Assumptions for the CalSim-II Operations Studies of NODOS Scenarios

CalSim-II Assumptions

This subsection provides a summary of the CalSim-II assumptions for the Future No Action baseline. This is part of the Common Assumptions Common Model Package.

CalSim-II Inputs
Common Assumptions: Common Model Package

	Future No Action Baseline Assumptions
Planning horizon	2030[a]
Demarcation date	June 1, 2004[a]
Period of simulation	82 years (1922-2003)
HYDROLOGY	
Level of development	2030 level[b]
Sacramento Valley (excluding American River)	
CVP	Land-use based, limited by contract amounts[c]
SWP (FRSA)	Land-use based, limited by contract amounts[d]
Non-project	Land-use based
Federal refuges	Firm Level 2 water needs[e]
American River	
Water rights	Sacramento Area Water Forum[f]
CVP	Sacramento Area Water Forum (PCWA modified)[f]
PCWA	35 TAF CVP contract supply diverted at the new American River PCWA Pump Station
San Joaquin River[g]	
Friant Unit	Limited by contract amounts, based on current allocation policy
Lower Basin	Land-use based, based on district level operations and constraints
Stanislaus River	Land-use based, based on New Melones Interim Operations Plan[h]
South of Delta (CVP/SWP project facilities)	
CVP	Demand based on contracts amounts[c]
CCWD	195 TAF CVP contract supply and water rights[i]
SWP	Demand based on full Table A amounts[d]
Article 56	Based on 2002-2006 contractor requests
Article 21	MWD demand unlimited but subject to capacity to convey and deliver; KCWA demand of up to 2,555 CFS, total of other demands up to 34 TAF/month in all months[d,j]
Federal refuges	Firm Level 2 water needs[e]
FACILITIES	
System-wide	Existing facilities[a]
Sacramento Valley	
Shasta Lake	Existing, 4,552 TAF capacity

	Future No Action Baseline Assumptions
Colusa Basin	Existing conveyance and storage facilities
Upper American River	PCWA American River pump station included
Lower Sacramento River	Freeport Regional Water Project[L]
Delta Region	
SWP Banks Pumping Plant	6,680 cfs capacity[a] (can increase up to 8,500 cfs Dec. 15-Mar.15 when San Joaquin River flow is above 1,000 cfs).
CVP C.W. Bill Jones Pumping Plant (Tracy PP)	4,600 cfs capacity in all months (allowed for by the Delta-Mendota Canal–California Aqueduct Intertie)
Los Vaqueros Reservoir	Existing storage capacity, 100 TAF; Alternate Intake Project (AIP) included[m]
San Joaquin River	
Millerton Lake (Friant Dam)	Existing, 520 TAF capacity
South of Delta (CVP/SWP project facilities)	
South Bay Aqueduct Enlargement	430 cfs capacity from junction with California Aqueduct to Alameda County FC&WSD Zone 7 diversion point
California Aqueduct East Branch Enlargement	None
WATER MANAGEMENT ACTIONS (CALFED)	
Water Transfer Supplies (available short term temporary)	
Sacramento Valley source regions	Up to 265 TAF/yr from GW substitution up to 295 TAF/yr from crop idling
San Joaquin Valley and Tulare Basin source regions	Up to 200 TAF/yr from crop idling
Water Transfer Supplies (available long term program)	
Phase 8[n]	Up to 185 TAF/yr from new groundwater substitution, with 60% going to SWP and 40% to CVP[o]
Lower Yuba River Accord	Not included
Water Transfer Demands (demands for acquisition and transfer)	
San Francisco Bay Region: South and South Coast Region regions	Single-year transfers as determined through interaction with LCPSIM (subject to supplies available)
Refuge Level 4 water needs (including losses)	27.7 TAF/yr North-of-Delta; 109.7 TAF/yr South-of-Delta
REGULATORY STANDARDS	
Trinity River	
Minimum flow below Lewiston Dam	Trinity EIS Preferred Alternative (369-815 TAF/yr)
Trinity Reservoir end-of-September minimum storage	Trinity EIS Preferred Alternative (600 TAF as able)
Clear Creek	
Minimum flow below Whiskeytown Dam	Downstream water rights, 1963 USBR Proposal to USFWS and NPS, and USFWS discretionary use of CVPIA 3406(b)(2)
Upper Sacramento River	

	Future No Action Baseline Assumptions
Shasta Lake end-of-September minimum storage	SWRCB WR 1993 Winter-run Biological Opinion (1900 TAF)
Minimum flow below Keswick Dam	Flows for SWRCB WR 90-5 and USFWS discretionary use of CVPIA 3406(b)(2)
Feather River	
Minimum flow below Thermalito Diversion Dam	1983 DWR, DFG Agreement (600 cfs)
Minimum flow below Thermalito Afterbay outlet	1983 DWR, DFG Agreement (750-1,700 cfs)
Yuba River	
Minimum flow below Daguerre Point Dam	Interim D-1644 Operations[o]
American River	
Minimum flow below Nimbus Dam	SWRCB D-893[p] (see accompanying Operations Criteria), and USFWS discretionary use of CVPIA 3406(b)(2)
Minimum Flow at H Street Bridge	SWRCB D-893
Lower Sacramento River	
Minimum flow near Rio Vista	SWRCB D-1641
Mokelumne River	
Minimum flow below Camanche Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (100-325 cfs)
Minimum flow below Woodbridge Diversion Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (25-300 cfs)
Stanislaus River	
Minimum flow below Goodwin Dam	1987 USBR, DFG agreement, and USFWS discretionary use of CVPIA 3406(b)(2)
Minimum dissolved oxygen	SWRCB D-1422
Merced River	
Minimum flow below Crocker-Huffman Diversion Dam	Davis-Grunsky (180-220 cfs, Nov-Mar), Cowell Agreement, and FERC 2179 (25-100 cfs)
Tuolumne River	
Minimum flow at Lagrange Bridge	FERC 2299-024, 1995 (Settlement Agreement) (94-301 TAF/yr)
San Joaquin River	
San Joaquin River below Friant Dam/Mendota Pool	None
Maximum salinity near Vernalis	SWRCB D-1641
Minimum flow near Vernalis	SWRCB D-1641, and Vernalis Adaptive Management Plan per San Joaquin River Agreement

CalSim-II Inputs
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	Future No Action Baseline Assumptions
Sacramento River–San Joaquin River Delta	
Delta Outflow Index (Flow and Salinity)	SWRCB D-1641
Delta Cross Channel gate operation	SWRCB D-1641
Delta exports	SWRCB D-1641, USFWS discretionary use of CVPIA 3406(b)(2), and CALFED Fisheries Agencies Delta Fish Actions
OPERATIONS CRITERIA: RIVER-SPECIFIC	
Upper Sacramento River	
Flow objective for navigation (Wilkins Slough)	3,500-5,000 cfs based on CVP water supply condition
American River	
Folsom Dam flood control	Variable 400/670 flood control diagram (without outlet modifications)
Flow below Nimbus Dam	Discretionary operations criteria corresponding to SWRCB D-893 required minimum flow
Sacramento Area Water Forum Mitigation Water	Up to 47 TAF in dry years
Feather River	
Flow at Mouth of Feather River (above Verona)	Maintain DFG/DWR flow target of 2,800 cfs for Apr-Sep dependent on Oroville inflow and FRSA allocation
Stanislaus River	
Flow below Goodwin Dam	1997 New Melones Interim Operations Plan[h]
San Joaquin River	
Salinity at Vernalis	San Joaquin River Salinity Management Plan[r]
OPERATIONS CRITERIA: SYSTEMWIDE	
CVP water allocation	
CVP Settlement and Exchange	100% (75% in Shasta critical years)
CVP refuges	100% (75% in Shasta critical years)
CVP agriculture	100%-0% based on supply (South-of-Delta allocations are reduced due to D-1641 and 3406(b)(2) allocation-related export restrictions)
CVP municipal & industrial	100%-50% based on supply (South-of-Delta allocations are reduced due to D-1641 and 3406(b)(2) allocation-related export restrictions)
SWP water allocation	
North of Delta (FRSA)	Contract specific
South of Delta (including North Bay Aqueduct)	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement
CVP-SWP coordinated operations	
Sharing of responsibility for in-basin-use	1986 Coordinated Operations Agreement (FRWP EBMUD and 2/3 of the North Bay Aqueduct diversions considered as Delta Export; 1/3 of the North Bay Aqueduct diversion considered as in-basin-use)
Sharing of surplus flows	1986 Coordinated Operations Agreement

CalSim-II Inputs
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	Future No Action Baseline Assumptions
Sharing of restricted export capacity for project-specific priority pumping	Equal sharing of export capacity under SWRCB D-1641; use of CVPIA 3406(b)(2) restricts only CVP exports; CALFED Fisheries Agencies Delta Fish Actions restrict CVP and/or SWP exports
Dedicated CVP conveyance at Banks	SWP to convey 50 TAF/yr of Level 2 refuge water supplies at Banks Pumping Plant (July and August)
North-of-Delta accounting adjustments	CVP to provide the SWP a maximum of 37.5 TAF/yr of water to meet in-basin requirements through adjustments in 1986 Coordinated Operations Agreement accounting (released from Shasta)
Water transfers	Acquisitions by SWP contractors are wheeled at priority in Banks Pumping Plant over non-SWP users
Sharing of export capacity for lesser priority and wheeling-related pumping	Cross Valley Canal wheeling (max of 128 TAF/yr), CALFED ROD defined Joint Point of Diversion (JPOD)
San Luis Low Point	San Luis Reservoir is allowed to operate to a minimum storage of 100 TAF
CVPIA 3406(b)(2)	
Policy Decision	Per May 2003 Dept. of Interior Decision:
Allocation	800 TAF, 700 TAF in 40-30-30 dry years, and 600 TAF in 40-30-30 critical years
Actions	1995 WQCP, Upstream fish flow objectives (Oct-Jan), VAMP (Apr 15-May 15) CVP export restriction, 3,000 cfs CVP export limit in May and June (D-1485 striped bass cont.), Post-VAMP (May 16-31) CVP export restriction, Ramping of CVP export (June), Upstream Releases (Feb-Sep)
Accounting adjustments	Per May 2003 Interior Decision, no limit on responsibility for non-discretionary D-1641 requirements with 500 TAF target, no reset with the storage metric and no offset with the release and export metrics, 200 TAF target on costs from Oct-Jan

Notes:

[a] The Common Assumptions Team developed the criteria for the input assumptions.

[b] The Sacramento Valley hydrology used in the Future No Action CalSim-II model reflects 2020 land-use assumptions associated with Bulletin 160-98. The San Joaquin Valley hydrology reflects draft 2030 land-use assumptions developed by Reclamation to support Reclamation studies.

[c] CVP contract amounts have been reviewed and updated according to existing and amended contracts as appropriate.

[d] SWP contract amounts have been reviewed and updated as appropriate.

[e] Water needs for federal refuges have been reviewed and updated as appropriate.

[f] Sacramento Area Water Forum 2025 assumptions are defined in Sacramento Water Forum's EIR. PCWA CVP contract supply is modified to be diverted at the PCWA pump station.

[g] The new CALSIM II representation of the San Joaquin River has been included in this model package (CalSim-II San Joaquin River Model, Reclamation, 2005). Updates to the San Joaquin River have been included since the preliminary model release in August 2005. In addition, a dynamic groundwater simulation is currently being developed for San Joaquin River Valley, but is not yet implemented. Groundwater extraction/ recharge and stream-groundwater interaction are static assumptions and may not accurately reflect a response to simulated actions.

[h] The CACMP CalSim-II model representation for the Stanislaus River does not necessarily represent Reclamation's current or future operational policies.

[i] The Existing CVP contract is 140 TAF. The actual amount diverted is reduced due to supplies from the Los Vaqueros project. The existing Los Vaqueros storage capacity is 100 TAF. Associated water rights for Delta excess flows are included.

[j] Table A and Article 21 deliveries into the San Francisco Bay Area Region–South and South Coast Region in the CACMP are a result of interaction between CALSIM II and LCPSIM.

	Future No Action Baseline Assumptions
[k]	PCWA American River pumping facility upstream of Folsom Lake is under construction. A Sacramento River diversion for PCWA is not included in the PFCMP. This assumption will be revisited as part of the development of the FSCMP.
[L]	Mokelumne River flows reflect EBMUD supplies associated with the Freeport Regional Water Project.
[m]	The CCWD Alternate Intake Project (AIP) is a new intake at Victoria Canal to operate as an alternate intake for Los Vaqueros Reservoir. This assumption is consistent with the future no-project condition defined by the Los Vaqueros Enlargement study team.
[n]	This Phase 8 requirement is assumed to be met through Sacramento Valley Water Management Agreement Implementation.
[o]	Interim D-1644 is assumed to be implemented
[p]	Sacramento Area Water Forum Lower American River Flow Management Standard is not included in the CACMP. Reclamation has agreed in principle to the Flow Management Standard, but flow specifications are not yet available for modeling purposes.
[q]	It is assumed that either VAMP, a functional equivalent, or D-1641 requirements would be in place in 2030.
[r]	The CACMP CALSIM II model representation for the San Joaquin River does not explicitly implement the CALFED Salinity Management Plan.