**DESCRIPTION**
Measures that reconnect floodplains and river channels, allow overbank flow during floods, enhance the retention of floodwaters on floodplains, and/or preserve existing floodplains to retain their flood storage function.

**HOW DOES IT MITIGATE FLOOD RISK?**
- **Flood storage**: The holding of floodwaters during a flood which are then gradually released into the drainage system.
- **Groundwater recharge**: Downward movement of water from the surface to subsurface aquifers.

**WHAT OTHER BENEFITS DOES IT PROVIDE?**
- **Habitat restoration/enhancement**: Changing the physical, chemical or biological characteristics of a site with the goal of returning or improving the natural functions to the lost or degraded native habitat.
- **Improved water quality**: Increasing suitability of water for a particular use based on selected physical, chemical and biological characteristics.
- **Carbon sequestration**: The process by which carbon dioxide is removed from the atmosphere and held in solid form in the landscape.
- **Recreation**: Providing recreational opportunities such as birdwatching and hiking.
- **Streamflow regulation**: Modulation of fluctuations in river flow by temporary storage.

**SCALABILITY**
Individual projects planned at scale can have watershed effects.

<table>
<thead>
<tr>
<th>Advantages Relative to Traditional Flood Management</th>
<th>Potential Barriers or Issues Relative to Traditional Flood Management</th>
<th>Potential Synergies with other NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Passive operation.</td>
<td>+ Limited experience, capacity and expertise at the local level.</td>
<td>+ Riparian Vegetation Restoration.</td>
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<tr>
<td></td>
<td>+ Habitat restoration as flood mitigation is not well understood or practiced.</td>
<td>+ Management of Working Lands.</td>
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<tr>
<td></td>
<td>+ Lack of state and local expertise, capacity and availability of technical resources.</td>
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<td>+ Invasive species management.</td>
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<td>+ Private lands may require acquisition or incentives.</td>
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</tbody>
</table>
## RESOURCES

### EVALUATION TOOLS

- **National Stormwater Calculator:** [https://www.epa.gov/water-research/national-stormwater-calculator](https://www.epa.gov/water-research/national-stormwater-calculator)
- **USACE Ecosystem Restoration Model Library:** [https://cw-environment.erdc.dren.mil/model-library.cfm?CoP=Restore&Option=Search&Type=Restore&Id=ALL](https://cw-environment.erdc.dren.mil/model-library.cfm?CoP=Restore&Option=Search&Type=Restore&Id=ALL)
- **INVEST Habitat Quality:** [http://releases.naturalcapitalproject.org/invest-userguide/latest/urban_flood_mitigation.html](http://releases.naturalcapitalproject.org/invest-userguide/latest/urban_flood_mitigation.html)

### DESIGN SUPPORT

- **Iowa DNR River Restoration Toolbox:** [https://www.iowadnr.gov/Environmental-Protection/Water-Quality/River-Restoration/River-Restoration-Toolbox](https://www.iowadnr.gov/Environmental-Protection/Water-Quality/River-Restoration/River-Restoration-Toolbox)
- **Management of Floodplain Forests:** [https://naturalresources.extension.iastate.edu/encyclopedia/management-floodplain-forests](https://naturalresources.extension.iastate.edu/encyclopedia/management-floodplain-forests)
- **International Guidelines on Natural and Nature-Based Features for Flood Risk Management:** [https://ewn.erdc.dren.mil/?page_id=4351](https://ewn.erdc.dren.mil/?page_id=4351)

### CASE STUDIES


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