SUSTAINABLE RIVERS PROGRAM

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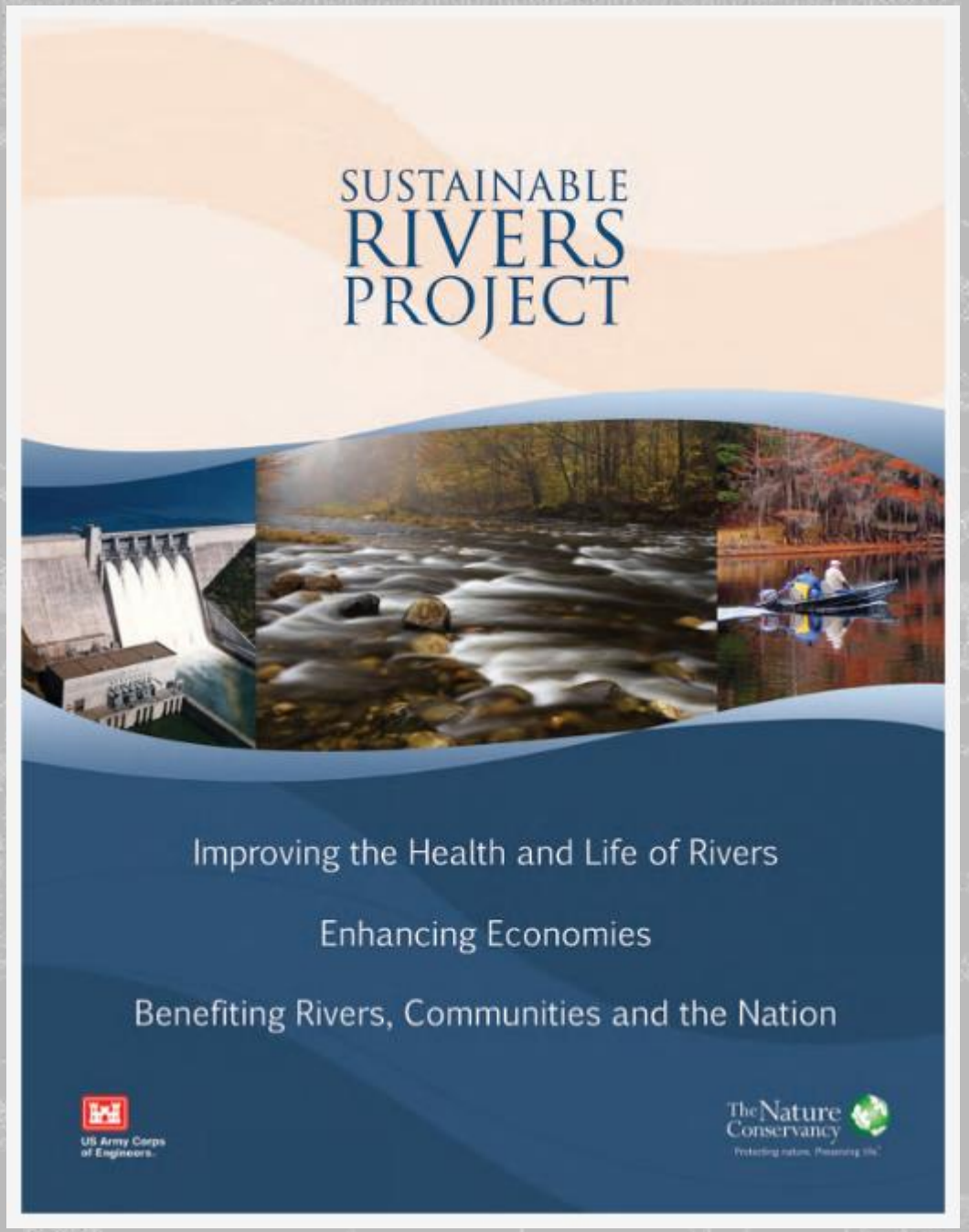


“The Sustainable Rivers Project is fundamentally about conservationists and water resource managers working together to find ways to meet human needs while restoring and protecting some of our nation’s most imperiled and important natural habitats.

—Steve McCormick, President of TNC (2004)

The Nature Conservancy

NRCS

IOWA DEPARTMENT OF
AGRICULTURE &
LAND STEWARDSHIP

CONSERVATION
DISTRICTS OF IOWA

IAWA
IOWA AGRICULTURE
WATER ALLIANCE

A HISTORY OF THE SRP PROGRAM

What is the Sustainable Rivers Project?

- A partnership between US Army Corps of Engineers (USACE) and the Nature Conservancy.
- **Mission from the partnership:** Reoperate dams to achieve more eco-sustainable flows, while continuing to meet human needs.

The Nature Conservancy

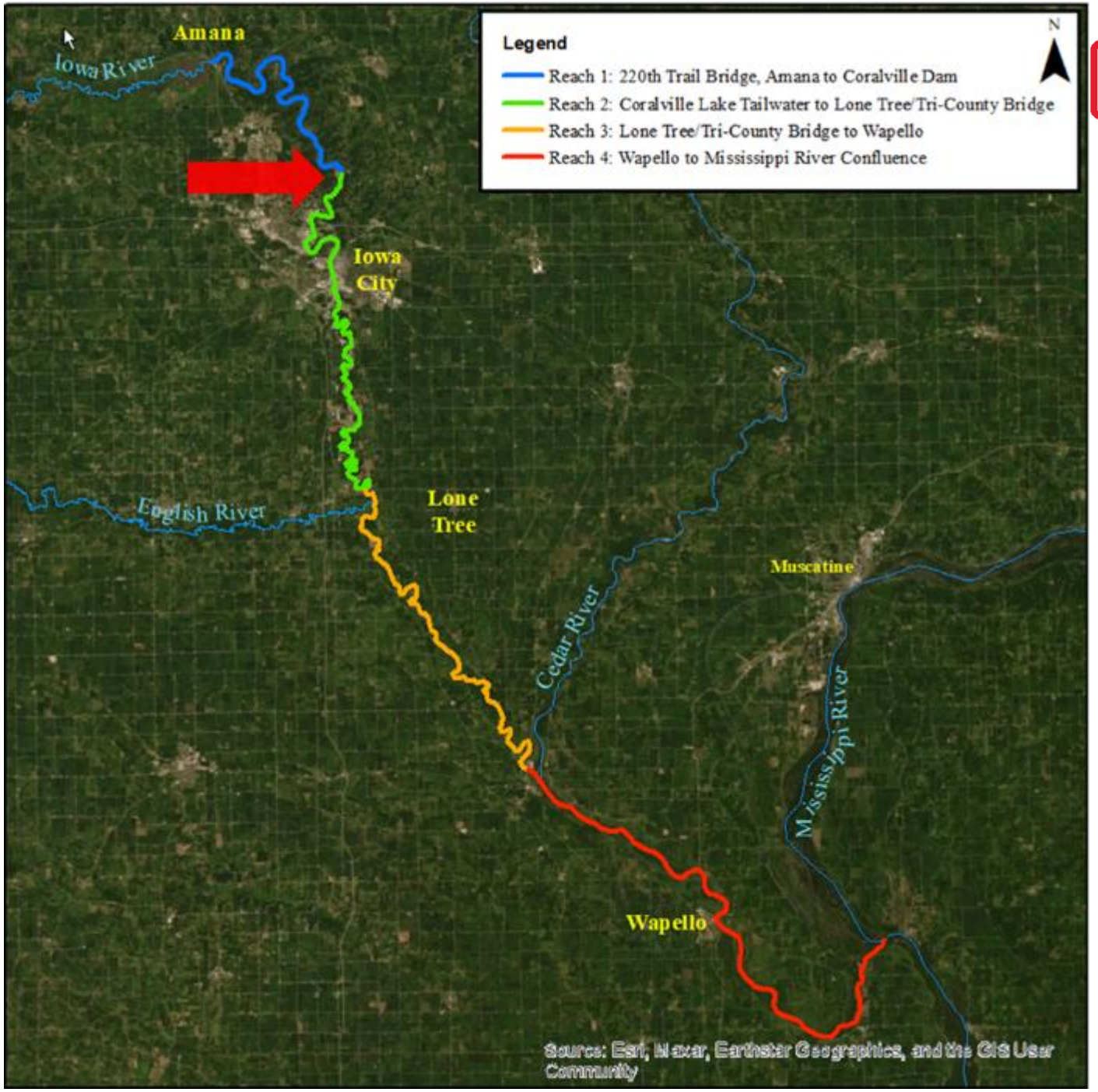
Sustainable Rivers Program

(Site Status - Advance - Implement - Incorporate - 2021)

1. Rogue River
2. Willamette River
3. Ballard Locks
4. Yakima River Delta (McNary)
5. Walla Walla River (Mill Creek)
6. Bill Williams River
7. Galisteo Creek
8. Pecos River
9. Bois de Sioux River
10. Kansas River
11. Osage River
12. Salt Fork Arkansas River
13. Kiamichi River
14. Brazos River
15. Big Cypress Bayou
16. Neches River
17. Des Moines River
18. Iowa River
19. Farm Creek
20. Mississippi River
21. Kaskaskia River
22. White/Black/Little Red Rivers
23. Fourche LaFave River
24. Cossatot River
25. Atchafalaya River
26. Alabama River
27. Ohio River
28. Green River
29. Barren River
30. Sugar Creek
31. Twelve Pole Creek
32. Kanawha River
33. French Creek
34. Upper Ohio River
35. Savannah River
36. Cape Fear River
37. Roanoke River
38. Potomac River
39. Lehigh River
40. Connecticut River

SUSTAINABLE RIVERS PROGRAM Rivers in the Sustainable Rivers Program in three stages: advance, implement, and incorporate.

Coralville Dam



Year-Round Water Control Plan

Plan Overview

- Uncontrolled spillway and conduit discharge (discharge 20,000+ cfs).

Elevation 712 – Full Flood Control Pool
100 % Flood Control Storage Utilized

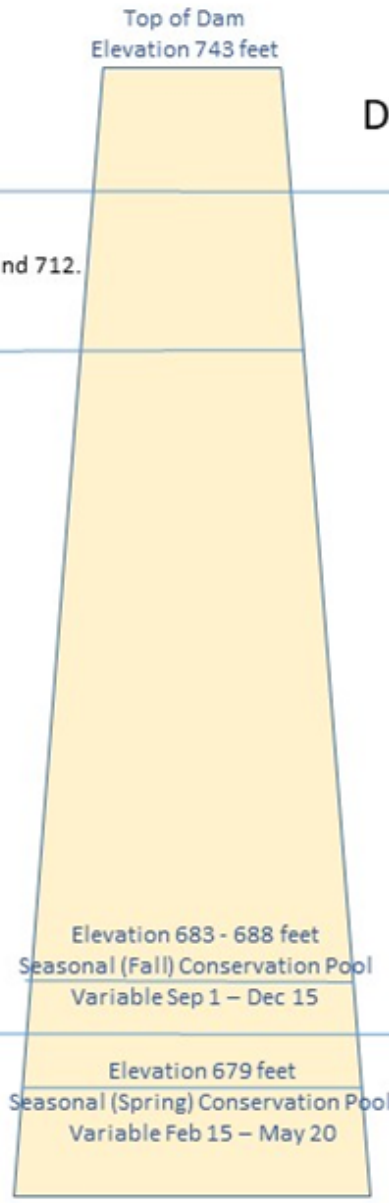
- 12,000 – 20,000 cfs maximum release for lake elevations between 707 and 712.
- No downstream constraints on discharge.

Elevation 707 feet – Start of Major Flood Schedule
74 % Flood Control Storage Utilized

- 10,000 cfs maximum release.
- Reduce releases, for up to 3 days, as needed to maintain gage at Lone Tree (Tri-County Bridge) below 19 feet (1,000 cfs minimum release).
- Reduce releases, for up to 3 days, as needed to maintain gage at Wapello below 25 feet (1,000 cfs minimum release).
- Reduce releases, for up to 7 days, as needed to maintain gage at Burlington (Upper Mississippi River) below 18 feet (1,000 cfs minimum release).
- Flash flood: reduce release to maintain flow at or below 16,000 cfs at Iowa City Gage (1,000 cfs minimum release).

Elevation 683 - 684 feet – Allowable Operating Band
0 % Flood Control Storage Utilized

- Maintain minimum 150 cfs conservation release, until reservoir falls to elevation 678.0. Progressively lower releases as reservoir continues to fall.



Design Flood Surcharge Storage

Flood Control Storage
387,470 Acre-Feet*

Conservation Storage
24,810 Acre-Feet*

* Storage values based upon 2019 survey.

WHERE DID I COME IN TO SUPPORT?

My objectives:

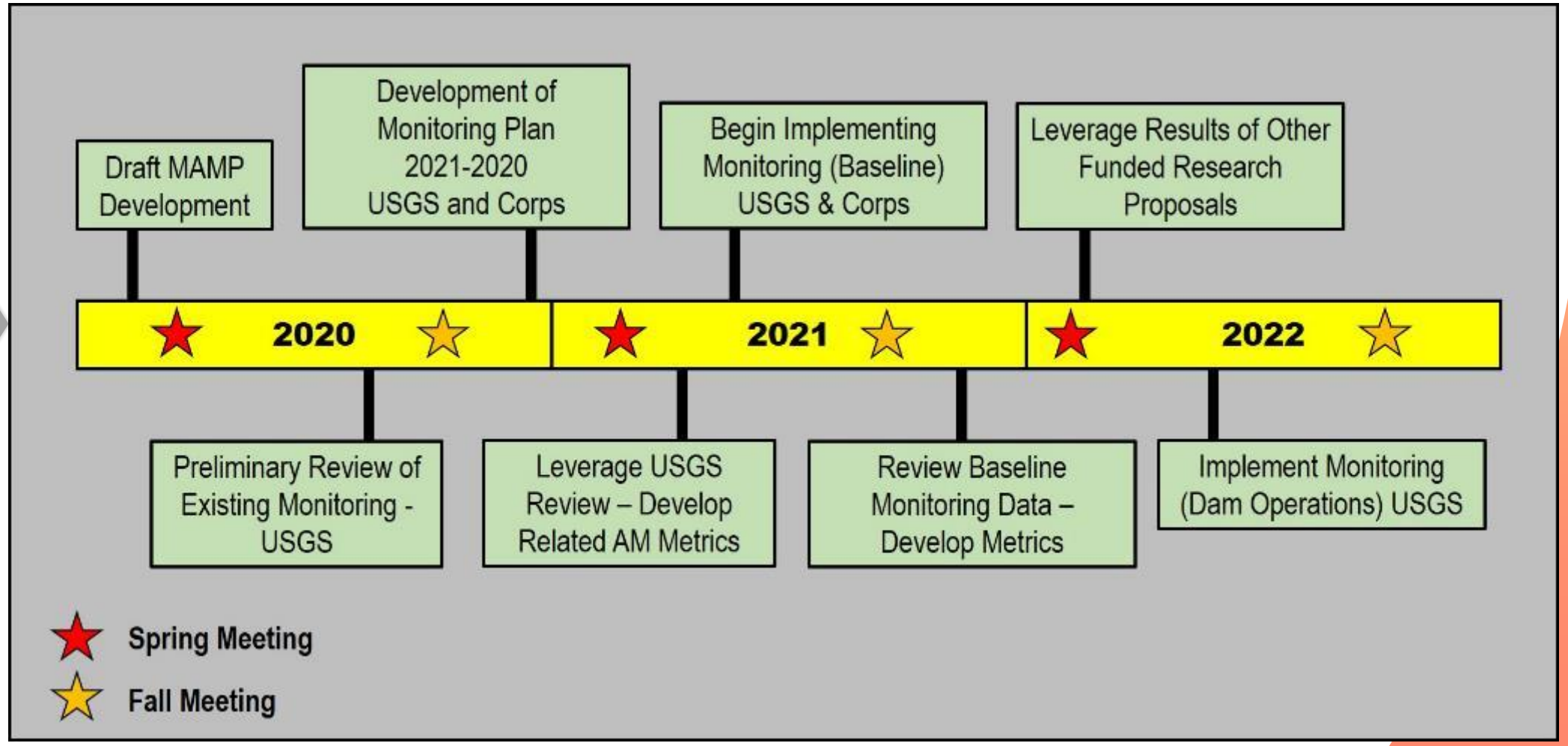
Coordinate updates to the e-flow report

Complete a draft **Adaptive Management and Monitoring Plan** (AMMP) for the project.

Relay the AMMP for input through TNC and additional Federal and local partners (US Fish and Wildlife, Natural Resource Conservation Service, Iowa Dept of Natural Resources, et al.)

Consider impacts within the existing watersheds (Iowa Power Dam)

TIMELINE WITH AMMP DEVELOPMENT



WHY ADAPTIVE MANAGEMENT?

Legal and Policy Requirements

- 2 Water Resources Development Act bills associated

Technical Perspective

- Helps manage risk & uncertainty

Important Considerations

- Implementation can be problematic & complex
- Opportunity to alleviate regulatory agency concerns

33 USC 2330a.

SEC. 2039. MONITORING ECOSYSTEM RESTORATION.

(a) IN GENERAL.—In conducting a feasibility study for a project (or a component of a project) for ecosystem restoration, the Secretary shall ensure that the recommended project includes, as an integral part of the project, a plan for monitoring the success of the ecosystem restoration.

(b) MONITORING PLAN.—The monitoring plan shall—

(1) include a description of the monitoring activities to be carried out, the criteria for ecosystem restoration success, and the estimated cost and duration of the monitoring; and

(2) specify that the monitoring shall continue until such time as the Secretary determines that the criteria for ecosystem restoration success will be met.

(c) COST SHARE.—For a period of 10 years from completion of construction of a project (or a component of a project) for ecosystem restoration, the Secretary shall consider the cost of carrying out the monitoring as a project cost. If the monitoring plan under subsection (b) requires monitoring beyond the 10-year period, the cost of monitoring shall be a non-Federal responsibility.

ACTIVE V. PASSIVE ADAPTIVE MANAGEMENT

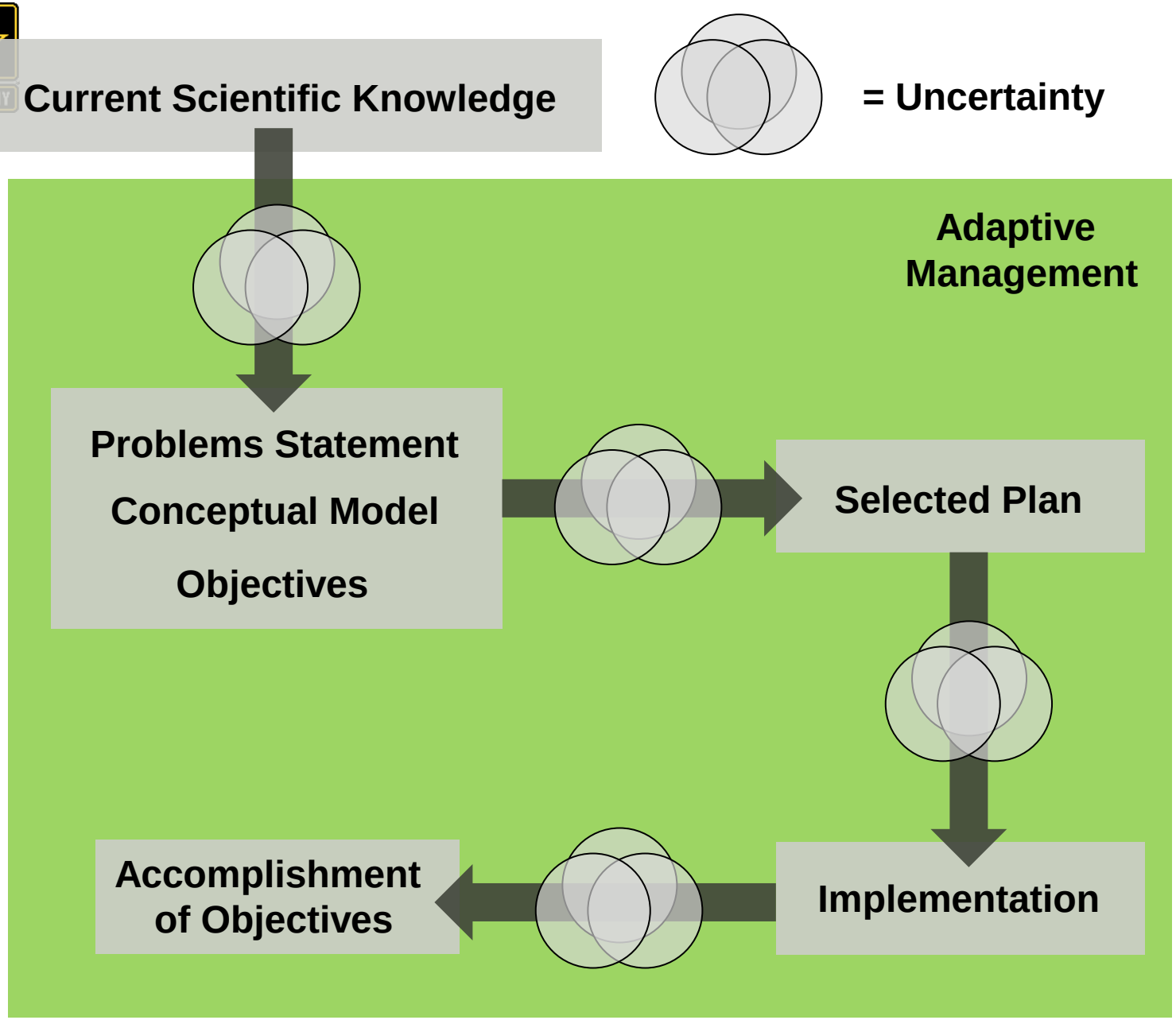
Active AM

Critical thinking (scientific method)
Compare different options and evaluate each one.
Within USACE feasibility studies, funding and implementation can be a challenge.

Passive AM (more common)

More laissez faire approach
Build then monitor and adjust to meet criteria.

ADAPTIVE MANAGEMENT CONCEPT

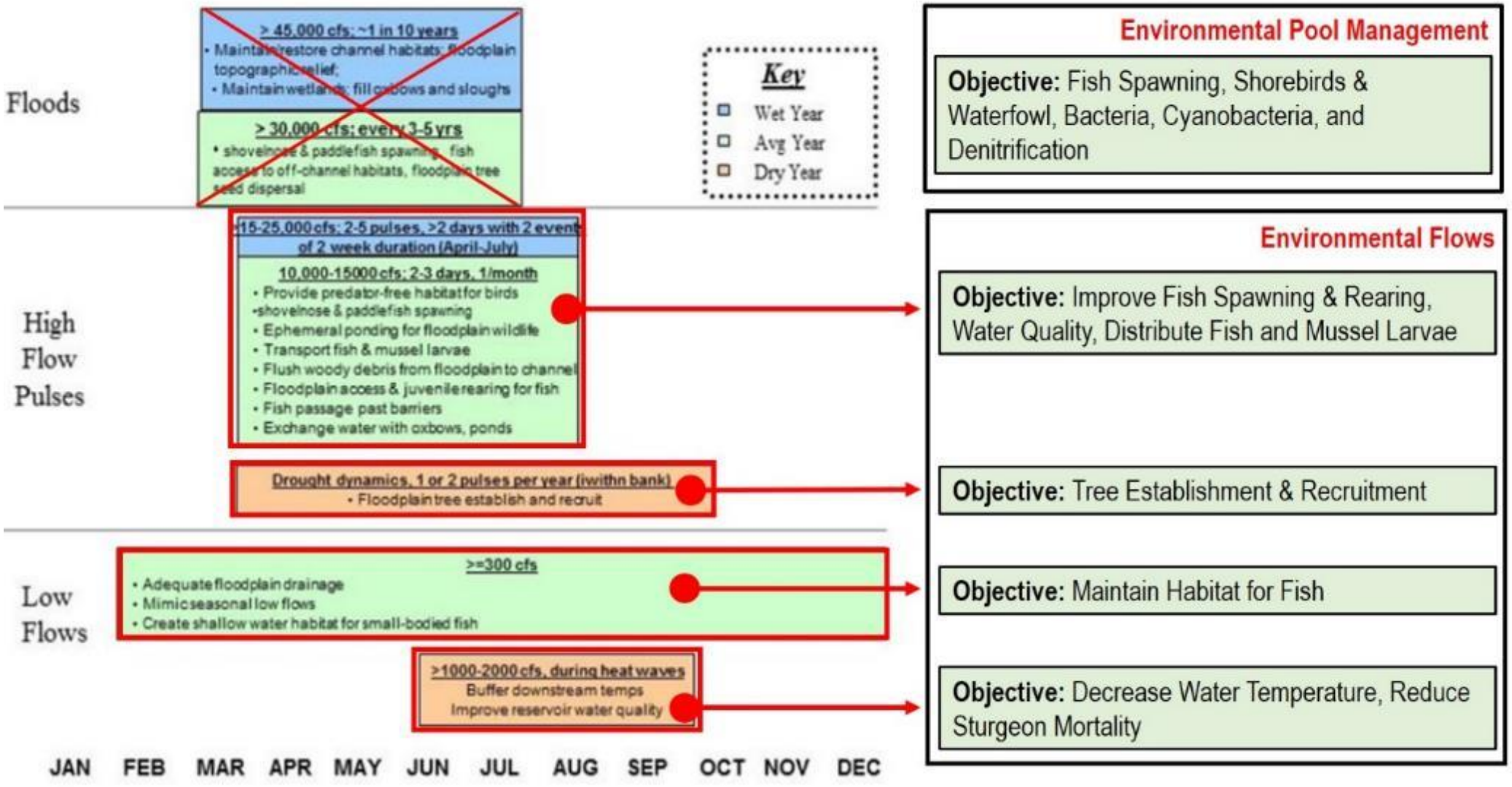


- Formal, science-based, risk management strategy
- Requires a clear statement of objectives
- Requires a clear recognition of uncertainties
- Identification of management alternatives & potential outcomes

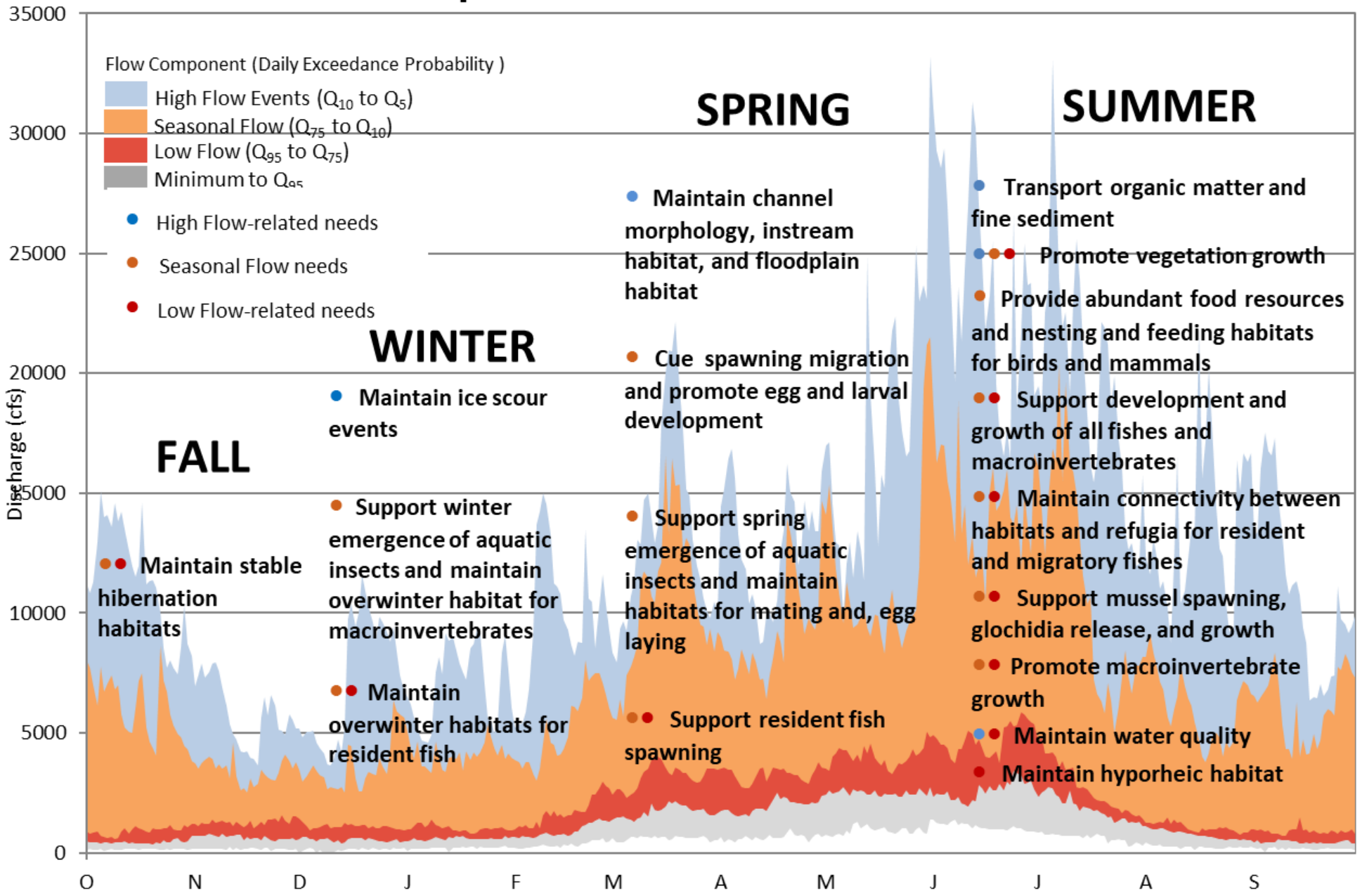
IMPLEMENTATION CONSIDERATIONS TO AMMP

Consideration	Potential Benefits	Potential impacts
Fall Pool Release and Hold	Waterfowl	Submerged aquatic vegetation and sportsfish
Low water / dry year and associated pool raises	Reduced water temperature	Fall Pool Raise implementation
Early Flow Pulses	Downstream aquatic habitat	Upstream aquatic habitat in the reservoir
Fall drawdown	Downstream aquatic habitat	Reptiles and amphibians
Late winter/early spring drawdown	Downstream aquatic habitat	Walleye emigration

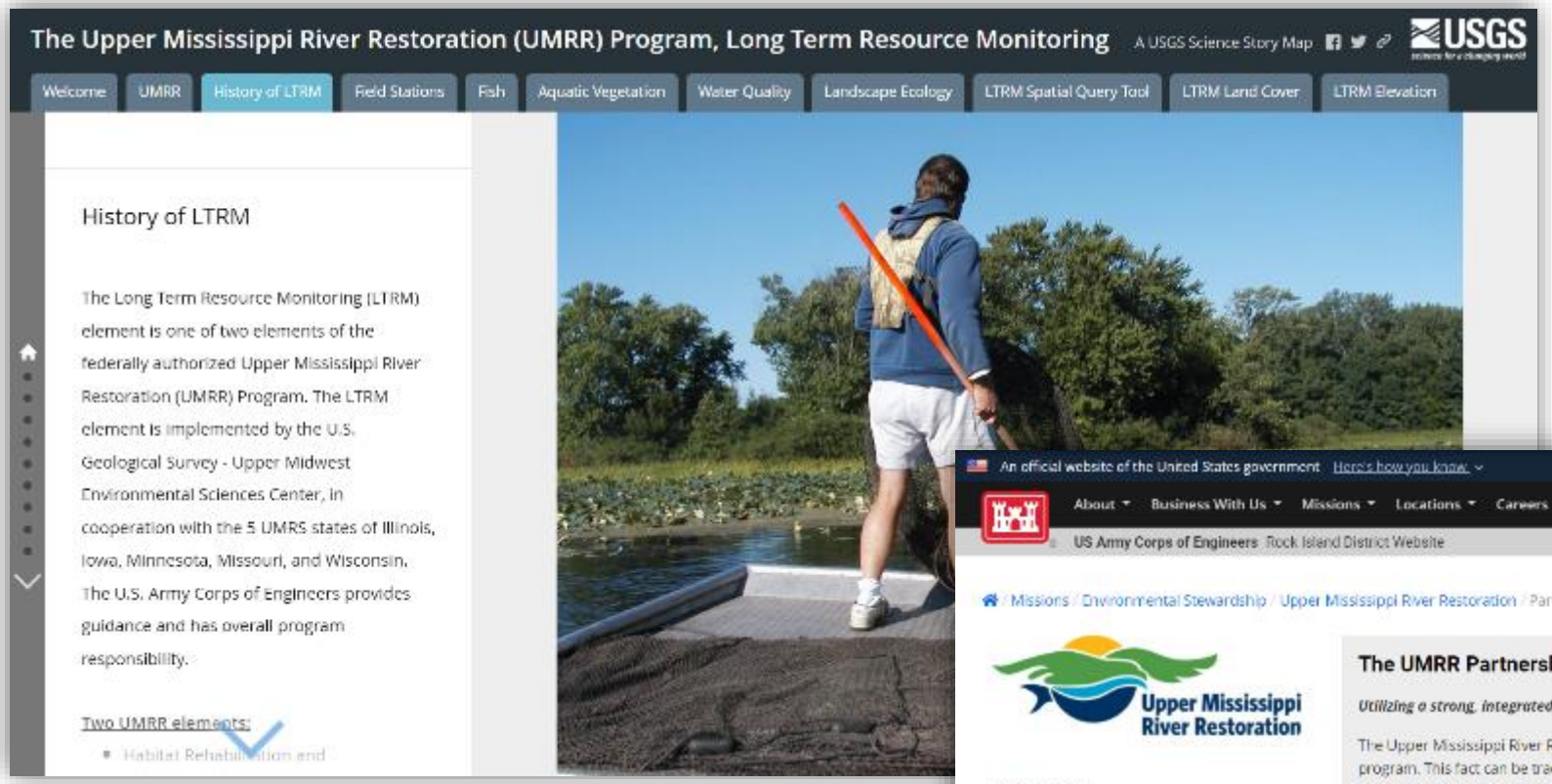
EXAMPLE OF E-FLOWS AND CONNECTING METRICS TO OBJECTIVES

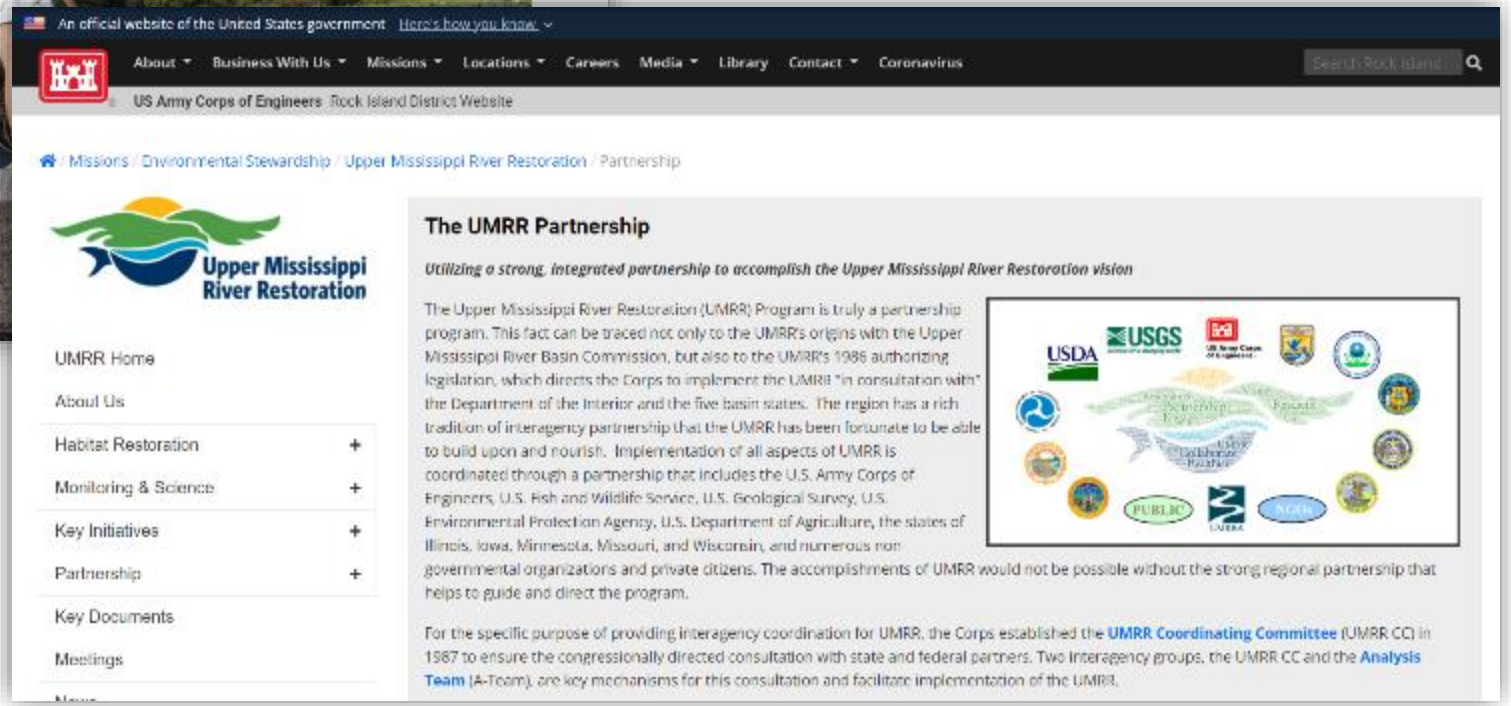


Flow Components and Needs: Iowa River



QUESTIONS?


The Upper Mississippi River Restoration (UMRR) Program, Long Term Resource Monitoring
A USGS Science Story Map
USGS
Welcome
UMRR
History of LTRM
Field Stations
Fish
Aquatic Vegetation
Water Quality
Landscape Ecology
LTRM Spatial Query Tool
LTRM Land Cover
LTRM Elevation
History of LTRM
The Long Term Resource Monitoring (LTRM) element is one of two elements of the federally authorized Upper Mississippi River Restoration (UMRR) Program. The LTRM element is implemented by the U.S. Geological Survey - Upper Midwest Environmental Sciences Center, in cooperation with the 5 UMRS states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. The U.S. Army Corps of Engineers provides guidance and has overall program responsibility.
Two UMRR elements:


An official website of the United States government
About
Business With Us
Missions
Locations
Careers
Media
Library
Contact
Coronavirus
US Army Corps of Engineers Rock Island District Website
Missions / Environmental Stewardship / Upper Mississippi River Restoration / Partnership
Upper Mississippi River Restoration
UMRR Home
About Us
Habitat Restoration
Monitoring & Science
Key Initiatives
Partnership
Key Documents
Meetings
The UMRR Partnership
Utilizing a strong, integrated partnership to accomplish the Upper Mississippi River Restoration vision
The Upper Mississippi River Restoration (UMRR) Program is truly a partnership program. This fact can be traced not only to the UMRR's origins with the Upper Mississippi River Basin Commission, but also to the UMRR's 1986 authorizing legislation, which directs the Corps to implement the UMRR "in consultation with" the Department of the Interior and the five basin states. The region has a rich tradition of interagency partnership that the UMRR has been fortunate to be able to build upon and nourish. Implementation of all aspects of UMRR is coordinated through a partnership that includes the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Department of Agriculture, the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, and numerous non-governmental organizations and private citizens. The accomplishments of UMRR would not be possible without the strong regional partnership that helps to guide and direct the program.
USDA
USGS
For the specific purpose of providing interagency coordination for UMRR, the Corps established the UMRR Coordinating Committee (UMRR CC) in 1987 to ensure the congressionally directed consultation with state and federal partners. Two interagency groups, the UMRR CC and the Analysis Team (A-Team), are key mechanisms for this consultation and facilitate implementation of the UMRR.

REFERENCES

SRP: Sustainable Rivers (army.mil)

- 2000 Memorandum of Understanding - MEMORANDUM OF UNDERSTANDING (army.mil)
- 2004 Memorandum of Understanding within Mississippi Valley Division - Memorandum of Understanding (MOU) - Mississippi Valley Division - Corps and Conservancy - 2004 (army.mil)

Other (from Question pics):

- UMRR - Upper Mississippi River Restoration (UMRR) Program (army.mil)
- LTRM - Rock Island District > Missions > Environmental Stewardship > Upper Mississippi River Restoration > Monitoring & Science > Long Term Resource Monitoring (army.mil)
  - Story Map: The Upper Mississippi River Restoration (UMRR) Program, Long Term Resource Monitoring (LTRM) (arcgis.com)