

Creating Climate Resilient Communities

Rebecca Esselman
Watershed Planner
Huron River Watershed Council



What to take from this talk

1. An example of a **process** that can help municipalities begin to build communities more resilient to climate change
2. Several **resources and strategies** you can adopt/adapt for your context
3. Participants are now bringing climate to the everyday decision of a community. **Practices are changing** and here is how.

1. The process and players

Three key players

Practitioners/ decision makers

Climate Scientists

Trusted Convener



Kirchhoff et al. 2015. Boundary organizations to boundary chains: Prospects for advancing climate science application. *Climate Risk Management*. 9:20-29.

1. The process and players

Practitioners and Climate Scientists worked together to produce sector specific climate information and adaptation strategies.

- Water Infrastructure
- Instream Flows
- Natural Infrastructure



Resources – Sector Reports



Climate Resilient Communities

Improving stormwater management
in the Huron River watershed



Improving stormwater management in the Huron River watershed

Improving information access and communication among dam operations of the Huron River mainstem

Review of climate impacts to tree species of the Huron River watershed

Reports at: hrwc.org/climate-resilient-communities

Strategy – Water Infrastructure



1) Improve accuracy of rainfall frequency curves adopted by the State and local governments, which are used as the basis of stormwater-related decisions; and

2) Identify a series of high priority “no-regrets” actions to improve the practice of stormwater management in the watershed.

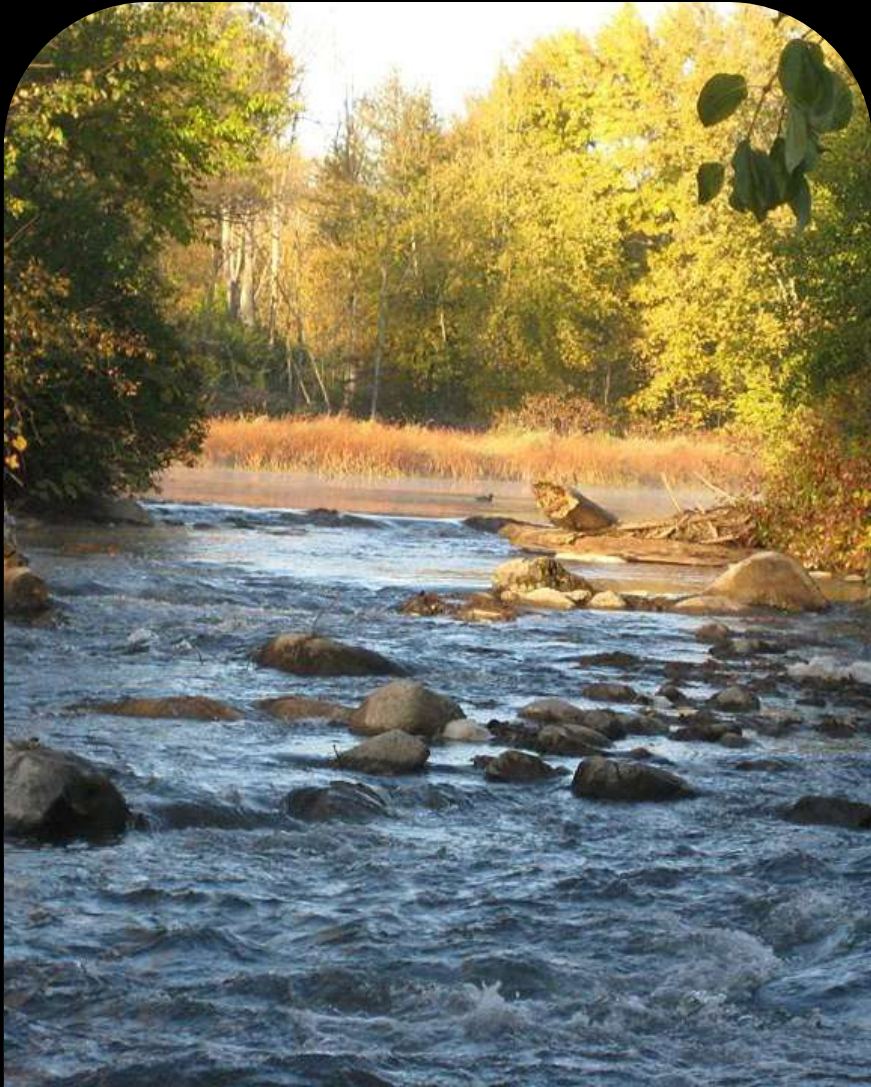
Resource – Water Infrastructure

Implications of precipitation changes in Southeast Michigan and options for response: A guide for municipalities

	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
1-hr	0.88/0.969 [10%]	1.06/1.14 [8%]	1.29/1.44 [12%]	1.47/1.70 [16%]	1.69/2.07 [22%]	1.87/2.38 [27%]	2.05/2.69 [31%]
12-hr	1.63/1.82 [12%]	1.97/2.06 [5%]	2.39/2.50 [5%]	2.72/2.90 [7%]	3.13/3.54 [13%]	3.46/4.09 [18%]	3.79/4.68 [23%]
24-hr	1.87/2.09 [12%]	2.26/2.35 [4%]	2.75/2.83 [3%]	3.13/3.26 [9%]	3.60/3.93 [9%]	3.98/4.50 [13%]	4.36/5.11 [17%]

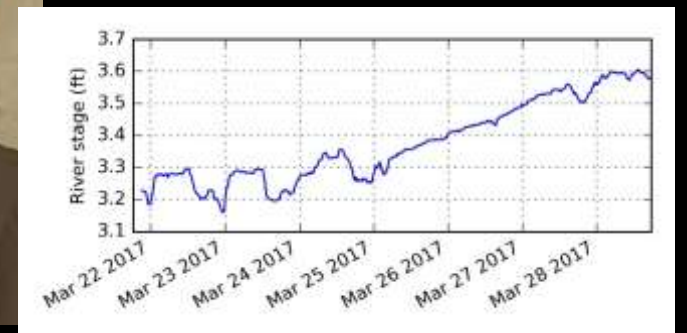
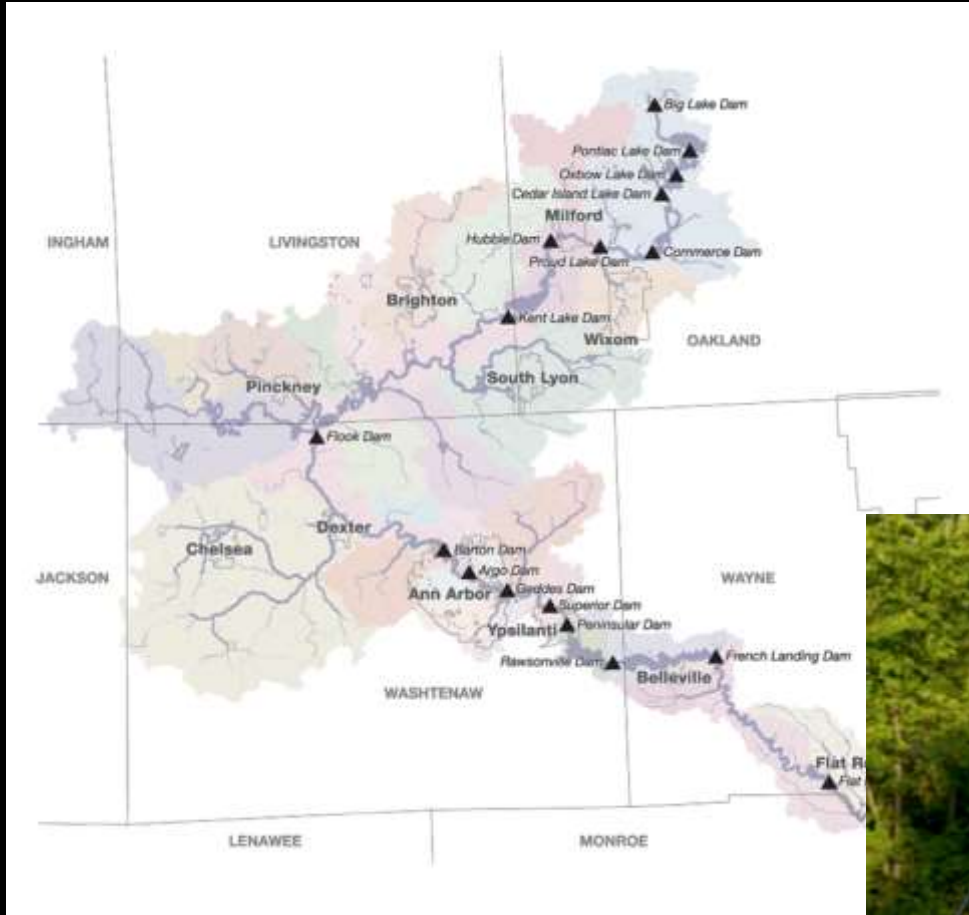
1. Implications of NOAA Atlas 14: Precipitation-frequency atlas of the United States for Stormwater Management
2. Changing Precipitation in Southeast Michigan
3. Changes to key storm definitions and implications for decision making
4. Issues in stormwater management: Floodplains
5. Issues in stormwater management: Detention and Conveyance
6. Solutions in stormwater management: Green Infrastructure
7. Solutions in stormwater management: Stormwater Rules

Strategy – Instream Flows



1. Network dam operators to facilitate improved management, learning and information exchange
2. Establish additional stream gages more comprehensive flow data

Resource – Instream Flows



Strategy – Natural Infrastructure



- 1. Research how climate change is expected to impact key tree species in the watershed**
- 2. Summarize findings in fact sheets and disseminate to key audiences**

Resource – Natural Infrastructure

Tree Resilience Toolkit

- *Primer on Climate Impacts and Resiliency Strategies to Tree Species of the Huron River Watershed - Presentation*
- *Review of climate impacts to tree species of the Huron River watershed – Report*
- *A review of management options for improving climate resiliency in the Huron River watershed’s forest and tree resources – Literature Review*
- *Tree species of the Huron River – 30 Fact Sheets*

Favorability of future climate to tree species in southeast Michigan	
American Basswood	0
American Beech	-
American Elm	0
American Hornbeam	-
Black Cherry	-
Black Oak	+
Black Spruce	-
Blackgum	+
Box Elder	+
Bur Oak	+
Chinkapin Oak	+
Eastern Hophornbeam	0
Eastern Redbud	+
Eastern White Pine	-
Flowering Dogwood	+
Hackberry	+
Hickory species	+
Honeylocust	+
Kentucky Coffeetree	+
Northern Red Oak	-
Paper Birch	-
Red Maple	0
Sassafras	+
Serviceberry	+
Sugar Maple	-
Swamp White Oak	0
Sycamore	0
Tamarack	-
Tuliptree	+
White Oak	+

“+” indicates that the predicted future climate will be favorable to a species, “0” indicates a predicted future climate is not expected to positively or negatively affect a species, and “-” indicates the predicted future climate will be unfavorable for a species.

Practices are changing

- Dam Operators are implementing environmental flows
- Huron River Dams Network serving as an example to others
- Washtenaw County revised stormwater rules using NOAA Atlas 14
- Ann Arbor modeled new floodplain boundary and is implementing policies and practices to reduce flood impacts
- Regional and conservancy used Tree Toolkit to inform policy recommendations and monitoring reports
- Ann Arbor revised Urban Forestry Plan and Approved Street Tree list

Most critical outcomes

With the CRC project under our belts we are able to engage with partners on these issues starting with a strong shared understanding of problems and solutions associated with climate change.

Now have climate ambassadors making change from within that will create cities and systems resilient to climate impacts.

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resselman@hrwc.org

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