A vision for a more resilient Iowa

The Iowa Watershed Approach

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The IWA Flood Resilience Team Seeks to:
- Measure, visualize, and communicate flood resilience resources.
- Enhance flood resilience content in formal watershed plans.
- Improve social resources for flood resilience.

Our Current Products Include:
- Interactive Flood Damage Estimations.
- Measurement and Visualization of Financial and Displacement Burdens.
Interactive Flood Damage Estimations
Measurement and Visualization of Financial and Displacement Burdens

- Measure indirect burden for residents that don’t flood

- Measure the disproportional burden for residents that do flood

- 5% of annual income to recover

- 50% of annual income to recover

- Provide a flood resilience assessment and action plan at the “case study”, neighborhood scale
Enhance Formal Watershed Plans

Watershed Resiliency Plan
A 20 Year Strategic Plan to Increase the Hydrologic Function & Resiliency of the Turkey River Watershed
Developed for the TRRA by Northeast Iowa RAGDS LLC, with funding provided by USACE and the Iowa Department of Natural Resources

Flood Risk Report
Middle Cedar Watershed (Iowa), 07080205
Report Number 001
8/28/2015
Draft

RiskMAP
Increasing Resilience Together

IHR
Innovation & Engineering
Iowa Flood Center
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The Iowa Watershed Approach – Flood Resilience Team

Our Goals and Current Flood Resilience Products   May 2017

The IWA Flood Resilience Team Seeks to:
- Measure, visualize, and communicate flood resilience resources
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Interactive Flood Damage Estimations
Your watershed community can interactively explore flood damage estimates from multiple flood inundation depths within cities and towns in Iowa. This product was developed by the Iowa Flood Center in partnership with Iowa Homeland Security and Emergency Management and is provided at no cost. This tool can assist watersheds in prioritizing potential best management practices and built projects that mitigate flooding and improve flood resilience.
http://iwa.iowawis.org/app/#middle_cedar

Measurement and Visualization of Financial and Displacement Burdens
Some watershed residents are more greatly impacted, as a percentage of their resources, by floods than others. We offer an interactive visualization tool that enables watersheds to explore residential areas, delineated by census block groups, with varying education levels, median income, and percent employment in the floodplain as course indicators of potential flood impact. We also offer a short, survey-style assessment tool that can help watersheds understand the financial and displacement burdens experienced by residents who are directly, or indirectly, impacted by floods. We encourage watersheds to identify at least one small “case-study” area
where our team can more fully assess the various dimensions of flood resilience (see handout titled “How Can We Become More Flood Resilient?” http://www.iahr.uiowa.edu/iwa/files/2016/08/Flood-Resilience-HO-1_Q4-2016-17-1.pdf). Ultimately, we want watersheds to thoughtfully consider the disproportionate social costs of flooding on low-to-moderate income residents as compared to the more affluent household and commercial property owners and renters. Products in this category are being actively developed and improved, so please tell us what you find to be valuable and what is not!

**Enhancement of Formal Watershed Plans**

We have done our homework and we know that watersheds want to utilize the “nine-element” planning framework provided by the U.S. Environmental Protection Agency. Watersheds utilizing this planning process are well equipped to apply for numerous grants. Residents and planners also want watershed-based, flood risk reduction plans that are consistent with elements of FEMA plans. These plans enable cities and counties within the watershed to more competitively attract flood hazard mitigation funding.

*The IWA Flood Resilience Team asks, “why not have both”?*

Our team, the Iowa Department of Natural Resources, and Iowa Homeland Security and Emergency Management have developed a process to integrate these traditionally separate plans into one holistic plan. And, the IWA Flood Resilience Team can work directly with your watershed coordinator and planning consultant to ensure that flood resilience content is included in all the appropriate places within the plan.

**Improving Social Resources for Flood Resilience**

The IWA Flood Resilience Team is partnering with organizations affiliated with the Iowa Community Action Association to improve flood resilience services for individuals and families. Many times, individuals and households with low flood resilience utilize the services of various community action programs which builds familiarity and trust. We will work with case managers within these organizations to improve social resources for populations that are impacted by flooding. Our team is also partnering with the Center for Sustainable Communities at Luther College to develop modern-day communication protocols for the social media era that consider the various social networks that all people, including susceptible populations, can build and maintain.

**The IWA Flood Resilience Team**

The IWA Flood Resilience Team seeks to provide value to Iowa’s watershed communities through partnerships to develop the tools to measure and visualize flood resilience in ways that make future mitigation, preparedness, response, and recovery planning actions more meaningful and useful. Together, we can make our watershed communities more flood resilient.
Previous Meeting

- Hydrologic assessment overview
- BMP mapping inventory project
- Agriculture Conservation Planning Framework (ACPF) tool
- Design considerations for pond projects
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BMPs are being collected by 12-digit HUC and finished products can be downloaded at: https://athene.gis.iastate.edu/consprac/consprac.html
ACPF Wetlands Headwaters N. English River HUC12

Use modeling to determine how many ponds/wetlands are needed to meet flood and nutrient management objectives.
HSPF Model for Headwaters N. English River HUC12

Subdivide the subwatershed at each ACPF wetland site, road crossing, and stream junctions to allow easy addition hypothetical project sites.

407 stream reaches for flow prediction (89 acre average size)
HSPF Model for Gritter Creek HUC12

Subdivide the subwatershed at each ACPF wetland site, road crossing, and stream junctions to allow easy addition of hypothetical project sites.

215 stream reaches for flow prediction (69 acre average size)
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Hydrologic Sensor Network

- Rainfall
- Wind speed and direction
- Soil moisture and temperature
- Shallow ground water

Vaisala WTX531
Vaisala WTX533
Campbell Scientific CS655
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Poweshiek

Keokuk
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Iowa Watershed Approach:

Priority Subwatersheds in the English River
Most Impacted and Distressed and Unmet Recovery Needs (MID-URN) Area
Subwatersheds that overlap with MID-URN area
Priority Subwatersheds for P Reduction
Priority Subwatersheds for N Reduction
Priority Subwatersheds for Flood Reduction
Priority Subwatersheds for Combined Flood & Nutrient Reduction
# Project Subwatersheds - Ranked

<table>
<thead>
<tr>
<th>RANK</th>
<th>COUNTY</th>
<th>SUBWATERSHED NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Iowa</td>
<td>Middle English River</td>
</tr>
<tr>
<td>2</td>
<td>Poweshieck</td>
<td>Headwaters North English River</td>
</tr>
<tr>
<td>3</td>
<td>Iowa</td>
<td>Deep River</td>
</tr>
<tr>
<td>4</td>
<td>Iowa</td>
<td>Gritter Creek</td>
</tr>
<tr>
<td>5</td>
<td>Iowa</td>
<td>Middle North English River</td>
</tr>
<tr>
<td>6</td>
<td>Iowa</td>
<td>Devils Run</td>
</tr>
<tr>
<td>7</td>
<td>Iowa</td>
<td>Jordan Creek - North English River</td>
</tr>
<tr>
<td>8</td>
<td>Iowa</td>
<td>Lower North English River</td>
</tr>
</tbody>
</table>
Assessments:

1. Tillage surveys
2. Federally required Phase I Environmental Assessments
3. Agricultural Conservation Planning Framework (ACPF)
4. Subwatershed-level water sampling
5. Voluntary tile outlet sampling
6. Hydrologic modeling

Considerations:

1. Any areas cost share participation may be higher/lower?
2. % in Pre-eligible area