

Ohio River Basin Comprehensive Recon Study ORBCS Fact Sheet

- Ohio River Basin (ORB) encompasses approx. 204,430 square miles (NAD 27 Zone 17))
- Over 23 million people live and work within ORB
- 28 Metropolitan Statistical Areas (MSA's) within ORB
- 152 – 8 digit HUC watersheds in ORB (USGS Coded)
- Ohio River contributes 60% of flow in the Mississippi River at Cairo, IL
- ORB contains a variety of diverse/highly-productive ecosystems.

- Corps operates 83 reservoirs & dry dams in ORB
- Over 131 levees/floodwalls in ORB (third-party O&M)
- Over \$19.2 billion in flood damages prevented since the 1930's
- Over 1.0 million acres of Federal land set aside for multiple public uses
- Hundreds of other Non-Corps FRM projects (NRCS, TVA) in ORB.

- Substantial number of reservoirs & LPP's built in 1930's and 1940's
- 46% of all reservoirs and 53% of LPP's over 40 years old.
- Several reservoirs have exceeded their design life.
- Risks of catastrophic failure increasing each year

- In 2005, 13 reservoirs in Muskingum, Scioto and Miami rivers reached record levels of storage in a single rainfall event. Two of the 15 reservoirs required emergency repairs to avoid failures. Many others required extensive repairs following the event.

- ORBC recon study will investigate infrastructure deficiencies and formulate a framework for alternative re-investment strategies for addressing structural & operational problems.

- ORBC recon study will evaluate continuing role(s) of in-place & potential new Flood Risk Management infrastructure within ORB for multiple uses – determine Federal Interest.

- Significant States, stakeholders, Congressional & public input & collaborative planning would be the keystone of the study effort, study web site: www.orboutreach.com

- Development of a coalition of states supporting the ongoing operation & development of the basin infrastructure is a primary task of the study effort.

- Opportunities for ecosystem restoration and other environmentally-oriented sustainability measures within the basin will be explored with stakeholders during the study.

- ORBC recon study will be an 18 month, 4-District effort culminating in a framework for a basin-wide reinvestment/investment strategy for renewal & modernization in flood damage reduction & strategic water management. Completion scheduled for December 2009.

- Corps POC's – Mr. S. Michael Worley, PE, Project Manager
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Ohio River Basin Comprehensive Reconnaissance Study Main Report

The final approved Main Report of the Ohio River Basin Comprehensive Reconnaissance Study (ORBCS) is now available. The link below will take the reader to a "read-only" pdf. File, requiring Adobe Acrobat Reader to open and read the document. The report document may be reproduced in its original state as needed. The report file is large, so please be patient during the downloading process.

Any suggestions for improving the content of the report may be sent to the Corps of Engineers via the "Tell Us Your Issues" red button on the web site. Please fill out the comment form with any suggested changes and submit it. Thank you for your assistance. The Report Appendices that provide supporting data, graphics and information and are referenced throughout the Main Report will be also provided on this web site in approximately one week.

The product delivery team would like to thank all of those who provided comments on the basin's water resources issues and in doing so helped to make it a much better report.....Thank you.

Click here to download the report.

Share your concerns with us

Share with us your most pressing water resources issues and concerns. Just click the red button and fill out the form. We will provide responses to your questions and issues on this website or respond directly to you. All this information will be incorporated into the study. We appreciate your feedback. Thank you!

What is the ORBC Recon Study?

The Ohio River Basin Comprehensive Reconnaissance Study is a collaborative effort between 4 Corps Districts that share the Ohio River Basin – Huntington, Nashville, Louisville and Pittsburgh, the 15 basin states and a multitude of stakeholders, project sponsors and the public. This ongoing comprehensive reconnaissance-level basin plan will feature a preliminary reinvestment plan for the existing reservoirs and local protection projects as well as identifying opportunities for additional municipal and industrial water supply, hydropower facilities and restoration of damaged ecosystems. The Reconnaissance Study will provide a pathway for resolving not only the problems faced by Corps projects but also other Federal, regional, state and local water resources problems and needs while identifying opportunities for expanded and enhanced water management through future collaborative watershed planning and decision-making.

Water Supply in Tennessee

Tennessee is a water rich state with rainfall averaging between 47 and 53 inches per year. However, water is not evenly distributed and every year is not average. Population and migration patterns have shifted straining existing supplies resulting in water shortages during drought. Lack of water has also become a major factor limiting growth in certain areas. The drought of 2007-2008 exacerbated the situation and highlighted the problem state wide. No longer is the traditional independent utility focus adequate. The state must look toward regional evaluations and solutions. Individual communities and utilities are being encouraged by the state to work cooperatively with neighbors and other partners to more efficiently and effectively deliver water to residents and businesses.

Part of the complexity of the problem is due to the geography and geology of the state. In West Tennessee, sand aquifers underlay the region and supply drinking water to virtually everyone. Middle and East Tennesseans use on both underground and surface sources, but the vast majority relies on surface sources and both distance and elevation limit the efficient transportation of water. Communities along the Tennessee and Cumberland Rivers and their major tributaries would seem to have unlimited access to water but as proven in the drought of 2007-2008, this is not the case because the water is used for many purposes, not just for drinking. The federal projects constructed on the rivers have legal restrictions and limitations on withdrawals. In 2007, both the Corps of Engineers and Tennessee Valley Authority (TVA) modified project operations to adequately meet multiple demands including water quality, drinking and cooling water. While Knoxville, Nashville and Chattanooga have always had adequate supplies of clean water from the Tennessee and Cumberland Rivers up till now, this may not always be the case. A more complete understanding of the competing demands on the rivers is needed. TVA completed a study of the competing demands on the Tennessee in 2006, but the Corps has not had adequate funding for the Cumberland. Many of our smaller cities such as Murfreesboro, Franklin, Maryville, Columbia, and McMinnville that rely on tributaries also face shortages. Streams such as the Little Tennessee and the Duck Rivers were once able to supply all the needs of the communities along them, but, as the communities have grown, these streams are stressed and unable to meet the increasing demands. Many of our smaller communities are on creeks or at the headwaters of the streams at higher elevations. These smaller water sources were adequate for many years, but are now inadequate and limiting growth.

The Corps of Engineers is working with Tennessee Department of Environment and Conservation (TDEC) and others to develop a strategy for comprehensive water planning in Tennessee. This comprehensive evaluation is currently focused in 3 areas: two regional evaluations of supply and demand, an evaluation of current water use and availability beginning at Old Hickory Lake on the main stem of the Cumberland River and the reallocation of storage for water supply on a tributary project the first of which is on J. Percy Priest Lake. A description of each of these evaluations follows:

Regional Water Supply Evaluations

The TDEC in partnership with The Nature Conservancy (TNC), The US Geological Survey (USGS) and other state agencies and associations are developing pilot studies in 2 critical areas: North Central Tennessee and the South Cumberland Plateau. Although these studies are still in process, we know that additional water supply infrastructure such as new source

development or additional connection and sharing among utilities; will be needed for both areas. Many other areas in Tennessee also require water and wastewater infrastructure improvements.

The North Central focus area includes Portland, Westmoreland, Gallatin, White House and Castilian Springs/Bethpage, and the South Cumberland Plateau includes Tracy City, Monteagle, and Sewanee, and Big Creek, Cagle/Fredonia, Griffith Creek, and Foster Falls Utility district. The ultimate outcome will be a comparison of proposed alternatives for each focus area and methodology for other regions to use. Corps participation is under the Planning Assistance to States (PAS) program and is being conducted in multiple phases. PAS funding is cost shared 50/50 with the state providing matching funds. With additional funding, the Corps could complete plans for other regions. With additional authority and funding the Corps could assist with design and implementation of measures for the North Central and South Cumberland Plateau pilot areas.

Cumberland River Main Stem Issues

Background/Water Supply Concerns

All the projects on the Cumberland River serve multiple purposes such as navigation, flood damage reduction, hydropower, recreation, fish and wildlife and water supply. Each project was authorized for specific purposes with some purposes added after project construction. Water supply was not an original project purpose for any of the projects in the Cumberland River System. The cost of the project's construction, operation, and maintenance is spread across project purposes. Funds to operate and maintain the project are allocated by project purpose. Hydropower and water supply which generate revenue also repay a portion of the original construction costs. As dictated by the Water Supply Act of 1958, these costs are assigned to water supply in proportion to the amount of storage dedicated to water supply. Thus, studies must be done to determine how much storage can be re-allocated to water supply and how much to charge for the water supply storage at each project. A further complication is the two types of projects in the Cumberland River System.

Projects on the main stem including Old Hickory, Cheatham, Barkley and Cordell Hull have **no** storage. In other words, these projects are operated so that outflows of the projects equal the inflows. Water is stored only in tributary projects such as Wolf Creek, Center Hill, Dale Hollow and J. Percy Priest Reservoirs. Because there is no storage on the main stem, water may be withdrawn without charge as long as authorized project purposes are not impacted. However, when water withdrawals impact authorized project purposes and stored water must be released from upstream tributary projects to mitigate those impacts, then Water Supply Act of 1958 dictates that a reallocation of storage at tributary projects sufficient to meet those needs is required. Water withdrawal charges are required with the reallocation.

Water Availability Study

Due to current withdrawals for water supply, there is a strong need for a Water Availability Study on the Cumberland River Main Stem. We believe that withdrawals from Old Hickory may be already greater than inflows and authorized project purposes are being impacted. The Water Availability Study will determine the following: who is using the water; where is water going (Inter-basin transfers); how much is being used; how much water can be used from

each Cumberland River main stem pool without significant impacts to authorized purposes and finally, if other purposes are impacted, how should storage be reallocated from upstream tributary reservoirs and what will the cost be?

Until the Water Availability Studies are complete, there is a moratorium on permitting new water intakes or increases in withdrawals from existing intakes on Old Hickory. Also, there is a moratorium on the permitting of new intakes or increases in withdrawals from existing intakes on Old Hickory. Also there is a moratorium on the permitting of new intakes or increases in withdrawals from existing intakes where water is being distributed outside the Cumberland River. In addition, the current policy of providing water to private individuals along the Cumberland River through minor use licenses associated with Shoreline Management Plans will be examined.

If the Water Availability Study confirms there is no more water available from Old Hickory Lake, requests for new or additional withdrawals would be dependent on reallocation of storage from one or all the tributary projects upstream. A reallocation requires a reallocation study in accordance with the Water Supply Act of 1958. The Chief of Engineers may approve a reallocation up to 15 percent of the total storage capacity or 50,000 acre feet, whichever is less. If the reallocation would seriously affect other purposes or involve major structural or operational changes at a project, Congressional approval would be required.

Water Reallocation Studies

Reallocated storage costs are repaid by users over time and are established during the reallocation study. The storage costs are the higher of the benefits or revenues foregone (based on the impacts to other project purposes normally hydropower), the cost to replace the storage, or the updated cost of storage in the Federal project. The charges also include a share of the annual costs including operation, maintenance, repair, replacement and rehabilitation (OMRR&R) costs.

Reallocation studies typically have two phases: Reconnaissance and Feasibility. The Reconnaissance Phase normally uses O&M funds under the authority of the original project. Use of Section 216 or specific authorities combined with specific appropriations are also options. The Feasibility Phase is normally cost-shared under Section 216 or a specific authority and funded from specific appropriations. The Nashville District has historically received minimal funding through the Water Supply Business Line budget process, which has hampered our ability to evaluate water supply requests. Most of our reallocation studies have been Congressional adds. The current study at J. Percy Priest was court ordered at 100% Federal costs. The entity requesting the storage must provide the Corps with demands and alternative analyses. The Corps will derive user costs (higher of benefits or revenues foregone, replacement cost, or the updated cost of storage), a test of financial feasibility, and NEPA documentation.

Additional Challenges

An additional challenge is created by an annual legislative prohibition on the Corps spending federal dollars for reallocation studies for Lake Cumberland (Wolf Creek Dam). Lake Cumberland accounts for the vast majority of storage on the Cumberland River. System and along with the tributary projects, Dale Hollow and Center Hill, provide for nearly all of the flow in the Cumberland River (especially during droughts). This legal prohibition would in effect

prevent the Corps from reallocating any water from the storage projects to supply users on the main stem projects (Barkley, Cheatham, Old Hickory, and Cordell Hull Lakes) without a significant change in all project operations. In addition, the dam safety major rehabilitation pool restrictions on the Wolf Creek and Center Hill pools prevent a reallocation of storage from them until the restrictions are lifted.

Funding Needs:

1. **\$200,000 is needed in FY 11** in the Operations Account to complete the **Water Availability Studies** for Barkley, Cheatham and Cordell Hull Lakes. (Old Hickory will be completed this year).

2. **\$200,000 is needed in FY 11** to update the **Water Control Manuals** for the Projects in the Cumberland River System

3. Funding will be needed the next 4 years to complete **Reallocation Studies** to meet the needs of those that have made requests for water to date.

FY 11 - \$250,000 on Lake Laurel (There is an existing request for storage)

FY 12 - \$250,000 on Dale Hollow Lake or Wolf Creek or Center Hill Lakes
(the reallocation ban must not be in existence also the dam safety corrections should be complete)

FY 13 - \$250,000 on Dale Hollow Lake or Wolf Creek or Center Hill Lakes
(the reallocation ban must not be in existence also the dam safety corrections should be complete)

FY 14 - \$250,000 Dale Hollow Lake or Wolf Creek or Center Hill Lakes (the reallocation ban must not be in existence also the dam safety corrections should be complete)

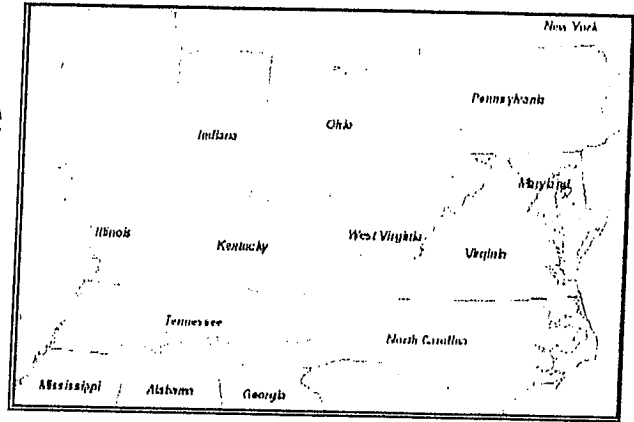
Communication needs

Tennessee and Kentucky need to be briefed on their interactions in the Cumberland River Watershed and how change or lack of change could impact communities in both states.

Environmental Infrastructure

State-wide environmental infrastructure authority

Charting a Course Toward a Sustainable Ohio River Basin



February 23-25, 2010

Hyatt on Capitol Square
Columbus, Ohio

<http://capitolsquare.hyatt.com>

Overview of Conference

In follow-up to a successful event in October 2009, this conference will bring Ohio River Basin stakeholders together to discuss the optimum framework for an effective Ohio River Basin Collaboration; report on progress -- and unmet needs -- in sustainability initiatives; strengthen partnerships; and devise strategies for collective action.

Attendees

This conference will be of interest to Federal, State, Regional, and local governments, environmental stakeholders, business/industry, and all with an interest in the integrated management of water resources to promote sustainability within the Ohio River Basin.

Program

This conference will advance efforts to secure a sustainable future for the Ohio River Basin by balancing human activities and natural systems. Current themes will provide a framework for plenary and breakout sessions focusing on actions identified in the October 2009 Summit and further refining strategies to address them. There will be opportunities for networking.

Potential Speakers

Conference speakers will include senior officials from all levels of government in the region, as well as stakeholders, industry, and academia with a commitment to the promotion of a healthy and sustainable Ohio River Basin.

For More Information

A detailed agenda and registration information for this conference is available at www.lrd.usace.army.mil/Ohio_River_Basin_Summit. For more information about the conference, contact Amy Sharp, email: amy.k.sharp@usace.army.mil or Dr. Joseph Fiksel at fiksel.2@osu.edu.

Charting a Course Toward a Sustainable Ohio River Basin

CONFERENCE

February 23-25, 2010

Hyatt on Capitol Square • Columbus, Ohio
Preliminary Program

Tuesday, February 23

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|------------------------------------|--|
| 10:00 a.m. – 5:00 p.m. | Registration Open (Location TBD) |
| 1:00 p.m. – 1:15 p.m. | Opening Remarks
Michael B. Coleman, Mayor of Columbus |
| 1:15 p.m. – 1:45 p.m.
(Invited) | Opening Keynote
<i>The Honorable Joe Manchin III, Governor</i>

<i>[Backup = Governor Ted Strickland, Ohio]</i> |
| 1:45 p.m. – 2:00 p.m. | Summary Results from October 2009 Study |
| 2:00 p.m. – 2:30 p.m. | Ohio River Basin Comprehensive Study
Recommendations
Mike Worley or Beth Cade, USACE, Hunt |
| 2:30 p.m. – 3:00 p.m. | Break |
| 3:00 p.m. – 4:00 p.m. | Shared Visioning in the Ohio River Basin
Moderator: Dr. Joseph Fiksel, Ohio State |
| 4:00 p.m. – 5:00 p.m. | Sustainable Basin-wide Leadership and
Moderator: Dr. Tim Lohner, American Ele |
| 5:00 p.m. | Adjourn |
| 6:00 p.m. | Reception (Location TBD)
Staff for Senator Sherrod Brown |

Wednesday, February 24

- 7:30 a.m. – 9:30 a.m. **Continental Breakfast**
- 8:00 a.m. – 8:15 a.m. **Day One Review and Day Two Activities**
Amy Sharp, USACE, Great Lakes & Ohio River Division
- 8:15 a.m. – 8:45 a.m. **Keynote Presentation:** Representative from CEQ or unique
perspective from staff for Senator Lugar (IN)
- 8:45 a.m. – 9:15 a.m. **col·lab·o·rate:** \kə-'la-bə-,rāt\
1 : to work jointly with others or together especially in an intellectual endeavor
2 : to cooperate with an agency or instrumentality with which one is not immediately connected
— **col·lab·o·ra·tion** \-,la-bə-'rā-shən\ *noun*
- 9:15 a.m. – 9:45 a.m. **Shared Vision Planning** - Mr. Joe Hoffman, Executive Director,
Interstate Commission for the Potomac River Basin
- 9:45 a.m. – 10:00 a.m. **Charge to Breakout Groups** – Dr. Joseph Fiksel, Ohio State
University
- 10:00 a.m. – 12:00 a.m. **Concurrent Sessions (Rooms to be announced)**
- Session A: Water Availability and Management Working Group**
 Facilitator: David Hanselman, Ohio Department of Natural Resources
- Session B: Infrastructure Working Group**
 Facilitator: Derek Guthrie, Past-President, NAFSMA, Former Director of
 Engineering/Operations and Chief Engineer Louisville and Jefferson County, KY
 Metropolitan Sewer District
- Session C: Restoration and Protection Working Group**
 Facilitator: John Stark, The Nature Conservancy
- Session D: Green Energy Working Group**
 Facilitator: Dr. Paul Bishop, Program Director, National Science Foundation
- Session E: Public Outreach Working Group**
 Co-Facilitators: Harry Stone, Battelle and Jane Hardisty, Natural Resources
 Conservation Service
- 12:00 a.m. – 1:00 p.m. **Lunch**
 Presentation: Sustainability Science: The role of water resources
 in sustainability
- 1:00 p.m. – 3:30 p.m. **Repeat Concurrent Sessions**
- 3:30 p.m. – 5:00 p.m. **Plenary “Roundtable” Session: Looking Ahead**
 Moderator: John Hines, Chairman, Ohio River Basin Water
 Resources Association (ORBWRA), Pennsylvania Department of
 Environmental Protection
 *[Identify specific targets of opportunity (“low hanging fruit”) for
 collaborative effort among stakeholders that could provide some
 immediate benefits]*
- 5:00 p.m. **Adjourn for Evening Activities**
- 5:30 p.m. – 7:30 p.m. **Field Trip: Battelle**

Thursday, February 25

- 7:30 a.m. – 9:30 a.m. **Continental Breakfast**
- 8:15 a.m. – 8:30 a.m. **Day Two Review and Day Three Activities**
Amy Sharp, USACE, Great Lakes & Ohio River Division
- 8:30 a.m. – 9:00 a.m. **Keynote Presentation:** Staff person for Congressman Driehaus
(Backup: Staff person from Congresswoman Shelley Moore Capito), "Leading a Congressional Caucus in the Ohio River Basin"
- 10:00 a.m. – 11:00 a.m. **Plenary "Roundtable" Discussion of Next Steps**
Moderator: Dr. Joseph Fiksel, Ohio State University
[Identify specific actions that will be taken in the next 3 to 6 months to move forward on the ideas and actions generated by the participants.]
- 11:00 a.m. – 11:00 a.m. **Closing Remarks**
- 11:00 a.m. **Adjourn**
- 11:30 a.m. **Field Trip: Olentangy River Wetlands Research Park**