UMRBA Resilience Objectives — 2022-2024 Work Plan

Overarching principle: Strengthen cooperative action

1. Elevate the perspectives of, and build engaging relationships with, leaders from the diverse cultural, racial, and ethnic communities within the floodplain

2. Build understanding, mutual respect, and empathy among stakeholders and floodplain residents

    a) Enhance equity practices (public outreach, engagement, and responsiveness) and build relationships with individuals and organizations who can partner in improving equity

3. Create and implement an ongoing community engagement plan

    a) Evaluate existing community engagement approaches and identify new community engagement processes that would be involved in advancing Objectives 1-5

Objective 1: Assess vulnerabilities from flood and drought events

1. Convene and resource an interstate task force to assess resilience to flood and drought events of floodplain communities, economies, and ecosystems

    a) Develop an assessment of relative risk associated with various hypothetical flood events (height and duration) to inform where planning and infrastructure investment is needed most

    — By November 2023, develop and recommend to UMRBA potential effective structural and/or nonstructural strategies to reduce flood damage risk in those areas that do not transfer flood risk to others in the watershed

    - Utilize systemic HEC-RAS, flow frequency profiles, inundation mapping, and other tools developed by the Silver Jackets teams and others

    - Compile and integrate county-level drought- and flood-related strategies

2. Estimate long term impacts on water uses and users of long duration low flow conditions

    a) Build an inventory of water users and infrastructure susceptible to long term low flow conditions

    b) Identify consequences of hypothetical low flow conditions and duration to those water users and infrastructure (as identified above)

3. Partner with Culver-Stockton on a video of anecdotal stories of vulnerabilities experienced in the floodplain to a) inform the vulnerability assessment in Objective 1(1) and b) to build understanding, mutual respect, and empathy among stakeholders and floodplain residents

Objective 2: Improve knowledge of resilience and assumptions of associated risk

1. Develop a collective scientific understanding of tributary influences on floodplain and main stem dynamics [Focus is rate and volume of water and sediment delivery to the mainstem]

    a) Assess the historical trends of tributary inputs of water and sediment delivery utilizing existing datasets

b) Determine a range of assumptions about continued trends of water and sediment delivery given existing science and monitoring information as well as flow and sediment dynamics into backwaters and other non-main channel areas (e.g., residence time estimates)

c) Identify monitoring needs to fill gaps in long term, scientific trends analyses, aligning with the Hypoxia Task Force's and states' identified nutrient monitoring needs and partnering with local municipalities

d) Establish monitoring programs to track tributary influences to enhance understandings and assumptions about status and trends of water and sediment delivery

— Existing data sources include (but not limited to) USGS stream gages, UMRR long term resource monitoring, Illinois long term electrofishing, and Illinois River NGWOS

2. Advocate for renewed flow frequency profiles

[Insert advocacy request for federal FYs 2022 and 2023.]

3. Advocate for the following programs and projects:
    — NOAA Atlas-14
    — NOAA NIDIS
    — USGS Illinois River Basin Next Generation Water Observing System
    — Hypoxia Task Force Coordinating Committee nutrient monitoring
    — UMRBA Interstate Water Quality Monitoring Plan (UMRBA Recommended CWA Monitoring Strategy)
    — UMRR/NESP ecosystem-related trend analysis and research

4. Develop a flood prediction tool to guide planning and mitigation for a variety of organizations and individuals in the floodplain

Objective 3: Advance long term, systemic navigation channel planning

1. Develop implementation assessments for three to five of the most impactful barriers to effective channel maintenance and management

2. Evaluate, and recommend, the use of existing and innovative tools for sediment placement and management

    a) Assess the use of in-river placement, including the implications of in-river placement of nutrient-laden sediment

3. Advocate that the Corps undertake comprehensive, strategic channel maintenance planning in light of new conditions (recognizing the high flow conditions)

    a) Encourage proactive management of sediment (in large part to avoid emergency situations), including planning for the appropriate timing and capacity of dredging and placement as well as off-loading placement sites to ensure adequate storage capacity

    b) Identify problem areas that will require focused attention

c) Integrate UMR Spills Group's mapping resources of sensitive areas to channel maintenance and management plans

4. Evaluate potential sediment-related modules to integrate into systemic HEC-RAS

5. Amplify the benefits of a *reliable* navigation channel, particularly the resulting economic benefits of channel management investments

a) Utilize existing economic estimates to underscore the role of the waterways in the nation's multi-modal transportation network and the potential consequences of a closure within the river system

Objective 4: Facilitate greater utilization of beneficial reuse

1. Employ a market analysis to determine the potential to increase the quantity of dredged material taken from placement sites

a) Assess the potential for increasing the quantity of dredged material utilized by existing public and private organizations

b) Explore issues and opportunities for expanding the utilization of dredged material to new user types

c) Identify efficiencies and process improvement opportunities for state regulations and procedures

Objective 5: Improve drought preparedness

1. Implement scenario planning to model impacts and to identify water supply vulnerabilities in a multi-year and flash drought, using NOAA and/or other federal climate partners

2. Elevate best management practices and improve knowledge, learning from state and federal drought plans and resources

3. Integrate drought issues with the challenge of potential out-of-basin water diversions

4. Improve knowledge and create common vocabulary among various water users and uses regarding drought management, including the challenges of moving between flood and drought events more rapidly and more frequently

5. Use HEC-RAS to model low flow dynamics

a) Consider whether HEC-RAS water quality modules would be useful for characterizing conditions under low-flow scenarios