A vision for a more resilient Iowa

The Iowa Watershed Approach

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Highlights of Flood Resilience Survey Results

WHEN ASKED ON THE SURVEY...

*Indicate your level of agreement with the statement: “My community is flood resilient.”*

- Communities felt they are somewhat flood resilient

*In what important ways does your community need to become more flood resilient?*

- Working together as a whole watershed
- Expanding knowledge about flood history and mitigation

*Who else do you think should be involved in the IWA project or in resilience activities who were not present at this meeting?*

- City and county officials, including county engineers
- Landowners/farmers
- Organizations with existing relationships with landowners
The Flood Resilience Team is looking forward to working with you to improve flood resilience in your watershed and communities!
Hydrologic Assessment Provides Evaluation Tools

Hydrologic model of English River

Predictions of flows and water quality

Assessment of high runoff areas and nitrogen loads
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Existing BMPs

Digitized at Iowa State University GIS Facility, in cooperation with IA DNR GIS personnel

October 13, 2016
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Existing BMPs in Headwaters N. English River HUC12
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Project Implementation Areas for the English River

Testing and evaluation of conservation practices on flooding and nutrient removal will take place in two HUC12 subwatersheds:

- Headwaters North English River
- Gritter Creek

[Map of Phase 2 Watersheds - English River/Clear Creek]
Agricultural Conservation Planning Framework (ACPF)

Analyze landscape and runoff conditions and suggest potential sites for conservation practices.

Legend
- Watershed Boundary
- Stream Reach

Field Boundaries
- Runoff Risk
  - A-Critical
  - B-VeryHigh
  - C-High
  - D-Present

Runoff Risk Assessment:
Prioritize fields where multiple erosion control practices are most needed.

Close to stream?

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ACPF Wetlands Headwaters N. English River HUC12

Use the English River model to determine how many ponds/wetlands are needed to meet flood and nutrient management objectives
Design Considerations for Pond Projects

**Approaches**

A small number of medium-sized ponds (Beaver Creek)

Average area draining to a pond is 160 acres

- Six IWP Wetlands
- Two CREP Wetlands
- One Individual Wetland
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Design Considerations for Pond Projects

**Approaches**

A small number of medium-sized ponds (Beaver Creek)

A large number of small ponds (Otter Creek)

Average area draining to a pond is 32 acres
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Design Considerations for Pond Projects

**Approaches**

- A small number of medium-sized ponds (Beaver Creek)
- A large number of small ponds (Otter Creek)
- Large ponds at road crossings (Otter Creek)

Large ponds drain areas from 30 to 880 acres

19 Ponds
5 Terrace Structures
5 On-Road Detention Structures
Design Considerations for Pond Projects

**Observations**

A small number of medium-sized ponds are more effective at reducing downstream flows than a large number of small ponds.
Design Considerations for Pond Projects

**Observations**

A small number of medium-sized ponds are more effective at reducing downstream flows than a large number of small ponds.

Small ponds are most effective when clustered within a tributary.

[Graph showing the relationship between peak reduction and tributary regulation for Otter Creek Tributaries during a 50-Year Flood.]
**Design Considerations for Pond Projects**

**Observations**

A small number of medium-sized ponds are more effective at reducing downstream flows than a large number of small ponds.

Small ponds are most effective when clustered within a tributary.

Large ponds at road crossings are extremely effective.

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**Otter Creek Main Stem**

Main Stem 50-Year Flood

Addition of 3 large ponds at road crossings and several smaller ponds.
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