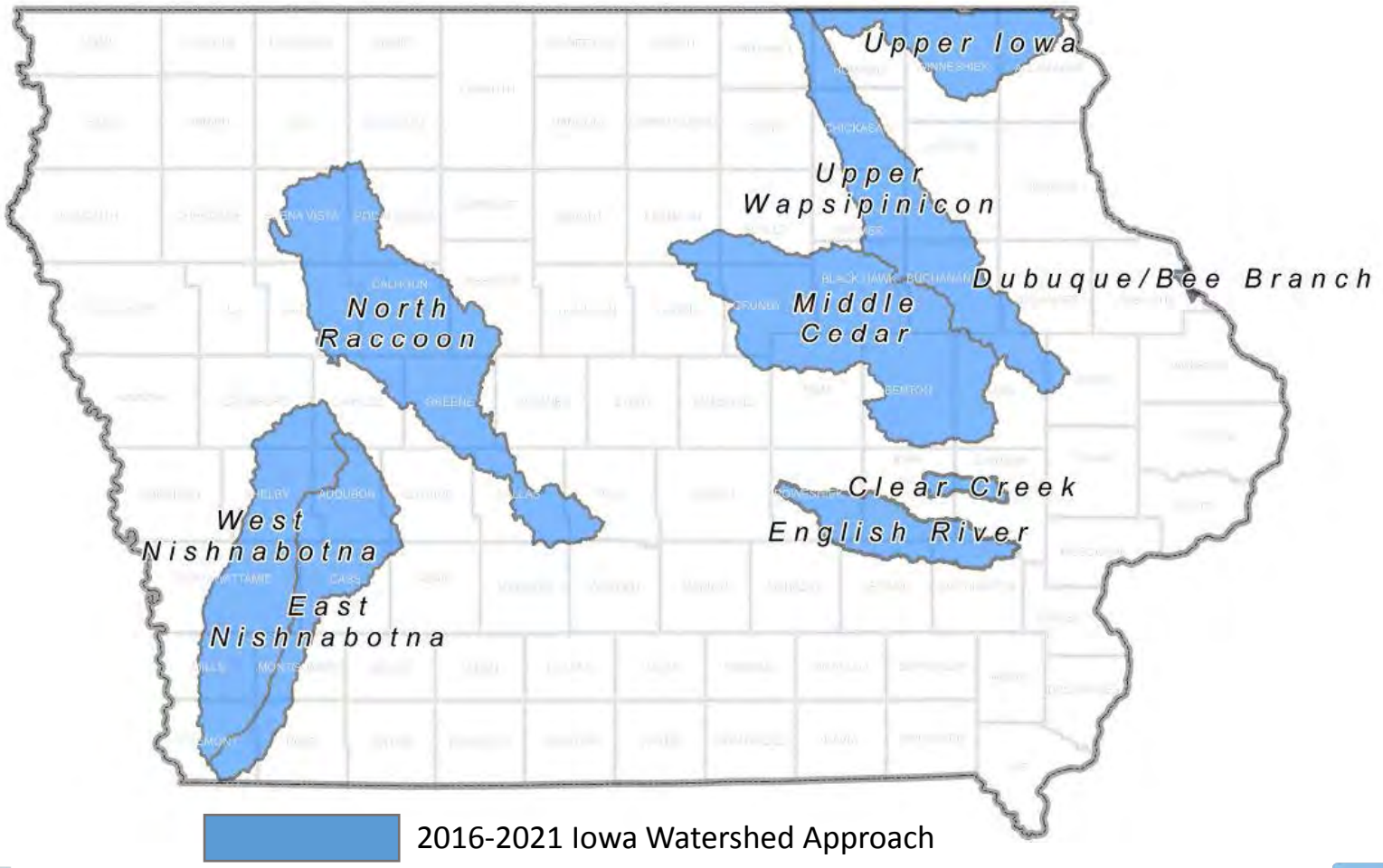
The Iowa Watershed Approach

Larry J Weber
(larry-weber@uiowa.edu)
Director, IIHR—Hydroscience & Engineering

National Disaster Resilience Competition

- Funder: US Dept. of Housing and Urban Development (HUD), in collaboration with the Rockefeller Foundation
- Funding Level: $1 billion; Community Development Block Grant; Superstorm Sandy (special appropriation of $180M)
- Applicant: State of Iowa, Iowa Economic Development Authority
- *Iowa Watershed Approach* program development by Iowa Flood Center in consultation with many, many partners

Iowa Grant Award: $96,887,177



Iowa Watershed Approach Partners

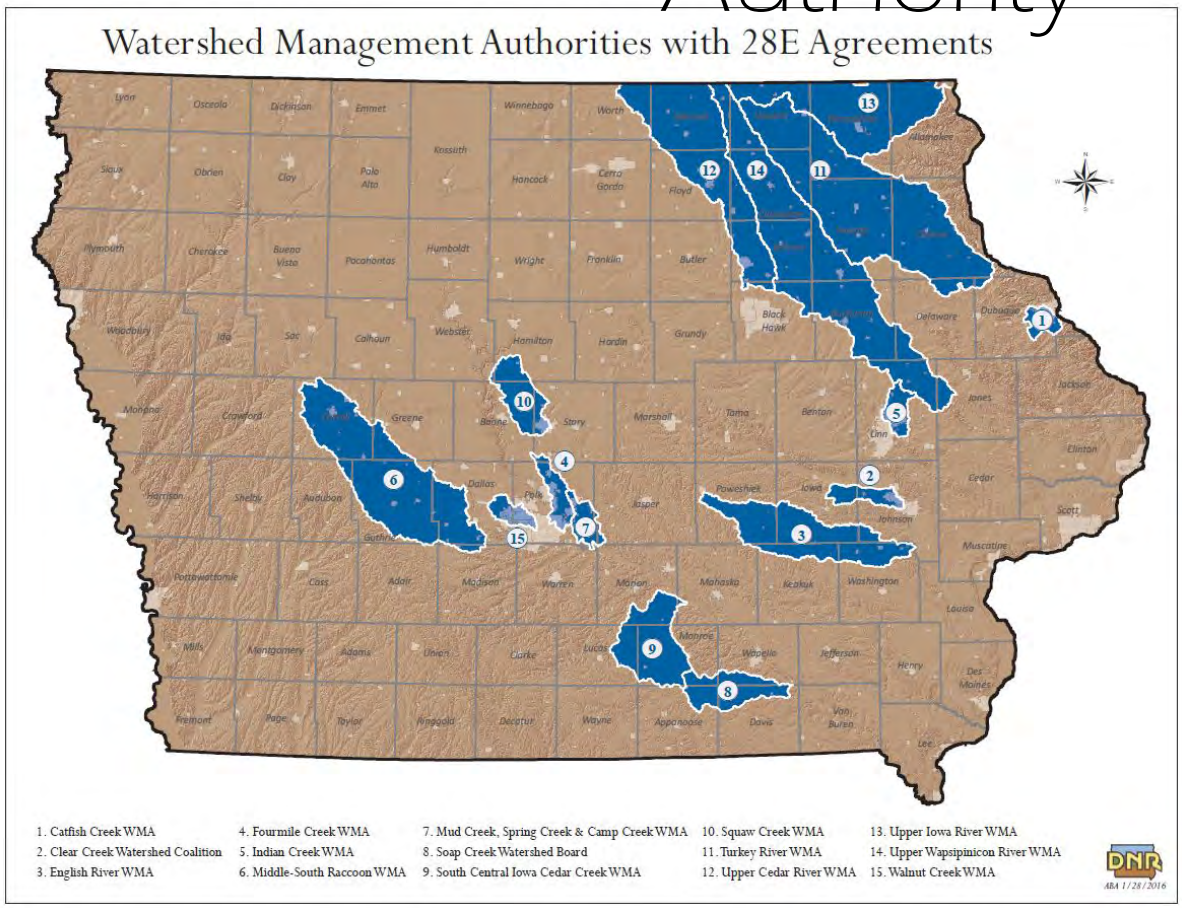
Iowa Watershed Approach (IWA): Program Goals

- Reduce flood risk
- Improve water quality
- Increase resilience
- Engage stakeholders through collaboration and outreach/education
- Improve quality of life and health, especially for vulnerable populations
- Develop a program that is replicable throughout the Midwest and the United States

IWA Project Description

- Establish a Watershed Management Authority
- Develop a hydrologic assessment and watershed plan
- Deploy monitoring equipment
- Implement projects in the watershed to reduce the magnitude of downstream flooding and improve water quality
- Assess the project benefits based on monitoring and modeling data

Watershed Management Authority

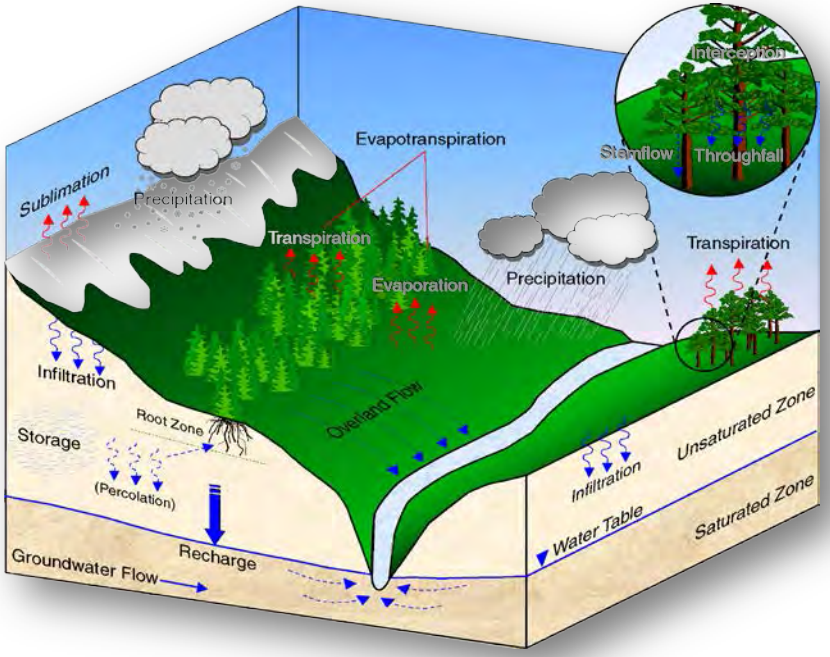


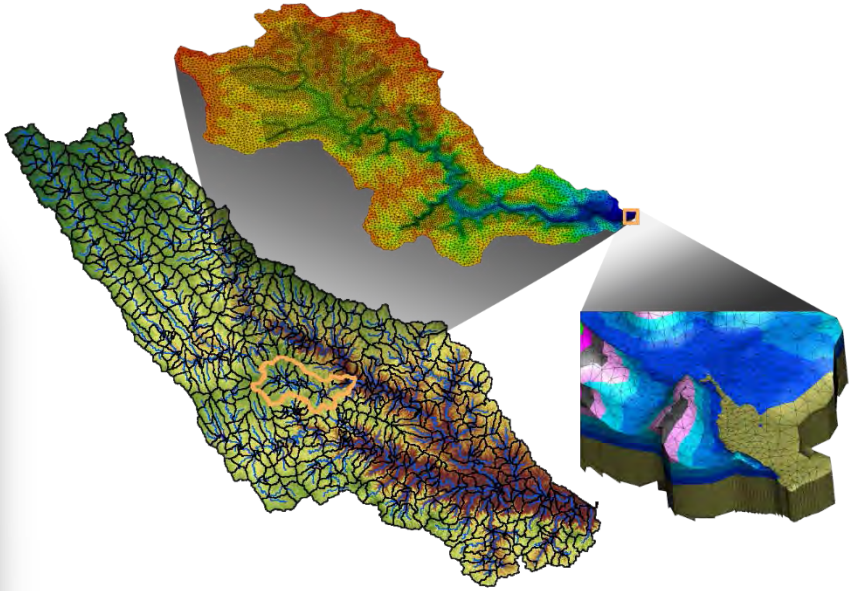
Benefits of forming a WMA:

- Foster multi-jurisdictional partnership and cooperation
- Develop a watershed plan
- Leveraging resources such as funding, technical expertise
- Facilitate stakeholder involvement in watershed management

Hydrologic Assessment & Modeling

- Understand flood hydrology in the watershed
- Estimate watershed response to different rainfall events
- Quantify the impact of small-scale flood mitigation practices





Project Construction & Implementation



- Engage volunteer landowners to construct projects in subwatersheds
- Practices may include:

Floodplain restoration or easements, farm ponds, terraces, buffer strips, bioreactors, wetlands, saturated buffers, storm water detention basins, sediment detention basins

- 75% cost share assistance available to landowners; 25% local (landowner) contribution
- Practices will follow NRCS guidelines and specifications
- Monitor impact of constructed projects and evaluate feasibility at a larger scale

Engagement of WMA's, watershed partners, and private landowners will be vital to project success

Data Collection & Monitoring

Resilience Program

- *Ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse evens*

- "Build back stronger"
- "Build back differently"

IWA Flood Resilience Team

The IWA Flood Resilience Team will engage stakeholders in nine watersheds for 3 to 5 years

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Clear Creek Upper Iowa English River	Clear Creek Upper Iowa English River	Clear Creek Upper Iowa English River	Ongoing Assessment	Ongoing Assessment
	Middle Cedar Upper Wapsi Dubuque	Middle Cedar Upper Wapsi Dubuque	Middle Cedar Upper Wapsi Dubuque	Ongoing Assessment
		North Raccoon East Nish West Nish	North Raccoon East Nish West Nish	North Raccoon East Nish West Nish

IWA Flood Resilience Team Activities

YEAR 1

- Kick-off Meetings
- Assemble tools for flood resilience data collection
- Engage CAP and other potential partners
- Refine flood resilience framework
- Collect flood resilience data
- Report preliminary flood resilience findings 2X
- Discuss emerging flood resilience "gaps" 2X
- Expand flood resilience programming
- Test data collection tools
- Develop informatics tools and import data

YEAR 2

- Expand flood resilience programming
- IWA Flood Resilience Plan first draft complete
- Testing and refinement of informatics systems
- Design and develop interactive visualization systems
- Present, and obtain feedback on, IWA Flood Resilience Plan draft
- Refine the IWA Flood Resilience Plan

YEAR 3

- Deliver the IWA Flood Resilience Plan
- Promote the IWA Flood Resilience Plan
- Track IWA Flood Resilience Plan Implementation

Major IWA Flood Resilience Team Activities

Needs Assessment → Flood Resilience Plan Development → Flood Resilience Promotion → Flood Resilience Tracking

ISU Extension & Outreach

- Develop theme-based curriculum, outreach materials, and social media packages
- Develop a communication plan in each project watershed
- With project partners, coordinate field days, workshops, and events
- Collaborate with INRC team to develop additional outreach materials

Contact: John Lawrence
Director, Iowa Nutrient Research Center
jdlaw@iastate.edu

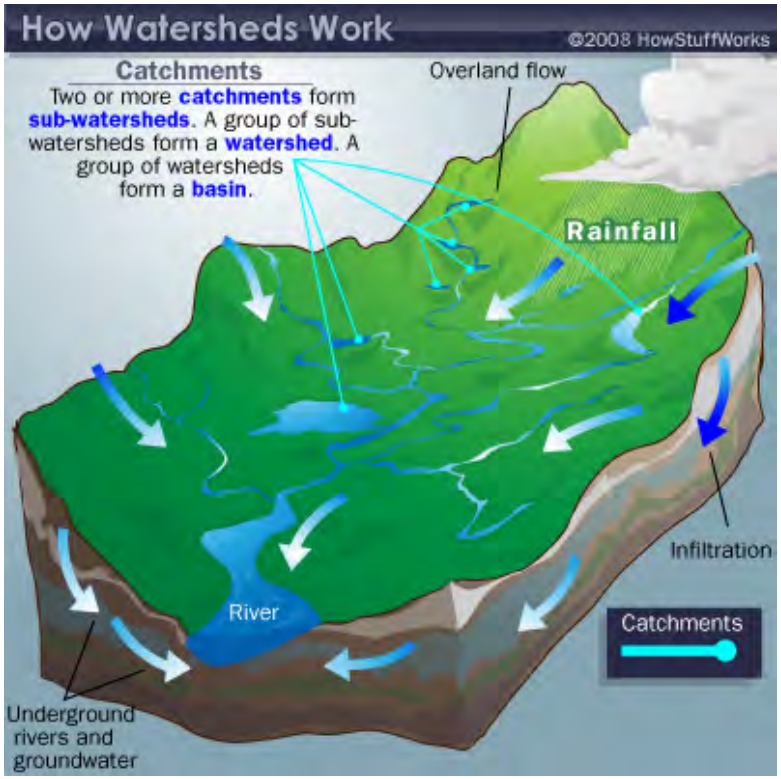
Iowa Nutrient Research Center

- Develop a framework to monetize the benefits of nutrient-reducing practices
  - Considering both primary on- and off-site economic benefits, as well as, secondary and tertiary benefits
- Develop alternative scenarios of practices aimed at achieving the goals established in the Iowa Nutrient Reduction Strategy
  - Better understand effects from field to sub-watershed to larger watershed scales
- Incorporate changing hydrologic patterns into hydrologic models that predict water quantity and quality
  - Understand how hydrologic changes from weather and land management impact nutrient processing and E/ET

Contact: John Lawrence
Director, Iowa Nutrient Research Center
jdlaw@iastate.edu

Iowa Water Center

- Identify vulnerable watershed areas base on
  - Slope
  - Soil type
  - Proximity to water
- Identify appropriate practices to address runoff and erosion vulnerability
- Estimate soil erosion and runoff with and without practice implementation



IOWA WATER CENTER
Contact: Rick Cruse
Director, Iowa Water Center
rmc@iastate.edu

Tallgrass Prairie Center

- Provide technical assistance to each WMA in native vegetation establishment and management, including individual consultation
- Coordinate with partners to organize field days, workshops, and create demonstration sites for teaching and learning
- Provide print and online technical guides and videos
- Build a leadership network in prairie reconstruction techniques related to agriculture

Tallgrass Prairie CENTER
Restoring a National Treasure

Contact: Laura Jackson
Director, Tallgrass Prairie Center
Laura.l.Jackson@uni.edu

University of Northern Iowa

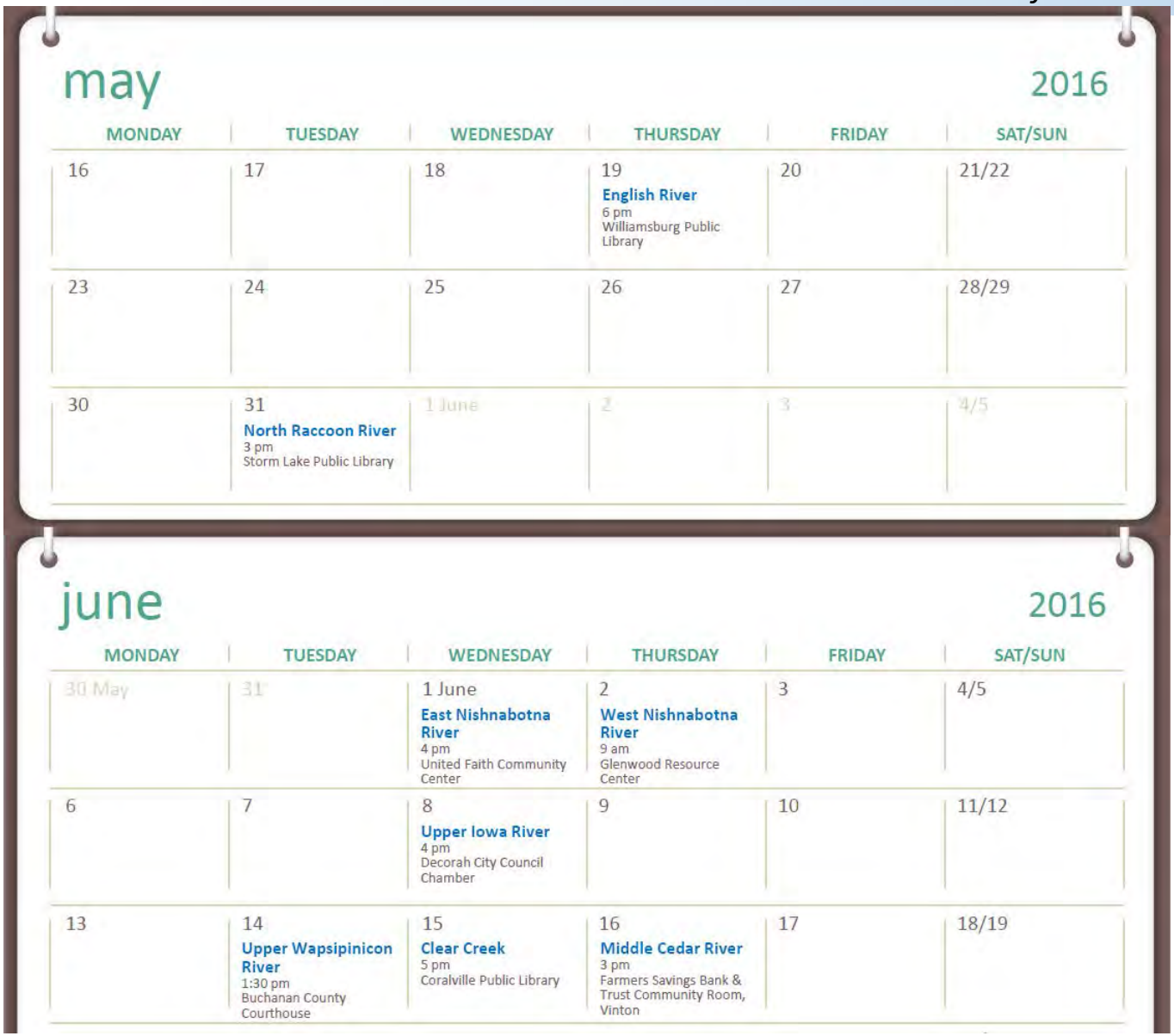
Project Timeline

HUD - NDRC: East Nishnabotna, West Nishnabotna, North Raccoon

2016 by Quarter				2017 by Quarter				2018 by Quarter				2019 by Quarter				2020 by Quarter				2021 by Quarter			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		WMA Formation																					
				Hydrologic Assessment																			
					Watershed Plan																		
						Select Implementation Sites																	
								Project Design															
											Project Construction/Implementation												
		Sensor Deployment																					
				Baseline Data Collection and Analysis																			
						Detailed Model Development and Scenerio Analysis																	
														Evaluation of Projects									

HUD - NDRC: Clear Creek, English River, Middle Cedar, Upper Iowa, Upper Wapsipinicon

2016 by Quarter				2017 by Quarter				2018 by Quarter				2019 by Quarter				2020 by Quarter				2021 by Quarter			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		Hydrologic Assessment																					
			Watershed Plan																				
					Select Implementation Sites																		
						Project Design																	
							Project Construction/Implementation																
		Sensor Deployment																					
				Baseline Data Collection and Analysis																			
						Detailed Model Development and Scenerio Analysis																	
											Evaluation of Projects												



may 2016

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
16	17	18	19 **English River** 6 pm Williamsburg Public Library	20	21/22
23	24	25	26	27	28/29
30	31 **North Raccoon River** 3 pm Storm Lake Public Library	1 June	2	3	4/5

june 2016

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
30 May	31	1 June **East Nishnabotna River** 4 pm United Faith Community Center	2 **West Nishnabotna River** 9 am Glenwood Resource Center	3	4/5
6	7	8 **Upper Iowa River** 4 pm Decorah City Council Chamber	9	10	11/12
13	14 **Upper Wapsipinicon River** 1:30 pm Buchanan County Courthouse	15 **Clear Creek** 5 pm Coralville Public Library	16 **Middle Cedar River** 3 pm Farmers Savings Bank & Trust Community Room, Vinton	17	18/19

Iowa Flood Center
The University of Iowa
100 C. Maxwell Stanley Hydraulics Laboratory
Iowa City, IA 52242
319-384-1729 (office)

For more information, visit
www.iowafloodcenter.org