SACRAMENTO WATER ALLOCATION MODEL (SACWAM) – DEMAND PRIORITIES AND SUPPLY PREFERENCES

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Presentation Outline

- Water Quality Control Plan Project Background
- SacWAM overview
- Demand Priorities
- SacWAM Baseline Priorities
- Supply Preferences
- SacWAM Baseline Preferences
- Next Steps

Water Quality Control Planning

- Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan)
  - Beneficial uses, water quality objectives for the reasonable protection of beneficial uses, program of implementation to achieve the objectives, and monitoring to ensure compliance
  - Reviewed and updated as needed regularly
  - Not self-implementing

SWRCB Bay-Delta Planning Efforts

- Phase 1: Bay-Delta Plan update to San Joaquin River flow and southern Delta water quality requirements

- Phase 2: Bay-Delta Plan update of Delta outflows, Sacramento River and other tributary inflows, and Project operational constraints (exports, Delta Cross Channel Gates, Interior Delta flows)

- Phase 3: Implementation of the Bay-Delta Plan through water rights

- Phase 4: Establishment and implementation of flow requirements for high priority Delta tributaries outside of the Bay-Delta Plan

Phase 2 may consider additional flow contributions from non-project tributaries

- CalSim II simulates project operations well

- CalSim II does not operate non-project tributaries

- SacWAM operates all project and non-project tributaries in the Sacramento Watershed

Using Information Provided by DWR and WEAP platform

- SWP and CVP Allocation Logic

- Delta Operations

- Upper Watershed Inflow Hydrology

- Complete accounting system of water resources
  - represents the rainfall runoff processes
  - represents infrastructure such as dams, canals, diversions, etc
  - represents demands using a range of complexity
  - water balance is consistently calculated throughout entire model domain

Priorities and Preferences

Water is allocated on system of demand priorities and supply preferences within a set of constraints

Different Demand Priorities
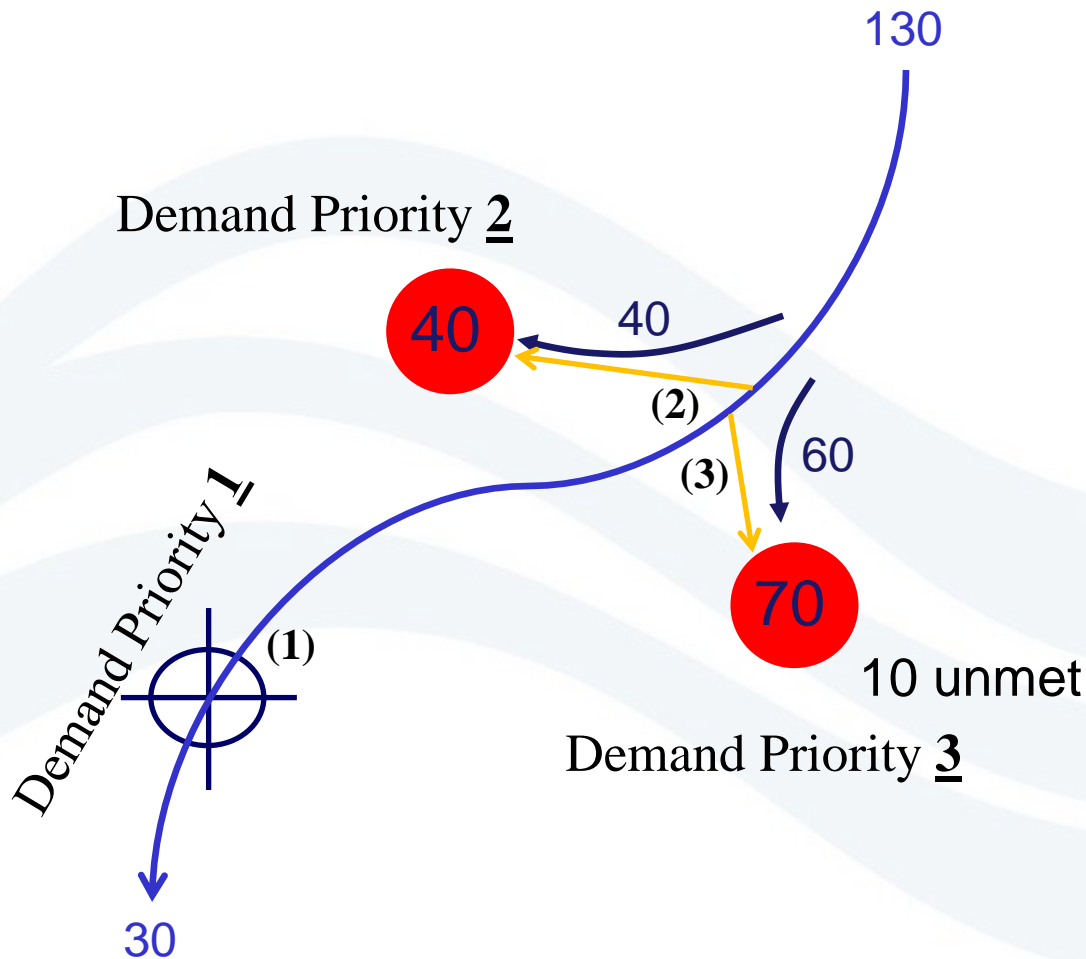
If the priorities differ, WEAP will satisfy the first priority fully before giving water to the lower priority.
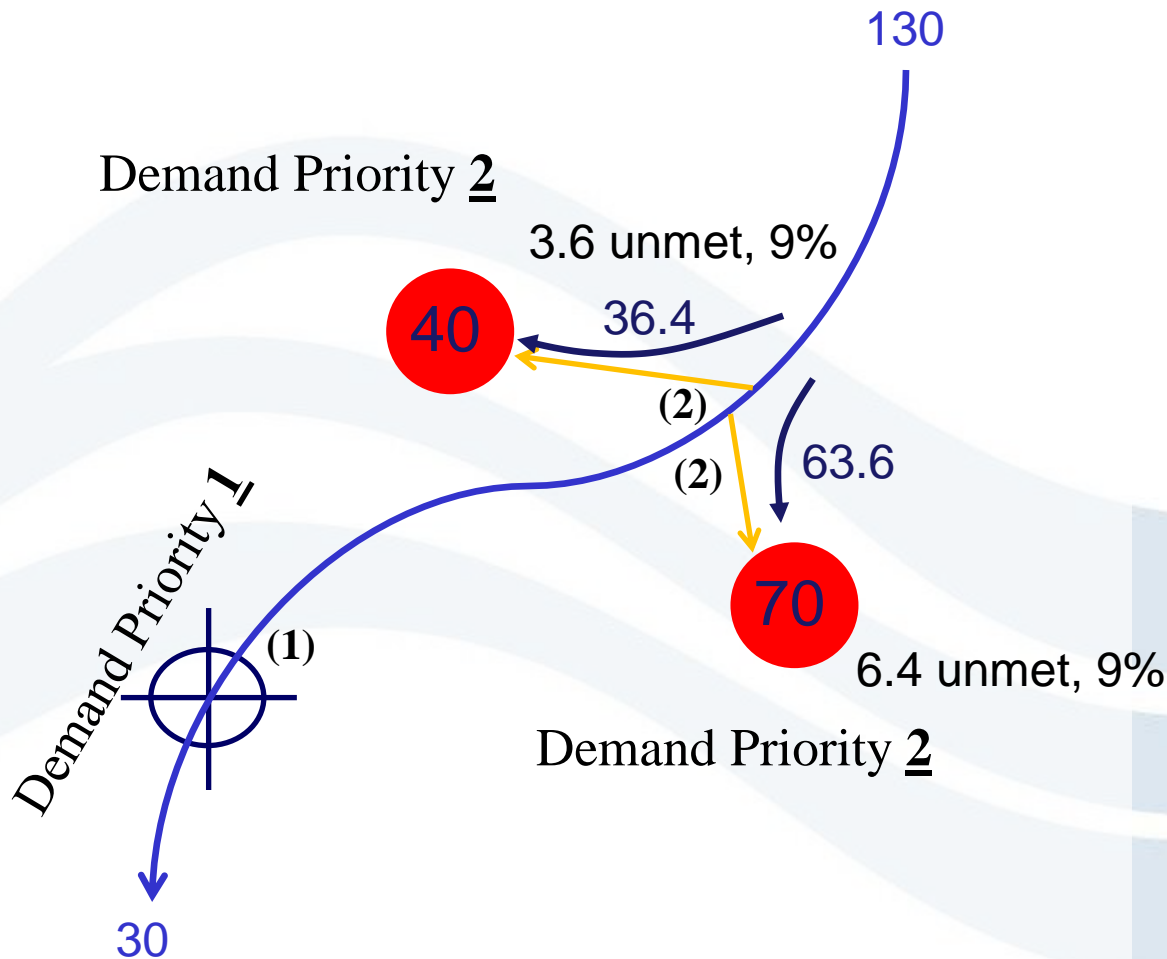
Water Demand

Instream Flow Requirement = 30

Large Demand = 70

Small Demand = 40

Same Demand Priorities

130

Demand Priority **2**

3.6 unmet, 9%

36.4

40

(2)

Demand Priority **1**

(2)

63.6

70

(1)

6.4 unmet, 9%

30

Demand Priority **2**

If there are two demands, both with the same priority and insufficient water to meet their needs fully, WEAP will provide *equal % of demand to each*.

Water Demand

Instream Flow Requirement = 30

Large Demand = 70

Small Demand = 40

SacWAM Baseline Priorities

Upper Watershed Operations and Demand

Valley Instream Flow Requirement Demand

Non-Project Demand

North of Delta Project Demand
(Includes Delta Flow Requirements)

South of Delta Project Demand

Highest Priority

Lowest Priority

SacWAM Baseline Priorities-Non Project Demand

Upper Watershed	Upper Watershed Operations are currently "hard wired" to produce monthly average flows	
Valley IFRs	SWRCB Alternative IFR	8
	Non-Project Tributary IFR	10
	Project Trib. IFR	22
Non Project Demand	Non-Project Trib. Demand	11
	Non-Project Trib. Storage	12
	Routing IFR	99

SacWAM Baseline Priorities-Project Demand

	CVP Settlement Contractors	17
	SWP Settlement Contractors	17
North of Delta (NOD) Project Demand*	In-Delta Demands including Salinity and Outflow	27
	CVP Refuge Contractors	35
	CVP Urban Contractors	37
	CVP Ag Contractors	39
	CVP NOD Storage	46
	SWP Contractors	51
	SWP NOD Storage	53

* COA constraints assure proper splitting of in-basin demand between Projects

SacWAM Baseline Priorities-Project Demand

	CVP SOD Exchange Contractors	41
	CVP SOD Refuge Contractors	42
	CVP SOD Urban Contractors	43
	CVP SOD Ag Contractors	44
South of Delta (SOD) Project Demand	CVP SOD Storage	45
	SWP Contractors	51
	SWP SOD Storage	52
	Fill CVP San Luis	55
	Fill SWP San Luis	60
	CVP Cross Valley Canal	99

* COA constraints assure proper splitting of in-basin demand between Projects

Possible Alternative Priority Schemes

- Priorities could be changed altogether
- Priorities can be based on other variables in the model
  - Example: year type, storage volume

Supply Preferences

100

40

40

(2)

(1)

20

70

50

50

40
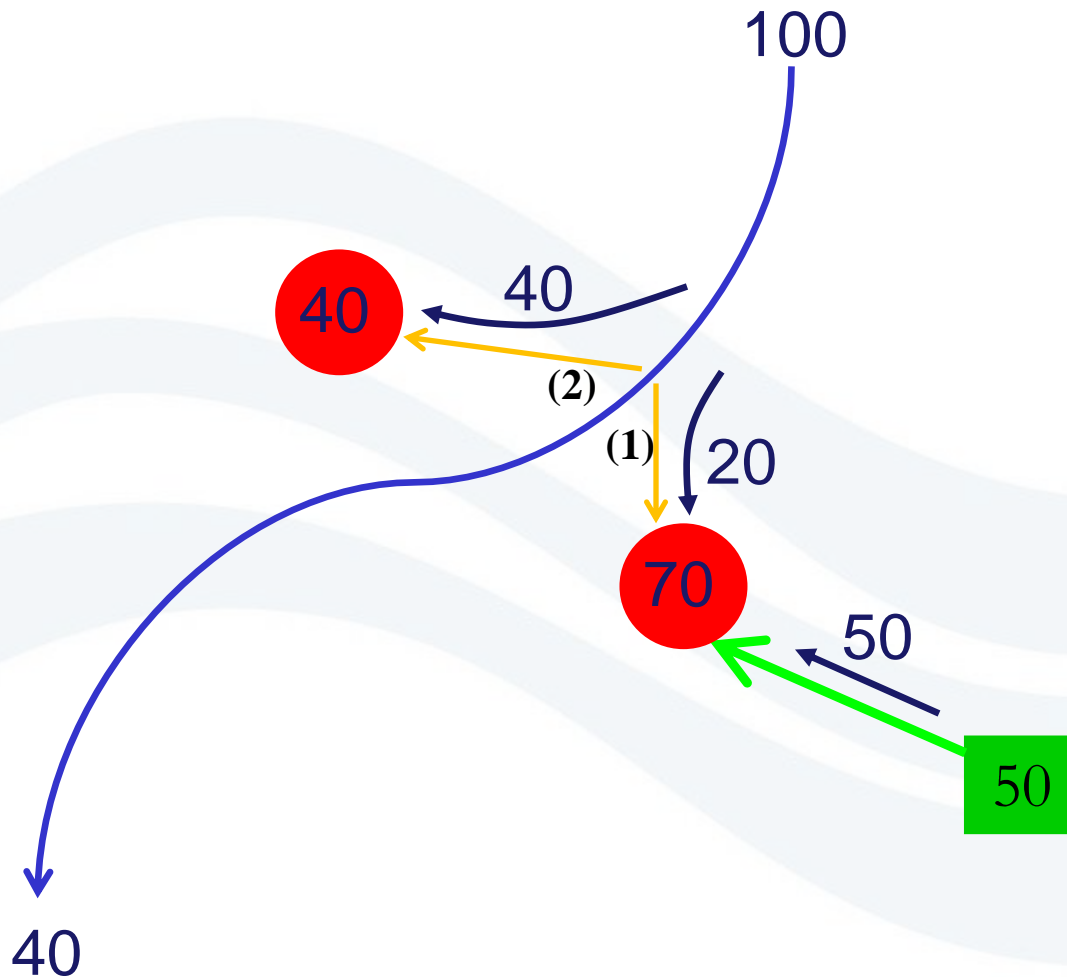
The large demand (70 units) has higher priority for river water, but has a greater preference for groundwater

SacWAM Baseline Supply Preferences

- In general, surface supplies are highest (1 or 2) and groundwater supplies are lowest (4 or 5).

- Example: A_21_SA

Source	Supply Preference
Sacramento River RM 083	1
Sacramento River RM 074	2
Yolo Bypass CM 023	3
Yolo Solano GW	4
Colusa GW	5

SacWAM Next Steps

- Final Calibration of Valley Floor

- Finalize Documentation

- Peer Review through Delta Science Program

- Workshops & Training

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