SMP Peer Learning Network Bridge Funding

Final Report

Prepared for:
Colorado Watershed Restoration Program
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river NETWORK
connecting people saving rivers

Grant Amount: $35,147
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1) Introduction & Background

This CWCB grant provided funding for River Network's work to support more and better Stream Management Plans in Colorado, including the Peer Learning Network, the SMP Resource Library and tracking of outcomes from the SMP program. Specifically, this grant provided "bridge" funding to maintain momentum from Fall 2021-Summer 2022, when a subsequent Watershed Restoration Program grant will support the work.

Project Objectives:

Objective 1: Demonstrate effectiveness of SMPs and grant funding. (Task 1)
Objective 2: Create positive energy around SMPs. (Task 1)
Objective 3: Support an effective and connected network of coalitions that are interested, ready and capable of undertaking SMPs. (Task 2)
Objective 4: Increase the currently small number of SMPs that are using innovative practices to improve the state of practice and considering the context of larger state policy discussions. (Task 2)
Objective 5: Continue momentum by ensuring SMP applications are submitted to CWCB each year. (Task 3)

2) Results by Task

Task 1 –Document and Share SMP Best Practices

Document SMP approaches and lessons learned

River Network interviewed SMP leads and conducted research via websites and planning documents to augment content on www.coloradosmp.org. The team compiled examples and best practices in planning approaches, project innovation and status updates for many SMP processes. Specific content updates/additions include:

- Development of a new web page highlighting the intersection of forest planning and SMPs, providing insight into the potential connections between these processes for SMP leads to consider. Much of the content for this page was derived from a peer-learning call that featured Chris Sturm, who highlighted the state's Wildfire Ready Watersheds initiative, and a team of people from the Upper San Juan Watershed Enhancement Program, Mandy Eskelson, Aaron Kimple and Seth Mason. Examples of how forest health was considered in planning were also provided by the St. Vrain Left Hand SMP and Left Hand Watershed Center.
- Development of a new web page which provides an overview of how fluvial hazard zone mapping can complement an SMP process. Considering FHZ mapping can provide

decision makers with useful information on the past, present and future information on hazards in the stream corridor, influencing river planning decisions over time.

- Addition of five innovative projects and two unique approach examples on the Implement Priority Actions web page. SMPs that contributed to this page include the Middle Colorado, Yampa, Upper Colorado, Conejos and Upper San Juan rivers.

Track SMP Outcomes

River Network provided ongoing support to CWCB staff as part of a process to transfer SMP outcome tracking and monitoring from the River Network team to CWCB. Support of this transition included:

- Working with 9 SMP/IWMPs alongside CWCB to update their information in the outcome tracking database.
- Participating in meetings with 2 new SMP/IWMP groups and CWCB as they complete their initial Outcome Tracking Tool entries and identifying additional grantees who are ready to enter their information into the database.
- Drafting language for CWCB to use as they inform 2021/2022 grantees that they will be requiring them to populate the Outcome Tracking Tool when they submit their final reports.
- Creating an updated master database and working with CWCB to standardize the new database and generate updated summary statistics.

Share Success Stories

River Network conducted a variety of outreach to ensure continued interest in SMPs, as well as share how CWCB grant funding is making a difference. Funds from this grant supported a specific outreach effort to the nine Basin Roundtables, statewide conservation NGOs and key state agencies so they are knowledgeable about the successes to date, and create ideas for supporting the SMP program moving forward.

River Network contacted all nine basin roundtables to gauge their interest in a presentation on the 5-Year memo:

- **Arkansas:** Presented to the full BRT in March 2022 with representatives from the Purgatoire and Upper Arkansas SMPs.
- **Colorado:** Presented to the full BRT in March 2022 with representatives from the Upper Colorado, Blue River, Eagle River, Roaring Fork, Crystal, Middle Colorado SMPs and the new Grand Valley Corridor Project.

- **Gunnison:** was not able to find a BRT meeting date
- **Metro:** Presented to the full Metro BRT in June 2022, along with representatives from the South Boulder Creek, Clear Creek and West Plum Creek SMPs.
- **North Platte:** was not interested in a presentation since there are no SMP efforts in the basin
- **Rio Grande:** was not interested in a presentation since the BRT is up to speed on all SMP efforts in the basin
- **South Platte:** Presented to the combined Metro/SP Env & Rec committee in April 2022. Presenting to the full Basin Roundtable, along with representatives from the Poudre, South Boulder Creek, Republican and St. Vrain SMPs in August 2022.
- **Southwest:** Presenting to the full BRT in July 2022
- **Yampa, White, Green:** presented to the full BRT as part of regular updates on the Yampa and White IWMPs in May 2022.

River Network also gave presentations on the findings at the 2021 Sustaining Colorado Watersheds Conference, the 2022 River's Edge West Riparian Restoration conference, the 2021 Colorado Basin Environmental Flows workshop, the 2021 CMU Water Center annual conference and on a SMP Peer Learning Network call. Blog posts were written for the Colorado Riparian Association and Colorado Water Conservation Board's monthly e-newsletters.

Task 2 – Peer Learning Network Activities

Peer Learning Network (PLN) accomplishments spanned from ongoing engagement of those who have been involved in the PLN over time, and the inclusion of new 2022 SMP leads.

1. West Plum Creek and the Animas River SMPs added to the map on coloradosmp.org.
2. Fact sheets updated/added for 30 SMPs to provide a succinct summary of the overall approach of the planning process and outcomes, an indication of their planning phase, contact information, and budget overview.
3. Two peer calls were held on February 3 and April 14, 2022 with topics including R2Cross training and the intersection of forest health and SMPs, respectively. Approximately 25 people attended each call. Evaluation results were positive reflecting the relevancy of the topics and the ability for the River Network team to help participants achieve the outcome of developing peer relationships with other SMP leads. Presentation recordings, slides and notes are posted on the Community and Learning page at www.coloradosmp.org.
4. River Network pivoted from producing Ask A Practitioner videos based on low use/response from the PLN on the value of these recordings as compared with the effort required to produce the recordings. PLN participants are much more apt to attend a peer call or workshop where they can both learn a technical topic and simultaneously

engage with their peers and presenters. The Ask a Practitioner videos lacked the relationship-building component. As an alternative to the Ask a Practitioner video highlighting flow recommendations, River Network posted the flow target recommendations workshop from the October Sustaining Watersheds Conference on the website, and hosted a peer learning call in February on the topic, and has made a conscious effort to bring in lessons learned and examples to the PLN's Online Community forum.

Task 3 – Support Strategic Development of SMPs

River Network collaborated with CWCB to host two facilitated workshops that included:

- AJ Keith, Stillwater Sciences
- Chris Sturm, Colorado Water Conservation Board
- Drew Peternell, Trout Unlimited
- Hattie Johnson, American Whitewater
- Kate Ryan, Colorado Water Trust
- Kim Lennberg, Alba Watershed Consulting
- Laura Belanger, Western Resources Advocates
- Nicole Seltzer, River Network
- Nancy Smith and Diana Lane, The Nature Conservancy
- Peter Skidmore, Walton Family Foundation
- Rob Viehl, Colorado Water Conservation Board
- Russ Sands, Colorado Water Conservation Board
- Seth Mason, Lotic Hydrological
- Stacy Beaugh, Strategic By Nature, Inc.
- Tamara Allen, Colorado Department of Public Health and Environment

Slides and notes from the workshops are available here:

Meeting 1	Meeting 2
Slides	Slides
Notes	Notes

Outcomes of the workshops included developing a method to prioritize potential locations of new SMPs and completing an opportunities assessment for realizing flow recommendations in SMPs.

Prioritization of new SMPs

A draft white paper (Attachment A) outlining workshop findings and next steps for prioritization of SMPs was submitted to CWCB. The white paper summarizes discussion and recommendations from the workshops, including:

1) Is Prioritization a Priority?
2) Who should carry out prioritization?
3) What are the key features of a prioritization method?

Attendees agreed that a prioritization method was needed, Opinions were split as to whether the prioritization should be top-down (i.e. completed by the State of Colorado) or bottom-up (i.e. completed by a local coalition wanting to know where to start). The attendees settled on a flexible, multi-entity approach that combines State guidance/prodding and local implementation.

Desired features of a prioritization framework included: a flexible method to get groups started, not a complex assessment tool; it should accommodate a variety of resource concerns and should guide coalitions to the most appropriate type of planning process which may be an SMP, an IWMP, a non-point source plan, a forest health plan, a hazard mitigation plan, etc.; it should include an assessment of the capacity to engage in meaningful planning and enact recommended projects or strategies.

River Network drafted a prioritization framework that explores how to guide prioritization. It will need subsequent refinement and piloting to ensure its efficient and effective. River Network plans to continue working with CWCB and key NGO partners such as American Rivers and Audubon Rockies to refine it. Piloting it in 2-3 locations with different resource concerns could test the concept and its effectiveness. Before that piloting can be accomplished, however, Steps 2b (develop a guide for datasets) and 2c (develop condition ranges to help give context to the data) must be completed.

Overcoming barriers to including flow target recommendations

A draft opportunities analysis (Attachment B) for realizing flow recommendations in SMPs was submitted to CWCB. The assessment was informed by the workshops, with additional practitioner interviews and River Network's experience being brought to the table.

The contents of the assessment included a clarification of the nuances and terminology of the flow recommendations process (flow needs vs. flow recommendations), how that process aligns with the SMP grant guidance, discussion of barriers to flow recommendations, and opportunities for enhancing the potential of an SMP to get to a flow recommendation. The report concludes with specific action items that CWCB, River Network and other NGOs such as the Colorado Water Trust can conduct to further support the outcome of increased frequency of SMPs producing a flow recommendation.

As a next step, River Network will work to coordinate with CWCB and others named to pursue the action items identified in the report.

Task 4 – Project Oversight

River Network held regular meetings of the project team to coordinate on tasks and provided financial management.

3) Actual Expense Budget

Task	Description	Total Budget/Grant Funds	Actual Expenses	Over/Under Budget
1	Document and Share SMP Best Practices	$ 11,980	$ 12,557	$ (577)
2	Peer Learning Network Activities	$ 3,040	$ 6,089	$ (3,049)
3	Support Strategic Development of SMP's	$ 12,778	$ 10,303	$ 2,475
4	Project Oversight	$ 3,200	$ 4,010	$ (810)
5	Direct Costs	$ 4,149	$ 2,189	$ 1,960
	TOTALS	$ 35,147	$ 35,147	$ -

ATTACHMENT A

Setting priorities for stream health planning in CO

July 2022

1. Background & Purpose

Colorado's 2015 Water Plan sets a measurable objective to cover 80 percent of the locally prioritized lists of rivers with stream management plans by 2030. This goal is difficult to measure because the Colorado Water Conservation Board (CWCB) did not create a method to prioritize streams at a local level, not establishing a baseline to measure progress. The memo *Stream Management Plans in Colorado: Progress at Five Years* recommended that the State of Colorado develop a standardized way to prioritize stream management plan (SMP) locations across the state or by Basin. To assist with this recommendation, CWCB provided grant funding to River Network (RN) to develop a methodology to prioritize locations of new SMPs through workshops with statewide non-governmental organizations (NGOs), environment (Env) & recreation (Rec) basin roundtable (BRT) representatives and state agency staff from Colorado Parks and Wildlife (CPW) and CWCB.

RN held two workshops in 2022 focused on these primary questions related to prioritization:

1) Is prioritization a priority?
2) Who should carry out prioritization?
3) What are the key features of a prioritization method?

Participants included:

AJ Keith, Stillwater Sciences
Chris Sturm, CWCB
Drew Peternell, Trout Unlimited
Hattie Johnson, American Whitewater
Kate Ryan, Colorado Water Trust
Kim Lennberg, Alba Watershed Consulting
Laura Belanger, Western Resources Advocates
Nicole Seltzer, River Network
Nancy Smith and Diana Lane, The Nature Conservancy
Peter Skidmore, Walton Family Foundation
Rob Viehl, Colorado Water Conservation Board
Russ Sands, Colorado Water Conservation Board
Seth Mason, Lotic Hydrological
Stacy Beaugh, Strategic By Nature, Inc.
Tamara Allen, Colorado Department of Public Health and Environment

1.1. Is Prioritization a Priority?

Workshop participants were asked, first, to reflect on whether a prioritization methodology is needed. **Participants agreed that a prioritization method was needed**, for the following reasons:

- Targeting river reaches that would result in conservation outcomes, versus places where there is a "coalition of the willing" will help engage people in high value locations.

- Setting priorities may give coalitions a clear reason to pursue an SMP and provides funding agencies a way to prioritize grants.

- Without a consistent way to prioritize locations of new SMPs, it is impossible to meet the original goal in the Water Plan (though that goal was changed in the updated Plan, so this reason is less relevant today).

Reflections from Workshop Participants

"…without a way to screen rivers as a high priority, we may be missing the locations where an SMP may be the most impactful."

"If there is no method to prioritize streams, it is impossible to measure whether CO is meeting the goal of having SMPs on 80% of priorities."

"Having a prioritized list would spur watershed coalitions and other project proponents into action and would likely help engage stakeholders."

1.2. Who should carry out prioritization?

Workshop participants' opinions were split as to whether the prioritization should be top-down (i.e. completed by the State of Colorado) or bottom-up (i.e. completed by a local coalition wanting to know where to start). The participants settled on a **flexible, multi-entity approach that combines State guidance and encouragement and implementation by locally based coalitions.** State guidance and encouragement would create motivation and consistency, and locally-based implementation would ensure a simpler and quicker process and an approach that reflected local priorities.

A number of approaches to support adoption/initiation of prioritization were discussed, including:

- Replicating CWCB's approach to piloting Fluvial Hazard Zone mapping that includes outreach on the opportunity, a call for applications, providing grant funding and technical support.
- Building on the State of Colorado's good track record of creating and using other central databases and decision support tools for water rights administration.
- Combining the above with more targeted and strategic "opportunity shopping" by talking with natural resource management agencies, larger NGOs and regional conservation coalitions.

What is a coalition?

Throughout this document we use the term "coalition" to refer to locally based entities or groups of entities working together on a SMP. Coalitions are likely made up of environmental organizations, local government, Basin Roundtables, water districts, water users and land owners.

- ❖ Conducting an internal state agency effort to identify high priority watersheds to begin prioritization and then conducting agency outreach to communities to encourage them to apply for grant funding and begin location specific planning.

1.3. What are the key features of a prioritization method?

Participants agreed that the prioritization should be a simple but flexible method or guidance to get groups started, not a complex assessment tool for the following reasons:

- ❖ There are many decision-support tools to assist with conservation planning, but they are not widely utilized due to lack of familiarity, high learning curves, etc. What is needed isn't another tool, but instead a guide to the tools that exist and how to use them together to guide decision making.
- ❖ The datasets and information relevant to conservation planning are spread out among dozens of databases, GIS layers and toolkits[1]. River health advocates and planners need a guide to understand where they are, what information they provide related to resources of interest, and how to use / access them so they can better utilize the existing information.
- ❖ Prior efforts to conduct statewide mapping and prioritization of environmental/recreational assets (such as the Non-Consumptive Needs Area Focus Maps done by the Basin Roundtables) were not widely utilized.
- ❖ Colorado is a dynamic state that includes a variety of landscape types, river and streams styles, community values and concerns, so it's possible that there is no one size fits all tool that can be useful to everyone.

2. Principles of Prioritization

RN is recommending the following guiding principles for SMP prioritization based on the conversations at the workshops, and its own experience initiating SMPs in Colorado.

1) A pre-planning process to prioritize locations where an SMP may be valuable and feasible will help to reduce and/or target the planning process to a manageable geographic area. Based on involvement in over a dozen SMPs, RN believes that **planning for the river corridor is most effective and efficient when the geographic area is limited to under 100 river miles.** Many coalitions, however, will resist putting geographic limits on their planning effort up front, and that is understandable, but the expense, difficulty and timeline of the planning process may be longer, the variety of stakeholders involved larger, and the recommended projects and strategies more high level when the geographic area is greater than100 miles of river corridor.

2) Prioritization **should accommodate a variety of resource concerns and should guide coalitions to the most appropriate type of planning process** which may be an SMP, an integrated water management plan (IWMP), a non-point source plan, a forest health plan, a wildfire management plan, a hazard mitigation plan, or any number of other types of watershed planning. Workshop

[1] The 2022 report Top 5 Environmental Data Gaps for Assessing River Health by Corday Natural Resources Consulting for Audubon Rockies (Appendix B) provides a good overview of existing repositories of statewide river health data and gaps.

participants discussed the variety of planning processes even though the workshops were initially conceived as a method to identify new locations for SMPs. The workshop participants outlined a process that is equally useful for prioritizing other river-related planning efforts.

- SMPs, and other watershed plans, are most effective when they are driven by local resource concerns. A prioritization methodology must accommodate a variety of resource concerns and not be limited to just one such as flows, water quality, etc. However, this greatly expands the scope and complexity of a prioritization method.
- Given the broad array of resource concerns, how does a coalition or organization select the "locally important conservation and/or community values" upon which to focus? There is no one right answer. The answer will be different for every community and every organization/coalition that undertakes planning. There is a tendency to cast a wide net and assess all the variables in the COSHAF framework, however narrowing the ecosystem services that are most important will help the planning process be efficient and effective, and so RN recommends that groups begin with some initial sideboards that can be developed by:
  - Talking to key stakeholders like riverside landowners, water users, resource management agencies, etc. to understand locally important values.
  - Read existing plans, reports and datasets to identify concerns or values that have already been brought to light.
  - Focusing on the mission of the coalition/organization that will lead the SMP and prioritizing resource concerns that most directly align with their interests.

3) A prioritization process that is flexible for a variety of outcomes **should be a "prioritization framework", not a "tool".**
   - There are a number of "tools" that can inform prioritization of geography based upon the resource concerns or values that are important. Workshop participants felt creating a new "tool" may be a complex and expensive undertaking that may not be utilized.
   - Instead, workshop participants recommended creating a framework that could act as a guide to consider geographic priorities and support this process by identifying the "best" datasets/ information about resource condition or risk, where they are located, and ideas for how to "layer" them to help with prioritization of planning locations.

Framework vs Tool

RN is recommending a prioritization "framework" not a "tool". We define a "framework" as a set of planned steps that one follows to get to a decision. Compare this with a "tool" which is an instrument that one utilizes to inform a decision. You may use many "tools" within a "framework".

4) The framework **should be geared towards a broad cross-section of water professionals with an interest in river corridor planning that have at least a basic river science background.** Here are some examples of who could use it:
   - A watershed group or conservation coalition that covers multiple HUC-8s

- The Env & Rec committee of a Basin Roundtable
- A statewide or national NGO that is looking to invest in a new area
- A state agency that wants to initiate planning within an area

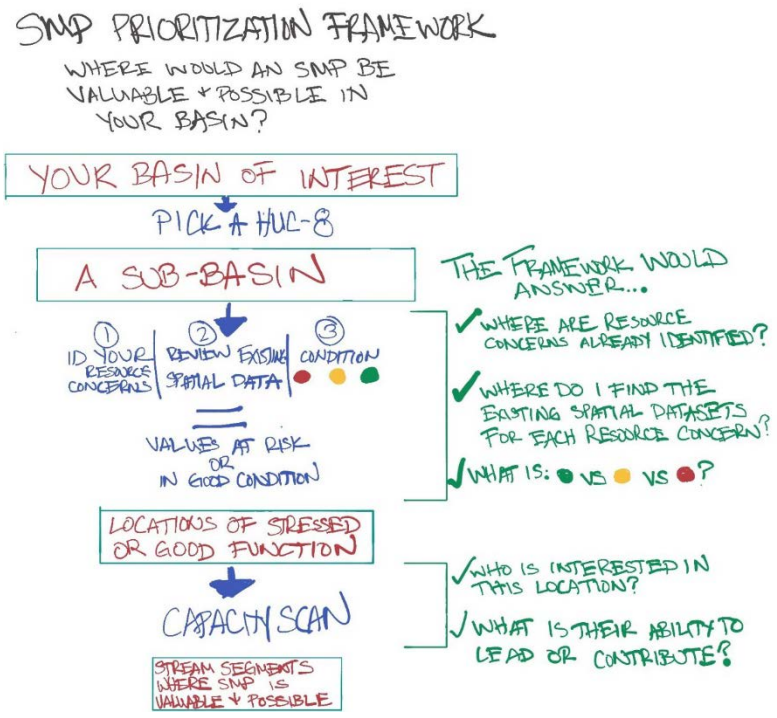
5) The prioritization process **should include an assessment of the capacity** to engage in meaningful planning and enact recommended projects or strategies.
   - Local capacity to lead should be taken into account when prioritizing locations for a planning process. If a statewide or national organization wants to engage in planning in a location, conducting a basic scan of existing local organizations, and their interest and experience in watershed health is an important variable to success.
   - In locations that are a high priority from a conservation perspective but do not have sufficient local capacity or interest, capacity building and/or outreach and education will be required. This is not insurmountable, but RN's experience is that it takes 1-2 years of stakeholder engagement an education, grant writing, and dedicated staff time.
   - This does not take the place of the pre-planning step "Initiate Conservations and Identify Leadership" once a location is selected.

3. Conceptual Prioritization Framework

For the purposes of this memo, a priority watershed is defined as a set of reaches or river corridor segments that:

- has locally important conservation and/or community values,
- lacks a current strategy or plan to protect or improve its values,
- has (or reasonably could have) a critical mass of stakeholders and capacity that increases the likelihood of successfully enacting strategies.

RN created a draft prioritization framework during the workshop series. It explores how to guide prioritization and will need refining and piloting to ensure its efficient and effective. Some steps (review existing data and assess interest and capacity) are already outlined in RN's pre-planning guidance on SMPs, and the analysis of river condition data is a fundamental step in the SMP process, however that is typically done AFTER an SMP location is selected. This uses that information on the front end to select locations that may be valuable from a conservation standpoint.



Step 1: Select a HUC-8 within your basin of interest

RN believes that the HUC-8 scale is an appropriate scale to do initial prioritization. Many statewide data sources already exist at that scale, and its small enough to be applicable to a locally based watershed coalition, but large enough to encompass several stream segments.

A coalition or organization could repeat the process outlined below for several HU8s within their basin of interest if desired.

Step 2: Review existing data on resource concerns of interest

a) Identify priority resource concerns.
    a. Talk to people, find out what they care about and consider the mission of the implementing organization(s).
b) Review existing spatial datasets / information relevant to those resource concerns.
    a. The 2022 report on Environmental Data Gaps from Audubon Rockies and Corday Natural Resources Consulting provides a starting point. However, a more user-friendly guide to "the best" existing datasets for each resource concern needs to be developed.
c) Layer the dataset results to understand areas of high and low condition.
    a. Some existing datasets already provide context on what the data means (such as water quality data that exceeds regulatory standards) but many do not. A set of condition ranges for each dataset (i.e. "intact" vs. "poor") that provide context will be necessary to make sense of what the data means in terms of prioritization.
    b. Some of these condition ranges may already exist within SMPs that used widely available spatial datasets in river health assessments, such as the Yampa IWMP[2], though they would need to be reviewed and adjusted for different landscape types and river/stream styles.
d) Zoom in to river segments with either stressed or high quality functions that a planning process could measurably improve and/or protect.

Step 3: Conduct a scan of existing capacity to lead a planning process and contribute to implementing recommendations.

a) Start with a basic stakeholder scan to identify the entities or groups of people that would be interested in, affected by, or able to influence the outcomes of a planning process.
b) If high priority segments do not have an existing organization that has the capacity to lead a planning process, a decision as to what it would take to build that capacity and whether it is worth the investment of time and money is required.
c) To build knowledge and buy-in for an SMP, it may be worthwhile to begin in a lower priority segment where there are engaged stakeholders and organizational capacity. If successful, this may build support for efforts in higher priority locations.

[2] https://sites.google.com/view/ywgroundtable/assess-conditions/env-assessment?authuser=0

4. Next Steps

RN plans to continue working with CWCB and key NGO partners such as American Rivers and Audubon Rockies to refine the prioritization framework concept. Piloting the framework in two to three locations with different resource concerns and community values would provide a proof of the concept and its effectiveness. Before that piloting can be accomplished, however, Steps 2b (develop a guide for datasets) and 2c (develop condition ranges to help give context to the data) would need to be completed.

ATTACHMENT B

Flow Recommendations in SMPs – Opportunity Analysis

July 2022

1. Introduction

River Network has worked since 2017 to increase the number and effectiveness of stream management and integrated water management plans (SMPs) in Colorado. In 2021, they issued the report: Stream Management Plans in Colorado: Progress at Five Years, which includes a series of recommendations on how to continue the momentum of SMPs in Colorado. One of the recommendations that River Network chose to implement was to understand the barriers and opportunities to further advance environmental and recreational flow recommendations that result from SMPs.

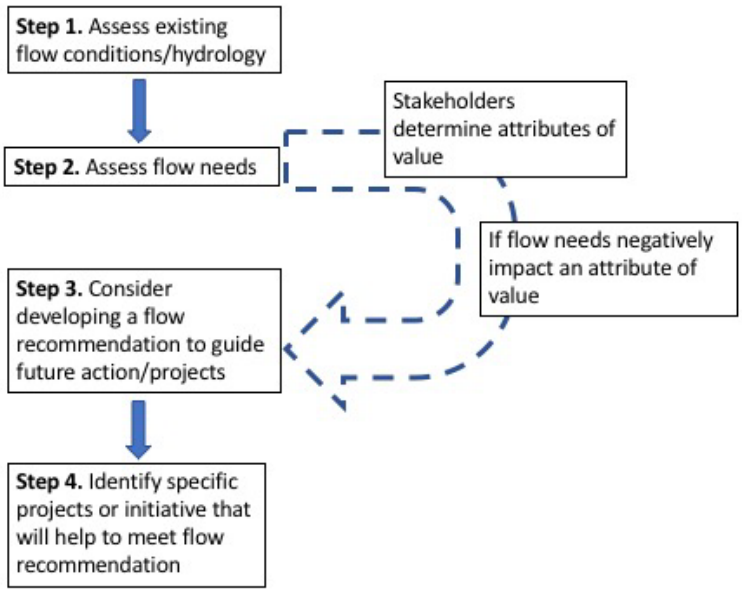
To gain insights on barriers and opportunities to flow recommendations, River Network and Colorado Water Conservation Board (CWCB) co-hosted a series of workshops in 2022 with NGO's and agency representatives with an interest or expertise in setting and implementing environmental flow recommendations. Workshop participants (list provided in acknowledgement section) agreed that there is an overall opportunity to increase the number of environmental flow recommendations that result from SMPs. Additional input from the group informed this opportunities analysis which identifies the barriers and actions needed to further advance flow recommendations.

2. The Flow Needs and Recommendation Process

The steps (i.e., the flow needs and recommendation process) can be characterized as:

1. Assessing **Flow Conditions**,
2. Documenting **Flow Needs**,
3. Determining **Flow Recommendations**, and
4. Pursuing **Implementation Actions** to meet the Flow Recommendation.

Not every SMP will result in a flow recommendation; some SMPs may find that flow conditions are not a driving influence on their attributes of interest.



2.1. Definitions

The following terminology is used throughout this document to map out the flow needs and recommendation process.

Attributes of Interest: The environmental or recreational value/variable that is locally important such as a reasonable boating or fishing experience, cold water trout life cycles, riparian habitat survival, flushing flows to move sediment, elimination of dry up points, etc.

Assess Flow Conditions: The process of measurement and analysis of existing flow conditions in a reach of river. This could include comparing natural to existing flows to understand how diversion, use and impoundment of water has changed the hydrology, analyzing the trends of flow patterns over time to understand the direction the system is taking, or comparing existing to modeled future flows to predict the impact of climate change or future water development projects. These analyses may include information on the amount, timing and duration of both peak and low flows.

Flow Needs: Documenting the minimum, maximum or range of environmental or recreation flows required to support an attribute of interest.

Flow Recommendations: Determining a specific goal for flows in a reach that will support the Attribute of Interest such as a minimum flow to ensure cold water fish survival. Flow recommendations may be the same as the flow needs, or they may be adjusted to reflect the needs of stakeholders on the river system or the operational realities of the river system.

Stakeholders: Individuals or organizations that have a direct stake in the outcomes of a SMP through owning land or water rights, conducting environmental restoration or advocacy,

operating small businesses that rely on the river (i.e., recreational interests) or have planning/project implementation authority in the relevant river reaches.

Coalitions: A group of stakeholders that guide and implement a SMP process in a particular region.

2.2. The Process in Practice

Guidance from the Colorado Water Conservation Board explains that "*a stream management plan should:*

(1) Involve stakeholders to ensure their acceptance of the plan;
(2) Assess existing biological, hydrological, and geomorphological conditions at a reach scale;
(3) Identify flows and other physical conditions needed to support environmental and recreational water uses;
(4) Incorporate environmental and recreational values and goals identified both locally and in a basin roundtable's BIP; and
(5) Identify and prioritize alternative management actions to achieve measurable progress toward maintaining or improving flow regimes and other physical conditions."

While completing Stream Management Plans in Colorado: Progress at Five Years, River Network compiled an inventory (Appendix A) of SMPs that identified flow needs as part of the river health assessment and when coalitions used that information to identify flow recommendations, presented below.

Flow Recommendation Process, CWCB Guidance and SMP Progress:

Flow Recommendation Process	**Relationship to CWCB Guidance**	**Progress As of May 2021**
A. **Assess flow conditions**, which can also include an assessment of historic conditions or modeling of predicted future conditions.	(2) Assess existing biological, hydrological, and geomorphological conditions at a reach scale	Approximately 15 of 16 SMPs completed this step. Four of those also modeled future flow regime.
B. **Document flow needs** for specific attributes of value (fish, riparian vegetation, etc.)	(3) Identify flows and other physical conditions needed to support environmental and recreational water uses	Ten SMPs quantified flow needs in some capacity.
C. If stakeholders determine that flows adversely impact their attributes of interest, they may **determine a flow recommendation** to guide future action. Alternatively, coalitions may decide that a flow recommendation is not	(4) Incorporate environmental and recreational values and goals identified both locally and in a basin roundtable's BIP	Of the ten that assessed flow needs, three SMPs identified flow recommendations or objectives for environmental and recreational uses Seven SMPs did not create a clear flow recommendation after their needs assessments.

the best tool for protecting their attributes of interest.		
D. Coalitions would **implement the flow recommendation** through specific projects or initiatives.	(5) Identify and prioritize alternative management actions to achieve measurable progress toward maintaining or improving flow regimes and other physical conditions.	Project recommendations focused on environmental and recreational flow targets comprise only a small portion of the 269 recommendations to date (approximately 16 and 2, respectively).

3. Barriers

River Network compiled the following barriers to implementing flow recommendations through interviews with SMP coalition leaders and workshop participants.

Barriers to Flow Recommendations:

Identified Barriers	Explanation
Identifying challenges to developing and implementing a flow recommendation too early in the SMP process	• SMPs that identified flow recommendations tend to have existing infrastructure that allows for flexibility in flow management (e.g., upstream reservoirs with the ability to re-time releases, as with the Yampa River through Steamboat Springs and the Rio Grande, Conejos River and Saguache Creeks SMPs). Basins without this built-in flexibility may have a preconceived bias against flow recommendations as a solution and so limit the conversation from the beginning. • Potential projects could be cost prohibitive. In some communities, the only options for pursuing flow-driven outcomes are expensive infrastructure (e.g., ditch piping) or tools for leaving excess water in the river (e.g., water leasing) both of which tend to be expensive and complicated, and this perception can limit the conversation.
Lack of knowledge and understanding	• There can be lack of technical knowledge and guidance in terms of how best to derive a flow recommendation and how to do that work in the context of a locally-driven SMP. • Coalitions and stakeholders can lack understanding of how to get to a flow recommendation including the data needs, science and process to identify flow recommendations.
Lack of outside motivation	• While some communities' SMPs are motivated by regulatory action requiring setting flow targets (e.g., the Upper Colorado River through Grand County), this is not an impending or motivating reason in most cases. • The CWCB grant guidance that funds SMP/IWMP processes articulates an expectation to identify flow needs. This expectation is only being partially met (10

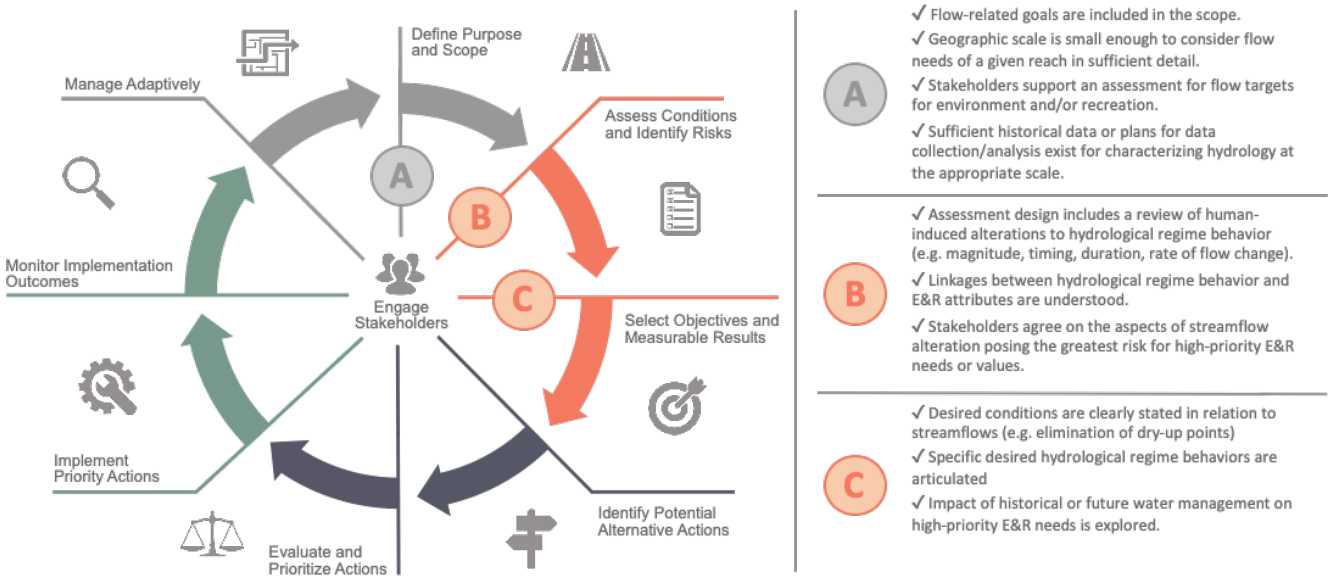
Identified Barriers	Explanation
	of 16 SMPs have documented flow needs) and is not resulting in flow recommendations in most SMPs.
Competing values	• While many basins have identified environmental and recreational needs and values, giving equal priority to those values as consumptive uses is still a cultural challenge in some areas. Navigating conversations around flow recommendations can be challenging with stakeholders due to differing values, conflicting information, and established water rights determinations. For example, stakeholders may wrestle with what it means when locally defined recommendations do not agree with an existing instream flow right or characterizing human-induced alteration to the flow regime suggests finger-pointing, which may alienate some stakeholders.
Perceived suspicions and misunderstanding	• There is a perception among some stakeholders that assessing flow conditions or needs predetermines the decision to create a flow recommendation and specific projects (i.e., if flows are assessed that automatically leads to pursuit of an instream flow water right or water leases which can be unpopular among consumptive water users). • Some stakeholders are nervous about sharing science and detailed information on their streams or water use as they are worried it might lead to regulatory intervention or publicizing conditions that they do not want advertised.
Differing planning scales	• Flow needs and recommendations are best assessed and described at a reach scale which can be at odds with the geographic scale of an SMP/IWMP. For example, the Yampa River Basin IWMP studied over 300 miles of river. Identifying flow needs at that scale is expensive, inaccurate and challenging given the broad range of stakeholder values, extensive water infrastructure, and expansive geography.
Scarcity of flow data	• The data needed to adequately characterize conditions may not exist. For example, streamflow information can be challenging to acquire due to the lack of gauging stations in appropriate locations. Additionally, river bathymetry data is particularly challenging in medium and large-size rivers, and can be expensive. • While budget constraints have been identified by some, the specific issue may be that coalitions are often not prepared for funding the data collection efforts, which leads to a missed opportunity when developing the grant budget to support the level of funding needed to develop flow recommendations.

4. Opportunities

Workshop participants identified actions that could help SMPs be more effective in setting flow recommendations, if coalitions decide to go that far.

4.1. Better Align Flow Needs and Recommendation Process with SMPs

Coalitions and stakeholders, at the beginning of their SMP process, can better understand the steps towards flow needs and flow recommendations. The below visual, developed to guide discussion during the workshop series, can be tested and expanded to clarify how the SMP process can be set up to more easily result in flow needs and recommendations, if that is a goal of the SMP.



4.2. Enhance the Level and Type of Flow Information Produced

It is unrealistic to expect *all* SMPs to produce flow recommendations; however, River Network sees an opportunity to enhance the level and type of flow information produced through the SMP process to better inform any future efforts to pursue a flow recommendation. For example, if flow needs are adequately assessed during the SMP process, then stakeholders could use that information in the future to determine a flow recommendation if conditions change (i.e., land ownership changes presenting a new interest in enhancing environmental values).

Furthermore, additional guidance on flow recommendations and technical support can help coalitions put their best foot forward in the design of their assessments. For example, if a coalition knows in their pre-planning and grant application process that they need to assess flows at a reach scale, but lack adequate reach scale hydrology data, they can build in the extra budget to collect appropriate data. Overall, it is important for SMPs to have an up-front understanding and plan for how their data will help them make decisions.

4.3. Bolster Collaborative Process Design and Co-Learning Practices

The SMP process fits within the vast field, both theory and practice, of collaborative conservation and conflict resolution. Thus, SMPs have an opportunity to lean on the principles and practices that help stakeholders in other issue areas successfully address complex problems. For example, one of the principles of negotiation is to separate stakeholder interests (values) from positions (individual solutions) to find multi-beneficial solutions. As discussed earlier, in some SMPs, flow recommendations and certain types of implementation projects have been predetermined (correctly or not) as the eventual outcome. This process of jumping to a solution that may not be desirable by all and can likely alienate people and encourage them to disengage from the process as they do not see a potential to be satisfied with the outcome. A trained facilitator can help design an SMP process with negotiation principles in mind, engaging coalitions and technical consultants in these principles. This approach can identify nuances between the identification of flow needs and recommendations, and position coalitions to design and implement their SMP process accordingly.

Additionally, many coalitions embrace the concept of co-learning, bringing all stakeholders to a similar level of understanding and knowledge, whether it be on technical issues or stakeholder values, while at the same time building trust amongst the group. Additional focus on co-learning around flow assessment methods, intended outcomes, potential tools and implementation opportunities could help "level the playing field" among stakeholders and make flow recommendations more palatable as a potential solution. Ideas include inviting peers from other SMPs to share their experiences and/or having hydrologists and water resources experts at the table early to improve knowledge sharing and build trust among stakeholders.

4.4. Honor the Value of Lived Experience in Flow Assessments

All SMPs must work to identify their stakeholders and their collective values and cultures. While much of the flow recommendation process is science-based, it also requires bringing stakeholders along by creating opportunities for co-learning, understanding of the science, and dispelling inaccurate perceptions. There is an opportunity to use the flow recommendation process to better involve stakeholders and their lived experience, resulting in the flow needs assessment that uses both science and stakeholder input. For example, a descriptive analysis such as the hypothetical example developed by Diana Lane at The Nature Conservancy to link stakeholder descriptions of certain flows with positive and/or negative impacts (e.g., when the river is at bank full it affects my agricultural operation in these ways; or when the river is low it affects how many people recreate in the region, diminishing patrons to my business) may provide a smoother path to establishing a flow recommendation.

4.5. Create Incentives for Flow Recommendations

Many workshop participants expressed the opportunity to incentivize flow recommendations as an outcome of SMP/IWMPs. This could take the form of a formal expression by CWCB (whether in the Water Plan or funding guidance or elsewhere) that projects with flow recommendation outcomes can receive priority or preference for future funding, thus demonstrating CWCB's

specific interest in advancing flow recommendations. CWCB staff contend that these preferences already exist, however, they are not expressly written down or communicated for coalitions. Additionally, incentives could mean additional funding or supports for coalitions to ease potential cost or equipment challenges identified within the flow needs and recommendations process.

5. Action Items

The River Network and CWCB identified action items with input from workshop attendees. Action items are organized by the lead entity, with support entities identified when appropriate. All entities/individuals identified in the potential paths forward have indicated interest in helping to support next steps. Some involvement is pending the availability of funding resources.

5.1. Colorado Water Conservation Board

5.1.1. Develop guidance to advance flow needs assessments.

i. More clearly communicate expectations that documenting flow needs are a required outcome of SMP grant funding, regardless of whether a coalition decides to develop a flow recommendation.

ii. Provide resources to help SMPs navigate the flow needs and recommendation process steps. Specifically, clarify language in the grant guidance to reflect specific expectations about flow assessments, objective setting and development of flow recommendations when possible.

iii. Help SMPs identify the appropriate scale, assessment methodology and appropriate budget to assess existing flow conditions.

iv. Describe specific objectives that could be useful in developing flow needs such as identification of bank full flows and base flows.

5.1.2. Sponsor technical trainings and provide support on determining environmental flow needs.

i. For example, provide training/support on flow evaluation methods, stakeholder process design) for consultants and other entities to help them support flow recommendation conversations (model after FHZ mapping training).

5.1.3. Communicate and **clarify the preference and/or priority for flow recommendations/projects** in future Colorado Water Plan grant guidance.

5.1.4. Enhance access to flow needs assessment equipment, such as flow measuring devices and survey equipment, necessary to perform evaluations.

5.2. River Network

5.2.1. **Update www.coloradosmp.org website content** to reflect changes made by CWCB to SMP expectations and flow assessment tools.

5.2.2. Work with CWCB and Lotic Hydrological to further **refine the visual of the flow needs and recommendation process and how it relates to the SMP process** to use as a tool in training and communication.

5.2.3. **Convene a small cohort of SMP leaders that are specifically navigating the flows recommendations process**, providing skills growth in helpful topics such as the technical stages of the flow recommendations process, and collaborative process design and negotiation which could help them construct successful conversations. This would provide a place for SMP leads for peer and technical support as they advance through their flow recommendations processes.

5.2.4. **Bolster education and training resources for coalitions on the technical aspects of flow recommendations process** (e.g., develop a practitioner's guide or toolbox, connecting practitioners to related information and datasets such as the California Flow Tool). This would be completed in collaboration with other interested NGO partners.

5.2.5. **Enhance education and resources for coalitions on the stakeholder driven aspects** of the flow recommendations process to bolster collaboration skills and process design, potentially sharing lessons and experiences gained via the cohort experience.

5.2.6. Work with The Nature Conservancy and Lotic Hydrological to **identify an SMP to pilot the descriptive analysis** (developed by Diana Lane) tool as way to compliment the scientific flow needs assessment.

5.2.7. **Host discussions with American Whitewater (AW) and Western Resources Advocates (WRA) on their work in recreational water rights and instream flow recommendations**, respectively, to understand potential alignment or opportunities.

5.3. Colorado Water Trust

5.3.1. **Review and share examples of SMPs** (e.g., Grand County SMP) that have been helpful to implementing projects to meet flow recommendations with other SMP coalitions. Utilize the SMP Peer Learning Network, www.coloradosmp.org and CWCB-led training to do so. Information would provide SMP coalitions with some guidance or ideas as to how to frame their recommendations and background information. For example, the following SMP derived information would help CWT identify beneficial uses to potentially deliver environmental water to and what legal and non-legal tools can be employed:

i. Understanding of the community, specifically values, environmental and recreational needs, and objectives/goals for the river/stream.

ii. Documenting the presence/absence of existing ISFs or environmental flow recommendations, what they are based upon (e.g., recreation needs, temp standards, etc.) and whether/how often they are met.

iii. Limitations on flow augmentations such as the need to not make large releases in the fall in order to protect the fishery.

5.3.2. **Engage CWT staff early and often in SMP processes** to build trust and help coalitions navigate questions and misperceptions about flow needs identification and potential solutions.

5.3.3. Partner with River Network to **conduct broad outreach on the flow recommendation process and tools for improving or restoring flow needs** to streams through existing and potential SMP coalitions, especially examples that do not require developing a new ISF water right or expensive infrastructure investments.

6. Summary

The following table provides an overview of how each action items aligns with opportunities and specific barriers that are being addressed.

Opportunities	Barriers Addressed	Actions
4.1. Better align flow needs and recommendation process with SMPs	• Identifying challenges to developing and implementing a flow recommendation too early in the SMP process • Lack of knowledge and understanding • Perceived suspicions and misunderstanding • Differing planning scales • Scarcity of flow data	• 5.1.1. CWCB: Develop guidance to advance flow needs assessments. • 5.2.1. RN: Update website content. • 5.2.2. RN: Refine visual for flow needs and recommendation process and relation to SMPs. • 5.3.3. CWT/RN: Conduct broad outreach on flow recommendations process and tools for improving/restoring flow needs.
4.2. Enhance the Level and Type of Flow Information Produced	• Lack of knowledge and understanding • Differing planning scales • Scarcity of flow data	• 5.1.2. CWCB: Sponsor technical training and provide support on determining environmental flow needs. • 5.2.4. RN: Bolster education on *technical* aspects of flow recommendation process. • 5.3.1. CWT: Share examples. • 5.3.2. CWT: Engage in SMP processes. • 5.2.7. RN: Host discussions with AW and WRA.
4.3. Bolster Collaborative Design and Co-Learning Practices	• Competing values • Perceived suspicions and misunderstanding	• 5.2.3. RN: Convene small cohort navigating flow recommendation process. • 5.2.5. RN: Enhance education on *stakeholder* aspects of flow recommendation process.

4.4. Honor the Value of Lived Experience in Flow Assessments	• Competing values • Perceived fears and misunderstanding	• 5.2.6. RN: Pilot descriptive analysis.
4.5. Incentivize Flow Recommendations	• Lack of outside motivation • Scarcity of flow data	• 5.1.3. CWCB: Clarify preferences for flow recommendations/projects. • 5.1.4. CWCB: Enhance access to flow needs assessment equipment.

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- Seth Mason, Lotic Hydrological
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Appendix A: Inventory of SMP's that Assessed, Recommended or Implemented Flows

SMP/IWMP Name	River Health Assessment Completed?	Flow Regime Evaluated?	Future Impacts Evaluated?	Flow Needs Assessed?	Flow Needs Assessment Notes
Yampa River Health Assessment & Streamflow Management Plan	Yes	Yes	No	No	SMP says it focused on opportunities to strategically manipulate flow timing and/or magnitude to benefit non-consumptive needs, but specific flow needs/targets were not developed.
Rio Grande, Conejos River, and Saguache Creek SMPs	Yes	Yes	No	Yes	Used R2Cross to produce minimum environmental flow targets for each reach, framed by the SMPs as recommended minimum flows for supporting healthy aquatic biota. Worked with AW to implement their Boatable Days Flow Evaluation Tool on several reaches of the Rio Grande. The Boatable Days evaluation resulted in recreational flow targets (a range of acceptable flows for recreational boating), on the Rio Grande, which are also referred to as recommended flow targets. Using the flow targets, both the Rio Grande and Conejos River SMPs identified a project/action item to build upon existing voluntary and flexible programs with reservoir operators to re-time reservoir releases in an effort to meet the minimum environmental flow needs whenever possible. The Rio Grande includes a second project to build upon existing partnerships to maximize the number of boatable days on the Rio Grande.
Crystal River Management Plan	Yes	Yes	No	Somewhat	SMP included a water use assessment and an evaluation of demand shortages.
Biological and Ecological Benefits from Chatfield Reallocation Environmental Pool Increased Releases	No	Yes	No	Yes	Goal is establishment of recommendations for Chatfield Reallocation Pool releases to maintain, protect, and enhance ecological and biological functions of the S Platte River. Used existing PHABSIM and R2Cross analyses. Scope did not include water rights or future operations analyses.
Lower South Boulder Creek SMP Phase I	Planned	Planned	Planned	Somewhat	Conducted an initial minimum flow analysis and compared results to established minimum flow targets that would result from a Gross Reservoir Environmental Pool.
St. Vrain and Left Hand Stream Management Plan: Phase I Summary Report	Yes	Yes	Yes	Somewhat	Flow evaluation qualitatively categorized reaches as low to high risk for stream health issues related to reduced low/baseflows or insufficient high flows to support healthy ecosystem functions; boatable days analysis completed by AW to assess recreational flow needs.
Grand County Stream Management Plan	Qualitative	Yes	No	Yes	Recommends target flows to protect environmental values (specifically fisheries) based on PHABSIM analyses.
Middle Colorado Integrated Water Management Plan	Yes	Yes	Yes	Somewhat	Qualitative water administration summary and ISF details provided. Aspects of existing and potential future hydrology based on CWP Tech Update scenarios relevant to fluvial geomorphology, riparian areas, aquatic communities, recreational use opportunities, agricultural water shortages, and municipal supply shortages are analyzed. Used 2-D HEC-RAS/USGS FasTMECH modeling to estimate fish habitat suitability indices at different flows.
Integrated Water Management in the North Fork of the Gunnison River: Phase 1	No	No	No	No	
Technical Report: South Fork Republican River Riparian Corridor and Riverine Habitat Conceptual Restoration Plan	No	Yes	No	No	
Upper Gunnison Stream & Watershed Management Plan	Yes	Yes	No	Somewhat	SMP included water use assessment, evaluation of demand shortages, review of existing ISF reaches, R2Cross analyses in select locations, and a determination of flow-limited areas.
San Miguel Pilot Project Interim Report: Env & Rec Needs Assessment	Yes	Yes	Yes	Somewhat	Stated purpose is to identify E&R needs and gaps so local communities can prioritize water management issues. Utilized biological basis for existing ISF filings to define optimal low flow thresholds for aquatic health: where R2Cross results were available, simulation modeling assessed frequency/magnitude of flows falling below recommended flow thresholds. Similar analysis completed for boatable days.
Poudre River Health Assessment (Ft Collins)	Yes	Yes	No	No	
Upper Roaring Fork River Management Plan	Yes	Yes	Yes	Somewhat	Calculated additional water needs to meet existing flow targets (CWCB ISF targets, Fryingpan-Arkansas Project Operating Principles).
Big Thompson River Envisioning Project and Stream Management Plan	Yes	Yes	No	No	Minimum flow evaluation/biologically critical threshold analysis was performed using the desktop Tennant method to rate the baseflow variable within the flow regime indicator.
South Arkansas River	Yes	Yes	No	No	Critically low discharge analysis conducted for last 10 years.