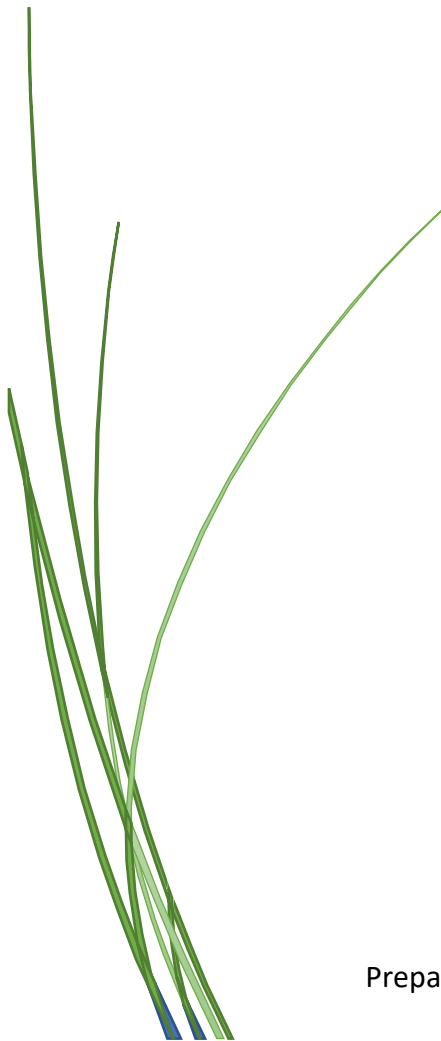




Sustainable Rivers Program

Metrics Framework to Track and Communicate Program Impact



**US Army Corps
of Engineers®**



February 2025

Prepared for U.S. Army Corps of Engineers, The Nature Conservancy,
and other organizations involved with Sustainable Rivers

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Acknowledgements

The metrics framework and content herein are a result of collaborative efforts of the Sustainable Rivers Program (SRP). An initial metrics strategy for SRP provided the foundational concepts and key metrics of importance to measure benefits of SRP to nature and people. The Nature Conservancy's 2030 Goals also provided an impetus to accurately and consistently track SRP's performance. This report details the purpose and methods of the SRP metrics framework and contains several figures that illustrate the use of metrics to communicate status, progress, and impact of SRP efforts. This report was made possible from contributions of nearly 50 SRP location-based teams through their work, project reports, interviews, and communications.

Introduction

The mission of the Sustainable Rivers Program (SRP) is to improve the health and life of rivers by changing water infrastructure operations to restore and protect ecosystems, while maintaining or enhancing other project benefits. The goal of SRP is to advance, implement, and incorporate environmental strategies at USACE water resources infrastructure. Measuring the outreach and ecological outcomes realized from SRP validates and helps communicate SRP outcomes in meeting the program goals. This report on metrics describes the process for annual accounting of metrics and illustrates the use of metrics to communicate status, progress, and impact of SRP efforts.

Background and Justification

SRP has engaged over 50 different teams and 27 USACE districts. All SRP work is guided by the “advance, implement, incorporate” process used to integrate environmental strategies into infrastructure operations. SRP work involves a combination of programmatic and location-based efforts.

In broad terms, programmatic work focuses on how best to generate more environmental benefits from water resources infrastructure and location-based work focuses on advancing, implementing, and incorporating environmental strategies at specific facilities. There are typically dozens of active location-based teams working to pursue the environmental actions that they proposed and aligned with and were supported by SRP.

The metrics framework is a way to record SRP outreach and ecological outcomes. Compilations, summaries, and visuals of metrics data are useful in communicating program impact (Figure 1).

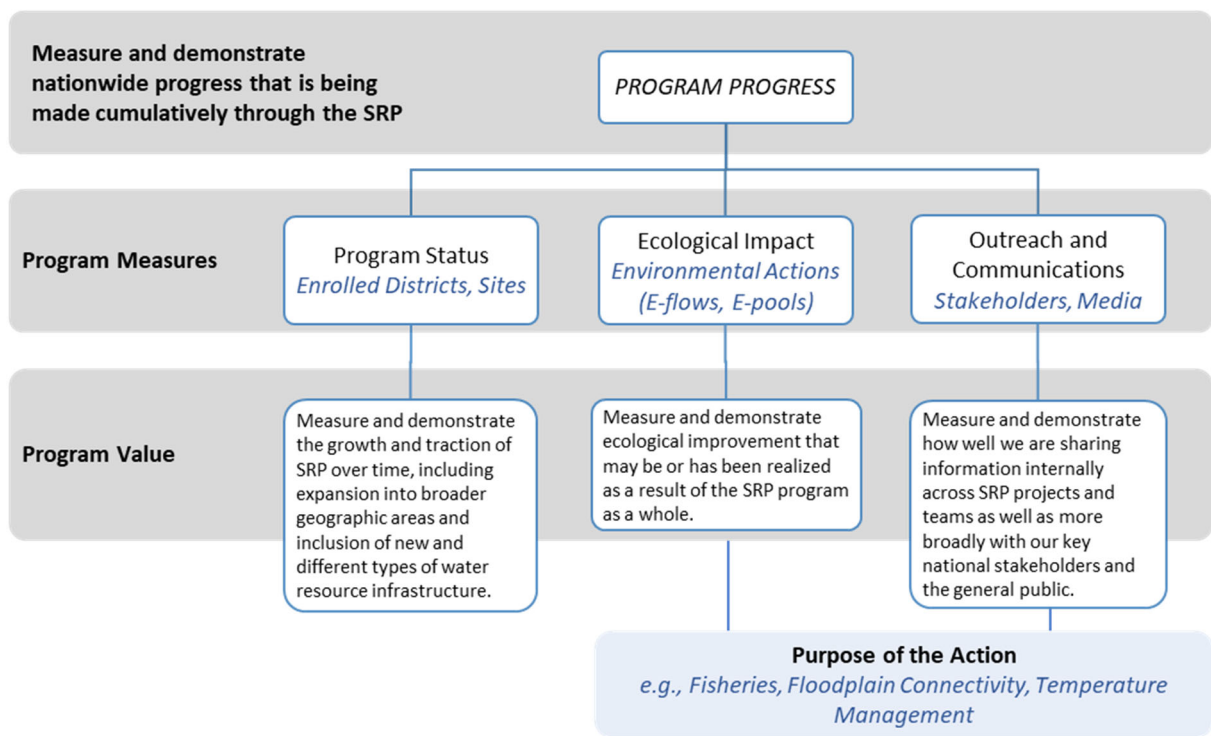


Figure 1. Metrics framework for SRP.

Purpose and Objectives

The purpose of SRP metrics is to provide consistency and accuracy in tracking outreach and ecological outputs for location-based work and the program overall. SRP supports four overarching environmental actions: environmental flows, pool level management, conservation locking, and physical habitat improvement. Metrics accounting links to each of these categories of actions through tallying outreach and river miles or acres associated with environmental purposes of the action (e.g.: life history support for fish, floodplain connectivity, water quality).

The objective of SRP metrics reporting is to support communication of SRP's outcomes. Metrics accounting enables SRP to measure progress toward program goals by tracking the environmental benefits of improved management at USACE infrastructure.

Tracking Process

Active SRP sites report annual metrics each calendar year, which are then summarized and reported in SRP In Progress Review reports. Teams contribute to the metrics accounting via interviews or by entering data in a reporting form. The reporting form is designed to allow for consistent responses from year to year, cumulative tracking for each site, and includes flexibility for sites to add other Action Purposes as well as details on the outreach or monitoring that occurred on an annual basis. SRP sites recognized by SRP but not active are acknowledged in this report through their applicable metric accounts using data obtained through review of site reports and other communications.

Environmental Actions tracked as part of the SRP metrics framework includes environmental flows (e-flows), environmental pool management (e-pools), physical habitat enhancement, and conservation locking; additional environmental actions may be considered in future SRP efforts. Each individual site has one or more Environmental Action. For example, the Kansas River team has advanced e-flows for the Kansas River at several reservoirs and has recently added e-pool actions for those reservoirs, thereby effectively addressing multiple objectives through two Environmental Actions.

Outreach and stakeholder engagement, including media generated from location-based work, is measured for SRP Sites in the advance, implement, and incorporate phases when organizations are contacted or actively involved in site work (Figure 2). Outreach is tracked by counting organizations contacted and organizations engaged (e.g., attending a workshop or contributing to project deliverables).



Figure 2. Stakeholders convene to discuss opportunities in the Cumberland River Basin (photo by Becca Winterringer, TNC).

Sites that have progressed to implement and/or incorporate phases of SRP are linked to one or more **Action-Purpose**. Action-Purposes may change throughout a sites' life in SRP based on the results of monitoring efforts or research results. Sites may address multiple Action-Purposes because of recommendations resulting from workshops. For example, a site may report river miles for improving

life history of fishes in one calendar year as the opportunity to implement a targeted pulse occurred but may report additional or other Action-Purposes in subsequent years as opportunities to implement are realized. Project teams in implement or incorporate phases of SRP can report on one or more of the Action-Purposes listed in Table 1. Additional Action-Purposes not captured in Table 1 may also be recognized.

Table 1. Actions and Action-Purposes common to SRP projects.

Environmental Actions	Action-Purpose	Description
Conservation Locking <i>Passage of fish and flow-borne material through infrastructure projects for environmental benefit.</i>	Debris Management	Actions that address or assess issues with accumulating debris
	Fish Passage	Actions that allow fish movement and passage (associated with conservation locking)
	Nutrients	Actions that target nutrient issues (excess or limiting)
	Sediment Flux	Actions that help manage sediment in the system (e.g., reintroduce in sediment starved areas or flush)
	Other	Developed by the teams as needed to record work related to unlisted actions
Environmental Flows <i>The quantity, timing, and quality of water flows required to sustain ecosystems. For resource managers, e-flows manifest as management decisions that manipulate water and land-water interactions to achieve ecological or environmental goals.</i>	Fish Passage	Actions that enable fish movement and passage (associated with conservation locking)
	Fisheries (Life History Support)	Actions that support fish life histories (e.g., spawning, rearing, foraging)
	Mussels (Life History Support)	Actions that support native mussel life histories (e.g., habitat, water levels, host fish)
	Benthics (Life History Support)	Actions that support or target E-flows that support benthic life histories (e.g., diet, physical habitat)
	Herptiles (Life History Support)	Actions that support or target herptiles (e.g., habitat [wetted back waters, old oxbows, and stable water levels during freezing temps] and/or life history)
	Overwinter Biota (Life History Support)	Actions that support habitat or life history support of overwintering biota
	Shorebirds, Gulls, Other Water Birds (Life History Support)	Actions that support habitats for shorebirds, gulls, and other water birds (e.g., exposing shallow areas for macroinvertebrate availability)
	Waterfowl (Life History Support)	Actions that support habitats for waterfowl (e.g., inundating oxbows and backwater areas, raise levels into food source during fall/winter migration)
	Floodplain Connectivity	Actions that target land/water interactions within floodplain for environmental or ecological benefit (not associated with floodplain vegetation targets)
	Vegetation - Riparian	Actions that promote healthy wetlands
	Vegetation - Wetlands	Actions targeting desirable vegetation or other life cycle processes in riparian areas
	Geomorphic Process	Actions that target moving or distributing sediments that are part of healthy geomorphic processes in the system. Can include actions that stabilize streambed or streambanks (e.g., sediment starved reaches or elevation fluctuations)
	Invasive Species (Suppress/Restrict)	Actions that limit invasive species spread (e.g., fish, mussels, and viable plant material)

Environmental Actions	Action-Purpose	Description
	Debris Management	Actions that address or assess issues with accumulating debris
	Physical habitat enhancement	Actions that enhance physical habitat
	Harmful/Nuisance Algal Blooms (Disrupt/Disperse)	Actions that limits development of harmful and/or nuisance algal blooms (e.g., limit nutrient sources or decrease retention times)
	Water Temperature Management	Actions that target temperature related issues or concerns
	Water Quality (Temperature, Nutrients, Dissolved Gases, Turbidity)	Actions that target nutrient issues or concerns
	Other	Developed by the teams as needed to record work related to unlisted actions
Environmental Pool Management <i>The practice of managing reservoir pools for environmental benefit, within the context of all authorized purposes.</i>	Fish Passage	Same as above. Actions that allow fish movement and passage (associated with conservation locking)
	Fisheries (Life History Support)	Same as above. Actions that support or target fish life histories (e.g., spawning, rearing, foraging)
	Mussels (Life History Support)	Same as above. Actions that support or target native mussel life histories (e.g., habitat, water levels, host fish)
	Benthics (Life History Support)	Same as above. Actions that support benthic life histories (e.g., diet, physical habitat)
	Herptiles (Life History Support)	Same as above. Actions that support herptiles (e.g., habitat [wetted back waters, old oxbows, and stable water levels during freezing temps] and/or life history)
	Overwinter Biota (Life History Support)	Same as above. Actions that support habitat or life history support of overwintering biota
	Shorebirds, Gulls, Other Water Birds (Life History Support)	Same as above. Actions that support or target habitats for shorebirds, gulls, and other water birds (e.g., exposing shallow areas for macroinvertebrate availability)
	Waterfowl (Life History Support)	Same as above. Actions that support or target habitats for waterfowl (e.g., inundating oxbows and backwater areas, raise levels into food source during fall/winter migration)
	Invasive Species (Suppress/Restrict)	Same as above. Actions that limit invasive species spread (e.g., fish, mussels, and viable plant material)
	Floodplain Connectivity	Same as above. Actions that target land/water interactions within floodplain for environmental or ecological benefit (not associated with floodplain vegetation targets)
	Vegetation - Riparian	Same as above. Actions that target promoting healthy wetlands
	Vegetation - Wetlands	Same as above. Actions targeting desirable vegetation or other life cycle processes in riparian areas
	Debris Management	Same as above. Actions that address or assess issues with accumulating debris

Environmental Actions	Action-Purpose	Description
	Harmful/Nuisance Algal Blooms (Disrupt/Disperse)	Same as above. Actions that limits development of harmful and/or nuisance algal blooms (e.g., limit nutrient sources or decrease retention times)
	Water Temperature Management	Same as above. Actions that target temperature related issues or concerns
	Water Quality (Temperature, Nutrients, Dissolved Gases, Turbidity)	Same as above. Actions that target nutrient issues or concerns
	Physical habitat enhancement	Actions that enhance physical habitat
	Pool Rate of Change - Shoreline Integrity (Water Quality)	Actions that preserve streambanks (e.g., limit rate of water elevation change)
	Sediment Passage	Actions that help manage system sediment (e.g., reintroduce in sediment starved areas or flush)
	Other	Developed by the teams as needed to record work related to unlisted actions
Physical Habitat* <i>Actions that improve physical habitat for a range of hydrologic conditions.</i>	Invasive Species (Suppress/Restrict)	Same as above. Actions that limit invasive species spread (e.g., fish, mussels, and viable plant material)
	Wetland Creation - Permanent	Actions that enhance or create permanent wetlands
	Wetland Creation - Seasonal	Actions that enhance or create seasonal wetlands
	Physical habitat enhancement (use of dredged material, oxbows)	Actions that create physical habitat
	Restoration or Diversification of Stream Habitat (Stream Work)	Actions that target restoring or diversifying stream habitat
	Sub-impoundment Creation or Restoration (Ponds Work)	Actions that restore or create sub-impoundments
	Other	Developed by the teams as needed to record work related to unlisted actions

* Physical Habitat SRP actions relate to planning of physical habitat work.

Results

SRP metrics were compiled to the extent practicable for 2002 - 2023 where information was readily available through interviews with teams or retrieved from site publications. Table 2 provides a summary of accounting by site and Action by year. Site reporting for metrics linked to advance phase are indicated in orange, implement phase are indicated in purple, and incorporate phase are indicated in green.

Outreach

A summary of the SRP outreach metrics is highlighted in Figure 3. The number of organizations reported for each site includes a single value as a reported maximum for the organizations contacted or invited to contribute to the science and decision-making process. Details regarding organizations engaged, including the number and names of organizations that contribute to monitoring and/or analysis and development of recommendations is also tallied. The complete list of organizations engaged (past and present) per site is provided in Appendix A.

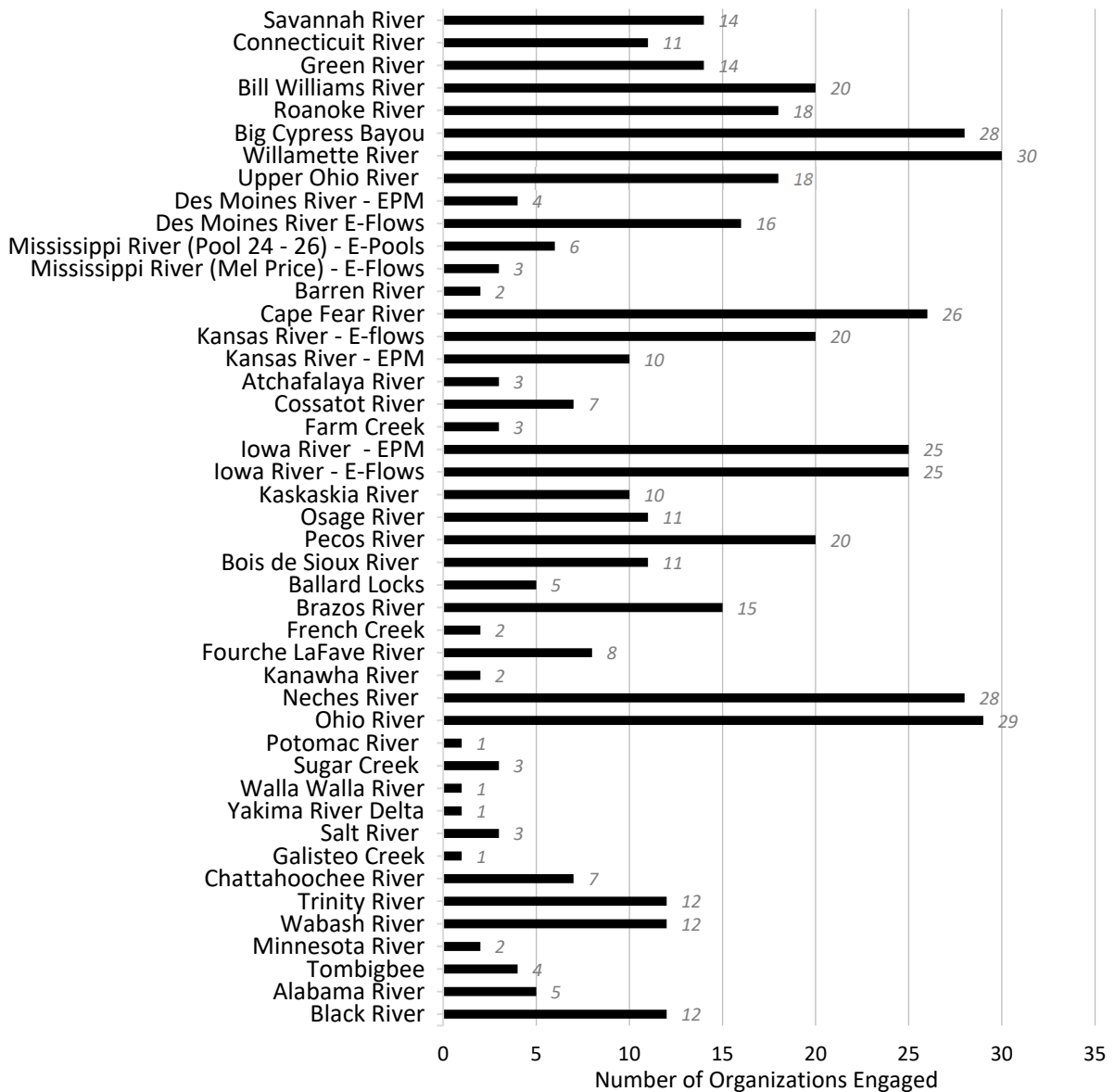


Figure 3. Outreach metrics summary for SRP sites, 2002 - 2023.

Environmental Actions

Over 4,000 river miles are attributed to several Action-Purposes from sites in implement or incorporate phases (Figure 4 and Table 3). The values reported for river miles linked to Environmental Actions are a summary and not cumulative for actions where implementation occurs routinely.

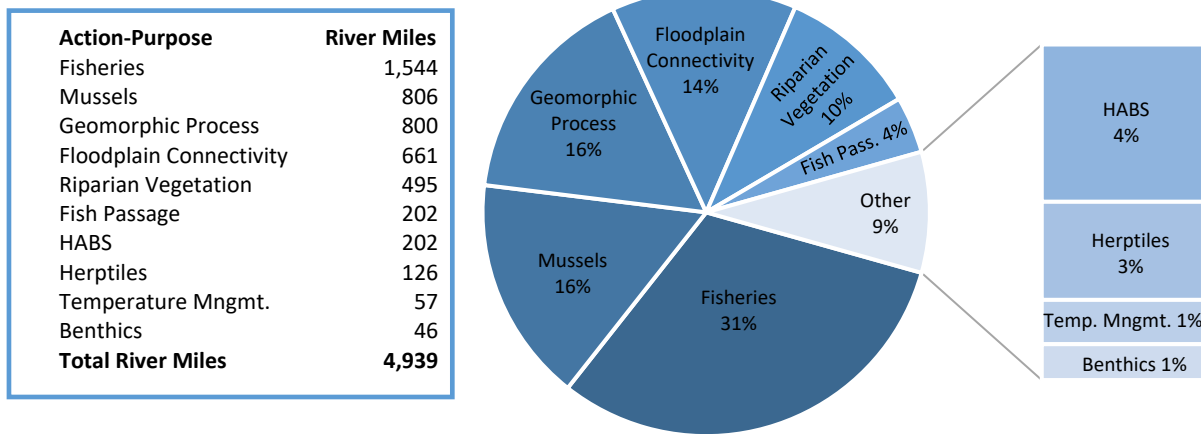


Figure 4. Summary of river miles for sites in implement or incorporate phases per Action Purpose.

Values presented for sites in implement or incorporate phases are a reported maximum that represents a typical year when implementation occurs (e.g., a flow pulse or pool drawdown). For example, a river pulse flow may occur one or more times in a calendar year for a single Action Purpose; however, the river miles are counted one time per calendar year to avoid double counting. Where sites are implementing for multiple reaches reporting up under the site, the miles are reported as a total for the site and differentiated in detail noted in metrics reporting.

Table 3. River miles per Action-Purpose by site.

Site	Year ¹	Fisheries	Mussels	Geo. Process	Floodplain Conn.	Veg. Riparian	Fish Pass.	HABS	Herptiles	Temp. Mngmt.	Benthics
Barren River	2016				86						
Big Cypress Bayou	2012	31									
Bill Williams River	2006	46		46		46					46
Cape Fear River	2020	135					202	202			
Cossatot River	2023		171								
Des Moines River E-Flows	2020	142	142								
Green River	2003	310	310								
Iowa River - E-Flows	2023	57	57							57	
Mississippi River - E-Flows	2022	5									
Roanoke River	2016	179		179							
Salt River	2023	64									
Upper Ohio River	2023	126	126	126	126				126		
Willamette River	2008	449		449	449	449					
Total Miles by Action Purpose		1,544	806	800	661	495	202	202	126	57	46
Total Miles	4,939										

¹ Year is when site moved from advance to implement or incorporate and had recordable metric for the applicable Action-Purpose.

Nearly 165,000 acres have benefited from operational changes supported at least in part by SRP (Figure 5 and Table 4). Table 4 summarizes the acres of ecological benefits of sites in implement or incorporate by Action-Purpose.

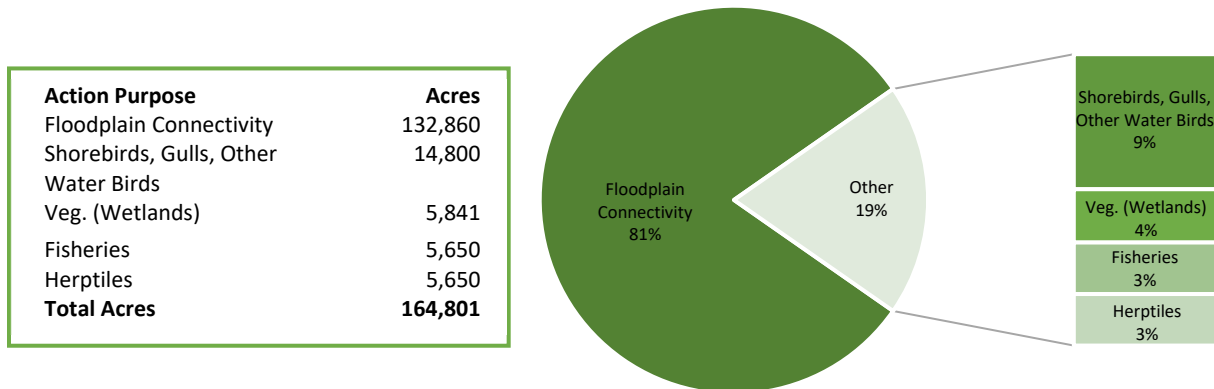


Figure 5. Summary of acres of environmental benefits for sites in implement or incorporate.

The values reported are a summary and represent (where applicable) cumulative acres for actions where implementation occurs routinely; there may be variability in the annual monitoring. Sites report in some years but not every year. For example, for e-pools, implementation opportunities may have existed to perform a drawdown in one year, and therefore monitoring and ecological benefits were achieved (and metrics reported) and in other years, implementation opportunities did not occur and therefore no monitoring or metric reporting were done.

Table 4. Acres per Action-Purpose by site.

Site	Year ¹	Veg. Wetlands	Shorebirds, Gulls, Other Water Birds	Fisheries	Floodplain Conn.	Herptiles
Big Cypress Bayou	2012				2,000 ²	
Bois de Sioux River	2023		6,000			
Des Moines River – E-Pools	2016		3,000			
Kaskaskia River*	2021	1,479				
Iowa River	2023		5,650	5,650		5,650
Mississippi River – E-Pools*	2021	4,362	150			
Roanoke River	2016				132,860	
Total Acres by Action-Purpose		5,841	14,800	5,650	132,860	5,650
Total Program Acres		164,801				

*Life of project, annual variability occurred in monitoring and value reported is cumulative.

¹ Year indicated is year site moved from advance to implement or incorporate and had recordable metric for the applicable Action-Purpose.

² Average annual acres receiving benefits, annual variability with implementation schedule and range is 1,800 to 2,200 acres.

Metrics Reporting

Metrics reporting is initiated at the end of each calendar year. SRP teams are encouraged to use the form template for configuring metrics for monitoring variables/purposes of the Environmental Action strategy applied to their site (Appendix B). The template has pre-populated columns for Action (i.e., E-

flows, E-Pools, Conservation Locking, or Physical Habitat), SRP Phase (Advance, Implement, Incorporate), and Action-Purpose (listed above) for ease of tracking. In support of information provided on the form, additional context by way of supplemental information is also encouraged.

Conclusion

The metrics framework and established process for tracking annually enables SRP to communicate the important successes of the program. The metrics program uses consistent methods for tracking impacts and is reliant on collaborative efforts of the SRP program and location-based teams to compile valuable information for SRP.

Appendix A. Organizations engaged at SRP Sites, 2002-2023

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
Savannah River	2002	2004	-	14	<ul style="list-style-type: none"> • Environmental Protection Agency • Georgia Department of Environmental Protection • Georgia Department of Natural Resources • National Marine Fisheries Service • South Carolina Coastal League Southeastern South Carolina Department of Natural Resources • Natural Sciences Academy • The Nature Conservancy • University of Georgia • U.S. Army Corps of Engineers • U.S. Fish and Wildlife Service • U.S. Geological Survey • U.S. Geological Survey - Cooperative Extension Unit
Connecticut River	2002	-	-	11	<ul style="list-style-type: none"> • Connecticut Department of Environmental Protection • Massachusetts Department of Environmental Protection • Massachusetts Riverways • New Hampshire Department of Environmental Services • University of Massachusetts • US Geological Survey - Water Resources Division (CT Office) • US Geological Survey - Water Resources Division (MA/RI Office) • US Geological Survey - Water Resources Division (VT/NH Office) • Vermont Agency for Natural Resources • The Nature Conservancy • U.S. Army Corps of Engineers
Green River	2002	2003	2006	14	<ul style="list-style-type: none"> • Kentucky Waterways Alliance • Campbellsville University • Crawford Hydrology Lab - Western Kentucky University • Kentucky Department of Fish and Wildlife Resources • Kentucky Division of Water • Kentucky Rural Water Association • National Park Service - Mammoth Cave National Park • Office of Kentucky Nature Preserves • The Nature Conservancy • U.S. Army Corps of Engineers - Institute for Water Resources • U.S. Army Corps of Engineers - Louisville District • U.S. Army Corps of Engineers - Nashville District • U.S. Army Corps of Engineers - St. Paul District • U.S. Fish and Wildlife Service
Bill Williams River	2002	2006	-	20	<ul style="list-style-type: none"> • Arizona Department of Environmental Quality • Arizona Department of Water Resources • Arizona Game and Fish Department • Arizona Geological Survey • Arizona State University

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • Arizona State Parks • Mohave Community College • Oregon State University • Private Entities (2) • City of Scottsdale • The Nature Conservancy • University of New Mexico • University of Arizona • University of Nevada • U.S. Army Corps of Engineers • U.S. Bureau of Land Management • U.S. Bureau of Reclamation • U.S. Fish and Wildlife Services • U.S. Geological Survey • U.S. National Park System
Roanoke River	2002	2016	-	18	<ul style="list-style-type: none"> • Commonwealth of Virginia • Dominion Energy • Duke Energy • Eastern Carolina University • National Oceanic and Atmospheric Administration • National Marine Fisheries Service • NC Dept. of Agriculture and Consumer Services • NC Dept. of Environmental Quality • NC Wildlife Resources Commission • Southeastern Power Administration • State of North Carolina • The Nature Conservancy • U.S. Army Corps of Engineers • U.S. Fish and Wildlife Service • U.S. Geological Survey • Virginia Dept. of Agriculture and Consumer Services • Virginia Dept. of Environmental Quality • Virginia Dept. of Game and Inland Fisheries
Big Cypress Bayou	2003	2012	2020	28	<ul style="list-style-type: none"> • Advanced Ecology Inc. • American Electric Power • Bradbury Consulting • Caddo Lake Institute • East Texas Baptist University • Guice Engineering, Inc. • Jefferson Institute • Louisiana Department of Environmental Quality • Louisiana Department of Wildlife and Fisheries • Louisiana State University – Shreveport • National Wildlife Program • Nestle Waters North America • North East Texas Municipal Water district • Region D Water Planning Group • Red River Valley Association

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • Senator Staples Office • State Representative Frost Office • Sabine River Authority • Texas A&M University • Texas Parks and Wildlife Department • Texas Water Development Board • The Nature Conservancy • U.S. Army Corps of Engineers • U.S. Fish and Wildlife Service • U.S. Geological Survey • U.S. Geological Survey - National Wetland Research Center • V.A. Stephens Company • Wiley College
Willamette River	2004	2008	2015	30	<ul style="list-style-type: none"> • Bonneville Power Administration • Bureau of Land Management • Calapooia Watershed Council • City of Salem • Coast Fork Watershed Council • Confederated Tribes of the Grand Ronde • David Evans and Associates • DHI • Ecohydrology Northwest • Eugene Water and Electric Board • Friends of Buford Park • GeoEngineers • Jones and Stokes • McKenzie River Trust • McKenzie River Watershed Council • Middle Fork Willamette Watershed Council • NOAA Fisheries • North Santiam Water Control District • Oregon Water Resources Department • Oregon Dept. of Environmental Quality • Oregon Dept. of Fish and Wildlife • Oregon State University • Oregon Water Resources Department • South Santiam Watershed Council • The Nature Conservancy • U.S. Army Corps of Engineers • U.S. Forest Service • United States Geological Survey • University of Oregon • Willamette Riverkeepers
Lehigh River	2011			4	<ul style="list-style-type: none"> • Delaware River Basin Commission • Pennsylvania Fish and Boat Commission • The Nature Conservancy • U.S. Army Corps of Engineers - Philadelphia District

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
Upper Ohio River	2014	2023		18	<ul style="list-style-type: none"> • Allegheny National Forest • Armstrong Trails • Armstrong Co. • Pennsylvania Department of Conservation and Natural Resources (PA DCNR) • Pennsylvania Department of Environmental Protection • Pennsylvania Fish and Boat Commission • Seneca Nation of Indians • Southwestern Pennsylvania Commission • The Nature Conservancy • U.S. Army Corps of Engineers, Engineer Research and Development Center • U.S. Army Corps of Engineers, Pittsburgh District • U.S. Army Corps of Engineers, Institute for Water Resources • U.S. Environmental Protection Agency • U.S. Fish and Wildlife Service • U.S. Forest Service • U.S. Geological Survey • Western Pennsylvania Conservancy • Pittsburgh Collaboratory for Water Research
Des Moines River - E-Pools	2015		2016	4	<ul style="list-style-type: none"> • Iowa Department of Natural Resources • Iowa State University • U.S. Army Corps of Engineers • The Nature Conservancy
Des Moines River E-Flows	2016		2020	16	<ul style="list-style-type: none"> • Des Moines Waterworks • Drake University • Iowa Department of Agriculture and Land Stewardship • Iowa Department of Natural Resources • Iowa State University • Natural Resources Conservation Service • Polk County Conservation • The Nature Conservancy • University of Iowa • University of Iowa Flood Center • University of Iowa - Iowa Institute of Hydraulic Research • U.S. Fish and Wildlife Service • U.S. Army Corps of Engineers • U.S. Army Corps of Engineers, Institute for Water Resources • William Penn University • Wisconsin Department of Natural Resources
Mississippi River (Pools 24-25) - E-Pools	2016	2021		7	<ul style="list-style-type: none"> • Audubon Society • Illinois Department of Natural Resources • Local Birding Chapters • Missouri Department of Natural Resources • U.S. Fish and Wildlife Service • U.S. Geological Survey

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • U.S. Army Corps of Engineers
Mississippi River (Mel Price)- E-Flows	2021	2022		3	<ul style="list-style-type: none"> • Missouri Department of Natural Resources • U.S. Fish and Wildlife Service • U.S. Army Corps of Engineers
Barren River	2015	2016		2	<ul style="list-style-type: none"> • The Nature Conservancy • U.S. Army Corps of Engineers
Cape Fear River	2017	2020		26	<ul style="list-style-type: none"> • American Rivers • Brunswick County Public Utilities • Cape Fear Public Utility Authority • Cape Fear River Watch • Carolina Wetlands Association • City of Sanford • Clemson University • Fayetteville Public Works Commission • Harnett Regional Water • Hydrologics • Meritech Inc. • North Carolina Department of Environmental Quality • North Carolina Department of Marine Fisheries • North Carolina Natural Heritage Program • North Carolina State University • North Carolina Wildlife Resource Commission • National Oceanic and Atmospheric Administration • Private Entity (1) • RTI International • The Nature Conservancy • TJCOG/Jordan Lake Partnership • University of North Carolina – Wilmington • University of North Carolina - Chapel Hill • U.S. Fish and Wildlife Service • U.S. Geological Survey • U.S. Army Corps of Engineers
Kansas River - E-flows	2018			20	<ul style="list-style-type: none"> • Everygy • Friends of the Kaw • Kansas Aggregate Producers Association • Kansas Alliance for Wetlands and Streams • Kansas Biological Survey • Kansas Department of Agriculture - Division of Conservation • Kansas Department of Agriculture - Division of Water • Kansas Department of Health and Environment • Kansas Department of Wildlife, Parks, and Tourism • Kansas Forest Service • Kansas Geological Survey • Kansas Regional Advisory Committee • Kansas State University • Kansas Water Assurance District • Kansas Water Authority

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • The Nature Conservancy • U.S. Environmental Protection Agency, Region 7 • U.S. Fish and Wildlife Service • U.S. Geological Survey • U.S. Army Corps of Engineers
Kansas River – E-Pools	2023			10	<ul style="list-style-type: none"> • Ducks Unlimited • Kansas Department of Wildlife, Parks, and Tourism (Fisheries) • Kansas Department of Wildlife, Parks, and Tourism (Public Lands) • Kansas Department of Wildlife, Parks, and Tourism (Migratory Birds) • Nebraska Game and Parks (Fisheries) • Nebraska Game and Parks (Wetlands) • The Crane Trust • The Nature Conservancy • U.S. Army Corps of Engineers, Engineer Research and Development Center • U.S. Army Corps of Engineers – Kansas City District
Atchafalaya River	2020			3	<ul style="list-style-type: none"> • Private Entity (1) • The Nature Conservancy • U.S. Army Corps of Engineers
Cossatot River	2020	2023		7	<ul style="list-style-type: none"> • Arkansas Game and Fish Commission • Arkansas Department of Environmental Quality • Arkansas Natural Heritage Commission • Arkansas Department of Agriculture - Natural Resource Division • The Nature Conservancy • U.S. Army Corps of Engineers – Little Rock District • U.S. Fish and Wildlife Service
Farm Creek	2020	2021		3	<ul style="list-style-type: none"> • Illinois Department of Natural Resources • U.S. Army Corps of Engineers • U.S. Fish and Wildlife Service
Iowa River - E-Pools	2020	2023		25	<ul style="list-style-type: none"> • American Rivers • Bur Oak Land Trust • Clear Creek Watershed Management Coalition • City of Coralville • City of Iowa City • English River Wildlife Management Area • Friends of Coralville Lake • Iowa Department of Natural Resources • Iowa Department of Agriculture and Land Stewardship • Iowa Agriculture Water Alliance • Iowa Corn Growers Association • Iowa Geological Survey • Iowa Rivers Revival • Iowa Sierra Club • Iowa Soybean Association

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • Iowa State University • Johnson County Conservation Board • Natural Resources Conservation Service • The Nature Conservancy • University of Iowa - Iowa Flood Center • University of Iowa - Iowa Institute of Hydraulic Research • U.S. Army Corps of Engineers - Engineer Research and Development Center • U.S. Army Corps of Engineers - Rock Island District • U.S. Fish and Wildlife Service • Washington County Conservation Board
Iowa River - E-Flows	2020	2023		25	<ul style="list-style-type: none"> • American Rivers • Bur Oak Land Trust • Clear Creek Watershed Management Coalition • City of Coralville • City of Iowa City • English River Wildlife Management Area • Friends of Coralville Lake • Iowa Department of Natural Resources • Iowa Department of Agriculture and Land Stewardship • Iowa Agriculture Water Alliance • Iowa Corn Growers Association • Iowa Geological Survey • Iowa Rivers Revival • Iowa Sierra Club • Iowa Soybean Association • Iowa State University • Johnson County Conservation Board • Natural Resources Conservation Service • The Nature Conservancy • University of Iowa - Iowa Flood Center • University of Iowa - Iowa Institute of Hydraulic Research • U.S. Army Corps of Engineers - Engineer Research and Development Center • U.S. Army Corps of Engineers - Rock Island District • U.S. Fish and Wildlife Service • Washington County Conservation Board
Kaskaskia River	2020	2021		3	<ul style="list-style-type: none"> • Illinois Department of Natural Resources • Southern Illinois Waterfowl, Inc. • U.S. Army Corps of Engineers – St. Louis District
Osage River	2020			11	<ul style="list-style-type: none"> • Kansas Department of Wildlife and Parks • Kansas State University • Kansas Water Office • Missouri Department of Conservation • Oklahoma State University • Southwest Power Association • The Nature Conservancy • University of Missouri

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • U.S. Army Corps of Engineers - Kansas City District • U.S. Geological Survey • U.S. Fish & Wildlife Service
Pecos River	2020			20	<ul style="list-style-type: none"> • Auburn University • Audubon Society • Carlsbad Irrigation District • Fort Sumner Irrigation District • Eastern New Mexico University • Kansas State University • Lubbock University • New Mexico Department of Game and Fish • New Mexico Office of State Engineer • New Mexico State Land Office • Pecos Valley Artesian Conservancy District • State of New Mexico Interstate Stream Commission • Texas Tech • The Nature Conservancy • University of New Mexico • U.S. Army Corps of Engineers - Albuquerque District • U.S. Bureau of Reclamation • U.S. Fish and Wildlife Service • Weber University • World Wildlife Fund
Bois de Sioux River	2021	2024		11	<ul style="list-style-type: none"> • Bios de Sioux Watershed District • City of Fargo - Water Utility • City of Moorhead - Water Plant • City of Wahpeton - Water Treatment • City of Breckenridge - Public Works • Minnesota Department of Natural Resources • Minnesota Pollution Control Agency • North Dakota Department of Environmental Quality • South Dakota Game, Fish and Parks • Traverse County Soil, and Water Conservation District • U.S. Army Corps of Engineers - St. Paul District
Ballard Locks	2021			5	<ul style="list-style-type: none"> • Long Live the Kings • King County Water Resource Inventory Area 8 • U.S. Army Corps of Engineers - Seattle District • U.S. Geological Survey • WEST Consultants
Brazos River	2021			15	<ul style="list-style-type: none"> • Baylor University • Berg Oliver Associates • Brazos River Authority • Dow Chemical • GDS Associates • Lower Brazos Riverwatch • U.S. Department of Agriculture Natural Resource Conservation Service • Southwestern Power Administration

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • The Nature Conservancy • Texas Parks and Wildlife Department • Texas Water Development Board • University of Texas - Arlington • U.S. Fish and Wildlife Service • U.S. Army Corps of Engineers - Fort Worth District
French Creek	2021			2	<ul style="list-style-type: none"> • Private Entity (1) • U.S. Army Corps of Engineers - Pittsburgh District
Fourche LaFave River	2021			8	<ul style="list-style-type: none"> • Arkansas Department of Environmental Quality • Arkansas Department of Agriculture - Natural Resource Division • Arkansas Game and Fish Commission • Arkansas Natural Heritage Commission • The Nature Conservancy • U.S. Army Corps of Engineers - Little Rock District • U.S. Fish and Wildlife Service • U.S. Forest Service
Kanawha River	2021			2	<ul style="list-style-type: none"> • West Virginia Division of Natural Resources • U.S. Army Corps of Engineers – Huntington District
Neches River	2021			28	<ul style="list-style-type: none"> • Angelina and Neches River Authority • Lower Neches Valley Authority • National Park Service • SIMFERO • Southwestern Power Administration • Texas A&M University • Texas Clean Air and Water • Texas Parks and Wildlife Department • Texas Water Development Board • The Nature Conservancy • TTG Forestry • University of Texas - Arlington • U.S. Fish and Wildlife Service • U.S. Army Corps of Engineers - Fort Worth District
Ohio River	2021			29	<ul style="list-style-type: none"> • American Rivers • Campbellsville University • Illinois Department of Natural Resources • Izaak Walton League • Kentucky Department of Wildlife • Kentucky Waterways Alliance • National Wildlife Foundation • Ohio Department of Natural Resources • Ohio River Basin Alliance • Ohio University • Ohio-Kentucky-Indiana Regional Council of Governments • Penn State University • Riverlife • Rural Action • SamShine Foundation

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
					<ul style="list-style-type: none"> • The Nature Conservancy • Thomas More University • Three Rivers Waterkeeper • Three Rivers Wet Weather • U.S. Army Corps of Engineers - Huntington District • U.S. Army Corps of Engineers - Louisville District • U.S. Army Corps of Engineers - Pittsburgh District • U.S. Fish and Wildlife Service - Ohio River Islands National Wildlife Refuge • University of Cincinnati • University of Louisville • University of Pittsburgh • West Virginia Department of Environmental Protection • West Virginia Division of Natural Resources • West Virginia State Resiliency Office
Potomac River	2021			1	<ul style="list-style-type: none"> • U.S. Army Corps of Engineers - Baltimore District
Sugar Creek	2021			3	<ul style="list-style-type: none"> • Muskingum Watershed Conservancy District • Ohio Department of Natural Resources • U.S. Army Corps of Engineers - Huntington District
Walla Walla River	2021			1	<ul style="list-style-type: none"> • U.S. Army Corps of Engineers - Seattle District
Yakima River Delta	2021			1	<ul style="list-style-type: none"> • U.S. Army Corps of Engineers - Seattle District
Salt River	2022	2023		3	<ul style="list-style-type: none"> • Missouri Department of Conservation • Southwestern Power Association • U.S. Army Corps of Engineers - St. Louis District
Galisteo Creek	2022			1	<ul style="list-style-type: none"> • U.S. Army Corps of Engineers - Albuquerque District
Chattahoochee River	2022			7	<ul style="list-style-type: none"> • Buford Hatchery • Chattahoochee Riverkeeper • Georgia Department of Natural Resources - Environmental Protection Division • Gwinnett County Water • National Park Service - Chattahoochee River National Recreation Area • River Through Atlanta • U.S. Army Corps of Engineers - Mobile District
Trinity River	2022			12	<ul style="list-style-type: none"> • City of Fort Worth • Dallas Water Utility • North Central Texas Council of Governments • North Texas Municipal Water District • Texas A&M University - Agrilife • Texas Advanced Computing Center • Tarrant Regional Water District • The Nature Conservancy • Texas Parks and Wildlife Department • Texas Water Development Board • University of Texas • U.S. Army Corps of Engineers - Fort Worth District

Site	Year Start	Yr. Impl.	Yr. Inc.	No. Orgs.	Outreach List
Wabash River	2022			12	<ul style="list-style-type: none"> • Ball State University • Christopher Burke Engineering • Ecosystem Connections Institute • Indiana Department of Environmental Management • Indiana Department of Natural Resources • Indiana University - Indianapolis • Midwest Biodiversity Institute • Notre Dame University • SamShine Foundation • The Nature Conservancy • U.S. Army Corps of Engineers - Chicago District • U.S. Geological Survey
Minnesota River	2023			2	<ul style="list-style-type: none"> • U.S. Army Corps of Engineers - St. Paul District • U.S. Fish and Wildlife Service
Tombigbee	2023			4	<ul style="list-style-type: none"> • Mississippi Department of Wildlife, Fisheries, and Parks • Mississippi Museum of Natural History • U.S. Army Corps of Engineers - Mobile District • U.S. Fish and Wildlife Service
Alabama River	2023			5	<ul style="list-style-type: none"> • Alabama Department of Environmental Management • General Services Administration - Alabama • The Nature Conservancy • U.S. Army Corps of Engineers - Mobile District • U.S. Fish and Wildlife Service
Black River	2023			12	<ul style="list-style-type: none"> • Arkansas Department of Agriculture - Natural Resource Division • Arkansas Game and Fish Commission • Arkansas Natural Heritage Commission • Arkansas State University • Ducks Unlimited • EnSafe • Missouri Department of Conservation • Missouri Department of Natural Resources • The Nature Conservancy • U.S. Army Corps of Engineers - Little Rock District • U.S. Department of Agriculture • U.S. Fish and Wildlife Service

Appendix B. Reporting Form

Below provides an example of the reporting form design and populated with examples for “Advance” and “Implement” SRP sites.

Field Name	Description	Advance Example	Implement Example
		Input	Input
Reporting Year	Report metrics for each calendar year Jan 01 - Dec 31	2022	2023
Site	Site Name	Cossatot River	Iowa River
Phase	Advance / Implement / Incorporate	Advance	Implement
Infrastructure Type	General Reservoirs / Locks and Dams Dry Dams /Other (describe)	General Reservoirs	General Reservoirs
Action	E-Flows / E-Pools / Physical Habitat Conservation Locking / Other (describe)	E-Flows	E-Flows
# Organizations Contacted	Organizations contacted or invited to meeting, provide input, or participate	11	25
# People	Number (incl. USACE), optional	34	NA
# Organizations Engaged	The organizations involved in SRP that contribute to monitoring and/or analysis of variables.	8	8
List Engaged	List all organizations engaged (incl. USACE)	Arkansas Game and Fish Commission Arkansas Department of Environmental Quality The Nature Conservancy Arkansas Natural Heritage Commission Arkansas Department of Agriculture - Natural Resource Division U.S. Fish and Wildlife Service U.S. Forest Service	City of Coralville City of Iowa City Iowa Soybean Association Johnson County Conservation Board Univ. of Iowa - Iowa Flood Center U.S. Geological Survey The Nature Conservancy U.S. Army Corps of Engineers
# People	Number (incl. USACE), optional	21	68
# Media Pieces	Media pieces = news reels, videos, public radio broadcasting, and articles. Media pieces does not include social media outlets.	0	0
Action - Purpose	See Purposes by Action worksheet	E-Flows (Advance)	Fisheries (Life History Support) Mussels (Life History Support) Water Temp. Management
Monitoring	Yes / No	<i>Advance Sites do not Report on miles or acres until in Implement or Incorporate Phase</i>	No
Amount (number)	Value (number of acres or miles)		56.8
Units	miles / acres		miles
Notes and Comments	Notes and comments that contribute to understanding metrics inputs		Sourced from interview with PDT, AMMP, Workshop Reports