Iowa Flood Center

A Critical Resource for Flood Research and Education

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University of Iowa
Co-Founder, Iowa Flood Center
Iowa Flood Center

In response to extreme flooding in 2008, the state legislature established the Iowa Flood Center at the University of Iowa to serve as a technical resource for Iowans.

www.iowafloodcenter.org
Iowa Flood Information System

A user-friendly, one-stop web platform, designed to allow access to:

- Community-based flood conditions
- Forecasts
- Inundation maps
- Flood-related data, information, and applications
IOWA STATEWIDE FLOODPLAIN MAPPING PROGRAM

- Effort to update or create floodplain mapping data for the entire state of Iowa
- Close partnership with the Iowa Department of Natural Resources
- Funding to map all counties declared federal disaster areas following the 2008 flood
- Mapping data is being developed to FEMA RiskMAP standards
- Data will be used for planning and management within the state
- FEMA RiskMAP products and FIRMs will be developed using the data, according to need and funding availability
Watershed Management Authorities with 28E Agreements

**Upper Cedar River WMA**
Mark Kuhn, Chair, Floyd Co. Supervisor, 641-257-6129, mdkuhn@hughes.net
Susan Judkins Josten, 515-681-7878 gjudkins3@gmail.com

**Turkey River WMA**
Rod Marlatt, Chair, Fayette Co. Conservation Director, fayettech@hawkeyetel.com
Brad Crawford, Northeast Iowa RC&D, 563-864-7112, brad@northeastiowaredc.org

**Catfish Creek WMA**
Laura Carstens, karsten@cityofdubuque.org
Eric Schmeichel, ericschmeichel@dubuegsedc.org

**Squaw Creek WMA**
Leanne A. Harter, lharter@storycounty.com

**Indian Creek WMA**
Jennifer Fencil, jennifer.fencil@ccicog.org

**Middle South Raccoon WMA**
Brad Golightly, Chair, Dallas Co. Supervisor, brad.golightly@co.dallas.ia.us
Linda Kinman, DMWW Public Policy Analyst, 515-283-8706, kinman@dmww.com

**Fourmile Creek WMA**
Robert Rice, Chair, Assistant Polk County Engineer, 515-286-3705, robert.rice@polkcountyiowa.gov
Jennifer Welch, Polk SWCD Urban Conservationist, 515-964-1883, jennifer.welch@i.a.nacdnnet.net

**Soap Creek Watershed Board**
Jerry Parker, Chair, Wapello Co. Supervisor, 641-683-4630, superrparker@pcsi.a.net
Lori Altheide, NRCS District Conservationist, 641-682-0752, lori.altheide@i.a.usda.gov
Iowa Watersheds Project

Overview:
- To plan, implement, and evaluate watershed projects to lessen the severity and frequency of flooding in Iowa

Specific Project Goals:
- Maximize soil water holding capacity from heavy precipitation
- Minimize severe scour erosion and sand deposition during floods
- Manage water runoff in uplands under saturated soil moisture conditions
- Reduce and mitigate structural and nonstructural flood damages
Overview

Phase I: Hydrologic Assessment

- Hydrologic model development
- Identify areas in subwatersheds for project construction

Phase II: Project Construction & Implementation

- Engage landowners to construct projects in subwatersheds
- Projects may include:
  Active and passive distributed storage, Floodplain restoration or easements, Buffer strip installation and enhancement, Advanced tile drainage
- Monitor impact of constructed projects and evaluate feasibility at a larger scale

Engagement of Watershed Management Authority and private land owners will be vital to project success
Partner Watersheds

- Upper Cedar River Watershed
- Turkey River Watershed
- Middle Raccoon River Watershed
- Soap Creek & Chequest Creek Watersheds
Soap Creek Watershed

- 1986 – Formation of Soap Creek Watershed Board – 28E
- 1988 – Study identifies 154 project locations to reduce flooding
- 2012 – 132 watershed projects complete
Phase I: Hydrologic Assessment

- Hydrologic models have been developed to estimate and understand watershed response to rainfall events
- Evaluation of existing structures in Soap Creek to quantify water quantity impact and applicability to other watersheds
- Identify areas where additional projects may reduce flood damages downstream

Soap Creek
302 sub-basins

Chequest Creek
267 sub-basins
Pond Construction: 1993

<table>
<thead>
<tr>
<th>Description</th>
<th>Area</th>
<th>Acres</th>
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<tbody>
<tr>
<td>Watershed Area</td>
<td>250 mi²</td>
<td>160,000 acres</td>
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<tr>
<td>Area Controlled</td>
<td>5 mi²</td>
<td>2,889 acres</td>
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Area controlled in 1993: 2%
Pond Construction: 1999

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<thead>
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<th>Units</th>
<th>Acres</th>
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<tr>
<td>Watershed Area</td>
<td>250 mi²</td>
<td>160,000</td>
</tr>
<tr>
<td>Area Controlled</td>
<td>25 mi²</td>
<td>15,911</td>
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Area controlled in 1999: 10%
Pond Construction: 2005

Watershed Area
250 mi²  160,000 acres

Area Controlled
38 mi²  24,460 acres

Area controlled in 2005: 15%
Pond Construction: 2008

- Watershed Area: 250 mi$^2$ (160,000 acres)
- Area Controlled: 47 mi$^2$ (30,129 acres)

Area controlled in 2008: 19%
Pond Construction: 2012

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<tr>
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<th>Watershed Area</th>
<th>Area Controlled</th>
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</thead>
<tbody>
<tr>
<td>mi$^2$</td>
<td>250</td>
<td>60</td>
</tr>
<tr>
<td>acres</td>
<td>160,000</td>
<td>38,100</td>
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</tbody>
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Area controlled in 2012: 24%
Reduction in Peak Flow
100 yr Storm, 7.5” inches of rain in 24 hours

- 74% Reduction
- 47% Reduction
- 43% Reduction
- 18% Reduction
- 48% Reduction
Prioritizing HUC 12 Watersheds
Using Model Results and GIS to Identify Higher Runoff Areas

Chequest Creek Watershed:
Where to start looking for potential sites?