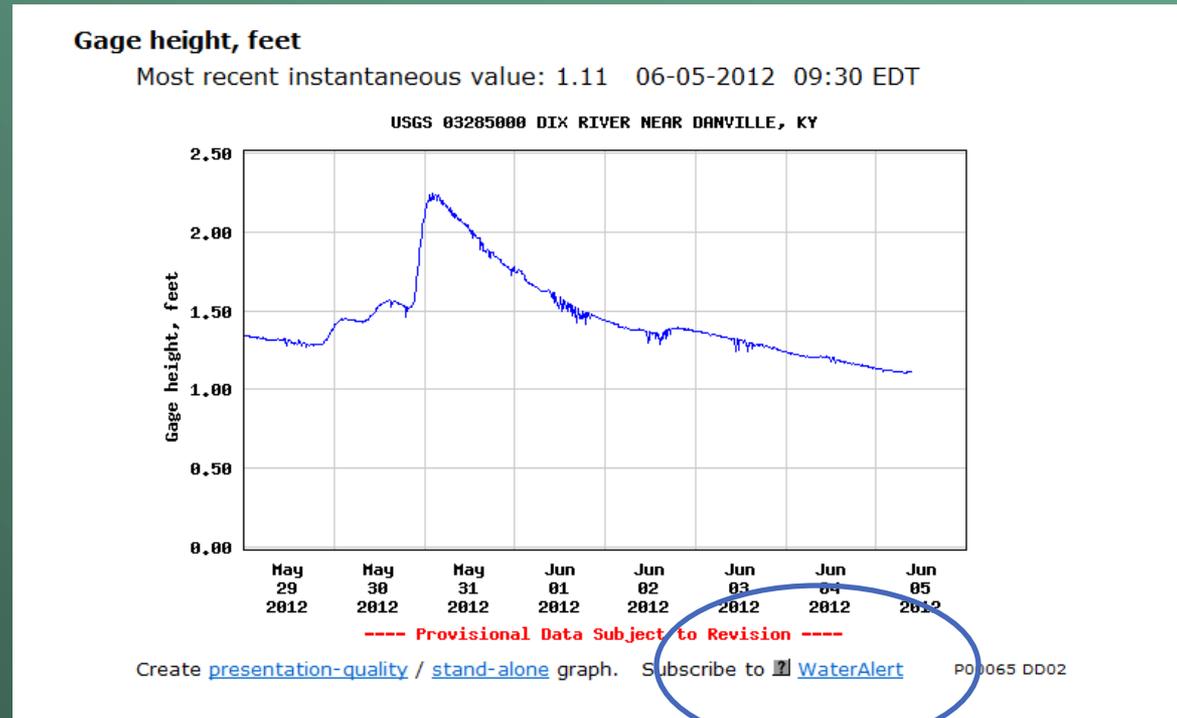
2. StreamMail

3. Flood Tracking Charts

4. Water Watch

How to I get to WaterAlert

WaterAlert allows you to receive daily or hourly updates about current conditions in rivers, lakes and groundwater when they match conditions of concern to you.



USGS WaterAlert

The U.S. Geological Survey WaterAlert service sends e-mail or text (SMS) messages when [certain parameters](#), as measured by a USGS real-time data gage, is supported by the USGS and its partners, including numerous federal, state, and local agencies.

Real-time data from USGS gages are transmitted via satellite or other telemetry to USGS offices at various intervals; in most cases, once per hour. Data are not available for all gages; [data received at these site-dependent intervals](#).

Instructions

SITE SELECTION

State or Territory
(select one or more)

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Dist. of Columbia
- Florida

Data Type

- Surface Water
- Groundwater
- Water Quality
- Precipitation

Reset Search

USGS WaterAlert

The U.S. Geological Survey WaterAlert service sends e-mail or text (SMS) messages when [certain parameters](#), as measured by a USGS real-time data gage, is supported by the USGS and its partners, including numerous federal, state, and local agencies.

Real-time data from USGS gages are transmitted via satellite or other telemetry to USGS offices at various intervals; in most cases, once per hour. Data are not available for all gages; [data received at these site-dependent intervals](#).

Instructions

Kentucky Water Resources Program

The mission of the U.S. Geological Survey (USGS) is to serve the Nation by providing reliable, accurate, and timely information about the Nation's water resources, and to enhance and protect our quality of life.

Hydrologic Data

Studies

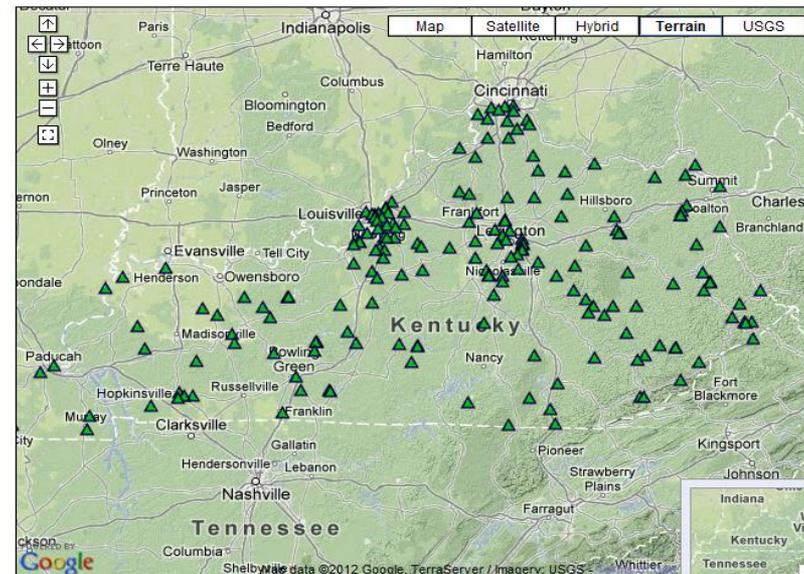
Real-Time Data for Kentucky

NOTICE: Recently discontinued and threatened USGS streamgages in Kentucky. Click [here](#) for more information.

- [Streamflow](#)
- [Precipitation](#)
- [Ground Water](#)
- [Water-Quality](#)
- [Lake and Reservoir Elevations](#)
- [USGS Water Alert](#) - [StreamMail](#)

Science Highlights

Recent



U.S. Department of the Interior (DOI) products do not constitute an endorsement by the DOI. By viewing the Google Maps API on this web site the user agrees to the [Terms of Service set forth by Google](#).

SITE SELECTION

State or Territory
(select one or more)

- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky**
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan

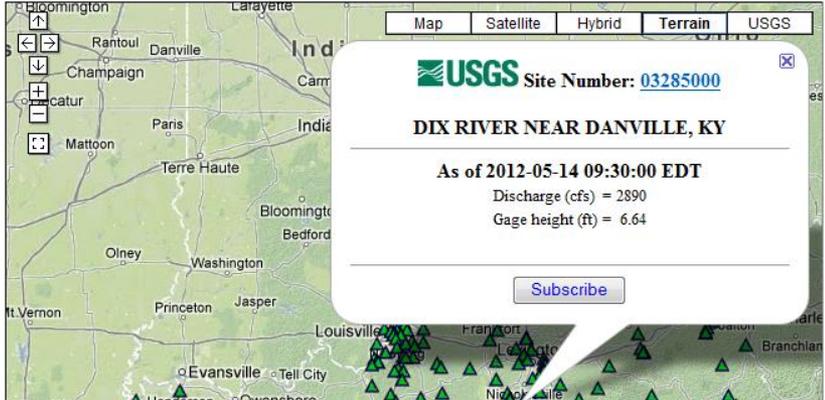
Data Type

- Surface Water
- Groundwater
- Water Quality
- Precipitation

Search this selection

Reset Search

▲ = streamflow site



Hand out Bookmarks!!

USGS WaterAlert

Subscription Form

The U.S. Geological Survey WaterAlert service sends e-mail or text (SMS) messages when [certain parameters](#), as measured by a USGS real-time data-collection station, exceed user-definable thresholds. The development and maintenance of the WaterAlert system is supported by the USGS and its partners, including numerous federal, state, and local agencies.

Real-time data from USGS gages are transmitted via satellite or other telemetry to USGS offices at various intervals; in most cases, once every 1 or 4 hours. Emergency transmissions, such as during floods, may be more frequent. *Notifications will be based on the data received at these site-dependent intervals.*

Site Info:

Site Number: 03285000
 Site Name: DIX RIVER NEAR DANVILLE, KY
 Agency: USGS
 Transaction ID: kcNwC

Send Notification To: [about this...](#)

My mobile phone
 My email address

Notification Frequency: [about this...](#)

Hourly
 Daily

Streamflow Data-type Parameter: [about this...](#) Recent value:

Discharge (cfs) 2890 [\[peak chart\]](#)
 Gage height (ft) 6.64 [\[peak chart\]](#)

Threshold Condition: [about this...](#)

Greater than (>)
 Less than (<)
 Outside a range (< or >)
 Inside a range (> and <)

Real-time value is greater than: ft

I have read and acknowledge the [Provisional Data Statement](#) and [Disclaimer](#).

Submit Reset Cancel



* References to non-U.S. Department of the Interior (DOI) user agrees to these [Terms of Service](#) set forth by Google.

Using Stream Mail

- ▶ **Using StreamMail with email:**
 - simply send an email to "streamail@usgs.gov". In the "Subject" line put a USGS station number, such as "02336300"
- ▶ **Using StreamMail with text messaging on a cell phone:**
 - send your message to "streamail@usgs.gov".
 - you have to change the input method from numbers to letters or words.

StreamMail

- ▶ Streammail@usgs.gov.
- ▶ In the "Subject" line put a USGS station number, such as "03438000"
- ▶ Try it now!!
- ▶ Response will be :
 - ▶ *Site: 03438000*
 - ▶ *Station name: Little River near Cadiz, KY*
 - ▶ *Date: 04/14/2010*
 - ▶ *Time: 12:00:00*
 - ▶ *Stage: 4.09 feet*
 - ▶ *Streamflow: 343 cubic feet per second (cfs)*
- ▶ Link to charts for 03438000:
 - ▶ Stage:
http://waterwatch.usgs.gov/wwapps/zchart.php?i=nwis2&vt=uv&cd=00065&site_no=03438000
 - ▶ Streamflow:
http://waterwatch.usgs.gov/wwapps/zchart.php?i=nwis2&vt=uv&cd=00060&site_no=03438000

Water Watch



WaterWatch

[Home](#)

[Current Streamflow](#)

[Flood](#)

[Drought](#)

[Past Flow/Runoff](#)

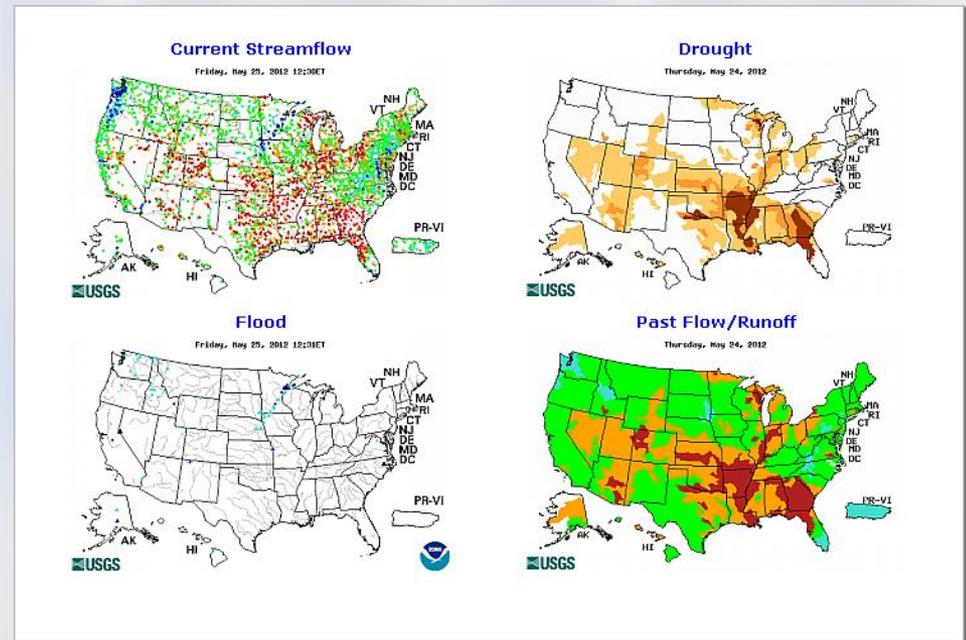
[Animation](#)

[Toolkit](#)

[Toolkit \(internal\)](#)

[Additional Information](#)

[About WaterWatch](#)



USGS WaterWatch Toolkit

Streamflow Conditions Map Builder



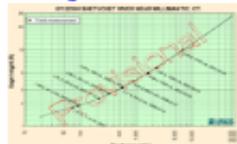
This builder is used to customize the streamflow conditions maps in size and color.

State Google Map Builder



A Google Maps version of the streamflow conditions map can be created in users web sites.

Rating Curve Builder



The rating curve builder is used to create a USGS streamflow rating curve. The rating table is from the USGS ratings depot. Field measurements can also

be appended to the curve.

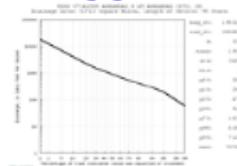
Flood Table Builder



This tool summarizes the flood and high flow conditions for a state or a region for a given time period. Tables and Google Maps are used to summarize conditions and to show locations,

respectively.

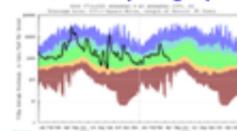
Streamgage Statistics Retrieval Tool



The "streamgage statistics" retrieval tool provides a list of basic summary statistics and duration graph for the selected streamgage, as computed from daily values, for the period of

record.

Duration Hydrograph Builder



The builder is used to present a time-history of streamflow for the past two years along with historical streamflow percentiles for individual

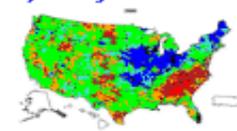
streamgages.

Streamflow Map Animation Builder



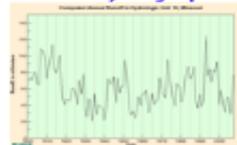
This tool is to create a streamflow map animation for a time period for real-time streamflow and flood-and-high flow maps, respectively.

Hydrologic Unit Runoff Maps



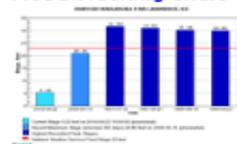
Hydrologic unit runoff and runoff condition maps since 1901 are available.

Runoff Hydrograph



Monthly, quarterly, and annual HUC runoff time-series plots are available in a HUC area and a state.

Flood Tracking Chart

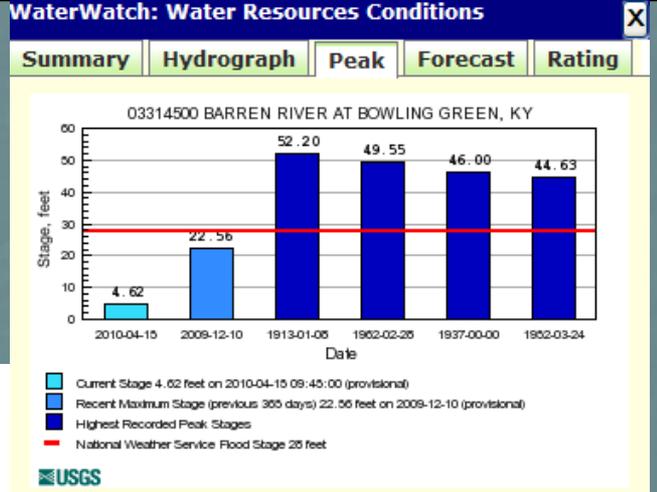
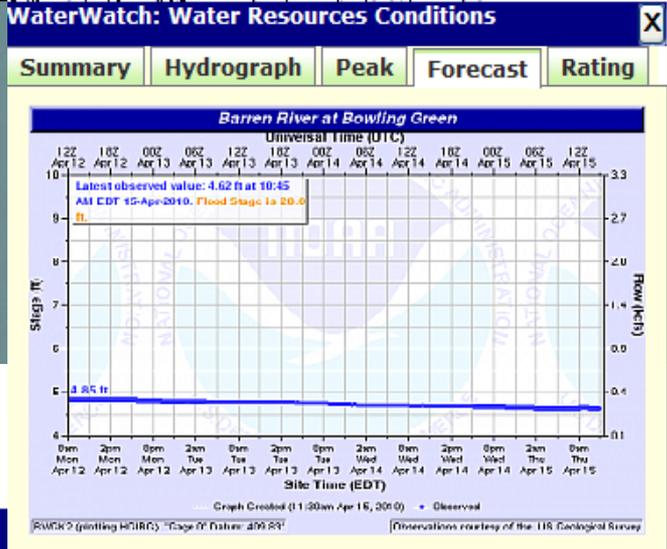


A URL is provided to create flood-tracking chart which shows current state, recent peak stage, historical highest peaks, and flood stage.

AHPS River Forecast



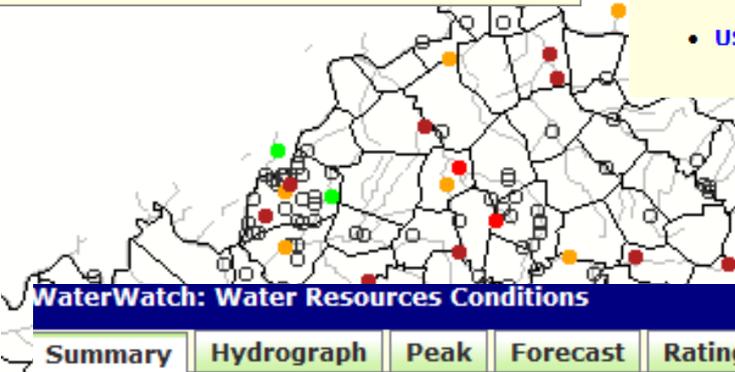
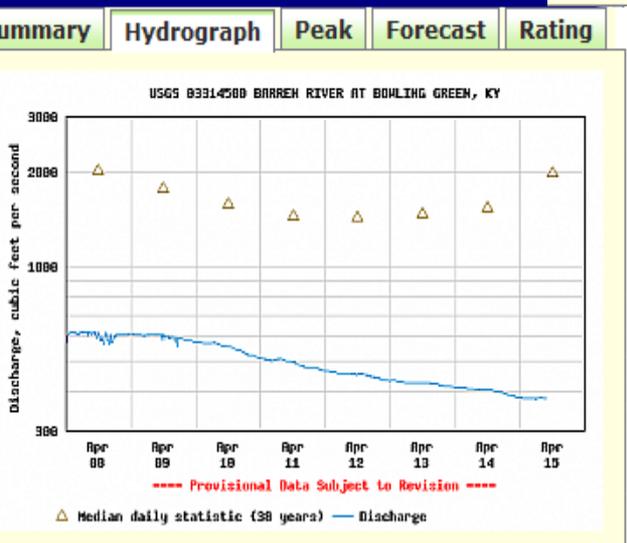
AHPS river forecast chart can be assessed by a USGS station number.



Additional Information:

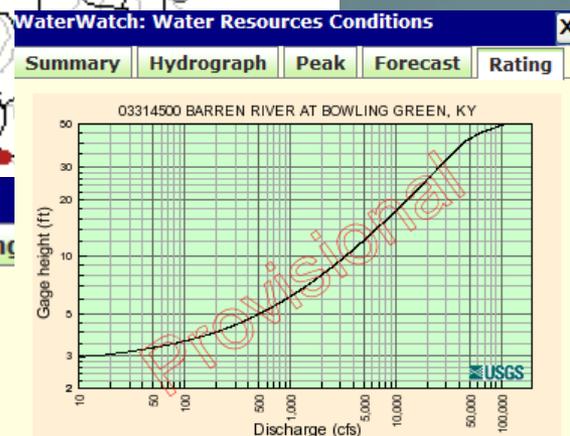
- [USGS Peak Streamflow](#)

WaterWatch: Water Resources Conditions



USGS **03314500** BARREN RIVER AT BOWLING GREEN, KY

Drainage area:	1849 mi ²
Discharge:	380 cfs
Stage:	4.62 ft
Flood stage:	28 ft
Date:	2010-04-15 08:45:00
Percentile:	2%
Class symbol:	●
% of normal (median):	15%
% of normal (mean):	11%



Additional Information:

- [Explanation](#)
- [Shift-adjusted rating table](#)



Flood Tracking Chart Builder

Site number:

03284000

Value type:

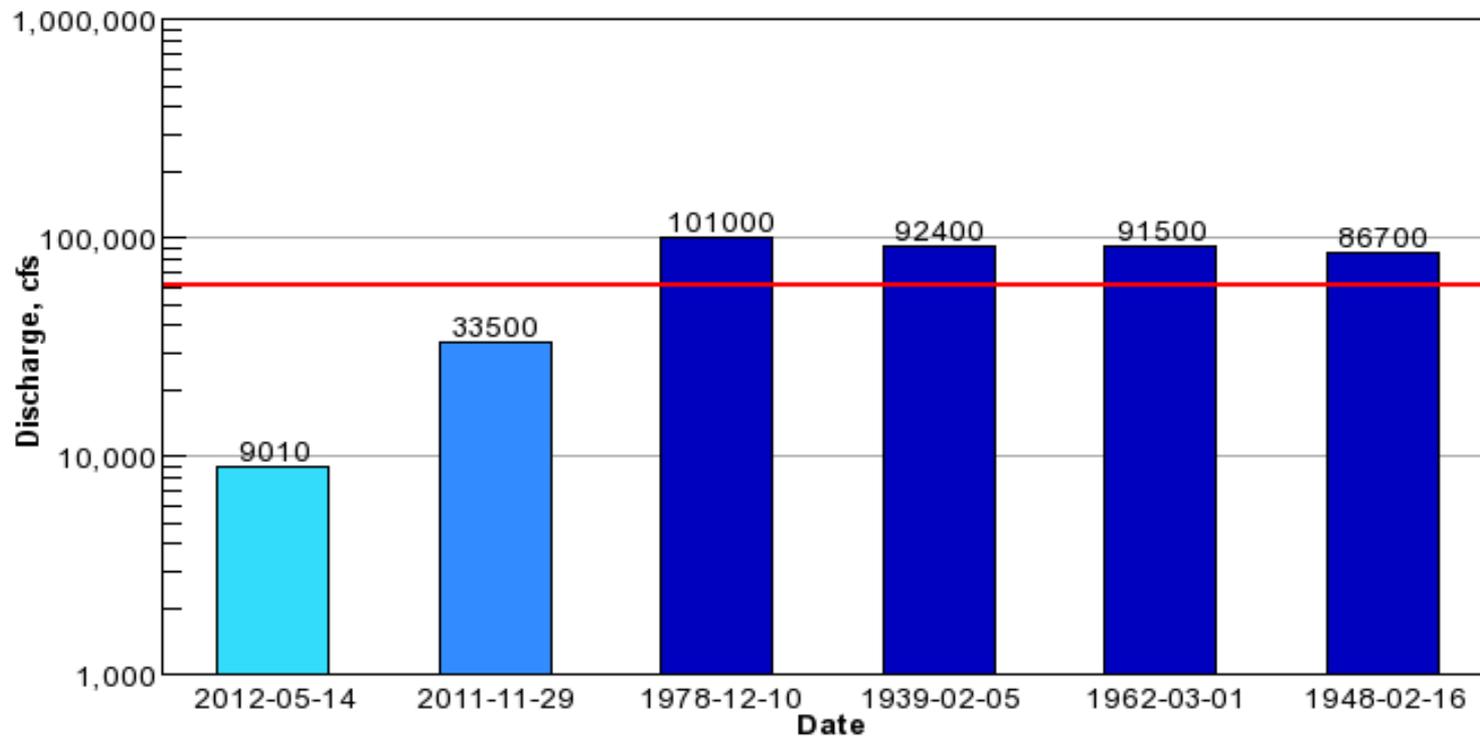
Flow

Size:

Normal (700x500)

GO

03284000 KENTUCKY RIVER AT LOCK 10 NEAR WINCHESTER, KY



Current Discharge 9010 cfs on 2012-05-14 09:30:00 (provisional)



Recent Maximum Discharge (previous 365 days) 33500 cfs on 2011-11-29 (provisional)



Highest Recorded Peak Discharges



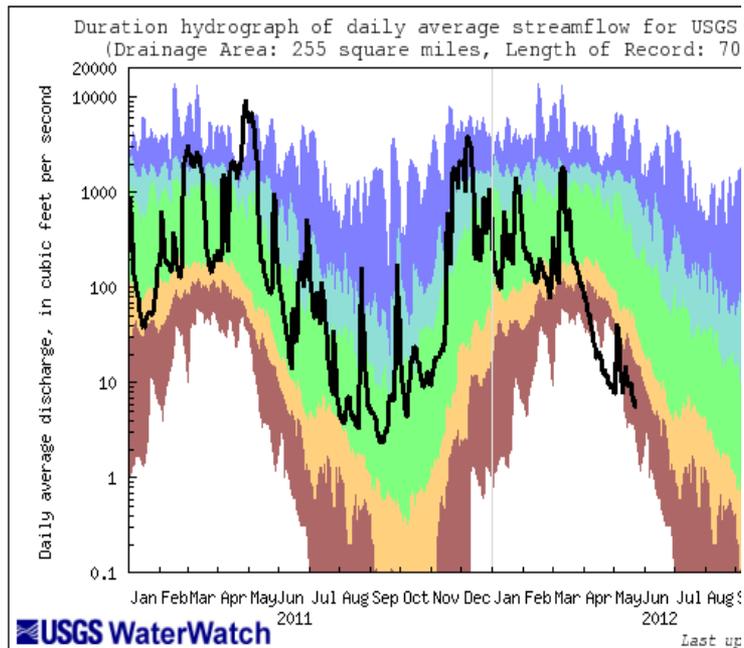
Estimated Discharge 62400 cfs from NWS Flood Stage of 26 feet and USGS Rating Curve

Duration Curves–Good Drought Indicators

USGS Streamflow Duration Hydrograph E

Site Number: Year: Flow type:

For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can lead to inaccurate depictions of flow

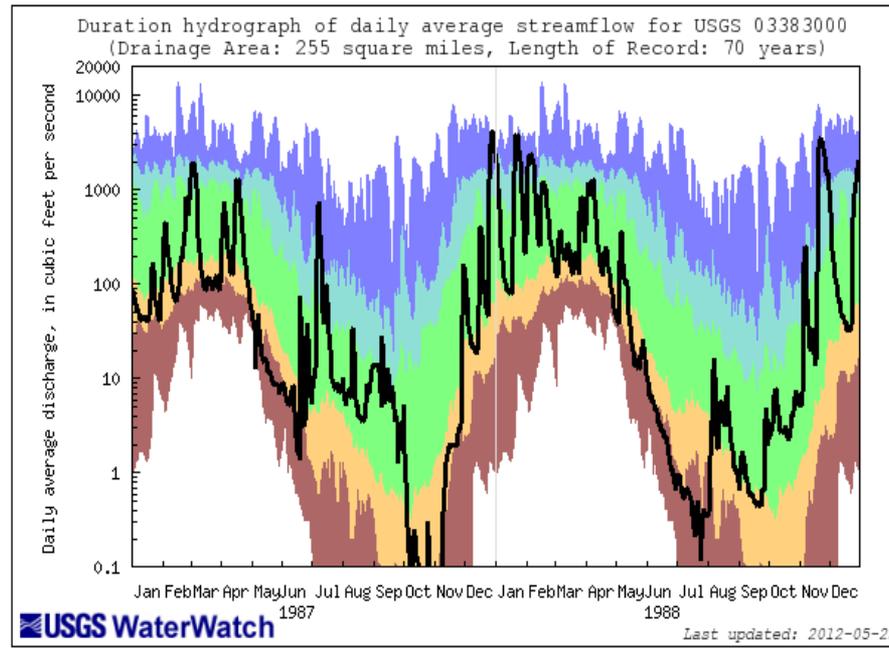


Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile-highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	

USGS Streamflow Duration Hydrograph Builder

Site Number: Year: Flow type:

For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can lead to inaccurate depictions of flow conditions.



Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile-highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	

Earthquake Hazards Program



Real-time Earthquake Map

[Quick Start and User Guide](#)

Jump to: [World](#) [US](#) [California](#) [Alaska](#) [Hawaii](#) [Puerto Rico](#)

Felt something NOT on this map? [Report it here!](#)

Summary

Updated 2012-05-25 17:50:12 UTC

- 6937 earthquakes in the past 30 days
- 235 meet criteria
 - earthquake age less than 7 days
 - magnitude greater than 2.5
 - located in map area
- 100 displayed based on sort order

[Download Earthquakes](#)

Control Panel

Timezone

Used for all times displayed on this page.

UTC

Auto Update

How often to check for new earthquakes

Every 5 minutes

Earthquakes to Display

Too many may crash your browser

100

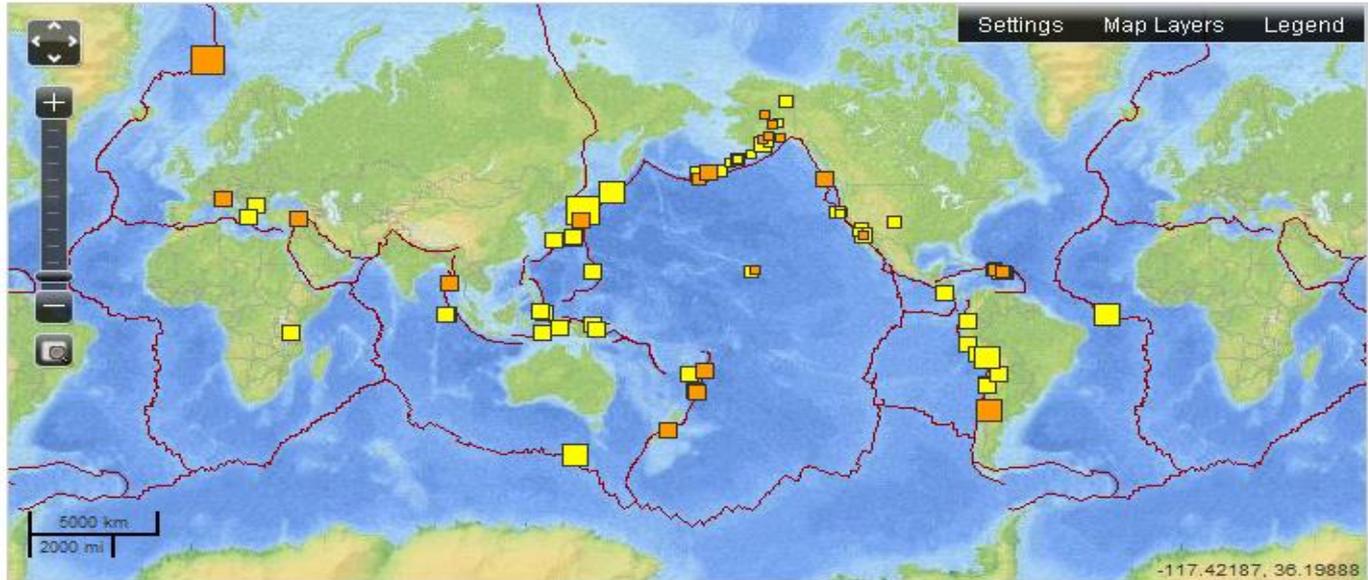
Earthquake Age

Days before present

0 7

Magnitude

2.5 10



M	Location	Time UTC	Lat	Lon	D km
3.1	79km N Of Culebra, Puerto Rico	2012-05-25 16:06:17	19.023° N	65.256°W	5.0
2.7	26km WSW Of Cordova, Alaska	2012-05-25 15:19:13	60.477° N	146.229° W	5.6
2.5	13km E Of Pahala, Hawaii	2012-05-25 14:23:42	19.198° N	155.356° W	50.6
4.2	2km N Of San Felice Sul Panaro, Italy	2012-05-25 13:14:04	44.860° N	11.142°E	10.0
4.5	Greenland Sea	2012-05-25 12:53:09	73.114° N	5.373°E	10.0

Lets Go Live!!

- ▶ WaterWatch

USGS Applications

1. StreamStats
2. CAHS
3. WATER
4. SWAP-DSS
5. Flood Inundation
6. Social Media



Water Availability Tool for Environmental Resources

USGS Kentucky

Hydrologic Regions

- Big Sandy
- Middle Ohio-Basalt
- Middle Ohio-Little Miami
- Licking
- Kentucky
- Green
- Upper Cumberland

Source Summary - Susceptibility Ratings

ID	Group	Contaminant Name	TOXIC	ECOP	ECOE	MPDCE	PTDCE	COOP
52	SOC	ATRAZINE	low	low	low	low	low	low
52	SOC	BIFENACIN	low	low	low	low	low	low
52	SOC	BENDAZOLE	medium	low	low	low	high	low
52	SOC	BENDOPROPYRIMIDINE	low	low	low	low	low	low
52	SOC	BENTAZONFLUTHIURACIN	low	low	low	low	low	low
52	SOC	BENTAZONFLUTHIURACIN	low	low	low	low	low	low
52	SOC	BENTAZONFLUTHIURACIN	low	low	low	low	low	low
52	SOC	BENTAZONFLUTHIURACIN	low	low	low	low	low	low

PLOTS

Antecedent Wind Speed and Wind Direction
 270 deg (West)
 180 deg (South)
 90 deg (East)

Antecedent Precipitation
 Day of Year

Simulation

Simulation ID: 5079654480725013, 3961980, 79451763

Simulation Information | Basin Characteristics | Watershed Index | Time Series | Hydrograph | Load Duration | Log Normal Hydrograph

Hydrograph showing flow over time from 1970 to 1970.

Figure 1. View of the StreamStats user interface zoomed in to Idaho.

Streamflow data analysis and tools

Many tools and virtually all models rely on a statistically strong network of gages to supply the data required to create, calibrate, and validate the various approaches.



What types of tools / models have been developed by USGS in Kentucky?

Statistical models – typically explain existing stationary systems through direct analysis of USGS gage data (peak and low-flow regression models, etc.).

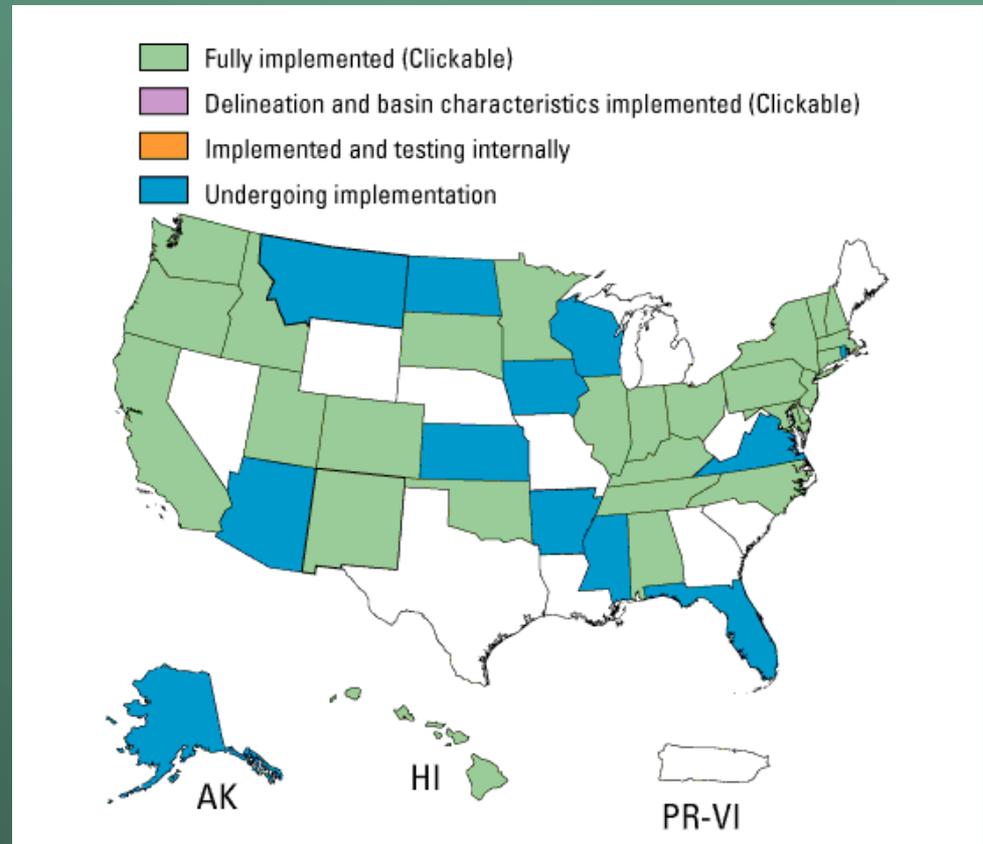
Hydraulic models – model the static and dynamic behavior of fluids (typically take given flows and compute flood inundation, time of travel, scour, etc.).

Hydrologic models – model the behavior of water as it occurs in the atmosphere, on the surface, and underground (typically estimate streamflow utilizing non-stationary inputs, etc.).

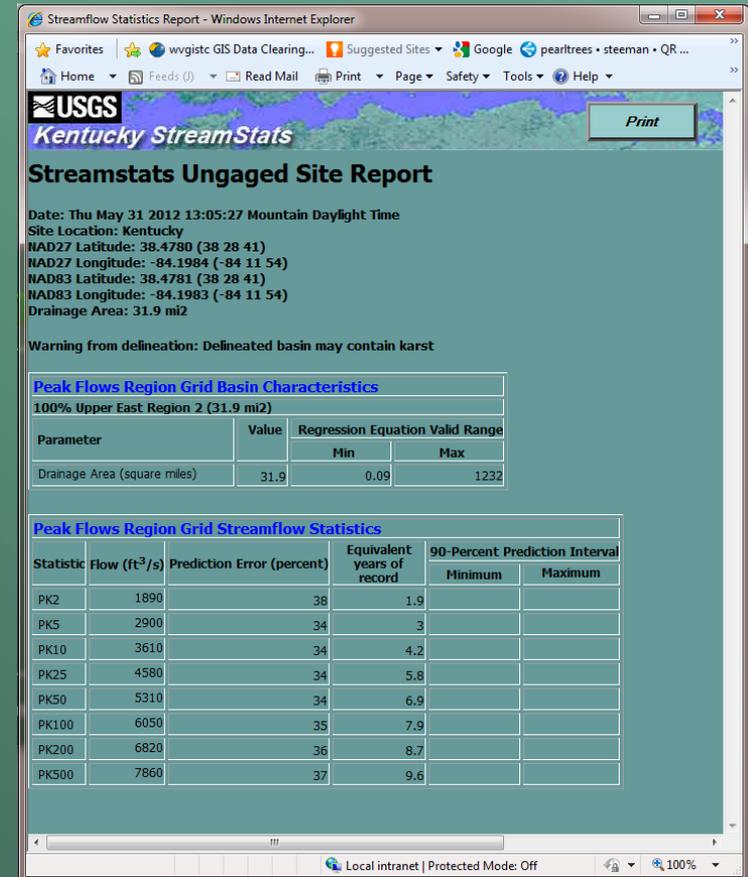
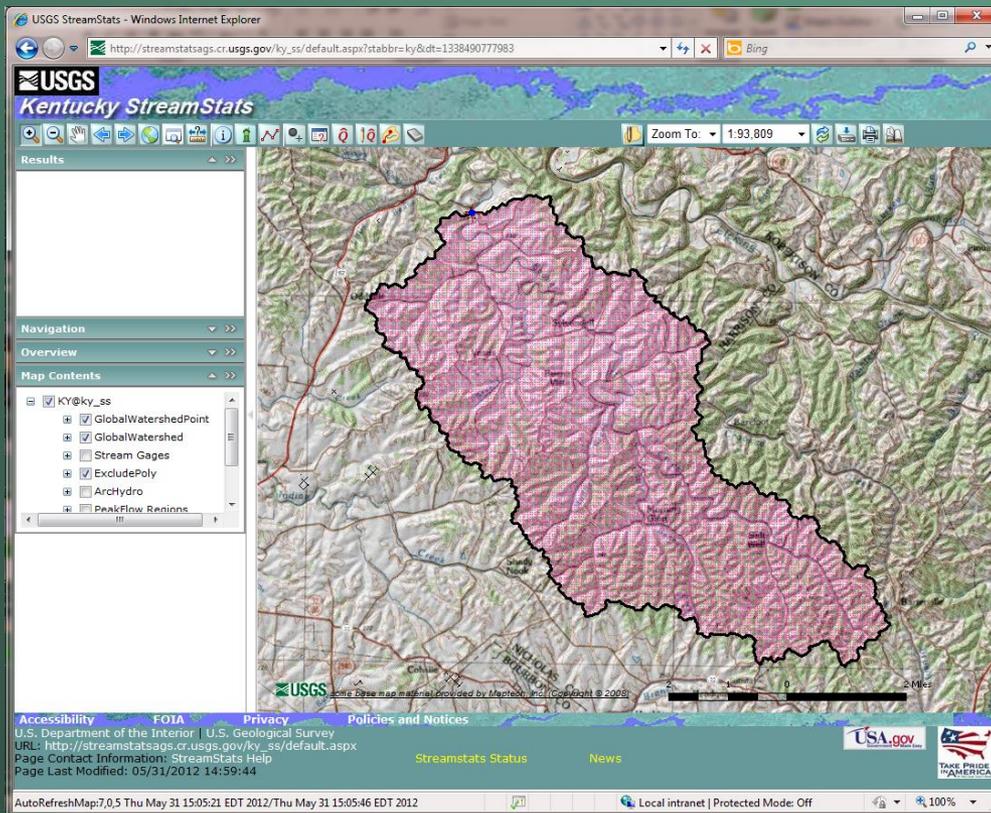
Various combinations / others – coupled models, geochemical models, optimization tools, and so forth.

USGS StreamStats

StreamStats is a Web-based Geographic Information System (GIS) application that was created by the USGS, in cooperation with Environmental Systems Research Institute, Inc. (ESRI).

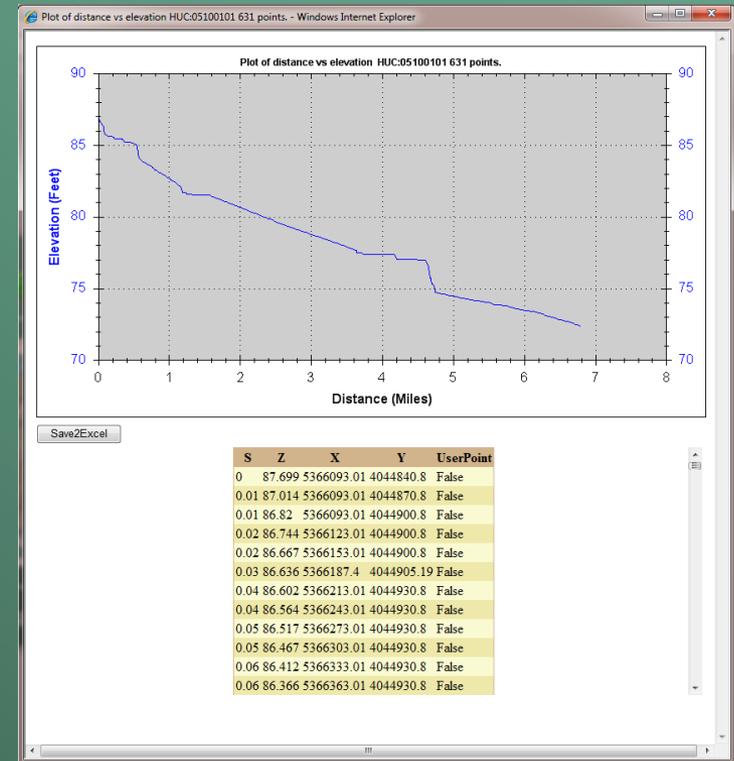
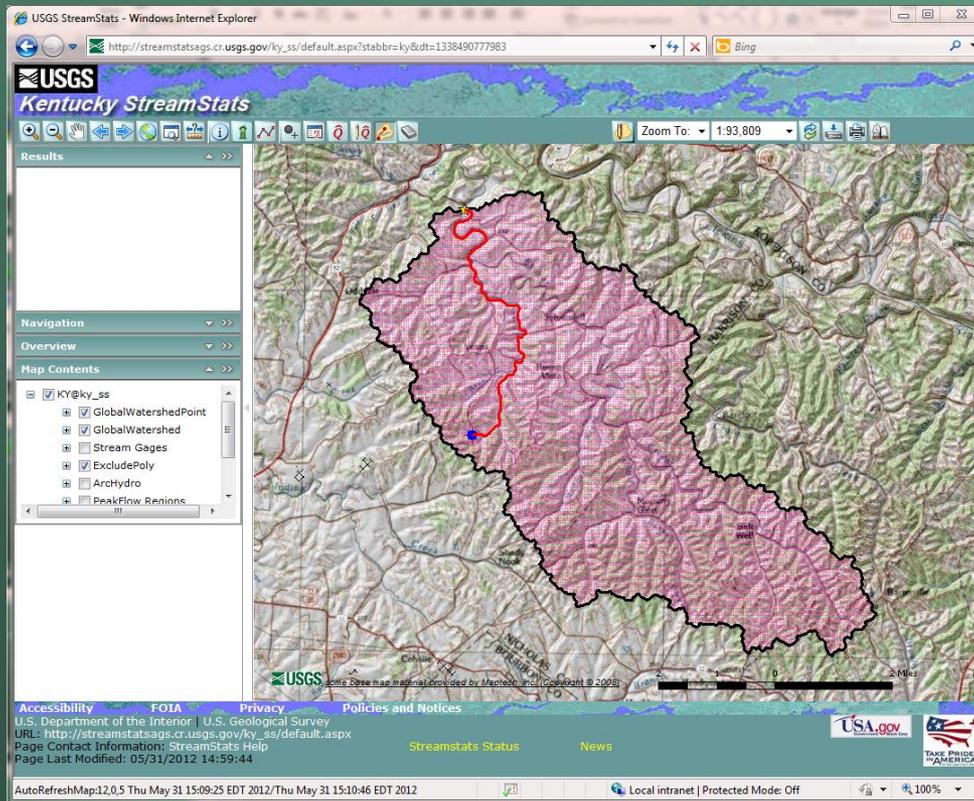


USGS StreamStats



Delineates basins, computes variables, and produces regression-based streamflow statistics from published equations (statistical models)

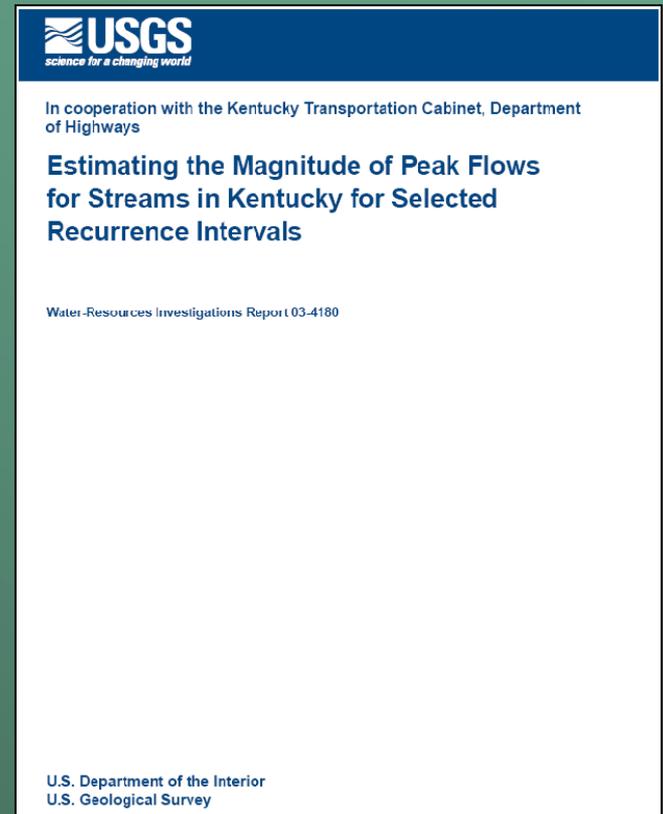
USGS StreamStats



Includes various additional tools common to ESRI products

USGS StreamStats

- Hodgkins, G.A. and Martin, G.R., 2003, Estimating the Magnitude of Peak Flows for Streams in Kentucky for Selected Recurrence Intervals
- Kentucky StreamStats incorporates regression equations for estimating instantaneous peak flows with recurrence intervals of 2, 5, 10, 25, 50, 100, 200, and 500 years.
- The peak-flow regression equations are implemented only for 5 of the 7 hydrologic regions in Kentucky. Equations are not fully implemented at this time because a method to obtain stream slope (as per Hodgkins and Martin) is still being developed.



USGS Center for Applied Hydrologic Solutions (CAHS)



<http://ky.water.usgs.gov/projects/CAHS/index.htm>

WATER

Makes USGS science accessible!

WATER

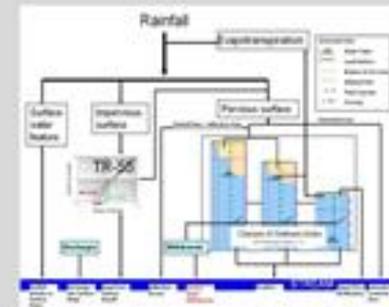
Simple Interface



With a simple "click",
WATER draws from
MANY complex data
layers produced by
MANY scientists!



Extensions



Applicable models for:
streamflow, water quality,
statistics, and so forth,
are run automatically.

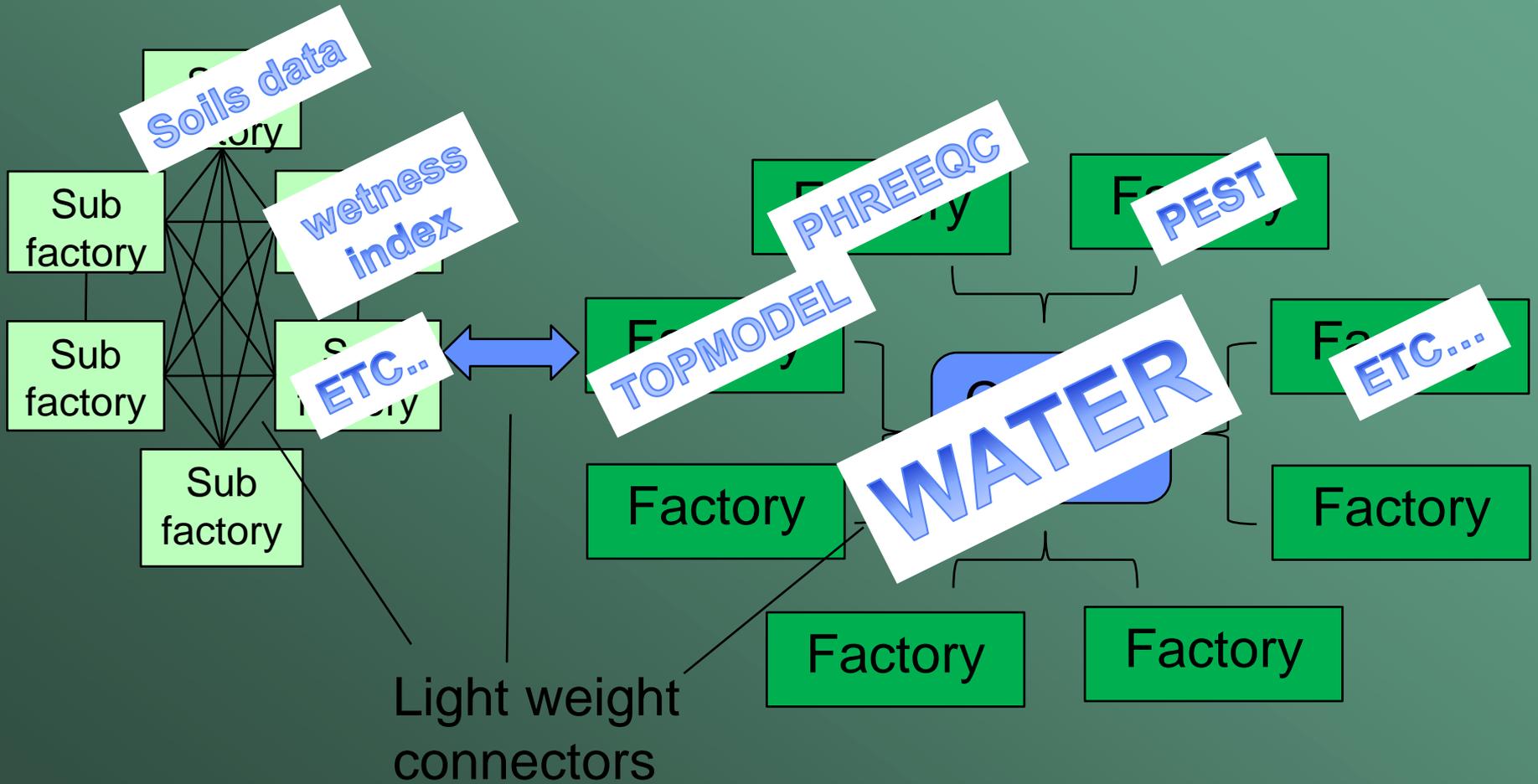


Tailored output for specific applications!



WATER

Flexible hub and spoke framework



SWAP-DSS

Source Water Assessment Program

Source Summary -- Group Susceptibility Ratings

Group	SUMM	Explanation
VOC	medium	Maximum susceptibility rating among 92 out of 93 volatile organic contaminants assessed
SOC	low	Maximum susceptibility rating among 86 out of 92 synthetic organic contaminants assessed
INORGANIC	low	Maximum susceptibility rating among 33 out of 36 inorganic contaminants assessed
DBP	low	Maximum susceptibility rating among 6 out of 7 disinfection byproduct contaminants assessed
MICROBIAL	low	Maximum susceptibility rating among 5 out of 5 microbial contaminants assessed
RADIOCHEMICAL	low	Maximum susceptibility rating among 10 out of 18 radiochemical contaminants assessed
PHYSICAL	-----	No contaminants from this group were assessed
REGULATED	medium	Maximum susceptibility rating among 93 out of 95 regulated contaminants assessed
ASSESSED	medium	Maximum susceptibility rating among 232 out of 242 contaminants assessed

Source Summary -- Susceptibility Ratings

ID	Group	Contaminant Name	Δ	SUMM	SDGW	ISGW	NPOW	PTGW	COGW
32	INORGANIC	ASBESTOS		low	low	-----	-----	-----	-----
33	SOC	ATRAZINE		low	low	-----	-----	-----	-----
34	INORGANIC	BARBITUM		low	low	-----	-----	-----	-----
35	SOC	BENTAZON		low	low	-----	-----	-----	-----
36	VOC	BENZENE		medium	low	-----	-----	high	-----
38	SOC	BENZO(A)PYRENE		low	low	-----	-----	-----	-----
37	SOC	BENZO(A)ANTHRACENE		low	low	-----	-----	-----	-----
39	SOC	BENZO(B)FLUORANTHENE		-----	-----	-----	-----	-----	-----
40	SOC	BENZO(G)FLUORANTHENE		-----	-----	-----	-----	-----	-----

00010001B -- Summary Component is complete.

Batch Assessment Queue

PWSID	Start Date	End Date	Start Time	End Time	Duration	Percent	Status
-------	------------	----------	------------	----------	----------	---------	--------



USGS science used to determine susceptibility to drinking-water contaminants



TEXAS COMMISSION
ON ENVIRONMENTAL QUALITY



SWAP-DSS

SWAP-DSS processes data for:

- >2-million potential contaminant sources,
- >20 different land-use classifications,
- >4-million water-quality samples,
- And numerous other data sets.

The result is a tailored summary of susceptibility for each of:

- ~6,000 public drinking-water systems, with
- ~18,000 drinking-water sources, that details each source and system's susceptibility to
- >200 drinking-water contaminants.

SWAP-DSS

Similar to WATER, SWAP-DSS uses extremely complex USGS science and creates concise, tailored output.

G0010001B -- Source Summary Component

Group Susceptibility Ratings

Group	SUMM	Explanation
VOC	medium	Maximum susceptibility rating among 92 out of 93 volatile organic contaminants assessed
SOC	low	Maximum susceptibility rating among 86 out of 92 synthetic organic contaminants assessed
INORGANIC	low	Maximum susceptibility rating among 33 out of 36 inorganic contaminants assessed
DBP	low	Maximum susceptibility rating among 6 out of 7 disinfection byproduct contaminants assessed
MICROBIAL	low	Maximum susceptibility rating among 5 out of 5 microbial contaminants assessed
RADIOCHEMICAL	low	Maximum susceptibility rating among 10 out of 10 radiochemical contaminants assessed
PHYSICAL	-----	No contaminants were assessed from this group
REGULATED	medium	Maximum susceptibility rating among 93 out of 95 regulated contaminants assessed
ASSESSED	medium	Maximum susceptibility rating among 232 out of 232 (of 247) contaminants assessed

Susceptibility Ratings

ID	Group	Contaminant Name	SUMM	IDGW	ISGW	NPGW	PTGW	COGW
1	VOC	1,1,1,2-TETRACHLOROETHANE	low	low	-----	-----	-----	-----
2	VOC	1,1,1-TRICHLOROETHANE	low	low	-----	-----	-----	-----
3	VOC	1,1,2,2-TETRACHLOROETHANE	low	low	-----	-----	-----	-----
4	VOC	1,1,2-TRICHLOROETHANE	low	low	-----	-----	-----	-----
5	VOC	1,1-DICHLOROETHANE	low	low	-----	-----	-----	-----
6	VOC	1,1-DICHLOROETHYLENE	low	low	-----	-----	-----	-----
7	VOC	1,1-DICHLOROPROPENE	low	low	-----	-----	-----	-----
8	VOC	1,2,3-TRICHLOROBENZENE	low	low	-----	-----	-----	-----
9	VOC	1,2,3-TRICHLOROPROPANE	low	low	-----	-----	-----	-----
10	VOC	1,2,4-TRICHLOROBENZENE	low	low	-----	-----	-----	-----
11	VOC	1,2,4-TRIMETHYLBENZENE	low	low	-----	-----	low	-----
12	VOC	1,2-DICHLOROETHANE	low	low	-----	-----	-----	-----
13	VOC	1,2-DICHLOROPROPANE	low	low	-----	-----	-----	-----
14	VOC	1,2-DIPHENYLHYDRAZINE	low	low	-----	-----	-----	-----
15	VOC	1,3,5-TRIMETHYLBENZENE	low	low	-----	-----	-----	-----

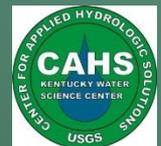
Source Summary Component -- Page 1 of 9

Flood Inundation Mapping Science

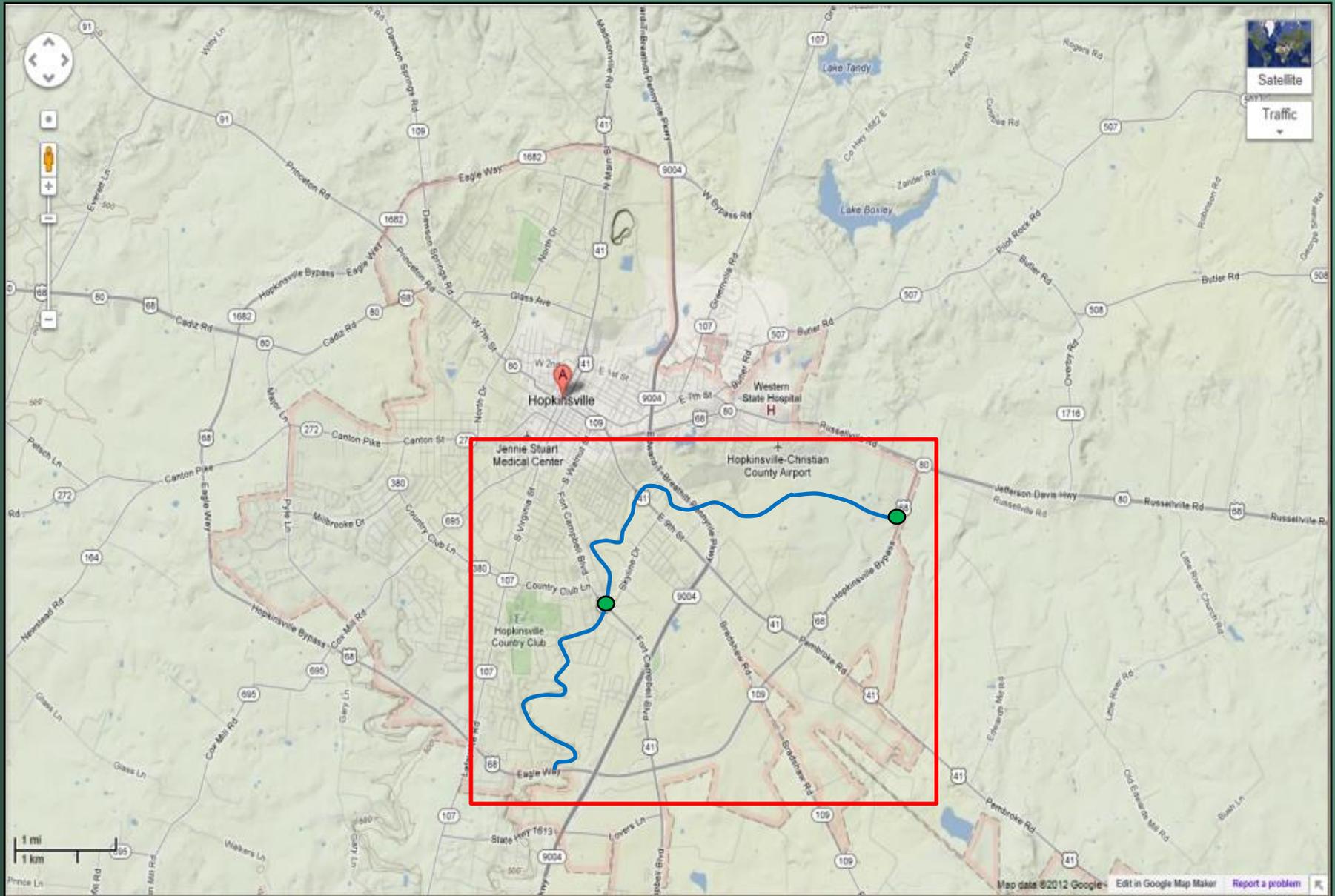
A USGS Initiative



http://water.usgs.gov/osw/flood_inundation/



Study Area – South Fork Little River



Data Sources

- FEMA Study:
 - Aerial imagery (1 meter)
 - Spatial Data
 - River centerline
 - Bank lines
 - HEC-RAS Model
 - Cross-section survey
 - Bathymetry
 - Manning's n
 - 10, 50, 100, 500 Year Flood Flows
- City of Hopkinsville:
 - Aerial imagery (0.3048 meter)
- Energy and Environment Cabinet:
 - DEM (1 meter)

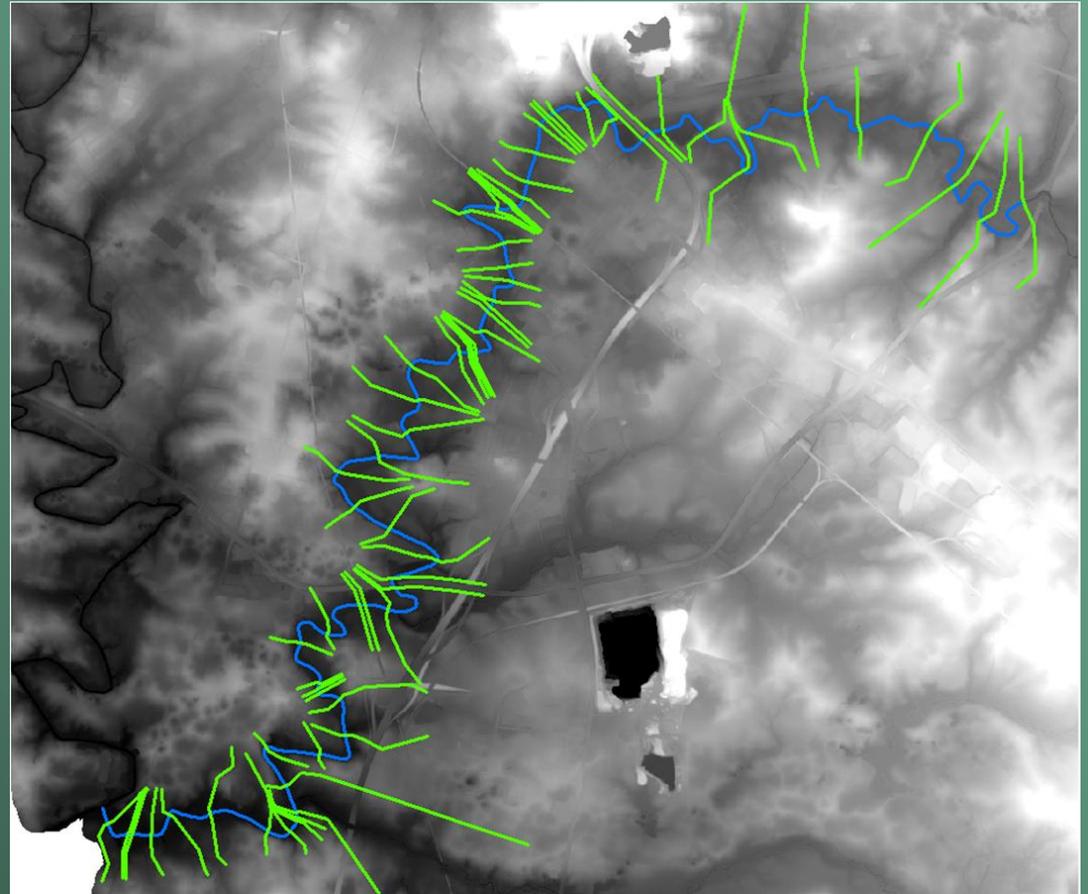


Real-Time Gage Locations on DEM



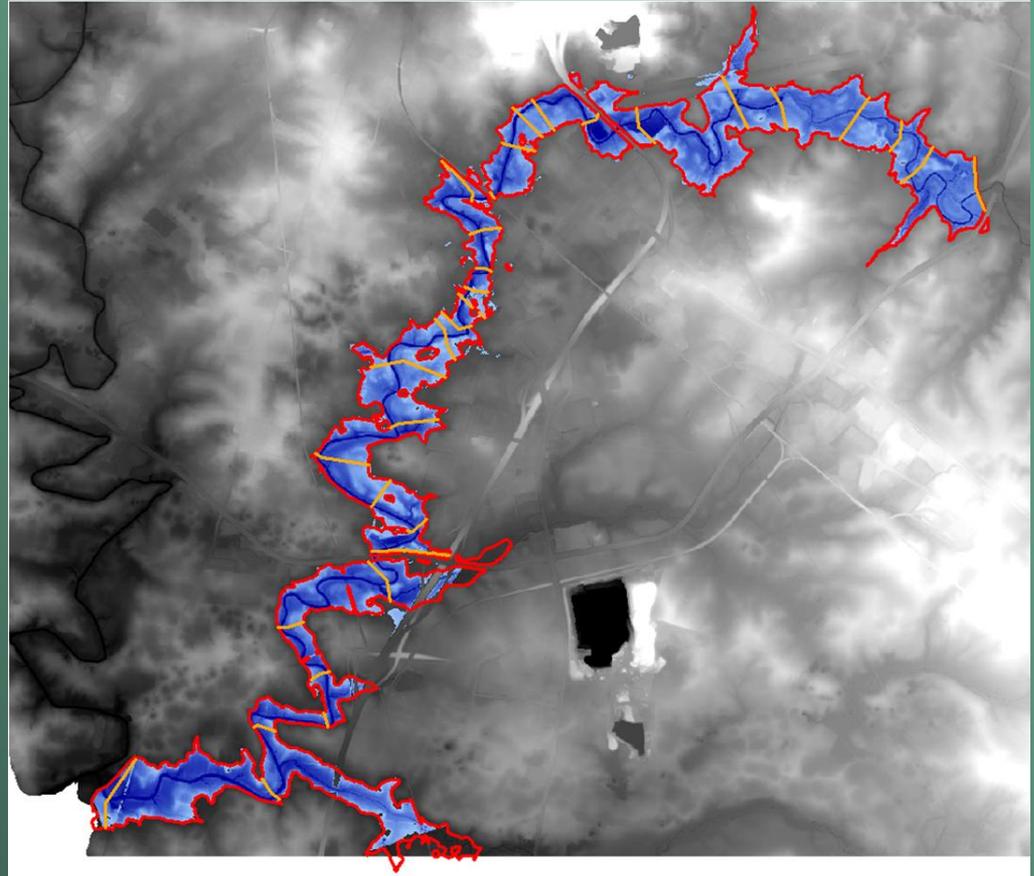
Flood Inundation Mapping Science

- Models can be built and validated using existing or new data such as structural surveys, high-water marks, USGS gage data, bathymetry, and so forth.
- Unique methods and models are also routinely developed by USGS.

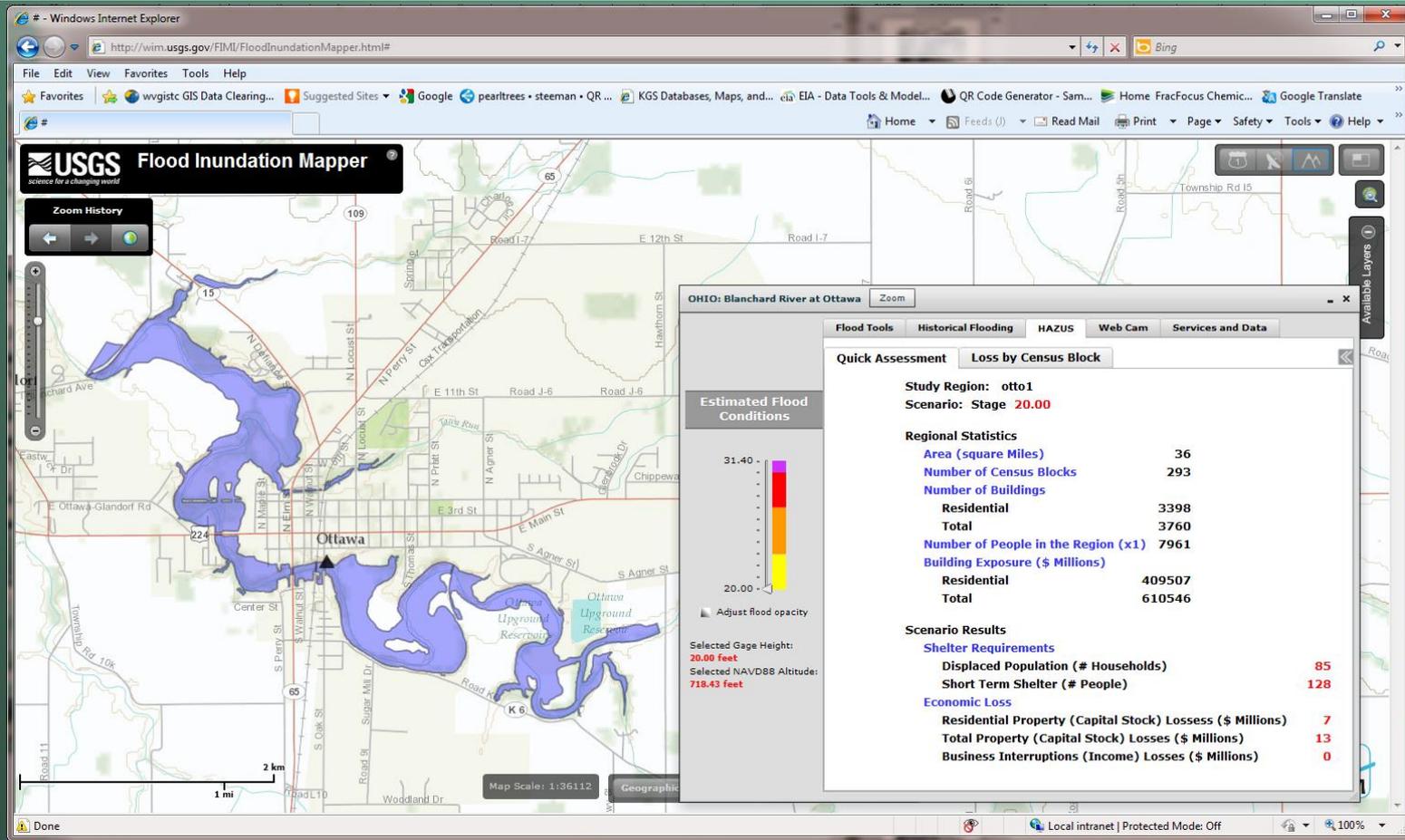


Flood Inundation Mapping Science

- Once the applicable model is validated, inundation maps are created for many flood stages (above bankfull) and prepared for publication.
- Specialized USGS methods are also documented for wider use by the public.



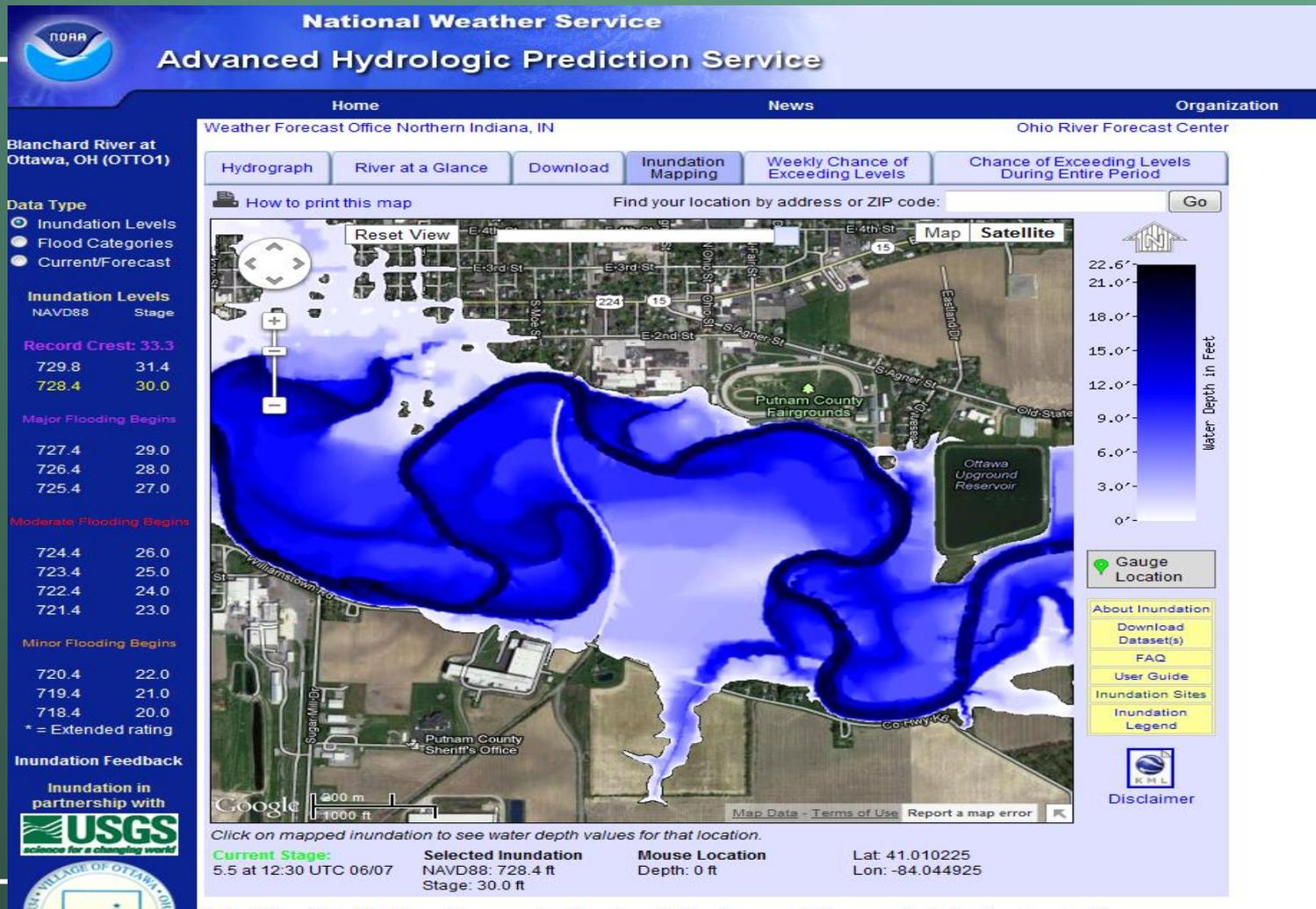
Flood Inundation Mapping Science



<http://wim.usgs.gov/FIMI/>



Flood Inundation Mapping Science



<http://water.weather.gov/ahps/inundation.php>

Social Media – improving access and information sharing



USGS
science for a changing world

USGS WaterAlert
<http://water.usgs.gov/wateralert>
Water information texted directly to you ... simply subscribe.

WaterAlert allows you to receive updates at any of the sites where the USGS collects real-time water information. Daily or hourly updates are sent via email or text message when the current conditions meet or surpass a threshold of concern that you set.



From: WaterAlert@usgs.gov
Date: 7/2/10 10:18 am

2.99 ft Gage height, 2010-07-02 00:00:00 RIO GRANDE AT EMBUDO, NW
<http://water.usgs.gov/hns78P7D/>
88279500

- Go to <http://water.usgs.gov/wateralert/> and choose a State, data type, and site of interest.
- Subscribe to the site and fill out the subscription form.
- Reply to the confirmation email to activate your subscription.

USGS WaterAlert



QR codes



Twitter.com
USGS_Kentucky

USGS StreamMail



<http://ky.water.usgs.gov/>



USGS Kentucky Water Science Center - Windows Internet Explorer

USGS Kentucky Water Science Center

Kentucky Water Resources Program

The mission of the U.S. Geological Survey (USGS) is to serve the Nation by providing reliable, impartial scientific information to describe and understand the Earth, minimize loss of life and property from natural disasters, manage water, biological, energy, and mineral resources, and enhance and protect our quality of life.

Hydrologic Data	Studies	Sediment Lab	Publications	Science Center Information	Links
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Real Time Data for Kentucky

NOTICE: Recently discontinued and shortened USGS streamgages in Kentucky. Click here for more information.

- Streamflow
- Streamflow
- Stream Quality
- Water Quality
- Lake and Reservoir Elevations
- USGS Water Alert - StreamAlert

Historical Data

- Streamflow
- Streamflow
- Stream Quality
- Streamflow
- Annual Data Report
- Historical Data Archives (period-of-record start-value data)

Current Water Conditions

Record high groundwater levels have been measured recently

Science Highlights

Record Groundwater Levels in the Louisville Area

Water-level data for the alluvial aquifer at Louisville, Kentucky, have recently been collected by the USGS in cooperation with various local and State agencies since September 1943. Data are presently being collected in cooperation with the Louisville Water Company. Special attention is given to the Louisville Water Company's alluvial aquifer where the Louisville Water Company is beginning to use riverbank filtration as a means of providing water for the city. The data were collected from the Ohio River through the aquifer at their B.E. Payne Water Treatment Plant near Prospect, Kentucky.

To monitor the groundwater levels, twenty-eight existing wells were incorporated into



USGS has MANY capabilities! Questions?

