

The California Environmental Flows Framework (CEFF) and the Los Angeles River

Technical Working Group Meeting #1
June 11, 2024

Mountains Recreation &
Conservation Authority




Stillwater Sciences

Welcome and Introduction



Part I: Introductions and CEFF

Welcome and TWG role

Introduction to CEFF

Project Process and Timeline

LA River CEFF Overview

Discussion

Lunch

Part II: Management Goals for the Los Angeles River

Overview: Management Goals

Breakout groups

Break

Part III: Discovering Environmental Flows Solutions

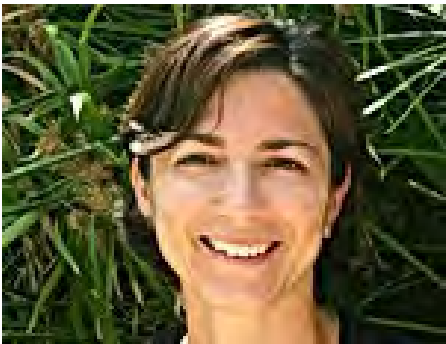
Overview: Discovering Big Solutions

Discussion

Breakout groups

Part IV: TWG Next Steps

Meet your fellow TWG participants



Eileen Alduenda
CWH
Urban Cooling



Steve Appleton
LA River Kayak Safari
Recreation



Jon Avery
USFWS
Biodiversity/Habitat



Shelly Backlar
RCDSMM
Recreation



Bryan Baldauf
MRCA
Recreation



Baron Barrera
CDFW
Biodiversity/Habitat



Eric Batman
LA County DPW
Flooding



Edward Belden
LABOE
Biodiversity/Habitat



Matt Bolt
USEPA – Region 9
Water Quality



Meet your fellow TWG participants



Tim Brick
Stewards of the Arroyo
Seco
Biodiversity/Habitat
Water Supply



Edith deGuzman
UCLA
Urban Cooling



Candice Dickens-
Russell
FoLAR
Recreation



Mas Dojiri
LASAN
Water Supply
Water Quality



Brionna Drescher
CDFW
Instream Flows
CEFF Expertise



Joe Edmiston
MRCA
Recreation



Monica Eichler
USACE
Habitat/Biodiversity



Kyle Evans
CDFW
Habitat/Biodiversity



Mark Gold
NRDC
Water Supply
Water Quality

Meet your fellow TWG participants



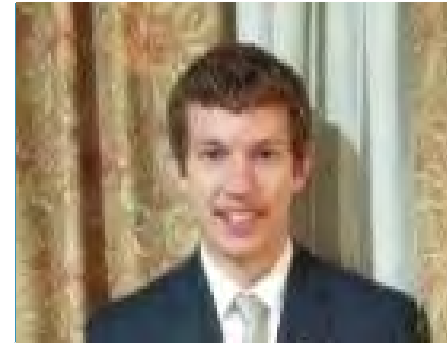
Jesus Gonzalez
LADWP
Water Supply



Ben Harris
LA Waterkeeper
Integrated Systems
Analysis



Chad Hecht
CW3E UCSD
Integrated Systems
Analysis



Nathan Holste
Bureau of Reclamation
Flooding



John Huynh
City of Los Angeles
Water Supply



Esther Lofton
UC ANR
Water Supply
Water Quality



Mitul Luhar
USC
Integrated Systems
Analysis



Miguel Luna
Fernandeño Tataviam
Band of Mission Indians
Cultural/Tribal



Ron Mayuyu
LASAN
Water Supply

Meet your fellow TWG participants



Christine Medak
USFWS
Biodiversity/Habitat



Thuan Nguyen
LA County DPW
Flooding



Nathan Nunez
Nunez & Nunez
Consulting
Cultural/Tribal



Chisom Obegolu
City of Glendale
Water Supply



Alyssa Obester
CDFW
CEFF Expertise



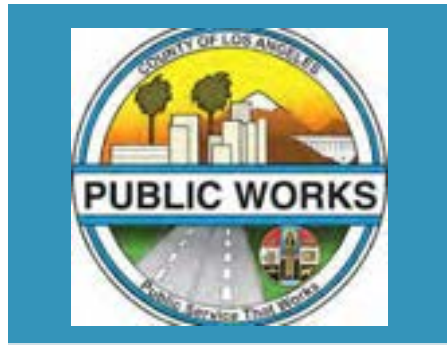
Katherine Pease
Heal the Bay
Water Quality



Erik Porse
UC ANR
Water Quality
Water Supply



Fritz Reiman
CDFW
Biodiversity/Habitat



Ernesto Rivera
LA County DPW
Flooding



Meet your fellow TWG participants



Alex Robinson
USC/LA-RIDL
Integrated Systems
Analysis



Christian Romberger
CDFW
Biodiversity/Habitat



Susie Santilena
City of Los Angeles
Water Supply



William Saunders
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Flooding



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Nancy Shrodes
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Water Quality



Bronwen Stanford
TNC
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Kat Superfisky
City of LA
Biodiversity/Habitat

Meet your fellow TWG participants



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Ryan Thiha
City of Los Angeles
Water Supply



Jane Tsong
WCA
Recreation
Habitat/Biodiversity



Melissa Turcotte
LA County DPW
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Patricia Wood
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Flooding



Julie Zimmerman
TNC
CEFF Expertise



Stillwater Sciences Project Team



Derek Booth
Stillwater Sciences



Isaac Brown
Stillwater Sciences



Nate Butler
Stillwater Sciences



Hannah Flynn
Stillwater Sciences



Wendy Katagi
Stillwater Sciences



AJ Keith
Stillwater Sciences



Melissa Lane
Stillwater Sciences



Bruce Orr
Stillwater Sciences



Sam Ward
Stillwater Sciences



Rowan Roderick-Jones
Stillwater Sciences



Norms and Expected outcomes (how we will be working together)

Use your card to raise a point

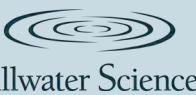
To keep discussions organized, use your name card to indicate that you have a comment or question.

Be open to collaboration and working across disciplines

The success of the CEFF Section C is process depends upon working across themes to find win-win opportunities.

Feel at home

Your subject matter expertise is critical. It's important that you feel able to share your ideas, questions, and concerns freely.





CEFF Outcome: Flow recommendations aligned with goals

Introduction to the California Environmental Flows Framework (CEFF)



California Environmental Flow Framework (CEFF) Overview

CEFF is an integrated decision-making framework to develop flow recommendations.

CEFF aims to consider and integrate all management goals in a watershed through the process of developing those flow recommendations.

CEFF was collaboratively developed by:



CEFF Overview: Three stages (“Sections”) for the LA River CEFF

CEFF process for developing flow recommendations

SECTION A

Determining the biodiversity goals in the watershed.

Understanding the “natural” system.

SECTION B

Determining flow needs for biodiversity goals given existing conditions.

SECTION C

Determining the other watershed goals and their flow needs.

Developing the flow recommendations that best support achieving watershed goals.



CEFF Overview: Three stages (“Sections”) for the LA River CEFF

CEFF process for developing flow recommendations adapted for the Los Angeles River

SECTION A

Determining the biodiversity goals in the watershed.

Understanding the “natural” system.

SECTION B

*Determining the **recreational goals in the watershed.***

*Determining flow needs for biodiversity **and recreational** goals given existing conditions.*

SECTION C

Determining the other watershed goals and their flow needs.

Developing the flow recommendations that best support achieving watershed goals.



CEFF has its own specific terminology.

- Ecological management goals
- Non-ecological management goals
- Functional flows
- Flow-ecology relationships
- Ecological flow criteria
- Environmental flow recommendation

CEFF terminology does not always align with terminology used in the LA River watershed or reflect the diversity of goals along an urban river.

The LA River CEFF process adapts CEFF terminology to reflect LA River watershed terminology and make it more applicable to the range of goals in the watershed:

- Ecological management goals = Biodiversity management goals
- Ecological flow criteria = Flow criteria

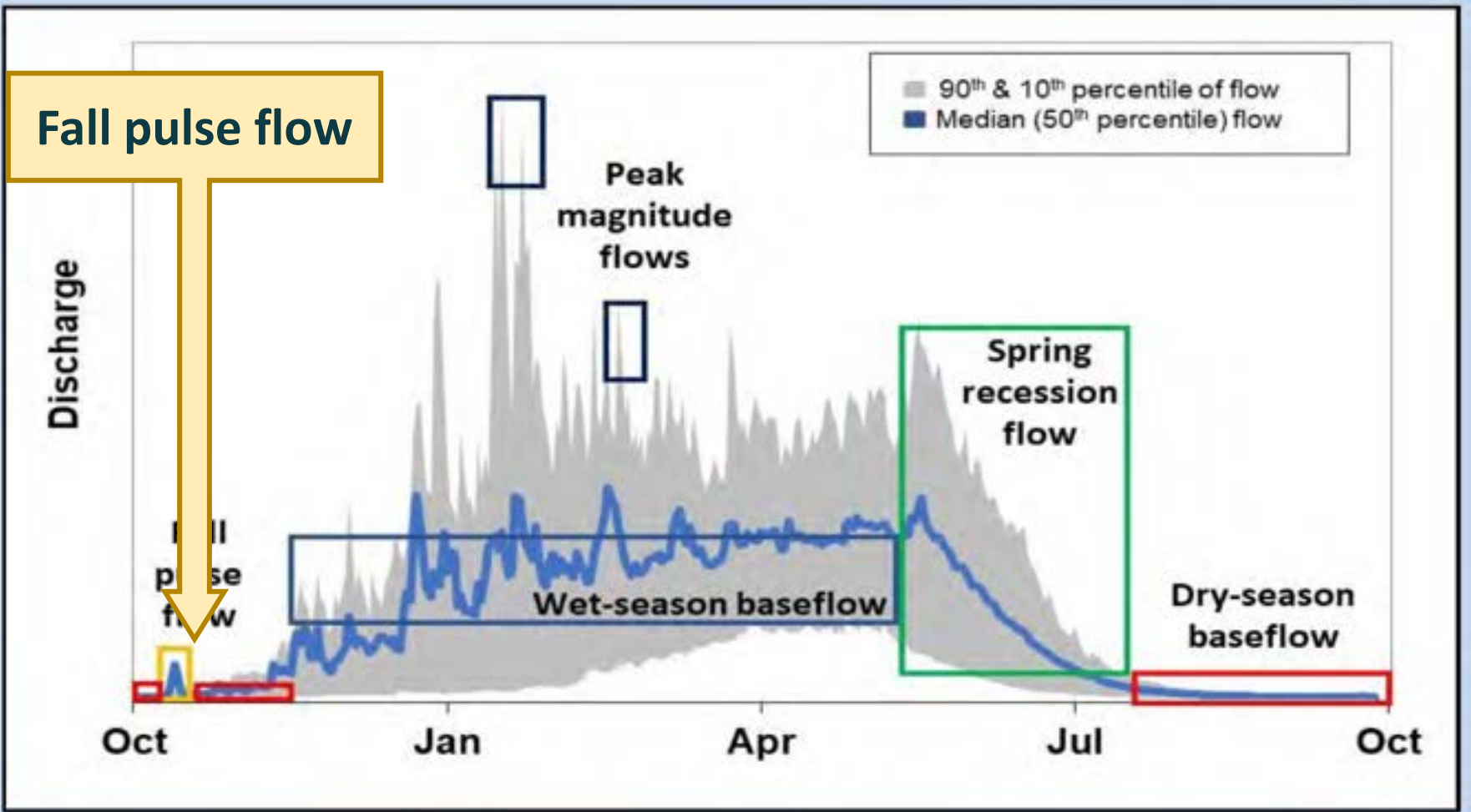
What are functional flows?



Functional flows are the five seasonal flows that support ecology and biodiversity along a river.

The Five Functional Flow metrics: Reading a hydrograph

Fall pulse flow: First major storm event after the dry season.

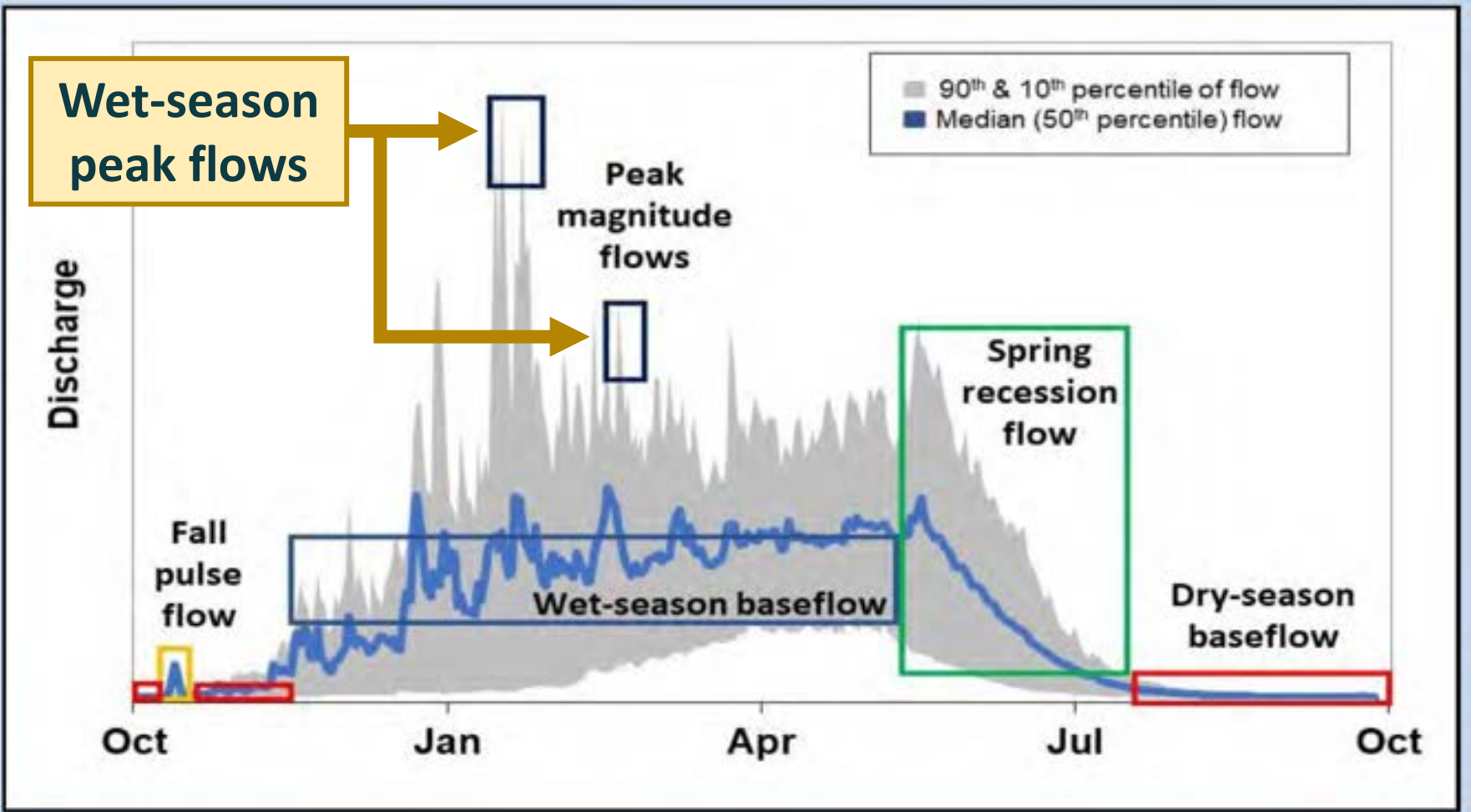


Source: CEFF Technical Report Figure 1.3 (California Environmental Flows Working Group 2021)



The Five Functional Flow metrics: Reading a hydrograph

Wet-season peak flows: Largest storm events of the season.

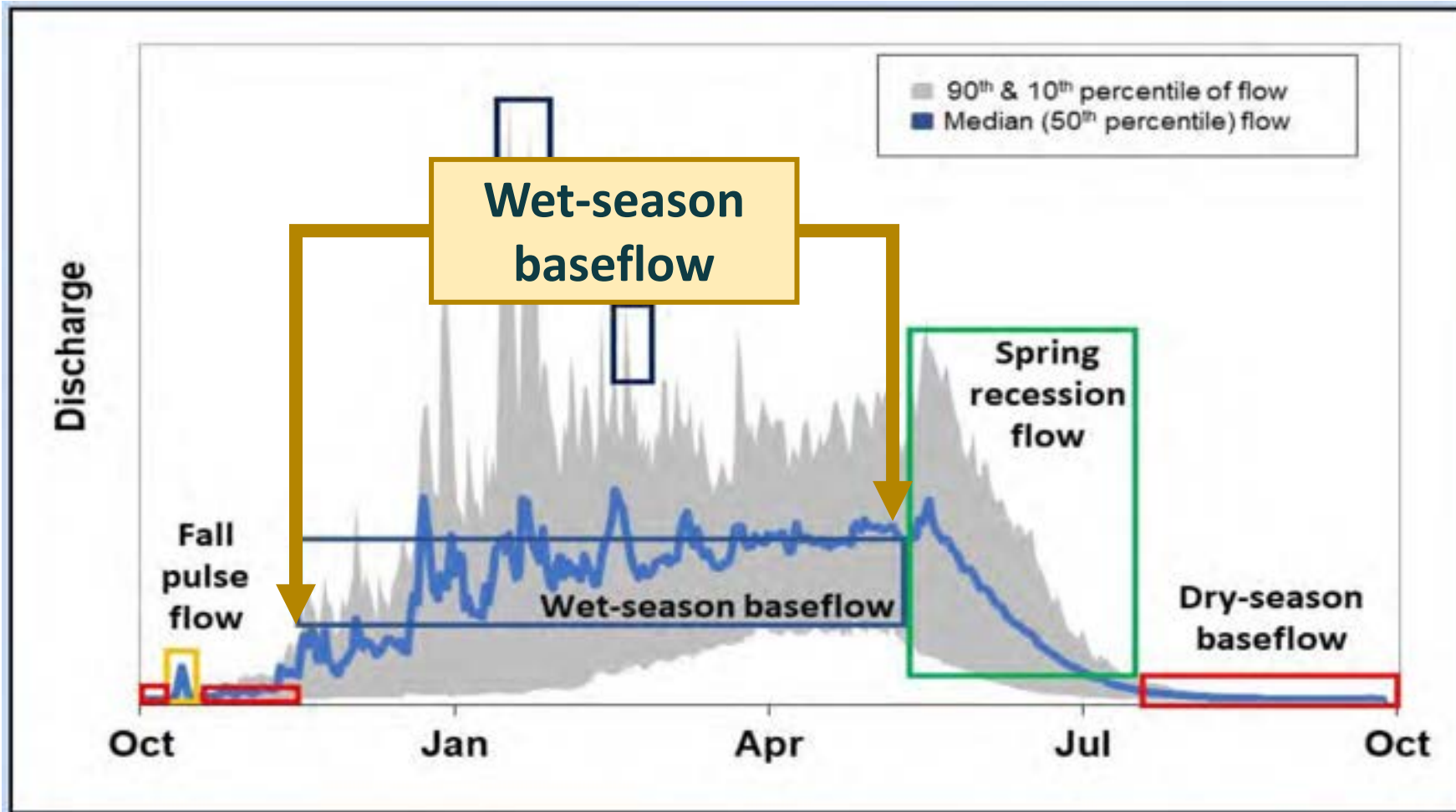


Source: CEFF Technical Report Figure 1.3 (California Environmental Flows Working Group 2021)

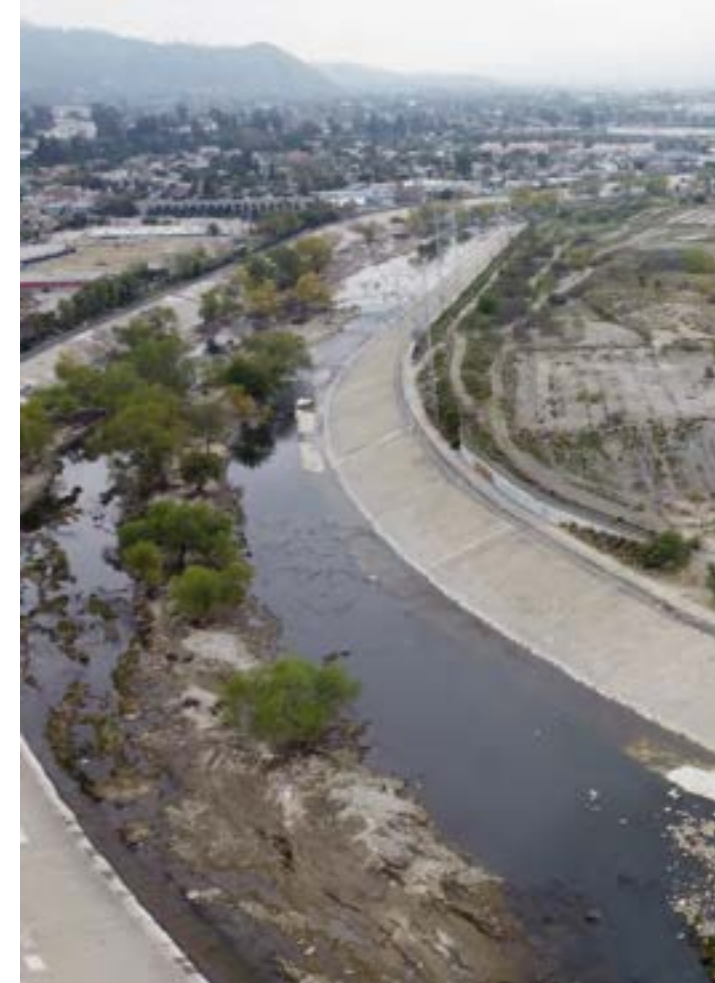


The Five Functional Flow metrics: Reading a hydrograph

Wet-season baseflow: Flows during the wet season between storm events.

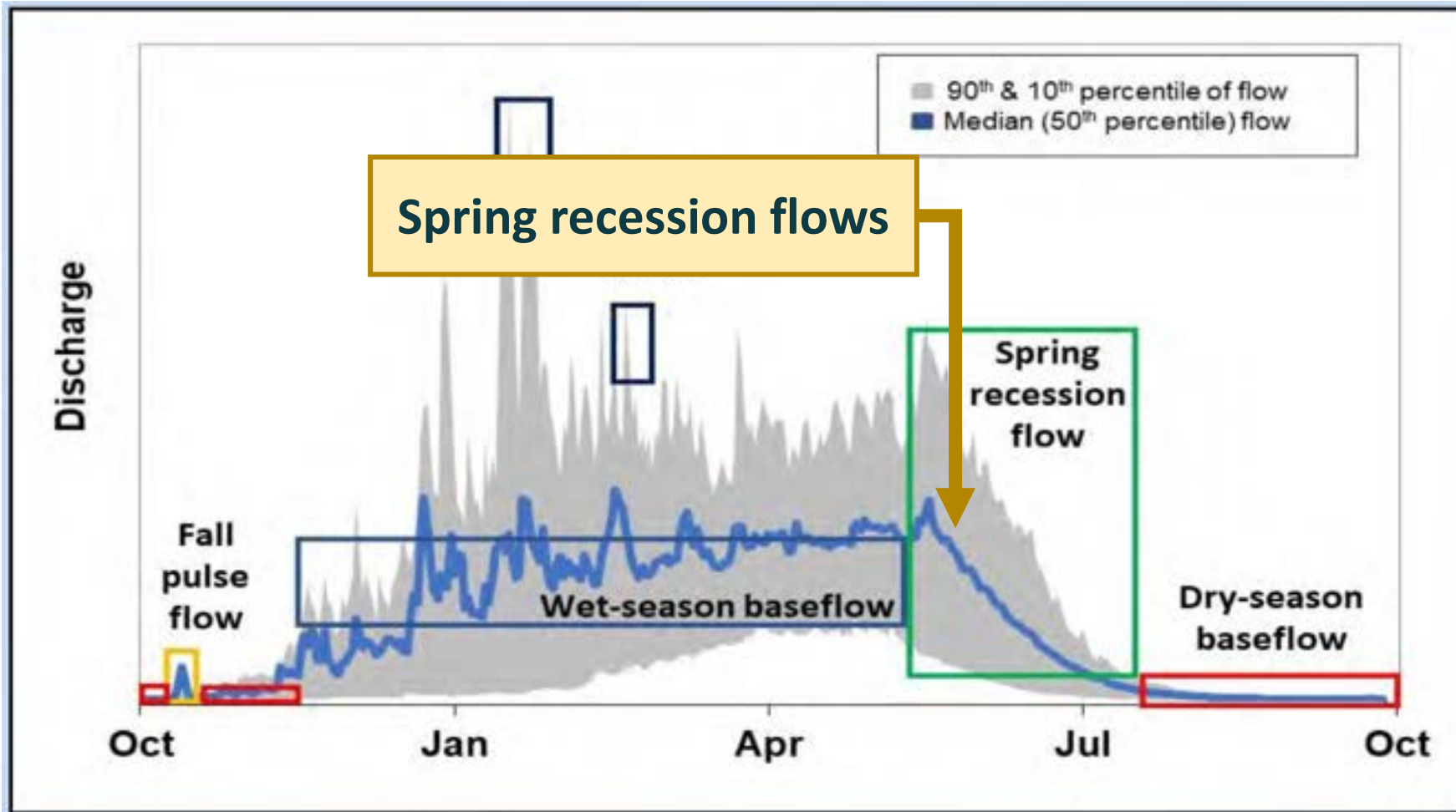


Source: CEFF Technical Report Figure 1.3 (California Environmental Flows Working Group 2021)



The Five Functional Flow metrics: Reading a hydrograph

Spring recession flows: Declining flows between the wet and dry season.

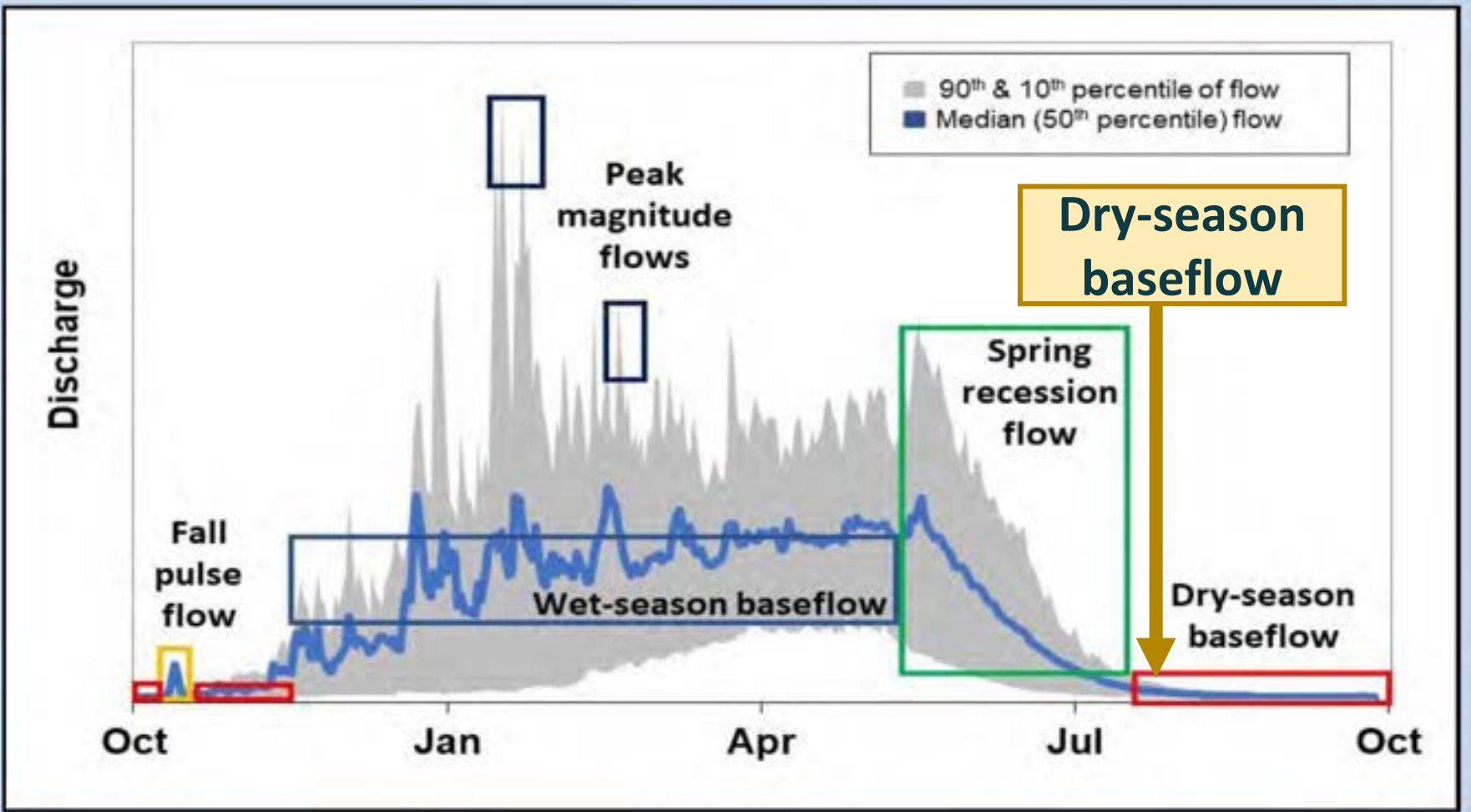


Source: CEFF Technical Report Figure 1.3 (California Environmental Flows Working Group 2021)



The Five Functional Flow metrics: Reading a hydrograph

Dry-season baseflow: Flows during the dry season.



Source: CEFF Technical Report Figure 1.3 (California Environmental Flows Working Group 2021)



Los Angeles River California Environmental Flows Framework (LAR CEFF)



Los Angeles River California Environmental Flows Framework (LAR CEFF)

How did we get here?



LAR CEFF: How did we get here?

- Multiple actions are ongoing or planned that will likely alter flows, ecology, and beneficial uses along the LA River.
- LA River Environmental Flow Project developed initial toolkit to evaluate link between flow and some of the LA River ecology and beneficial uses.
- ***LA River Environmental Flow Project had limited scope and did not make flow recommendations that address all LA River management goals.***
- An approach was needed to more holistically evaluate link between flow and LA River management goals.



Los Angeles River California Environmental Flows Framework (LAR CEFF)

How did we get here?

Why was CEFF selected?



LAR CEFF: Why was CEFF selected?

CEFF was funded by the State Water Board.

CEFF is being put forth as the tool for determining flow recommendations in California.

In some projects, state agencies are strongly recommending or requiring CEFF analysis as part of their decision-making process.

State Water Board has stated they would use the information developed in the CEFF process in future decisions.



Los Angeles River California Environmental Flows Framework (LAR CEFF)

How did we get here?

Why was CEFF selected?

What CEFF work has been completed or is in-process?

- LAR CEFF Section A was completed in July 2023.
- LAR CEFF Section B was started July 2023 and is ongoing.
- More details coming up next!



Los Angeles River California Environmental Flows Framework (LAR CEFF)

How did we get here?

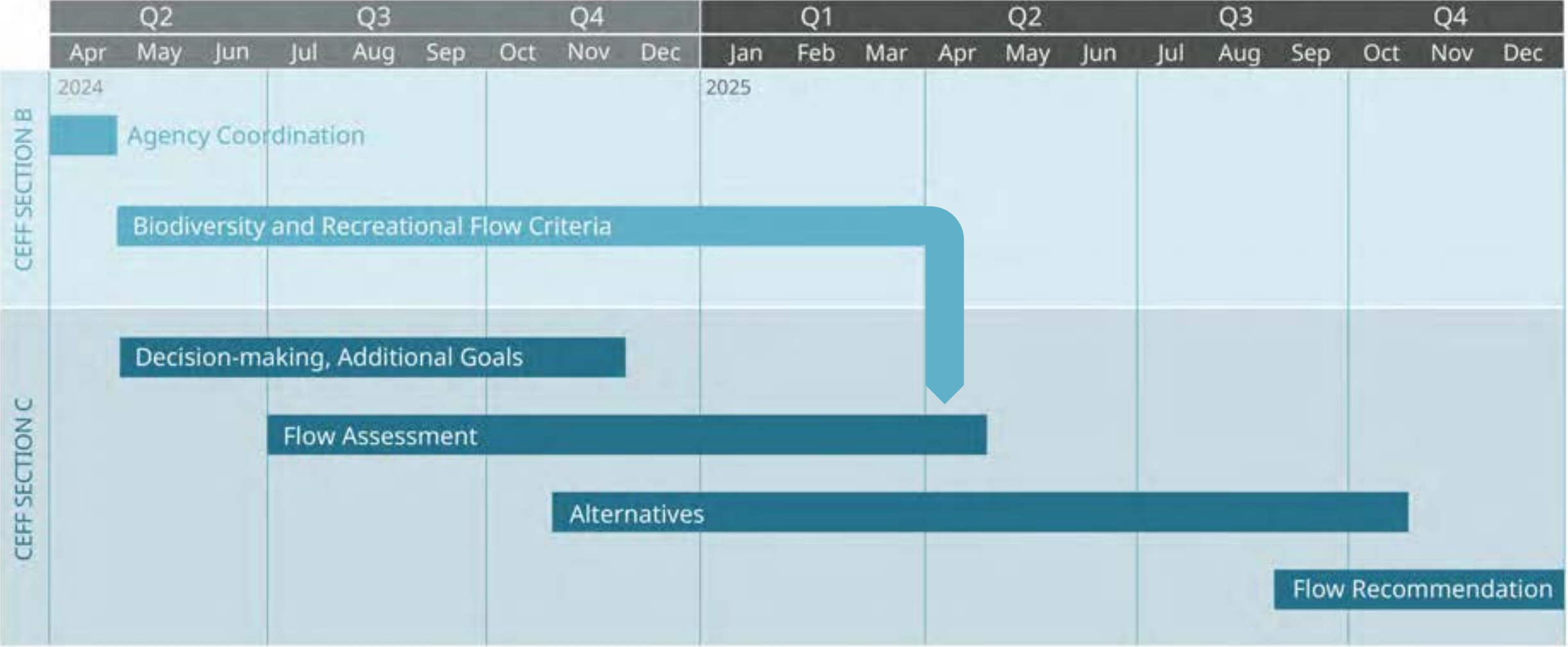
Why was CEFF selected?

What CEFF work has been completed or is in-process?

Where are we going?



LAR CEFF Project Schedule, Expectations, and Motivations



LAR CEFF Project Schedule, Expectations, and Motivations

Functional Flow	Flow Metric	Flow Metric Unit	Flow Recommendations											
			LOI 0	LOI 1.85	LOI 5.23	LOI 5.42	LOI 11.97	LOI 17.23	LOI 24.02	LOI 30.31	LOI 31.97	LOI 33.5	LOI 36.05	LOI 37.51
Fall-pulse flow	Fall-pulse magnitude	(cfs)												
	Fall-pulse start	(day of year)												
	Fall-pulse duration	(days)												
Wet-season baseflow	Wet-season baseflow	(cfs)												
	Wet-season median baseflow	(cfs)												
	Wet-season start	(day of year)												
	Wet-season duration	(days)												
Wet-season peak flow	2-year flood magnitude	(cfs)												
	2-year flood duration	(days)												
	2-year flood frequency	(occurrences)												
	5-year flood magnitude	(cfs)												
	5-year flood duration	(days)												
	5-year flood frequency	(occurrences)												
	10-year flood magnitude	(cfs)												
	10-year flood duration	(days)												
Spring recession flow	Spring recession magnitude	(cfs)												
	Spring start	(day of year)												
	Spring duration	(days)												
	Spring rate of change	(%)												
Dry-season baseflow	Dry-season baseflow	(cfs)												
	Dry-season high baseflow	(cfs)												
	Dry-season start	(day of year)												
	Dry-season duration	(days)												

LAR CEFF's outcome will be a set of seasonal flow recommendations aligned with watershed goals per LA River reach.

Seasonal flow recommendations also will take into consideration variations between wet, median, and dry water years.

Questions?



Los Angeles River CEFF Section A

Completed
in 2023



Los Angeles River CEFF Section B



Los Angeles River CEFF Section C

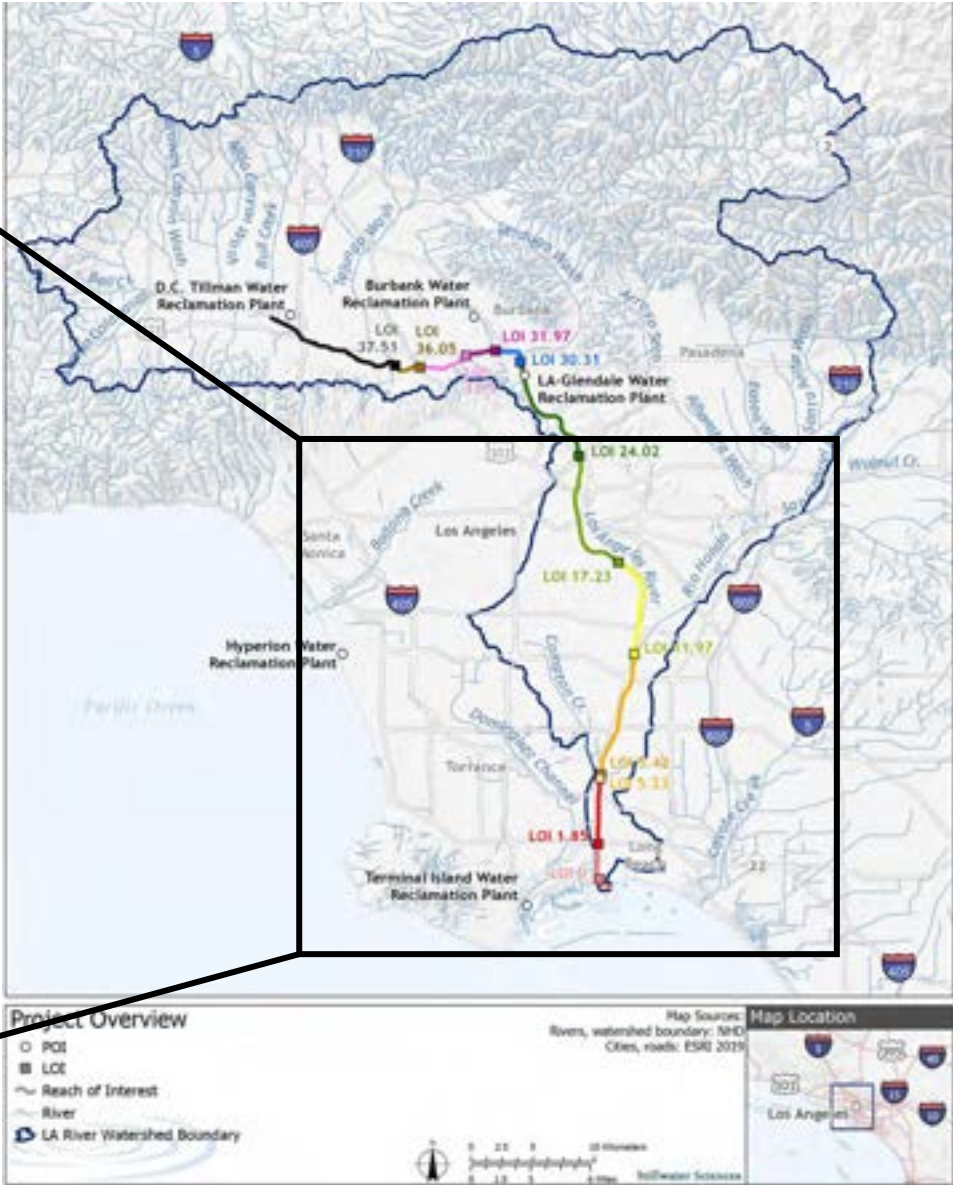
CEFF Section A: Understanding Biodiversity Goals and “Natural” Flows

CEFF process for developing flow recommendations adapted for the Los Angeles River.

SECTION A	SECTION B	SECTION C
<i>Determining the biodiversity goals in the watershed.</i> <i>Understanding the “natural” system.</i>	<i>Determining the recreational goals in the watershed.</i> <i>Determining flow needs for biodiversity and recreational goals given existing conditions.</i>	<i>Determining the other watershed goals and their flow needs.</i> <i>Developing the flow recommendations that best support achieving watershed goals.</i>



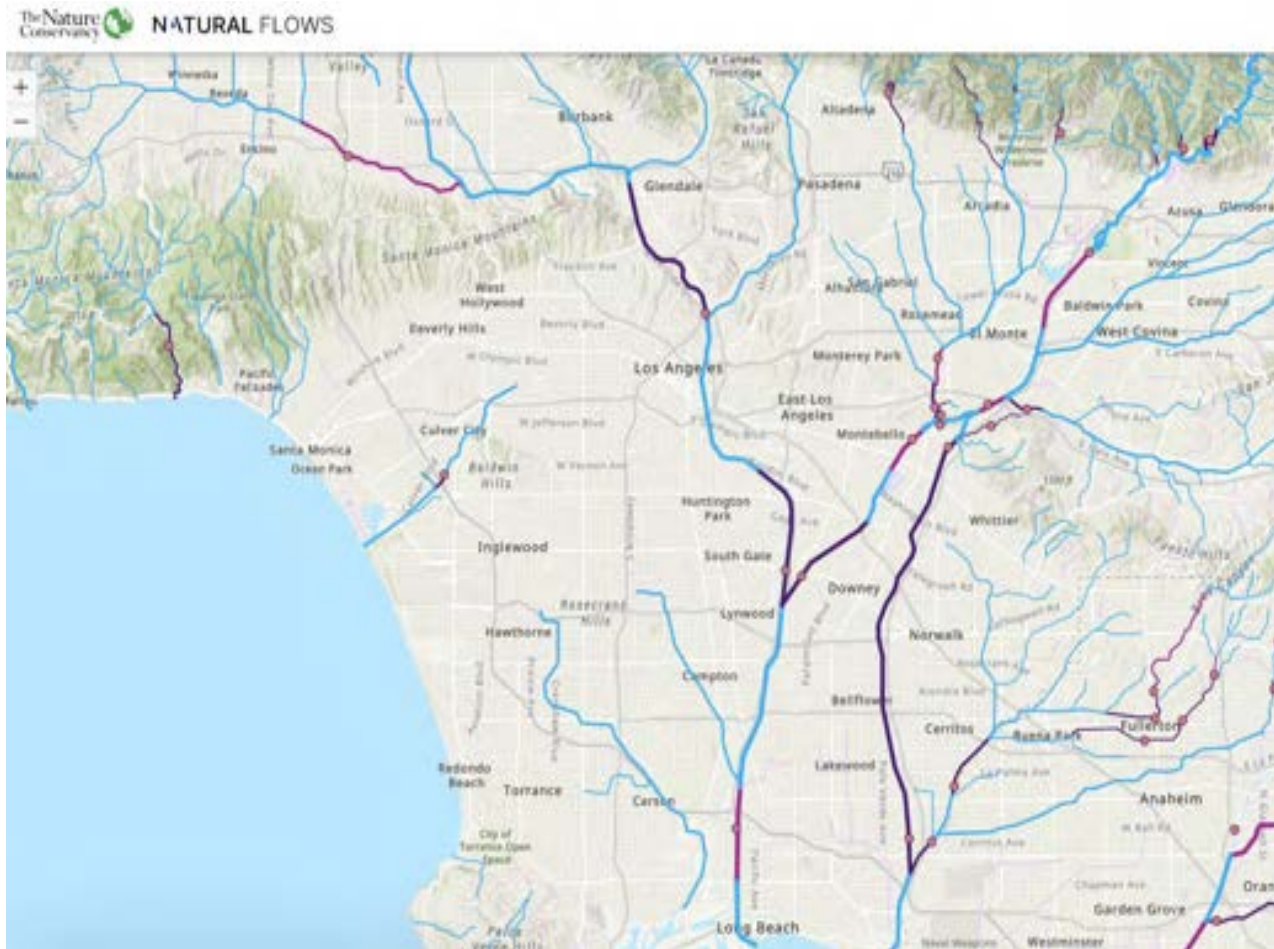
CEFF Section A: Where will we analyze flows along the LA River?



CEFF Section A: What are the LA River Biodiversity Management Goals?

Biodiversity Management Goal	Planning Document Source
Support healthy, connected ecosystems	LA River Masterplan (2022)
Conserve, enhance and restore habitat, biodiversity, and floodplain functions	Lower LA River Revitalization Masterplan (2018)
Restore Valley Foothill riparian stand and freshwater marsh habitat	LA River Ecosystem Restoration Project IFR (2015)
Increase habitat connectivity	
Restore a functional riparian ecosystem	LA River Revitalization Masterplan (2007)
Southern California steelhead recovery (viable)	NMFS Southern California Steelhead Recovery Plan (2012)
Southern California steelhead recovery (fishery)	
Santa Ana sucker recovery	USFWS Recovery Plan for the Santa Ana Sucker (2017)

CEFF Section A: What are “natural” flows in the LA River?



Natural flows are estimated from the California Natural Flow Database (CNFD), as required by CEFF.

CNFD “natural” flows are less accurate when significant surface water-groundwater interactions occur.

Historical data (1890s) suggests CNFD “natural” flows likely underpredict true natural flows in portions of LA River.

Source: <https://rivers.codefornature.org>

CEFF Section A: Could natural flows support biodiversity goals?

CEFF Section A findings for the LA River (Stillwater Sciences, July 2023):

- Channel modifications have significantly altered relationships between flow, water depth, and water velocity.
- Natural flows no longer able to support ecological functions needed to achieve biodiversity goals.
- CEFF Section B analysis is needed to determine flows that will now support biodiversity goals.



LA River near Riverfront Park, Maywood, CA

Los Angeles River CEFF Section A

Completed
in 2023



Los Angeles River CEFF Section B

In Progress
Anticipated
Winter 2025



Los Angeles River CEFF Section C

CEFF process for developing flow recommendations adapted for the Los Angeles River.

SECTION A

Determining the current biodiversity goals in the watershed

Understanding the “natural” system.

SECTION B

Determining the recreational goals in the watershed.

Determining flow needs for biodiversity and recreational goals given existing conditions.

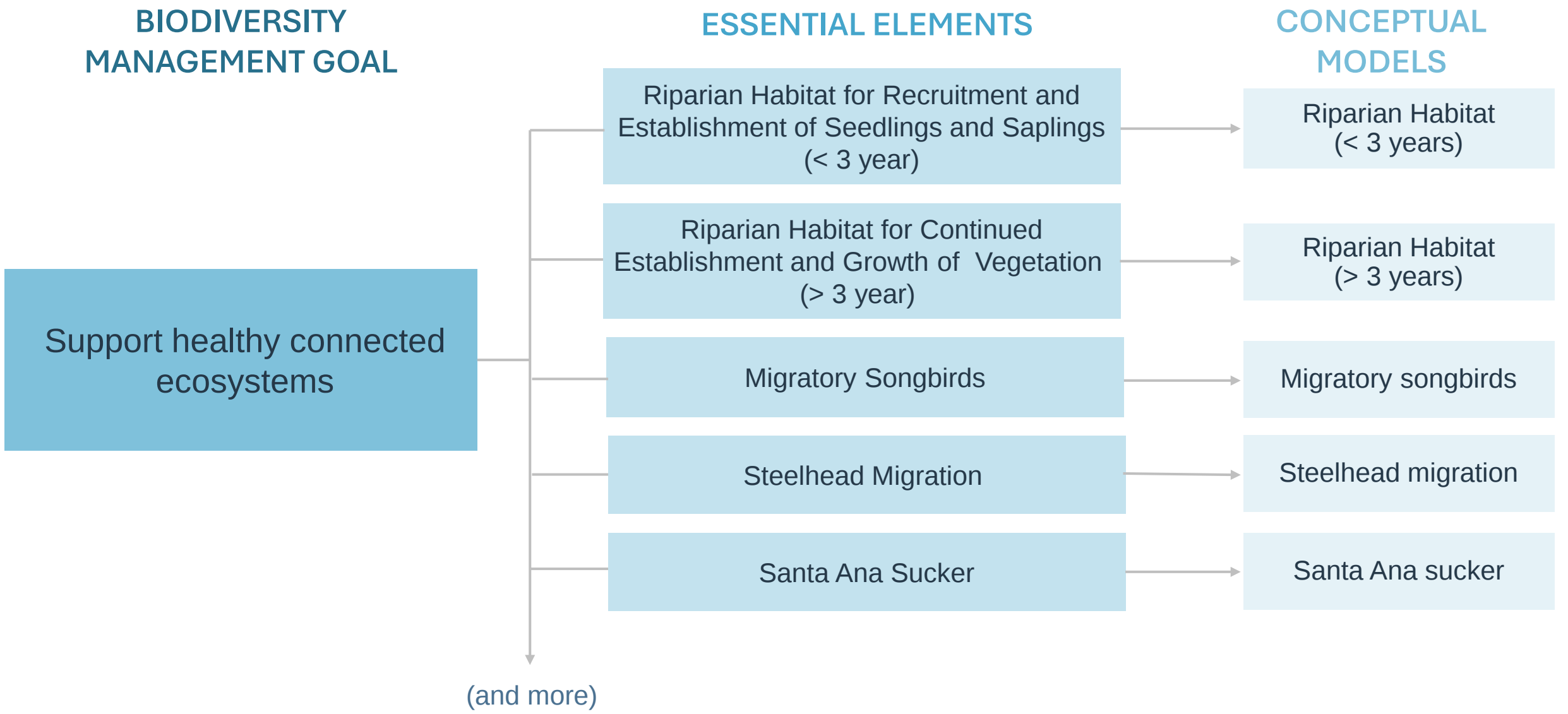
SECTION C

Determining the other watershed goals and their flow needs.

Developing the flow recommendations that best support achieving watershed goals.



CEFF Section B: How do you determine flow needs for goals?



CEFF conceptual models diagram the linkages between:

- Flows and parameters important to the goal and its outcomes being diagrammed.
- Parameters and those conditions that determine whether the goal outcomes can/will be achieved.
- Condition of the parameters, and the measurable goal outcomes that must be met to achieve the goal being diagrammed.

Purpose of conceptual models is to map out all the potential ways that flows influence goal outcomes, and to identify all parameters that must be considered when developing flow criteria.

CEFF Section B: What flow criteria are needed to support the goals?

The range of a parameter necessary to support a goal outcome (“suitability criteria”) are compiled from literature.

Uncertainties and data gaps are documented, highlighting what may need revisited in the future (separate from the CEFF process).

Available models of the LA River will be used to determine the flow criteria to support goal outcomes.

Parameter	Units	Adult Steelhead Upstream Migration Suitability Criteria	Source
Physical			
Thalweg Water Depth	ft	> 0.7	Thompson 1972; Bell 1991; SWRCB 2007; CDFW 2013; SWRCB 2014; Holmes et al. 2016
Average Water Depth	ft	> 1	CDFW (Love and Bates 2009) pg. XII-54; NMFS (2023)
Cross-sectional Average Water Velocity	ft/s	60 ft length: ≤ 6.0 ft/s	CDFW (Love and Bates 2009) pg. XII-53, CDFW (Taylor and Love 2004) pg. IX-A-8; NMFS (2023) Section 5.10.3.1
		60 to 100 ft length: ≤ 5.0 ft/s	
		100 to 200 ft length: ≤ 4.0 ft/s	
		200 to 300 ft length: ≤ 3.0 ft/s	
		> 300 ft length: ≤ 2.0 ft/s	
Maximum Water Velocity	ft/s	8	Thompson 1972; Bell 1991; Bjornn and Reiser 1991
Hydraulic barriers	ft	< 1	NMFS (2023) Section 5.10.3.3; CDFW (Love and Bates 2009) pg. XII-53; CDFW (Taylor and Love 2004) pg. IX-A-8
Turbulence (Energy Dissipation Factor[EDF])	ft-lb/s/ft ³	< 7	CDFW (Love and Bates 2009) pg. XII-74
Water Quality			
Water Temperature	°F	65	Bratovich et al. (2012), McCullough et al. (2001), EPA (2003), Keefer et al. 2009; NMFS (2000, 2001), Richter and Kolmes (2005), SWRCB (2003), USBR (1997, 2003), and USFWS (1995)
Dissolved oxygen	mg/L	> 7 (instantaneous)	Bjornn and Reiser 1991; Carter 2005
Minimum dissolved oxygen for migration	mg/L	> 4.5 (instantaneous)	Bjornn and Reiser 1991
...	...	...	...



CEFF Section B: What are the flow criteria needed to achieve management goals?

LOI	Functional Flow	Flow Metric	Flow Metric Unit	Biodiversity Management Goals								Recreational Management Goals			
				Support healthy, connected ecosystems							...	Preserve traditional navigable waters designation	Conserve and enhance REC-1		...
				Riparian Habitat (<3 yrs)	Riparian Habitat (≥3 yrs)	Migratory songbirds	Shorebirds	Adult steelhead migration	Juvenile steelhead migration	...	...	Boating	Swimming/ wading	Fishing	...
LOI 24.02	Fall-pulse flow	Fall-pulse magnitude	(cfs)												
		Fall-pulse start	(day of year)												
		Fall-pulse duration	(days)												
	Wet-season baseflow	Wet-season baseflow	(cfs)												
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		Dry-season start	(day of year)												
		Dry-season duration	(days)												

At each location of interest, flow criteria will be compiled for each functional flow component that is essential for supporting the management goals.

With this compilation, we'll be able to see (in CEFF Section C) how well existing and potential future flows can meet the range of goals.

Questions?



Los Angeles River CEFF Section A

Completed
in 2023



Los Angeles River CEFF Section B

In Progress
Anticipated
Winter 2025



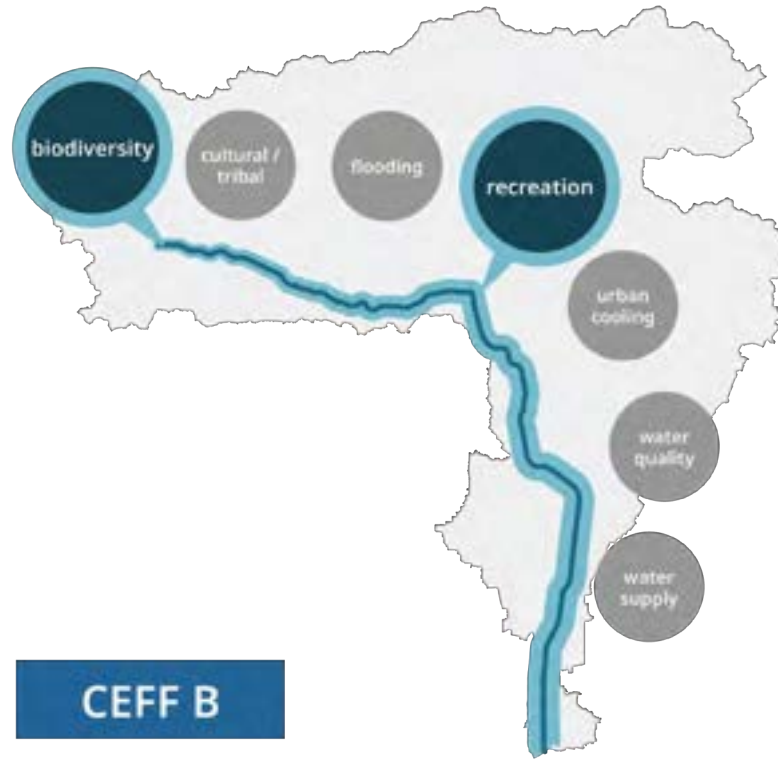
Los Angeles River CEFF Section C

Initiated
Anticipated
Winter 2025

CEFF Process Overview



Understanding the system's
**natural baseline and
biodiversity goals.**



Understanding flow needs for
**biodiversity and recreation
goals in the river.**



Making flow recommendations
that **align with many goals**
across the watershed.

California Environmental Flow Framework (CEFF) and the Los Angeles River

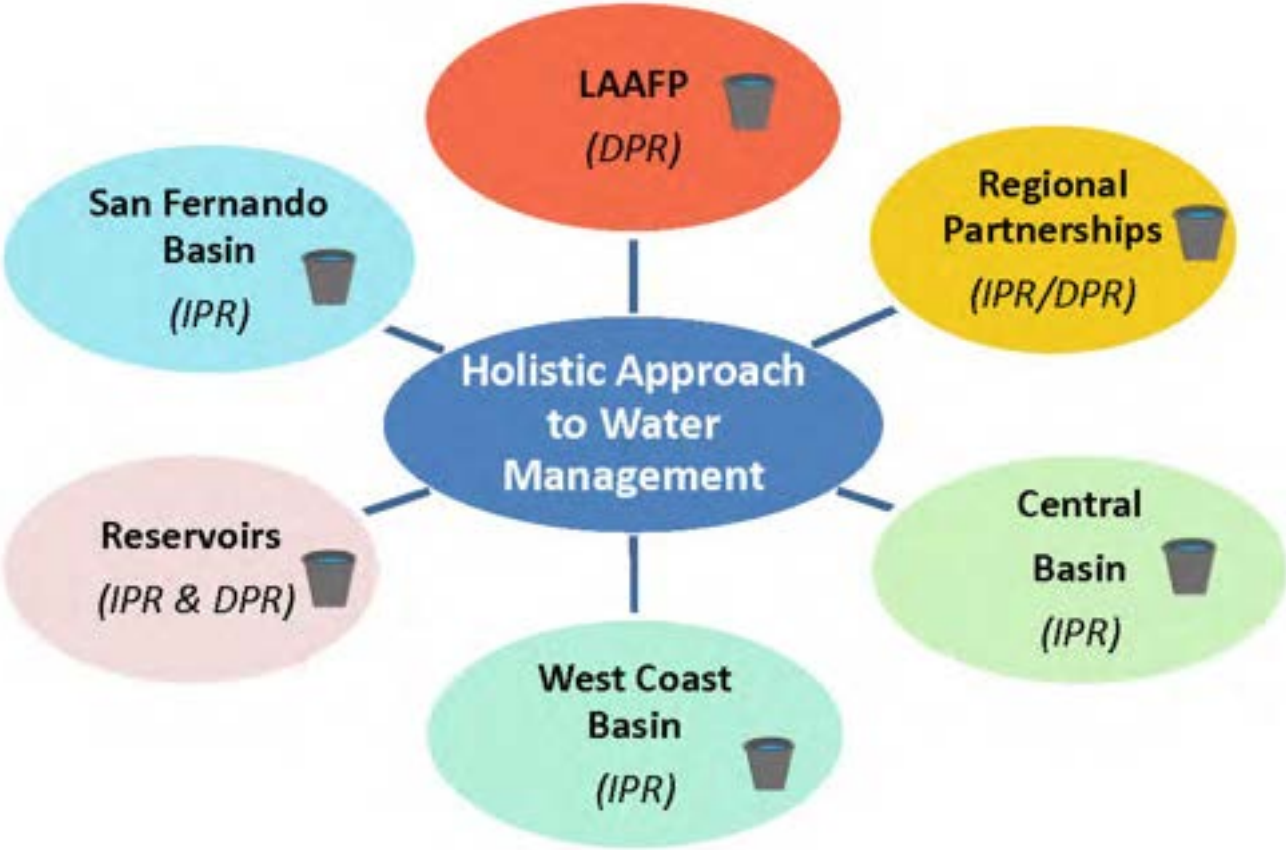
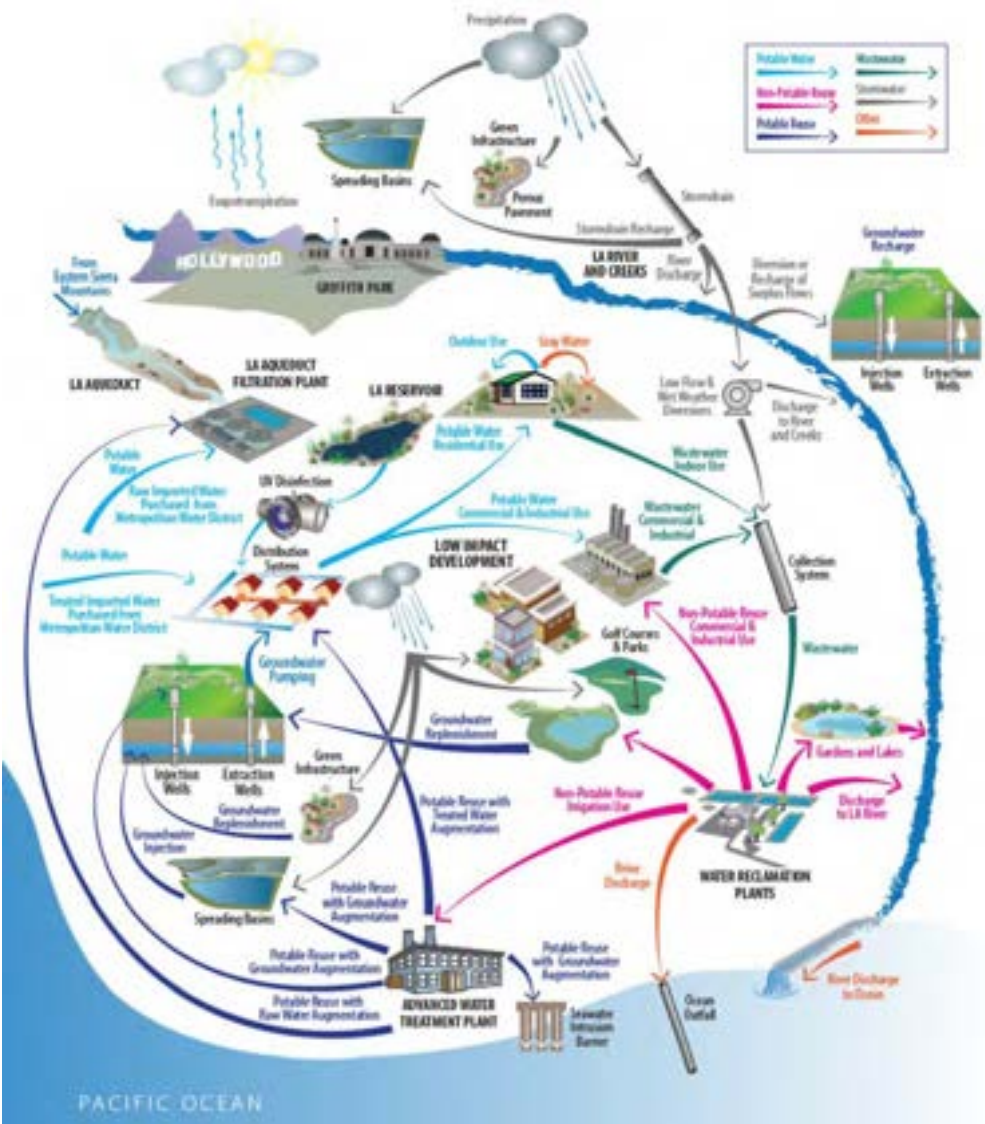


Major investments are changing the river and watershed.

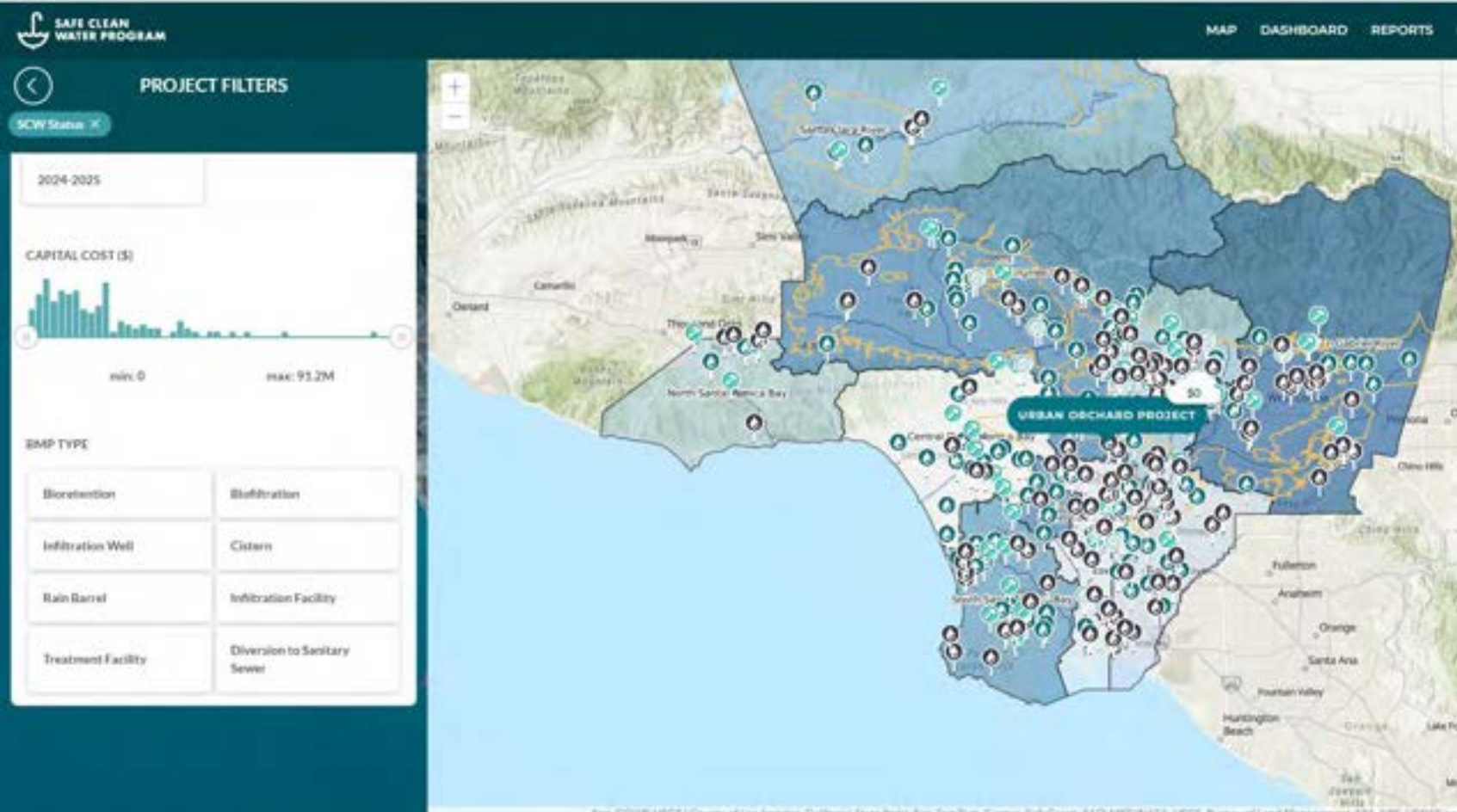
Many goals must be addressed.

CEFF is an opportunity for integrated solutions.

Management Theme: Water Supply Resilience



Management Theme: Water Quality Improvement



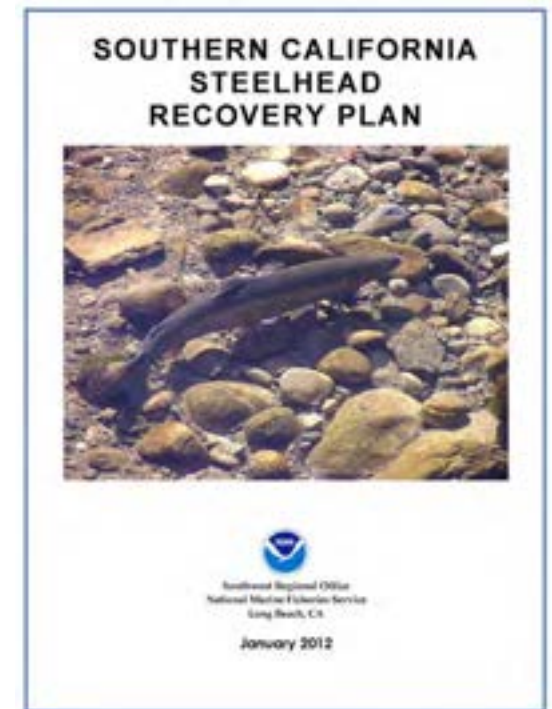
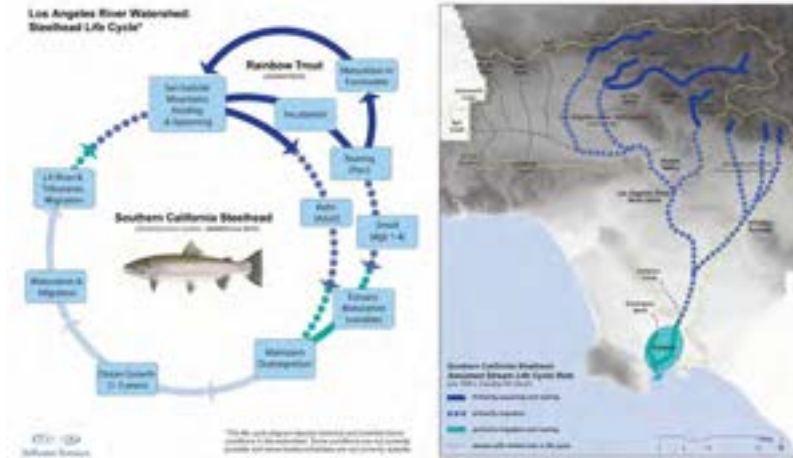
Management Theme: Recreation Enhancement (map also includes Restoration Projects)



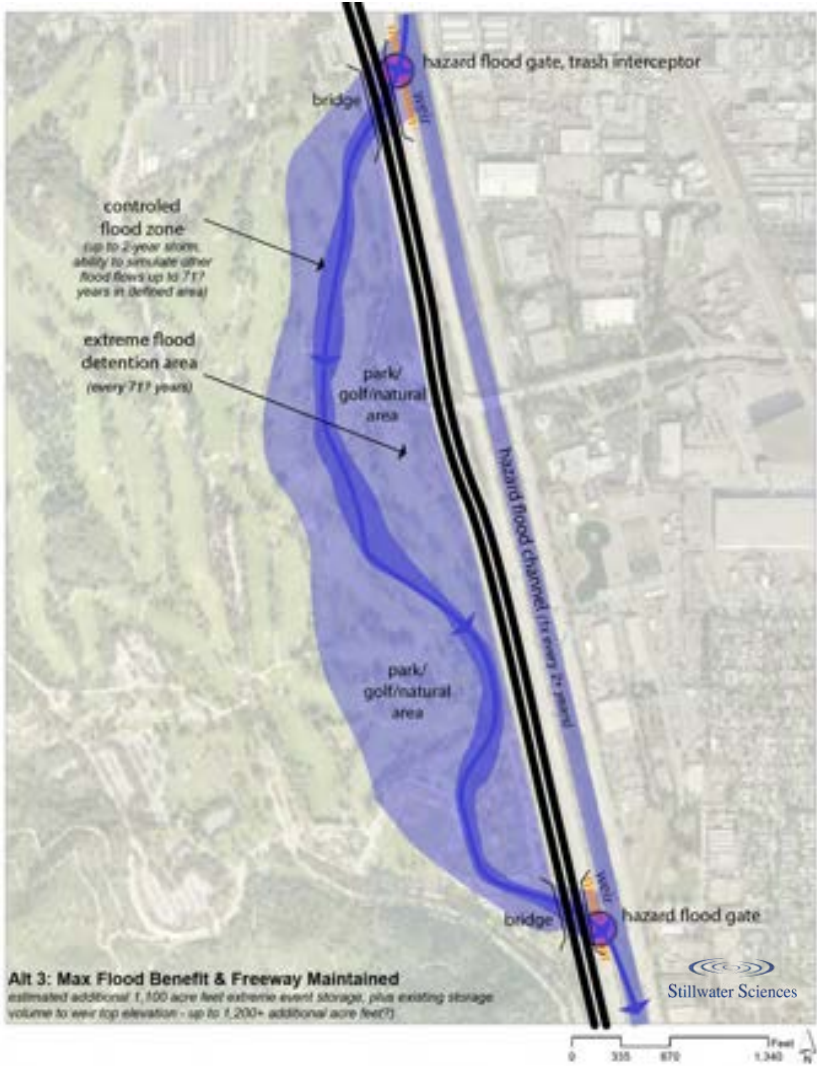
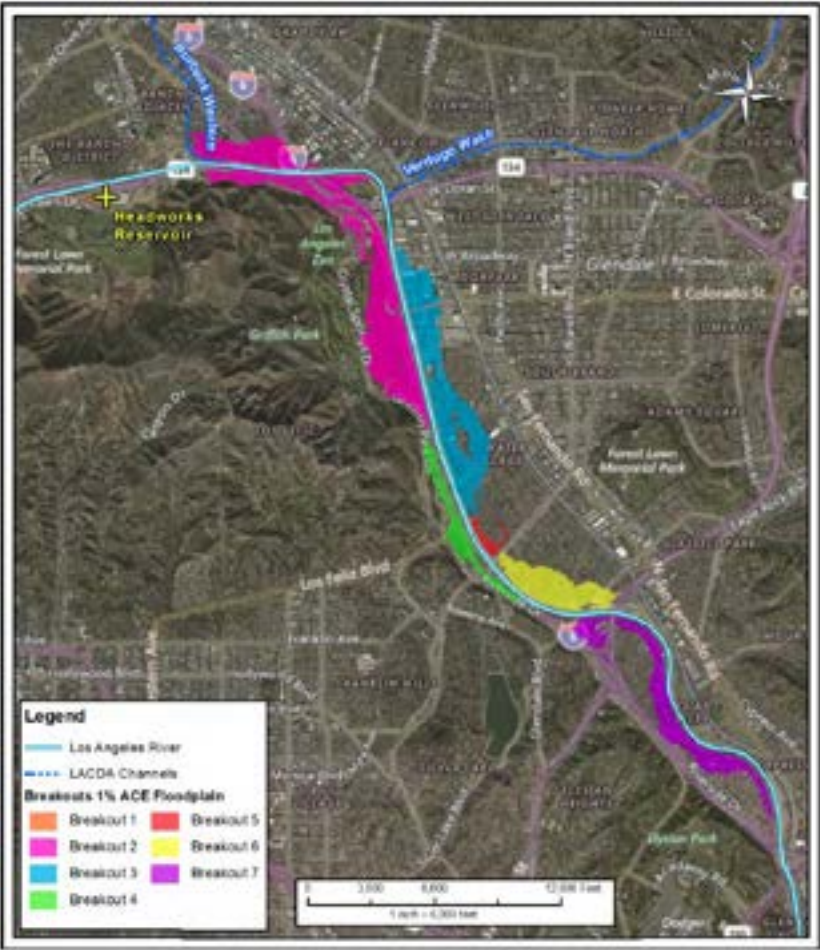
LA RIVER MASTER PLAN



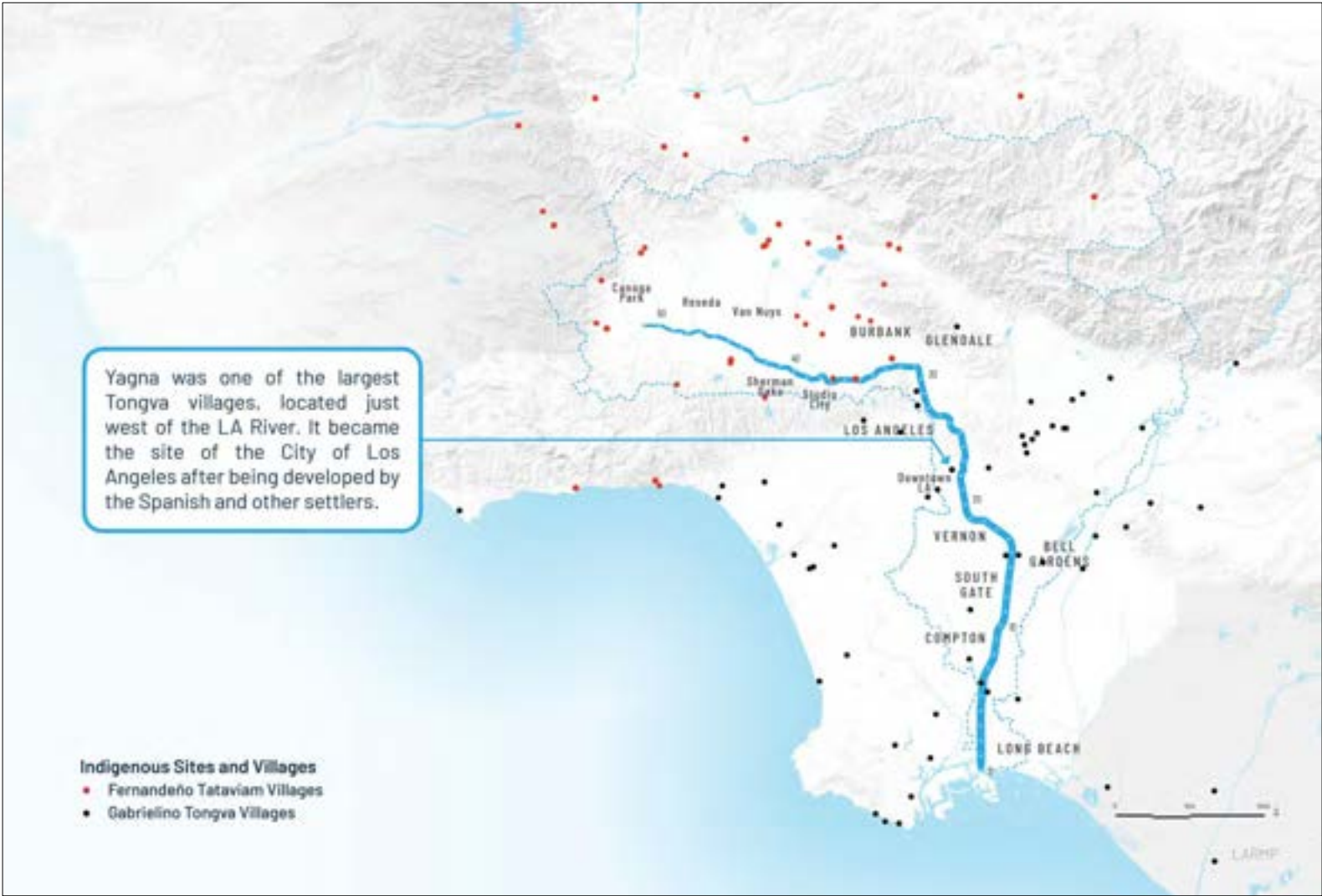
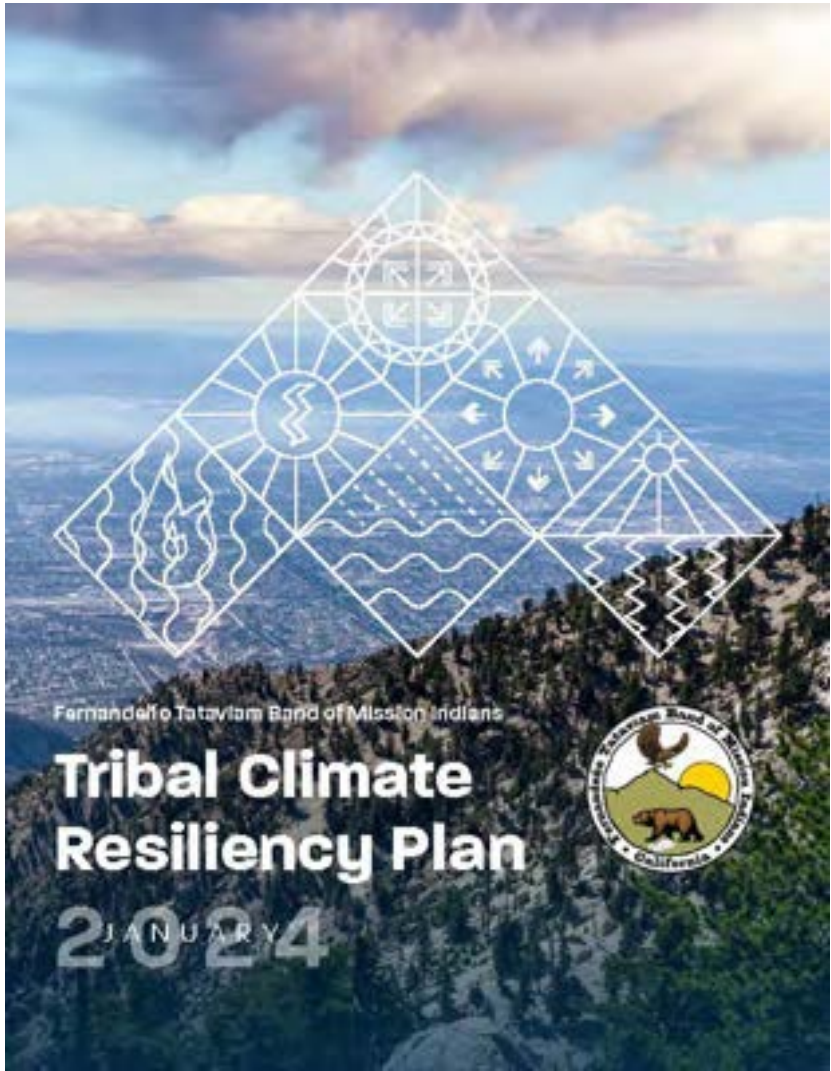
Management Theme: Biodiversity & Habitat Restoration



Management Theme: Flooding Risk Reduction



Management Theme: Tribal Resilience and Renewal

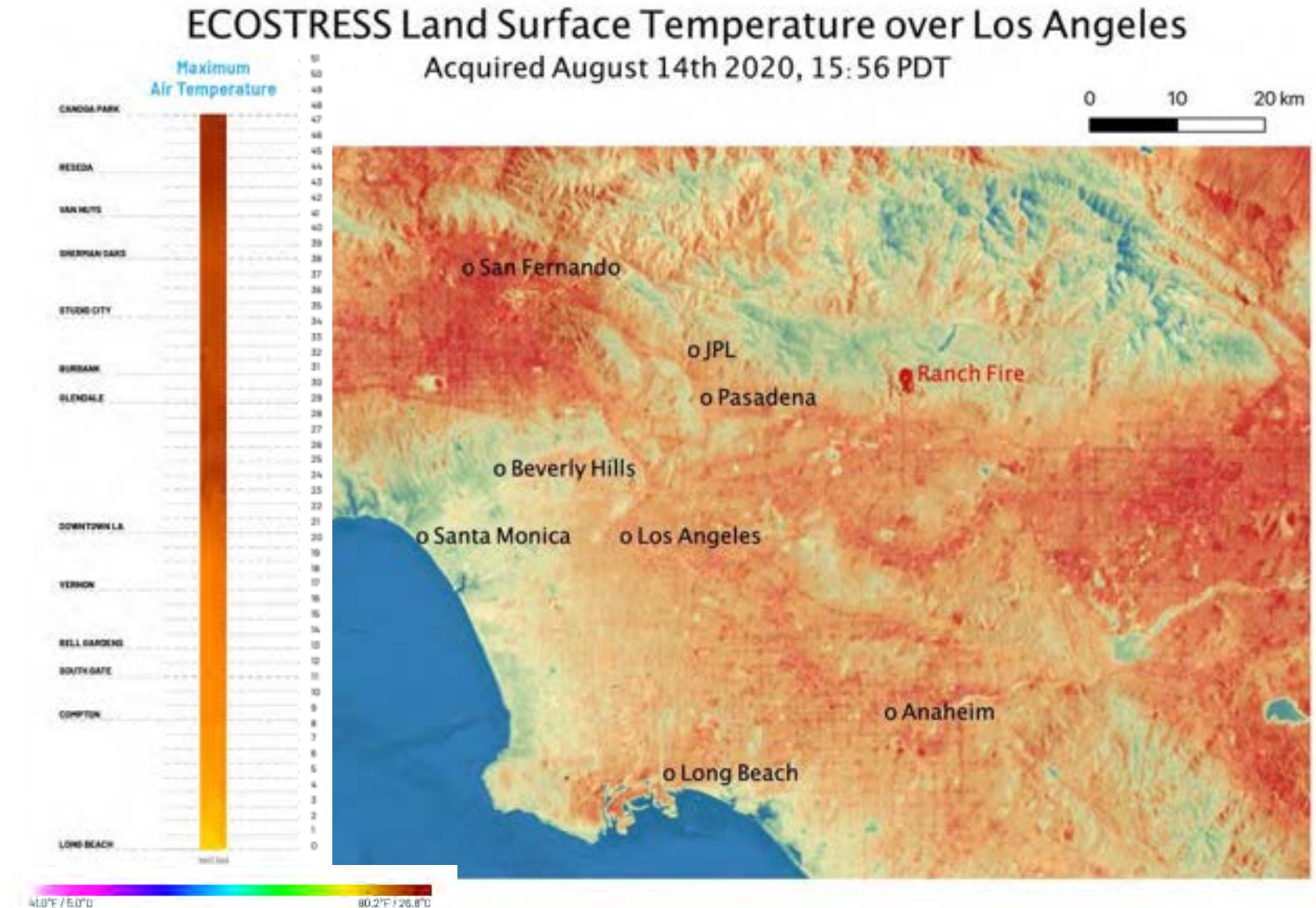


Management Theme: Urban Cooling

“...rising impacts of the urban heat island effect could mean that many portions of the LA River will see substantial increases number in days [above] 95°F.”

“Providing ample shade structures, sites for cooling and potable water, and...an increased urban tree canopy will all help in making a more sustainable and resilient public open space”

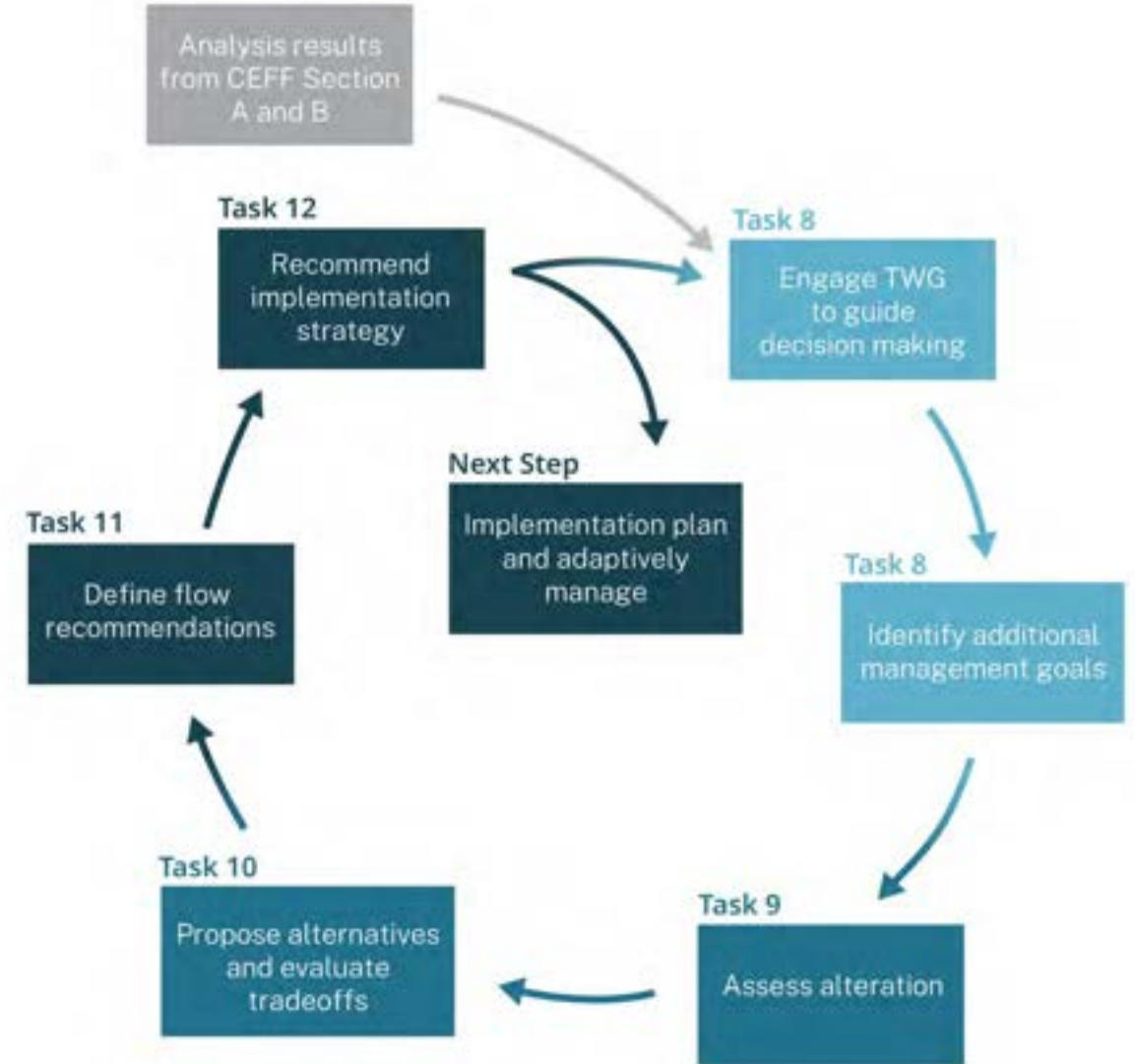
Los Angeles River Master Plan (2022)



The Seven Themes of LAR Management Goals

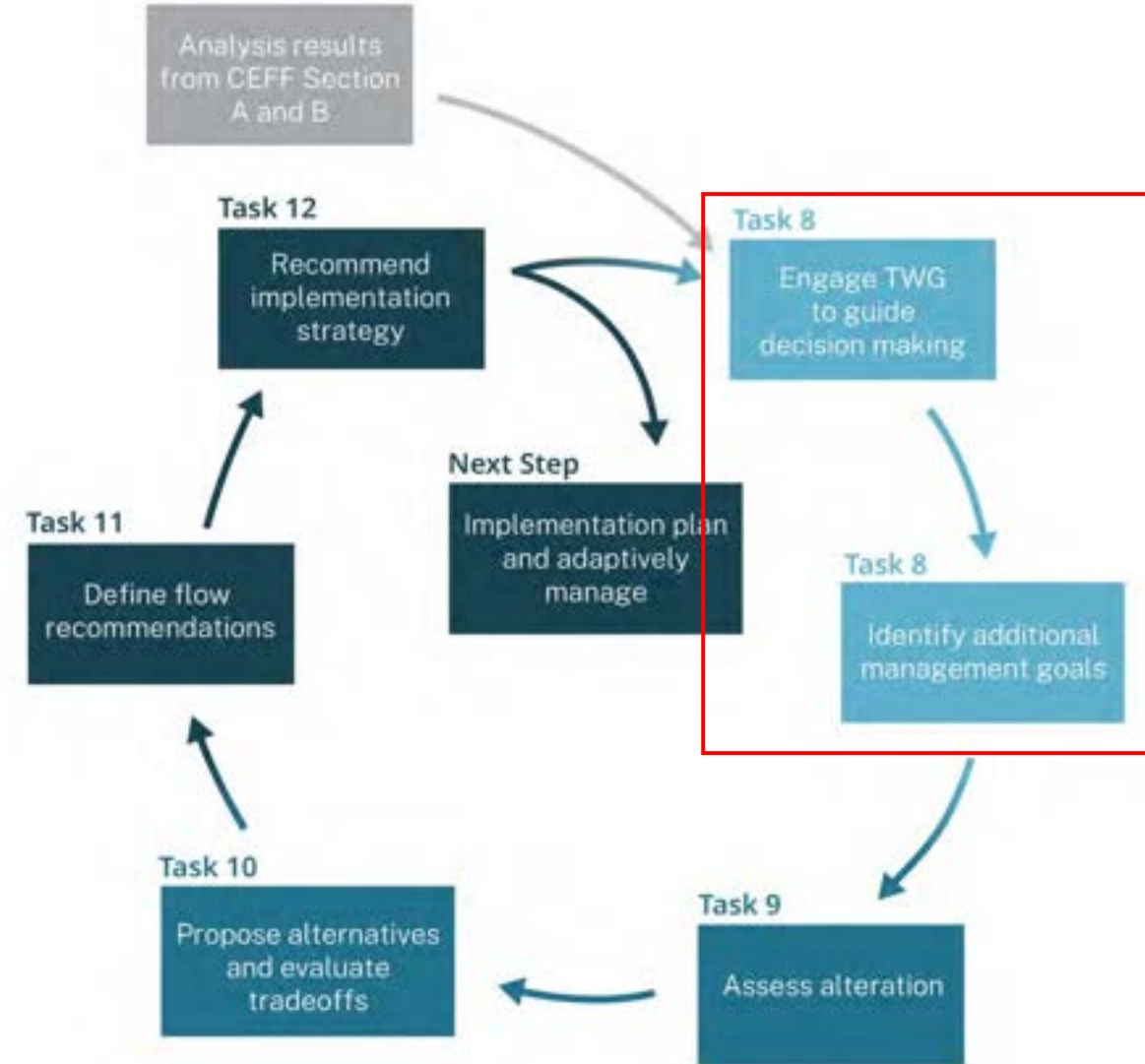


- **Task 8:** Working Group / Structured Decision-Making Process
- **Task 9:** Assess Flow Alteration and Planned Flows
- **Task 10:** Alternative Management Scenarios
- **Task 11:** Flow Recommendations
- **Task 12:** Proposed Implementation Plan Outline



Task 8: Working Group / Structured Decision-Making Process

- Define working group and define roles
- Define structured decision-making process *(discussion next)*
- Identify additional management goals *(Breakout Group 1 today)*



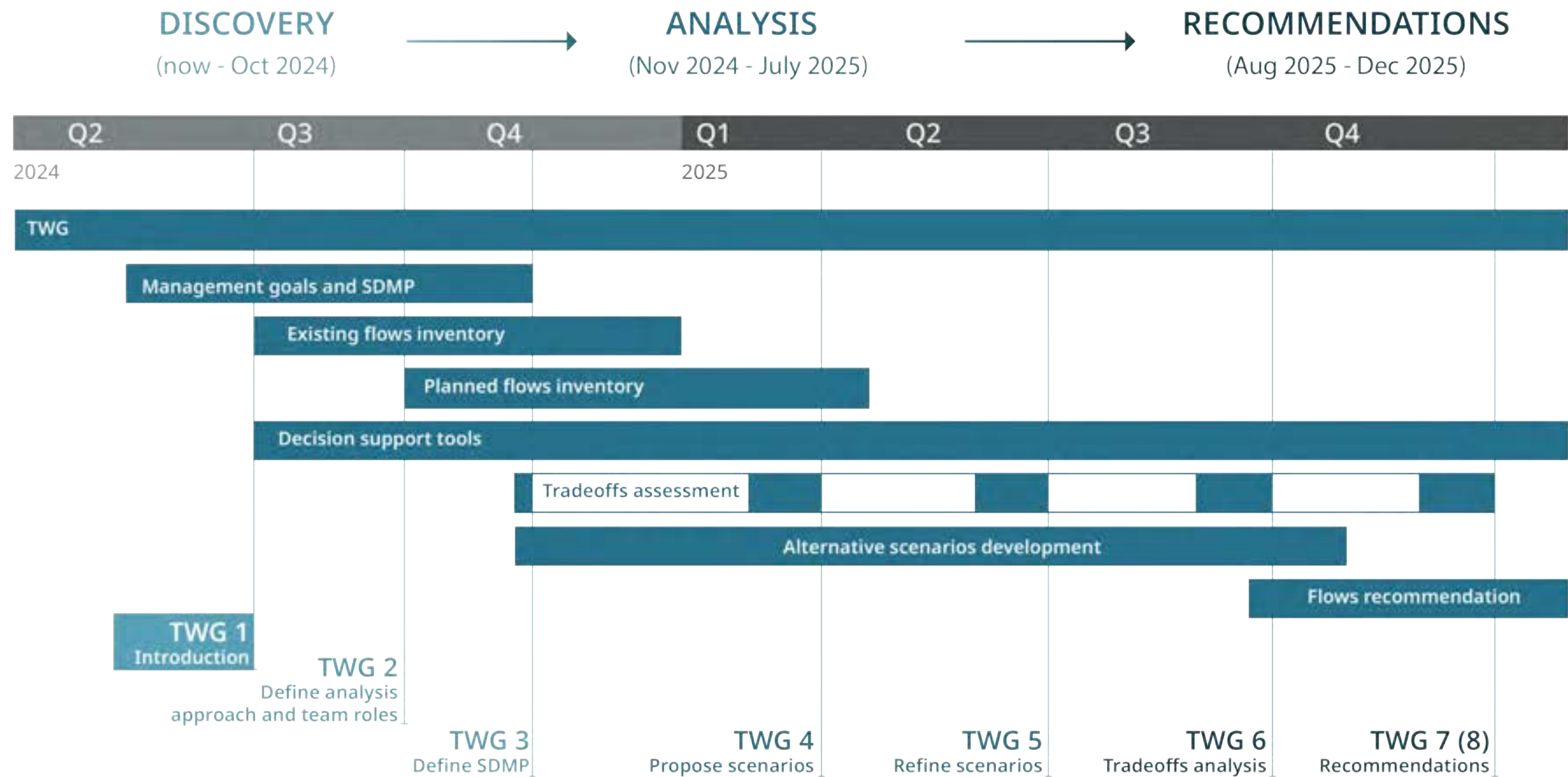
CEFF C Process: Structured Decision-Making Process (SDMP)

- Technical working group will be central to decisions and defining this process.
- How will decisions be made at key points?
 - Discussions and structured feedback
 - Goals confirmation and SDMP
 - Confirm baseline analysis approach
 - Identifying alternative scenarios
 - Evaluating tradeoffs
 - Making flow recommendations
- **Key to success**
 - Trust the process as an opportunity
 - Find “win-wins” and “low hanging fruit”
 - Build understanding, collaborate across disciplines

GENERAL CEFF C PROCESS OVERVIEW

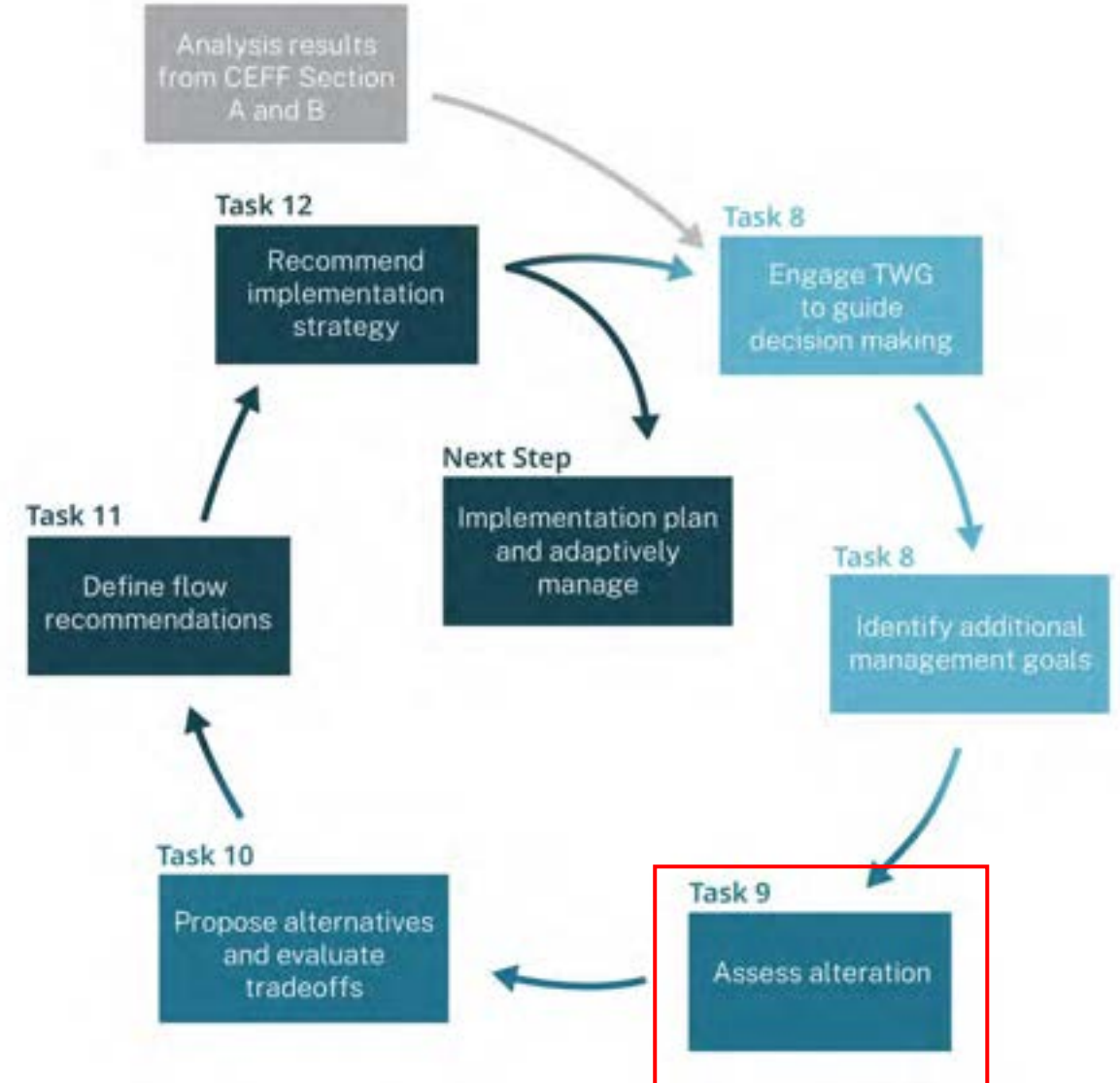


CEFF C: Schedule

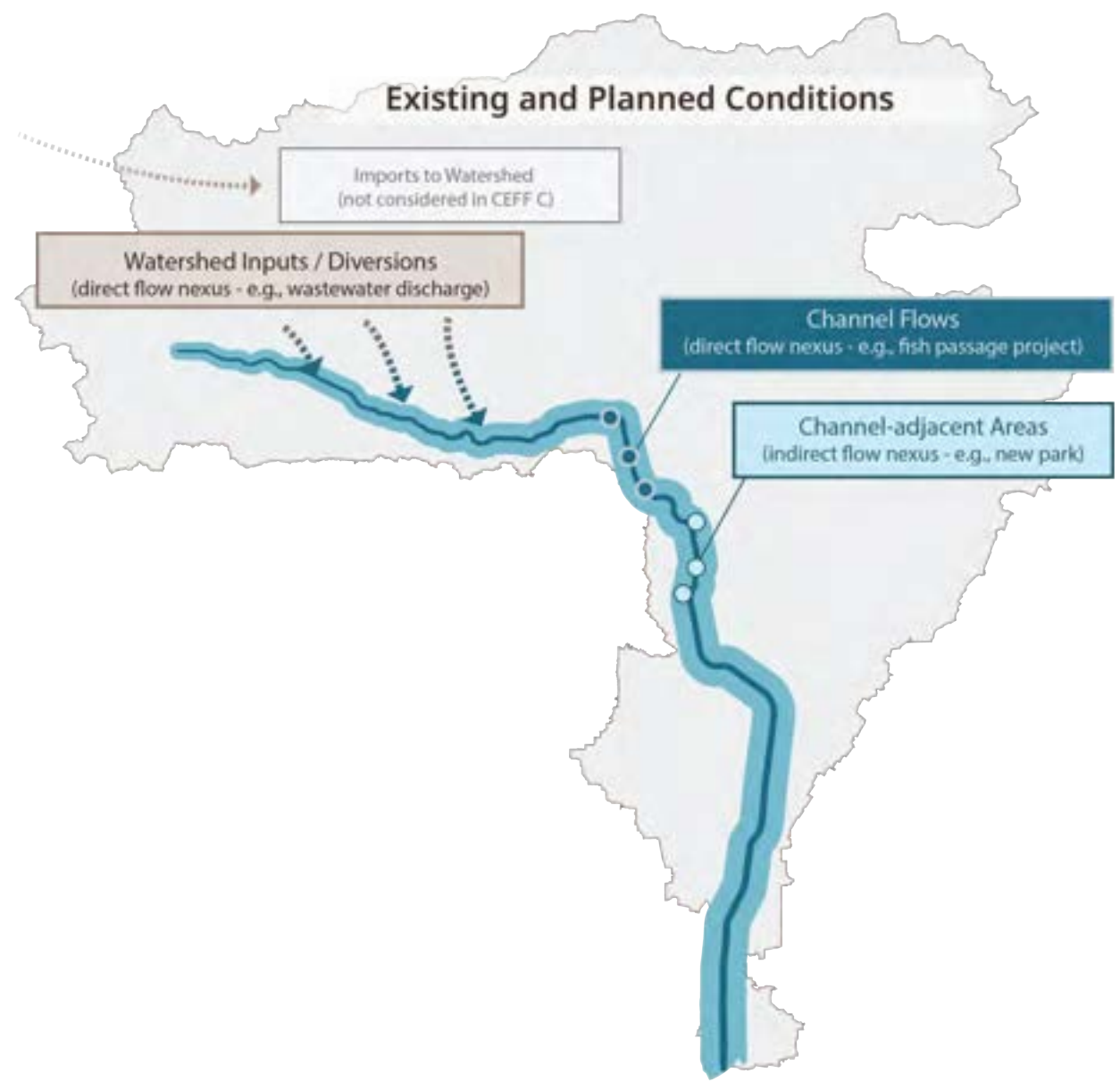


Task 9: Assess Flow Alteration

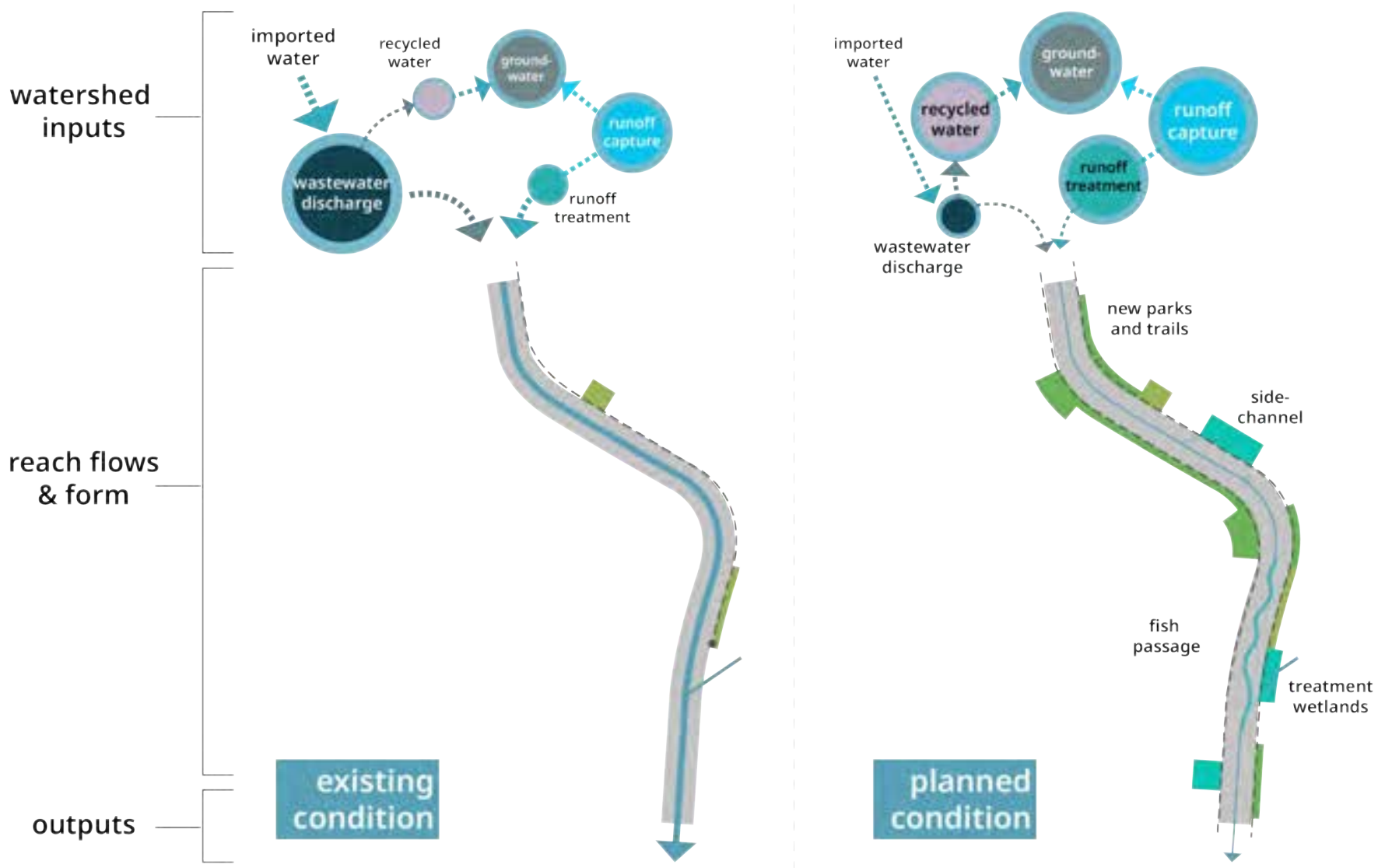
- Existing and planned flow inventory (baseline establishment)
- Evaluation of goals achievement



CEFF C Process: Task 9 Assess Flow Alteration



CEFF C Process: Task 9 Assess Flow Alteration



Process and Decision Support
Tools for Evaluating Flow
Management Targets to
Support Aquatic Life and
Recreational Beneficial Uses of
the Los Angeles River
*Los Angeles River
Environmental Flows Project*



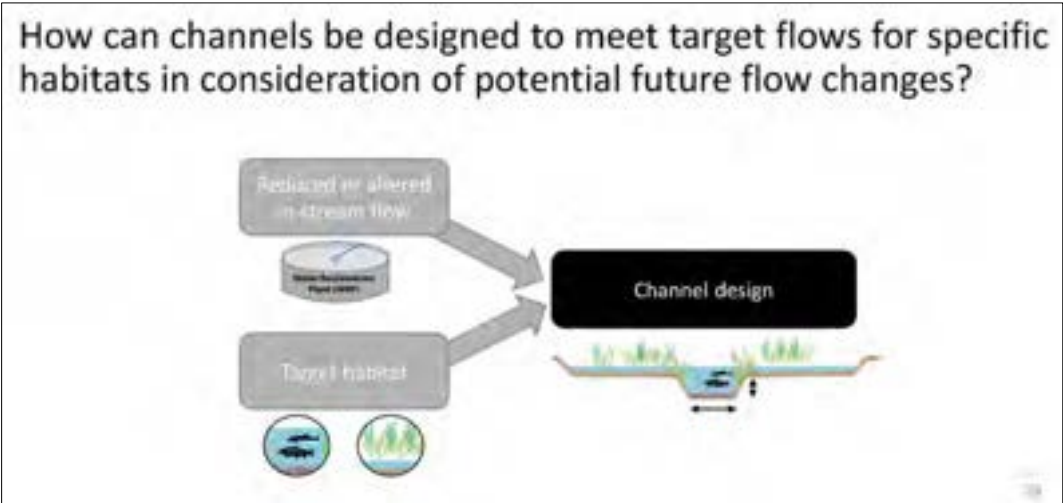
Southern California Coastal Water Research Project
SCCWRP Technical Report #1196



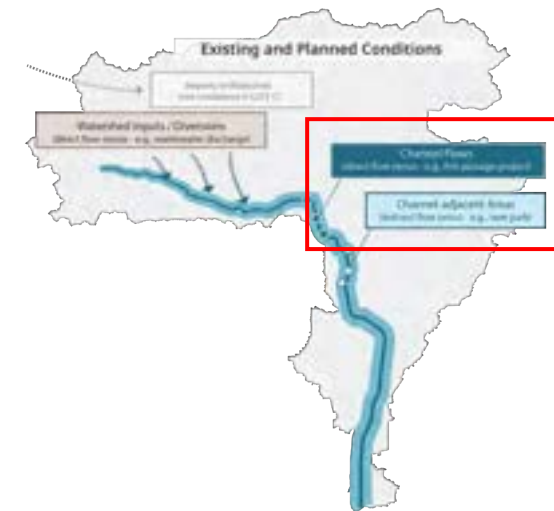
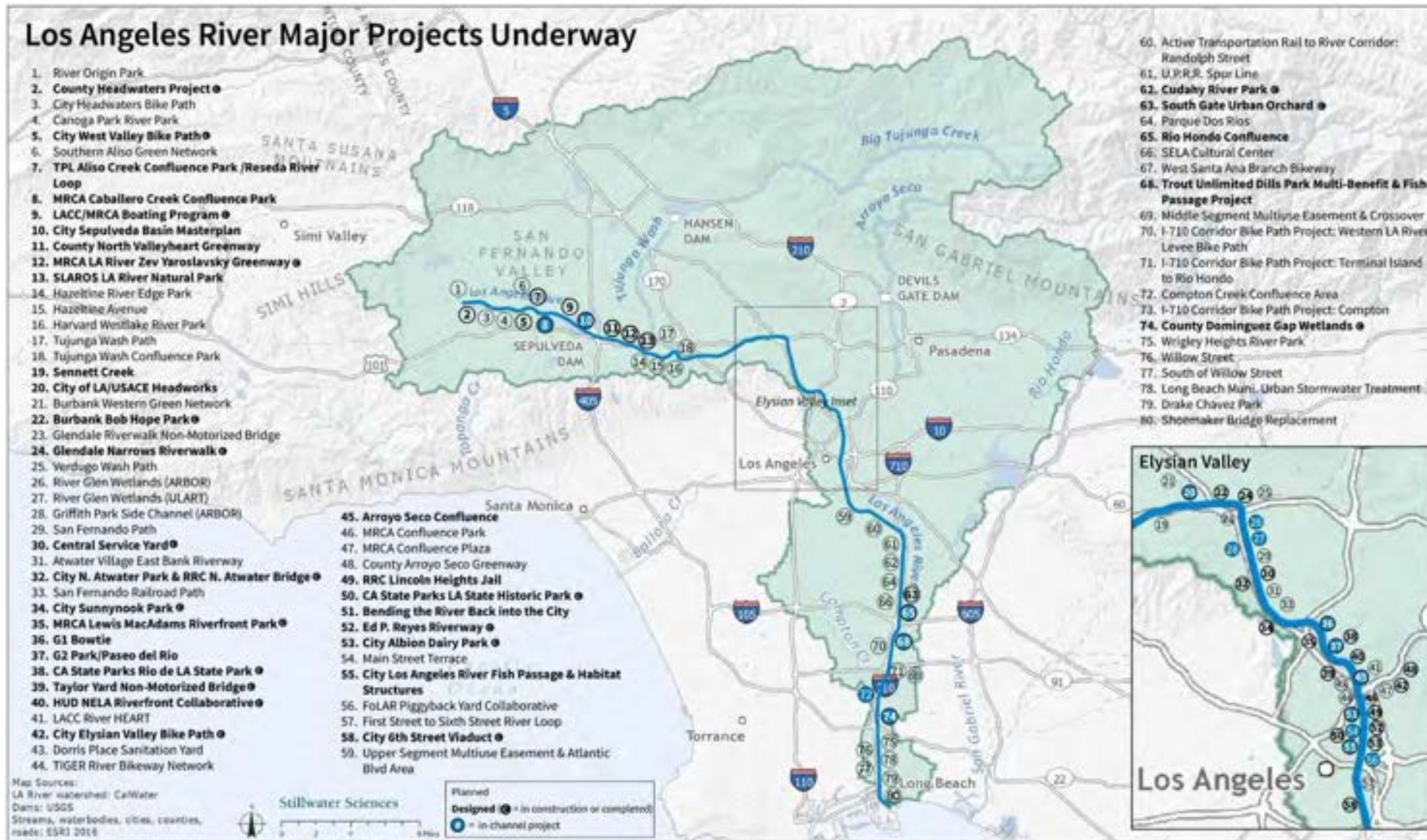
COLORADO SOUTHERN CALIFORNIA
WATER RESEARCH PROJECT

Eric D. Stein
Kris Taniguchi-Quan
Jordyn Wolfand
Elizabeth Gallo
Kate Irving
Daniel Philippus
Reza Abdi
Victoria Hennen
Anna Tanoco
Peter Mohammadi
Ashley Rust
Terri S. Hogue

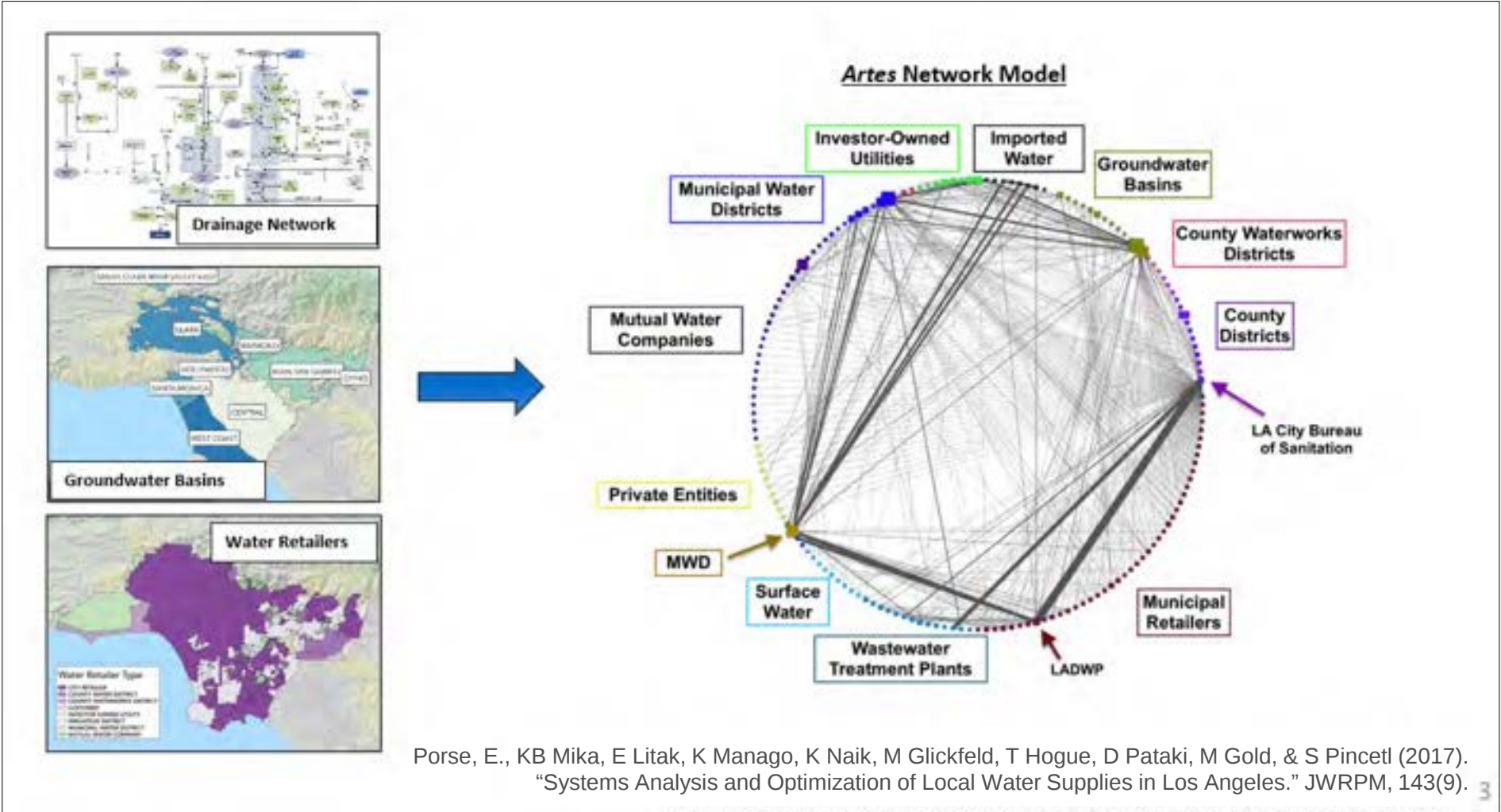
What are the potential impacts (+ or -) to existing and potential future instream beneficial uses in the Los Angeles River caused by reductions of wastewater treatment plant discharges and/or stormwater capture?



CEFF C Process: Task 9 Assess Flow Alteration

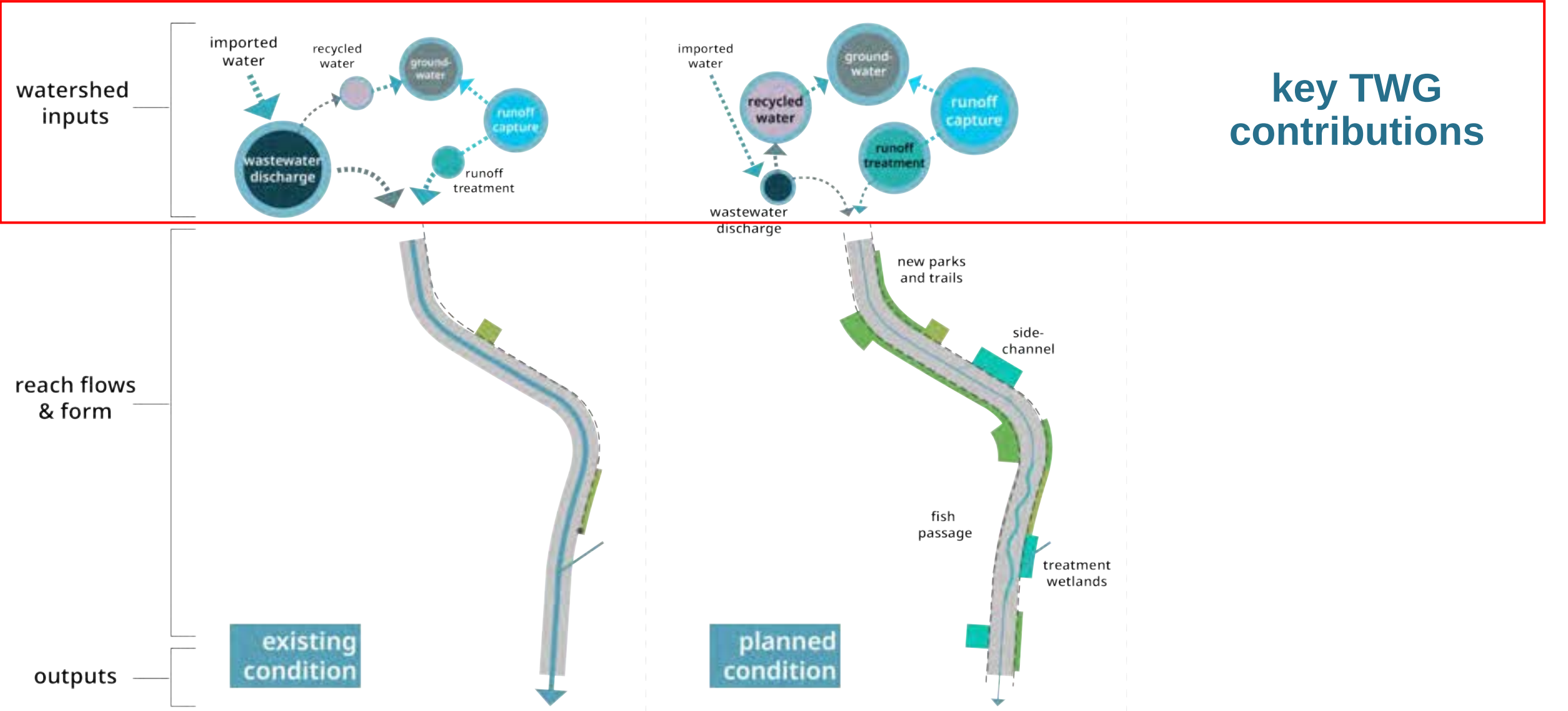


Artes: A Network Model for LA County Water



Porse, E., KB Mika, E Litak, K Manago, K Naik, M Glickfeld, T Hogue, D Pataki, M Gold, & S Pincetl (2017). "Systems Analysis and Optimization of Local Water Supplies in Los Angeles." JWRPM, 143(9).

CEFF C Process: Task 9 Assess Flow Alteration



key TWG contributions

CEFF C Process: Task 9 Assess Flow Alteration

GOALS & CRITERIA FOR THE 7 THEMES



INVENTORY OF PLAN FLOW IMPLICATIONS



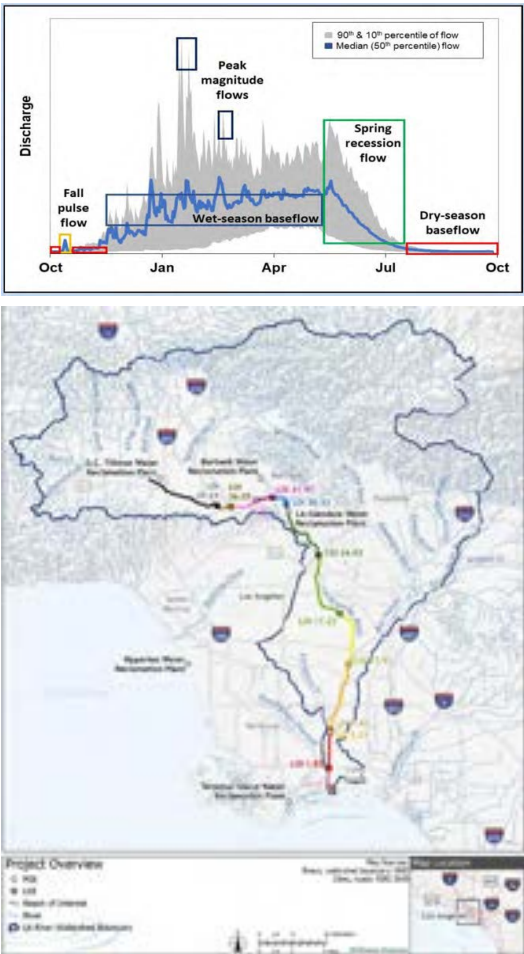
FUNCTIONAL FLOW METRICS



ASSESSMENT OF GOALS (conceptual)

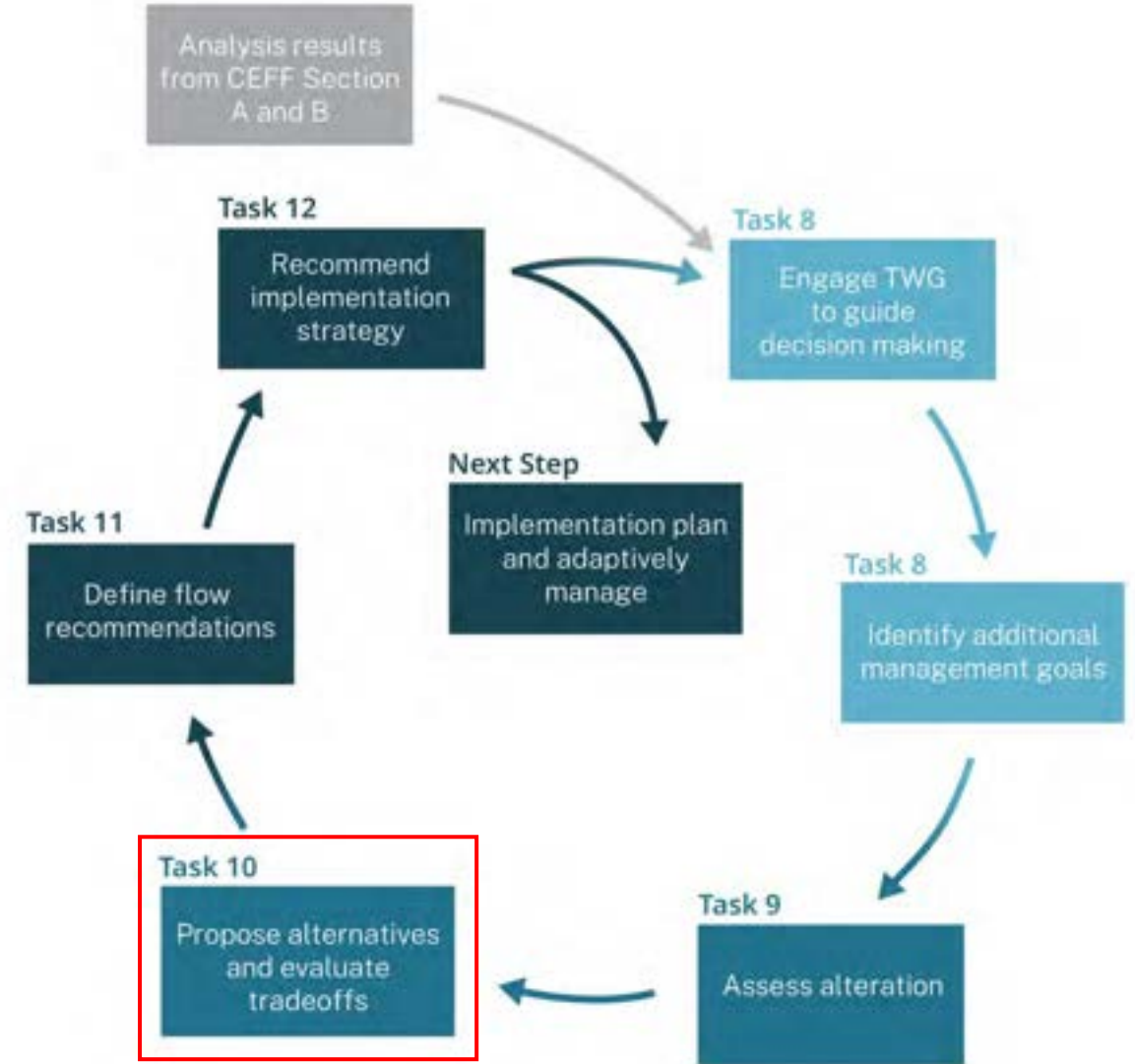
4. Biodiversity Management Goals

- Support healthy, connected ecosystems
- Conserve, enhance and restore habitat, biodiversity, and floodplain functions
- Restore Valley Foothill riparian stand and freshwater marsh habitat
- Increase habitat connectivity
- Restore a functional riparian ecosystem
- Southern California steelhead recovery (viable)
- Southern California steelhead recovery (fishery)
- Santa Ana sucker recovery



Task 10: Alternative Management Scenarios

- Alternative scenarios to achieve goals
- Tradeoffs analysis to address challenges, optimization
- Consensus building and preferred flow scenario selection



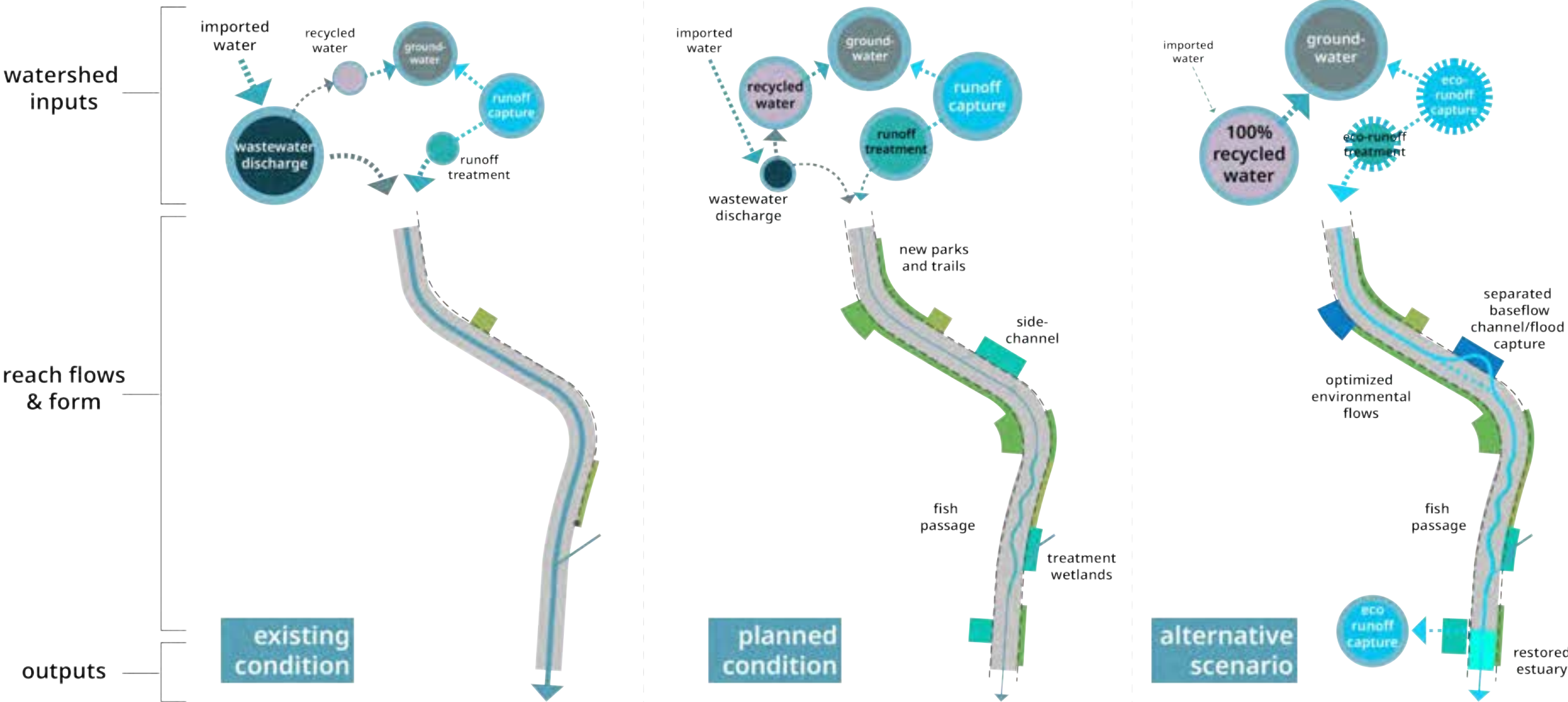
Scenario Concept: Best channel design solutions with minimum flow
(watershed inputs minimized)

Scenario Concept: Low hanging fruit win-wins (flows in the river set based on what inputs we think are reasonably possible from the watershed)

Scenario Concept: Tradeoffs optimized (all themes make substantial changes to optimize achievement of goals)

Scenario Concept: 7 theme-wins (all goals achieved, at what cost?)

CEFF C: Task 10 Alternative Scenarios



Task 11: Flow Recommendations

Task 12: Recommended Implementation Plan Outline

Potential recommendations format

Recommended flow in terms of the
5 functional flow metrics

Recommended channel design measures to
achieve biodiversity and recreation goals at
recommended flow

Recommended watershed flow inputs design
measures to achieve recommended flow

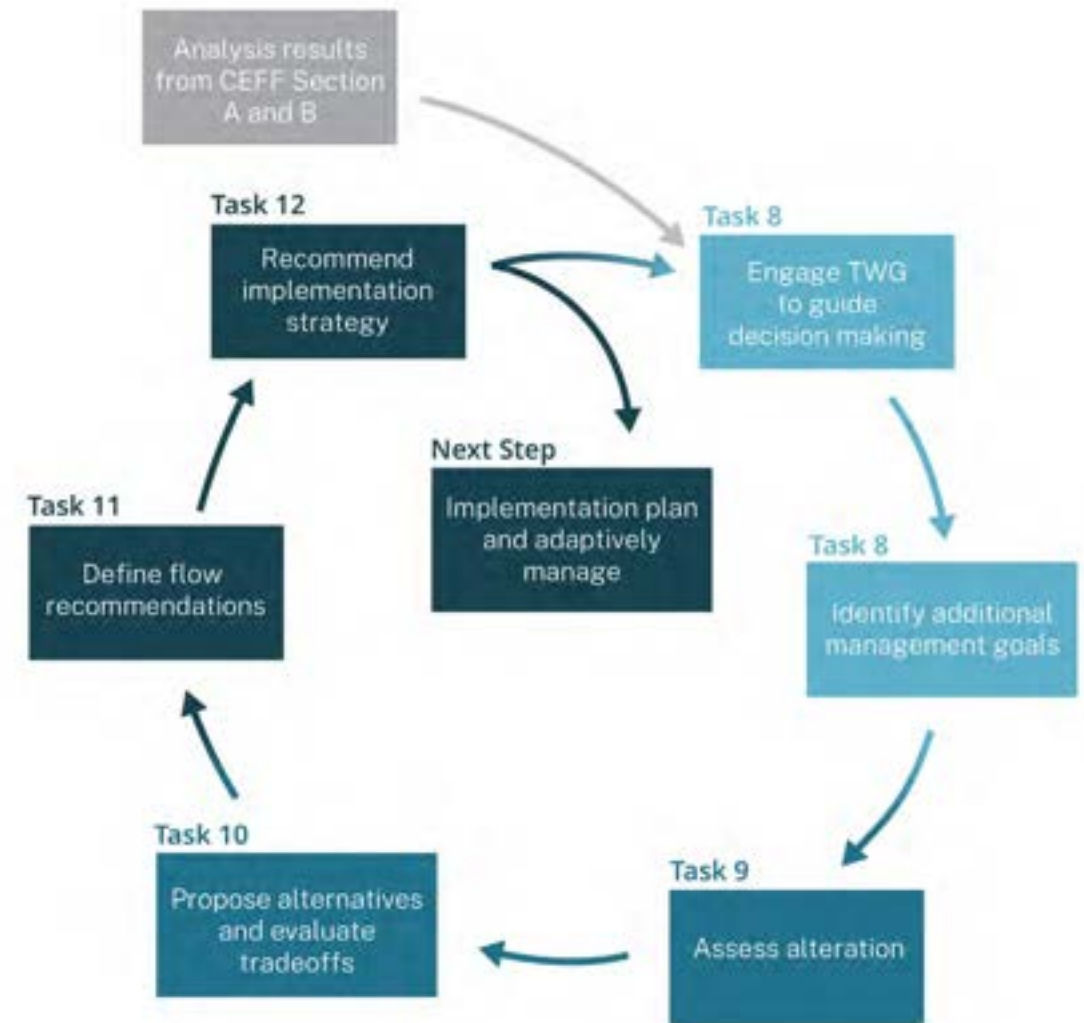
Outline of recommended implementation plan

Structured Decision-Making Process

Discussion



- Questions about the process?
- What do you like to see in SDMPs?
- What are keys to success?



LUNCH



Management Goals Session

Breakout Groups



Purpose of Management Goals in CEFF

CEFF uses management goals as a guide to measurable outcomes that are linked to flow

Each theme/stakeholder needs to specify management goals so CEFF analysis can evaluate whether flow recommendations are meeting goals in the watershed

Management goals can be broad or specific

- Support healthy, connected ecosystems
- Southern California steelhead recovery

Compile management goals from existing documents



TWG discussion of compiled management goals by theme



Add to compiled management goals by **August 1, 2024**



Group compiled management goals when outcomes of goals would overlap

Purpose of Management Goals in CEFF

Existing documents may not fully capture all management goals in the LA River watershed

We need **your** expertise to make sure management goals linked to LA River flows are sufficiently represented!

Compile management goals from existing documents



TWG discussion of compiled management goals by theme



Add to compiled management goals by **August 1, 2024**



Group compiled management goals when outcomes of goals would overlap

Purpose of Management Goals in CEFF

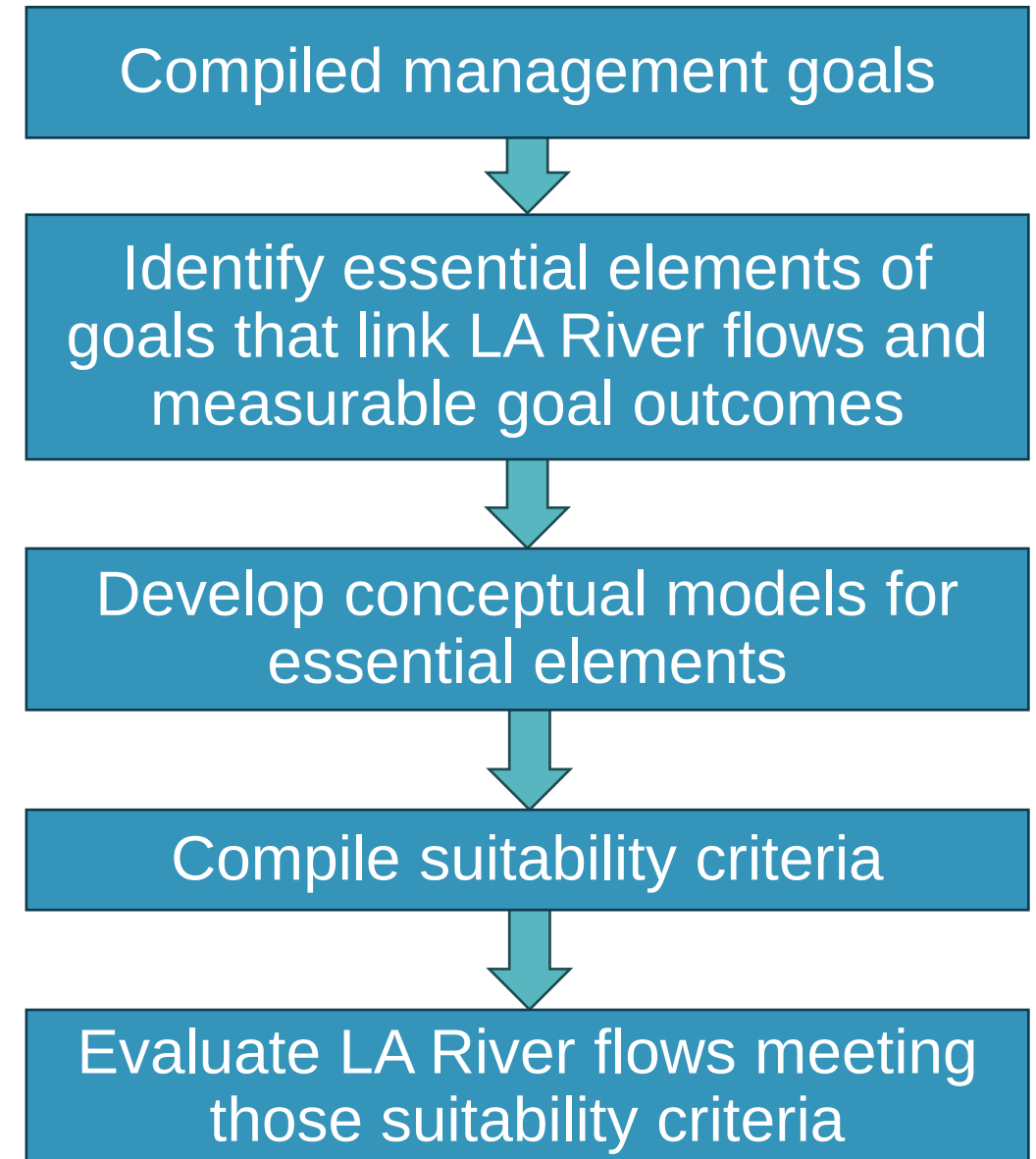
In a later step, essential elements will be identified that translate management goals into measurable goal outcomes/objectives

Requirements for essential goal elements:

- 1) Links to a management goal
- 2) Links to LA River flow
- 3) Has a measurable goal outcome

Essential goal elements may overlap between themes

Essential goal elements (and associated outcomes) are key way management goals evaluated in CEFF analysis.



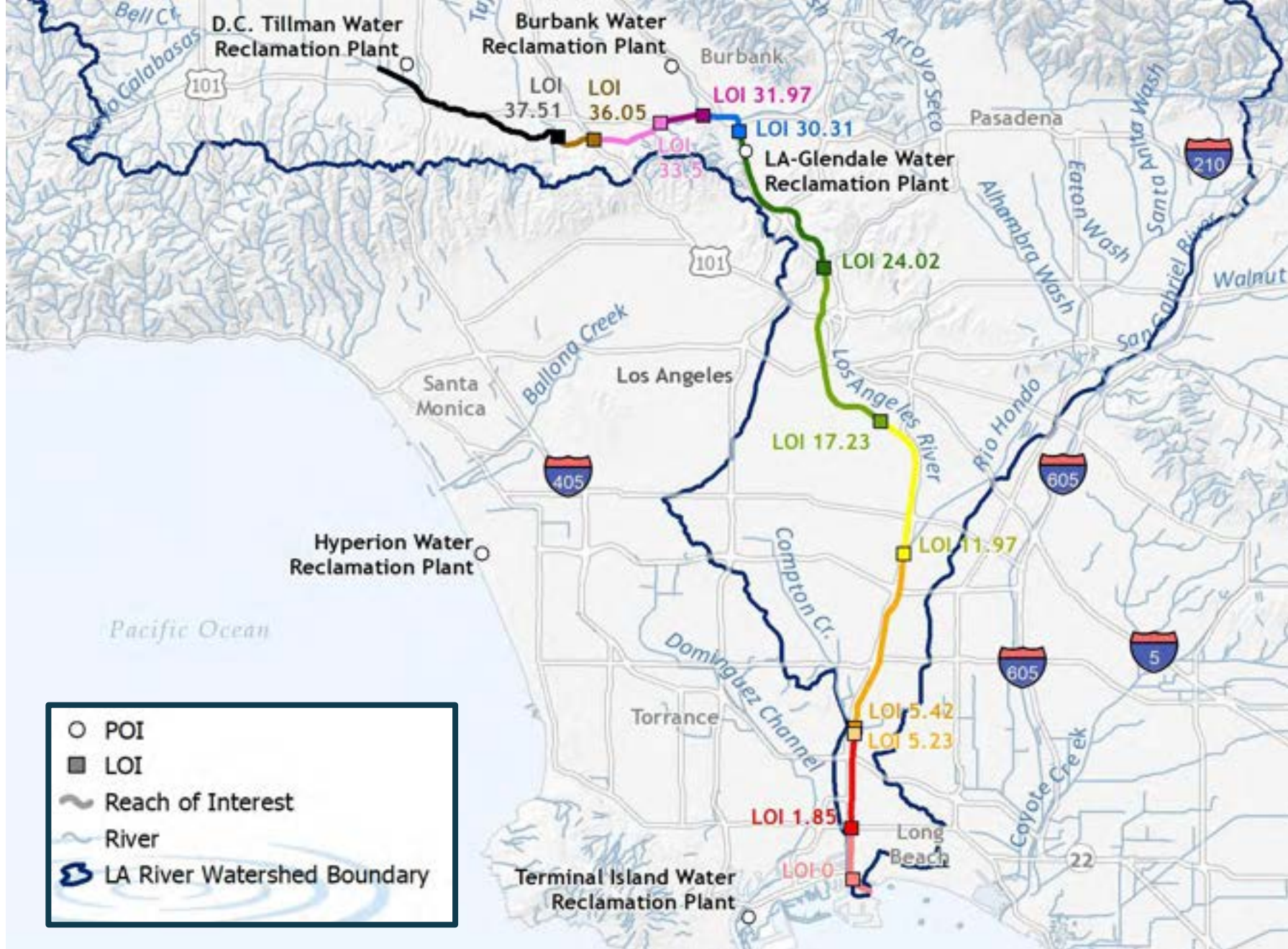
Management Goals Session Agenda

1. Review the preliminary list of management goals provided.
2. Add additional management goals to consider in the LAR CEFF process. If applicable, please reference plan where goal is documented. Add goals not documented in a plan if needed.
 - The only requirement for goals is that it can be linked to LA River flow between Sepulveda Basin and the Pacific Ocean.
3. If possible, please specify:
 - LA River reaches where goal is applicable
 - Theme(s) applicable to goal
 - Water supply • Recreation • Flooding • Water Quality
 - Biodiversity • Cultural/Tribal • Urban Cooling
 - Priority of your organization's goals (if there are multiple)
 - Time period of year for goal (e.g., year-round, summer, etc)

Management Goals Session Worksheet

Management goal	Plans that support it	Explanation of how goal relates to LAR flows





Discovering Flows Solutions Session

Overview



What

- Begin to identify big ideas for achieving multiple goals and their potential strengths and weaknesses.

Why

- Need many levers across themes to solve this complex challenge of environmental flows. Dialog key to cross-disciplinary solutions.
- Need ideas on the table early. Gives time to gel/emerge for alternative scenarios next year (preview of TWG 4).

Outcomes

1. Open discussion on potential win-win concepts
2. Document all other ideas in “big ideas templates”

Suggestions:

- “Propose” and “dispose”, everything on the table at this early stage
- Focus on “what is possible”, in addition to “what is likely”
- Think about “spatial opportunities” (organization of the watershed) and “vertical opportunities” (individual project design)
- Need as many levers as we can to solve this big challenge

What is likely vs. What is possible?

Discovering Flows Solutions

Technical Working Group
Meeting #1 | June 11 2024
Breakout Session #2

Brainstorming Session #2: Purpose

Begin to identify and vet big ideas for achieving multiple goals. Also highlight potential conflicts between goals. This discussion will inform development of alternative flows scenarios in later stages of the project.

Brainstorming Session #2: Instructions

For any ideas you would like to share beyond those discussed with the broader group, please complete this template(s) discussing a identifying big idea, plan or ongoing project that might benefit or impact achieving goals.

Reporting Template

Big idea or project concept	Description of benefits or conflicts	
Your contact information: _____ (optional but preferred so we can contact you for more details)	Biodiversity	
	Cultural/ Tribal	
	Flooding	
	Recreation	
	Urban Cooling	
	Water Quality	
	Water Supply	
	Other	

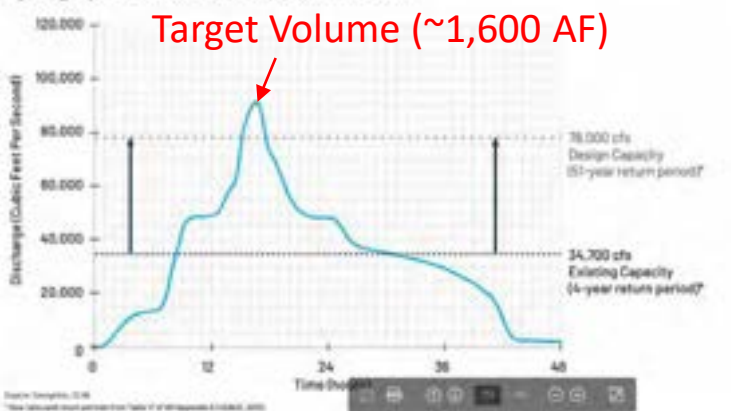


Win-win Concept 1: Restore multi-threaded channel (maintain flood channel + new base flow channel)

100-YEAR STORM WITH REFURBISHMENT

To increase channel capacity: remove invasives, remove sediment, maintain channel, replace exotic with native grasses.

Hydrograph: Glendale Narrows, River Mile 29



4 Side Channel and Daylighted Streams



A riparian corridor will be established on the east bank of the river. Wetland habitat would be restored in eight daylighted storm drain streams, as well as in a side channel of diverted river flows along Griffith Park's Harding Golf Course, and another side channel connecting Los Feliz Golf Course to the river to allow seasonal flooding within the course grounds. A riparian fringe of trees and marsh vegetation would line the new side channels. The daylighted streams would be planted with riparian vegetation and include freshwater marshlands at their confluences with the river.

22 | LOS ANGELES RIVER ECOSYSTEM RESTORATION PROJECT — READER'S GUIDE

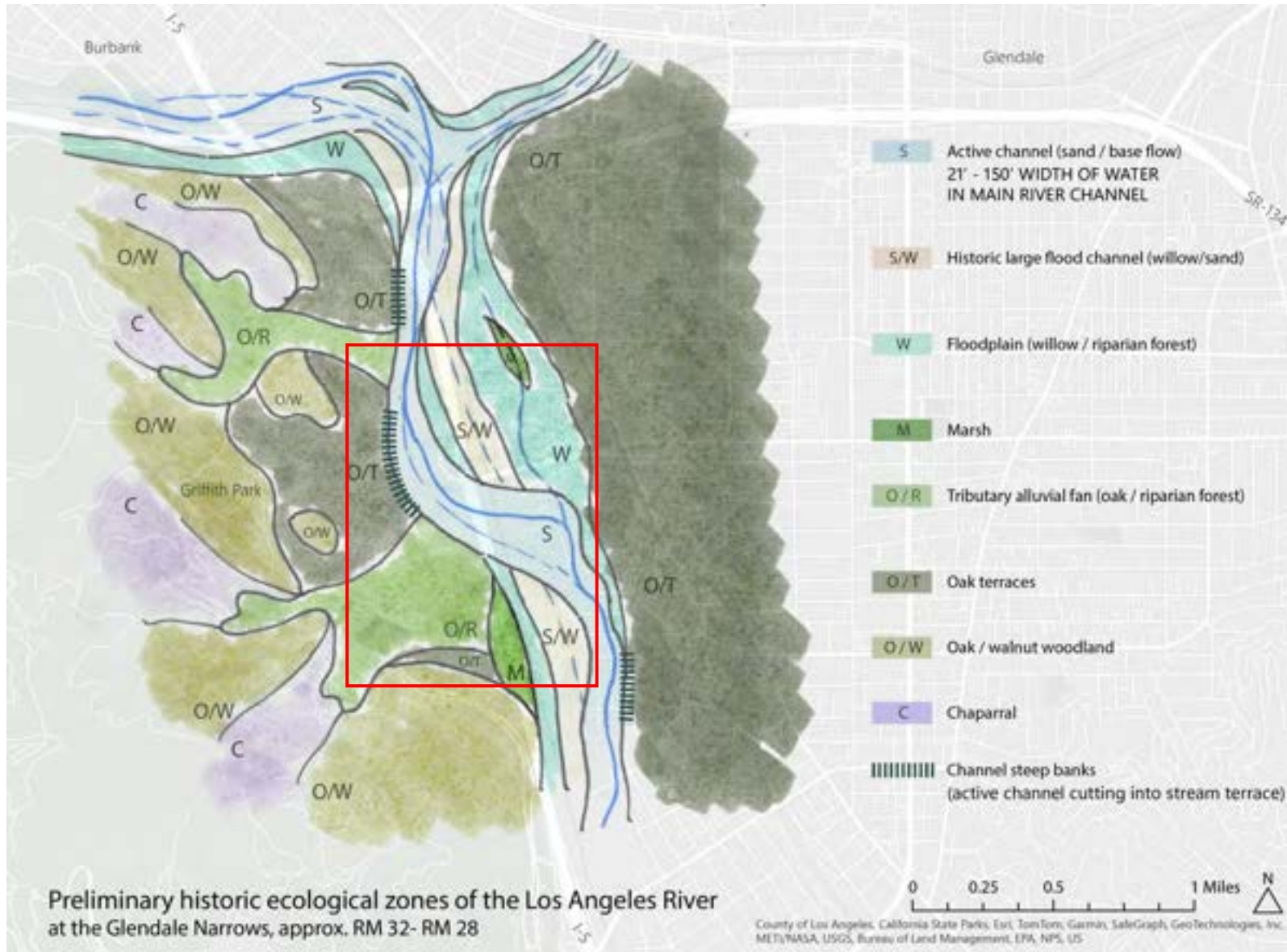


Restore Multi-threaded channel

- Base flow diverted to channel adjacent to flood channel on large parcels
- Flood flow stays in flood channel, overflow to parcel
- Applicable at other large parcels along river
- Aligned with USACE Ecosystem Restoration Project side-channel concept
- Nature-based solution

Griffith Park Side Channel Concept

Win-win Concept 1: Restore multi-threaded channel (maintain flood channel + new base flow channel)



Restore Multi-threaded channel

- High quality aquatic and riparian habitat not exposed to extreme flood hydraulics.
- Habitat connectivity completes Rim of the Valley Corridor
- Water supply capture/infiltration
- Changes flood hydrograph may free up what can in-channel downstream
- New recreation opportunities at the river

Win-win Concept 3: Gravel pit repurposing for multi-benefits



Figure 2-30. This diagram shows mine locations.

San Gabriel River Masterplan (2006)

Gravel pits for water storage

- Gravel pits used for capture/diversion of storm flows
- San Gabriel Canyon Spreading grounds are built example; 2006 San Gabriel River Master Plan provides a framework
- Provides additional flood capture/frees up capacity in dams up stream for flood capture, environmental flows

Win-win Concept 4: Dam releases for environmental flows



San Gabriel Dam (*lower LA River watershed nexus*)

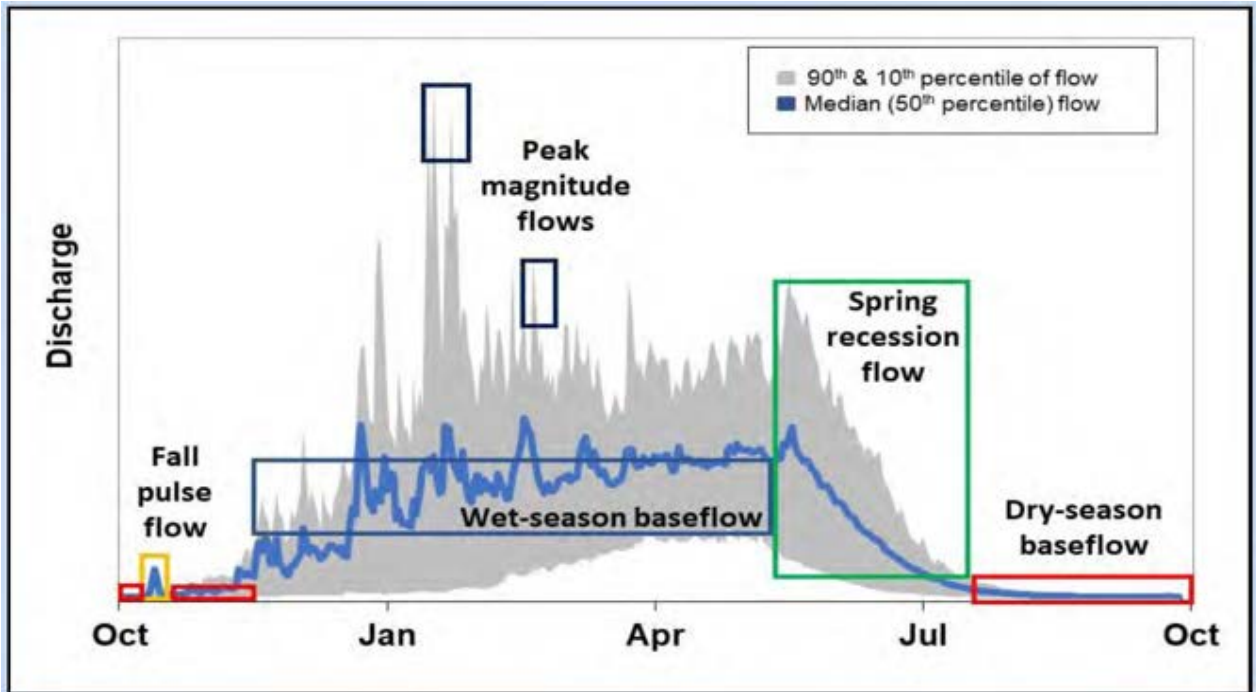


Big Tujunga Dam

Dam releases for environmental flows

- Water released from dams to support environmental flow.
- Common practice throughout California
- Could be used to offset reduction in discharges from 100% recycling goal with higher quality water.
- Increase capacity in dams for flood storage

Win-win Concept 2: Stormwater treatment/wastewater discharge inputs seasonally optimized



Water-Year Volume Allocation as Specified by the [Record of Decision](#).

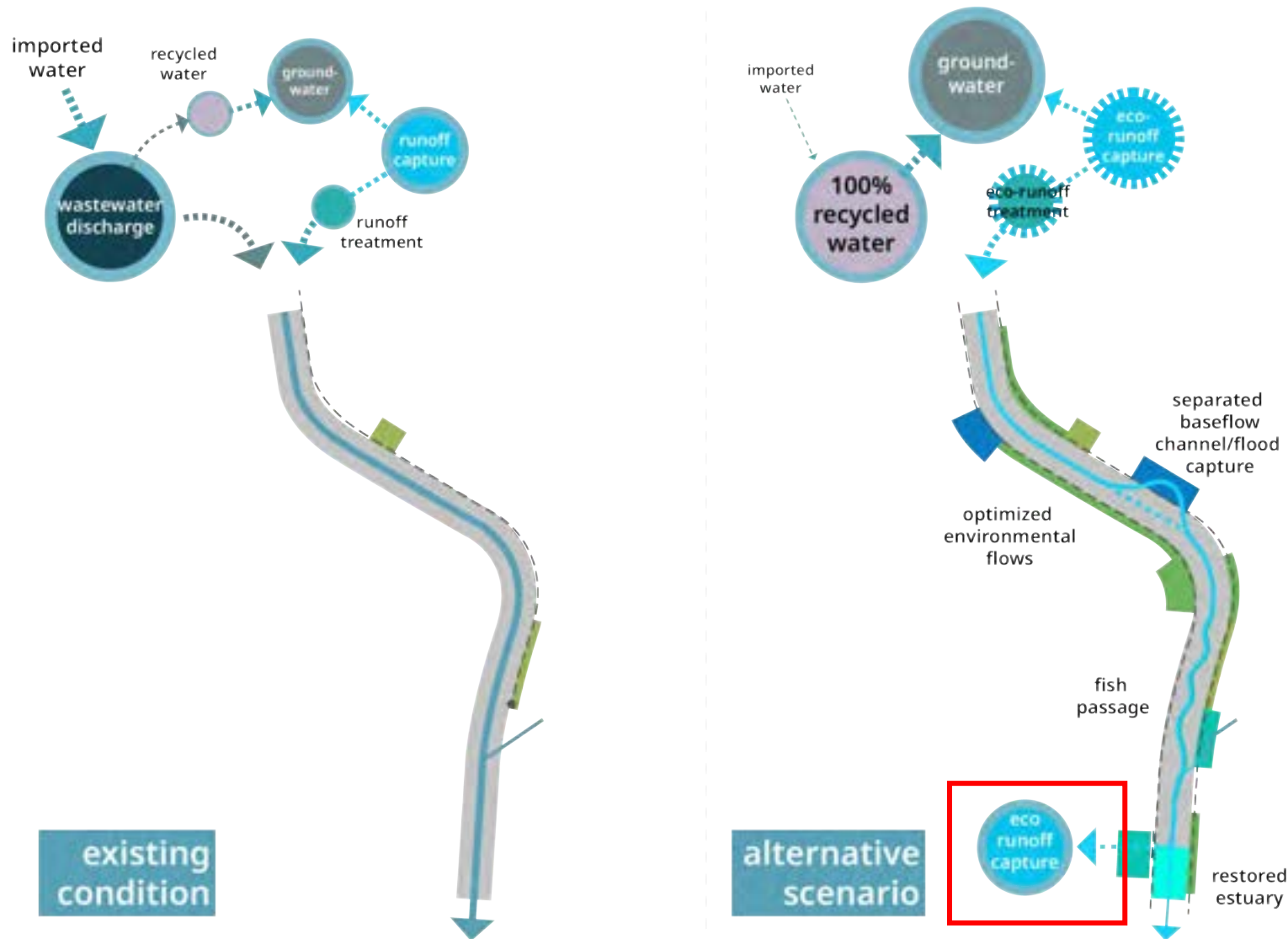
State Forecast Inflow to Reservoir (acre-feet)	Water Year Type	Allocation to Restoration (including base flows)
> 2,000,000	Extremely Wet	815,000
1,350,000 – 1,999,999	Wet	701,000
1,025,000 – 1,349,999	Normal	647,000
650,000 – 1,024,999	Dry	453,000
< 650,000	Critically Dry	369,000

Seasonal discharge optimized

- Base flow optimized for environmental flows through seasonal flow requirements
- Nature-based solution aligned with natural flows
- Stormwater infrastructure focused on trash, pollutant removal and flood mitigation
- Treatment plant or dam discharges at optimal levels by season
- Beneficial uses also change with seasons

2024 Trinity River Restoration Flows Example

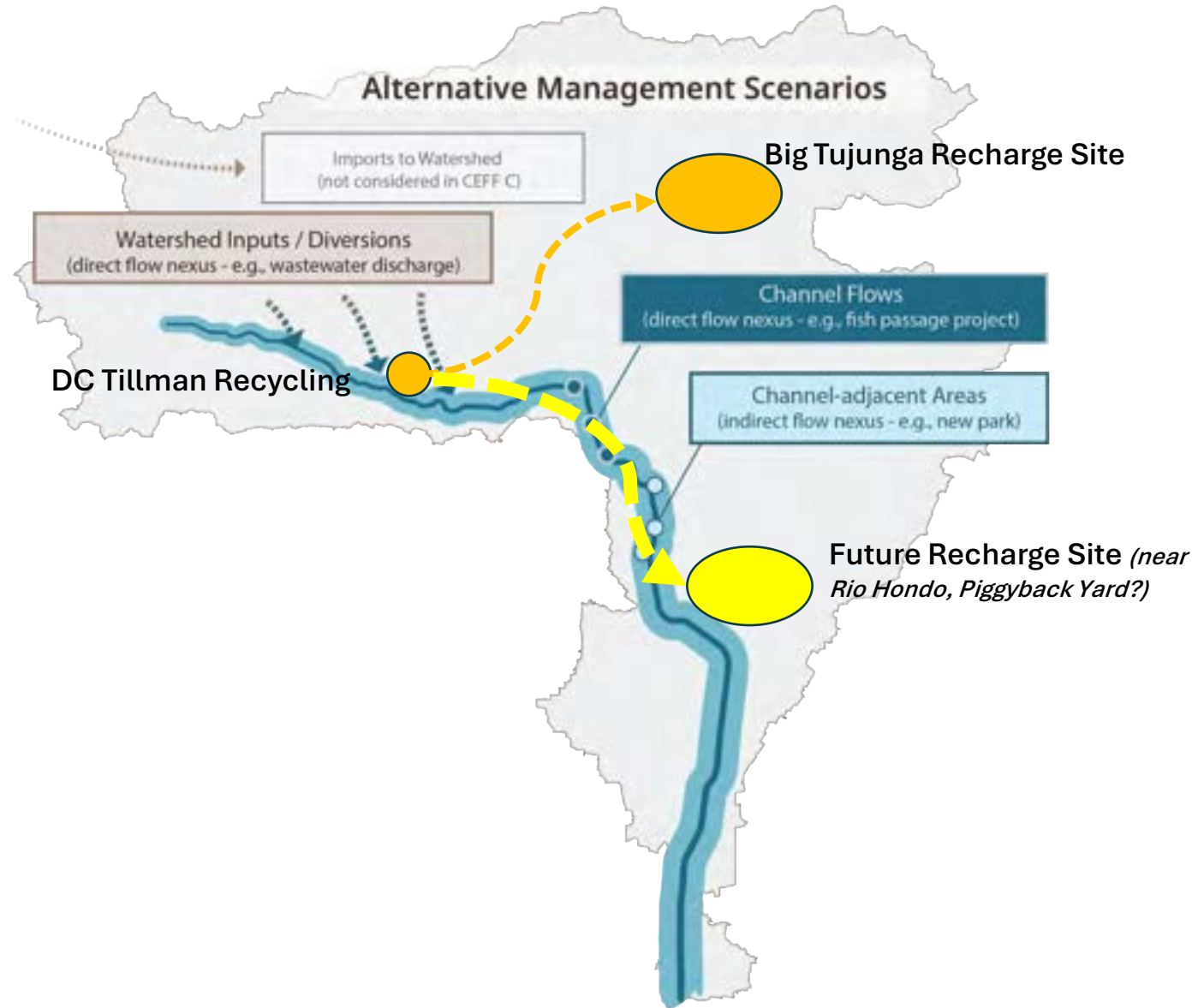
Win-win Concept 5: Water supply diversion shifted from mid-watershed to mouth of LAR



Some water supply diversion moved to river mouth

- Portion of dam releases conveyed all the way to LA River mouth before diversion for water supply (in San Pedro)
- Can improve quality and maintains base flow in river discharges at optimal levels
- Could also apply to recycled water (new recycling plant at mouth or recycled water conveyed in river)

Win-win Concept 6: New groundwater recharge facility in Central Groundwater Basin



New groundwater recharge in Central Basin, convey in river

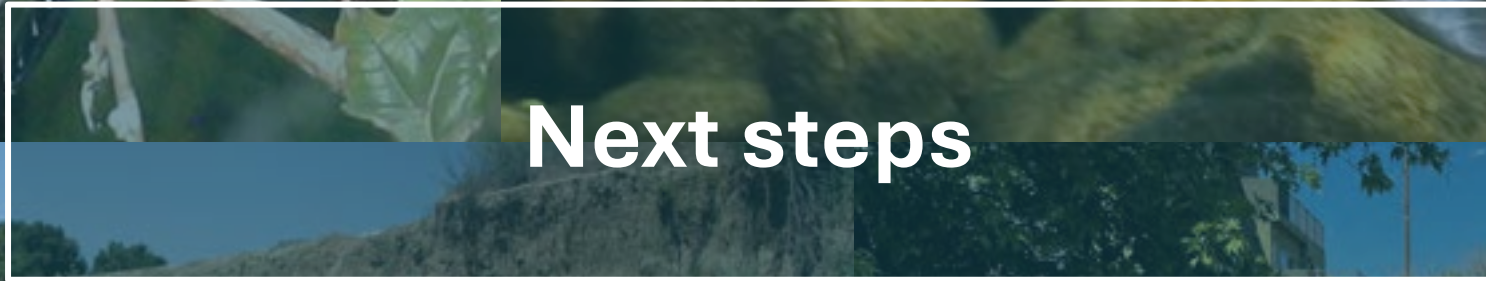
- Water released from dams to support environmental flow.
- Common practice throughout California
- Could be used to offset reduction in discharges from 100% recycling goal with higher quality water.
- Increase capacity in dams for flood storage

Discovering Flows Solutions Session

Brainstorming Discussion







Next 3 workshops (Phase 1 - Discovery)

- **Workshop 1 (this workshop):** kicks us off, focused on process, goals, big ideas
- **Workshop 2 (September):** begin baseline analysis, confirm goals, refine Strategic Decision-Making Process
- **Workshop 3 (November):** confirm SDMP process, ramp up analysis, identify preliminary alternatives

Phase 2 – Analysis

Phase 3 – Flow Recommendations





Mountains Recreation &
Conservation Authority



Los Angeles River CEFF Project