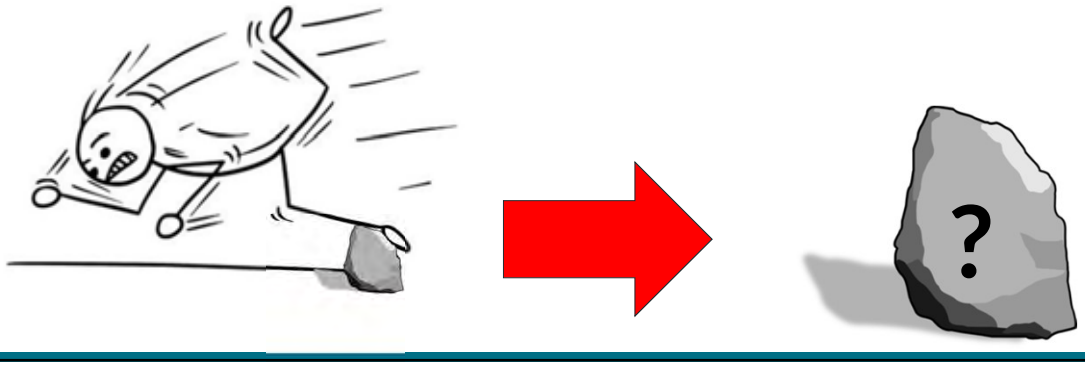
Navigating the **Watershed Approach Path** to Flood Reduction and Water Quality Improvement: **Turning Stumbling Blocks into .....**



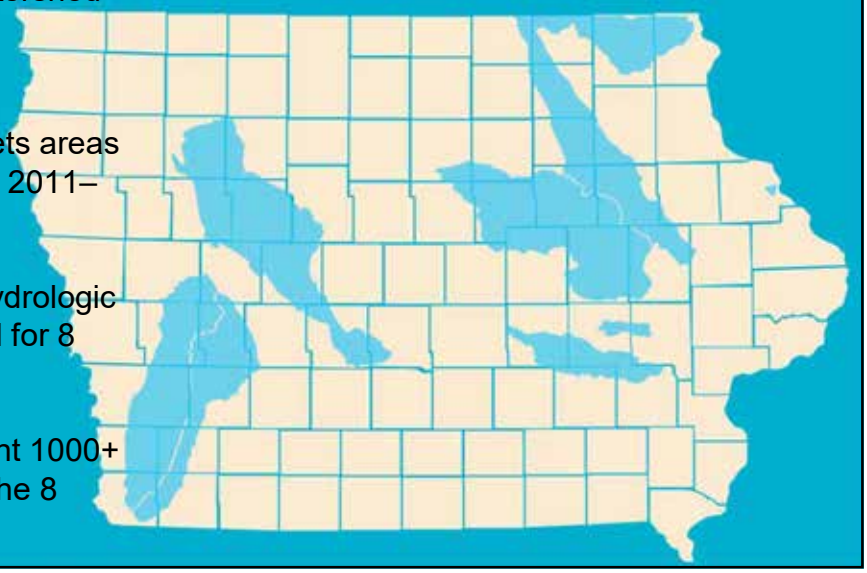
Presenting resiliency strategies learned from the Iowa Watershed Approach, to be documented in . . .

How to Achieve Local Flood Resiliency

By Iowa Homeland Security and Emergency Management Department (HSEMD)

Iowa Watershed Approach (IWA) Background

- HUD awarded Iowa Watershed Approach nearly $97M
- To adhere to NDRC requirements, IWA targets areas impacted by floods from 2011–2013
- Watershed plans and hydrologic assessments completed for 8 watersheds
- Millions of $ to implement 1000+ watershed practices in the 8 watersheds



Iowa Watershed Approach and HSEMD Deliverable

Goals of Iowa Watershed Approach

- Reduce Flood Risk
- Improve Water Quality
- Increase Resilience
- Engage Stakeholders through Collaboration and Outreach/Education
- Improve Quality of Life (especially for vulnerable)
- **Develop Program that is Replicable and Scalable**

Iowa HSEMD Resiliency Strategies Report:

How to Achieve Local Flood Resilience

How to Achieve Local Flood Resilience

CONTENTS

Strategies in this "How-to" report discovered through the Iowa Watershed Approach

How to Achieve Local Flood Resilience

Flood Resiliency Goals:

Reduce flood risk to
life, structures, personal property, crops, pasture and livestock,
while improving, not degrading, water quality
and sustaining, not threatening, wildlife habitat and ecological use
through cost-effective methods.

(cost-effective =
benefits greater than costs when considering initial costs + operations/maintenance)

Recover quickly
with contingencies and recovery programs in place
to handle impacts without chaos or long-term catastrophe.

So, what are some things we've learned about reducing floods while improving water quality?

1. Only certain practices are suited for both
2. Only certain locations will result in both
3. Certain factors must be considered to be cost-effective and to get certain funding

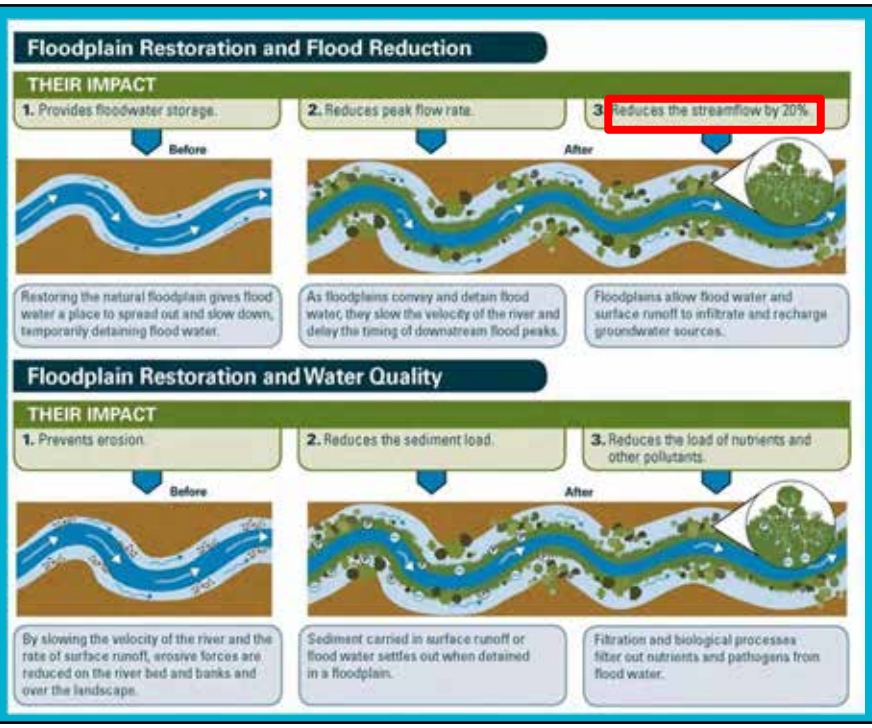
1. Only certain practices are suited for both

flood reduction & water quality improvement

What are they?

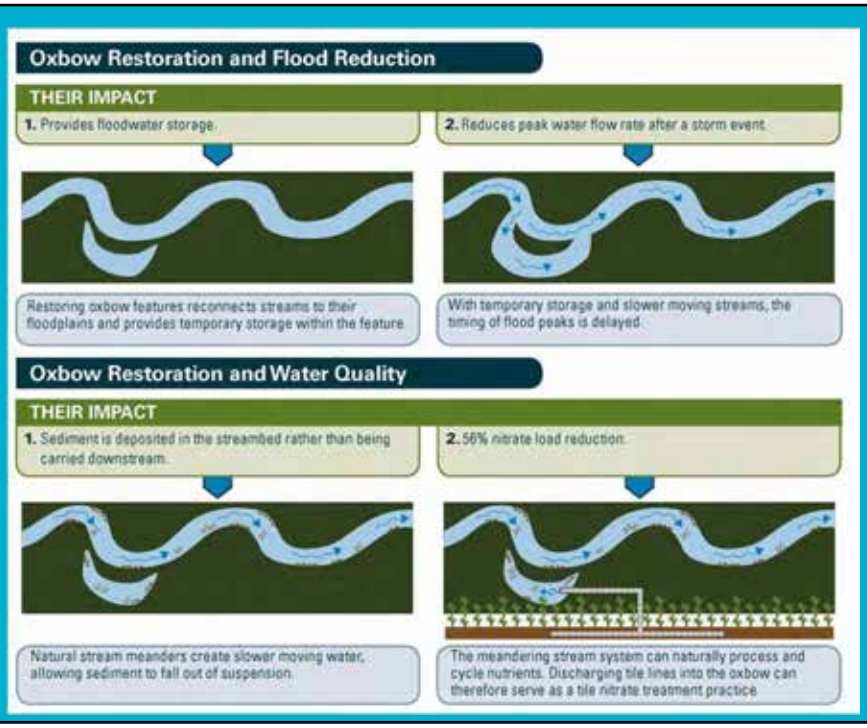
In other words-
What stones will kill two birds?

"Stones" = Methods/Management practices that can both
Mitigate flood impacts
AND
Improve water quality

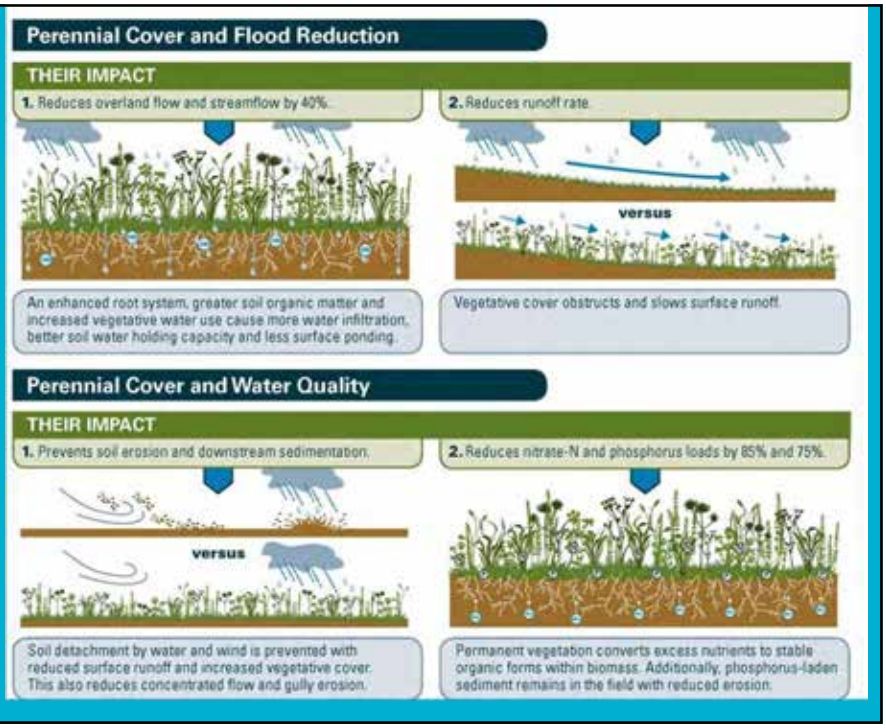


Floodplain Restoration

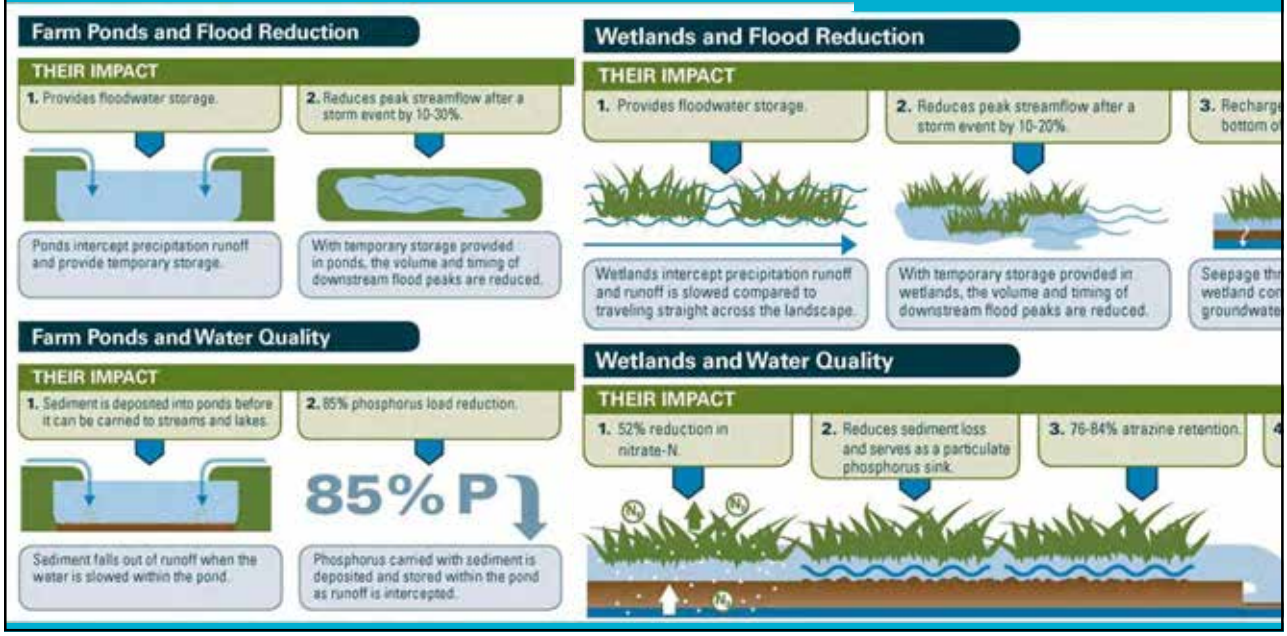
Oxbow Restoration



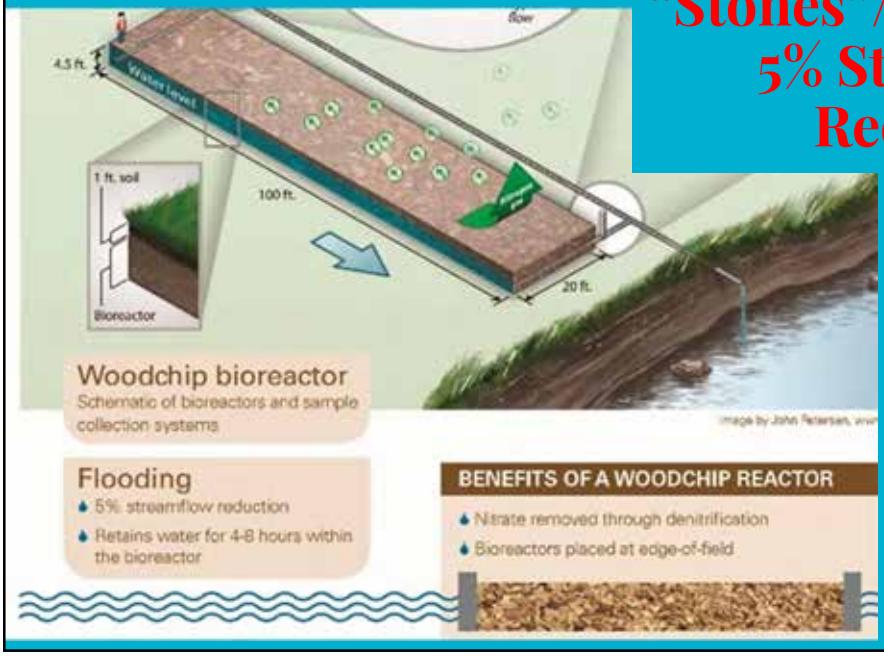
Perennial Cover – Up to 40% Peak Flow Reduction *(but less or no reduction if ground frozen or saturated)*



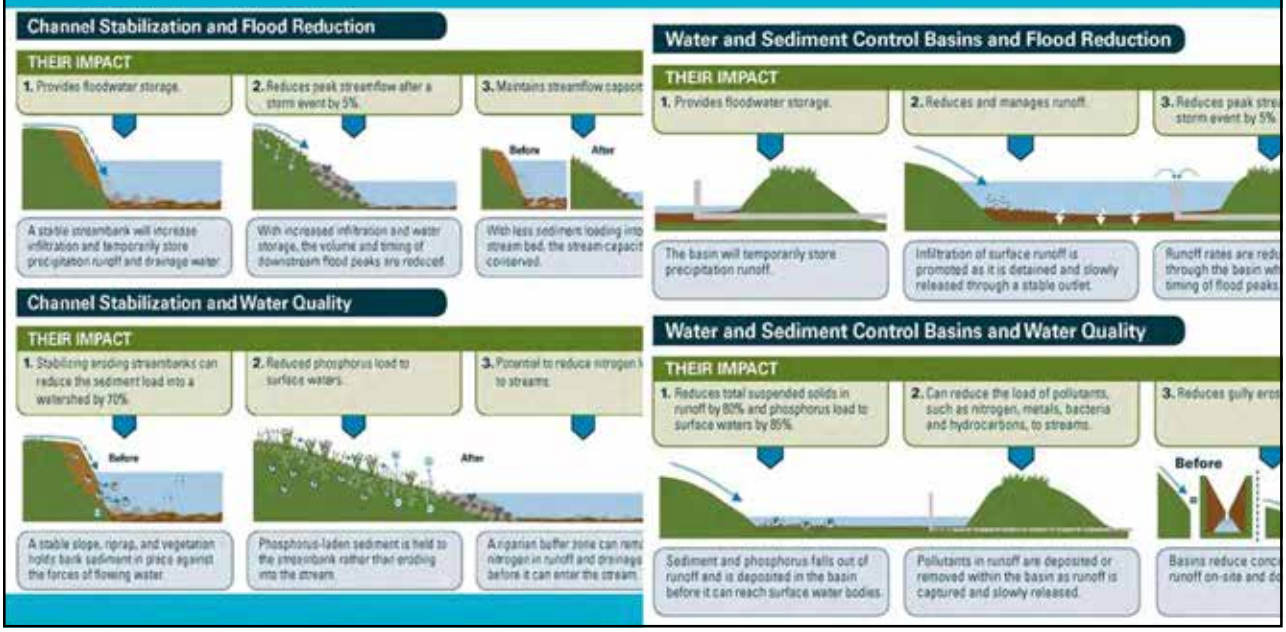
Distributed Storage: 10-30% Flow Reduction



"Stones"/Methods with 5% Streamflow Reduction



"Stones"/Methods with 5% Streamflow Reduction



So, will throwing all these stones around reduce peak flow?

Yes, BUT

Reducing

Peak Flow

is NOT

Reducing Flooding!

Doing any of these practices does not necessarily mean you reduce flooding . . .

BUT, it could!

Not only do you need a stone the right size, you need to be able to aim it right to kill two birds!

So, how do you aim it?

1. Only certain practices are suited for both
2. **Only certain locations will result in both flood reduction & water quality improvement**

How to Aim Your Stones:

Identify areas of greatest flood damage

Estimated Loss from 2% Flood Event (50 year flood)			
HUC 12	Building Damage	Content Damage	Combined Loss
70600030708	$ 51,251	$ 16,342	$ 67,593
70600050101	$ 164,973	$ 131,597	$ 296,570
70600050102	$ 256,292	$ 93,497	$ 349,789
70600050202	$ 212,410	$ 190,388	$ 402,798
70600060501	-	-	-
70600060502	$ 28,258	$ 15,662	$ 43,921
70600060503	-	-	-
70600060601	$ 961,435	$ 292,532	**$ 1,253,967**
70600060602	$ 938,078	$ 275,873	**$ 1,213,957**
70600060603	$1,751,590	$ 953,131	**$ 2,704,721**