

Ohio River Basin Climate Change Pilot Study Report, July'15

Formulating Climate Change Mitigation/Adaptation Strategies through Regional Collaboration with the Ohio River Basin Alliance

(currently in review)

- **Pilot study:** potential effects of climate change (CC) on basin infrastructure (e.g., dams, locks), navigation, water supply, hydroelectric power production, terrestrial & aquatic ecosystems
- **Collaborative effort:** Ohio River Basin Alliance, Institute for Water Resources, Great Lakes & Ohio River Division, other Federal Agencies, Non-Governmental Organizations, Research Institutes and academic institutions
- **Products:** downscaled climate modeling information for entire Ohio River (OR) basin, with projections for future temperature & precipitation changes, as well as future streamflow at gaging points throughout basin
- **Projections:** presented at HUC 4 sub-basin level through three 30-yr periods between 2011 and 2099
- **Mitigation & adaptation strategies:** provided for all levels of jurisdiction, and individual & corporate landowners
- **Summary for Ohio River Basin:**
 - ▶ Gradual increase in annual mean temperatures, one-half degree Fahrenheit (F) per decade through 2040, with greater increases of one degree F per decade, between 2041 and 2099
 - ▶ Greater precipitation & stream flows—up to 50% greater—in sub-basins northeast, east & south of OR
 - ▶ Ever-decreasing autumnal precip & stream flows—up to 50% less—in sub-basins west and north of OR (drought may be prevalent in Scioto, Great Miami, Kentucky/Licking & Wabash watersheds, 2071-2099)
 - ▶ Potential impacts range from minimal to potentially devastating in some sub-basins, including:
 - Loss of certain fish & mussel communities, extirpation of certain aquatic & terrestrial species
 - Unsustainable cooling flows for thermoelectric power plants
 - Unreliable flows for hydropower and water supply

