

Questions and Answers from the 2022 Flood Forum

Q: Are the flood risk percentages ("100-year flood," "500-year flood") being revised as part of updating floodways and floodplains, or are we still using old definitions of those?

A: At the current time, the methodologies for determining flood frequency flows / elevations are mainly based on the definitions & techniques that have been in use since the initiation of the NFIP in 1968. There is general consensus that these need to be updated for climate effects and non-stationarity, but revised techniques are just now being developed.

Q: If I understand correctly, federal agencies are now experimenting with relocation of structures (and residents) in some locations... any consideration of that option in Indiana?

A: We have had buyouts using 75% cost share from FEMA in many locations in Indiana for years (including that with the leadership of Maumee River Basin Commission in Fort Wayne, Decatur, and Auburn). However, as homes are being bought out and relocated in one place, more are added elsewhere.

Q: Is some entity advocating bank stabilization and stream containment as done by the Corps of Engineers and perhaps their worst error, the Mississippi through Louisiana? Containment to prevent bank erosion seems opposite to trying to connect the stream to wetlands? What am I missing with this presentation?

A: Stream containment is not a permanent solution and has negative impacts on the environment and on others downstream or upstream. Bank erosion is a natural process as streams mature and find their equilibrium. Bank erosion should only be addressed if it threatens an infrastructure or building. When that is necessary, it has to be done by nature-based solutions. Refer to the 2018 Indiana Fluvial Erosion Hazards Manual (you can locate it by Google search)

Q: Does Indiana have an inland equivalent to Louisiana's CPRA - is that DNR?

A: DNR does have the Lake Michigan Coastal Program - it isn't the same as Louisiana's CPRA, but you can check it out here: <https://www.in.gov/dnr/lake-michigan-coastal-program/>

A: Indiana does not have a specific entity such as CPRA however DNR does handle most of those items. DNR and IDEM have a joint "Waterways Inquiry Request" which provides insight into potential permit issue for specific sites. <https://www.in.gov/waterways/>

A: For reference, the Louisiana Watershed Initiative can be found at <https://watershed.la.gov/>

A: The best equivalent to CPRA in Indiana, where multiple agencies collaborate on floodplain management issues is probably the Indiana Silver Jackets team. <https://silverjackets.nfrmp.us/State-Teams/Indiana>

Q: Are protection and restoration measures for fisheries, shrimpers, etc., consistent with or different from protection and restoration measures for oil & gas infrastructure (extraction platforms, refineries, etc.)? If compatible please explain; if divergent, how are priorities between these things established?

A: In some cases they are aligned, such as providing protection to the communities servicing each industry and maintaining easy access to the waters. However, there are some differences, such as fisheries being much more sensitive than the petrochemical sector to changes in salinity which are both a natural consequence of sea level rise (i.e., saltwater intrusion to fresh/brackish wetlands) and induced by adaptation measures (e.g., river diversions introducing greater quantities of fresh water). Where objectives conflict, planners examine the tradeoffs by identifying a range of project portfolios that vary in their outcomes. In our experience, there is often a “sweet spot” where achieving further incremental progress on either outcome requires making large sacrifices in the other dimension.

Q: Is the Morgan County approach being used in other counties as well?

A: Several counties and communities have already adopted or are considering adding similar FEH requirements in their local ordinances. The language is also included in the LTAP Model Stormwater Standards. So, more communities are expected to adopt these.

Q: Can you talk about the importance of trees and other plants to mitigate flooding? Is there any data a neighborhood leader could use to document how much water the average tree absorbs. And can you also speak to plant use to mitigate erosion - for example around suburban detention ponds?

A: A rule of thumb for trees is 10 gallons of water for each 1 inch DBH (diameter at breast height) this comes from Purdue Landscape Report and deeproot.com. Native plants have deep roots and are able to stabilize banks as well as filter sediments and pollutants.

Q: What HUC level in reference to the Eagle Creek watershed?

A: The Eagle Creek watershed (to the confluence with White River) is a HUC10 watershed (0512020111). See <https://www.in.gov/idem/cleanwater/indiana-huc-finder/> for HUC's

Q: How much value could floodplain creation/restoration in upstream ditches/headwaters add to watershed-scale resilience? Example: two-stage ditch. We often focus on the riverine floodplains to do "their job" but lots of miles of waterways upstream could be helping!

A: We have known for a long time that creating storage and slowing down the flow velocity in the upstream ditches/headwater streams is much more effective and cheaper than trying to slow or store water further downstream. The more we can do upstream, the better.

Q: Sheila had mentioned watershed management but there hasn't been a lot of talk about it. Most of the flooding that we experience annually is related to the watersheds moving tremendous amounts of water into developed areas once the ground is saturated. If property owners aren't interested in partnering or selling any property to allow for stormwater management, what mitigation options are left?

A: We are trying to promote LID/green infrastructure and other stormwater management practices throughout the watershed as new development is proposed. The recently developed Indiana LTAP Model Stormwater Management Ordinance and Technical Standards contain many of these requirements or optional requirements. However, as a nation, we have not done enough to address issues caused by intensified agricultural drainage. More work needs to be done in that area.

Q: Since carbon pollution is the root cause of increased flooding, more human suffering, increased costs of infrastructure/adaptation/resilience, were carbon reduction strategies mentioned in our discussion today? Can this group put out a statement in support of carbon reduction strategies in Indiana to address flood risk reduction?

A: Climate issues and carbon strategies are part of the Indiana Water Summit's overall [Water Roadmap](#) and therefore integrated into the Summit itself and associated summary documents, recordings, events, etc. A new Working Group tied to the Summit is evolving and will be suggesting action steps for state and local leaders to implement over the next 5 years.

Q: We are in a rural ag community, I get calls weekly about streambank erosion and log jams. Does anyone know of any financial help for landowners?

A: Indiana DNR Lake and River Enhancement Program can assist with qualifying logjams and streambank erosion.

Concluding Recommendations from Speakers

What's the most important thing Indiana can do to reduce its risky flood future?

- Provide funding to communities to do flood resilience planning
- Enroll as much agricultural land in soil health practices as possible
- Invest in practices and protections that are win-win like wetlands restoration that helps with flood protection and nutrients reduction
- Preserve the natural and beneficial function of the floodplain