

Product/Service Description Document
Experimental Water Resources Streamflow Outlook
Ohio River Forecast Center

Part I – Mission Connection

- a. Product/Service Description – The National Weather Service’s (NWS) experimental Water Resources Streamflow Outlook webpage and text product provides expected streamflow conditions for basins across the Ohio Valley for 30-days, 30- to 60-days and 60- to 90-days. In the last few years, the NWS has added the Advanced Hydrologic Prediction Service (AHPS) to its suite of hydrologic services. As part of it, the River Forecast Centers (RFC’s), began issuing 90-day probabilistic forecasts for river forecast points using the National Weather Service River Forecast System’s (NWSRFS) Ensemble Streamflow Prediction (ESP) service. With the technology of ESP many opportunities are available for the advancement of the hydrologic sciences. At the same time, there are gaps within the current AHPS program that need to be filled. They include short term probabilistic forecasts and 30, 60 and 90 day streamflow forecasts for our customers and partners. This outlook attempts to fill the second gap that exists. Currently, Spring Flood Outlooks are issued by Weather Forecast Offices (WFO’s) based on the time of the year. In addition, hydrologic outlooks are issued based on short term events as needed. However, WFO’s do not have an easy way to take full advantage of hydrologic expertise on a continual water watch via RFC’s. This product attempts to fill that gap by providing a continuous water watch for floods, droughts and everything in between. The latest scientific data and forecasts are made available to other government partners for planning as well as the public through local WFO’s. The website will be titled Water Resources Outlook while the text product will be issued as CRWESFTIR.
- b. Product Type – Experimental
- c. Purpose – The purpose of this webpage and text product will be to provide our partners, customers and the public with a continuous water watch as part of the NWS’s Climate, Weather and Water programs. This webpage and product will fill the gaps between short term deterministic forecasts and 90-day probability forecasts currently available through AHPS. This webpage and product will support NOAA’s mission goals of serving society’s need for weather and water information and supporting the nation’s commerce with information for safe, efficient and environmentally sound transportation.
- d. Audience – The target audience for this experimental product is the hydrologic community, including but not limited to: the Ohio River Basin Commission, United States Army Corp of Engineers (USACE), United States Geological Survey (USGS), Drought Monitor and NWS WFO’s.
- e. Presentation Format – The webpage will have a main graphic of the 30-day expected streamflows on it that will follow the new theme of RFC webpages with tabbed data of related information such as 60 and 90 day flows, past rainfall, future rainfall, and

current and past streamflow conditions. This page is under development and this will be part of this project to make a presentable webpage that could be used as a template for other RFC's and the NWS to implement if this project is a success.

d. Feedback – Feedback will be a critical part of this project, both the visual, but also scientific feedback. This feedback will be provide by our partners such as service hydrologists at WFO's, the USACE, the USGS, and universities such as the Ohio State and Northern Illinois University. There will be links on our website for feedback to be given and information on feedback will also be found in our text product.

Technical comments on the Water Resource Streamflow Outlook may be addressed to:

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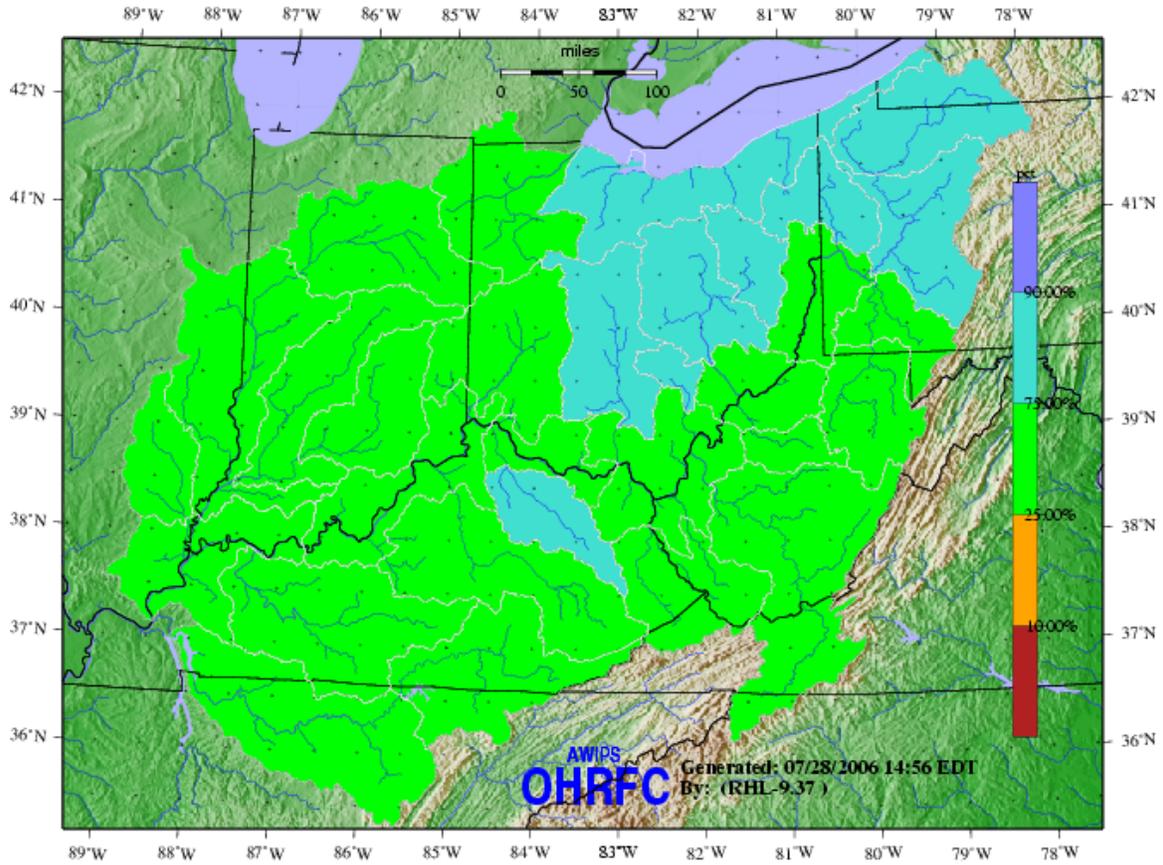
Part II – Technical Description

a. Format and Science Basis – This webpage and product is currently under development. The webpage can be reached at www.erh.noaa.gov/ohrfc/WRO.shtml for viewing. The main focus of the page will be expected streamflows generated scientifically from the NWSRFS ESP with input of rainfall forecasts from the HAS unit at the RFC and from the Hydrometeorological Prediction Center (HPC) and Climate Prediction Center (CPC). There will be an expected flow forecast for the next 30 days, 30 to 60 day period, and 60 to 90 day period. Each 30-day period will be the average flow calculated based on the mean daily flows from the NWS Ensemble Streamflow Prediction (ESP) system. The forecasts are broken in percentile categories based on USGS flows for that time of year. The five categories are < 10 percent, 10-24 percent, 25-75 percent, 76-90 percent and > 90 percent. This equates to much below, below, average, above, and much above average streamflows. This will allow for a match between USGS observed flows and NWS forecast flows. Please see an example of the product after this section. The text product will be broken into observed and forecast conditions that will be based on RFC, HPC, and CPC forecasts and tools.

b. Availability – This website will run 24 hour per day and be monitored by RFC staff. The website will be made available to all partners and customers in the OHRFC coverage area. In addition, the text product will be available via AWIPS or by other means outside the NWS including the internet.

c. Additional Information - None.

Water Resources Outlook for August



EXPECTED STEAMFLOWS ACROSS THE OHIO VALLEY FOR AUGUST

Purple	= Much above normal flows	: <10%	percentile
Light blue	= Above normal flows	: 10-24%	percentile
Green	= Normal flows	: 25-75%	percentile
Orange	= Below normal flows	: 76-90%	percentile
Red	= Much below normal flows	: >90%	percentile

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WATER RESOURCES OUTLOOK
NATIONAL WEATHER SERVICE
OHIO RIVER FORECAST CENTER, WILMINGTON OH
100 PM EDT Friday, July 28, 2006

..... (FOR EXPERIMENTAL USE ONLY).....

THE FOLLOWING IS A NEW EXPERIMENTAL 30-DAY WATER RESOURCES OUTLOOK
FOR PLANNING PURPOSES IN THE OHIO VALLEY.

AUGUST OUTLOOK...THE OUTLOOK FOR AUGUST CALLS FOR GENERALLY AVERAGE OR ABOVE AVERAGE STREAMFLOWS ACROSS THE OHIO VALLEY.

JULY REVIEW...ABOVE AVERAGE STREAMFLOWS OCCURRED ACROSS MUCH OF THE EASTERN OHIO VALLEY BACK INTO INDIANA WITH NEAR AVERAGE ELSEWHERE. THE FORECAST FROM JUNE FOR JULY CALLED FOR ABOVE AVERAGE FLOWS IN THE OHIO AND INDIANA AREA WITH NEAR AVERAGE FLOWS ELSEWHERE.

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JULY RAINFALL ANTECEDENT CONDITIONS

RAINFALL IN JULY WAS GENERALLY IN THE THREE TO FIVE INCH RANGE WITH AREAS OF 5 TO 10 INCHES MAINLY NORTH OF THE OHIO RIVER. THIS RESULTED IN 100 TO 200 PERCENT OF NORMAL ACROSS MUCH OF THE AREA NORTH OF THE OHIO RIVER AND 50 TO 100 PERCENT OF NORMAL TO THE SOUTH.

ADDITIONAL INFORMATION ON 30-DAY TO 1-YEAR RAINFALL CAN BE FOUND ON THE NOAA/NATIONAL WEATHER SERVICE/OHIO RIVER FORECAST CENTER WEBPAGE AT:

[HTTP://WWW.ERH.NOAA.GOV/ER/OHRFC/DROUGHT.HTML](http://www.erh.noaa.gov/er/ohrfc/drought.html)

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JULY SOIL MOISTURE ANTECEDENT CONDITIONS

SOIL MOISTURE WAS ABOVE AVERAGE IN PARTS OF INDIANA AND OHIO, AVERAGE ELSEWHERE EXCEPT BELOW AVERAGE IN SOUTHEAST KENTUCKY AND TENNESSEE.

SOIL MOISTURE TABLE	PERCENTILE
MUCH WETTER THAN AVERAGE	>90
WETTER THAN AVERAGE	70-90
AVERAGE	31-69
BELOW AVERAGE	10-30
MUCH BELOW AVERAGE	<10

SOIL MOISTURE DATA IN THE TOP 5 FEET IS COURTESY OF THE NOAA/NATIONAL WEATHER SERVICE/CLIMATE PREDICTION CENTER. THIS AND ADDITIONAL INFORMATION CAN BE FOUND ON THE INTERNET AT:

[HTTP://WWW.CPC.NCEP.NOAA.GOV/SOILMST/W.SHTML](http://www.cpc.ncep.noaa.gov/soilmst/w.shtml)

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JULY STREAMFLOW CONDITIONS

STREAMFLOWS IN JULY WERE ABOVE AVERAGE IN PARTS OF INDIANA AND OHIO INTO WESTERN PENNSYLVANIA AND WEST VIRGINIA. THE ABOVE AVERAGE FLOWS IN WEST VIRGINIA AND SOUTHWEST PENNSYLVANIA WERE PRIMARILY FROM EARLY JULY. ELSEWHERE, STREAMFLOWS WERE NEAR NORMAL.

STREAMFLOW TABLE	PERCENTILE
MUCH WETTER THAN AVERAGE	>90
WETTER THAN AVERAGE	76-90
AVERAGE	25-75

DRIER THAN AVERAGE 10-24
MUCH DRIER THAN AVERAGE <10

DAILY AND MONTHLY AVERAGE STREAMFLOW ARE OBTAINED FROM THE UNITED STATES GEOLOGICAL SURVEY. THIS DATA AND ADDITIONAL INFORMATION CAN BE OBTAINED FROM THE USGS ON THE INTERNET AT:

[HTTP://WATERMONITOR.GOV](http://watermonitor.gov)

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ATMOSPHERIC TELECONNECTION AND OSCILLATION FORECASTS FOR AUGUST.

TELECONNECTION/OSCILLATION SIGN	RAINFALL
ARCTIC	AVG/ABOVE AVG
NORTH ATLANTIC	AVERAGE
PACIFIC/NORTH AMERICAN	AVERAGE
ENSO	AVERAGE

TELECONNECTION INFORMATION IS COURTESY OF THE NOAA/NATIONAL WEATHER SERVICE/CLIMATE PREDICTION CENTER. THIS AND ADDITIONAL INFORMATION CAN BE FOUND ON THE INTERNET AT:

[HTTP://WWW.CPC.NCEP.NOAA.GOV](http://www.cpc.ncep.noaa.gov)

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WATER RESOURCES OUTLOOK AND DISCUSSION FOR AUGUST

THIS STREAMFLOW FORECAST IS BASED ON THE ADVANCED HYDROLOGIC PREDICTION SERVICE (AHPS) PROBABILISTIC FORECASTS...THE LATEST ATMOSPHERIC MODEL FORECASTS...HISTORIC TRENDS...CLIMATE PREDICTION CENTER OUTLOOKS

THE LATEST FORECAST FOR AUGUST CALLS FOR CONTINUED AVERAGE TO ABOVE AVERAGE STREAMFLOWS ACROSS MUCH OF THE OHIO VALLEY. MOST ATMOSPHERIC PATTERNS FORECAST FOR AUGUST SUPPORT AT LEAST AVERAGE RAINFALL IF NOT ABOVE AVERAGE. THE CLIMATE PREDICTION CENTERS CALLS FOR EQUAL CHANCES FOR ABOVE, NORMAL AND BELOW NORMAL RAINFALL IN AUGUST. THE LATEST HYDROLOGIC MODEL SUPPORTS THE TREND OF A SLOW DRIFT SOUTH AND EAST OF THE ABOVE AVERAGE FLOWS ACROSS THE OHIO VALLEY IN AUGUST.

AS THE BERMUDA HIGH SETS UP AND WITH THE CORE OF THE HEAT EXPECTED TO REMAIN IN THE CENTRAL U.S. TO THE ROCKIES INTO AUGUST...THIS WILL LEAD TO WEAK TROUGHING IN THE EASTERN U.S. AND OHIO VALLEY. WITH A BROAD RETURN FLOW AROUND THE BERMUDA HIGH...PLENTY OF TROPICAL MOISTURE WILL BE PULLED NORTH. THIS WILL INCREASE THE CHANCES FOR AVERAGE TO EVEN ABOVE AVERAGE RAINFALL ESPECIALLY IN THE CENTRAL AND EASTERN SECTIONS OF THE BASIN BASED ON THE LOCATION OF THE TROUGH.

THEREFORE...THE ABOVE AVERAGE FLOWS FORECAST WILL SHIFT SLIGHTLY SOUTH AND EAST FROM PREVIOUS MONTHS.

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AUGUST BASIN EXPECTED STREAMFLOW OUTLOOK

1=MUCH BELOW 2=BELOW 3=AVERAGE 4=ABOVE 5=MUCH ABOVE

BASIN	BASIN NAME	STREAMFLOW FORECAST	STREAMFLOW
PERCENTILE			
AGU	UPPER ALLEGHENY RIVER	4	75-90
AGL	LOWER ALLEGHENY RIVER	4	75-90
MNU	UPPER MONONGAHELA RIVER	3	25-75
MNL	LOWER MONONGAHELA RIVER	3	25-75
BVR	BEAVER RIVER	4	75-90
MKU	UPPER MUSKINGUM RIVER	4	75-90
MKL	LOWER MUSKINGUM RIVER	4	75-90
HOC	HOCKING RIVER	4	75-90
KAN	KANAWHA RIVER	3	25-75
SAY	BIG SANDY RIVER	3	25-75
SCI	SCIOTO RIVER	4	75-90
MIM	MIAMI RIVER	3	25-75
LIK	LICKING RIVER	4	75-90
KTY	KENTUCKY RIVER	3	25-75
GRN	GREEN RIVER	3	25-75
EFW	EAST FORK WHITE RIVER	3	25-75
WHT	WHITE RIVER	3	25-75
WBU	UPPER WABASH RIVER	3	25-75
WBL	LOWER WABASH RIVER	3	25-75
LWA	LITTLE WABASH RIVER	3	25-75
GTL	GREAT LAKES DRAINAGE	4	75-90
MAU	MAUMEE RIVER	3	25-75
CMU	UPPER CUMBERLAND RIVER	3	25-75
CML	LOWER CUMBERLAND RIVER	3	25-75
OHW	OHIO RIVER WHEELING	3	25-75
OHP	OHIO RIVER PARKERSBURG	3	25-75
OHH	OHIO RIVER HUNTINGTON	3	25-75
OHC	OHIO RIVER CINCINNATI	3	25-75
OHL	OHIO RIVER LOUISVILLE	3	25-75
OHS	OHIO RIVER SMITHLAND	3	25-75

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VISIT OUR WATER RESOURCES WEBSITE AT www.erh.noaa.gov/ohrfc/WRO.shtml

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Jim Noel
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