LOS ANGELES COUNTY
SANITATION DISTRICTS
Converting Waste Into Resources

San Gabriel River Temperature Study

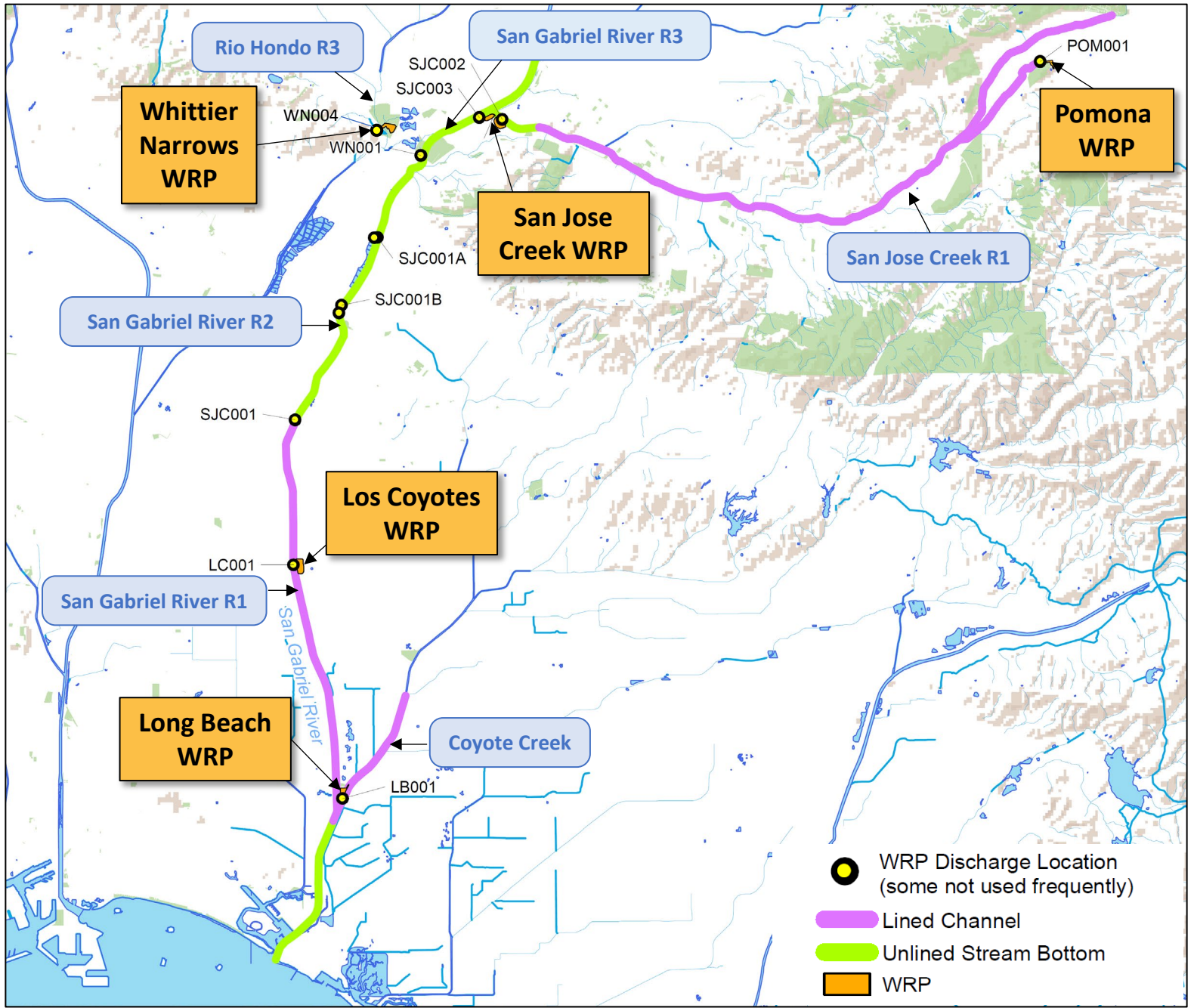
Technical Advisory Committee Meeting #5

August 20, 2025

Today's Agenda

1. Introductions
2. Project Background
3. Temperature Management Analysis
4. Final Technical Studies Report
5. Next Steps
6. Questions and Discussion

Water Reclamation Plants (WRPs) in the SGR Watershed



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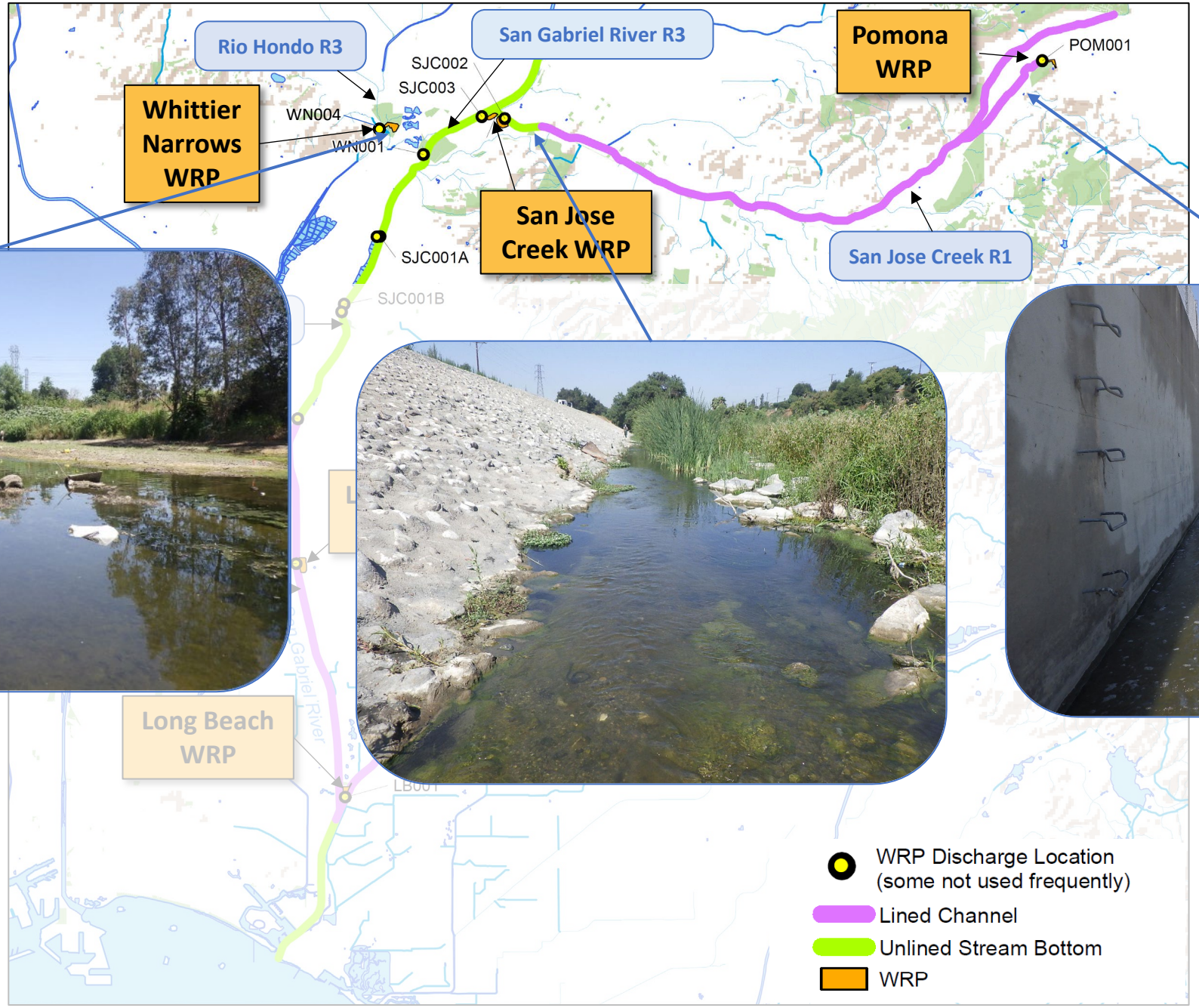

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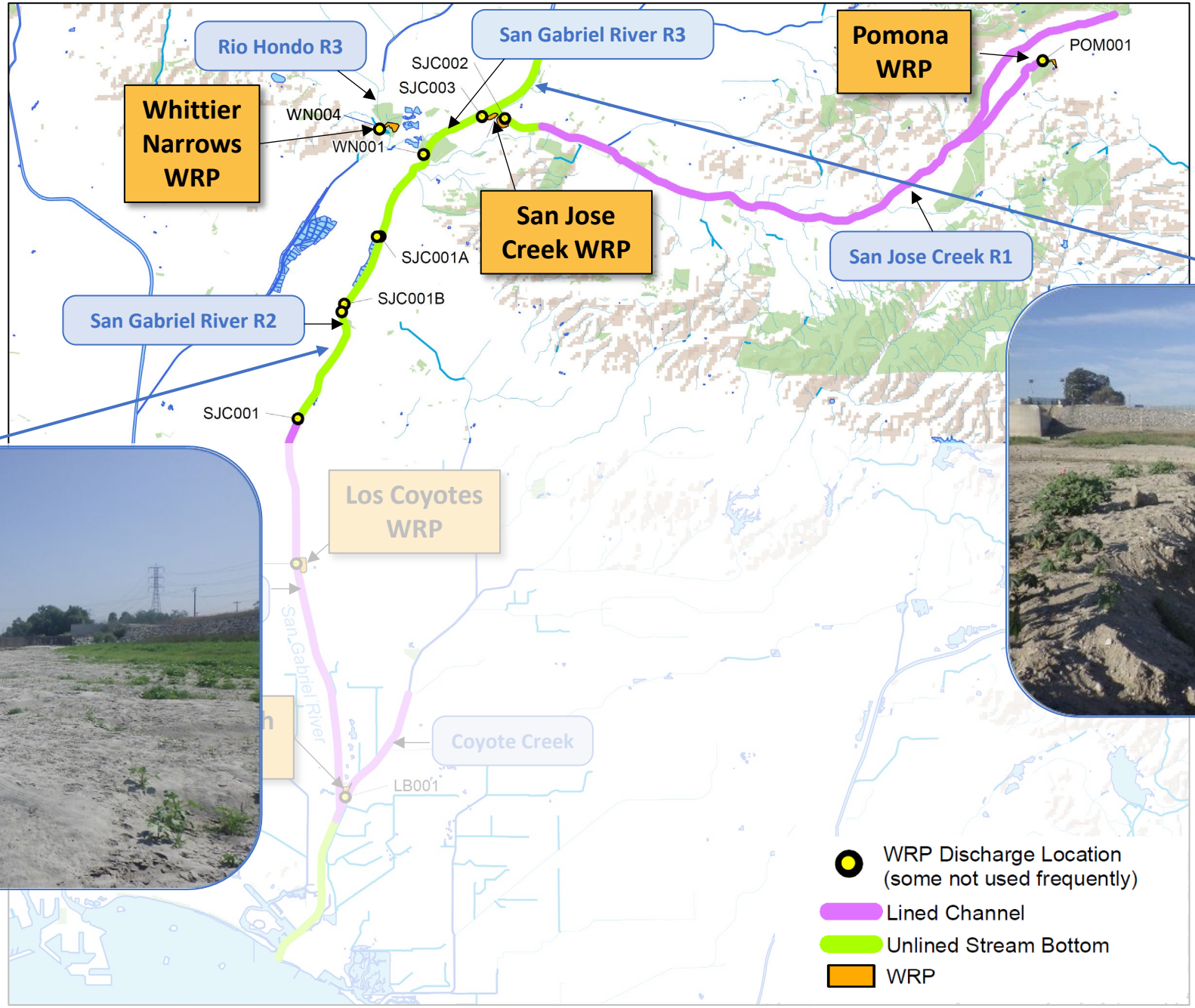
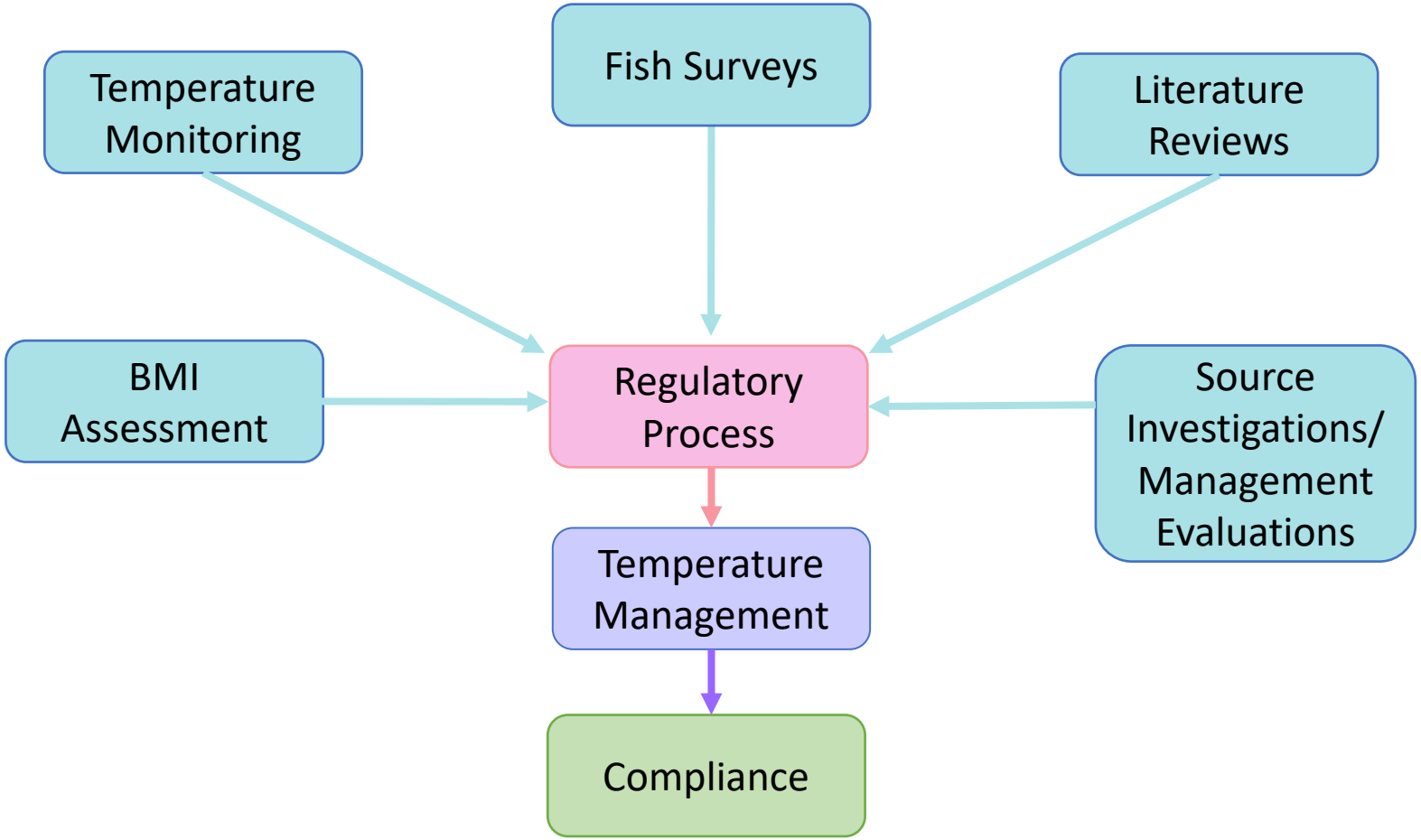


Water Reclamation Plants (WRPs) in the SGR Watershed

San Gabriel River Temperature Study

- Initiated in response to new temperature limits in WRP discharge permits (80°F and cannot alter river >5°F)
- **Temperature monitoring** (sensors, discrete sampling) to characterize river conditions
- 18 years of **BMI survey data**
- **Vertebrate surveys** (electrofishing, eDNA)
- Nature-based and mechanical cooling **management options** are being evaluated
- Continued analysis of temperature **sources** to WRPs (e.g., industrial waste) is in progress
- Final report on technical studies submitted to TAC; TAC provided comments

San Gabriel River Temperature Study



Temperature Management Analysis - Mechanical Chiller Costs for 5 WRPs

PRELIMINARY

Limit	Meeting 80°F Only	Meeting 80°F and Delta 5
Capital Costs ($)	$960M	$1.3B
Operating Costs ($)	$10M / yr	$17M / yr

Temperature Management Analysis - Mechanical Chiller Energy Use for 5 WRPs

PRELIMINARY

Limit	Meeting 80°F Only	Meeting 80°F and Delta 5
Annual Energy Needs (kWh)	34M	70M
Annual Emissions (GHG Equivalents in lb CO_2e)	33M	67M
Annual Emissions (passenger cars eq)	3,213	6,609

Temperature Management Analysis – Nature Based

Cooling with surface or groundwater (i.e. blending with deep GW, infiltration trenches, geothermal)

- Cannot provide needed temperature drop
- Large space requirements
- Permitting challenges

Evaporative Cooling (i.e. wetlands, spray ponds, hyporheic zone injection)

- Cannot provide needed temperature drop
- Large space requirements

Reducing Discharge/increasing recycling

- 1211 discharge requirements at SJC, LC, WN
- Lack of additional nonpotable reuse projects
- Potentially unreliable

Shading

- Cannot provide needed temperature drop
- No authority to construct in or along the river

In-Plant Process Changes

- Cannot provide needed temperature drop; WRP isn't major temperature contributor

Technical Studies

Technical Studies - Overview

- Temperature
  - Compiled existing receiving water and effluent data
  - Conducted monitoring throughout the watershed
    - Discrete water temperature monitoring
    - Thermistors for continuous water temperature monitoring

Technical Studies - Overview

- Biological
  - Compiled existing benthic community and vertebrate data
  - Conducted benthic community and vertebrate surveys
    - BMI and algae in unsampled habitat
    - Vertebrate monitoring
      - Observation, eDNA, Electrofishing, Seining

Response to TAC Comments

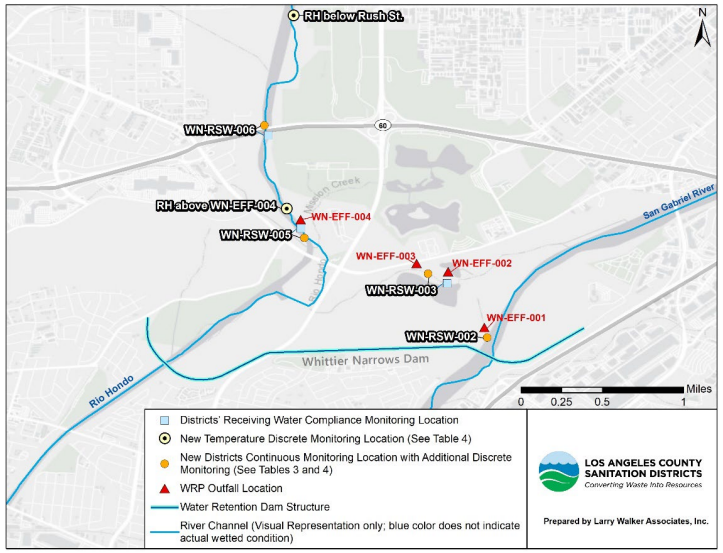
- All questions and comments were answered individually
- Several common themes became evident:
  - Physical characteristics in the Study Area
  - Temperature and stream flow in the Study Area
  - Species presence
  - Thermal tolerances
  - Effects on biology

Response to TAC Comments

Physical Characteristics in the Study Area

Updated information about the Study Area

- Added
  - Appendix 2: Station pictures and descriptions
  - Appendix 3: Water Reclamation Plant Flow
  - Appendix 4: Opportunistic Observations of Aquatic Vertebrates
  - Stream reaches, dams, and barriers to report maps (throughout report)
  - Information to tables (throughout report)
- Clarified stations on maps (throughout report)



Response to TAC Comments

Temperature and Stream Flow in the Study Area

- Updated and clarified
  - Information about thermal conditions in the Study Area (5.1.3)
  - Information on flow and upstream water sources (Appendix 3)
  - Approach to station selection and upstream influences (RTC)
- Provided information
  - History of flood control channelization and WRP discharges (RTC)
  - Vegetation removal for flood control (6.3.1.5)
  - Maximum daily temperature duration (RTC)

Response to TAC Comments

Species Present

- Updated and clarified
  - Algae information (6.3.1.7)
  - Data presentations (throughout report)
  - Field sampling constraints (RTC)
  - Vertebrate sampling and eDNA constraints (6.3.2.1)
  - Fish spawning and early life stage information (6.3.2.4)
- Reevaluated species that could be present based on current conditions based on TAC comments (6.3.3)
- Agreed with TAC that native fish species are no longer supported in the Study Area (6.3.3)

Response to TAC Comments

Thermal Tolerances

- Updated and clarified
  - Tolerance data sources (Appendix 6)
  - Review of supported taxa (6.3.3 and Appendix 6)
- Report was reorganized and updated based on TAC comments
  - Technical discussion and processes moved to Appendix 6 and summarized in Report Section 7
  - Removed discussion of temperature tolerance based on community averages (Appendix 6)
  - Sensitive species evaluation updated based on updates to species present (Appendix 6 and Report Section 7)

Effects on Biology

Communities are similar upstream and downstream of the WRP discharges and throughout the Study Area

- Algae and BMI taxa presence and their relative abundances and community composition and structure below WRP discharges do not differ significantly (or meaningfully) from that which exists upstream of the WRP discharges
- The ecological functions that the algae and BMI communities carry out in downstream reaches are unaffected by thermal effects of the WRP
- Discharges are not adversely affecting algae and BMI community composition, structure, or function in these waterbodies

Consistent with results of 18 years of annual monitoring conducted throughout the Study Area

Effects on Biology

Presence or absence of water is the main condition that affects differences in biology

Station: Above Weir / Below SJC Outfall 003

7 September 2022

15 September 2022

Effects on Biology

Taxa are exposed to reported thermal tolerances, however, taxa reproduce and continue to be supported

Season	Life Stage / Metric	Species Common Name	Thermal Tolerance (°F) From Literature	Are life stages supported under current temperatures?	
				Open Concrete Channels *No riparian vegetation*	Natural/Semi-Natural Channels *With shading & vegetation*
Summer (Dry Season) June - October	Chronic Growth	Goldfish	83.4°F	Literature: Highly Likely Field: Probably	Literature: Likely Field: Yes
	Chronic Survival	Fathead Minnow	91.8°F	Literature: Less Certain Field: Yes	Literature: Likely Field: Yes
	Acute Daily Survival	Fathead Minnow	89.6°F	Literature: Highly Likely Field: Yes	Literature: Highly Likely Field: Yes
	Acute Daytime Survival	Fathead Minnow	98.4°F	Literature: Likely Field: Yes	Literature: Highly Likely Field: Yes
Spring (Spawning Season) March - May	Chronic Reproduction	Common Carp & Largemouth Bass	70.0°F	Literature: Less Certain Field: N/A	Literature: Likely Field: Yes
	Acute Daily Embryo Survival	Black Bullhead	81.0°F	Literature: Likely Field: N/A	Literature: Likely Field: Yes

Effects on Biology

- Upstream and downstream biologically effectively the same
- Presence absence of water is main condition
- While taxa are exposed to reported thermal tolerances, they are reproducing and continue to be supported
- WRP Thermal Influence is Not Showing an Effect on Biology
- Improvements to biological conditions in the study area would require substantially addressing factors un-related to WRP thermal discharges and outside the Districts' control.

Key Points

Upstream and downstream are biologically effectively the same and existing species continue to be supported

Current WRP discharge temperatures are protective of WARM beneficial uses

Temperature management options are unwarranted

Next Steps

- Continue investigating potential IW sources
- Finalize management options analysis
- Evaluate potential regulatory pathways