Future Mississippi River Ecosystem Science: USGS Challenges and Opportunities

Abstract

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The Mississippi River, also known as the "Father of Waters" and "America's River", stands as a unique example of extraordinary natural resource, a great river at risk, and an opportunity to explore how applied federal science should be conducted at large, ecosystem scales. The river drains 41% of the United States, and has recently been the focus of national attention related to its role in extensive flooding, the sustainability of Midwestern economic and ecosystem conditions and values, the delivery of sediments necessary to build protective coastal wetlands, and the development of the Hypoxic Zone in the Gulf of Mexico. Its size and complexity have traditionally been beyond the science capacity of existing USGS programs and offices. So the question today is "How can and should USGS scientific efforts be designed to treat the Mississippi River as a single system?" The concept of integrated science is multi-dimensional in nature, requiring consideration of biological, stream network, and landscape hierarchies; data management and access; cross-disciplinary communications; institutional functions, structures, and responsibilities; and in the case of the Mississippi, relatively new ideas related to quantifying ecosystem services and tradeoffs made necessary by different societal choices. All of these will be open for discussion in this session. Experienced scientists and one conservation practitioner, representing different Mississippi River reaches and USGS science divisions and programs, will present lessons learned and perspectives that will be used as initial entry points into the full discussion of what Mississippi River ecosystem science might look like in the future.