



# *Sustainable Rivers Program*

## Strategic Management Plan 2025-2029



**US Army Corps  
of Engineers®**

The Nature  
Conservancy 

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

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## Introduction

The Sustainable Rivers Program (SRP) works with water managers, operations managers scientists, and other stakeholders to increase the environmental benefits provided by existing infrastructure. SRP is a partnership between the U.S. Army Corps of Engineers (USACE) and The Nature Conservancy (TNC) supported by Memorandums of Understanding between USACE and TNC. SRP efforts complement other reservoir-centric water resource projects by demonstrating that a strategic and science-based approach can be used at USACE water infrastructure to maintain or enhance the benefits those projects provide to the nation. SRP also involves numerous other federal, state, and nongovernmental entities.

Annual funding is used to evaluate environmental strategies for specific USACE reservoirs, apply resulting information to inform project operations, and further hone the implementation process and management practices advanced by SRP. Work is guided by reservoir characteristics including size, level of downstream influence, authorized purposes, operational flexibility, and several other factors.

Funds are used to accomplish programmatic and location-based efforts in accordance with the following SRP principles: 1) Build capacity within water management and operations to implement environmental strategies with little or no direct involvement of SRP resources; 2) engage partners to focus on sustainable management of water and ecosystems; and 3) advance innovative efforts to implement environmental strategies.

This document details Program goals and identifies efforts planned for 2025-2029. Key objectives include: 1) accelerate implementation and incorporation of environmental actions at existing SRP sites, 2) expand SRP geographically, 3) explore new types of environmental actions to achieve sustainable management of water and ecosystems at general reservoirs, and 4) continue to identify SRP opportunities at other infrastructure types. Progress related to these objectives provides a return on investment for the nation by delivering more benefits from built USACE infrastructure, promoting contemporary operations policy, and steering facility operations away from more contentious, costly, and unsustainable paths.

## Background

The goal and mission of SRP is to improve the health and life of rivers by changing operations of USACE water resources infrastructure to restore and protect ecosystems, while maintaining or enhancing delivery of all authorized project purposes.

SRP began in 1998 with an initial collaboration between the USACE Louisville District and TNC's Kentucky Chapter to improve the ecological condition of Green River, Kentucky. The Program was formally established in 2002 and involved 8 river systems. Program funding was first appropriated in FY10 as part of a remaining item entitled National Portfolio for Water Reallocations. Funding from FY10-16 was roughly \$300k per year. In FY17, SRP was spun off as its own remaining item and funding was increased to \$400k per year, FY17-19. In FY20, SRP was appropriated at \$5M and held at that level in FY21 and FY22. In FY23, the program was appropriated \$7M. In FY24, funding was appropriated \$5M. SRP funding is part of the USACE Operations & Maintenance account. USACE program management is performed by the Hydrologic Engineering Center with oversight from chain of command and USACE Headquarters staff including representatives of the Operations; Hydraulics, Hydrology Community of Practice; and Planning and Policy Division.

The number of USACE districts, rivers, and river miles involved in SRP has increased with time and funding (Table 1).

Table 1. Districts, rivers, and river miles engaged in Sustainable Rivers Program at select end of years.

	FY02	FY09	FY19	FY20	FY21	FY22	FY23	FY24
Districts	6	8	14	19	23	24	24	27
Rivers	8	8	16	23	40	44	45	55
River miles	1,114	2,731	5,083	8,082	10,953	12,069	12,183	13,622

Environmental strategies supported by SRP include environmental flows downstream of reservoirs, pool level management for environmental benefits, habitat enhancement, and conservation locking to improve fish passage. Environmental flows were the founding objective of SRP and remain a key focus. Environmental flows are defined as the quantity, timing, and quality of water flows required to sustain ecosystems. For reservoir operators, environmental flows manifest as management decisions that manipulate water and land-water interactions to achieve ecological or environmental goals. The SRP process for environmental strategies has three phases: “advance, implement, and incorporate”. Advancing environmental strategies involves engaging stakeholders in a science-based process to define the ecological needs of aquatic ecosystems. Implementation involves testing the effectiveness and feasibility of the defined strategies. Incorporation involves including environmental strategies in reservoir operations policy such as water control manuals. Incorporation is largely left to the policy update processes of the involved local USACE office. SRP is now the largest scale and most comprehensive program for implementing environmental flows below USACE reservoirs.

The SRP continues to explore other reservoir-oriented actions with potential to produce environmental benefits. As with environmental flows, SRP promotes environmental actions via the “advance, implement, and incorporate” process through a combination of capacity building, technologies, methodologies, and experience. Program outcomes follow: 1) deliver more benefits from existing USACE infrastructure, 2) formulate alternative management strategies for rivers and ecosystems associated with USACE infrastructure, and 3) modernize strategies for operating purposes related to the environment at USACE infrastructure,

*Retrospective: FY2020-2024*

FY20-24 was a period marked by rapid growth and expansion of the program. SRP more than tripled the number of rivers enrolled in the program, increased river miles from 5,083 to 13,622, and nearly doubled the number of districts engaged (Table 1).

This growth was attributed to several factors. First, SRP continued to refine its formula for success, relying on the phased advance, implement, and incorporate process and engaging teams and partners to identify environmental opportunities and examining their feasibility. This formula also includes the utilization of proven Hydrologic Engineering Center (HEC) software tools such as the Regime Prescription Tool (HEC-RPT) and the Ecosystem Functions Model (HEC-EFM) to help location-based teams analyze, depict, and communicate environmental opportunities. Second, SRP’s financial resources grew exponentially, from \$400,000 in FY19 to an average of \$5.4 million annually during the FY20-24 period. More funding enabled more districts to participate in SRP. Third, the SRP Program Team organized a

series of regional operations and water management meetings to explore environmental opportunities at USACE water resources infrastructure; these meetings, which took place from FY19-24, directly led to engagement of USACE divisions and districts in SRP.

During FY20-24, demand for SRP funding and technical assistance continues to outpace available funding. Many teams see SRP as a unique opportunity to convene colleagues to explore environmental strategies, while remaining true to authorized mission and purposes.

Table 2. Requests for SRP location-based funding compared with actual funding provided.

	FY20	FY21	FY22	FY23	FY24
Amount of SRP funding requested for location-based work	\$4.7M	\$5.6M	\$7.4M	\$6.2M	\$6.4M
SRP funding provided for location-based work	\$2.4M	\$3.1M	\$3.0M	\$4.2M	\$3.0M
Percentage of requested funds provided	51%	55%	41%	68%	47%

The FY20-FY24 period also saw numerous SRP sites transition from the advance phase of the program to implementation and incorporation of environmental strategies into formal operational guidance. Through FY19, 10 sites had achieved implement or incorporate status -- five in implement and five in incorporate. Through FY24, 21 sites had achieved implement or incorporate status -- 14 in implement and seven in incorporate. This is an important measure of success, as it demonstrates that location-based teams are moving from discussion of environmental opportunities to actual operational changes designed to generate additional benefits from USACE infrastructure.

Pool level management for environmental benefits (e-pools) expanded as an action supported by SRP. This was due in part to SRP’s work at locks and dams. Several lock and dam sites are now implementing environmental pool management as a means of enhancing wetland areas in reservoir pools. Slight drawdowns of reservoir levels during growing seasons have been done to stimulate the growth and establishment of emergent wetland vegetation, which provides forage for waterfowl and shorebirds and aquatic habitat for fish and wildlife. It also serves to buffer wave action and reduce erosion of banks. From FY20-24, SRP helped six sites implement actions related to e-pools, with several others in the “advance” phase of the program examining potential applications.

Transferability of lessons and best practices is an overarching goal of SRP. To that end, SRP invested new resources bolstering its website with educational materials and informational resources (<https://www.hec.usace.army.mil/sustainableivers/>). The website includes links to videos of SRP projects, software tools, training programs for USACE staff and partners, and publications and reports from location-based teams. New SRP teams looking for ideas and templates can download examples from stakeholder workshops, environmental flow workshops, and software analyses.

SRP is also looking to tell a more detailed story about the impacts of the more than 50 SRP sites across the country. With that goal in mind, SRP invested in development of a new Metrics effort to evaluate SRP impact and effectiveness at improving the health of river systems. The new Metrics program has developed consistent methods for tracking impacts and is working closely with location-based teams to compile information. SRP Metrics are reported annually in In Progress Review documents.

SRP’s growth in impact and resources has raised SRP’s profile and spurred interest in the program. In FY23, a new SRP Steering Committee was chartered to provide review and recommendations for delivering SRP consistent with USACE and TNC goals. The Steering Committee ensures all project-authorized purposes are evaluated, evaluates SRP’s capacity for program and project delivery, reviews annual funding and resourcing, assures collaboration within USACE, reviews and approves annual In Progress Review reports, and evaluates and adjusts criteria for evaluation of SRP proposals.

**Sustainable Rivers Program – Categories: Types of Structures and Types of Tasks**

Program work is organized per type of structure and type of task (with all task categories applicable to each structure type). This approach is used to highlight different components of the Sustainable Rivers Program and as a framework for organizing and communicating efforts.

*Type of Structure*

USACE is involved with a diverse portfolio of water resources infrastructure. A national survey completed in 2013 identified 465 reservoirs with federally authorized flood storage. Most (356) are owned and operated by USACE. The rest (109) are owned and operated by other entities and are often referred to as “Section 7” projects in reference to the section of the Flood Control Act of 1944 which authorized USACE to prescribe regulations for use of this flood storage.

Flood risk management reservoirs can be separated based on size and use. “Dry dams” are typically smaller and more single-purpose than other surveyed reservoirs. Most were constructed solely for flood risk management and release water passively, storing water only when inflows exceed the physical capacity of always open outlets. “General” reservoirs are typically larger and multipurpose, with active operations involving flood and conservation pools.

The 2013 survey did not consider water control structures without dedicated flood storage, which excluded “lock and dam” reservoirs and “other” water control structures such as bifurcations, diversions, reregulation reservoirs, detention ponds, and pump stations. A report entitled Authorized and Operating Purposes of Corps of Engineers Reservoirs (Hydrologic Engineering Center, Project Report 19, 1992, revised 1994) lists an additional 181 USACE reservoirs, most of which are navigation-oriented locks and dams. The report also references hundreds of “other” structures, most of which are grouped as parts of projects. For example, the Central and South Florida Project includes hundreds of water control structures. Table 2 lists counts for different types of structures.

Table 2. Classifications and associated characteristics of infrastructure.

Category*	Number of Reservoirs		
	All	USACE Owned	Section 7
All (Flood space)	465	356	109
General	414	312	102
Dry dam	51	44	7
Locks and dams	192	192	0
Other structures	~300	~300	0
Total	~957	~848	109

\*Reservoirs with federally authorized flood storage highlighted in green

## *Type of Task*

SRP uses the following task categories to provide a framework for organizing the type of work and strategies used at SRP sites, communicating successes of those accomplishments, and, ultimately, for making and justifying decisions on how to allocate funds from the national account to location-based teams.

**Outreach.** Working with partners and disseminating SRP success stories and experiences are fundamental to advancing the Program. This category encompasses all forms of communications and networking and has connections with each of the other categories. Accomplishments in this category include exposure through published and broadcast media. Also of importance are organizing and participating in events to promote SRP, including activities to educate senior leaders of organizations involved in SRP.

**Science.** From a purely ecological perspective, success of SRP is a function of improvements in river health, which are therefore of key importance to gage and difficult to measure due to uncertainties in ecological understanding, changing influences of water management, and lag time before ecological responses are measurable. Important efforts in this category include work to improve the understanding of existing ecological and socio-economic conditions at project sites, define or refine environmental flow needs, and develop monitoring plans for SRP sites.

**Technology.** SRP efforts at several sites have benefitted from decision support tools developed to test and communicate different hydrologic, reservoir operations, hydraulic, and ecologic scenarios. These tools include software like HEC-RPT and HEC-EFM. SRP sites have demonstrated a technical path to support reoperation studies, incorporate scientific understanding, and inform real-time decision making. Work in this category includes preparation of technical data sets to support decision-making and science, development of ecological technologies to improve their applicability to SRP actions, and application of ecological technologies as components of decision support systems that involve engineering and socio-economic concerns.

**Implementation.** All SRP sites in the Implement or Incorporate phase have made some modification to reservoir outflows or pool levels in accordance with environmental strategies. Many of these modifications were undertaken as test implementations and experimental releases or pool level adjustments. All efforts in this category should contribute to the advancement of environmental strategies from experimental implementation to inclusion in formal operating policies of involved structures.

**Innovation.** The first four categories were designed mainly to describe typical efforts and successes of project sites, but the methods and challenges related to SRP are certainly not wholly defined and never will be. This category is included in recognition that SRP must continue to explore new strategies where new ideas can be vetted and funded, tested, and used for the benefit of all SRP sites.

## **Sustainable Rivers Program – Program Management: FY2025-2029<sup>i</sup>**

As in previous years, SRP funds will be used to accomplish a combination of programmatic and location-based work in accordance with the following principles: 1) build capacity within the water management community to implement environmental strategies with little or no direct involvement of SRP resources;

2) engage partners to focus on sustainable management of water and ecosystems; and 3) advance innovative efforts to implement environmental strategies.

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. The two are complementary with each generating new ideas, honing SRP methods, and demonstrating the benefits of environmental actions.

Ideas for programmatic work originate from and are shaped by several influences. Ideas are refined by staff involved with SRP programmatic support and initiated as Program capacity allows. Regional and national SRP meetings, other USACE programs, strategic directions of SRP's governmental and non-governmental partners, and especially interactions with and commonalities amongst location-based teams are important sources.

Ideas for location-based work are invited via requests for proposals (RFP). For the last five years, SRP has convened USACE Divisions at regional meetings designed to explore options for environmental strategies within Divisions and Districts. Oftentimes, conversations between Districts and Divisions spark ideas for new location-based work or applications of existing approaches at new sites. Ideas for programmatic work have also come from SRP's governmental and non-governmental partners.

Proposal review is led and managed by SRP program representatives with input from USACE Headquarters staff, including representatives of Operations and Planning and Policy Division.

Ideas for location-based work are invited via requests for proposals (RFP). The RFPs describe the type of location-based work of interest to the program. Recipients are encouraged to propose work and to share the RFP with others who may be interested in SRP. Proposal review is led and managed by SRP program representatives with input from USACE Headquarters staff, including representatives of Operations and Planning and Policy Division. For past RFPs, proposals have been prioritized based on the following criteria: 1) assist site advancement, 2) expand geographically, 3) broaden types of environmental actions, 4) adapt methods to other infrastructure, 5) express benefits of implementation, 6) transferability, 7) special topics, and 8) past performance. Leveraged funds are also considered. Generally there is one RFP per year and the cycle is repeated annually.

SRP budgets for future years are unknown. For planning purposes, anticipated funding levels are assumed to be equal to FY24 and constant over the period of the management plan. However, two safeties are in place to mitigate impacts if future year funding is reduced: location-based work is funded annually with no promise of future year support and tasks are scoped such that each year produces deliverables with stand-alone value, even when part of multi-year efforts. Future year funding increases, if any, will be distributed proportionally between programmatic and location-based work.

An overview of programmatic and location-based work is provided below.

### *Programmatic*

Programmatic work planned for 2025-2029 is comprised mainly of program support, technologies, and validation of environmental strategies. Program support includes costs to administer and manage the Program, engage partners, build capacity, assist and mentor location-based efforts, track metrics, and

coordinate with related USACE efforts. Technologies includes investments in ecological software applied broadly within SRP as well as technical support for software applications led by location-based teams. Validation of environmental strategies includes science-based efforts designed to justify and communicate benefits of infrastructure reoperations. Between 4-5 new or continuations of ongoing programmatic efforts per year are expected, 2025-2029.

Program Support. As a program with more than 50 sites and an anticipated annual budget of \$5 million (based on FY24), SRP needs to continue to invest in Program Support activities, including:

- 1) Administration and management -- Program administration is performed by a team of SRP representatives from the Hydrologic Engineering Center, the Institute for Water Resources, and the Modeling, Mapping, and Consequences Center. The team also includes USACE staff from Districts who help support and manage SRP. The team is responsible for advancing programmatic work such as development of national informational resources, organization of regional and national meetings, and support for location-based work, including management of RFPs, scope development, and initiation and assistance of location-based efforts. Intergovernmental Personnel Act agreements have also been used to extend team capacity and involve partners. Administrative costs are detailed annually in the In-Progress Review.
- 2) Engaging partners -- SRP works relies on partnerships to leverage the skills and expertise of external organizations to meet program principles and objectives, and, ideally, to help partners achieve like-minded goals. Program Support funding enables SRP to work closely with state agencies, NGOs, academic institutions, and federal agencies such as U.S. Geological Survey. These partners add value by helping monitor system impacts of operational changes, identifying new SRP projects, and sharing their knowledge about environmental flow needs of species or natural communities. In 2023, SRP teams contacted more than 200 organizations, and more than 100 organizations directly engaged in SRP activities.
- 3) Capacity building -- A key SRP principle is to build capacity within the USACE water management and operations community to implement environmental strategies with little or no direct involvement of SRP resources. Information sharing via SRP websites and supporting venues that consider environmental actions at rivers and reservoirs are two examples of Program Support activities for capacity building.
- 4) Assistance and mentoring for location-based efforts -- SRP teams are as diverse as the rivers they manage. Some location-based teams, especially those new to SRP, require assistance in working through the advance, implement, and incorporate process. Program Support helps these teams track resources, develop workshop agendas, engage stakeholders, organize and report the results of workshops, and apply HEC software tools such as HEC-RPT and HEC-EFM. The Program Team offers these services to all teams enrolled in SRP. This combination of mentoring and assistance is a key way that program support helps teams achieve their goals. And tracking of financial status and planned deliverables is key to ensuring that teams succeed.
- 5) Metrics -- Program Support funds are used to maintain a set of informational metrics about SRP. Metrics are tracked for each site engaged in SRP and cover a range of attributes from stakeholder engagement to environmental action and status. Metrics are disseminated in two ways. First, a comprehensive metrics report details methods, definitions, and routines of SRP metrics. Second, annual

results are included in SRP In Progress Reviews. Metrics are critical to tracking SRP's impacts and communicating progress.

6) Coordination with other USACE efforts – SRP interfaces with several USACE communities of practice, programs, and business lines. Program Support enables SRP to proactively work with these teams to share information about SRP processes and projects and leverage support and services for location-based and program-level work.

Technologies. Technologies work planned for 2025-2029 is comprised mainly of ecological software development, applications of those ecological software, and applications of technical datasets to investigate topics of interest to SRP at the program level. Several ecological software are used by SRP teams during the advance, implement, and incorporate process. The Regime Prescription Tool (HEC-RPT) contributes in the early stages of planning by formalizing ideas and expert knowledge into water and ecosystem management alternatives that are easily visualized and considered in group settings. The Indicators of Hydrologic Alteration and the Ecosystem Functions Model (HEC-EFM and HEC-EFM Plotter) are used by SRP teams to perform ecological time series analyses that assess hydrological and ecological status and trends, explore alternatives that are not easily implemented and monitored in real-world operations, and measure implementation of environmental operations. HEC-GeoEFM and HEC-EFM Mapper work with EFM to assess habitat quantity, quality, and functionality. Habitat assessments are less common than and often lag time series analyses and alternative formulation in the SRP process, but the approach provides useful information about ecosystem restoration and management, informs development of alternatives, and is a valuable and visual way to communicate ecological benefits of operational changes.

SRP is also supporting (in part) a new software platform that applies spatial and temporal data to simulate ecological dynamics. It is primarily used to simulate ecological populations and is called HEC-EFMSim. Collectively, these software support teams navigating the “advance, implement and incorporate” process by helping to formulate (HEC-RPT) and assess effects (IHA, HEC-EFM, HEC-EFM Plotter, HEC-EFM Mapper, and HEC-EFMSim) of operational alternatives. A number of specific software enhancements are anticipated during the 2025-2029 management cycle<sup>ii</sup>.

Validation. Through “validation”, SRP is working to improve scientific understanding of connections between reservoir operations and ecosystem responses for select rivers in unique ecoregions around the United States, thereby enhancing SRP's ability to communicate program impact and share best management practices. Validation work is organized regionally to encourage transferability of results from individual infrastructure projects to other infrastructure with similar hydrology, landscape configuration, and water management. Environmental opportunities and scientific needs also trend regionally, as considerations focus on shared ecological community types, flyways, and habitats.

As it can involve particular rivers and infrastructure, Validation work can have overlap with location-based efforts. Validation work is intended to be complementary with a focus on understanding, quantifying, and communicating longer-term ecological trends and trajectories, whereas location-based work is generally focused on navigating the advance, implement and incorporate process as quickly as possible to accelerate the flow of added ecological benefits.

From FY 20-25, validation investments focused on four regions: Pacific Northwest, Appalachians, Atlantic Coastal Plain, and Midwest. In FY25-29, validation investments will focus on developing regional

themes, promoting synergies among sites, and communicating best practices and lessons learned. The overall goal for validation will remain the same: To improve understanding of relationships between water management and ecosystems and facilitate the transfer of that knowledge among sites.

### *Location-Based*

SRP identifies and executes location-based work annually via the following process: 1) revisit program objectives and topics of interest, 2) highlight objectives and topics as part of a RFP, 3) compile and prioritize proposals submitted, 4) scope priority tasks, 5) arrange funding and other logistics, and 6) perform work.

Proposals are prioritized based on the following criteria: 1) site advancement, 2) expand geographically, 3) broaden types of environmental actions, 4) adapt methods to other infrastructure, 5) express benefits of implementation, 6) transferability, 7) special topics, and 8) past performance. Leveraged contributions are also considered.

As described above, ideas for location-based work are invited via requests for proposals (RFP). During the FY25-29 cycle, one request for location-based work proposals (for all structure types) is planned per year.

RFPs are distributed to structure type-specific listservs comprised of USACE staff that are active in SRP, have expressed interest in the Program, or were identified as being strategically important to one or more structure categories. Proposals submitted are reviewed and prioritized by USACE staff involved with Sustainable River programmatic efforts and the USACE Headquarters – Operations designee, and Senior Policy Advisor – Policy and Planning. Between 40 and 50 new or continuations of ongoing location-based efforts per year are expected 2025-2029.

Each RFP includes an articulation of strategic objectives and special topics. Strategic objectives identify the program directions that location-based efforts are encouraged to align with and thereby promote. Special topics are themes that SRP sees as having potential across multiple sites, which location-based efforts are therefore encouraged to explore. Special topics, and to a lesser degree objectives, are adapted annually to best align with program, partner, USACE, and administration priorities. The SRP Program Team will continue to develop strategic objectives and special topics in concert with the Steering Committee.

SRP expects continued interest in SRP from Districts and Divisions and will continue to identify or develop datasets that can be applied to help guide location-based work. For examples, there are three national datasets recently completed or in development that have potential to help guide location-based work: a national dataset about ecological resilience that focuses on connectivity in river systems, a dataset about environmental opportunities at locks and dams, and identification of actionable environmental ideas at USACE water resources infrastructure via a series of regional meeting reports.

[General](#). Per number of facilities, “general” reservoirs are the largest structure type SRP is involved with. Management of these 414 reservoirs directly involves 33 USACE offices. Since 2015, SRP has invested in geographic information system (GIS) resources related to reservoirs with federally authorized flood space. Results from these efforts now underpin the fundamental metrics SRP uses to communicate Program status and growth and are routinely used during presentations about SRP. In

2025-2029, SRP - General work is expected to emphasize execution of pertinent RFPs per the objectives and special topics of each RFP.

[Locks and Dams](#). The next largest structural category is locks and dams with 237 lock chambers at 192 lock and dam sites that USACE owns around the country. Management practices for locks and dams vary across USACE Divisions and Districts. Many factors go into lock and dam operations, such as physical location and the desire to minimize federal land purchase or flood easements. Flows are generally managed in accordance with target water elevations needed for a nine-foot navigation channel (Inland Navigation) that are specified at a single geographic location or at a series of locations as a function of flow. Target elevations are important factors when considering the operational flexibility at a lock and dam structure and are often communicated as an operable band (i.e., a range of pool elevations that support navigation). Since these dams do not provide flood risk management, gates are generally open during high flow events creating a semi-connected river system. This allows occasional improved fish passage for some species though the timing of gate openings amongst different structures in the same system does not necessarily coincide, which limits environmental benefits. Management of pool elevations within the operable band has been done for environmental purposes, especially to promote desired ecosystem responses in areas associated with shorelines, shallow water habitats, and exposed substrates.

To date, there has been limited implementation of environmental strategies at locks and dams. Most of the work relates to conservation locking of migratory fish species and managing water levels in the pools behind the dams to create improved conditions for shorebirds, waterfowl, and emergent wetland vegetation. The goal of SRP - Locks and Dams is to increase the locations where ecological flows and pool management actions are implemented using existing flexibility of lock and dam operations and to investigate new opportunities to improve ecological outcomes through lock and dam operations. From FY25-29, SRP – Locks and Dams work will emphasize execution of pertinent RFPs and development of informational resources about the USACE portfolio of locks and dams.

[Dry Dams](#). There are 51 USACE-affiliated dry dams across the nation, including 44 that are owned and operated by USACE (Table 2). Dry dams are reservoirs that typically do not have a water conservation pool and release water passively, storing water only when inflows exceed the physical capacity of always open outlets. Most USACE dry dams are single-purpose flood risk management reservoirs, although some are also authorized for other purposes, including recreation, fish and wildlife, sediment management, and water conservation.

SRP funding can be used to support planning activities related to wetland improvements, stream restoration and habitat diversification, management of invasive vegetation, creation of ponds, creation of vernal pools, planting and seeding native vegetation, etc. at dry dams. Implementation and construction of these activities can occur in concert with other USACE programs and authorities, either through the Environmental Stewardship program business line or in concert with a cost-share partner.

## Budget Summary

Table 3 provides planned (FY25-FY29) program allocations. SRP budgets for future years are unknown. For planning purposes, anticipated funding levels are assumed to be equal to FY24 and constant over the period of the management plan.

Table 3. Planned Sustainable Rivers Program allocations, FY25-29.

Component	Year(s)	Planned Program Allocations	
		% of budget	\$M
Programmatic		40%	2.0
- Program support		20%	1.0
- Technologies		10%	0.5
- Validation		10%	0.5
Location-based		60%	3.0
- General		50%	2.5
- Locks and dams		10%	0.5
Total		100%	5.0

Historically, SRP carryover funds have been comprised almost entirely of unexpended labor for location-based work and unobligated funds for non-labor actions, including contracts, Intergovernmental Personnel Act agreements, MIPRs for federal partners, and other repositioned funds. Importantly, these funds, though unexpended, are committed to a specific purpose. SRP works with receiving entities to assure that funds are executed per planned expenditure schedules or as efficiently as possible to minimize carryover.

## Conclusion

The Sustainable Rivers Program continues to identify opportunities to achieve its intended goals, while maintaining or enhancing delivery of all authorized project purposes. Additional funds have allowed SRP to more openly pursue and support engagement with new rivers, accelerate development of technologies used by location-based teams for environmental decision support, and validate the effectiveness of environmental strategies implemented at USACE water infrastructure projects.

This management plan details Program strategies for FY25-FY29. Key objectives include: 1) accelerate implementation and incorporation of environmental actions at existing SRP sites, 2) expand SRP geographically, 3) explore new types of environmental actions to achieve sustainable management of water and ecosystems at general reservoirs, and 4) continue to identify SRP opportunities at other infrastructure types.

Progress related to these objectives provide a return on investment for the nation by delivering more benefits from built USACE infrastructure, promoting contemporary operations policy, and engaging USACE stakeholders in decisions about water management and operation of infrastructure.

Even with recent Program expansion, most of SRP's potential remains available. The 13,622 river miles engaged with SRP (Table 1) is both notable and a modest fraction of the more than 52,860 river miles the USACE is involved with.

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<sup>i</sup> Program strategies are detailed herein and in previous management plans (formerly called Program Management Plans). Program accomplishments, metrics, budget allocations, and work updates are detailed in In Progress Review reports. All documents are available at <https://www.hec.usace.army.mil/sustainableivers/publications/>.

<sup>ii</sup> Software enhancements planned during the 2025-2029 management cycle:

- RPT - Inclusion of photos, images, and videos to guide defining of ecological strategies
- RPT - Flexible labels to allow user-customization of interfaces
- RPT - Improved user-control of projected software image
- RPT - Optimization of processing speeds for more efficient application in group settings
- EFM - Wizards for flow regime and relationship creation
- EFM - Event counts for baseline assessments and tracking implementation
- EFM - Multi-threading to enhance processing speeds for applications in group settings
- EFM - Inclusion of prefabricated relationships
- EFM - Inclusion of an IHA set of statistics
- EFM Plotter - Display of EFM event counts output
- EFM Plotter - Display of an IHA set of statistics output
- EFM Plotter - Synchronization with EFM
- GeoEFM - Habitat functionality with the nearest neighbor algorithm
- GeoEFM - Spatial statistics capabilities
- GeoEFM - Life stage habitats with consideration of proximity
- EFM Mapper - Identification of nest sites
- EFM Mapper - Identification of individual community members supported
- EFM Mapper - Defining patches with multiple variables
- EFM Mapper - Spatial indices
- EFM Mapper - Spatial alternative comparisons
- EFMSim - Visualizations of stress plots
- EFMSim - Visualizations of area plots
- EFMSim - Memory caching for large-scale applications
- EFMSim - User-controlled rule order
- EFMSim - Importers
- EFMSim - Application of period average data processing at compute time
- EFMSim - Enhanced growth capabilities
- EFMSim - Enhanced transitions related to stress
- EFMSim - Habitat animations
- EFMSim - Seasonality resets
- EFMSim - Stored parameters for simulated communities
- EFMSim - Sensitivity enhancements